ALTECH-ECO
CORPORATION



CNG SYSTEM INSTALLATION MANUAL

2024-2025 FORD F-150 5.0L

COMPLETE BI-FUEL CNG SYSTEM

CNG

Updated: 6-30-2025

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NOTE: Disconnect the vehicle battery before install (Refer to page 5). This includes partial install, servicing, and or maintenance.

- All Ford original owner information supplied by Ford must remain with the vehicle.
- Compressed natural gas is a combustible fuel, flammable and highly explosive.
- CNG is stored under high pressure (normal working pressure of 3,600 psi) at 70ºF (21ºC).
- Tampering with or improperly maintaining the high pressure fuel system can result in fatality or serious injury.
- All CNG and gasoline maintenance must be performed at an authorized service center with qualified technicians.
- Use extreme caution and follow all related safety guidelines. We have tried to make this installation as safe as possible but we can not predict all scenarios.
- This CNG system requires gasoline in vehicle at all time–ate on CNG. When the low gasoline level indicator light illuminates the CNG system will automatically turn off until additional gasoline is fueled into the vehicle and the low level light turns off. This is required by Ford to protect the engine from damage.

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!! WARNING !! Follow instructions as directed in the installation manual and do not attempt shortcuts. Follow proper safety procedures. Failure to do so can lead to bodily harm or fatality. Tampering with or improperly maintaining the high pressure fuel system can also result in bodily harm or fatality.

!! WARNING !! Batteries normally produce explosive gas. Therefore, do not allow flames, sparks or lighted substances to come near the battery. When charging or working near a battery, always shield your face and protect your eyes. Always provide ventilation. Failure to follow these instructions may result in personal injury.

!! CAUTION !! Be aware that this installation requires the use of High Pressure, Flammable, and Highly Explosive compressed natural gas. CNG is stored under at maximum of 3,600 psi and at 70ºF (21ºC).

!! CAUTION !! Failure to complete the pre-installation checklist may result in severe engine damage after installation is complete.

!! CAUTION !! This installation is intended for unmodified vehicles. If the vehicle has been modified, consult ALTECH-ECO before the beginning install.

DISCLAIMER

ALTECH-ECO assumes no responsibility for damages occurring from accident, misuse, abuse, improper installation, Improper operation, and lack of reasonable care or all previously stated reasons resulting in incompatibility with other Manufacturer’s products.

Chemicals and Lubricants:

1. Silicone lubricant spray is required on all o-rings on fittings.
2. Epoxy primer or equivalent to rust proof any exposed metal.
3. Ford approved coolant liquid to top off the reservoir.

PREFACE - WARNINGS, CAUTIONS & DISCLAIMERS

The installer, operator, company, firm, or organization assumes all responsibility for the proper installation of the system and assuring that the system is properly installed, maintained and operating in a safe condition on the vehicle when installed. Altech-Eco disclaims liability for, or responsibility for: (a) any damages, injury, disability or death that can occur from installation errors or lack of maintenance or training; or (b) any consequential or special damages, including, but not limited to damages from lost profits or similar claims.

To the fullest extent permitted by law, the installer, operator, company, firm, or organization shall indemnify, defend and hold harmless Altech-Eco, its directors, officers, employees and agents from and against all claims, demands, suits, judgments, actions and liability arising out of personal or bodily injury or death of any person (including Installer's employees) or damage to or destruction of any property (including economic loss) sustained by any person or entity as a result of installation of the system on any vehicle regardless of when such injury or damage is detected or when such death occurs, unless such injury, death, damage or loss was directly caused by the sole negligence of Altech, its officers, employees or agents.

This installation guide contains information and instructions required for the installation of the Altech-Eco natural gas systems. It does not explain everything you need to know about working with compressed natural gas equipment, fuel tanks, valves, fuel lines, and other pressurized components.

The system must only be installed and serviced by trained and certified technicians. Individual operator training is the responsibility of the company, firm, or organization placing the system in service. Reading this installation guide does not constitute certification.

This installation guide contains Cautions and Notices that must be observed at all times to reduce the risk of personal injury during operation and installation. Improper installations procedures may damage the system or make the system unsafe to operate. These Cautions and Notices are not all inclusive. Altech-Eco cannot possible warn of all potentially hazardous consequences caused by failure to follow these instructions and not having proper training and understanding of natural gas high pressure systems.

Be aware that this installation requires the use of high pressure, flammable, and highly explosive compressed natural gas. CNG is stored under at 3,600 psi and at 70ºF (21ºC).

This installation is intended for unmodified vehicles. If the vehicle has been modified, consult Altech-Eco before beginning the installation.

This document contains proprietary data of Altech-Eco and shall not be used or disclosed in whole or in part to design or fabricate any product for any purpose, nor reproduced or transmitted to any other organization without the express permission of altech-eco.

This installation guide is subject to change at any time without notice. All updated versions are available on Altech-Eco installer portal. Contact Altech-Eco if you are unsure of the latest version.

Attaching Accessories to Aluminum Panels and Structure

Q-222

SVE BULLETIN

SPECIAL VEHICLE ENGINEERING – BODY BUILDERS ADVISORY SERVICE

E-Mail via Website: www.fleet.ford.com/truckbbas (click "Contact Us")

Toll-free: (877) 840-4338

QVM Bulletin: Q-222 Date: 22 July, 2014

Attaching Accessories to Aluminum Panels and Structure

Models Affected: 2015 MY and later F-150

Background:

The high-strength aluminum alloy in the all-new F-150 does not produce red rust like steel. We have gone to great lengths to develop coatings to inhibit corrosion. However, customers should take note that when installing aftermarket equipment, aluminum can still corrode if the aluminum is attached to dissimilar metals. This type of corrosion is called “galvanic corrosion” and it occurs where there is contact between different metals, like steel or stainless steel fasteners.

Protecting against galvanic corrosion

When installing aftermarket equipment, it is necessary that the installer pay special attention when drilling or clamping dissimilar metals to the aluminum body.

- Anytime the factory paint is damaged, it is recommended that the paint be repaired with a suitable coating prior to installing aftermarket equipment (i.e. splash guards, bug shields, tool boxes, etc.)
- When installing fasteners into the mounting hole the fastener should not have contact or have an interference fit with the sheet metal
- For zinc coated steel bolts and screws, an aluminum washer should be used
- For further protection, an isolation layer should be used between the two dissimilar metals
- When clamping onto the truck, a polypropylene or urethane tape can be used as the isolating layer

Paint, Isolator, and Fastener Recommendations

We have tested many combinations of fasteners and coatings that are widely used in the aftermarket and have provided a list of approved products to help ensure durability, strength and quality.

** For small repair of factory paints around mounting hole. Follow manufacturer’s directions for use.

Approved Anti-Corrosion Coatings**

- ✓ Motorcraft PM13-A
- ✓ NOX-Rust 7703-W
- ✓ Zinc Rich Primer

Recommended Acrylic Lacquer Touch-up Paints**

- ✓ Motorcraft
- ✓ Duplicolor
- ✓ Rustoleum

Approved Fasteners

- ✓ Aluminum Clamps
- ✓ Aluminum Pop Rivets
- ✓ Zinc coated steel fasteners used with an aluminum washer
- ✓ Plastic Scrivets
- ✓ Plastic Push Pins
- ✓ Aluminum Rivnuts

Isolator Recommendations

- ✓ Aluminum washer
- ✓ Urethane tape
- ✓ Polypropylene tape

Examples

In this section we illustrate some best practices to isolate steel from coming in contact with aluminum. Using the previously listed fasteners and coatings in addition to good isolation techniques will help ensure durability, strength and quality of your F150.

Note: The following illustrations are not vehicle specific and are intended for reference only.

Figure 1 shows a plastic accessory attached to the aluminum sheet metal and the fastener properly isolated from contact with the aluminum sheet metal.

Figure 2 shows a steel accessory and steel fastener properly isolated from contact with the aluminum sheet metal.

Note: both figures show the fastener using an aluminum washer and having an oversize hole providing an air gap to the aluminum sheet metal.

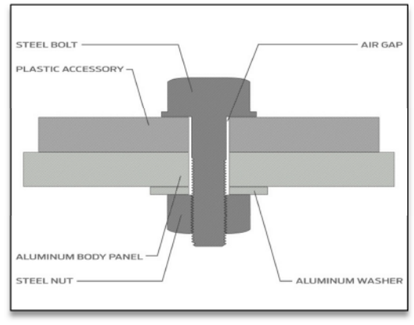


Figure 1

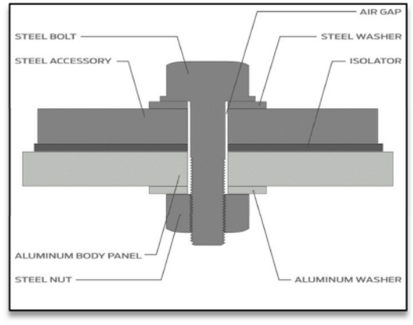


Figure 2

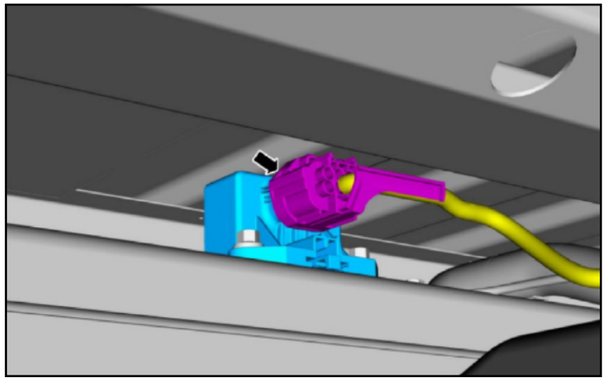
Important: Fasteners or coatings that should be avoided

The items listed below can accelerate galvanic corrosion in aluminum and should be avoided. If a steel fastener must be used it is necessary to properly isolate from contact with the aluminum.

- ✘ self-tapping screws
- ✘ steel rivnut
- ✘ steel pop rivets
- ✘ steel spring clips
- ✘ RTV silicone
- ✘ stainless steel fastener

If you have any questions, please contact the Ford Truck Body Builders Advisory Service as shown in the header of this bulletin.

DISCONNECT THE GASOLINE FUEL PUMP



Gasoline system pressure release:

1. With the vehicle in NEUTRAL, position the truck on the hoist.
2. NOTE: The Fuel Pump Control Module is located on the frame rail above the fuel tank.
3. Disconnect the fuel pump control module electrical connector.
4. Start the engine and allow it to idle until it stalls.
5. After the engine stalls, crank the engine for approximately 5 seconds to make sure the fuel rail pressure has been released.
6. Turn the ignition switch to the OFF position.
7. When the CNG system installation is complete, reconnect the fuel pump control module electrical connector.
8. Cycle the ignition key and wait 3 seconds to pressurize the fuel system.
9. Start the engine and check for leaks.

- Have original Ford vehicle manuals available for additional instructions if needed.

DISCONNECT THE BATTERY



Disconnect the battery:

1. Loosen the nut on negative terminal wire and slid battery wire up and off of post. Place to side.
2. Place a plastic cap on negative terminal post to protect from accidental contact.

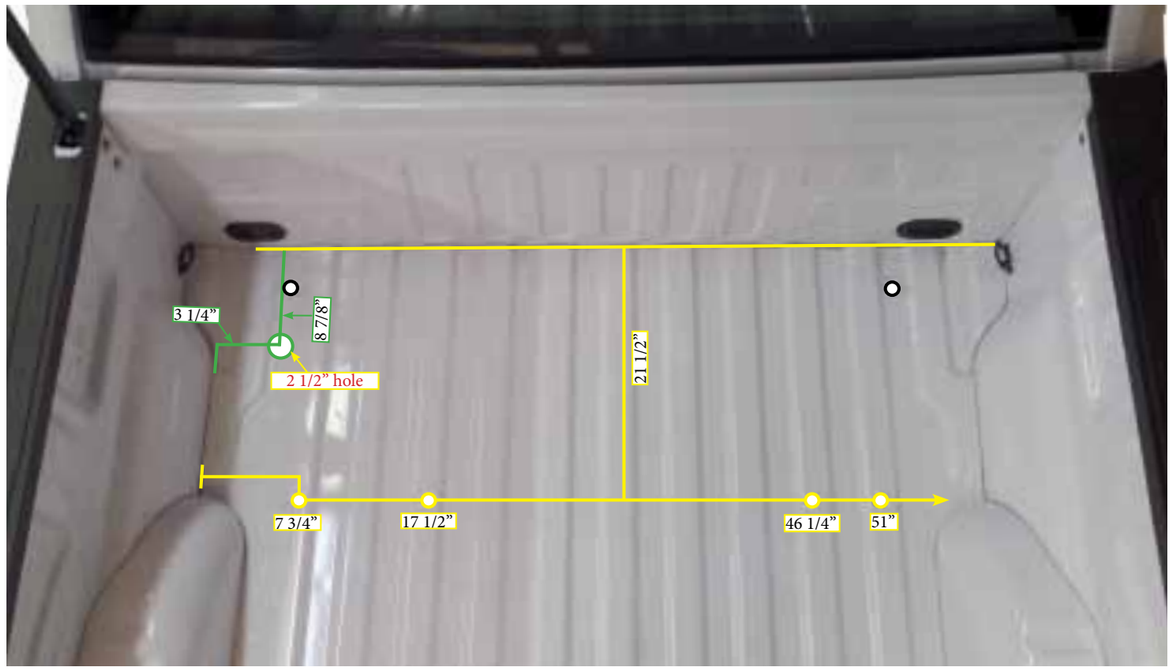
NOTE: Some steps are repeated from section to section, follow instruction until each of the repeated steps are complete and ignore that step for other sections.

CYLINDER INSTALL - 5.5’ SHORT BED / 6.5’ SHORT BED (18” x 60” CYLINDER)

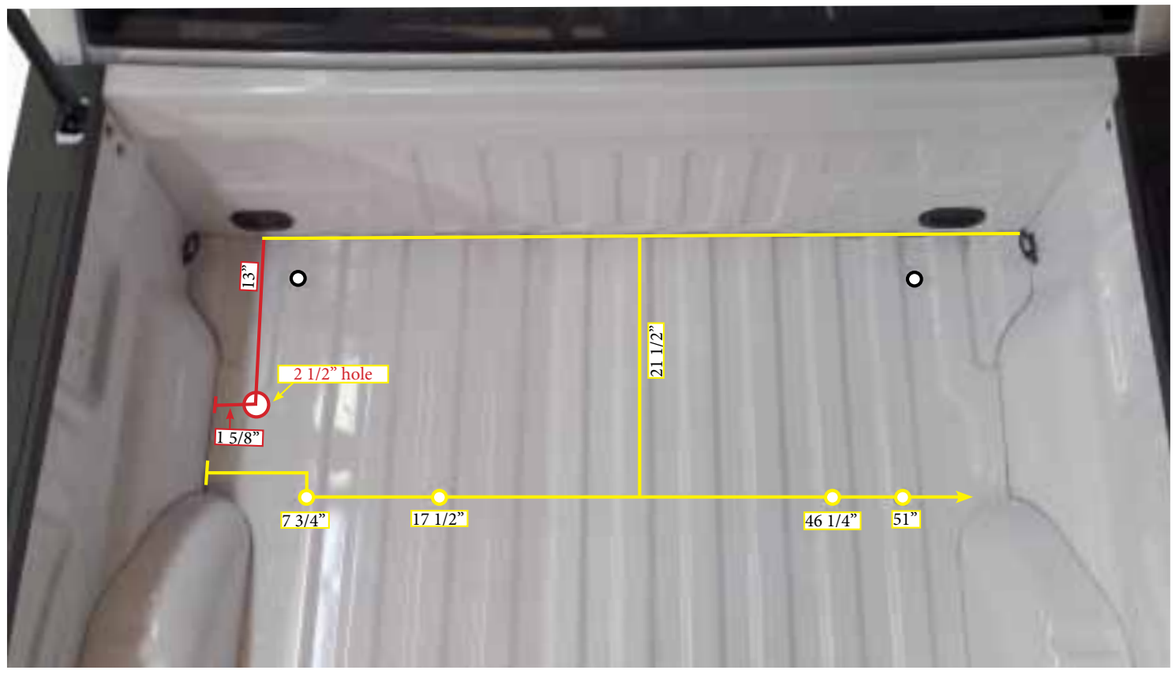
1. Use the template layout and measure out each drill point. Mark the holes in shown locations. Always verify your measurements before drilling.
2. Drill each hole according to the template.
3. De burr and rust proof any exposed metal.

USE ONLY FORD QVM APPROVED ANTI CORROSION PRODUCTS

Note: Always check website installer portal for most up to date templates at www.altecheco.com



Short Bed, 5.5’
9/16” hole
OEM hole



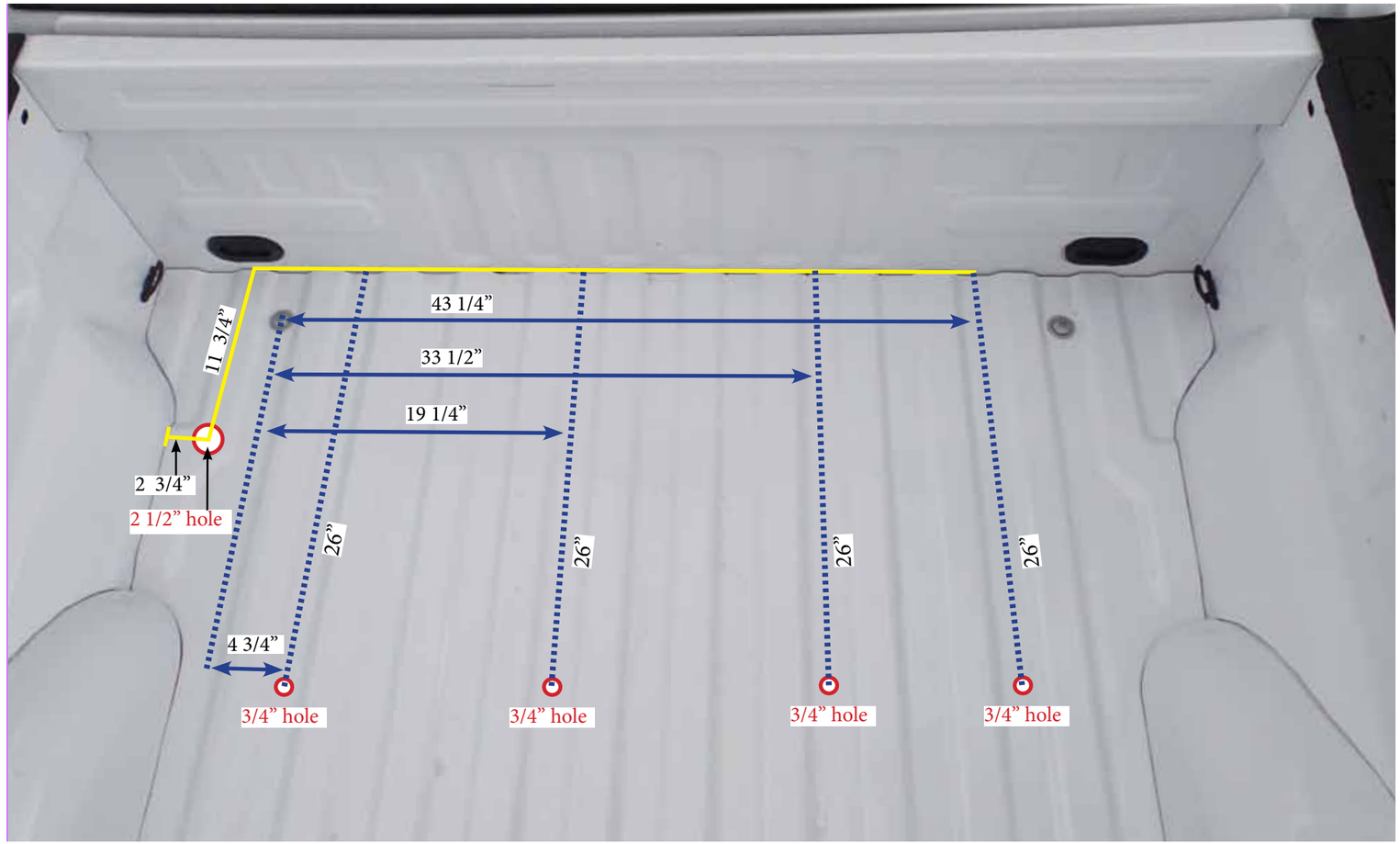
Short Bed, 6.5’
9/16” hole
OEM hole

CYLINDER INSTALL - 6.5’ SHORT BED (21” x 60” CYLINDER)

1. Use the template layout and measure out each drill point. Mark the holes in shown locations. Always verify your measurements before drilling.
2. Drill each hole according to the template.
3. De burr and rust proof any exposed metal.

USE ONLY FORD QVM APPROVED ANTI CORROSION PRODUCTS

Note: Always check website installer portal for most up to date templates at www.altecheco.com



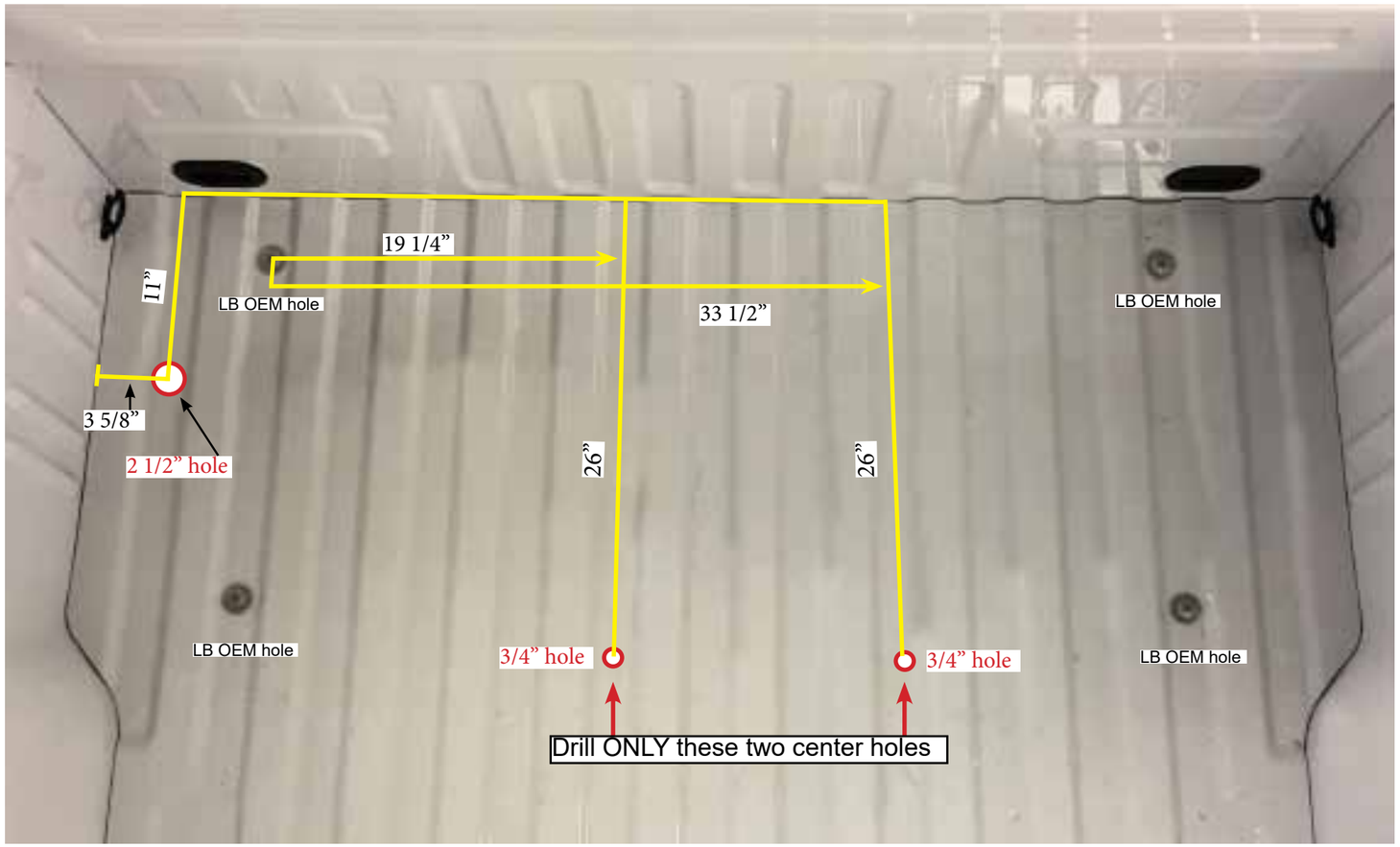
CYLINDER INSTALL - 8’ LONG BED (21” x 60” CYLINDER)

1. Use the template layout and measure out each drill point. Mark the holes in shown locations. Always verify your measurements before drilling.
2. Drill each hole according to the template.
3. De burr and rust proof any exposed metal.

USE ONLY FORD QVM APPROVED ANTI CORROSION PRODUCTS

Note: Always check website installer portal for most up to date templates at www.altecheco.com

8’ Bed - Use four OEM holes and drill two center holes as shown.



CYLINDER INSTALL - 6.5’ SHORT BED & 8’ LONG BED

1. Install grommet.
2. Remove the two or four Ford front bed bolts and discard.
3. With a hoist, lower the pre-assembled cylinder package in the bed of the truck. **Be careful not to damage the bed walls.**

Secure with bolts provided.

- Two or four M12 - 1.75” x 110mm bolts and 1/2” washers into the front cylinder plate. These two or four bolts replace the two front OEM bolts.
- Two or four 1/2”-13 x 2” bolts into the rear cylinder plate. Secure the rear plate using the mounting backing plates underneath, combine with 1/2” washers and 1/2” - 13 nylock nuts. Tighten each bolt to 70-75 ft-lbs of torque.

Make sure you have attached a Danger Venting High Pressure Sticker on CNG Fuel Cylinder near Cylinder Valve.



6.5’ Bed



8’ Bed

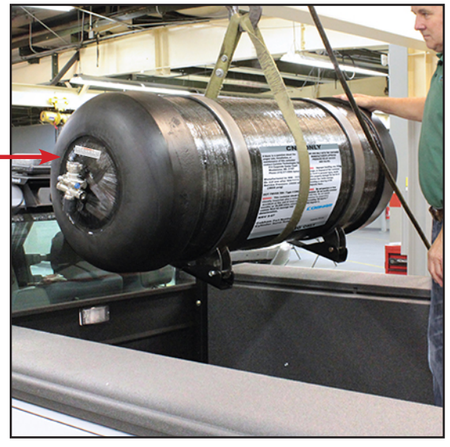
⚠ DANGER ⚠

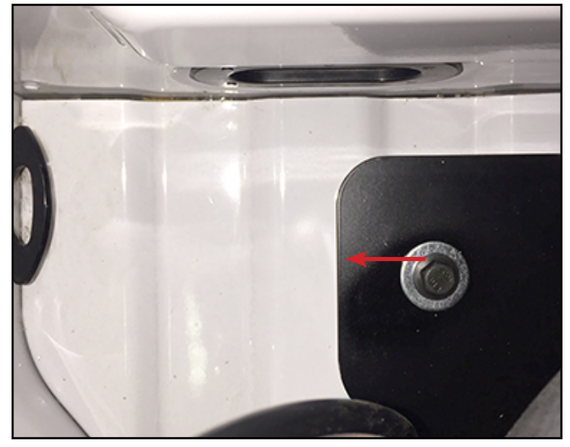
P/N: IWL

VENTING HIGH PRESSURE FROM THIS NATURAL GAS SYSTEM MUST BE DONE BY TRAINED PERSONNEL ONLY AND REQUIRES SPECIAL TOOLS AND INSTRUCTIONS THAT CAN BE OBTAINED FROM THE FUEL CYLINDER VALVE MANUFACTURER.



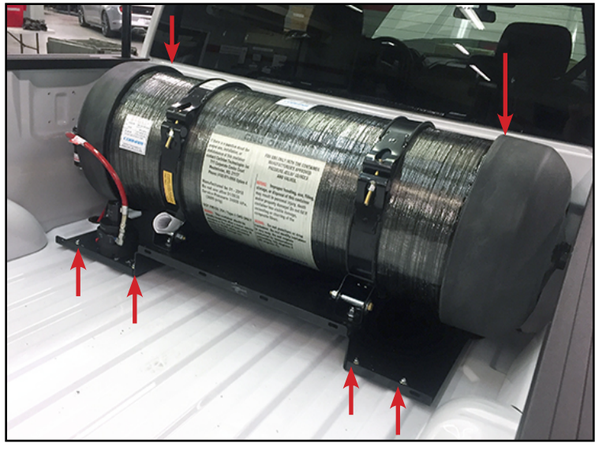


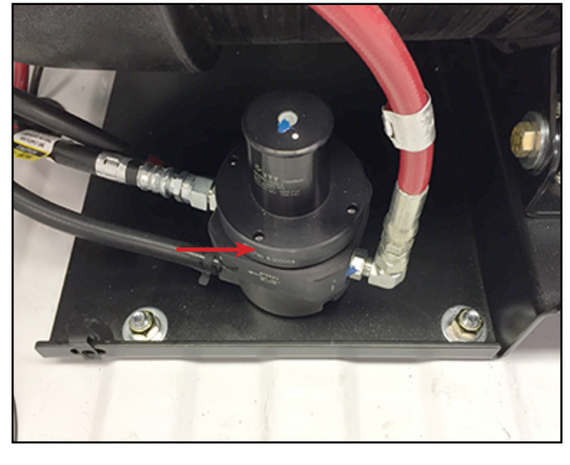










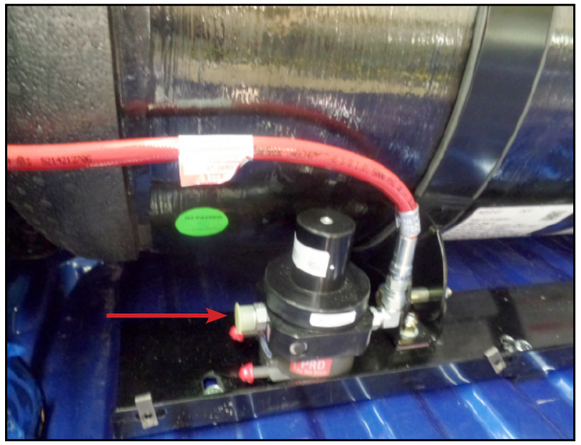


CYLINDER INSTALL - 6.5’ SHORT BED / 8’ LONG BED

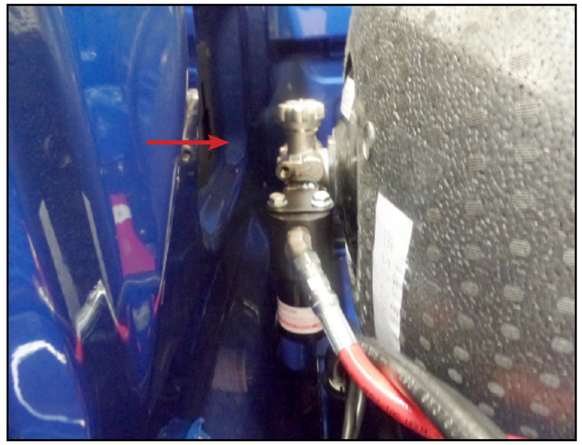
- Connect low pressure fuel hose to the regulator. Torque to 30-35 ft-lbs. See low pressure hose install section for details.
- Connect rear wire harness to the high pressure sensor and electric cylinder valve. See wire harness install section for details.
- Connect coolant hoses to the regulator once hoses are routed. See coolant hose install section for details.

Note: Once Low Pressure hose, Rear Harness, and Coolant hoses have been routed, secure them with a zip tie near the grommet to eliminate any slack in the lines.

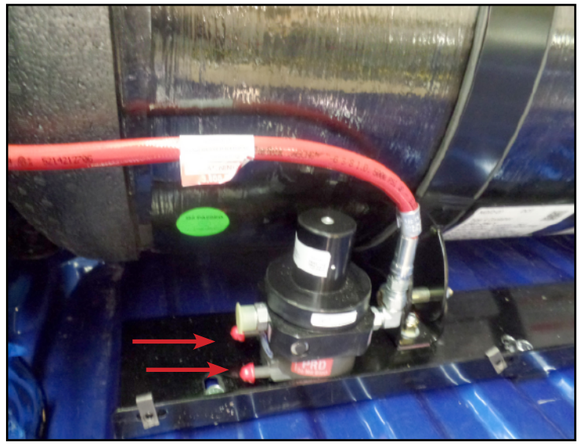
Low pressure connection.



Rear harness connection.



Coolant hoses connection.



Note: Cylinder valves should include a thermally activated (PRD) pressure relief device and must include stainless steel discharge tube for venting gas. The discharge outlet must vented to the outside of vehicle and be directed so to not enter wheel well, engine compartment, the passenger compartment, the cargo compartment, towards front of vehicle, towards exhaust systems or vehicle exit. The end of the vent discharge tube opening must have a cap to prevent blockage by debris thrown up from the road or otherwise affected by the elements. The cap must be able to be blown off in case of a venting event.

Place on CNG Vent Line

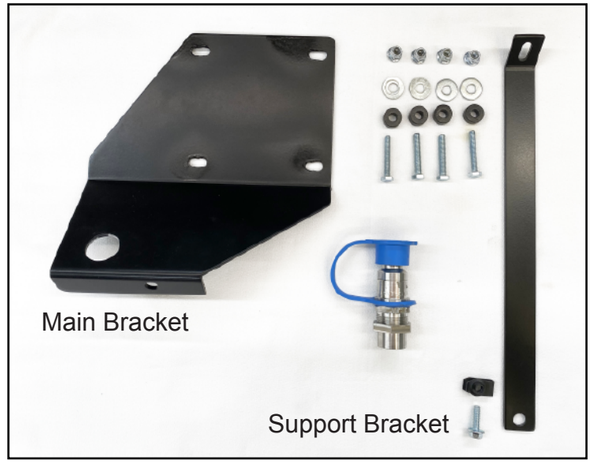


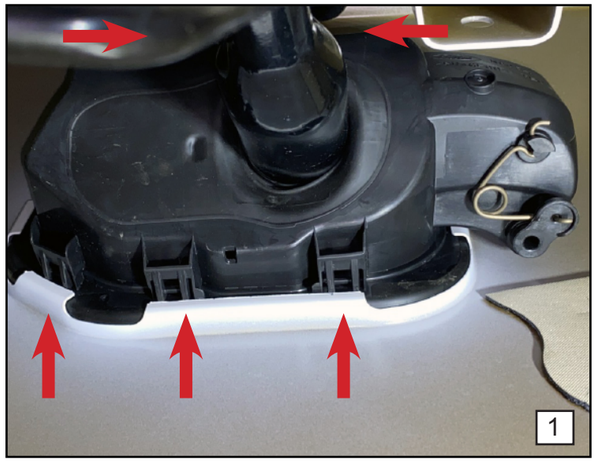
Place near vent area location on outside of the vehicle



FUEL FILL INSTALLATION - INSIDE GASOLINE HOUSING FOR 5.5’ BED (2021/2022 MY)

1. Start by removing the gasoline fuel housing assembly. There are 5 clips that will need un-clipped. **Be careful with clips, they break very easy.** Un-clip from back side where possible first. Once housing is removed set it to the side for now.
2. Inside the truck bed near fuel door, locate and remove the 4 oem bolts on black colored oem bracket. Get the 4 provided bolts with kit and replace and tighten. These bolts are replaced to make bolts longer for bracket to attach to.
3. Reach in opening and attach the 4 provided black spacers onto the bolts you just replaced. Place main bracket through opening and into position. Hand tighten two bottom provided nuts. They will be removed in next step.
4. Place the gasoline fuel housing assembly into position and then reach behind the back side, and with a metallic marker mark the location to through the receptacle hole on the bracket onto the gasoline fuel housing assembly. Now again remove gasoline fuel housing assembly and punch or cut a 1-1/2” the hole in soft rubber for the receptacle to slide through.
5. Attach natural gas receptacle to the main bracket. (45-55 ft-lbs torque)

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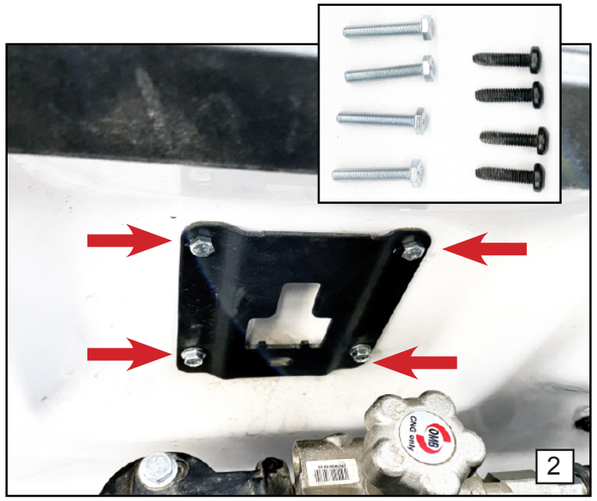
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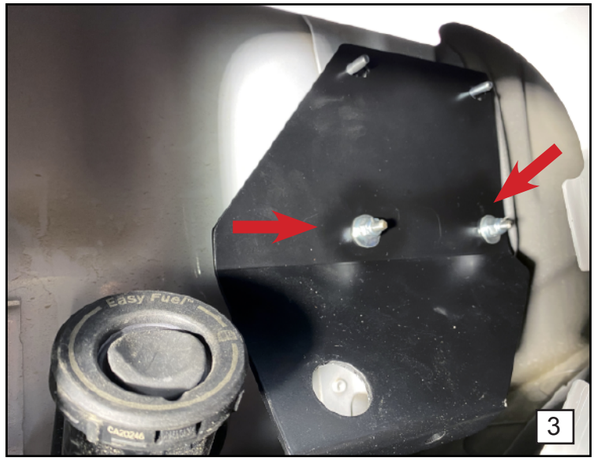
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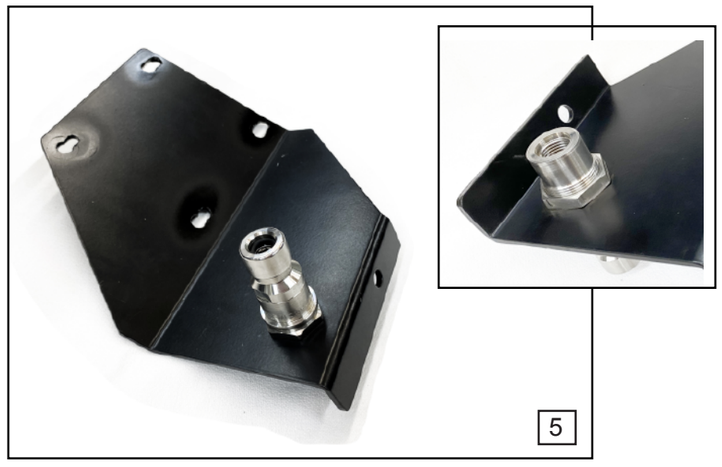
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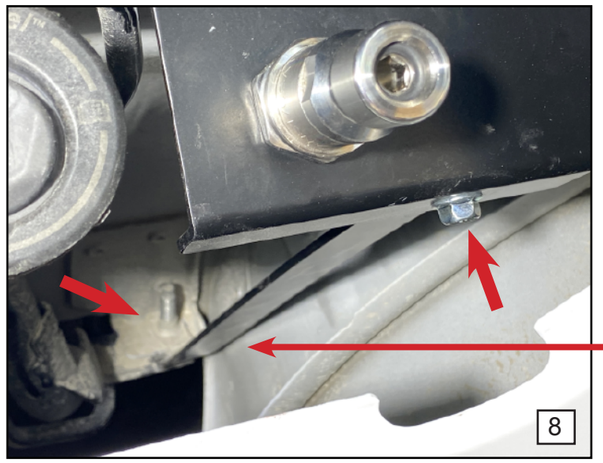
FUEL FILL INSTALLATION - INSIDE GASOLINE HOUSING FOR 5.5’ BED (2021/2022 MY)

6. Place the main bracket back into position (4 black spacers should still be on the bolts), attach washers and tighten the 4 provided nuts.
7. Attach u-nut to the support bracket. Look inside and down and remove the OEM bolt.
8. Insert the support bracket into position. Reattach and tighten the oem bolt just removed. Attach and tighten the provided bolt on main bracket and u-nut on support bracket.
9. Carefully slide the gasoline fuel housing assembly over the natural gas receptacle back into original position. Carefully press in to lock in the clips.
10. Attach the dust cap and sticker “ Natural Gas Only Sticker” for appropriate pressure.





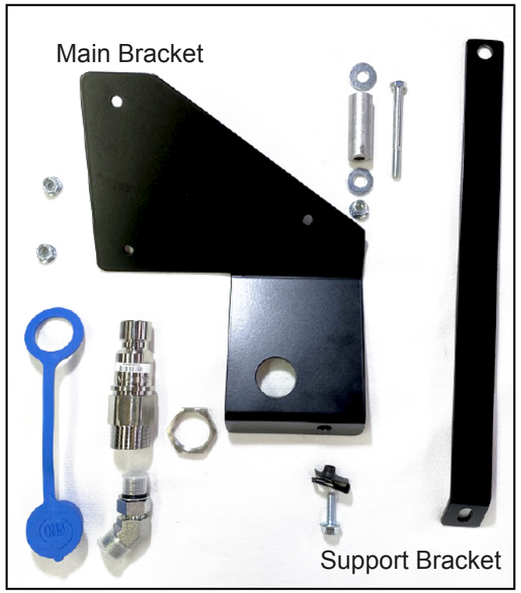


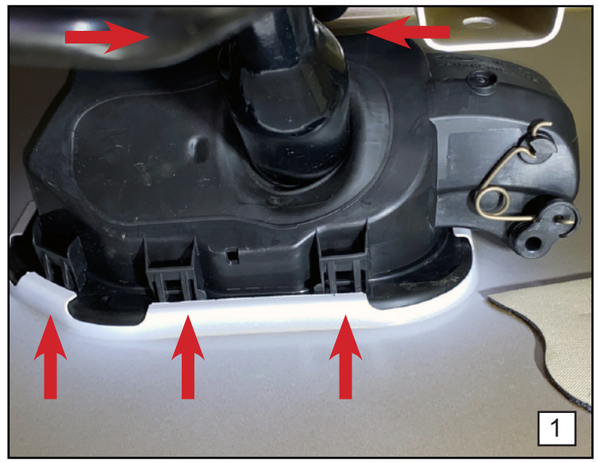




FUEL FILL INSTALLATION - INSIDE GASOLINE HOUSING FOR 6.5’ & 8’ BED (2021/2022 MY)

1. Start by removing the gasoline fuel housing assembly. There are 5 clips that will need un-clipped. **Be careful with clips, they break very easy.** Un-clip from back side where possible first. Once housing is removed set it to the side for now.
2. Attach u-nut to the main bracket.
3. Attach natural gas receptacle to the main bracket. (45-55 ft-lbs torque)
4. Insert the main bracket into opening on truck. There are two oem bolts to slide through holes on bracket. Hand tighten snug the two provide lock nuts to the oem bolts.
5. Using a long 1/4” drill bit, drill a hole, using the hole opening on the main bracket as a guide. Hold drill level when drilling. Drill all the way through side wall until coming out inside the bed. Carefully de burr and clean off any debris around the hole and rust proof the hole.

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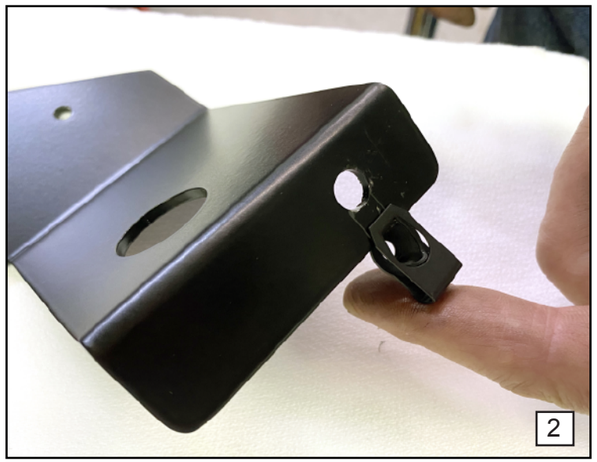
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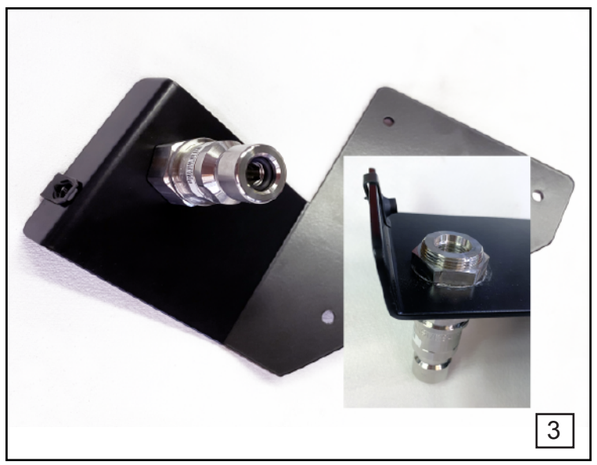
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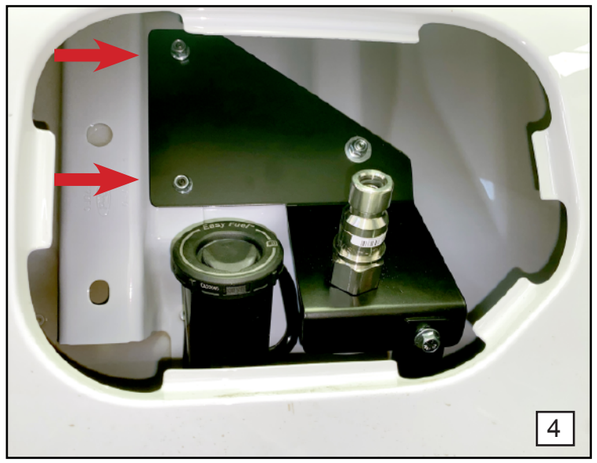
This is a picture of finished installed main bracket. Only attach the 2 nuts at this time.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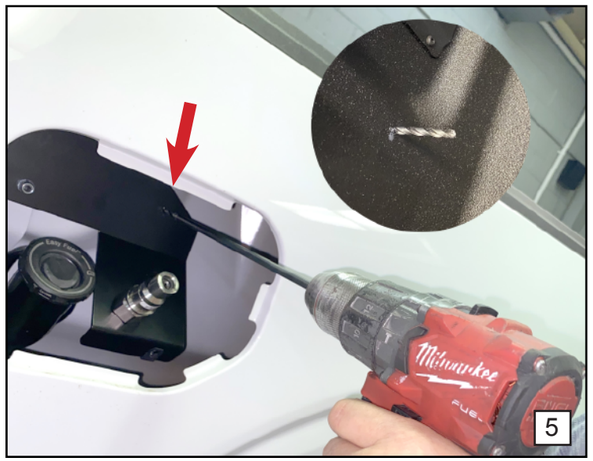
FUEL FILL INSTALLATION - INSIDE GASOLINE HOUSING FOR 6.5’ & 8’ BED (2021/2022 MY) CONT.

6. Now loosen the two lock nuts that you hand tightened to oem bolts, but do not remove the lock nuts. Insert and align the provided aluminum 1-1/2” spacer in between the main bracket and the drilled hole on truck side wall. It is a tight fit. Then insert the provided bolt with washer from inside bed. Then attach provided lock nut and washer to the bolt. With socket tighten all 3 lock nuts on main bracket.
7. Slide the provided support bracket into opening and hand tighten the provided bolt to the u-nut on main bracket. Remove the OEM bolt located where bottom of support bracket will attach to the truck.
8. Slide support bracket into position and reattach the OEM bolt.
9. On the previously removed gasoline fuel housing assembly make a mark for location to punch a hole out in soft rubber. Centered in the soft rubber area, see picture. Punch or cut a 1-1/2” the hole in soft rubber for the receptacle to slide through.
10. Carefully slide the gasoline fuel housing assembly over the natural gas receptacle back into original position. Carefully press in to lock in the clips.
11. Attach the dust cap and sticker “ Natural Gas Only Sticker” for appropriate pressure.



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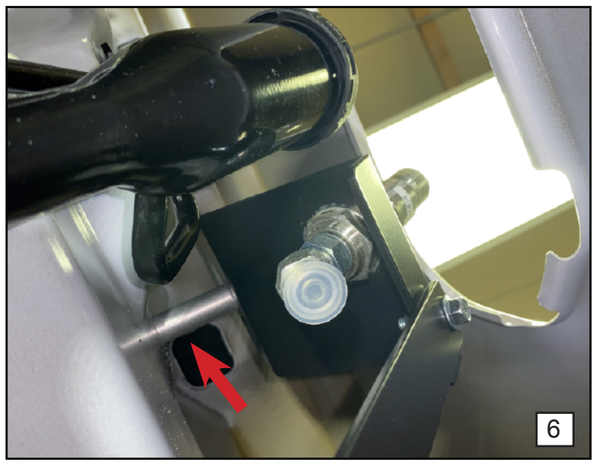
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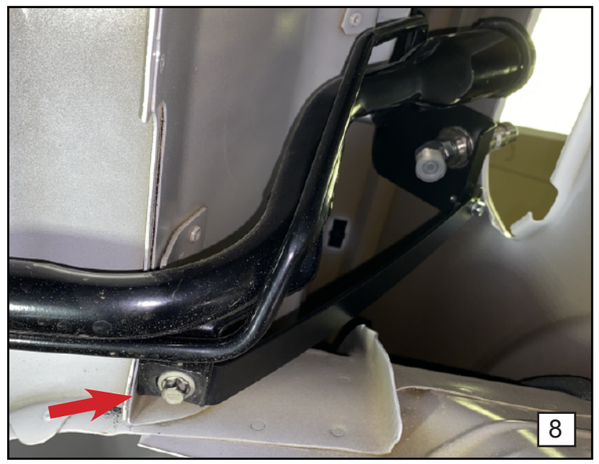
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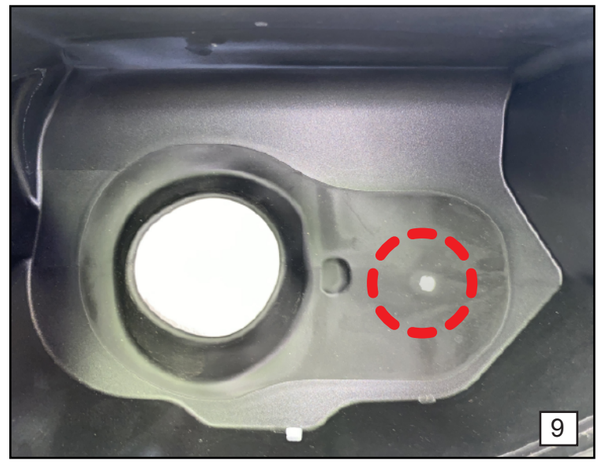
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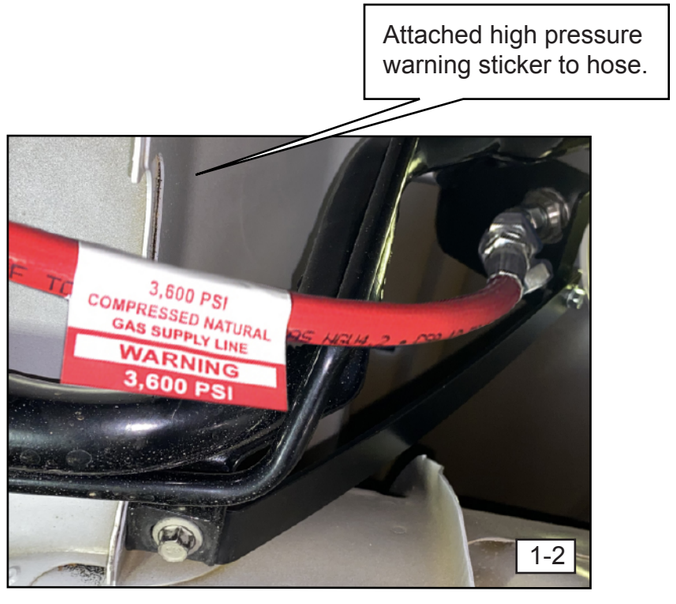
10

FUEL FILL SUPPLY HOSE INSTALLATION

1. Attached appropriate fitting to the natural gas fuel receptacle located at the gasoline fuel housing area.
2. Connect the high pressure hose to this fitting on fuel receptacle. Tighten to 35 ft-lbs torque. Secure the hose with a p-clamp and a 1” self tapping screw as needed. Attach high pressure sticker to hose.
3. Rout the high pressure hose through pre cut hole in bed floor and connect hose to the check valve located in the bed near the natural gas tank valve. Tighten to 35 ft-lbs torque.

Note: All hose routing must be secured to prevent abrasion and rubbing that may damage the fuel supply hoses.

Depending on requested order and availability, some packages may differ slightly on assembly around the valve. But connections remain the same.



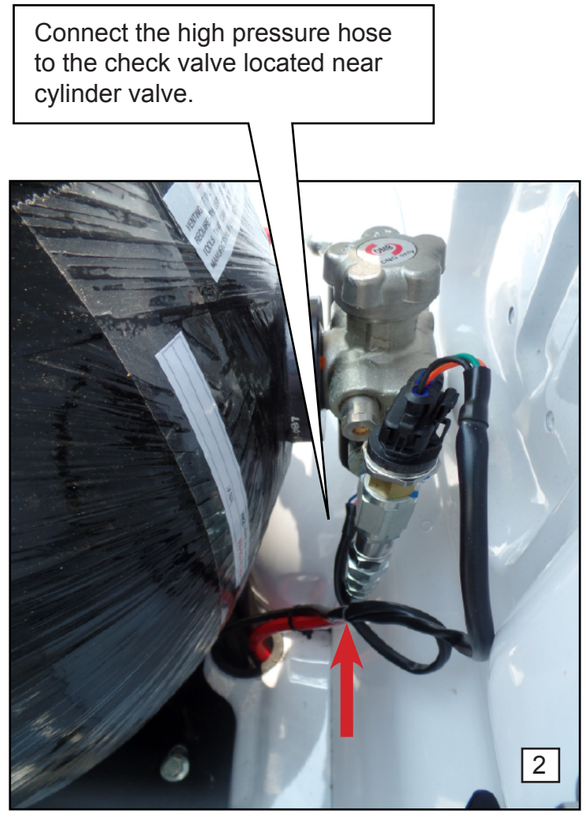
Used with the long bed

Self tapping screw



5/8” P-clamp



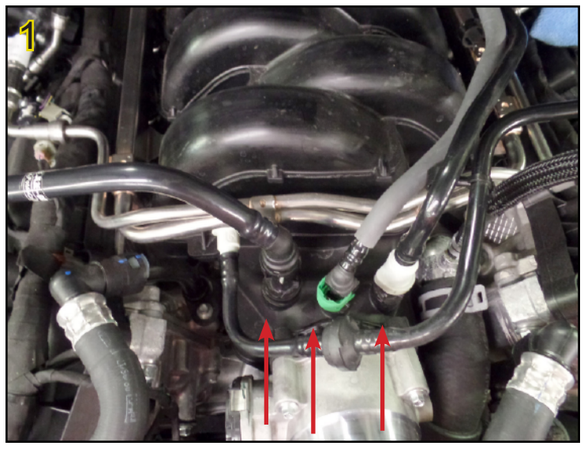


LOW PRESSURE INSTALLATION

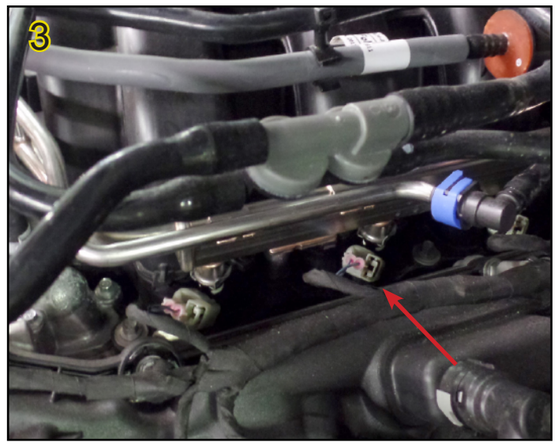
1. Disconnect connections and remove air intake hose/tube.
   Disconnect these three hoses on this end and set aside.
2. Remove foam insulation and discard.
3. Disconnect all OEM connectors from the injectors.

DO NOT USE POWER TOOLS!







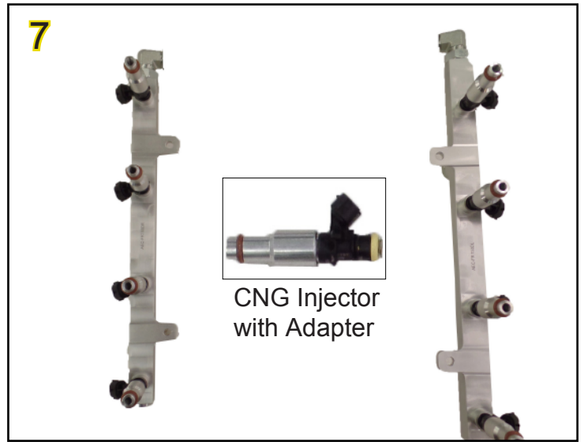


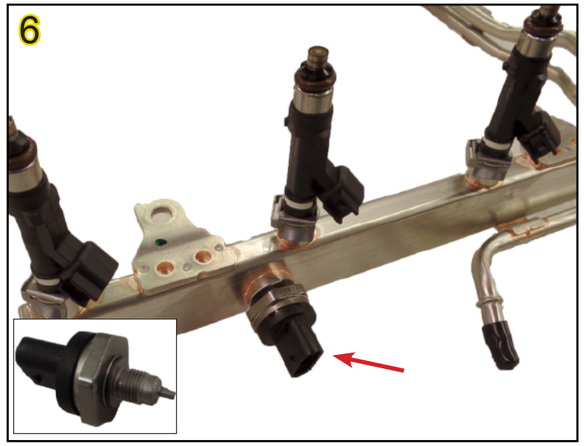
LOW PRESSURE INSTALLATION

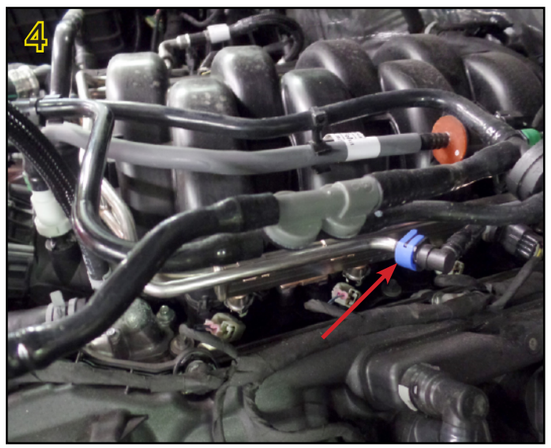
CAUTION: Fuel line may be under pressure.

4. Safely disconnect OEM gasoline line on both sides. One side from direct injection pump on the left of the rail, and on the right side disconnect from the fuel pump.
   Plug the lines as there is still gasoline in them.
   When disconnecting the gasoline line to the left of the manifold, also include the black OEM hose along with the fuel rails.
5. Remove and save the four OEM fuel rail bolts.
6. Remove OEM fuel rails along with the injectors and discard. Remove and save OEM pressure temperature sensor.
   Note: Fuel Rails contain Gasoline.
7. Install CNG injectors with attached spacer adapters into the CNG fuel rails.

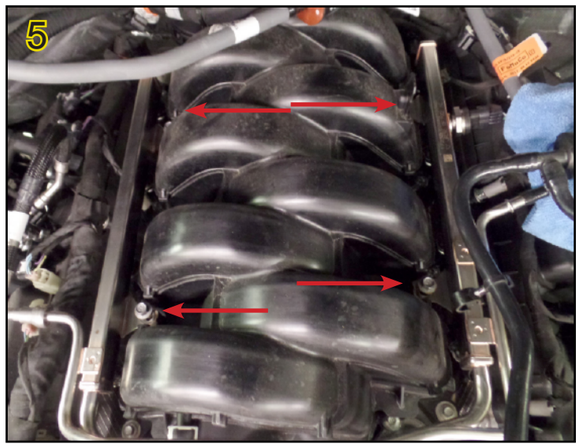








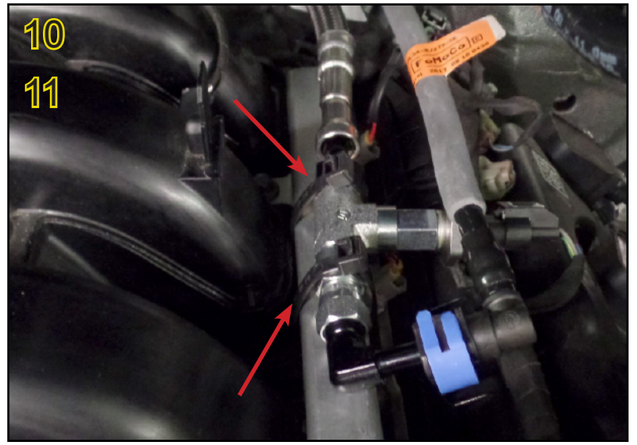


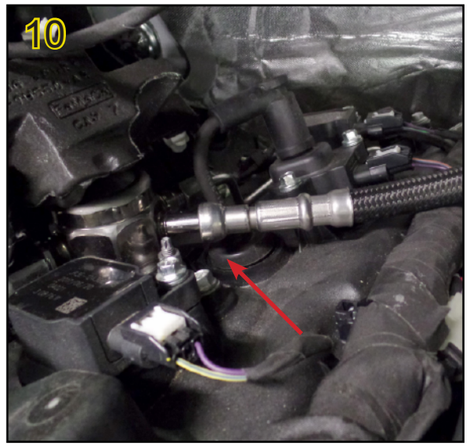


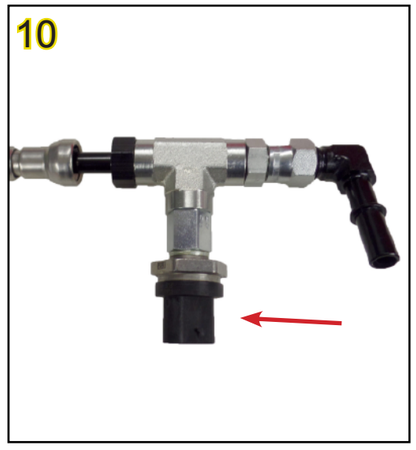


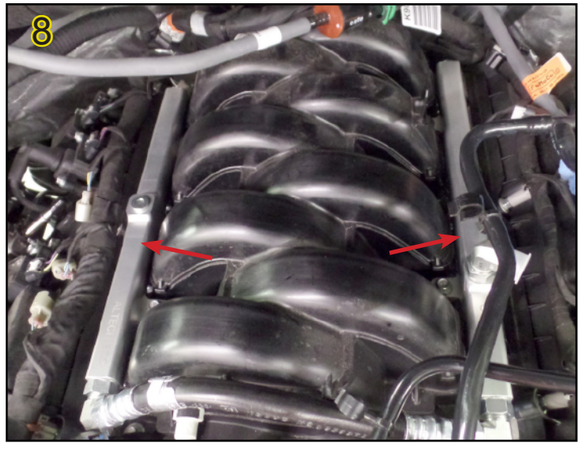
LOW PRESSURE INSTALLATION

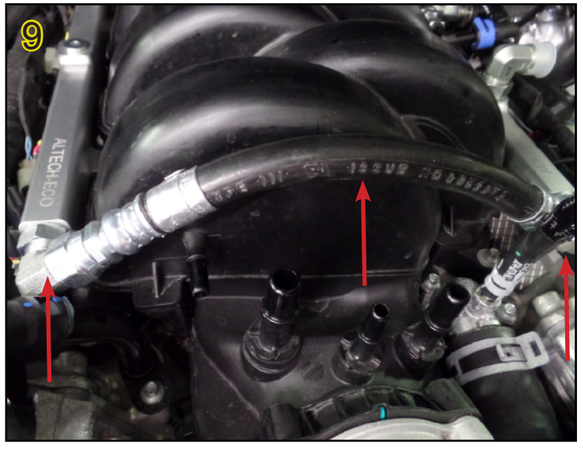
8. Install CNG fuel rails, CNG Injectors with Spacer Adapters on the engine in the same location where the OEM injectors were.
   Secure with four OEM bolts.
   Torque to 89 in-lbs.
   Note: Crossover hose is installed on step 9.
9. Connect both CNG fuel rails with the low pressure crossover hose. Tighten each end to 30-35 ft-lbs. Also verify other end of each fitting is tightened to 30-35 ft-lbs.
   Note: Minor adjustment to the low pressure hose position may be needed to avoid abrasion with manifold tab. See picture below.
10. Attach OEM temp/pressure sensor onto the fuel hose with the “T” fitting. Attach long end to the direct injection port.
    Attach the gasoline incoming line onto the 90 degree connector.
    Route the hose towards the back of the manifold facing the cabin.
11. Zip tie the temp/pressure sensor, fitting, and gasoline port assembly to the CNG to fuel rail. Tighten zip tie to the fuel rail.

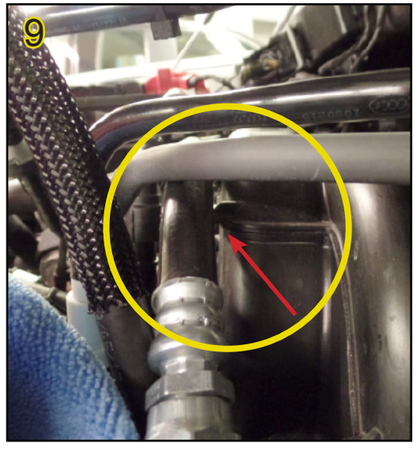


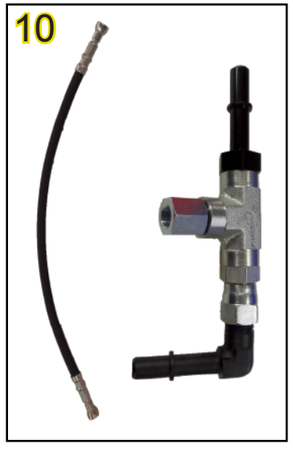










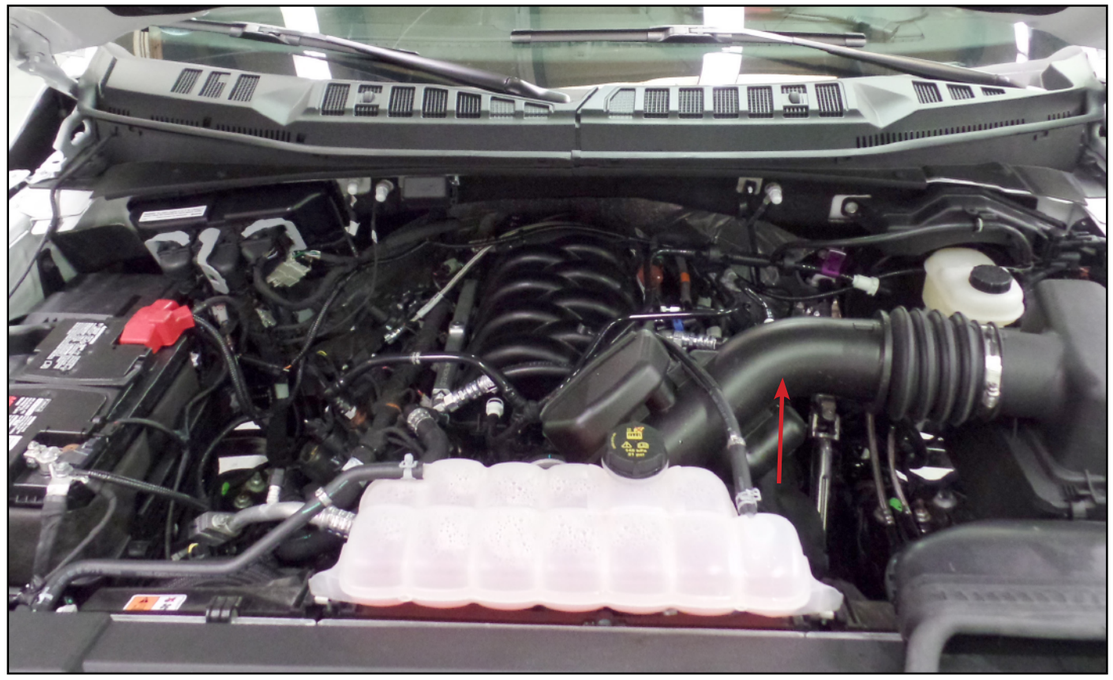


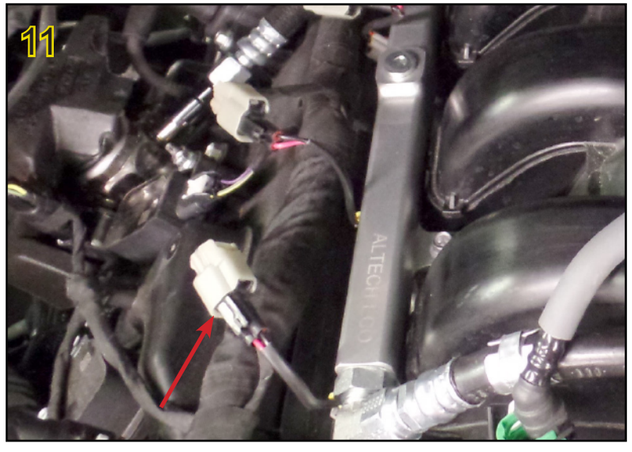
LOW PRESSURE INSTALLATION

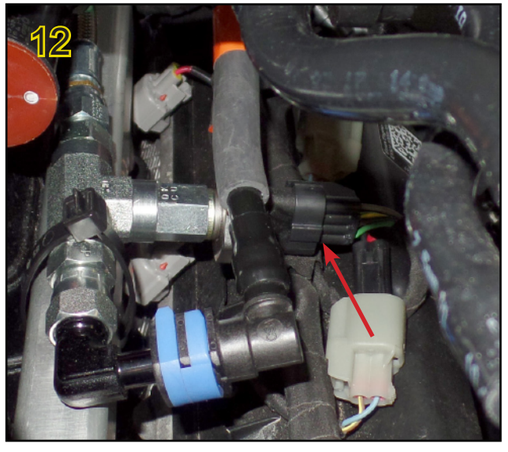
12. Connect the CNG connector jumpers to the OEM injector connectors and to the CNG injector connectors.
13. Connect OEM harness to the OEM temp/pressure sensor.
14. Connect CNG low pressure hose (once installed) to the fuel rail. Ensure each end of the hose is labeled with a low pressure sticker.
15. Reconnect all OEM air hoses and reinstall the air intake hose/ tube.

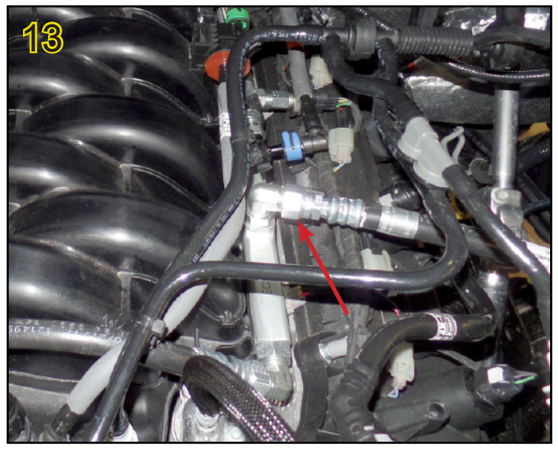
Jumper

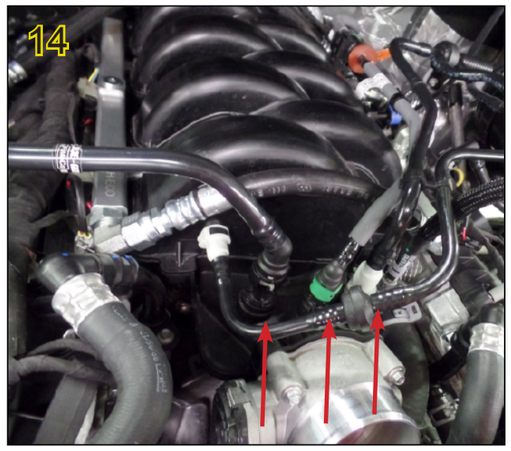












CNG Bi-FUEL HARNESSES

A. Main Harness

B. Pigtail Harness

C. CNG Injector Jumpers (x8)

D. Rear Harness

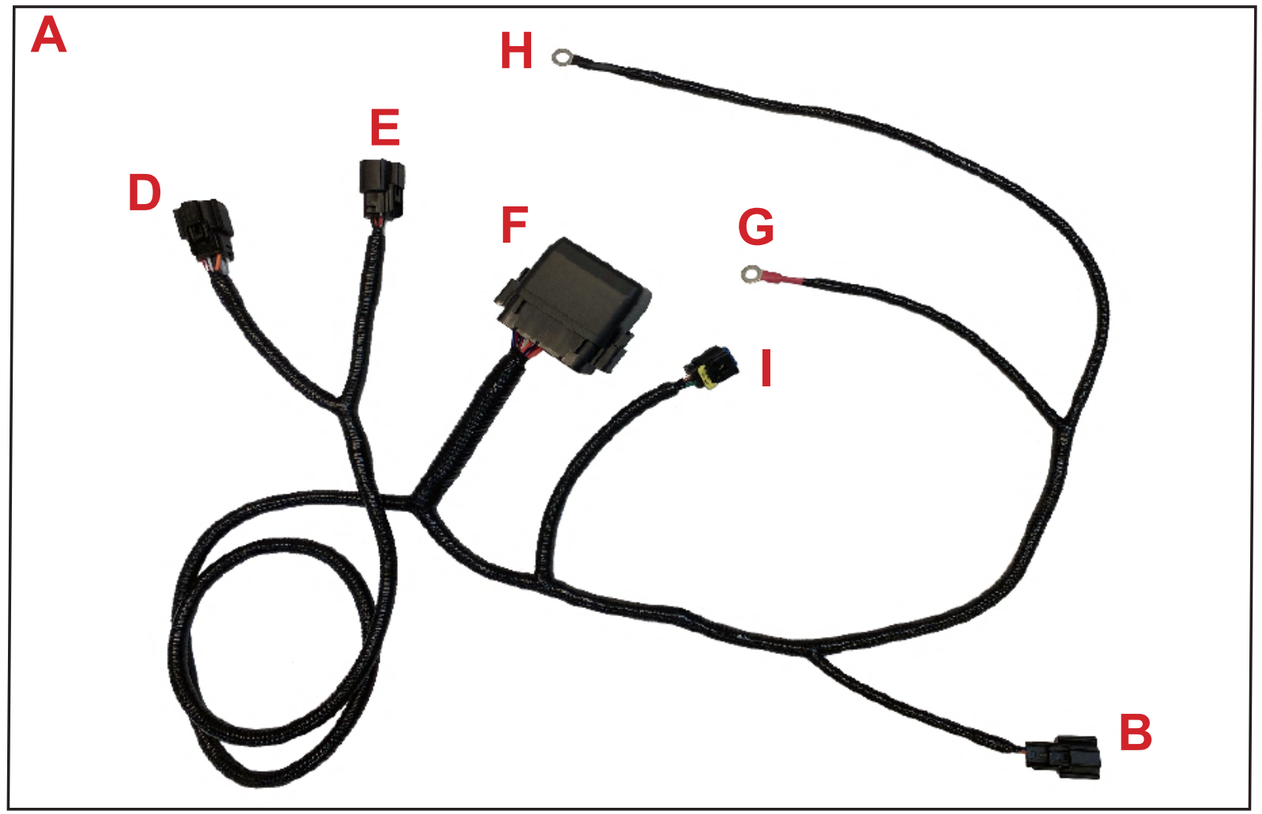
E. Gauge Harness

F. Fuse Box

G. Positive

H. Negative

I. Bosch Rail Sensor



B

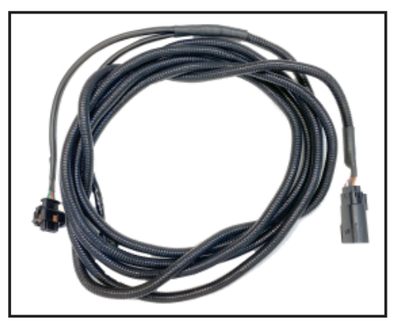


Pigtail comes in kit pre-connected to main harness. Sold Separately.

C



D



E



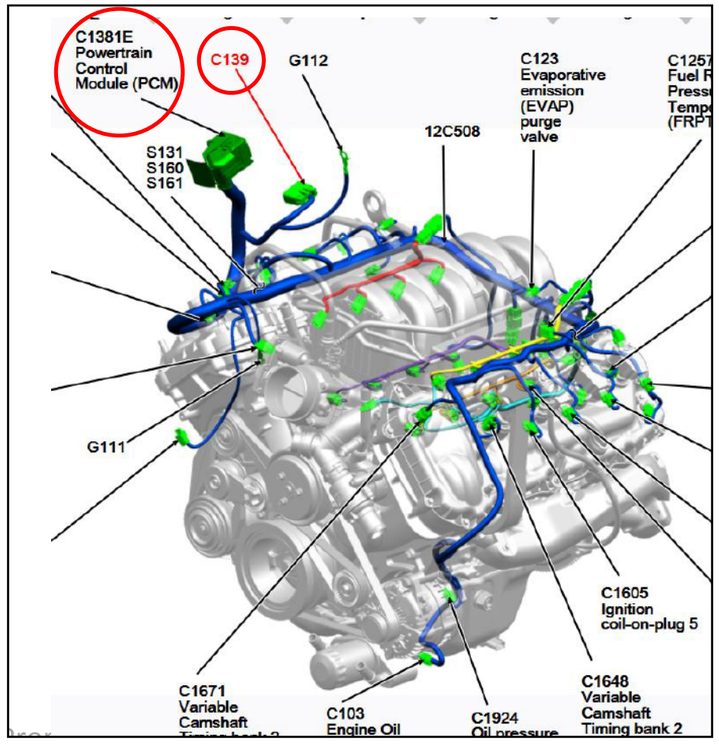
Gauge comes in kit pre-connected. Gauge Sold Separately.

WIRING - PIG TAIL

1. Locate and disconnect middle PCM connector (C1381E).
2. Remove connector back cover and any protective tape near to expose the wire. Save tape for re-use.
3. Remove front face plate to expose the terminals. This face plate is numbered. Set aside to use as a reference when locating a terminal.







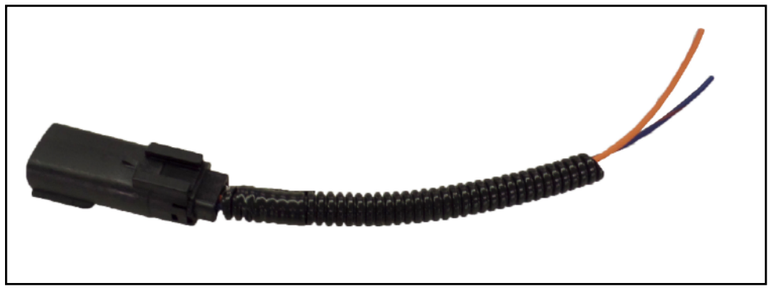




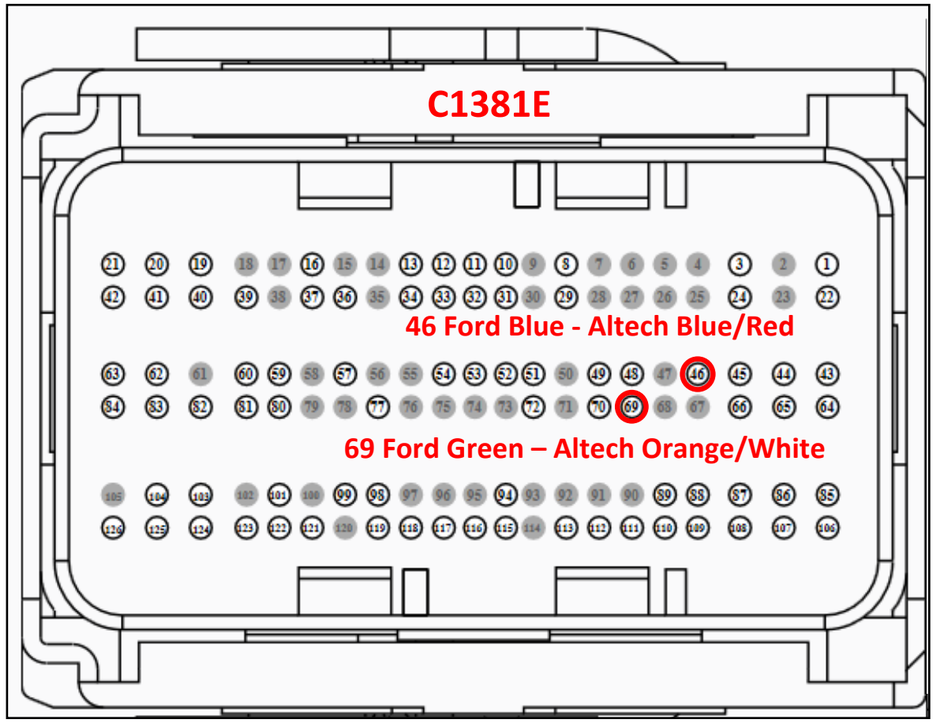


WIRING - PIG TAIL

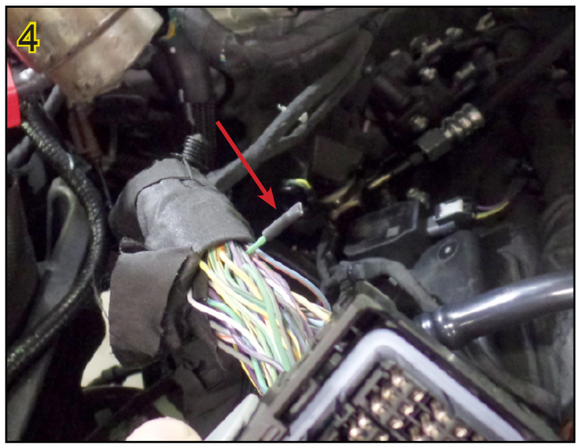
4. Locate OEM pin 69 (Green) wire.
   Cut the wire, about 2-3 inches from the PCM connector.
   Using shrink tube, cap off the green wire end going through into the rest of the OEM harness. This end of the green wire will no longer be used.
5. Retrieve the pig tail, place shrink tube on orange wire, and solder the **ORANGE** pig tail wire to OEM **GREEN** wire.
   Shrink tube the connection to finalize.

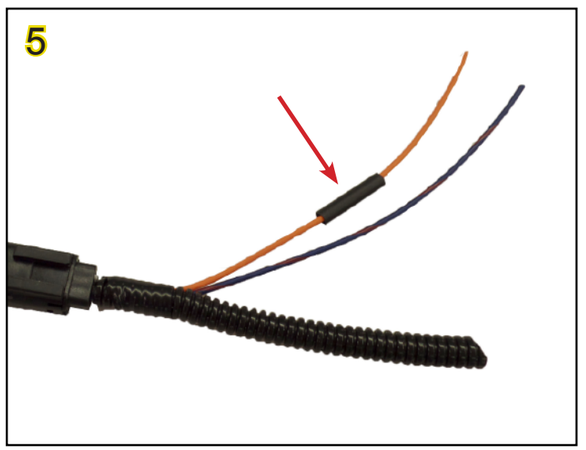


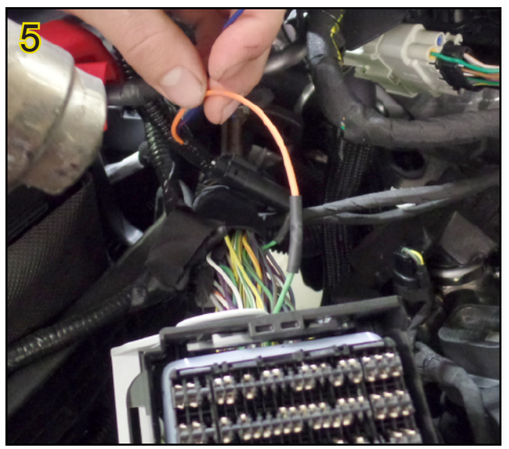
Pig Tail







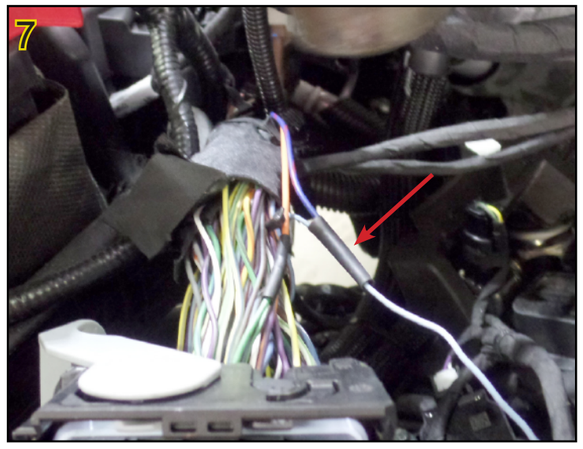




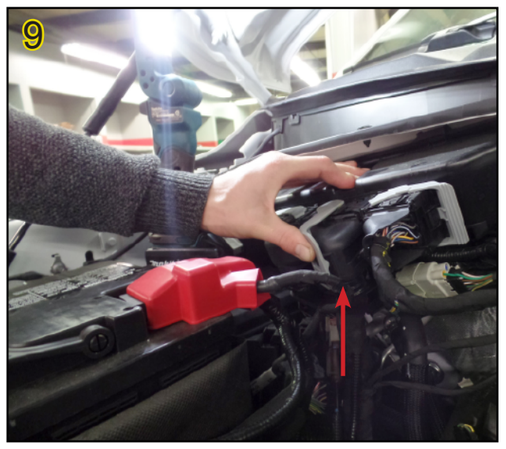
WIRING - PIG TAIL

6. Locate OEM pin 46 (**BLUE)**. You may use the connector front plate for help, and or tug on the wire while observing the terminals in order to find the correct terminal. Remove terminal.
7. Strip OEM **BLUE** wire in order to accommodate pig tail wire.
   Splice pig tail **BLUE/RED** wire into **OEM BLUE** wire.
   Shrink tube the splice and re-install the terminal back into its original location.
8. Re-attach front face plate, rear cap, and re tape to hide any exposed wires.
9. Plug PCM connector back in, and plug pig tail into CNG harness when appropriate.



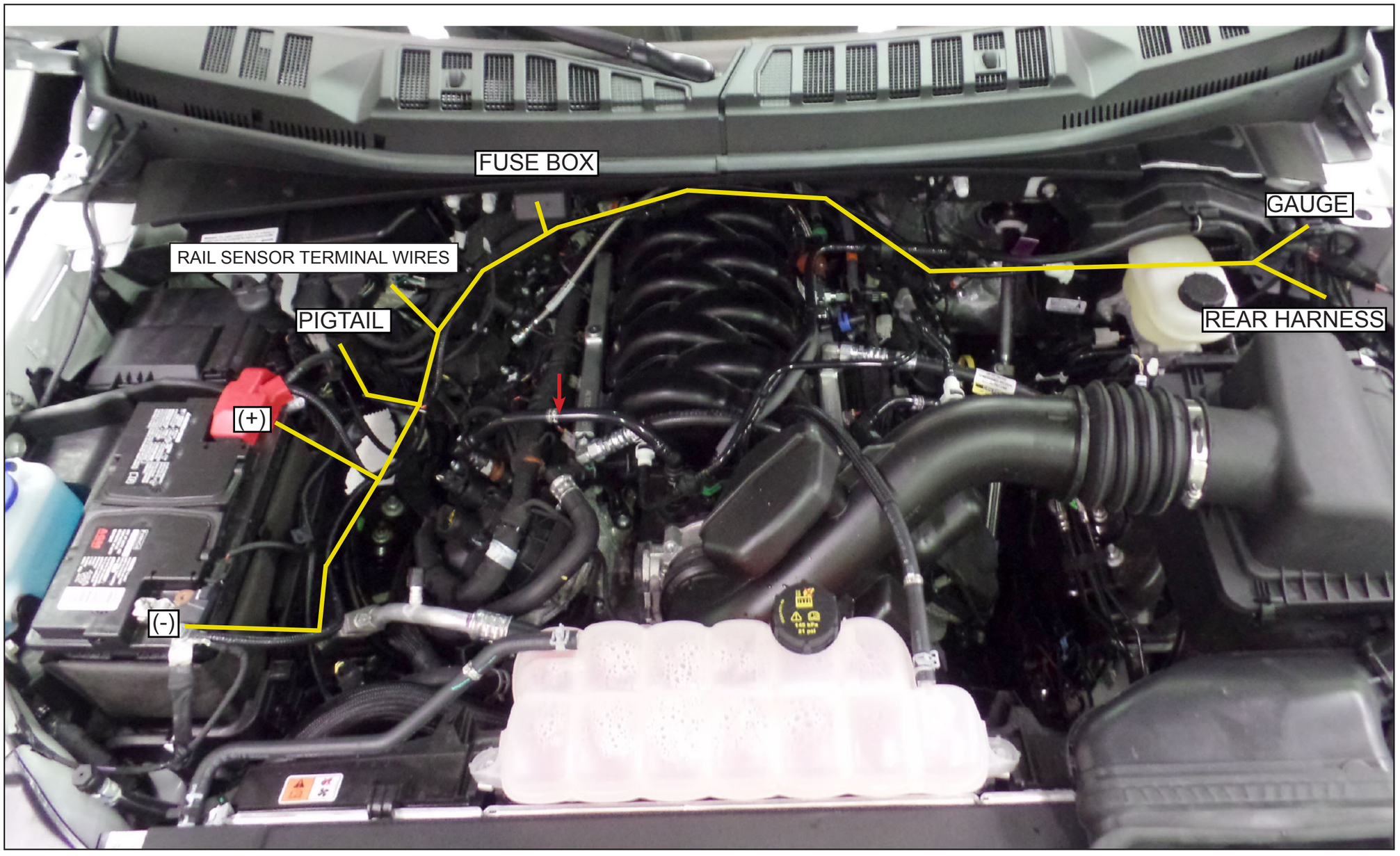






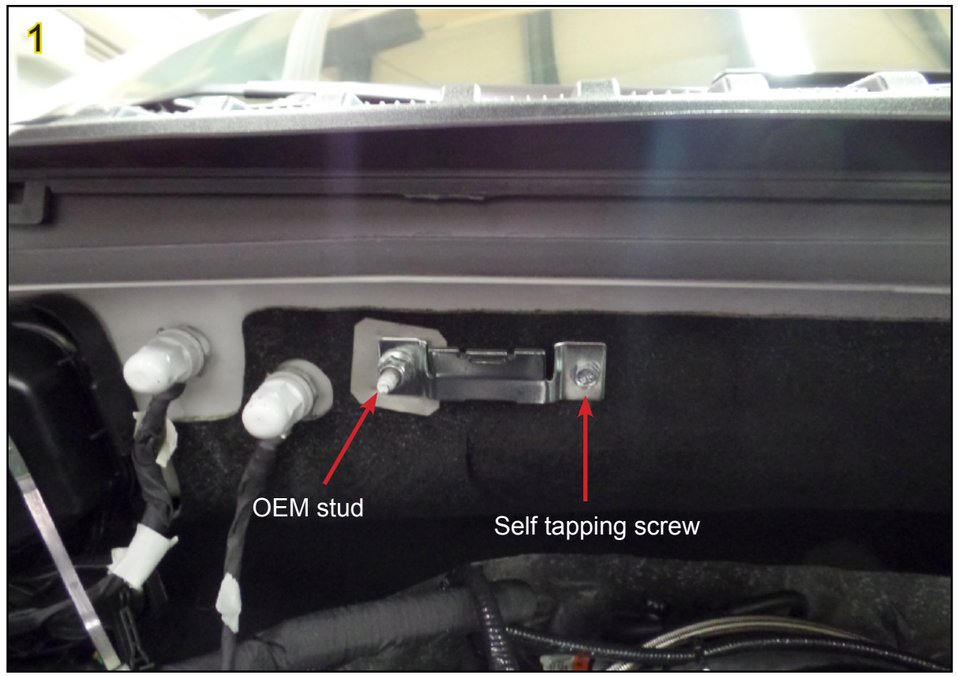
WIRING - CNG HARNESS

Route as shown and zip tie every 1 - 1 1/2 feet, or loose areas. See next page for the fuse box install.



WIRING - CNG HARNESS (FUSE BOX)

1. Locate OEM stud located on the passenger side and above the engine.
   Use a provided nut and install fuse box bracket onto OEM stud.
   For the other side, use provided self tapping screw to secure.
2. Attach fuse box as shown.

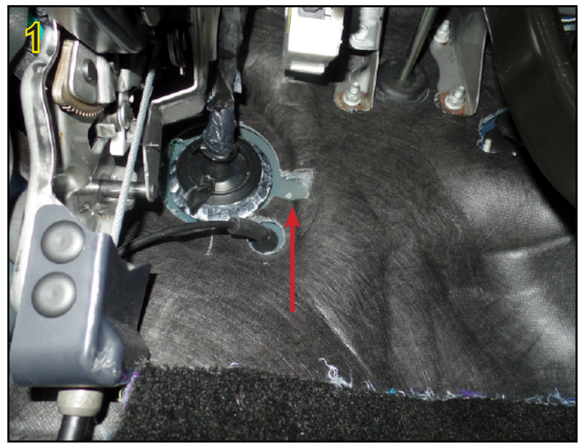


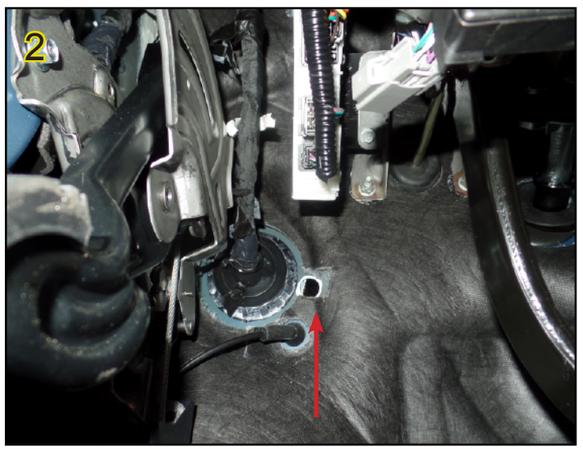


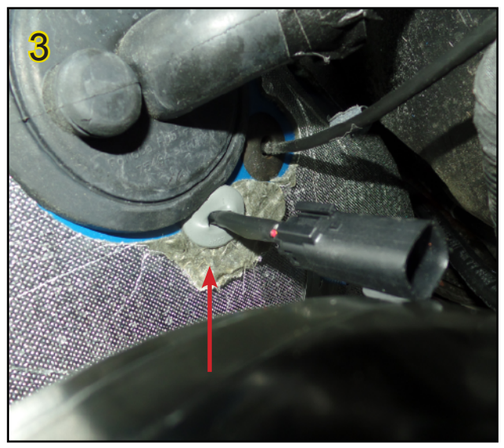
FUEL GAUGE ROUTING and INSTALL

1. Below the steering column, mark 3 sides of the insulation and cut to accommodate a 7/8” hole.
   This hole will be used for the harness leading into the engine compartment.
2. Drill a 7/8” hole. Rust proof and de burr.
3. Feed the gauge harness through the hole and into the engine compartment.
   Secure the harness grommet.
4. Attached to the main CNG harness





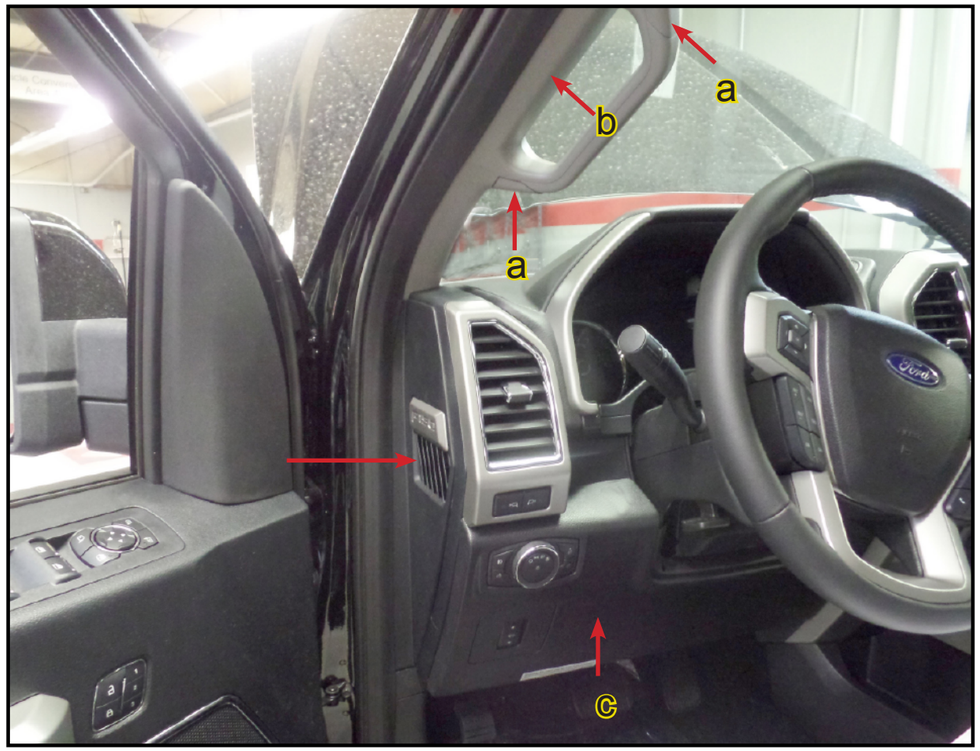


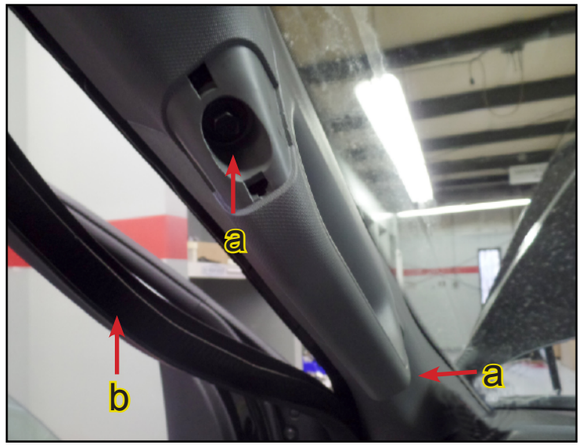


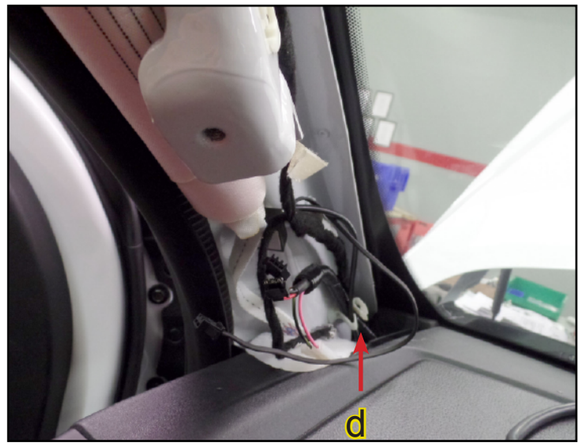
FUEL GAUGE ROUTING and INSTALL

5. PREPARATION: REMOVE SHOWN PLASTIC PANELS, COVERS, AND CAPS FIRST. See below.

   a. Remove the caps and unscrew the OEM bolts, save for reuse.
   b. Loosen the rubber strip and remove the driver side A pillar.
   c. Detach top of the control panel without removing it.
   (OPTIONAL) Remove control panel underneath the steering wheel for additional routing access.
   d. Run harness through the OEM clip.



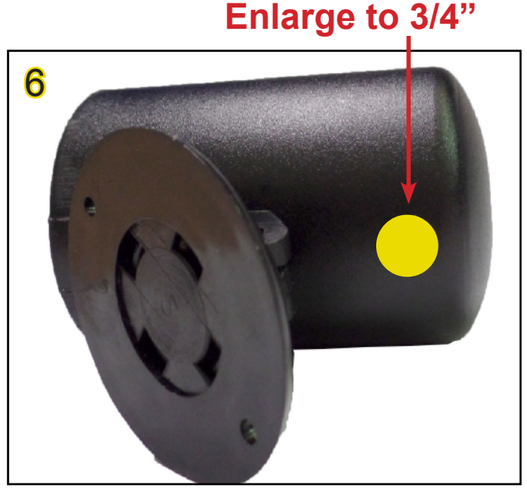


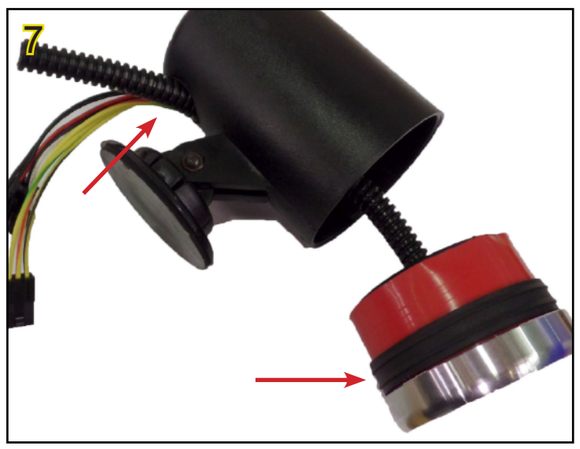


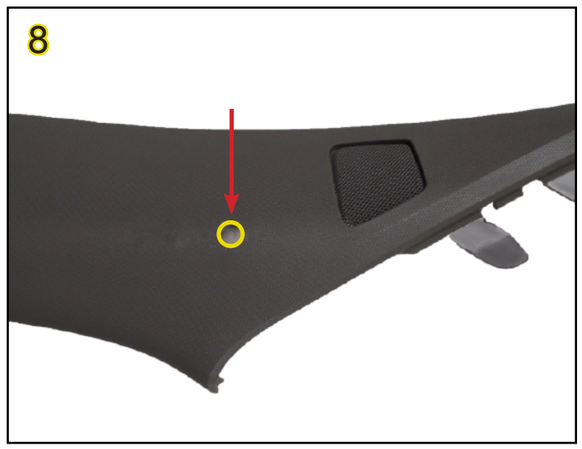


FUEL GAUGE ROUTING and INSTALL

6. Retrieve the gauge pod, and enlarge hole to 3/4”.
7 Insert the gauge wires through the pod hole and combine gauge with pod.
Ensure the rubber o-ring is also placed over the gauge housing.
Insert gauge into pod. Adjust as needed to ensure clear visibility.
8. Modify the A pillar by drilling a 7/16” hole in location shown.
9. Using the two screws included in the pod kit, secure pod base to location shown.
Run the gauge wires and connectors through the 7/16” hole.









FUEL GAUGE ROUTING and INSTALL

10. Re-install and reattach all OEM panels along with the A pillar containing the gauge, and remember to connect the gauge wires to the CNG gauge harness.

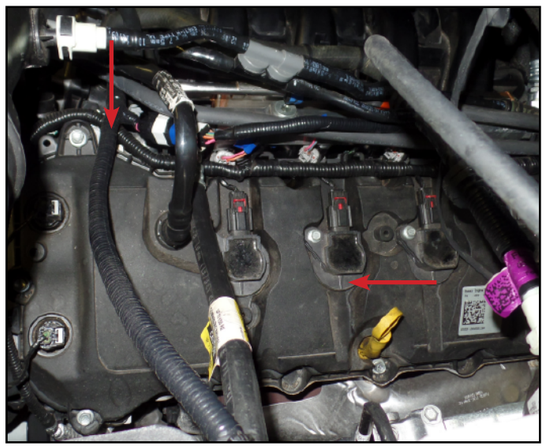


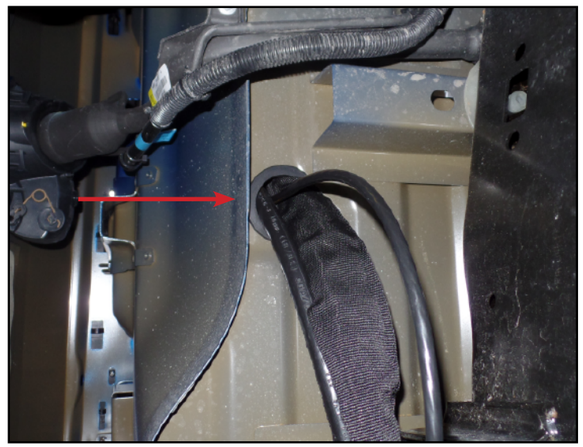
LOW PRESSURE HOSE ROUTING / QUARTER TURN VALVE

1. Route along the frame as shown. Connect one end to the regulator and other end to the fuel rail. Tighten each end to 35 ft-lbs of torque. Verify proper routing first before securing.
2. Install 5/16” bolts and secure quarter turn valve assembly.
3. Secure hose where shown with 13/16” p-clamp.
   - First install 1/4” - 20 aluminum poly nut and 1/4” - 20 x 3/4” bolts.
   - Note: Use location towards the rear of the vehicle to secure both p-clamps used on low pressure hose and coolant hoses.

(See next page for additional pictures)





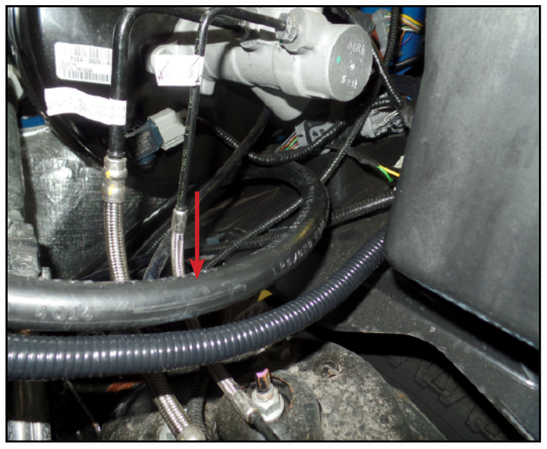


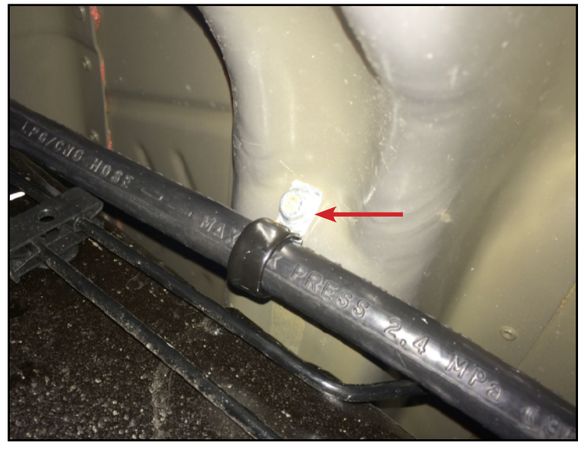


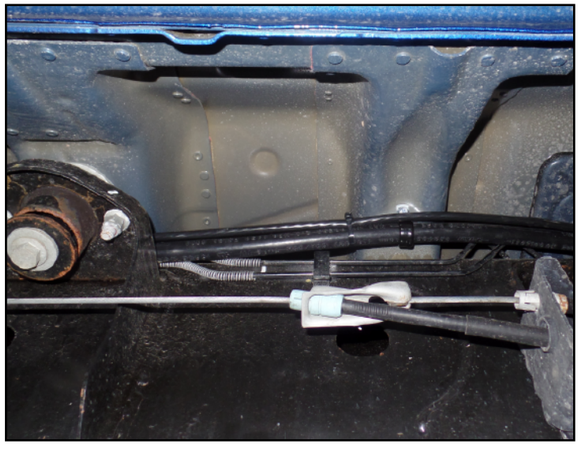


LOW PRESSURE HOSE ROUTING / QUARTER TURN VALVE

Continued...









COOLANT HOSE ROUTING

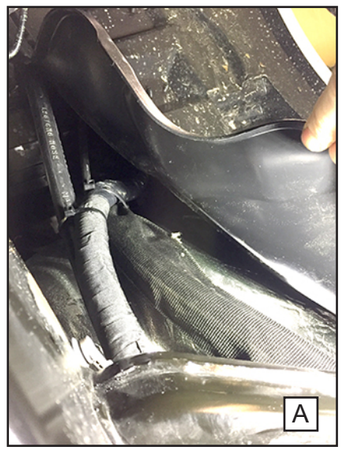
1. Depressurize the coolant system by removing the coolant reservoir cap. DO NOT REMOVE COOLANT CAP IF ENGINE IS HOT!
1. Lay the CNG coolant hoses from front to back along the ground below the truck (driver side). On engine side, feed the CNG coolant hose up through wheel well behind mud cover (Fig. A). In engine compartment pull coolant hose up and over to middle of engine. Lay hose down for later connections.
2. Locate the Ford coolant hose connected to coolant reservoir (Fig. B). Measure and mark the Ford coolant hose at **15 1/2”** from reservoir hose end. Crimp the hose below mark and cut the hose (Fig. C). With a heat gun melt the hose meshing on both ends to form around hoses (Fig. D).
3. Insert one straight connector (80651) per each cut hose end, two connectors in total (Fig. E).
4. Slide a hose clamp on each end of all 4 hose ends (CNG and Ford) to get ready for final connections.
5. The CNG coolant hose identified with colored tape connects to the Ford coolant hose coming out of the engine and the IN port on CNG regulator. Use clamp pliers to secure clamp over connection with straight connector (Fig. F).
6. The other CNG coolant hose connects to the coolant hose coming out of reservoir and the OUT port on CNG regulator. Use clamp pliers to secure clamp over connection with straight connector (Fig. F).
7. Remove hose crimp from hose. Pull slack on hose from under vehicle to engine compartment, then zip tie the CNG coolant hoses to filter air box. Disconnect the Ford white clip and zip tie it along with CNG coolant hose to box (Fig. G).
8. Under the vehicle, route the CNG coolant lines above frame in same location as Ford wire harness. (Fig. G-Q). Route coolant hoses through bed floor grommet.
9. Secure hoses with zip ties and a p-clamp (Fig. G-Q).
10. Connect coolant hoses to regulator (same as steps 5 & 6) and secure with hose clamps (Fig P).
11. Check for leaks when conversion system is completed and engine can be started. Add coolant to reservoir as needed.

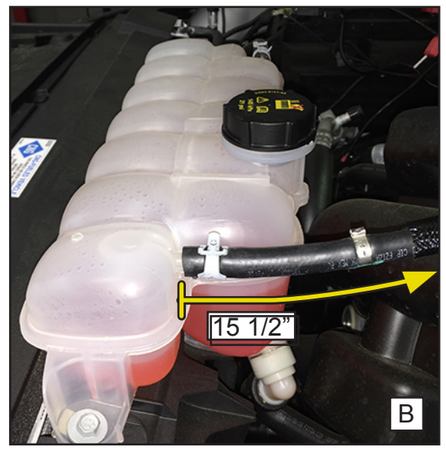

CNG Coolant Hoses

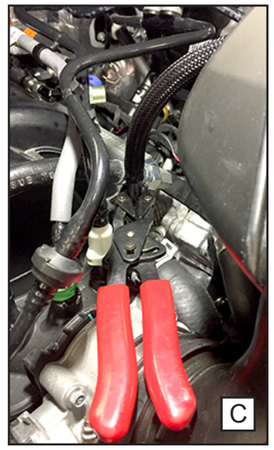

Hose Clamp


Straight Connector


P-Clamp

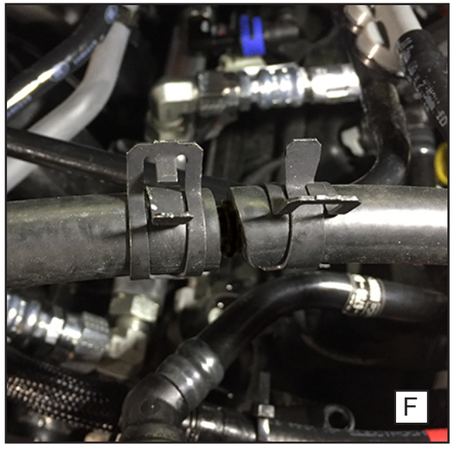




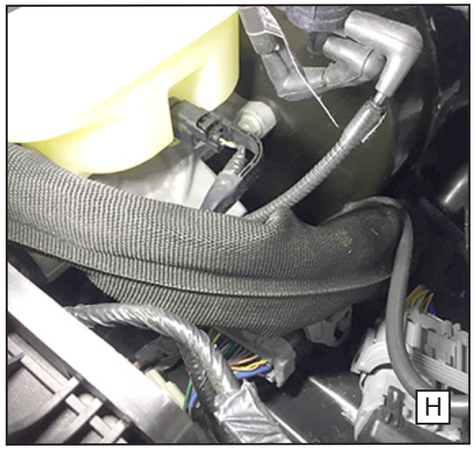




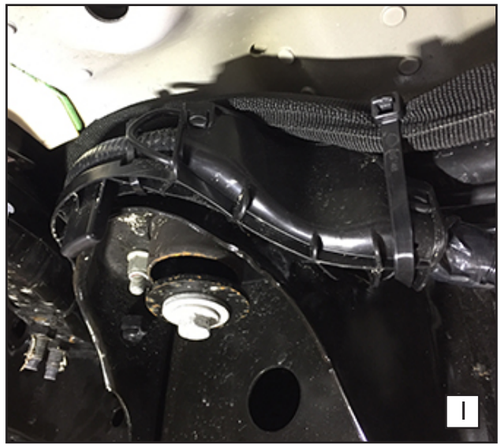








COOLANT HOSE ROUTING CONTINUED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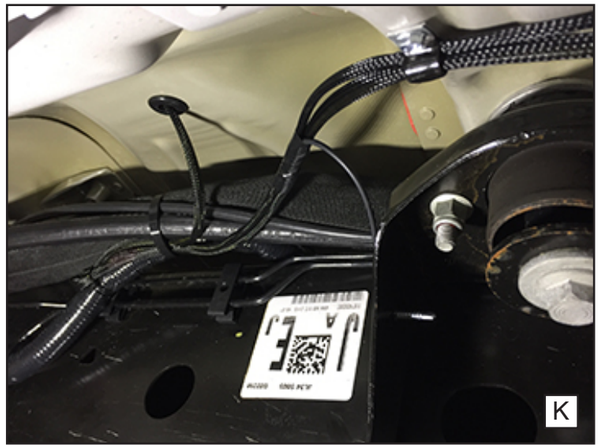
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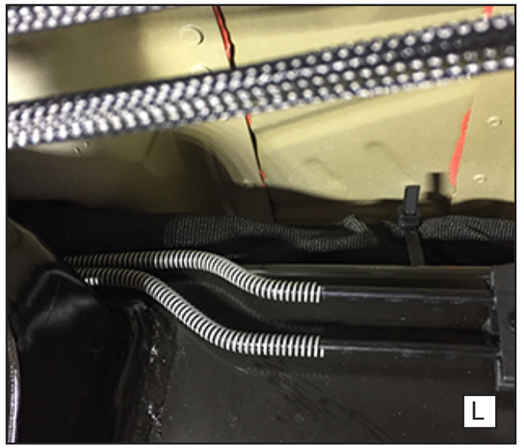
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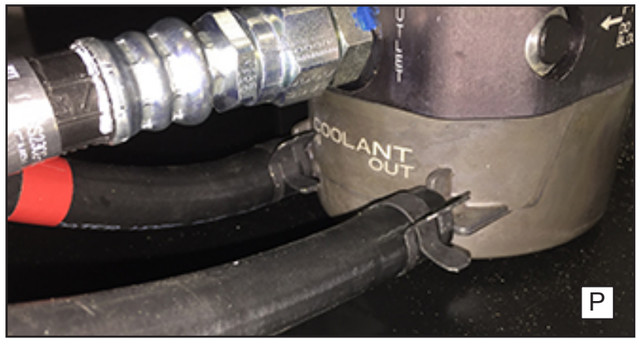

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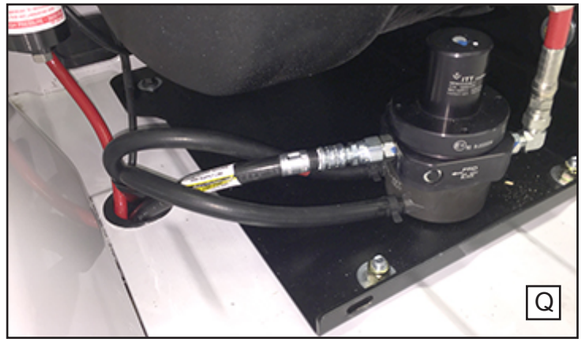
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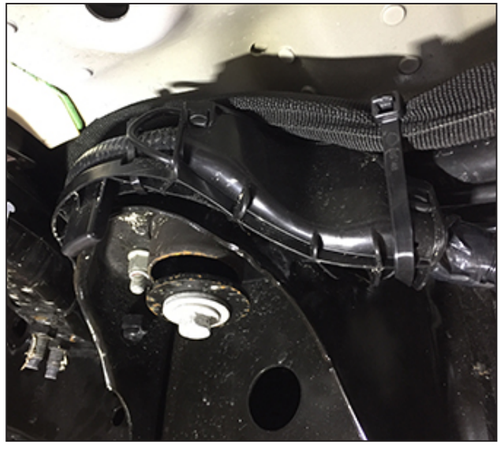
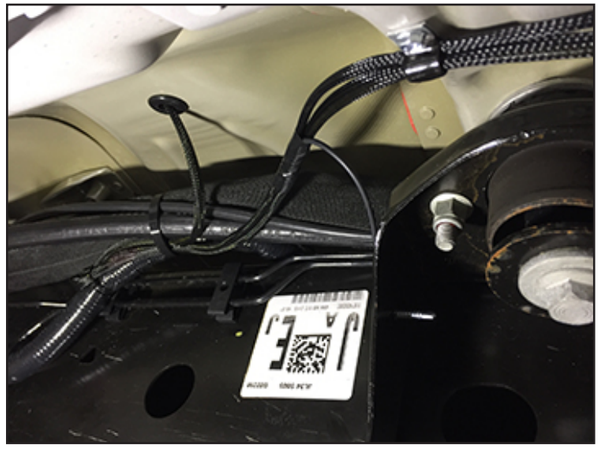
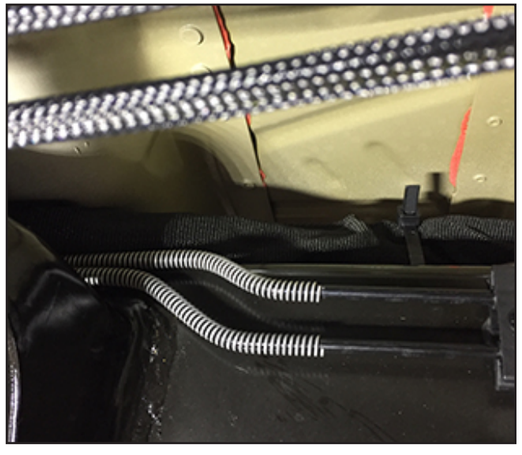
REAR HARNESS ROUTING

1. Route rear harness along same path as the low pressure hose and zip tie any slack in the wire.
2. Connect rear harness to high pressure sensor and cylinder valve automatic solenoid.



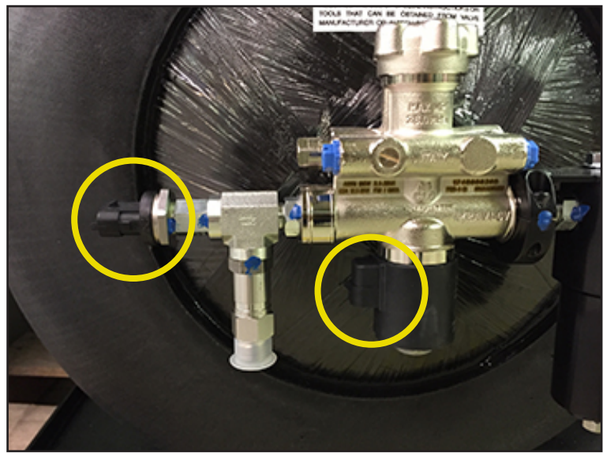








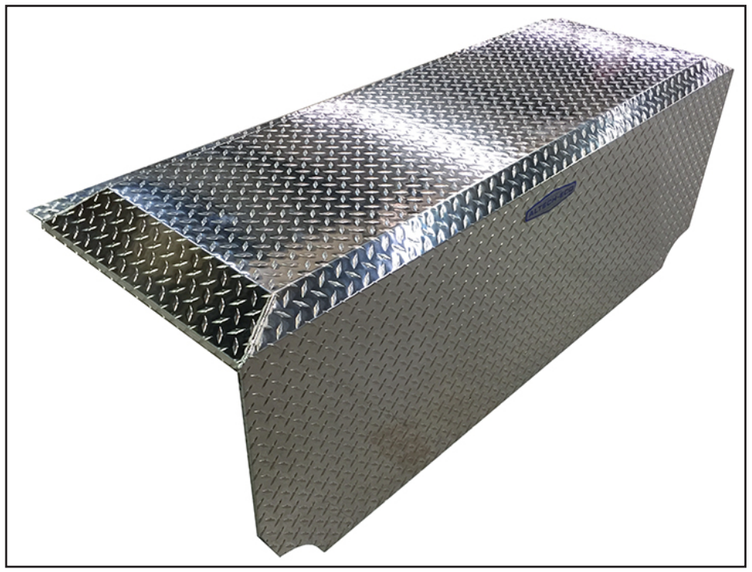




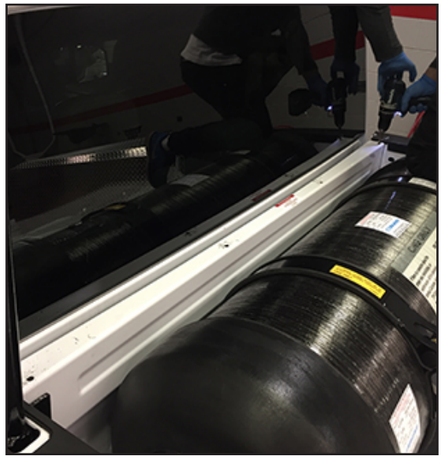
Two connections: HP Sensor and Solenoid

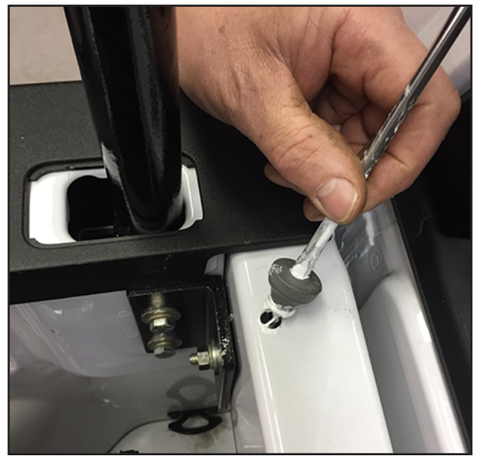
CYLINDER - STANDARD COVER

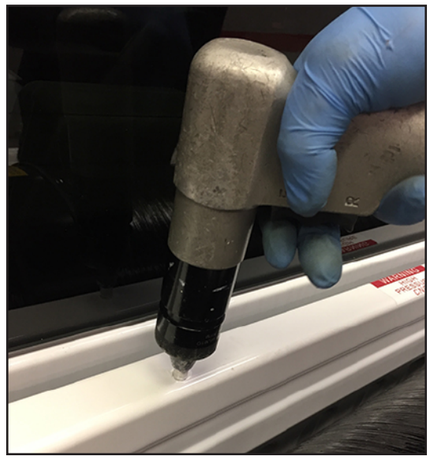
1. Place the cylinder cover over the cylinder into final position.
2. Mark locations on truck of the 4 holes on top of cover by window.
3. Remove cover from truck.
4. Drill 4 holes at previously marked hole locations with a 25/64” drill bit. De burr and rust proof any exposed metal.
5. Use rivet gun to insert the 4 rivet nuts.
6. Attached 6 u-nuts to cylinder base mounting plates.
7. Attach sticker (P/N: G-D0609), one on the inside of the cover and one on the cylinder strap closest to the valve.
8. Place cover back into place and secure with 6 1/4” - 20 x 1” bolts.
9. Center and place the Altech-Eco logo sticker on toolbox.



NOTE: Perform a leak check first before placing cover!!





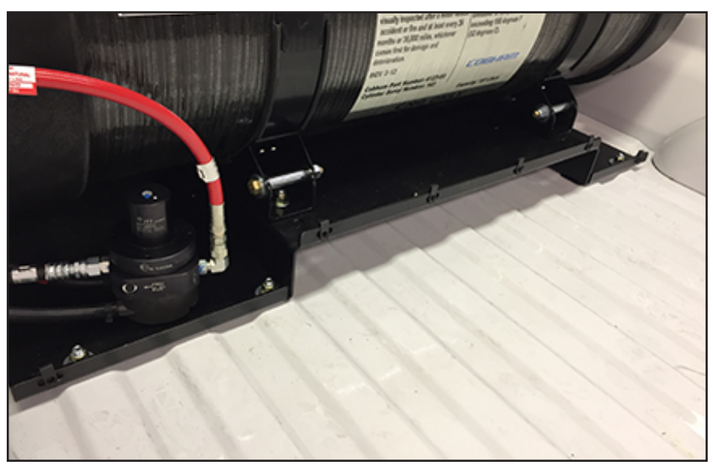


WARNING

CNG CYLINDER COVER MUST BE IN PLACE FOR NORMAL OPERATION.

G-D0609



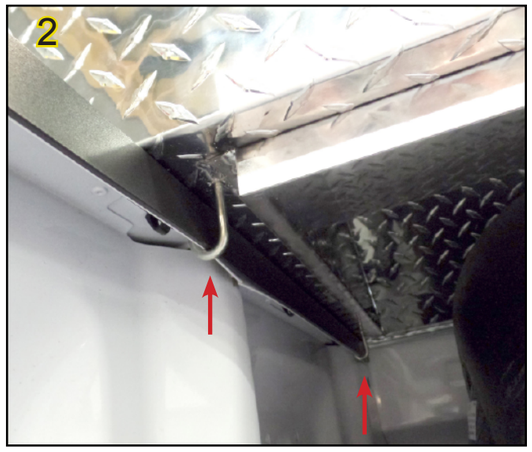


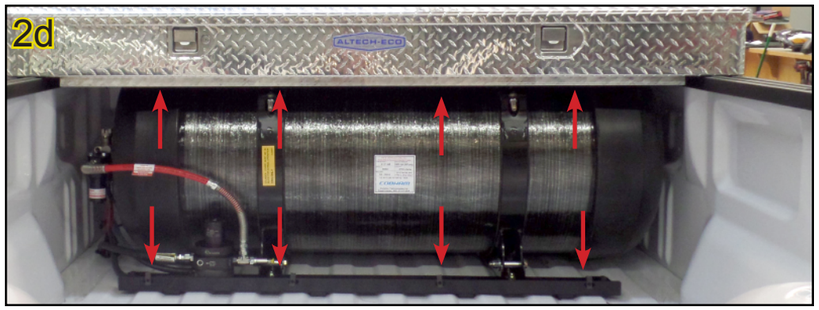


CYLINDER COVER - TOOL BOX OPTION

1. Install the toolbox over the cylinder.
   Secure toolbox to the truck bed with four hooks (two on each side) and bolts supplied with kit.
2. Place four u-nuts onto rear cylinder base plate.
   Drill four holes on toolbox lip and place four u-nuts.
3. Attach sticker (P/N: G-D0609) on the inside of the skirt. Decal must be clearly visible.
   Place cover decal inside the cylinder cover and one on cylinder strap closest to the valve.
4. Place skirt into place and secure with eight 1/4-20 x 1” bolts.
5. Center and place Altech-Eco logo decal on toolbox.

NOTE: Perform a leak check first before placing cover!!

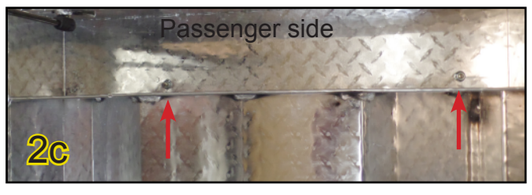


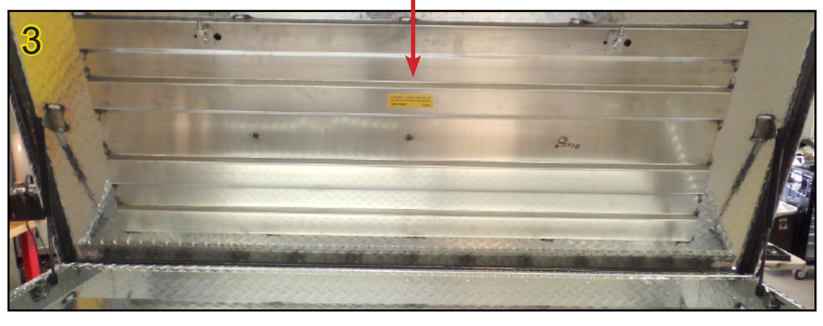




WARNING
CNG CYLINDER COVER MUST BE IN PLACE FOR NORMAL OPERATION.
G-D0609







DECAL PLACEMENT



Driver side door

NGV
NATURAL GAS VEHICLE

MANUAL CNG SHUT-OFF
OFF
ON
P/N: CNGMSO



Passenger side door

CNG mode is disabled when gasoline low fuel level indicator is illuminated.
P/N: MHGS

Black out the word “E-85” on yellow sticker.



Remove flex fuel decal.



Passenger side

CNG

Place near vent area location.

PN: CNGPRD
PRD
PRESSURE RELIEF DEVICE
ATTENTION:
CNG VENT LOCATION



Passenger side door

DECAL PLACEMENT



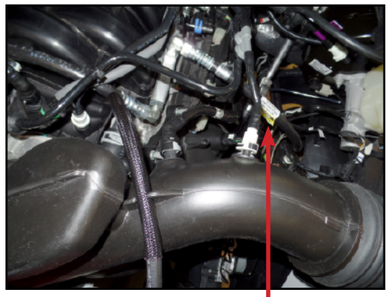




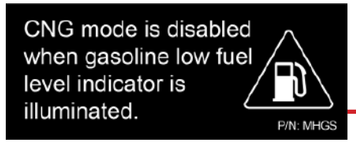




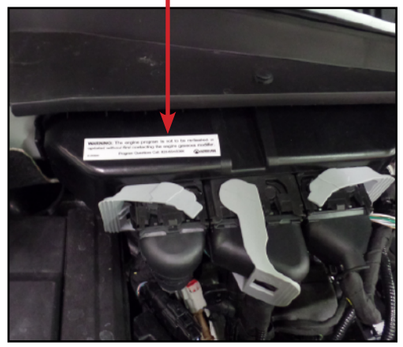


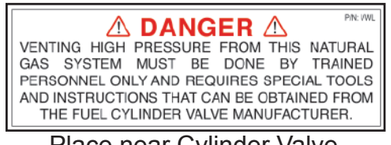






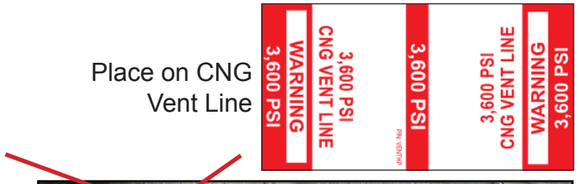




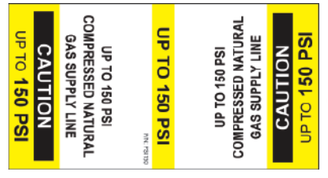


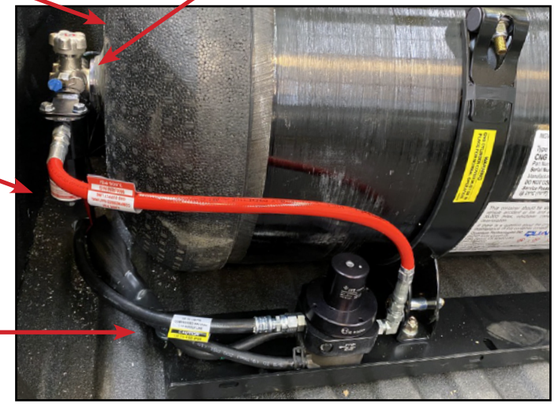
Place near Cylinder Valve.

Place on CNG Vent Line









LEAK CHECKING THE SYSTEM

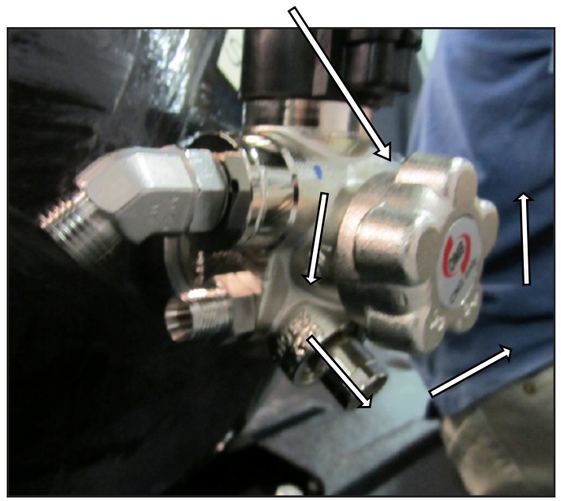
After the Altech-Eco CNG system has been installed on the vehicle, all coolant hoses and connections, all gasoline and CNG connections, gasoline and CNG fuel rails and injectors must be checked for leaks. Also, check the overall installation of wiring, zip ties and other components to make sure they are not loose or hanging.

Tools:

- Combustible Gas Leak Detector TPI 721 (Davis Instruments)
- Soapy Water Solution or Liquid Leak Check Solution

1. Double check and verify wiring is correct and secure with nothing hanging loose. Check that zip ties are snipped properly to avoid potential injury.
2. Check and verify that all installed hoses and fittings are not loose and are secure per torque specifications.
3. Close the valve by turning clockwise and pressurize the system to 3600 psi.
4. Leak test using a methane detector or bubble soap.
   a. PASS: Continue to step 5.
   b. FAIL: Depressurize the system and correct the issue before continuing.
5. Open the manual valve on the fuel tank. Using your hand, rotate the manual valve counter clockwise until fully open. Then close the valve back 1/4 turn (this is will help avoid the valve sticking in the future).
6. Fill the tank with CNG.
7. Pressurize the system by turning the ignition on but do not start the vehicle (3 key cycles). This opens the solenoid and fills the lines.
8. Turn the ignition off, then back on and start the engine. This is to pressurize the lines again. While the engine is running, perform a leak test by using a methane detector, bubble soap, or other appropriate means.
   a. PASS: Complete required paper work and notify your supervisor.
   b. FAIL: Turn off the ignition and manually shut-off on the cylinder (tank) valve. Depressurize the system and correct any issues. After all corrections have been made, open the manual shut-off valve and start the engine. Run the leak test again. For un-repairable issues, notify appropriate personnel for further instructions.
9. Third party installers: After completing the final checklist, it is required that an original or a copy of the entire completed checklist be sent to ALTECH-ECO. Failure to do so will void the warranty and may result in suspension of installer’s license. For additional information, contact your supervisor.

Open manual valve counter-clockwise until fully open. Then a 1/4 turn back.



Contact Information

For technical support call Altech-Eco Inc.:

- Phone: (828) 654-8300
- E-mail: customerservice@altecheco.com

For sales questions:

- Phone: (828) 654-8300
- E-mail: sales@altecheco.com

Website Installer Portal:

- www.altecheco.com/pages/installer-portal.html