

ROUSH. F-250 & F-350

LIQUID PROPANE INJECTION

In Bed Kit Installation Instructions



**ROUSH F-250/350 Liquid Propane Injection
Kit Installation Instructions**

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Part Number P10C3-IBKITIM-AA

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ROUSH F-250/350 Liquid Propane Injection Kit Installation Instructions

Important Notice:

The engine will run only with propane as fuel when this installation is complete. Before replacing the gasoline system with the ROUSH Liquid Propane Injection system, provide a supply of HD5 liquid propane with which to fill the new tank.

Introduction

This manual is a guide for the installation of the ROUSH kit for converting 2010 Ford F-250/350 Super Duty trucks equipped with the 5.4L 3V V8 engine to run on propane fuel. Only a few components are involved.

Before installing your liquid propane conversion kit, read the installation instructions and verify that all items in the packing list are present.

The liquid propane conversion kit is designed and tested to function properly only on Ford Motor Company vehicles as they are equipped from the factory (stock powertrain). The use of aftermarket parts and equipment such as cams, headers, nitrous oxide systems, other bolt-on performance parts, or any other performance parts not sold by, manufactured by, or approved in writing by ROUSH for specific application to the 2010 F-250/350 pickup truck equipped with the 5.4L 3V V8 engine with a liquid propane conversion kit will result in powertrain damage and potential engine failure. ROUSH will not accept responsibility for such damage and failure.

The ROUSH parts serve the same functions as the Ford parts they replace. The ROUSH parts are designed for durability, reliability and economy in combination with liquid propane.

Propane, like gasoline, must be handled safely with knowledge of its characteristics. *Training in Basic Principles and Practices* developed by the Propane Education and Research Council (PERC), Washington, DC is available via an interactive DVD program at a modest price.

For most purposes in an automobile dealership, the basic course should be sufficient. Certification, if required, based on this material is also available, either on-line or through local facilities, at additional cost.





Safety

The National Fire Protection Association (NFPA) publishes a code book of rules that apply to the storage, handling, transportation and use of liquefied petroleum gas (LP-Gas or LPG). The book is known as **NFPA 58**. It is revised as necessary and published every other year. This code is adopted as law in virtually every political subdivision in the United States. Check with your local authorities for regulations applicable to liquid propane.

Observe all safety precautions provided in the Ford Motor Company Technical Services service information concerning the handling of the gasoline fuel system.

Alert Messages

The following alert messages appear from time to time in appropriate places in this manual. Ensure that all personnel in the immediate area are aware of these reminders.

-  **Danger:** — Although propane is nontoxic, nonpoisonous, has the lowest flammability range of any alternative fuel and dissipates quickly when released into the atmosphere, propane vapor is heavier than air and seeks the lowest point. When the ratio of propane to air is between 2.2% and 9.6%, propane will burn in the presence of an ignition source at 940°F (504°C) or hotter. Keep away from heat, sparks, flames, static electricity or other sources of ignition. Failure to heed this danger may result in severe personal injury or death.
-  **Danger:** — The fuel supply lines remain pressurized after engine shutdown. Keep away from heat, sparks, flames, static electricity or other sources of ignition. Do **NOT** enter storage areas or confined space unless they are adequately ventilated. Failure to heed this danger may result in severe personal injury or death.
-  **Danger:** — Do **NOT** carry lighted smoking materials or smoke while working on fuel system components. Failure to heed this danger could result in severe personal injury or death.
-  **Danger:** — **Disconnect the battery ground at the battery to ensure that the vehicle electrical system has no current. Failure to heed this danger could result in severe personal injury or death.**

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Limited Liability Disclaimer

The information in this publication was accurate and effective at the time the publication was approved for printing and is subject to change without notice or liability. ROUSH reserves the right to revise the information herein and to make changes and discontinue production of described parts at any time.

TWO-PERSON PROCEDURES

Removal and installation procedures take place under the hood and under the vehicle. The vehicle must be raised to permit working underneath. Preparing the cargo bed requires cooperation between a person in the bed and another under the vehicle. Installing the tank in the bed requires the cooperation of two persons in conjunction with a hoist of at least 1,000-pound capacity.

STAINLESS STEEL FUEL LINES

Unlike Ford's, ROUSH's fuel lines are constructed from stainless steel. Do **NOT** attempt to use the original fuel lines. Carbon steel corrodes more quickly in the presence of liquid propane.

JIFFY TITE FUEL LINE END CONNECTORS

Some of the ROUSH fuel lines use a Jiffy Tite connection to aid in assembly. A special fitting is required to remove these lines once the connection has been made.

THREADED FUEL LINE END CONNECTORS

Also unlike Ford's, some of the ROUSH fuel lines are equipped with threaded end connectors. Do **NOT** cross thread these connectors. Always tighten each connector by hand before applying a wrench to avoid cross threading.

THREADED FASTENERS

Hand tighten all threaded fasteners before applying a wrench to avoid cross threading.

BARE METAL SURFACES

You will be drilling holes through painted metal. Bare metal must be deburred and coated with a primer or sealer as specified in order to prevent rapid corrosion. The coatings must be allowed to dry before the affected parts are assembled.

METAL-TO-METAL CONTACT

There are locations where fuel lines pass closely to each other and to other metal surfaces. Do **NOT** allow direct contact between these parts. Apply EPDM sleeves to the fuel lines to prevent direct contact. Ensure that the sleeves cover the targeted areas.

Packaging

Carefully inspect the contents of the kit you receive to ensure that all parts are available before beginning

installation. A parts list is enclosed with this manual. The list of parts varies with the cab style and bed length.

Installation, Garaging and Training

Chapter 11, page 58-67, of **NFPA 58, 2008 edition**, applies to engine fuel systems using LP-Gas in internal combustion engines, including containers, container appurtenances, carburetion equipment, piping, hose and fittings and their installation. Additionally, this chapter applies to garaging of vehicles and to the training of personnel.

Paragraph 11.2 specifies that each person engaged in installing, repairing, filling or otherwise servicing an LP-Gas engine fuel system shall be trained. For additional information about the CETP E-Learning computer-based training program developed by PERC, contact Courtney Gendron at courtney.gendron@propanecouncil.org.

Purging and Venting (Tanks and Lines)

Venting of LP-Gas to the atmosphere is covered by paragraphs 7.3.1, General, and 7.3.2, Purging, on page 58-55 of **NFPA 58, 2008**.

Paragraph 7.3.2.2 reads as follows. "Venting of cylinders indoors shall only occur in structures designed and constructed for cylinder filling in accordance with (**NFPA 58, 2008**: paragraph) 6.5.1, Chapter 10 and 7.3.2.2(A) through 7.3.2.2(C). The following paragraphs are quoted from **NFPA 58, 2008**.

7.3.2.2(A) Piping shall be installed to convey the vented product outdoor at least 3 ft. (1 m) above the highest point of any building within 25 ft. (7.6 m).

7.3.2.2(B) Only vapors shall be exhausted to the atmosphere.

7.3.2.2(C) If a vent manifold is used to allow for the venting of more than one cylinder at a time, each connection to the vent manifold shall be equipped with a backflow check valve.

7.3.2.3 Venting of containers outdoors shall be performed under conditions that result in rapid dispersion of the product being released.

7.3.2.4 If conditions are such that venting into the atmosphere cannot be accomplished safely, LP-Gas shall be burned at least 25 ft. (7.6 m) from combustibles.

7.3.2.5 Venting of containers and burning of LP-Gas from containers shall be attended.

ROUSH Technical Assistance

Call ROUSH customer service at **800-597-6874** with any questions regarding kit installation.

**ROUSH F-250/350 Liquid Propane Injection
Kit Installation Instructions**

Packaging List

Main Kit Components

Description	RPP Part Number	Qty
Fuel Rail System	---	
Fuel Injector Rail System – Left Hand	P10C3-9F899-AB	1
Fuel Injector Rail System – Right Hand	P10C3-9F899-BB	1
Fuel Rail Crossover	P10C3-9F893-AA	1

Description	RPP Part Number	Qty
Fuel Line System	---	
Forward Line – Supply	P10C3-9F911-AA	1
Forward Line – Return	P10C3-9F912-AA	1
In Bed Tank Line – Supply	P10C3-9288-AA	1
In Bed Tank Line – Return	P10C3-9A086-AA	1

Description	RPP Part Number	Qty
Hardware Kit A – Fuel Line System	P10C3-IBHKA-AA	1
Rubber Sleeve, ¼ to ½ - 38.1 mm length	P07L3-9C328-AA	10
Rubber Sleeve, ¼ to 3/8 - 38.1 mm length	P07L3-9C328-BA	3
Retainer Clip – Double Snail	15-004175	6

Description	RPP Part Number	Qty
Fuel Tank System	---	
Fuel Tank – In Bed	P10C3-9K007NM-AC	1
Fuel Line Shield – Left	P10C3-9B257-AB	1
Fuel Line Shield – Right	P10C3-9B257-BB	1
Fuel Line Shield – Upper	P10C3-9B257-CA	1
Cross Brace – Lower	P10C3-38060-BA	1
Cross Brace – Upper	P10C3-38060-AA	1
Cross Brace – Middle	P10C3-38060-DA	2

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Description	RPP Part Number	Qty
Hardware Kit B – Tank Hardware	P10C3-IBHKB-AA	1
Grommet – Tank Collar	P10C3-14487-AB	1
Grommet – Bed Pass Thru	P10C3-14487-BA	1
Grommet – Right Fuel Line Shield	G3345-035000	1
Isolator Crush Limiter	P10C3-11293-BA	4
Rubber Isolator – Tank to Mounting Bracket	P07L3-9N052-AA	8
Isolator Pad	P10C3-9N052-AB	4
Washer – In Bed Tank Upper Isolator	P07L3-3932-AA	4
Bed Bolt – M14 x 2.0 x 134	W714710	2
Bolt – M14 x 2.0 x 118 mm	R18020012-00-AA	4
Nut – M12 x 1.75 – Tank to Bed Mounting Brackets	N807479	4
Bolt – M8 x 1.25 x 20 mm	N605905	12
Bolt – M8 x 1.25 x 30 mm	W712419	4
Bolt – 5/8” – Cross Brace Upper to Tank	92240A792	1
Washer – 5/8” – Stainless Steel – Cross Brace Upper to Tank	92141A035	1
Set Screw – 5/8” – Nylon – Tank Lift Plug	94564A610	1
Lifting Eye Boss Cap	VC-985-8	1

Description	RPP Part Number	Qty
Fuel Fill System	---	
3/8 Remote Fill Line – Nozzle to Filter – In Bed Tank	P10C3-9034-AA	1
3/8 Remote Fill Line – Filter to Tank – In Bed Tank	P10C3-9047-AA	1

Description	RPP Part Number	Qty
Hardware Kit C – Fuel Fill System	P10C3-IBHKC-AA	1
Fuel Filter Assembly	P07L3-9155-AA	1
Fuel Filler Neck Mounting Bracket	P10C3-9B213-AA	1
Sherwood Fill Valve	PV1855BRCN	1
Clip – Fuel Fill Line Retention	156-00020	1
Bolt and Washer – M5 x 0.8 x 16 mm	W706841	3
Worm Gear Clamp	9589	1
Fuel Filter Bracket – In Bed	P10C3-9180-AA	1
Bolt – M8 x 1.25 x 30 mm	W712419	2
Nut – M8 – U Type	W705158	2

Description	RPP Part Number	Qty
Pressure Relief System	---	
Pressure Relief Hose	P07L3-9170-BA	1
Hardware Kit D – Pressure Relief System	P10C3-IBHKD-AA	1
In Bed Tank Adapter – 90deg Elbow	P07L3-9K339-AA	1
Bracket – Outlet Nozzle	P10C3-9C177-AA	1
Constant Tension Clamp – Outlet Nozzle	32150000	2
Pressure Relief Cap	VC-985-8	1

**ROUSH F-250/350 Liquid Propane Injection
Kit Installation Instructions**

Description	RPP Part Number	Qty
Hardware Kit E – Flow Control System	P10C3-IBHKE-AA	1
Flow Control Solenoid	P10C3-9G683-AA	1
Bracket – Flow Control Solenoid	P10C3-9E360-AA	1
Bolt – M6 x 1.0 x 14 mm	W702251	2
Nut – M8	W520413	2

Description	RPP Part Number	Qty
Electrical System	---	
Vehicle Harness	P10C3-3075-AA	1
Hardware Kit F – Electrical System	P10C3-IBHKF-AA	1
Bracket – Fuse Box	P10C3-9D371-AA	1
Bolt – M6 x 1.0 x 14 mm	W702251	1
Nut – M6	W704521	3
Fuel Injector Jumpers	P07L3-9C978-AB	8
IPTS Jumper Harness	P07L3-9C062-AA	1
Cable Tie Edge Clip	150-40593	3
Cable Tie – 7.5” Length	1A868	50

Description	RPP Part Number	Qty
Air Intake System	---	
Airbox Lid with Hydro Carbon Trap	P10C3-9A628-AB	1

Description	RPP Part Number	Qty
Hardware Kit G – Labels	P10C3-IBHKG-AA	1
Label – Propane Fuel Only (Fuel Door)	P07L3-9A095-AA	1
Label – Overflow Protection Device (NFPA58) Tank & Fill Door	P07L3-9A095-BB	2
Label – Bleeder Valve Inspection (NFPA58) Tank	P07L3-9A095-CA	1
Label – Fuel Rail Service Port Warning	P07L3-9A095-DA	1
Label – 350 PSI Design Pressure (MV Supply Solenoid)	P07L3-9A095-IB	1
Label – Tank Valve Information (Tank)	P07L3-9A095-JB	1
Label – Hang Tag (Review Mirror)	P07L3-9A095-KB	1
Diamond Propane – Reflective (Tailgate)	D-85	1
PCM Tamper Label (Dash Panel Near PCM)	R07100008-10-AA	1
Label – FTC – In Bed Tank (Window)	P10C3-9A095-AA	1
Label – PCM Return	P10C3-9A095-LC	1
Label – Payload Warning	P10C3-9A095-DA	1

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Description	RPP Part Number	Qty
Hardware Kit H – Misc Caps	P10C3-IBHKKH-AA	1
Cap – 3/8” – VMV Outlet	CS2575	1
Cap – 1/4” – IPTS	CS515	1

Description	RPP Part Number	Qty
Manuals/Documentation/Templates	---	
Document – Roush 2010 LPG F250 Owners Manual	P10C3-19A321-AA	1
Installation Manual – 2010 LPG F250 In Bed System	P10C3-IBKITIM-AA	1
Template – In Bed Tank Mounting	P10C3-BEDTMPLT-AA	1
PCM Shipping Box	P10C3-SB-AA	1

Optional Engine Upgrade Kit

Description	RPP Part Number	Qty
Valve Train Retro-fit Components	P10C3-ENGKIT-AA	
Cylinder Head Assembly – RH	P10C3-6F093-AA	1
Cylinder Head Assembly – LH	P10C3-6M066-AA	1
Hardware Kit I – Engine Rebuild Kit	P10C3-IBHKKI-AA	1
Gasket – Front Cover	3L3E-6D081-DA	1
Gasket – Front Cover	3L3E-6D081-EA	1
Gasket – Front Cover	3L3E-6D081-FA	1
Gasket – LH Head	7L3E-6083-AA	1
Gasket – RH Head	7L3E-6051-AA	1
Gasket – LH Cam Cover	7L1E-6A559-AA	1
Gasket – RH Cam Cover	7L1E-6584-AA	1
Gasket – LH & RH Exhaust Manifold	9L3E-9Y431-BA	4
Nut – Exhaust Manifold	W701706	16
Bolt – Cylinder Head	3L3E-6065-BA	20
Bolt – Cam Sprocket	3L3E-6279-DA	2
Bolt – Crank Damper	W701512	1

Vehicle-Specific Supplemental Kits

Description	RPP Part Number	Qty
Supplemental Kit – Regular Cab w/ 8’ Box	P10C3-IBSUPKITR8-AA	1
Int. Line – RC 8 Ft Bed (137 in. WB) – Supply	P10C3-9J280-AA	1
Int. Line – RC 8 Ft Bed (137 in. WB) – Return	P10C3-9D297-AA	1
Tank Mounting Bracket – Left 8’ Bed	P10C3-9B197-AA	1
Tank Mounting Bracket – Right 8’ Bed	P10C3-9B197-BA	1
Bed Crush Sleeve – 8’ Bed	P10C3-11293-AA	2
Tank Mounting Bracket & Crush Sleeve – 61.9 mm	P10C3-38054-AA	2
Tank Mounting Bracket & Crush Sleeve – 87.4 mm	P10C3-38054-CA	2
M14 U Nut	W708770	2
Bed Bolt – M14 x 2.0 x 134mm	W714710	2

**ROUSH F-250/350 Liquid Propane Injection
Kit Installation Instructions**

Description	RPP Part Number	Qty
Supplemental Kit – Super Cab w/ 6.75' Box	P10C3-IBSUPKITS6-AA	1
Int. Line – SC 8/6.75 Ft Bed (141.8/158 in. WB) – Supply	P10C3-9J280-BA	1
Int. Line – SC 8/6.75 Ft Bed (141.8/158 in. WB) – Return	P10C3-9D297-BA	1
Tank Mounting Bracket – Left 6.75' Bed	P10C3-9B196-AA	1
Tank Mounting Bracket – Right 6.75' Bed	P10C3-9B196-BA	1
Tank Mounting Bracket & Crush Sleeve – 61.9 mm	P10C3-38054-AA	1
Tank Mounting Bracket & Crush Sleeve – 71.0 mm	P10C3-38054-BA	2
Tank Mounting Bracket & Crush Sleeve – 87.4 mm	P10C3-38054-CA	1
Bed Bolt – M14 x 2.0 TAPTITE II x 120mm	W714263	2

Description	RPP Part Number	Qty
Supplemental Kit – Super Cab w/ 8' Box	P10C3-IBSUPKITS8-AA	1
Int. Line – SC 8/6.75 Ft Bed (141.8/158 in. WB) – Supply	P10C3-9J280-BA	1
Int. Line – SC 8/6.75 Ft Bed (141.8/158 in. WB) – Return	P10C3-9D297-BA	1
Tank Mounting Bracket – Left 8' Bed	P10C3-9B197-AA	1
Tank Mounting Bracket – Right 8' Bed	P10C3-9B197-BA	1
Bed Crush Sleeve – 8' Bed	P10C3-11293-AA	2
Tank Mounting Bracket & Crush Sleeve – 61.9 mm	P10C3-38054-AA	2
Tank Mounting Bracket & Crush Sleeve – 87.4 mm	P10C3-38054-CA	2
M14 U Nut	W708770	2
Bed Bolt – M14 x 2.0 x 134mm	W714710	2

Description	RPP Part Number	Qty
Supplemental Kit – Crew Cab w/ 6.75' Box	P10C3-IBSUPKITC6-AA	1
Int. Line – CC 8/6.75 Ft Bed (172.4/156.2 in. WB) – Supply	P10C3-9J280-CA	1
Int. Line – CC 8/6.75 Ft Bed (172.4/156.2 in. WB) – Return	P10C3-9D297-CA	1
Tank Mounting Bracket – Left 6.75' Bed	P10C3-9B196-AA	1
Tank Mounting Bracket – Right 6.75' Bed	P10C3-9B196-BA	1
Tank Mounting Bracket & Crush Sleeve – 61.9 mm	P10C3-38054-AA	1
Tank Mounting Bracket & Crush Sleeve – 71.0 mm	P10C3-38054-BA	2
Tank Mounting Bracket & Crush Sleeve – 87.4 mm	P10C3-38054-CA	1
Bed Bolt – M14 x 2.0 TAPTITE II x 120mm	W714263	2

Description	RPP Part Number	Qty
Supplemental Kit – Crew Cab w/ 8' Box	P10C3-IBSUPKITC8-AA	1
Int. Line – CC 8/6.75 Ft Bed (172.4/156.2 in. WB) – Supply	P10C3-9J280-CA	1
Int. Line – CC 8/6.75 Ft Bed (172.4/156.2 in. WB) – Return	P10C3-9D297-CA	1
Tank Mounting Bracket – Left 8' Bed	P10C3-9B197-AA	1
Tank Mounting Bracket – Right 8' Bed	P10C3-9B197-BA	1
Bed Crush Sleeve – 8' Bed	P10C3-11293-AA	2
Tank Mounting Bracket & Crush Sleeve – 61.9 mm	P10C3-38054-AA	2
Tank Mounting Bracket & Crush Sleeve – 87.4 mm	P10C3-38054-CA	2
M14 U Nut	W708770	2
Bed Bolt – M14 x 2.0 x 134mm	W714710	2

If you are missing any items, please call us toll free at 1-800-59-ROUSH.

ROUSH F-250/350 Liquid Propane Injection Kit Installation Instructions

Disassembly and Installation

Special care should be taken to label the fasteners and parts taken off during this procedure that are to be reused.

- ⚠ Danger:** — The fuel supply lines remain pressurized after engine shutdown. Keep away from heat, sparks, flames, static electricity or other sources of ignition. Do **NOT** enter storage areas or confined spaces unless they are adequately ventilated. Failure to heed this danger may result in severe personal injury or death.
- ⚠ Danger:** — After de-pressurizing the gasoline system, disconnect the battery ground at the battery to ensure that the vehicle electrical system has no current. Failure to heed this danger could result in severe personal injury or death.

Reprogramming the Powertrain Control Module

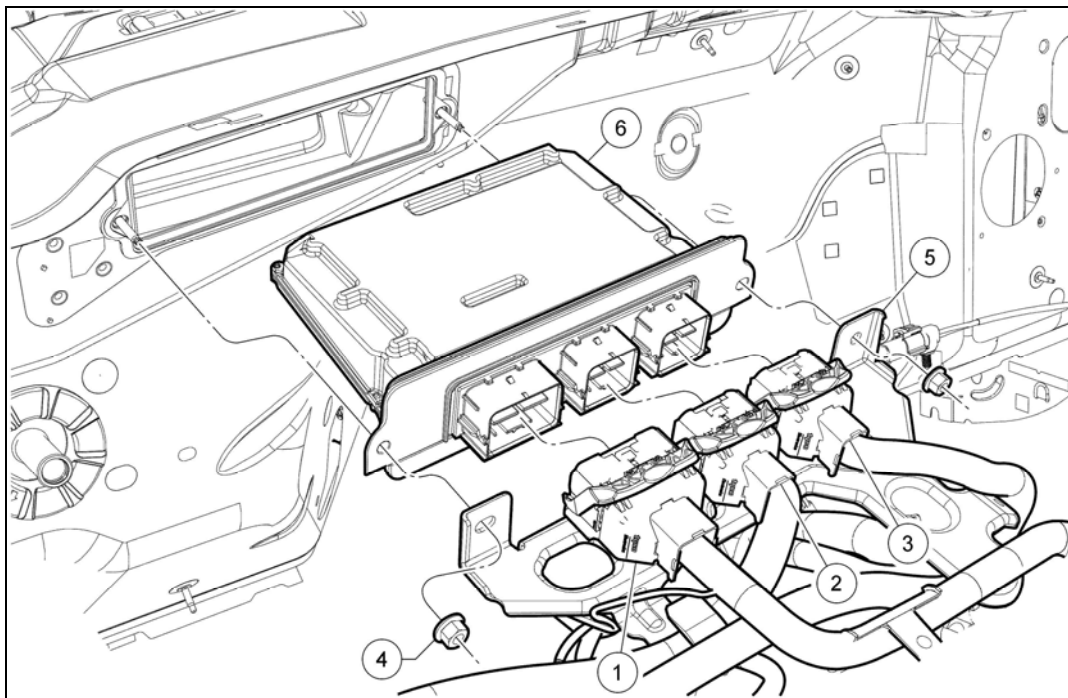
⚠ Caution

The Ford F-250/350 Powertrain Control Module (PCM; also called ECM, ECU, PCU or EEC) is programmed specifically for the vehicle using the vehicle identification number (VIN). It must be reprogrammed and returned to the vehicle from which it was removed. Failure to heed this caution may result in improper function of the diagnostic and anti-theft programs.

- ⚠ Warning:** — Operating the engine without reprogramming by ROUSH will result in engine damage or failure and will void all warranties.

ROUSH provides the necessary PCM packaging, overnight transportation (each way) and reprogramming at no charge. Follow these steps to expedite the service.

1. Using a scan tool, check for all error codes. Correct all errors before continuing.
2. De-pressurize the fuel rail using the procedure described in Section 310-00, Fuel System, General Information, in the Ford Service Information Workshop Manual.
3. Remove the battery from the vehicle.
4. Following the procedure described in the Ford Service Information Workshop Manual, Section 303-14, Electronic Engine Controls, remove the powertrain control module (PCM). The module screws will be reused. Disconnect the 3 PCM connectors by lifting the grey levers over the connector back shell and lifting the connectors from their sockets (Parts 1 – 3). Remove the (2) nuts (2x Part 4) and position the PCM wiring harness support bracket (Part 5) aside. Remove the PCM (Part 6) from the vehicle by pulling the PCM forward and lifting it out of the engine compartment.



ROUSH F-250/350 Liquid Propane Injection Kit Installation Instructions

5. Install the Hang Tag Label (P07L3-9A095-KB) onto the rear view mirror of the vehicle.
6. Write the requested information, including the GVWR, on the label provided (P10C3-9A095-LC). The test group information will be found on the original VECI label. The Propane Fuel Tank Serial Number can be found on the raised serial badge that is welded to the tank. Apply the self-stick label to the back side of the PCM.

ROUSH F-250 Propane PCM Label			
Purchaser's Full Name _____			
Purchaser's Address _____			
Vehicle Model Year _____		Mileage at Installation _____	
Vehicle Test Group _____			
Vehicle Identification Number _____			
Asse Ratio	Cab Type	Bed Type	Drive
<input type="checkbox"/> 3.73	<input type="checkbox"/> Crew Cab	<input type="checkbox"/> 6.75' Box	<input type="checkbox"/> 4 X 2
<input type="checkbox"/> 4.10	<input type="checkbox"/> Super Cab	<input type="checkbox"/> 8' Box	<input type="checkbox"/> 4 X 4
	<input type="checkbox"/> Regular Cab	<input type="checkbox"/> Box Delete	<input type="checkbox"/> Hang Tag Installed <small>Must be installed for PCM to be flashed</small>
GVWR Front _____		Tire Size _____	
GVWR Rear _____		Propane Fuel Tank Serial Number _____	
ROUSH.			
P10C3-9A095-LC			

Ford Motor Company
VEHICLE EMISSION CONTROL INFORMATION
Conforms to regulations: 2008 MY FFV
U.S. EPA: IT2B8 LDT4
OBD: F II Fuel: Gasoline/Ethanol
California: Not for sale in states with California emissions standards.
TWC/HO2S/SFI No adjustments needed.
5.4L-Group: 8FMXT05.44HF Evap: 8FMXR0250NBR
▽8W7E-9C485-R R L SAMPLE

⚠ Caution: — Do **NOT** alter or remove the original VECI label from the vehicle. This label is required by law. Failure to heed this caution may void all warranties.

7. Using the bubble wrap provided, wrap the PCM securely. Put it in the shipping box (P10C3-SB-AA) and seal the box.
8. Enter your name and address in the **FROM** area of the shipping label provided with the box.
9. Peel off the label on the right side of the form and attach it to the outside of the shipping box in the indicated area. Retain the left side of the form for your records.
10. Call for a **FedEx** Package Pickup. Dial 1-800-463-3339, then 0, and speak to an agent in person. Do **NOT** use the automated option to schedule a pickup.
11. Inform the agent that you have a **FedEx Express Prepaid Stamp** package and request a pickup.

FedEx will deliver the package to ROUSH via overnight service. ROUSH will reprogram the PCM during the day in which it is received and return it to you via overnight service.

Included will be a ROUSH VECI label which must be affixed to the hood so that both the original and the new labels can be read. Refer to the section, Installing Badges and Labels.

ROUSH.	ROUSH INDUSTRIES VEHICLE EMISSIONS CONTROL INFORMATION	
Conforms to regulations: 2010 MY		
U.S. EPA: T2B4 LDT4	OBD: FED OBD II	Fuel: LPG
California: Not for sale in states with California emissions standards	OBD: N/A	Fuel: N/A
TWC/HO2S/SFI	No adjustments needed	
5.4L - Group: AR11D05.46VX Evap: AR11F0006LPG	▽P10C3-9C485-AA	

If you need to ship via another carrier, our address is:

**ROUSH Powertrain Development
Building 57
Attention: PCM Flash
777 Republic Drive
Allen Park, MI 48101**

If you have any questions, call ROUSH customer service at 1-800-597-6874.

ROUSH F-250/350 Liquid Propane Injection Kit Installation Instructions

Preparing the Engine (If Applicable)

The following steps must be completed by those customers who purchased the "Engine Upgrade Kit". Customers who did not purchase this kit may proceed to the next section.

1. Following the procedure described in the Ford Service Information Workshop Manual, Section 303-01, Engine – 5.4L (3V), replace the factory cylinder heads. A number of replacement parts are also included in this kit (P10C3-ENGGIT-AA) and will be used during engine re-assembly.
2. Package the take off heads for return shipment to Roush. Be careful not to damage them as they will be assessed once returned to Roush for a core charge refund.

Preparing the Engine Compartment

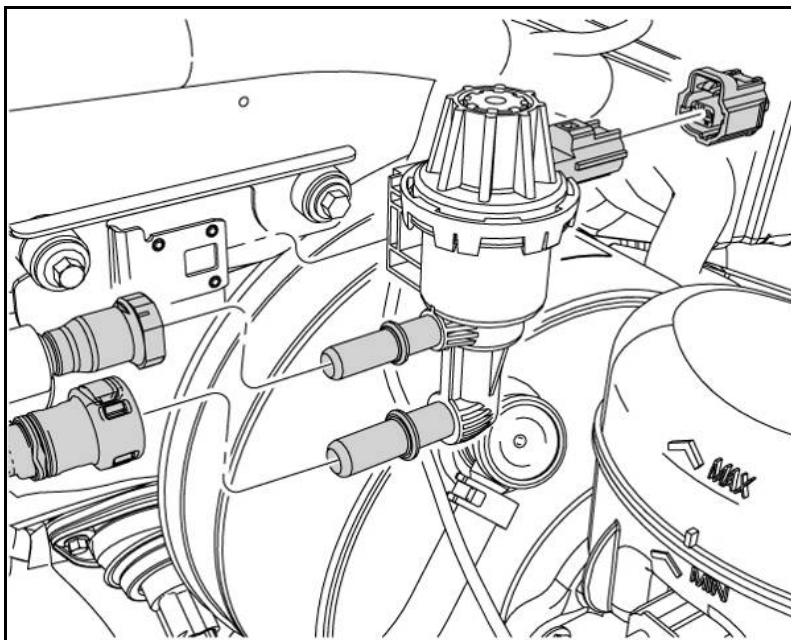
Refer to the Ford Technical Services, Service Information, Section 303-04C, Fuel Charging and Controls, Removal and Installation, for complete instructions for removing the fuel rails and injectors.

Some parts will be reused. The following procedure indicates which items may be salvaged or discarded and which are to be set aside for reuse.

⚠ Danger: — The fuel supply lines remain pressurized after engine shutdown. Keep away from heat, sparks, flames, static electricity or other sources of ignition. Do **NOT** enter storage areas or confined spaces unless they are adequately ventilated. Failure to heed this danger may result in severe personal injury or death.

⚠ Danger: — Read and follow all applicable alert messages in the Ford manual. Failure to heed this danger may result in severe personal injury.

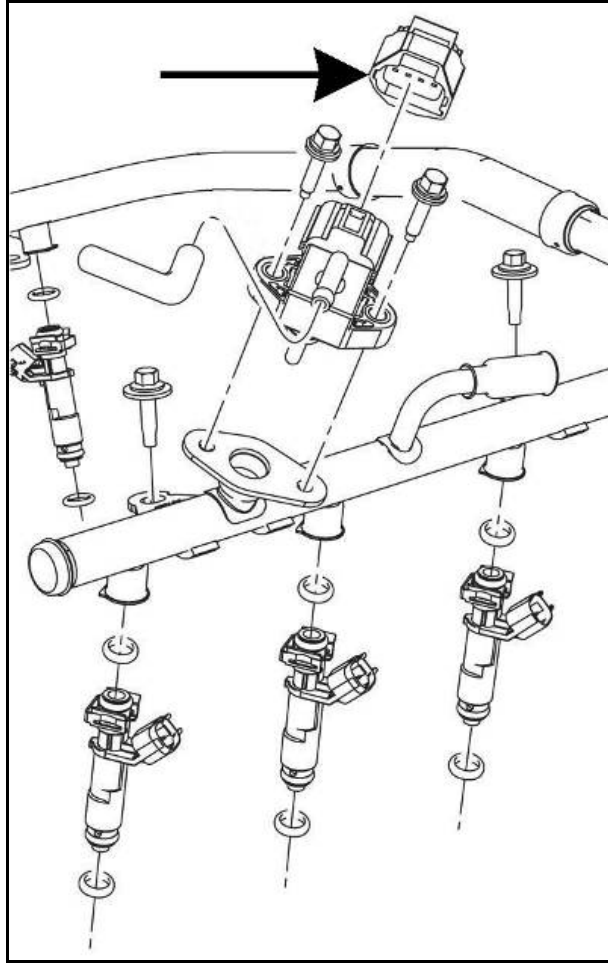
1. Remove the air cleaner outlet tube. The tube will be reused.
2. Disconnect the MAF sensor connector and remove the air cleaner cover.
3. Disconnect and remove both PCV lines/tubes. Both tubes will be reused.
4. Disconnect the ETC, TPS and heated PCV electrical connectors.
5. Disconnect the two vapor hoses and one electrical connector from the EVAP canister purge valve.



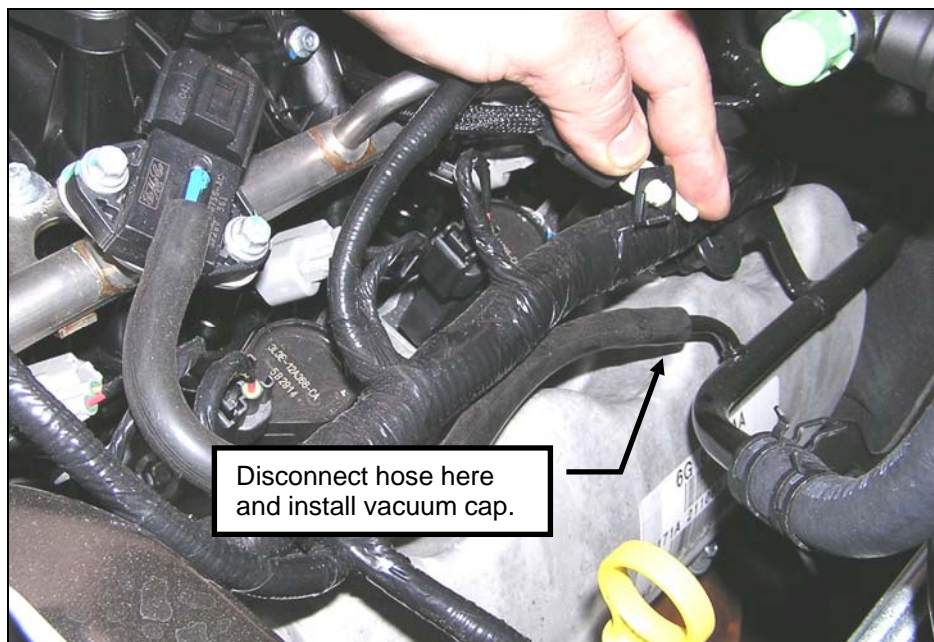
6. Remove and set aside the two fasteners holding the valve bracket to the dash panel. These fasteners will be reused at a later step.
7. Remove the valve. The valve will not be reused.
8. Remove the intake manifold-to-EVAP canister purge valve vapor tube and install (1) 3/8" VMV Outlet Vacuum Cap (CS2575) onto the intake manifold port in its place. The tube will not be reused.

ROUSH F-250/350 Liquid Propane Injection Kit Installation Instructions

9. Disconnect the fuel pressure/temperature sensor electrical connector.

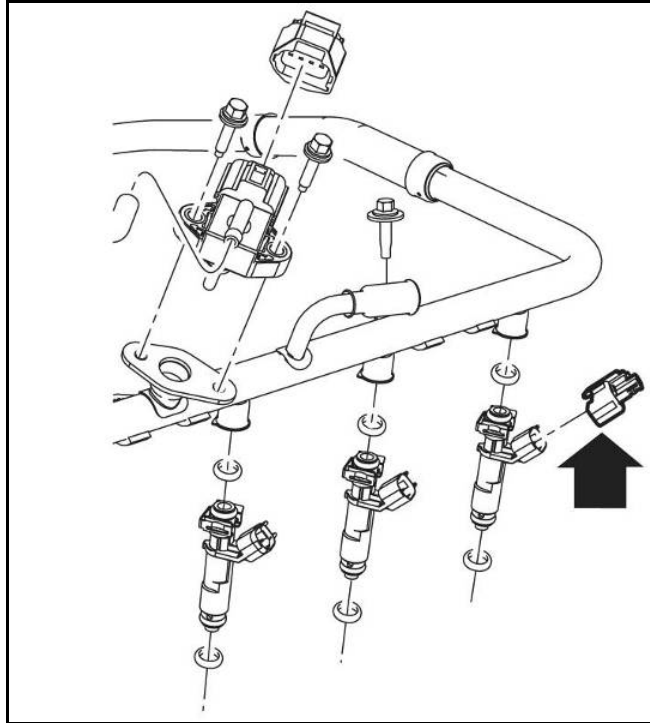


10. Disconnect the fuel pressure regulator vacuum hose from the steel tube near the rear of the driver's side valve cover and install (1) 1/4" IPTS Manifold Vacuum Cap (CS515) in its place.

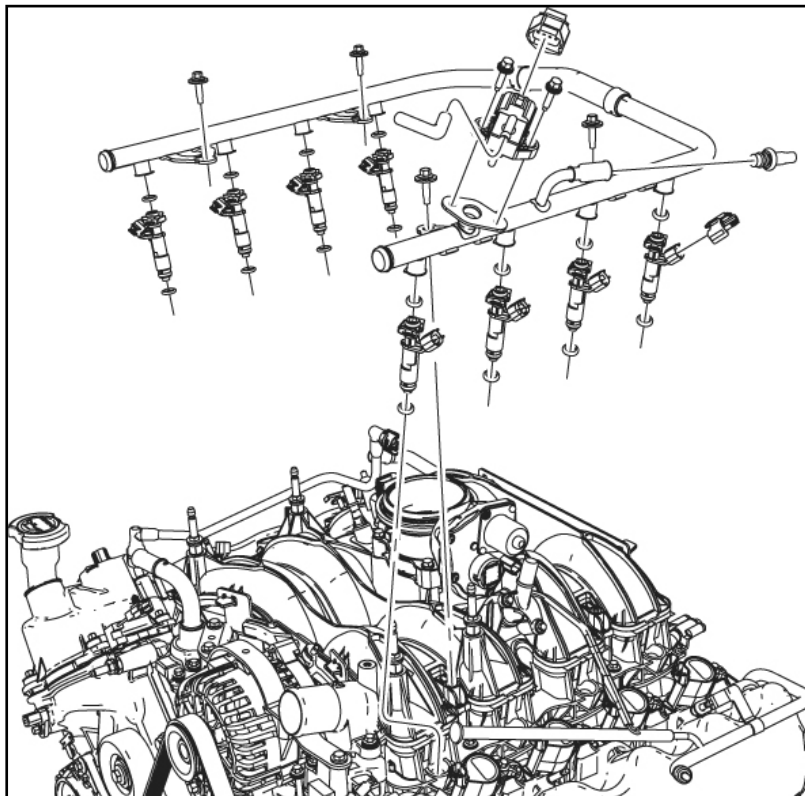


ROUSH F-250/350 Liquid Propane Injection Kit Installation Instructions

11. Disconnect the eight original fuel injectors from the harness.



12. Using the Ford fuel line tool, disconnect the fuel supply line.
13. Remove and set aside the fuel rail/injector assembly bolts. The rail and injectors will not be reused. The bolts must be retained for later usage.



ROUSH F-250/350 Liquid Propane Injection Kit Installation Instructions

Removing the Original Fuel Tank

Refer to the Ford Technical Services, Service Information, Section 310-01, Fuel Tank and Lines, for complete instructions for removing the original fuel tank.

- ⚠ Danger:** — Read and follow all applicable alert messages in the Ford manual. Failure to heed this danger may result in severe personal injury or death.
- ⚠ Danger:** — The fuel supply lines remain pressurized after engine shutdown. Keep away from heat, sparks, flames, static electricity or other sources of ignition. Do **NOT** enter storage areas or confined spaces unless they are adequately ventilated. Failure to heed this danger may result in severe personal injury or death.
- ⚠ Danger:** — Do **NOT** bring lighted smoking materials or smoke while working on fuel system components. Failure to heed this danger could result in severe personal injury or death.
- ⚠ Danger:** — Disconnect the battery ground at the battery to ensure that the vehicle electrical system has no current. Failure to heed this danger could result in severe personal injury or death.

Removing the Original Filler Pipe

Refer to the Ford Technical Services, Service Information, Section 310-01, Fuel Tank and Lines, for complete instructions for removing the original filler pipe.

Removing the Original Fuel Filter

Refer to Ford Technical Services, Service Information, Section 310-01, Fuel Tank and Lines, for the correct procedure for removing the fuel filter except as follows.

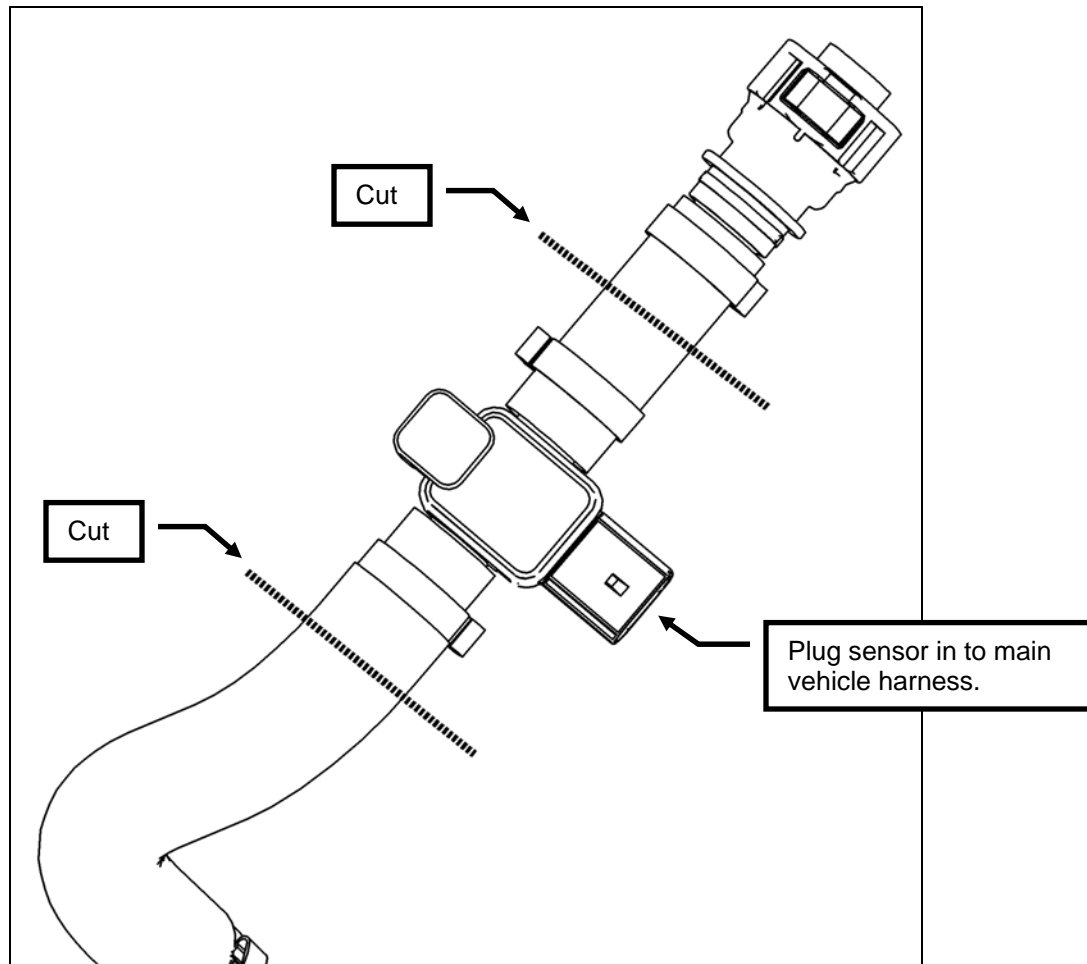
- ⚠ Danger:** — Read and follow all applicable alert messages in the Ford manual. Failure to heed this danger may result in severe personal injury or death.
1. Do **NOT** disconnect the fuel filter outlet fuel tube spring lock coupling.
 2. Remove the filter and the attached fuel line as a unit.

ROUSH F-250/350 Liquid Propane Injection Kit Installation Instructions

Removing the Original Fuel Lines

Refer to Ford Technical Services, Service Information, Section 310-01, Fuel Tank and Lines, Fuel Lines, for complete instructions for removing the fuel lines except as follows.

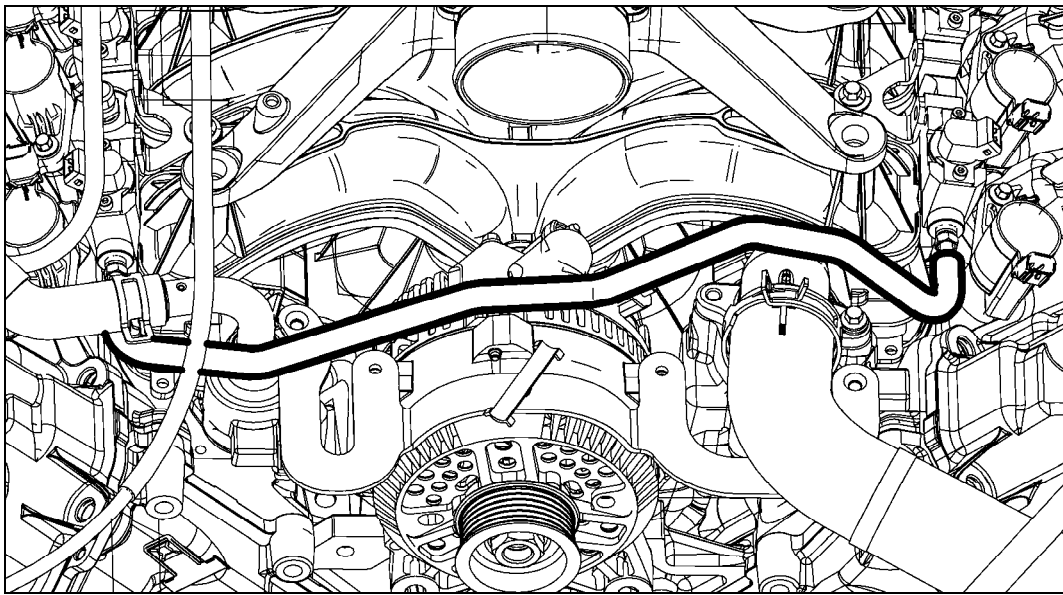
- ⚠ Danger:** — Read and follow all applicable alert messages in the Ford manual. Failure to heed this danger may result in severe personal injury or death.
1. Do **NOT** disconnect the fuel filter outlet fuel tube spring lock coupling. The attached fuel line will be removed with the filter as a unit.
 2. Do **NOT** remove or discard the fuel line brackets attached to the transmission. These will be reused.
 3. Once the lines are removed from the vehicle, carefully remove the stock fuel tank pressure transducer from the fuel line by cutting the lines adjacent to the sensor. Plug the sensor back into the vehicle harness and secure the sensor to the stock vehicle harness using (1) cable tie (1A868).



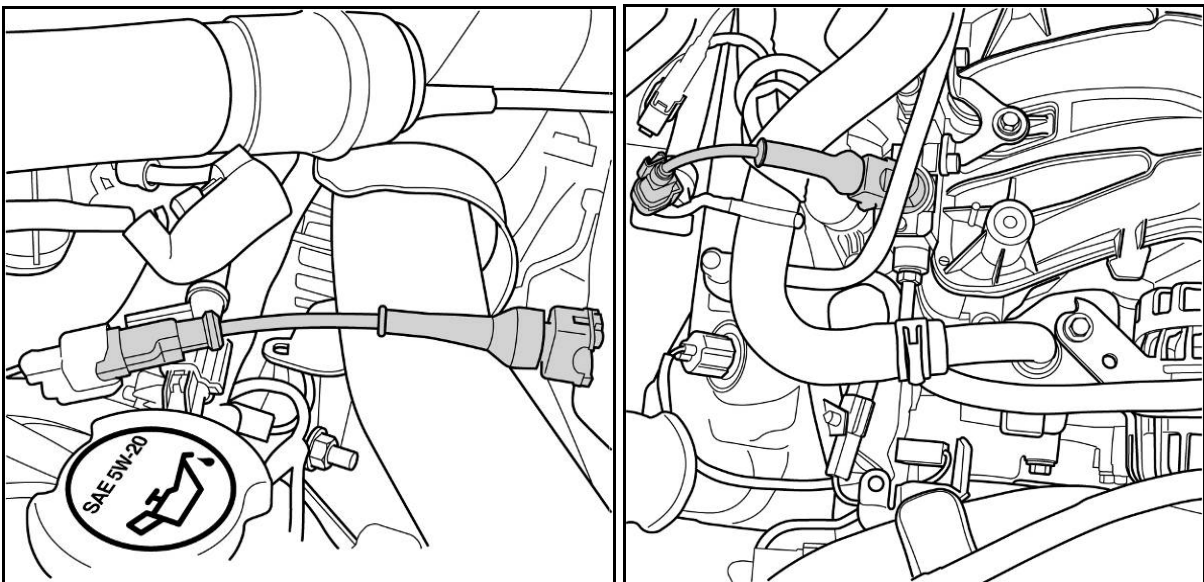
ROUSH F-250/350 Liquid Propane Injection Kit Installation Instructions

Installing the New Fuel Rail Assemblies

- ▲ Caution:** — Hand tighten all fuel line connectors and fasteners before applying a wrench to avoid cross threading. Failure to heed this caution may result in property damage.
1. Using engine oil, Motorcraft SAE 5W-20 or equivalent, lubricate the lower O-rings before seating the rail assemblies.
 2. Position the Left Hand Fuel Rail Assembly (P10C3-9F899-AB) onto the driver side of intake manifold and seat the nozzles. Position the Right Hand Fuel Rail Assembly (P10C3-9F899-BB) onto the passenger side of the intake manifold and seat the nozzles.
- ▲ Caution:** — Ensure the nozzles are correctly aligned before seating. Failure to heed this caution could result in serious property damage.
3. Using the original bolts, secure the new fuel rails to the intake manifold. Torque bolts to 8 – 12 Nm.
 4. Install the new Crossover Fuel Line (P10C3-9F893-AA) onto the forward ends of the fuel rails. Torque connections to 18 – 22 Nm.



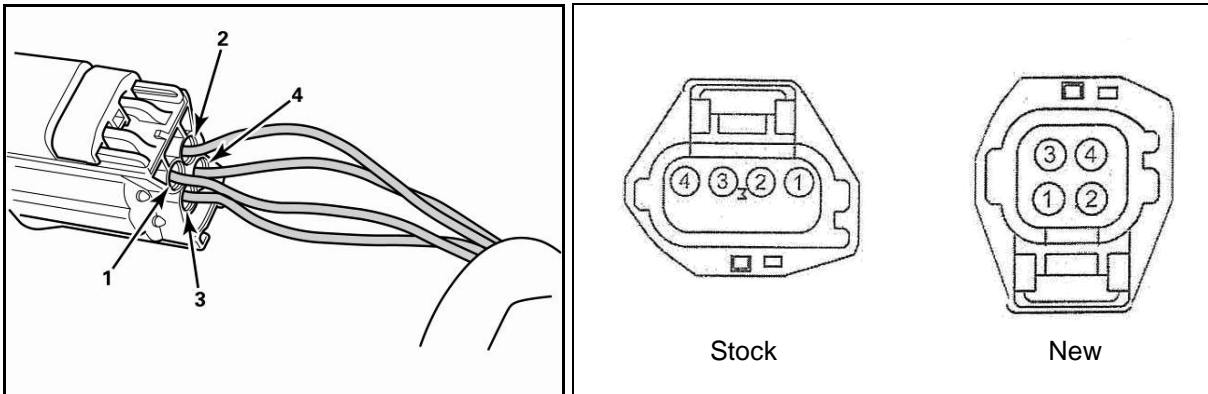
5. Connect (1) Fuel Injector Jumper (P07L3-9C978-AB) to each original harness connector. Connect the opposite end of each jumper to the injector.



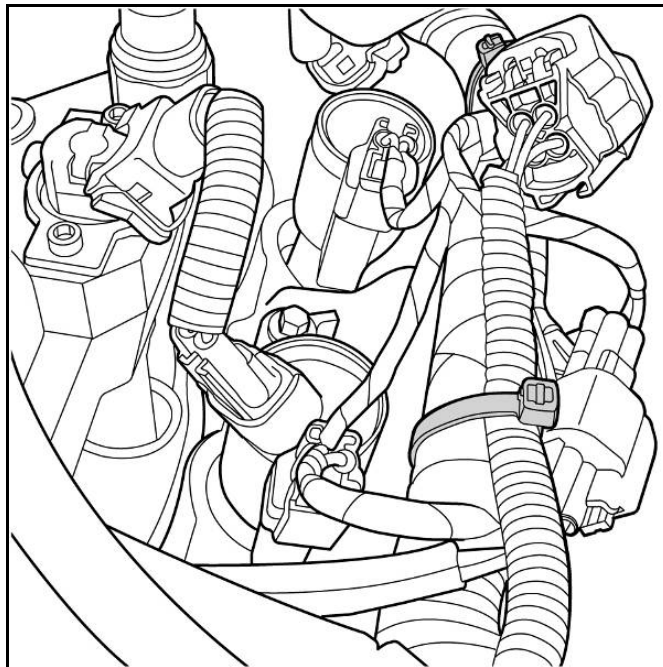
ROUSH F-250/350 Liquid Propane Injection Kit Installation Instructions

⚠ Caution: — Ensure that each jumper attaches to its correct mating connector to avoid cross wiring. Failure to heed this caution will result in engine malfunction and possible property damage.

6. Remove the leads (de-pin) to the original (IPTS) sensor connector. Carefully label each wire with their location number. These leads will need to be re-installed in the next step in the exact location from which they were removed.
7. Insert the leads into the new IPTS jumper harness (P07L3-9C062-AA) sensor connector. Ensure that the leads are inserted in the correct locations. At the time of publication, Pin1 is a blue wire with yellow tracer, Pin2 is a green wire with purple tracer, Pin3 is a green wire and Pin4 is a green wire with yellow tracer.



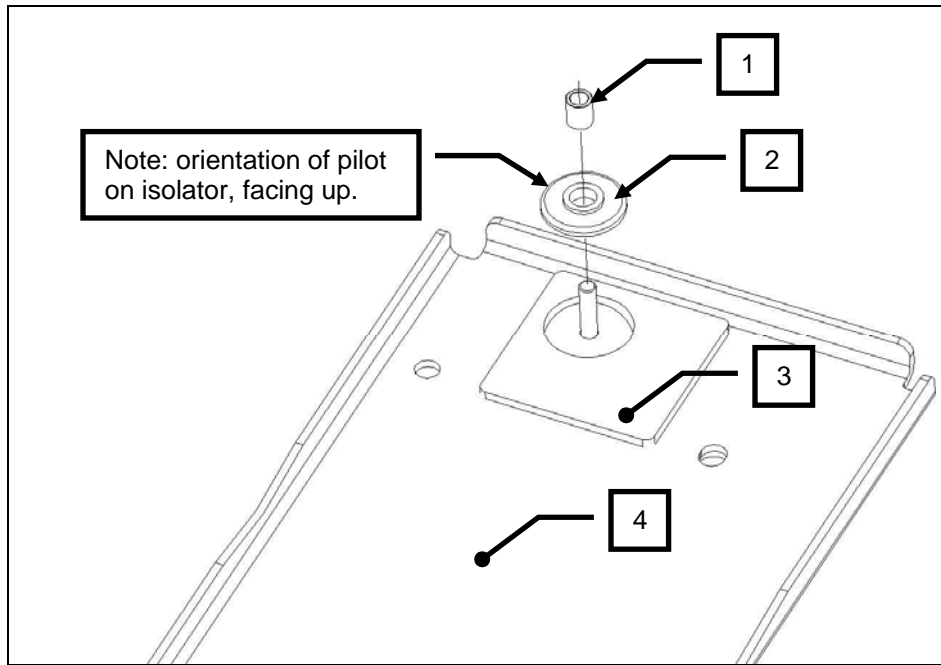
8. Connect the new IPTS jumper harness; one end to the IPTS sensor and the other to the newly pinned connector.
9. Using cable ties, join the IPTS harness to the original engine harness.



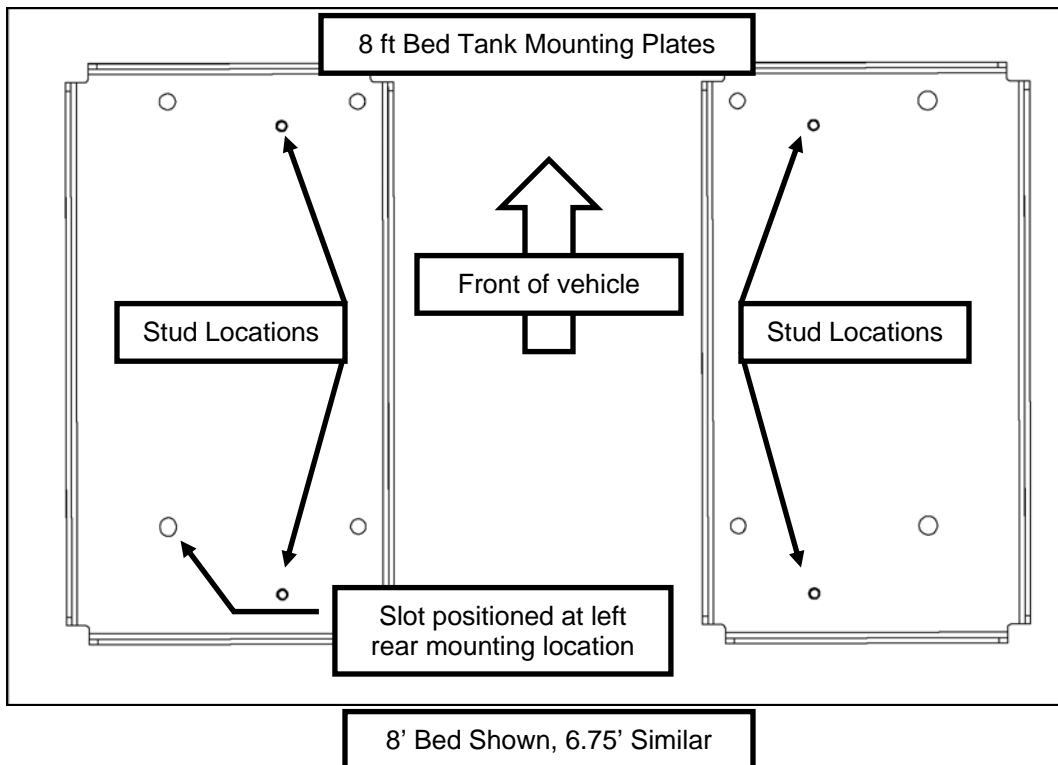
ROUSH F-250/350 Liquid Propane Injection Kit Installation Instructions

Preparing the Tank Assembly

1. Assemble (4) Isolator Crush Limiters, (item # 1, P10C3-11293-BA), (4) Isolators, (item # 2, P07L3-9N052-AA) and (4) Isolator Pads, (item # 3, P10C3-9N052-BA) to the tank mounting brackets, (item # 4, P10C3-9B196-AA and P10C3-9B196-BA or P10C3-9B197-AA and P10C3-9B197-BA).

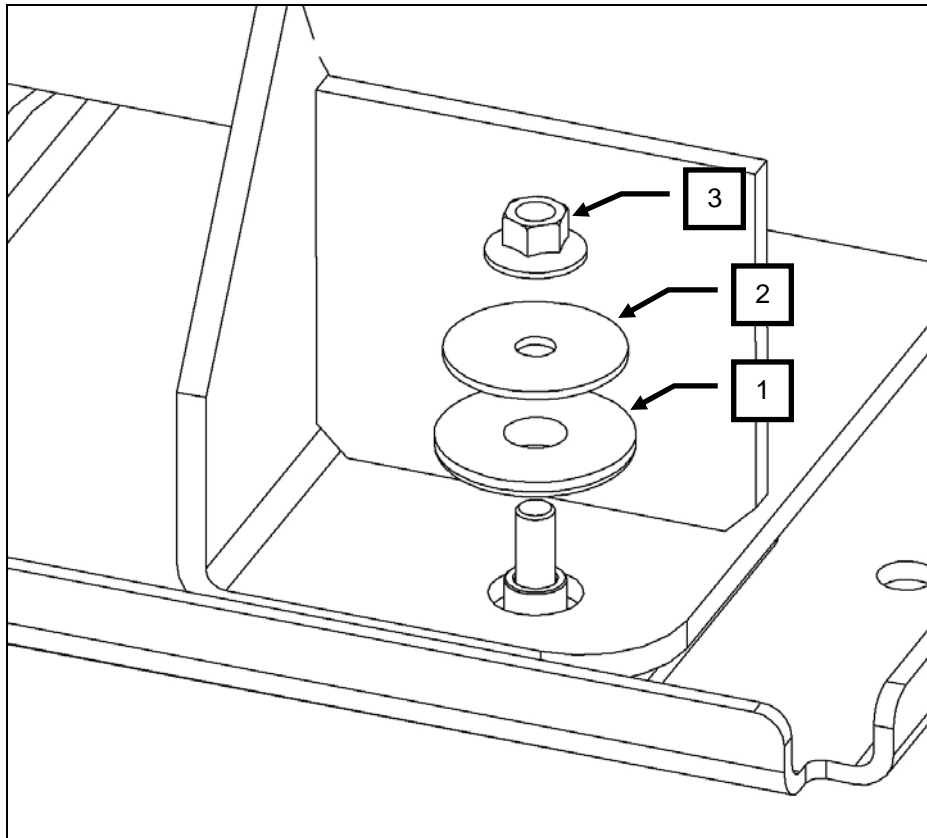


2. Orient the tank mounting plates (P10C3-9B196-AA and P10C3-9B196-BA or P10C3-9B197-AA and P10C3-9B197-BA) as shown before assembling the tank to the mounting plates.

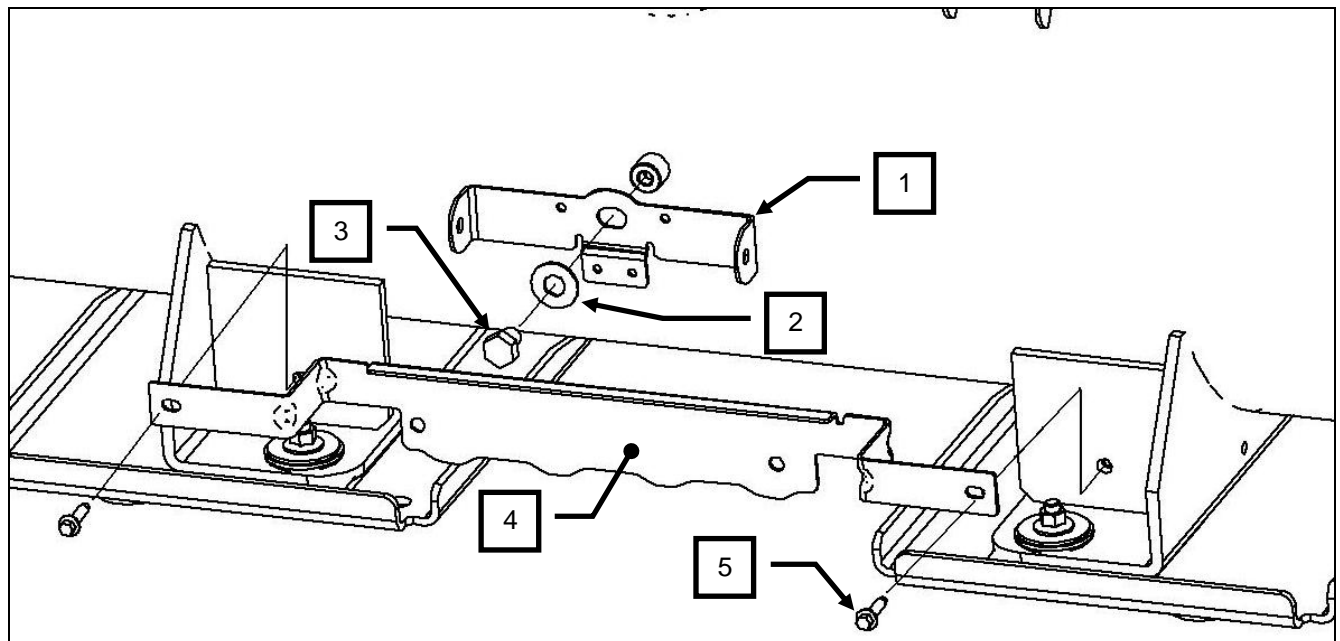


ROUSH F-250/350 Liquid Propane Injection Kit Installation Instructions

- Set the Fuel Tank (P10C3-9K007-AB) onto the four isolators, ensuring each isolator pilot feature snugly fits into the tank mounting holes. Secure the tank to the mounting brackets using (4) Upper Isolators (item # 1, P07L3-9N052-AA), (4) Washers (item # 2, P07L3-3932-AA) and (4) M12 nuts (item # 3, N807479). Torque the M12 nuts to 80 – 90 Nm.

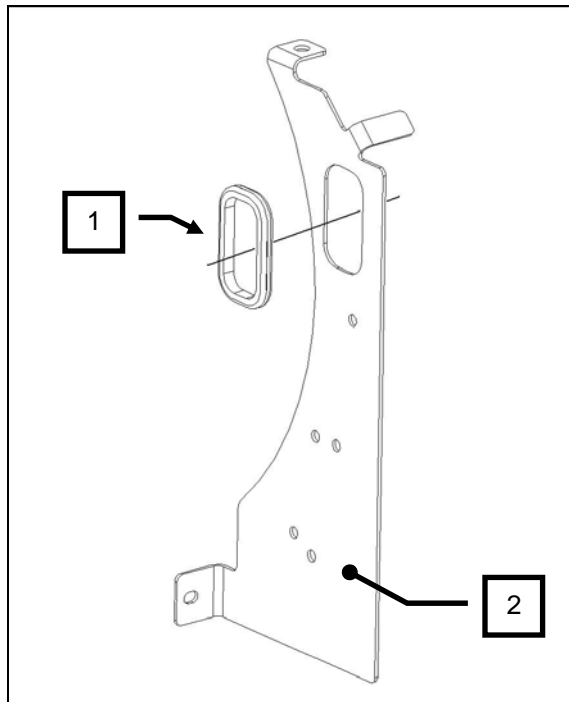


- Install the Upper Cross Brace (item # 1, P10C3-38060-AA) to the tank using (1) 5/8" washer (item # 2, 92141A035) and (1) 5/8" bolt (item # 3, 92240A792). Torque the 5/8" bolt to 145 – 155 Nm. Install the Lower Cross Brace (item # 4, P10C3-38060-BA) using (2) M8 x 1.25 x 30mm fasteners (item # 5, W712419). Torque the M8 fasteners to 20 – 30 Nm.

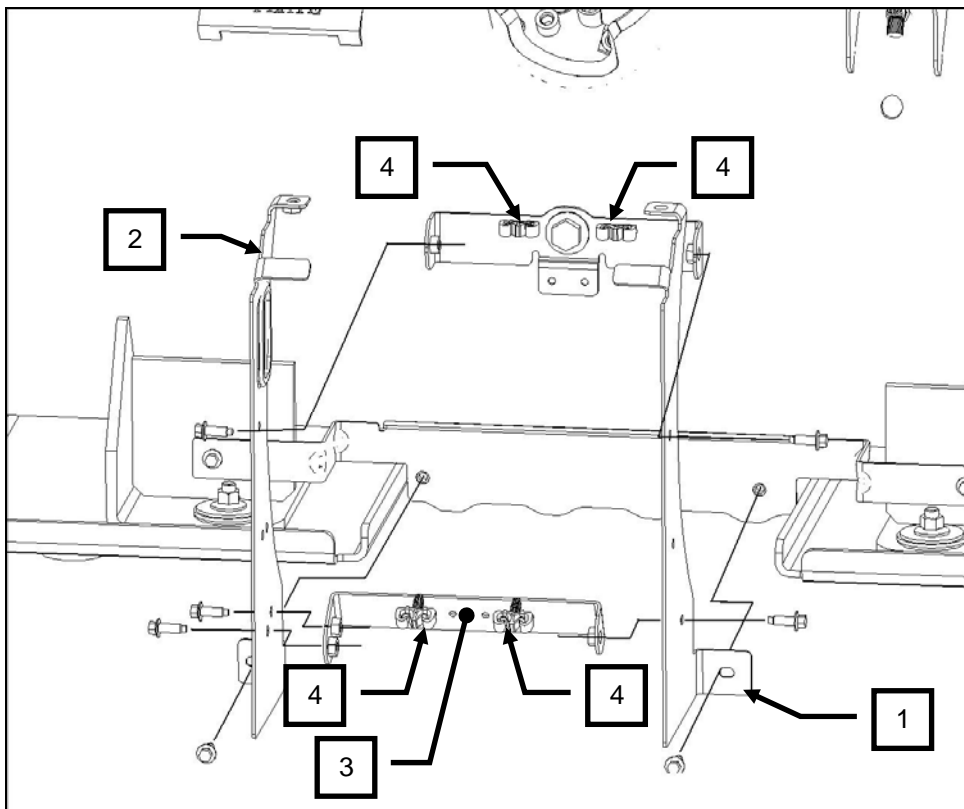


ROUSH F-250/350 Liquid Propane Injection Kit Installation Instructions

5. Insert the Right Line Shield Grommet (item # 1, G3345-035000) into the Right Fuel Line Shield (item # 2, P10C3-9B257-BB) as shown.

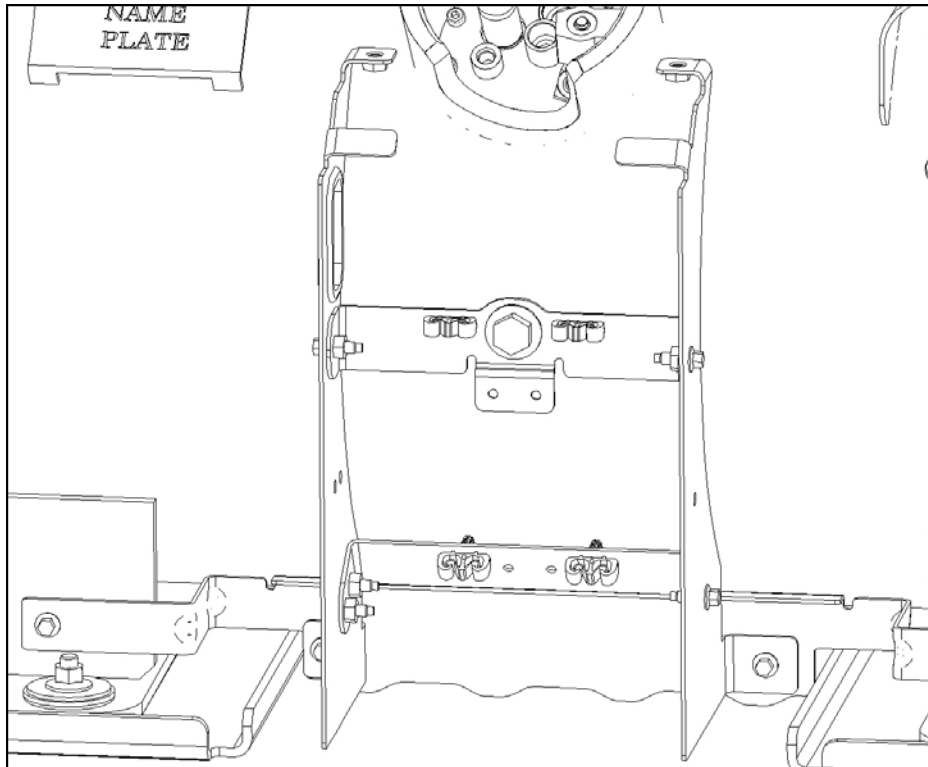


6. Assemble the left and right side Fuel Line Shields (item # 1 and # 2, P10C3-9B257-AB and P10C3-9B257-BB) to the previously installed brackets using (4) M8 x 1.25 x 20 mm fasteners (N605905). Install the Middle Cross Brace (item # 3, P10C3-38060-DA) as shown using (3) M8 x 1.25 x 20 mm fasteners. Do not torque the M8 fasteners; this will be done at a later step. Insert the fuel line clip (item # 4, 15-004175) in the 4 places as shown.

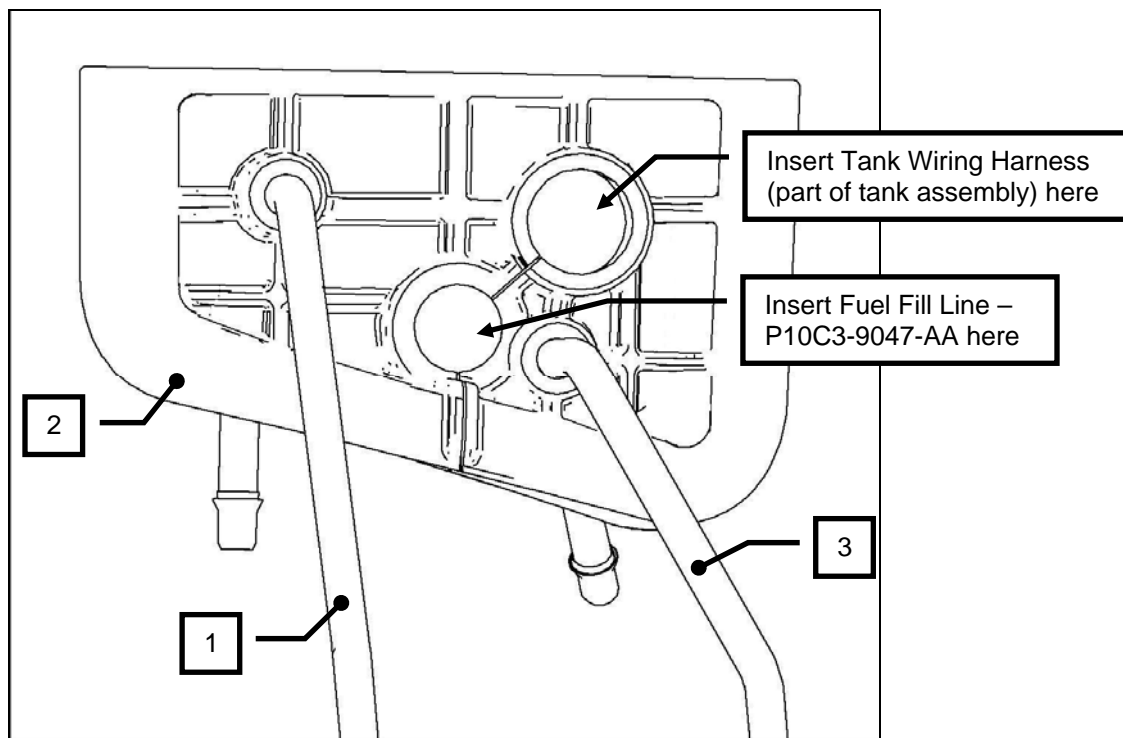


ROUSH F-250/350 Liquid Propane Injection Kit Installation Instructions

The completed step is shown below.

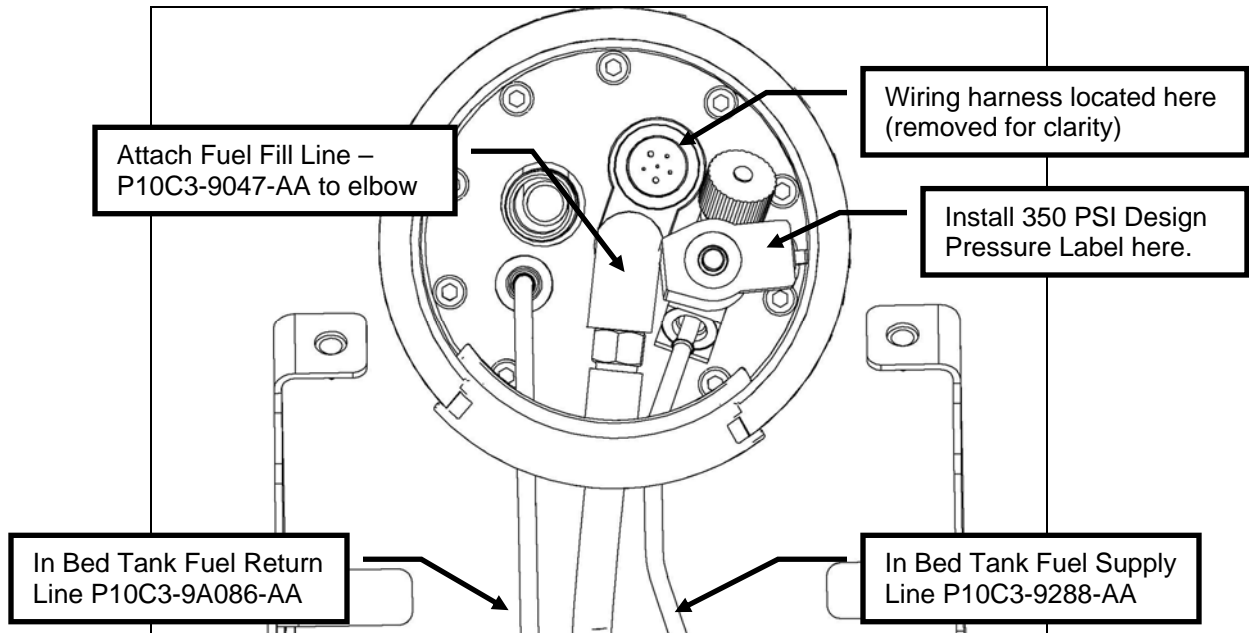


7. Install the In Bed Tank Fuel Return Line (Item # 1, P10C3-9A086-AA) to the Tank Collar Grommet (Item # 2, P10C3-14487-AB) into the hole shown. Install the In Bed Tank Fuel Supply Line (Item # 3, P10C3-9288-AA) to the Tank Collar Grommet into the hole shown. Insert Tank Wiring Harness (part of the tank assembly, not shown here) into the hole shown. Insert the 180 degree fitting on the Filter to Tank Fuel Fill Line (P10C3-9047-AA, not shown here) into the hole shown.

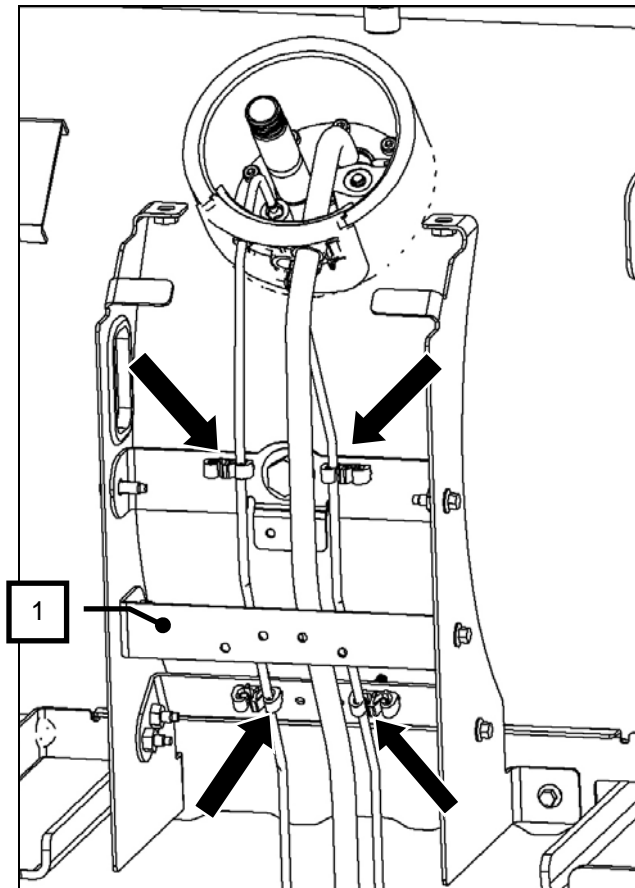


ROUSH F-250/350 Liquid Propane Injection Kit Installation Instructions

8. Remove the protective dust caps from the quick connect fittings on the multivalve. Install the tank collar grommet into the tank collar and push the fuel lines into the quick connect fittings as shown. Assemble the fuel fill line (P10C3-9047-AA) to the elbow on the multivalve as shown. Torque the fill line to 41 – 49 Nm. Install the 350 PSI Design Pressure Label (P07L3-9A095-IB) onto the top of the multivalve supply solenoid.

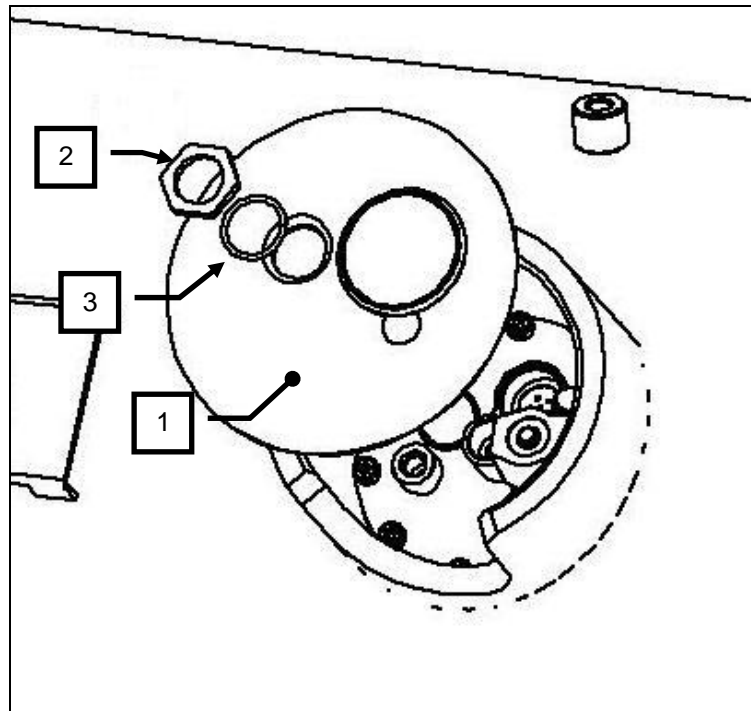


9. Clip the fuel lines into the fuel line clips in the 4 places as shown. Install the second Middle Cross Brace (item # 1, P10C3-38060-DA) as shown using (3) M8 x 1.25 x 20 fasteners. Do not torque fasteners.

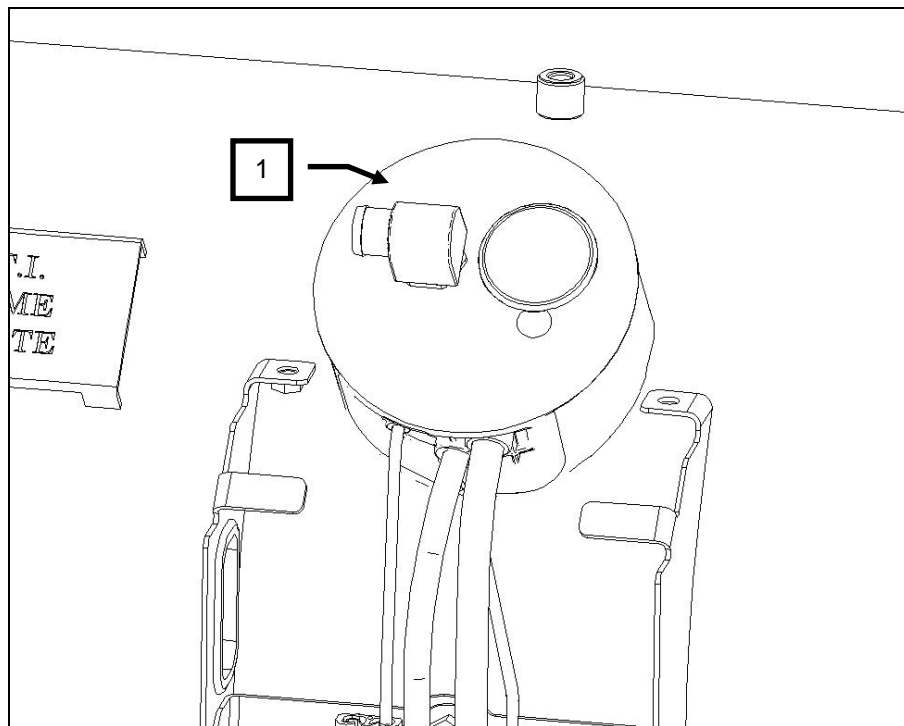


ROUSH F-250/350 Liquid Propane Injection Kit Installation Instructions

10. Install the brass tube into the tank multivalve. Secure the aluminum collar cover (item #1) to the tank using the M24 nut (item #2) and o-ring (item #3). These parts can be found in a bag that was shipped with the tank.

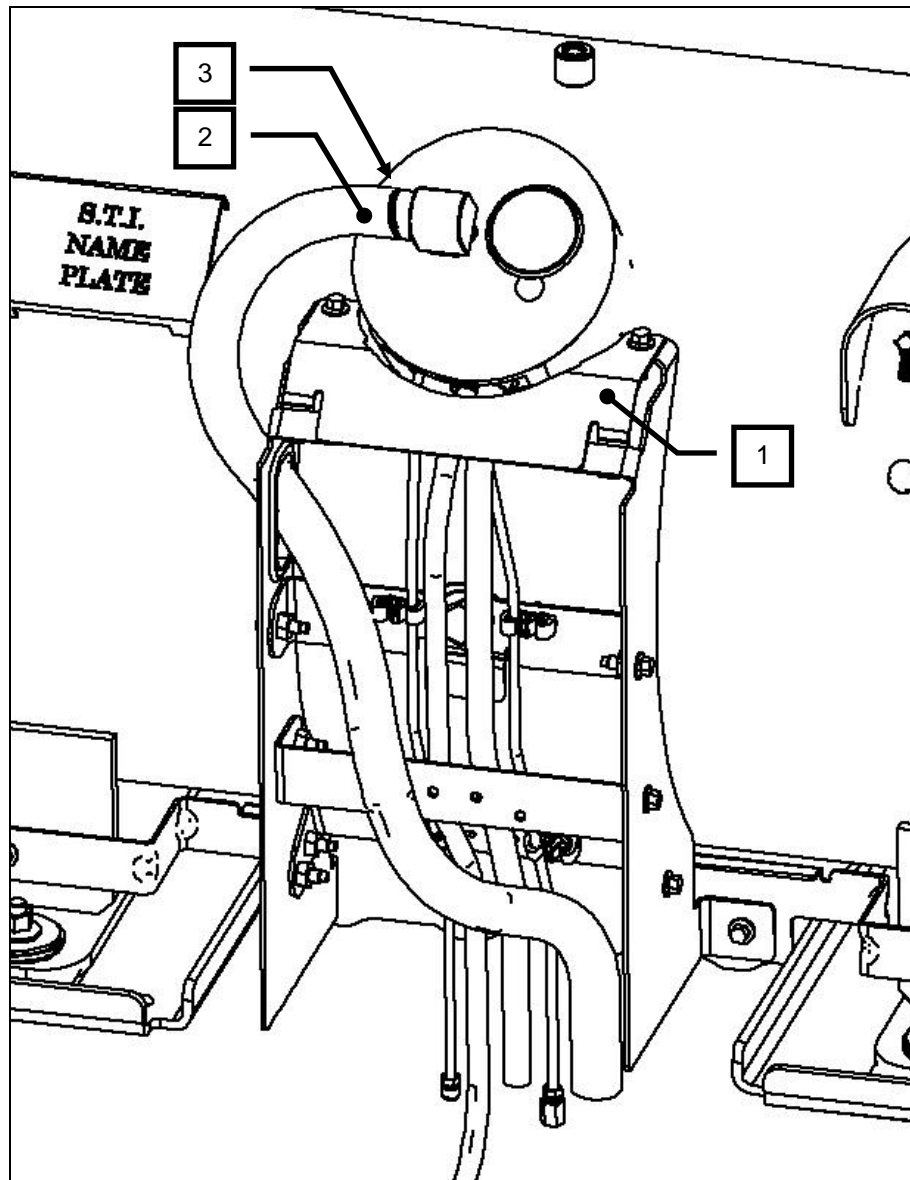


11. Install the Pressure Relief Hose Elbow (item # 1, P07L3-9K339-AA), tighten and orient as shown.



ROUSH F-250/350 Liquid Propane Injection Kit Installation Instructions

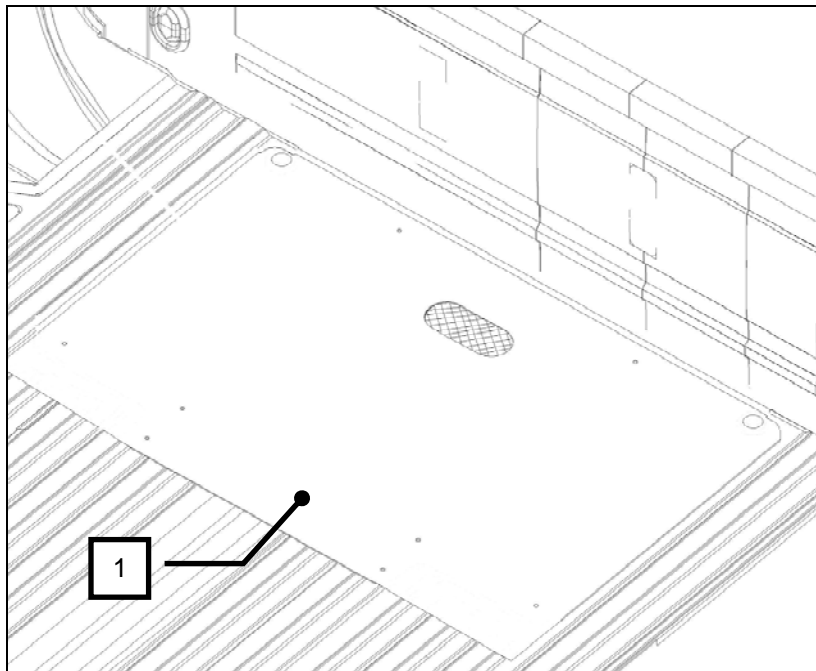
12. Install the Upper Fuel Line Shield (item #1, P10C3-9B257-CA) as shown using (2) M8 x 1.25 x 20mm fasteners. Torque all the M8 fasteners to 20 – 30 Nm. Route the Pressure Relief Hose (item # 2, P07L3-9170-BA) through the grommet in the fuel line shield as shown. Secure the hose to the elbow using (1) constant tension clamp (item #3, 32150000). Correct routing of all lines, pressure relief hose and harness are shown below.



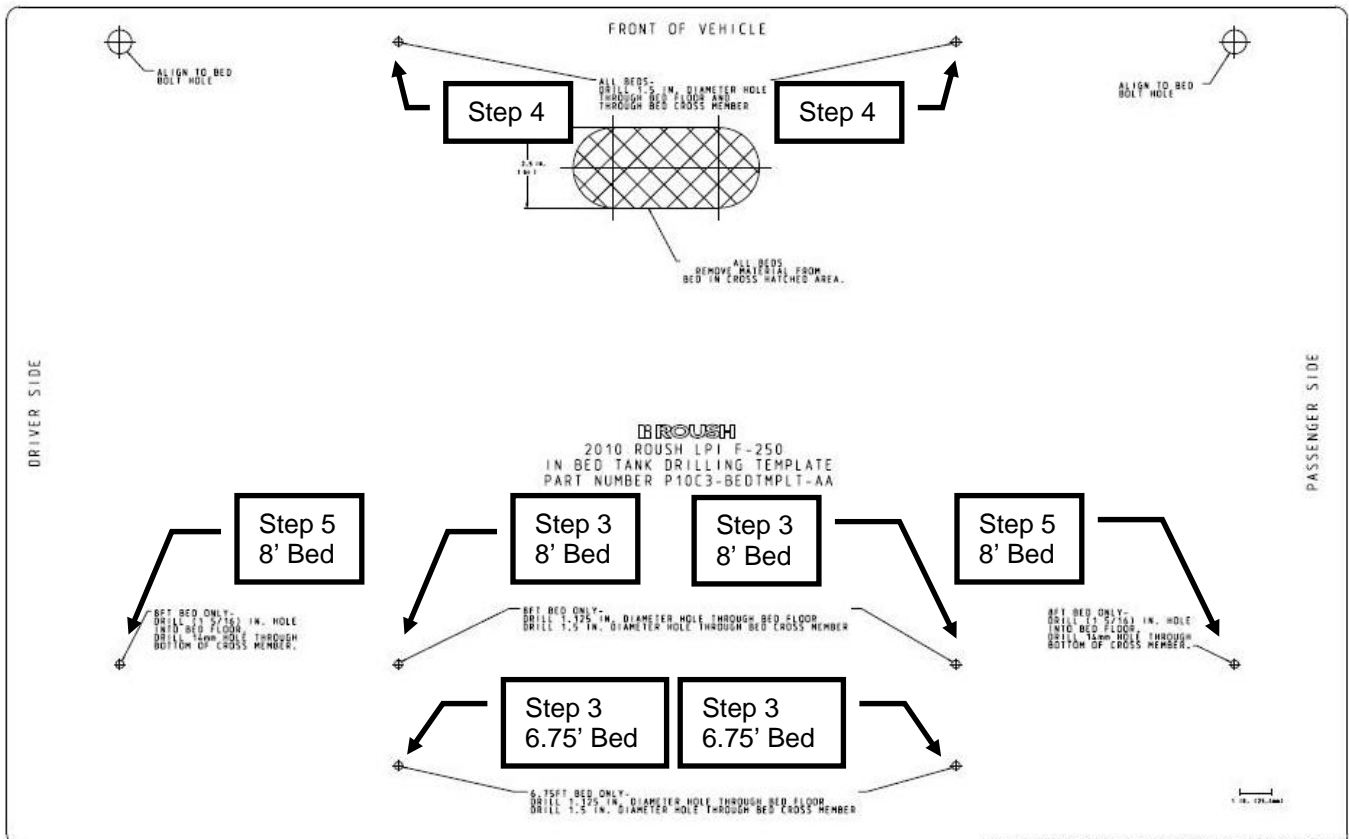
ROUSH F-250/350 Liquid Propane Injection Kit Installation Instructions

Bed Modification

1. Remove the front two bed bolts and place the bed drilling template (item # 1, P10C3-BEDTMPLT-AA) in the bed. Align the front outside holes of the template to the bed bolt holes in the bed. Trim the top of the template as required to properly align the template to the bed.

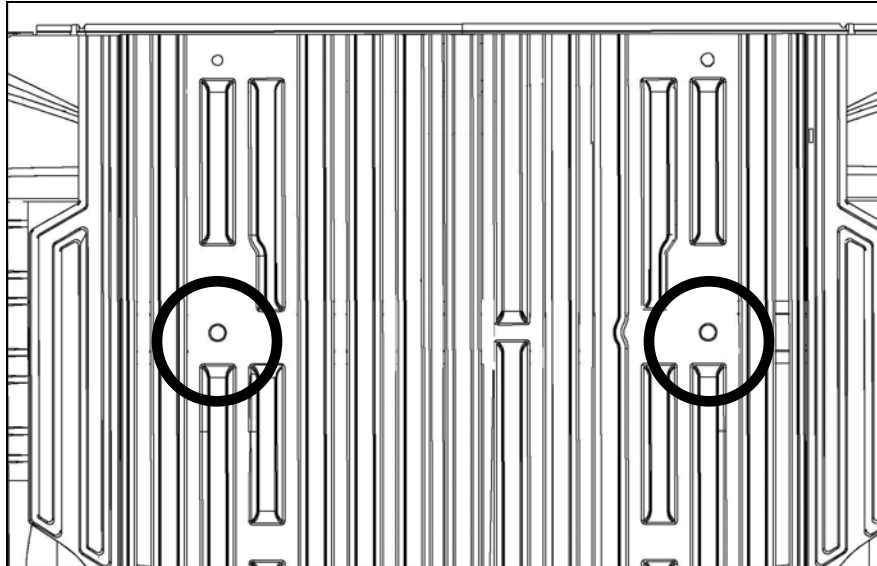


Below is a summary of the steps that will be followed during this modification.

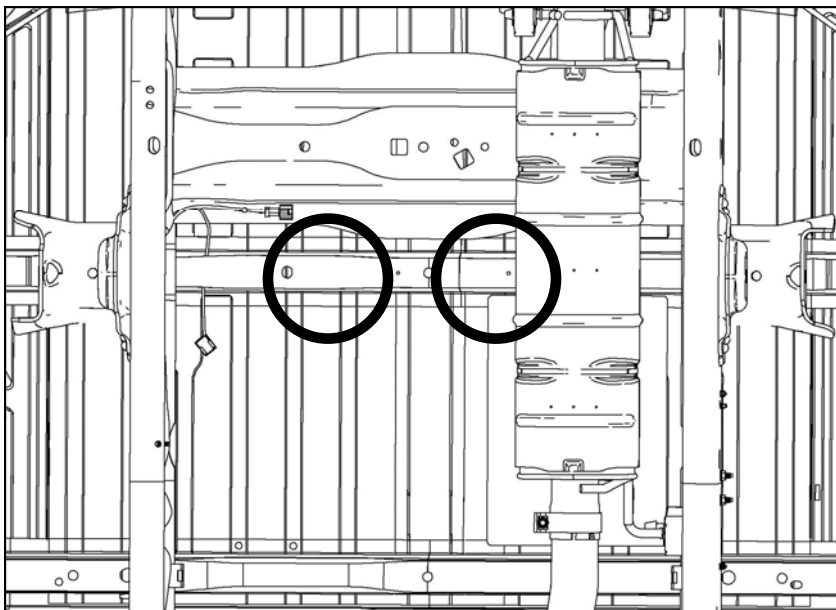


ROUSH F-250/350 Liquid Propane Injection Kit Installation Instructions

- Using the template, center punch the appropriate holes for the bed you are working with. The template indicates which holes are to be drilled for 6.75 ft and 8 ft beds. Drill a small diameter pilot hole through the bed floor and bed cross member at each appropriate drill location.
- Drill (2) 1-1/8 in. diameter holes through the bed floor only at the two rear inboard locations as indicated on the template for the required bed size.
- Drill (2) 1.5 in. diameter holes through the bed floor and cross member at the two front inboard locations as indicated on the template.
- 8 ft Bed Only:** Drill (2) 1-5/16 in. diameter holes through the bed floor only at the two rear outboard locations as indicated on the template.
- 8 ft Bed Only:** After drilling the 1-5/16 in. diameter holes through the bed floor, drill a 14 mm (or 9/16 inch) diameter hole through the bottom of the bed cross member from underneath the bed at the two rear outboard locations using the pilot drill as the center.



- Refer to the Ford Technical Services, Service Information, Section 309-00, Exhaust System, for complete instructions for removing the muffler.
- Drill (2) 1.5 in. diameter holes through the bed cross member at the two rear inboard locations from the bottom of the vehicle. Use the pilot hole as a guide at each location. Shown below is the location of the 1.5 in. diameter holes for a Regular Cab 8 ft Bed configuration.



ROUSH F-250/350 Liquid Propane Injection Kit Installation Instructions

9. Use a center punch to mark the center of the two holes for the bed pass through. Use a 2.5 in hole saw to create the holes.



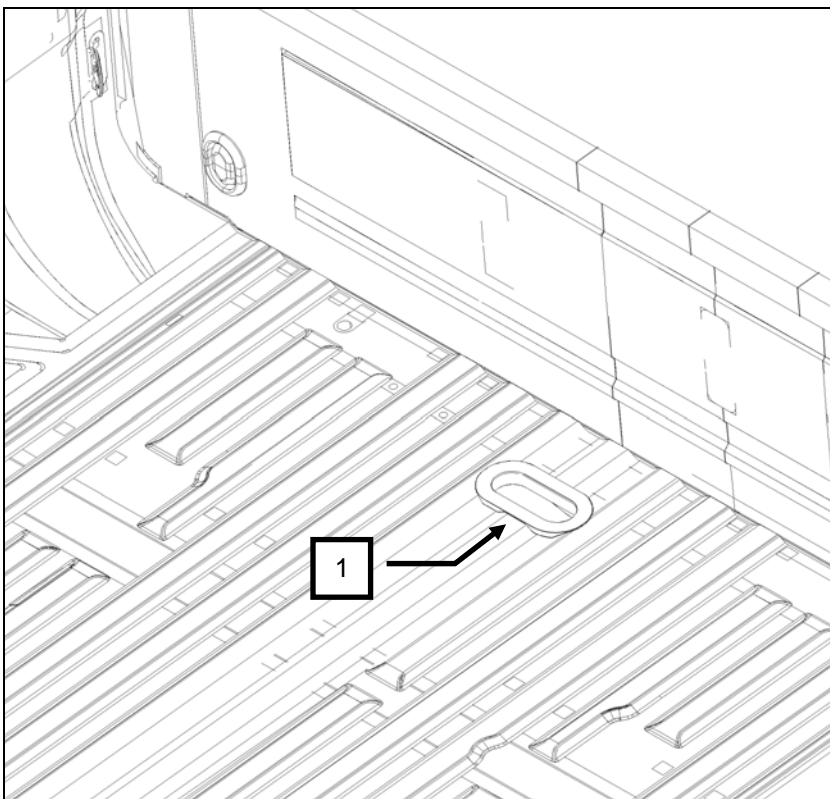
10. Remove the remaining material with an air saw or similar tool.



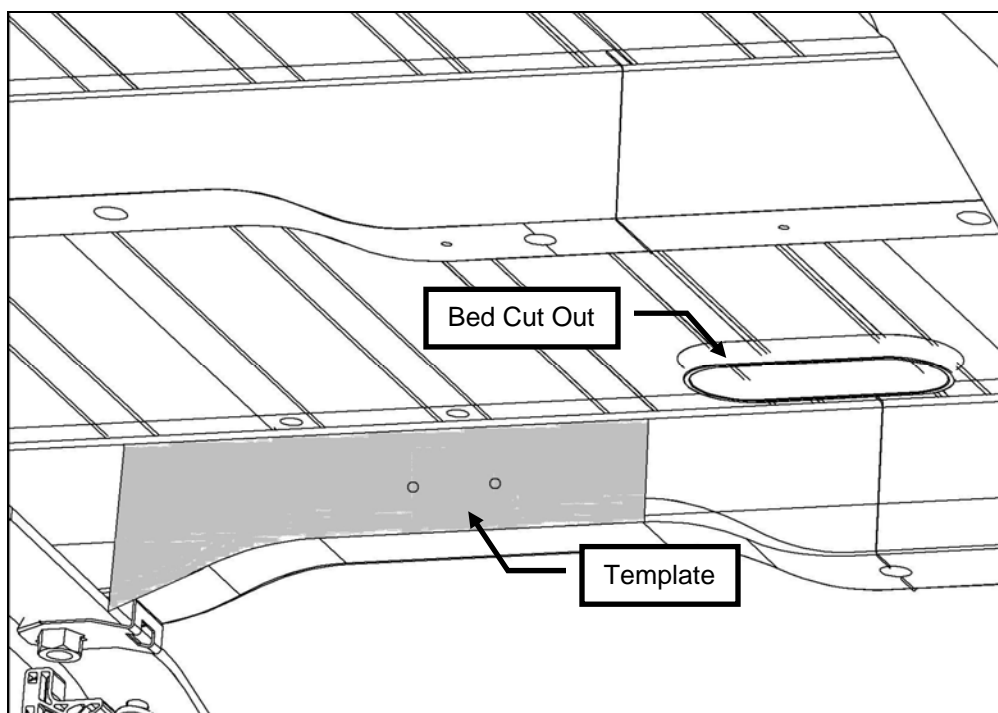
11. Deburr and coat all bare metal using a premium undercoating. Roush suggests Motorcraft Premium Undercoating (PM-25-A).

ROUSH F-250/350 Liquid Propane Injection Kit Installation Instructions

12. Install the Bed Pass Through Grommet (item # 1, P10C3-14487-BA) to the bed. Use silicon sealant to adhere the grommet to the bed.

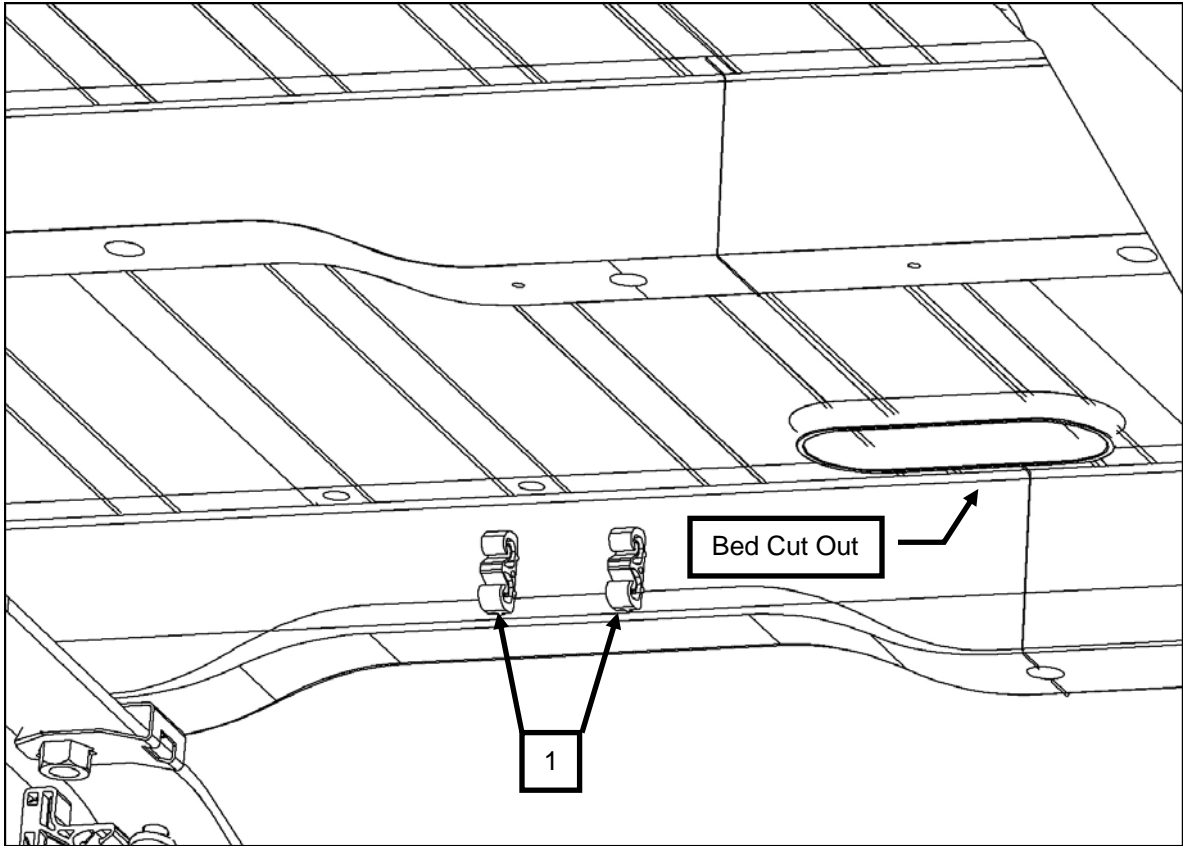


13. Using the template found on the last page of this installation manual, cutout the template as shown. Place the template on the rear facing surface of the front bed cross member as shown. Mark the center points to drill two 6.6 mm diameter holes. Deburr and coat bare metal using a premium undercoating. Roush suggests Motorcraft Premium Undercoating (PM-25-A).



ROUSH F-250/350 Liquid Propane Injection Kit Installation Instructions

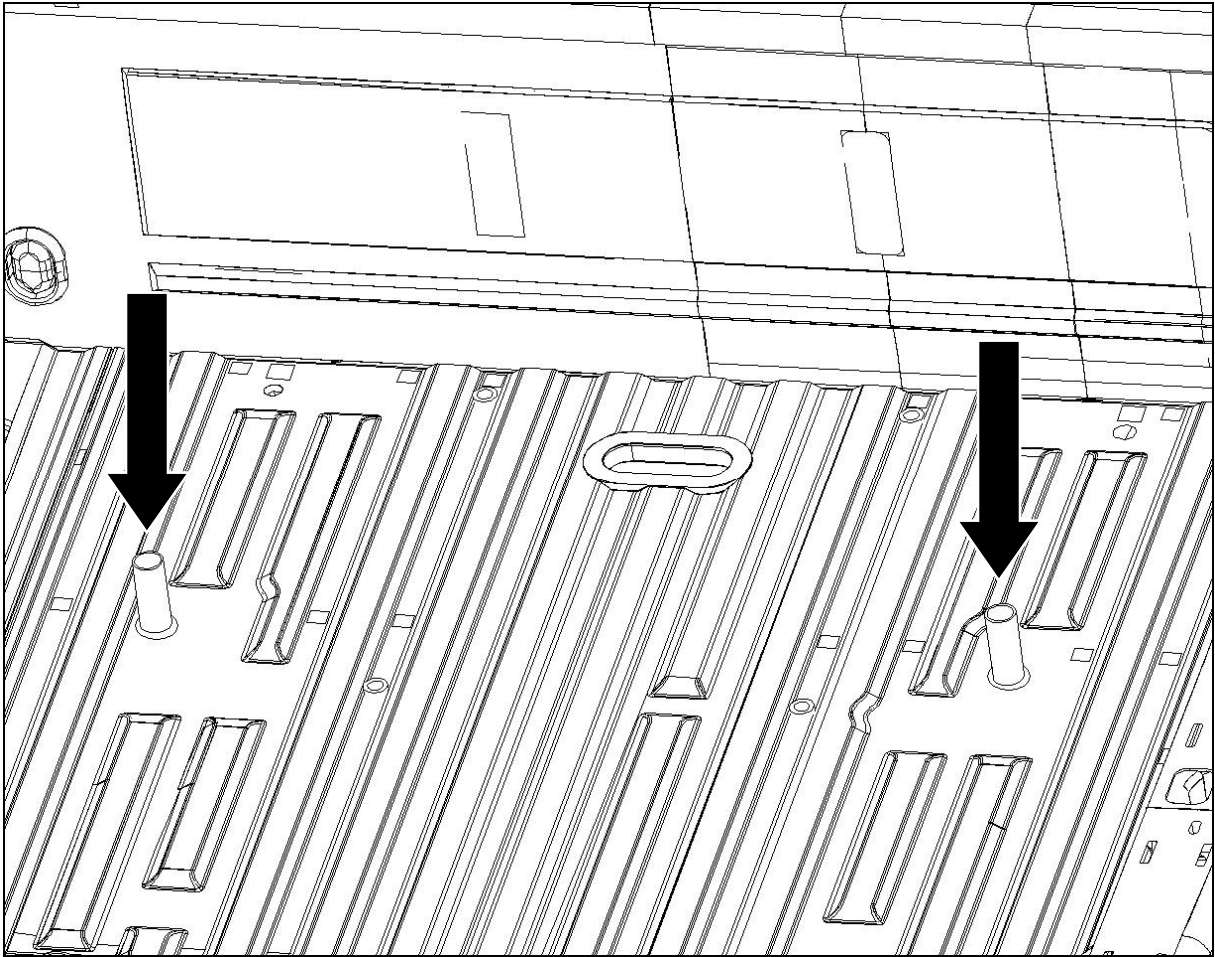
14. Insert (2) Fuel Line Clips (item # 1, 15-004175) into the 2 drilled holes as shown.



ROUSH F-250/350 Liquid Propane Injection Kit Installation Instructions

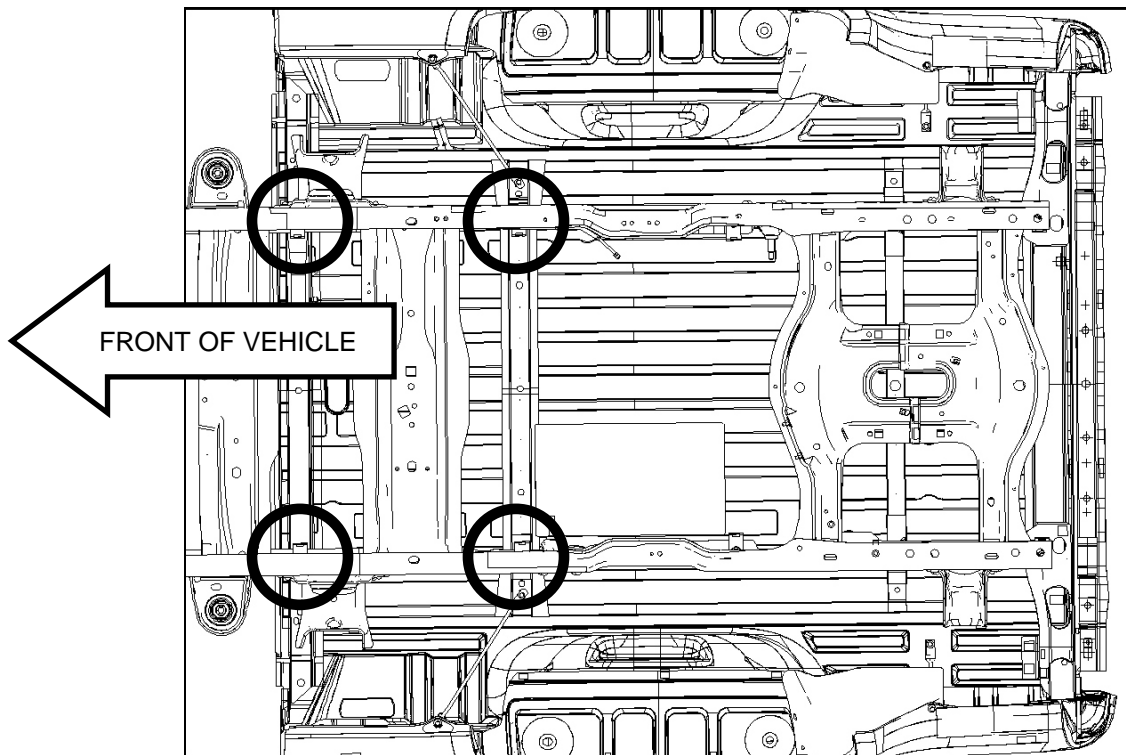
Installing the Fuel Tank Assembly

- ⚠ **Caution:** — Ensure that the “U” nuts and crush sleeves are correctly aligned so as to permit installation of the hold down bolts. Failure to heed this caution may result in property damage.
 - ⚠ **Caution:** — Hand tighten all fuel line connectors and fasteners before applying a wrench to avoid cross threading. Failure to heed this caution may result in property damage.
1. Trucks equipped with an 8 ft bed require (2) crush limiters (P10C3-11293-AA). Insert crush limiters through previously drilled 1-5/16” holes as shown.

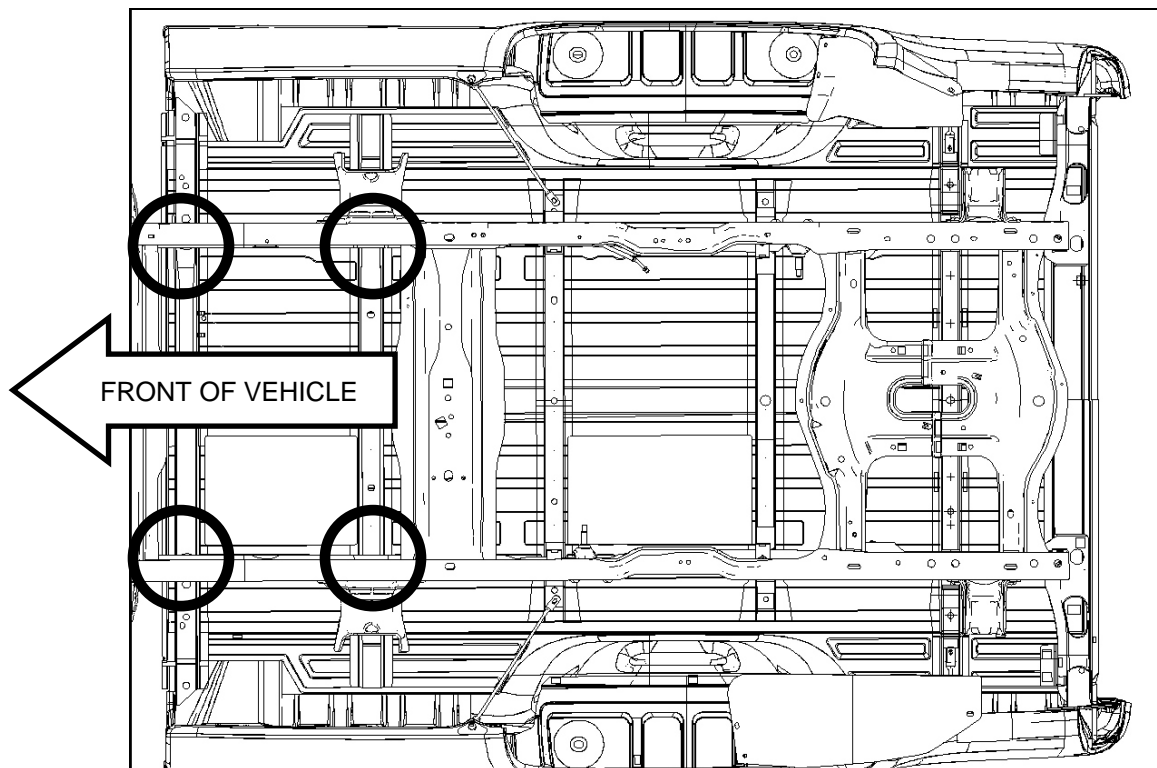


ROUSH F-250/350 Liquid Propane Injection Kit Installation Instructions

2. **6.75 ft bed installation:** Remove the (4) bed bolts closest to the front of the vehicle.

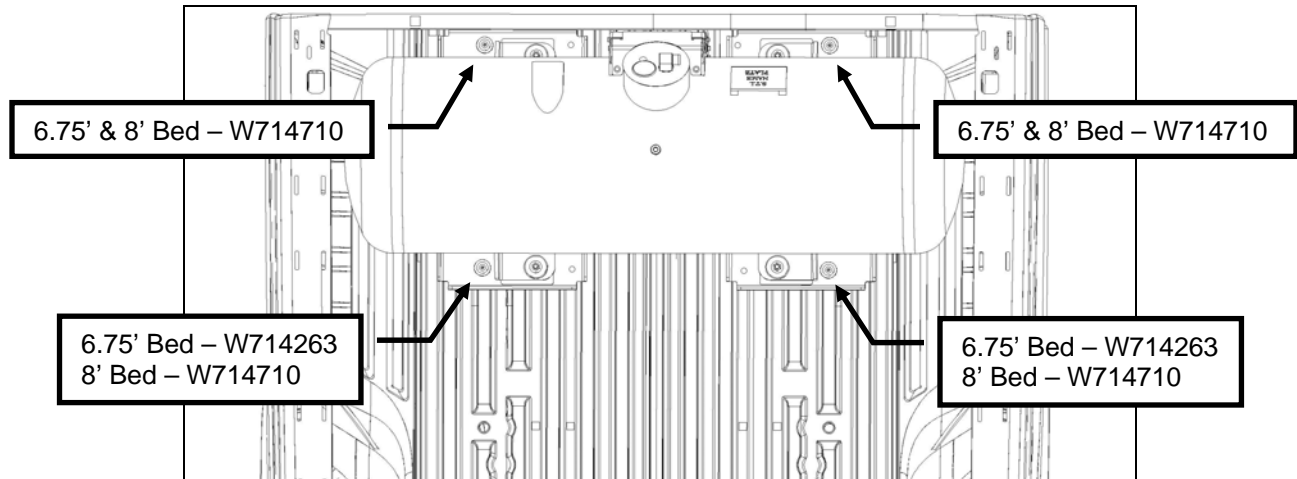


3. **8 ft bed installation:** Remove the (2) bed bolts closest to the front of the vehicle. Using (1) of the take out bed bolts, run the bolt into the new u-nut (W708770) to cut threads into the new u-nut. Remove the isolator discs from between the frame and bed cross member at the newly drilled locations. Replace with a new u-nut between the bed cross member and the frame at these locations.



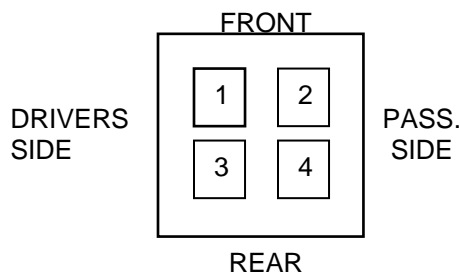
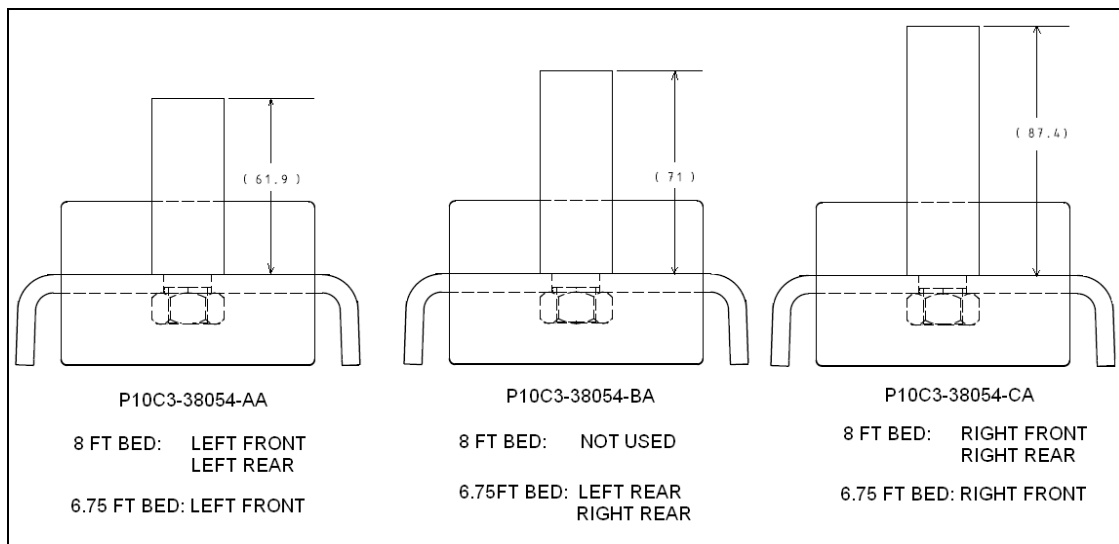
ROUSH F-250/350 Liquid Propane Injection Kit Installation Instructions

4. Install the tank into the bed. Ensure that the supply and return fuel lines, wiring harness, fill hose and pressure relief hose are routed through the bed pass through. Ensure that the tank mounting brackets are firmly seated against the bed. Ensure that the 8 holes in the tank mounting brackets align with the holes in the bed. For 8' beds, secure the tank using (4) M14 x 2.0 x 134 mm bed bolts (W714710). For 6.75' beds, secure the tank using (2) M14 x 2.0 x 134 mm bed bolts (W714710) in the two rear locations and (2) M14 x 2.0 x 120 mm bed bolts (W714263) in the two front locations. Torque bed bolts to 100 – 110 Nm.



5. Install (4) Tank Mounting Bracket Crush Sleeves (P10C3-38054-AA, -BA and -CA) from the bottom of the vehicle.

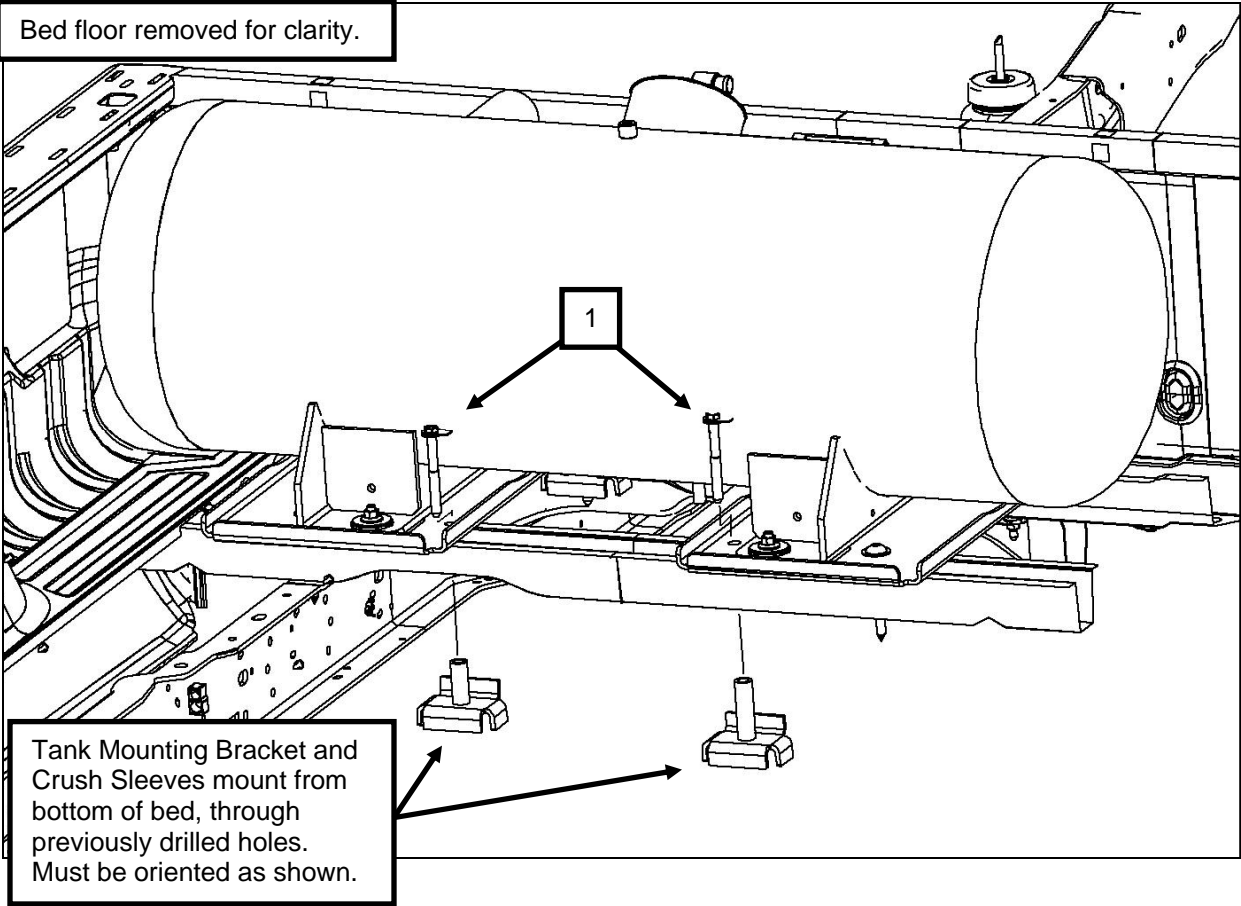
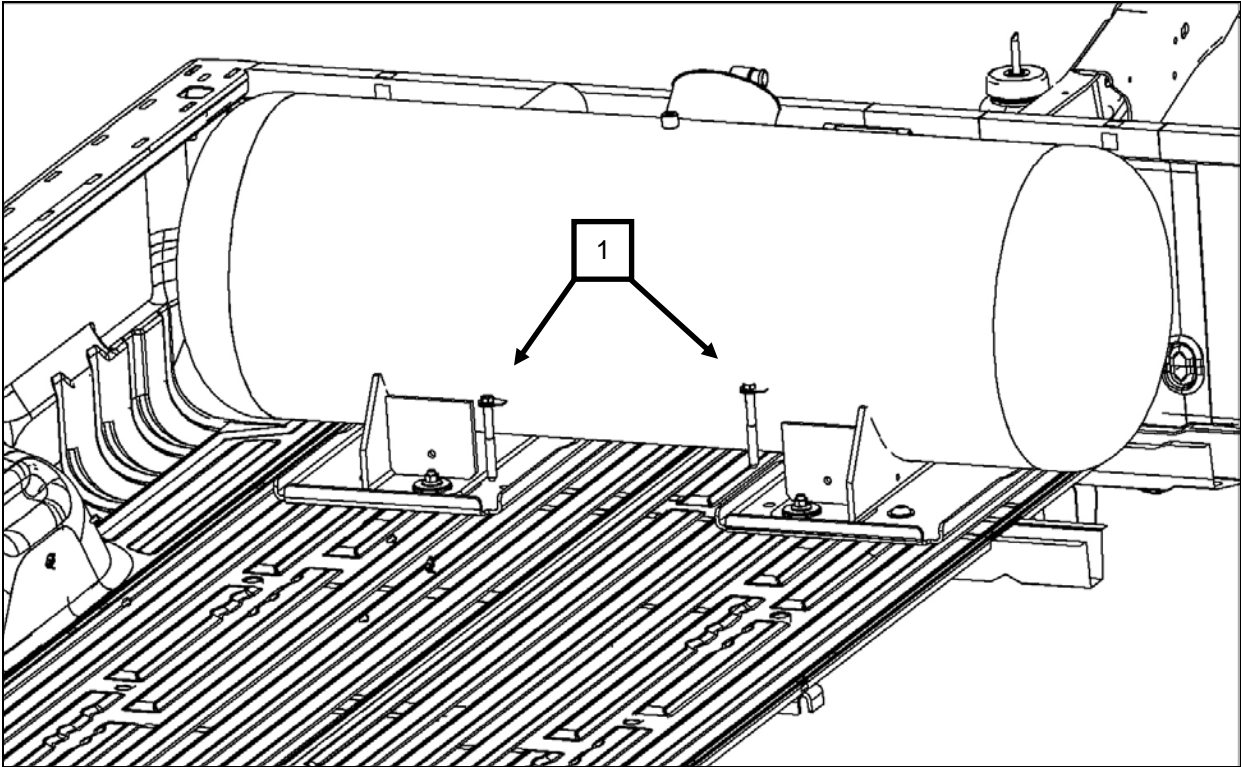
Note: There are 3 different part numbers for the Tank Mounting Bracket and Crush Sleeves. Each part number is designed for a specific location in the vehicle. Ensure that your kit has the correct part numbers for the vehicle you are working with and that the Tank Mounting Bracket and Crush Sleeves are installed to the correct locations. Each part has a label on the bottom surface displaying the part number and appropriate location.



POSITION	BED	
	6.75 FT	8.0 FT
1	-AA	-AA
2	-CA	-CA
3	-BA	-AA
4	-BA	-CA

ROUSH F-250/350 Liquid Propane Injection Kit Installation Instructions

- 6. Have a partner install (4) M14 x 2.0 x 118 mm fasteners (item #1, R18020012-00-AA) from the top of the vehicle. Torque the M14 fasteners to 100 – 110 Nm.

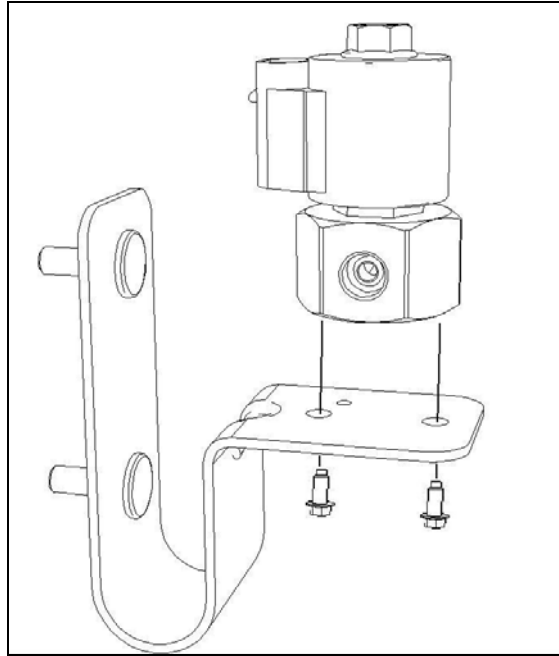


ROUSH F-250/350 Liquid Propane Injection Kit Installation Instructions

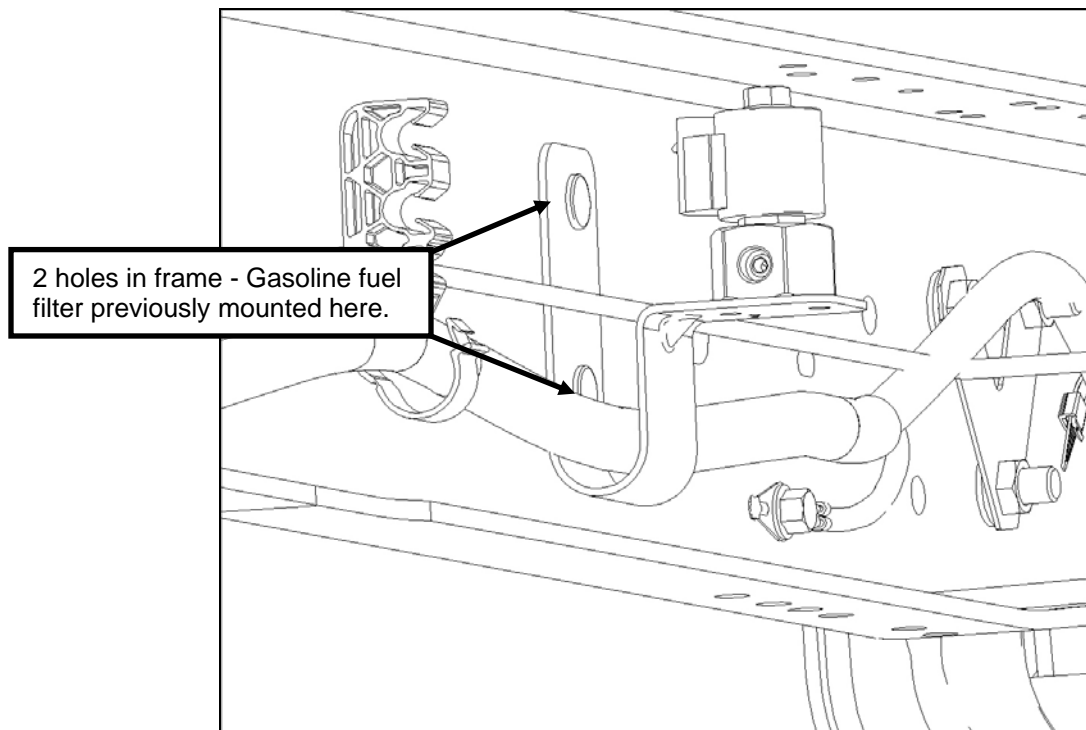
Mounting the New Flow Control Solenoid

⚠ Caution: — Hand tighten all fuel line connectors and fasteners before applying a wrench to avoid cross threading. Failure to heed this caution may result in property damage.

1. Fasten the Flow Control Solenoid (P10C3-9G893-AA) to the Flow Control Solenoid Bracket (P10C3-9E360-AA) using (2) M6 x 1.0 x 14mm bolts (W702251). Torque the M6 bolts to 8 – 12Nm. These parts can be found in Hardware Kit E (P10C3-IBHKE-AA)



2. Using the holes in the frame that the gasoline fuel filter bracket previously mounted to, secure the Flow Control solenoid and bracket assembly to the inside of the frame using (2) M8 nuts (W520413). Torque nuts to 20 – 30Nm.



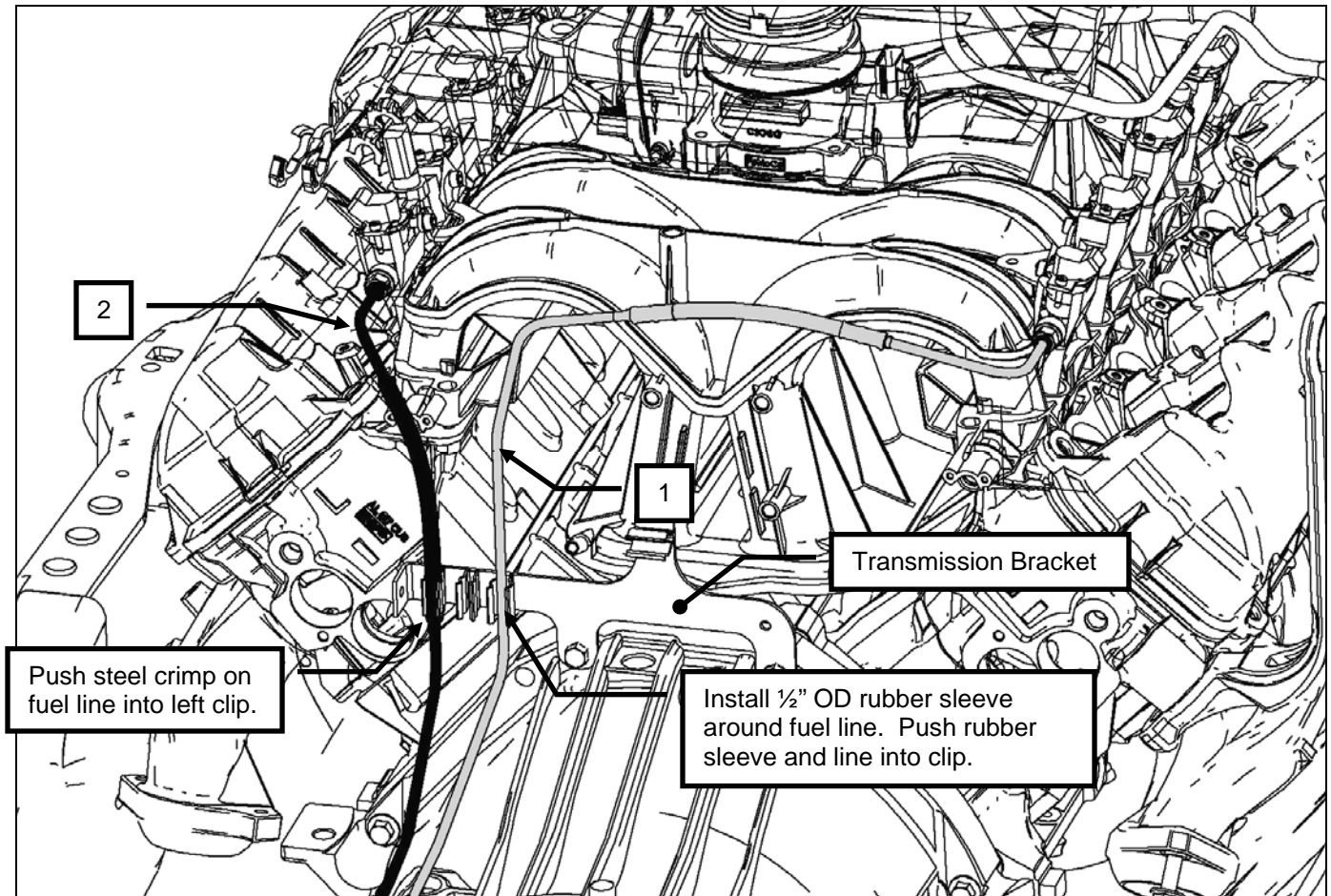
ROUSH F-250/350 Liquid Propane Injection Kit Installation Instructions

Installing the New Forward Fuel Lines

⚠ Caution: — Hand tighten all fuel line connectors and fasteners before applying a wrench to avoid cross threading. Failure to heed this caution may result in property damage.

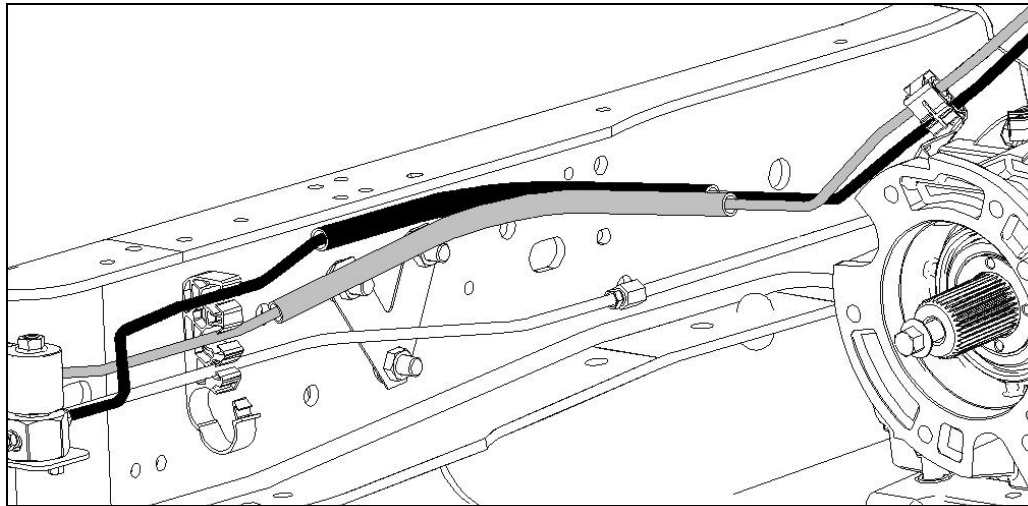
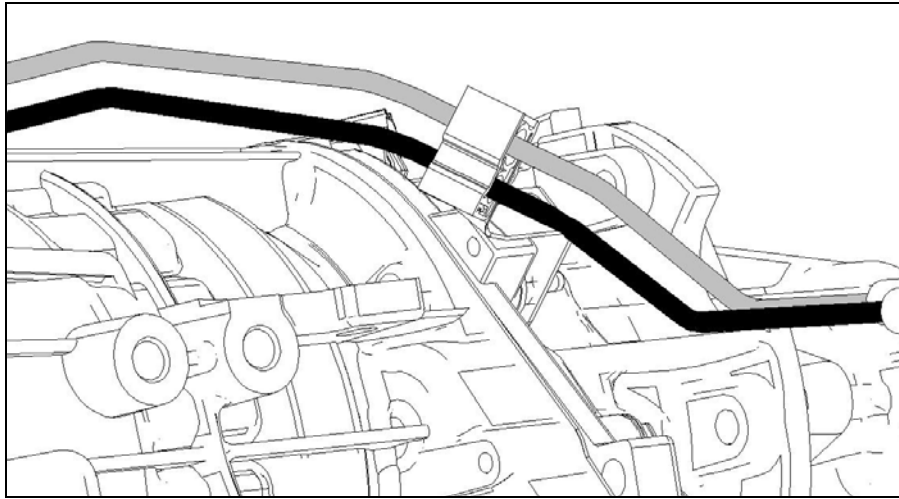
A fuel line diagram appears at the end of this manual. It shows the nomenclature and location of the various lines.

1. Install the Forward Supply (item # 1, P10C3-9F911-AA) and Return (item #2, P10C3-9F912-AA) Fuel Lines by pushing the lines straight into the quick connect fitting on the back side of each fuel rail. Install the steel crimp near the flex joint of the return line into the left clip of the bracket on the transmission. Install (1) ½" OD rubber sleeve (P07L3-9C328-AA) around the supply fuel line near the clip on bracket on the transmission. Push the rubber sleeve and fuel line into the right clip.

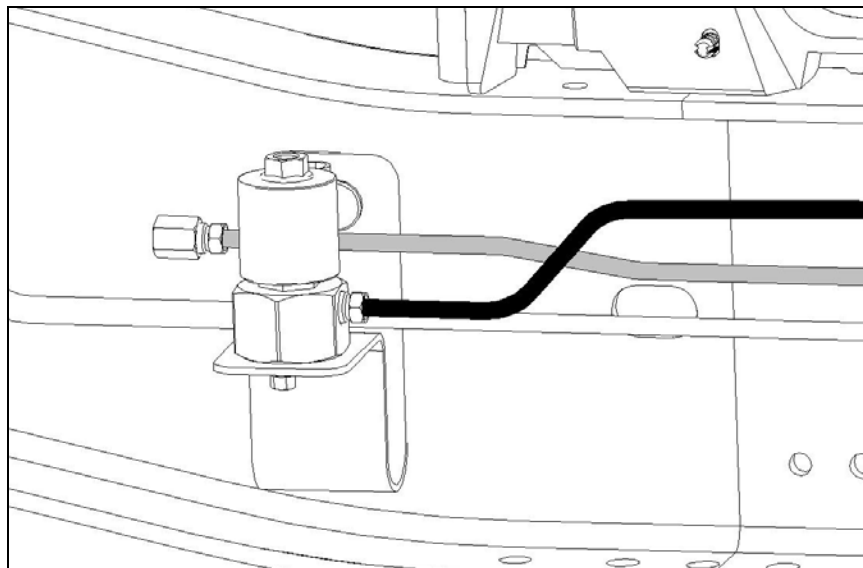


ROUSH F-250/350 Liquid Propane Injection Kit Installation Instructions

2. Install (1) ½" OD rubber sleeve (P07L3-9C328-AA) and (1) 3/8" OD rubber sleeve (P07L3-9C328-BA) to the supply and return lines as required. Clip the supply and return fuel lines into the Ford fuel line clip mounted to the side of the transmission.



3. Attach the forward return fuel line to the flow control solenoid. Torque line fitting to 18 – 22 Nm.



ROUSH F-250/350 Liquid Propane Injection Kit Installation Instructions

Installing the New Intermediate Lines

▲ Caution: — Hand tighten all fuel line connectors and fasteners before applying a wrench to avoid cross threading. Failure to heed this caution may result in property damage.

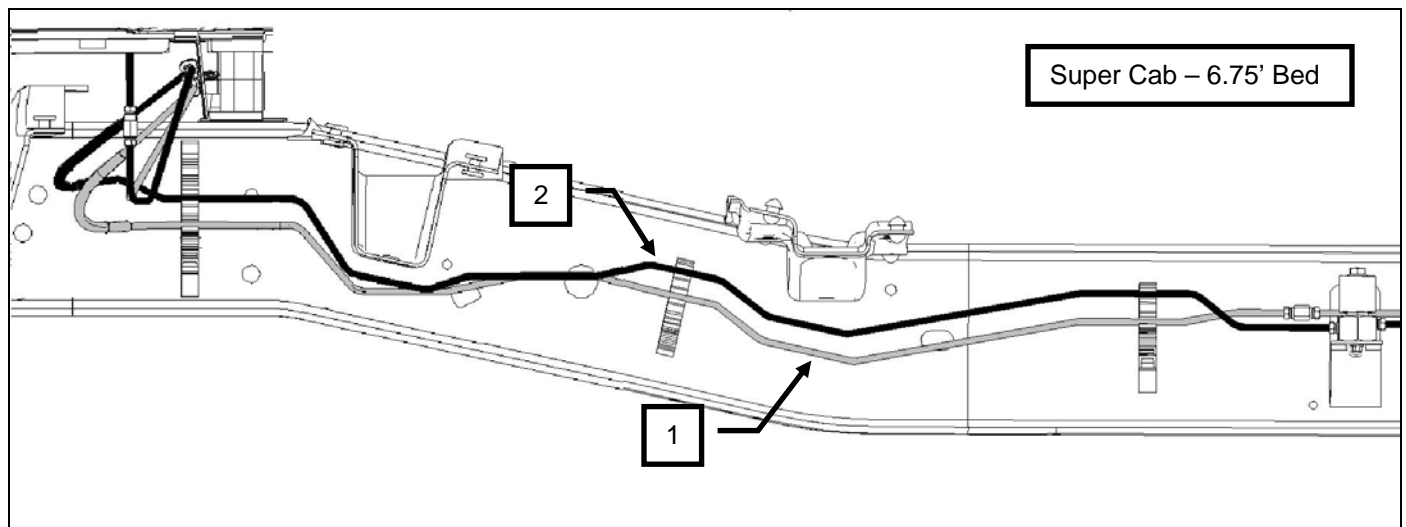
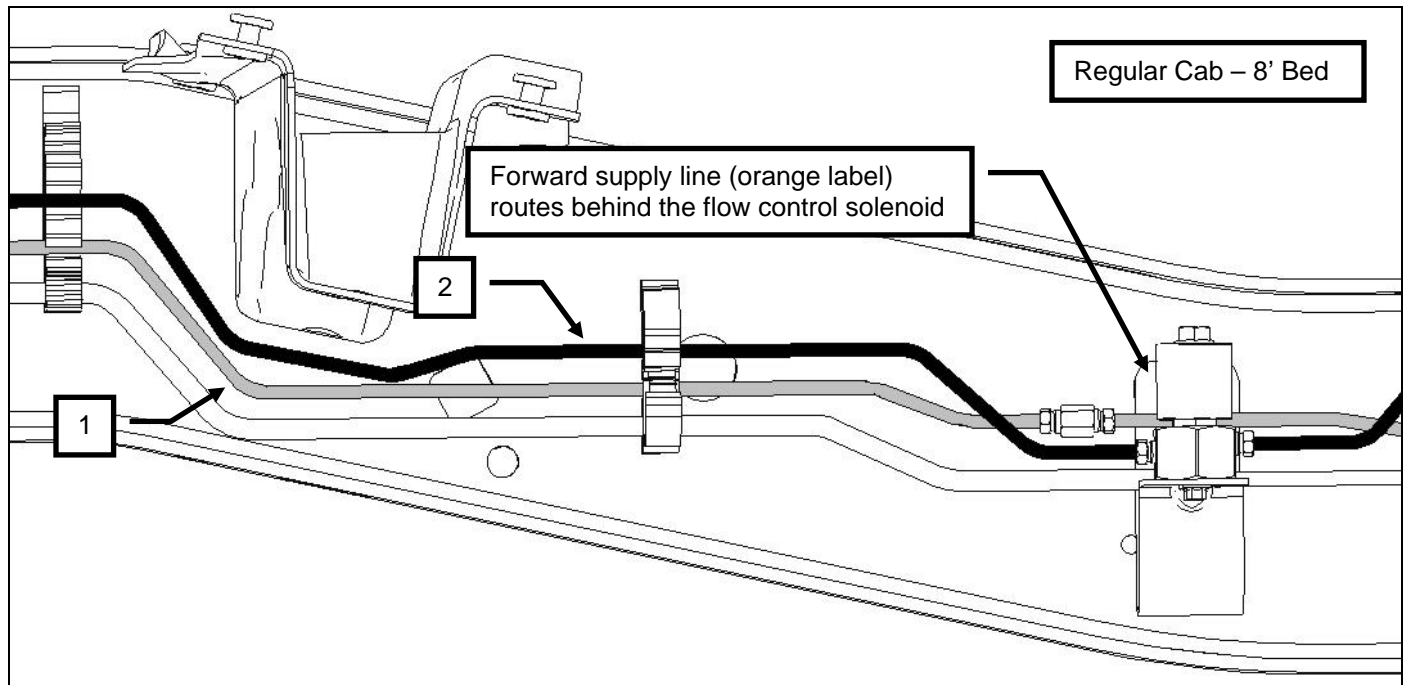
1. Assemble the Intermediate Fuel Supply and Return Lines (item # 1, P10C3-9J280-XX, orange label and item # 2, P10C3-9D279-XX, blue label) to the forward supply line and flow control solenoid. Torque line fittings to 18 – 22 Nm. Use the Ford gasoline fuel line clips along the frame rail to retain the Roush Propane fuel lines. Install ½" OD rubber sleeves around the fuel lines. Push rubber sleeve and line into clips for proper retention.

Note: There are 3 different part numbers for the intermediate supply and return fuel lines and are dependent on cab configuration. Ensure that your kit has the correct parts for the vehicle you are working with.

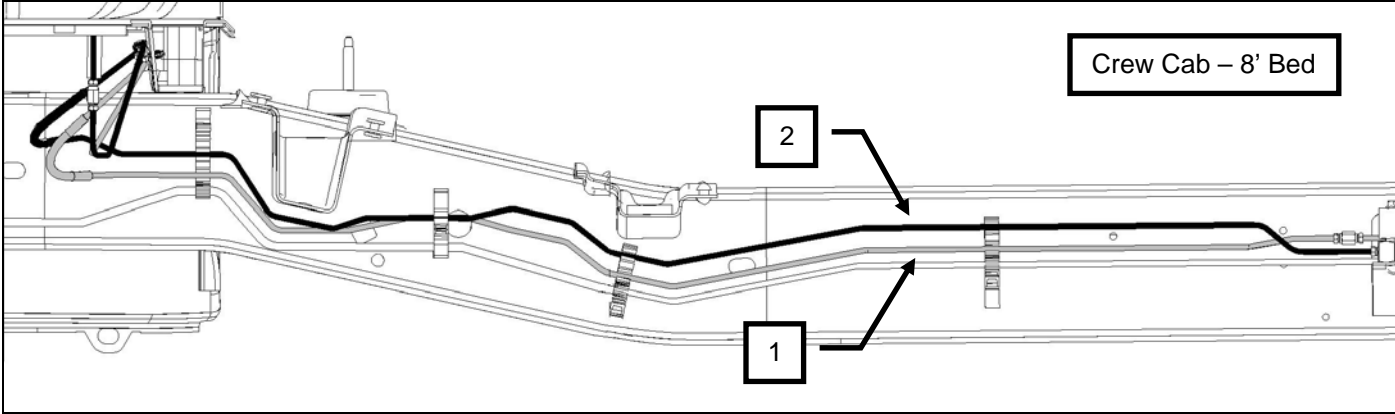
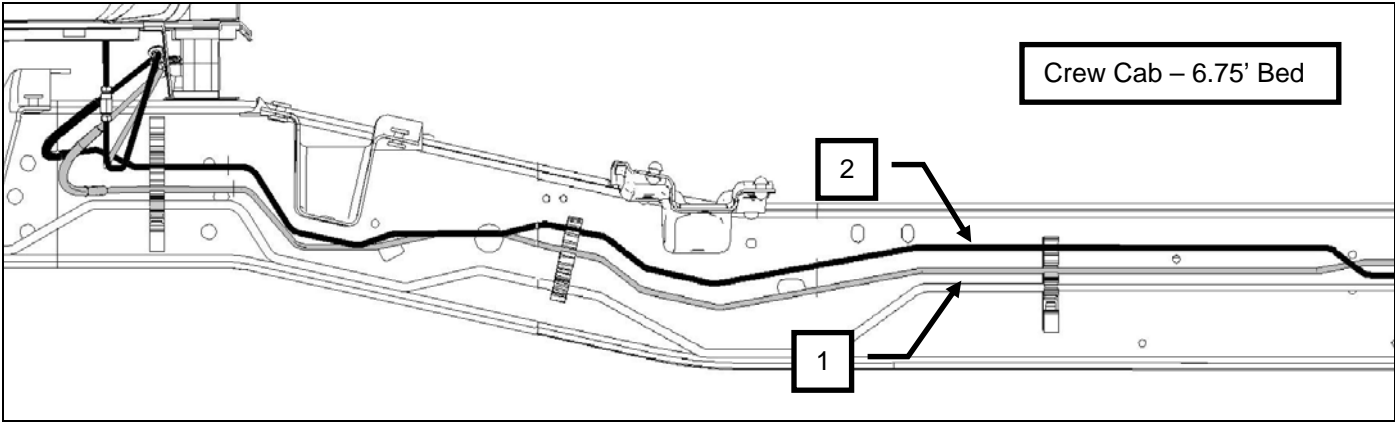
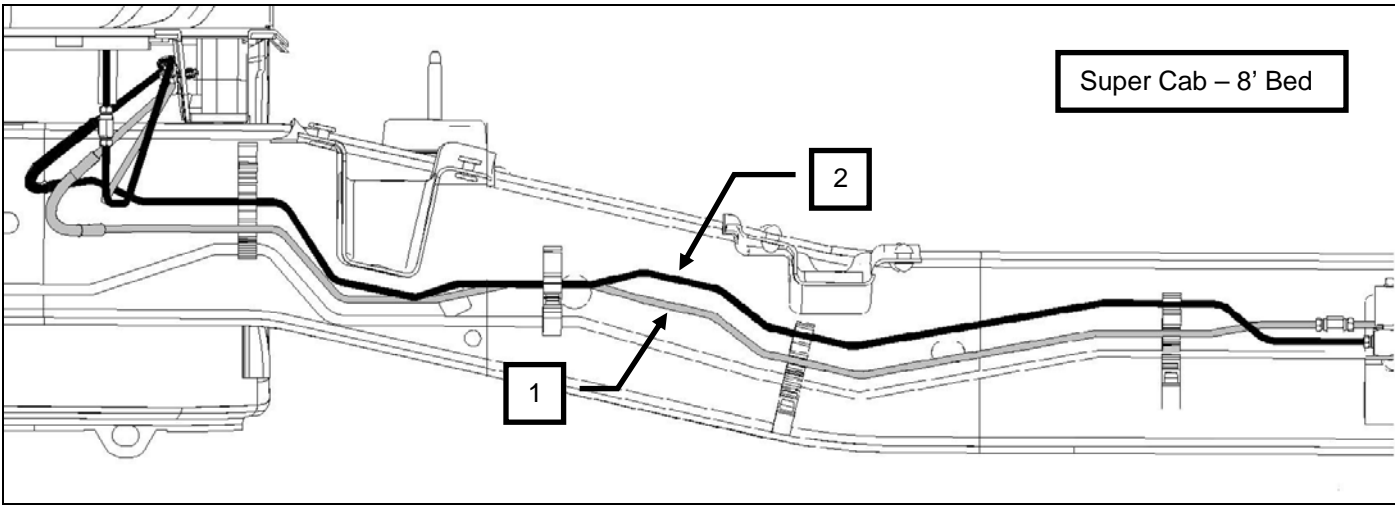
Regular Cab: P10C3-9J280-AA and P10C3-9D297-AA

Super Cab: P10C3-9J280-BA and P10C3-9D297-BA

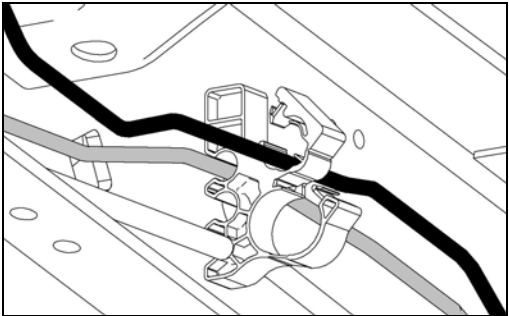
Crew Cab: P10C3-9J280-CA and P10C3-9D297-CA



ROUSH F-250/350 Liquid Propane Injection Kit Installation Instructions

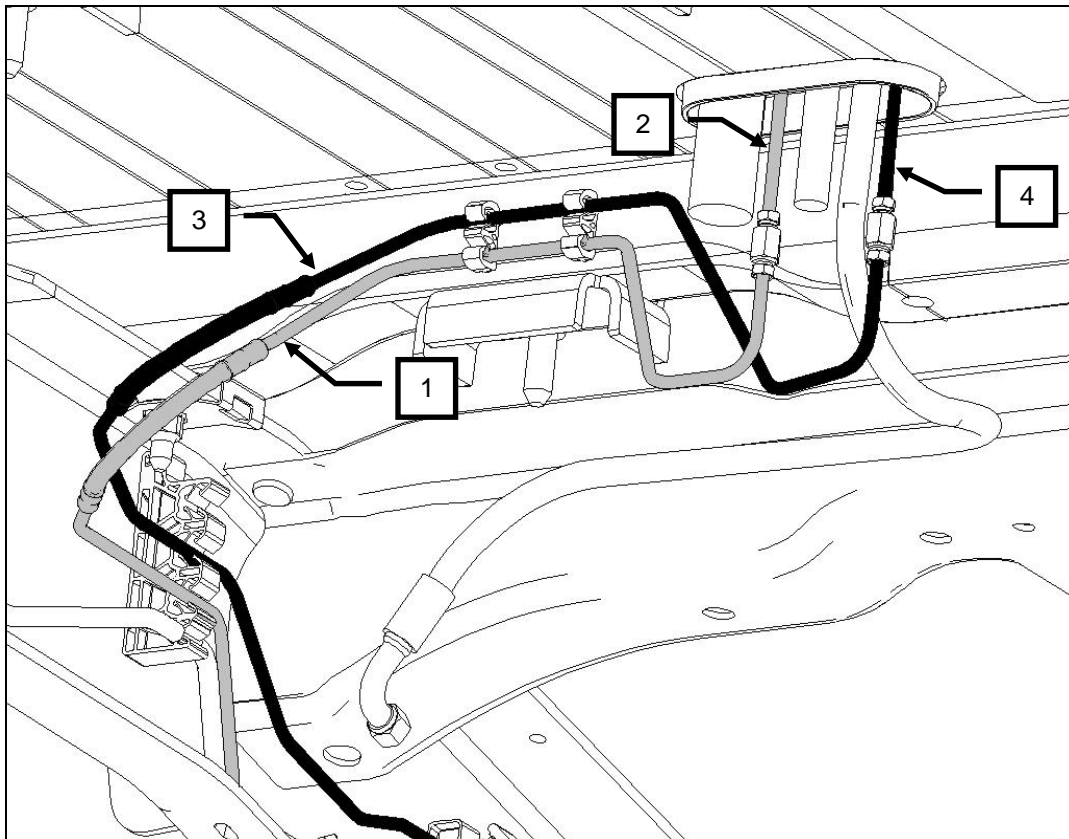


Note: Shown below is the correct fuel line routing at the rear line clip for 8' beds.

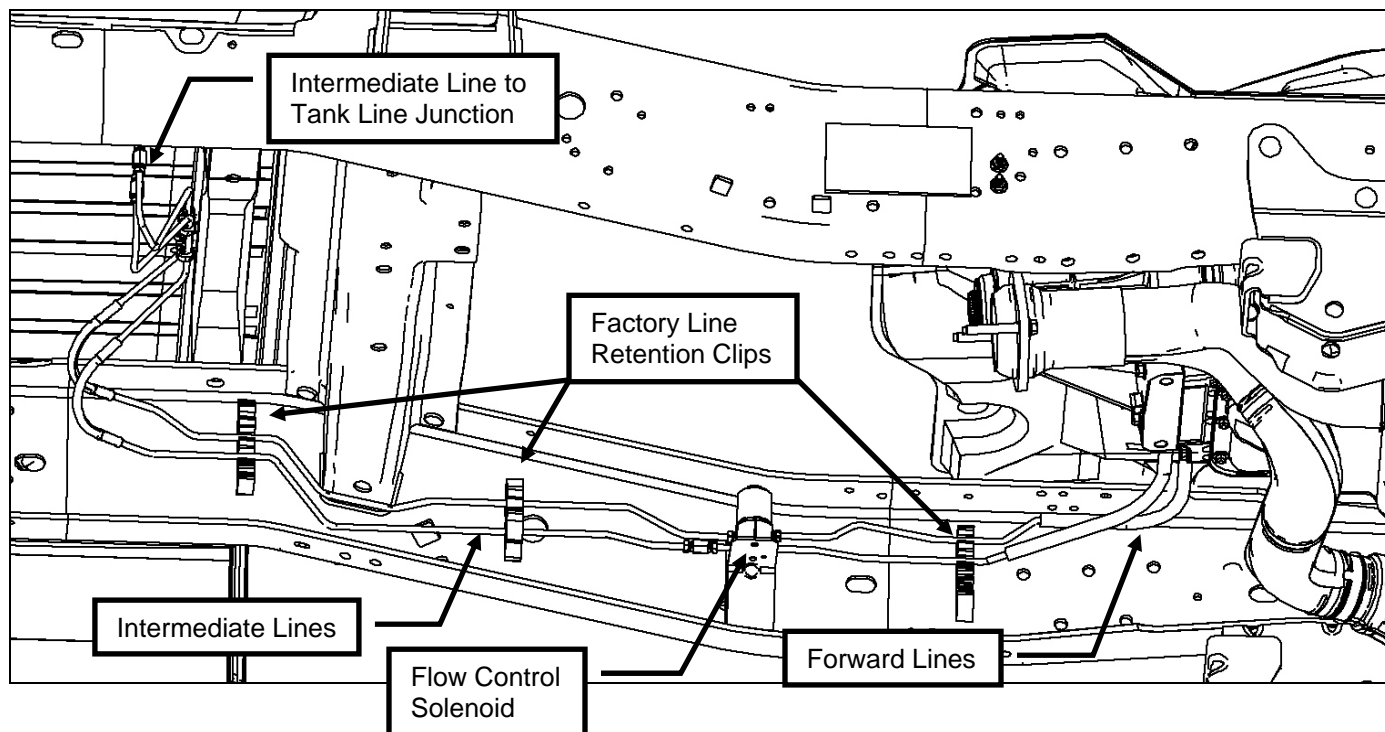


ROUSH F-250/350 Liquid Propane Injection Kit Installation Instructions

2. Connect the intermediate supply fuel line (item # 1) to the off-tank supply fuel line (item # 2). Connect the intermediate return fuel line (item # 3) to the off-tank return fuel line (item # 4). Install lines to clips previously installed to the bed cross member. $\frac{1}{2}$ " OD rubber sleeves are NOT required for these clips.



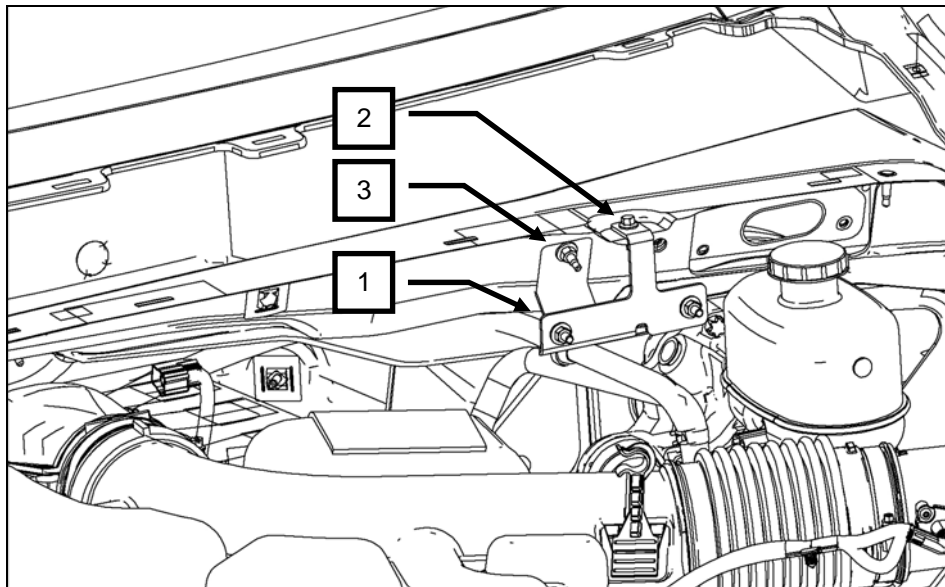
Note: Shown below is a complete fuel line installation for a Regular Cab 8 ft bed truck.



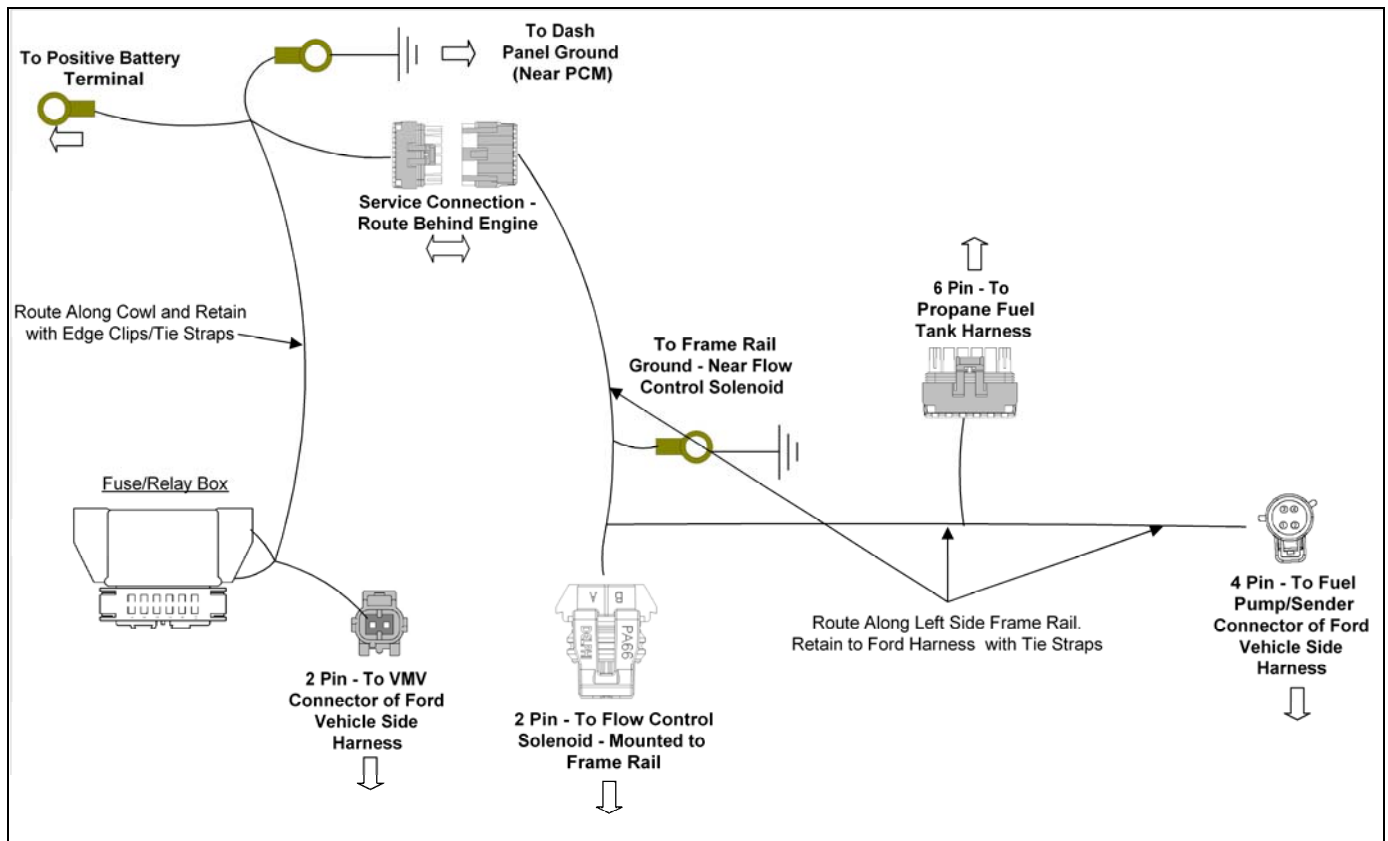
ROUSH F-250/350 Liquid Propane Injection Kit Installation Instructions

Installing the New Wiring Harness

1. Install the Fuse Box Bracket (item # 1, P10C3-9D371-AA) as shown. Secure the bracket to the cowl by reusing the Ford M6 bolt that was previously used to mount the VMV (item # 2) and (1) supplied M6 nut (item # 3, W704521). Torque the M6 bolt and nut to 8 – 12 Nm.

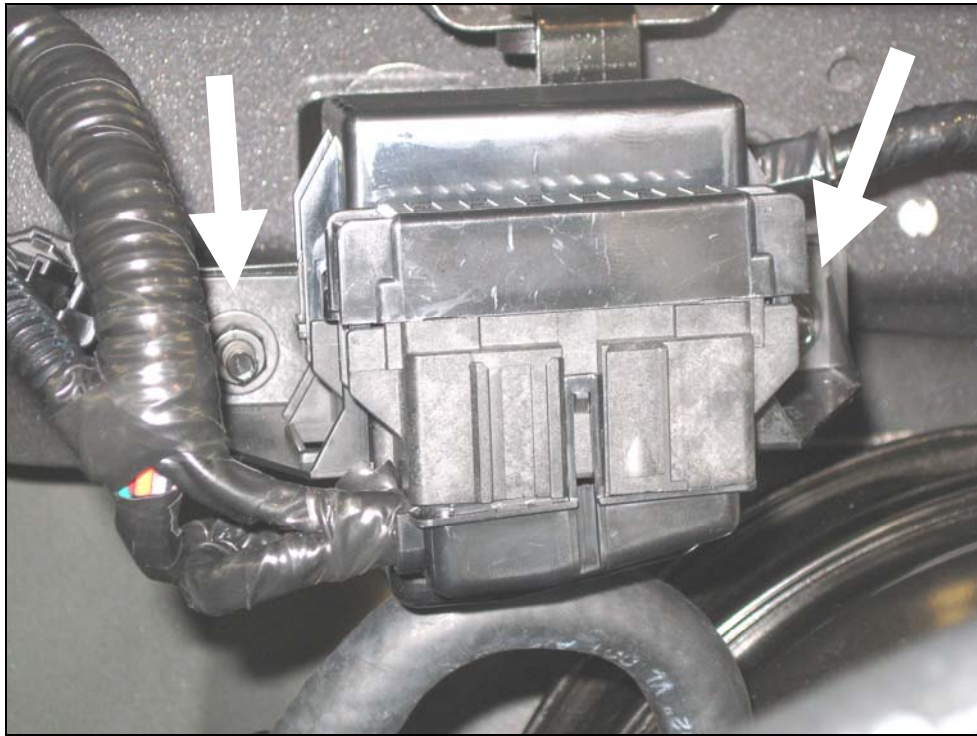


Note: It is recommended to lay the Main Wiring Harness (P10C3-3075-AA) on the floor to become familiar with the connectors and where they will be routed on the vehicle before installing the harness.



ROUSH F-250/350 Liquid Propane Injection Kit Installation Instructions

- Secure the Wiring Harness Fuse Box to the Fuse Box Bracket using (2) M6 nuts (W704521). Torque nuts to 8 - 12 Nm.



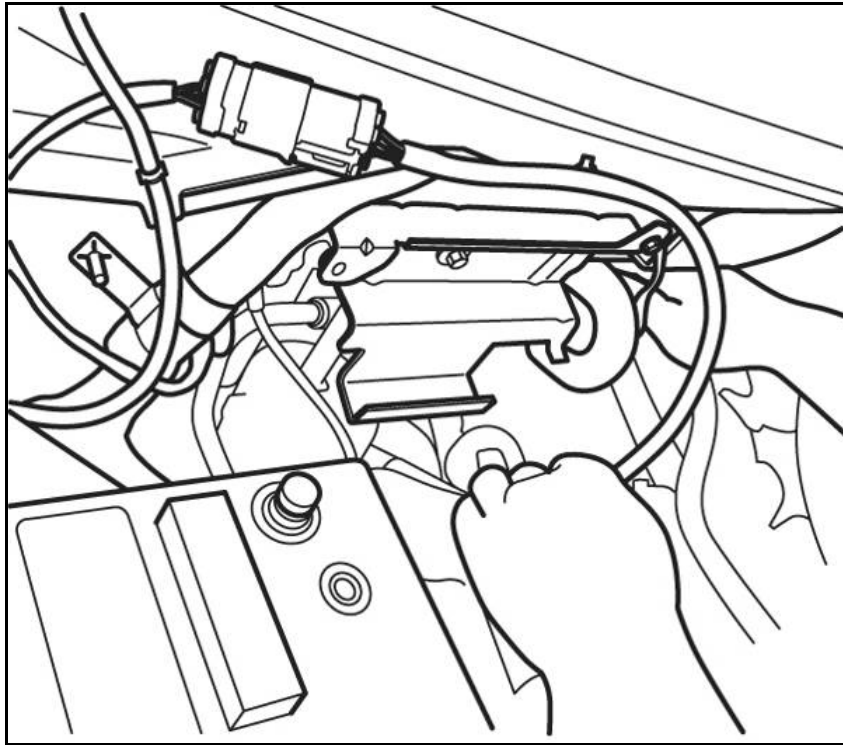
- Route the break out with the power and ground terminals, and 6 pin service connection along the cowl as shown. Retain the harness to the cowl with (3) Cable Tie Edge Clips (150-40593) as shown.

Note: It is recommended to route the entire harness and make all connections prior to retaining the harness with cable ties. Retaining the wire harness with cable ties is the last step of the wiring harness install.

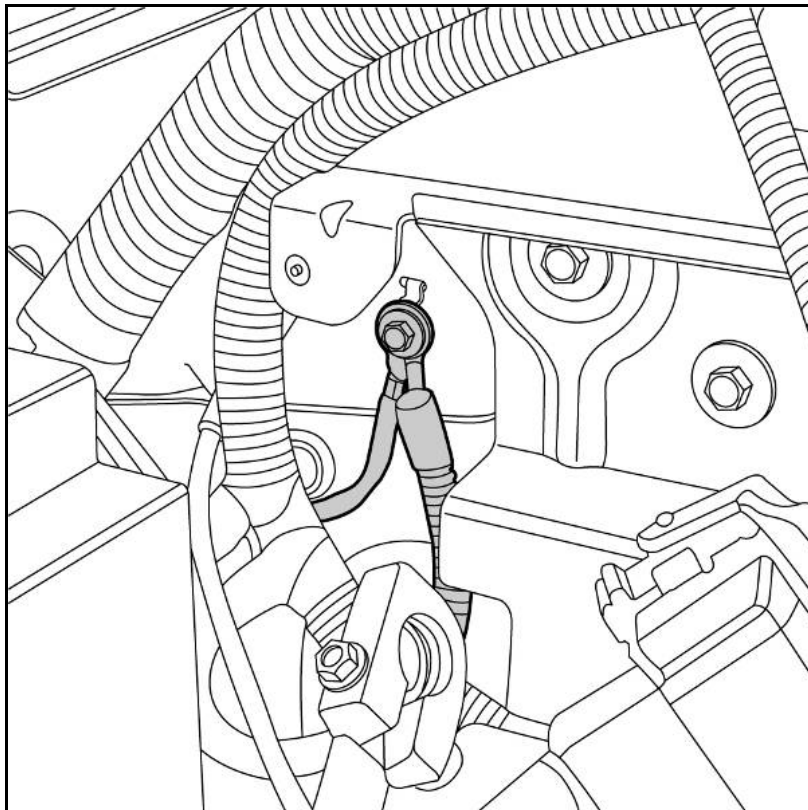


ROUSH F-250/350 Liquid Propane Injection Kit Installation Instructions

4. Route the free break out with power and ground terminals below the PCM bracket. Route the break out with the 6 pin service connection behind engine and back towards left side frame rail, following the Ford harness.



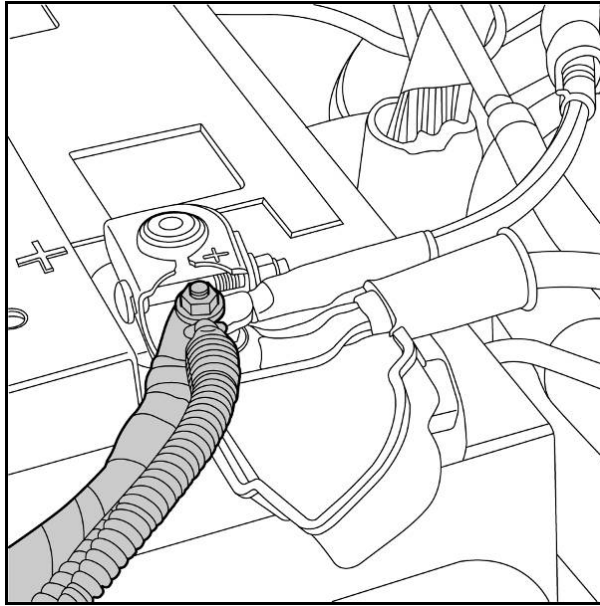
5. Route the positive (long) lead around the outside of the battery box.
6. Using the original bolt, assemble the new ground (short) lead and the original ground lead and attach to the bulkhead in the original location behind the PCM bracket.



ROUSH F-250/350 Liquid Propane Injection Kit Installation Instructions

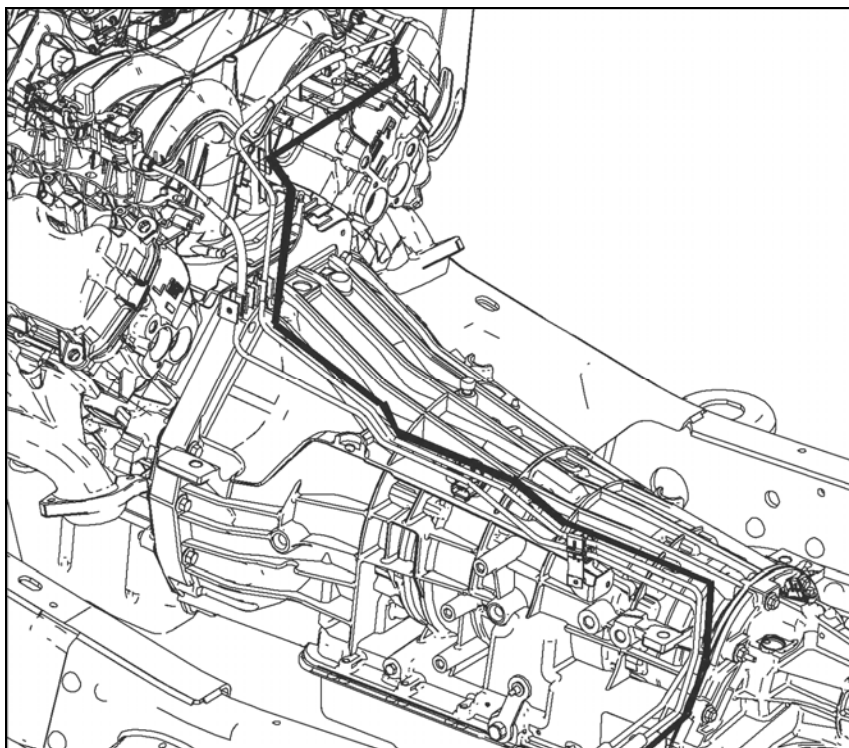
7. Reinstall the battery and fasten securely.
8. Remove the nut holding the original battery positive lead, add the new lead to the post and replace the original lead. Tighten the nut securely.

Note: When attaching the new lead, ensure that it lies beside the original lead and not on top.



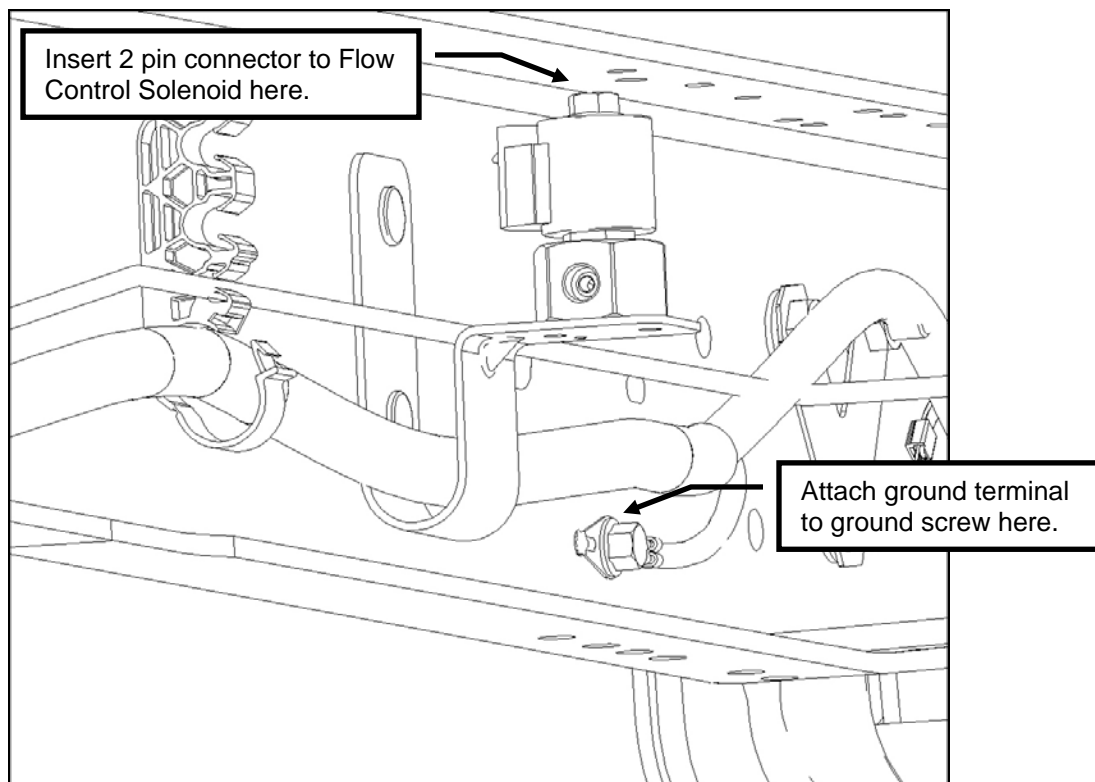
9. Loosely secure the Roush main harness to the Ford engine harness with wire ties. Route the harness down the back of the engine and transmission and secure with wire ties. Continue to route the Roush harness with the stock vehicle harness to the left side frame rail. Secure the Roush main harness to Ford harness along the frame rail with wire ties.

Note: Ensure that the Roush main harness is routed away from the exhaust pipes, manifolds, catalytic converters and exhaust heat shields.

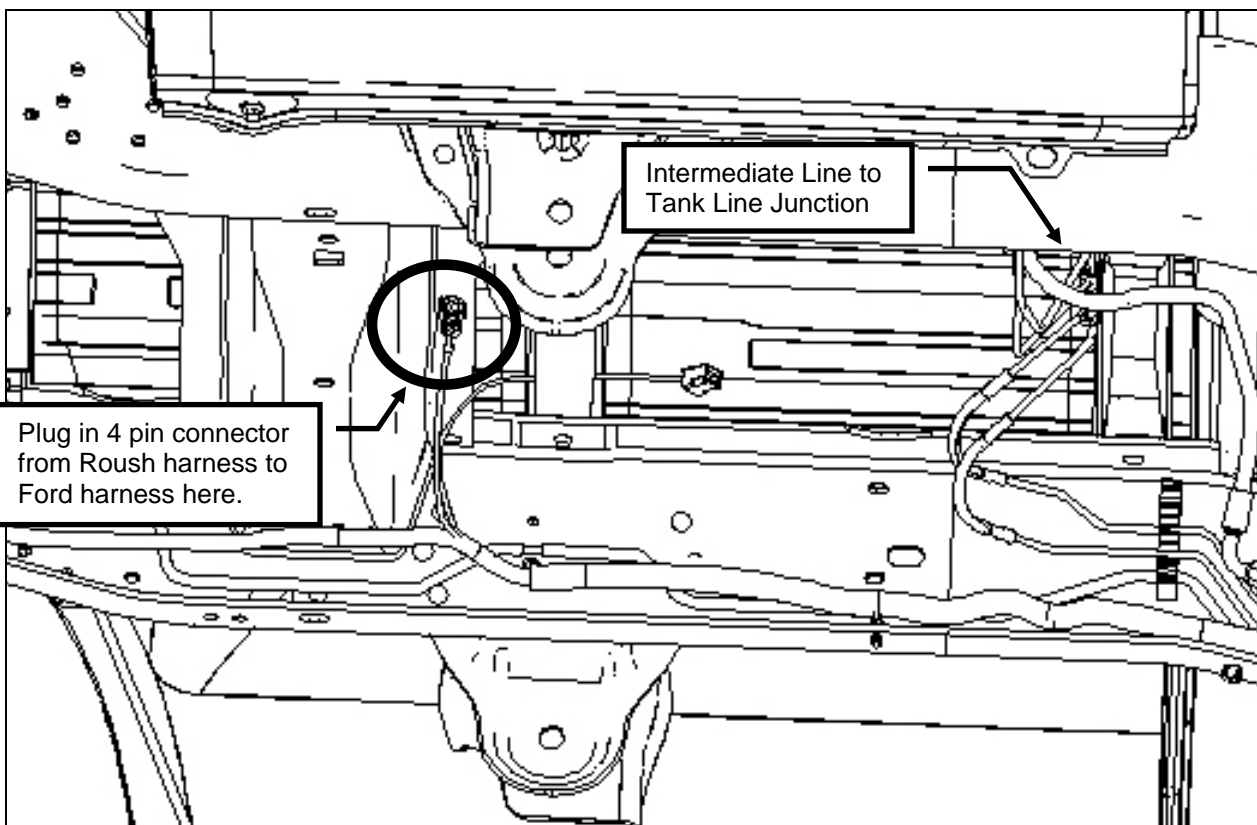


ROUSH F-250/350 Liquid Propane Injection Kit Installation Instructions

10. Plug the 2 pin connector into the Flow Control Solenoid. Remove ground screw forward of the Flow Control Solenoid. Install ground terminal from Roush wiring harness and re-install ground screw.

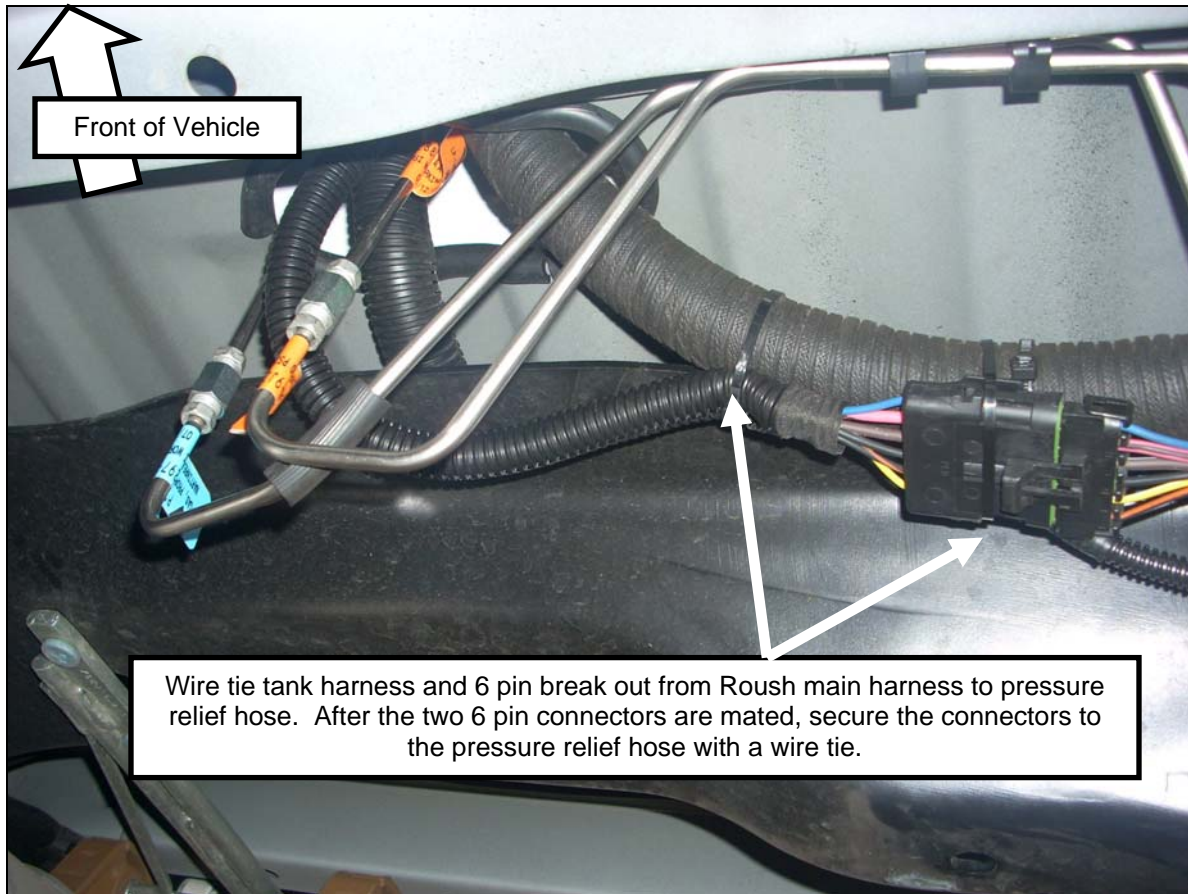


11. Continue to route the Roush harness along the Ford harness. Use wire ties to secure the harnesses to each other. Plug the 4 pin connector into the Fuel Pump/Sender Connector of the Ford vehicle harness.



ROUSH F-250/350 Liquid Propane Injection Kit Installation Instructions

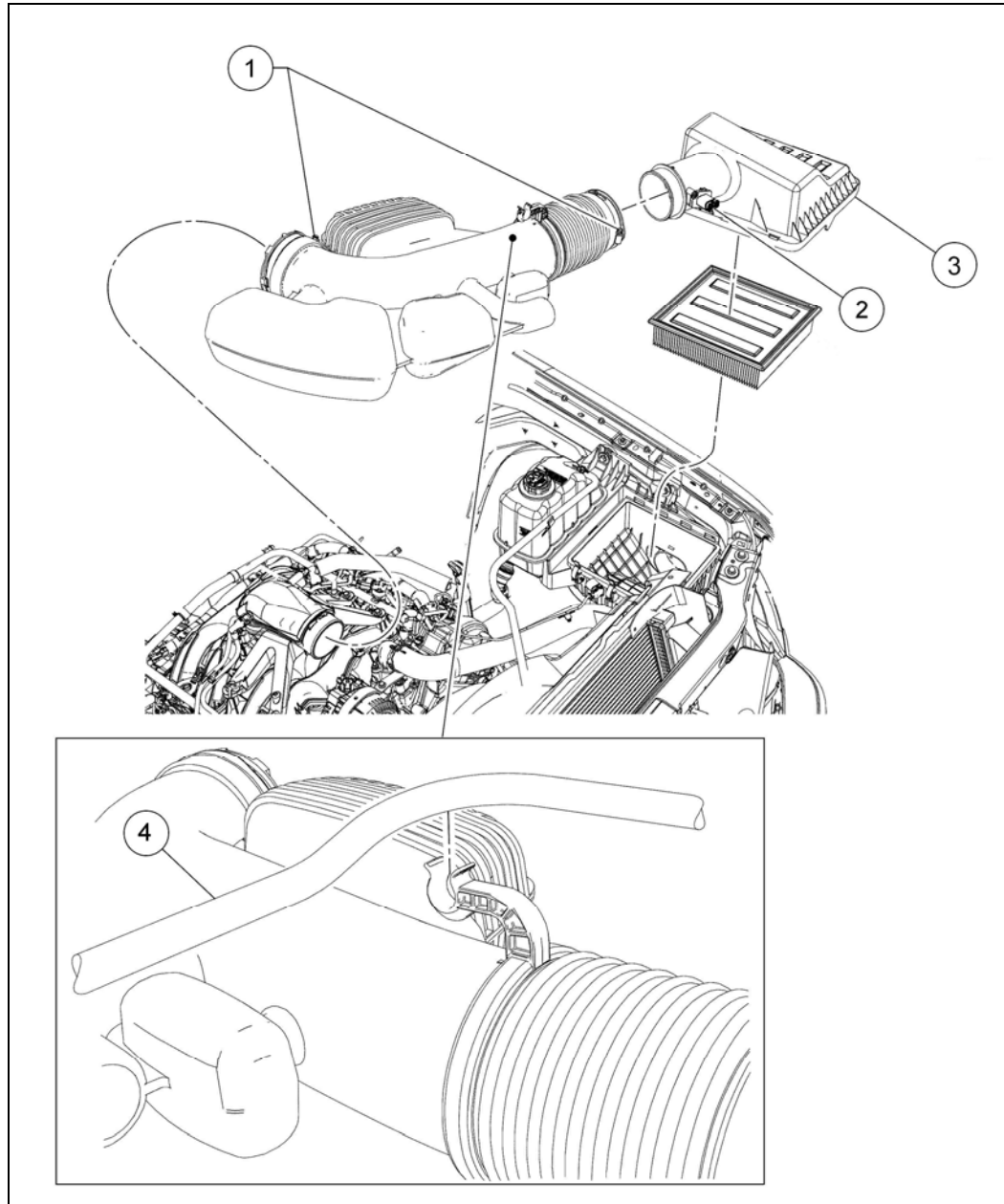
12. Connect the 6 pin connector from the Roush propane fuel tank harness to the Roush main vehicle harness. Use wire ties to secure the harnesses and the 6 pin connector to the pressure relief hose.



ROUSH F-250/350 Liquid Propane Injection Kit Installation Instructions

Installing the New Air Intake System

1. Remove the MAF sensor from the stock air cleaner (airbox) cover and install into the new Airbox Lid with Hydro Carbon Trap (P10C3-9A628-AB) using the two take off screws. Torque screws to 2.5 – 3.5 Nm.
2. Reinstall the new cover assembly into the vehicle.
3. Reconnect the MAF sensor wiring.
4. Reinstall the factory air cleaner outlet tube. Torque clamps to 3.5 – 4.5 Nm.
5. Secure the degas bottle coolant hose to the top of the air cleaner outlet tube.

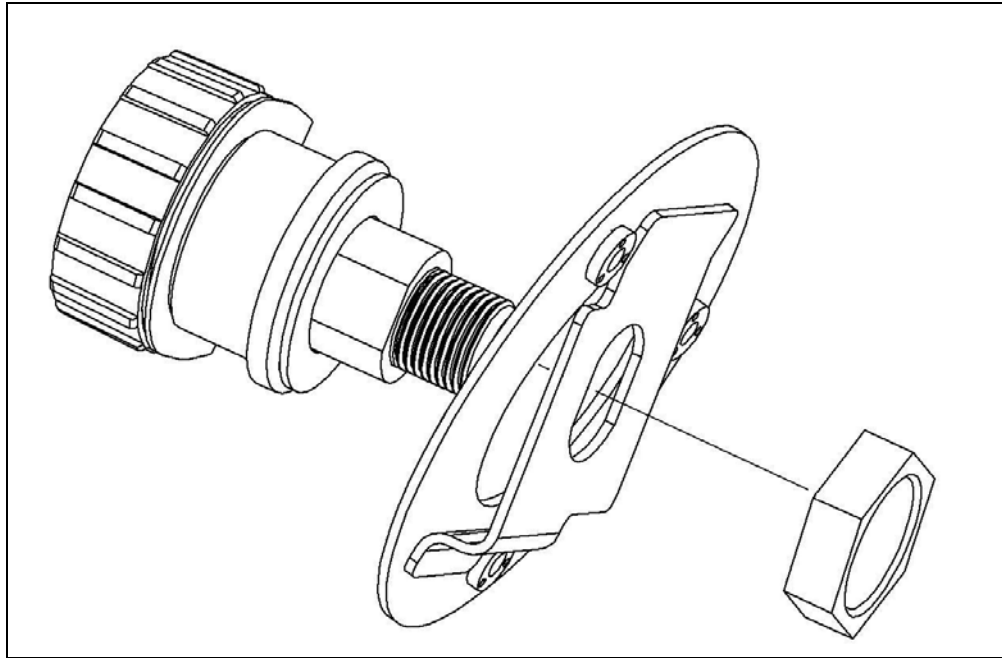


ROUSH F-250/350 Liquid Propane Injection Kit Installation Instructions

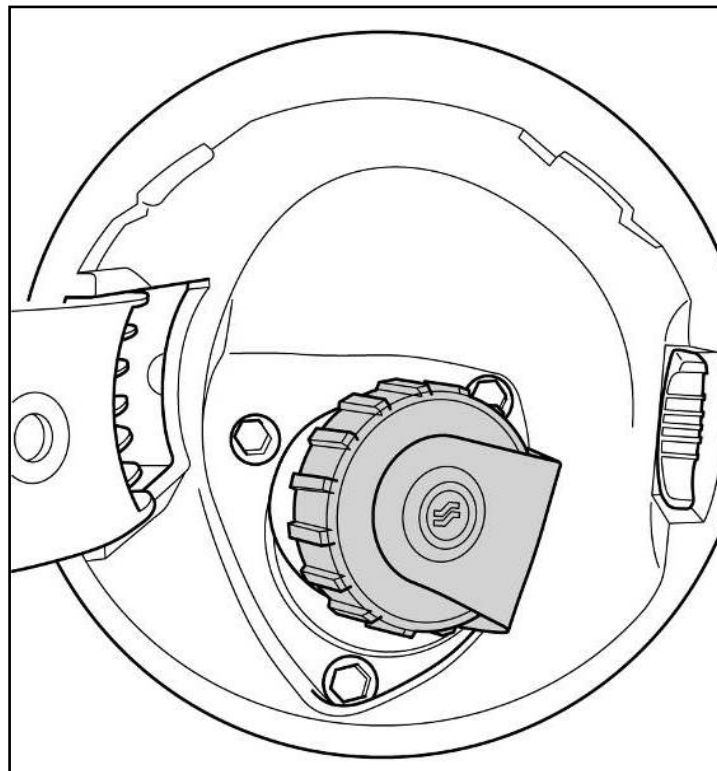
Installing the New Fuel Filler Neck and Fill Lines

⚠ Caution: — Hand tighten all fuel line connectors and fasteners before applying a wrench to avoid cross threading. Failure to heed this caution may result in property damage.

1. Remove the nut from the Sherwood Fill Valve (PV1855BRCN) and assemble the valve to the Fuel Filler Neck Mounting Bracket (P10C3-9B213-AA) as shown. Reinstall and tighten the nut. These parts can be found in Hardware Kit C (P10C3-IBHKC-AA)



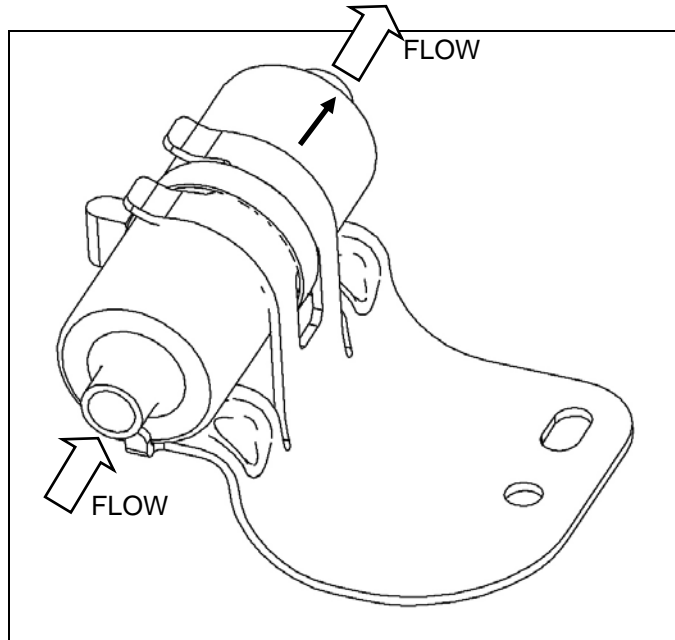
2. Install the Sherwood Fill Valve and Fuel Filler Neck Mounting Bracket behind the factory fill door using (3) M5 x 0.8 x 16mm bolts (W706841). Torque the M5 bolts to 5 - 7 Nm.



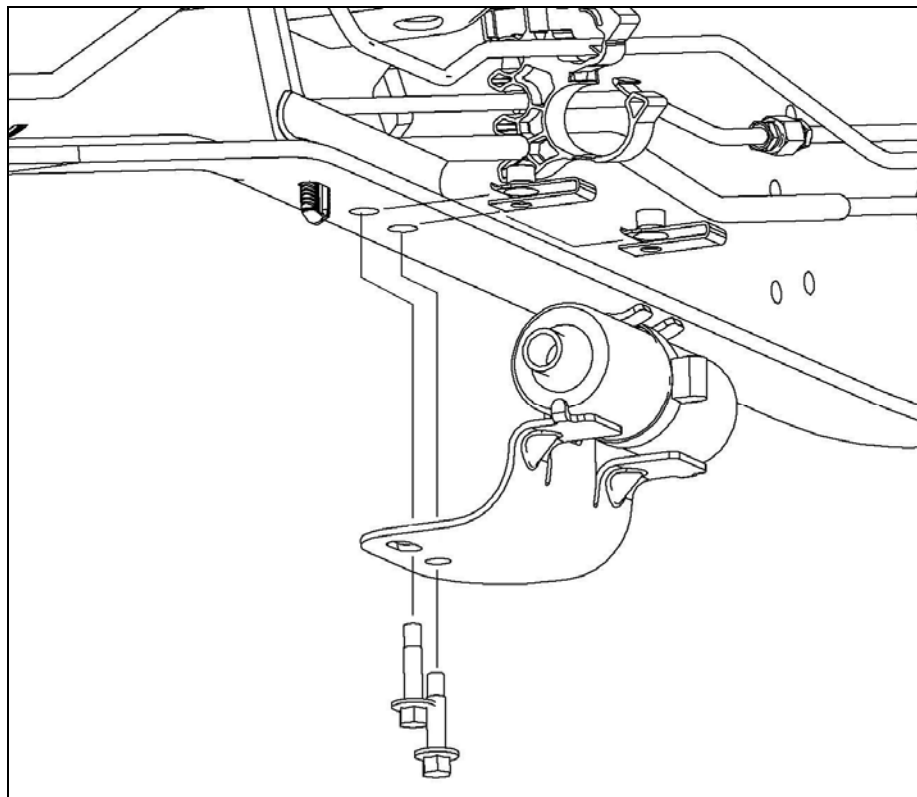
ROUSH F-250/350 Liquid Propane Injection Kit Installation Instructions

3. Assemble the Fuel Fill Filter (P07L3-9155-AA) to the Fuel Fill Filter Bracket (P10C3-9180-AA) using (1) Wormgear clamp (9589). Torque clamp to 4 – 5 Nm. These parts can be found in Hardware Kit C (P10C3-IBHKC-AA)

Note: The arrow on the filter indicates the direction of flow; ensure the filter is assembled to the bracket in the correct orientation.

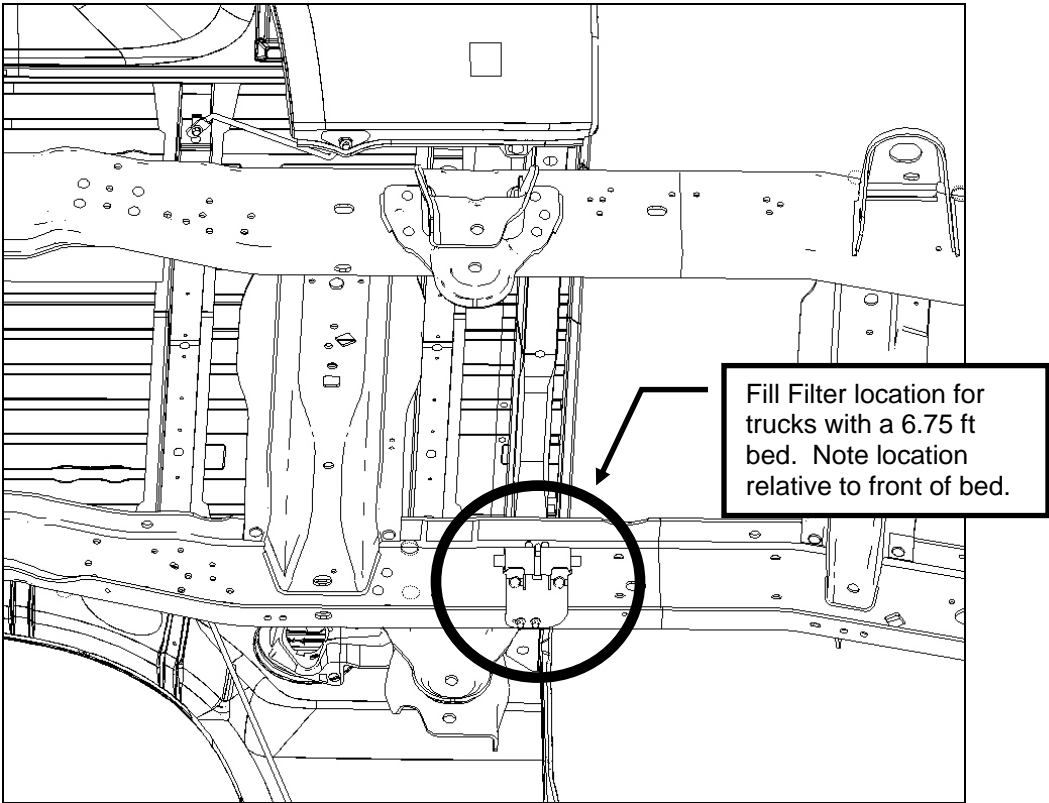
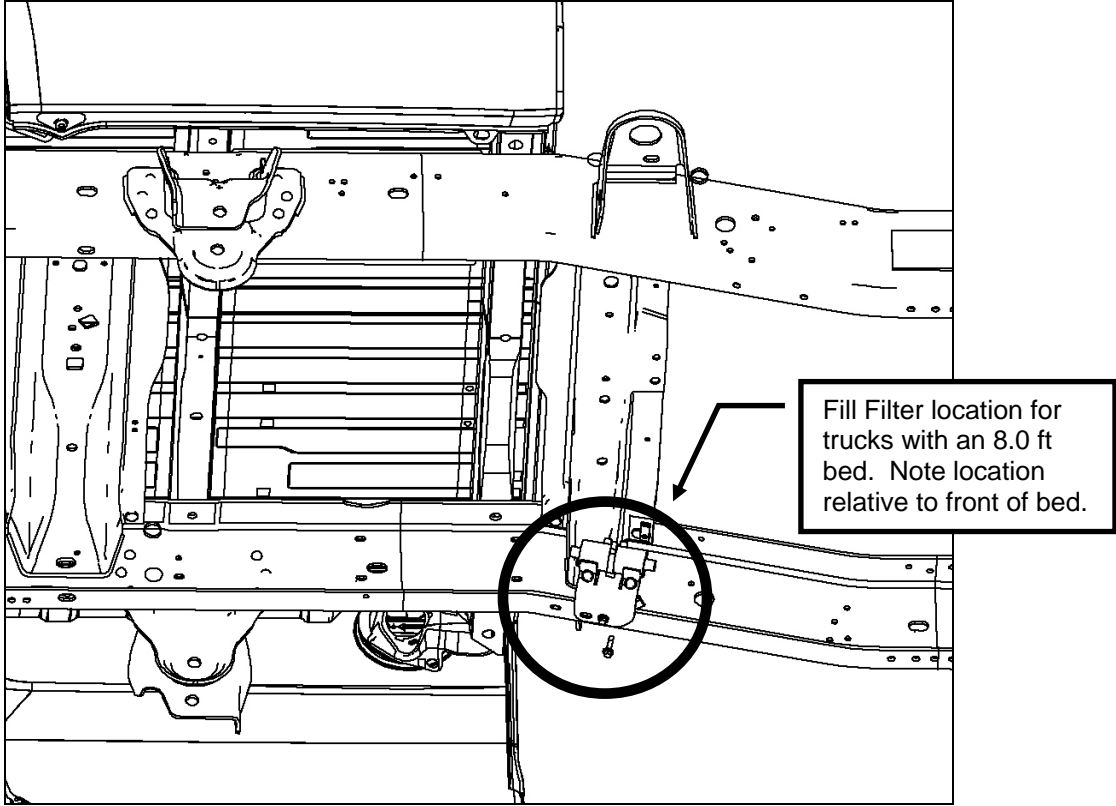


4. Install the filter and bracket assembly to the frame using (2) M8 U-nuts (W705158) and (2) M8 x 1.25 x 30 mm fasteners (W712419). Torque bolts to 20 – 30 Nm.



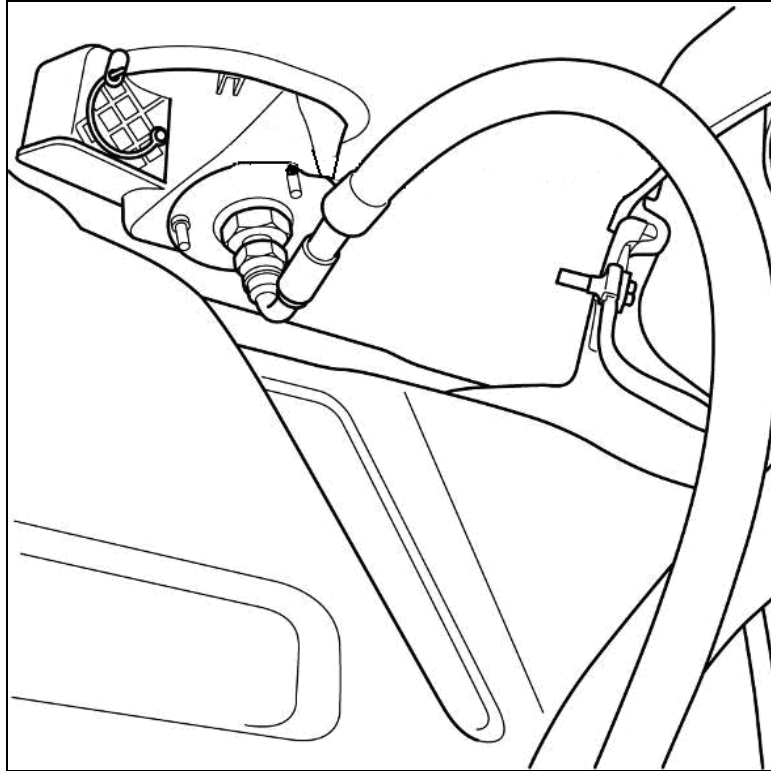
ROUSH F-250/350 Liquid Propane Injection Kit Installation Instructions

Note: The Fill Filter and Bracket Assembly mounts to the frame in different locations depending on bed configuration. Ensure that you mount the filter in the correct location for the vehicle you are working with.

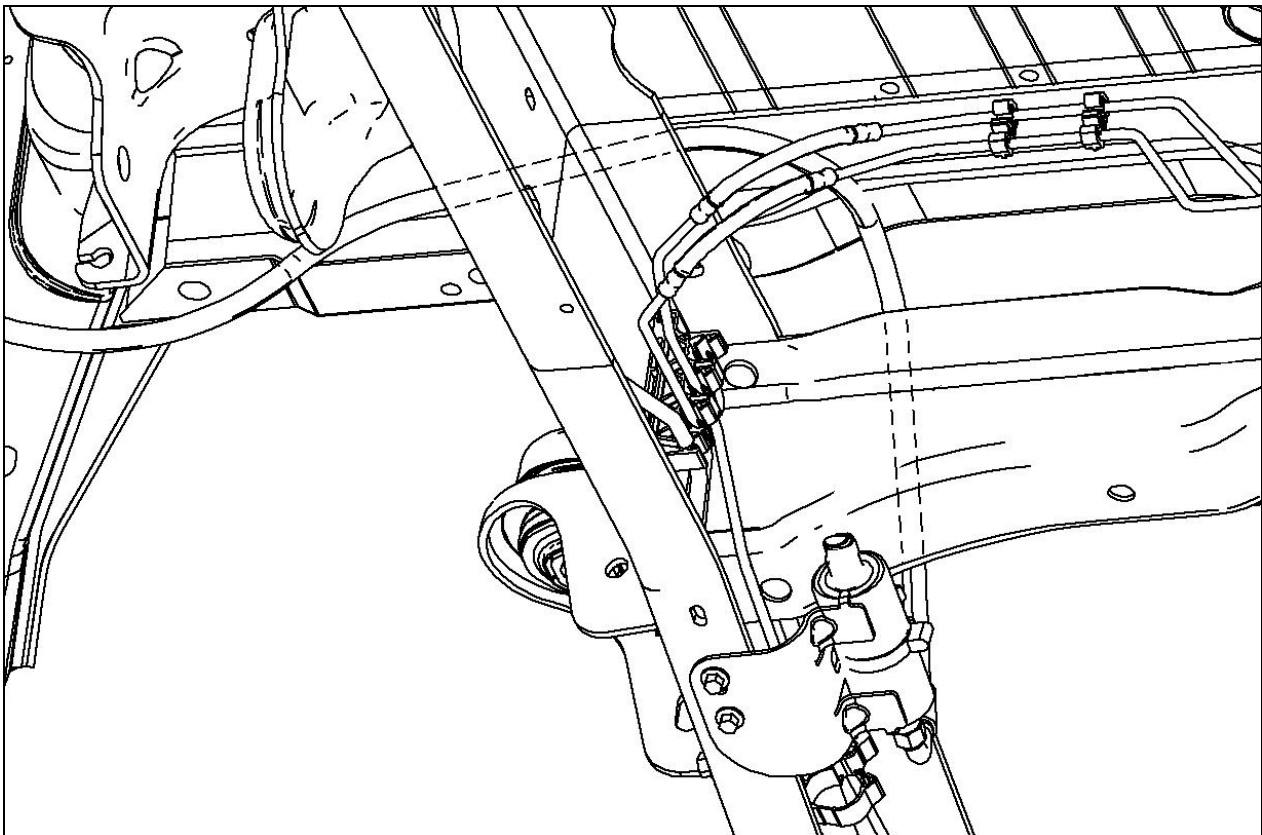


ROUSH F-250/350 Liquid Propane Injection Kit Installation Instructions

5. Install the Nozzle to Filter Fill Hose (P10C3-9034-AA) to the Sherwood valve.

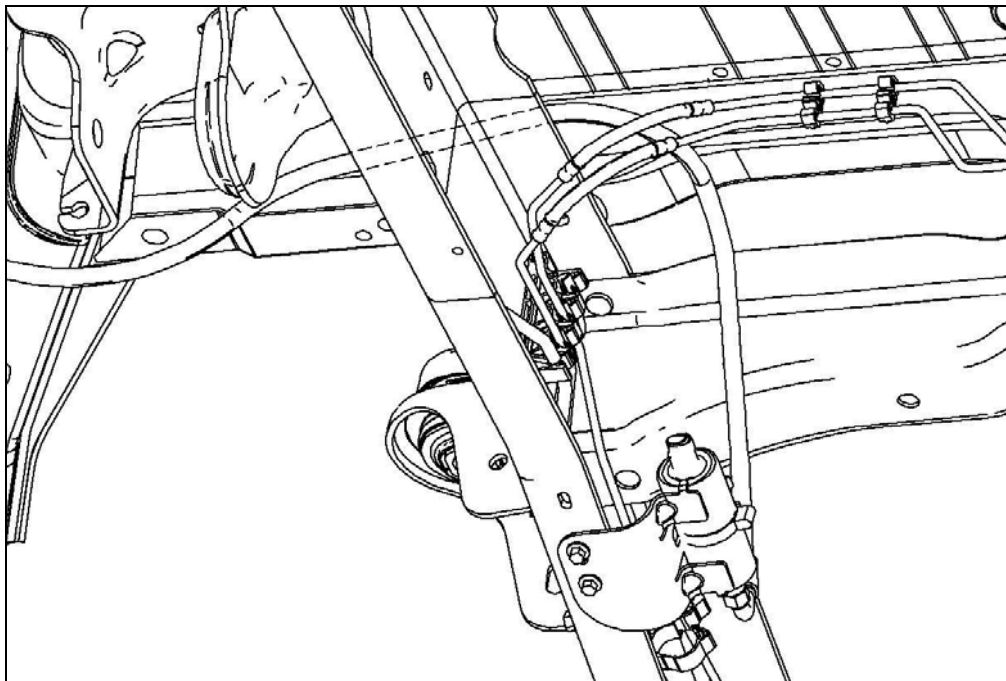


6. **6.75' Bed Only:** Route the fill hose over the frame rail then in front of the frame cross member and attach to the inlet port of the filter. Torque line fittings to 41 – 49 Nm.

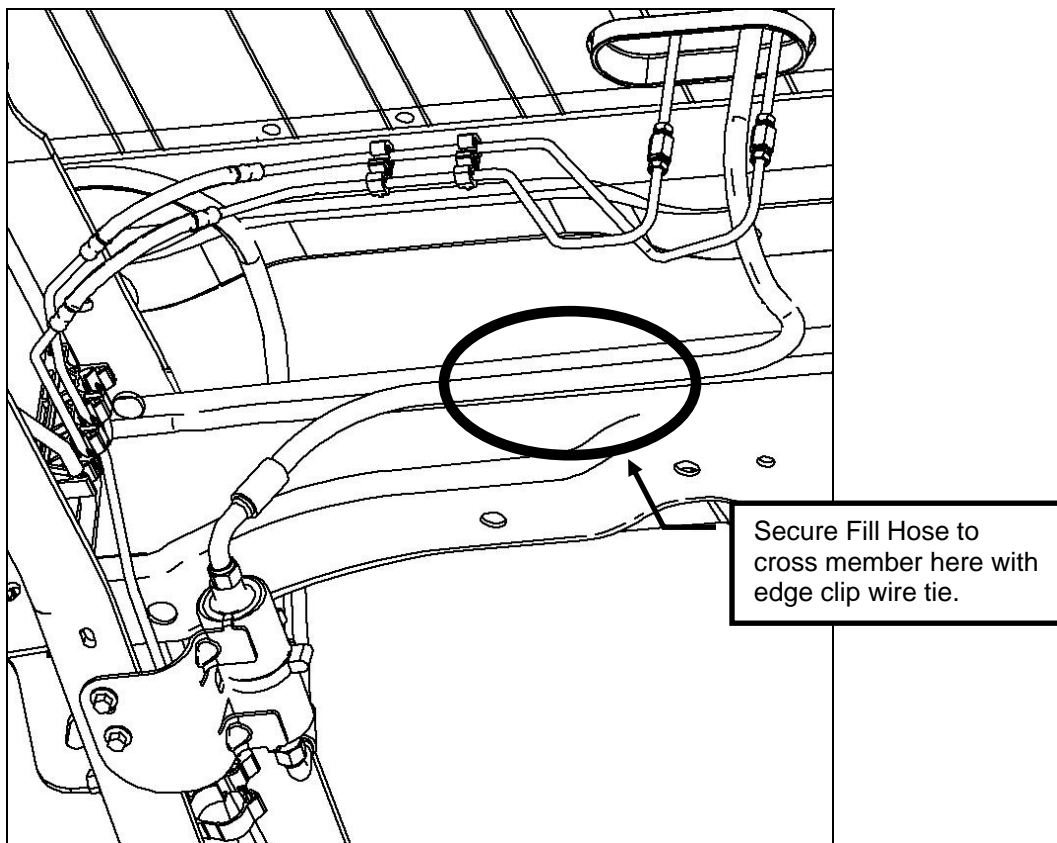


ROUSH F-250/350 Liquid Propane Injection Kit Installation Instructions

- 8' Bed Only:** Route the fill hose over the frame rail then behind and under the frame cross member and attach to the inlet port of the filter. Torque line fittings to 41 – 49 Nm.

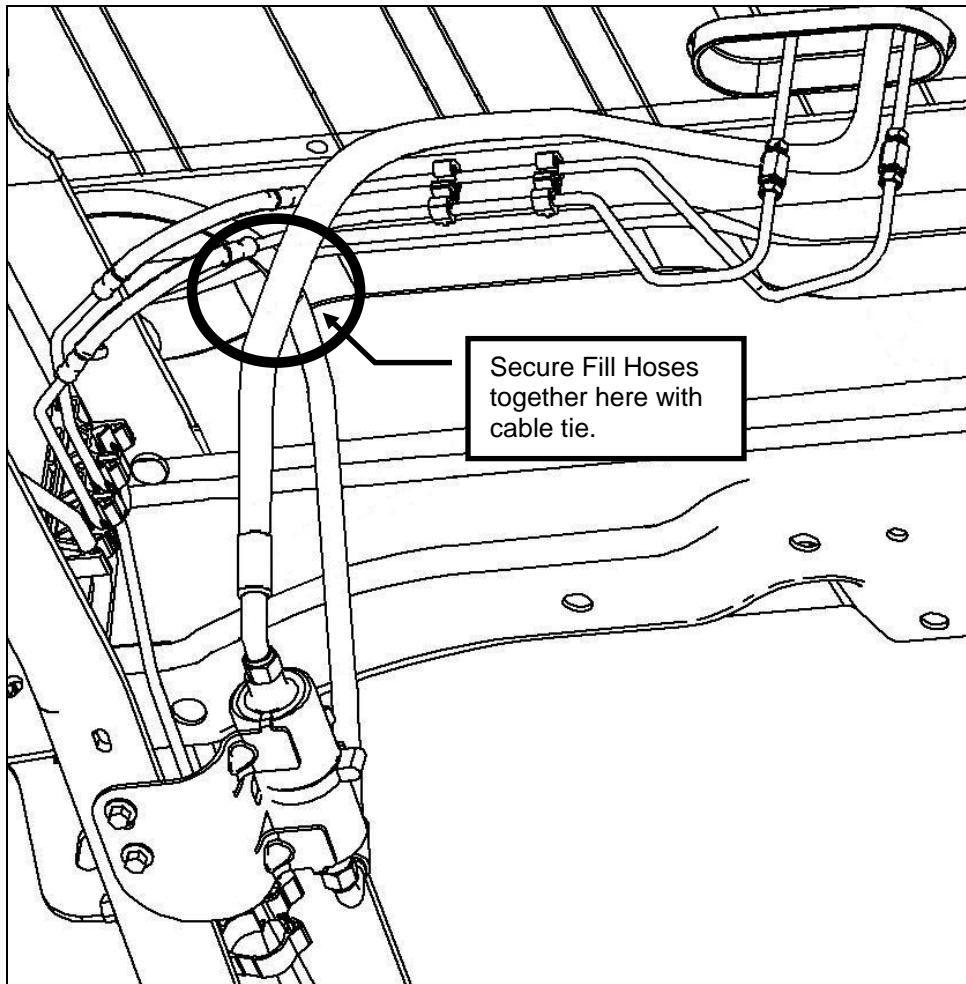


- 6.75' Bed Only:** Connect the Filter to Tank Fill Line that was previously installed on the tank to the filter and route as shown. Torque line fitting to 41 – 49 Nm. Secure the fill line to the cross member by using (1) edge clip wire tie (156-00020) in the location shown.



ROUSH F-250/350 Liquid Propane Injection Kit Installation Instructions

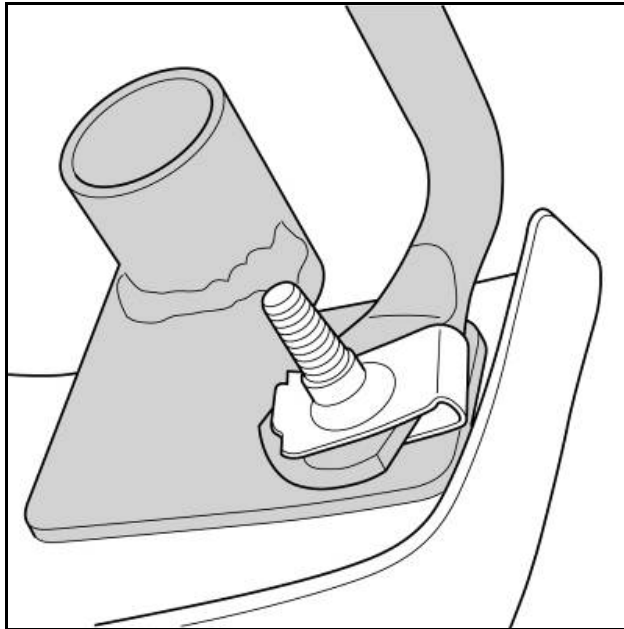
9. **6.75' Bed Only:** Connect the Filter to Tank Fill Line that was previously installed on the tank to the filter and route as shown. Torque line fitting to 41 – 49 Nm. Secure the fill line to the other fill line by using (1) Cable Tie (1A868) in the location shown.



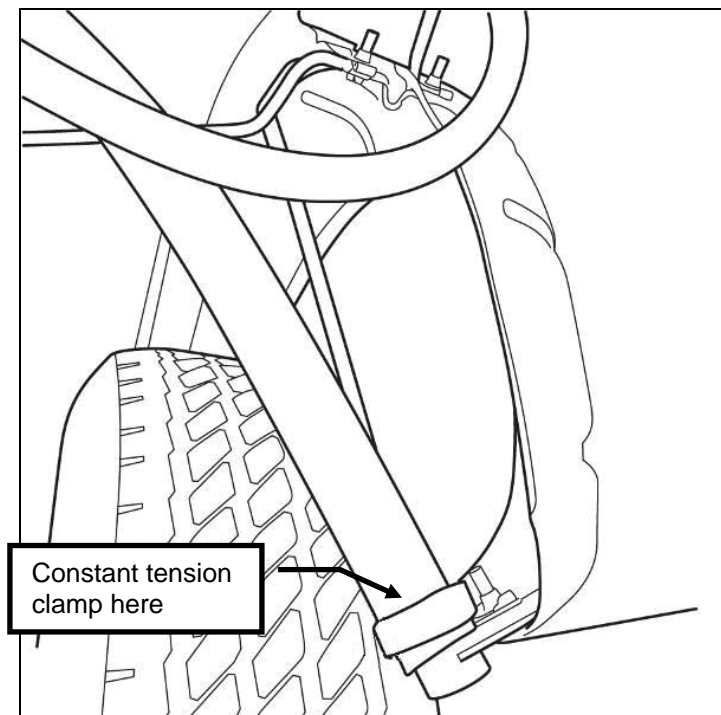
ROUSH F-250/350 Liquid Propane Injection Kit Installation Instructions

Attaching the Pressure Relief Hose

1. Remove the support rod bolt at the bottom of the bed just forward of the driver's side wheel opening.
2. Position the pressure relief outlet nozzle (P10C3-9C177-AA) between the support rod and the fender.



3. Install the bolt through the truck bed and bracket into the J-nut on the support rod. Torque bolt to 8 – 12 Nm.
4. Route the pressure relief hose over the frame rail and secure it to the bracket using (1) constant tension clamp (32150000).



5. Install the pressure relief cap (VC-985-8) on the open port on the bottom of the bracket.

ROUSH F-250/350 Liquid Propane Injection Kit Installation Instructions

Installing the Lift Eye Boss Thread Protector

1. Install the tank lift plug set screw (94564A610) in the lifting boss welded onto the top of the tank.
2. Cover the boss with the lifting eye boss cap (VC-985-8).

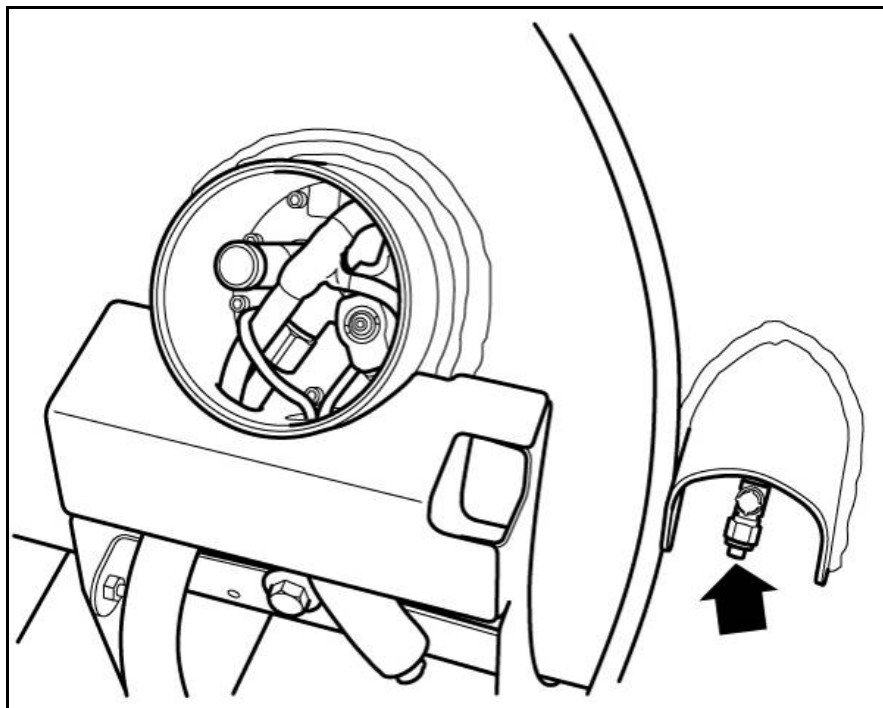
Installing the Reprogrammed PCM

1. Following the procedure described in the Ford Service Information Workshop Manual, Section 303-14, Electronic Engine Controls, install the powertrain control module (PCM).

Leak Check

▲ Caution: — Hand tighten all fuel line connectors and fasteners before applying a wrench to avoid cross threading. Failure to heed this caution may result in property damage.

1. Remove the cap (80001100047) from the bleeder valve.



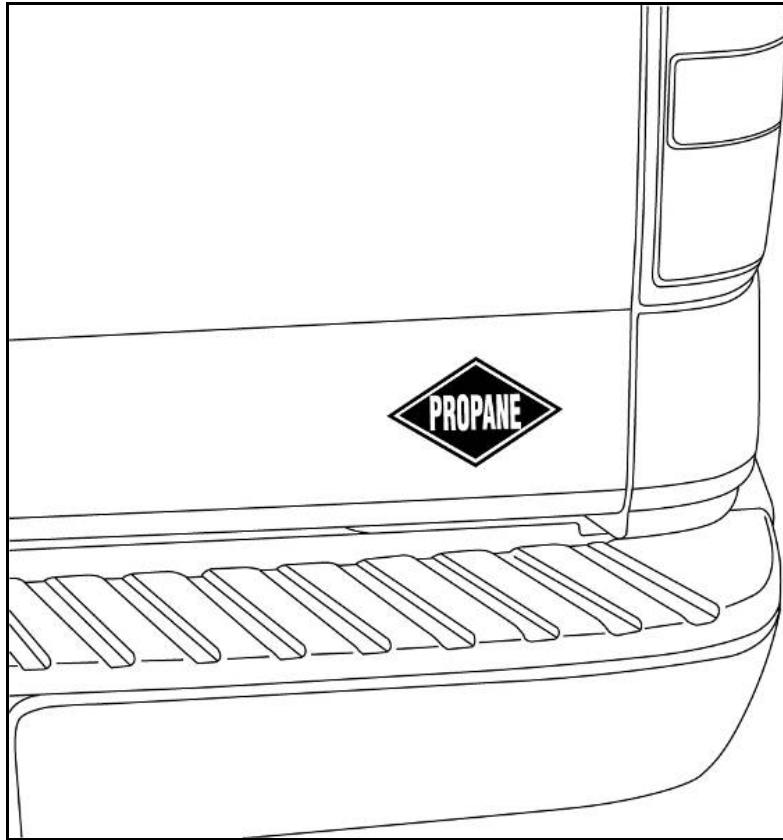
2. Attach a pressure gauge to the bleeder valve on the tank.
3. Open the valve. Pressure must exceed 90 PSI.
4. Close the valve.
5. Remove the gauge and attach it to the service port on the passenger's side fuel rail.
6. Cycle the ignition key repeatedly until the gauge reading equals the reading at the tank.
7. Allow the gauge to remain connected for a minimum of 10 minutes.
8. If the pressure degrades, search for leaks using a leak detector (i.e. soapy water, Snoop, etc).
9. Repeat step 6, step 7 and step 8 until all leaks have been stopped and the pressure does not degrade for 10 minutes.
10. Open the bleeder valve to allow the contents of the tank to escape.
11. If the vehicle continues to fail this test, contact ROUSH Technical Support at **800-597-6874** for assistance.
12. Install the bleeder cap.

ROUSH F-250/350 Liquid Propane Injection Kit Installation Instructions

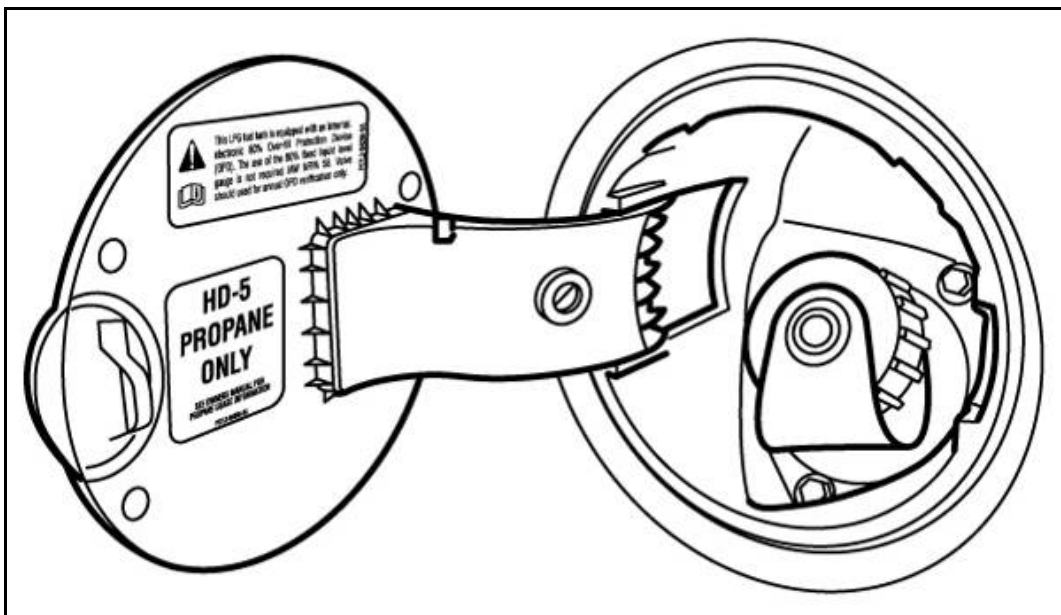
Installing Badges and Labels

Clean and dry all surfaces prior to applying new self-adhesive badges labels.

1. Apply (1) PROPANE Reflective Diamond Label (D-85) onto the lower corner of the tailgate on the passenger's side.

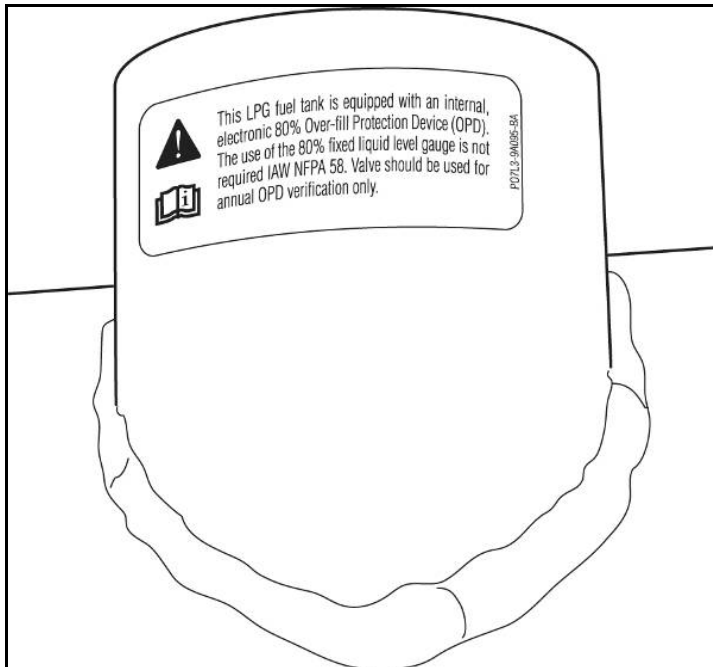


2. Apply (1) HD-5 Propane Label (P07L3-9A095-AA) on the inside center of the fuel door. Apply (1) Overflow Protection Device Label (P07L3-9A095-BB) on the inside top of the fuel door.

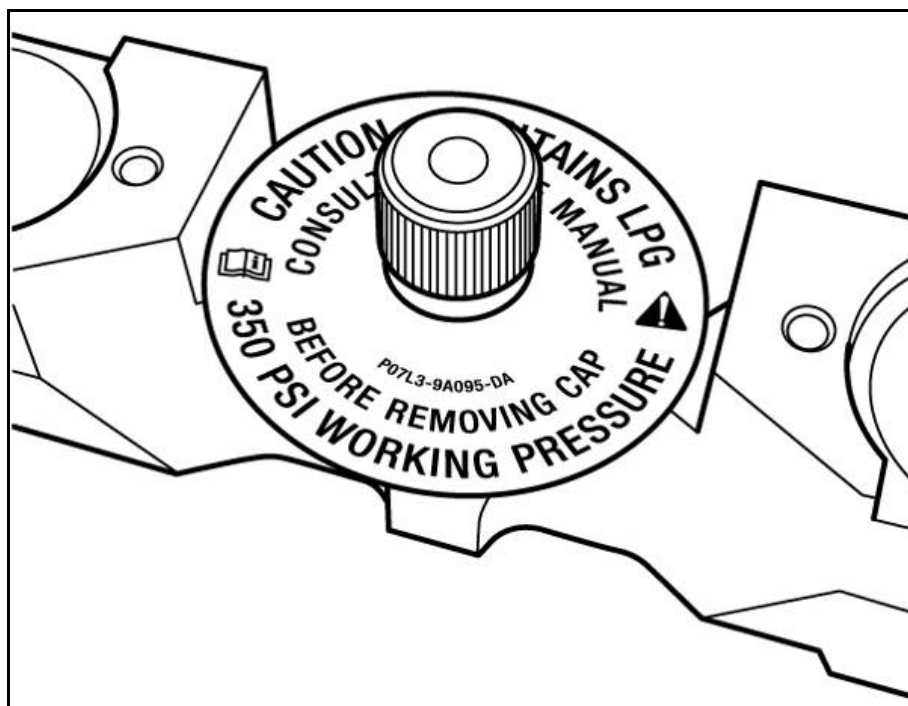


ROUSH F-250/350 Liquid Propane Injection Kit Installation Instructions

3. Install (1) Overflow Protection Device Label (P07L3-9A095-BB) on the collar surrounding the tank bleeder valve.



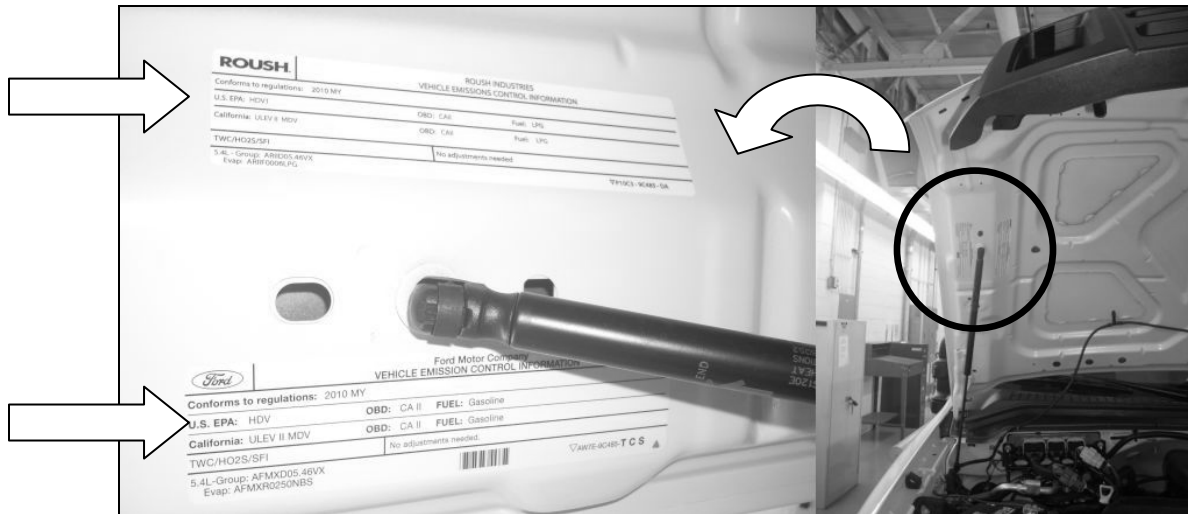
4. If not already done, remove the service port cap and install a Fuel Rail Service Port Warning Label (P07L3-9A095-DA) onto the fuel rail. Reinstall the cap.



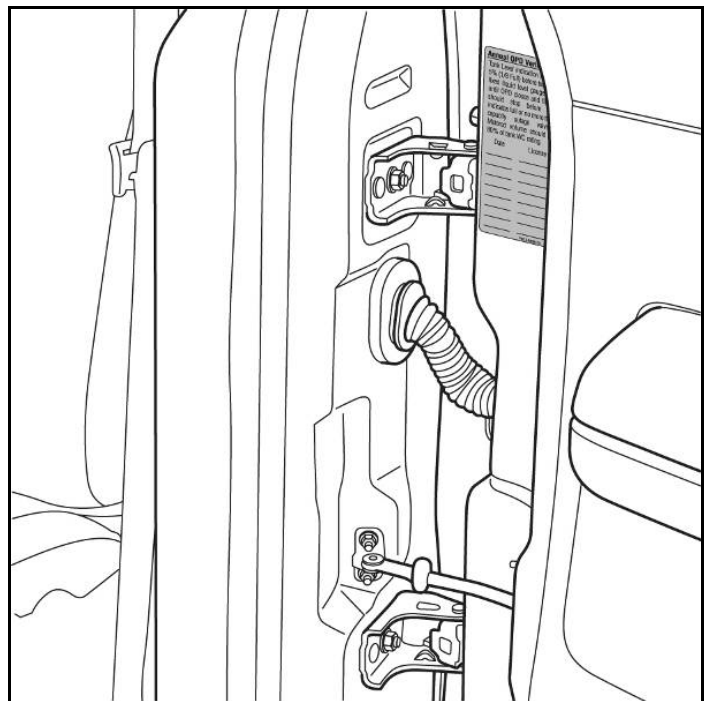
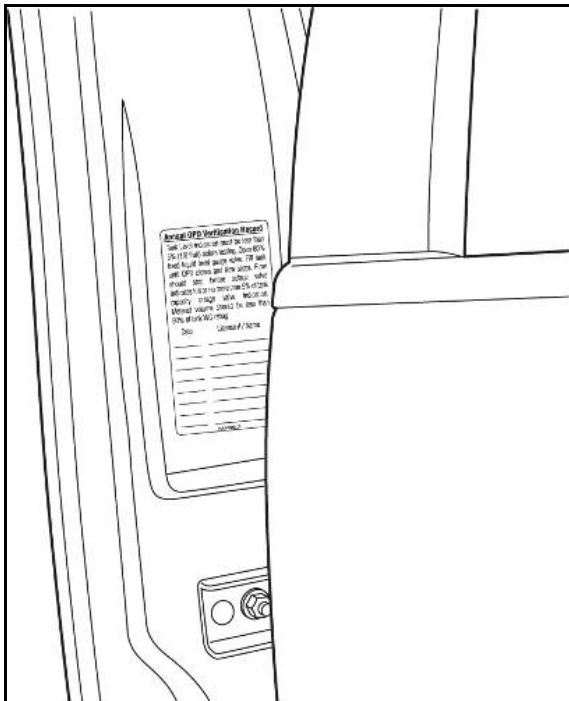
ROUSH F-250/350 Liquid Propane Injection Kit Installation Instructions

5. Apply the ROUSH VECI labels to the underside of the hood on the passenger side of the vehicle. Orient each label parallel to the hood prop rod as shown.

Note: This label is vehicle-specific and is required by law to be applied the vehicle to which it is assigned. Use the label included with the PCM when returned to you by ROUSH.

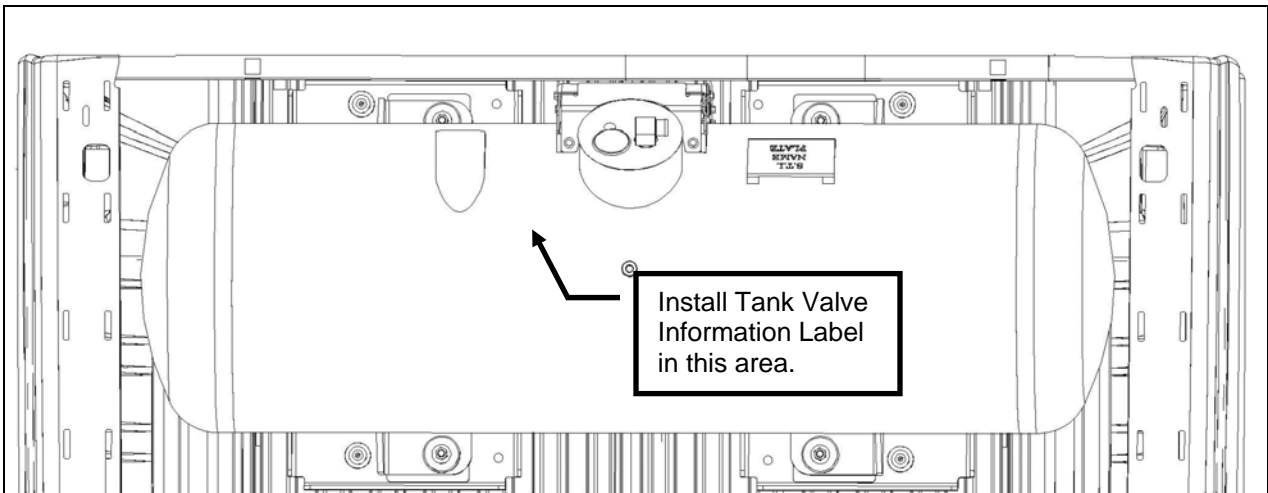


6. Apply the Bleeder Valve Inspection Label (P07L3-9A095-CA) to the "B" post on the driver's side, or the rearmost panel on the driver's side door.



ROUSH F-250/350 Liquid Propane Injection Kit Installation Instructions

7. Install the Tank Valve Information Label (P07L3-9A095-JB) onto the top of the fuel tank near the multivalve collar.



8. Install the FTC Label (P10C3-9A095-AA) onto the passenger door window.
9. Install the Payload Warning Label (P10C3-9A095-DA) in the door jam under the Tire Warning Label.
10. Install the PCM Tamper Label (R07100008-10-AA) onto the dash panel near the PCM.



Completing the Installation

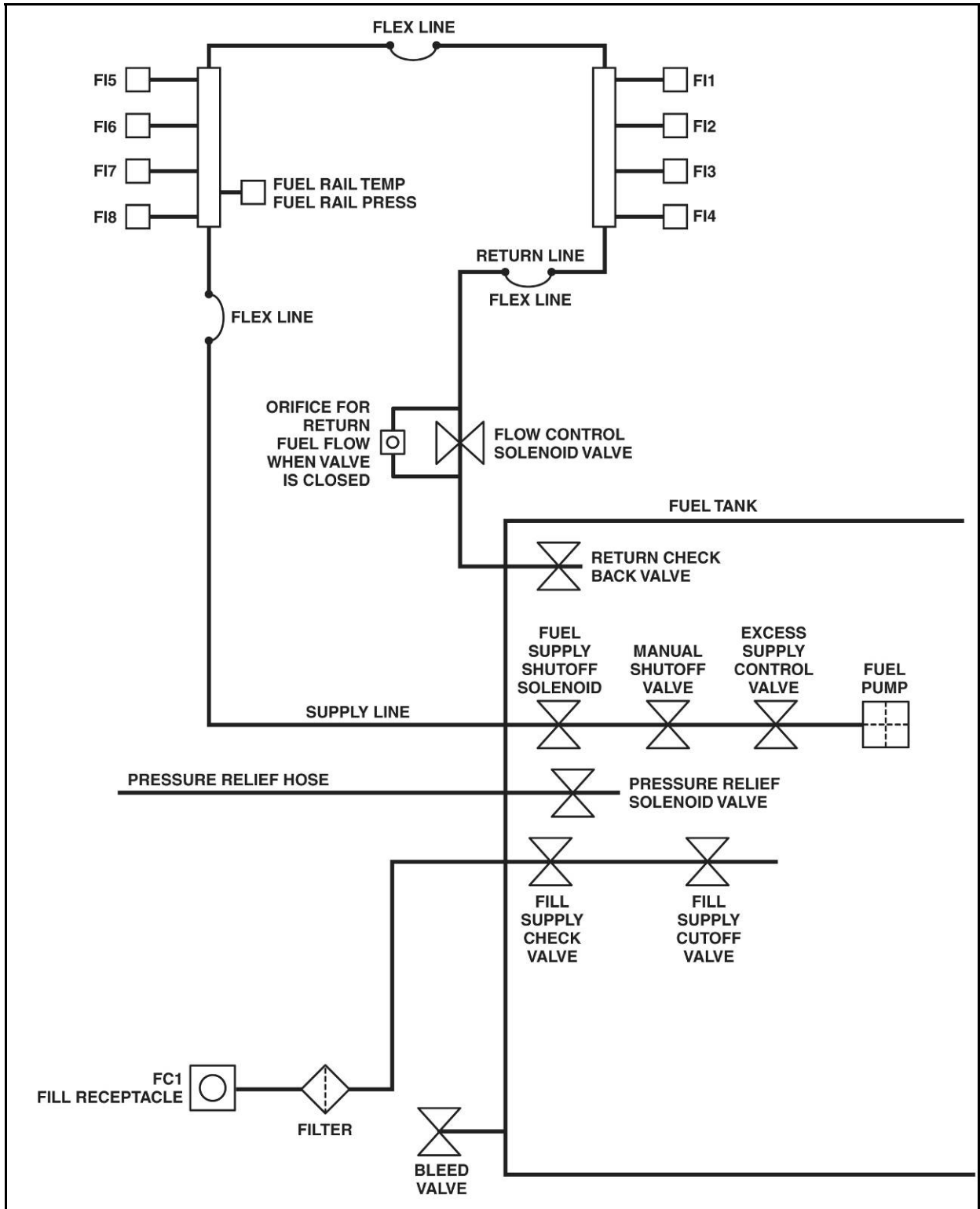
1. Add 10 gallons of HD5 liquid propane gas to the vehicle and disconnect from the fill station.
2. Start the engine.
3. Using a scan tool, check for all error codes. Correct all errors before continuing.
4. Shut down the engine.
5. Reconnect to the fill station and add an additional amount of fuel (minimum of 5 gallons or fill to full with HD5 liquid propane gas).

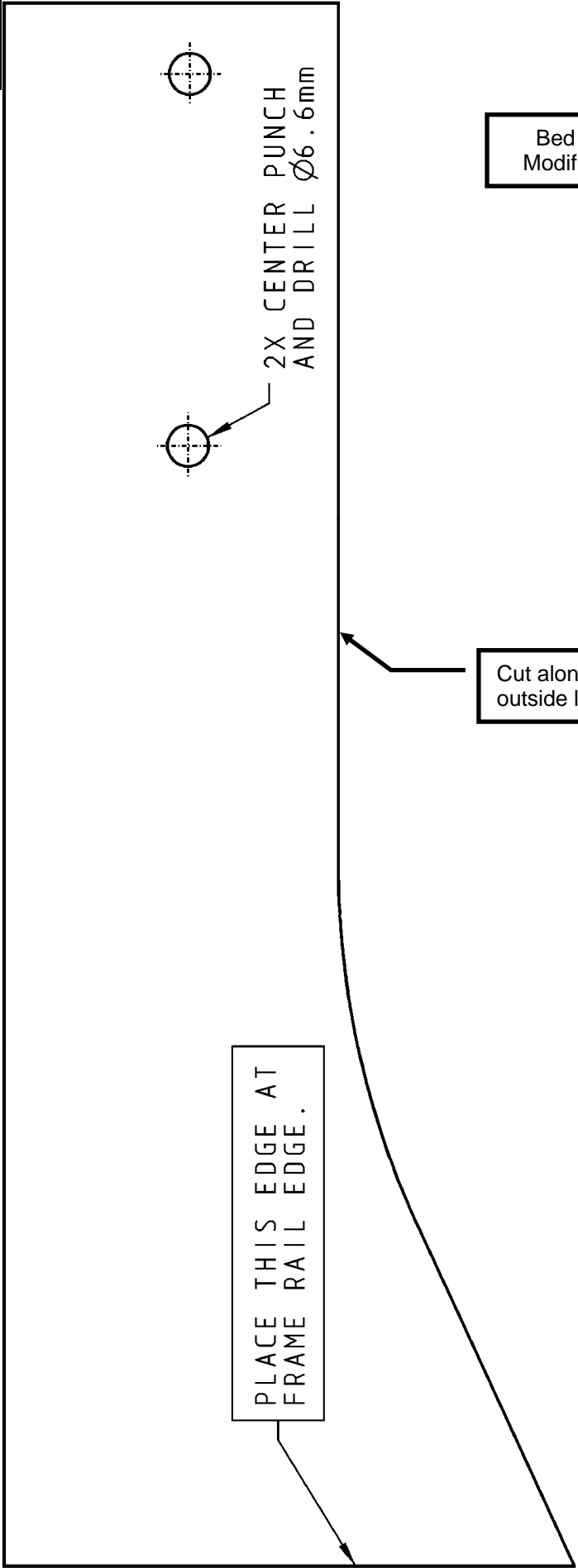
NOTE: THIS DUAL FILL PROCEDURE IS RECOMMENDED BY ROUSH TO CONFIRM THAT THE LPG HAS NOT LEAKED PAST THE FUEL FILL PLUNGER CREATING A VAPOR LOCK CONDITION. PLEASE PERFORM THIS STEP TO ENSURE YOUR SYSTEM IS WORKING PROPERLY.

6. Insert an owner's guide supplement (P10C3-19A321-AA) into the glove box.

ROUSH F-250/350 Liquid Propane Injection Kit Installation Instructions

Schematics and Diagrams





Bed Cross Member
Modification Template

Cut along solid
outside line.

PLACE THIS EDGE AT
FRAME RAIL EDGE.

