Daimler Trucks North America LLC

Field Service Campaign

June 2012
SF449A

Subject: Sterling L-Line Fuel Line Routing

Models Affected: Specific Sterling L-Line natural gas vehicles manufactured May 5, 2008, through November 3, 2008.

General Information

Daimler Trucks North America LLC, on behalf of its wholly owned subsidiary, Sterling Truck Corporation, is initiating Field Service Campaign SF449A to modify the vehicles mentioned above.

Certain fuel lines may interfere with an engine mounting clip and/or the air compressor intake tube.

The fuel line and the air compressor intake tube will be inspected, and replaced and/or rerouted if necessary.

There are approximately 320 vehicles involved.

Additional Repairs

Dealers must complete all outstanding field service campaigns prior to the sale or delivery of a vehicle. A Dealer will be liable for any progressive damage that results from its failure to complete campaigns before sale or delivery of a vehicle.

Owners may be liable for any progressive damage that results from failure to complete campaigns within a reasonable time after receiving notification.

Please contact Warranty Campaigns for consideration of additional charges prior to performing the repair.

Work Instructions

Please refer to the attached work instructions. Prior to performing the campaign, check the vehicle for a completion sticker (Form WAR261).

Replacement Parts

Replacement parts are now available and can be obtained by ordering the kit number listed below from your facing Parts Distribution Center.

If our records show your dealership has ordered any vehicle(s) involved in campaign SF449A, a list of the customers and vehicle identification numbers will be available on AccessFreightliner.com. Please refer to this list when ordering parts for this campaign.

Table 1 - Replacement Parts for SF449A

Campaign Number	Kit Number	Part Description	Part Number	Qty. per Kit	Suggested Wholesale*
SF449A	25-SF449-000	TUBE-AIR COMP	01-32180-000	1 ea	$103.90 US $105.98 CAN
		HOSE-SHUNT LINE	05-16522-087	2 ea	
		CLAMP-HOSE	UMP S464G16	2 ea	
		M10X25 HEX FLG SCREW	DDE N910105010009	2 ea	
		WASHER-FLAT	23-12707-010	2 ea	
		Completion Sticker	WAR261	1 ea	
	25-SF449-001	HOSE ASSY-CNG	A23-13767-056	1 ea	$100.41 US $102.42 CAN
		CLAMP-HOSE	UMP S464G16	1 ea	
		SCREW-CAP HEX	23-10742-075	1 ea	
		WASHER-FLAT	23-10900-025	2 ea	
		NUT-HEX	23-13110-025	1 ea	
		Completion Sticker	WAR261	1 ea	

* Please charge all U.S. and Canadian Direct Warranty Customers the above-listed price for the kit, as they are authorized to perform their own Recalls. This pricing does not apply to Export Distributors.

Table 1

Removed Parts

U. S. and Canadian Dealers, please follow Warranty Failed Parts Tracking shipping instructions for the disposition of all removed parts. Export distributors, please destroy removed parts unless otherwise advised.

Labor Allowance

Table 2 - Labor Allowance

Campaign Number	Procedure	Time Allowed (hours)	SRT Code	Damage Code
SF449A	Inspect Air Compressor Intake Tube and Fuel Line Only	0.2	996-0870C	000-Inspected
	Inspect Air Intake Tube Only; Reroute or Replace Fuel Line	0.5	996-0870B	000-Modifiedx
	Inspect and Replace Air Compressor Intake Tube; Inspect Fuel Line Only	1.0	996-0870A	000-Modifiedx
	Inspect and Replace Air Compressor Intake Tube and Fuel Line	1.3	996-0870D	000-Modifiedx

Table 2

IMPORTANT: When the campaign has been completed, locate the base completion label in the appropriate location on the vehicle, and attach the gray completion sticker provided in the field service kit (Form WAR261). If the vehicle does not have a base completion label, clean a spot on the appropriate location of the vehicle and first attach the base completion label (Form WAR259). If a field service kit is not required or there is no completion sticker in the kit, write the campaign number on a blank sticker and attach it to the base completion label.

Claims for Credit

You will be reimbursed for your parts, labor, and handling (landed cost for Export Distributors) by submitting your claim through the Warranty system within 30 days of completing this campaign. Please reference the following information in QuickClaim or OWL:

- Claim type is **Field Service**.
- In the FTL Authorization field, enter the campaign number and appropriate condition code (**SF449A**).
- In the Primary Failed Part Number field, enter **25-SF449-000**.
- In the Parts field, enter the appropriate kit number(s) as shown in the Replacement Parts Table.
- In the Labor field, first enter the appropriate SRT from the Labor Allowance Table. For administrative time, enter SRT 939-0010A for 0.3 hours.
- For OWL, the VMRS Component Code is 013-009-102 and the Cause Code is A1 - Campaign.

This Field Service Campaign will **terminate on June 30, 2013**. Dealers will be notified of any changes to the termination date via Important Campaign Information Letter posted on AccessFreightliner.com.

IMPORTANT: ServicePro or OWL must be viewed prior to beginning work to ensure the vehicle is involved and the campaign has not previously been completed. Also, check for a completion sticker before beginning work.

All claims must be submitted within 30 days of the repair and within 30 days of the termination date of the campaign. U.S. and Canadian Dealers: All excess inventory to be returned to the PDC following the conclusion of the campaign must be returned in resaleable condition to the Memphis PDC within 90 days from the termination date. Please submit a PAR to request return to the Memphis PDC. (Canadian dealers should return the kits to their facing PDC.) Export Distributors: Excess inventory is not returnable.

U.S. and Canadian dealers, contact the Warranty Campaigns Department from 7:00 a.m. to 4:00 p.m. Pacific Time, Monday through Friday, via Web inquiry at AccessFreightliner.com / Support / My Tickets and Submit an Inquiry, or the Customer Assistance Center at (800) 385-4357, after normal business hours, if you have any questions or need additional information. Export distributors submit a Web inquiry or contact your International Service Manager.

Copy of Notice to Owners

Subject: Sterling L-Line Fuel Line Routing

Daimler Trucks North America LLC, on behalf of its wholly owned subsidiary, Sterling Trucks Corporation, initiating Field Service Campaign SF449A to modify specific Sterling L-Line natural gas vehicles manufactured May 5, 2008, through November 3, 2008.

Certain fuel lines may interfere with an engine mounting clip and/or the air compressor intake tube.

The fuel line and the air compressor intake tube will be inspected, and replaced and/or rerouted if necessary.

Please contact an authorized Daimler Trucks North America dealer to arrange to have the campaign performed and to ensure that parts are available at the dealership. To locate an authorized dealer, search online at www.Daimler-TrucksNorthAmerica.com. The campaign will take approximately one hour and will be performed at no charge to you.

This Field Service Campaign will **terminate on June 30, 2013**. Please make sure the campaign is completed prior to this date. Work completed after this date will be done at the customer's expense.

As stated in the terms of your express limited warranty, Daimler Trucks North America LLC will not pay for any damage caused by failure to properly maintain your vehicle. Daimler Trucks North America LLC considers the work necessary under this campaign to be proper maintenance and will, therefore, not pay for any damage to your vehicle caused by your failure to have the repairs that are the subject of this campaign performed in a reasonable time.

IMPORTANT: When the campaign has been completed on your vehicle, please ensure that a completion sticker has been affixed to your vehicle referencing **SF449**.

Contact the Warranty Campaigns Department at (800) 547-0712, from 7:00 a.m. to 4:00 p.m. Pacific Time, Monday through Friday, e-mail address DTNA.Warranty.Campaigns@Daimler.com, or the Customer Assistance Center at (800) 385-4357, after normal business hours, if you have any questions or need additional information.

WARRANTY CAMPAIGNS DEPARTMENT

Enclosure

Work Instructions

Subject: Sterling L-Line Fuel Line Routing

Models Affected: Specific Sterling L-Line natural gas vehicles manufactured May 5, 2008, through November 3, 2008.

NOTE: The Work Instructions begin on page 7.

Safety Precautions

⚠ DANGER

Natural gas vapors are highly flammable. Failure to observe the following safety precautions could lead to ignition of the natural gas, which could cause serious bodily injury, death, or severe property damage.

Liquefied natural gas (LNG) vapors are highly flammable. Whenever a leak is suspected, immediately shut off all engines and ignition sources. Avoid causing sparks, and stay away from arcing switches and equipment. Extinguish cigarettes, pilot lights, flames, and other sources of ignition in the area and adjacent areas. Immediately provide extra ventilation to the area. Do not start any equipment until the gas leak is corrected and the area cleared of LNG.

Natural gas is nontoxic, but can cause asphyxiation at high enough concentrations simply by excluding adequate oxygen to sustain life.

Periodic inspections of the LNG tank are required by law to ensure continued safety. Each fuel tank should be visually inspected at specified intervals for external damage and deterioration.

If a tank receives an impact, or has deep scratches or gouges, it should be inspected before refilling. The inspection should be performed by a qualified person, in accordance with the tank manufacturer's established inspection criteria.

Always use a natural gas detector to test the system for leaks, whether an odor is present or not. A bubble solution can be used to pinpoint the exact location of leaks.

Servicing Precautions

Observe the following safety precautions when servicing LNG-powered vehicles:

- Always purge the fuel lines and tank before performing maintenance or repairs on the fuel system. This can be done by either transferring LNG in the fuel tank to an approved cryogenic-rated container, or by running the vehicle until the tank is empty and the engine stops.
- Close the fuel tank shutoff valves before performing maintenance and repairs. Open the valves only if LNG is needed to operate the engine or to check for leaks.
- Repair work on an LNG fuel system should be performed only by qualified technicians trained in automotive LNG system repair.
- Always tighten fasteners and fuel connections to the required torque specification. Overtightening or undertightening can cause leaks.
- Cover eyes and exposed skin with cryogenic-rated protective devices when working on the fuel system or fueling the vehicle.

Workshop Precautions

Do not store an LNG vehicle indoors for any extended period of time.

Observe the following safety precautions when LNG vehicles are inside a workshop:

- Use only safety fluorescent extension shop lights when working around LNG fuel systems.
- Ensure the shop ceiling is equipped with a vent system that will allow gas to escape and dissipate.
- Ensure the shop is equipped with an alarm system that activates when gas concentration in the air becomes dangerous.
- Have CO_2 fire extinguishers (ABC minimum) located in a highly visible and easily accessible location.
- Permit no smoking or other ignition sources within thirty feet of an LNG vehicle.
- Avoid open flames or sparks near an LNG vehicle.
- Check the fuel tank pressure gauge periodically to ensure that pressure is within the normal range of 120 to 150 psi (827 to 1034 kPa). In the unlikely event that tank pressure exceeds 230 psi (1586 kPa) and the pressure relief valve does not open automatically, vent the tank outdoors immediately.

Major Repair and Replacement of Parts

If a natural-gas-fueled vehicle is involved in an accident, remove the fuel tank(s) from service and have them inspected by a qualified technician. Replace any leaking or damaged fuel tanks and fuel lines; repair or replace leaking or damaged fittings. Install parts and components in accordance with the manufacturer's instructions.

Any and all replacement parts (valves, fittings, tubing, etc.) of the LNG fuel system must be designed specifically for LNG use, and must be approved for use by the fuel system manufacturer.

Install parts and components in accordance with the fuel system manufacturer's instructions.

Gas Detection System

A gas detection system is used in all Daimler Trucks LNG-fueled vehicles. The system has a sensor in the engine compartment and one in the cab, both situated in high areas to detect natural gas buildup as a result of leaks. The system is meant to serve as a supplemental warning only. It is not intended to replace standard safety practices that should be conducted around flammable gases.

IMPORTANT: To function properly, the gas detection system must be powered at all times. The gas detection system is directly powered by the batteries, and can only be powered off by disconnecting the batteries. When servicing a natural-gas-fueled vehicle, disconnect the batteries only when necessary, and do not leave the batteries disconnected for extended periods of time.

Work Instructions

Air Compressor Intake Tube and Fuel Line Inspections

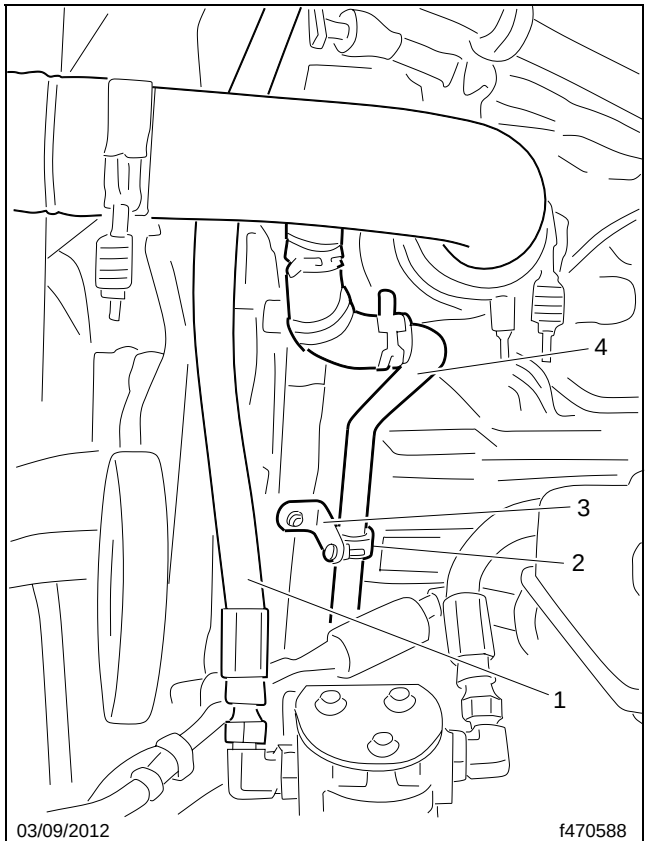
1. Check the base label (Form WAR259) for a completion sticker for SF449 (Form WAR261), indicating this work has been completed. The base label is usually located on the passenger-side door, about 12 inches (30 cm) below the door latch. If a completion sticker is present, no work is needed. If a completion sticker is not present, proceed to the next step.
2. Park the vehicle on a level surface, shut down the engine, and set the parking brakes. Chock the tires.

IMPORTANT: Repairs listed in this work instruction must be performed in the order listed. If needed, the air compressor intake tube assembly must be replaced before replacing or rerouting the fuel line.

3. Inspect the air compressor intake tube assembly installation. See **Fig. 1** for correct installation, and **Fig. 2** for the incorrect installation.

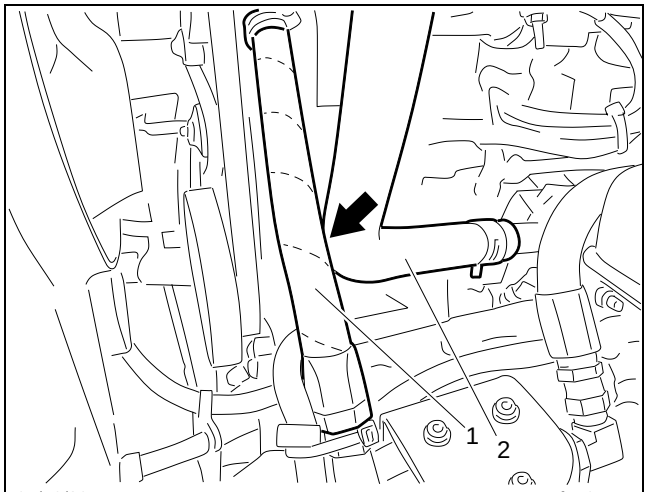
   If the assembly is installed correctly, go to the next step.

   If the assembly is not installed correctly, go to the "Air Compressor Intake Tube Assembly Replacement" instructions on page 9. Correct installation is required to provide clearance for the fuel line.



1. Fuel Line
2. P-Clamp
3. Standoff
4. Air Compressor Intake Tube

Fig. 1, Correct Air Compressor Intake Tube Assembly Installation



Check for damage here.

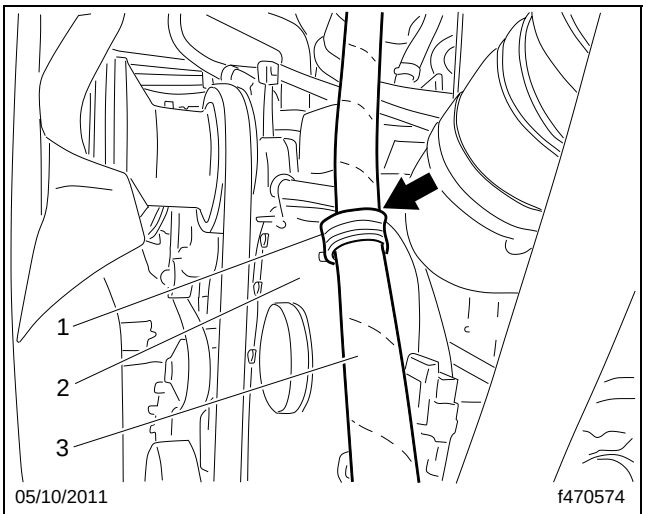
1. Fuel Line
2. Rubber Air Compressor Intake Tube

Fig. 2, Fuel Line and Rubber Air Compressor Intake Tube Contact Area

NOTE: The standoff bracket shown in **Fig. 1** is optional. It may be removed and the P-clamp attached directly to the block.

4. Inspect the fuel line for damage and correct routing. See **Fig. 3** and **Fig. 4**.

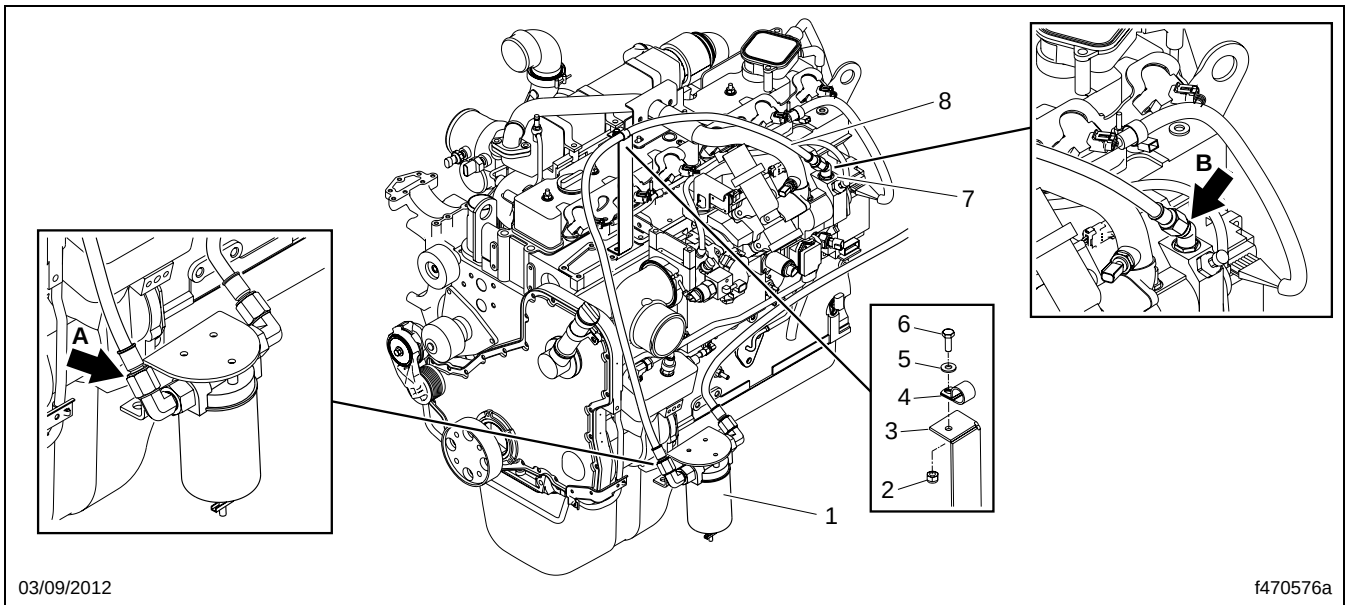
   If there is any damage to the fuel line or the line is routed incorrectly, go to "Fuel Line Replacement & Routing" on page 9.



Look for damage here.

1. P-Clamp
2. Engine Front Cover
3. Fuel Line

Fig. 3, Fuel Line Inspection



A. Check fitting orientation here.
B. Check fitting orientation here.

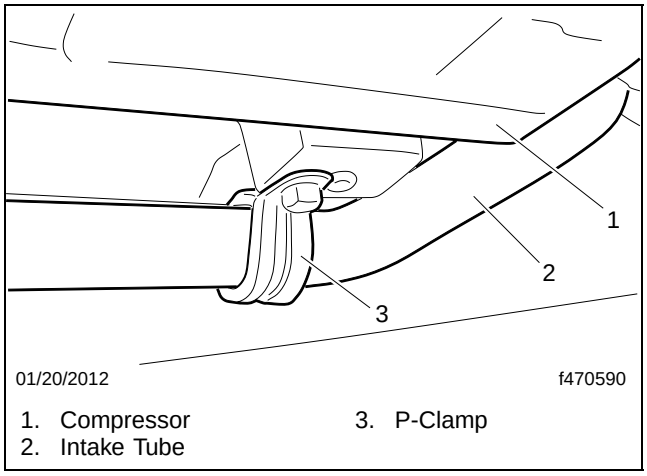
1. Fuel Filter
2. Nut
3. Standoff
4. P-Clamp
5. Washer
6. Bolt
7 Mixing Valve
8. Fuel Line

Fig. 4, Correct Fuel Line Routing

5. If the air compressor intake tube assembly is correctly installed, and the fuel line is properly routed and not rubbing, no further work is necessary. Clean a spot on the base label (Form WAR259). Write the campaign number, SF449, on a blank grey completion sticker (Form WAR261) to indicate the work has been completed and attach it to the base label.

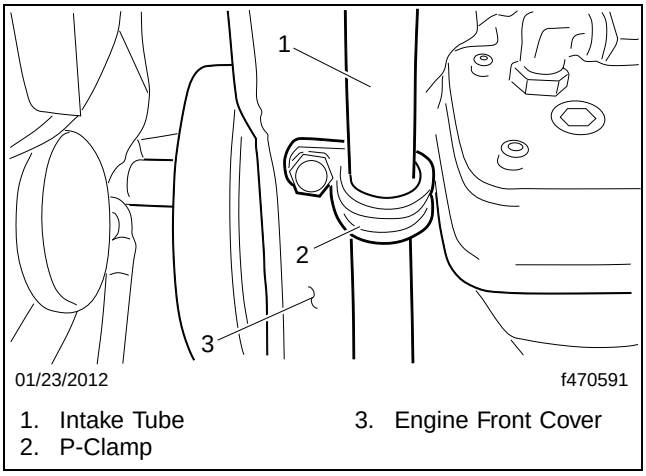
Air Compressor Intake Tube Assembly Replacement

1. Disconnect the batteries at the negative post.
2. Remove the old air compressor intake tube assembly between the air compressor and the cold side CAC tube.
3. Install one of the hoses from the kit (05-16522-087) onto the air compressor intake. Install the long end of the hose onto the air compressor.
4. Install the new air compressor tube into the rubber hose on the air compressor.
5. From the kit, use the two smaller cushion clamps and the two metric bolts to connect the air compressor tube to the air compressor and front gear housing cover. See **Fig. 5** and **Fig. 6**.



1. Compressor
2. Intake Tube
3. P-Clamp

Fig. 5, Intake Tube Installation



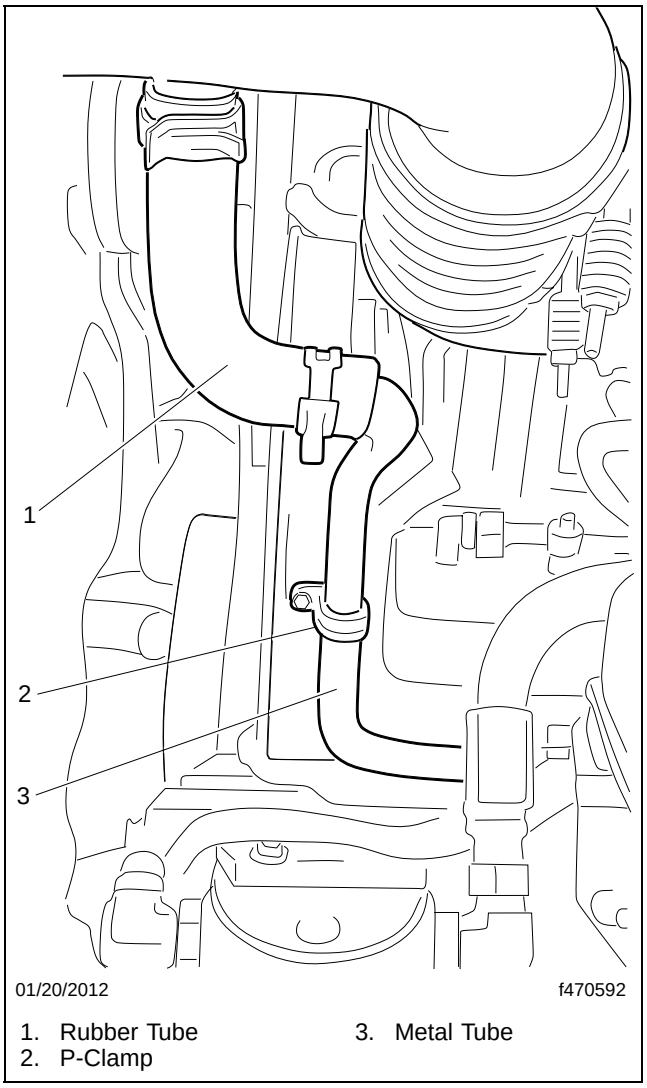
1. Intake Tube
2. P-Clamp
3. Engine Front Cover

Fig. 6, Intake Tube Installation, Engine Front Cover

6. Install the second rubber hose from the kit to the cold-side CAC tube and the air compressor intake tube. Install the long side onto the CAC tube. It might be necessary to cut the short side to get the appropriate fit.
7. Adjust the metal compressor tube to get it to fit without rubbing. You may need to trim the upper rubber hose to achieve this. See **Fig. 7**.
8. Once the air compressor intake tube assembly has been replaced and/or routed correctly, go back to step 4 of the Inspection Procedures on page 8.

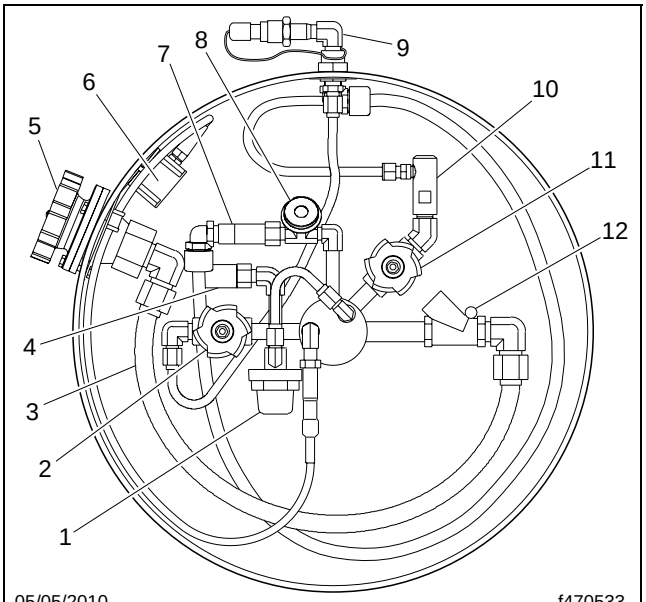
Fuel Line Replacement and Routing

IMPORTANT: Any work that needs to be done to the air compressor intake tube assembly must be completed before replacing or rerouting the fuel line.



1. Rubber Tube
2. P-Clamp
3. Metal Tube

Fig. 7, Intake Tube Installation



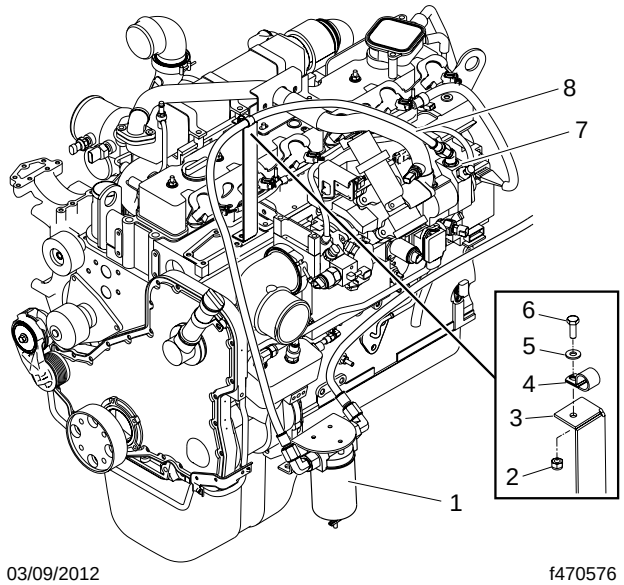
1. Economizer
2. Vapor Shutoff Valve
3. Fuel Fill Hose
4. Secondary Relief Valve (red cap)
5. Fuel Fill Fitting
6. Fuel Level Sender Box
7. Primary Relief Valve
8. Tank Pressure Gauge
9. Fill Vent Fitting
10. Excess Flow Valve
11. Fuel Shutoff Valve (liquid)
12. Fill Check Valve

Fig. 8, Fuel Tank Plumbing Components

⚠ WARNING

Liquefied natural gas (LNG) vapors are highly flammable. Refer to the safety precautions listed above before servicing the vehicle. Failure to observe these precautions could lead to ignition of the natural gas, which could cause bodily injury, death, or severe property damage.

1. Connect the batteries if they have been disconnected.
2. De-pressurize the vehicles LNG system.
   - 2.1 Close the liquid and vapor shutoff valves. See **Fig. 8**.
   - 2.2 Start the engine and allow it to run until all gas in the lines is consumed and the engine stops. This will release all pressure from the plumbing line under maintenance.
3. Shut down all of the vehicle's electrical systems.
4. Disconnect the batteries at the negative posts.



1. Fuel Filter
2. Nut
3. Standoff
4. P-Clamp
5. Washer
6. Bolt
7 Mixing Valve
8. Fuel Line

Fig. 9, Fuel Line Installation

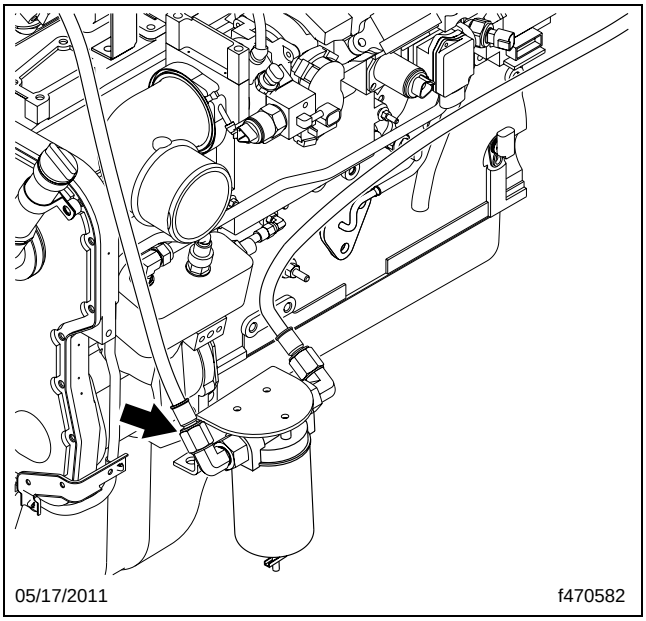


Fig. 10, Fitting Orientation at Fuel Filter

5. Disconnect the fuel line at the fuel filter. See **Fig. 9**.
6. Disconnect the fuel line at the engine.
7. Orient the fitting at the fuel filter as shown in **Fig. 10** to provide a loop for engine rock.
8. Connect the new fuel line to the fitting at the fuel filter.

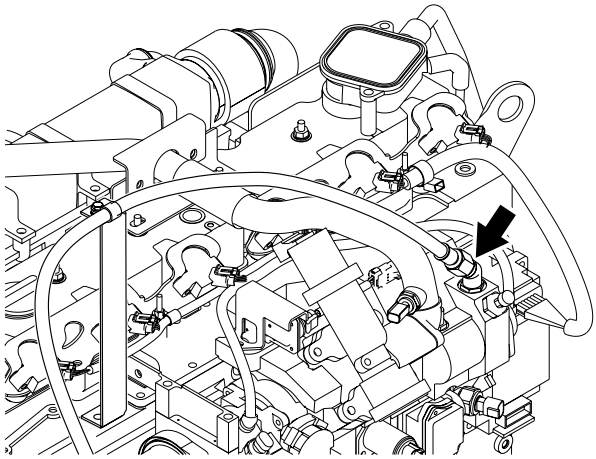


Fig. 11, Fitting Orientation at Engine

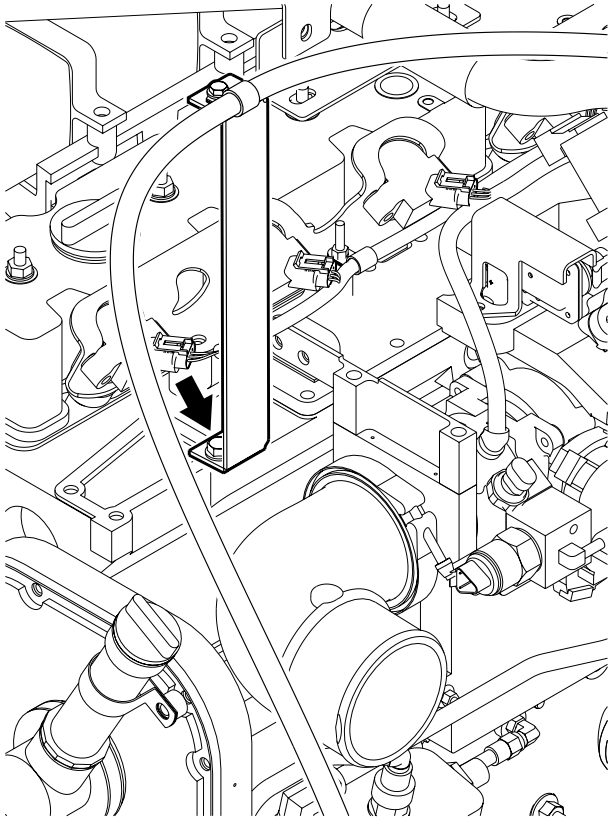
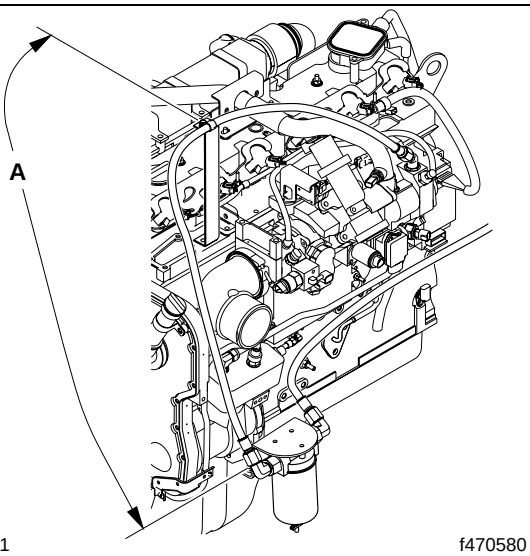


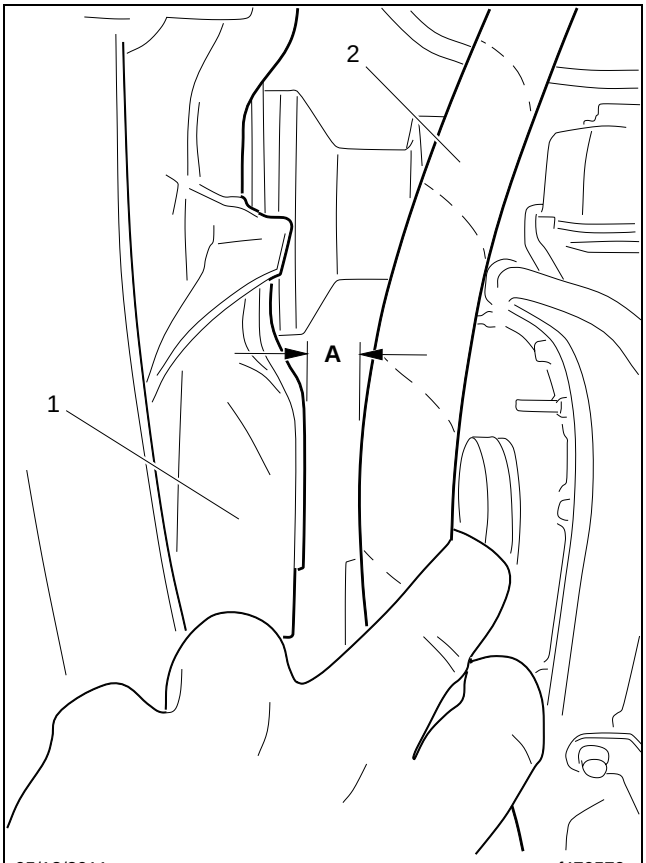
Fig. 12, Standoff Location

9. Orient the fitting at the engine as shown in **Fig. 11**.
10. Connect the new fuel line to the fitting at the mixing valve.
11. Verify that the standoff is in the correct location. See **Fig. 12**.
12. Secure the fuel line to the standoff with the P-clamp from the kit. Make sure that there are no kinks in the line and there is no contact with surrounding components.



Measurement A must be 32.25 inches (820 mm)

Fig. 13, Fuel Line Installation Measurement



Clearance A must be 2.5 to 3.5 inches (65 to 90 mm).

1. Engine Fan
2. Fuel Line

Fig. 14, Checking Fuel Line to Fan Clearance

13. Measure the distance from the connection at the fuel filter to the P-clamp. See **Fig. 13**. It must be 32.25 inches (820 mm).
14. Tighten the fuel line fittings.
15. Check the clearance between the fuel line and the engine fan. It must be 2.5 to 3.5 inches (65 to 90 mm). See **Fig. 14**.
16. Open the liquid and vapor shutoff valves. See **Fig. 8**.
17. Start the engine and, using a methane detector, leak test all fuel system components. A soap bubble solution can be used to pinpoint the exact location of leaks. Repair or replace any leaking components.
18. Clean a spot on the base label (Form WAR259) and attach a grey completion sticker for SF449 (Form WAR261) to indicate the work has been completed.