

Pressure Relief Device (PRD) Replacement

When a Pressure Relief Device (PRD) malfunctions, it must be replaced. This document provides instructions for replacing the PRD. **Please review the safety precautions before beginning ANY repair or replacement procedures!**

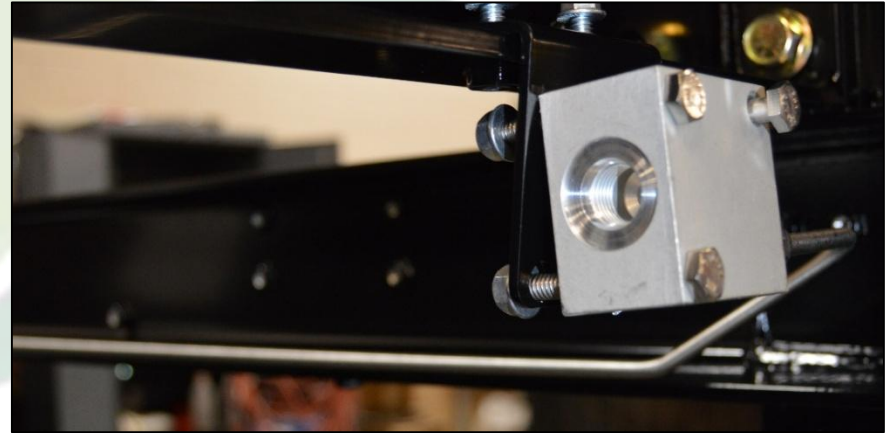
Parts necessary to complete the replacement include:

Emcara 16808-27/PRD .25" x 84" – PRD

CP-OR-8-00-WS-004 - 90 Duro HNBR Size 8 O-Ring

CP-OR-6-00-WS-003 - 90 Duro HNBR Size 6 O-Ring

CP-MH-08-00-CP-001 - Tube End Sleeve Cap - 1/2" Red



Pressure Relief Device (PRD)

Safety Precautions



Danger

THE CNG FUEL MODULE SYSTEM CONTAINS SOME LINES THAT ARE UNDER CONTINUOUS HIGH PRESSURE. CAREFULLY FOLLOW INSTRUCTIONS TO RELEASE PRESSURE BEFORE PERFORMING MAINTENANCE.



Danger

KEEP WORK AREA WELL VENTILATED TO AVOID ASPHYXIATION DUE TO CONCENTRATED LEVELS OF CARBON MONOXIDE.



Danger

ALL LINES MARKED AS ALWAYS UNDER HIGH PRESSURE REMAIN UNDER HIGH PRESSURE EVEN IF THE TANK VALVE IS CLOSED!



Danger

NATURAL GAS IS FLAMMABLE AND EXPLOSIVE. NEVER USE AN OPEN FLAME, MATCH, LIGHTER, OR OTHER TO LIGHT A WORK AREA NEAR THE CNG FUEL STORAGE SYSTEM.



Danger

DO NOT STAND IN DIRECT CONTACT WITH THE TUBING SECTION WHEN LOOSENING THE TANK-TO-PRD TUBING SECTION. AVOID LEANING INTO OR OVER THE TUBING SEGMENT.

Truck Preparation

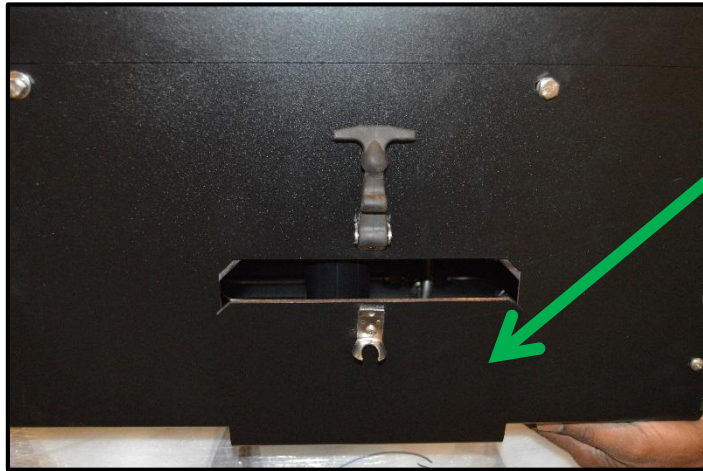
When replacing a PRD, it is extremely important to ensure that the entire system pressure has been completely relieved before disconnecting any lines.

Even if PRD venting is audibly confirmed, that is no guarantee that the tank has completely vented. Take the necessary steps, as described, to ensure that no pressure remains in the tubing lines.

Complete the following steps:

1. Turn OFF each Tank valve – Main Tanks & 1 Side Saddle Tank (if installed), **EXCEPT** the tank with the malfunctioning PRD. Leave that tank's valve open.
2. Crank the truck, allowing it to run until the engine shuts off. This will ensure that all CNG in the lines has been consumed.
3. As an added safety precaution, open the system purge valve located inside the Side Maintenance Access Door of the fuel module.
4. Ensure the high pressure gauge on the fuel control module reads 0 psi.
5. **Disconnect the tank-to-PRD line ONLY after completing these instructions.**

Truck Preparation (cont.)



Side Maintenance Access Door

High (Tank) Pressure Gauge should read 0 psi before disconnecting any tubing



Purge Valve



Manual Shut-Off Valve: for purposes of installing a PRD, leave valve turned 'ON'

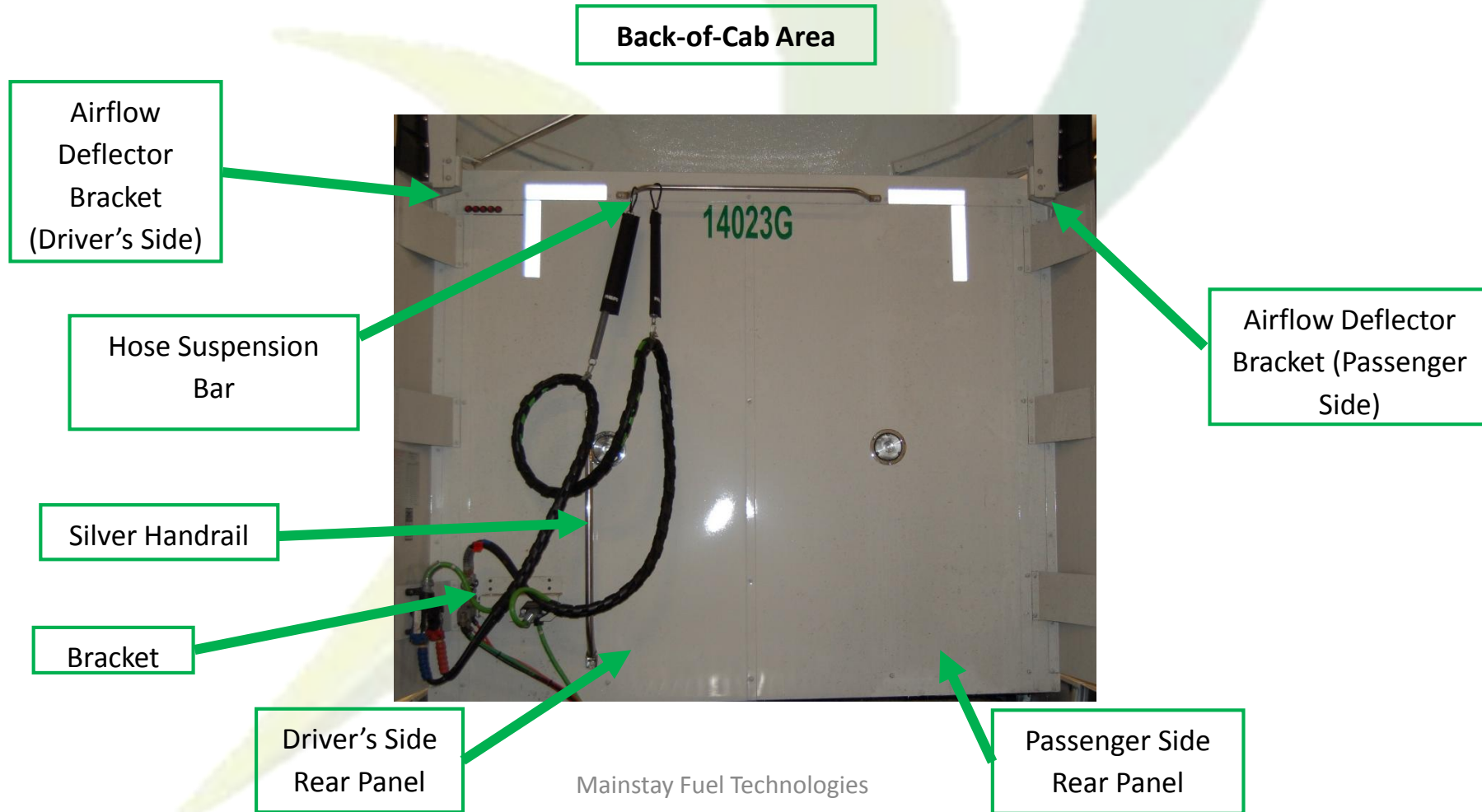
Back-of-Cab (BOC) Preparation

In order to properly work in the BOC area for the purpose of replacing the PRD, several areas of the truck's exterior panels must be removed. The following instructions pertain to removing the 2 back panels of the BOC:

1. Remove any accessories or customized modifications on the BOC panels.
2. Remove bolts holding the 2 back panels in place.
3. Loosen the bolts of the airflow deflector brackets located on top of the BOC area (if installed).
4. Facing the rear panel, begin on the passenger side. Pull the panel out and lower it to reach the light's electrical connection. Reach in and disconnect the connector. Remove the panel.
5. Repeat step 4 for the rear driver's side panel.
6. Access to the passenger side BOC area will be necessary for Left Side PRD Replacement.
*****Please Note:** Some earlier designs of Mainstay's BOC units have a passenger side panel without the access ports. In this case, remove the complete passenger side panel.
7. Reassemble the unit when PRD replacement is complete.

*****Reference the following picture for BOC elements.**

Back-of-Cab (BOC) Area



Tank Configuration

Mainstay offers several configurations for tank placement within the BOC. These include: a 5 tank system, a 4 tank system, and a 3 tank system.

When referencing the BOC area, tanks will be addressed as left or right tanks. This refers to the tank's position when opening the BOC access door. The tank will either sit on the left side or the right side when looking into the BOC access door.

If the 3 tank system is installed, PRD replacement will be accomplished following the 'BOC Right Side PRD Replacement' instructions.

Mainstay also offers a side saddle configuration that contains 1 tank.



Back of Cab Access Door
View (5 tank system)

BOC Left Side PRD Replacement

The PRD block is mounted to a mounting bracket, and the sensing tube extends along a rail to which it is clamped. The process to replace a Left Side PRD involves loosening and disconnecting the tubes connected to the PRD, removing the screws holding the PRD to the mounting bracket, and removing the rail to which the PRD is clamped.

The Left Side PRD Replacement procedure consists of the following:

1. After completing the Truck Preparation steps, **SLOWLY** begin to loosen the tank-to-PRD tubing section. Turn ONLY 1-2 flats, listening for any pressure release.
2. When assured that no pressure release is occurring, completely loosen and dislodge the tank-to-PRD tubing section from the PRD.
3. Loosen the vent tubing and dislodge from the PRD. Avoid bending the vent tubing. Also, the vent tubing can remain encased in the stabilizing block mounted to the top left of the rear driver's side BOC panel; it does not have to be removed.
4. Remove the screws holding the PRD rail to the main frame of the BOC, accessible through the side entrance door of the BOC.

BOC Left Side PRD Replacement (cont.)

5. Remove the screws holding the PRD block to the mounting bracket.
6. The BOC passenger side panel may or may not have access ports. If relevant, utilize the port to access the PRD rail screws and loosen them. Otherwise, the entire passenger side panel has to be removed.
7. Slide rail, with PRD still clamped to it, out through the side access door.
8. Loosen the clamps. Reserve the clamps for reinstall.
9. Remove the malfunctioning PRD.
10. Install new PRD in the **same place** along the rail.
***Note: If the PRD sensing tube is not placed in the same location, it may be necessary to loosen the clamps and adjust the location so the PRD block can be aligned with the mounting block.
11. Tighten the clamps.
12. Slide the rail back into place and tighten the screws at each end, securing railing.

BOC Left Side PRD Replacement (cont.)

13. Position PRD on mounting block and tighten screws.

14. Discard old O-rings.

15. Apply approved lubricant for HNBR O-rings and install the new O-rings.

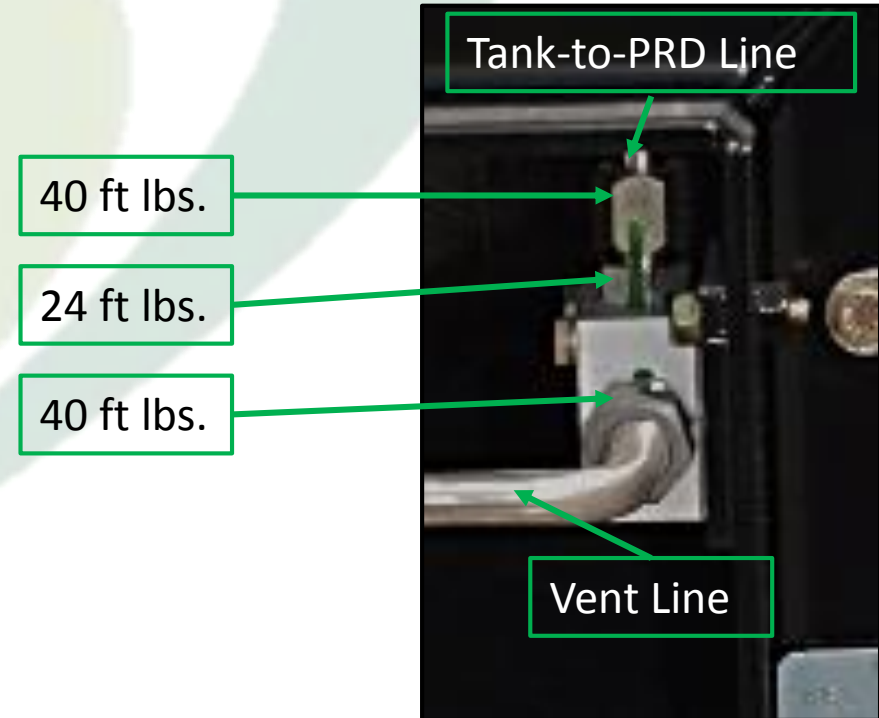
Approved lubricants include:

- Super O-Lube, Parker -65 to 400
- DC-55, Dow Corning Co. -65 to 275
- Celvacene, Consolidated Vacuum Corp. -40 to 200

16. Reattach the tank-to-PRD tubing. Torque fitting to 24 ft lbs. **Back hold** the fitting and torque tubing to 40 ft lbs.

17. Reattach the PRD vent tubing. Torque to 40 ft lbs.

Use a torque wrench and torque to specifications:



BOC Right Side PRD Replacement

The PRD block is mounted to a bracket, and the sensing tube extends along the main BOC frame, to which it is clamped. The process to replace a Right Side PRD involves loosening the tubes connected to the PRD, loosening the screws holding the PRD to the mounting bracket, and loosening the clamps attaching the PRD tube to the main BOC frame.

The Right Side PRD Replacement procedure consists of the following:

1. After completing the Truck Preparation steps, **SLOWLY** begin to loosen the tank-to-PRD tubing section. Turn **ONLY** 1-2 flats, listening for any pressure release.
2. When assured that no pressure release is occurring, completely loosen and dislodge the tank-to-PRD tubing section from the PRD.
3. Loosen the vent tubing from the top of the PRD and dislodge. Avoid bending the vent tubing. Also, the vent tubing can remain encased in the stabilizing block mounted to the top left of the main frame on the rear driver's side. It does not have to be removed.
4. Loosen the screws holding the PRD block to the mounting bracket.

BOC Right Side PRD Replacement (cont.)

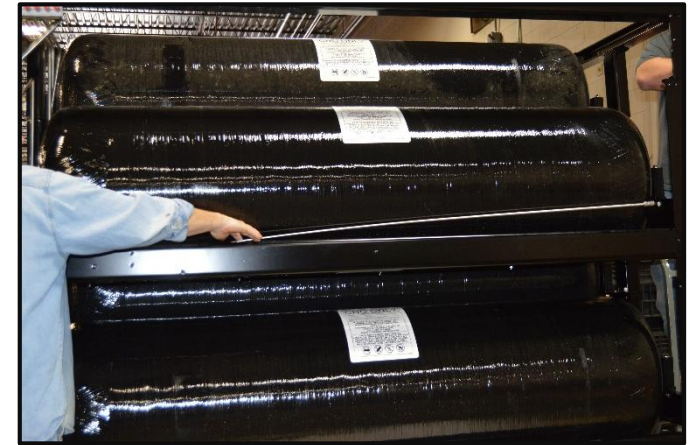
5. Loosen the clamps securing the PRD sensing tube to the main frame. Reserve the clamps for reinstall.
6. Remove the malfunctioning PRD.
7. Installing the new PRD requires careful manipulation to position it properly and avoid damage:



Insert between BOC main frame and tank.



Align with BOC frame. Avoid bending or stressing the sensing tube.



Position sensing tube into BOC frame and clamp to frame.

BOC Right Side PRD Replacement (cont.)

8. Position PRD on mounting block and tighten screws.

9. Tighten the clamps along the rail.

10. Discard old O-rings.

11. Apply approved lubricant for HNBR O-rings and install the new O-rings.

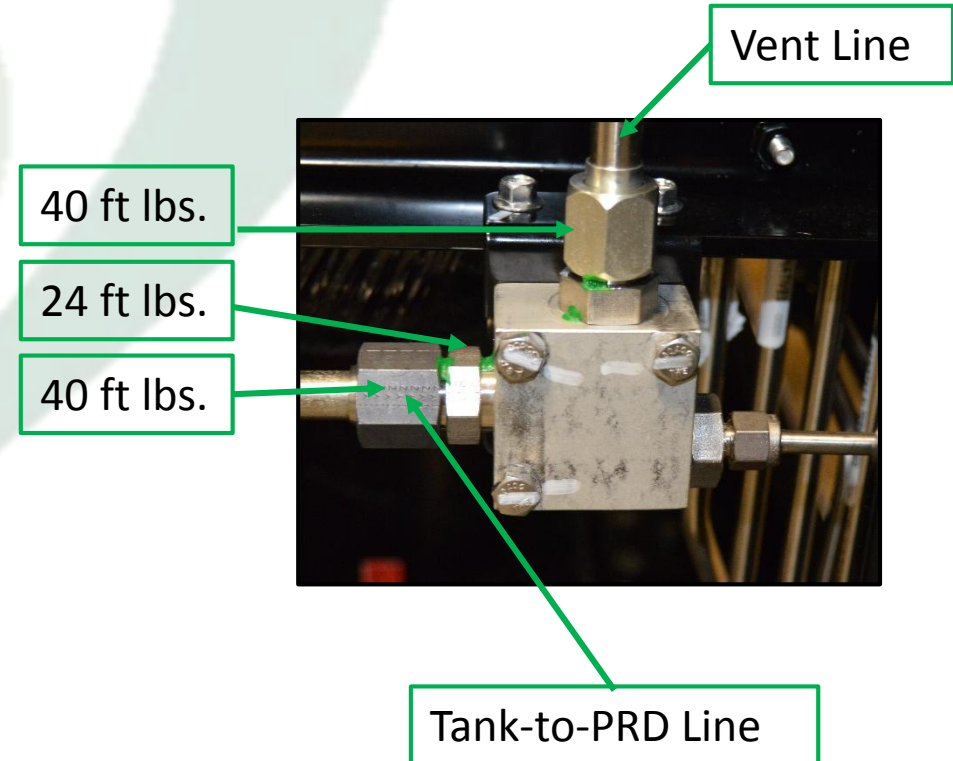
Approved lubricants include:

- Super O-Lube, Parker -65 to 400
- DC-55, Dow Corning Co. -65 to 275
- Celvacene, Consolidated Vacuum Corp. -40 to 200

12. Reattach the tank-to-PRD tubing. Torque fitting to 24 ft lbs. **Back hold** fitting and torque tubing to 40 ft lbs.

13. Reattach the PRD vent tubing. Torque to 40 ft lbs.

Use a torque wrench and torque to specifications:



Side Saddle PRD Replacement

Side Saddle PRD Replacement:

1. Remove side fairing (if installed).
2. On the valve end of the side saddle, remove panels as necessary for access to the PRD block, tank-to-PRD tubing, and vent tubing connection.
3. After completing the Truck Preparation steps, **SLOWLY** begin to loosen the tank-to-PRD tubing section. Turn **ONLY** 1-2 flats, listening for any pressure release.
4. When assured that no pressure release is occurring, completely loosen and dislodge the tank-to-PRD tubing section from the PRD.
5. Loosen the vent tubing and dislodge from the PRD. Avoid bending the vent tubing.
6. Loosen the screws holding the PRD block to the side saddle frame.

Side Saddle PRD Replacement (cont.)

7. Loosen and remove clamps holding the PRD to the rail.
8. Remove the malfunctioning PRD.
9. Install new PRD in the **same place** along the rail.
***Note: If the PRD sensing tube is not placed in the same location, it may be necessary to loosen the clamps and adjust the location so the PRD block can be aligned with the side saddle frame.
10. Position PRD block and tighten screws.
11. Tighten the clamps along the rail.
12. Discard old O-rings.

Side Saddle PRD Replacement (cont.)

13. Apply approved lubricant for HNBR O-rings and install the new O-rings.

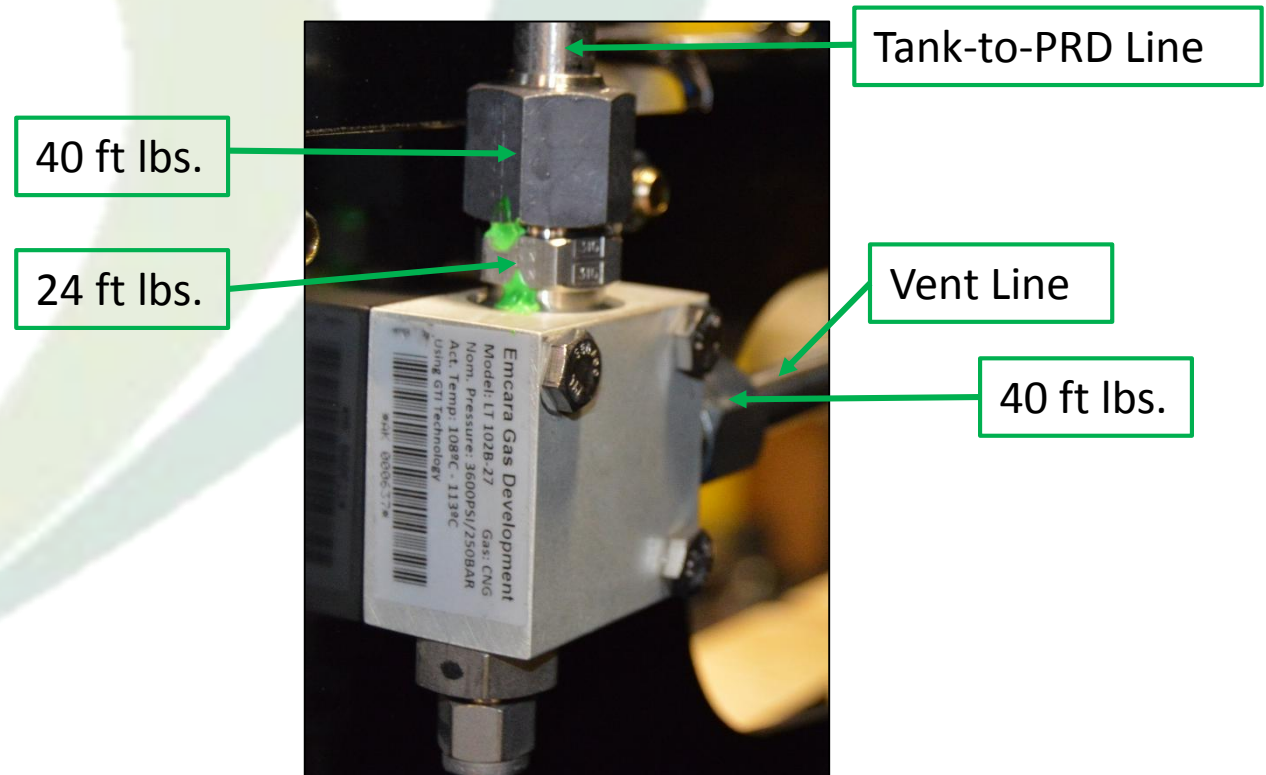
Approved lubricants include:

- Super O-Lube, Parker -65 to 400
- DC-55, Dow Corning Co. -65 to 275
- Celvacene, Consolidated Vacuum Corp. -40 to 200

14. Reattach the tank-to-PRD tubing. Torque fitting to 24 ft lbs. **Back hold** fitting and torque tubing to 40 ft lbs.

15. Reattach the PRD vent tubing. Torque to 40 ft lbs.

Use a torque wrench and torque to specifications:



Recommended Leak Test

Ensuring that ALL fittings have been reconnected and torqued, performing a leak test is recommended.

1. Close the purge valve located inside the Side Maintenance Access Door.
2. Open 1 of the closed tank valves, allowing an exchange of gas between the tanks.
3. Observe the High (Tank) Pressure Gauge located on the fuel module.
4. When the High (Tank) Pressure Gauge reaches about 300 psi, close the supply tank.
5. Apply a leak detector.
6. Check closely for bubbles that may indicate a leak.
7. If a leak is indicated, check connections. Inspect the O-ring for damage. Replace if damaged.
8. Re-pressurize at about 300 psi and retest.
9. If no leak is indicated, open the entire system and retest for leaks.
10. If a leak is indicated, follow the steps as outlined in the 'Truck Preparation' section to depressurize the tank.
11. Repeat steps 1-9 above until no leak is indicated.

Call 1-844-332-3775 for further assistance.

