



RECALL

ORIGINAL CREATION DATE:	10/8/2020
REVISION DATE:	10/8/2020
SUBJECT:	Power Steering Hose Recall
RATIONALE:	A power steering hose made from an incorrect material may have been installed in certain Proterra Buses
VINs AFFECTED:	Service Specified Buses
SERVICE CAMPAIGN #:	SC-20-141
NHTSA RECALL NUMBER:	20V-621
REVISION DESCRIPTION:	This is the original version.
REMEDY KIT NAME / NUMBER:	N/A
ESTIMATED LABOR TIME:	3 Hours

NOTICE! It is expected that this process will require 3 hours per bus. Please schedule appropriately to minimize vehicle downtime.

POWER STEERING HOSE RECALL CAMPAIGN

Condition:

Proterra has decided that certain Proterra vehicles manufactured in 2020 may have had a power steering hose made of an incorrect material installed. This material is not suitable for use with power steering fluid. If this hose fails in use it may cause a loss of fluid and reduced effectiveness of the steering system. Under extreme circumstances this could lead to loss of control of the vehicle.

Retrofit Description:

Proterra will replace the power steering hose at no charge to the customer. Proterra will notify your Transit Agency service manager when the hose is available and to coordinate a time for replacement.

If you have questions about the procedures specified by Proterra, please contact Proterra directly for clarification at the contact phone number or email provided.

Proterra Customer Service Team

864-438-0000

Service@Proterra.com

Reporting Work Completion:

PROTERRA REPORTING REQUIREMENT: The provided Form MUST BE COMPLETED for each vehicle retrofitted with a new power steering hose.

Perform the Power Steering Hose replacement procedure before reporting work completion. Please collect all relevant data regarding the repair as specified on the Verification Form and report all work completion to Proterra using the PROTERRA – POWER STEERING HOSE REPLACEMENT VERIFICATION RETROFIT FORM (provided in this bulletin and as a separate document) promptly upon completion of the work.

NOTICE: Customers performing this recall campaign must also submit the Proterra Warranty Form provided in this bulletin and as a separate document for any labor costs incurred.

Tools/Parts Required

Tools and Supplies Required:

- Wheel Lifts 4 EA
- Jack Stands 4 EA
- Catch Pan
- Tubing Cutter
- Funnel
- Shop Towels
- 17mm Combination Wrench
- 1-Inch Combination Wrench
- 1-1/2-Inch Combination Wrench
- 1-3/8 Inch Combination Wrench
- Ratchet
- 7/8-Inch Combination Wrench
- 15mm Combination Wrench
- 17mm Combination Wrench
- 13mm Socket
- Hose Clamp Pliers
- Calibrated Torque Wrench
- 1-1/2 Inch Crows Foot Socket
- 7/8-Inch Crows Foot Socket

Parts Required:

- 051490 HOSE, PUSH LOK, 1" 2 FT

Procedure

1. Complete the Proterra approved Lockout/Tagout procedure to make the bus safe for work.
2. Using Wheel Lifts raise the bus. Use four Jack Stands to support the bus after it is lifted.

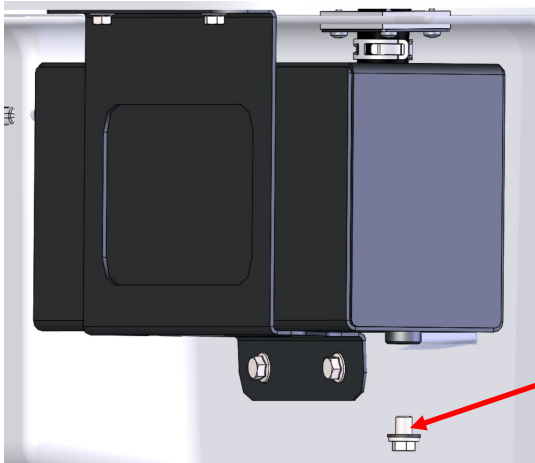


Safely Raise
and Secure
the Bus

3. Using a 13mm Ratchet/Socket and a 13mm Combination Wrench, remove the front bumper.

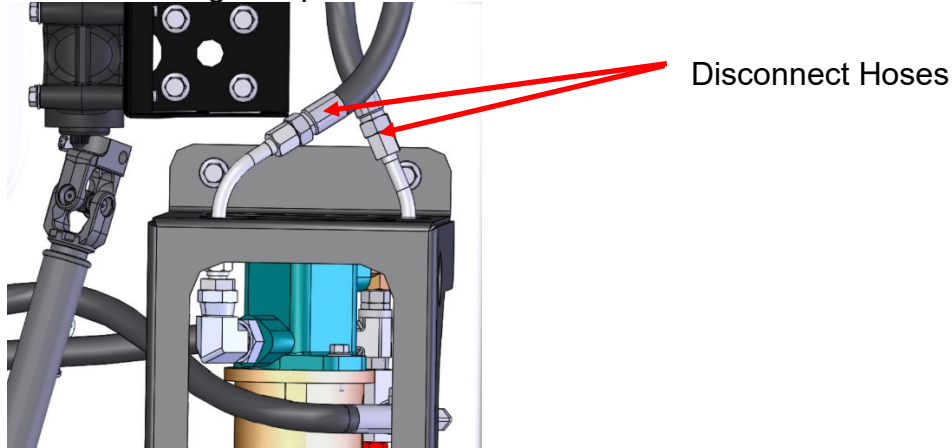


4. Place a Catch Pan underneath the power steering reservoir drain plug.
5. Using a 17mm Combination Wrench, remove the power steering reservoir drain plug and allow the Power Steering Fluid to drain into a clean Catch Pan. The Power Steering Fluid will be reused.

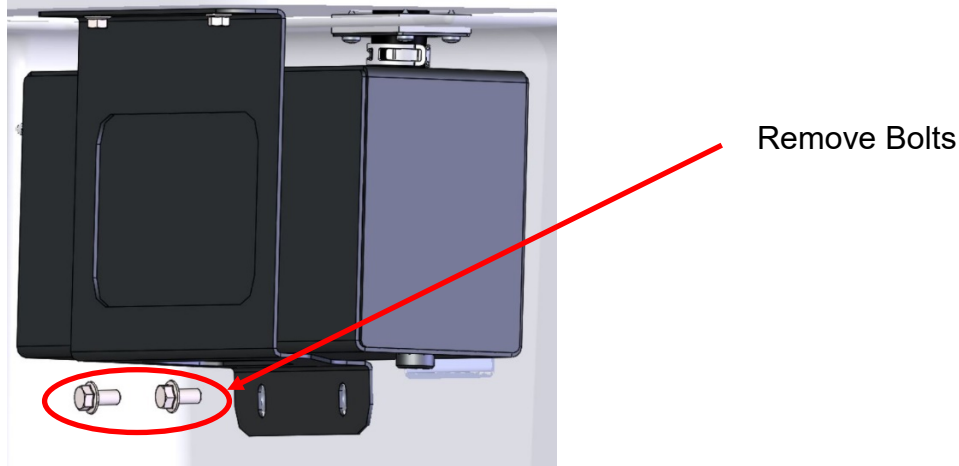


Remove Drain Plug

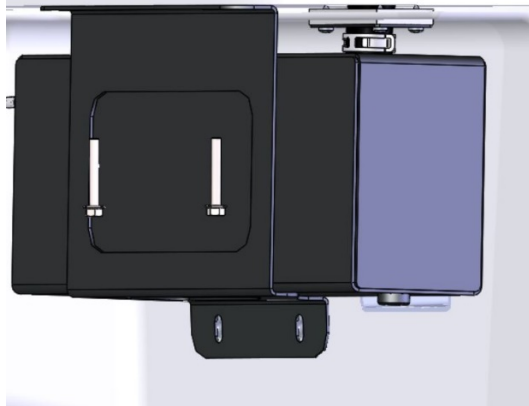
6. Using 1-Inch and 7/8-Inch Combination Wrenches, disconnect the hoses that connect the Power Steering Pump to the reservoir.



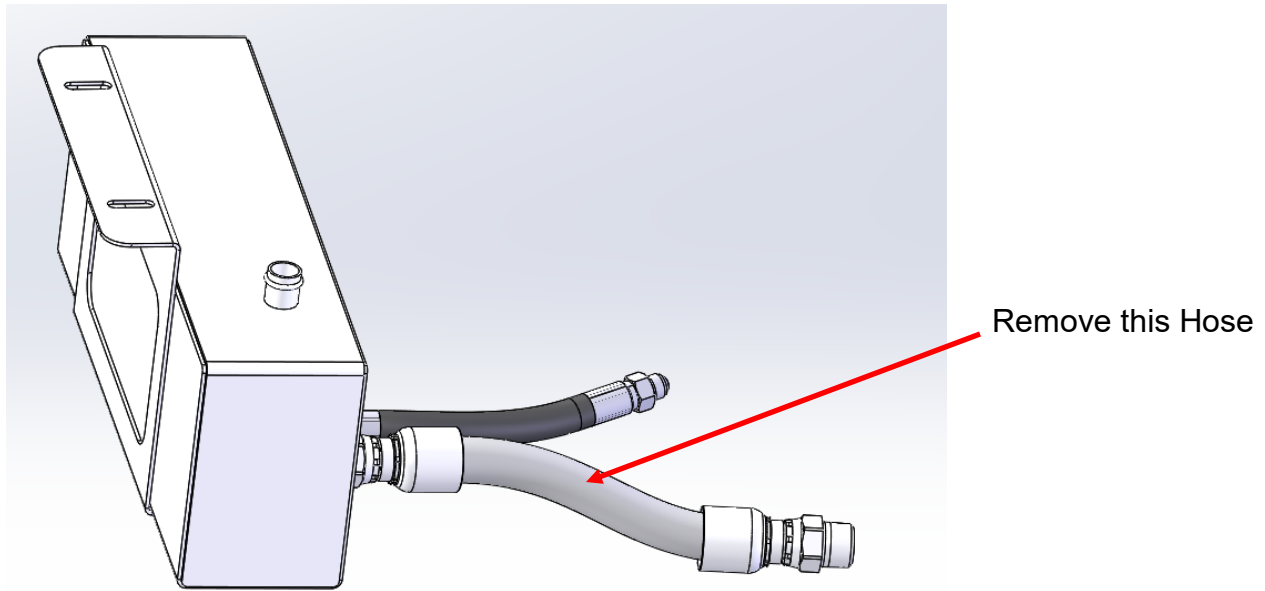
7. Using a 15mm Ratchet/Socket, remove the two bolts that attach the reservoir to the vertical surface of the bus body.



8. Using Hose Clamp Pliers, squeeze the Clamp on the fill neck so that it can be removed. Using a 13mm Ratchet/Socket, remove the two bolts that attach the reservoir to the horizontal surface of the bus body. Disconnect the level sensor from the harness.

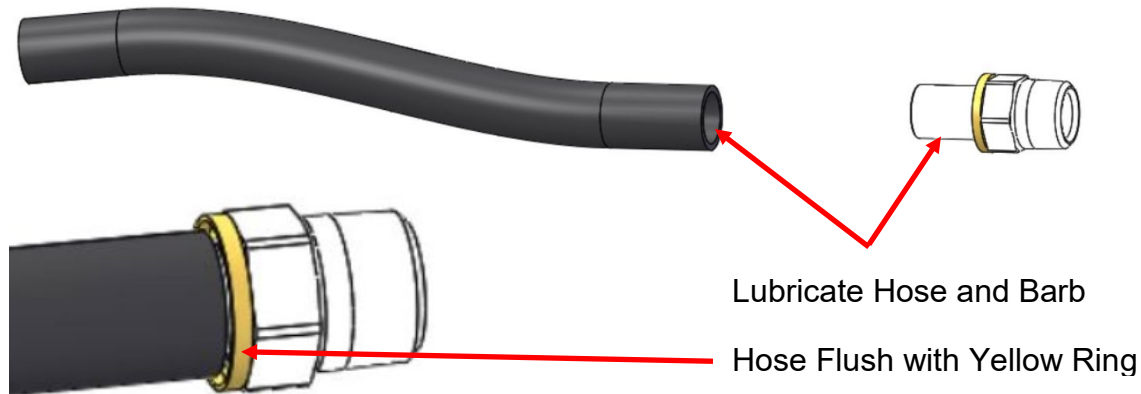


9. Remove the Tank and its attached hoses.

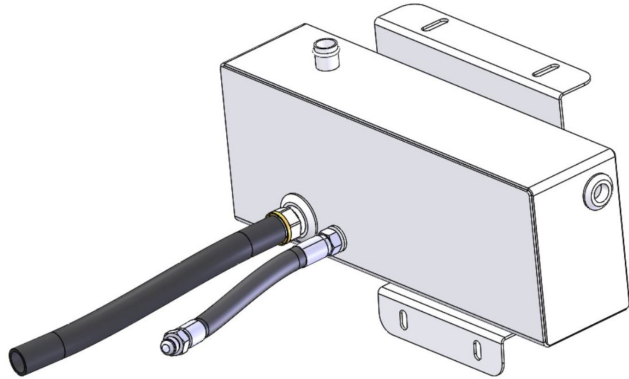


10. Using a 1-1/2-Inch Combination Wrench, remove the hose and fittings shown in the previous illustration. Carefully remove the push lock fittings from the hose and inspect them for damage. They will be reused.

11. Apply a small amount of Automatic Transmission Fluid to the inside of one end of the 1-inch Hose (051490) and to the hose barb of Push Lock Fitting from the old hose to lubricate them. Press on one of the Push Lock Fittings into the lubricated end of the hose. The fitting must be inserted into the hose until it is flush with the yellow ring as shown in the second illustration below. Do not install the second Push Lock Fitting at this time. These fittings are permanent and cannot be removed.

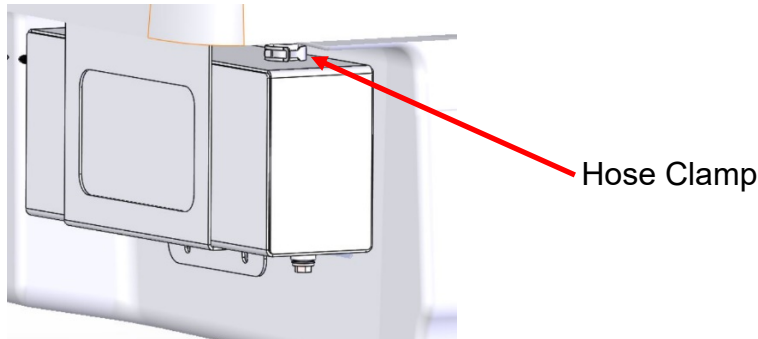


12. Using a 1-1/2-Inch Combination Wrench, attach the Hose (0051490) and Fitting (051491) assembled in the previous step to the new Tank (047041) as shown. Using a Calibrated Torque Wrench with a 1-1/2 Inch Crows Foot Socket, **torque the fitting to 112-foot pounds.**

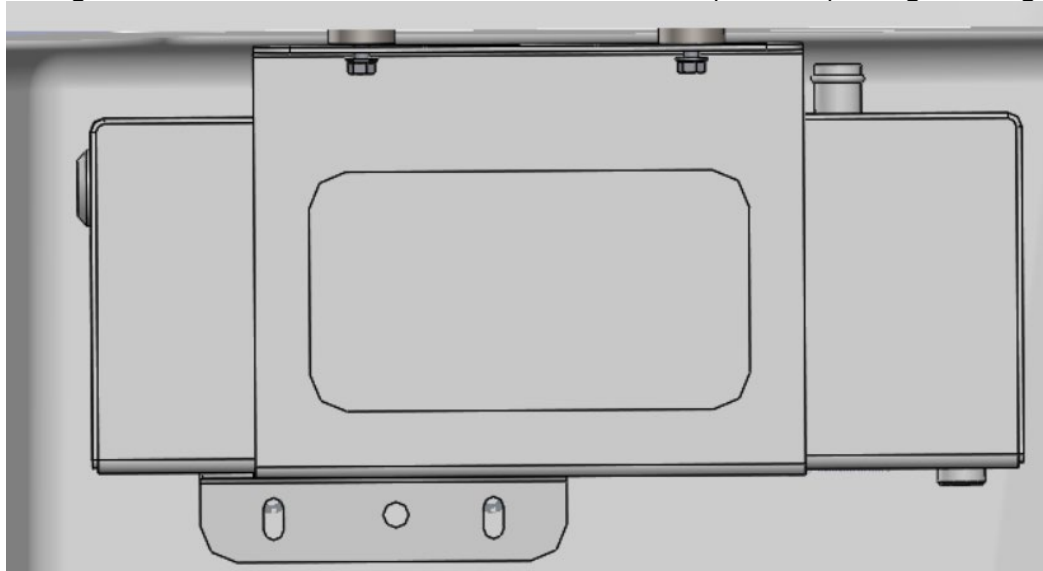


13. Thread the hoses back through the opening in the bus. Place the Hose Clamp on the Filler Neck hose that is protruding through the bus body. Carefully attach this hose with the Hose Clamp to the Filler Neck.

Note: It may be necessary to access the filler hose from inside the Driver Workplace if the hose cannot be connected from outside the bus.



14. Using a 15mm Ratchet/Socket, reinstall the Tank (047041) using the original fasteners.

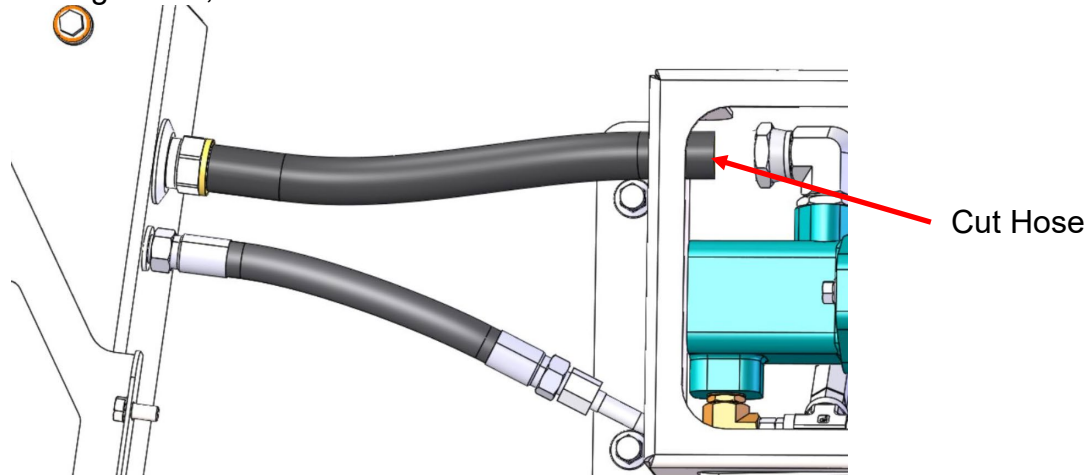


15. Using a Calibrated Torque with a 15mm Socket, **torque the upper tank bolts to 15-foot pounds.** Using orange Torque Stripe Pain, mark the torqued fasteners.

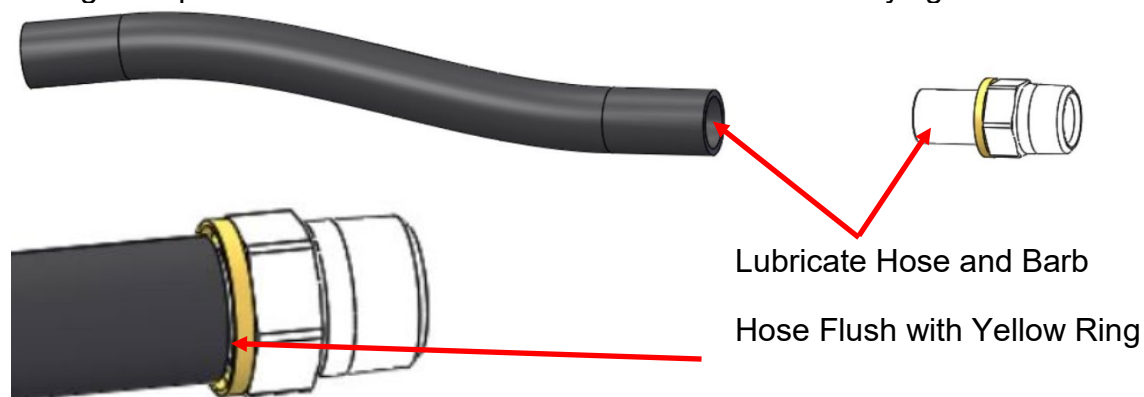
16. Using a Calibrated Torque with a 13mm Socket, **torque the lower tank bolts to 37-foot pounds**. Using orange Torque Stripe Pain, mark the torqued fasteners.

17. Reconnect the Level Sensor to the harness.

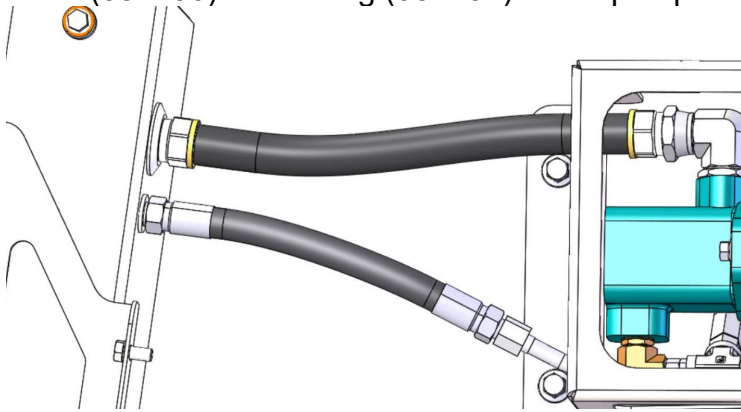
18. Carefully measure the length of 1-Inch Hose (051490) required to connect the Hose to the pump using a Push-on Fitting (051491). The Hose should be cut long enough to allow it to be seated flush with the yellow ring on the fitting, but not so long as to cause kinking. Using a Tubing Cutter, cut the Hose.



19. Apply a small amount of Automatic Transmission Fluid to the inside of the free end of the 1-Inch Hose (051490) and to the barb on the Push Lock Fitting from the old hose to lubricate them. Press on the Fitting into the lubricated end of the Hose. The fitting must be inserted into the hose until it is flush with the yellow ring as shown in the second illustration below. These Fittings are permanent and cannot be removed without destroying the Hose.

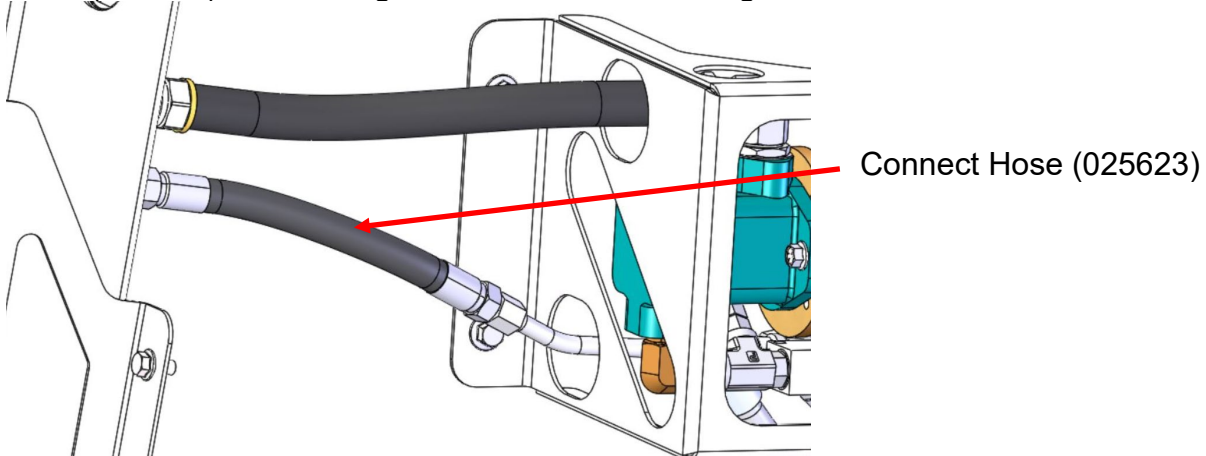


20. Using a 1-3/8 Inch Combination Wrench and a 1-1/2 Inch Combination Wrench, connect the Hose (051490) and Fitting (051491) to the pump as shown in the following illustration.



21. Using a 1-1/2 Inch Combination Wrench and a Calibrated Torque Wrench with a 1-1/2 Inch Crows Foot Socket, **torque the fitting to 112-foot pounds.**

22. Using a 7/8-Inch Combination Wrench and a 1-Inch Combination Wrench, connect the smaller Hose (025623) to the fitting as shown in the following illustration.



23. Using a Calibrated Torque Wrench with a 7/8-Inch Crows Foot Socket and a 1-Inch Combination Wrench, **torque the fitting to 40-foot pounds.**

24. Using a Funnel, fill the Tank with 3 Gallons of Dexron VI Automatic Transmission Fluid that was drained from the system earlier.

25. Leave the Fill Cap off the Tank.

26. Locate and uninstall Circuit Breaker CB-423 from the ECAB panel to disable the automatic ride height system.

27. Lower the bus.

28. Remove the Lockout/Tagout devices.

29. Enter the bus and power it on.

30. Turn the Steering Wheel back to its right and left limits several times to remove the air from the system.
31. Check the Power Steering Fluid level and add additional fluid if needed.
32. Replace the Filler Cap.
33. Lower the bus.
34. Reinstall Circuit Breaker CB-423 in the ECAB panel to enable the automatic ride height system.
35. Return the bus to service.

**PROTERRA – POWER STEERING HOSE REPLACEMENT
VERIFICATION FORM
(Service Campaign SC-20-141)
NHTSA ID: 20V-621**

IMPORTANT! This form **MUST BE COMPLETED** for each vehicle retrofitted.

(One (1) Claim Form per Vehicle)

Transit Agency: _____ Date Claim Completed: _____

Fleet Number: _____ VIN Number: _____

Vehicle Mileage: _____ Vehicle In-Service Date:

Completion Verification:

Print Name: _____

Signature: _____

REQUIRED: When this Verification Form has been completed, send to:

Perry Bolick (Proterra Field Service)
1 Whitlee Court, Greenville, SC 29607
pbolick@proterra.com (864) 243-7572
Include in the email Subject line: **20V-621 Completion**