



PROTERRA



SHIP SHORT

ISSUE DATE:	7-24-2020
SERVICE BULLETIN SUBJECT:	800 Volt VFD EMI Filters Retrofit
VINs or MODELS AFFECTED:	Service Specified 40 Foot Buses
COMPLETE BY:	Next Service Opportunity
SERVICE BULLETIN #:	SC-20-103

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

800 VOLT VFD EMI FILTERS RETROFIT

Retrofit Description:

This procedure adds electromagnetic interference filters to the variable frequency drive systems on the bus to resolve potential issues caused by EMI noise.

Tools/Parts Required

Tools and Supplies Required:

- Ratchet
- 11/16-Inch Socket
- 5/8-Inch Socket
- 8mm Socket
- Calibrated Torque Wrench
- Side Cutting Pliers
- #2 Phillips Screwdriver

Kit Parts Required:

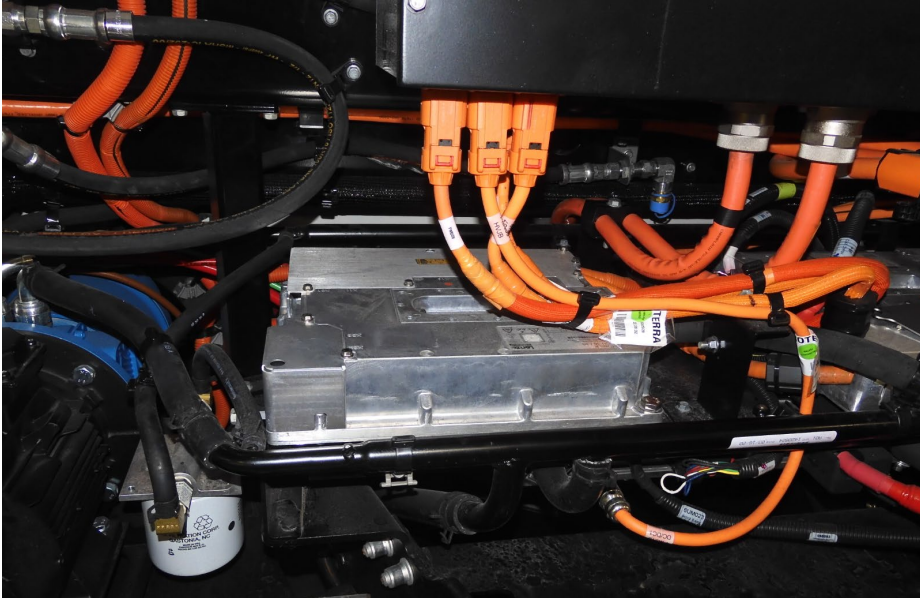
- 052071 RETROFIT KIT, EMI FILTER, 40' (Consisting of)
 - 052069 PLATE, STUD, EMI FILTER 2 EA
 - 052070 SPACER, HVJB FILTER 2 EA
 - 051628 EMI FILTER,800V 30ADC,50nF Y-cap, 2 Stage 2.3mH 2 EA
 - 052313 CABLE ASSY, EMI FILTER JUMPER (HVAC) 1 EA
 - 013570-023 BOLT: HEX: M10-1.50X90X26 2 EA
 - 052314 CABLE ASSY, EMI FILTER JUMPER (PS/AIRCOMP) 1 EA
 - 018574 LKNT, HEX FLANGE NYLON, SS, M5-0.8 8 EA
 - 052370 HARNESS, FILTER-OVERLAY (FGND) 1 EA
 - 012108 SWIVEL BUNDLE, SPACER 1 EA
 - 012138 CABLE TIE, HEAVY DUTY .5WIDE 9.1" BLACK 1 EA

Parts Required but not Included in Kit:

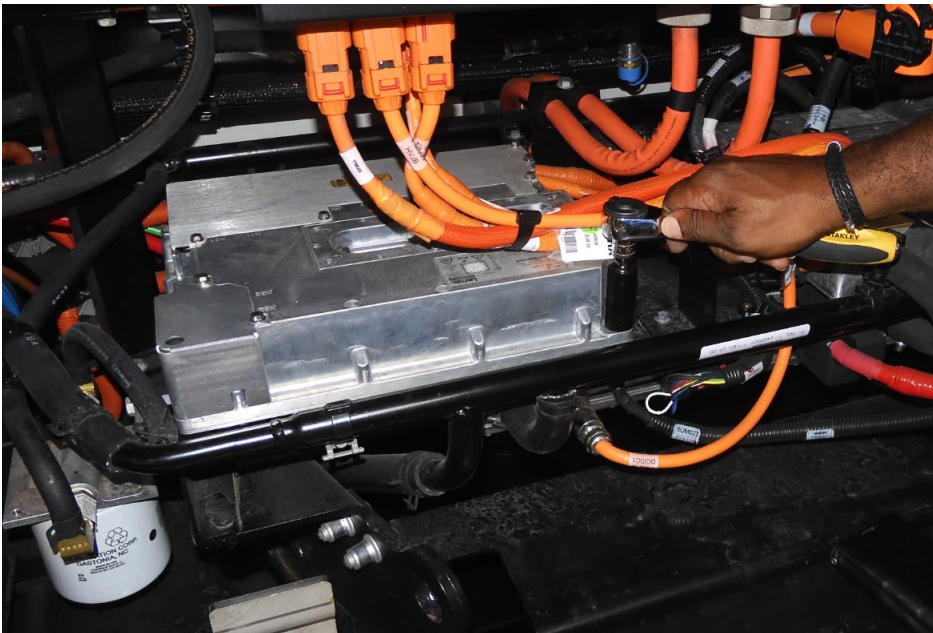
- 012138 CABLE TIE, HEAVY DUTY .5WIDE 9.1" BLACK 10 EA

Procedure

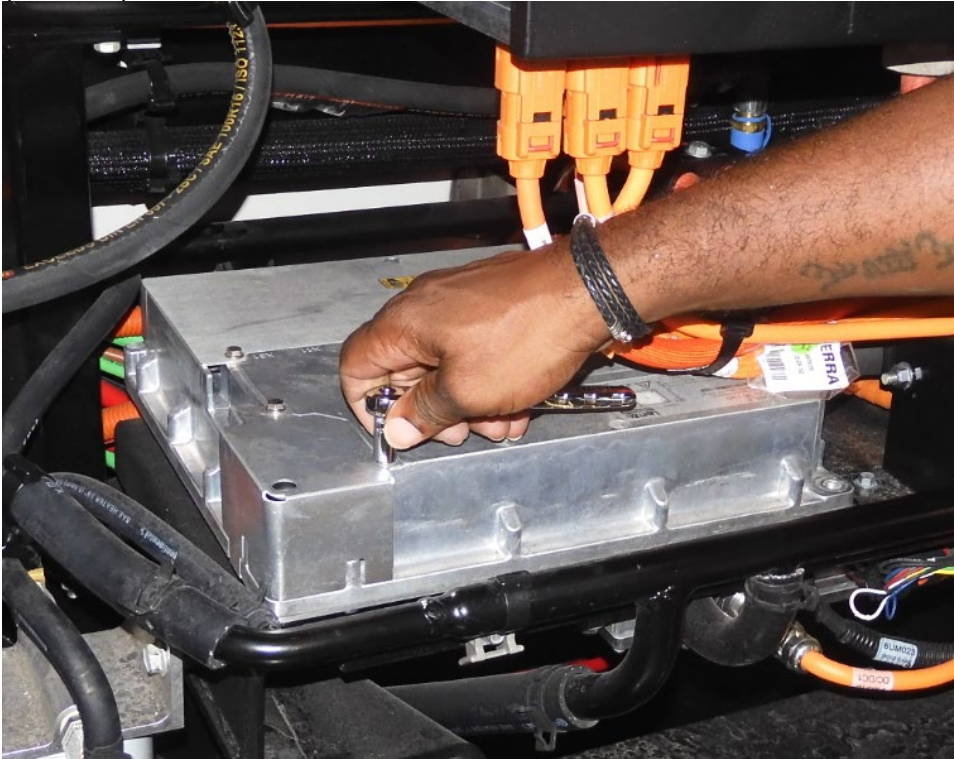
1. Perform the Proterra approved Lockout/Tagout procedure to make the bus safe for work.
2. Open the Trunk Panel to access the rear electronics compartment.



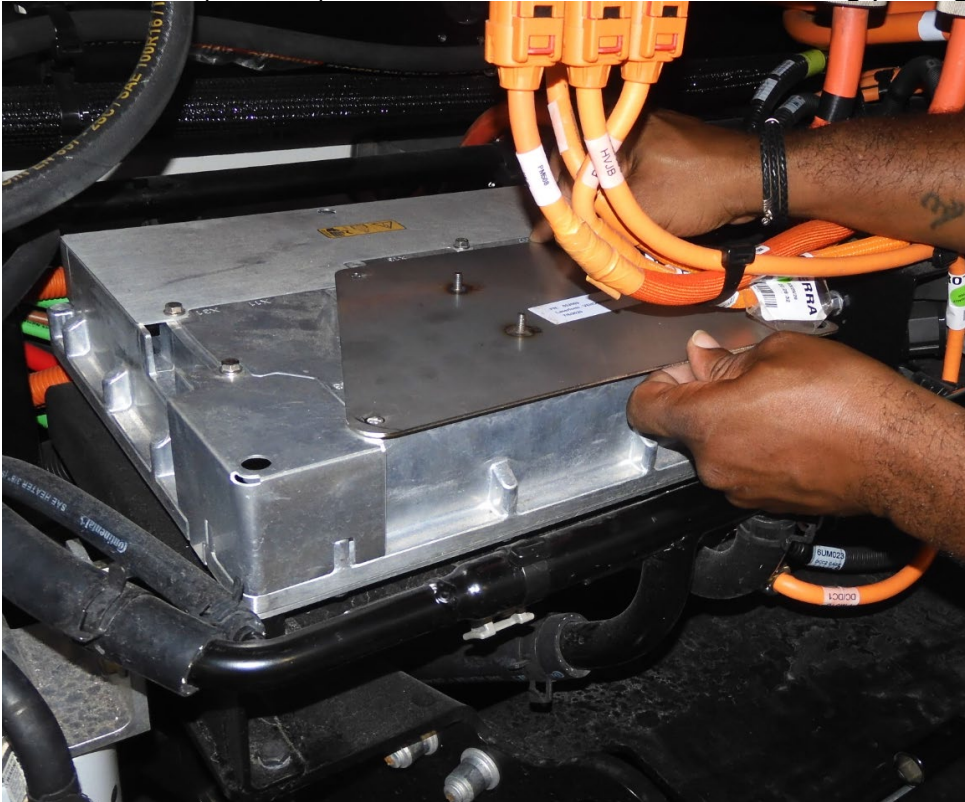
3. Using an 11/16-Inch Ratchet/Socket, remove the Bolt shown in the following photograph from the Streetside VFD.



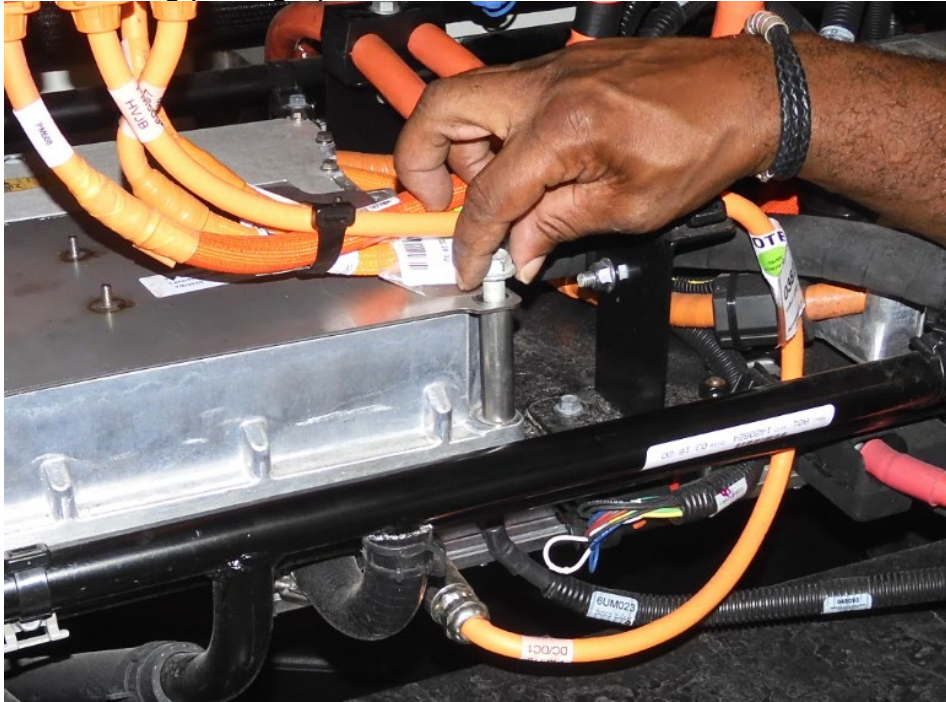
- Using an 8mm Ratchet/Socket, remove the two screws on the left of the VFD to install a Plate (052069).



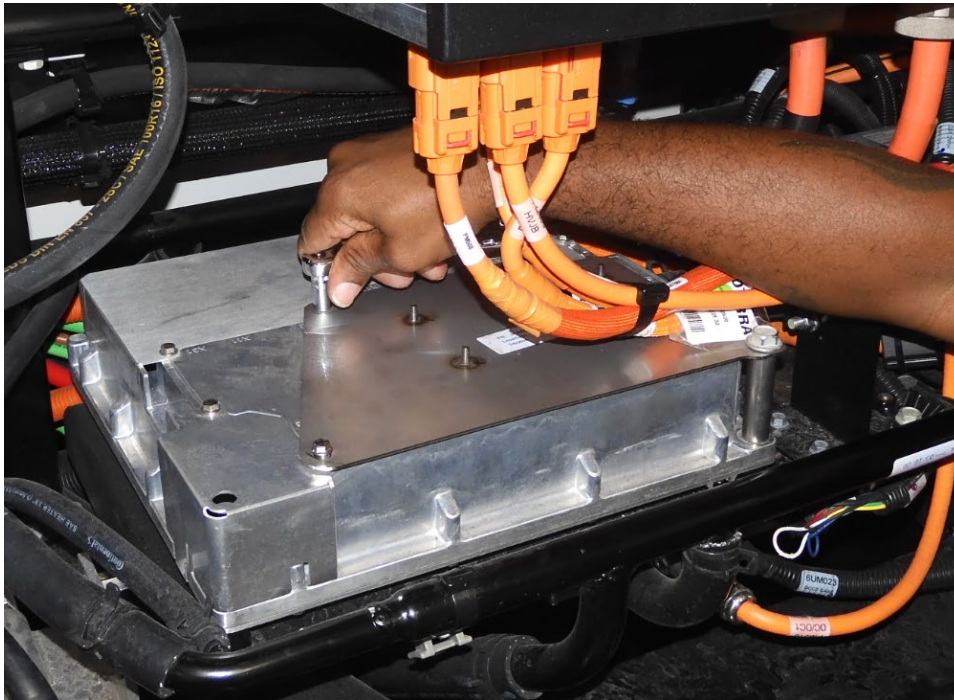
- Place a Plate (052069) on the VFD as shown in the following photograph.



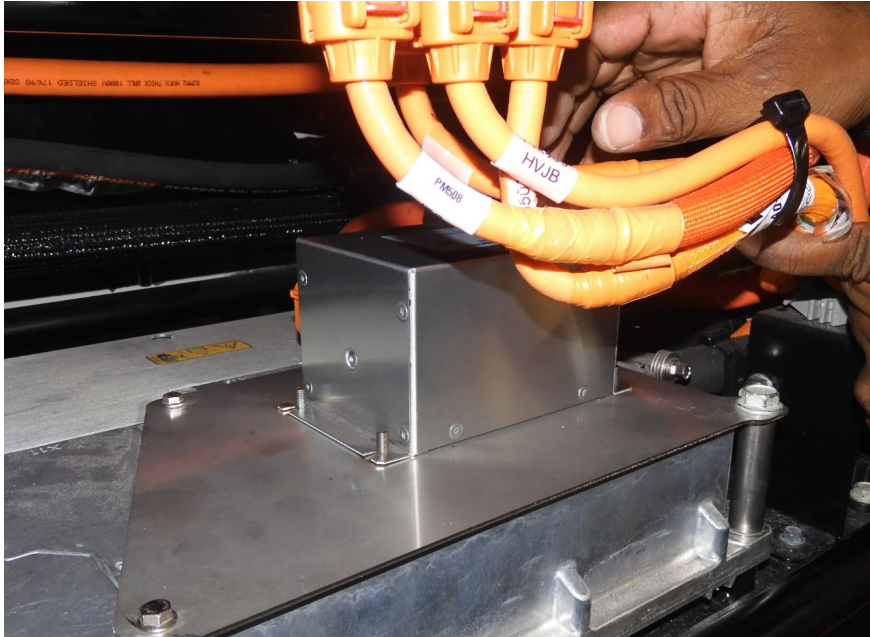
6. Using a 5/8-Inch Ratchet/Socket, install a Spacer (052070) and Bolt (013570-023) as shown in the following photograph.



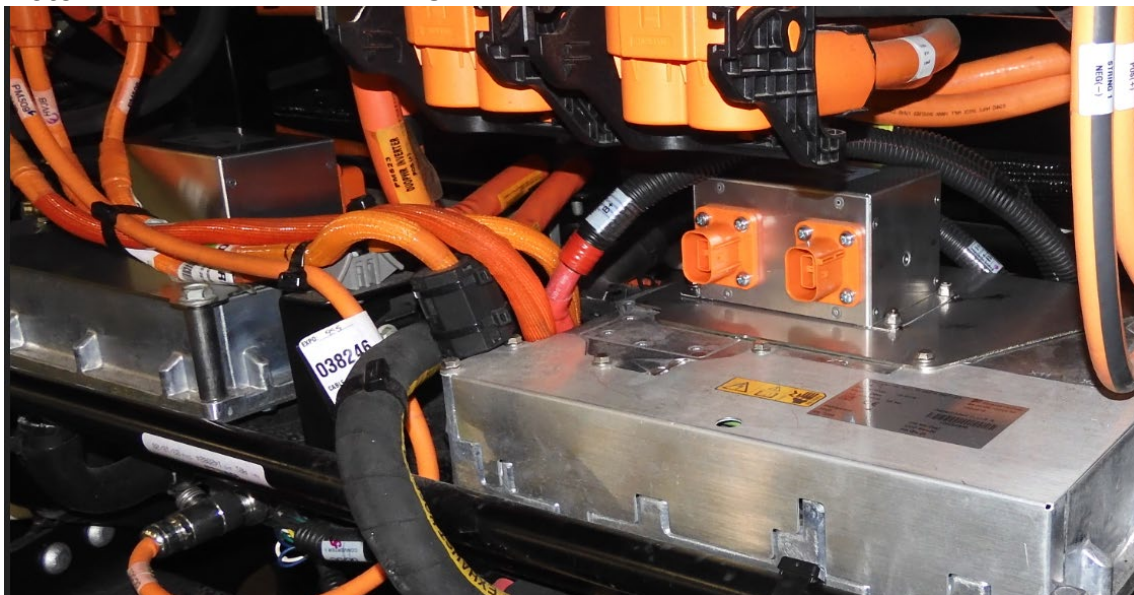
7. Using a Calibrated Torque Wrench with a 5/8-Inch Socket, **torque the Bolt to 35 foot pounds.**
8. Using an 8mm Ratchet/Socket, secure the Plate (052069) with the screws that were removed earlier.



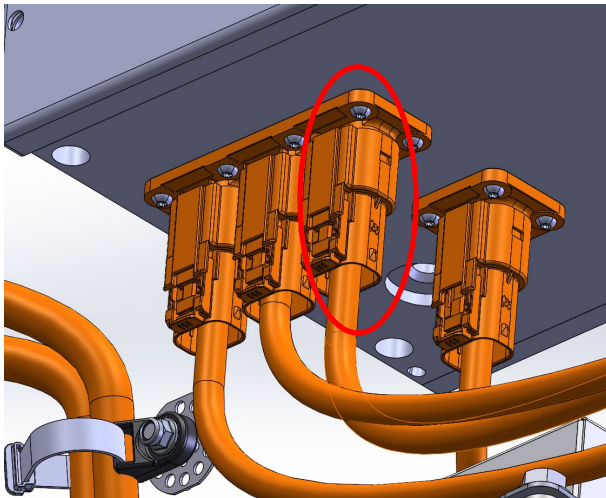
- Using a Calibrated Torque Wrench with an 8mm Socket, **torque the screws to 32 inch pounds.**
- Place an EMI Filter (051628) on the Plate (052069) as shown in the following photograph. **Note:** The connectors on the Streetside EMI filter must face the front of the bus.



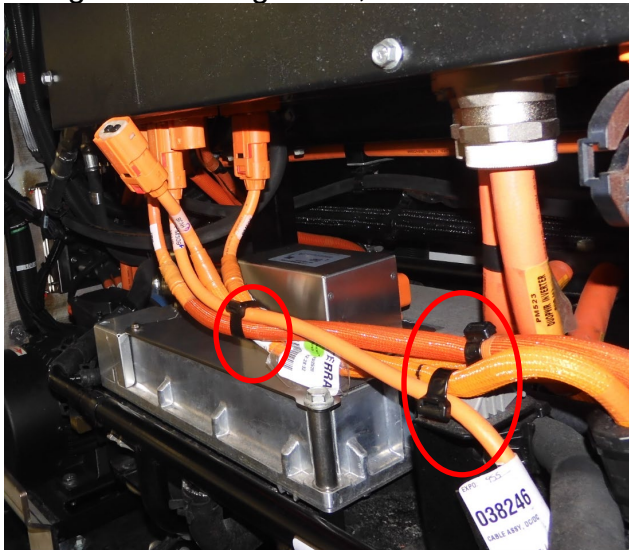
- Connect a Ring Terminal from the wire labeled 2CM001 on the Ground Harness (052370) to forwardmost Curbside mounting stud on the Plate (052069).
- Using an 8mm Ratchet/Socket, secure the EMI Filter (051628) and Ring Terminal to the Plate (052069) using 4 Locknuts (018574).
- Repeat the previous process to install a Plate (052069) and EMI Filter (051628) on the Curbside VFD as shown in the following photograph. Use the same hardware as the Streetside installation. The wire labeled 1CM001 on the Ground Harness (052370) should connect to the forwardmost Curbside mounting stud on the Plate (052069). **Note:** The connectors on the Curbside EMI filter must face the rear of the bus.



14. Disconnect the HVJB Connector shown circled in red in the following illustration. The connector is labeled PM507.



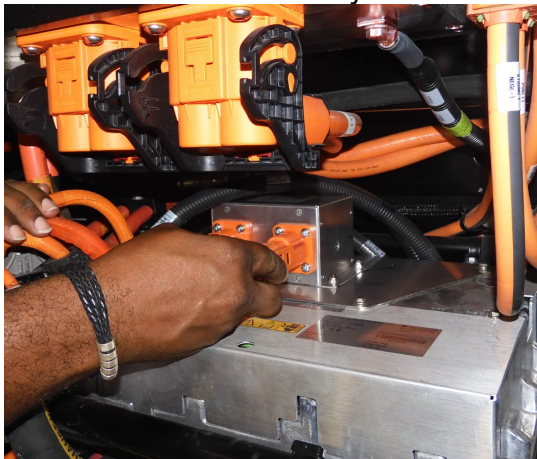
15. Using Side Cutting Pliers, cut and remove the Cable Ties shown circled in red below.



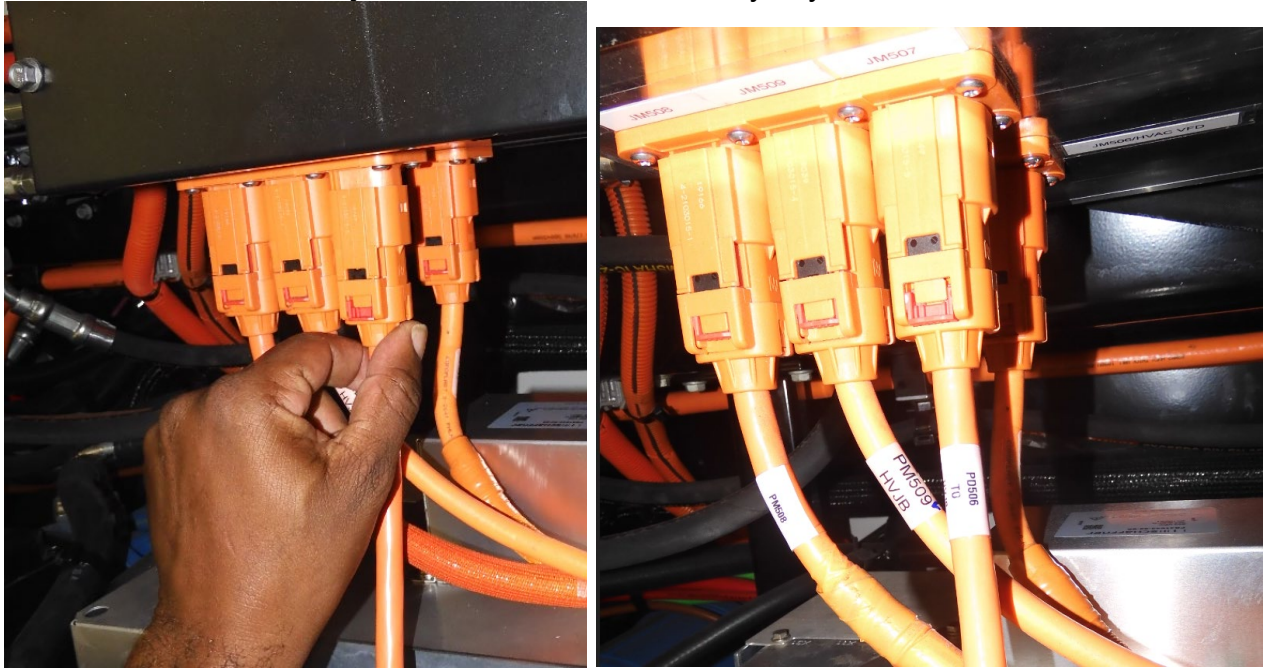
16. Route the end of the cable that was disconnected to the Curbside EMI Filter (051628).

17. Connect the cable to the output of the Curbside EMI Filter (051628). The output is the connector on the right of the EMI Filter when it is viewed from the front.

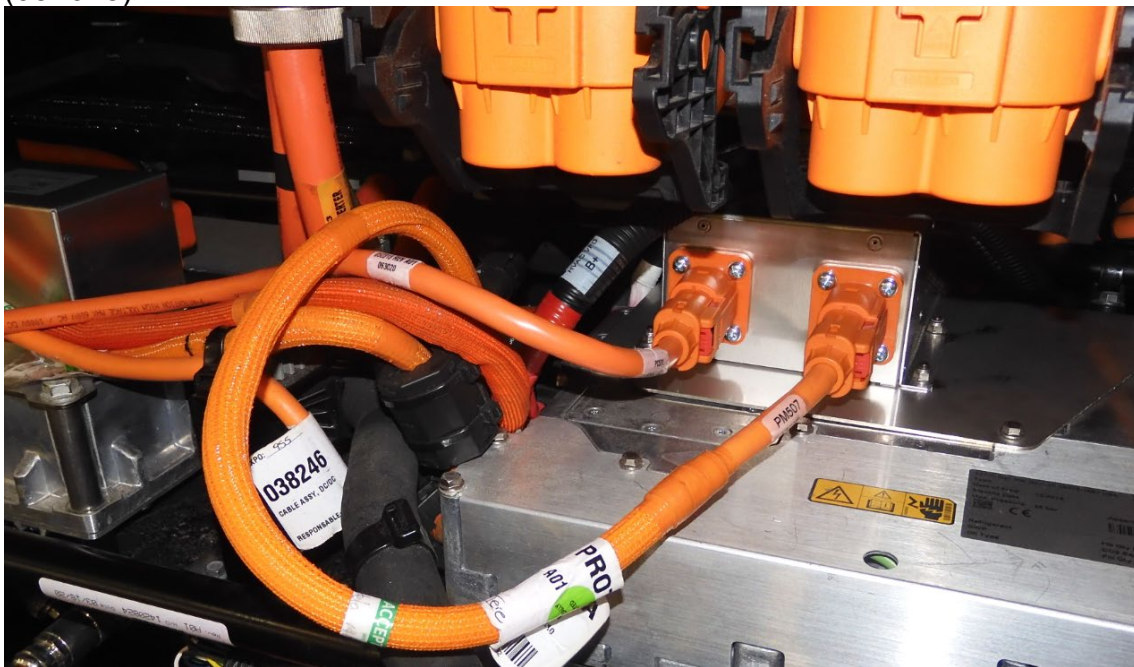
Note: The cables are keyed. Ensure that the correctly keyed end is connected to the HVJB.



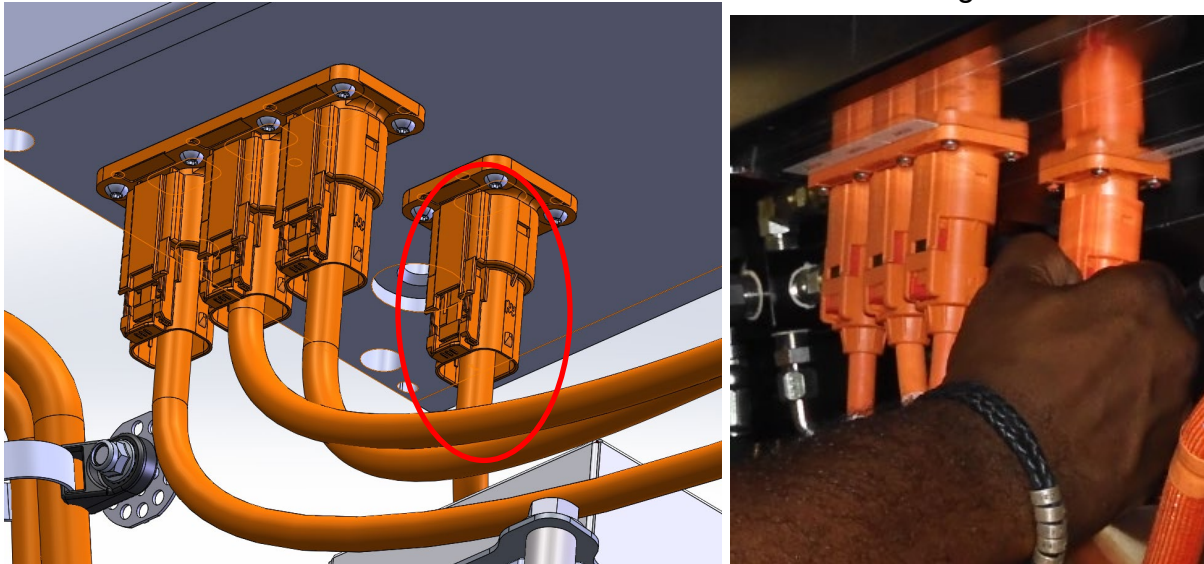
18. Connect the HVAC Cable (052313) from the kit to the to connector on the HVJB as shown.
Note: The cables are keyed. Ensure that the correctly keyed end is connected to the HVJB.



19. Connect the free end of the HVAC Cable (052313) to the input of the Curbside EMI Filter (051628).



20. Disconnect the HVJB Connector shown circled in red in the following illustration.

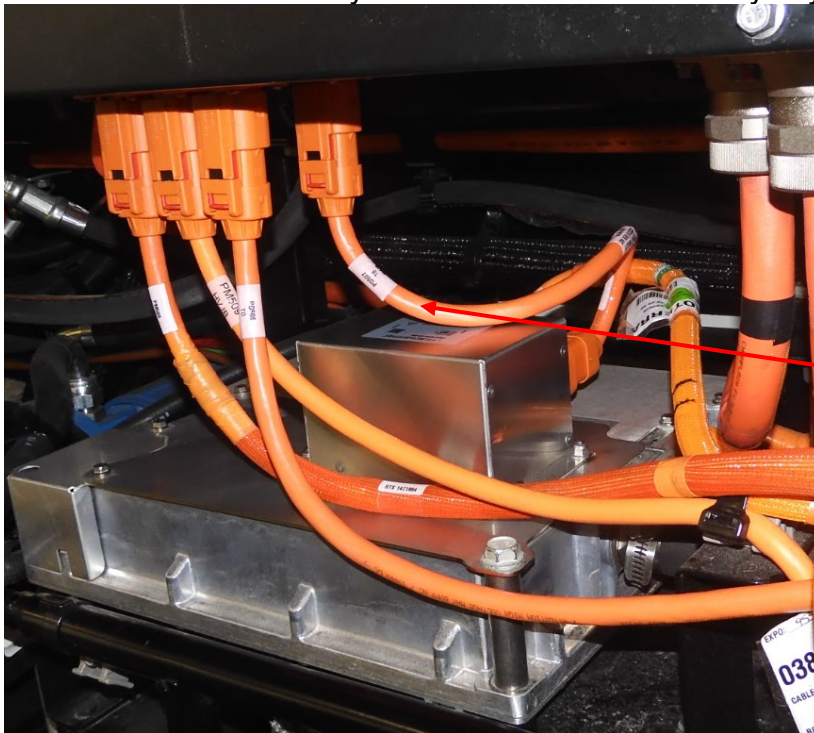


21. Route the connector that was disconnected to the output of Streetside EMI Filter (051628).

22. Connect the cable to the output of the Streetside EMI Filter (051628). The output is the connector on the right of the EMI Filter when it is viewed from the front.

23. Connect the Air Compressor Cable (052314) from the kit to the connector on the HVJB as shown. Connect the other end of the Cable to the input of the Streetside EMI Filter as shown in the following photograph.

Note: The cables are keyed. Ensure that the correctly keyed end is connected to the HVJB



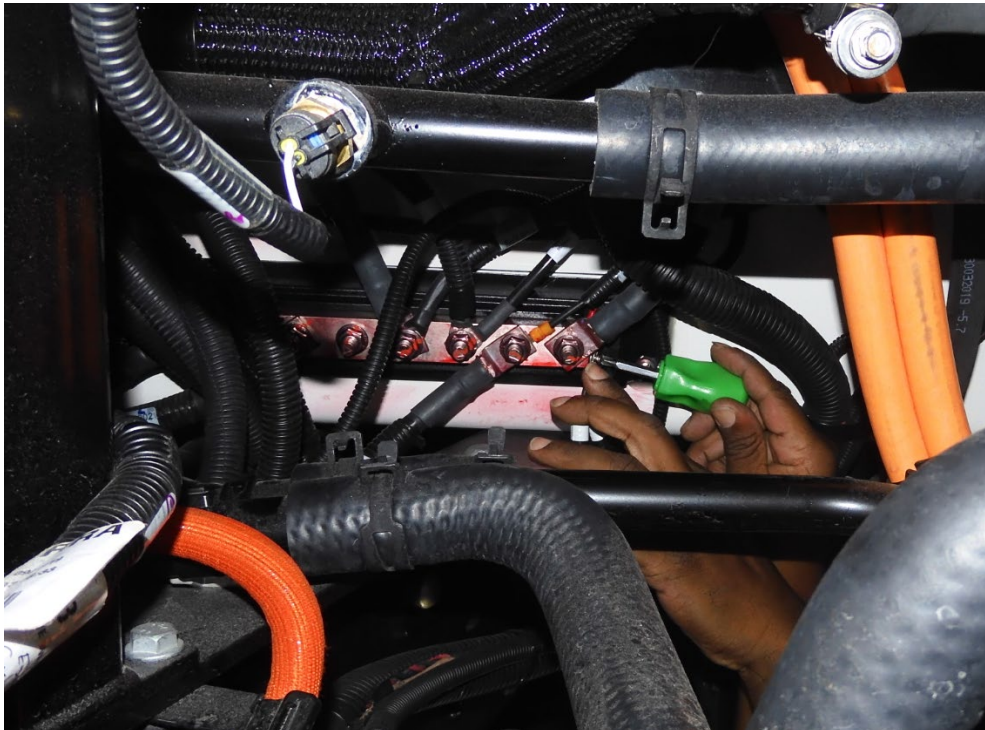
Air Compressor Cable

24. Using Cable Ties (012138) and Swivel Spacers (012108) neatly secure the wiring as shown in the following photograph.



25. Carefully route the free end of the Ground Harness (052370) along with the other wiring to the Ground Block on the Curbside of the bus.

26. Using a #2 Phillips Screwdriver, connect the ring terminals on the Ground Harness (052370) to the Ground Block.



27. Secure the Ground Harness (052370) to the other wiring using Cable Ties (012138).

28. Close the Trunk Panel.

29. Remove the Lockout/Tagout devices and power on the bus.

30. Ensure that no faults are present before returning the bus to service.