INSTRUCTION TO SERVICE

ITS: 61087	July 10, 2024
SECTION:	290-ELECTRICAL SCHEMATICS
WRITTEN BY:	Ilan Kizner
SUBJECT:	Rework - OVHD charge cable rework to prevent water intrusion
ISSUE:	Low isolation faults present due to water entering the cable
SUMMARY:	Rework OVHD, apply Scotchkote to HV positive and negative

ITS-61087

THIS ITS DOCUMENT SHOULD BE RETAINED AND REFERRED TO FOR FUTURE MAINTENANCE UNTIL THE NEW FLYER PARTS AND/OR SERVICE MANUAL IS UPDATED TO REFLECT WORK DONE AS A RESULT OF THIS DOCUMENT. ENSURE THAT THIS DOCUMENT IS AVAILABLE FOR PARTS AND MAINTENANCE STAFF GOING FORWARD.

PROCEDURE:

⚠ **WARNING: Only trained personnel shall supervise and perform High Voltage system testing, checkout and troubleshooting. Two personnel (one called the Checker & the other called Monitor/Recorder) shall perform Checkout Procedures, together, to ensure safety of themselves, others nearby & for the protection of vehicle & property. Refresher training shall be provided to these personnel on a regular basis and when new systems are to be checked by them.**

1. Turn the master run switch to the off position and wait 5 minutes before proceeding.
2. Turn the 12/24V battery disconnect and HV Interlock switch to the “OFF” position.
3. Lock and tag the electrical system of the bus out and retain the key. See Figure 1.
4. Use commercially available lockout equipment and tags being sure to follow local regulations.
5. Install a Lockout/Tagout Steering wheel cover as require.

☞ ***NOTE: Refer to the Lockout/Tagout Procedure in section 1 of your Preventive Maintenance Manual or section 9 of your Service manual for additional information.***

☞ ***NOTE: Use commercially available lock out equipment and tags being sure to follow any local laws or workplace procedures.***

☞ ***NOTE: Refer to New Flyer High Voltage Safety Guidelines and Procedures Document 532295 (Appendix A) when completing installation or service work on high voltage power cables.***

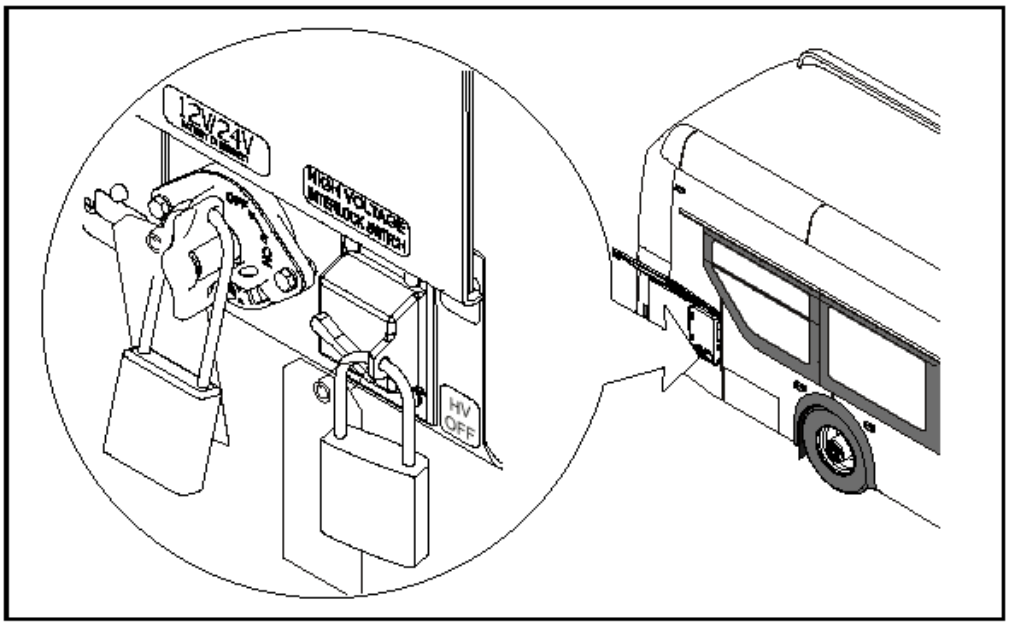

Figure 1: Lockout tagout location reference.

6. Locate the DC rail positive and negative cables P/N 903118, 903119, 903120 and 780585 and disconnect the quick disconnect connectors from the overhead charge rail box. See Figure 2.
7. Remove the cable ring terminal mounting hardware on each cable and set aside for re-installation. See Figure 2.
8. Remove any clamps and hardware securing the cables in place and set aside for re-installation.
9. Using a hard plastic bristles cleaning brush (sourced locally) along with contact cleaner P/N – 1034975 remove any signs of corrosion from the Amphenol quick disconnect cable connectors and the OVHD charge box mating connector.

☞ ***NOTE:*** **Use NFI approved respirator with organic vapor cartridges, and nitrile rubber gloves.**

☞ ***NOTE:*** **If cleaning process does not remove the corrosion from the cable or the mating connectors, replace the parts through the regular warranty procedure**.

☞ ***NOTE:*** **The following sections applies for both positive and negative cables.**

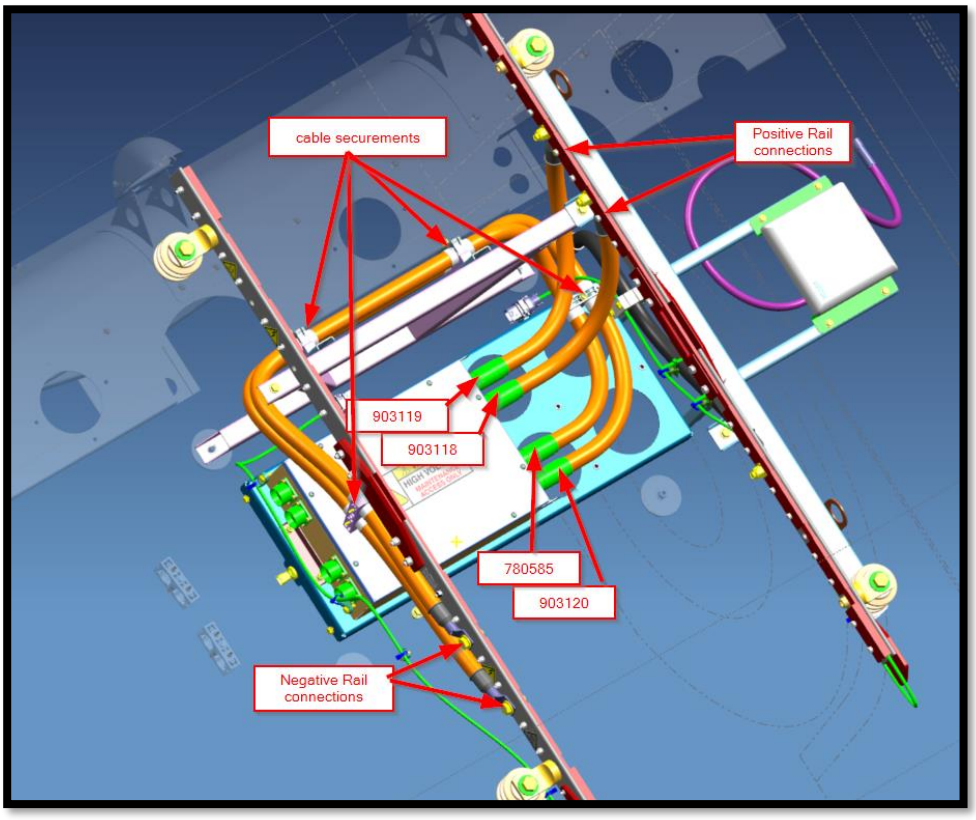

Figure 2 - OVHD HV POS and HV NEG cables location reference.

10. After removing the corrosion from the two HV cables, place them on a work bench or suitable work surface. Install supplied O-Ring P/N – 1036285 as shown. See Figure 3.

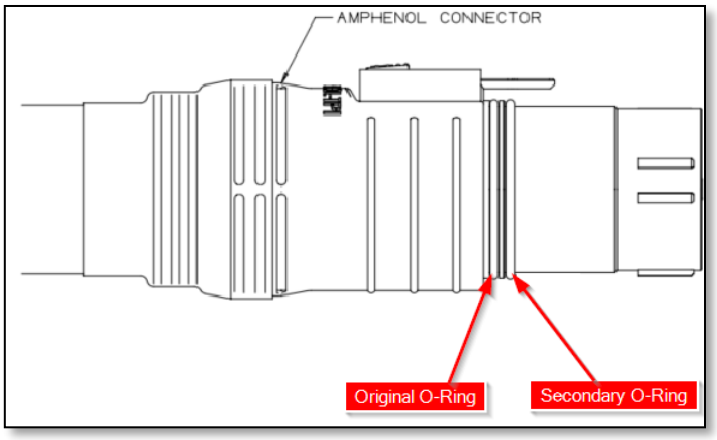

Figure 3 - O-Ring installation location reference.

11. Locate the ring terminal on each cable and remove the loom end cap 31.5mm P/N-756938 and the heat shrink. Clean the ring terminal and cable sheathing with alcohol 134336 and a dry lent free cloth. See Figure 4.

12. Apply several coats of Scotchkote 1035894 on the portion where heat shrink was removed until the void is full. Allow applied Scotchkote to dry (wait for 12 to 15 minutes between each applied coat). See Figure 4.

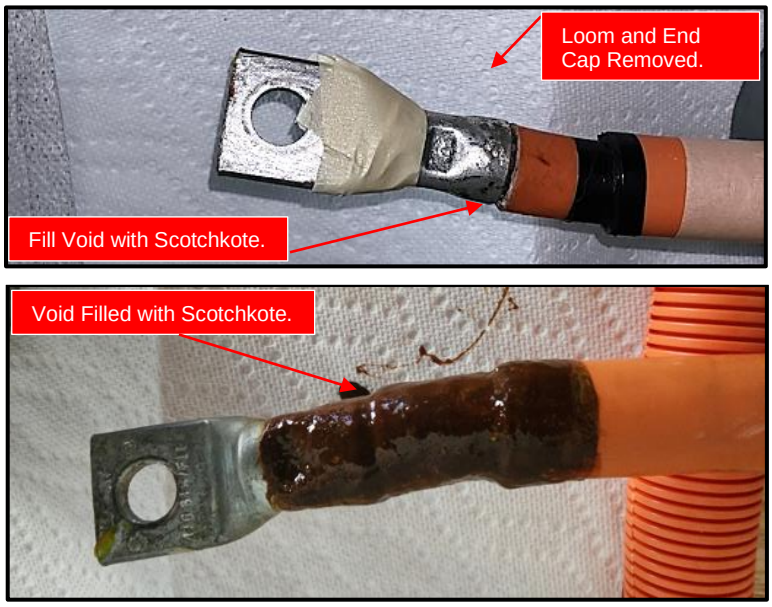

Figure 1 - Scotchkote applied on lug and cable location reference.

13. Apply heat shrink 251215 to the cable lug ends and over the cable sheathing. See Figure 5.

Figure 2 – Cable lug and sheathing heat shrink location reference.

14. Apply a second layer of Scotchkote on the heat shrink mentioned on stage 13, let it cure for 12-15 minutes.
15. Re-Install loom and apply the second heat shrink P/N-028412 over the loom and the lug heat shrink from stage 13. See Figure 6.

Figure 3 – Heat shrink applied over loom and lug heat shrink location reference.

16. Re-Install the loom end cap 756938 on top of the ring terminal and the loom. See Figure 7.

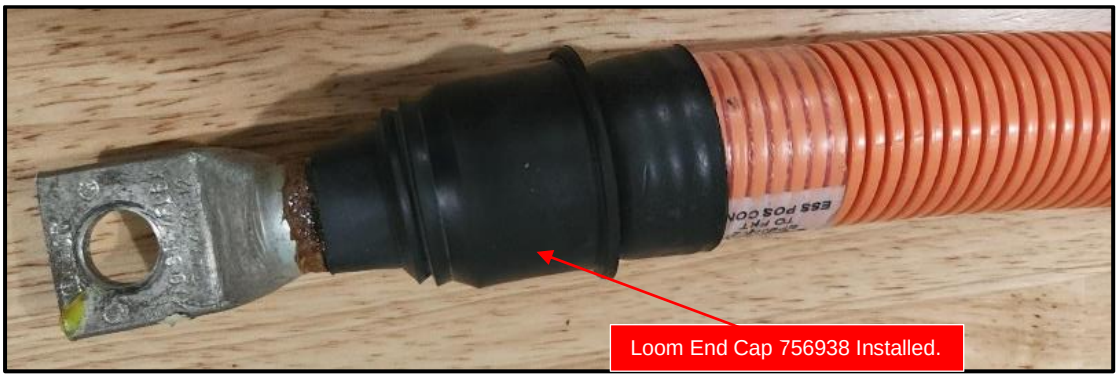

Figure 4 - Cable loom end cap installation location reference.

17. Re-connect the cable quick disconnect connectors to their respective connection points (figure 2).
18. Re-connect the cable ring terminals to their respective connection points on the charge rail. Torque cable lug hardware to torque to 22 FT-LBS (figure 2).
19. Re-install the cable clamps removed to complete the rework and torque the clamp securement center bolt to 8 FT-LBS and the two bolts holding the clamp to 20 IN-LBS (figure 5).

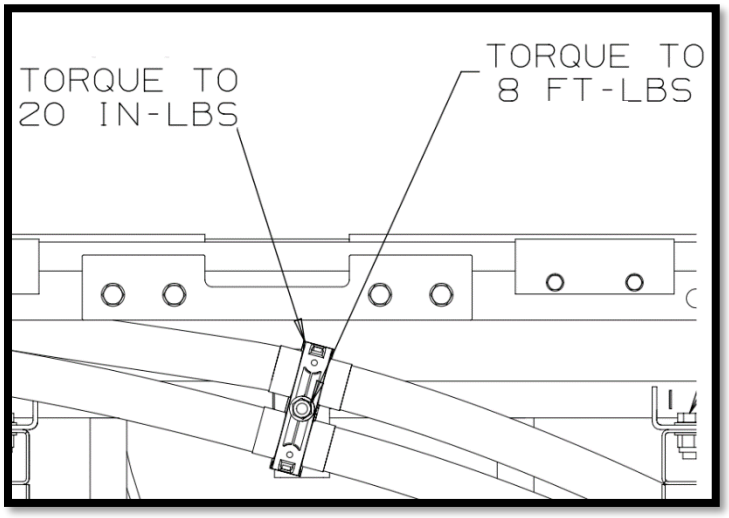

Figure 5 - HV cable securements

20. Ensure all tools and debris are removed from the work area and return the bus to service condition.

LABOUR ESTIMATE				
	Operation	Number of Technician(s)	Hours	Labor Time T X HR
1	Rework cables and adding securements	2	4	4

PARTS REQUIRED					
Item	Part Number	Description	Qty. per Coach	Units	Notes
1	251215	TUBE-HEAT SHRINK 1.0” BK	1	EA	
2	028247	TUBE-HEAT SHRINK 1.7” BK	2	EA	
3	1036285	O-Ring P/N	2	EA	
4	1034975	CONTACT CLEANER	0.010	EA	
5	134336	ISOPROPYO ALCOHOL	0.010	EA	Source locally
6	1035894	3M SCOTCHKOTE ELECTRICAL COATING FD	0.001	EA	