ISSUE DATE:	10-13-2020
SERVICE BULLETIN SUBJECT:	Lower Rear Access Door Opening Angle and LV Battery Tray Retrofit
VINs or MODELS AFFECTED:	Service Specified Buses
COMPLETE BY:	Next Service Opportunity
SERVICE BULLETIN #:	SC-20-145
Labor Operation Code:	N/A

NOTICE! It is expected that this process will require 8 hours per bus. Please schedule appropriately to minimize vehicle downtime.

LOWER REAR ACCESS DOOR OPENING ANGLE AND LV BATTERY TRAY RETROFIT

Retrofit Description:

This procedure updates the rear hatch door struts and the low voltage battery tray for improved operation.

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Tools/Parts Required

Tools and Supplies Required:

- Heat gun.
- Plexus gun Mixpac Manual (DM 400-01)
- Plexus gun tip MC 13-18.
- Power Drill
- 36-Grit Sandpaper
- 36- Grit Sanding Disk
- Flat Blade Screwdriver
- #2 Phillips Screwdriver
- Chisel
- Side Grinder
- Super Glue
- Two Differently Colored Permanent Markers
- Super Glue
- Isopropyl Alcohol
- Adjustable Prop Rod to Support Hatches
- Shop Towels
- Cotton Swabs
- Ratchet
- 13mm Socket
- Calibrated Torque Wrench
- Orange Torque Stripe Paint

Parts Required:

018307-001	SCREW, DIN 7981, TYP C, SST A2, M5.5X13	6 EA
018933	WSHR, DIN 9021, STL, HDN, ZPL, M6	4 EA
019482	MOUNT, GAS SPRING	2 EA
014662	GAS SPRING, LOWER SIDE HATCH, 1432EB	2 EA
015452	GAS SPRING, LOWER, HATCH REAR, 6542IN	2 EA
012138	CABLE TIE, HEAVY DUTY .5WIDE 9.1" BLACK	10 EA
009479	RESIN, EPOXY, WEST SYSTEMS	1 EA
027017	FILLER, HIGH DENSITY, WEST SYSTEMS	1 EA
009499	HARDENER, EPOXY, FAST, WEST SYSTEMS	1 EA
043223	EQUIPMENT, SERVICE, ADHESIVE, WEST SYSTEM PUMP	1 EA
018362	PLEXUS, MA-530	1 EA
020990	PRIMER,COND.,0-RMD,PLE QT.IP120 PC 120	1 EA

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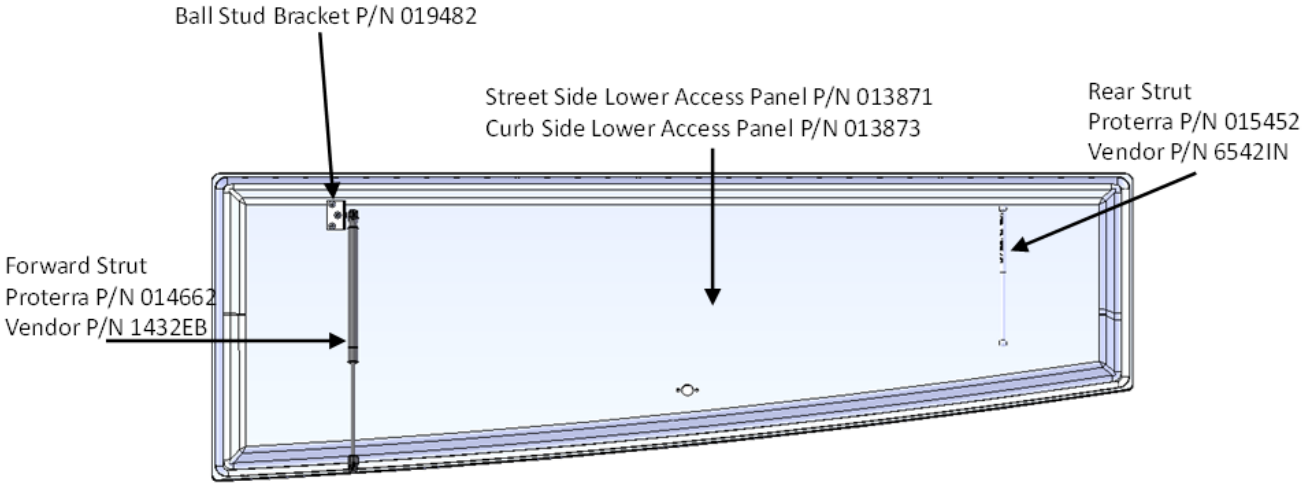
Procedure:

1. Complete the Proterra approved Lockout/Tagout procedure to make the bus safe for work.

Rear Hatch Inspection and Repair:

2. Using the following illustration as a guide, inspect both rear hatches and the gas struts installed on them.



3. Verify that the forward strut on both hatches is Proterra Part Number (014662) or Vendor Part Number (1432EB).

4. Verify that the rear strut on both hatches is Proterra Part Number (015452) or Vendor Part Number (6542IN).

5. Replace any struts that are damaged or are not the correct part number.

6. Once the correct struts are installed on both doors, inspect the opening angle of the doors. Each door should open approximately 120 degrees and not contact the bus body as shown in the following photograph.

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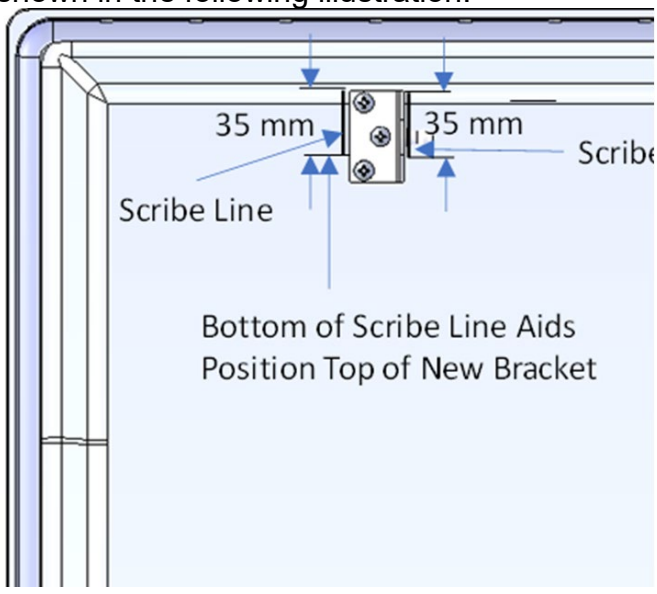
7. If the doors open correctly, proceed to the section of this document labeled “LV Battery Tray Retrofit”. Do not complete the remainder of this section. Proceed to the section labeled “LV Battery Tray Retrofit”.

8. If either door opens less than 120 degrees or it opens far enough to contact the body, the hatch or hatches must be repaired by following the remaining instructions in this section.

9. Disconnect the gas struts from a hatch that needs repair and support it as shown in the following illustration. An adjustable rod or other device may be used.

10. Using a Permanent Marker, mark both sides of the bracket 35mm down from the top as shown in the following illustration.



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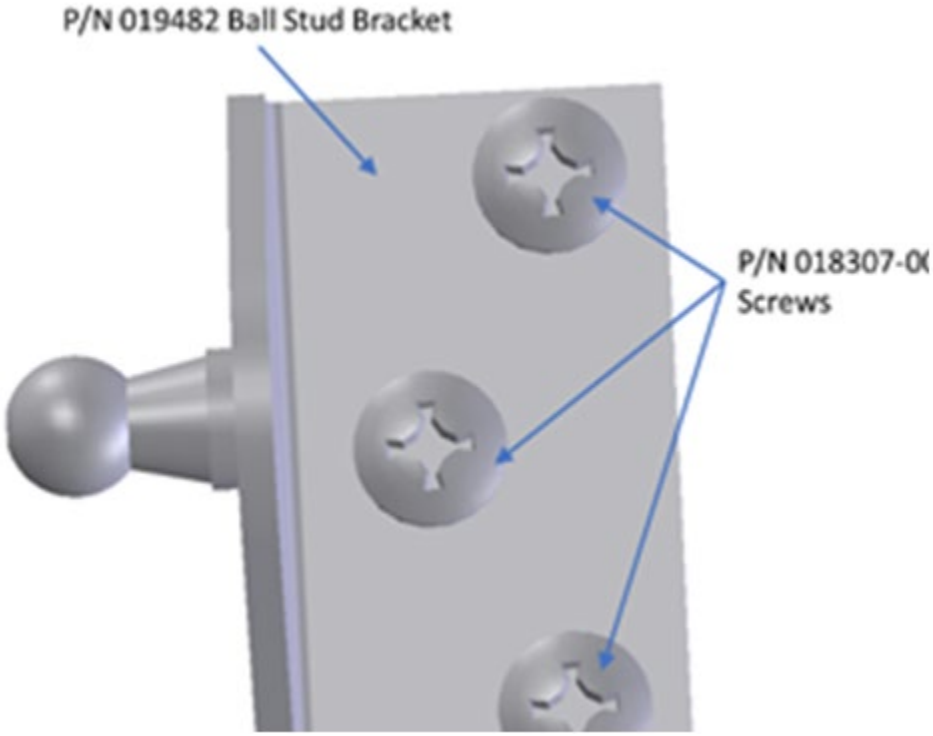
11. Using a #2 Phillips Screwdriver, remove the three self-tapping screws that attach the ball stud bracket to the hatch.



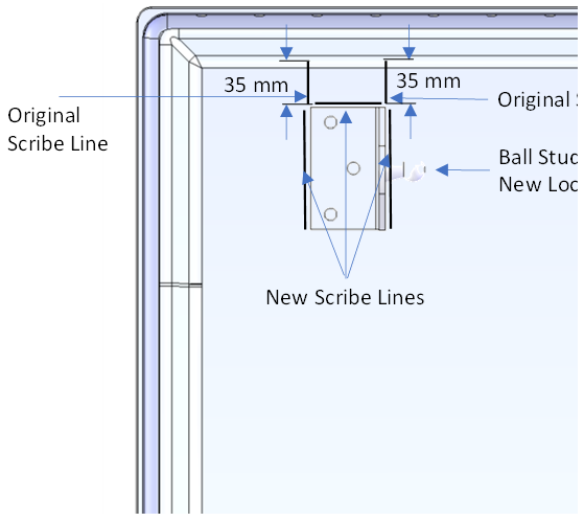
12. Using a Heat Gun, heat the Plexus Adhesive (018362) that secures the ball stud bracket to the hatch to soften it.

13. Remove the Bracket.

14. Using a Side Grinder, carefully remove any Plexus (018362) remaining on the hatch.

15. Using Alcohol and Shop Towels, clean the area on the hatch where the bracket and Plexus were removed.

16. Using the marks made earlier, position a new Bracket (019482) as shown in the following illustration.



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17. Using a Permanent Marker, mark the top and sides of the Bracket (019482) as shown in the previous illustration.

18. Temporarily attach the front gas strut to the ball on the Bracket (019482) and hold the bracket in the position marked previously.

19. While holding the Bracket (019482) in position, test the operation of the door. It should be able to open to an angle greater that 120 degrees without contacting the body. If it does, this is the final position for mounting the bracket.

20. If the hatch cannot open more that 120 degrees, move the Bracket (019482) closer to the hinge. Find a position that allows the door to open more than 120 degrees without contacting the body. Mark this position for mounting the Bracket with a different color permanent marker than used previously. This is the final position for mounting the bracket.

21. If the hatch opening angle is greater than 120 degrees and the hatch contacts the body, move the Bracket (019482) further from the hinge. Find a position that allows the door to open more than 120 degrees without contacting the body. Mark this position for mounting the Bracket with a different color permanent marker than used previously. This is the final position for mounting the bracket.

22. Using Alcohol and a Cotton Swab, clean and degrease the holes from the self-tapping screws from the original bracket.

23. Mix West Systems 105 Epoxy Resin with West Systems 205 Hardener to get the amount required to fill the three holes.

24. Mix in West Systems 404 High Density Filler until the mixture has the consistency of mayonnaise.

25. Using a plastic bag with a corner cut off or a tongue depressor, apply the Epoxy to fill the screw holes.

26. Remove any excess Epoxy.

27. Allow 8 hours for the Epoxy to cure before returning the bus to service.

28. Using 26-Grit Sandpaper, scuff the area that was marked previously to install the new Bracket (019482).

29. Using Alcohol and Shop Towels, clean the scuffed area.

30. Using a Power Drill with a 36-Grit Sanding Disk, scuff the mounting surface of the new Bracket (019482).

31. Using Alcohol and Shop Towels, clean the Bracket (019482).

32. Using a Shop Towel, apply Plexus Primer (020990) to the bonding surface of the Bracket (019482).

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33. Using Super Glue, attach 2 Washers (018933) to the scuffed and primed surface of the Bracket (019482) to provide a bond gap.

34. Using a Plexus Gun, apply Plexus (018362) to the bonding surface of the Bracket (019482).

35. Place the Bracket (019482) in the final mounting position that was marked earlier.

36. Using a #2 Phillips Screwdriver, attach the Bracket (019482) to the hatch.

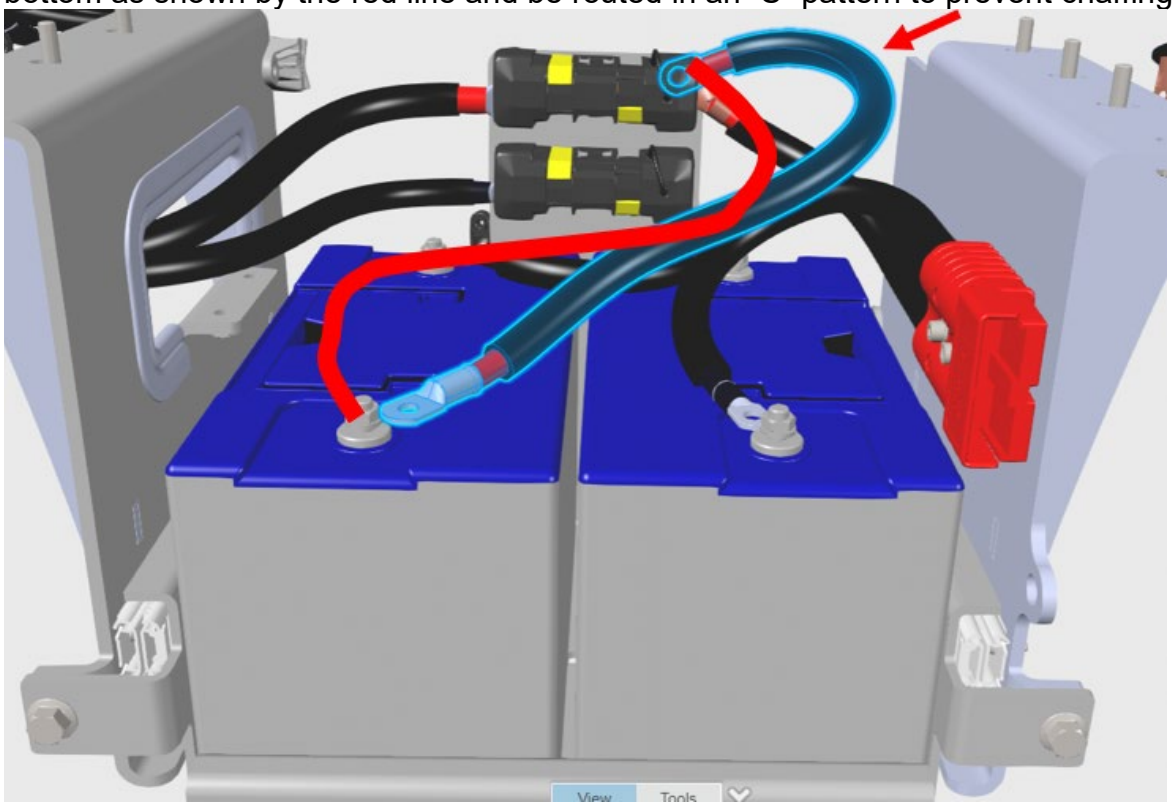
37. Allow the Plexus (018362) to cure for 1 hour before attaching the struts to the hatch.

38. Repeat the previous process to repair the other hatch if it is needed.

LV Battery Tray Retrofit:

39. Working inside the Curbside hatch, access the low voltage batteries.

40. Using an 13mm Ratchet/Socket, reroute the Cable (EPWR 109) shown by the red arrow. The new routing is shown by the curved red line. The cable should enter the fuse panel from the bottom as shown by the red line and be routed in an “S” pattern to prevent chaffing.



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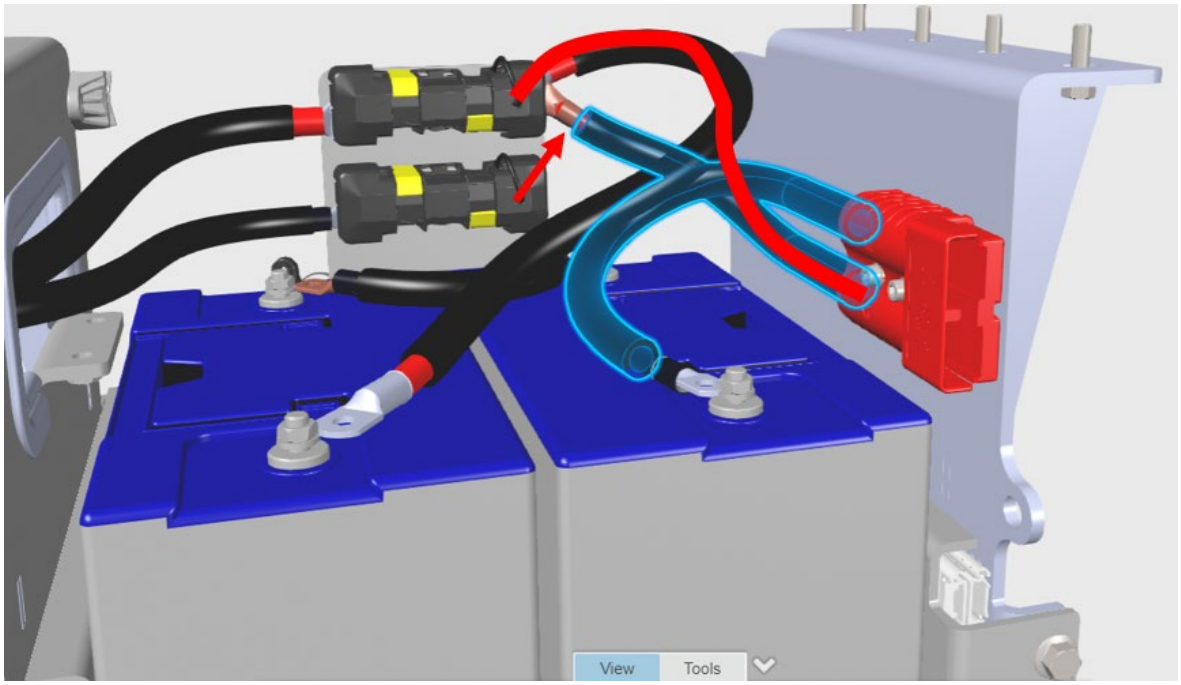
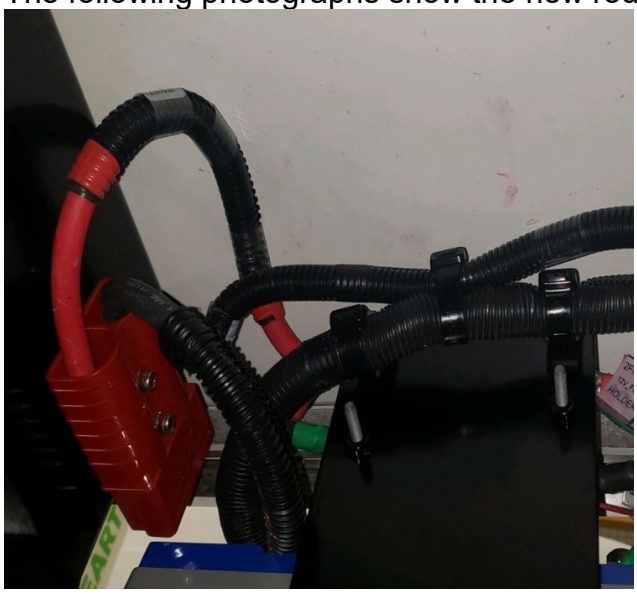
41. Using an 13mm Ratchet/Socket, reroute the cable shown by the red arrow. The new routing is shown by the curved red line. The cable should enter the fuse panel from the top as shown by the red line.



42. The following photographs show the new routing.



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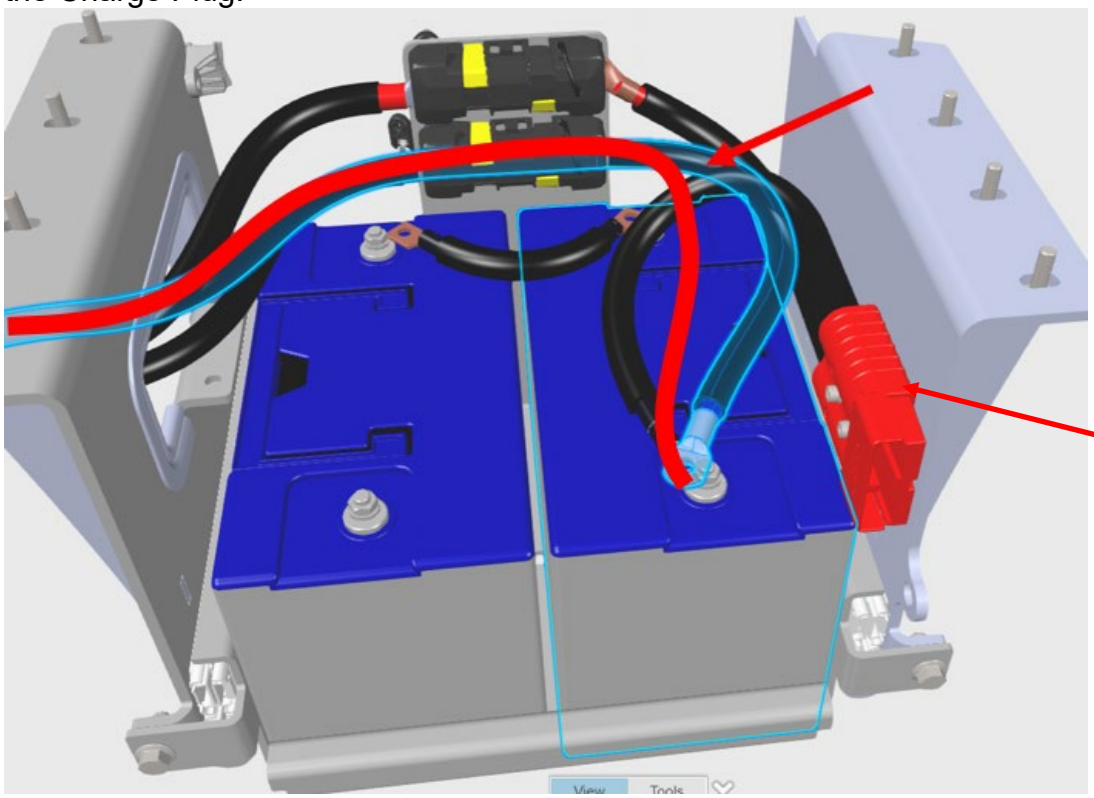
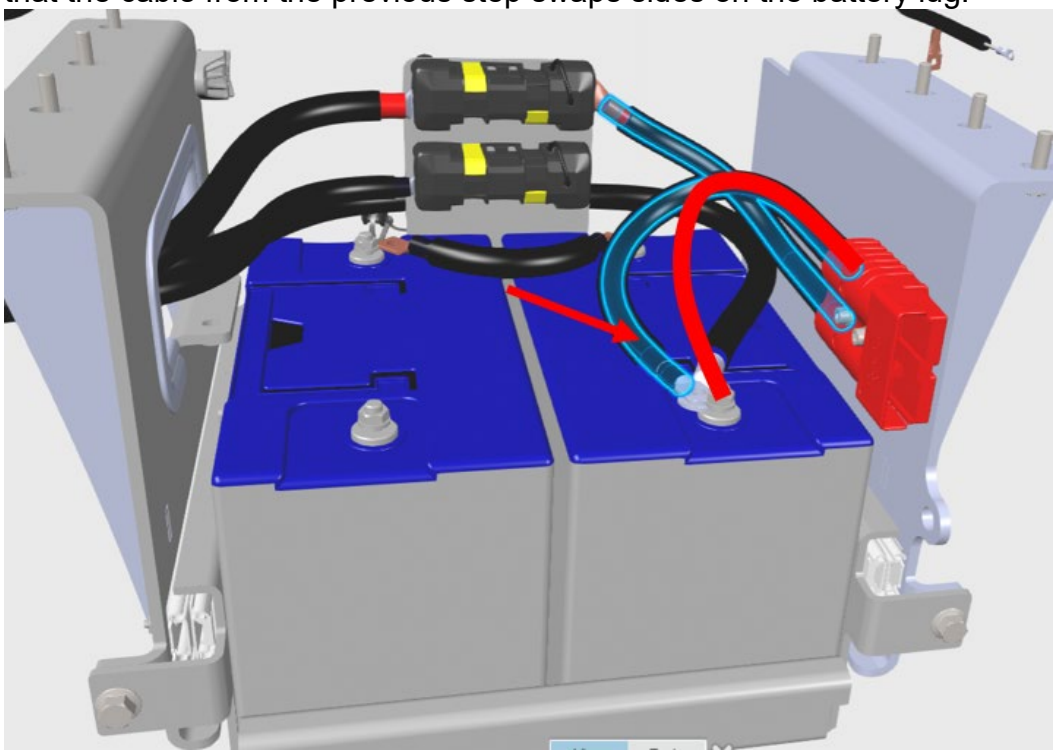
43. Using an 13mm Ratchet/Socket, reroute the Cable (EPWR 106) shown by the red arrow. The new routing is shown by the curved red line. The original route of this cable should be swapped with the Negative Cable from the Charge Plug and straightened so that it doesn't chaff against the battery box when it is slid from the hatch. The negative cable is on the top of the Charge Plug.



44. Using an 13mm Ratchet/Socket, reroute the cable shown by the red arrow. This is the negative cable from the Charge Plug. The new routing is shown by the curved red line. Note that the cable from the previous step swaps sides on the battery lug.



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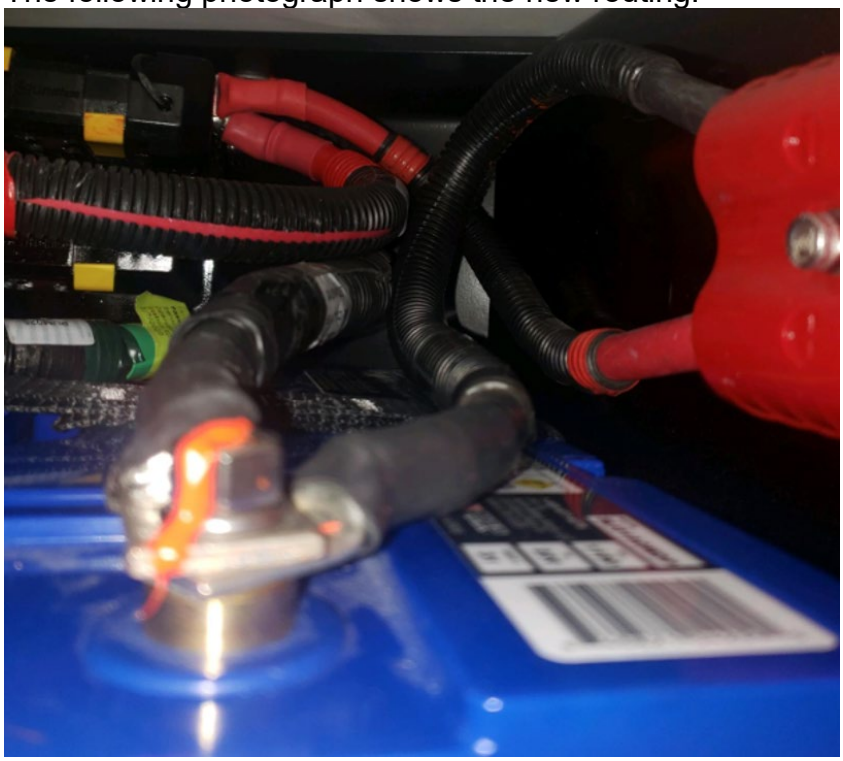
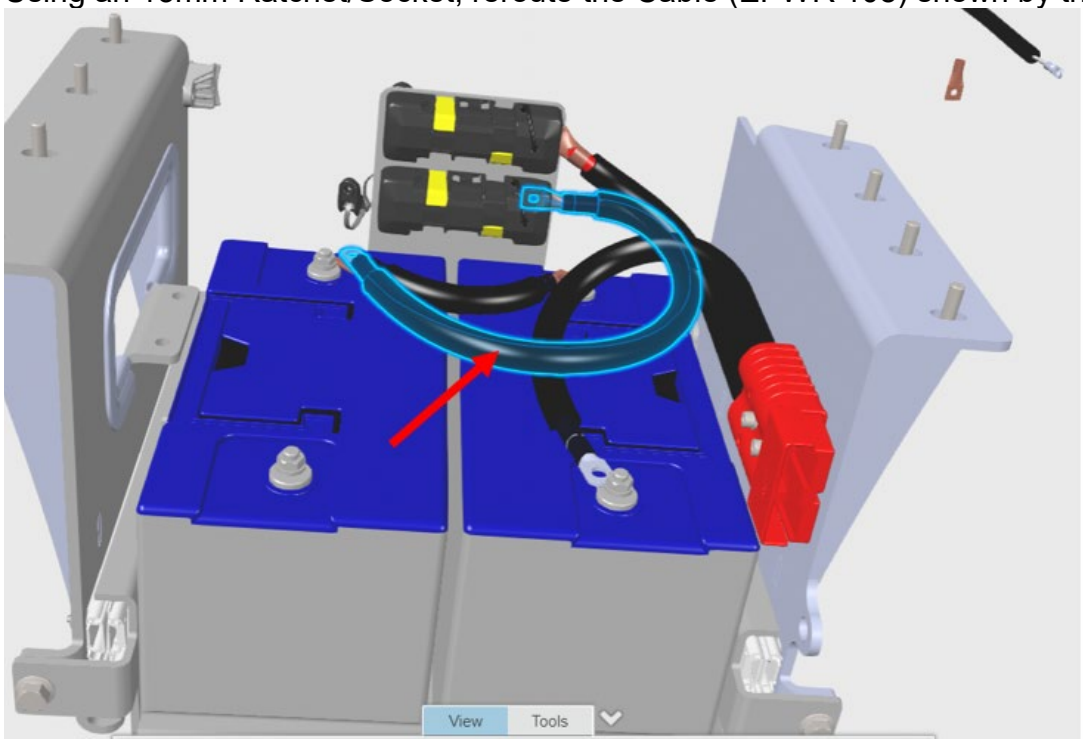
45. The following photograph shows the new routing.



46. Using an 13mm Ratchet/Socket, reroute the Cable (EPWR 108) shown by the red arrow.



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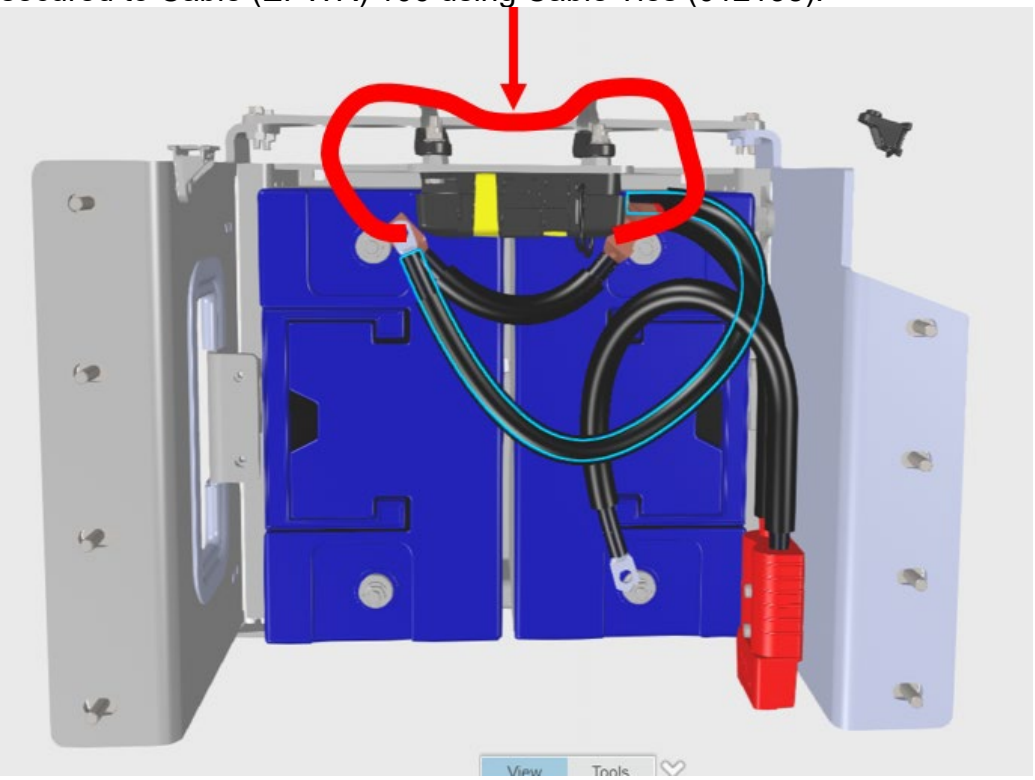
47. The new routing is shown in the following illustration. The Cable (EPWR 108) should be secured to Cable (EPWR) 106 using Cable Ties (012138).



48. The new routing should appear as shown in the following photograph. The red arrow shows the Cable Ties (012138) securing Cable (EPWR 108) to Cable (EPWR 106).

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49. Using a Calibrated Torque Wrench with an 13mm Socket, **torque the fuse panel fasteners to 15 Foot Pounds.**

50. Using a Calibrated Torque Wrench with an 13mm Socket, **torque the battery fasteners to 15 Foot Pounds.**

51. Using Orange Torque Stripe Paint, mark the properly torqued fasteners.

52. Close the rear hatches.

53. Remove the Lockout/Tagout devices and return the bus to service.

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