

	Regulatory Recall Method-Sheet		RRM0012
	20V136 HV Cable-Lug Mis-Crimps Remedy Instructions		Rev: 1
Author: RA RCE	PO: Dir Q&RA	Appr: Dir Q&RA	Date: 04/03/2020

1 PURPOSE

Safety Recall Remedy Instructions: HV Cable-Lug Mis-Crimps

2 AFFECTED VEHICLES

Model Year	Model	VIN Range (last 8 digits)
2019	FUV Evergreen	KER00000 - KER00050
2019	FUV Evergreen	KER00052 - KER00056
2020	FUV Evergreen	LER00001 - LER00003
2020	FUV Evergreen	LER00005 - LER00007
2020	FUV Evergreen	LER00009 - LER00009
2020	FUV Evergreen	LER00012 - LER00012
2020	FUV Evergreen	LER00015 - LER00016

3 BACKGROUND

Uncrimped, incomplete, and mis-crimped large-gauge cable-lugs on completed traction-power harnesses that are unable to withstand any tension-test.

4 OWNER NOTIFICATION

Owners of affected vehicles will be sent a notification of this campaign.

5 CORRECTIVE ACTION

To address the improperly crimped cable lugs, the traction-power harnesses will be removed and replaced with a traction power harness that has properly crimped cable lugs that are able to withstand a tension-test of 300-lbs per UL-486A.

6 PARTS INFORMATION

- [003825 Harness, Traction DC](#)
- [001859 Harness, Traction AC \(2X\)](#)
- [003739 Harness, B- Return Inside Battery Box](#)

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7 RELATED DOCUMENTS AND RESOURCES

- [000727](#)
- [000945](#)
- [001411](#)
- [001859](#)
- [002354](#)
- [002507](#)
- [002752](#)
- [002753](#)
- [002882](#)
- [002960](#)
- [002961](#)
- [002962](#)
- [002968](#)
- [002970](#)
- [002971](#)
- [002981](#)
- [002982](#)
- [002983](#)
- [002998](#)
- [002999](#)
- [003001](#)
- [003105](#)
- [003144](#)
- [003196](#)
- [003343](#)
- [003361](#)
- [003524](#)
- [003569](#)
- [003579](#)
- [003731](#)
- [003742](#)
- [003787](#)
- [003825](#)
- [003958](#)
- [003972](#)
- [003974](#)
- [004000](#)
- [004065](#)
- [004066](#)
- [004140](#)
- [004141](#)
- [004332](#)
- [004424](#)
- [004612](#)

8 SAFETY REQUIREMENTS

- 8.1 This service procedure involves accessing high-voltage (HV) cables and other HV components, which can present the risk of arc-flash. Some of the steps require accessing HV cables and components in the vehicle, Therefore, this procedure requires two technicians to follow the “buddy system” for safety: one technician to work directly with the HV components, and a second technician to act as a Spotter.
- 8.2 Required Training
- Arc-Flash Safety Training
- 8.3 Required Protective Gear
- Full PPE, category 2, 8 Cal/cm² (Suit, Gloves and Helmet) for use by the technician working directly on the vehicle
 - 6-foot non-conductive pole or rod, for use by Spotter if necessary

9 SERVICE PROCEDURE

- 9.1 Engage the Parking Brake (requires that the FUV is ON).
- 9.2 Turn the FUV OFF.
- 9.3 Remove the [Left Dash Lower Panel \(002982\)](#) and set aside.
- 9.4 Remove the [Right Dash Lower Panel \(002983\)](#) and set aside.
- 9.5 Trip the [12v Circuit Breaker \(001411\)](#) to the OFF position.

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- 9.6 In the [Battery Electronics Assy \(003524\)](#) located behind the dash on the [Battery Bay Assy \(003196\)](#), disconnect the locking [Traction DC Harness \(003825\)](#).
- 9.7 Also in the Battery Electronics Assy, disconnect the two-position [HV Accessory Bulkhead Connector Harness \(003361\)](#).
- 9.8 Also in the Battery Electronics Assy, disconnect the 18-pin BMS connector (on the [Backbone Harness \(003343\)](#)).
- 9.9 Remove both Side Mirrors ([left-004065](#), [right-004066](#)).
- 9.10 Remove the [Wiper Access Panel Assy \(002968\)](#) and set aside.
- 9.11 Remove the [Center Nose Panel Assy \(002962\)](#) and set aside.
- 9.12 Remove the [Left Nose Panel Assy \(002960\)](#) and set aside.
- 9.13 Remove the [Right Nose Panel Assy \(002961\)](#) and set aside.
- 9.14 Remove the [Display Assy \(004612\)](#) from the [Dash Center Panel Assy \(002981\)](#).
- 9.15 Disconnect the [Left Handlebar Grip Control \(002507\)](#) cable, behind the dash.
- 9.16 Disconnect the [Right Handlebar Grip Control \(003958\)](#) cable, behind the dash.
- 9.17 Disconnect the [Kinetic Energy Recovery System Assy \(004332\)](#) connector at the lever on the right-hand grip.
- 9.18 Remove both [Handlebar Riser Clamps \(000727\)](#).
- 9.19 Remove the [Handlebar \(003579\)](#).
- 9.20 Remove the [Left Dash Collar Panel \(002970\)](#).
- 9.21 Remove the [Right Dash Collar Panel \(002971\)](#).
- 9.22 Remove the [Center Dash Assy \(002981\)](#).
- 9.23 Cut the two zip ties (000289) that secure the left side of the [clear plastic Safety Shield \(004424\)](#) to the frame, and swing the shield aside to the right to allow access to the [Power Module Cooling System Assy \(002882\)](#).
- 9.24 Remove the two 13mm bolts that secure the [Traction DC Cable harness \(003825\)](#) to the left-side Inverter, and remove the harness.
- 9.25 Remove the six 13mm bolts that secure the AC Traction Cables harness (001859) from the left-side Inverter to the left-side [Motor \(000945\)](#), and remove the harness.
- 9.26 Remove the six 13mm bolts that secure the AC Traction Cables harness (001859) from the right-side Inverter to the right-side [Motor \(000945\)](#), and remove the harness.
- 9.27 Remove the four M6-1.0 X 12 hex flange bolts that secure the [Front Seat Base \(004140\)/Front Seat Base Bracket \(003972\)](#) Assy to the [Chassis Lid \(003144\)](#), and remove the seat bottom (with bracket attached).
- 9.28 Remove the four M6-1.0 X 12 hex flange bolts that secure the [Rear Seat Base \(004140\)/Rear Seat Base Bracket \(004000\)](#) Assy to the [Chassis Lid \(003144\)](#), and remove the seat bottom (with bracket attached).
- 9.29 Remove the [Front Seat Back \(004141\)](#).

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- 9.30 Remove all 10mm bolts that secure the [Chassis Lid \(003144\)](#) to the [Backbone Assy \(003105\)](#). Do not remove the Chassis Lid until Arc-Protection is deployed (see 9.33 and 9.34).
- 9.31 Remove the ten 4mm allen bolts that secure the [Battery Electronics Assy \(003524\)](#) to the Chassis Lid.
- 9.32 At this point. the technician working on the vehicle must put on full Arc-Protection gear (PPE, category 2, 8 Cal/cm2 Suit, Gloves and Helmet) before proceeding.
- 9.33 Position the Spotter, equipped with a 6-foot non-conductive pole or rod, approximately six feet away from the vehicle. The Spotter must be positioned such that they can clearly observe the technician and intervene in case of an emergency before proceeding.
- 9.34 Remove the Chassis Lid from the Backbone and set aside.
- 9.35 Remove the [Positive Terminal Insulator Top \(002752\)](#) and [Negative Terminal Insulator Top \(002753\)](#) in the center of the Battery Assy.
- 9.36 Disconnect the BMS Connector on the Front HV Battery Module.
- 9.37 Disconnect the BMS Connector on the Rear HV Battery Module.
- 9.38 Remove the eight M4-0.7 X 12 bolts and M4 washers that secure the [Midpack Busbar \(002354\)](#) to the center positive and negative battery terminals. then remove the busbar and set aside.
- 9.39 Reinstall both Terminal Insulator Tops for protection.
- 9.40 Remove Arc-Protection gear. At this point, there is no potential for arc-flash.
- 9.41 Clip and remove all of the plastic zip-ties that secure the [B- Return Harness \(003739\)](#) to the Battery Modules inside the Battery Bay.
- 9.42 Remove the four 3mm bolts that secure the B- Return Harness to the [B-Cable to Battery Electronics Busbar \(003787\)](#) on the [Battery Electronics Assy \(003524\)](#).
- 9.43 Safely elevate the rear of the vehicle and set on jack stands.
- 9.44 Remove the four lug nuts that secure the [Rear Wheel Assy \(003974\)](#), then remove the rear wheel and set aside.
- 9.45 Remove the four 10mm bolts (two on each side) that secure the [Rear Left Side Panel \(002998\)](#) and [Rear Right Side Panel \(002999\)](#) to the floor pan.
- 9.46 Remove the 20 phillips-head screws that secure the [Rear Wheel Liner Panel \(003001\)](#) to the Rear Left/Right Side Panels.
- 9.47 Remove the two 10mm bolts that secure the Rear Wheel Liner Panel to the bottom rear of the [Backbone Assembly \(003105\)](#), and remove the Rear Wheel Liner Panel.
- 9.48 Remove the four 10 mm bolts that secure the [HV Rear Connector Plate \(003569\)](#) to the Backbone Assembly.
- 9.49 Use a flat-head screwdriver to pry loose the HV Rear Connector Plate (held to the Backbone Assy with silicone).

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- 9.50 Remove the 13mm nut and washer that secure the rear end of the B- Return Cable and the [Rear Contactor to Fuse Busbar \(003731\)](#) to the right-side contactor on the [Negative Terminal Contactor Assembly \(003742\)](#).
- 9.51 Remove the B- Return Cable from the vehicle.
- 9.52 Install a new B- Return Cable.
- 9.53 Use plastic zip-ties to secure the B- Return Harness to the Battery Modules inside the Battery Bay.
- 9.54 Replace the HV Rear Connector Plate, using a bead of silicone, and secure with four 10 mm bolts.
- 9.55 Replace the Rear Wheel Liner Panel and secure it to the bottom rear of the Backbone Assembly, using the two 10mm bolts removed previously.
- 9.56 Replace the Rear Left and Right Side Panels and secure both panels to the floor pan, using the four 10mm bolts removed previously.
- 9.57 Replace the Rear Wheel Liner Panel and secure it to the Rear Left/Right Side Panels, using the 20 phillips-head screws removed previously.
- 9.58 Replace the Rear Wheel Assy, and secure using the four lug nuts removed previously.
- 9.59 Lower the rear of the vehicle and remove jack stands.
- 9.60 The technician working on the vehicle must put on full Arc-Protection gear (PPE, category 2, 8 Cal/cm² Suit, Gloves and Helmet) before proceeding.
- 9.61 Position the Spotter, equipped with a 6-foot non-conductive pole or rod, approximately six feet away from the vehicle. The Spotter must be positioned such that they can clearly observe the technician and intervene in case of an emergency before proceeding.
- 9.62 Remove the Positive and Negative Terminal Insulator Tops in the center of the Battery Assy.
- 9.63 Connect the BMS Connector on the Rear HV Battery Module.
- 9.64 Connect the BMS Connector on the Front HV Battery Module.
- 9.65 Replace the Midpack Busbar and secure it to the center positive and negative battery terminals, using the eight M4-0.7 X 12 bolts and M4 washers removed previously.
- 9.66 Reinstall both Terminal Insulator Tops.
- 9.67 Reinstall the Chassis Lid to the Backbone, using the 10mm bolts removed previously.
- 9.68 Reinstall the Battery Electronics Assy to the Chassis Lid, using the ten 4mm allen bolts removed previously.
- 9.69 Remove Arc-Protection gear. With the Chassis Lid in place, there is no potential for arc-flash.
- 9.70 Reinstall the Front Seat Back.
- 9.71 Reinstall the Rear Seat Base/Rear Seat Base Bracket Assy to the Chassis Lid, using the four M6-1.0 X 12 hex flange bolts removed previously.
- 9.72 Install a new AC Traction Cables harness from the left-side Inverter to the left-side Motor, using the six 13mm bolts removed previously.

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- 9.73 Install a new AC Traction Cables harness from the right-side Inverter to the right-side Motor, using the six 13mm bolts removed previously.
- 9.74 Install a new Traction DC Cable harness to the left-side Inverter, using the two 13mm bolts removed previously.
- 9.75 Return the clear plastic Safety Shield to its original position (in front of the Power Module Cooling System Assy), and secure it to the frame using two zip ties.
- 9.76 Reinstall the Center Dash Assy.
- 9.77 Reinstall the Right Dash Collar Panel.
- 9.78 Reinstall the Left Dash Collar Panel.
- 9.79 Reinstall both Handlebar Riser Clamps, and the Handlebar.
- 9.80 Reconnect the Kinetic Energy Recovery System Assy connector at the lever on the right-hand grip.
- 9.81 Reconnect the Left and Right Handlebar Grip Control cables, behind the dash.
- 9.82 Reinstall the Display Assy into the Dash Center Panel Assy.
- 9.83 Reinstall the Right Nose Panel Assy.
- 9.84 Reinstall the Left Nose Panel Assy.
- 9.85 Reinstall the Center Nose Panel Assy.
- 9.86 Reinstall the Wiper Access Panel Assy.
- 9.87 Reinstall both Side Mirrors.
- 9.88 In the Battery Electronics Assy, reconnect the 18-pin BMS connector on the Backbone Harness.
- 9.89 Also in the Battery Electronics Assy, reconnect the two-position HV Accessory Bulkhead Connector Harness.
- 9.90 Also in the Battery Electronics Assy, reconnect the locking Traction DC Harness.
- 9.91 Trip the 12v Circuit Breaker to the ON position.
- 9.92 Replace the Left and Right Dash Lower Panels.
- 9.93 **END.**

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10 REVISION HISTORY

Function	Role	Name	Signature	Date
Author	Dir Q&RA	Pete Z	<insert name>	04/03/2020
PO	Dir Q&RA	Pete Z	<insert name>	04/03/2020
Approver	Dir Q&RA	Pete Z	<insert name>	04/03/2020
Checker	RA RCE		<insert name>	04/03/2020

Revision		Reason for change;
#	Date Issued	Summary of change from prior Revision
0	04/03/2020	Initial Issue Safety Recall Remedy Instructions: HV Cable-Lug Mis-Crimps