

TECHNICAL INSTRUCTIONS

FOR

Software Update 23TC05

EV Charging Performance + Display Software Update

CERTAIN 2023 bZ4X

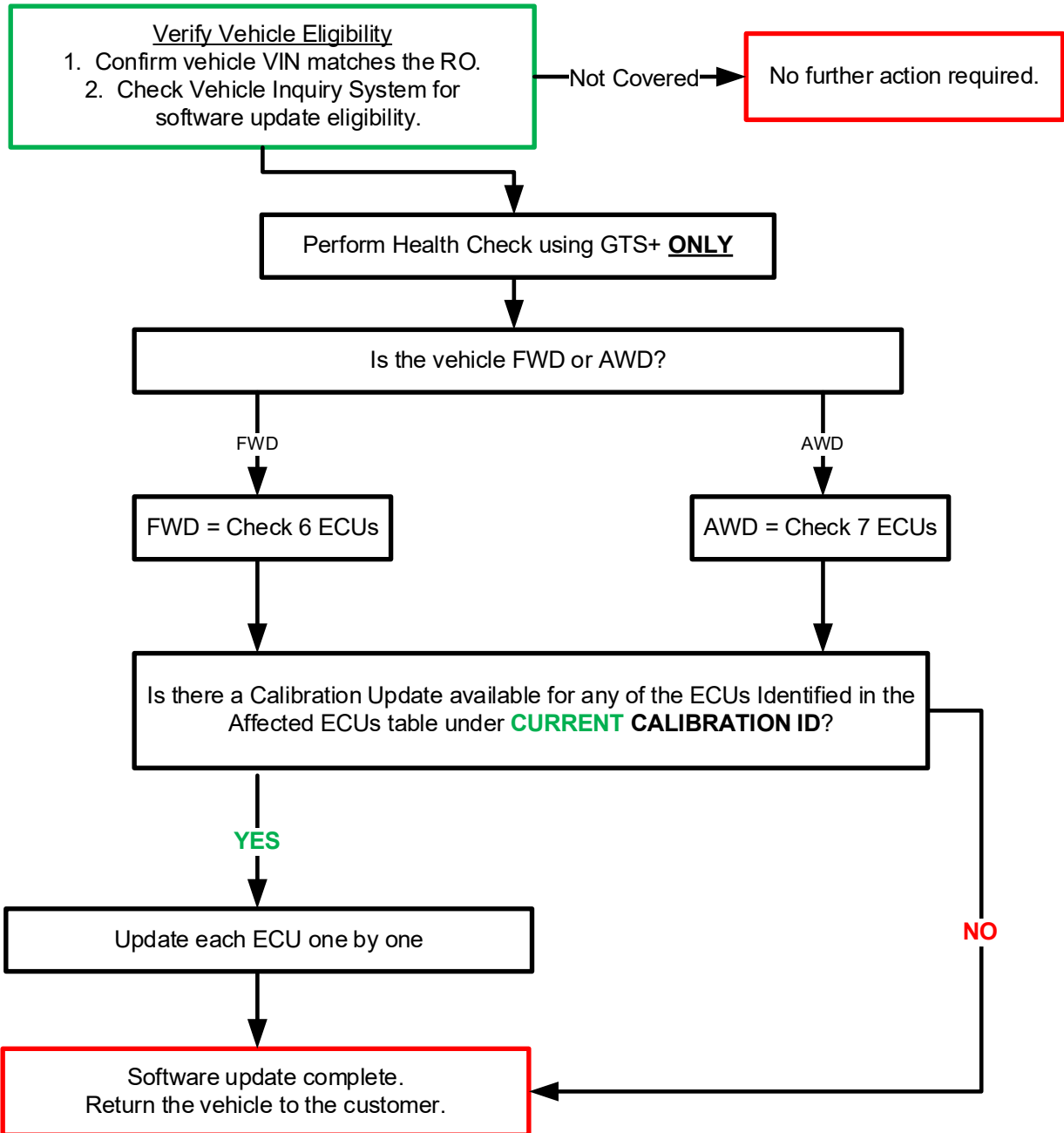
The repair quality of covered vehicles is extremely important to Toyota. All dealership technicians performing this recall are required to successfully complete the most current version of the E-Learning course “Safety Recall and Service Campaign Essentials”. To ensure that all vehicles have the repair performed correctly; technicians performing this repair are required to currently have completed all of the following courses:

- TIC206A - Electrical Repair 1
- TEC100E – GTS+ Level 1

It is the dealership’s responsibility to select technicians that have completed the above courses to perform this repair. Carefully review your resources, the technician skill level, and ability before assigning technicians to this repair. It is important to consider technician days off and vacation schedules to ensure there are properly trained technicians available to perform this repair at all times.

I. OPERATION FLOW CHART

The flow chart is for reference only. DO NOT use it in place of the full technical instructions. Follow ALL steps as outlined in the full technical instructions to confirm the software update is completed correctly.



II. IDENTIFICATION OF AFFECTED VEHICLES

- Check the TIS Vehicle Inquiry System to confirm the VIN is involved in this Campaign, and that it has not already been completed prior to dealer shipment or by another dealer.
- TMS warranty will not reimburse dealers for repairs completed on vehicles that are not affected or were completed by another dealer.

III. PREPARATION

1. PARTS

- a. There are no parts required for this campaign.

2. TOOLS, SUPPLIES & EQUIPMENT

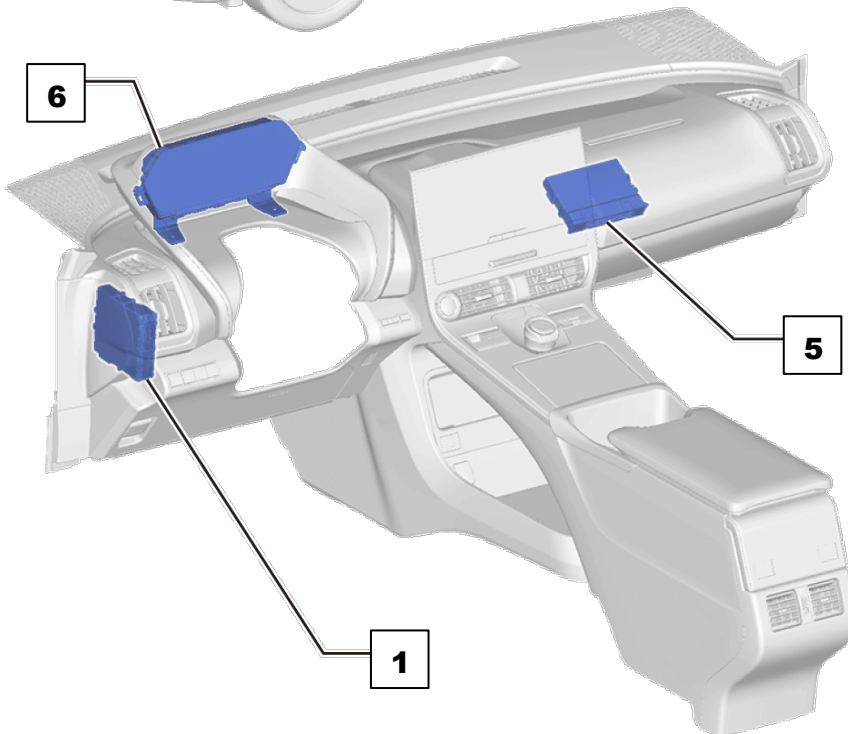
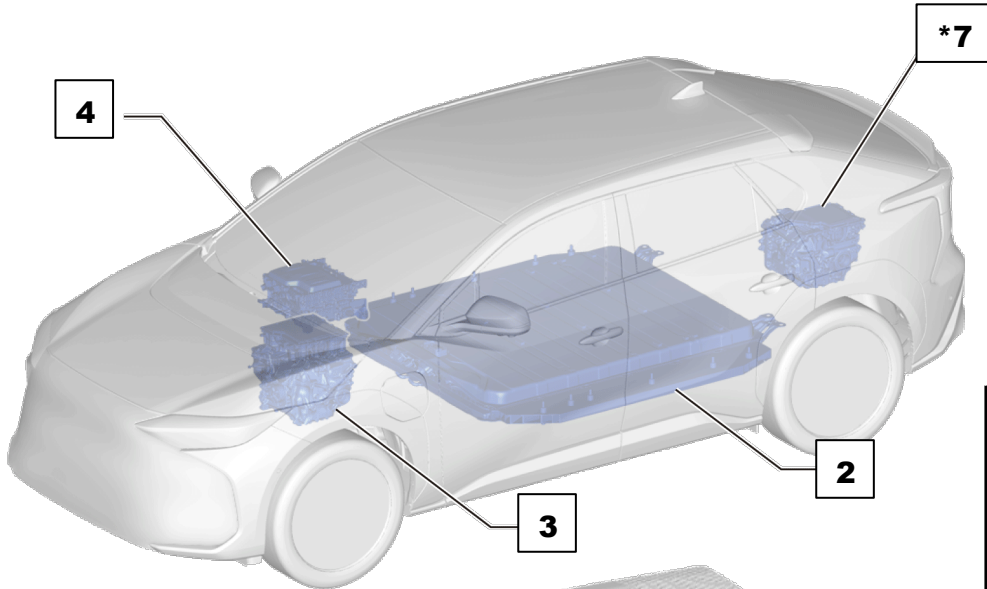
- Standard Hand Tools
- GTS+

NOTE: This update requires the use of GTS+. Do not use Techstream to complete software updates on the bZ4x.

- DCA-8000P Battery Diagnostic Tool

IV. BACKGROUND

A software update has been developed for certain 2023 model year bZ4X. The enhancements include improvements of the DC-charging performance, visualization of the remaining range, current state of charge (SOC), and real-life energy consumption.



EFFECTED ECU LOCATIONS	
ECU NUMBER	SYSTEM
1	EV ECU (EV)
2	EV BATTERY ECU
3	MOTOR GENERATOR ECU
4	PLUG IN CONTROL ECU (PWC)
5	AIR CONDITIONER ECU (A/C)
6	COMBINATION METER
*7	REAR MOTOR GENERATOR ECU
NOTE: *AWD vehicles only	

V. SAFETY PRECAUTIONS

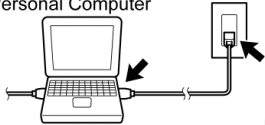
Critical

CRITICAL INFORMATION - READ THOROUGHLY

An ECU could be damaged if an error occurs in the communication while reprogramming the ECU. Confirm all work is performed as described in these instructions.

Be sure to connect the personal computer to an external AC power supply.

Personal Computer AC power supply



K1400880016e

Turn off the screen saver and power saving mode.



K1400880008e

DO NOT block the ventilation opening.



K1400880068e

1. STABILIZE THE POWER TO THE PERSONAL COMPUTER

- Be sure to connect the personal computer to an external AC power supply.

NOTICE:

The ECU could be damaged if the battery voltage of the personal computer drops while reprogramming.

- Turn off the screen saver and power saving mode of the personal computer so that the power to the hard disk is stable.

NOTICE:

If the screen saver or power saving mode launches while reprogramming, the communication may be disconnected, resulting in the damage of the ECU.

- DO NOT** block the ventilation opening for the cooling fan of the personal computer.

NOTICE:

If the ventilation opening for the cooling fan is blocked with a sheet cover or similar, the personal computer may be heated excessively, causing the operation of the personal computer to stop.

If the personal computer stops operating, the communication for reprogramming signals could be stopped, resulting in damage to the ECU.

VI. DETERMINE CALIBRATION UPDATE STATUS



1. PERFORM HEALTH CHECK

- Using GTS+, perform a Health Check.



If any DTC's are found that indicate a safety risk at performing this repair, do not proceed until they have been resolved.

Note: This Service Campaign covers only the ECUs listed as detailed in these instructions. It does not cover the diagnosis or replacement of any other parts on the vehicle.

2. DETERMINE CALIBRATION UPDATE STATUS

- Locate the Update column for the **ECUs listed in the Affected ECUs table** in the Enhanced tab.
- Determine the status of an available update; indicated by a YES or NO.

The screenshot shows the Toyota GTS+ interface for a 2023 bZ4X EV. A "Health Check" dialog box is open, displaying "Please wait." and a progress indicator with three circles (grey, red, black). The dialog box title is "Health Check" and the ID is "S30700-DL-004". A "Cancel" button is visible. In the background, a table lists affected ECUs. The "Update" column for the "Plug-in Control Brake/EPB" ECU is highlighted in red and contains the text "Yes".

Monitor Status	Configure	RoB	DTC	Update
-	No	2	0	Yes
-	No	5	1	No

The screenshot shows a close-up of the "Affected ECUs" table. The "Combination Meter" ECU is highlighted in yellow. A callout box points to the "Current CID" column, which contains the value "8380042V410F". Another callout box points to the "Update" column, which contains the text "Yes".

System	Monitor Status	Configure	RoB	DTC	Update
Combination Meter	-	No	0	1	Yes

DTC	Description	Curr./Conf	Pending	History	Test Failed	FFD	SB
B132187	Lost Communication with EMV	x				*	No

System	Calibration	Update
8380042V410F		Yes
8380042V420A		Yes

Affected ECUs (FWD Vehicles ONLY)

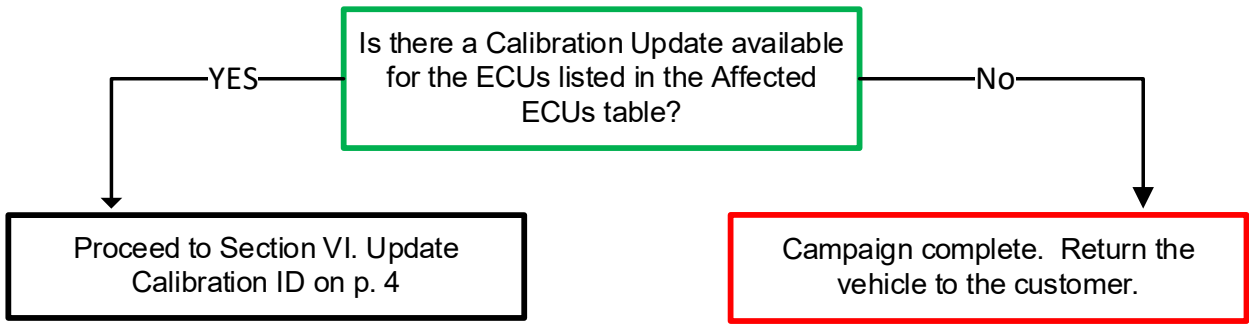
ECU NUMBER	SYSTEM	CURRENT CALIBRATION ID	NEW CALIBRATION ID	2WD CUW Package File
1	EV	8A2524237000	8A2524224300	8A2524224300 898844236000 8989F4204200 892634233100 8865F4213100 5F4213100 8380042V4113 8380042V420D.CUW
		8A2524224200		
2	EV BAT ECU	8989F4204100	8989F4204200	
		8989F4601100		
		8989F4601300		
		8989F4601400		
3	MOTOR GENERATOR ECU	8A2814201200 *8A2814201300	898844236000 *8A2814201300	
4	PLUG IN CONTROL ECU	892634212000	892634233100	
		892634218000		
		892634233000		
5	AIR CONDITIONER ECU	8865F4213003	8865F4213100	
		8865F4213002		
		8865F4213001		
6	COMBINATION METER	8380042V420A	8380042V420D	
		8380042V420B		
		8380042V420C		
		8380042V420C		
		8380042V410F	8380042V4113	
		8380042V4110		
		8380042V4111		
		8380042V4112		

NOTE: *Vehicles manufactured after production running change may have a different CID. Therefore, no change after reprogramming to this CID.

Affected ECUs (AWD Vehicles ONLY)

ECU NUMBER	SYSTEM	CURRENT CALIBRATION ID	NEW CALIBRATION ID	AWD CUW Package File
1	EV	8A2524225200	8A2524225300	8A2524225300 898844237000 898844238000 8989F4210300 892634233100 8865F4213100 8380042V4113 8380042V420D.cuw
		8A2524238000		
2	EV BAT ECU	8989F4210100	8989F4210300	
		8989F4210200		
3	MOTOR GENERATOR ECU	8A2814202200 *8A2814202300	898844237000 *8A2814202300	
4	PLUG IN CONTROL ECU	892634212000	892634233100	
		892634218000		
5	AIR CONDITIONER ECU	8865F4213003	8865F4213100	
		8865F4213002		
		8865F4213001		
6	COMBINATION METER	8380042V420A	8380042V420D	
		8380042V420B		
		8380042V420C		
		8380042V420C	8380042V4113	
		8380042V410F		
		8380042V4110		
		8380042V4111		
8380042V4112				
7	REAR MOTOR GENERATOR ECU	8A2914201200 *8A2914201300	898844238000 *8A2914201300	

NOTE: *Vehicles manufactured after production running change may have a different CID. Therefore, no change after reprogramming to this CID.



VII. UPDATE CALIBRATION ID

Note: If the Health Check reports any of the ECUs listed in the Affected ECUs table have an update available, proceed to the reprogramming procedure below.

The ECU reprogramming procedure is detailed in [T-SB-0107-20](#) Reference this Bulletin for additional detailed procedures and information.

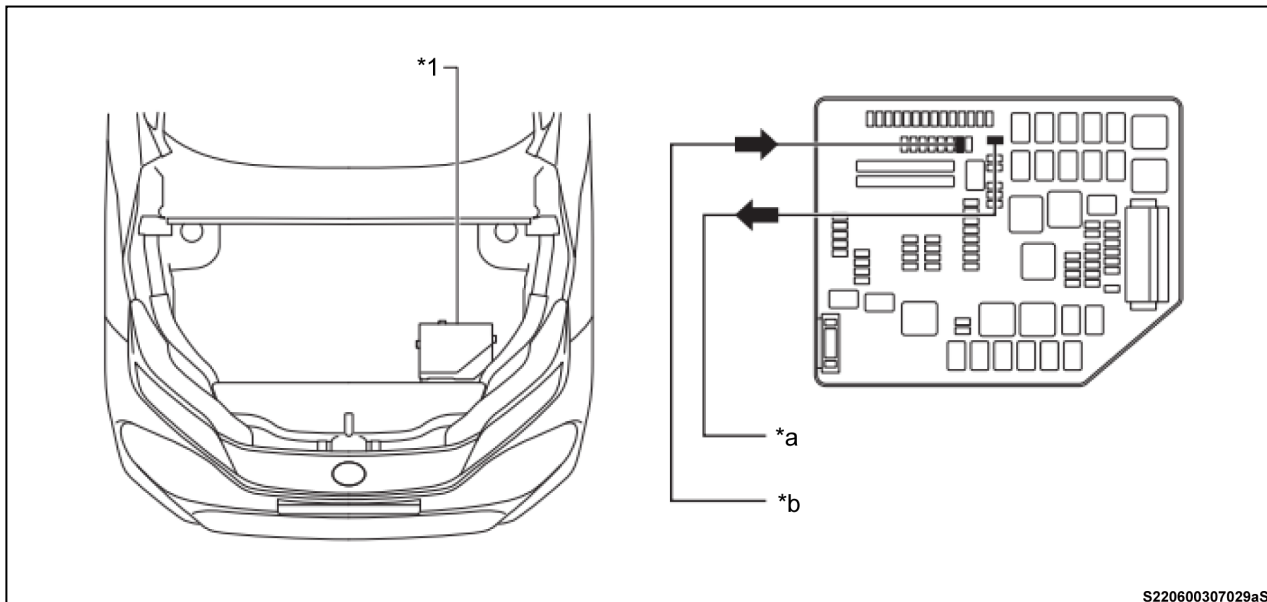
1. VEHICLE PREPARATION

- Confirm the following conditions:
- Vehicle in the IG position (engine off).
- Transaxle in Park
- Parking brake engaged.
- Turn off all electrical accessories (i.e. climate control, audio system, etc.)
- Headlight switch in the DRL OFF position.
- Windshield wiper switch in the OFF position
- Install the D/C Cut Fuse

- a. To perform the ECU reprogramming, it is necessary to reinstall the D/C CUT FUSE (30A) stored in the blank space of Relay Block in the original location as shown in the illustration. This operation is only applicable if the vehicle has not been Pre-Delivery Serviced.

HINT:

If the D/C CUT FUSE (30A) is already installed, no action is required.



*1	Relay Block	-	-
*a	Remove D/C CUT FUSE (30A)	*b	Install D/C CUT FUSE (30A) here (Original Location)

Note the before condition of the digital display.
There is no display for the state of charge.



1. CONNECT THE 12v BATTERY TO A POWER SUPPLY (DCA-8000)

- a. Connect the DCA-8000 or other type of a power supply (not a battery charger) to the 12v battery.
- b. Select the Power Supply Mode from the Charge Menu of the DCA-8000.

A power supply *MUST* be used during reprogramming. ECU damage will occur if the battery voltage is not properly maintained during this re-flash procedure.

Note: A power supply must be connected directly to the 12v battery terminals and NOT the remote jump posts under the hood (if equipped).

***This reflash can take up to 1.5 hours to complete. Be sure to complete this step.

2. VERIFY GTS+ SETUP

- a. Verify that the GTS+ meets the following conditions:
 - The GTS+ PC battery is fully charged. If not, connect the GTS+ PC to a 120v source.
 - The DLCIII cable is in good condition.

The GTS+ PC battery must be maintained during the update procedure. If necessary, plug the GTS+ into a 120v outlet to ensure that a failure does not occur.

Note: If the GTS+ communication with the vehicle fails during the re-flash procedure, an ECU will be damaged and must be replaced resulting in high cost not covered by the campaign.

3. UPDATE THE CALIBRATION ID

- a. Identify the current Calibration ID for the ECU Systems listed on the Enhanced Data tab.

Example of Health Check results showing an update is available for the Combination Meter in GTS+

System	Monitor Status	Configure	RoB	DTC	Update
Combination Meter	-	No	0	1	Yes

DTC	Description	Curr / Conf	Pending	History	Test Failed	FFD	SB
B132187	Lost Communication with EMV	x				*	No

System	Calibration	Update
8380042V410F		Yes
8380042V420A		Yes

- b. Locate the vehicle Current Calibration ID in the chart.
- c. Select the corresponding NEW Calibration ID link to load the update.
- d. Follow the on-screen instructions to complete the ECU re-flash procedure for each of the listed affected ECUs.
 - a. **Note: The CUW Package files are specific to vehicle powertrain. (2WD or AWD).**

HINT:

- For ECUs that have multiple CIDs it is possible that only 1 of the CIDs from the TI matches.
- This software update includes the contents of previous cold DCFC software update (22TC11). Therefore, on vehicles that have already been reflashed in the precedent software update activity, it is possible that some CIDs are already updated to the new CIDs. In that case, the already updated CIDs will not be reprogrammed at this reprogramming.

The ECU reprogramming procedure is detailed in [T-SB-0107-20](#) Reference this Bulletin for detailed procedures and information.

NOTE: It is normal for the digital dash to show many malfunction indicators during the re-flash procedure





Be extremely careful to select the correct NEW Calibration ID that corresponds to the Current Calibration ID of the vehicle.

4. CHECK FOR DTCs

- a. Perform a Health Check.
- b. Clear DTC's that may have set during the re-flash procedure.
- c. Re-run the Health Check to confirm that no DTC's reappear.

CONFIRM THE UPDATE

- a. When the update is successful, you will see a visible change in the digital gage showing the state of charge, as a percentage.



- b. Verify each ECU listed in the Affected ECUs table has the **NEW** Calibration ID in the Heath Check screen after reprogramming is complete.

Affected ECUs (2WD Vehicles ONLY)			
ECU NUMBER	SYSTEM	NEW CALIBRATION ID	Technician Confirmation (Add a checkmark)
1	EV ECU (EV)	8A2524224300	
2	EV BATTERY ECU	8989F4204200	
3	MOTOR GENERATOR ECU	898844236000 *8A2814201300	
4	PLUG IN CONTROL ECU (PWC)	892634233100	
5	AIR CONDITIONER ECU (A/C)	8865F4213100	
6	COMBINATION METER	8380042V420D	
		8380042V4113	
NOTE: *Vehicles manufactured after production running change may have a different CID. Therefore, no change after reprogramming to this CID.			

Affected ECUs (AWD Vehicles ONLY)			
ECU NUMBER	SYSTEM	<i>NEW</i> CALIBRATION ID	Technician Confirmation (Add a checkmark)
1	EV ECU (EV)	8A2524225300	
2	EV BATTERY ECU	8989F4210300	
3	MOTOR GENERATOR ECU	898844237000 *8A2814202300	
4	PLUG IN CONTROL ECU (PWC)	892634233100	
5	AIR CONDITIONER ECU (A/C)	8865F4213100	
6	COMBINATION METER	8380042V420D	
		8380042V4113	
7	REAR MOTOR GENERATOR ECU	898844238000 *8A2914201300	
NOTE: *Vehicles manufactured after production running change may have a different CID. Therefore, no change after reprogramming to this CID.			

ECU #1

Battery 14.2V

Health Check Result

STATUS
2022/09/09 09:40:56
ECU Security Key: -

Caution
Enhanced

EV

Motor Generator
Rear Motor Generator
EV Battery

ECU #4

Battery 14.2V

Health Check Result

STATUS
2022/09/09 09:40:56
ECU Security Key: -

Caution
Enhanced

Plug-in Control

Solar Charging Control
Brake/EPB

ECU #2

Battery 14.1V

Health Check Result

STATUS
2022/08/09 09:40:56
ECU Security Key: -

Caution
Enhanced

EV Battery

Plug-in Control
Solar Charging Control
Brake/EPB

ECU #5

Battery 14.1V

Health Check Result

STATUS
2022/08/09 09:40:56
ECU Security Key: -

Caution
Enhanced

Air Conditioner

SSS Airbag
Main Body
Control Gateway

ECU #3

Battery 14.2V

Health Check Result

STATUS
2022/08/09 09:40:56
ECU Security Key: -

Caution
Enhanced

Motor Generator

Rear Motor Generator
EV Battery
Plug-in Control
Solar Charging Control

ECU #6

Battery 14.1V

Health Check Result

STATUS
2023/04/13 16:08:38
ECU Security Key: -

Caution
Enhanced

Combination Meter

Clearance Warning

ECU #7

Battery 14.1V

Health Check Result

STATUS
2022/08/09 09:40:56
ECU Security Key: -

Caution
Enhanced

Rear Motor Generator

EV Battery
Plug-in Control
Solar Charging Control
Brake/EPB

◀ VERIFY REPAIR QUALITY ▶

- Confirm the ECU Calibration has been updated successfully to the NEW Calibration IDs for each affected ECU.
- If you have any questions regarding this Special Service Campaign, please contact your regional area representative

VIII. APPENDIX

A. CAMPAIGN DESIGNATION DECORDER

