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 <u>all of the following courses:</u>

- 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.

OPERATION FLOW CHART I. 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. Verify Vehicle Eligibility 1. Confirm vehicle VIN matches the RO. No further action required. -Not Covered-2. Check Vehicle Inquiry System for software update eligibility. Perform Health Check using GTS+ ONLY Is the vehicle FWD or AWD? FŴD AŴD FWD = Check 6 ECUs AWD = Check 7 ECUs Is there a Calibration Update available for any of the ECUs Identified in the Affected ECUs table under CURRENT CALIBRATION ID? YĖS NO Update each ECU one by one

Software update complete. Return the vehicle to the customer.

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

V. SAFETY PRECAUTIONS



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.





DO NOT block the ventilation opening.



STABILIZE THE POWER TO THE PERSONAL COMPUTER

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

NOTICE:

1.

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

b) 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.

c) **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

a. 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

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

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Affected ECUs (FWD Vehicles ONLY)				
ECU NUMBER	SYSTEM	CURRENT CALIBRATION ID	<i>NEW</i> CALIBRATION ID	2WD CUW Package File
1	E\/	8A2524237000	942524224200	386
Ŧ	Ľ٧	8A2524224200	0A2324224300	0
		8989F4204100		310
2		8989F4601100	9090E4204200	<u>1</u> 23
2	EV BAT ECU	8989F4601300	090964204200	<u>0.d</u>
		8989F4601400		<u>926</u>
3	MOTOR GENERATOR ECU	8A2814201200 *8A2814201300	898844236000 *8A2814201300	200 8
	PLUG IN CONTROL ECU	892634212000	892634233100	800
4		892634218000		4300 898844236000 8989F42 5F4213100 8380042V4113 83
		892634233000		
	AIR CONDITIONER ECU	8865F4213003	8865F4213100	
5		8865F4213002		
		8865F4213001		
	COMBINATION METER	8380042V420A	8380042V420D	
		8380042V420B		
		8380042V420C		
6		8380042V420C		
		8380042V410F	- 8380042V4113	
		8380042V4110		422
		8380042V4111		527
		8380042V4112		8A2
NOTE: *\	/ehicles manufactured after pr	roduction running change after reprograming to th	may have a different CID iis CID.	. Therefore, no change

Affected ECUs (AWD Vehicles ONLY)				
ECU NUMBER	SYSTEM	CURRENT CALIBRATION ID	NEW CALIBRATION ID	AWD CUW Package File
1	EV/	8A2524225200	842524225200	00
	LV	8A2524238000	042324223300	331
2		8989F4210100	9090E4210200	26342
2	EV DAT ECO	8989F4210200	090914210300	00 89.
3	MOTOR GENERATOR ECU	8A2814202200 *8A2814202300	898844237000 *8A2814202300	9F42103 92V420I
	PLUG IN CONTROL ECU	892634212000	892634233100	800
4		892634218000		83
				<u>800</u>
	AIR CONDITIONER ECU	8865F4213003	8865F4213100	<u>V4</u>
5		8865F4213002		384
		8865F4213001		800
	COMBINATION METER	8380042V420A	- 8380042V420D	83 0
		8380042V420B		00 20
6		8380042V420C	_	<u>131</u>
		8380042V420C		<u>884</u> 142
		8380042V410F	8380042V4113	<u>651</u>
		8380042V4110		088
		8380042V4111		230
		8380042V4112		52
7	REAR MOTOR GENERATOR ECU	8A2914201200 *8A2914201300	898844238000 *8A2914201300	8A2524

NOTE: *Vehicles manufactured after production running change may have a different CID. Therefore, no change after reprograming 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 reprograming procedure below.

The ECU reprograming procedure is detailed in<u>T-SB-0107-20</u> 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	-	-
*а	Remove D/C CUT FUSE (30A)	*b	Install D/C CUT FUSE (30A) here (Original Location)



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.



Note: A power supply must be connected directly to the 12v battery terminals and <u>NOT</u> 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 <u>Calibration</u> ID for the <u>ECU</u> Systems listed on the <u>Enhanced Data</u> tab.

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



- b. Locate the vehicle <u>Current Calibration ID</u> in the chart.
- c. Select the corresponding <u>NEW Calibration ID link</u> 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 reprograming procedure is detailed in<u>T-SB-0107-20</u> 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 <u>NEW Calibration ID</u> that corresponds to the <u>Current Calibration ID</u> 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 reprograming is complete.

Affected ECUs (2WD Vehicles ONLY)					
ECU NUMBE R	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		8380042V420D			
	COMDINATION METER	8380042V4113			
NOTE: *Vehicles manufactured after production running change may have a different CID. Therefore, no change after reprograming to this CID.					

Affected ECUs (AWD Vehicles ONLY)					
ECU NUMBE R	SYSTEM	NEW 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 reprograming to this CID.					



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EV Battery

Plug-in Control Solar Charging Control

◄ 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

