

**TECHNICAL INSTRUCTIONS**  
**FOR**  
**SAFETY RECALL FOR**  
**SOFTWARE UPDATE FOR MOTOR GENERATOR ECU AND POWER**  
**MANAGEMENT ECU**

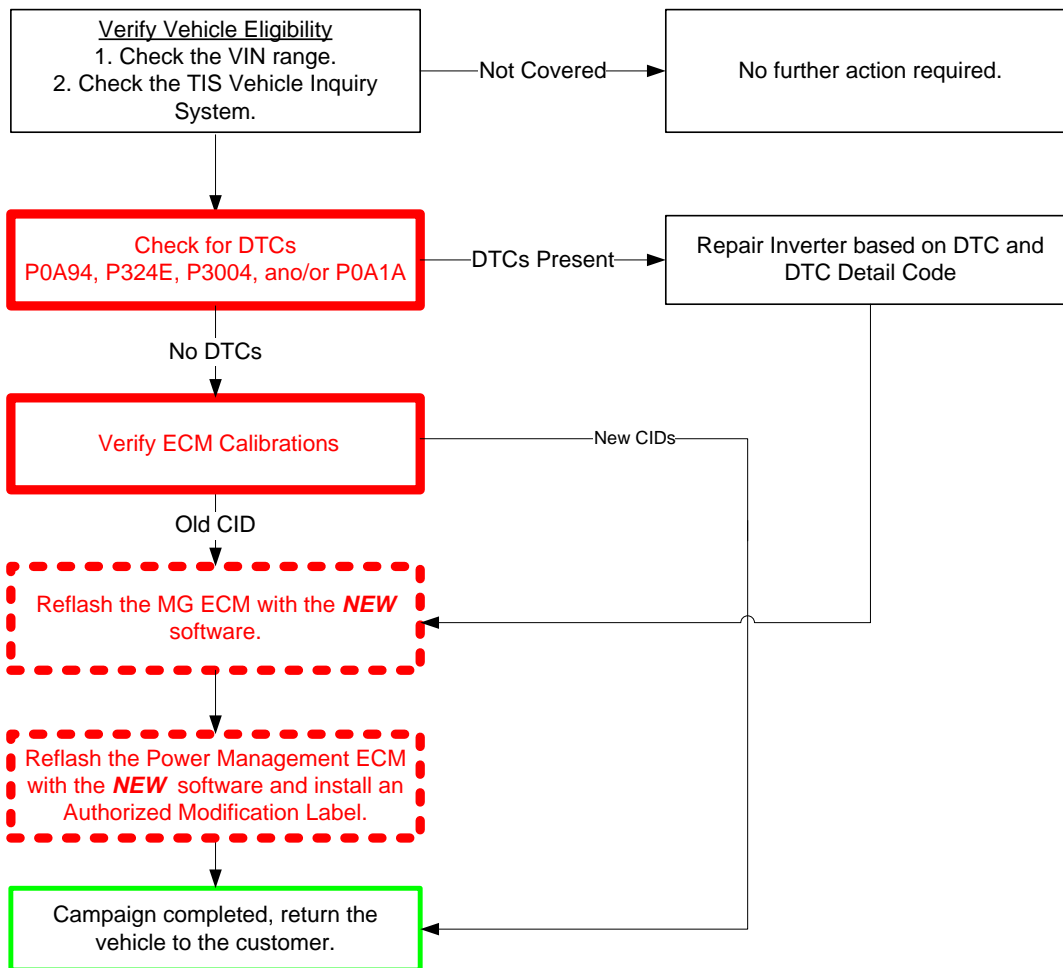
**CERTAIN 2012-2014 MODEL YEAR PRIUS V**

The repair quality of covered vehicles is extremely important to Toyota. All dealership technicians performing this repair 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 hold at least one of the following certification levels:

- Hybrid Expert Technician
- Master Technician
- Master Diagnostic Technician

It is the dealership's responsibility to select technicians with the above certification level or greater 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



## II. IDENTIFICATION OF AFFECTED VEHICLES

### NOTE:

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

## III. PREPARATION

### A. PARTS

The only parts required for this campaign is the label below

Part Number	Part Description	Quantity
00451-00001-LBL	Authorized Modification Label*	1

\*Labels can be ordered in packs of 25 from the MDC through Dealer Daily website

### Inverter Repair:

In the instance that the vehicle arrives with DTCs present reference section VII to determine if the DTC is related to this campaign and what components need to be repaired.

## B. TOOLS & EQUIPMENT

### Reflash Procedure

- Techstream 2.0 / TIS Techstream /Techstream Lite (Software 10.10.018 or Higher)
- GR8 Battery Diagnostic Station

**Campaign Tool-** This tool was provided to your dealership at the launch of the campaign..

Part Number	Description	Quantity
-	Fuse Puller	1

### Inverter Repair

- Standard Hand Tools
- Torque Wrench
- DVOM
- Air Gun Blower
- Protective Tape

**SST-** These are essential special service tools that the dealership should have.

Part Number	Description	Quantity
00002-03100-S	Electrical Insulating Gloves (Small)	1
00002-03200-M	Electrical Insulating Gloves (Medium)	
00002-03300-L	Electrical Insulating Gloves (Large)	
09308-00010	Oil Seal Puller	1
09890-47010	Anti-Static Mat	1
09891-47010	Squeegee	1
09961-00950	Torque Wrench Adapter	1

Note: If additional SSTs are needed they can be ordered by calling 800-933-8335.

## IV. BACKGROUND

Inside the Hybrid Inverter Assembly is an Intelligent Power Module (IPM) which contains a control board equipped with transistors. In certain Model Year 2012-2014 Prius V vehicles, the current software settings for the motor generator ECU and power management ECU could result in higher thermal stress in certain transistors, potentially causing them to become damaged. If this happens, various warning lights will illuminate and the vehicle can enter a failsafe mode. In rare circumstances, the hybrid system might shut down while the vehicle is being driven, resulting in the loss of power and the vehicle coming to a stop, increasing the risk of a crash.

## V. ECU CALIBRATION ID VERIFICATION AND DTC CHECK

### 1. CHECK FOR DTCs

- a) Perform a Health Check.
- b) Check if DTCs P0A94, P324E, P3004, and/or P0A1A

**DTCs Not Present:** Proceed to step V. 2 Confirm the ECU Calibration ID.

**DTCs Present:** Proceed to Section VII to determine which components need to be replaced based on DTC and DTC detail code.

**Note:** If the DTC and detail code do not match the table then the vehicle condition is not related to this campaign.

## 2. CONFIRM THE ECU CALIBRATION ID

a) Confirm the current calibration ID in the MG ECU and Power Management ECU.

System	Monitor Status	DTC	Cur	Pend	His	Perm	SB	Calibration	Update
Engine and ECT	Inc							896B34711000	Yes
Hybrid Control	-							896B54705000	Yes
Cruise Control	-							896B54705000	Yes
Jim Pressure Monitor	-							898844706100	Yes
ABS/ESC/TRAC	-							898844706100	Yes
LMP/S	-							898844706100	Yes
Occupant Detection	-							898844706100	Yes
Air Conditioner	-							898844706100	Yes
Combination Meter	-							898844706100	Yes
Main Body	-							898844706100	Yes
L Door Motor	-							898844706100	Yes
R Door Motor	-							898844706100	Yes
Master Switch	-							898844706100	Yes

### Sample Cal IDs Shown

System	Calibration ID Display Order	Cal ID	Update
Hybrid Control	Power Management (Main)	896B34711000	Yes
	Power Management (Sub)	896B54705000	*Yes
	MG ECU #1	898844706100	Yes
	MG ECU #2	898844707100	Yes

\*The Power Management sub cal does not always require updating and may or may not display an update status of "Yes"

b) Referencing the table below, verify if the ECU has the Updated Calibration

**STOP YOU MUST REFLASH BOTH THE MG ECU AND THE POWER MANGEMENT ECU IN A SPECIFIC ORDER TO COMPLETE THE REMEDY. STOP**

### MG ECU Calibrations

Model	Model Year	MG Cal	Current CID	New CID
Prius V	2012	MG1	898844706100	<a href="#">898844706400 / 898844707400</a>
			898844706200	
		898844706300		
		898844707100		
		898844707200		
	2012-2014	MG1	898844707300	
			898844712000	
		898844712100	<a href="#">898844712300 / 898844713300</a>	
		898844712200		
		898844713000		
MG2	898844713100			
	898844713200			

Note: If the current MG1 CID = 898844712200 and MG2 CID = 898844713200 then ECU reprogramming is not required for the MG ECU.

**The Power Management ECU can share the same main calibration for 3 different ECU configurations; ensure you pick the correct software for your vehicle.**

### Power Management ECU Calibrations

Model	Software Configuration	Cal Type	Current CID	New CID
Prius V	A	Main	896B34711000	<a href="#">896B34764000 / 896B54705100</a>
		Sub	896B34705000	
	B	Main	896B34711100	
			<b>896B34727100</b>	
		Sub	896B54705000	
	C	Main	896B54705100	
			896B34727000	
	D	Main	<b>896B34727100</b>	
		Sub	896B54709000	
	E	Main	<b>896B34727100</b>	
Sub		896B54712000		
F	Main	896B34727200		

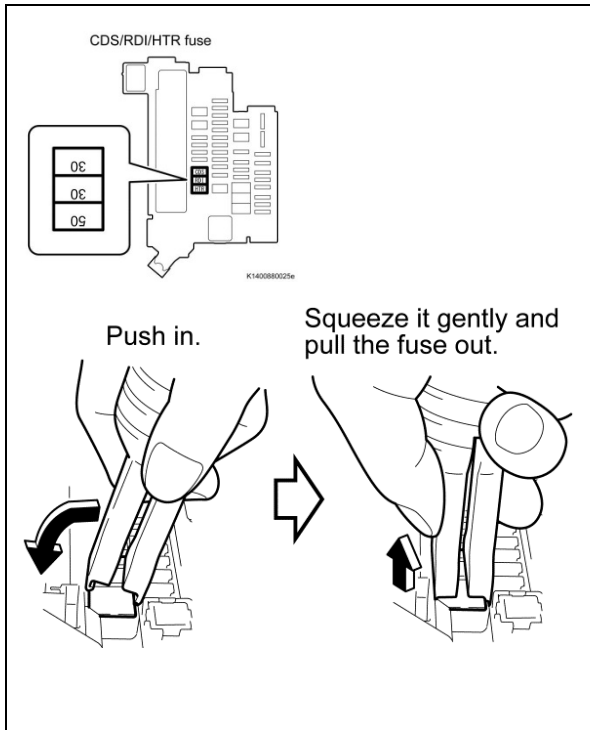
Note: If the ECUs have already been calibrated with the new calibration the campaign is complete.

## ◀ CRITICAL MESSAGE ▶

It is *critical* that [T-SB-0012-13](#) in addition to the Technical Instructions for this LSC are followed. This TSB outlines all steps necessary to prevent reprogramming failure. Toyota will not provide reimbursement coverage for reprogramming failures if this TSB is not followed. If you have a reprogramming failure that requires HYBRID VEHICLE CONTROL COMPUTER or POWER MANAGEMENT ECU replacement and the Technical Instructions *and* TSB were followed correctly, please create a case with the Technical Assistance Hotline documenting all information related to the failure. If sufficient reporting is received related to reflash failure, there will be consideration for reimbursement.

**NOTE:** There is a limited inventory of ECUs available in the rare case that a reprogramming failure occurs.

### VI. MG ECU AND POWER MANAGEMENT ECU REFLASH PROCEDURE



#### 1. VEHICLE PREP

- Prior to vehicle shut down perform the following steps:
  - Vehicle in the ready on position
  - Transaxle in the P range
  - Parking brake engaged
- Depress the brake pedal fully 2 times within 2 seconds.
- Release brake pedal.
- Wait 10 seconds.
- Turn off the vehicle.

**Note:** This procedure will pressurize the brake actuator and prevent the ABS pump from running during the reflash procedure.

#### 2. REMOVE FUSE FROM ENGINE BAY FUSE BOX

- Confirm fuse orientation before removal because the fuse can be installed in either direction.
- Using the fuse puller remove the joint fuse that encases the CDS (30A), RDI (30A) and HTR (50A).



**This fuse must be removed to stop the vehicle from performing onboard diagnostic tests during reflash which could cause the reflash to fail.**



- For general reprogramming procedures, refer to [T-SB-0012-13](#).
- Confirm the latest version of Techstream software is being used.
- If the Techstream does not have sufficient battery power the reflash will fail.
- Confirm the DLC3 cable is in good condition before attempting reflash.
- If vehicle exhibits any trouble codes or drivability symptoms, diagnose and repair using TIS before attempting to reprogram the ECU.

#### 3. CONNECT THE GR8

- Set the GR8 to Power Supply Mode to help maintain 13.5 volts during ECU reprogramming.
- The charge must be connected directly to the battery and NOT the remote jump post under the hood.**



- A battery charger set to power supply mode **MUST** be used during reprogramming.
- ECU damage may occur if the correct battery charger setting is not used.

#### 4. REFLASH THE MG ECU

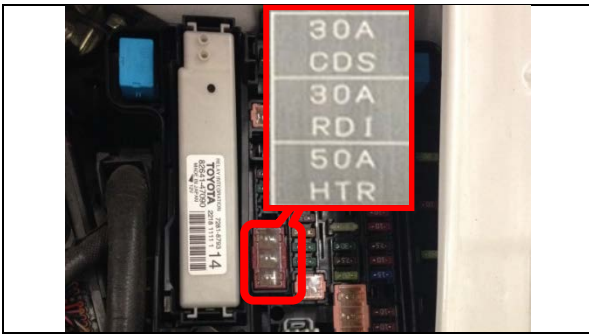
- Click yes on the health check results screen, or follow the links on the table above to begin the reflash process.

**Note:** The MG ECU must be reflashed first.

#### 5. REFLASH THE POWER MANAGEMENT ECU

- Click yes on the health check results screen, or follow the links on the table above to begin the reflash process.

## 6. DISCONNECT THE GR8



## 7. REINSTALL FUSE FROM ENGINE BAY FUSE BOX

- Confirm fuse orientation before reinstalling because the fuse can be installed in either direction.
- Reinstall the joint fuse that encases the CDS (30A), RDI (30A) and HTR (50A).

## 8. PERFORM A HEALTH CHECK AND CLEAR DTCs

- Perform a health check on the vehicle.
- Clear DTCs that have been set during the reflash procedure.

**Note: During the reflash DTCs will set due to the removal of the fuse. These DTCs**

- Rerun health check and confirm all DTCs set during reflash are cleared.

**Note: If the DTC cannot be cleared repeat the following 3 times:**

- Retain Ready Off for 30 seconds.
- Retain Ready On for 30 seconds

Then clear DTCs again to confirm proper operation.

## 9. PRINT CUSTOMER HEALTH CHECK REPORT

- From the Health Check Results screen select the Customer Health Check Report button (TIS will launch when button is pressed).

System	Monitor Status	DTC	Car	Panel	Blwr	Param	SR	Calibration
Engine and ECU	Inc							32715100 42791000 F903247E1030 F903247E1130 F903247E1400 F903247E2300
Hybrid Control	-							
Cruise Control	-							
Tire Pressure Monitor	-							P15284108 Z
ABS/ESC/ESP	-							
EBPS	-							
Occupant Restraction	-							
Air Conditioning	-							
Combination Meter	-							03004737004 03004737004 03004737004 090C12A**31
Main Body	-							
O-Door Motor	-							
Smart Key	-							
P-Door Motor	-							
RR-Door Motor	-							
RL-Door Motor	-							
Master Switch	-							

- Log in to TIS.
- Input Vehicle Mileage and Repair Order number.
- Check the "Performed" campaign radio button for the applicable campaigns completed during this service event.
- Select the Report button.



## Diagnostic Report

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### Vehicle Information


Mileage:

Repair Order:

Our systems show the following campaigns are outstanding. Have any of these campaigns been completed? (Check for SSC door label if unsure.)

FOR  Performed  Not Performed

f) Confirm Customer Health Check Report information is correct.



## Diagnostic Report

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### Vehicle Information

Vehicle: 2013 Prius      VIN: JTDKN3DU7D1615492      Mileage: 13672  
 Repair Order: 12345

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### Health Check Summary

Checkpoints	Status	Comments
Powertrain	All systems OK	
Chassis	All systems OK	
Electrical	All systems OK	
Network Systems	All systems OK	
Service Campaigns	No Action Required	FOR Performed

Performed: 02/20/14, 4:36 PM (PST)

\_\_\_\_\_  
Technician Signature

\_\_\_\_\_  
Quality Inspector Signature

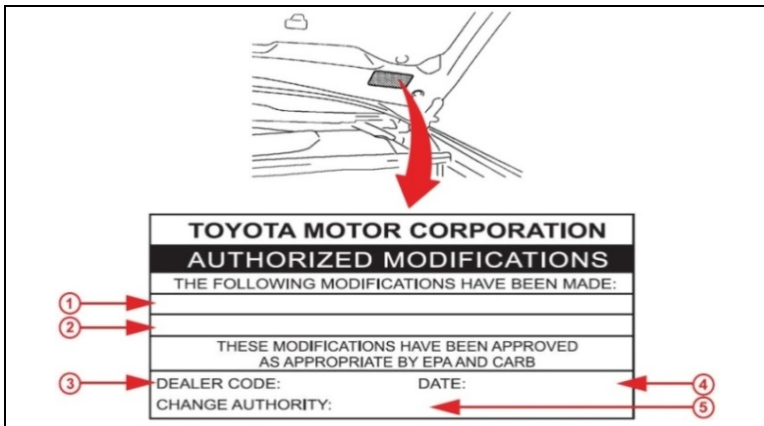
g) Print Customer Health Check Report from TIS.

h) Sign and provide to the customer.

## 10. ATTACH THE AUTHORIZED VEHICLE MODIFICATION LABEL

a) Fill out the label.

11. Affix the label to the under-side of the hood.



The authorized modification label only needs to have the Power Management ECU Information.

<b>1</b>	Replacement ECU P/N* 89681-47183 89681-47342 89681-47422 <b>Part # varies by model year and production period.</b>
<b>2</b>	New Power Management ECU Calibration ID
<b>3</b>	Dealer Code
<b>4</b>	Date Completed
<b>5</b>	Campaign Code (FOR)

## VII. INVERTER REPAIR PROCEDURE ( Not required for all vehicles)

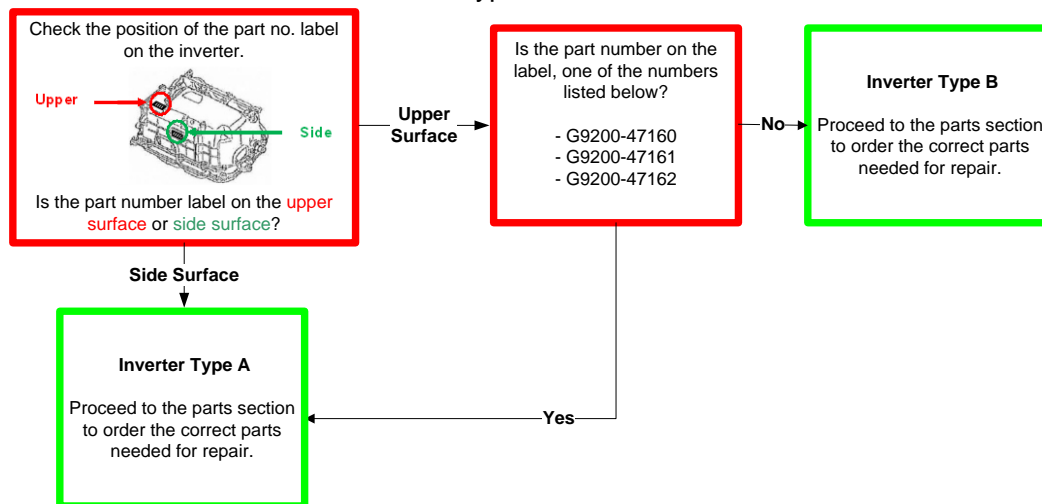


Inverter repair is very rare, before proceeding confirm the inverter type and identify the correct DTC. Follow the procedure below to ensure the correct parts are ordered.

**Note: There is a limited supply of repair parts in the rare case a vehicle comes in with DTCs.**

### 1. DETERMINE INVERTER ASSEMBLY TYPE

a) Using the flowchart below determine the inverter type.



### 2. DETERMINE REPAIR COMPONENTS BASED ON INVERTER TYPE AND DTC DETAIL CODE

- If multiple DTCs are present save the freeze frame data.
- After saving the freeze frame data, clear codes and confirm what DTCs reset.
- If multiple codes return follow the repair manual diagnosis procedure for the DTC with Freeze Frame Data Occurrence Order value of "1".
- Use the correct table below to identify the parts required for repair, the correct parts are listed in the bottom row of the table.

#### INVERTER TYPE A: REQUIRED PARTS BY DTC

DTC	DTC DETAIL CODE	IPM REPLACEMENT	MG-ECU CURRENT SENSOR IPM INVERTER WIRE HARNESS	INVERTER ASSY
P0A94	127		X	
	172	X		
	442		X	
	548		X	
	550		X	
	553	X		
	555		X	
	557	X		
	564		X	
	585		X	
	587		X	
P324E	589		X	
	590		X	
P0A1A	788		X	
P3004	151		X	
	131			X
	132			X
	800	X		
	801	X		
PARTS & QUANTITY (QTY)  FOR SPECIFIC DTC REPAIR		04899-47021 QTY 1 08887-02809 QTY 2 04899-47060 QTY 1 08826-00100 QTY 1 90430-18008 QTY 1	G920H-47040 QTY 1 <u>G920J-52010 QTY 1</u> 04899-47021 QTY 1 08887-02809 QTY 2 <u>G9208-47090 QTY 1</u> 04899-47060 QTY 1 08826-00100 QTY 1 90430-18008 QTY 1	<u>G9200-49056 QTY 1</u>

Note: The parts in red font/underlined are on Manual Allocation Control (MAC), for parts to be released DTC, Detail Code, and Inverter type information is required. Provide this information to the parts department. Reference the dealer letter parts section for more detail.



**INVERTER TYPE B: REQUIRED PARTS BY DTC**

DTC	DTC DETAIL CODE	IPM REPLACEMENT	MG-ECU IPM	MG-ECU CURRENT SENSOR IPM	INVERTER ASSY
P0A94	127		X		
	172	X			
	442		X		
	548			X	
	550		X		
	553	X			
	555			X	
	557	X			
	564			X	
	585			X	
	587			X	
	589			X	
590			X		
P324E	788			X	
P0A1A	151			X	
P3004	131				X
	132				X
	800	X			
	801	X			
PARTS & QUANTITY (QTY)		04899-47021 QTY 1 08887-02809 QTY 2 04899-47060 QTY 1 08826-00100 QTY 1 90430-18008 QTY 1	G920H-47040 QTY 1 04899-47021 QTY 1 08887-02809 QTY 2 04899-47060 QTY 1 08826-00100 QTY 1 90430-18008 QTY 1	G920H-47040 QTY 1 <u>G920J-52010 QTY 1</u> 04899-47021 QTY 1 08887-02809 QTY 2 04899-47060 QTY 1 08826-00100 QTY 1 90430-18008 QTY 1	<u>G9200-49056 QTY 1</u>

Note: The parts in red font/underlined are on Manual Allocation Control (MAC), for parts to be released DTC, Detail Code, and Inverter type information is required. Provide this information to the parts department. Reference the dealer letter parts section for more detail.

**3. TO REPAIR THE INVERTER CLICK ON THE LINK BELOW**

- [2012 Prius V: Intelligent Power Module Transistor Removal](#)
- [2013 Prius V: Intelligent Power Module Transistor Removal](#)
- [2014 Prius V: Intelligent Power Module Transistor Removal](#)

**4. CONFIRM VEHICLE CONTAINS THE UPDATED CALIBRATIONS FOR THE MG & POWER MANAGEMENT ECU.**

**◀ VERIFY REPAIR QUALITY ▶**

- Confirm the GR8 is set up properly prior to beginning the reprogramming
- Confirm both MG ECU and Power Management ECU were reflashed
- Confirm the reflash completes successfully
- Confirm the Authorized Vehicle Modification Label is filled out and affixed to the vehicle
- Confirm there are no DTCs in the ECU

If you have any questions regarding this update, please contact your regional representative

**VIII. APPENDIX**

**A. CAMPAIGN DESIGNATION DECODER**

