TECHNICAL INSTRUCTIONS

FOR

SPECIAL SERVICE CAMPAIGN 24TC05

MALFUNCTION INDICATOR LAMP (MIL) IS ON WITH DTC P05CE00 SOFTWARE UPDATE

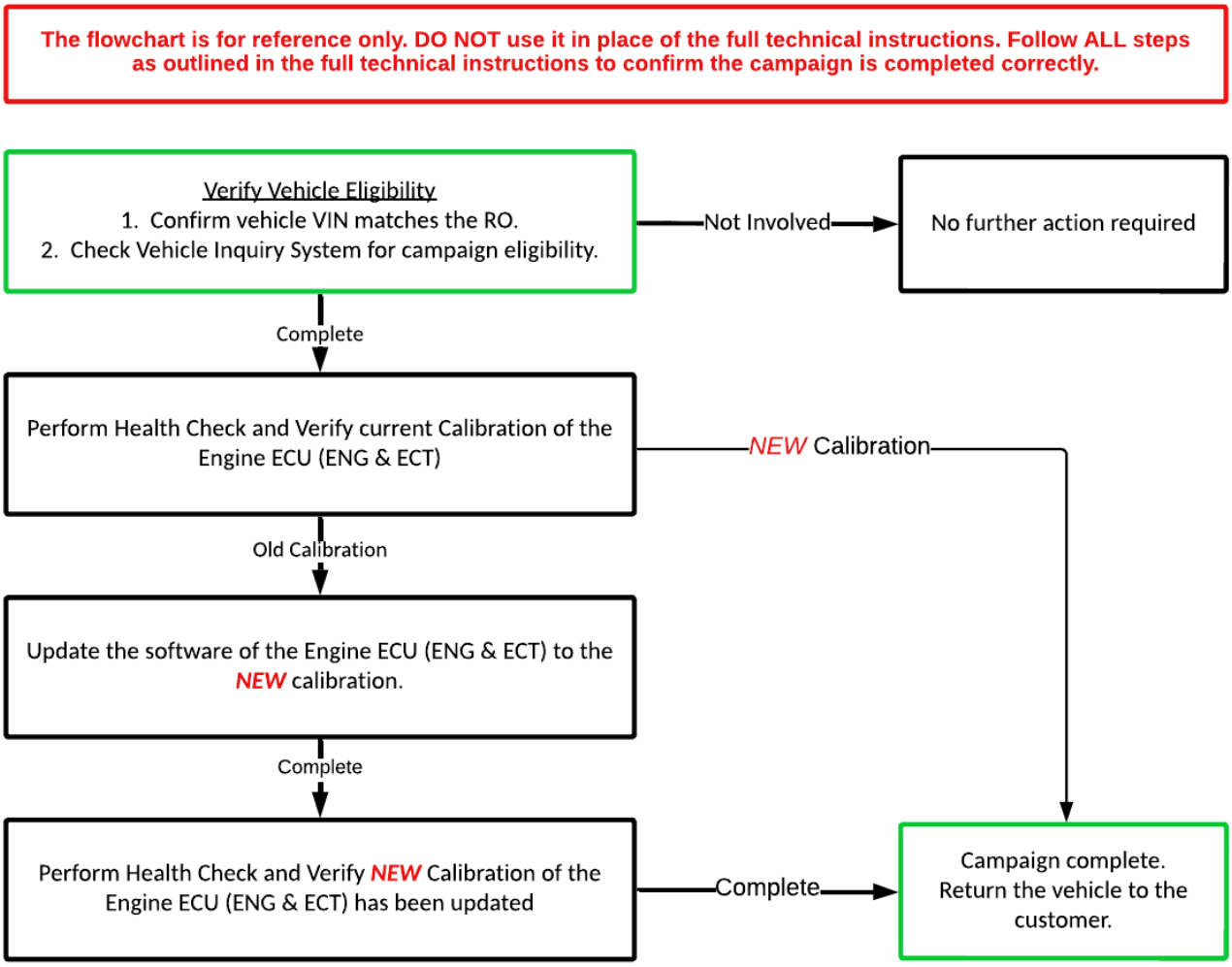
CERTAIN 2023 & 2024 HIGHLANDER VEHICLES
CERTAIN 2024 GRAND HIGHLANDER VEHICLES

The repair quality of covered vehicles is extremely important to Toyota. All dealership technicians performing this Special Service Campaign 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 Special Service Campaign are required to have completed the following trainings:

- **TIC206A – Electrical Repair 1**

It is the dealership's responsibility to select technicians who have completed the above trainings to perform this Special Service Campaign. 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

1. CHECK VEHICLE FOR CAMPAIGN ELIGIBILITY

a) Compare the vehicle's VIN to that listed on the Repair Order to ensure they match.

b) Check the TIS Vehicle Inquiry System to confirm the VIN is involved in this Campaign, and that it has not already been completed.

HINT:

TMNA warranty will not reimburse dealers for repairs completed on vehicles that are not affected or were previously completed, even by another dealer.

III. PREPARATION

A. PARTS

PART NUMBER	PART NAME	QTY
00451-00001-LBL	Authorized Modifications Label	1

NOTE: Authorized Modifications Labels may be ordered in packages of 25 from the Materials Distribution Center (MDC) (portal.toyotamdc.com) under item No. 00451-00001-LBL.

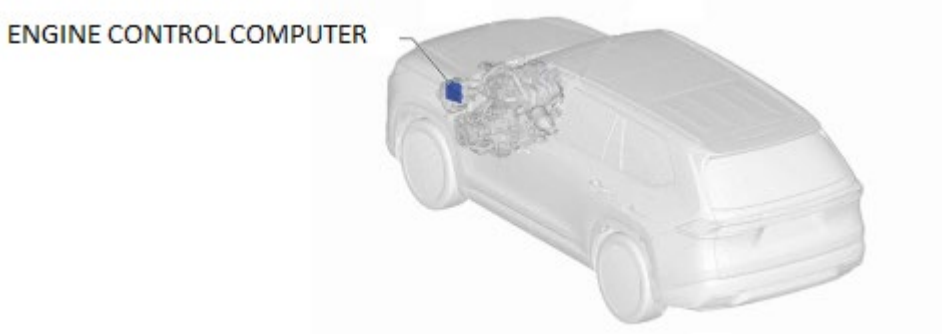
B. TOOLS & EQUIPMENT

- DCA-8000 Battery Diagnostic Station
- MCC-070C battery chargers.
- Techstream ADVi / Techstream Lite

NOTE: Only ONE of the Techstream units listed above is required. Be sure to use the latest. GTS+ software version available. 2023.02.001.02 or later is required.

IV. BACKGROUND

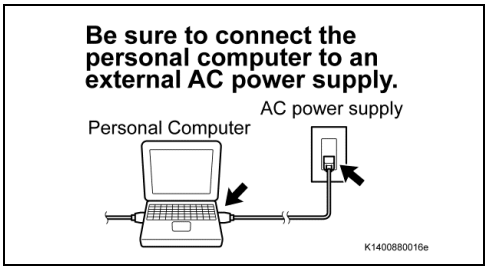
The Engine Control Computer software has a programing error which can cause the exhaust variable valve timing (VVT) locking pin to temporarily get stuck. When this happens, an engine malfunction indicator lamp (MIL) can appear on the dashboard as well as diagnostic trouble code (DTC), P05CE00 to be set.



V. SAFETY PRECAUTIONS

CRITICAL INFORMATION - READ THOROUGHLY

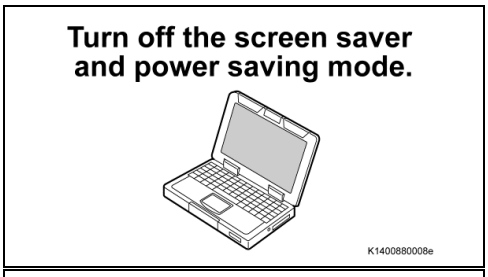
An ECU could be damaged if an error occurs in the communication while reprogramming is taking place. Confirm all work is performed as described in these instructions.



1. STABILIZE THE POWER TO THE PC (PERSONAL COMPUTER)

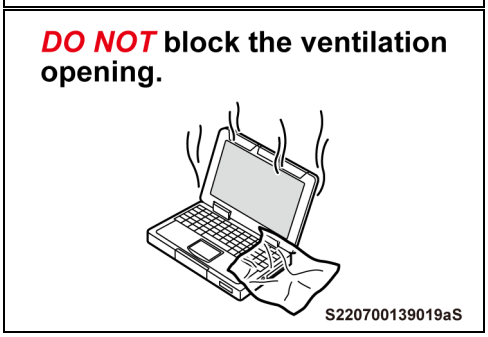
a) Be sure to connect the PC to an external AC power supply.

NOTICE:
The ECU could be damaged if the battery voltage of the PC drops while reprogramming.



b) Turn off the screen saver and power saving mode of the PC so that the power to the hard disk remains supplied.

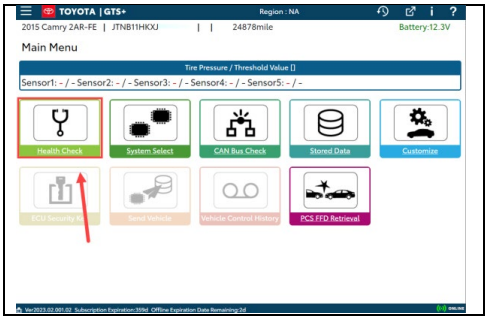
NOTICE:
If the screen saver or power saving mode launches while reprogramming, the communication may be disconnected, resulting in damage of the ECU.



c) ***DO NOT*** block the ventilation opening for the cooling fan of the PC.

NOTICE:
If the ventilation opening for the cooling fan is blocked with a sheet cover or the like, the PC may overheat, causing the operation of the PC to stop.
Due to the stopped operation, the communication for reprogramming signals could also be stopped, resulting in damage of the ECU.

VI. ENGINE SYSTEM CALIBRATION ID VERIFICATION



1. CHECK FOR DTC'S

a) Using GTS+, click the "Health Check" button on the Main Menu

b) *NOTE – If P05CE00 is present, disregard, and proceed with the procedure.

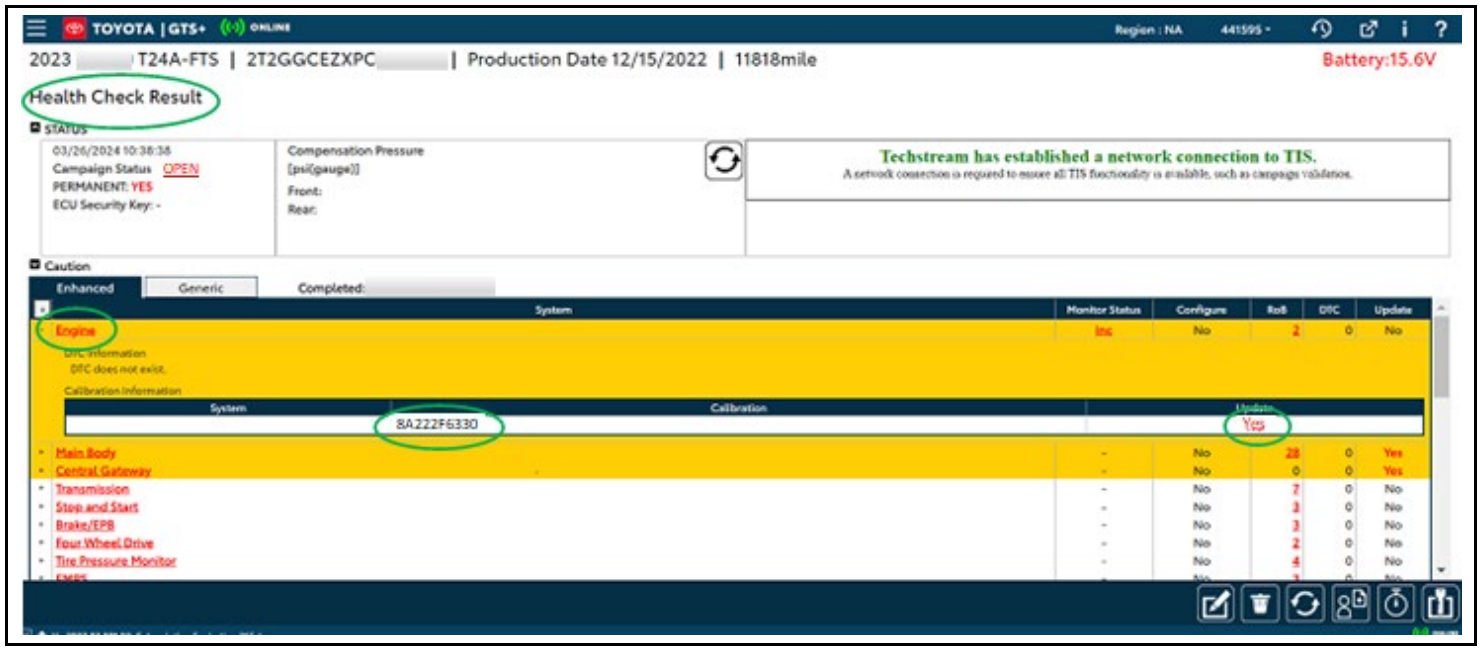
HINT:
This Campaign covers only the software update to the Engine System, as detailed in these instructions. It does not cover the diagnosis or replacement of any other systems on the vehicle.

2. CHECK CURRENT CALIBRATION

a) Locate the "Update" column of the "Calibration Information" for the Engine system on the "Health Check Result" screen.

b) Determine the status of an available update; indicated by a YES or NO.

HINT:
If the CIDs indicate 'Yes', proceed with the update procedure.



Is there an update available for the Engine ECU (ENG & ECT)?

Yes

Proceed to section VII. Vehicle preparation on page 5.

No

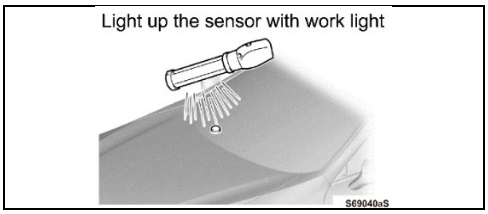
Campaign complete. Return the vehicle to the customer.

VII. VEHICLE PREPERATION

1. VEHICLE PREPERATION

a) Confirm the following conditions:

- Vehicle in the IG position (READY 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. (w/ DRL OFF position)
- Windshield wiper switch in the OFF position.



b) When the vehicle has no “OFF position” in the light control switch:

1) Turn the IG ON.
2) Set the light control switch to the AUTO position and make sure that the exterior lights are turned on.
3) Light up the automatic light control sensor with work light to keep the exterior lights turned off.

2. CONNECT THE 12V BATTERY TO A POWER SUPPLY

a) Connect the DCA-8000 or other type of a power supply (not a battery charger) to the 12 V battery.
b) Tap the Reflash icon from the Main Menu screen of the DCA-8000.

Critical	**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.**

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

3. VERIFY GTS+ SETUP

a) Verify that the GTS+ meets the following conditions:

- The latest version of software is loaded.
- Connect the GTS+ to a 120 V source.
- The DLC III cable is in good condition.

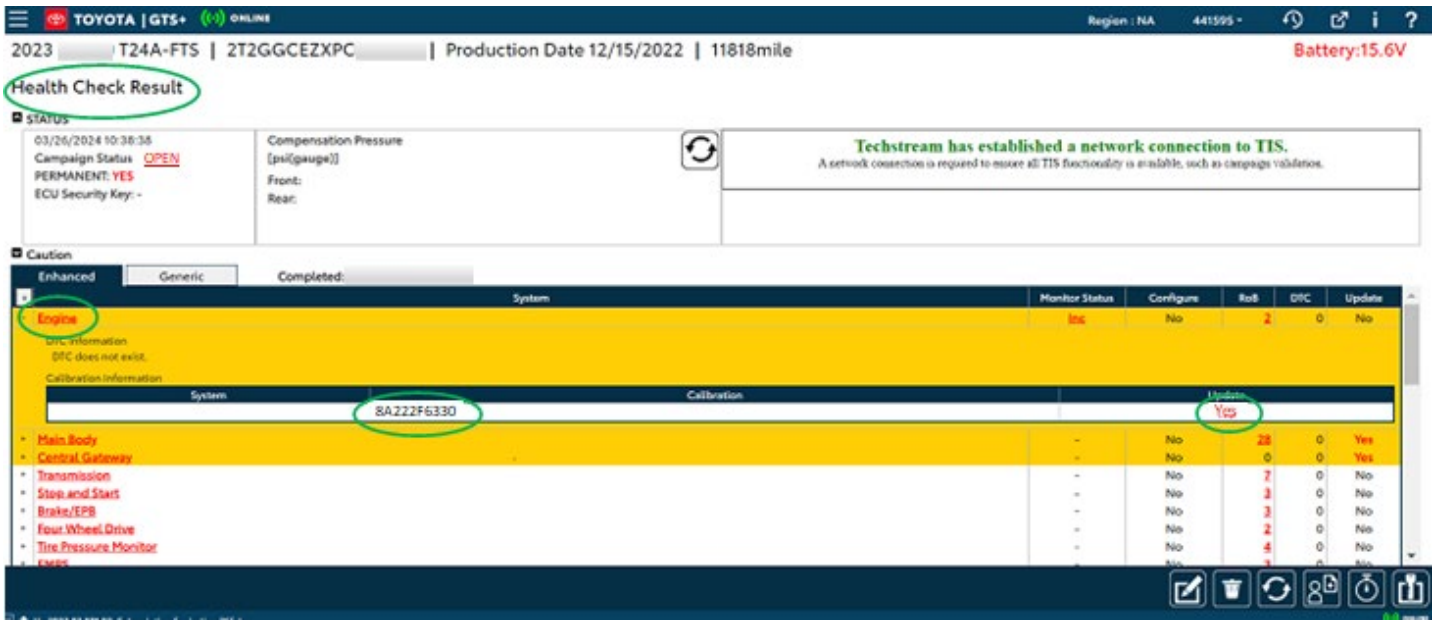
Critical	**The GTS+’s battery voltage must also be maintained during the re-flash procedure. Plug the GTS+ into a 120 V outlet during this procedure to be sure the PC does not stop operating during reprograming.**

NOTICE:
If the GTS+ communication with the vehicle fails during the re-flash procedure, the Engine Control Computer will be damaged.

VIII. UPDATE CALIBRATION

1. CONFIRM THE CALIBRATION ID

a) Confirm the current calibration ID in the Engine System.



NOTICE:
If the Engine Control Computer has the *New* CIDs, no update is necessary.

2. REFLASH THE ENGINE CONTROL COMPUTER

a) Click "Yes" on the "Health Check Results" screen or follow the links on the table above the begin the reflash process.

b) Follow the procedures outlined in T-SB-0107-20, GTS+ ECU Flash Reprogramming With Security Signature, and flash reprogram the ECM (PCM) with the NEW calibration file update.

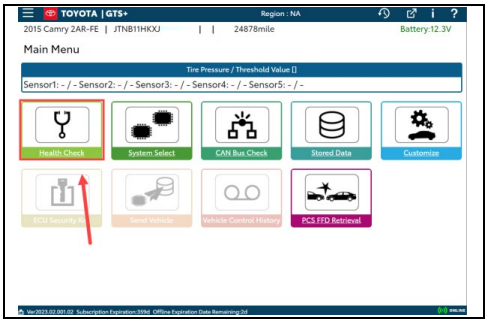
NOTICE:
Re-flash failure can be avoided by following all instructions and reprogramming best practices.

The calibration IDs to re-flash in this campaign are as shown in the table below.

Engine Control Computer Calibrations				
System	Vehicle Model	Specification	Current Calibration ID	***New*** Calibration ID
Engine	2023 Highlander	FWD with Start and Stop	896630EG**3000**	896630EG**3100**
		FWD without Start and Stop	896630EG**4000**	896630EG**4100**
		4WD	896630EG**5000**	896630EG**5100**
	2024 Highlander	FWD with Start and Stop	896630EK**7000**	896630EK**7100**
		FWD without Start and Stop	896630EK**8000**	896630EK**8100**
		4WD	896630EK**9000**	896630EK**9100**
	2024 Grand Highlander	FWD	8A2220E1**7000** 8A2220E1**7100** 8A2220E1**7200**	8A2220E1**7300**
		4WD	8A2220E1**6000** 8A2220E1**6100** 8A2220E1**6200**	8A2220E1**6300**

IX. COMPLETE REPAIR

1. DISCONNECT THE DCA-8000



2. PERFORM VERIFICATION HEALTH CHECK

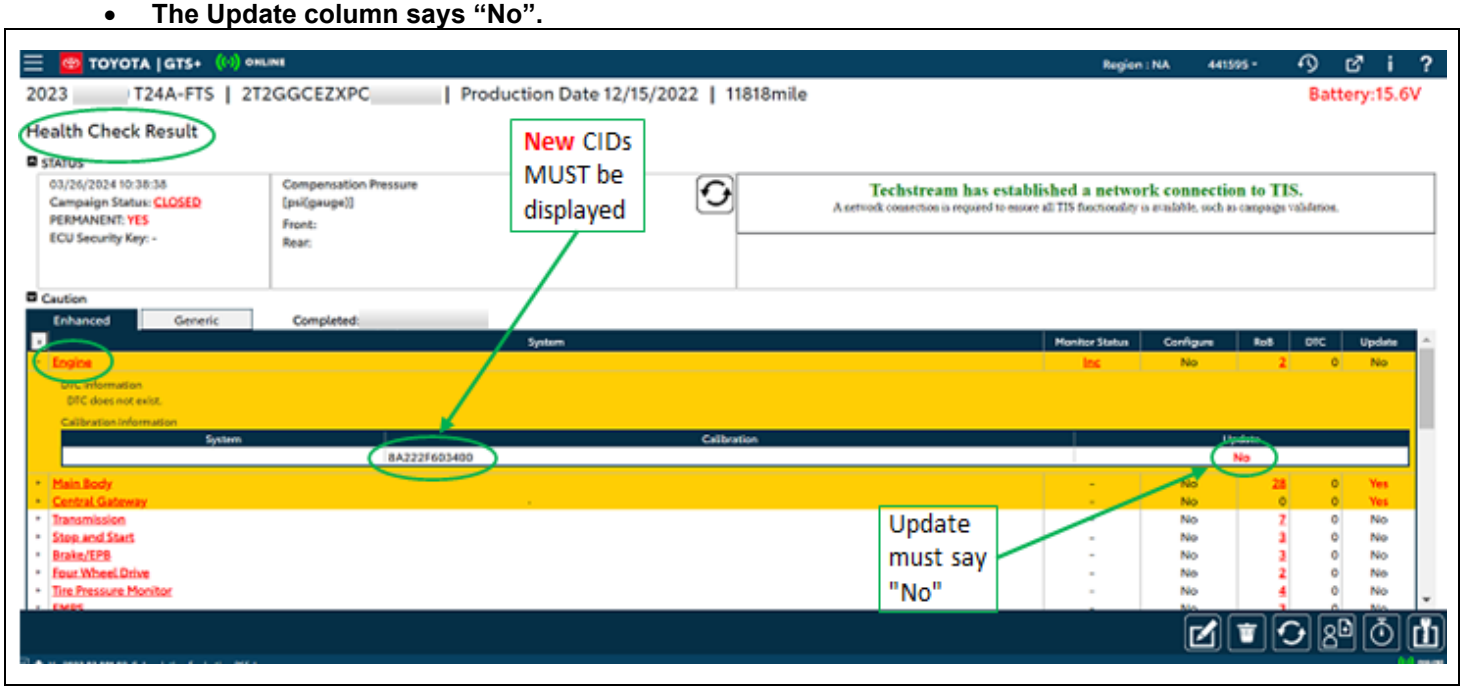
a) Using a GTS+, click the "Health Check" button on the Main Menu.
b) Clear DTC's that may have set during the re-flash procedure.
c) Re-run the Health Check to confirm that no DTC's reappear.

Critical **THIS VERIFICATION HEALTH CHECK IS NECESSARY to update the results and CIDs to the National database.**

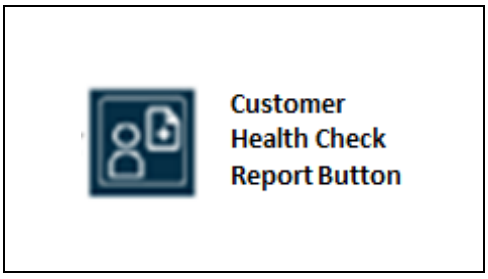
3. CONFIRM CID UPDATE

a) On the Stored Data tab, confirm the following for the Engine System:

- **The Calibration number has the "*New* CID" number.**
- **The Update column says "No".**

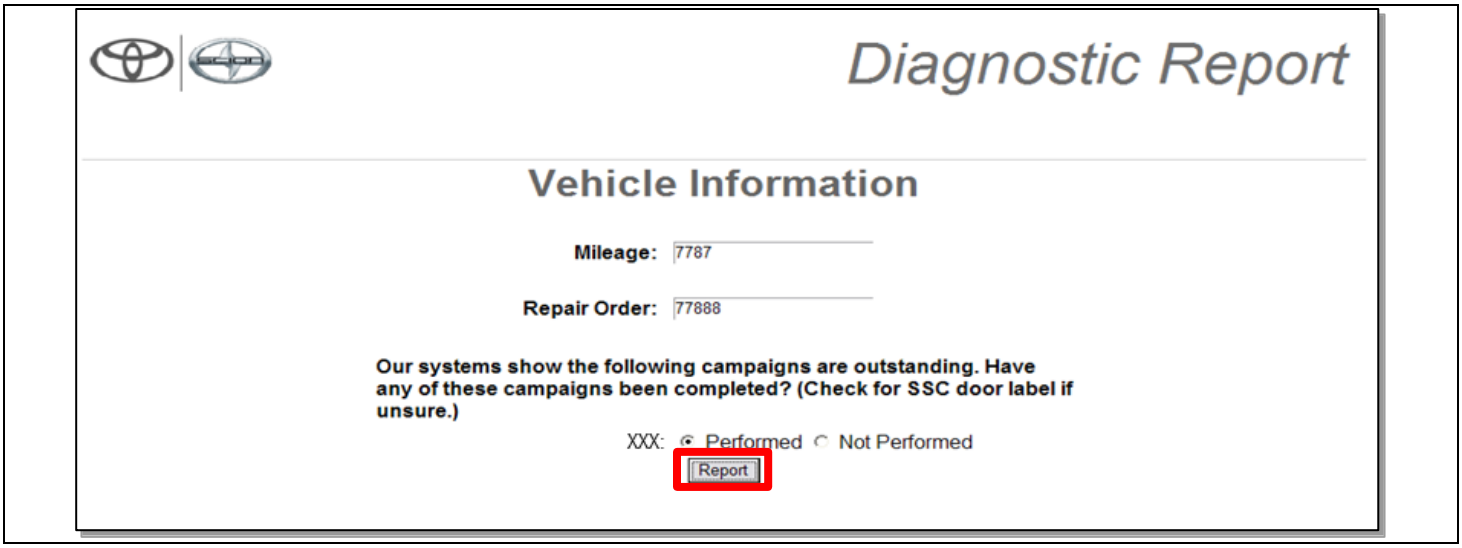


Critical **Have someone other than the technician who completed the software update confirm the CIDs have been updated successfully to the *NEW* CIDs.** **Refer to page 5.**



4. PRINT CUSTORMER HEALTH CHECK REPORT

a) From the Stored Data tab, select the Customer Health Check Report button (TIS will launch when button is pressed).
b) Log in to TIS.
c) Input Vehicle Mileage and Repair Order number.
d) Check the "Performed" campaign button for the applicable campaigns.
e) Select the Report button.



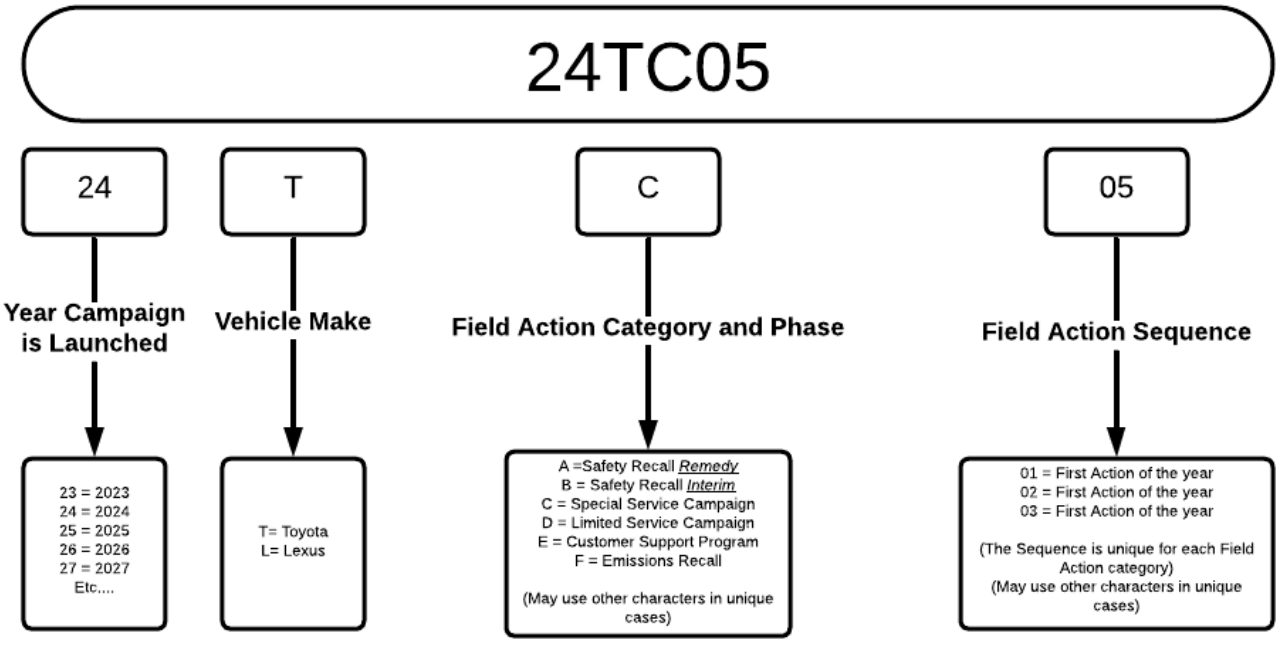
f) Confirm Customer Health Check Report information is correct.
g) Print Customer Health Check Report from TIS.
h) Sign and provide to the customer.

◄ VERIFY REPAIR QUALITY ►

- **Confirm the re-flash completes successfully by having a 2nd person verify the post repair health check.**
- **Confirm there are no DTCs after the Calibration update.**
- **If you have any questions regarding this update, please contact your area representative.**

X. APPENDIX

A. CAMPAIGN DESIGNATION DECODER



Examples:
20TA01 = Launched in 2020, Toyota, Safety Recall Remedy Phase, 1st Safety Recall Launched in 2020
21TC02 = Launched in 2021, Special Service Campaign, 2nd Special Service Campaign Launched in 2021
22TE05 = Launched in 2022, Customer Support Program, 5th Customer Support Program Launched in 2022