

# Techstream ECU Flash Reprogramming Procedure

**Service Category** Engine/Hybrid System

**Section** Engine Control

**Market** USA

Toyota Supports  
 ASE Certification 

## Applicability

YEAR(S)	MODEL(S)	ADDITIONAL INFORMATION
2001 - 2018	4Runner, 86, Avalon, Avalon HV, C-HR, Camry, Camry HV, Celica, Corolla, Echo, FJ Cruiser, Highlander, Highlander HV, iA, iM, Land Cruiser, Matrix, Mirai, MR2 Spyder, Prius, Prius C, Prius PHV, Prius Prime, Prius V, RAV4, RAV4 EV, RAV4 HV, Sequoia, Sienna, Solara, Tacoma, Tundra, Venza, Yaris, Yaris SD MEX-Prod	

### SUPERSESSION NOTICE

The information contained in this bulletin supersedes SB No. T-SB-0012-13.

**Service Bulletin No. T-SB-0012-13 is obsolete and any printed versions should be discarded. Be sure to review the entire content of this bulletin before proceeding.**

### REVISION NOTICE

**October 30, 2017 Rev1:**

- **Applicability has been updated to include 2018 model year vehicles. Any previous printed versions of this bulletin should be discarded.**

## Introduction

Flash reprogramming allows the Electronic Control Unit (ECU) software to be updated without replacing the ECU. Flash calibration updates for specific vehicle models/ECUs are released as field-fix procedures described in individual Service Bulletins. This bulletin details the Techstream ECU flash reprogramming process and outlines use of the Technical Information System (TIS) and the Calibration Update Wizard (CUW). Flash calibration updates can only be applied to the vehicle/ECU combination for which they are intended. ECUs have internal security that will not allow them to be programmed with another ECU's information.



## Techstream ECU Flash Reprogramming Procedure

### Introduction (Continued)

#### NOTE

ECU is a Toyota term used to describe integrated computerized devices responsible for managing the operation of a system or subsystem. For the purposes of this bulletin, the term “ECU” is used as a generic label for the following SAE J1930 standard references:

- Powertrain Control Module (PCM)
- Engine Control Module (ECM)
- Transmission Control Module (TCM)
- Any other Toyota specific control unit

### Warranty Information

OP CODE	DESCRIPTION	TIME	OFF	T1	T2
N/A	Not Applicable to Warranty	-	-	-	-

### Parts Information

PART NUMBER		PART NAME	QTY
PREVIOUS	NEW		
	00451-00001-LBL	Authorized Modification Labels	1

#### NOTE

Authorized Modification Labels may be ordered in packages of 25 from the Materials Distribution Center (MDC) through *Dealer Daily – Parts – Dealer Support Materials Orders*.



## Techstream ECU Flash Reprogramming Procedure

### Required Tools & Equipment

REQUIRED EQUIPMENT	SUPPLIER	PART NUMBER	QTY
Techstream 2.0*	ADE	TS2UNIT	1
Techstream Lite		TSLITEDLR01	
Techstream Lite (Green Cable)		TSLP2DLR01	

#### NOTE

- Only **ONE** of the Techstream units listed above is required.
- Software version **12.20.024** or later is required.
- Additional Techstream units may be ordered by calling Approved Dealer Equipment (ADE) at 1-800-368-6787.
- The Diagnostic Tester is **NOT** recommended for flash reprogramming. Please use Techstream or an approved J2534 interface to perform flash reprogramming updates. Visit [techinfo.toyota.com](http://techinfo.toyota.com) for more information regarding J2534 reprogramming.



SPECIAL SERVICE TOOLS (SST)	PART NUMBER	QTY
GR8 Battery Diagnostic Station*	<a href="#">00002-MCGR8</a>	1

#### NOTE

Additional SSTs may be ordered by calling 1-800-933-8335.

\* Essential SST.



## Techstream ECU Flash Reprogramming Procedure

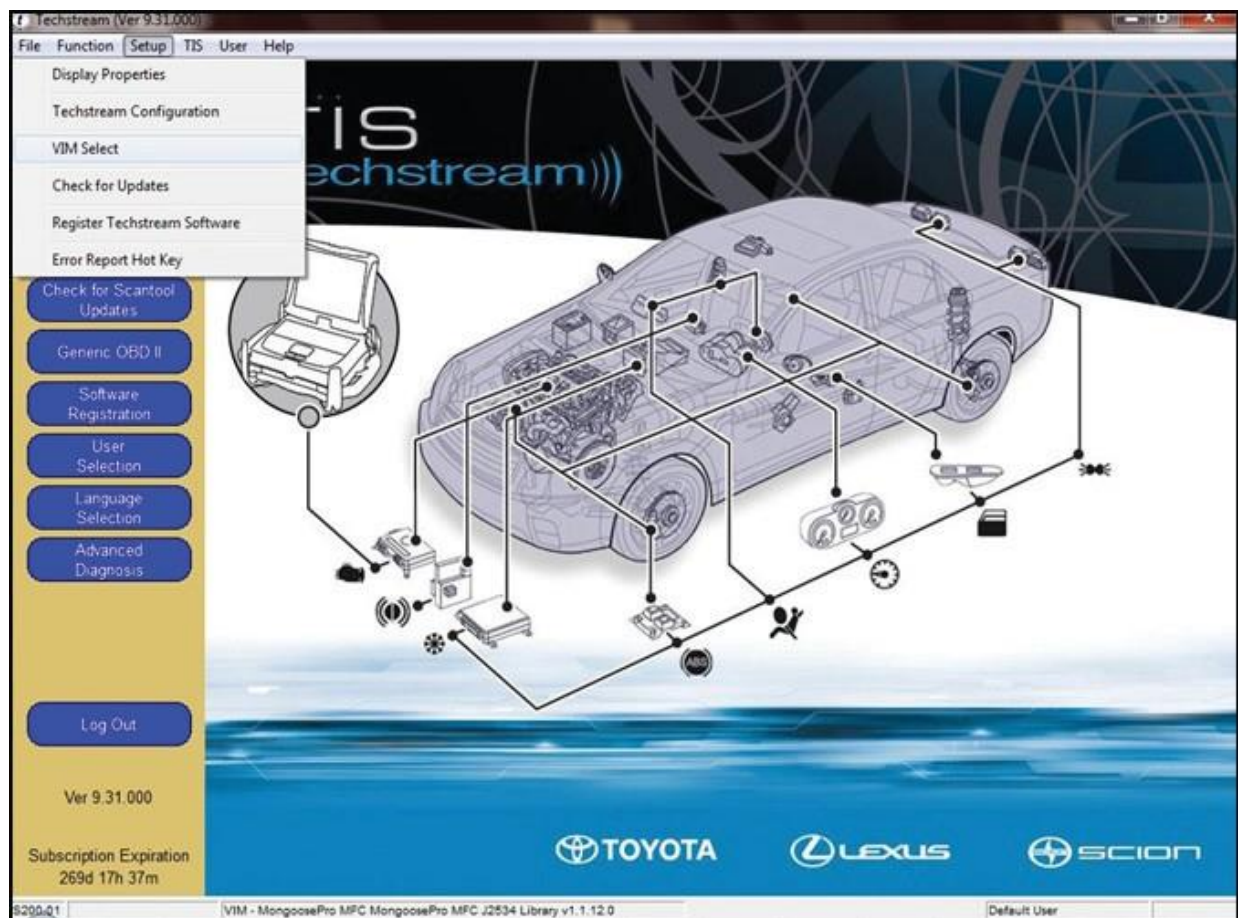
### Techstream Preparation

#### Selecting the Correct VIM

Techstream software requires a VIM selection before it can be used for reprogramming. Perform the following:

1. Select *Setup* from the Techstream main menu screen.
2. Select *VIM Select* from the “Setup” dropdown menu.

**Figure 1.**





## Techstream ECU Flash Reprogramming Procedure

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### Techstream Preparation (Continued)

3. Select the correct interface setup from the dropdown list.
  - If using Techstream 2.0, select “MongoosePro MFC.”
  - If using Techstream Lite, select “Mongoose MFC,” “MongoosePro MFC,” or “MongoosePro MFC2 (green)” depending on the cable being used.

**NOTE**

**Mongoose Driver MUST be installed before Mongoose selections will be available.**  
See *TIS – Diagnostics – Scantool* page for additional information.

4. Click OK.

### Process Overview

Techstream ECU flash reprogramming is a four-step process:

1. Verify the vehicle’s applicability for recalibration and locate the desired calibration file by performing the Techstream Health Check function.

**NOTE**

**Techstream will automatically search TIS for the appropriate Service Bulletin using the current calibration ID from the vehicle. Calibration file links can be found embedded in the corresponding Service Bulletin.**

2. Connect the GR8 Battery Diagnostic Station using “Power Supply Mode” ONLY.

The GR8 Battery Diagnostic Station includes a Power Supply Mode to help maintain battery voltage at 13.5V during ECU reprogramming.

**NOTICE**

- ECU damage may occur if the correct battery charger mode setting is NOT used.
- Refer to [Vehicle Reprogramming Tips](#) for other approved chargers, located on *TIS – Diagnostics – Reprogramming – Reference Documents*.

3. Locate the appropriate calibration ID and reprogram the vehicle ECU with Techstream.

Techstream uses the CUW application to open calibration files and facilitate the ECU flash reprogramming process.

4. Attach the Authorized Modification Label.

Modifications to ECU calibrations MUST be recorded and properly displayed on the vehicle using the Authorized Modification Label.

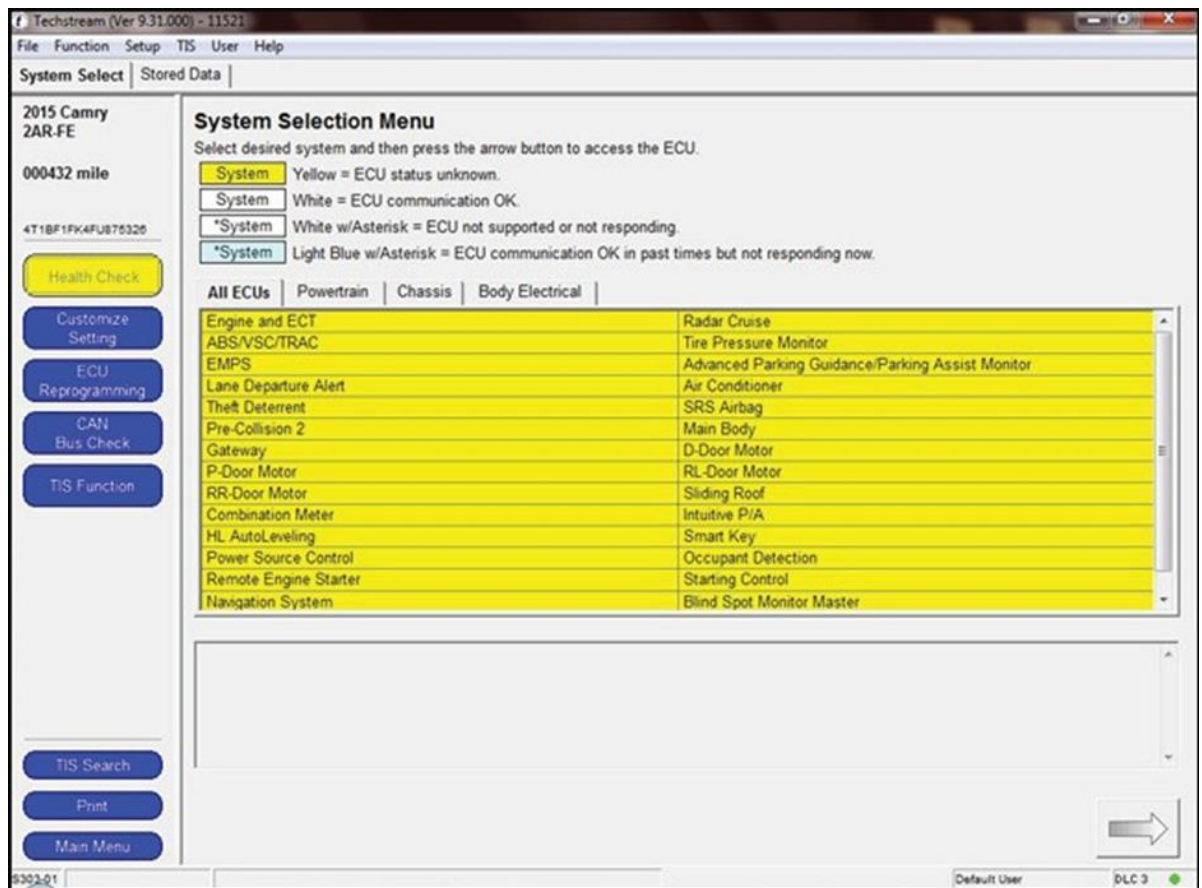


## Techstream ECU Flash Reprogramming Procedure

### Operation Procedure

1. Verify the vehicle's applicability for recalibration and locate the desired calibration file.
  - A. Connect Techstream and establish a vehicle connection.
  - B. Click the *Health Check* button on the "System Select" tab.

**Figure 2.**



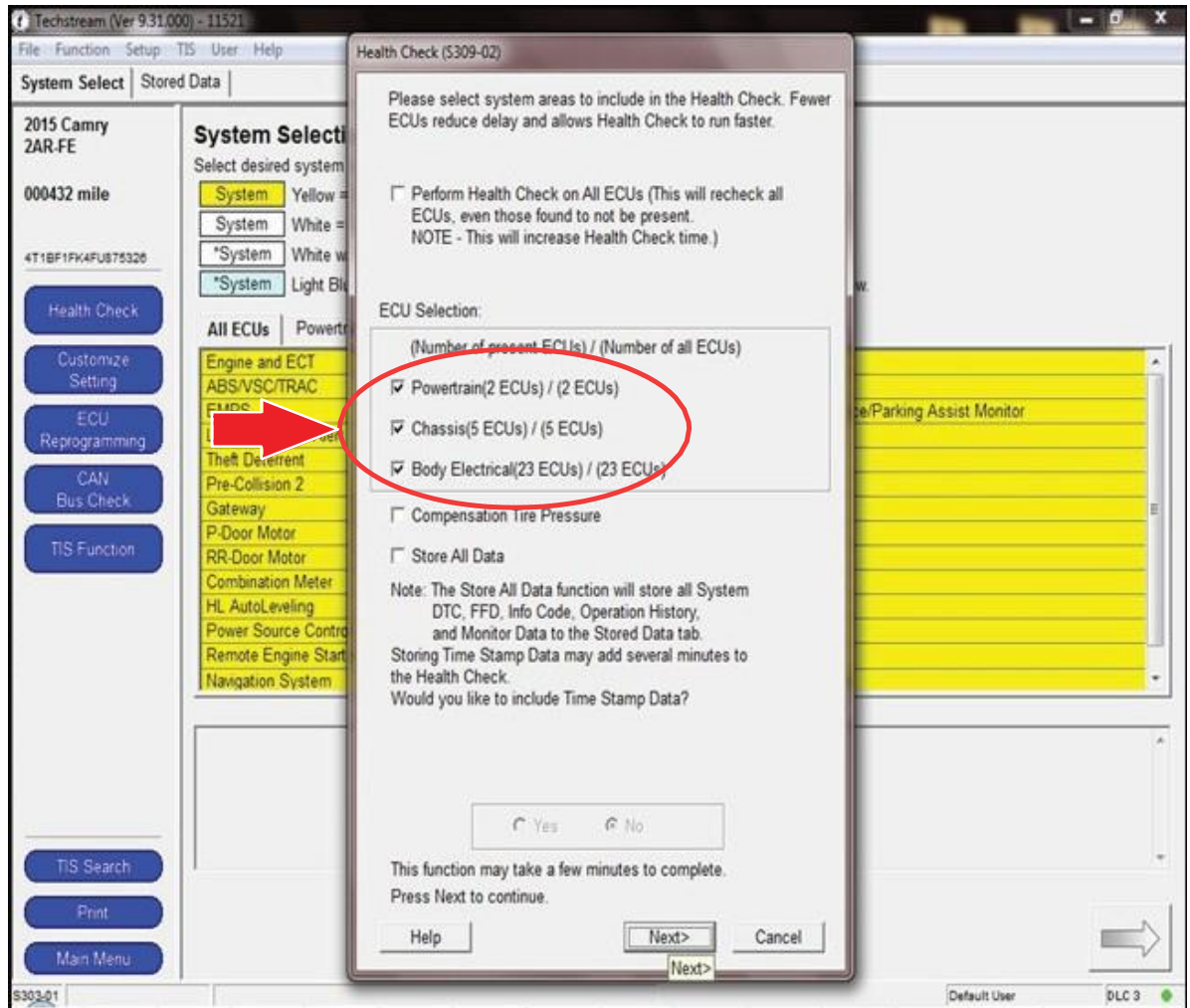


## Techstream ECU Flash Reprogramming Procedure

### Operation Procedure (Continued)

- C. Choose the desired ECU group(s) in the “Health Check” dialog box.

Figure 3.



- D. Click Next.

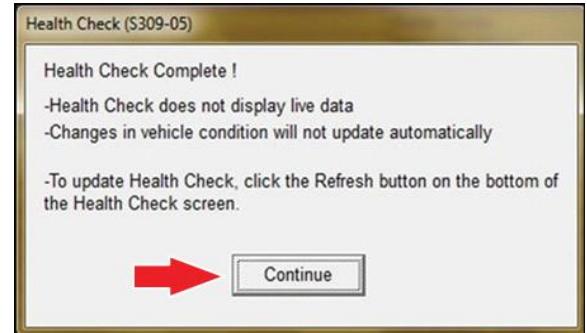


# Techstream ECU Flash Reprogramming Procedure

## Operation Procedure (Continued)

- E. Click *Continue* to view the Health Check results.

Figure 4.



- F. Available calibration updates are indicated by a **Yes** link in the “Cal. Update” column. Click the **Yes** link to access the appropriate Service Bulletin on TIS.

**NOTE**

- Note ANY DTCs stored in systems that will be flash reprogrammed.
- Clicking the **Yes** link will automatically launch TIS and perform a calibration search.

Figure 5.

System	Monitor Status	DTC	Curr Conf	Pend	Hist	Test Failed	SB	Calibration	Update
Main Body	-	B1206			X	No	892210623002	Yes	
	-	B1244			X	No			
	-	B2321			X	No			
Navigation System	-	B1579			X	No			
	-	B1570			X	No	00020029004902M A0 33	Yes	
Telematics	-	B1571			X	No	59292	No	
	-	B1572			X	No			
	-	B15C5			X	No			
Engine and ECT	Com						306E7000	No	
							50625000	No	
Radar Cruise	-								
ABS/VSC/TRAC	-						F152606100	No	
EMPS	-						8965B33271	No	
Tire Pressure Monitor	-								
Lane Departure Alert	-						8646F33020	No	
Occupant Detection	-						0E010	No	
Air Conditioner	-						886500688001	No	
Combination Meter	-						838000X82002	No	
	-						838000X82002	No	





# Techstream ECU Flash Reprogramming Procedure

## Operation Procedure (Continued)

- G. Log in to TIS. (If already logged in, skip this step.)
- H. To review the Service Bulletin and access the calibration file, click the Service Bulletin link in the "Document Title" column of the "Calibration Search Result" portlet.

**NOTE**

**ONLY Toyota Certified Technicians and other authorized users may access calibration files.**

Figure 6.

The screenshot shows the Techstream software interface. At the top, there are navigation tabs: Library, Diagnostics, Tech Assistance, and Vehicle Inquiry. Below these are sub-tabs: ScanTool, Reprogramming, Immobilizer Reset, Key Code, Telematics, Navigation, and Tools & Equipment. The main area is divided into two sections: 'Calibrations' and 'Reference Documents'. The 'Calibrations' section contains a 'Calibration/Multimedia Search Form' with dropdown menus for Division (TOYOTA), Model (Tundra), and Year (2015), and buttons for 'Clear' and 'Search'. The 'Reference Documents' section lists several documents, including 'Multimedia Software Download Instructions', 'Safety Recall ADG - 2003 Sequoia - Skid Control ECU Update', and 'Vehicle Reprogramming Tips'. Below these sections is a table with two tabs: 'ECU Calibrations (3)' and 'Multimedia Updates (1)'. The table has five columns: 'Current ECU CAL ID', 'New ECU CAL ID', 'Document Title (Release Date)', 'Year / Model / VDS', and 'Market'. The table contains several rows of data, with one row highlighted in blue, corresponding to the document 'Toyota 2014 - 2015 Tundra Supercharger Fit Kit PTR29-34140 (Fit Kit) Rev. D (2015-02-10)'. An American flag icon is visible in the 'Market' column for this row.

Current ECU CAL ID	New ECU CAL ID	Document Title (Release Date)	Year / Model / VDS	Market
30CL0000			2015 / Tundra / AWSF1	
30CL0100			2015 / Tundra / AYSF1	
30CL0200			2015 / Tundra / BWSF1	
3YWF7800			2015 / Tundra / BWSF1	
3YWF9200			2015 / Tundra / CWSF1	
3YWF9600			2015 / Tundra / CYSF1	
30CL0001			2015 / Tundra / DMSF1	
30CL0101			2015 / Tundra / DWSF1	
30CL0201			2015 / Tundra / DYSF1	
3YWF7801			2015 / Tundra / EMSF1	
3YWF9201	3YWF9800		2015 / Tundra / EYSF1	
3YWF9601	3YWF9801	Toyota 2014 - 2015 Tundra Supercharger Fit Kit PTR29-34140 (Fit Kit) Rev. D (2015-02-10)	2015 / Tundra / EYSF1	USA
30CL1000	3YWF9900		2015 / Tundra / GYSF1	
30CL1100	3YWF9901		2015 / Tundra / HWSF1	
30CL1200			2015 / Tundra / HYSF1	
3YWF7900			2015 / Tundra / NUSF1	
3YWF9300			2015 / Tundra / NYSF1	
3YWF9700			2015 / Tundra / PWSF1	
30CL1001			2015 / Tundra / PYSF1	
30CL1101			2015 / Tundra / RUSF1	



# Techstream ECU Flash Reprogramming Procedure

## Operation Procedure (Continued)

2. Connect the GR8 Battery Diagnostic Station.

**NOTE**

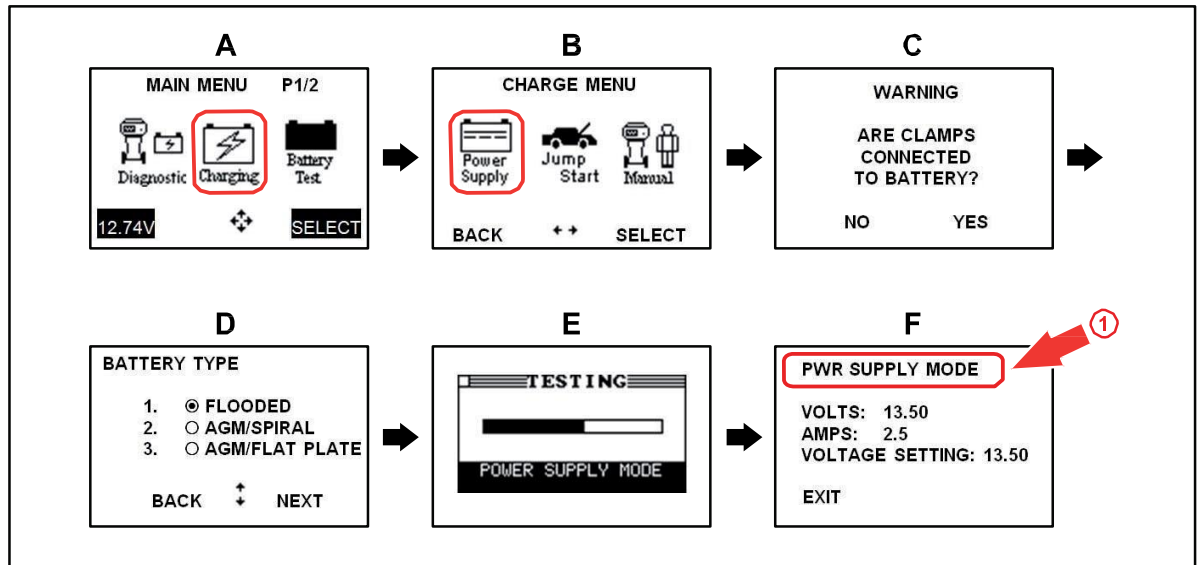
Refer to [Vehicle Reprogramming Tips](#) for other approved chargers, located on *TIS – Diagnostics – Reprogramming – Reference Documents*.

- A. Connect the GR8 Battery Diagnostic Station to the vehicle and turn it ON.
- B. Select Power Supply Mode by following the screen flow below.

**NOTICE**

- ECU damage may occur if the correct battery charger and mode setting are NOT used.
- Power Supply Mode is used to maintain battery voltage at 13.5V while flash reprogramming the vehicle.
- For details on how to use the GR8 Battery Diagnostic Station, refer to the [“GR8 Instruction Manual”](#) located on *TIS, Diagnostics – Tools & Equipment – Battery Diagnostics*.

Figure 7.





# Techstream ECU Flash Reprogramming Procedure

## Operation Procedure (Continued)

3. Click the appropriate calibration ID and reprogram the vehicle's ECU with Techstream.
  - A. AFTER reviewing the procedures outlined in the selected Service Bulletin, click the appropriate calibration ID link by matching the vehicle's current calibration ID to the "Previous Calibration ID" in the Calibration Identification Chart.

**NOTE**

- Calibration files are embedded as live links in the Service Bulletin.
- Some vehicles require special preparation — review the selected Service Bulletin carefully.

Figure 8.

ECM CALIBRATION: SHIFT FEELING ENHANCEMENT – TC007-03 Revised						November 7, 2003
Calibration Identification Chart	MODEL YEAR	MODEL	ECM (CPU)	PREVIOUS CALIBRATION ID	NEW CALIBRATION ID	VDS
2004 & 2005	2WD	Main	30801000	<a href="#">30806000</a>	ZA22C ZA23C	
			30801100			
			30801200			
			30801300			
	4WD	Sub	50801000	<a href="#">50805000</a>	BA22C BA23C	
			50801100			
			50803000			
			30802000			
4WD	Main	30802100	<a href="#">30807000</a>	BA22C BA23C		
		30802200				
		30802300				
		30805000				
4WD	Sub	50802000	<a href="#">50806000</a>	BA22C BA23C		
		50802100				
		50804000				
		50804000				

- B. Click *Open* to load calibration file information.

**NOTE**

Techstream downloads calibration files as needed to ensure the latest calibration file is used. Do NOT save calibrations locally on the hard drive or other media.

Figure 9.





## Techstream ECU Flash Reprogramming Procedure

### Operation Procedure (Continued)

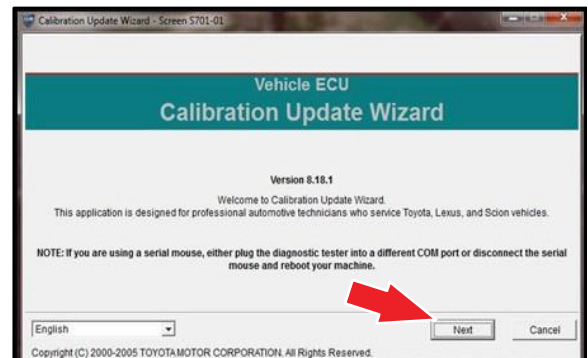
#### NOTICE

Errors during the flash reprogramming process can permanently damage the vehicle ECU. Minimize the risk by following the steps below.

- Battery voltage **MUST NOT FALL BELOW** 11.8V during reprogramming. Confirm battery voltage is higher than 11.8V, but be sure voltage **DOES NOT RISE ABOVE** 16.0V during reprogramming.
- Turn OFF ALL vehicle accessories (audio system, A/C, interior lights, DRL, etc.). Do NOT add to or significantly change the vehicle's electrical load while reprogramming.
- Confirm the hood is open and ensure under hood temperature does NOT exceed 158°F (70°C).
- Confirm cable connections between the vehicle and Techstream are secure.
- Do NOT disconnect or turn off Techstream or vehicle ignition during reprogramming.
- Set parking brake.
- Complete ALL flash calibration updates provided for each ECU.
- If the battery's State-Of-Charge (SOC) or capacity is in question, test with SST No. [00002-V8150-KIT](#) (*Digital Battery Analyzer*) and follow Service Bulletin No. [T-SB-0195-17](#), "*Battery Maintenance During PDS*," or the appropriate "*Maintenance for HV & Auxiliary Batteries*" Service Bulletin.
- The GR8 Battery Diagnostic Station MUST be used in Power Supply Mode to maintain battery voltage at 13.5V while flash reprogramming the vehicle.  
For details on how to use the GR8 Battery Diagnostic Station, refer to the "[GR8 Instruction Manual](#)" located on *TIS – Diagnostics – Tools & Equipment – Battery Diagnostics*.

- C. Click *Next* to start the calibration update process.

Figure 10.





## Techstream ECU Flash Reprogramming Procedure

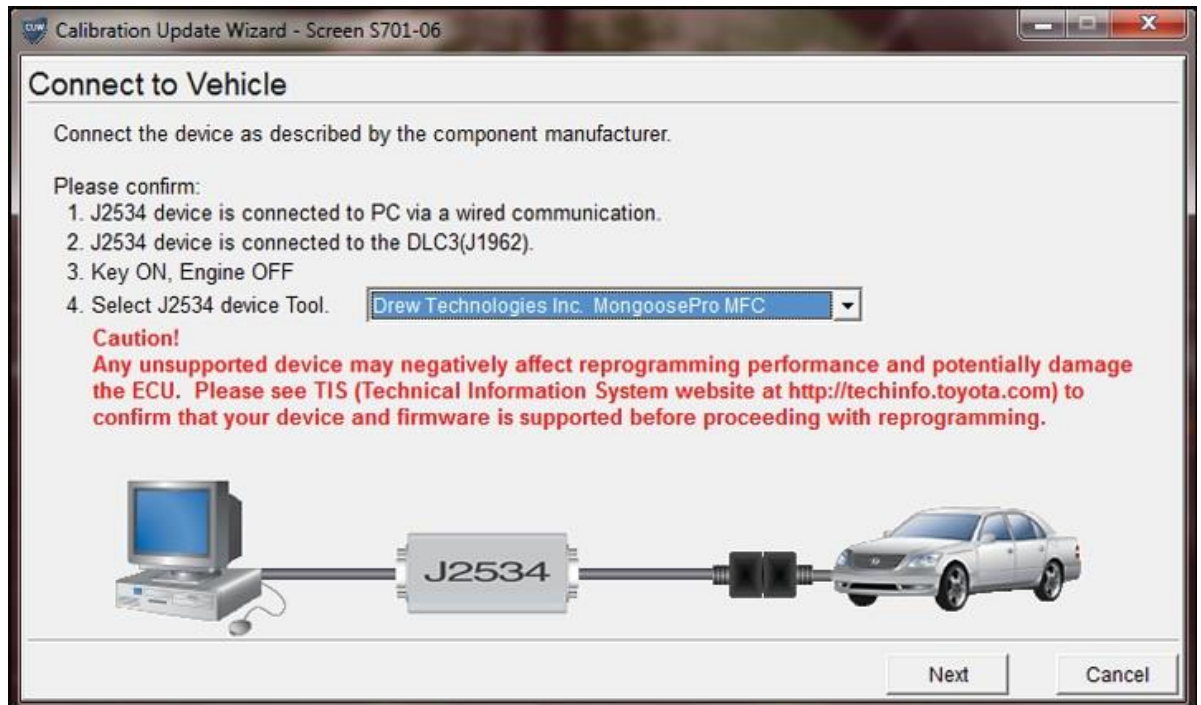
### Operation Procedure (Continued)

D. Confirm the following:

- PC is connected to VIM.
- VIM is connected to DLC3 connector.
- Ignition is ON and engine is OFF or “READY” OFF (hybrid vehicles).

Then, click *Next*.

**Figure 11. Using Techstream 2.0 or Techstream Lite**



**1** Select Correct Device Tool (“MongooseMFC,” “MongoosePro MFC,” or “MongoosePro MFC2” [green])



## Techstream ECU Flash Reprogramming Procedure

### Operation Procedure (Continued)

E. Verify correct current calibration and NEW calibration information. Then click *Next*.

#### NOTICE

- The total number of calibration IDs in the calibration file corresponds to the number of reprogrammable processors in the ECU.
- Each calibration file may contain up to three separate calibrations.
- Figure 12 shows an example of the update procedure for a two-processor ECU.

Figure 12.

Calibration Update Wizard - Screen S701-09

### Calibration Selection Confirmation

ENG & ECT

Current Calibration:

Current Cal ID	50C80000
Current Cal ID	30CL0000
Current Cal ID	

New Calibration Information:

New Cal ID	50C80100
New Cal ID	30CL0200
New Cal ID	
Issue Date	Oct 06, 2014
Model Name	Tundra
Year	14 - 15
Engine Type	3UR-FE
Vehicle Type	2WD

✓ Selected Calibration file is authorized to update this vehicle.  
Press NEXT to continue.

NOTE: Refer the applicable TSB for calibration file information.

Select New Cal Next Cancel

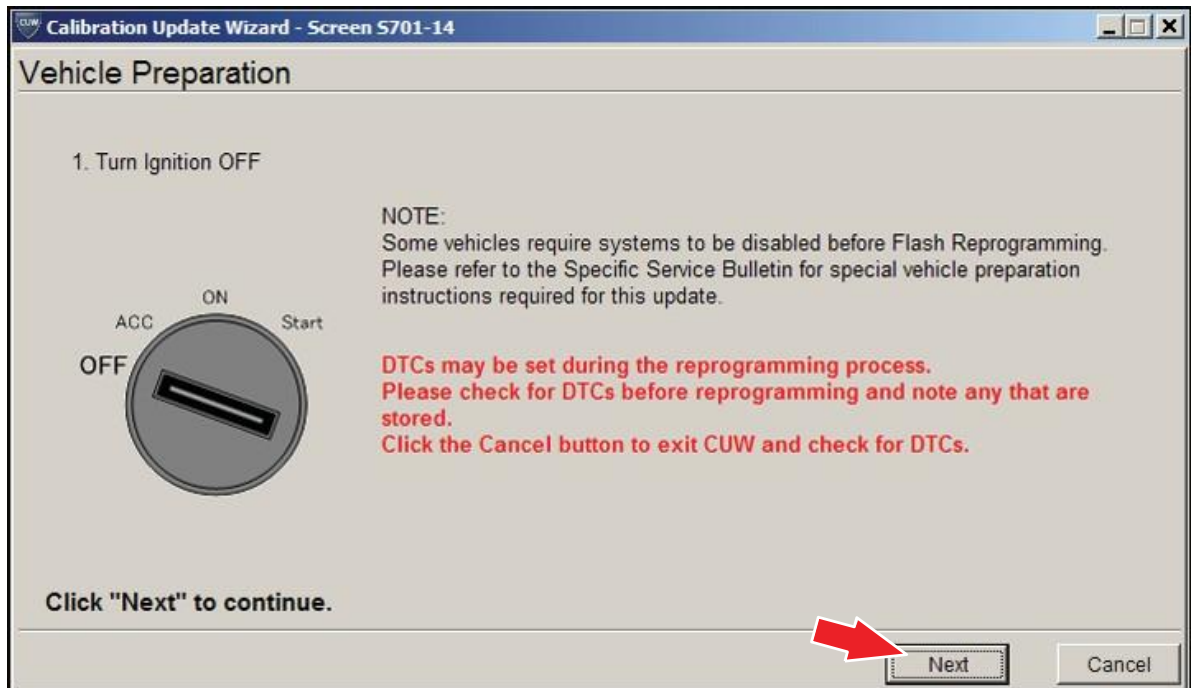


## Techstream ECU Flash Reprogramming Procedure

### Operation Procedure (Continued)

F. Turn ignition OFF. Then, click *Next*.

**Figure 13.**





## Techstream ECU Flash Reprogramming Procedure

### Operation Procedure (Continued)

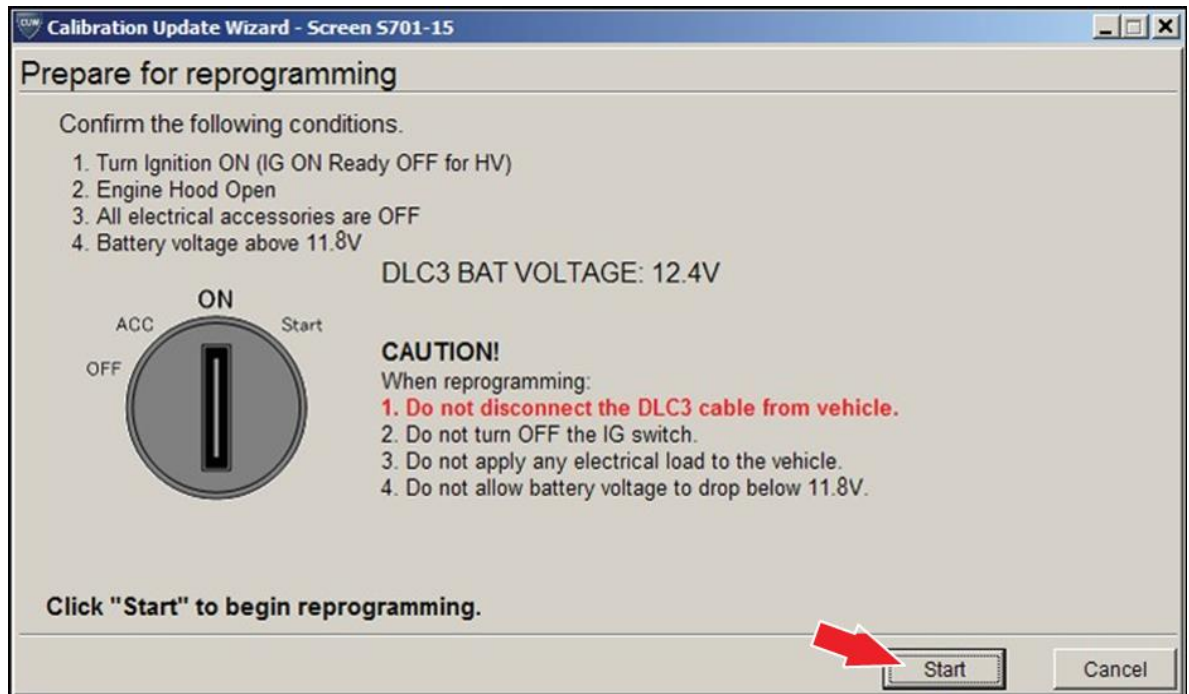
- G. Confirm the following:
- PC is connected to VIM.
  - Ignition is ON and engine is OFF or "READY" OFF (hybrid vehicles).
  - Hood is open.
  - ALL accessories are OFF.
  - Battery voltage is above 11.8V.

#### NOTICE

Verify the vehicle is connected to a battery charger before continuing. If battery voltage falls below 11.8V, ECU damage may occur.

Then, click *Next*.

Figure 14.



#### NOTE

If the key cycle is NOT done properly, reprogramming will stop at 10% and Cal 1 will fail to load.





## Techstream ECU Flash Reprogramming Procedure

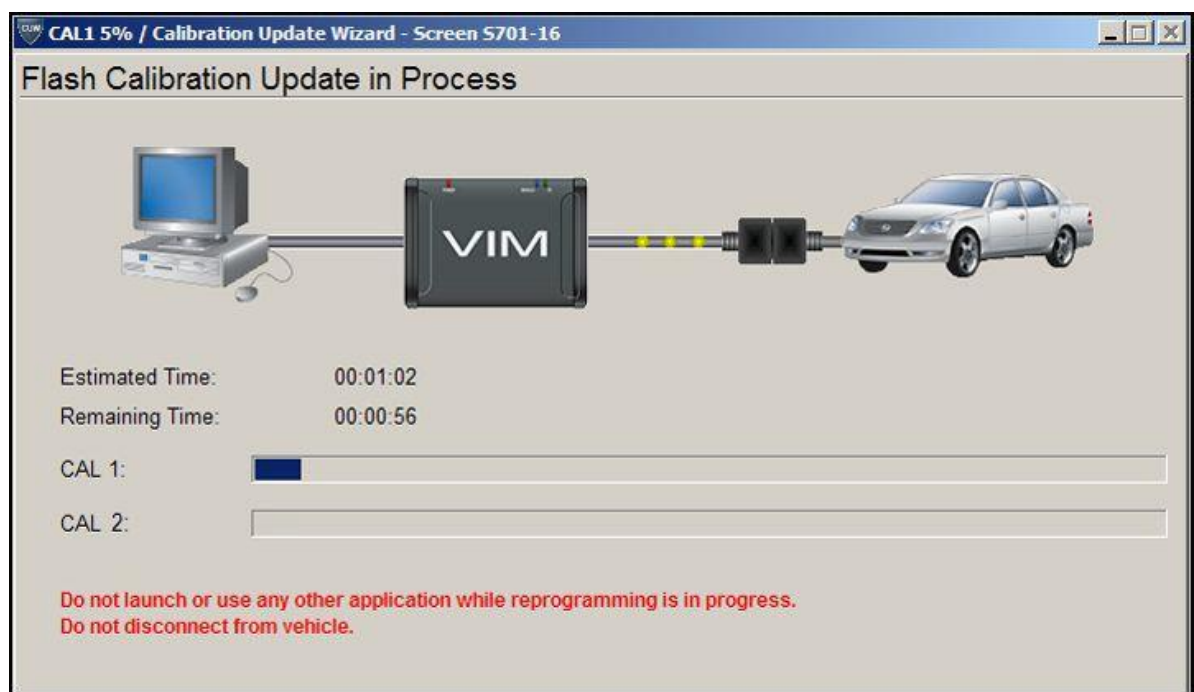
### Operation Procedure (Continued)

H. Do NOT disturb the vehicle during flash reprogramming.

#### NOTE

- ECU flash reprogramming may take anywhere from 3 – 30 minutes per calibration file.
- Reprogramming time will vary depending on model and ECU communication protocol. Vehicles using CAN communication protocol will reprogram much faster (2 – 7 minutes).

Figure 15.



#### NOTE

- If the vehicle requires only ONE calibration update, then go to step N in this bulletin.
- If vehicle requires a SECOND calibration update, then continue as follows:
  - For serial communication vehicles, continue to step I.
  - For CAN communication vehicles, go to step K.

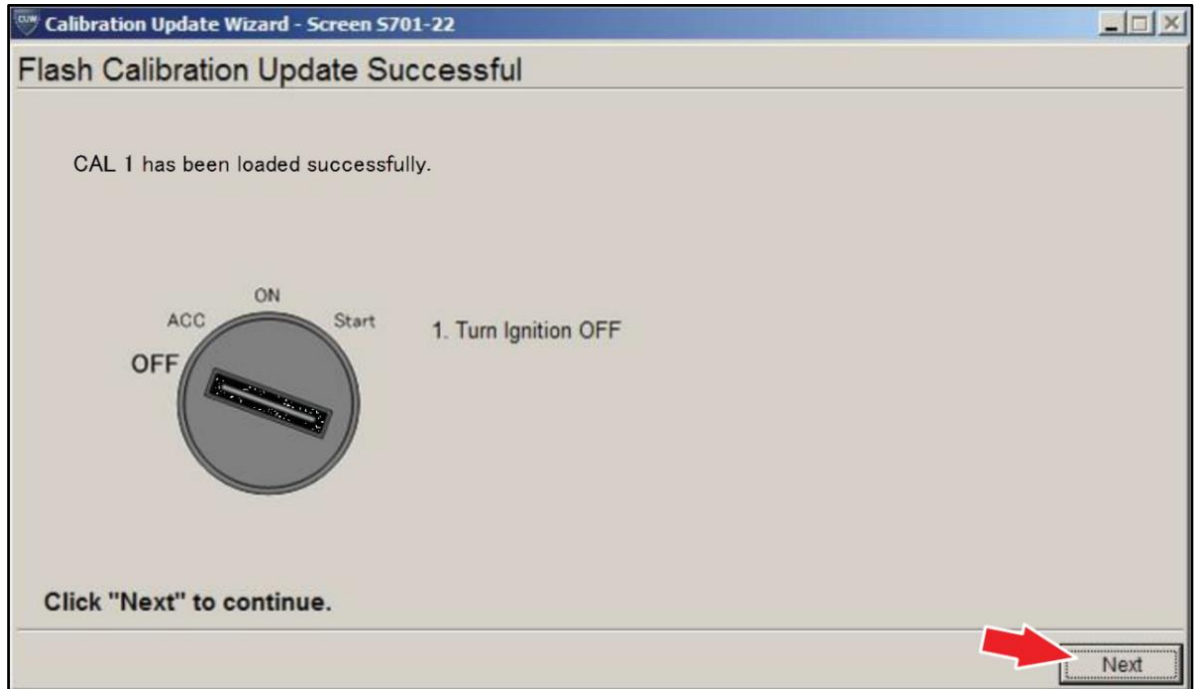


## Techstream ECU Flash Reprogramming Procedure

### Operation Procedure (Continued)

- I. When Cal 1 has completed the update process, turn ignition OFF for a minimum of 10 seconds. Then, click *Next*.

**Figure 16.**



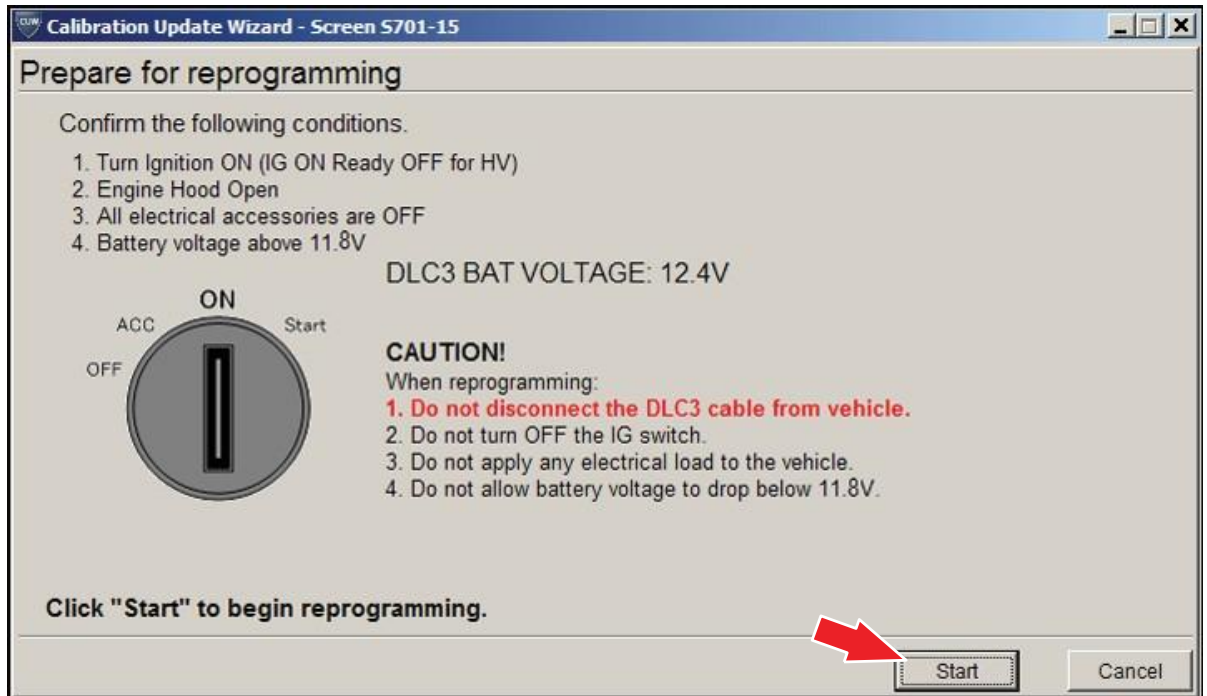


## Techstream ECU Flash Reprogramming Procedure

### Operation Procedure (Continued)

- J. Turn ignition to the ON position. Then, click *Start*.

Figure 17.



#### NOTE

If the key cycle is NOT done properly, reprogramming will stop at 10% and Cal 2 will fail to load.

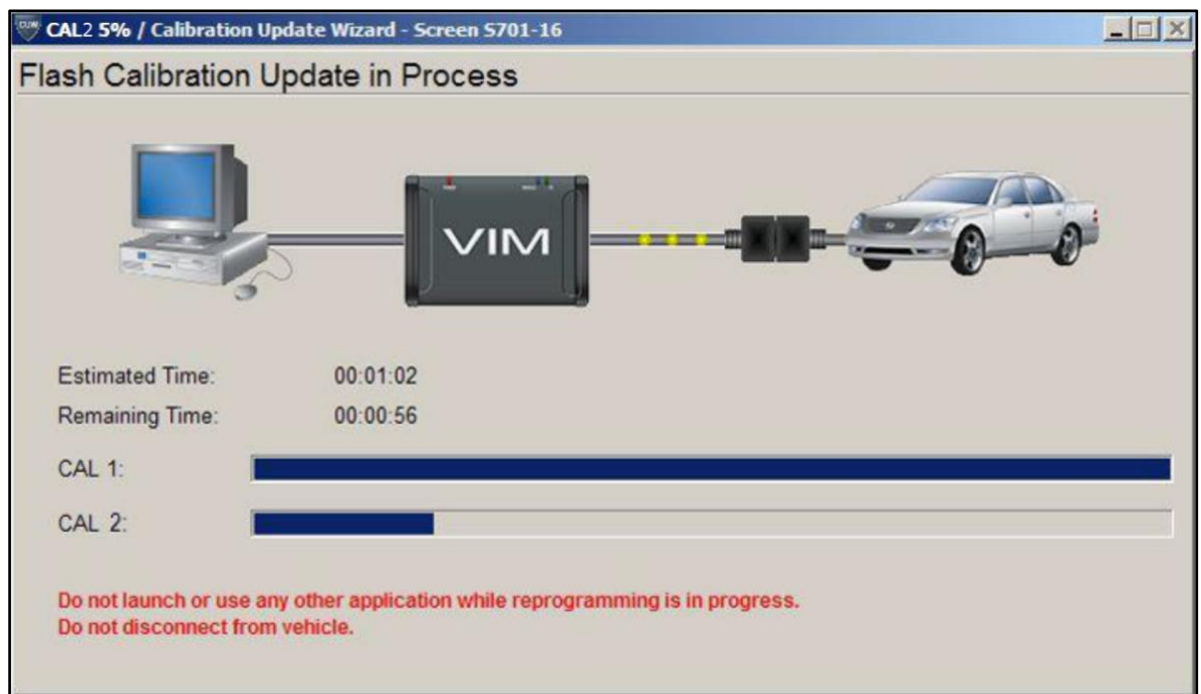


## Techstream ECU Flash Reprogramming Procedure

### Operation Procedure (Continued)

- K. Do NOT disturb the vehicle during flash reprogramming.

**Figure 18.**



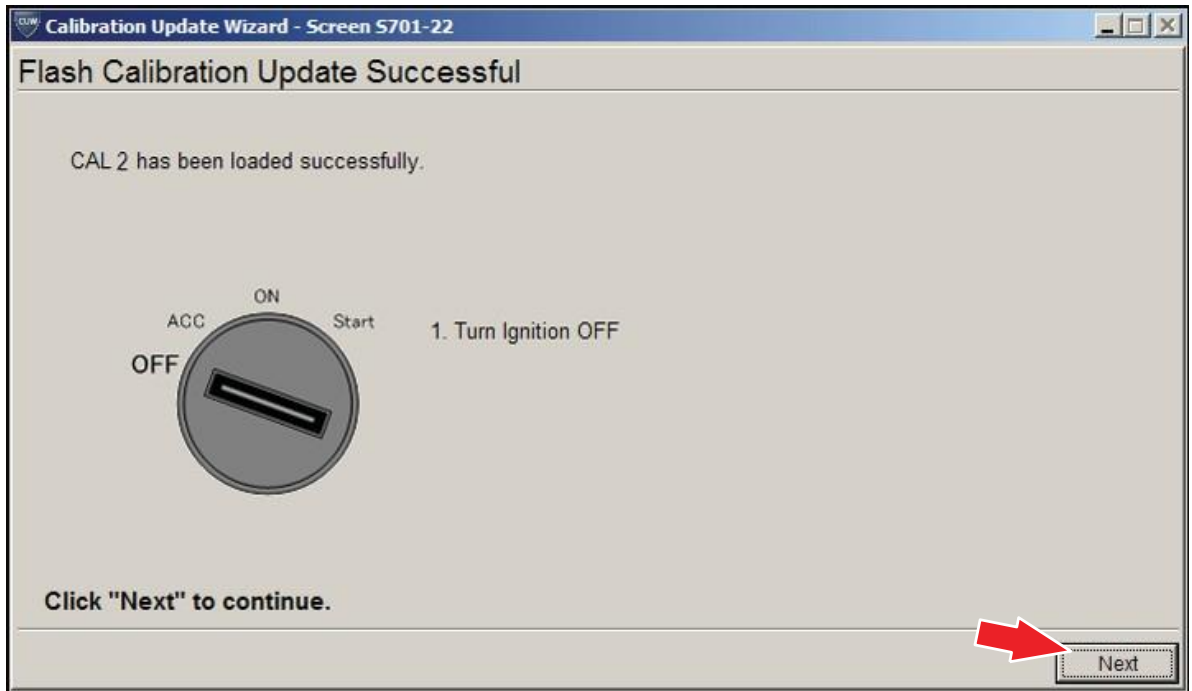


# Techstream ECU Flash Reprogramming Procedure

## Operation Procedure (Continued)

- L. Turn ignition OFF for a minimum of 10 seconds. Then, click *Next*.

Figure 19.





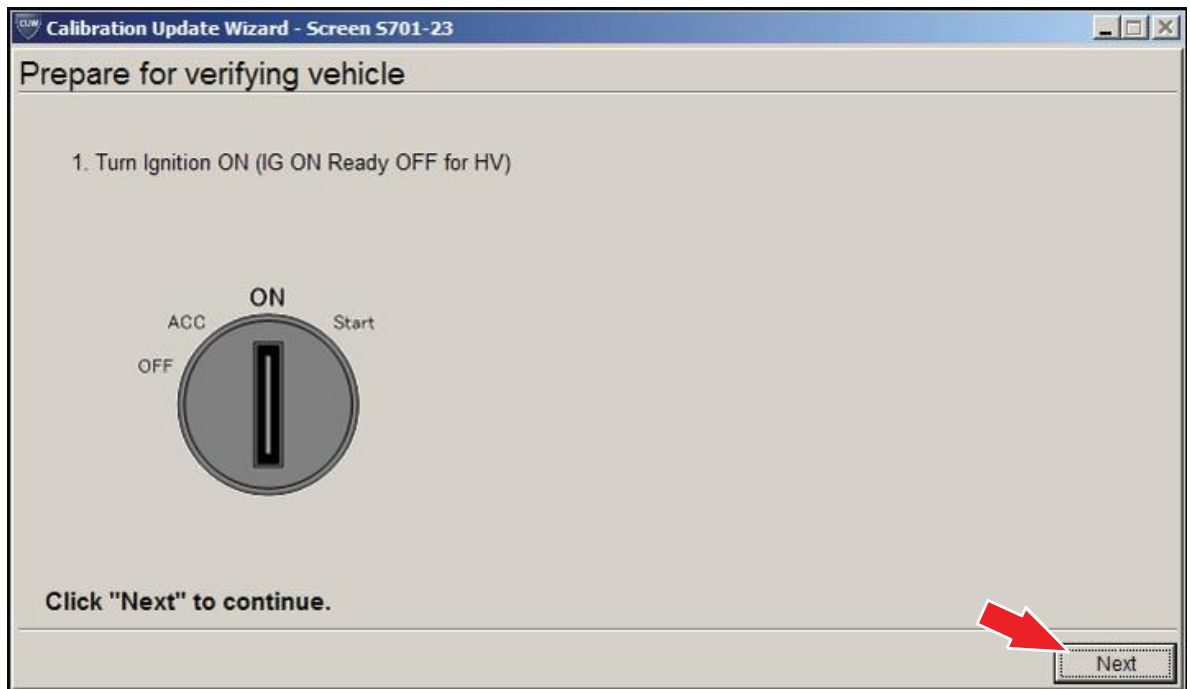
## Techstream ECU Flash Reprogramming Procedure

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### Operation Procedure (Continued)

- M. Turn ignition to the ON position. Then, click *Next*.

**Figure 20.**



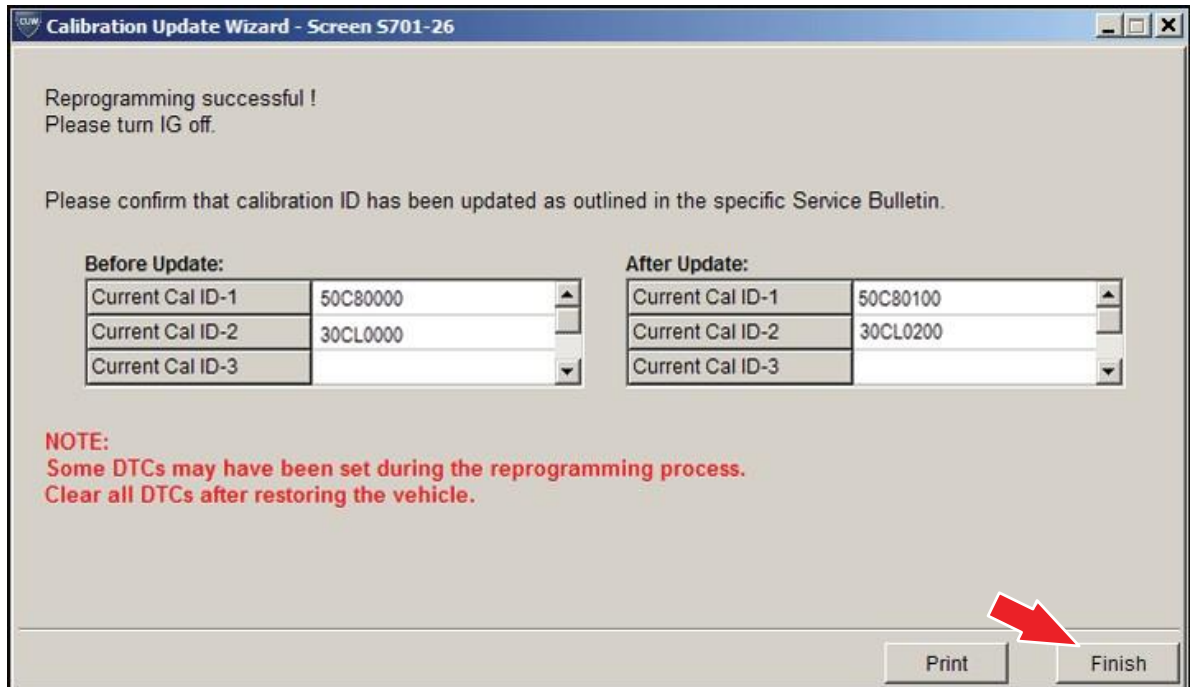


## Techstream ECU Flash Reprogramming Procedure

### Operation Procedure (Continued)

- N. Confirm ALL calibrations were updated as specified in the Service Bulletin. Then, click *Finish*.

**Figure 21.**



### NOTE

On some models, DTCs may set as a result of reprogramming. If DTCs are present, clear codes and run the Health Check again. Troubleshoot ANY remaining current, pending, or history codes. Permanent codes will NOT be cleared using Techstream. Permanent codes do NOT illuminate the MIL and do NOT require troubleshooting. They will clear during normal driving once the Universal Trip Drive Pattern is performed.

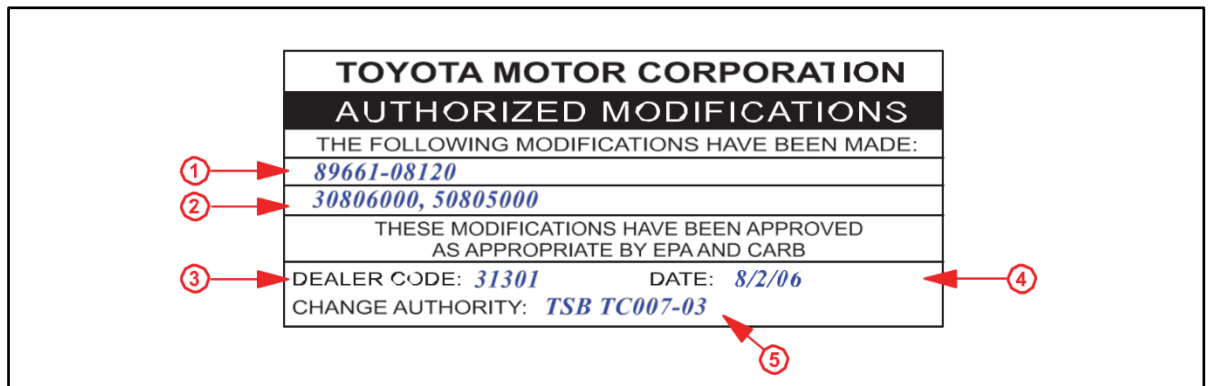


## Techstream ECU Flash Reprogramming Procedure

### Operation Procedure (Continued)

4. Attach the Authorized Modification Label.
  - A. Using a permanent marker or ballpoint pen, complete the Authorized Modification Label and attach it to the vehicle. The Authorized Modification Label is available through the MDC, P/N 00451-00001-LBL.

Figure 22.



<b>1</b>	<b>Replacement ECU Part Number</b>
<b>2</b>	<b>Calibration ID(s)</b>
<b>3</b>	<b>Dealer Code</b>

<b>4</b>	<b>Date Completed</b>
<b>5</b>	<b>Service Bulletin or Campaign Number</b>

- B. Attach the label under the hood in the location determined by the specific Service Bulletin or Campaign.

**NOTE**  
Wait 60 – 90 seconds for ink to set before handling.