

Service Category	General		
Section	Preparation	Market USA	Toyota Supports ASE Certification

### Applicability

YEAR(S)	MODEL(S)	ADDITIONAL INFORMATION
2020	Supra	

### Introduction

Flash reprogramming allows the Electric Control Unit (ECU) software to be updated without replacing the ECU. Flash calibration updates for the Supra are released as field-fix procedures described in individual service bulletins. This bulletin details the ECU flash reprogramming process and outlines use of the Toyota-ISTA Diagnostic Software. BEFORE beginning any reprogramming, ensure that the latest version of Toyota-ISTA is downloaded and installed from TIS.

### 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	OFP	T1	T2
N/A	Not Applicable to Warranty	-	-	-	_

### **Required Tools & Equipment**

REQUIRED EQUIPMENT	SUPPLIER	PART NUMBER	QTY
Techstream ADVi*	Snap-On	TSADVUNIT	1

\*Essential SST.

### NOTE

• Supra Diagnostic Software Toyota ISTA version 14.18.21.18585 or later is required. ISTA software is available for download at *TIS – Diagnostics – Scantool.* 

• Additional Techstream ADVi units may be ordered through the Techstream Order Portal at *TIS – Diagnostics – Scantool.* 

SPECIAL SERVICE TOOLS (SST)	PART NUMBER	QTY
Supra Diagnostic Cable*	<u>01018-00118</u>	1
DSS-5000 Battery Diagnostic Tool*	<u>DSS-5000P T</u>	1
DCA-8000 Battery Diagnostic Tool*	<u>DCA-8000P T</u>	1

\*Essential SST.

### NOTE

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

### **Techstream ADVi Preparation**

- 1. Complete ALL pending Windows updates.
- 2. Disable ANY automatic Windows reboot features.
- 3. Disable ALL automatic screensavers.
- 4. Disable ALL automatic sleep features.
- 5. Close ALL other applications.
- 6. Attach the Techstream ADVi directly to an AC power supply.
- 7. Do NOT perform ANY other functions while Toyota-ISTA is reprogramming.

### **ISTA** Preparation

### NOTICE

BEFORE proceeding further, ensure you have downloaded and installed the latest version of Toyota-ISTA from TIS. The calibration and reprogramming information is stored locally within Toyota-ISTA. <u>Attempting to reprogram a vehicle with an outdated version of ISTA may lead to an incomplete repair</u>.

Checking the installed Toyota-ISTA version:

1. Click on the configuration button as shown.

#### Figure 1.



### **ISTA Preparation (continued)**

2. Compare the installed version to the latest available version from TIS.



1			18/07/2019 10:19:11		? 😨 🗙
Integrated Service Technics Application	al de la companya de				🛊 🖂 🗙
	Administration			۵ ×	]
Operations Ve	Client settings Dealer data Ve	sion Initial operation Vehicl	e interface		
News	Package designation	Suboystem	Version Date	Size 🔺	Date
ISTA usage notes	ISTA	System	4.17.31.18228 18.07.2019		23/03/2018
	ISTA	Data	R4.17.31 18.07.2019	=	
	ISTA	Globel Data	4.17.22 18.07.2019		
	ISTA	Language Data	4.17.22 18.07.2019		
	ISTA	ISTA Database	4.17.22 09.05.2019		
	ISTA	ISTA DB StreamDataPrimitive DEDE	4.17.22 09.05.2019		
	ISTA	ISTA DB StreamDataPrimitive ENGB	4.17.22 09.05.2019		
	ISTA	ISTA DB StreamDataPrimitive ENUS	4.17.22 09.05.2019		
	ISTA	ISTA DB StreamDataPrimitive ES	4.17.22 09.05.2019		
	ISTA	ISTA DB StreamDataPrimitive FR	4.17.22 09.05.2019		
	ISTA	ISTA DB StreamDataPrimitive IT	4.17.22 09.05.2019		
	ISTA	ISTA DB StreamDataPrimitive JA	4.17.22 09.05.2019		
	ISTA	ISTA DB StreamDataPrimitive KD	4.17.22 09.05.2019	•	
	Cancel			ок	Display

### **Repair Procedure**

### Preparation

### NOTE

Certain functions in Toyota-ISTA can trigger activations of components in the connected vehicle. BEFORE activating components, make sure no one is in the area.

1. Do NOT place anything on the windshield, as the windshield wipers may activate during diagnosis or programming.

Figure 3.	
NG	

### **Repair Procedure (continued)**

### **Preparation (continued)**

2. Ensure no objects are placed on the front seats.



3. Do NOT cover the headlights, as they may activate during reprogramming and become hot.





### **Repair Procedure (continued)**

### **Battery Specifications and Battery Charger Usage**

### NOTE

BEFORE starting the reprogramming procedure, make sure you have connected the DCA-8000 battery charger. <u>The use of a charger during the ECU software update process is mandatory</u>.

Unlike other Toyota vehicles, the Supra is capable of drawing high amperage during diagnosis and repair. The Supra is equipped with an AGM-type battery and discharges will affect the life span of the battery. AGM batteries MUST NOT have a charging voltage that exceeds 14.6V.

### **Connecting the Battery Charger**

Connect the battery charger to the charging terminals located under the hood. Observe proper polarity when connecting the charger. Do NOT attempt to connect the battery charger directly to the battery terminals.

### Figure 6.



### **Repair Procedure (continued)**

### ISTA Diagnostic Cable

1. Connecting the cable.

In the case of diagnosis and reprogramming, it is an **absolute necessity** that the vehicle is connected to the Techstream ADVi via the Toyota Supra diagnostic cable, which has a LAN ethernet connection.

### NOTICE

In order to maintain successful communication between the Techstream ADVi and the vehicle, the Toyota Supra diagnostic cable must be used. Other interfaces that connect to the Techstream ADVi via USB are NOT allowed. Attempting to use such other devices may cause permanent ECU damage due to the slower communication speed.





### **Repair Procedure (continued)**

### ISTA Diagnostic Cable (continued)

2. Positioning the cable.

The Supra diagnostic cable should ALWAYS be passed through the position shown below. If it passes through ANY other position, it is possible the cable will be damaged. Using the gap between the rear fender and the side garnish, pull the Supra diagnostic cable to the outside of the vehicle. Use protective tape to fix and protect the cable.

Figure 8.



### NOTICE

Do NOT attempt to pass the Supra diagnostic cable through the window opening. The window glass may move during reprogramming, diagnosis, or initialization and damage the cable. Additionally, do NOT attempt to pass the Supra diagnostic cable through ANY other position of the door opening as it may cause damage to the cable.



### **Repair Procedure (continued)**

### ISTA Diagnostic Cable (continued)

- 3. Ensure the proper sequence.
  - ALWAYS connect the Supra diagnostic cable to the LAN port of the Techstream ADVi BEFORE connecting to the OBD port of the vehicle. Performing this order of operation will ensure that successful communication is achieved.

### Figure 10.



- 1 LAN Port of the Techstream ADVi
- 2 OBD Port of the Vehicle
- 4. Configuration of the Toyota-ISTA language and logs.
  - A. Select your preferred language.
  - B. Set "Delete local order data" to "never."

### Figure 11.

ummisuaiium					
Client settings Deale	er data Version	Initial operation settings	Vehicle interface Data protec	stion	
elect language American English (en-US	) @ British English (en-GB)	O Deutsch (de-DE)	O Español (es-ES)		
Français (fr-FR)	O Italiano (it-IT)	O Polski (pl-PL)	O čeština (cs-CZ)		
Português (pt-PT)	O Türkçe (tr-TR)	O Svenska (sv-SE)	O Nederlands (nI-NL)		
Indonesia (id-ID)	Ο ελληνικά (el_GR)	О русский (ru-RU)	〇 中文(简体) (zh-CN)		
中文(雏禮) (zh-TW)	O 日本 (ja-JP)	O 한국의 (ko-KR)	O ภาษาไทย (th-TH)		
Toyota Motor Corporation Printing type:					
<ul> <li>Toyota Motor Corporation</li> <li>Printing type:</li> <li>Print to file</li> </ul>	O Printer selection	O Print from default print			
<ul> <li>Toyota Motor Corporation</li> <li>Printing type:</li> <li>Print to file</li> <li>imit display time period for a</li> </ul>	O Printer selection	O Print from default print	w		
Printing type: Printing type: Print to file imit display time period for a D 1 month	O Printer selection news: O 3 months	O Print from default print	er O 12 months		
Printing type: ) Print to file 	O Printer selection news: O 3 months	O Print from default print ⊚ 6 months	er O 12 months		
Toyota Motor Corporation     Printing type:     Print to file     Jimit display time period for a     1 month     Delete local order data:     D after 7 days	O Printer selection news: O 3 months O after 14 days	<ul> <li>O Print from default print</li> <li>G months</li> <li>O after 30 days</li> </ul>	er O 12 months @ after 90 days	O never	
<ul> <li>Toyota Motor Corporation</li> <li>Printing type:</li> <li>Print to file</li> <li>invit display time period for it</li> <li>1 month</li> <li>Delete local order data:</li> <li>D after 7 days</li> </ul>	O Printer selection news: O 3 months O after 14 days	O Print from default print @ 6 months O after 30 days	or O 12 months (6) after 50 days	O never	
<ul> <li>Toyota Motor Corporation</li> <li>Printing type:</li> <li>Print to file</li> <li>invit display time period for it</li> <li>1 month</li> <li>Delete local order data:</li> <li>D after 7 days</li> </ul>	O Printer selection news: O 3 months O after 14 days	<ul> <li>Print from default print</li> <li>6 months</li> <li>o after 30 days</li> </ul>	er O 12 months © after 90 days	O never	
<ul> <li>Trysta Motor Corporation</li> <li>Printing type:</li> <li>Print to file</li> <li>Init display time period for it</li> <li>1 month</li> <li>Delete local order data:</li> <li>D after 7 days</li> <li>Cancel</li> </ul>	O Printer selection news: O 3 montha O after 14 days	<ul> <li>O Print from default print</li> <li>© 6 months</li> <li>O after 30 days</li> </ul>	or O 12 months @ after 50 days	O never OK	

Figure 12.

# Supra Reprogramming Guide

### **Repair Procedure (continued)**

### ISTA Diagnostic Cable (continued)

- 5. Configuration of the Toyota-ISTA connection type.
  - A. Select the vehicle interface tab.
  - Ensure that "Dealer organization ICOM/ENET local area network" is selected.

### NOTICE

Make sure the Supra diagnostic cable is ALWAYS used. Using a USB interface or ANY communication device other than the Supra diagnostic cable will result in slow communication speeds and could result in ECU damage.

Administration					æ
Client settings	Dealer data	Version	Initial operation settings	hicle interface	
Interface type:			Search Broadcast:	255.255.255.255,169.254.255	5.255
O Pass-Thru tool	(SAE J2534)				
<ul> <li>Dealer organis</li> <li>Dealer organis</li> </ul>	ation ICOM / ENET los	cal area network			
Usealer organis	INDITION/ENET OF	ecc connection			

### **Vehicle Preparation**

### Activating PAD Mode on the Supra

In order to have communication between the tester and the on-board ECUs, the vehicle MUST be put into an energy mode similar to IG-ON with engine OFF. For the Supra, this mode is called PAD mode and it ensures that ALL ECUs receive energy in order to reply to requests of Toyota-ISTA.

### NOTICE

While the vehicle is in PAD mode, ALL energy monitoring logic will be disabled. The technician MUST utilize a battery charger to maintain sufficient current during ALL diagnosis and programming activities. If the battery charger is NOT connected, battery life will be affected and <u>ECU damage could occur</u>.

How to activate PAD mode:

- Do NOT depress the brake pedal.
- Press the START button three times quickly.

### Figure 13.



### **Vehicle Preparation (continued)**

### Launching Toyota-ISTA and Connecting to the Vehicle

- 1. Select operations tab (or "Cases" for American English).
- 2. Select read out vehicle data tab.



3. Select "Complete identification."

### Figure 15.



### Vehicle Preparation (continued)

### Launching Toyota-ISTA and Connecting to the Vehicle (continued)

- 4. Select the gray bar indicating the VIN of the vehicle.
- 5. Select "Establish connection."

1					A			4	?	Y	X
Integrated Service Technical Application					Links				-¢F		×
VIN Veh	icle						к	L 15:		KL 30:	
Connection manager											X
Description	Color	Туре	Vehicle identification nurr	Connectio	on		к	.15 [V]	Status		
DESKTOP-CPGEEOL 127.0 129 WI009204	.0.1 🕒	ICOM	YBCDB210X0W009204	D-CAN ETH MOST	127.0.0.1		13	.5 V	Free		
				_		_			× De	fault ICON	'

6. The identification of ALL ECUs will start.



### **Calculating the Reprogramming Plan**

Unlike other Toyota vehicles that use Techstream and Calibration Update Wizard to perform single ECU updates, Toyota-ISTA will program ALL applicable ECUs during one service event.

The Supra software will be considered a global package, known as an Integration Level or I-Level. When a NEW software package is issued, it will be reflected in a numerically higher I-Level.

Toyota-ISTA will calculate the needed actions based on the difference between the current I-Level of the vehicle and the ISTA target I-Level. These measures will be calculated automatically by Toyota-ISTA.

### NOTICE

BEFORE proceeding further, ensure you have downloaded and installed the latest version of Toyota-ISTA from TIS. The calibration and reprogramming information is stored locally within Toyota-ISTA. <u>Attempting to reprogram a vehicle with an outdated version of ISTA may lead to an incomplete repair</u>.

- 1. Select service plan tab.
- 2. Select programming plan tab.
- 3. Allow the calculation to complete; this may take 3–5 minutes.

Figure 18.										
1				0	5/09/2019 14:59:44	C	- /	?		X
Integrated Service Te Application	echnical							₽	$\square$	×
VIN H014078	Vehicle TOYOTA	/J29/Coupe/ - /B58/AU	TO/ECE/LL/2019/03				KL 15: 1	3.5 V	KL 30:	13.5 V
Operations	Vehicle information	Vehicle management	Service plan							
Hit list	Test plan	Programming plan								
Measures plan	Final report									
Type Pla	anned actions						Origin	\$	State	•
Back	Display operations report	Execute service function		Reject measures plan		С	alculate measure plan	s Exe	cute mea plan	isures

### © 2019 Toyota Motor Sales, USA

### Calculating the Reprogramming Plan (continued)

AFTER the action plan has been calculated, the following screen will be displayed. This will list ALL necessary actions to transition from the Current I-Level to the Target I-Level.

### NOTICE

At this screen, it is still possible to select Back, which will exit the action plan and no programming will be completed. If there is no need to program the vehicle, use this opportunity to exit the action plan. AFTER selecting Perform Action Plan, there will be no further opportunity to exit the programming session. Once the programming session begins, time MUST be allowed for Toyota-ISTA to complete ALL operations. Exiting the action plan during a programming session will result in DTCs and ECU damage. <u>After starting the action plan, do NOT interrupt the session</u>.

Figure 19.

1	a dan Tanka lant			â	9	¥ ? 🖬 🗵
oplication	rvice rechnical				1	
N W010013	3 Vehicle TOYO	Vehicle	58/AUT/ECE/right-ha	ind drive/2019/03	KL 1	5: - KL 30: -
lases	information	management	Service plan			
lit list	Test plan	Programming plan				
Action plan	Final report					
Туре	Planned actions				Source	Status 🤳
		Software version 1 level	l (current). S18T-19-0	3-490 I level (target	) S18T-19-03-509	-
	Software actions					
IDS	Save individual data HU	I-H			Logistics	
IDR	Restore individual data	HU-H			Logistics	Ø
PRG	Program BDC				Logistics	
PRG	Program DME				Logistics	
PRG	Program DSC				Logistics	
PRG	Program FRS				Logistics	
					Logistics	
PRG	Program HRSNL					
PRG PRG	Program HRSNL Program HRSNR				Logistics	

### **Vehicle Preparations**

The following screen will be displayed. Please review each condition and ensure that it has been met BEFORE pressing the Continue button.

### NOTE

Ensure a minimum programming workstation temperature of 59°F.

#### Figure 20.

1	A	8		×	?	<b>X</b>	$\times$	
Integrated Service Technical Application				P	¢	$\square$	×	
Preparation for the vehicle programming							X	
The basic requirement for programming/coding is that the vehicle is correctly prepared. The follow	ing prereq	uisites m	ust be fu	lfilled:				
<ul> <li>Ensure minimum programming workstation temperature of 15°C (prerequisite for correct initial</li> </ul>	ization of p	ower wir	idows)					
Park the vehicle on a level surface and shift the front wheels to a precise straight-ahead position	on							
Switch off the engine								
Shift the manual transmission to neutral or the automatic transmission to the selector lever pos	sition Park							
Release the trailer from the trailer tow hitch and disconnect the connector								
The trailer tow hitch travel path must be kept free								
<ul> <li>Make sure that the wipers, side windows and sliding/tilting sunroof can move freely</li> </ul>								
Guarantee that the headlights are not covered by protective covers								
Make sure the front passenger seat is not subjected to loads by persons or objects.								
Secure the vehicle against rolling by activating the electromechanical parking brake (EMF) and	d setting th	e parking	j brake.				_	
Remove all inserted and connected data media from the drives and disconnect the data connect	ections (e.g	. paired I	nobile pl	nones)				
• Connect current charger authorized by the BMW Group either to the vehicle battery or to the auxiliary terminal for jump starting and to the ground								
Do not connect or disconnect the charger during the programming/coding								
Disconnect any connected high-voltage charging cables prior to working through the action pla	an							
Connect the ICOM vehicle interface to the workshop network via a LAN cable, while doing so a	check the o	able rou	ting					
Do not route cables through open side windows								
Switch on the ignition or activate the PAD before the ICOM vehicle interface is connected to th	e vehicle							
For additional information, see the user documentation for the vehicle programming.								
CF Notice!								
If all prerequisites are met, start the action plan execution with the button "Continue". With the celed.	button "Ca	ancel", th	e execut	ion of the	action p	lan is can	•	
Cancel						Continue	3	

### **During Programming**

While the reprogramming session is active, Toyota-ISTA will display the approximate time remaining until complete. The time may vary from vehicle to vehicle, based on many factors such as date of last programming and amount of ECU updates required.

Toyota-ISTA will also attempt to save personalization or individualization data from each ECU in order to maximize customer satisfaction.

As each step is completed, Toyota-ISTA will update the status with a green check mark.

1 Integrated Serv	ice Technical					<b>A</b>		<b>/</b>	?	
Application VIN W010013		Executin	g software actions		Remai	ning time: 46 minutes		KL 15: -	KL 3	30: -
Cases	Vehicle informati	on	Wehicle management	Service plar						
Hit list	Test plar	ı	Programming plan							
Action plan	Final rep	ort								
Туре	Planned actio	ns					Source		Status	0
		Sc	ftware version I level	(current): S187	-19-03-4	490 I level (target): \$	S18T-19-03-	509		<b></b>
	Software actions	1								
IDS	Save individua	l data HU-H					Logistics		~	
IDR	Restore individ	ual data HU-	H				Logistics		0	
PRG	Program BDC						Logistics		$\bigcirc$	
PRG	Program DME						Logistics		0	
PRG	Program DSC						Logistics		$\bigcirc$	
PRG	Program FRS						Logistics		0	
PRG	Program HRSN	۱L					Logistics		0	
PRG	Program HRSN	NR					Logistics		0	
PRG	Program HU-H						Logistics		Ō	-
Back	Displa Case	y Service e report	Perform service function	Discard act	ion plan		Calcula	ste action Ian	Perform a	action plan

### Figure 21.

### Vehicle Initializations

AFTER reprogramming has completed, Toyota-ISTA may request additional functions to complete. These additional functions may include initialization of seats, windows, mirrors, or headlights.

Toyota-ISTA may provide instructions such as ensuring there are no obstructions of the object that requires initialization. Please follow ALL necessary on-screen prompts and ensure that the vehicle is parked in a safe manner to complete each initialization.

If these directions are NOT followed properly, the vehicle could produce additional DTCs.

Figure 22.				
1			<b>I</b>	? 💌 🗡
Integrated Se Application	rvice Teo	thnical		
VIN W01001	3	Executing follow-up operations	KL 15: -	KL 30: -
Cases		Information		
Hit list		The driver's seat is standardized in the following step.		
Action plan		Information on seat standardization:		
T	D	Only carry out seat standardization on a trouble-free system     Make sure that the vehicle voltage exceeds 10.5 V		Directory (1)
Туре	Pla	The seat must not be occupied as it will Move to both end positions		status 🙂
ABL	Dele	The adjustment travel path must be free of obstructions		
ABL	FAS	Do not operate the switch for fore-and-aft seat adjustment during the standardization		~
ABL	Loc			~
ABL	MO	Warning!		
ABL	Rur	The crush guard is not active during seat standardization.		4
ABL	Sea			
ABL	Upc			Δ
UPD	Upc			~
UPD	Writ			✓ =
UPD	Writ			✓
UPD	Writ		ок	✓ ▼
Back	L	Display Service Case report Perform service function Discard action plan	Calculate action plan	Perform action plan

### **Final Report**

AFTER the measures plan has completed, Toyota-ISTA will automatically display the Final Report. The Final Report will list ALL actions that have been completed and the status. **AFTER the Final Report is displayed, the reprogramming is complete.** 

You may return to vehicle diagnostics by clicking the vehicle management tab.

Operations	Vehicle information	Vehicle management	Service plan			
Hit list	Test plan	Programming plan				
Measures plan	Final report					
Туре	Performed actions				Origin	State 🕕
Extended	Softwa	are version Integr. leve	l (actual): F025-16-03-5	500 Integr. level (tar	get): F025-16-07-502	<b>^</b>
:	Software actions					=
IDS	Save individual data HU-H	1			Logistics	✓
IDR	Restore individual data HI	J-H			Logistics	$\checkmark$
PRG	Programming BDC				Logistics	✓
PRG	Programming DDE				Logistics	$\checkmark$
PRG	Programming DSC				Logistics	✓
PRG	Programming EDC				Logistics	✓
PRG	Programming EGS				Logistics	✓
PRG	Programming EKPS				Logistics	$\checkmark$
PRG	Programming FZD				Logistics	✓
PRG	Programming ICM				Logistics	✓ ▼
Display operati report	ons					Display measures plan

### Figure 23.