

Service

Category Engine/Hybrid System

Section	Engine Control	Market USA	Toyota Supports
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#### Applicability

YEAR(S)	MODEL(S)	ADDITIONAL INFORMATION
2019 - 2022	Avalon, Corolla Hatchback, RAV4	
2018 - 2022	Camry	
2020 - 2022	Corolla	
2017 - 2022	Highlander	
2017 - 2020	Sienna	
2016 - 2022	Tacoma	

### **REVISION NOTICE**

May 27, 2022 Rev1:

- Applicability has been updated to include 2022 model year Avalon, Camry, Corolla, Corolla Hatchback, Highlander, RAV4, and Tacoma vehicles.
- Applicability has been updated to remove 2021 model year Sienna vehicles.
- The Test Procedure section has been updated.

Any previous printed versions of this bulletin should be discarded.

### Introduction

This Service Bulletin provides a procedure to properly perform the Techstream "Control the Injection Mode" active test in some 2016 – 2022 model year Toyota vehicles equipped with an FKS engine.

### Warranty Information

OP CODE	DESCRIPTION	TIME	OFP	T1	T2
N/A	Not Applicable to Warranty	-	-	I	—

#### **Required Tools & Equipment**

REQUIRED EQUIPMENT	SUPPLIER	PART NUMBER	QTY
Techstream ADVi*		TSADVUNIT	
Techstream 2.0		TS2UNIT	4
Techstream Lite	ADE	TSLITEPDLR01	I
Techstream Lite (Green Cable)		TSLP2DLR01	

\*Essential SST.

#### NOTE

- Only ONE of the Techstream units listed above is required.
- Software version 17.00.020 or later is required.
- Additional Techstream units may be ordered by calling Approved Dealer Equipment (ADE) at 1-800-368-6787.

### **Test Procedure**

- 1. Start the engine and turn OFF the A/C.
- 2. Connect Techstream to the vehicle and navigate to *Engine Active Test Control the Injection Mode*.
- 3. Verify the execute conditions are met to perform the active test.

### NOTICE

The vehicle MUST be stopped with the engine idling, and the coolant temperature MUST be above 176°F (80°C).

### 4. Select OK.

#### Figure 1.

19 Tacoma GR-FKS	DTC Monitors are Complete. View Monitors	PERMANENT:NO
7759 mile	Dia Active Test Selection (S307-01)	MIL:OFF
FCZ5AN5KX178457 Trouble Codes Data List Active Test Monitor Utility Dual Data List	Er       Select desired Active Test from the List.         Control the Intake VVT OCV Duty Ratio Bank 2       This test will activate the injection control for Port and Direct injection. This test allows for switching between Port and Direct Injection controls.         Net       Control the Exhaust VVT OCV Duty Ratio Bank 1         Control the Exhaust VVT OCV Duty Ratio Bank 2       Activate the Vacuum Pump         Activate the VSV for Vent Valve       Activate the VSV for Vent Valve         Control the Enjection Mode       2         Control the Elect Cylinder Fuel Cut       Operate with the Vehicle stopped and Engine idling.	Freeze Frame Data
TIS Search Print	Coolant Temperature must be above 176F D-4S (A/F Control) C-4S (Fuel Cut) C-4S	
Close	K A A A A A A A A A A A A A A A A A A A	
Close		E.A.J

### **Test Procedure (continued)**

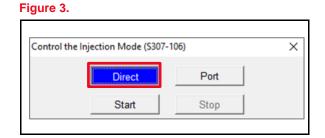
- 5. Select the criteria desired for monitoring (see Figure 2).
  - A. Select Primary as the data set to be displayed.
  - B. Select the parameters.
    - (1) Engine speed
    - (2) Injection Mode
    - (3) Short FT(s)
    - (4) Long FT(s)
  - C. Select the graph button.

ma	0		1.1		0		1.0
	Parameter Control the Injection Mode [Target Value]	Value		Unit	Parameter Injection Time Cylinder #1 (D4)	1020	Uni
	Control the Injection Mode [Current Value]	Not Acti	-	——	Target Air-Fuel Ratio	1.000	us
le	Vehicle Speed	0		MPH	A/F (02) Lambda Sensor B1S1	0.965	+
ate	Engine Speed	1779			A/F (O2) Lambda Sensor B2S1	0.970	
X159080	Calculate Load	13.3		%	A/F (O2) Sensor Voltage B1S1	3.080	V
	Vehicle Load	14.1		%	A/F (O2) Sensor Voltage B2S1	3.136	v
Codes	Mass Air Flow Sensor	8.45			A/F (O2) Sensor Current B1S1	-0.083	m
00000						-0.059	m
	Atmospheric Pressure	-1		0)	A/F (O2) Sensor Heater Duty Ratio B1S1	32.0	9
List	Coolant Temperature	176		F	A/F (O2) Sensor Heater Duty Ratio B2S1	32.0	%
	Intake Air Temperature	75		F	O2 Sensor Voltage B1S2	0.790	×
Test	Ambient Temperature	75	_	F	O2 Sensor Voltage B2S2	0.800	×
	Engine Run Time	557		sec	O2 Sensor Heater Current Value B1S2	1.010	A
	Initial Engine Coolant Temperature	91.6	_	F	O2 Sensor Heater Current Value B2S2	1.068	A
itor	Initial Engine Intake Air Temperature	69.1		F	Short FT B1S1	-0.782	
	Battery Voltage	13.7	_	V	Short FT B2S1	-0.782	
ty	Accelerator Position	13.3	_	%	Short FT B1S2	-0.782	9
	Throttle Request Position	0.878		v /	Short FT B2S2	-0.782	%
	Thrattle Sensor Position	1.9	-	*	Long FT B1S1	-5.469	
a List	Throttle Position Sensor No.1 Voltage	0.878		1	Long FT B2S1	-4.688	
	Throttle Position Sensor No.2 Voltage	2.480		v	Long FT B154	0.000	
	Throttle Position Command	0.878		v	Long FH2S2	0.000	
	Throttle Air Flow Learn Value (Area 1)	9.80	1	<u> </u>	Foel System Status Bank 1	CL	
	Throttle Air Flow Learn Value (Area 2)	000	/	/	Fuel System Status Bank 2	CL	-
	Throttle Air Flow Learn Value (Area 3)	0			Ignition Timing Cylinder #1	42.5	d
	Low Revolution Control	d	2 🕅				de
	Engine Stall Control F/B Flow	-1024		Nm	Knock Correct Learn Value	20.5	(C/
	Throttle Position	6.25		deg	Shift SW Status (Neutral) Supported	Unsupp	1
	Target Fuel Pressure (High)	348			Complete Parts Monitor	Avail	+
	Target Fuel Pressure (High) Supported	Supp		psig	Complete Parts Monitor Complete Parts Monitor Result	Compl	+
	Target Fuel Pressure (Low) / Target Fuel Pressure 2	58		psig	Ignition Monitor	Spark Ignition	-
	Target Fuel Pressure (Low) / Target Fuel Pressure 2 Supported	Supp	+ + '	pung	Fuel System Monitor	Avail	
	Fuel Pressure (High)	3661		psig	Fuel System Monitor Result	Compl	
	Fuel Pressure (High) Supported	Supp		baild	Misfre Monitor	Avail	+
	Fuel Pressure (Low) / Fuel Pressure 2	57		psig	Misfire Monitor Result	Compl	
	Fuel Pressure (Low) / Fuel Pressure 2 Supported	Supp		pany	EGR/VVT Monitor	Avail	
	VSV for Vant Valve	OFF			EGR/VVT Monitor EGR/VVT Monitor Result	Compl	
1	Fuel Pump Control Duty Ratio	24.4		%	A/F (O2) Sensor Heater Monitor	Avail	
	Injector Cylinder #1 (Port)	3030		70 US	A/F (02) Sensor Heater Monitor A/F (02) Sensor Heater Monitor Result	Compl	+
4	Injector Cylinder #1	0.099		ml	A/F (O2) Sensor Heater Monitor Result A/F (O2) Sensor Monitor	Compi	+
	High Fuel Pressure Sensor	25.24		MPa	A/F (O2) Sensor Monitor A/F (O2) Sensor Monitor Result	07-105)	
	High Fuel Pressure Sensor High Pressure Fuel Pump Duty Ratio (D4)	25.24		MPa %	A/F (O2) Sensor Monitor Result Secondary Air Injection System Monitor		
	High Pressure Fuel Pump Duty Ratio (D4) High Pressure Fuel Pump Discharge Rate	0.00		mi	Secondary Air Injection System Monitor Secondary Air Injection System Monitor Result Direct	Port	
	Inight reasons i were only Discharge Nate	Port		10	EVAP Monitor		
	myethon show			don	EVAP Monitor EVAP Monitor Result Start	Stop	
	Injection Timing Sudinder #1 (D4)	0.0		(CA)	EVAP Monitor Result Oran		
word	4			(Ch)	Heated Catalyst Monitor	INVE ANT	_
nt							
	Primary  Primary  Sof A to Z				(3) (4)		
se					(3) (4)		-
	Sort A to Z						_
ne	172 ms					Default User	D4
Da	ta Set to Be Displayed				3 Graph Button		
1							

6. Press the record button to start recording.

### **Test Procedure (continued)**

- 7. Select Direct on the Control the Injection Mode window.
- 8. Raise the engine to 2,000 RPM.



### Figure 4.

Injection Mode (\$307-		
Direct	Port	
Start	Stop	

11. Idle the engine for one minute.

13. Select Port on the Control the Injection

10. Keep the engine RPM at 2,000 for

12. Click Stop.

Mode window.

9. Press Start.

30 seconds.

### Figure 5.

Control the Inje	ction Mode (S307-	106)	×
[	Direct	Port	
	Start	Stop	

#### Figure 6.

Control the Inj	ection Mode (S30	07-106)		×
	Direct		Port	
	Start		Stop	

### **Test Procedure (continued)**

- 14. Raise the engine to 2,000 RPM.
- 15. Press Start.
- 16. Keep the engine RPM at 2,000 for 30 seconds.
- 17. Idle the engine for one minute.
- 18. Click Stop.

### Figure 7.

Control the Injection Mode (\$307-106)				
	Direct	Port		
	Start	Stop		

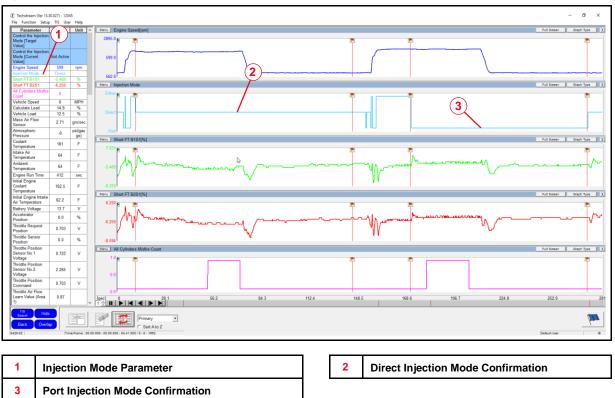
### Figure 8.

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control ti	ne Injection Mode (S307-		
	Direct	Port	
	Start	Stop	

19. Click the record button to stop recording.

### **Test Procedure (continued)**



### Figure 9. Primary Data List Graph Snapshot

20. Utilizing the primary data list graph snapshot, confirm the switch occurred when commanded with the injection mode parameter.

Did the vehicle respond to the selected modes (direct and port) during the active test?

- YES The active test is complete.
- NO Retake the active test, return to step 2.

#### NOTE

If the active test is used multiple times without using this procedure to raise engine RPM, it may be necessary to reset learning values for fuel trim and air to fuel ratio before returning the vehicle to the customer.