

Service Category Engine/Hybrid System

 Section
 Engine Control
 Market
 USA
 Toyota Supports

Applicability

YEAR(S)	MODEL(S)	ADDITIONAL INFORMATION
2010	Corolla	Engine(s): 2ZR Transmission(s): 4AT, 5MT VDS(s): BU4EE
2010	Matrix	Engine(s): 2ZR Transmission(s): 4AT, 5MT VDS(s): KU4EE

Introduction

Some 2010 model year Corolla and Matrix vehicles may exhibit a MIL "ON" condition with one or more of the following Diagnostic Trouble Codes (DTCs):

- P2195 Oxygen (A/F) Sensor Signal Stuck Lean (Bank 1 Sensor 1)
- P0138 Oxygen Sensor Circuit High Voltage (Bank 1 Sensor 2)
- P0031 Oxygen (A/F) Sensor Heater Control Low (Bank 1 Sensor 1)

The Engine Control Module/ECM (SAE term: Powertrain Control Module/PCM) logic has been modified to reduce the possibility of this condition occurring. Use the following repair procedure to address this condition.

Production Change Information

This TSB applies to all Japan-built Corolla vehicles and to vehicles produced **BEFORE** the Production Change Effective VINs shown below.

MODEL	PLANT	PRODUCTION CHANGE EFFECTIVE VIN
		1NXBU4EE#AZ319957
Corollo	NUMM	1NXBU4EE#A2318570
Matrix	ТММС	2T1BU4EE#AC330857
		2T1BU4EE#AC330836
		2T1KU4EE#AC329966
		2T1KU4EE#AC330950

Warranty Information

OP CODE	DESCRIPTION	TIME	OFP	T1	T2
EG9046	Recalibrate ECM (PCM) Engine and R & R A/F Sensor	1.4	89661-#####	8A	99

APPLICABLE WARRANTY

- This repair is covered under the Toyota Federal Emission Warranty. This warranty is in effect for 96 months or 80,000 miles, whichever occurs first, from the vehicle's in-service date.
- Warranty application is limited to occurrence of the specified condition described in this bulletin.

Parts Information

MODEL	TRANSMISSION	PREVIOUS PART NUMBER	CURRENT PART NUMBER	PART NAME	QTY
Corolla	4 4 7	89661-02F50 89661-02F51	89661-02F52		-
Matrix	4A1	89661-02V30 89661-02V31	89661-02V32	Computer, Engine Control (ECM/PCM)	-
Corolla,	5MT	89661-02U70 89661-02U71	89661-02U72		_
Matrix	_	89467-02040	Same	Sensor, Air Fuel Ratio	1
_	N/A	00451-00001-LBL	Same	Authorized Modification Labels	1

NOTE

- The ECM (PCM) should NOT be replaced as part of the repair procedure.
- Authorized Modification Labels may be ordered in packages of 25 from the Materials Distribution Center (MDC) through Dealer Daily Dealer Support Materials Orders.

Calibration Information

MODEL	ENGINE	TRANSMISSION	PREVIOUS CALIBRATION ID	NEW CALIBRATION ID	VDS
Corolla		4 AT	302G8000 302G8100	<u>302G8200</u>	BU4EE
Matrix 2ZR-FE	4A1	302J5000 302J5100	<u>302J5200</u>	KU4EE	
Corolla, Matrix		5MT	302G9000 302G9100	<u>302G9200</u>	BU4EE KU4EE

Required Tools & Equipment

REQUIRED EQUIPMENT	SUPPLIER	PART NUMBER	QTY
TIS Techstream* NOTE: Software version 4.21.002 or later is required.	ADE	TSUNT	1

* Essential SST.

NOTE

- Additional TIS 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 with this calibration file. Please use TIS Techstream or an approved J2534 interface to perform this update. Visit <u>techinfo.toyota.com</u> for more information regarding J2534 reprogramming.



SPECIAL SERVICE TOOLS (SST'S)	PART NUMBER	QTY
GR8 Battery Diagnostic Station*	00002-MCGR8	1
Oxygen Sensor Socket*	09224-00010-01	1

* Essential SST.

NOTE

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

Repair Procedure

- 1. Using TIS Techstream, check for stored DTCs.
 - If BOTH DTC P2195 and P0138 are set, proceed to step 2.
 - If **ONLY** DTC P2195 is present, diagnose per the Repair Manual for P2195 (see below). ٠
 - If **ONLY** DTC P0138 is present, diagnose per the Repair Manual for P0138 (see below). •
 - If **ONLY** DTC P0031 is present, diagnose per the Repair Manual for P0031 (see below).

P2195 Diagnosis:

Does the Air Fuel Ratio Sensor have an open or short on the A1A+ or A1A- wires?

Refer to the Technical Information System (TIS), 2010 model year Corolla or Matrix Repair Manual:

2010 Corolla / Matrix:

Engine/Hybrid System – Engine Control – "2ZR-FE Engine Control: SFI System: P2195, P2196: Oxygen (A/F) Sensor Signal Stuck Lean (Bank 1 Sensor 1)"

- **YES** Repair the harness and reevaluate the Air Fuel Ratio Sensor operation. Confirm the previous DTC(s) do NOT reset.
- NO Proceed to step 2.

P0138 Diagnosis:

Inspect the Freeze Frame Data (FFD) values.

- If the AFS B1S1 voltage = 3.35 ~ 3.70V AND the O2S B1S2 = 0.70 ~ 0.90V, the A/F sensor is suspect. Proceed to step 2.
- If the O2S B1S2 voltage is more than 1.10V and/or the O2S Impedance is more than 300 ohms at operating temperature, the A/F sensor is NOT at fault and this TSB does NOT apply. Refer to the Repair Manual for O2 sensor and O2 sensor circuit diagnosis.

2010 Corolla / Matrix: Engine/Hybrid System – Engine Control – "2ZR-FE Engine Control: SFI System: P0136–P0139: Oxygen Sensor Circuit Malfunction (Bank 1 Sensor 2)"

Repair Procedure (Continued)

P0031 Diagnosis:

Determine if the A/F sensor is at fault per the Repair Manual.

2010 Corolla / Matrix: Engine/Hybrid System – Engine Control – "2ZR-FE Engine Control: SFI System: P0031, P0032: Oxygen (A/F) Sensor Heater Control Circuit Low (Bank 1 Sensor 1)"

- YES Proceed to step 2.
- NO This TSB does NOT apply. Refer to the Repair Manual for further diagnosis.
- 2. Replace the A/F sensor and proceed to step 3.
- 3. Check for the Authorized Modifications Label affixed to the vehicle in the location shown in Figure 1. Confirm if the ECM (PCM) calibration has been updated. If the calibration ID listed is NOT the latest ECM (PCM) calibration — go to step 4.

Figure 1. Location of Authorized Modifications Label on 2010 Corolla and Matrix



1	Replacement ECM (PCM) Part Number (i.e., 89661-02F52)	
2	New Calibration ID(s) (i.e., 302G8200)	
3	Dealer Code	

4 **Date Completed** 5 This TSB Number

Repair Procedure (Continued)

4. Flash reprogram the ECM (PCM).

NOTE

- The GR8 Battery Diagnostic Station MUST be used in Power Supply Mode to maintain battery voltage at 13.5 volts while flash reprogramming the vehicle.
- For details on how to use the GR8 Battery Diagnostic Station, refer to the <u>GR8 Instruction</u> <u>Manual</u> located on TIS, *Diagnostics – Tools & Equipment – Battery Diagnostics.*

Follow the procedures outlined in TSB No. <u>T-SB-0064-10</u>, *"Techstream ECU Flash Reprogramming Procedure"*, and flash the ECM (PCM) with the NEW calibration file update.

5. Install the Authorized Modifications Label.

A. Using a permanent marker, enter the following information on the label:

- ECM part number [Refer to the **Parts Information** section for the **CURRENT PART NUMBER**]
- Calibration ID(s) [Refer to the Calibration Identification Chart for the NEW CALIBRATION ID]
- Dealer Code
- Repair Date
- Change Authority [This TSB number]
- B. Affix the Authorized Modifications Label to the vehicle at the location shown in Figure 1. The Authorized Modifications Label is available through the MDC, P/N 00451-00001-LBL.
- 6. Test drive the vehicle to confirm proper vehicle operation.