

MIL ON DTC P0138 - A/F Sensor Stuck Lean (AR Engine)

Service Category Vehicle Interior

Section Meter/Gauge/Display

Market USA

Toyota Supports
ASE Certification 

Applicability

YEAR(S)	MODEL(S)	ADDITIONAL INFORMATION
2010 - 2011	Camry	WMI(s): 4T1, JTN VDS(s): BF3EK Engine(s): 2AR Transmission(s): MANUAL, AUTOMATIC
2009 - 2012	RAV4	WMI(s): 2T3, JTM VDS(s): BF31V, BF32V, BF33V, BF34V, BF35V, BF4DV, BF9DV, DF4DV, DF9DV, EF4DV, JF4DV, KF4DV, KF9DV, RF4DV, WF4DV, XF4DV, YF4DV, YF9DV, ZF31V, ZF32V, ZF33V, ZF34V, ZF35V, ZF4DV, ZF9DV Engine(s): 2AR Drive Type(s): 4WD, 2WD Transmission(s): AUTOMATIC

This Service Bulletin is NOT applicable to Partial Zero Emission Vehicles (PZEV). PZEV can be identified by the Vehicle Emission Control Information label affixed to the underside of the hood.

Introduction

Some 2009 – 2012 model year RAV4 and 2010 – 2011 model year Camry vehicles equipped with 2AR-FE (non-PZEV) engines may exhibit a MIL ON condition with Diagnostic Trouble Code (DTC) P0138 (Oxygen Sensor Circuit High Voltage [Bank 1 Sensor 2]). This condition may be caused by incorrect air fuel ratio sensor response. The Engine Control Module/ECM (SAE Term: Powertrain Control Module/PCM) logic has been modified to reduce the possibility of this condition occurring. Follow the Repair Procedure in this bulletin to address this condition.

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Warranty Information

MODEL	OP CODE	DESCRIPTION	TIME	OFP	T1	T2
RAV4	EG1814	Reprogram ECM (PCM) and R & R Air Fuel Sensor	1.0	89661-#####	8A	99
Camry	EG1816		1.1			

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	PART NUMBER		PART NAME	QTY
	PREVIOUS	NEW		
RAV4	89467-42120		Sensor, Air Fuel Ratio	1
Camry	89467-73010	89467-06100		1
	89661-06J10 89661-06J11 89661-06J12 89661-06J13 89661-06J14 89661-06J15	89661-06J16	Computer, Engine Control (ECM/PCM)	—
	89661-33E90 89661-33E91 89661-33E92 89661-06N70 89661-06N71	89661-06N72		

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Parts Information (continued)

MODEL	PART NUMBER		PART NAME	QTY
	PREVIOUS	NEW		
RAV4	89661-42J80 89661-42J81 89661-42Q20 89661-42Q21 89661-42Q22 89661-42Q23	89661-42Q24	Computer, Engine Control (ECM/PCM)	—
	89661-42J90 89661-42J91 89661-42Q30 89661-42Q31 89661-42Q32 89661-42Q33	89661-42Q34		
	89661-0R090 89661-0R091 89661-0R230 89661-0R231 89661-0R232 89661-0R233	89661-0R234		
	89661-0R100 89661-0R101 89661-0R240 89661-0R241 89661-0R242 89661-0R243	89661-0R244		
	00451-00001-LBL			
	Authorized Modifications Labels			

NOTE

- The ECM (PCM) should NOT be replaced as part of the Repair Procedure.
- Authorized Modifications Labels may be ordered in packages of 25 from the Materials Distribution Center (MDC) through *Dealer Daily – Parts – Dealer Support Materials Orders*.

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Required Tools & Equipment

REQUIRED EQUIPMENT	SUPPLIER	PART NUMBER	QTY
Techstream 2.0*	ADE	TS2UNIT	1
Techstream Lite		TSLITEPDLR01	
Techstream Lite (Green Cable)		TSLP2DLR01	

* Essential SST.

NOTE

- Only ONE of the Techstream units listed above is required.
- Software version 13.20.018 or later is required.
- Additional Techstream units may be ordered by calling Approved Dealer Equipment (ADE) at 1-800-368-6787.
- Use Techstream or an approved J2534 interface to perform flash reprogramming updates. Visit techinfo.toyota.com for more information regarding J2534 reprogramming.

SPECIAL SERVICE TOOLS (SST)	PART NUMBER	QTY
GR8 Battery Diagnostic Station*	00002-MCGR8	1

* Essential SST.

NOTE

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

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Calibration Information

MODEL	MODEL YEAR	DRIVETRAIN	CALIBRATION ID	
			PREVIOUS	NEW
Camry	2010 – 2011	2WD Manual	30669000 30669100 30669200 30669300	30669400
		2WD Automatic	895363315000 895363319000	895363328000
			306D4000 306E2000 333B5000 333B5100 333B5200 333B5300 333B5400 333G4000 333G4100	306D4100
RAV4	2009 – 2011	2WD Automatic	34287000 34287100 342F0000 342F0100 342F0200 342F0300	342F0400
		4WD Automatic	34288000 34288100 342F1000 342F1100 342F1200 342F1300	342F1400
	2012	2WD Automatic	342L8000	342L8100
		4WD Automatic	342L9000	342L9100

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Repair Procedure

1. Check the vehicle for exhaust leaks.
Does the vehicle exhibit ANY exhaust leaks?
 - **YES** — This bulletin does NOT apply. Continue diagnosis using the applicable Repair Manual.
 - **NO** — Continue to step 2.

2. Using Techstream, check for the following stored DTC:
P0138 – Oxygen Sensor Circuit High Voltage
Is DTC P0138 present?
 - **YES** — Continue to step 3.
 - **NO** — This bulletin does NOT apply. Continue diagnosis using the applicable Repair Manual.

3. Complete the inspection procedure for DTC P0138.
 - A. Connect Techstream to the DLC3.
 - B. Start the engine.
 - C. Turn the Techstream ON.
 - D. Warm up the engine at an engine speed of 2500 rpm for approximately 90 seconds.
 - E. Enter the following menus: *Powertrain – Engine and ECT – Active Test – Control the Injection Volume for A/F sensor.*
 - F. Perform the Active Test operation with the engine idling. (Press the Right or Left button to change the fuel injection volume.)
 - G. Monitor the output voltage of the HO2 sensor (O2S B1S2) displayed on the Techstream.

4. Compare the monitored voltages to the values below.

Table 1.

TESTER DISPLAY (SENSOR)	INJECTION VOLUME	STATUS	VOLTAGE
O2S B1S2 (HO2)	+25%	Rich	Higher Than 0.55V
	-12.5%	Lean	Below 0.4V

Do the voltages follow the guidelines?

- **YES** — Continue to step 5.
- **NO** — This bulletin does NOT apply. Continue diagnosis using the applicable Repair Manual.

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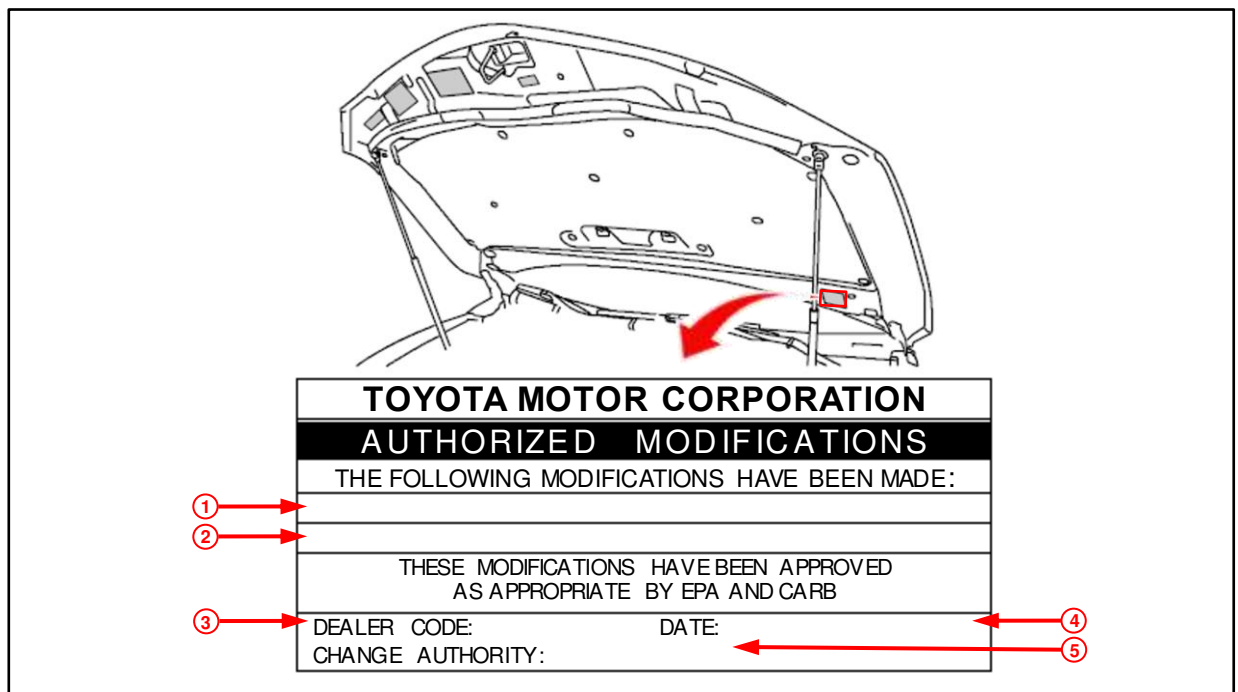
Repair Procedure (continued)

5. Check for the Authorized Modifications Label affixed to the vehicle in the locations shown below. Confirm if the ECM (PCM) calibration has been updated.

Is the calibration ID listed the latest ECM (PCM) calibration?

- **YES** — This bulletin does NOT apply. Continue diagnosis using the applicable Repair Manual.
- **NO** — Continue to step 6.

Figure 1. Location of Authorized Modifications Label for 2010 – 2011 Camry



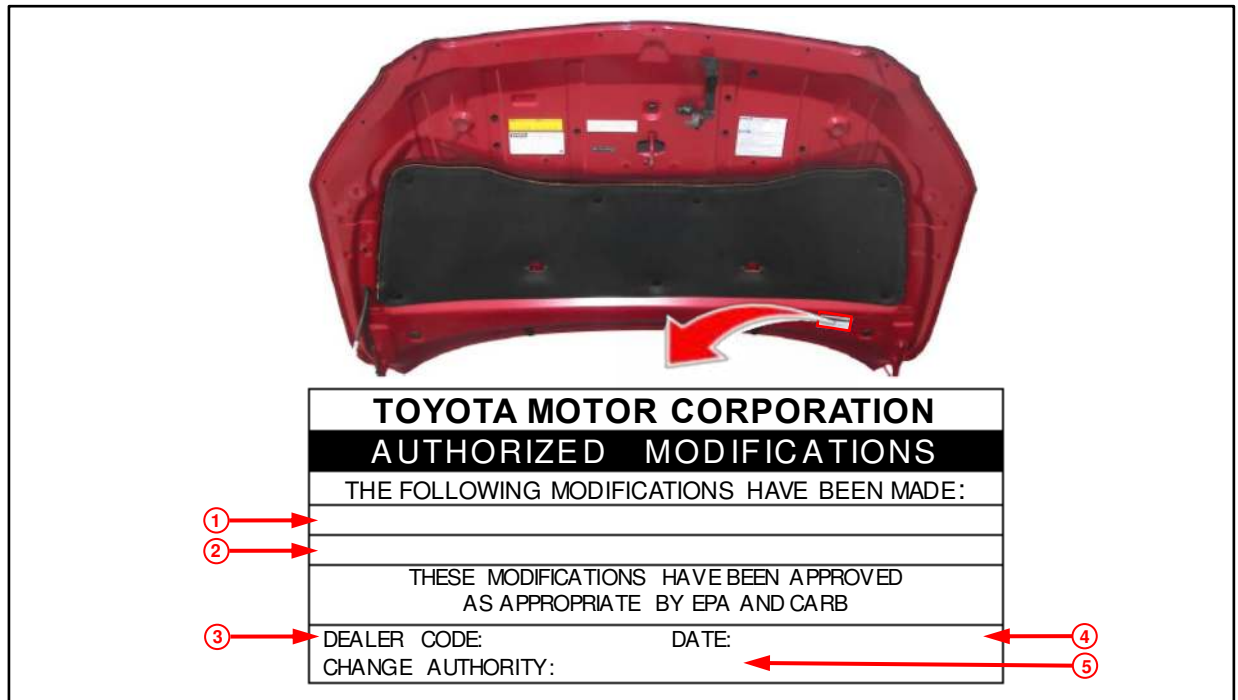
1	Replacement ECM (PCM) Part Number (e.g., 89661-06J16)
2	New Calibration ID (e.g., 30669400)
3	Dealer Code

4	Date Completed
5	This SB Number

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Repair Procedure (continued)

Figure 2. Location of Authorized Modifications Label for 2009 – 2012 RAV4



1	Replacement ECM (PCM) Part Number (e.g., 89661-42Q24)
2	New Calibration ID (e.g., 342F0400)
3	Dealer Code

4	Date Completed
5	This SB Number

6. Flash reprogram the ECM (PCM).

NOTE

- 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*.

Follow the procedures outlined in Service Bulletin [T-SB-0134-16](#), *Techstream ECU Flash Reprogramming Procedure*, and flash the ECM (PCM) with the NEW calibration file update.

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Repair Procedure (continued)

7. Prepare and install the Authorized Modifications Label.
 - A. Using a permanent marker, enter the following information on the label:
 - ECM (PCM) part number *[Refer to the **Parts Information** section for the **NEW PART NUMBER**]*
 - Calibration ID(s) *[Refer to the **Calibration Information** section for the **NEW CALIBRATION ID**]*
 - Dealer Code
 - Repair Date
 - Change Authority *[This bulletin number]*
 - B. Affix the Authorized Modifications Label to the vehicle at the location shown in Figures 1 and 2. The Authorized Modifications Label is available through the MDC, P/N 00451-00001-LBL.
8. Replace the A/F sensor.

Refer to TIS, applicable model and model year Repair Manual:

 - 2009 RAV4:
Engine/Hybrid System – Engine Control – “2AR-FE Engine Control System: Air Fuel Ratio Sensor: [Removal](#) / [Installation](#)”
 - 2010 RAV4:
Engine/Hybrid System – Engine Control – “2AR-FE Engine Control System: Air Fuel Ratio Sensor: [Removal](#) / [Installation](#)”
 - 2010 Camry:
Engine/Hybrid System – Engine Control – “2AR-FE Engine Control System: Air Fuel Ratio Sensor: [Removal](#) / [Installation](#)”
 - 2011 Camry:
Engine/Hybrid System – Engine Control – “2AR-FE Engine Control System: Air Fuel Ratio Sensor: [Removal](#) / [Installation](#)”
 - 2011 RAV4:
Engine/Hybrid System – Engine Control – “2AR-FE Engine Control System: Air Fuel Ratio Sensor: [Removal](#) / [Installation](#)”
 - 2012 RAV4:
Engine/Hybrid System – Engine Control – “2AR-FE Engine Control System: Air Fuel Ratio Sensor: [Removal](#) / [Installation](#)”

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Repair Procedure (continued)

9. Using Techstream, clear ALL DTCs.
10. Test-drive the vehicle to confirm the repair and verify no DTCs are present.

NOTE

If the engine is running rough AFTER completion of this Repair Procedure, clean the throttle body.