

# MIL "ON" DTC P0500

**Service Category** Engine/Hybrid System

**Section** Engine Control

**Market** USA

Toyota Supports  
ASE Certification 

## Applicability

| YEAR(S)     | MODEL(S) | ADDITIONAL INFORMATION                                    |
|-------------|----------|-----------------------------------------------------------|
| 2005 – 2007 | Avalon   | Engine(s): 2GR<br>VDS(s): BK36B                           |
| 2004 – 2006 | Camry    | Engine(s): 3MZ, 1MZ<br>VDS(s): BA30K, BA32K, BF30K, BF32K |
| 2004 – 2006 | Solara   | Engine(s): 3MZ<br>VDS(s): CA30P, CA38P, FA38P             |

## Introduction

Some 2005 – 2007 model year Avalon, and 2004 – 2006 model year Camry and Solara vehicles may exhibit a MIL "ON" condition with Diagnostic Trouble Code (DTC) P0500 — Vehicle Speed Sensor "A". 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.

## Warranty Information

| OP CODE | DESCRIPTION                                 | TIME | OFP         | T1 | T2 |
|---------|---------------------------------------------|------|-------------|----|----|
| EG9027  | Recalibrate ECM (PCM) Engine & Transmission | 0.6  | 8966#-##### | 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

| PREVIOUS PART NUMBER | CURRENT PART NUMBER | PART NAME                      | QTY |
|----------------------|---------------------|--------------------------------|-----|
| 00451-00001-LBL      | Same                | Authorized Modification Labels | 1   |

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### Parts Information (Continued)

| MODEL  | MODEL YEAR | ENGINE | TRANS | PRODUC-TION | PREVIOUS PART NUMBER                                                                                  | CURRENT PART NUMBER | PART NAME                                | QTY |
|--------|------------|--------|-------|-------------|-------------------------------------------------------------------------------------------------------|---------------------|------------------------------------------|-----|
| Avalon | '05–'07    | 2GR-FE | 5AT   | —           | 89661-07410<br>89661-07411<br>89661-07450<br>89661-07451<br>89661-07470<br>89661-07471                | 89661-07472         | Computer,<br>Engine Control<br>(ECM/PCM) | —   |
| Camry  | '04–'06    | 1MZ-FE |       | NAP         | 89661-06A10<br>89661-06A11<br>89661-06B10<br>89661-06B11<br>89661-06F30                               | 89661-06F31         |                                          | —   |
|        |            |        |       | Japan       | 89661-33A90<br>89661-33A91<br>89661-33D60<br>89666-33420<br>89666-33421                               | 89661-33D61         |                                          | —   |
|        |            | 3MZ-FE |       | NAP         | 89661-06A40<br>89661-06A41<br>89661-06B00<br>89661-06B01<br>89661-06F20                               | 89661-06F21         |                                          | —   |
|        |            |        |       | Japan       | 89661-33A10<br>89661-33A11<br>89661-33A80<br>89661-33A81<br>89661-33D50                               | 89661-33D51         |                                          | —   |
| Solara |            |        |       | NAP         | 89661-0X120<br>89661-0X121<br>89661-06B80<br>89661-06B81<br>89661-06C10<br>89661-06C11<br>89661-06C12 | 89661-06C13         |                                          | —   |

#### 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.

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### Calibration Information

| MODEL  | MODEL YEAR | ENGINE | CPU  | PREVIOUS CALIBRATION ID                                              | NEW CALIBRATION ID       | VDS                     |
|--------|------------|--------|------|----------------------------------------------------------------------|--------------------------|-------------------------|
| Avalon | '05-'07    | 2GR-FE | Main | 30701000<br>30701100<br>30705000<br>30705100<br>30707000<br>30707100 | <a href="#">30707200</a> | BK36B                   |
| Camry  | '04-'06    | 3MZ-FE | Main | 33347000<br>33347100<br>33355000<br>33355100<br>33388000             | <a href="#">33388100</a> | BA32K<br>BA30K          |
|        |            |        | Sub  | 53331000<br>53338000<br>53346000                                     | <a href="#">53346100</a> |                         |
|        |            | 1MZ-FE | Main | 33346000<br>33346100<br>33356000<br>33356100<br>33389000             | <a href="#">33389100</a> | BF32K<br>BF30K          |
|        |            |        | Sub  | 53329000<br>53329100<br>53339000<br>53347000                         | <a href="#">53347100</a> |                         |
| Solara |            | 3MZ-FE | Main | 30605000<br>30605100<br>30639000<br>30639100<br>30642000             | <a href="#">30642100</a> | CA38P<br>CA30P<br>FA38P |
|        |            |        | Sub  | 50606000<br>50618000<br>50621000<br>50621100                         | <a href="#">50621200</a> |                         |

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### Required Tools & Equipment

| REQUIRED EQUIPMENT                                                       | SUPPLIER | PART NUMBER | QTY |
|--------------------------------------------------------------------------|----------|-------------|-----|
| TIS Techstream*<br>NOTE: Software version 4.20.018 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 [techinfo.toyota.com](http://techinfo.toyota.com) for more information regarding J2534 reprogramming.



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

\* Essential SST.

#### NOTE

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

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### Inspection Procedure

1. Inspect the Freeze Frame Data stored under "Engine and ECT" with DTC P0500.  
(See Figure 1.)

Figure 1.

| Parameter                   | -3    | -2    | -1    | 0     | 1     | Unit       |
|-----------------------------|-------|-------|-------|-------|-------|------------|
| Vehicle Speed               | 3     | 2     | 2     | 2     | 2     | MPH        |
| Engine Speed                | 852   | 835   | 825   | 835   | 853   | rpm        |
| Calculate Load              | 25.8  | 26.2  | 26.6  | 27.0  | 27.4  | %          |
| Vehicle Load                | 13.7  | 14.1  | 15.6  | 15.2  | 14.9  | %          |
| MAF                         | 2.82  | 2.81  | 3.10  | 3.07  | 3.06  | gm/sec     |
| Atmosphere Pressure         | -0    | -0    | -0    | -0    | -0    | psi(gauge) |
| Coolant Temp                | 196   | 196   | 196   | 196   | 196   | F          |
| Intake Air                  | 99    | 99    | 99    | 99    | 99    | F          |
| Engine Run Time             | 1352  | 1353  | 1353  | 1354  | 1354  | s          |
| Initial Engine Coolant Temp | 162.5 | 162.5 | 162.5 | 162.5 | 162.5 | F          |
| Initial Intake Air Temp     | 135.5 | 135.5 | 135.5 | 135.5 | 135.5 | F          |
| Battery Voltage             | 13.1  | 13.1  | 13.1  | 13.1  | 13.1  | V          |
| Accel Sens. No.1 Volt %     | 15.6  | 15.6  | 15.6  | 15.6  | 15.6  | %          |
| Accel Sens. No.2 Volt %     | 31.7  | 31.7  | 31.7  | 31.7  | 31.7  | %          |
| Throttle Sensor Volt %      | 16.0  | 16.0  | 16.4  | 16.4  | 16.4  | %          |
| Thrott Sensor #2 Volt %     | 48.2  | 47.8  | 48.2  | 48.2  | 48.2  | %          |
| Throttle Sensor Position    | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | %          |

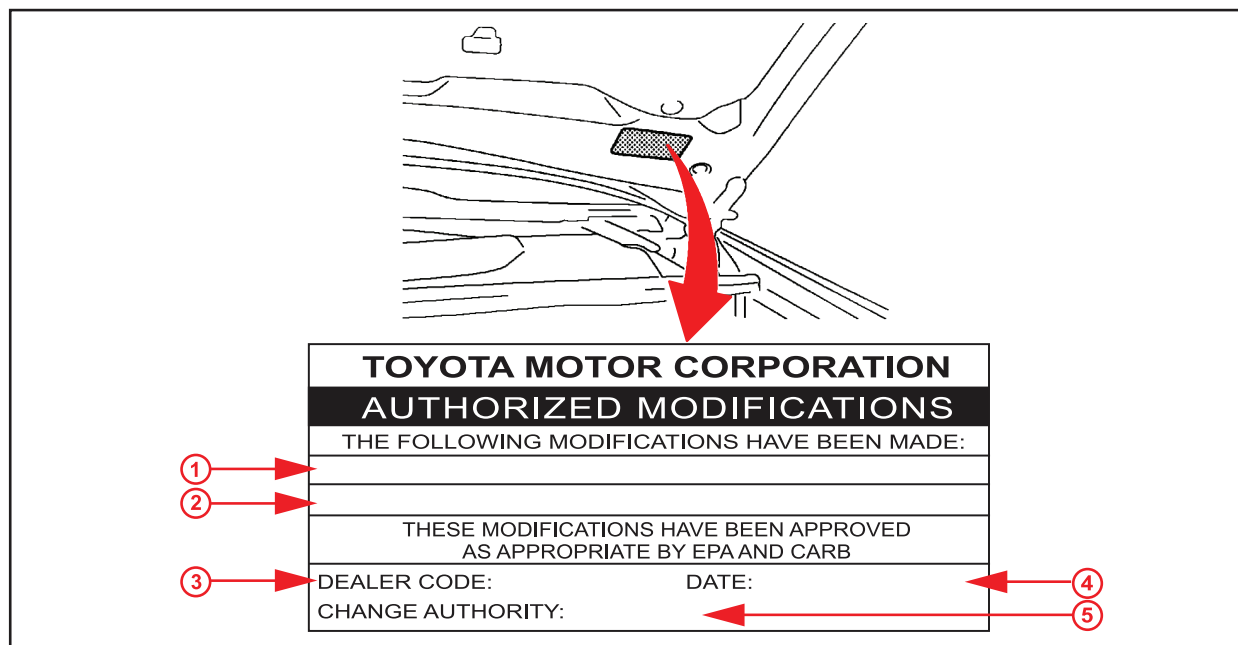
2. Is the stored vehicle speed less than 5 mph (8 km/h)?
  - **YES** — Proceed to the Repair Procedure and flash reprogram the ECM.
  - **NO** — STOP — This TSB may not apply. Proceed with normal Repair Manual diagnostic procedures. If no fault can be found, then proceed to the Repair Procedure and flash reprogram the ECM.

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### Repair Procedure

1. Check for the Authorized Modifications Label affixed to the vehicle in the location shown in Figure 2. Confirm if the ECM (PCM) calibration has been updated. If the calibration ID listed is NOT the latest ECM (PCM) calibration — go to step 2.

**Figure 2. Location of Authorized Modifications Label on 2004 – 2006 Camry**



|          |                                                       |
|----------|-------------------------------------------------------|
| <b>1</b> | Replacement ECM (PCM) Part Number (i.e., 89661-06F31) |
| <b>2</b> | New Calibration ID(s) (i.e., 33388100)                |
| <b>3</b> | Dealer Code                                           |

|          |                 |
|----------|-----------------|
| <b>4</b> | Date Completed  |
| <b>5</b> | This TSB Number |

2. 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 [GR8 Instruction Manual](#) located on the Technical Information System (TIS), *Diagnostics – Battery*.

Follow the procedures outlined in TSB No. [SS002-07](#), “Techstream ECU Flash Reprogramming Procedure”, and flash the ECM (PCM) with the NEW calibration file update.

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### Repair Procedure (Continued)

3. Start the engine and warm it up to normal operating temperature before test driving.
4. Test drive the vehicle to confirm proper vehicle operation and ECM (PCM) learning.

Refer to TIS, applicable model year Avalon, Camry, or Solara Repair Manual:

- [2005](#) Avalon:  
*Drivetrain – Automatic Transmission/Transaxle – “Electronic Controlled Automatic Transaxle [ECT]: Road Test”*
- [2006](#) / [2007](#) Avalon:  
*Drivetrain – Automatic Transmission/Transaxle – “U151E Automatic Transaxle: Automatic Transaxle System: Road Test”*
- [2004](#) / [2005](#) / [2006](#) Camry:  
*Drivetrain – Automatic Transmission/Transaxle – “Electronic Controlled Automatic Transaxle [ECT] (U151E): Road Test”*
- [2004](#) / [2005](#) Solara:  
*Drivetrain – Automatic Transmission/Transaxle – “Electronic Controlled Automatic Transaxle [ECT] (U151E): Road Test”*
- [2006](#) Solara:  
*Drivetrain – Automatic Transmission/Transaxle – “U151E Automatic Transaxle: Automatic Transaxle System: Road Test”*

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 2. The Authorized Modifications Label is available through the MDC, P/N 00451-00001-LBL.