



**Technical Service BULLETIN**

July 12, 2004

Title: **M.I.L. "ON" DTC P0420**  
Models: **'03 – '04 Matrix (1ZZ-FE)**

**TSB**

REVISÉD  
**ENGINE**  
**EG026-04**

**TSB REVISION NOTICE:**

**October 8, 2004: Part number for replacement ECM (PCM) in Figure 2 on page 5 has been updated; Reference to section in Technical Information System (TIS) has been updated in "ECM (PCM) Replacement Procedure" on page 5. The previous TSB should be discarded.**

**Introduction** Some 2003 – 2004 model year Matrix vehicles equipped with a 1ZZ-FE engine may exhibit a M.I.L. "ON" condition with Diagnostic Trouble Code P0420 (Catalyst System Efficiency Below Threshold) stored in the Engine Control Module (ECM) (SAE term: Powertrain Control Module/PCM). Follow the repair procedure to reflash the ECM (PCM) and replace the catalytic converter assembly.

**NOTE:**

**The repair procedure in this TSB is the same as TSB No. EG017-04 "Excessive Sulfur Dioxide Odor." This repair should only be performed once.**

- Applicable Vehicles**
- **2003 – 2004** model year **Matrix** vehicles equipped with the **1ZZ-FE engine** produced **BEFORE** the Production Change Effective VIN shown below.

**Production Change Information**

MODEL	PRODUCTION CHANGE EFFECTIVE VIN
Matrix	2T1*R3#E#4C836439

**Warranty Information**

OP CODE	DESCRIPTION	TIME	OFF	T1	T2
EG4004	Recalibrate ECM (PCM) Engine	0.8	89661-##### 89666-#####	8A	99
Combo A	R & R Catalytic Converter Assembly (2WD)	0.2	17410-0D150 17410-22470		
	R & R Catalytic Converter Assembly (4WD)	0.2	17420-0D100		
895011	R & R ECM (PCM) 2003 model year Matrix 2WD ATM with Delco ECM (P/N 89666-02160)	0.5	89666-02160		

**Applicable Warranty\*:**

**This repair is covered under the Toyota Specified Major Emission Control Component 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 correction of a problem based upon a customer's specific complaint.



**Parts Information**

MODEL	ORIGINAL PART NUMBER*	REPAIR PART NUMBER*	PART NAME	QTY
2WD	17410-0D150 17410-22470	17410-0D360	Pipe Assembly, Exhaust Front	1
4WD	17420-0D100	17420-0D110		1



\* The original part (17410-0D150, 17410-22470 or 17420-0D100) is currently used in vehicle production and is still available as a service part. The repair part (17410-0D360 or 17420-0D110) should be used when the customer complains of sulfur dioxide odor and/or DTC P0420.

MODEL	PREVIOUS PART NUMBER	CURRENT PART NUMBER	PART NAME	QTY
2WD	89666-02160	89666-02164	Delco ECM (PCM)	1
All	N/A	00451-00001-LBL	Authorized Modification Labels	1

**NOTE:**

Authorized Modification Labels may be ordered in packages of 25 from the Materials Distribution Center (MDC) through Dealer Daily or by calling the MDC at 1-800-622-2033.

**Required SSTs**

SPECIAL SERVICE TOOLS (SSTs)	PART NUMBER	QUANTITY
Toyota Diagnostic Tester Kit* 	01001271	1
12 Megabyte Diagnostic Tester Program Card with version 10.2a Software (or later)* 	01002593-005	1

\* Essential SSTs.

**NOTE:**

Additional Diagnostic Tester Kits, Program Cards or other SSTs may be ordered by calling SPX/OTC at 1-800-933-8335.

**ECM (PCM)  
Identification  
Chart**

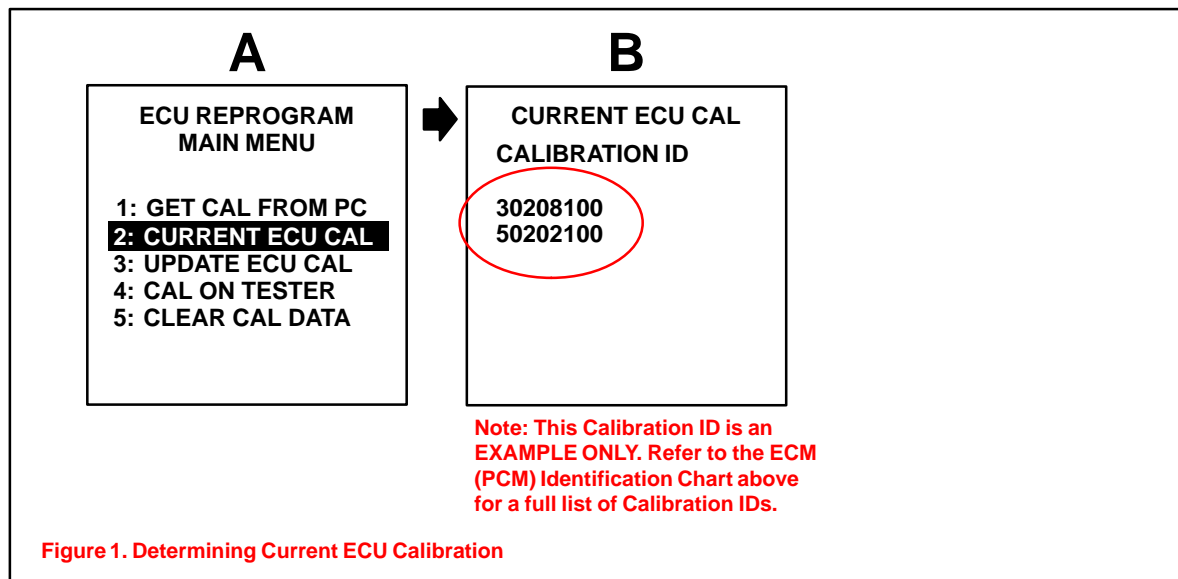
MODEL YEAR	DRIVETRAIN	ECM SUPPLIER	ECM (PCM)	PREVIOUS CALIBRATION ID NUMBERS	NEW CALIBRATION ID NUMBER
2003	MTM (2WD)	Denso	Main	30201000 30201100 30201200 30201300	30201400
	ATM (2WD)	Delco	Main	30208100	30208200
			Sub	50202100 50202200 50202300	50202400
ATM (4WD)	Denso	Main	30103000 30103100	30103200	
2004	MTM (2WD)	Denso	Main	30216000	30216100
	ATM (2WD)	Delco	Main	30215000	30215100
			Sub	50204000 50204100	50204200
ATM (4WD)	Denso	Main	30218000 30218100	30218200	

**NOTE:**

Some 2003 model year Matrix ATM vehicles with Delco ECM (P/N 89666–02160) are not reprogrammable. If the Diagnostic Tester displays an error message, confirm part number and then refer to the ECM (PCM) Replacement Procedure on page 5 of this TSB.

**ECM  
Reprogram  
Procedure**

1. Check for the Authorized Modification Label affixed to the vehicle in the location shown in Figure 2 on page 5. If there is no label present, proceed to step 2.
2. Connect the Diagnostic Tester to the vehicle and select "CURRENT ECU CAL" from the "ECU REPROGRAM MAIN MENU." To determine the vehicle's current ECM calibration, see Figure 1 shown below.



**ECM  
Reprogram  
Procedure**  
(Continued)

3. Proceed to Flash Reprogram the ECM (PCM) by following the procedures in TSB No. SS002–01 titled "*ECU Flash Reprogramming Process*," for 2001 and later applicable models.

**NOTE:**

Errors during the flash reprogramming process can **PERMANENTLY DAMAGE** the vehicle's ECM (PCM). In order to minimize this risk follow the steps below:

- Make sure that the current battery voltage is no less than 11.4 volts.
- Install a battery charger and set on a low setting to assure that the battery voltage **DOES NOT FALL BELOW 11.4 VOLTS** during the reprogramming.
- If battery's state of charge is in question, test with SST No. 00002–MP815–T, "Midtronics Battery Tester."
- Confirm that the engine hood is up, parking brake is set and all accessories are **OFF** (i.e., audio system, A/C, interior lights, headlights, etc).
- **DO NOT** perform the reprogramming process until the engine room temperature is 158°F (70°C) or less.
- Confirm cable connections between the vehicle and the Diagnostic Tester are secured.
- In case of Error Message "Cannot Go To Reprogram Mode," refer to TSB No. SS004–01 "*ECU Flash Reprogramming Error Message*."
- Do not interrupt the vehicle during the reprogramming process, keep all doors closed.

4. Select the proper ECM (PCM) calibration file for the model year vehicle and reprogram the ECM (PCM).
5. Start the engine and warm up the vehicle to normal operating temperatures before test-driving.
6. Test drive vehicle to confirm proper operation and to readjust the ECM (PCM) "Learned Values."
  - Drive the vehicle using light to moderate acceleration in mostly stop and go type driving.
  - Allow the vehicle to shift fully through all gears and at various shifter positions.

**ECM Reprogram Procedure**  
(Continued)

7. Enter the following information on the Authorized Modification Label shown below in Figure 2 using a permanent marker.
  - ECM (PCM) part number.
  - New ECM (PCM) calibration number.
  - Your dealer code.
  - Reprogramming date.
  - This TSB number.

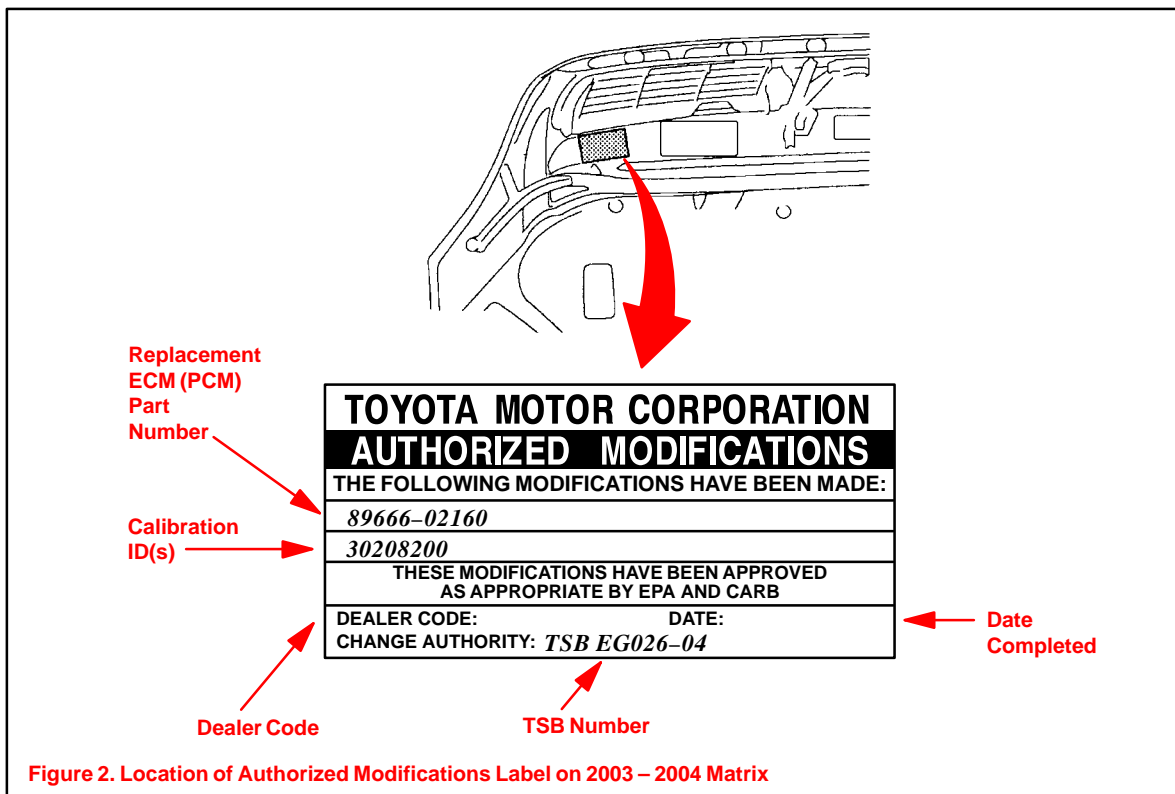


Figure 2. Location of Authorized Modifications Label on 2003 – 2004 Matrix

**ECM (PCM) Replacement Procedure**

1. 2003 model year Matrix 2WD ATM vehicles equipped with Delco ECM (PCM) P/N 89666–02160 are not reprogrammable.
2. For the location of the ECM (PCM), refer to the Technical Information System (TIS), 2003 or 2004 model year Matrix Repair Manual: *Engine Control System: ECM (1ZZ–FE/2ZZ–GE)(May, 2003): Replacement (Matrix).*

**Catalytic Converter Replacement Procedure**

Refer to TIS, 2003 or 2004 model year Matrix Repair Manual: *Exhaust Pipe Assy (1ZZ–FE): Removal & Installation & Disassembly & Reassembly (Matrix/Corolla).*