S-SB-0025-12 **October 15, 2012**

Intermittent MIL "ON" DTC P0335

Service Category Vehicle Interior

Section Meter/Gauge/Display **Market** USA

Scion Supports ASE Certification

Applicability

YEAR(S)	MODEL(S)	ADDITIONAL INFORMATION
2005 – 2010	tC	Engine(s): 2AZ VDS(s): DE167, DE177, DE3B7
2008 – 2012	xB	Engine(s): 2AZ VDS(s): KE50E, ZE4FE

Introduction

Some 2005 – 2012 model year vehicles equipped with the 2AZ-FE engine may exhibit an intermittent MIL “ON” condition with Diagnostic Trouble Code (DTC) P0335 (Crankshaft Position Sensor “A” Circuit) stored. The intake camshaft gear assembly has been improved to help prevent this condition.

Parts Information

MODEL	PREVIOUS PART NUMBER	CURRENT PART NUMBER	PART NAME	QTY
tC	13050-0H010 13050-28020	13050-28021	Camshaft Timing Gear Assembly	1
xB	13050-0H010 13050-0H030			1

Warranty Information

OP CODE	DESCRIPTION	MODEL	TIME	OFP	T1	T2
EG1210	R & R Camshaft Timing Gear	tC	1.9	13050-0H030 13050-28020	8A	99
		xB	1.9			

APPLICABLE WARRANTY

- **This repair is covered under the Toyota Powertrain Warranty. This warranty is in effect for 60 months or 60,000 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.**

Intermittent MIL "ON" DTC P0335

Repair Procedure

1. Using Techstream, review the Freeze Frame Data for DTC P0335.

   Does the FFD indicate the engine was at operating temperature and near idle speed when the DTC was stored?

   HINT

   - **Coolant Temperature is approximately 185ºF (85ºC) or more.**
   - **Engine RPM is less than 1000 RPM.**

   YES — Proceed to step 2.

   NO — This bulletin does NOT apply.

   Refer to the applicable Repair Manual for diagnostic information.

   Refer to the Technical Information System (TIS), applicable model and model year Repair Manual:

   - 2005 tC:
     Engine/Hybrid System – Engine Control – "SFI System (2AZ-FE): P0335, P0339: Crankshaft Position Sensor "A" Circuit Intermittent"
   - 2006 / 2007 / 2008 / 2009 / 2010 tC:
     Engine/Hybrid System – Engine Control – "2AZ-FE Engine Control System: SFI System: P0335, P0339: Crankshaft Position Sensor "A" Circuit"
   - 2008 / 2009 / 2010 / 2011 / 2012 xB:
     Engine/Hybrid System – Engine Control – "2AZ-FE Engine Control System: SFI System: P0335, P0339: Crankshaft Position Sensor "A" Circuit"

2. Remove and replace the camshaft timing gear assembly.

   HINT

   For 2006 – 2010 tC repairs, refer to the Repair Manual procedure for 2005 tC to simplify the repair instructions for camshaft removal instead of cylinder head removal.

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

   - 2005 tC:
     Engine/Hybrid System – Engine Mechanical – "Camshaft (2AZ-FE): Replacement"
   - 2006 / 2007 / 2008 / 2009 / 2010 tC:
     Engine/Hybrid System – Engine Mechanical – "2AZ-FE Engine Mechanical: Cylinder Head: Removal"
   - 2006 / 2007 / 2008 / 2009 / 2010 tC:
     Engine/Hybrid System – Engine Mechanical – "2AZ-FE Engine Mechanical: Cylinder Head: Installation"

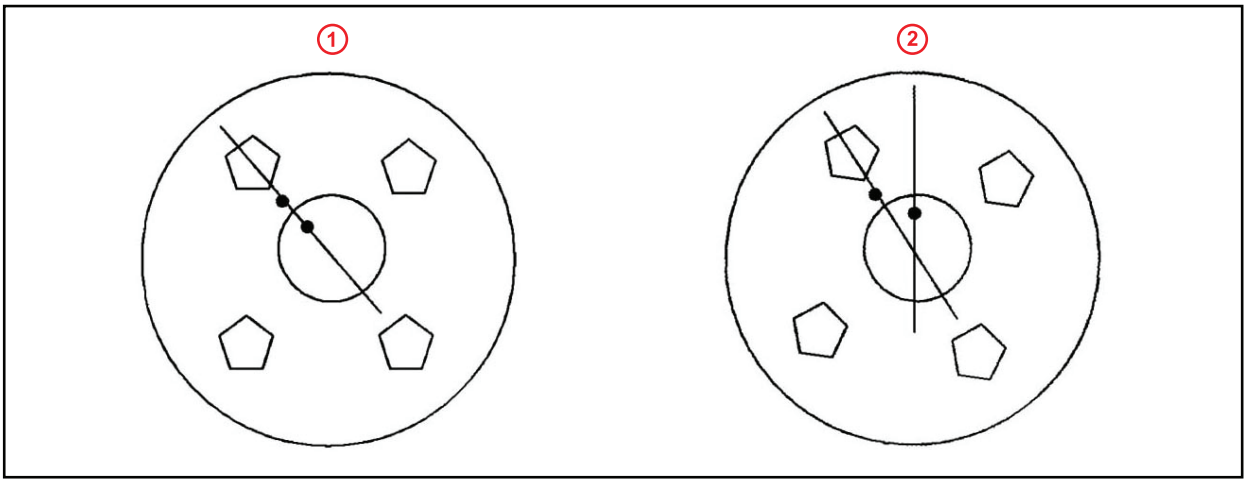
Intermittent MIL "ON" DTC P0335

Repair Procedure (Continued)

- 2008 / 2009 / 2010 / 2011 / 2012 xB:
  Engine/Hybrid System – Engine Mechanical – "2AZ-FE Engine Mechanical: Camshaft: Removal"
- 2008 / 2009 / 2010 / 2011 / 2012 xB:
  Engine/Hybrid System – Engine Mechanical – "2AZ-FE Engine Mechanical: Camshaft: Installation"

3. Identify whether the camshaft timing gear is unlocked or locked. (See Figure 1).

Figure 1.



1	Dots Aligned – Locked (Must Unlock Before Installing)
2	Dots Misaligned – Unlocked (OK to Install and Tighten Camshaft Bolt)

- If the camshaft timing gear is unlocked, it is ready to install.
- If it is LOCKED, follow the steps below to unlock the camshaft timing gear **before** installing.

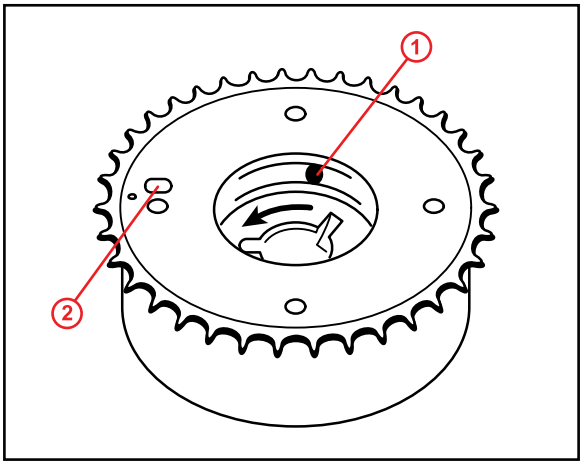
Intermittent MIL "ON" DTC P0335

Repair Procedure (Continued)

A. To disengage the camshaft timing gear lock pin, apply and hold approximately 21 psi of air pressure at the oil feed hole located 90 degrees clockwise of the oval slot. (See Figure 2.)

> **NOTE**
>
> **The lock pin is inside the gear, NOT the one located in the oval slot.**

Figure 2.

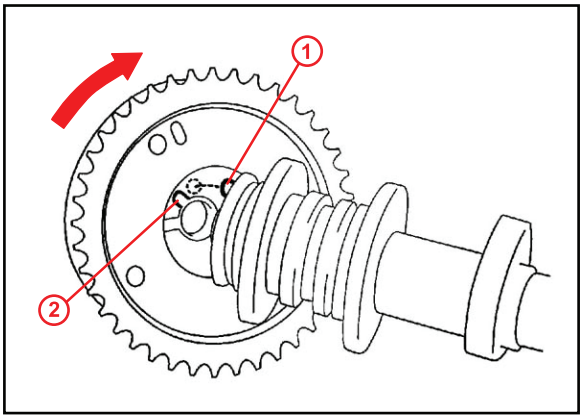


1	Oil Feed Hole
2	Oval Slot

B. With the 21 psi of air still applied to the gear, turn the interior assembly counterclockwise. (See black arrow in Figure 2.)

C. Install the timing gear assembly onto the camshaft with the straight pin slightly to the right of the key groove as shown in Figure 3.

Figure 3.



1	Straight Pin
2	Key Groove

D. Turn the camshaft timing gear assembly while pushing it lightly against the camshaft until the straight pin engages the key slot.

Intermittent MIL "ON" DTC P0335

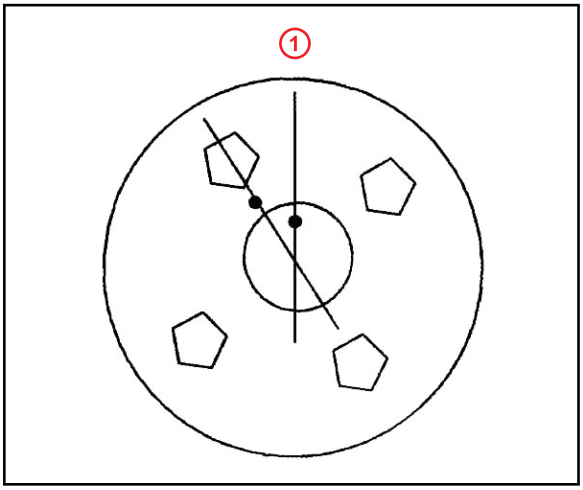
Repair Procedure (Continued)

E. Check that the camshaft timing gear is fully seated on the camshaft and that there is no clearance between the end of the camshaft and the timing gear. Install the camshaft bolt finger tight.

NOTICE

Check to make sure that the camshaft timing gear is still unlocked BEFORE tightening the camshaft bolt. The lock pin MUST be unlocked to prevent damage to the camshaft timing gear lock pin during tightening.

Figure 4.



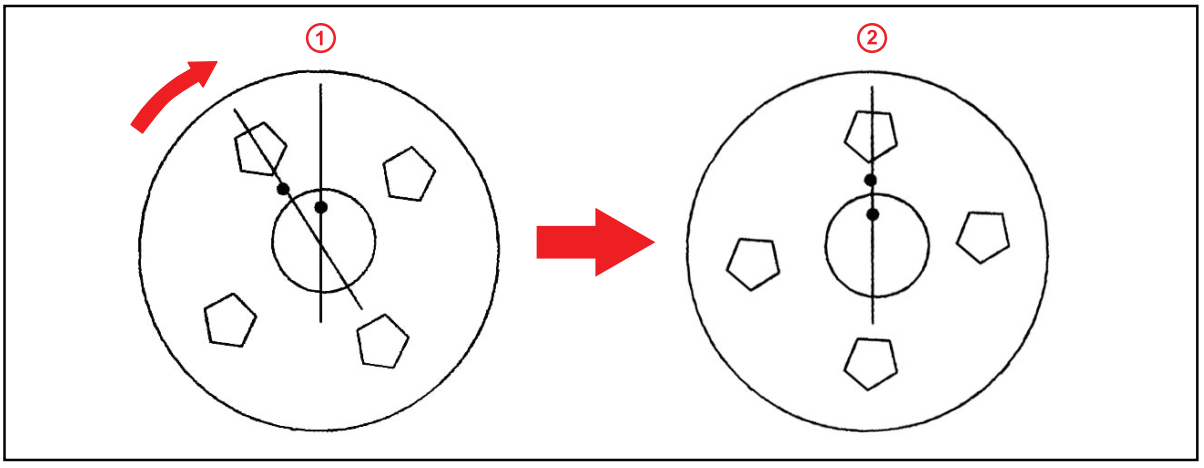
1	Dots Misaligned – Unlocked (OK to Install and Tighten Camshaft Bolt)

F. While holding the camshaft with a wrench, torque the camshaft bolt.

Torque: 54 N*m (551 kgf*cm, 40 ft*lbf)

G. After torquing the camshaft bolt, rotate the camshaft timing gear clockwise while holding the camshaft stationary until the dots are aligned, to engage the camshaft timing gear lock pin.

Figure 5.



1	Dots Misaligned – Unlocked

2	Dots Aligned – Locked

Intermittent MIL "ON" DTC P0335

Repair Procedure (Continued)

H. Install the timing chain.

> **NOTE**
>
> **Camshaft timing is performed with the camshaft timing gear in the locked position (dots aligned).**

4. Clear DTCs using Techstream.
5. Test drive the vehicle to confirm the repair.