



**Technical Service
BULLETIN**

May 19, 2003

Title:

M.I.L. "ON" DTC P1349 - VVTi ACTUATOR

Models:

'00 – '02 Corolla, Celica, MR2 Spyder, and ECHO

**ENGINE
EG009-03**

Introduction Under certain conditions customers may experience a MIL "ON" condition with DTC P1349 indicating a variable valve timing (VVTi) malfunction. In some cases, the cause of this DTC may be the VVTi actuator. Use the procedures in this bulletin to verify the operation of the actuator.

- Applicable Vehicles**
- **2000 – 2002** model year **Corolla, Celica, MR2 Spyder, and ECHO** vehicles produced **BEFORE** the Production Change Effective VINs shown below.

**Production
Change
Information**

MODEL	ENGINE	PLANT	PRODUCTION CHANGE EFFECTIVE VIN
Corolla	1ZZ-FE	TMMC	2T1BR1#E#2C587636
MR2 Spyder	1ZZ-FE	Sagamihara	JTDFR320#20044337
Celica	1ZZ-FE	Kanto	JTDDR3#T#20118810
	2ZZ-GE		JTDDY3#T#20056831
ECHO	1NZ-FE	Takaoka	JTD#T1#3#20213544

**Warranty
Information**

OP CODE	DESCRIPTION	MODEL	TIME	OFF	T1	T2	
140021	Camshaft Timing Sprocket	Celica GTS – 2ZZ-GE	3.6	13050-22011	99	19	
		Celica GT – 1ZZ-FE					
140021	Camshaft Timing Sprocket	Corolla	1.9				
140021K	ADD: Air Conditioning		0.2				
140021	Camshaft Timing Sprocket	MR2 Spyder	3.7				
140021K	ADD: Air Conditioning		0.1				
140021	Camshaft Timing Sprocket	ECHO	2.9				13050-210##
140021L	ADD: Power Steering		0.1				

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 correction of a problem based upon a customer's specific complaint.



Parts Information

MODEL	PREVIOUS PART NUMBER	CURRENT PART NUMBER	PART NAME	QTY
Celica GTS 2ZZ-GE	96741-19009	Same	Ring, O	1
	12255-88600	Same	Gasket, Ventilation	1
Celica GT & GTS	13050-22011	Same	Gear Assembly, Camshaft	1
Corolla				
MR2 Spyder				
'00 ECHO	13050-21021	Same	Gasket, Cylinder Head Valve Cover	1
'01-'02 ECHO	13050-21040	Same		
'00 – '02 ECHO	11213-21011	Same		

Required Tools & Material

TOOLS & MATERIALS	PART NUMBER	QUANTITY
Tube of FIPG Sealant (or equivalent)	08826-00100	1

Required SSTs

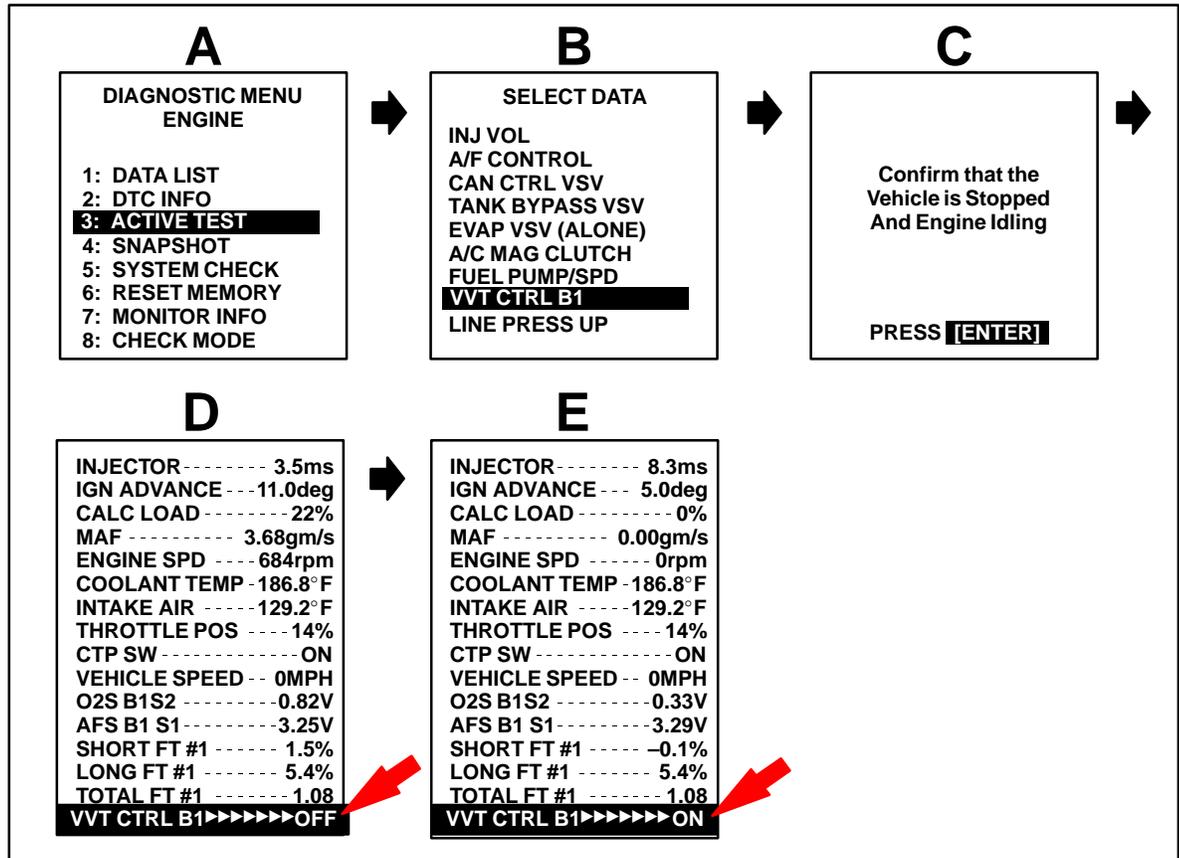
SPECIAL SERVICE TOOLS (SSTs)	PART NUMBER	QUANTITY
Toyota Diagnostic Tester Kit* 	01001271	1
12 Megabyte Diagnostic Tester Program Card with version 10.0a Software (or later)* 	01002593-005	1

* Essential SSTs.

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

Repair Procedure

1. Inspect the condition of the valve cover oil baffle as per TSB EG007–02. If camshaft or camshaft position sensor damage resulting from a bent baffle is identified, repair the damage as necessary.
2. Make sure the vehicle is in "PARK" with the engine idling.
3. Referring to the screen flow below, connect the Toyota Diagnostic Tester to the vehicle and select the VVT Control Bank One Active Test (VVT CTRL B1) from the Active Test Menu.

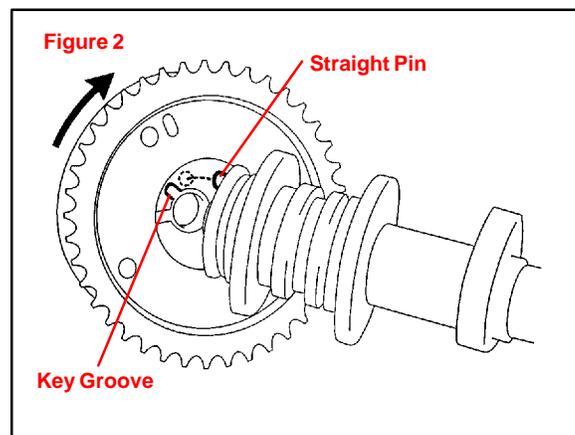
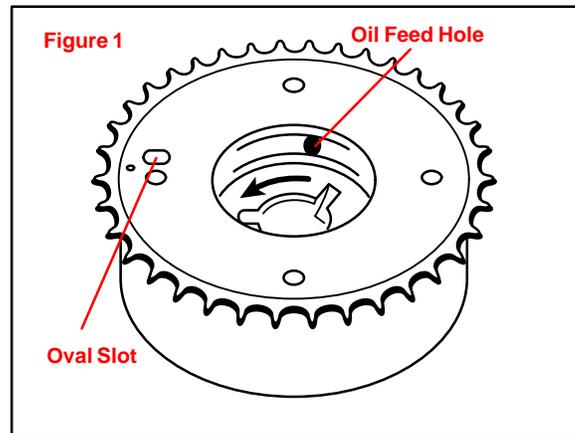


4. Using the right arrow key, toggle the VVTi actuator "ON."
5. If at this point the vehicle **does not** run rough and/or stalls when the active test is performed, proceed with Repair Manual P1349 VVTi Fault Isolation Procedure (FIP).

If the vehicle **does** stall and/or runs rough, this indicates the the VVTi control system is operating. Proceed to replace the VVTi actuator following the repair procedures listed on the Technical Information System (TIS): Engine Mechanical Section, Camshaft, Replacement.

Service Tip Camshaft Timing Gear Assembly Installation

- A. The camshaft timing gear should come in the unlocked position from the factory. If it is difficult to install the camshaft timing gear, the lock pin may be engaged. To disengage the lock pin, apply and hold approximately 20 psi of air pressure at the oil feed hole located 90 degrees clockwise of the oval slot. (See Figure 1.) Once the pin has released, turn the interior assembly counterclockwise. (See black arrow in Figure 1.)
- B. Put the camshaft timing gear assembly and the camshaft together with the straight pin off the key groove.
- C. Turn the camshaft timing gear assembly (as shown in Figure 2) while pushing it lightly against the camshaft. Push further at the position where the pin fits into the groove.

**NOTE:**

Be sure not to turn the camshaft timing gear to the retard angle side (in the clockwise direction).

- D. Check that there is no clearance between the end of the camshaft and the camshaft timing gear.
- E. Tighten the camshaft bolt with the camshaft timing gear fixed.

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

- F. Check that the camshaft timing gear assembly can move to either side and is not locked.