

<b>DTC</b>	<b>P1349</b>	<b>VVT System Malfunction (Bank 1)</b>
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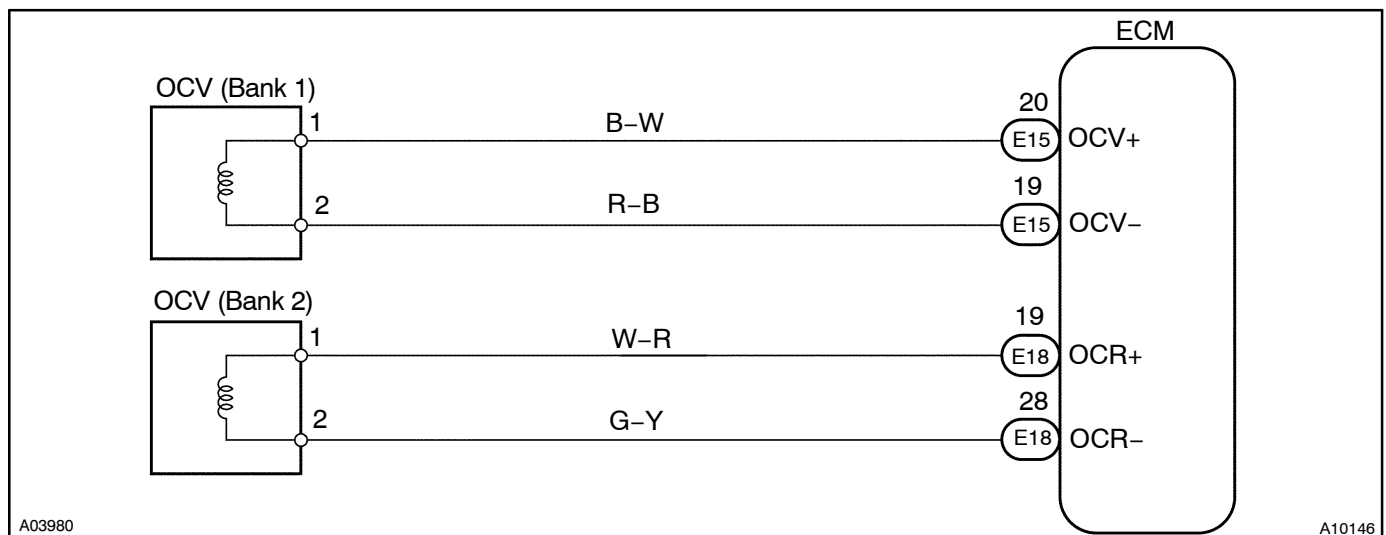
<b>DTC</b>	<b>P1354</b>	<b>VVT System Malfunction (Bank 2)</b>
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## CIRCUIT DESCRIPTION

The VVT system constantly adjusts intake valve timing based upon operating conditions. The ECM system controls the Oil Control Valve (OCV) with a variable duty cycle. The Oil Control Valve then supplies oil to the advance or retard side of the VVT Controller. The oil applied to the VVT Controller will cause the intake cam to advance or retard depending on the position of the Oil Control Valve. The ECM verifies that the desired camshaft angle has been achieved by monitoring the camshaft position sensor.

DTC No.	DTC Detecting Condition	Trouble Area
P1349 P1354	Condition (a) or (b) continues for after the engine is warmed up and engine speed at 400 – 4,000 rpm: (a) Valve timing does not change from of current valve timing (b) Current valve timing is fixed	<ul style="list-style-type: none"> <li>• Valve timing</li> <li>• OCV</li> <li>• VVT controller assembly</li> <li>• ECM</li> </ul>

## WIRING DIAGRAM



## INSPECTION PROCEDURE

### HINT:

- If DTC P1349 is displayed, check left bank VVT system circuit.
- If DTC P1354 is displayed, check right bank VVT system circuit.
- Read freeze frame data using LEXUS hand-held tester or OBD II scan tool. Because freeze frame records the engine conditions when the malfunction is detected. When troubleshooting, it is useful for determining whether the vehicle was running or stopped, the engine was warmed up or not, the air-fuel ratio was lean or rich, etc. at the time of the malfunction.

**LEXUS hand-held tester:**

1	Check valve timing (See page <a href="#">EM-14</a> ).
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NG

Repair valve timing.

OK

2	Check operation of OCV.
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**PREPARATION:**

- (a) Start the engine and warm it up.  
 (b) Connect the LEXUS hand-held tester and select the VVT from the ACTIVE TEST menu.

**CHECK:**

Check the engine speed when operate the OCV by the LEXUS hand-held tester.

**OK:**

**OCV is OFF: Normal engine speed**

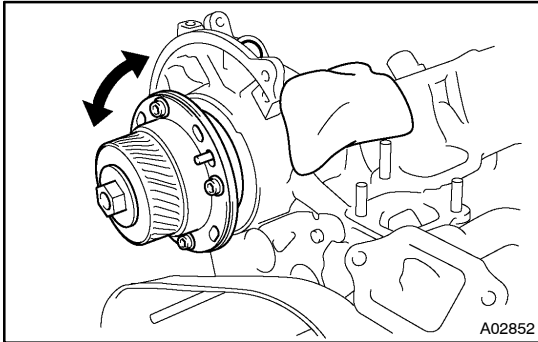
**OCV is ON: Rough idle or engine stall**

OK

VVT system is OK.\*

\*: DTCs P1349 and P1354 are also output after the foreign object is caught in some part of the system in the engine oil and the system returns to normal in a short time. As ECM controls so that foreign objects are ejected, there is no problem about VVT. There is also no problem since the oil filter should get the foreign object in the engine oil.

NG

**3 Check VVT controller assembly.****PREPARATION:**

- (a) Remove the timing belt (See page EM-14).
- (b) Remove the cylinder head cover.
- (c) Remove the OCV (See page [EM-32](#)).
- (d) Drain the oil in the VVT controller assembly (See page [EM-32](#)).

**CHECK:**

Check whether the oil in the VVT controller assembly is drained or not.

**OK:**

The oil in the VVT controller assembly is drained.

**NG**

Replace VVT controller assembly, and then go to next step.

**OK****4 Check OCV (See page SF-53).****NG**

Replace OCV, and then go to next step.

**OK****5 Check blockage of OCV, oil check valve and oil pipe No.1.****NG**

Repair or replace.

**OK**

<b>6</b>	<b>Check whether or not DTC P1349/P1354 is stored.</b>
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**PREPARATION:**

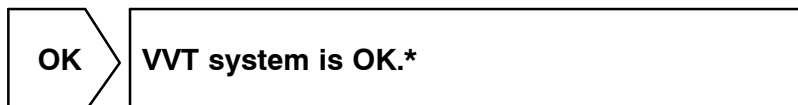
- (a) Clear the DTC (See page [DI-164](#)).
- (b) Perform simulation test.

**CHECK:**

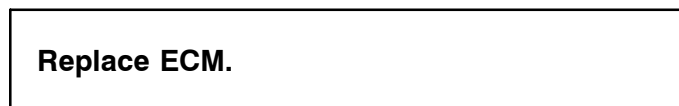
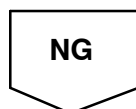
Check whether or not DTC P1349/P1354 is stored (See page [DI-164](#)).

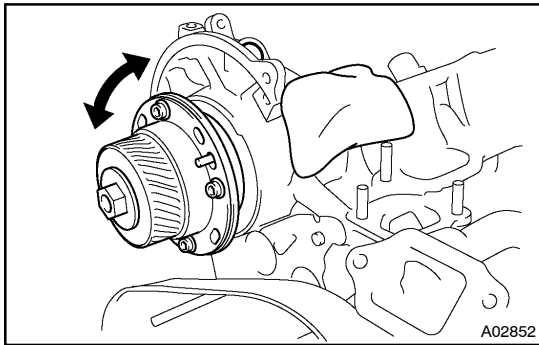
**OK:**

**DTC P1349/P1354 is not stored.**



\*: DTCs P1349 and P1354 are also output after the foreign object is caught in some part of the system in the engine oil and the system returns to normal in a short time. As ECM controls so that foreign objects are ejected, there is no problem about VVT. There is also no problem since the oil filter should get the foreign object in the engine oil.



**OBD II scan tool (excluding LEXUS hand-held tester):****1 Check valve timing (See page EM-14).****NG****Repair valve timing.****OK****2 Check VVT controller assembly.****PREPARATION:**

- (a) Remove the timing belt (See page EM-14).
- (b) Remove the cylinder head cover.
- (c) Remove the OCV (See page [EM-32](#)).
- (d) Drain the oil in the VVT controller assembly (See page [EM-32](#)).

**CHECK:**

Check whether the oil in the VVT controller assembly is drained or not.

**OK:**

The oil in the VVT controller assembly is drained.

**NG****Replace VVT controller assembly, and then go to next step.****OK****3 Check OCV (See page [SF-53](#)).****NG****Replace OCV, and then go to next step.****OK**

4	<b>Check blockage of OCV, oil check valve and oil pipe No.1.</b>
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NG

**Repair or replace.**

OK

5	<b>Check whether or not DTC P1349/P1354 is stored.</b>
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**PREPARATION:**

- (a) Clear the DTC (See page [DI-164](#)).
- (b) Perform simulation test.

**CHECK:**

Check whether or not DTC P1349/P1354 is stored (See page [DI-164](#)).

**OK:**

**DTC P1349/P1354 is not stored.**

OK

**VVT system is OK.\***

\*: DTCs P1349 and P1354 are also output after the foreign object is caught in some part of the system in the engine oil and the system returns to normal in a short time. As ECM controls so that foreign objects are ejected, there is no problem about VVT. There is also no problem since the oil filter should get the foreign object in the engine oil.

NG

**Replace ECM.**