DTC P1656/39 OCV CIRCUIT MALFUNCTION (BANK 1)

CIRCUIT DESCRIPTION

Refer to DTC P1349/59 on page 05–244.

DTC No.	DTC Detecting Condition	Trouble Area
P1656/39	Open or short in OCV circuit	• Open or short in OCV circuit • OCV valve • ECM

WIRING DIAGRAM

Refer to DTC P1349/59 on page 05–244.

INSPECTION PROCEDURE

HINT:

Read freeze frame data using the hand–held tester, as freeze frame data 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.

When using Hand–held Tester:

1 PERFORM ACTIVE TEST BY HAND–HELD TESTER (OCV OPERATION)

(a) Start the engine and warm it up.
(b) Connect the hand–held tester and select the VVT on the ACTIVE TEST menu.
(c) Check the engine speed when operating the OCV by using the hand–held tester.

Result:

VVT system is OFF (OCV is OFF): Normal engine speed
VVT system is ON (OCV is ON): Rough idle or engine stalled

OK → **CHECK FOR INTERMITTENT PROBLEMS**

NG

2 INSPECT CAMSHAFT TIMING OIL CONTROL VALVE ASSY (See page 10–8)

NG → **REPLACE CAMSHAFT TIMING OIL CONTROL VALVE ASSY**

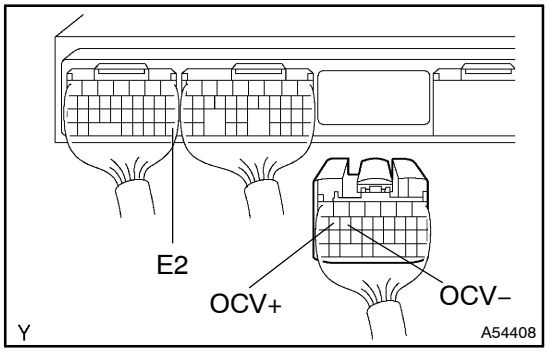
OK

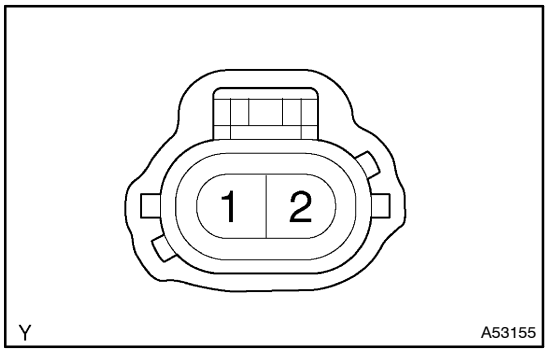
3 INSPECT ECM (CHECK VOLTAGE) (See page 05–244)

NG → **CHECK AND REPLACE ECM**

OK

4	CHECK WIRE HARNESS OR CONNECTOR(ECM–OCV)





(a) Disconnect the ECM E8 connector.
(b) Disconnect the camshaft timing control valve connector.
(c) Check continuity between the terminals OCV+ of the ECM connector and 1 of the camshaft timing control valve connector.
Resistance: 1 Ω or less
(d) Check for short between the terminals OCV+ of the ECM connector and E2 of the ECM connector.
Resistance: 1 MΩ or more
(e) Check continuity between the terminals OCV– of the ECM connector and 2 of the camshaft timing control valve connector.
Resistance: 1 Ω or less
(f) Check for short between the terminals OCV– of the ECM connector and E2 of the ECM connector.
Resistance: 1 MΩ or more

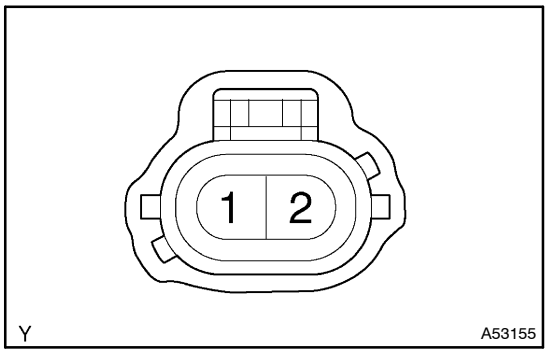
NG → **REPAIR OR REPLACE WIRE HARNESS OR CONNECTOR**

OK

CHECK FOR INTERMITTENT PROBLEMS

When not using Hand–held Tester:

1	CHECK OPERATION OF OCV



(a) Start the engine and warm it up.
(b) Disconnect the OCV connector.
(c) Apply battery positive voltage to the terminals of the OCV.
(d) Check the engine speed.
Result: Rough idle or engine stalled

NG → **REPLACE CAMSHAFT TIMING OIL CONTROL VALVE ASSY**

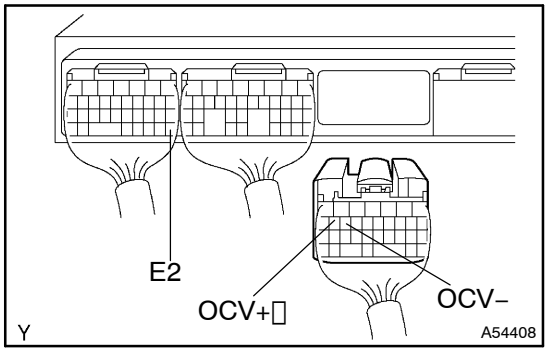
OK

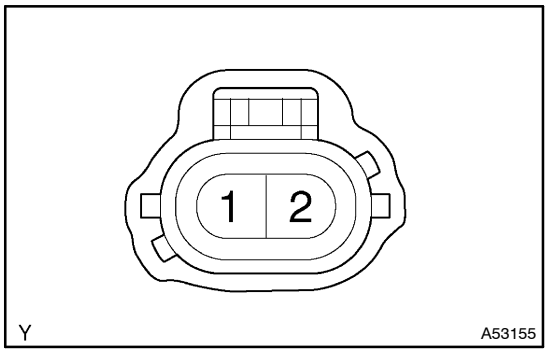
2	INSPECT ECM (CHECK VOLTAGE) (See page 05–244)

NG → **CHECK AND REPLACE ECM**

OK

3	CHECK HARNESS AND CONNECTOR (ECM–OCV)





(a) Disconnect the ECM E8 connector.
(b) Disconnect the camshaft timing control valve connector.
(c) Check continuity between the terminals OCV+ of the ECM connector and 1 of the camshaft timing control valve connector.
Resistance: 1 Ω or less
(d) Check for short between the terminals OCV+ of the ECM connector and E2 of the ECM connector.
Resistance: 1 MΩ or more
(e) Check continuity between the terminals OCV– of the ECM connector and 2 of the camshaft timing control valve connector.
Resistance: 1 Ω or less
(f) Check for short between the terminals OCV– of the ECM connector and E2 of the ECM connector.
Resistance: 1 MΩ or more

NG → **REPAIR OR REPLACE HARNESS AND CONNECTOR**

OK

CHECK FOR INTERMITTENT PROBLEMS