

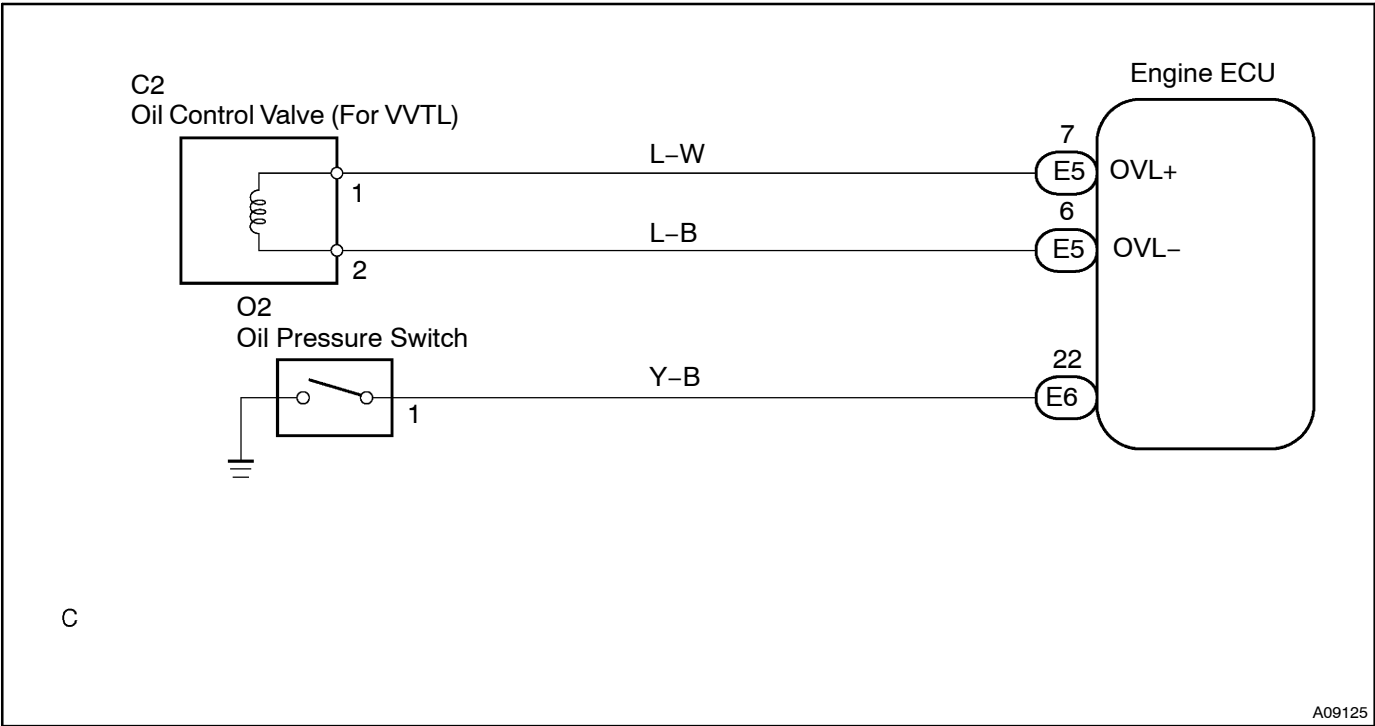
DTC	P1690/39	OCV for VVTL Circuit Malfunction
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CIRCUIT DESCRIPTION

When the engine speed reaches 6,000 rpm, the VVTL system switches the locker arm from low speed to high speed. The engine ECU control the OCV to apply hydraulic pressure to the piston in the locker arm and switch the locker arm by locking the slipper for high speed.

DTC No.	DTC Detecting Condition	Trouble Area
P1690/39	Open or short in oil control valve (for VVTL) circuit	• Open or short in oil control valve (for VVTL) circuit • Oil control valve (for VVTL) • Engine ECU

WIRING DIAGRAM



INSPECTION PROCEDURE

HINT:

Read freeze frame data using hand-held tester. 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 warmed up or not, the air-fuel ratio lean or rich, etc. at the time of the malfunction.

When using hand-held tester

1 Check OCV (for VVTL) circuit.

PREPARATION:

- (a) Start the engine and warmed it up.
- (b) Connect the hand-held tester and select VVTL from ACTIVE TEST menu.
- (c) Maintain engine speed at 1,500 – 2,500 rpm.

CHECK:

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

OK:

VVTL system is OFF (OCV is OFF):

Normal engine speed

VVTL system is ON (OCV is ON):

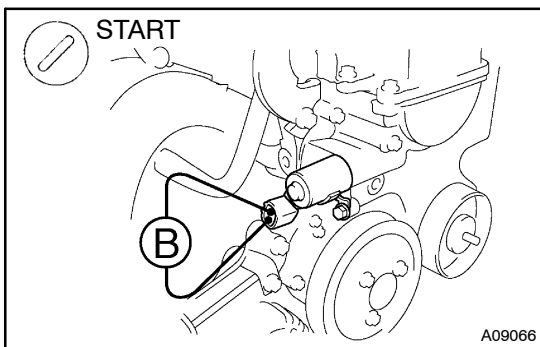
Rough engine speed or engine stalled

OK

Check for intermittent problems
(See page DI-4).

NG

2 Check operation of OCV for VVTL.



PREPARATION:

- (a) Start the engine and warmed it up.
- (b) Disconnect the OCV connector.
- (c) Maintain engine speed at 1,500 – 2,500 rpm.
- (d) Apply battery positive voltage between terminals of the OCV.

CHECK:

Check the engine speed.

OK:

Rough engine speed or engine stalled.

NG

Replace OCV for VVTL.

OK

- 3** Check voltage between terminals OVL+ and OVL– of engine ECU connector (See page DI-22).

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Check and replace engine ECU
(See page IN-20).

OK

- 4** Check for open and short in harness and connector between OCV for VVTL and engine ECU (See page IN-20).

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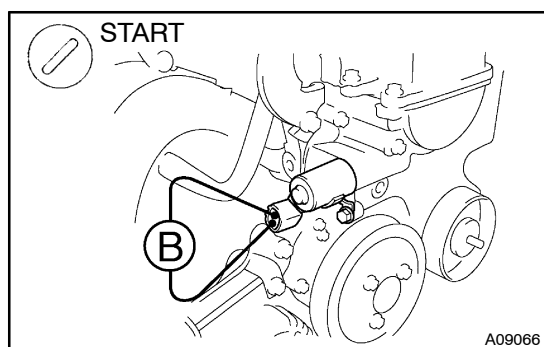
Repair or replace.

OK

Check for intermittent problems
(See page DI-4).

When not using hand-held tester

- 1** Check operation of OCV for VVTL.



PREPARATION:

- Start the engine and warmed it up.
- Disconnect the OCV connector.
- Maintain engine speed at 1,500 – 2,500 rpm.
- Apply battery positive voltage between terminals of the OCV.

CHECK:

Check the engine speed.

OK:

Rough engine speed or engine stalled

NG

Replace OCV for VVTL.

OK

- | | |
|----------|--|
| 2 | Check voltage between terminals OVL+ and OVL- of engine ECU connector (See page DI-22). |
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Check and replace engine ECU (See page IN-20).

OK

- | | |
|----------|--|
| 3 | Check for open and short in harness and connector between OCV for VVTL and engine ECU (See page IN-20). |
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NG

Repair or replace.

OK

Check for intermittent problems (See page DI-4).