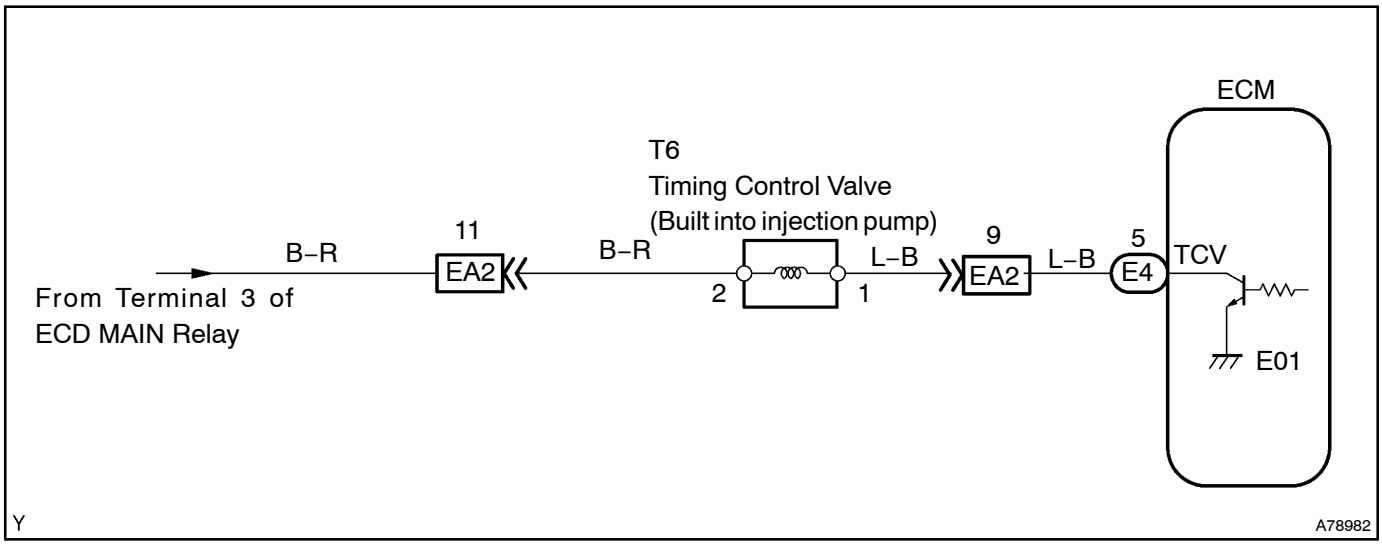
DTC 14 TIMING CONTROL SYSTEM MALFUNCTION

CIRCUIT DESCRIPTION

The ECM controls the injection timing by actuating the timing control valve. The timing control valve is mounted on the injection pump and delays one by duty control signal of pump internal fuel pressure.
The ECM detects the injection advance angle by TDC and NE signals.

DTC No.	DTC Detection Condition	Trouble Area
14	After or during engine warmed up and during, actual injection timing is different from target value of ECM calculated for several sec.	• Open or short in timing control valve circuit • Fuel filter (Clogging) • Fuel (Freezing, Air in) • Injection pump (Internal pressure and timing control valve) • ECM

WIRING DIAGRAM



INSPECTION PROCEDURE

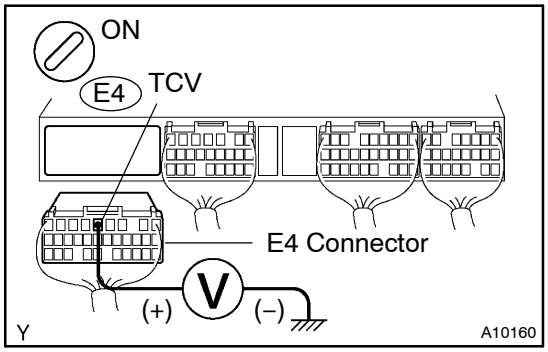
HINT:
Read freeze frame data using the hand–held tester, as freeze frame data records the engine conditions when a malfunction is detected. When troubleshooting, it is useful for determining whether the vehicle was running or stopped, the engine was warmed up or not, the air–fuel ratio was lean or rich, etc. at the time of the malfunction.

1	CHECK TIMING CONTROL VALVE (See page 11–64)

NG → REPLACE INJECTION PUMP ASSY

OK

2 CHECK ECM



(a) Turn the ignition switch ON.
(b) Check the voltage between the terminals of shown in the table and illustration.

Voltage:

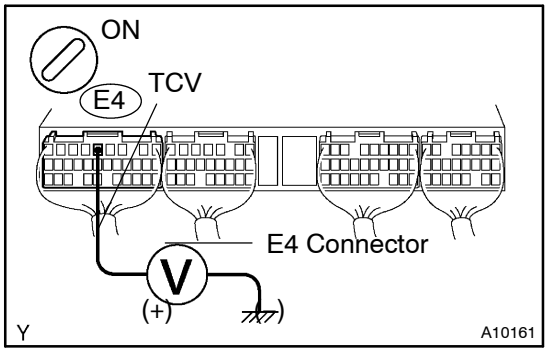
Terminal (Positive terminal ⇔ Negative terminal)	Voltage
TCV (E4–5) ⇔ Body ground	18 – 27 V

OK ⇒ **Go to step 3**

NG

CHECK HARNESS AND CONNECTOR (ECM ⇔ TIMING CONTROL VALVE, ECD RELAY ⇔ TIMING CONTROL VALVE) (See page 01–27)

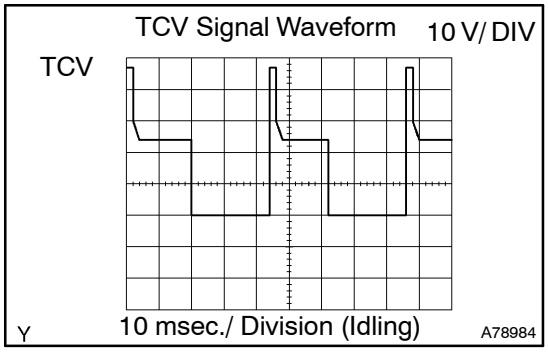
3 CHECK ECM



(a) Turn the ignition switch ON.
(b) Check the voltage between the terminals of shown in the table and illustration.

Voltage:

Terminal (Positive terminal ⇔ Negative terminal)	Voltage
TCV (E4–5) ⇔ Body ground	18 – 27 V



Reference: Inspection using oscilloscope

(c) While idling, check the waveform between terminals TCV and E1 of the ECM connector.

HINT:
The correct waveform is as shown in the illustration.

NG ⇒ **CHECK AND REPLACE ECM**

OK

4	CHECK FUEL FILTER CLOGGING, FUEL FLEEZING AND FUEL AIR IN

NG → REPAIR OR REPLACE

OK

CHECK AND REPLACE INJECTION PUMP ASSY (See page 11–67)