

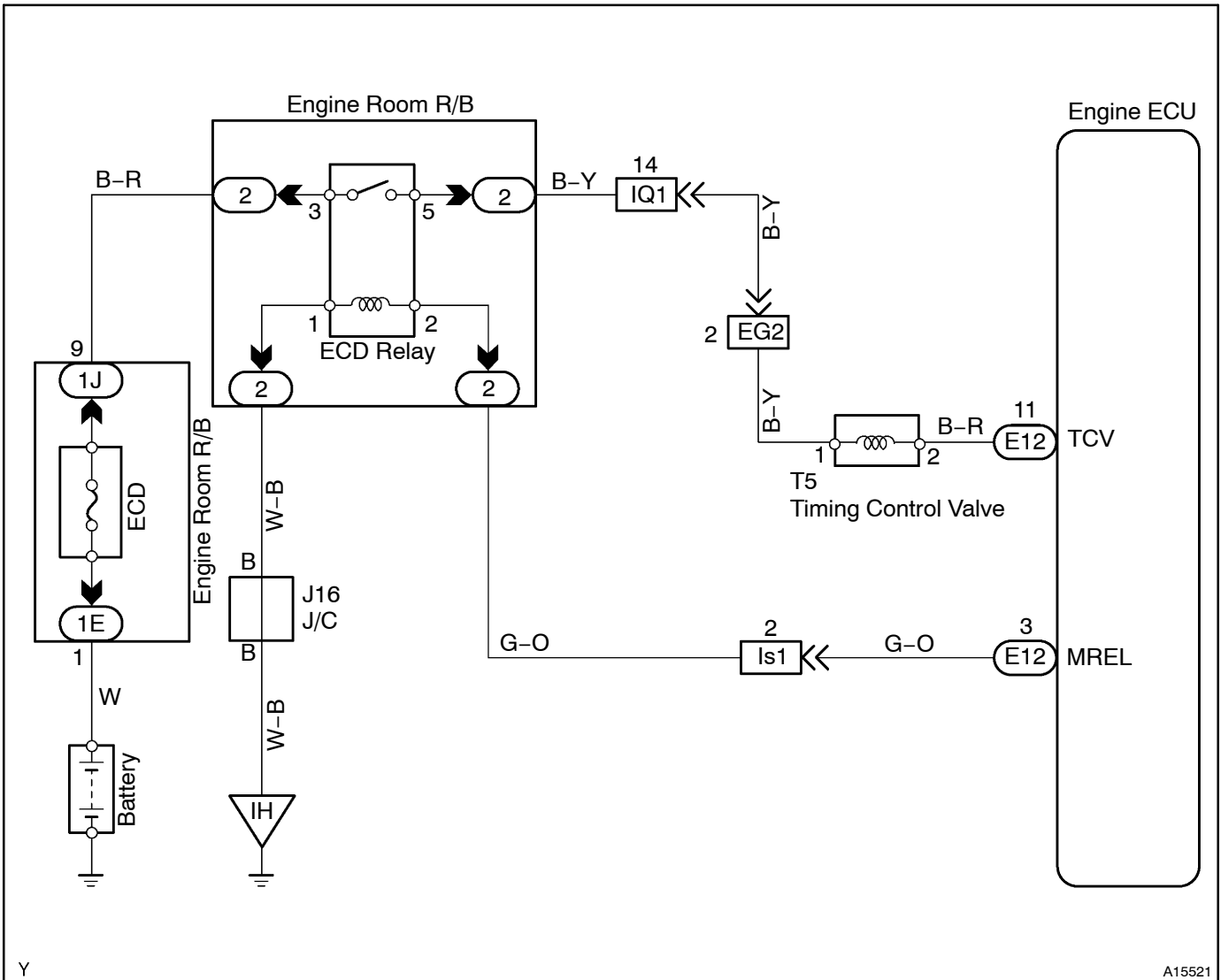
|            |           |                                          |
|------------|-----------|------------------------------------------|
| <b>DTC</b> | <b>14</b> | <b>Timing Control System Malfunction</b> |
|------------|-----------|------------------------------------------|

## CIRCUIT DESCRIPTION

The engine ECU control the injection timing by actuating the timing control valve. The timing control valve is mounted on the injection pump and delay the injection timing by duty control of pump internal fuel pressure. The engine ECU detects the injection advance angle by TDC and NE signals.

| DTC No. | DTC Detecting Condition                                                                                                             | Trouble Area                                                                                                                                                                                                                                                                                        |
|---------|-------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 14      | After or during engine warming up, actual injection timing is different from target value of engine ECU calculated for several sec. | <ul style="list-style-type: none"> <li>• Open or short in timing control valve circuit</li> <li>• Timing control valve</li> <li>• Fuel filter (Clogging)</li> <li>• Fuel (Freezing, Air in)</li> <li>• Injection pump (Internal pressure and timing control valve)</li> <li>• Engine ECU</li> </ul> |

## WIRING DIAGRAM



Y

A15521

## INSPECTION PROCEDURE

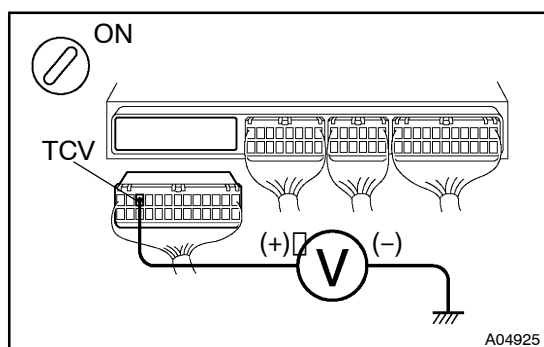
1 Check timing control valve (See page ED-6).

NG

Check and replace injection pump.

OK

2 Check voltage between terminal TCV of engine ECU connector and body ground.

**PREPARATION:**

- (a) Remove the glove compartment door.
- (b) Disconnect the connector of the engine ECU.
- (c) Turn the ignition switch ON.

**CHECK:**

Measure the voltage between terminal TCV of the engine ECU connector and the body ground.

**OK:**

Voltage: 9 – 14 V

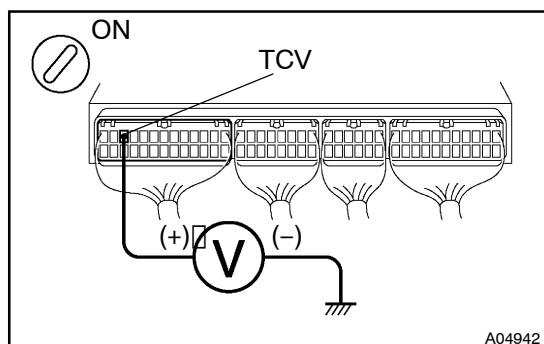
OK

Go to step 3.

NG

Check for open or short in harness and connector between timing control valve and engine ECU, timing control valve and ECD relay (Marking: ECD) (See page IN-19).

3 Check voltage between terminal TCV of engine ECU and body ground.

**PREPARATION:**

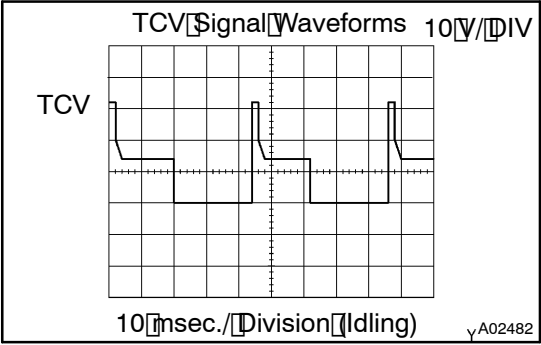
- (a) Remove the glove compartment door.
- (b) Turn the ignition switch ON.

**CHECK:**

Measure the voltage between terminal TCV of the engine ECU and the body ground.

**OK:**

Voltage: 9 – 14 V



**Reference: INSPECTION USING OSCILLOSCOPE**

During idling, check the waveform between terminals TCV and E1 of the engine ECU.

**HINT:**

The correct waveform is as shown in the illustration.

NG

Check and replace engine ECU  
(See page IN-19)

OK

4

Check fuel filter clogging, fuel freezing and fuel air in.

NG

Replace or repair.

OK

Check and replace injection pump.