DI31Q-04

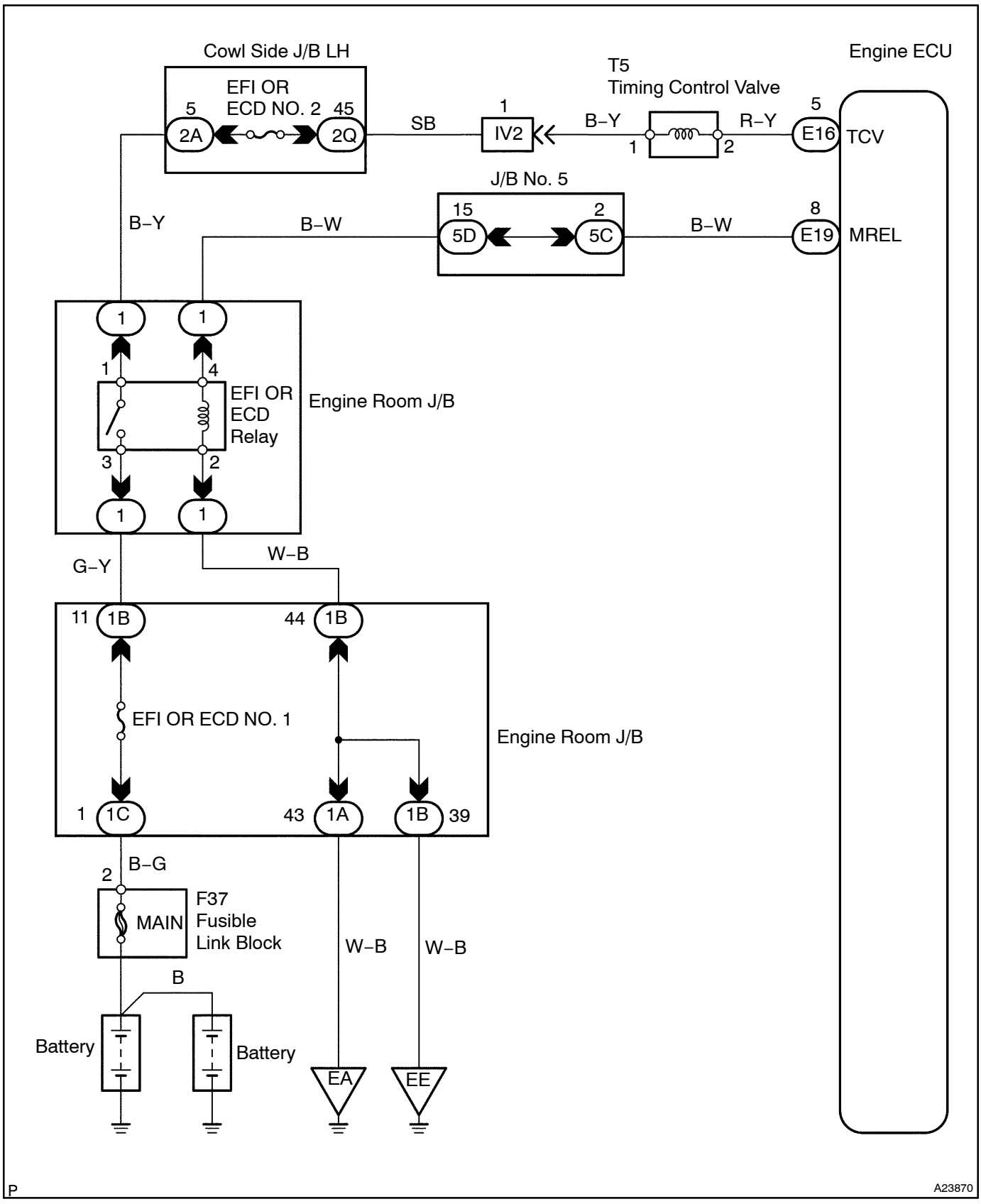
DTC	P1220/14	Timing Control System Malfunction

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 controls the pump internal fuel pressure through duty control.
The engine ECU detects the injection advance angle by TDC and NE signals.

DTC No.	DTC Detection Condition	Trouble Area
P1220/14	After engine warm up and during, actual injection timing is different from target value of engine ECU calculated for several sec.	• Open or short in timing control valve circuit • Timing control valve • Fuel filter (Clogging) • Fuel (Freezing, Air in) • Injection pump (Internal pressure and timing control valve) • Engine ECU

WIRING DIAGRAM



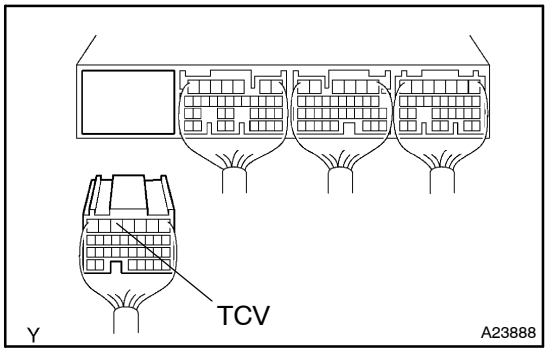
INSPECTION PROCEDURE

1	Check timing control valve (See Pub No. RM617E, page FU–113).

NG → Check and replace injection pump (See Pub No. RM617E, page FU–113).

OK

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



PREPARATION:

(a) Remove the glove compartment door.
(b) Disconnect the E16 connector of the engine ECU.
(c) Turn the ignition switch ON.

CHECK:

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

OK:

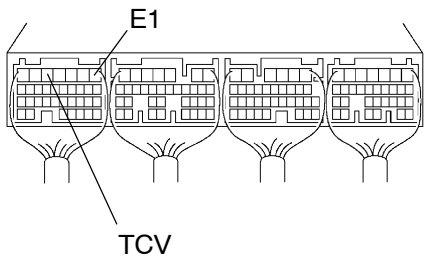
Voltage: 9 to 14 V

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 EFI OR ECD relay (See page IN–19).

3	Check timing control valve operation.



PREPARATION:

(a) Connect the oscilloscope between terminals TCV and E1 of the engine ECU.

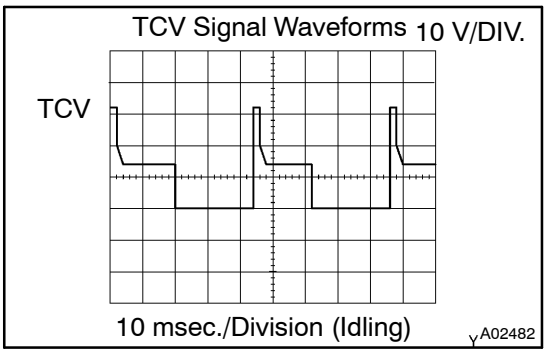
(b) Start the engine.

CHECK:

Check the waveform between terminals TCV and E1 of the engine ECU when the engine is idling.

OK:

The correct waveforms are as shown.



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 (See Pub No. RM617E, page FU–113).