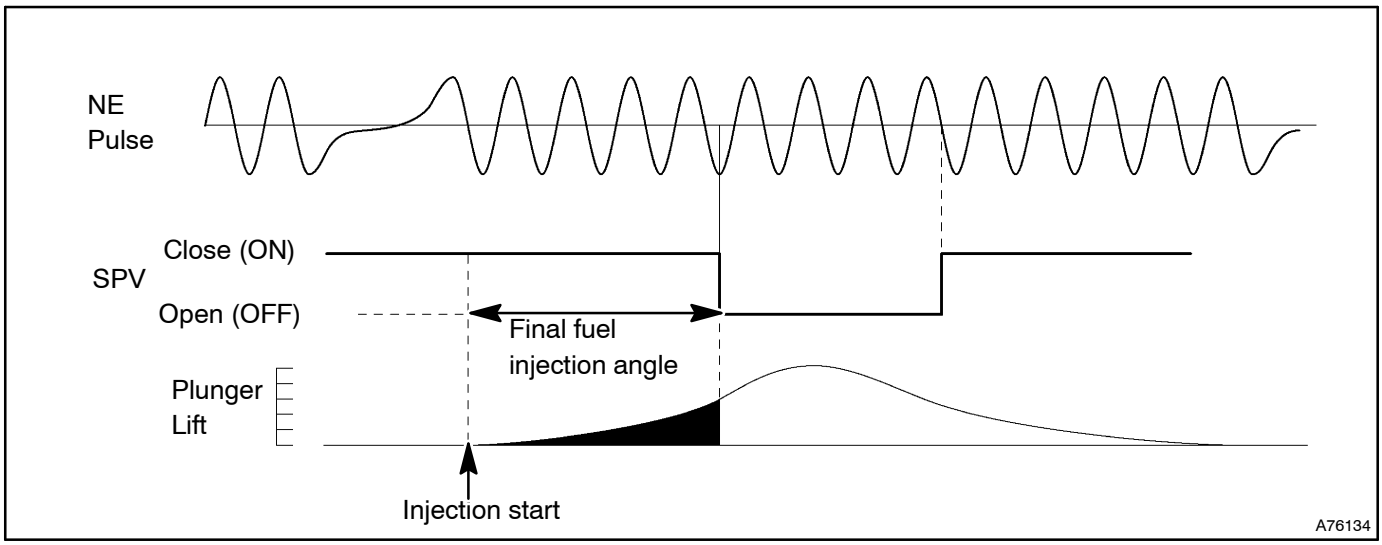
DTC 18 SPILL CONTROL CIRCUIT MALFUNCTION

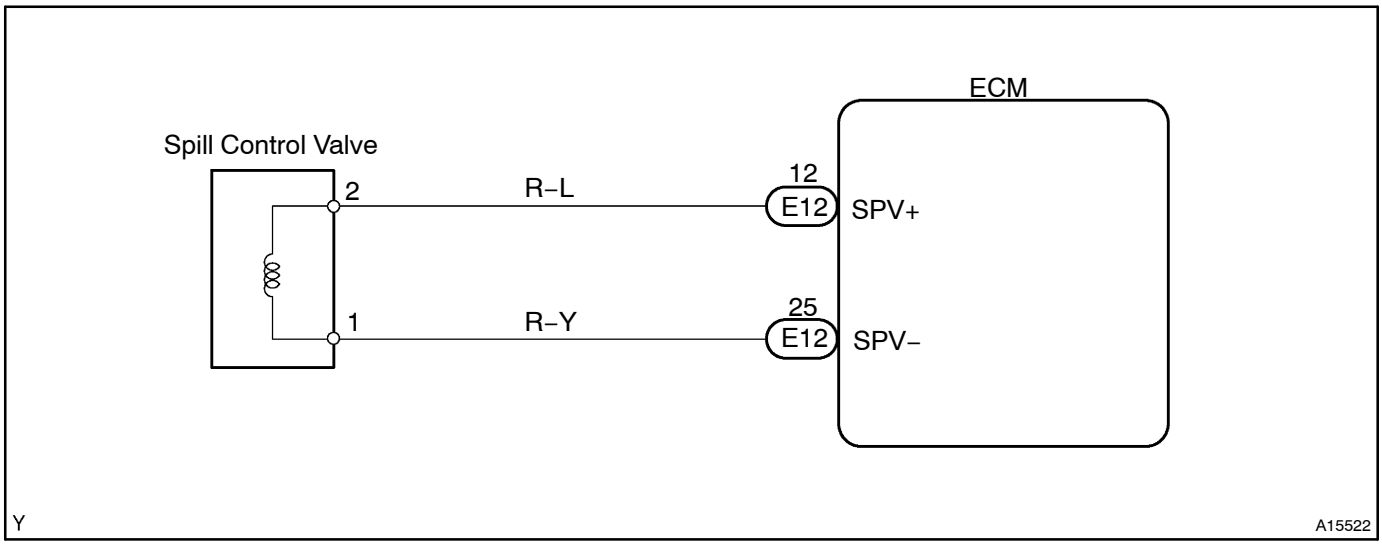
CIRCUIT DESCRIPTION

The ECM controls the fuel injection volume by operating the spill control valve. The spill control valve is mounted on the injection pump, and open or close the injection pressure releasing port by the solenoid valve in the spill control valve (During injection; valve is close (ON)), The ECM decides the basic fuel injection volume by the engine rpm and accelerator pedal opening angle, and calculates the final fuel injection angle to add the various corrections on the basic fuel injection volume. The ECM counts the NE pulse to detects the angle from injection starts and operates the spill control valve from ON to OFF (The injection pressure releasing port is open.) at the position which watches the final fuel injection angle.



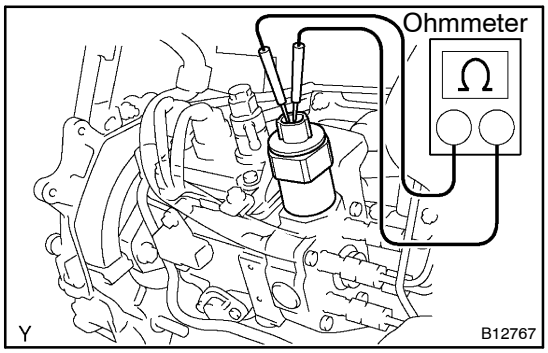
DTC No.	DTC Detection Condition	Trouble Area
18	Open or short in spill control valve at 500 rpm or more	• Open or short in spill control valve circuit • Spill control valve • ECM

WIRING DIAGRAM



INSPECTION PROCEDURE

1	INSPECT INJECTION OR SUPPLY PUMP ASSY(SPILL CONTROL VALVE)

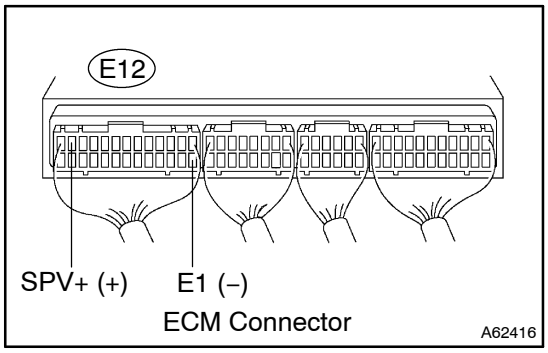


(a) Measure the resistance between the terminals.
Resistance: 1 – 2 Ω at 20°C (68°F)

NG → **REPLACE INJECTION OR SUPPLY PUMP ASSY (See page 11–48)**

OK

2	INSPECT ECM



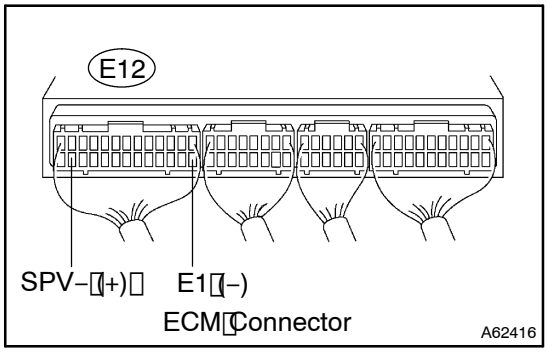
(a) Turn the ignition switch ON.
(b) Measure the voltage between the terminals of the ECM connector.
Voltage:

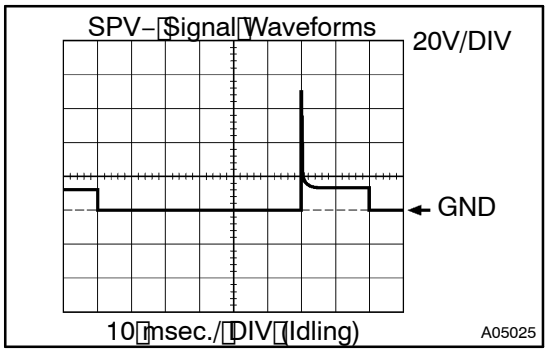
Symbols (Terminal No.)	Specified condition
SPV+ (E12 – 12) ⇔ E1 (E12 – 14)	9 – 14 V

NG → **REPLACE ECM**

OK

3 INSPECT ECM





(a) Turn the ignition switch ON.
(b) Measure the voltage between the terminals of the ECM connector.

Voltage:

Symbols (Terminal No.)	Specified condition
SPV– (E12 – 25) ⇔ E1 (E12 – 14)	9 – 14 V

(c) Check the output waveform.

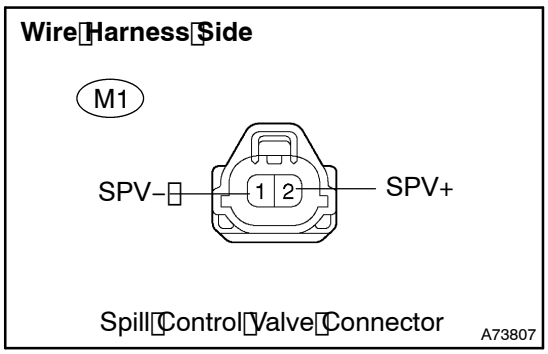
Item	Contents
Terminal	SPV– ⇔ E1
Equipment set	20 V/DIV, 10 ms/DIV
Condition	During idling

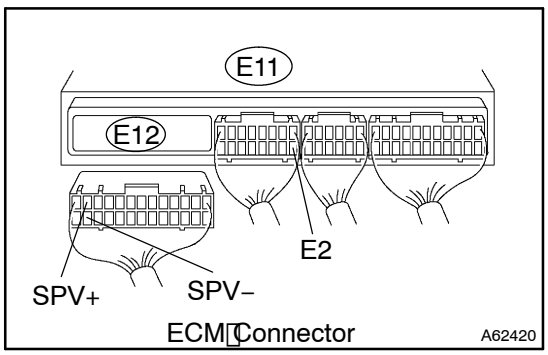
HINT:
The correct waveform is as shown.

OK → **CHECK FOR INTERMITTENT PROBLEMS (See page 05–197)**

NG

4 CHECK HARNESS AND CONNECTOR(ECM – SPILL CONTROL VALVE)





(a) Disconnect the spill control valve connector.
(b) Disconnect the ECM E12 connector.
(c) Check the continuity between the wire harness side connector.

Standard (Check for open):

Symbols (Terminal No.)	Specified condition
SPV+ (M1 – 2) ⇔ SPV+ (E12 – 12)	Continuity
SPV– (M1 – 1) ⇔ SPV– (E12 – 25)	

Standard (Check for short):

Symbols (Terminal No.)	Specified condition
SPV+ (E12 – 12) ⇔ E2 (E11 – 9)	No continuity
SPV– (E12 – 25) ⇔ E2 (E11 – 9)	

OK → **CHECK AND REPLACE ECM**

NG

REPAIR OR REPLACE HARNESS OR CONNECTOR