DI3R9–01

DTC	P1790/65	ST Solenoid Valve Circuit Malfunction

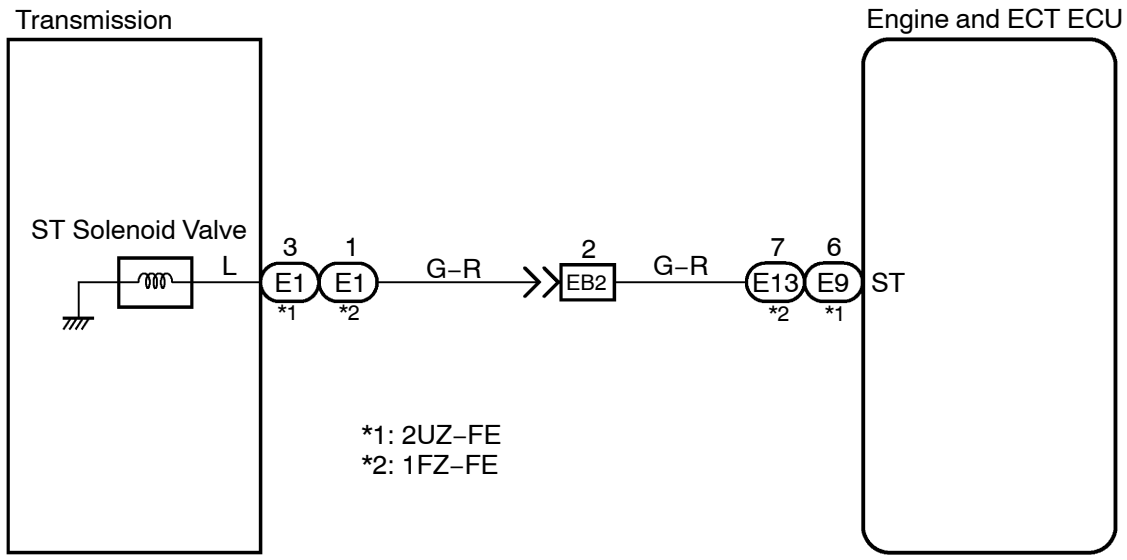
CIRCUIT DESCRIPTION

ST solenoid valve is switched ON–OFF by a signal from Engine and ECT ECU (2UZ–FE, 1FZ–FE) or ECT ECU (1HZ, 1HD–T, 1HD–FTE) so that let in or out timing of 2nd brake is adjusted by operating orifice control valve. Therefore, ST solenoid operates when let in or out 2nd brake.
If it is broken, the shift shock becomes big.

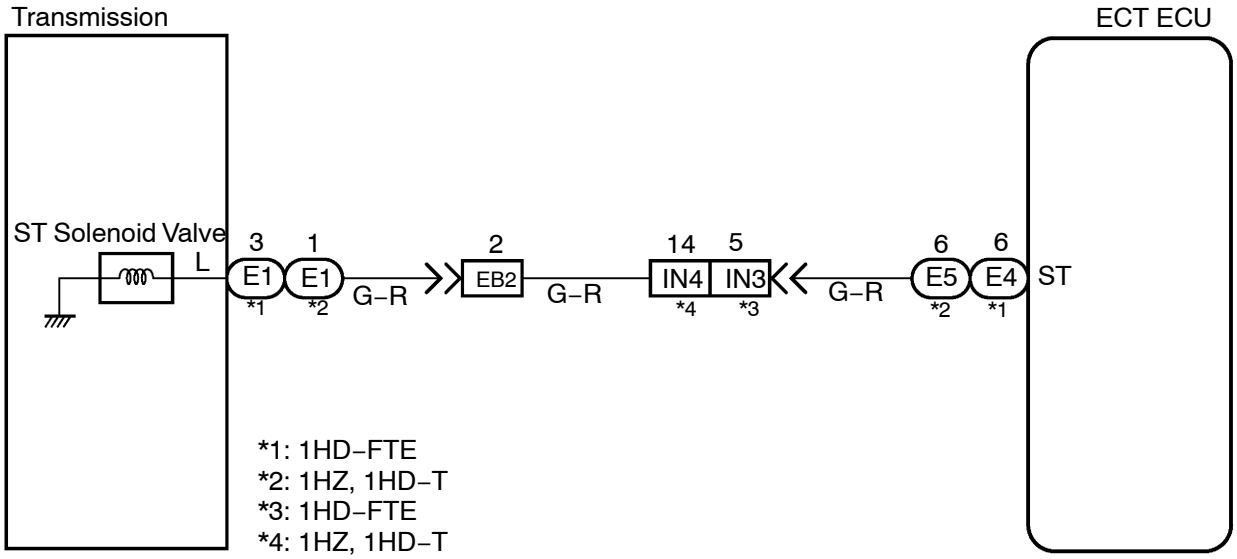
DTC No.	DTC Detecting Condition	Trouble Area
P1790/65	ECU memorizes DTC 65 if above (a) or (b) condition is detected once or more, but ECU does not start O/D OFF indicator light blinking. (a) Solenoid resistance is 30 Ω or lower (short circuit) when solenoid energized. (b) Solenoid resistance is 100 kΩ or higher (open circuit) when solenoid is not energized.	• Open or short in ST solenoid valve circuit • ST solenoid valve • Engine and ECT ECU (2UZ–FE, 1FZ–FE) • ECT ECU (1HZ, 1HD–T, 1HD–FTE)

WIRING DIAGRAM

1FZ–FE, 2UZ–FE



1HZ, 1HD–T, 1HD–FTE

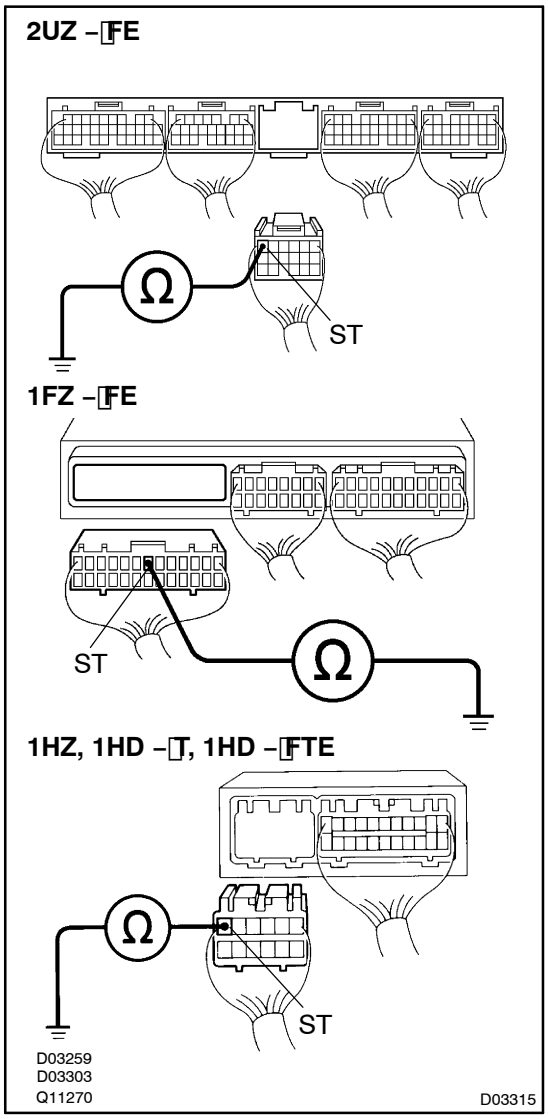


D03967
D03945

D03982

INSPECTION PROCEDURE

1	Measure resistance between terminal ST of Engine and ECT ECU or ECT ECU and body ground.



PREPARATION:

(a) Remove the glove compartment door (See page BO–127).

(b) Disconnect the connector from Engine and ECT ECU or ECT ECU.

CHECK:

Measure resistance between terminal ST of Engine and ECT ECU or ECT ECU and body ground.

OK:

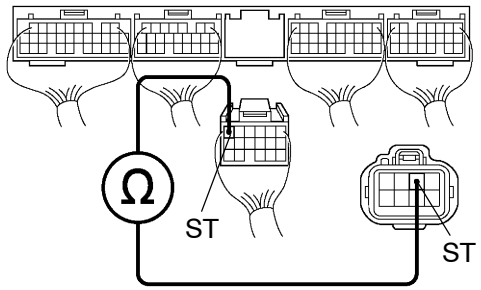
Resistance: 11 – 15 Ω at 20°C (68°F)

OK	Check and replace the Engine and ECT ECU or ECT ECU (See page IN–35).

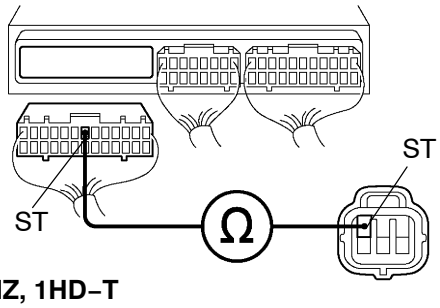
NG

2	**Check harness and connector between Engine and ECT ECU or ECT ECU and automatic transmission solenoid connector.**

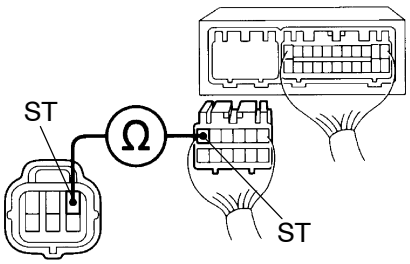
2UZ–FE



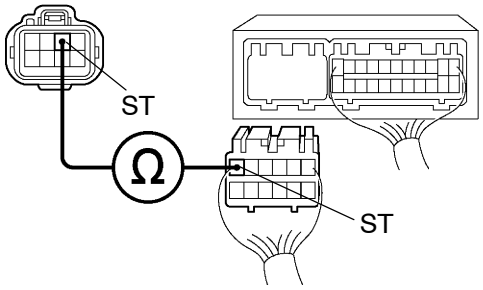
1FZ–FE

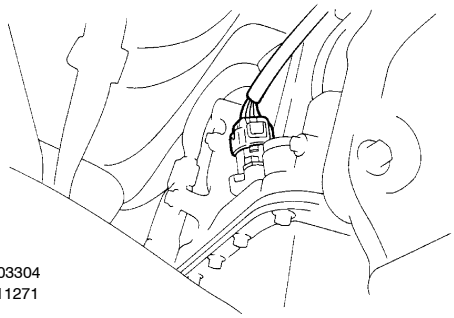


1HZ, 1HD–T



1HD–FTE





D03304
Q11271

D02928

D03316

PREPARATION:

Disconnect the solenoid connector from the automatic transmission.

CHECK:

Check the harness and connector between terminal ST of Engine and ECT ECU or ECT ECU and terminal ST of solenoid connector.

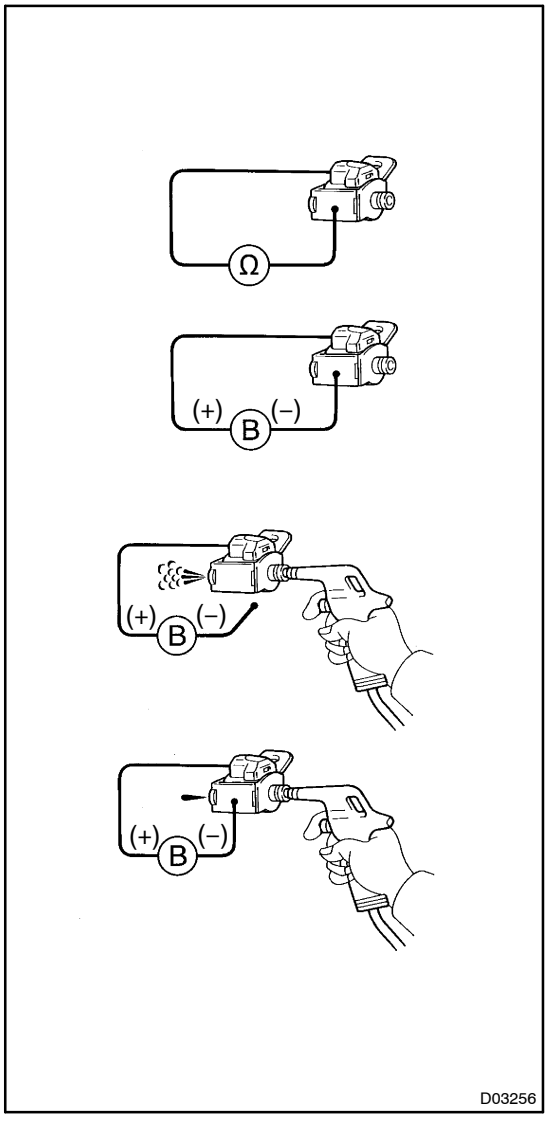
OK:

There is no open and no short circuit.

NG → **Repair or replace the harness or connector.**

OK

3	**Check ST solenoid valve.**



Electrical Check:

PREPARATION:

(a) Jack up the vehicle.
(b) Remove the oil pan.
(c) Disconnect the solenoid connector.
(d) Remove the ST solenoid valve.

CHECK:

(a) Measure resistance between solenoid connector and body ground.
(b) Connect positive ⊕ lead to terminal of solenoid connector, negative ⊖ lead to solenoid body.

OK:

(a) Resistance: 11 – 15 Ω at 20 °C (68 °F)
(b) The solenoid makes an operating noise.

Mechanical Check:

PREPARATION:

(a) Jack up the vehicle.
(b) Remove the oil pan.
(c) Disconnect the solenoid connector.
(d) Remove the ST solenoid valve.

CHECK:

(a) Applying 490 kPa (5 kgf/cm^2, 71 psi) of compressed air, check that the solenoid valves do not leak air.
(b) When battery positive voltage is supplied to the shift solenoid valves, check that the solenoid valves open.

OK:

(a) Solenoid valve does not leak air.
(b) Solenoid valve opens.

NG → **Replace the solenoid valve.**

OK

Repair or replace the solenoid wire.