DI2LM–01

| DTC | P1780/97 | Park/Neutral Position Switch Circuit (Neutral Start Switch) |

CIRCUIT DESCRIPTION

The neutral start switch detects the shift lever range and sends signals to the Engine & ECT ECU.
The Engine & ECT ECU receives signals (NSW, R, 2 and L) from the neutral start switch. When the signal is not sent to the Engine & ECT ECU from the neutral start switch, the Engine & ECT ECU judges that the shift lever is in D range.

DTC No.	DTC Detection Condition	Trouble Area
P1780/97	2 or more switches are ON simultaneously for R, N, 2 and L ranges. (2–trip detection logic)	• Short in neutral start switch circuit • Neutral start switch • Engine & ECT ECU
	When driving under conditions (a) and (b) for 30 seconds or more, the neutral start switch is ON (N position). (2–trip detection logic) (a) Vehicle speed: 70 km/h (44 mph) or more (b) Engine speed: 1,500 ~ 2,500 rpm	

WIRING DIAGRAM
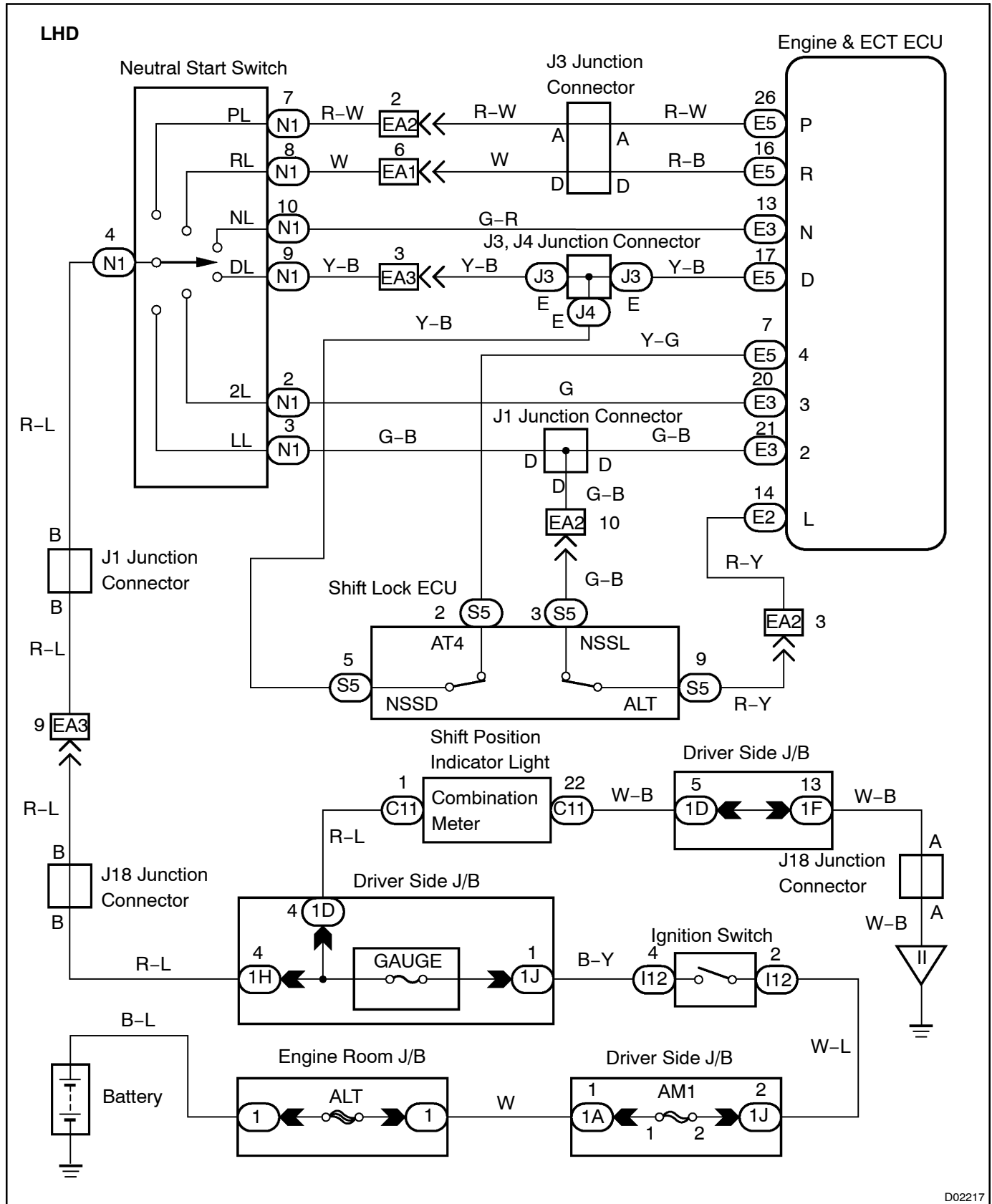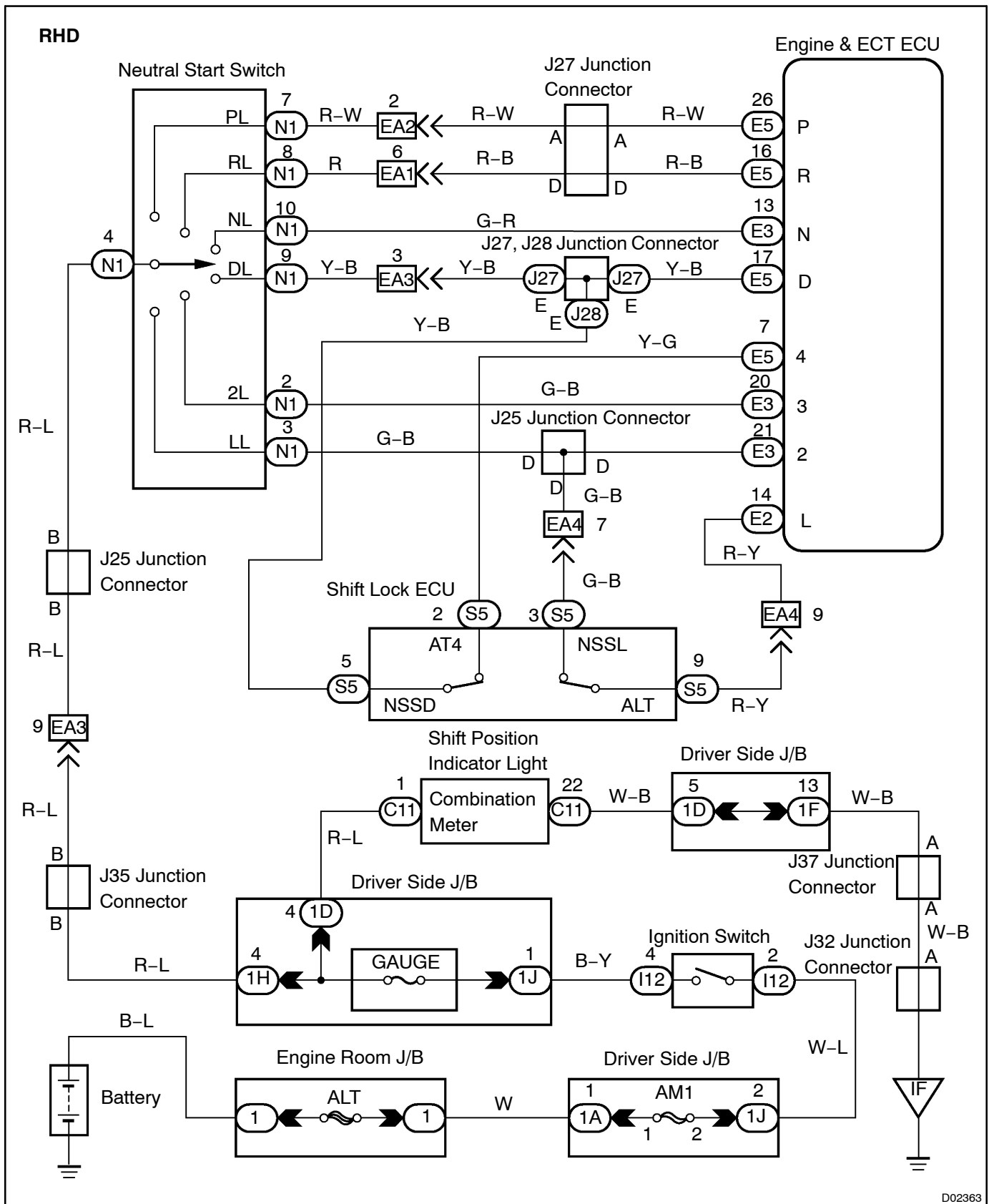
INSPECTION PROCEDURE

HINT:

In case of using the hand–held tester, start the inspection from step 1 and in case of not using the hand–held tester, start from step 2.

1	**Read PNP, REVERSE, DRIVE, 4TH, 3RD, 2ND and LOW signals.**

PREPARATION:

(a) Remove the DLC3 cover.

(b) Connect a hand–held tester to the DLC3.

(c) Turn the ignition switch ON and hand–held tester main switch ON.

CHECK:

Shift lever into the P, R, N, 4, 3, 2 and L ranges, and read the PNP, REVERSE, 2ND and LOW signals on the hand–held tester.

OK:

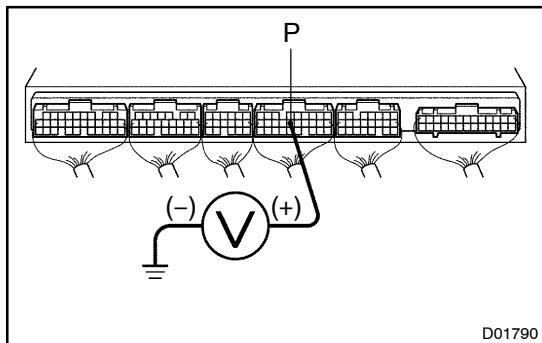| Shift range	Signal
P, N	PNP : OFF → ON
R	REVERSE : OFF → ON
D	DRIVE : OFF → ON
4	4TH : OFF → ON
3	3RD : OFF → ON
2	2ND : OFF → ON
L	LOW : OFF → ON

OK	**Check and replace the Engine & ECT ECU (See page IN–29).**

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Go to step 3.

2	Measure voltage between each terminals of P, R, N, D, 4, 3, 2, and L of Engine & ECT ECU and body ground.

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PREPARATION:
Turn the ignition switch ON.
CHECK:
Measure voltage between each terminals P, R, N, D, 4, 3, 2 and L of Engine ECT ECU and body ground when the shift lever is shifted to the following positions.

OK:

| Tester connection	Condition	specified condition
P– Body ground	Shift lever range : P	Battery positive voltage
R – Body ground	Shift lever range : R	Battery positive voltage*
N – Body ground	Shift lever range : N	Battery positive voltage
D – Body ground	Shift lever range : D Transmission control SW (for D and 4) : OFF	Battery positive voltage
4 – Body ground	Shift lever range : 4 Transmission control SW (for D and 4) : ON	Battery positive voltage
3 – Body ground	Shift lever range : 3	Battery positive voltage
2 – Body ground	Shift lever range : 2 Transmission control SW (for 2 and L) : OFF	Battery positive voltage
L – Body ground	Shift lever range : L Transmission control SW (for 2 and L) : ON	Battery positive voltage

HINT:
*: The voltage will drop slightly due to lighting up of the back up light.

OK >	Check and replace the Engine & ECT ECU (See page IN–29).

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3	Check neutral start switch.

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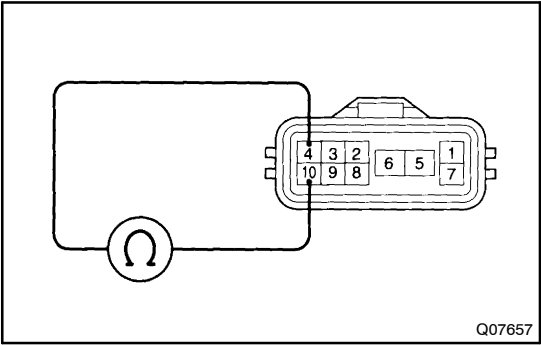
PREPARATION:
(a) Jack up the vehicle.
(b) Remove the neutral start switch connector.

CHECK:
Check continuity between each terminal shown below when the shift lever is moved to each range.

OK:

Shift Range	Terminal No. to continuity	Terminal No. to continuity
P	4 – 7	5 – 6
R	4 – 8	–
N	4 – 10	5 – 6
D, 4	4 – 9	–
3	2 – 4	–
2, L	3 – 4	–

NG ⟩ **Replace the neutral start switch.**

OK

Repair or replace harness and connector between battery and neutral start switch, neutral start switch and Engine & ECT ECU (See page IN−29).