DI87X–01

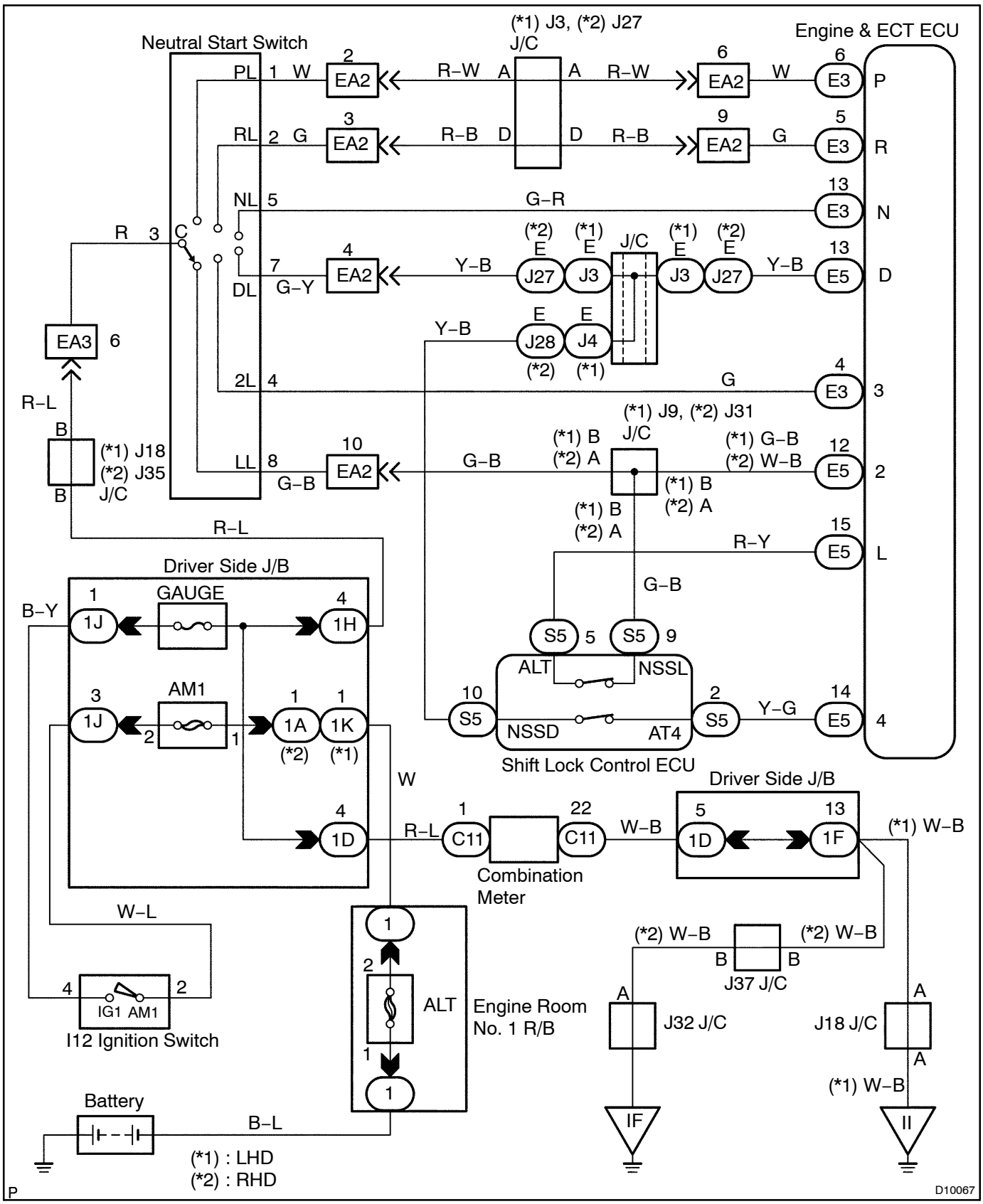
DTC	P1780	Park/Neutral Position Switch Circuit (Neutral Start Switch)

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 (P, R, N, D, 4, 3, 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	2 or more switches are ON simultaneously for P, R, N, D, 4, 3, 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, D, 4, 3, 2 and L ranges, and read the PNP, REVERSE, DRIVE, 4TH, 3RD, 2ND and LOW signals on the hand–held tester.

OK:

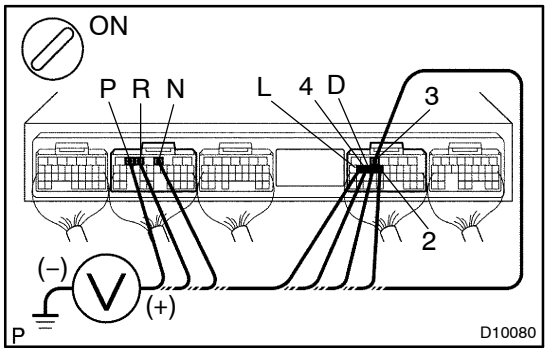
Shift range	Signal
P, N	PNP: OFF → ON
R	REVERSE: OFF → ON
D	DRIVE: OFF → ON
4	4TH: OFF → ON
3	3RD: OFF → ON
2	2ND: OFF → ON
L	LOW: OFF → ON

OK → **Check and replace the Engine & ECT ECU (See page 1N–30).**

NG

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.**



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 voltage
R – Body ground	Shift lever range: R	Battery voltage*
N – Body ground	Shift lever range: N	Battery voltage
D – Body ground	Shift lever range : D Transmission control SW (for D and 4) : OFF	Battery voltage
4 – Body ground	Shift lever range: 4 Transmission control SW (for D and 4) : ON	Battery voltage
3 – Body ground	Shift lever range: 3	Battery voltage
2 – Body ground	Shift lever range: 2 Transmission control SW (for 2 and L) : OFF	Battery voltage
L – Body ground	Shift lever range: L Transmission control SW (for 2 and L) : ON	Battery voltage

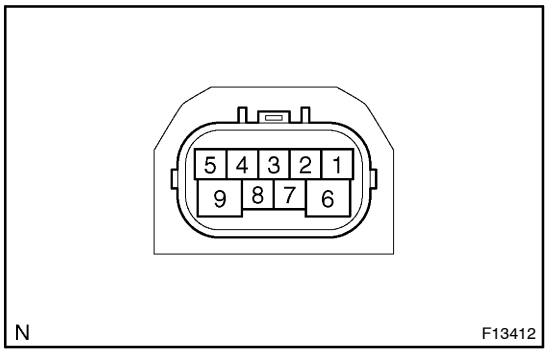
HINT:

*: 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–30).**

NG

3	Check neutral start switch.



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	1 – 3	6 – 9
R	2 – 3	–
N	3 – 5	6 – 9
D, 4	3 – 7	–
3	3 – 4	–
2, L	3 – 8	–

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–30).