DI3C3–05

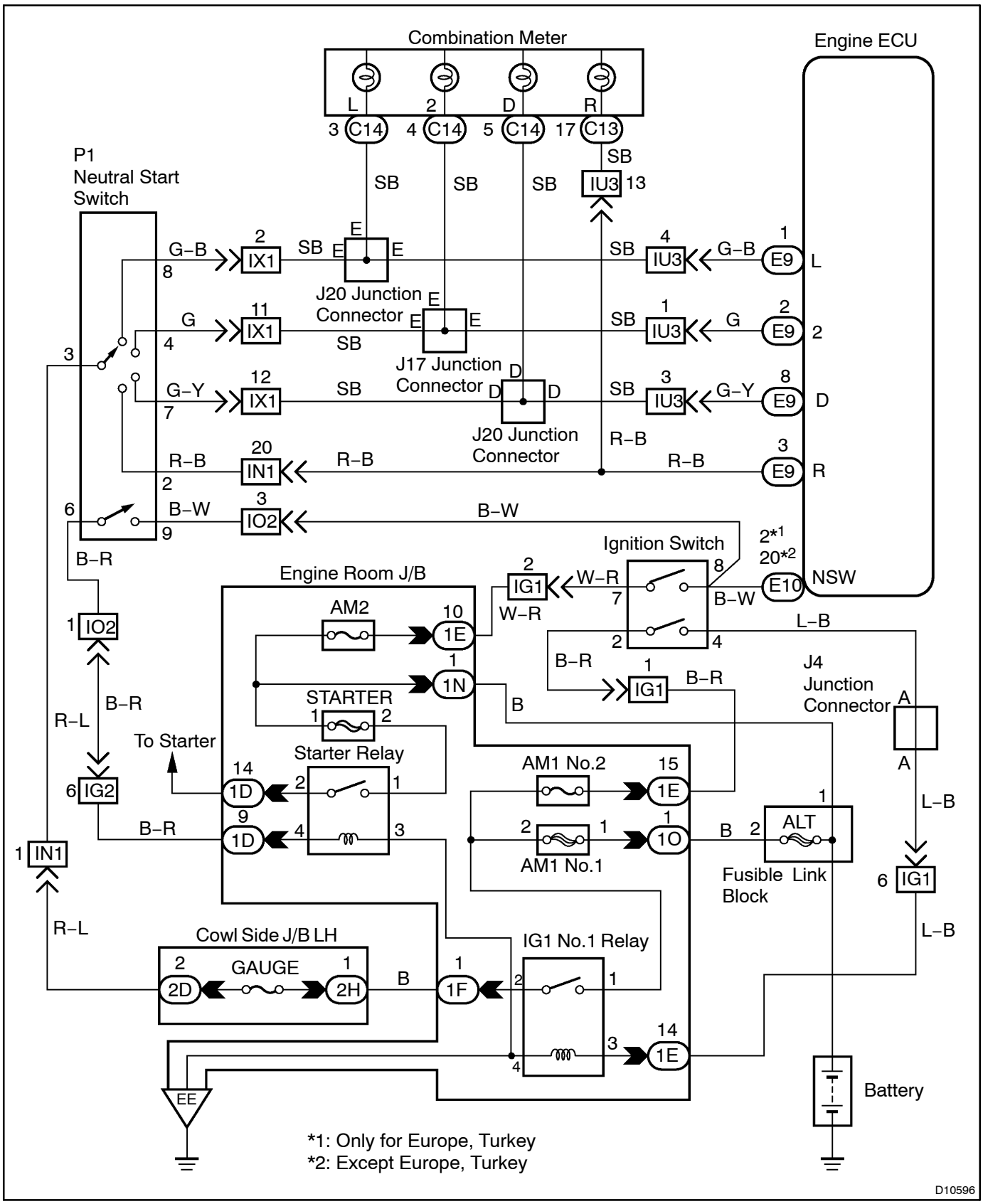
DTC	P1780/97	Neutral Start Switch Malfunction

CIRCUIT DESCRIPTION

The neutral start switch detects the shift lever position and sends signals to the engine ECU.
The engine ECU receives signals (NSW, R, D, 2 and L) from the neutral start switch. When the signal is not sent to the engine ECU from the neutral start switch, the engine 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 N, 2 and L positions. (2–trip detection logic)	• Short in neutral start switch circuit • Neutral start switch • Engine 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

1	Read PNP, REVERSE, 2ND and LOW signals.

When using hand–held tester:

PREPARATION:

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

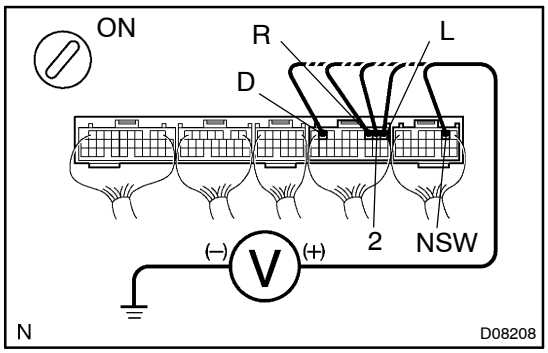
(b) Turn the ignition switch ON and hand–held tester main switch ON.

CHECK:

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

OK:

Shift position	Signal
2	2ND OFF → ON
L	LOW OFF → ON
R	REVERSE OFF → ON
P, N	PNP SW OFF → ON



When not using hand–held tester:

PREPARATION:

Turn the ignition switch ON.

CHECK:

Measure voltage between terminals NSW, R, D, 2 and L of engine ECU and body ground when the shift lever is shifted to the following ranges.

OK:

Position	NSW–Body ground	R–Body ground	D–Body ground	2–Body ground	L–Body ground
P, N	0 V	0 V	0 V	0 V	0 V
R	9 – 14 V*	7.5 – 14 V*	0 V	0 V	0 V
D	9 – 14 V	0 V	7.5 – 14 V	0 V	0 V
2	9 – 14 V	0 V	0 V	7.5 – 14 V	0 V
L	9 – 14 V	0 V	0 V	0 V	7.5 – 14 V

HINT:

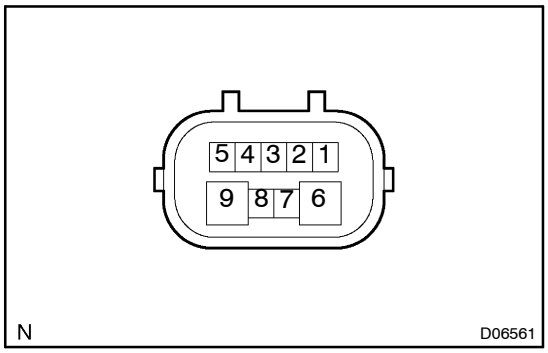
The voltage will drop slightly due to lighting up the back up light.

OK

Check and replace the engine ECU (See page IN–19).

NG

2	Check neutral start switch.



PREPARATION:

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 Position	Terminal No. to continuity	
P	6 – 9	1 – 3
R	2 – 3	–
N	6 – 9	3 – 5
D	3 – 7	–
2	3 – 4	–
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 ECU (See page IN–19).