

DTC	P1780/97	Neutral Start Switch Circuit
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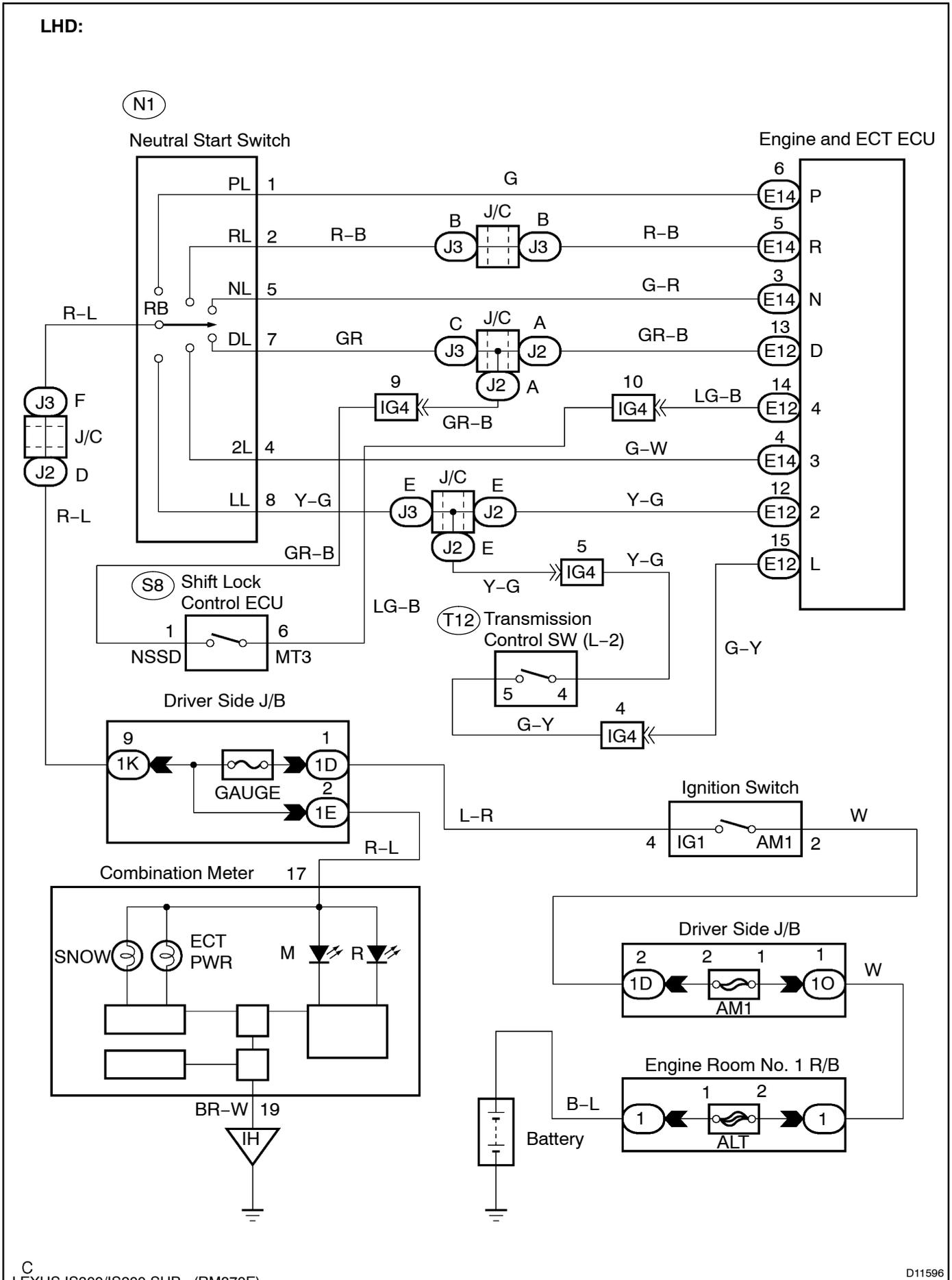
CIRCUIT DESCRIPTION

The neutral start switch detects the shift lever range and sends signals to the Engine and ECT ECU. The Engine and 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 and ECT ECU from the neutral start switch, the Engine and ECT ECU judges that the shift lever is in D range.

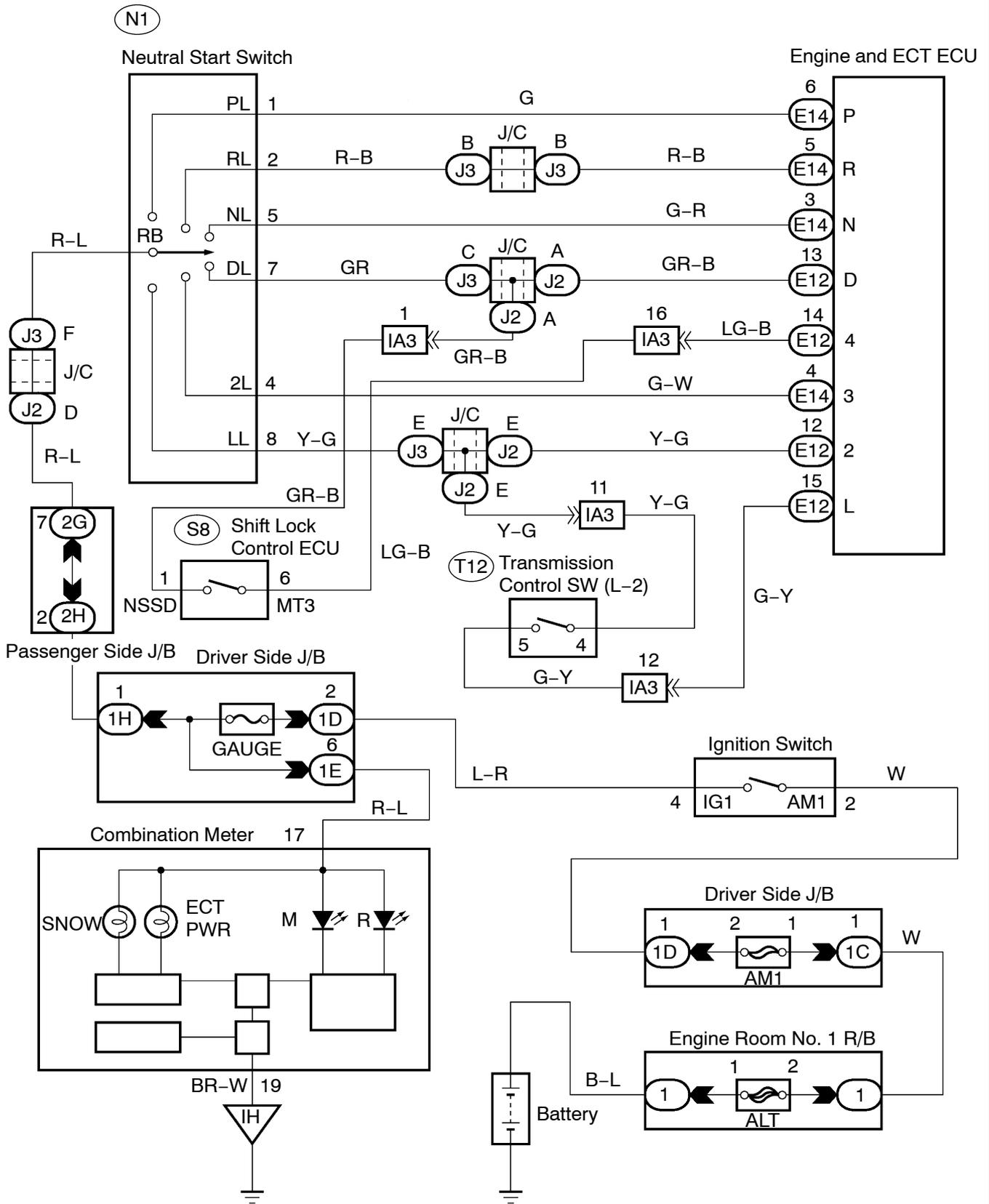
DTC No.	DTC Detection Condition	Trouble Area
P1780/97	2 or more switches are ON simultaneously for P, R, N, D, 4, 3, 2 and L ranges. (2-trip detection logic)	<ul style="list-style-type: none"> • Short in neutral start switch circuit • Neutral start switch • Engine and ECT ECU
	When driving under conditions (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

LHD:



RHD:



C

D11711

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, M, 3, 2 and L ranges, and read the PNP, REVERSE, DRIVE, 4TH, 3RD, 2ND and LOW signals on the hand-held tester.

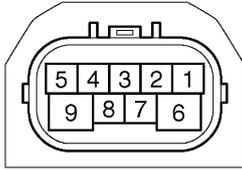
OK:

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

NG

Check the combination meter
(See page BE-2)

OK

2 Check neutral start switch.

N

F13412

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:

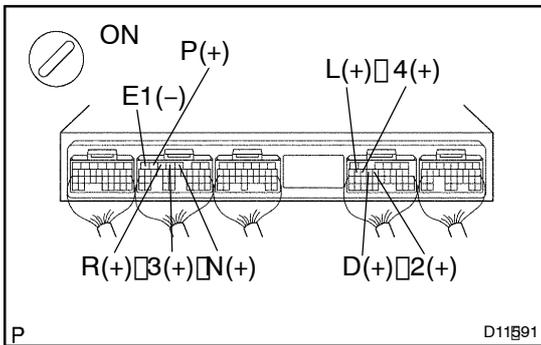
Shift range	Terminal No. to continuity	Terminal No. to continuity
P	1 - 3	6 - 9
R	2 - 3	-
N	3 - 5	6 - 9
D, M	3 - 7	-
3	3 - 4	-
2, L	3 - 8	-

NG

Replace the neutral start switch
(See page AT-19)

OK

3 Measure voltage between each terminals of P, R, N, D, 4, 3, 2, L and E1 of Engine and ECT ECU.



PREPARATION:

Turn the ignition switch ON.

CHECK:

Measure voltage between each terminals P, R, N, D, 4, 3, 2 and L, E1 of Engine and ECT ECU when the shift lever is shifted to the following ranges.

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 E-shift main SW (for D and 4) OFF	Battery voltage
4 - Body ground	Shift lever range: M E-shift main SW (for D and 4) ON	Battery voltage
3 - Body ground	Shift lever range: 3	Battery voltage
2 - Body ground	Shift lever range: 2 E-shift main SW (for 2 and L) OFF	Battery voltage
L - Body ground	Shift lever range: L E-shift main 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 and ECT ECU (See page N-34).

NG

Repair or replace the harness or connector (See page N-34).