DTC	P0705	TRANSMISSION RANGE SENSOR CIRCUIT MALFUNCTION (PRNDL INPUT)

CIRCUIT DESCRIPTION

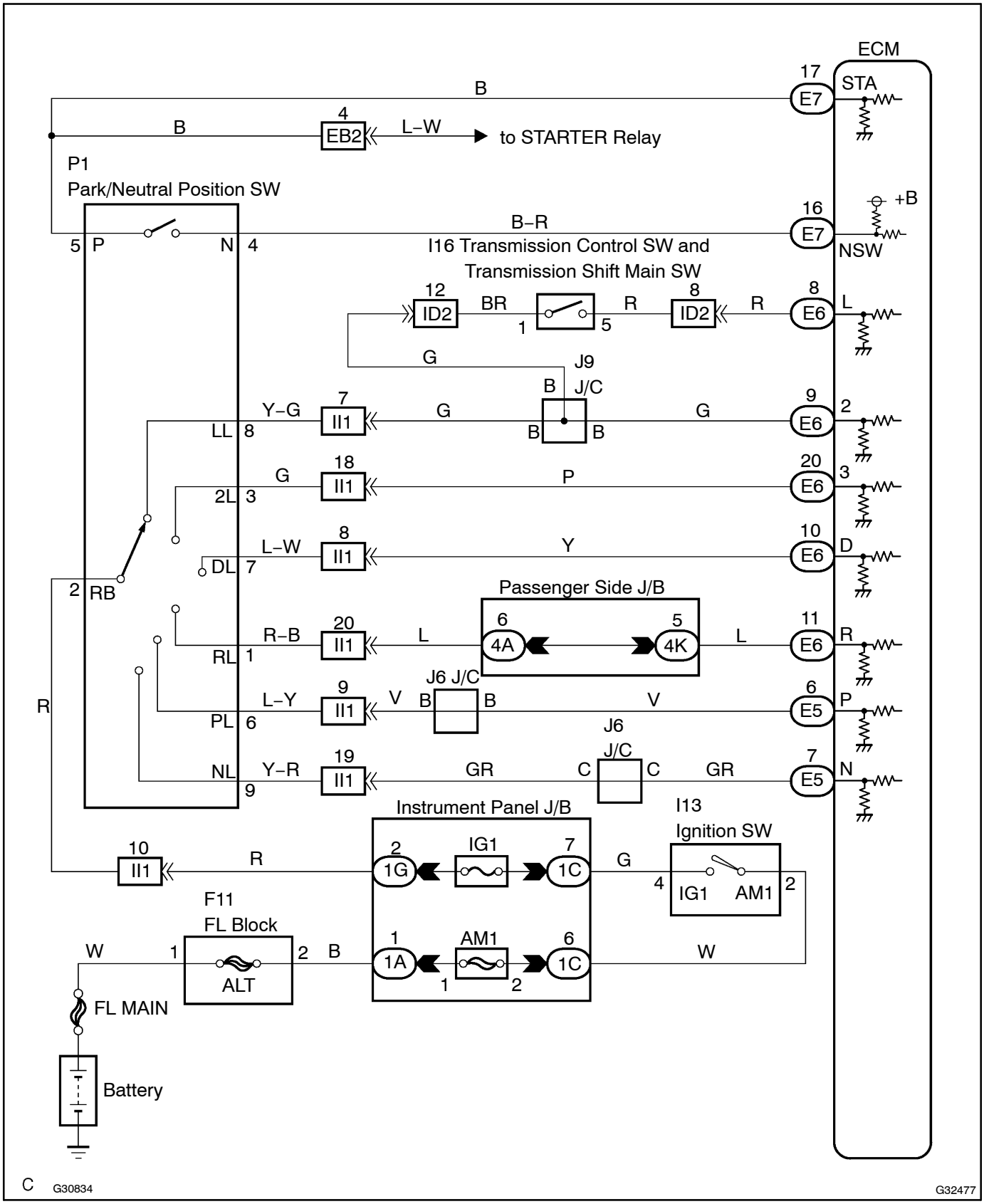
The park/neutral position switch detects the shift lever position and sends signals to the ECM.

DTC No.	DTC Detection Condition	Trouble Area
P0705	(A) Any 2 or more signals of the following are ON simultaneously (2–trip detection logic) • P input signal is ON. • N input signal is ON. • R input signal is ON. • D input signal is ON. • 3 input signal is ON. • 2 input signal is ON. (B) Any 2 or more signals of the following are ON simultaneously (2–trip detection logic) • NSW input signal is ON. • R input signal is ON. • D input signal is ON. • 3 input signal is ON. • 2 input signal is ON.	• Open or short in park/neutral position switch circuit • Park/neutral position switch • ECM

MONITOR DESCRIPTION

The park/neutral position switch detects the shift lever position and sends a signal to the ECM.
For security, the park/neutral position switch detects the shift lever position so that engine can be started only when the vehicle is in P or N shift position.
When the park/neutral position switch sends more than one signal at a time from switch positions P, R, N or D, the ECM interprets this as a fault in the switch. The ECM will turn on the MIL and store the DTC.

WIRING DIAGRAM



INSPECTION PROCEDURE

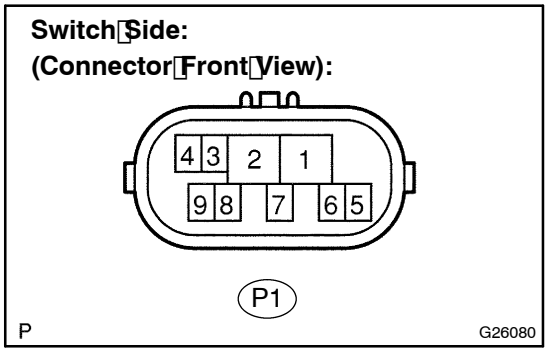
HINT:

According to the DATA LIST displayed by the hand–held tester, you can read the value of the switch, sensor, actuator and so on without parts removal. Reading the DATA LIST as the first step of troubleshooting is one method to shorten labor time.

(a) Turn the ignition switch off.
(b) Connect the hand–held tester to the DLC3.
(c) Turn the ignition switch to the ON position.
(d) Push the ”ON” button of the hand–held tester.
(e) Select the item ”DIAGNOSIS / OBD/MOBD / DATA LIST”.
(f) According to the display on tester, read the ”DATA LIST”.

Item	Measurement Item/ Range (display)	Normal Condition	Diagnostic Note
PNP SW [NSW]	PNP SW Status/ ON or OFF	Shift lever position is; P and N: ON Except P and N: OFF	When the shift lever position displayed on the hand–held tester differs from the actual position, adjustment of the PNP switch or the shift cable may be incorrect.
LOW	PNP SW Status/ ON or OFF	Shift lever position is; L: ON Except L: OFF	↑
2ND	PNP SW Status/ ON or OFF	Shift lever position is; 2 and L: ON Except 2 and L: OFF	↑
REVERSE	PNP SW Status/ ON or OFF	Shift lever position is; R: ON Except R: OFF	↑
DRIVE	PNP SW Status/ ON or OFF	Shift lever position is; D: ON Except D: OFF	↑

1 INSPECT PARK/NEUTRAL POSITION SWITCH ASSY



(a) Disconnect the park/neutral position switch connector.
(b) Measure resistance according to the value(s) in the table below when the shift lever is moved to each position.

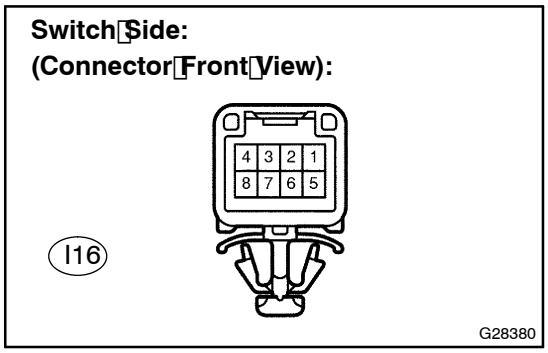
Standard:

Shift Position	Tester Connection	Specified Condition
P	2 – 6 and 4 – 5	Below 1 Ω
Except P	↑	10 kΩ or higher
R	2 – 1	Below 1 Ω
Except R	↑	10 kΩ or higher
N	2 – 9 and 4 – 5	Below 1 Ω
Except N	↑	10 kΩ or higher
D	2 – 7	Below 1 Ω
Except D	↑	10 kΩ or higher
3	2 – 3	Below 1 Ω
Except 3	↑	10 kΩ or higher
2 and L	2 – 8	Below 1 Ω
Except 2 and L	↑	10 kΩ or higher

NG → **REPLACE PARK/NEUTRAL POSITION SWITCH ASSY (SEE PAGE 40–3)**

OK

2 INSPECT TRANSMISSION SHIFT MAIN SWITCH



(a) Connect the park/neutral position switch connector.
(b) Disconnect the transmission shift main switch connector (transmission control switch connector) of shift lever assy.
(c) Measure resistance according to the value(s) in the table below when the shift lever is moved to each position.

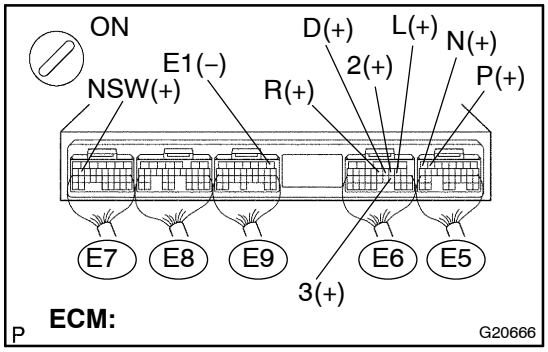
Standard:

Shift Position	Tester Connection	Specified Condition
2	1 – 5	10 kΩ or higher
L	↑	Below 1 Ω

NG → **REPLACE TRANSMISSION SHIFT MAIN SWITCH (SEE PAGE 40–32)**

OK

3	CHECK HARNESS AND CONNECTOR (PARK/NEUTRAL POSITION SWITCH – ECM)



(a) Connect the transmission shift main switch connector (transmission control switch connector).

(b) Turn the ignition switch to the ON position, and measure the voltage according to the value(s) in the table below when the shift lever is moved to each position.

Standard:

Shift Position	Tester connection	Specified condition
P and N	E7 – 16 (NSW) – Body ground	Below 1 V
Except P and N	↑	10 to 14 V
P	E5 – 6 (P) – Body ground	10 to 14 V
Except P	↑	Below 1 V
N	E5 – 7 (N) – Body ground	10 to 14 V
Except N	↑	Below 1 V
R	E6 – 11 (R) – Body ground	10 to 14 V*
Except R	↑	Below 1 V
D	E6 – 10 (D) – Body ground	10 to 14 V
Except D	↑	Below 1 V
3	E6 – 20 (3) – Body ground	10 to 14 V
Except 3	↑	Below 1 V
2 and L	E6 – 9 (2) – Body ground	10 to 14 V
Except 2 and L	↑	Below 1 V
L	E6 – 8 (L) – Body ground	10 to 14 V
Except L	↑	Below 1 V

HINT:

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

NG → **REPAIR OR REPLACE HARNESS OR CONNECTOR (SEE PAGE 01–33)**

OK →

REPLACE ECM (SEE PAGE 10–13)