DTC	P0705	TRANSMISSION RANGE SENSOR CIRCUIT MALFUNCTION (PRNDL INPUT)

DTC	P0850	PARK/NEUTRAL SWITCH INPUT CIRCUIT

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. (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. (C) When any of following conditions is met for 2.0 sec. or more in the S position (2–trip detection logic) • NSW input signal is ON. • P input signal is ON. • N input signal is ON. • R input signal is ON. (D) All switches are OFF simultaneously for P, R, N and D positions (2–trip detection logic)	• Open or short in park/neutral position switch circuit • Park/neutral position switch • ECM
P0850	Park/neutral position switch remains ON (P, N position) during driving under conditions (a) and (b) for 30 sec. (2–trip detection logic) (a) Vehicle speed: 70 km/h (44 mph) or more (b) Engine speed: 1,500 – 2,500 rpm	• Short in park/neutral position switch circuit • Park/neutral position switch • ECM

MONITOR DESCRIPTION

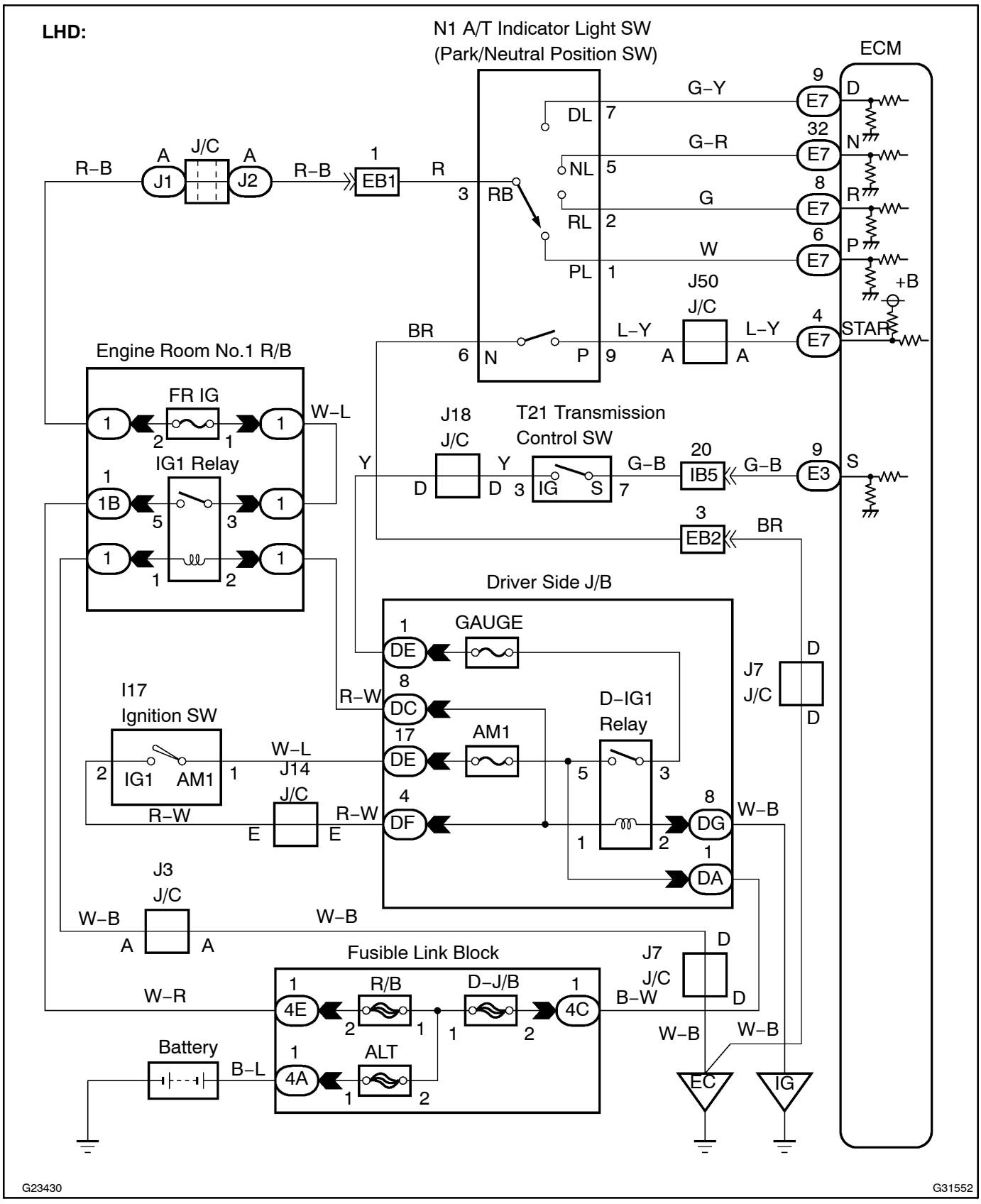
These DTCs indicate a problem with the park/neutral position switch and the wire harness in the park/neutral position switch circuit.

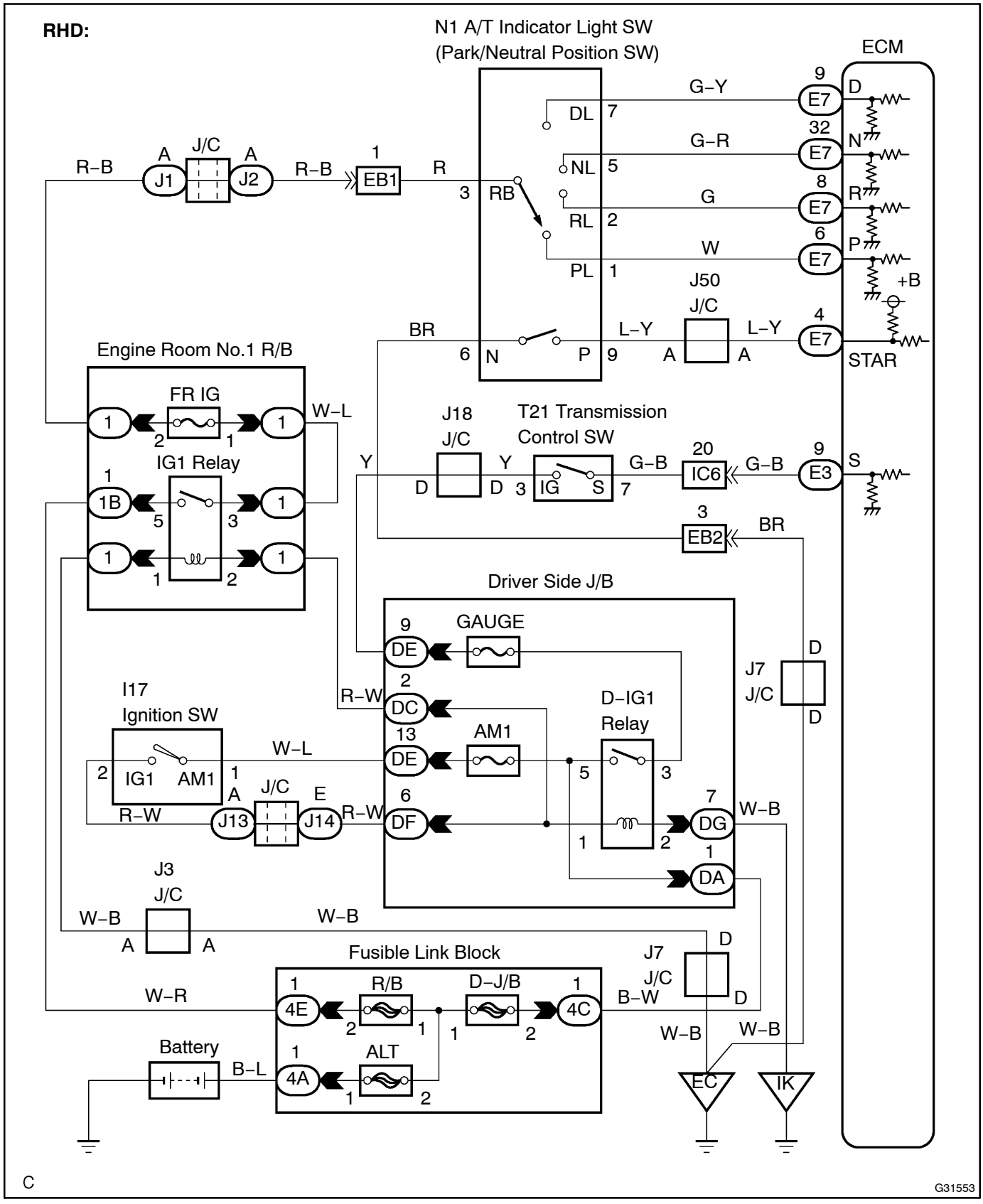
The park/neutral position switch detects the shift lever position and sends signals to the ECM.

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




RHD:
N1 A/T Indicator Light SW
(Park/Neutral Position SW)
ECM
G–Y
G–R
G
W
DL
NL
RL
PL
RB
R–B
J/C
J1
J2
EB1
R
J50
L–Y
BR
N
P
STAR
+B
Engine Room No.1 R/B
FR IG
IG1 Relay
W–L
J18
T21 Transmission
Control SW
G–B
IC6
E3
EB2
Driver Side J/B
GAUGE
DE
DC
DF
DG
DA
AM1
D–IG1
Relay
J7
I17
Ignition SW
IG1
AM1
J13
J14
R–W
W–B
J3
W–R
Fusible Link Block
R/B
D–J/B
4E
4C
4A
ALT
Battery
B–L
B–W
EC
IK
C
G31553

INSPECTION PROCEDURE

HINT:

Using the Intelligent Tester II Data List allows switch, sensor, actuator and other item values to be read without removing any parts. Reading the Data List early in troubleshooting is one way to shorten labor time. however, some item values may not be displayed for G.C.C. or Australia bound vehicles.

NOTICE:

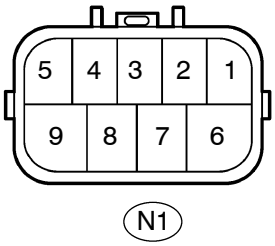
In the table below, the values listed under ”Normal Condition” are reference values. Do not depend solely on these reference values when deciding whether a part is faulty or not.

(a) Turn the ignition switch off.
(b) Connect the Intelligent Tester II to the DLC3.
(c) Turn the ignition switch to the ON position.
(d) Turn on the tester.
(e) Select the item ”Enter / Diagnosis / OBD·MOBD / Power train / Engine and ECT / Data List”.
(f) Follow the instructions on the tester and read the Data List.

Item	Measurement Item/ Range (display)	Normal Condition	Diagnostic Note
Neutral Position SW Signal	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.
Shift SW Status (R Range)	PNP SW Status/ ON or OFF	Shift lever position is; R: ON Except R: OFF	↑
Shift SW Status (D Range)	PNP SW Status/ ON or OFF	Shift lever position is; D and S: ON Except D and S: OFF	↑
Sports Mode Selection SW	Sport Mode Select SW Status/ ON or OFF	Shift lever position is; S, ”+” and ”–”: ON Except S, ”+” and ”–”: OFF	–

1 INSPECT PARK/NEUTRAL POSITION SWITCH ASSY

Switch Side:
(Connector Front View):



(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:

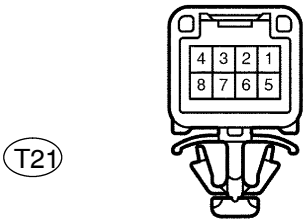
Shift Position	Tester Connection	Specified Condition
P	1 – 3 and 6 – 9	Below 1 Ω
Except P	↑	10 kΩ or higher
R	2 – 3	Below 1 Ω
Except R	↑	10 kΩ or higher
N	3 – 5 and 6 – 9	Below 1 Ω
Except N	↑	10 kΩ or higher
D, S, "+" and "–"	3 – 7	Below 1 Ω
Except D, S, "+" and "–"	↑	10 kΩ or higher

NG → **REPLACE PARK/NEUTRAL POSITION SWITCH ASSY (SEE PAGE 40–10)**

OK

2 INSPECT TRANSMISSION CONTROL SWITCH

Switch Side:
(Connector Front View):



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

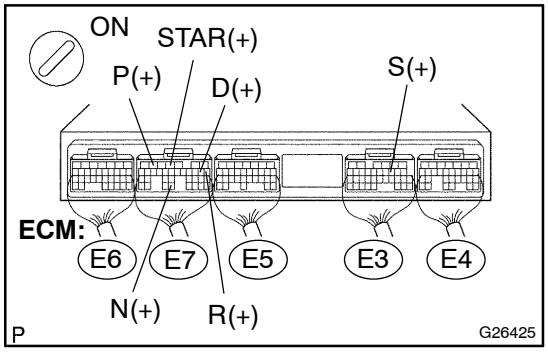
Standard:

Shift Position	Tester Connection	Specified Condition
S, "+" and "–"	3 – 7	Below 1 Ω
Except S, "+" and "–"	↑	10 kΩ or higher

NG → **REPLACE TRANSMISSION CONTROL SWITCH (SEE PAGE 40–42)**

OK

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



(a) Connect the transmission control switch connector of shift lock control unit assy.

(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 –4 (STAR) – Body ground	Below 1 V
Except P and N	↑	10 to 14 V
P	E7 –6 (P) – Body ground	10 to 14 V
Except P	↑	Below 1 V
N	E7 –32 (N) – Body ground	10 to 14 V
Except N	↑	Below 1 V
R	E7 –8 (R) – Body ground	10 to 14 V*
Except R	↑	Below 1 V
D and S	E7 –9 (D) – Body ground	10 to 14 V
Except D and S	↑	Below 1 V
S, "+" and "–"	E3 –9 (S) – Body ground	10 to 14 V
Except S, "+" and "–"	↑	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 01–44)**

OK →

REPLACE ECM (SEE PAGE 10–21)