

DTC	P0705	Transmission Range Sensor Circuit Malfunction (PRNDL Input)
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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) 2 or more signals are ON simultaneously for P (NSW or P), R, N (NSW or N), D, 3 ^{*1} and 2 ^{*1} positions. (B) When any of following conditions for 0.5 sec. or more in the S position (2-trip detection logic) ^{*2} <ul style="list-style-type: none"> • NSW input signal is ON. • P input signal is ON. • N input signal is ON. • R input signal is ON. (C) All switches are OFF simultaneously for P, R, N, D, 3 ^{*1} and 2 ^{*1} positions (2-trip detection logic) (D) Both 1 and 2 are met (2-trip detection logic) ^{*1} <ol style="list-style-type: none"> 1. One of following is met <ol style="list-style-type: none"> (a) NSW input signal is ON. (b) P input signal is ON. (c) N input signal is ON. (d) R input signal is ON 2. One of following is met <ol style="list-style-type: none"> (a) 4 input signal is ON. (b) L input signal is ON. 	<ul style="list-style-type: none"> • Open or short in park/neutral position switch circuit • Park/neutral position switch • ECM

HINT:

*1: Gate shift lever type

*2: Shift lever with Multi-mode automatic transmission type

MONITOR DESCRIPTION

The park/neutral position switch detects the gearshift position and sends a signal to the ECM.

For security, the park/neutral position switch detects the gearshift 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, D, 3^{*1} or 2^{*1}, the ECM interprets this as a fault in the switch. The ECM will turn on the MIL.

HINT:

*1: Gate shift lever type

*2: Shift lever with Multi-mode automatic transmission type

MONITOR STRATEGY

Related DTCs	P0705: Park/neutral position switch/Verify switch input
Required sensors/Components	Park/neutral position switch
Frequency of operation	Continuous
Duration	2 sec.
MIL operation	2 driving cycles
Sequence of operation	None

TYPICAL ENABLING CONDITIONS

All:

The monitor will run whenever this DTC is not present.	None
Ignition switch	ON
Battery voltage	10.5 V or more

Condition (B) *2

One of the following conditions is met	-
NSW switch	ON
P switch	ON
N switch	ON
R switch	ON

TYPICAL MALFUNCTION THRESHOLDS**1. One of the following conditions is met: Condition (A), (B) and (C)****Condition (A)**

Either of the following conditions (1) or (2) is met:

(1) Number of the following signal input at the same time	2 or more
P switch	ON
R switch	ON
N switch	ON
D switch	ON
3 switch *1	ON
2 switch *1	ON
(2) Number of the following signal input at the same time	2 or more
NSW switch	ON
R switch	ON
D switch	ON
3 switch *1	ON
2 switch *1	ON

Condition (B)

M switch (S position switch) *2	ON
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Condition (C)

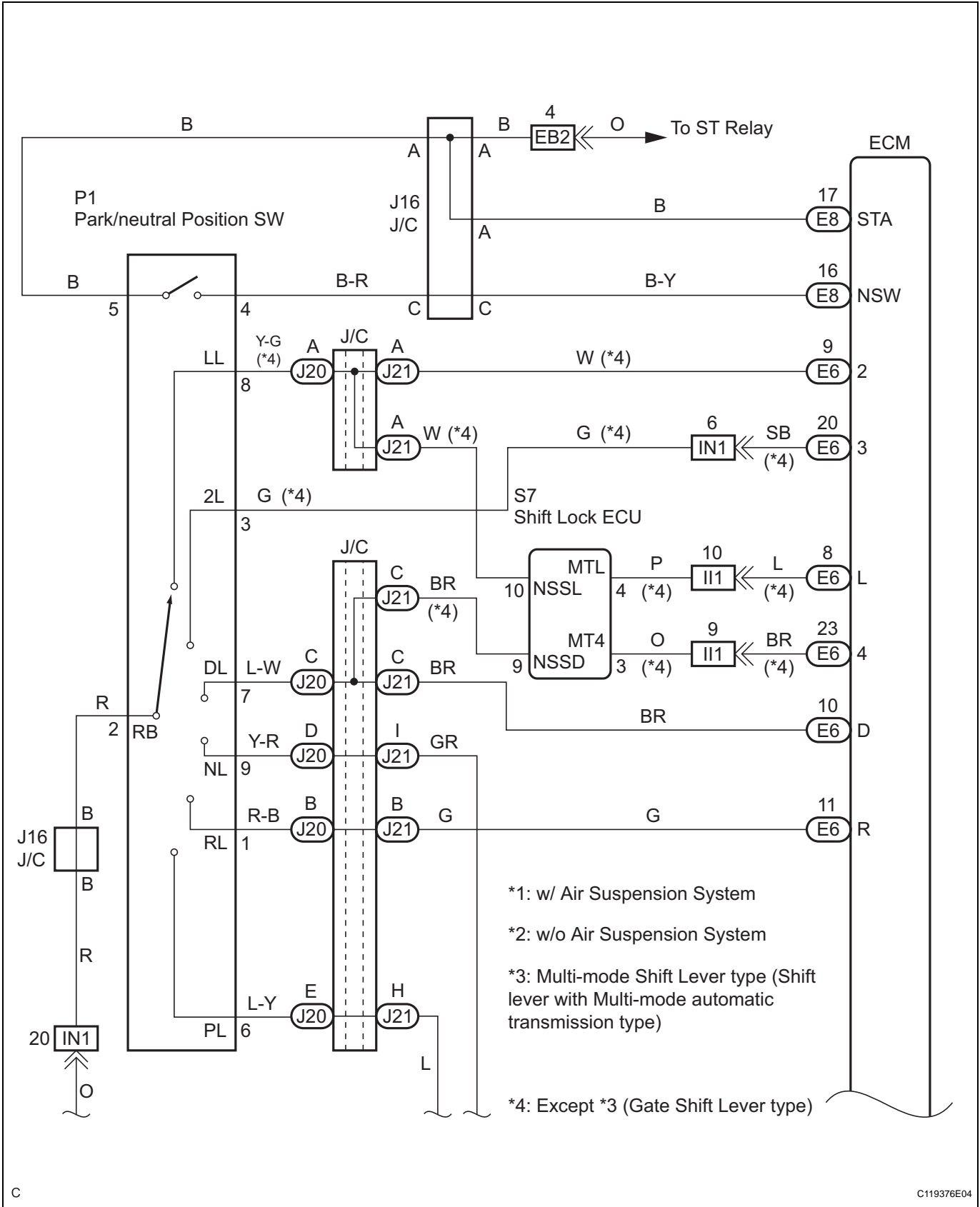
Both of the following conditions (1) or (2) is met:

(1) One of the following conditions is met	-
NSW switch	ON
P switch	ON
R switch	ON
N switch	ON
(2) One of the following conditions is met	-
4 shift position switch	ON
L shift position switch	ON

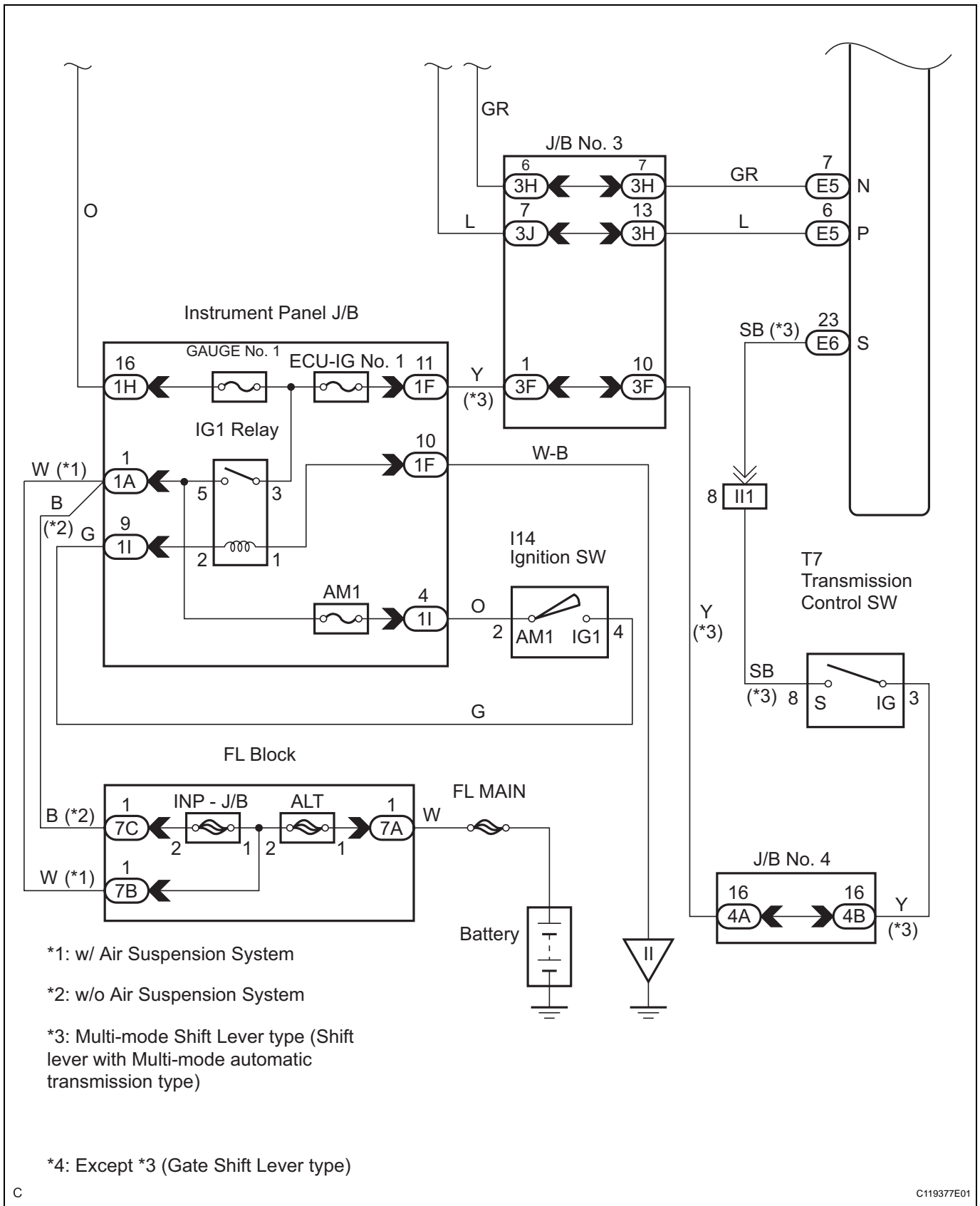
COMPONENT OPERATING RANGE

Park/neutral Position switch	The park/neutral position switch sends only one signal to the ECM.
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WIRING DIAGRAM

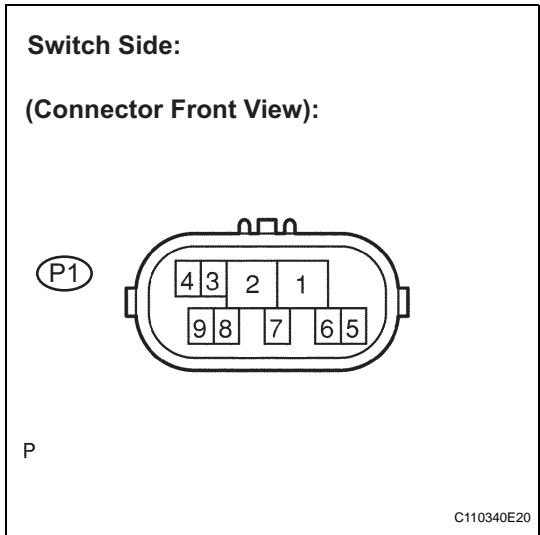


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1 INSPECT PARK/NEUTRAL POSITION SWITCH ASSEMBLY



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

Resistance

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 and 4	2 - 7	Below 1 Ω
Except D and 4		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

- (c) Shift lever with Multi-mode automatic transmission type:
Measure resistance according to the value(s) in the table below when the shift lever is moved to each position.

Resistance

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, S, "+" and "-"	2 - 7	Below 1 Ω
Except D, S, "+" and "-"		10 kΩ or higher

NG → **REPLACE PARK/NEUTRAL POSITION SWITCH ASSEMBLY**

OK

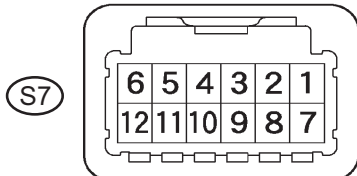
AX

2 INSPECT TRANSMISSION FLOOR SHIFT ASSEMBLY

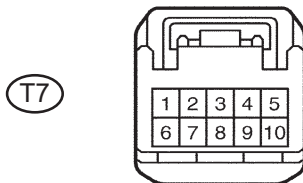
Switch Side:

(Connector Front View):

Gate shift lever type:



Shift lever with Multi-mode automatic transmission type:



G026412E01

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

Resistance

Shift Position	Tester Connection	Specified Condition
D	2 - 9	Below 1 Ω
4		10 kΩ or higher
D	3 - 9	10 kΩ or higher
4		Below 1 Ω
2	5 - 10	Below 1 Ω
L		10 kΩ or higher
2	4 - 10	10 kΩ or higher
L		Below 1 Ω

- (d) Shift lever with Multi-mode automatic transmission type:
Measure resistance according to the value(s) in the table below when the shift lever is moved to each position.

Resistance

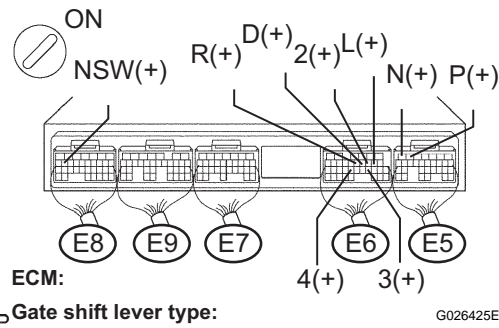
Shift Position	Tester Connection	Specified Condition
S, "+" and "-"	3 - 8	Below 1 Ω
Except S, "+" and "-"		10 kΩ or higher

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REPLACE TRANSMISSION FLOOR SHIFT ASSEMBLY

OK

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



G026425E08

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

Voltage

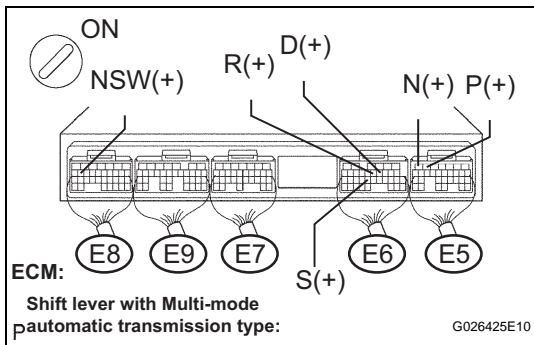
Shift Position	Tester Connection	Specified Condition
P and N	E8 - 16 (NSW) - Body ground	Below 1 V
Except P and N		10 to 14 V
P	E5 - 6 (P) - Body ground	10 to 14 V
Except P		Below 1 V

Shift Position	Tester Connection	Specified Condition
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 and 4	E6 - 10 (D) - Body ground	10 to 14 V
Except D and 4		Below 1 V
4	E6 - 23 (S) - Body ground	10 to 14 V
Except 4		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.

- (c) Shift lever with Multi-mode automatic transmission type: 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.



Voltage

Shift Position	Tester Connection	Specified Condition
P and N	E8 - 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 and S	E6 - 10 (D) - Body ground	10 to 14 V
Except D and S		Below 1 V
S, "+", and "-"	E6 - 23 (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
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OK

REPLACE ECM