DTC	C1315/31	CHANGEOVER SOLENOID MALFUNCTION (SMC1)

DTC	C1316/32	CHANGEOVER SOLENOID MALFUNCTION (SMC2)

DTC	C1352/21	INCREASING PRESSURE SOLENOID MALFUNCTION (FR)

DTC	C1353/23	INCREASING PRESSURE SOLENOID MALFUNCTION (FL)

DTC	C1354/25	INCREASING PRESSURE SOLENOID MALFUNCTION (RR)

DTC	C1355/27	INCREASING PRESSURE SOLENOID MALFUNCTION (RL)

DTC	C1356/22	DECREASING PRESSURE SOLENOID MALFUNCTION (FR)

DTC	C1357/24	DECREASING PRESSURE SOLENOID MALFUNCTION (FL)

DTC	C1358/26	DECREASING PRESSURE SOLENOID MALFUNCTION (RR)

DTC	C1359/28	DECREASING PRESSURE SOLENOID MALFUNCTION (RR)

CIRCUIT DESCRIPTION

Each solenoid adjust pressure which affects each wheel cylinder according to signals from the skid control ECU and controls the vehicle.

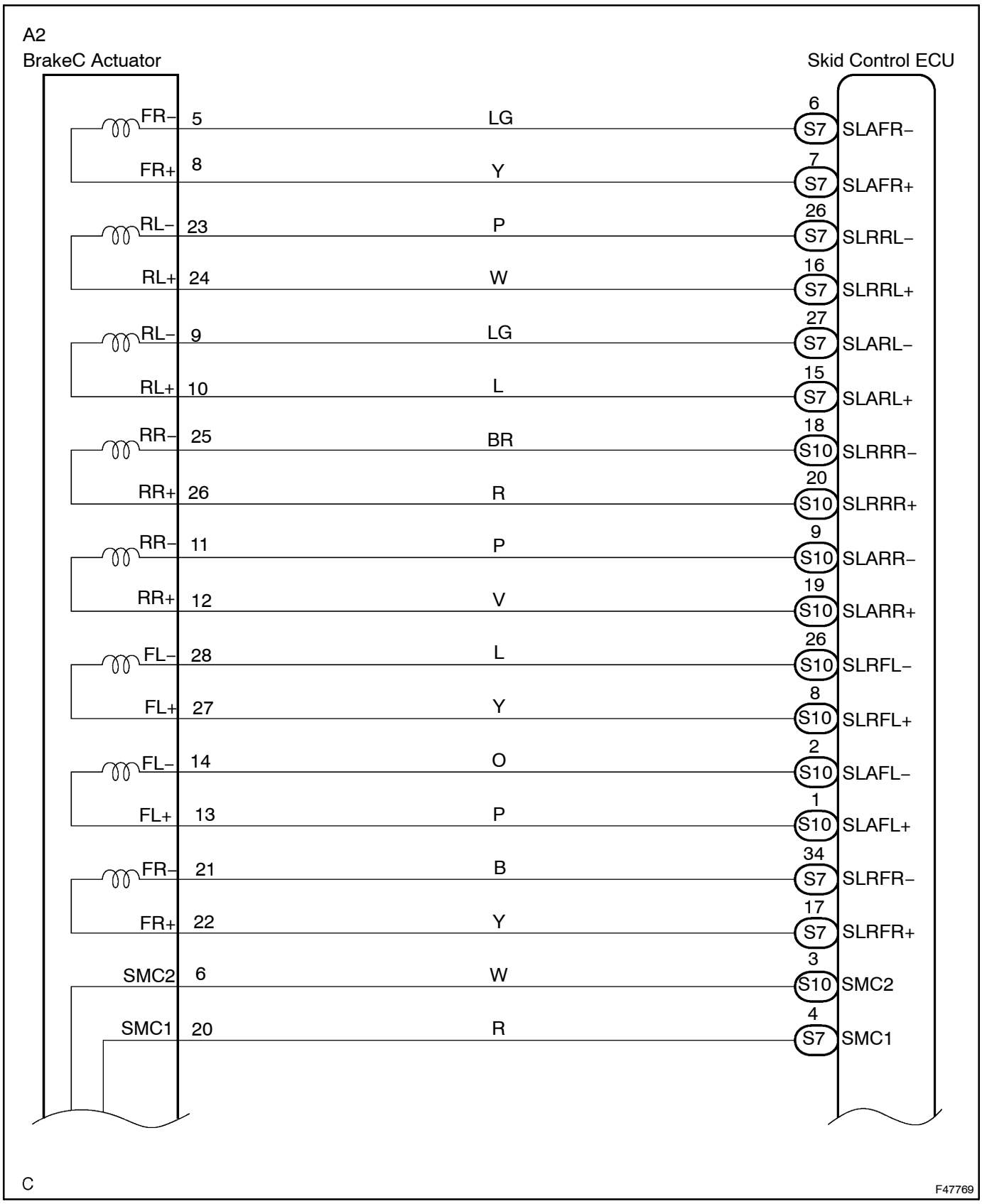
The master cut solenoid (SMC 1/2) is closed and blocks the master cylinder pressure from the ECB control pressure when the system is normal. The master cut solenoid is open and sends the master cylinder fluid pressure to the non–assisted brake wheel cylinders during the fail safe due to system malfunction.

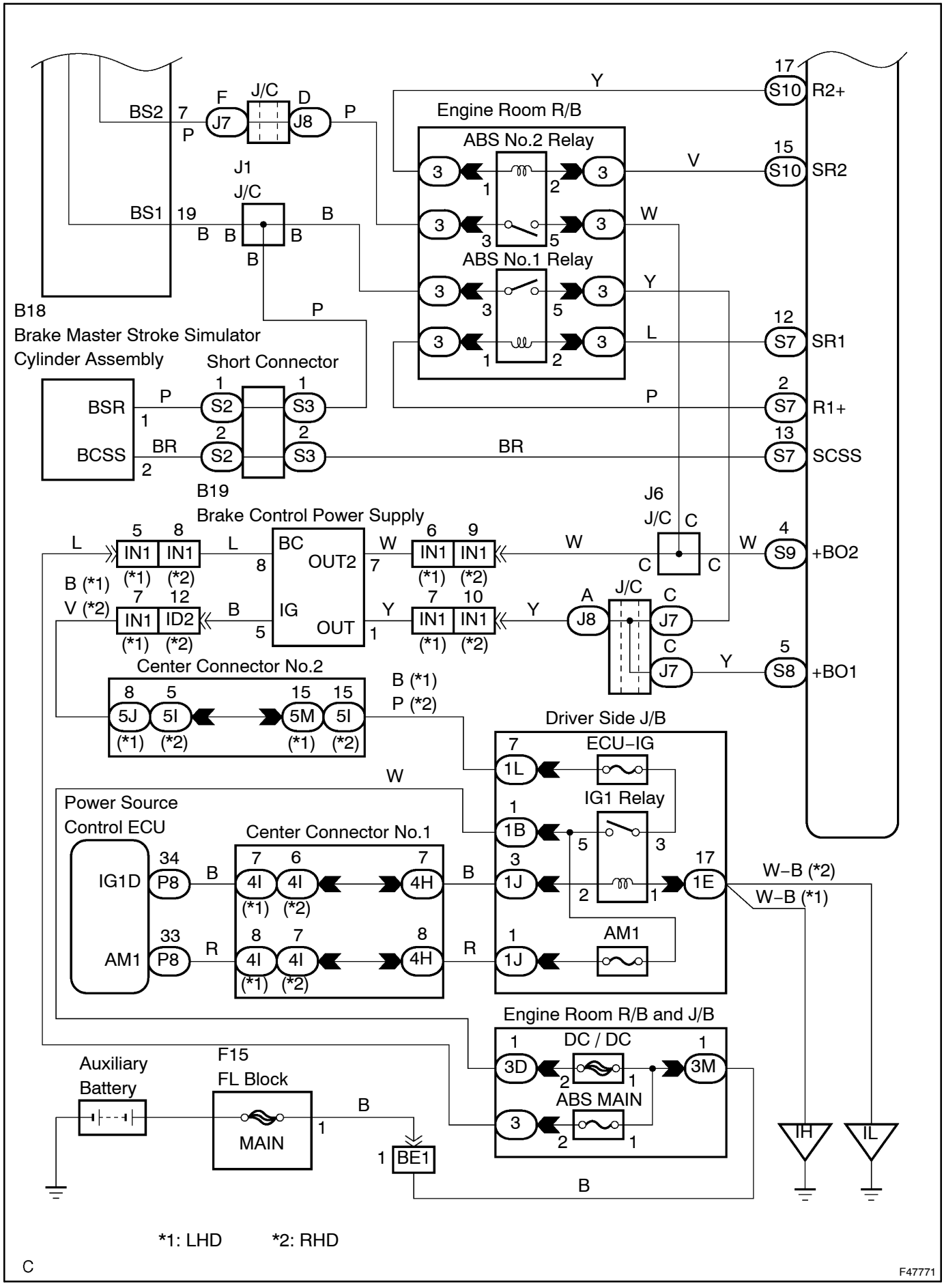
DTC No.	Detailed Code	DTC Detecting Condition	Trouble Area
C1315/31	61	• SMC1 drive circuit is malfunctioning for 0.05 sec. or more. • Short to +B.	• Brake actuator assy (SMC1) • Skid control ECU • Harness and connector
C1315/31	62	Open circuit in SMC1 continues for 0.05 sec. or more when SMC1 is off	• Brake actuator assy (SMC1) • Skid control ECU • Harness and connector
C1315/31	63	Open circuit in SMC1 continues for 0.05 sec. or more when SMC1 is off.	• Brake actuator assy (SMC1) • Skid control ECU • Harness and connector
C1315/31	64	Over current in SMC1 continues for 0.05 sec. or more.	• Brake actuator assy (SMC1) • Skid control ECU • Harness and connector
C1316/32	66	• SMC1 driver circuit is malfunctioning for 0.05 sec. or more. • Short to +B.	• Brake actuator assy (SMC2) • Skid control ECU • Harness and connector
C1316/32	67	Open circuit in SMC2 continues for 0.05 sec. or more when SMC2 is off.	• Brake actuator assy (SMC2) • Skid control ECU • Harness and connector
C1316/32	68	Open circuit in SMC2 continues for 0.05 sec. or more.	• Brake actuator assy (SMC2) • Skid control ECU • Harness and connector
C1316/32	69	Over current in SMC2 continues for 0.05 sec. or more.	• Brake actuator assy (SMC2) • Skid control ECU • Harness and connector
C1352/21	11	Open circuit in SLAFR continues for 0.05 sec. or more when SLAFR is off.	• Brake actuator assy • Skid control ECU • Harness and connector
C1352/21	12	Open circuit in SLAFR continues for 0.05 sec. or more when SLAFR is on.	• Brake actuator assy • Skid control ECU • Harness and connector
C1352/21	13	Short to +B or voltage leak in SLAFR continues for 0.05 sec. or more.	• Brake actuator assy • Skid control ECU • Harness and connector
C1352/21	14	Over current in SLAFR continues for 0.05 sec. or more	• Brake actuator assy • Skid control ECU • Harness and connector
C1353/23	21	Open circuit in SLAFL continues for 0.05 sec. or more when SLAFL is off.	• Brake actuator assy • Skid control ECU • Harness and connector
C1353/23	22	Open circuit in SLAFL continues for 0.05 sec. or more when SLAFL is on.	• Brake actuator assy • Skid control ECU • Harness and connector
C1353/23	23	Short to +B or voltage leak in SLAFL continues for 0.05 sec. or more.	• Brake actuator assy • Skid control ECU • Harness and connector
C1353/23	24	Over current in SLAFL continues for 0.05 sec. or more.	• Brake actuator assy • Skid control ECU • Harness and connector
C1354/25	31	Open circuit in SLARR continues for 0.05 sec. or more when SLARR is off	• Brake actuator assy • Skid control ECU • Harness and connector

DTC No.	Detailed Code	DTC Detecting Condition	Trouble Area
C1354/25	32	Open circuit in SLARR continues for 0.05 sec. or more when SLARR is on.	• Brake actuator assy • Skid control ECU • Harness and connector
C1354/25	33	Short to +B or voltage leak in SLARR continues for 0.05 sec. or more.	• Brake actuator assy • Skid control ECU • Harness and connector
C1354/25	34	Over current in SLARR continues for 0.05 sec. or more.	• Brake actuator assy • Skid control ECU • Harness and connector
C1355/27	41	Open circuit in SLARL continues for 0.05 sec. or more when SLARL is off.	• Brake actuator assy • Skid control ECU • Harness and connector
C1355/27	42	Open circuit in SLARL continues for 0.05 sec. or more when SLARL is on.	• Brake actuator assy • Skid control ECU • Harness and connector
C1355/27	43	Short to +B or voltage leak in SLARL continues for 0.05 sec. or more.	• Brake actuator assy • Skid control ECU • Harness and connector
C1355/27	44	Over current in SLARL continues for 0.05 sec. or more.	• Brake actuator assy • Skid control ECU • Harness and connector
C1356/22	16	Open circuit in SLRFR continues for 0.05 sec. or more when SLRFR is off.	• Brake actuator assy • Skid control ECU • Harness and connector
C1356/22	17	Open circuit in SLRFR continues for 0.05 sec. or more when SKRFR is on.	• Brake actuator assy • Skid control ECU • Harness and connector
C1356/22	18	Short to +B or voltage leak in SLRFR continues for 0.05 sec. or more.	• Brake actuator assy • Skid control ECU • Harness and connector
C1356/22	19	Over current in SLRFR continues for 0.05 sec. or more.	• Brake actuator assy • Skid control ECU • Harness and connector
C1357/24	26	Open circuit in SLRFL continues or 0.05 sec. or more when SLRFL is off.	• Brake actuator assy • Skid control ECU • Harness and connector
C1357/24	27	Open circuit in SLRFL continues for 0.05 sec. or more when SLRFL is on.	• Brake actuator assy • Skid control ECU • Harness and connector
C1357/24	28	Short to +B or voltage leak in SLRFL continues for 0.05 sec. or more.	• Brake actuator assy • Skid control ECU • Harness and connector
C1357/24	29	Over current in SLRFL continues for 0.05 sec. or more.	• Brake actuator assy • Skid control ECU • Harness and connector
C1358/26	36	Open circuit in SLRRR continues for 0.05 sec. or more when SLRRR is off.	• Brake actuator assy • Skid control ECU • Harness and connector
C1358/26	37	Open circuit in SLRRR continues for 0.05 sec. or more when SLRRR is on.	• Brake actuator assy • Skid control ECU • Harness and connector
C1358/26	38	Short to +B or voltage leak in SLRRR continues for 0.05 sec. or more.	• Brake actuator assy • Skid control ECU • Harness and connector
C1358/26	39	Over current in SLRRR continues for 0.05 sec. or more.	• Brake actuator assy • Skid control ECU • Harness and connector

DTC No.	Detailed Code	DTC Detecting Condition	Trouble Area
C1359/28	46	Open circuit in SLRRL continues for 0.05 sec. or more when SLRRL is off.	• Brake actuator assy • Skid control ECU • Harness and connector
C1359/28	47	Open circuit in SLRRL continues for 0.05 sec. or more when SLRRL is on.	• Brake actuator assy • Skid control ECU • Harness and connector
C1359/28	48	Short to +B or voltage leak in SLRRL continues for 0.05 sec. or more.	• Brake actuator assy • Skid control ECU • Harness and connector
C1359/28	49	Over current in SLRRL continues for 0.05 sec. or more.	• Brake actuator assy • Skid control ECU • Harness and connector

WIRING DIAGRAM

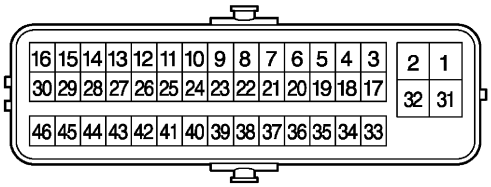



BS2
BS1
19
J/C
F
D
J7
J8
J1
P
B
Y
V
W
L
BR
Engine Room R/B
ABS No.2 Relay
ABS No.1 Relay
17
S10
R2+
15
SR2
12
S7
SR1
2
R1+
13
SCSS
B18
Brake Master Stroke Simulator
Cylinder Assembly
BSR
BCSS
Short Connector
S2
S3
B19
Brake Control Power Supply
IN1
ID2
BC
OUT2
IG
OUT
J6
C
4
S9
+BO2
5
S8
+BO1
A
J8
J7
Center Connector No.2
5J
5I
5M
B (*1)
P (*2)
Driver Side J/B
ECU–IG
1L
IG1 Relay
1B
1J
1E
W–B (*2)
W–B (*1)
AM1
Power Source
Control ECU
IG1D
P8
34
33
Center Connector No.1
4I
4H
Engine Room R/B and J/B
DC / DC
3D
3M
ABS MAIN
Auxiliary
Battery
F15
FL Block
MAIN
BE1
IH
IL
*1: LHD
*2: RHD
C
F47771

INSPECTION PROCEDURE

1 INSPECT BRAKE ACTUATOR ASSY

Brake Actuator Assy



T F47491

(a) Disconnect the brake actuator connector.
(b) Measure the resistance according to the value(s) in the table below.

HINT:
Check the brake actuator assy when it is cooled down.

Standard:

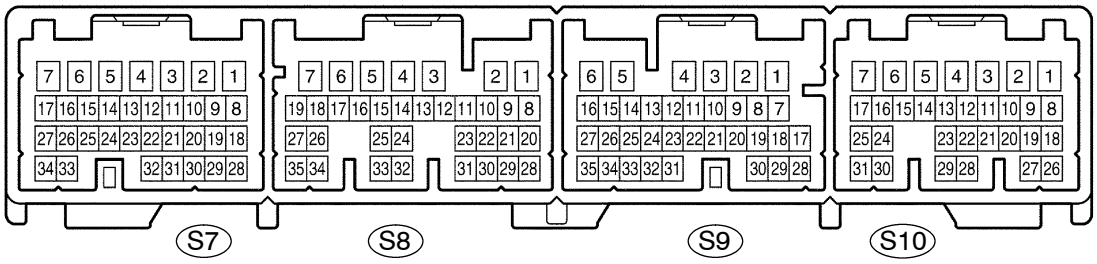
Tester Connection	Specified Condition
20 (SMC1) – 7 (BS2)	14.6 to 24.6 Ω
6 (SMC2) – 19 (BS1)	14.6 to 24.6 Ω
8 (FR+) – 5 (FR–)	3.5 to 4.3 Ω
22 (FR+) – 21 (FR–)	3.5 to 4.3 Ω
13 (FL+) – 14 (FL–)	3.5 to 4.3 Ω
27 (FL+) – 28 (FL–)	3.5 to 4.3 Ω
12 (RR+) – 11 (RR–)	3.5 to 4.3 Ω
10 (RL+) – 9 (RL–)	3.5 to 4.3 Ω

NG → **REPLACE BRAKE ACTUATOR ASSY (SEE PAGE 32–66)**

OK

2 INSPECT SKID CONTROL ECU TERMINAL VOLTAGE

Skid Control ECU



P F47497

(a) Measure the voltage according to the value(s) in the table below.

Standard:

Tester Connection	Condition	Specified Condition
S7–4 (SMC1) – Body ground	Power switch ON (READY) Brake pedal release	Below 10 to 14 V
S10–3 (SMC2) – Body ground	Power switch ON (READY) Brake pedal release	Below 10 to 14 V
S7–7 (SLAFR+) – Body ground	Power switch ON (READY) Brake pedal release	Pulse generation (see waveform 5) (see page 05–731)
S7–6 (SLAFR–) – Body ground	Power switch ON (READY) Brake pedal release	Pulse generation (see waveform 5) (see page 05–731)
S10–1 (SLAFL+) – Body ground	Power switch ON (READY) Brake pedal release	Pulse generation (see waveform 5) (see page 05–731)
S10–2 (SLAFL–) – Body ground	Power switch ON (READY) Brake pedal release	Pulse generation (see waveform 5) (see page 05–731)

Tester Connection	Condition	Specified Condition
S10–19 (SLARR+) – Body ground	Power switch ON (READY) Brake pedal release	Pulse generation (see waveform 5) (see page 05–731)
S10–9 (SLARR–) – Body ground	Power switch ON (READY) Brake pedal release	Pulse generation (see waveform 5) (see page 05–731)
S7–15 (SLARL+) – Body ground	Power switch ON (READY) Brake pedal release	Pulse generation (see waveform 5) (see page 05–731)
S7–27 (SLARL–) – Body ground	Power switch ON (READY) Brake pedal release	Pulse generation (see waveform 5) (see page 05–731)
S7–17 (SLRFR+) – Body ground	Power switch ON (READY) Brake pedal release	Below 1.5 V
S10–8 (SLRFL+) – Body ground	Power switch ON (READY) Brake pedal release	Below 1.5 V
S10–20 (SLRRR+) – Body ground	Power switch ON (READY) Brake pedal release	Below 1.5 V
S7–16 (SLRRL+) – Body ground	Power switch ON (READY) Brake pedal release	Below 1.5 V
S7–34 (SLRFR–) – Body ground	Power switch ON (READY)	Below 1.5 V
S10–26 (SLRFL–) – Body ground	Power switch ON (READY) Brake pedal release	Below 1.5 V
S10–18 (SLRRR–) – Body ground	Power switch ON (READY) Brake pedal release	Below 1.5 V
S7–26 (SLRRL–) – Body ground	Power switch ON (READY) Brake pedal release	Below 1.5 V

NG → **REPAIR OR REPLACE HARNESS OR CONNECTOR**

OK

REPLACE SKID CONTROL ECU ASSY (SEE PAGE 32–81 or 32–82)

NOTICE:
When replacing the skid control ECU assy, perform initialization of linear solenoid valve and calibration (see page 05–721).