DTC	C1247/47	MALFUNCTION IN STROKE SENSOR

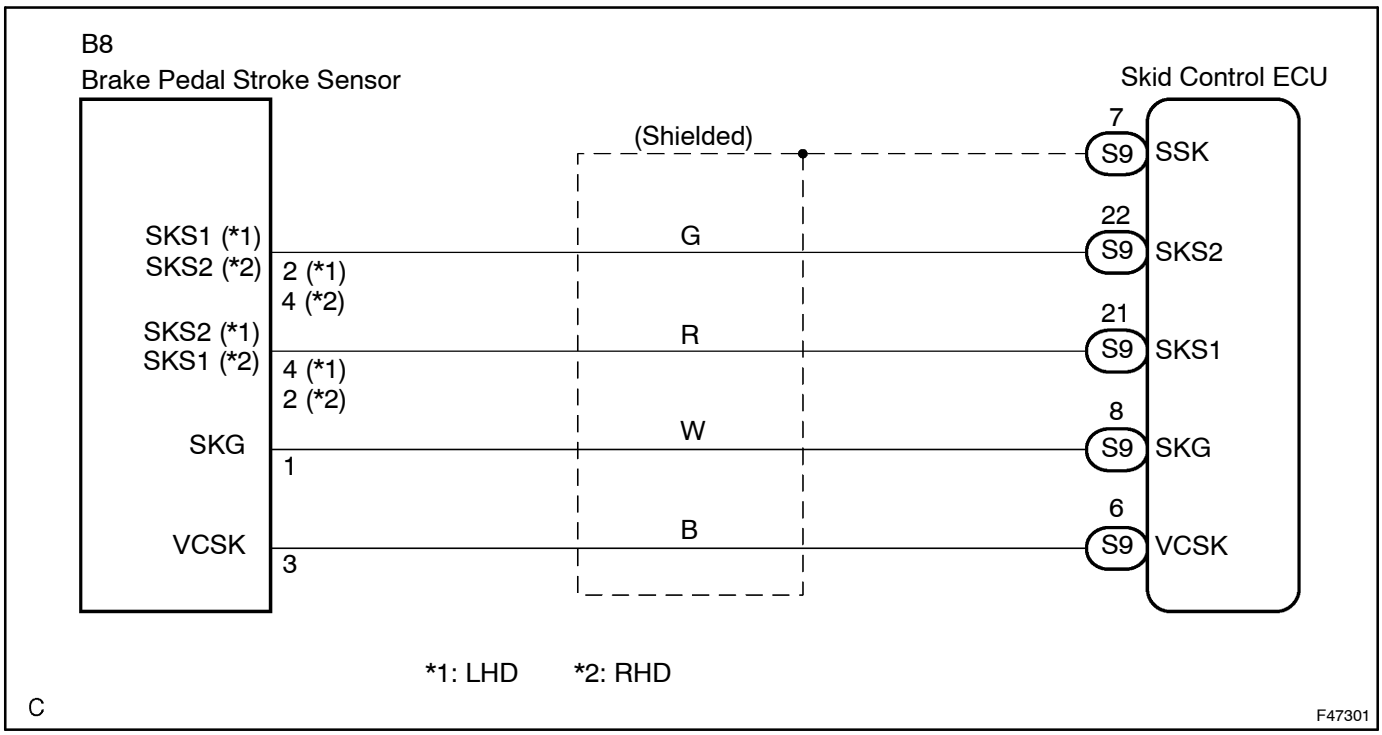
DTC	C1392/48	UN–CORRECTION OF A ZERO POINT OF THE STROKE SENSOR

CIRCUIT DESCRIPTION

The stroke sensor inputs the pedal stroke into the skid control ECU.

DTC No.	Detailed Code	DTC Detecting Condition	Trouble Area
C1247/47	171	Sensor power source voltage (VCSK) is 3.6 V or less or 4.95 V or more for at least 1.2 sec.	• Brake pedal stroke sensor • Skid control ECU • Harness and connector
C1247/47	172	Ratio of sensor output voltage 1 (SKS1) to sensor power source voltage (VCSK) is less than 3% or 97% or more for at least 1.2 sec.	• Brake pedal stroke sensor • Skid control ECU • Harness and connector
C1247/47	173	Ratio of sensor output voltage 2 (SKS2) to sensor power source voltage (VCSK) is less than 3% or 97% or more for at least 1.2 sec.	• Brake pedal stroke sensor • Skid control ECU • Harness and connector
C1247/47	174	Sensor output 1 (SKS1) calculation value becomes 20 mm or more for at least 1.2 sec. at an interval of 0.006 sec. (changes due to interference).	• Brake pedal stroke sensor • Skid control ECU • Harness and connector
C1247/47	175	Sensor output 2 (SKS2) calculation value becomes 20 mm or more for at least 1.2 sec. at an interval of 0.006 sec. (changes due to interference).	• Brake pedal stroke sensor • Skid control ECU • Harness and connector
C1247/47	176	Zero point stored value (ratio to power source voltage) of sensor output 1 (SKS1) is 0.46 or more or 0.03 or less.	• Brake pedal stroke sensor • Skid control ECU • Harness and connector
C1247/47	177	Zero point stored value (ratio to power source voltage) of sensor output 2 (SKS2) is 0.97 or more or 0.48 or less.	• Brake pedal stroke sensor • Skid control ECU • Harness and connector
C1247/47	179	• Sum of SKS1/VSCK and SKS2/VSCK is 1.155 or more or 0.845 or less for at least 1 sec. • Difference between sensor output 1 (SKS1) and sensor output 2 (SKS2) is excessively large for at least 0.2 sec.	• Brake pedal stroke sensor • Skid control ECU • Harness and connector
C1247/47	180	• Difference between zero point output value and stored value is 0.5 or more for at least 0.05 sec. • Short between SKS1 and SKS2 output line.	• Brake pedal stroke sensor • Skid control ECU • Harness and connector
C1392/48	178	Zero point calibration of stroke sensor is unfinished.	• Brake pedal stroke sensor zero point calibration undone (initialization of linear solenoid valve and calibration undone) • Skid control ECU

WIRING DIAGRAM



INSPECTION PROCEDURE

1	CHECK BRAKE PEDAL

(a) Check that the brake pedal and the brake pedal stroke sensor are properly installed and that the pedal can be operated normally.

(b) Check the brake pedal height.

OK:

- **The brake pedal is securely installed.**
- **The pedal height is within the specified range (see page 32–15).**

NG → **ADJUST BRAKE PEDAL (SEE PAGE 32–15)**

OK

2	READ VALUE OF INTELLIGENT TESTER II

(a) Connect the intelligent tester II to the DLC3.

(b) Turn the power switch ON (READY).

(c) Select the DATA LIST mode on the intelligent tester II.

Item	Measurement Item / Range (Display)	Normal condition
Pedal Stroke Sensor 1	Stroke sensor / min.: 0 V, max.: 5 V	When brake pedal is released: 0.7 to 1.3 V
Pedal Stroke Sensor 2	Stroke sensor 2 / min.: 0 V, max.: 5 V	When brake pedal is released: 3.7 to 4.3 V

(d) Read the pedal stroke sensor voltage value on the intelligent tester II screen.

OK:

The Normal condition value displayed on the intelligent tester II.

NG → **ADJUST BRAKE PEDAL STROKE SENSOR ASSY**

OK

3	PERFORM INITIALIZATION OF LINEAR SOLENIOID VALVE AND CALIBRATION (SEE PAGE 05–721)

NEXT

4	RECONFIRM DTC

(a) Clear the DTCs (see page 05–738).
(b) Turn the power switch ON (READY).
(c) Check the same DTCs are recorded.

Result:

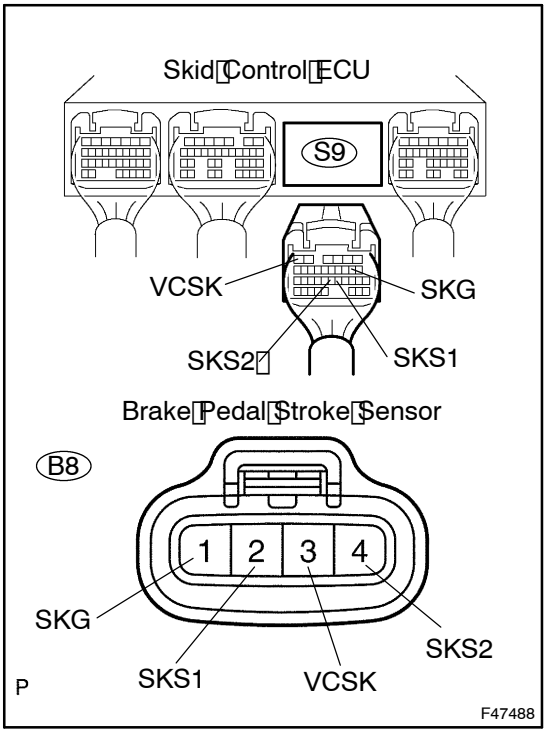
DTC is output	A
DTC is not output	B

B → **END**

HINT:
This DTC may be memorized due to a malfunction in the connector terminal connection, etc.

A

5	CHECK HARNESS AND CONNECTOR(SKID CONTROL ECU – BRAKE PEDAL STROKE SENSOR)



LHD:

(a) Disconnect the skid control ECU connector and brake pedal stroke sensor connector.
(b) Measure the resistance according to the value(s) in the table below.

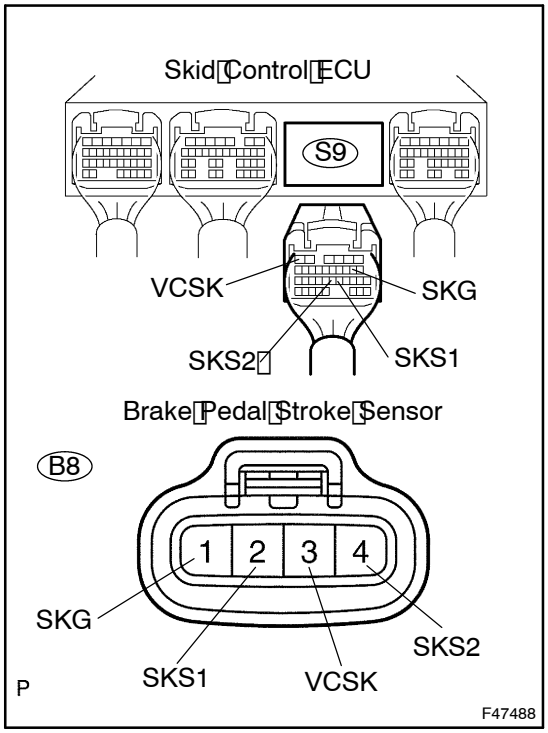
Standard:

Tester Connection	Specified Condition
S9–6 (VCSK) – B8–3 (VCSK)	Below 1 Ω
S9–8 (SKG) – B8–1 (SKG)	Below 1 Ω
S9–21 (SKS1) – B8–2 (SKS2)	Below 1 Ω
S9–22 (SKS2) – B8–4 (SKS1)	Below 1 Ω

(c) Measure the resistance according to the value(s) in the table below.

Standard:

Tester Connection	Specified Condition
S9–6 (VCSK) – Body ground	10 kΩ or higher
S9–8 (SKG) – Body ground	10 kΩ or higher
S9–21 (SKS1) – Body ground	10 kΩ or higher
S9–22 (SKS2) – Body ground	10 kΩ or higher



RHD:

(d) Disconnect the skid control ECU connector and brake pedal stroke sensor connector.

(e) Measure the resistance according to the value(s) in the table below.

Standard:

Tester Connection	Specified Condition
S9–6 (VCSK) – B8–3 (VCSK)	Below 1 Ω
S9–8 (SKG) – B8–1 (SKG)	Below 1 Ω
S9–21 (SKS1) – B8–2 (SKS1)	Below 1 Ω
S9–22 (SKS2) – B8–4 (SKS2)	Below 1 Ω

(f) Measure the resistance according to the value(s) in the table below.

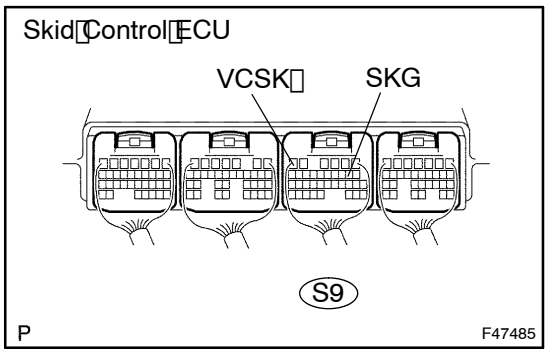
Standard:

Tester Connection	Specified Condition
S9–6 (VCSK) – Body ground	10 kΩ or higher
S9–8 (SKG) – Body ground	10 kΩ or higher
S9–21 (SKS1) – Body ground	10 kΩ or higher
S9–22 (SKS2) – Body ground	10 kΩ or higher

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

OK

6 INSPECT SKID CONTROL ECU TERMINAL VOLTAGE(VCSK, SKG TERMINAL)



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

HINT:

Measure the voltage from behind the connector with the connector connected to the skid control ECU.

Standard:

Tester Connection	Specified Condition
S9–6 (VCSK) – S9–8 (SKG)	3.6 to 4.95 V

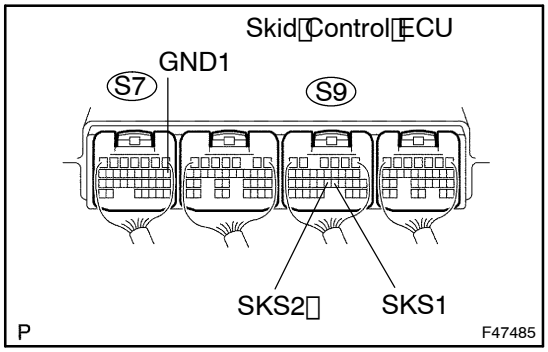
NG → **REPLACE SKID CONTROL ECU ASSY (SEE PAGE 32–81 or 32–82)**

NOTICE:

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

OK

7 INSPECT SKID CONTROL ECU TERMINAL VOLTAGE(SKS1, SKS2 TERMINAL)



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

HINT:

- Measure the voltage from behind the connector with the connector connected to the skid control ECU.
- Slowly depress the brake pedal and check if the voltage between the skid control ECU terminal changes in accordance with the pedal operation.

Standard:

Tester Connection	Specified Condition
S9–21 (SKS1) – S7–1 (GND1)	1.8 to 3.1 V
S9–22 (SKS2) – S7–1 (GND1)	1.8 to 3.1 V

NG → **REPLACE BRAKE PEDAL STROKE SENSOR ASSY**

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).