

|            |                 |                                     |
|------------|-----------------|-------------------------------------|
| <b>DTC</b> | <b>C1247/47</b> | <b>MALFUNCTION IN STROKE SENSOR</b> |
|------------|-----------------|-------------------------------------|

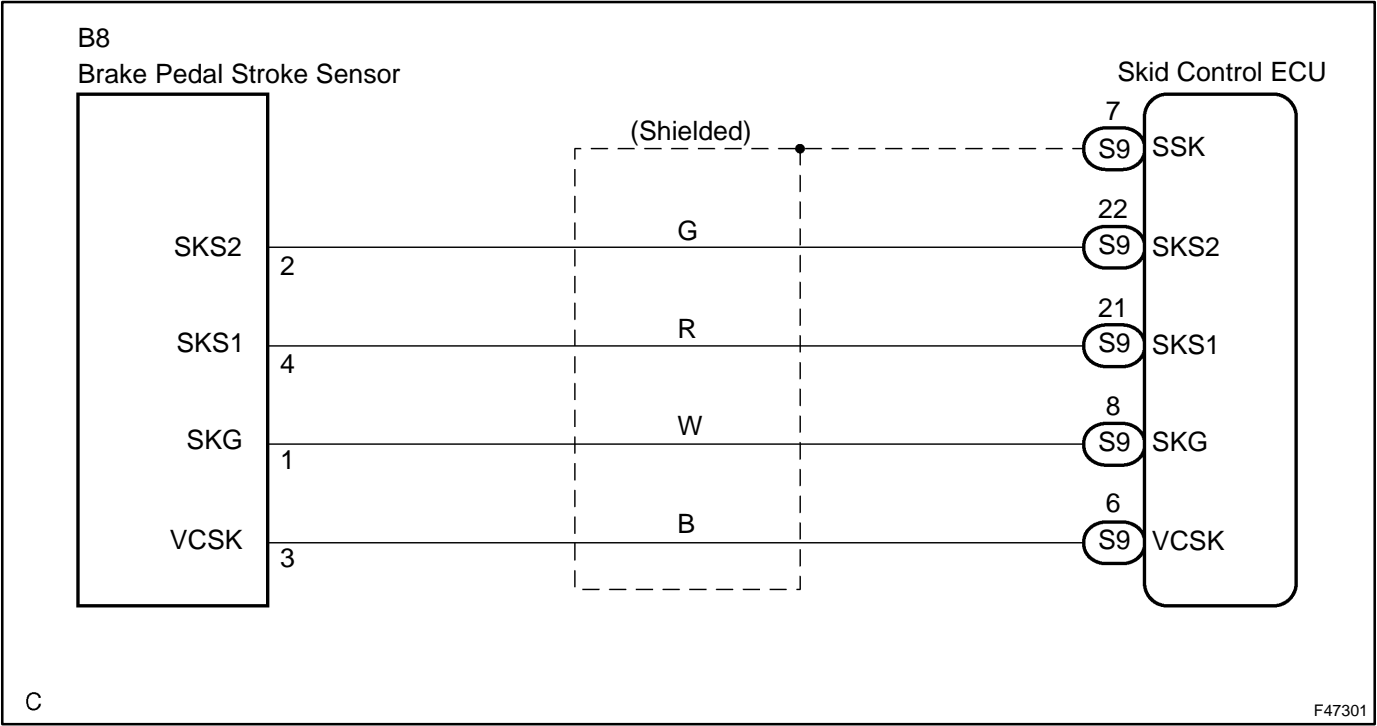
|            |                 |   |
|------------|-----------------|---|
| <b>DTC</b> | <b>C1392/48</b> | <b>UN-CORRECTION OF A ZERO POINT OF THE STROKE SENSOR</b> |
|------------|-----------------|---|

## 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.   | <ul style="list-style-type: none"> <li>• Brake pedal stroke sensor</li> <li>• Skid control ECU</li> <li>• Harness and connector</li> </ul>   |
| 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.  | <ul style="list-style-type: none"> <li>• Brake pedal stroke sensor</li> <li>• Skid control ECU</li> <li>• Harness and connector</li> </ul>   |
| 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.  | <ul style="list-style-type: none"> <li>• Brake pedal stroke sensor</li> <li>• Skid control ECU</li> <li>• Harness and connector</li> </ul>   |
| 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).  | <ul style="list-style-type: none"> <li>• Brake pedal stroke sensor</li> <li>• Skid control ECU</li> <li>• Harness and connector</li> </ul>   |
| 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).  | <ul style="list-style-type: none"> <li>• Brake pedal stroke sensor</li> <li>• Skid control ECU</li> <li>• Harness and connector</li> </ul>   |
| 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.  | <ul style="list-style-type: none"> <li>• Brake pedal stroke sensor</li> <li>• Skid control ECU</li> <li>• Harness and connector</li> </ul>   |
| 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.  | <ul style="list-style-type: none"> <li>• Brake pedal stroke sensor</li> <li>• Skid control ECU</li> <li>• Harness and connector</li> </ul>   |
| C1247/47 | 179           | <ul style="list-style-type: none"> <li>• Sum of SKS1/VCK and SKS2/VCK is 1.155 or more or 0.845 or less for at least 1 sec.</li> <li>• Difference between sensor output 1 (SKS1) and sensor output 2 (SKS2) is excessively large for at least 0.2 sec.</li> </ul> | <ul style="list-style-type: none"> <li>• Brake pedal stroke sensor</li> <li>• Skid control ECU</li> <li>• Harness and connector</li> </ul>   |
| C1247/47 | 180           | <ul style="list-style-type: none"> <li>• Difference between zero point output value and stored value is 0.5 or more for at least 0.05 sec.</li> <li>• Short between SKS1 and SKS2 output line.</li> </ul>   | <ul style="list-style-type: none"> <li>• Brake pedal stroke sensor</li> <li>• Skid control ECU</li> <li>• Harness and connector</li> </ul>   |
| C1392/48 | 178           | Zero point calibration of stroke sensor is unfinished.  | <ul style="list-style-type: none"> <li>• Brake pedal stroke sensor zero point calibration undone (initialization of linear solenoid valve and calibration undone)</li> <li>• Skid control ECU</li> </ul> |

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 32-16 ).

**NG**

**ADJUST BRAKE PEDAL (SEE PAGE 32-16 )**

**OK**

### 2 READ VALUE OF HAND-HELD TESTER

- (a) Connect the hand-held tester to the DLC3.
- (b) Turn the power switch ON (READY).
- (c) Select the DATA LIST mode on the hand-held tester.

| Item           | Measurement Item / Range (Display)        | Normal condition                              |
|----------------|---|---|
| PEDAL STROKE   | Stroke sensor /<br>min.:0 V, max.: 5 V    | When brake pedal is released:<br>0.7 to 1.3 V |
| PEDAL STROKE 2 | Stroke sensor 2 /<br>min.: 0 V, max.: 5 V | When brake pedal is released:<br>3.7 to 4.3 V |

- (d) Read the pedal stroke sensor voltage value on the hand-held tester screen.

**OK:**

**The Normal condition value displayed on the hand-held tester.**

**NG**

**ADJUST BRAKE PEDAL STROKE SENSOR ASSY**

**OK**

### 3 PERFORM INITIALIZATION OF LINEAR SOLENOID VALVE AND CALIBRATION (SEE PAGE 05-956 )

**NEXT**

**4 RECONFIRM DTC**

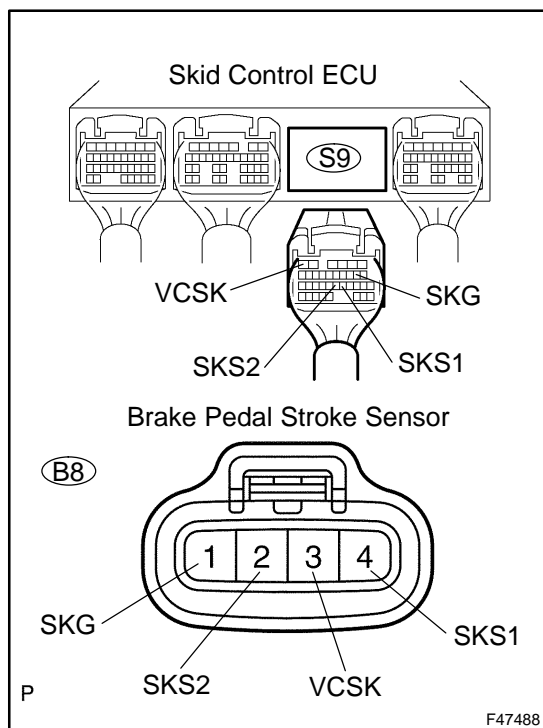
- (a) Clear the DTCs (see page 05-973 ).
- (b) Turn the power switch ON (READY).
- (c) Check the same DTCs are recorded.

**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)**

- (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:**

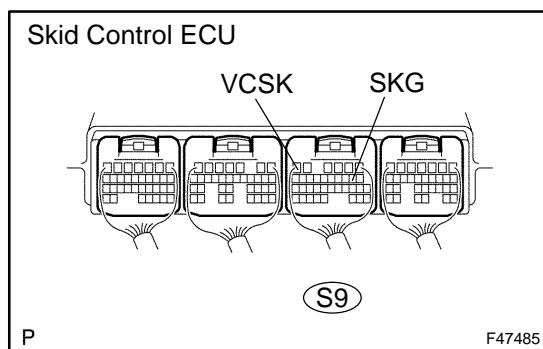
| Tester Connection          | Specified Condition |
|----------------------------|---------------------|
| S9-6 (VCSK) - B8-3 (VCSK)  | Below 1 $\Omega$    |
| S9-8 (SKG) - B8-1 (SKG)    | Below 1 $\Omega$    |
| S9-21 (SKS1) - B8-4 (SKS1) | Below 1 $\Omega$    |
| S9-22 (SKS2) - B8-2 (SKS2) | Below 1 $\Omega$    |

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

**Standard:**

| Tester Connection          | Specified Condition     |
|----------------------------|-------------------------|
| S9-6 (VCSK) - Body ground  | 10 k $\Omega$ or higher |
| S9-8 (SKG) - Body ground   | 10 k $\Omega$ or higher |
| S9-21 (SKS1) - Body ground | 10 k $\Omega$ or higher |
| S9-22 (SKS2) - Body ground | 10 k $\Omega$ 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.

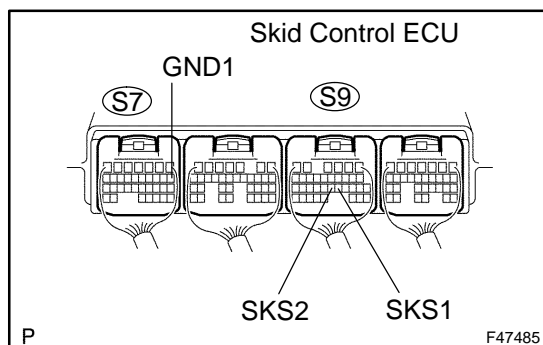
**Standard:**

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

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**REPLACE SKID CONTROL ECU ASSY  
(SEE PAGE 32-68 )**

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        |

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**REPLACE BRAKE PEDAL STROKE SENSOR  
ASSY**

OK

**REPLACE SKID CONTROL ECU ASSY(SEE PAGE 32-68 )**

**NOTICE:**

When replacing the skid control ECU assy, perform initialization of linear solenoid valve and calibration (see page 05-956 ).