

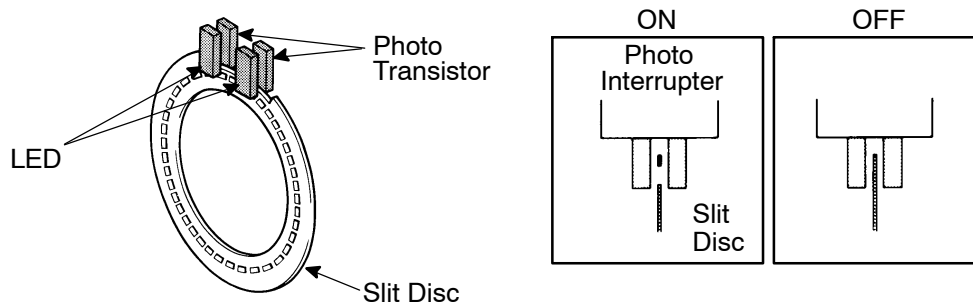
|            |                   |                                      |
|------------|-------------------|--------------------------------------|
| <b>DTC</b> | <b>C1781 / 81</b> | <b>Steering Angle Sensor Circuit</b> |
|------------|-------------------|--------------------------------------|

## CIRCUIT DESCRIPTION

The steering angle sensor is fitted to the turn signal switch assembly and detects the steering rotating direction and angle.

The sensor consists of a slit disc that rotates with the steering wheel as a unit, and a pair of photo interrupters. Each photo interrupter consists of an LED (Light Emitting Diode) and a photo transistor, located facing each other. It converts the change in the light irradiation between the two elements to the on/off signals. The slit disc rotates between the LED and the photo transistor of the pair of photo interrupters. As the steering wheel is operated, the slit disc rotates with the wheel as a unit and shuts and makes the light transmission between the 2 elements. The pair of photo interrupters have phases and the suspension ECU detects the steering direction and angle based on the changes of the each output.

And when it is judged that the steering wheel's turning angle is large and the speed is greater than a set value, the ECU causes the damping force to increase.

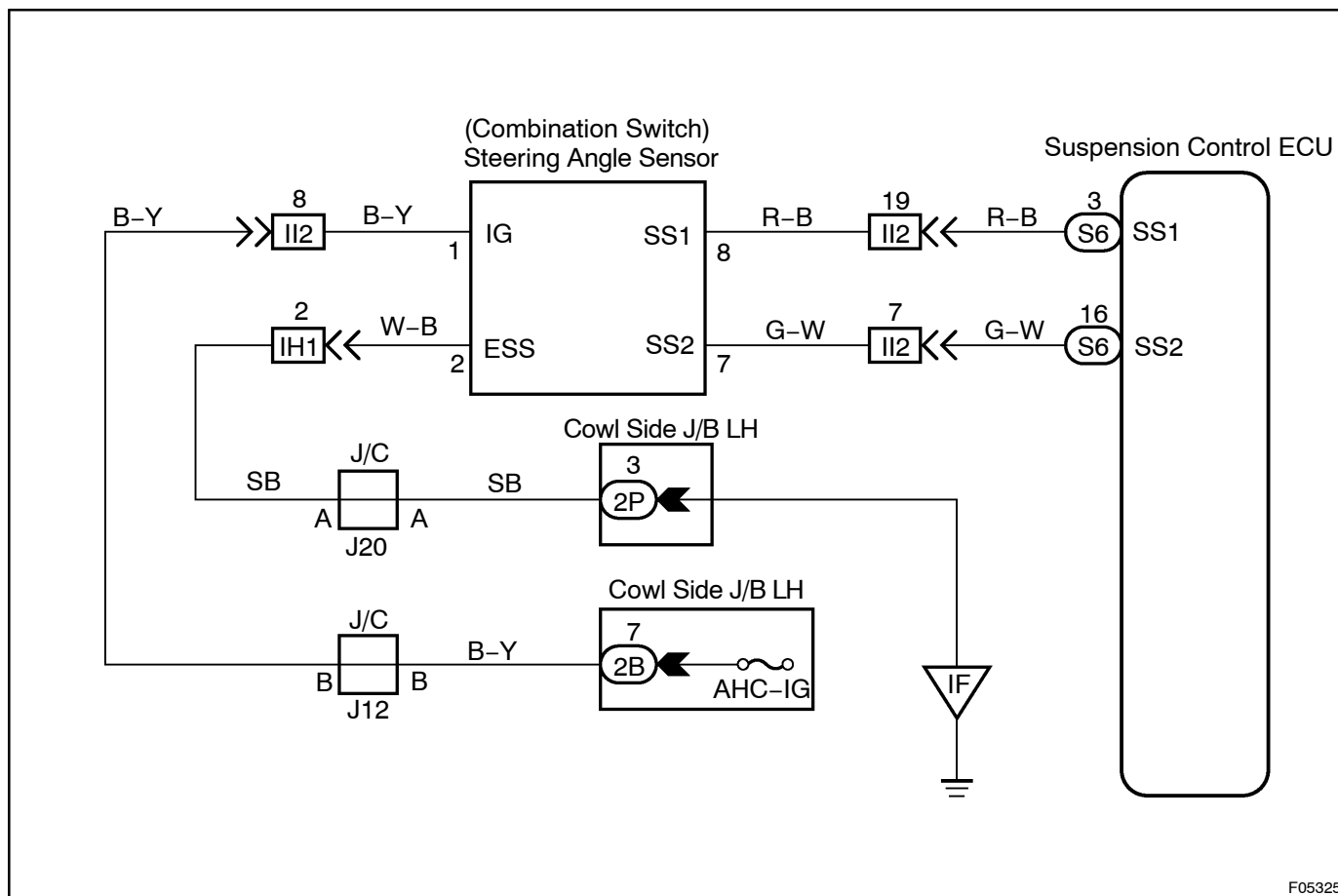


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| DTC No.    | DTC Detecting Condition                            | Trouble Area                                                                                                                      |
|------------|----------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------|
| C1781 / 81 | Steering angle 36° or larger signal does not input | <ul style="list-style-type: none"> <li>• Steering angle sensor</li> <li>• Steering angle sensor circuit</li> <li>• ECU</li> </ul> |

## WIRING DIAGRAM



F05325

## INSPECTION PROCEDURE

|   |                                              |
|---|----------------------------------------------|
| 1 | Check output value of steering angle sensor. |
|---|----------------------------------------------|

## IN CASE OF USING LEXUS HAND-HELD TESTER:

**PREPARATION:**

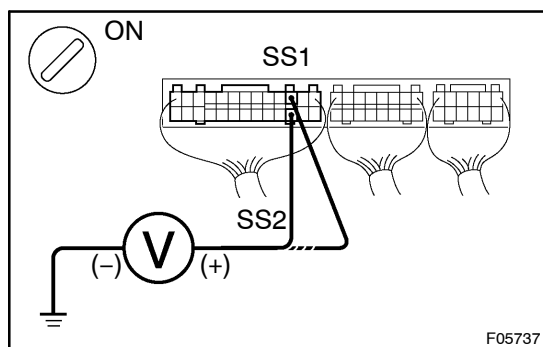
- Connect the LEXUS hand-held tester to the DLC3.
- Turn the ignition switch ON and push the LEXUS hand-held tester main switch ON.
- Select the DATALIST mode on the LEXUS hand-held tester.

**CHECK:**

Check that the steering wheel turning angle value of the steering angle sensor displayed by the LEXUS hand-held tester is changing when turning the steering wheel.

**OK:**

**Steering angle turning value must be changing.**



**IN CASE OF NOT USING LEXUS HAND-HELD TESTER:**  
**PREPARATION:**

Remove the suspension control ECU with connectors still connected.

**CHECK:**

- Turn the ignition switch ON.
- Measure voltage between terminals SS1 and SS2 of suspension control ECU connector and body ground when steering wheel is being turned slowly.

**OK:**

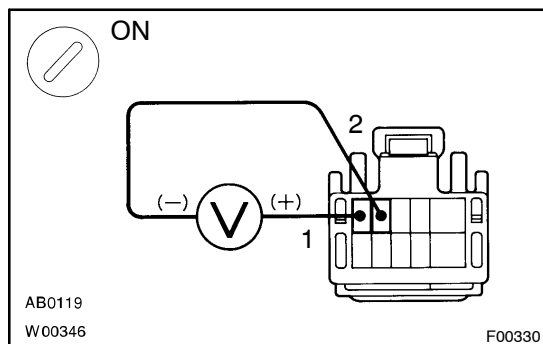
Changes between 0 V and approx. 5 V.

OK

No problem.

NG

**2 Check voltage between terminals 1 and 2 of steering angle sensor connector.**



**PREPARATION:**

- Remove the steering wheel lower No. 2 and No. 3 covers, steering wheel pad, steering wheel column upper and lower covers (See page [SR-12](#)).
- Disconnect the combination switch connector (for steering angle sensor).

**CHECK:**

- Turn the ignition switch ON.
- Measure voltage between terminals 1 and 2 of steering angle sensor connector.

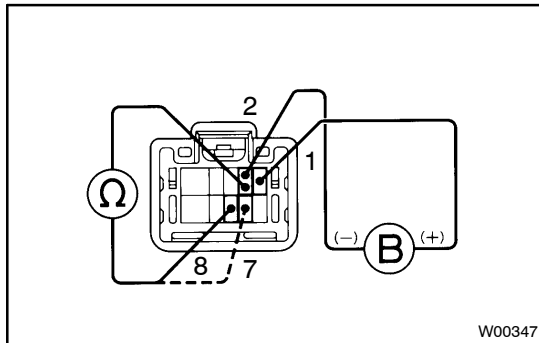
**OK:**

Voltage: 9 – 14 V

NG

Check and repair harness and connector between battery and steering angle sensor, steering angle sensor and body ground.

OK

**3 Check steering angle sensor.****PREPARATION:**

Apply battery positive voltage between terminals 1 and 2.

**CHECK:**

Measure resistance between terminals 2 and 7, 8 of steering angle sensor connector when the rotating part of steering angle sensor is turned slowly.

**OK:**

Changes between 0  $\Omega$  and  $\infty \Omega$ .

**NG****Replace steering angle sensor.****OK****4 Check for open and short circuit in harness and connector between steering angle sensor and suspension control ECU (See page [IN-34](#)).****NG****Repair or replace harness or connector.****OK****Check and replace suspension control ECU.**