

<b>DTC</b>	<b>C1781/81</b>	<b>Steering Angle Sensor Circuit</b>
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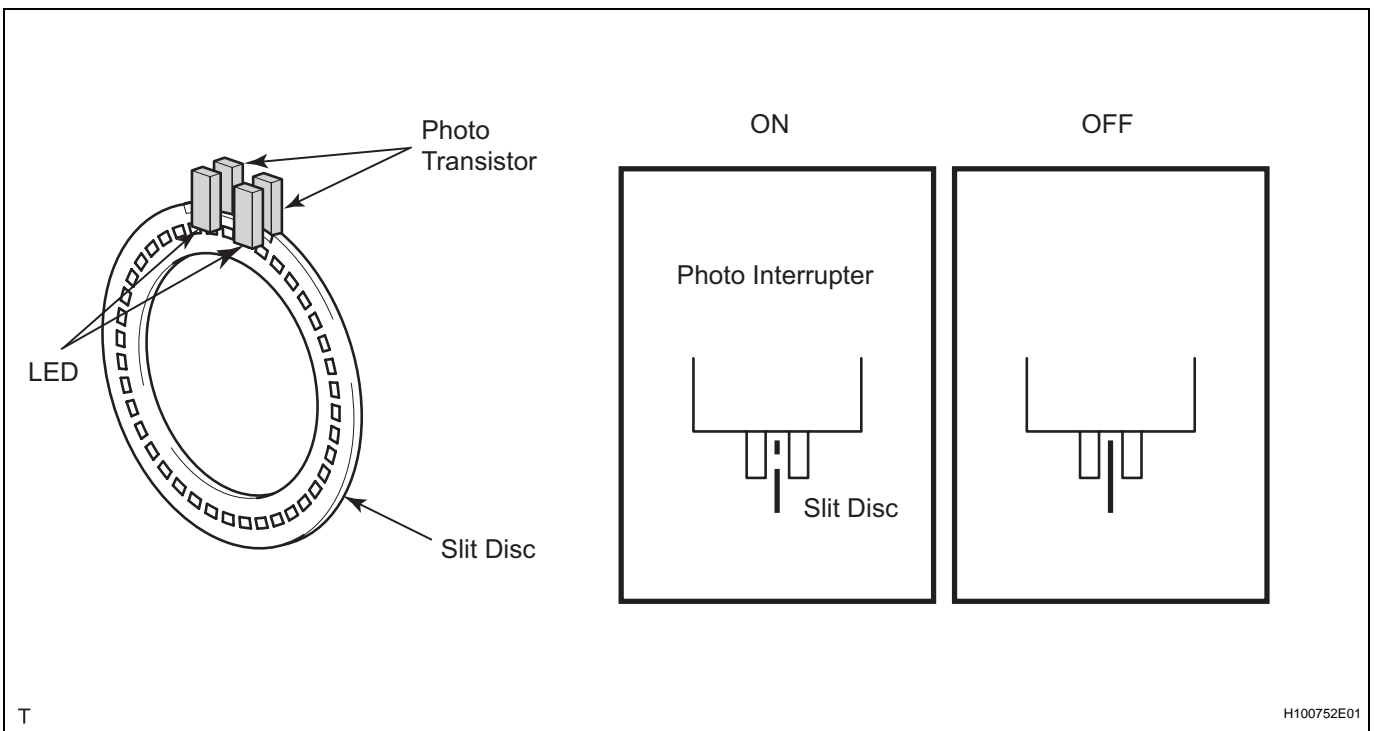
**DESCRIPTION**

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.

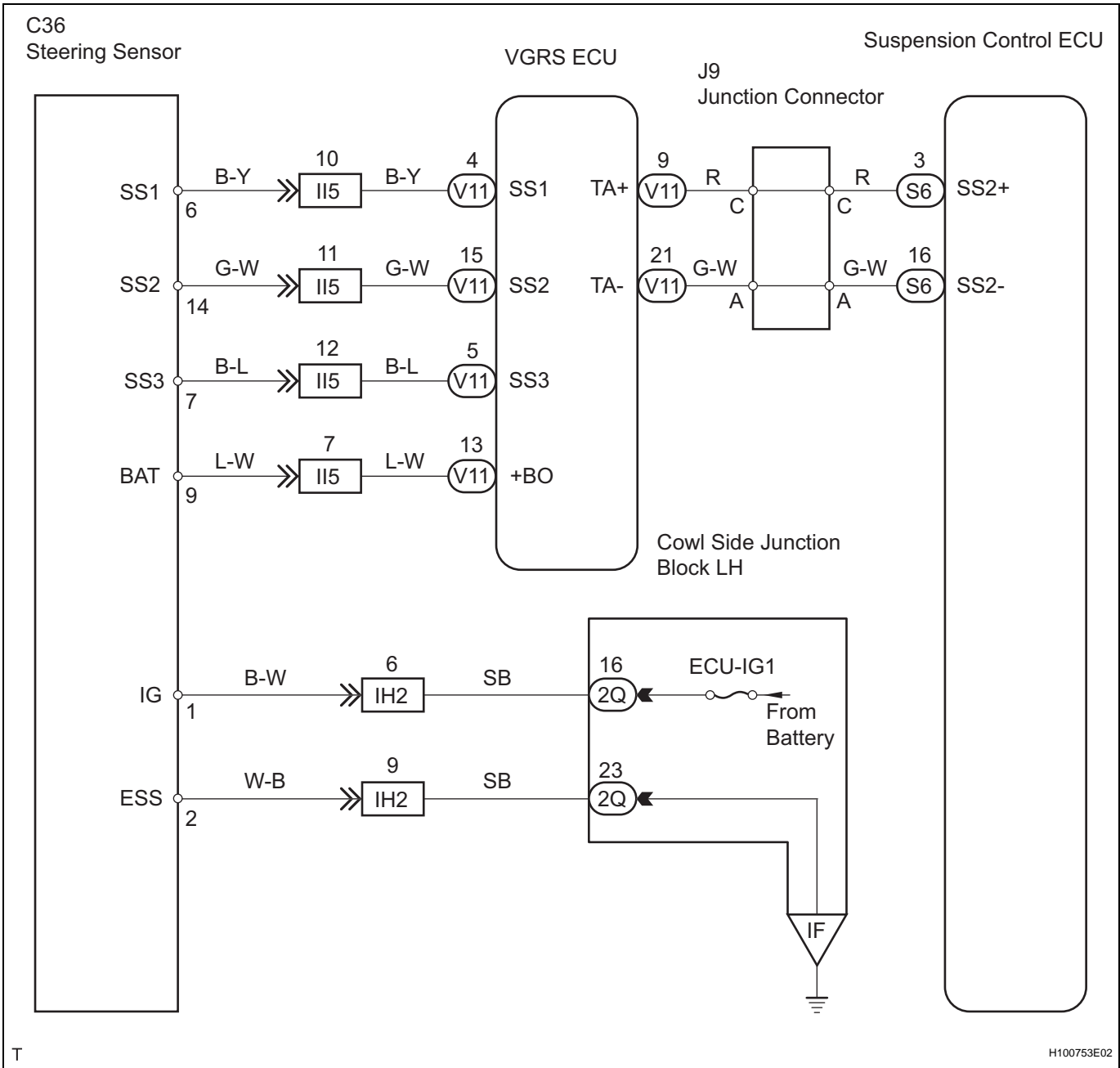
Each photo interrupter consists of an LED (Light Emitting Diode) and a photo transistor, which face each other. It converts the change in the light irradiation between the 2 elements to the on/off signals. The slit disc rotates between the LED and the photo transistor of the pair of photo interrupters. As the steering wheel is operated, the slit disc rotates with the wheel as a unit to stop and allow 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 each output.

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.



DTC No.	DTC Detection Condition	Trouble Area
C1781/81	Steering angle 36° or larger signal is not input	<ul style="list-style-type: none"> <li>Steering angle sensor</li> <li>Suspension control ECU</li> <li>Wire harness</li> </ul>

WIRING DIAGRAM



HINT:

When using the intelligent tester, start from \*1. When not using the intelligent tester, start from \*2.

SC

**1 READ VALUE OF INTELLIGENT TESTER (STEERING SENSOR)\*1**

- (a) Connect the intelligent tester (with CAN VIM) to the DLC3.
- (b) Turn the ignition switch ON and push the intelligent tester main switch ON.
- (c) Select the DATA LIST mode on the intelligent tester.
- (d) Check that the steering wheel turning angle value of the steering angle sensor displayed by the intelligent tester is changing when turning the steering wheel.

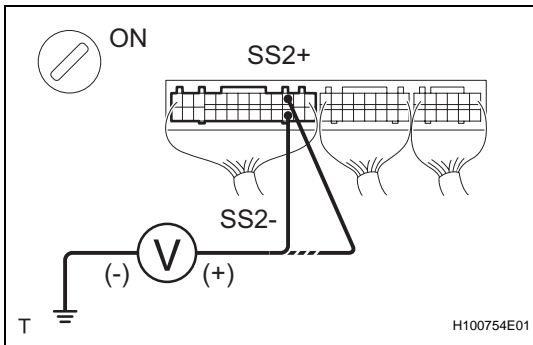
OK:  
Steering angle turning value is changing.

NG Go to step 3

OK

**REPLACE SUSPENSION CONTROL ECU**

**2 CHECK SUSPENSION CONTROL ECU\*2**



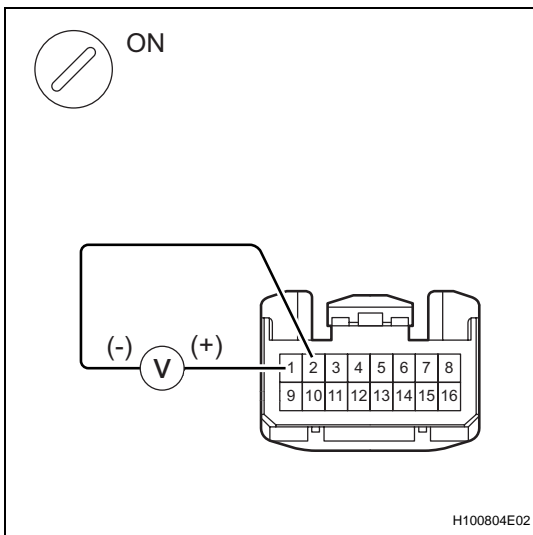
- (a) Remove the suspension control ECU with the connectors still connected.
  - (b) Turn the ignition switch ON.
  - (c) Measure the voltage between terminals SS2+ and SS2- of the suspension control ECU connector and body ground when the steering wheel is turned slowly.
- Standard voltage**

Tester Connection	Specified Condition
S6-3 (SS2+) - Body ground	Below 1 to Approximately 5 V
S6-16 (SS2-) - Body ground	Below 1 to Approximately 5 V

OK Go to step 5

NG

**3 CHECK WIRE HARNESS (STEERING ANGLE SENSOR - BATTERY AND BODY GROUND)**



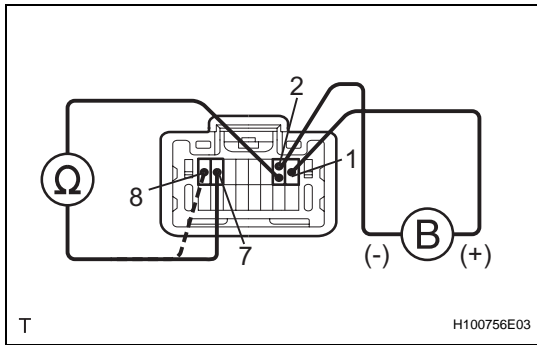
- (a) Remove the steering wheel No. 2 and No. 3 covers, steering wheel pad, and steering wheel column upper and lower covers (see page RS-244).
  - (b) Disconnect the combination switch connector (for steering angle sensor).
  - (c) Measure the voltage between terminals 1 and 2 of the steering angle sensor connector.
- Standard voltage**

Tester Connection	Condition	Specified Condition
C36-1 (IG) - C36-2 (ESS)	Ignition switch ON	9 to 14 V

NG REPAIR OR REPLACE HARNESS AND CONNECTOR

OK

**4 INSPECT STEERING ANGLE SENSOR**



- (a) Apply battery positive voltage between terminals 1 and 2.
- (b) Measure the resistance between terminals 2 and 7, and terminals 2 and 8 of the steering angle sensor connector when the rotating part of the steering angle sensor is turned slowly.

**Standard resistance:**

**Changes between 0Ω and ∞Ω**

**NG** → **REPLACE STEERING ANGLE SENSOR**

**OK**

**5 CHECK WIRE HARNESS (VGRS ECU AND STEERING ANGLE SENSOR - SUSPENSION CONTROL ECU)**

- (a) Disconnect the suspension control ECU connector.
- (b) Disconnect the combination switch connector.
- (c) Measure the resistance between terminals 3 and 16 of the suspension control ECU connector and terminals 4 and 12 of the combination switch connector.

**Standard resistance**

Tester Connection	Specified Condition
S6-3 (SS2+) - V11-9 (TA+)	Below 1 Ω
S6-16 (SS2-) - V11-21 (TA-)	Below 1 Ω
V11-4 (SS1) - C36-6 (SS1)	Below 1 Ω
V11-15 (SS2) - C36-14 (SS2)	Below 1 Ω
V11-5 (SS3) - C36-7 (SS3)	Below 1 Ω
V11-13 (+BO) - C36-9 (BAT)	Below 1 Ω

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

**OK**

**REPLACE SUSPENSION CONTROL ECU**