

DTC	C1777 / 77	Steering Angle Sensor Circuit
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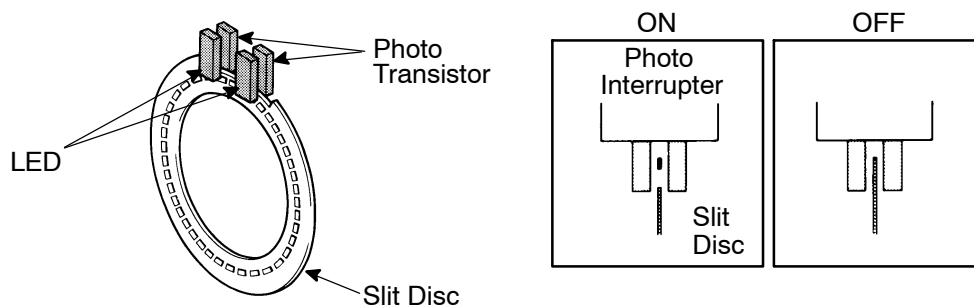
DTC	C1781 / 81	Steering Angle Sensor Circuit
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CIRCUIT DESCRIPTION

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.

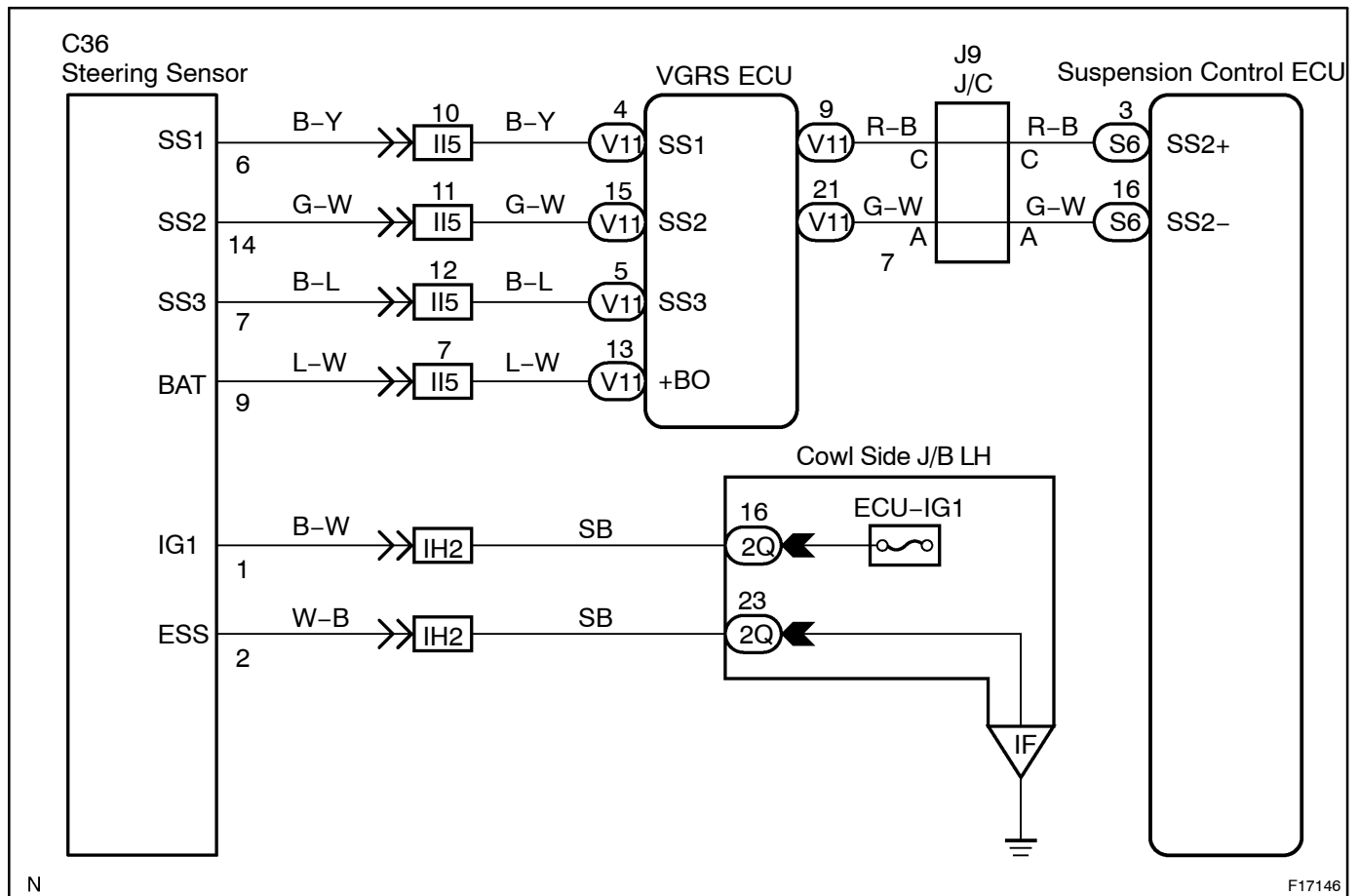


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DTC No.	DTC Detecting Condition	Trouble Area
C1777 / 77	Steering sensor system signal is abnormal	• Steering angle sensor • Steering angle sensor circuit • Suspension control ECU • VGRS ECU
C1781 / 81	Steering angle 36° or larger signal does not input	• Steering angle sensor • Steering angle sensor circuit • ECU

WIRING DIAGRAM



INSPECTION PROCEDURE

1	Check output value of steering angle sensor (AHC system).
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PREPARATION:

- Turn the ignition switch LOCK.
- Connect the LEXUS hand-held tester (with CAN VIM) to the DLC3.
- Turn the ignition switch ON and push the LEXUS hand-held tester main switch ON.
- Enter the following menus: AHC / DATA LIST.
- Select the item "STEERING ANGLE" in the DATA LIST and read the value displayed 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 is changing.

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Go to step 2.

OK

Replace suspension control ECU.

2 Check output value of steering angle sensor (VGRS system).

PREPARATION:

- (a) Turn the ignition switch LOCK.
- (b) Connect the LEXUS hand-held tester (with CAN VIM) to the DLC3.
- (c) Turn the ignition switch ON and push the LEXUS hand-held tester main switch ON.
- (d) Enter the following menus: VGRS / DATA LIST.
- (e) Select the items “STEERING POS1” and “STEERING POS2” in the DATA LIST and read the value displayed 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 is changing.

NG

Go to step 4.

OK

3 Check for open and short circuit in harness and connector between VGRS ECU and suspension control ECU (See page [IN-36](#)).

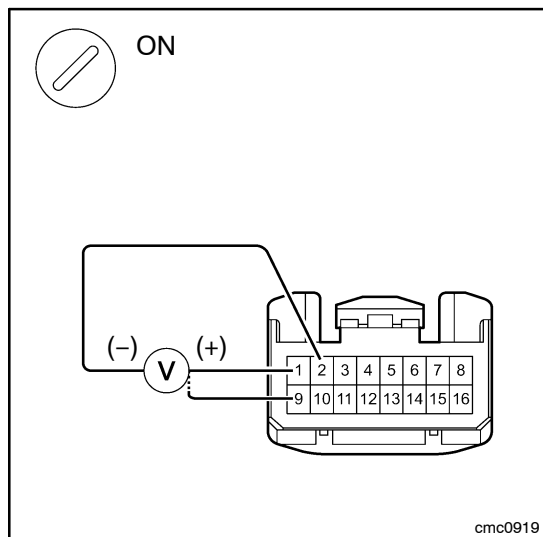
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Repair or replace harness or connector.

OK

Replace VGRS ECU.

4 Check voltage of steering angle sensor power source.



PREPARATION:

- (a) Remove the steering wheel No.2 and No.3 covers, steering wheel pad, and steering wheel column upper and lower covers (See page [SR-14](#)).
- (b) Turn the ignition switch LOCK.
- (c) Disconnect the combination switch connector (for steering angle sensor).

CHECK:

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

OK:

Voltage: 9 – 14 V

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Repair or replace harness or connector.

OK

5 Check for open and short circuit in harness and connector between VGRS ECU and steering angle sensor (See page [IN-36](#)).

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Repair or replace harness or connector.

OK

Replace steering angle sensor.