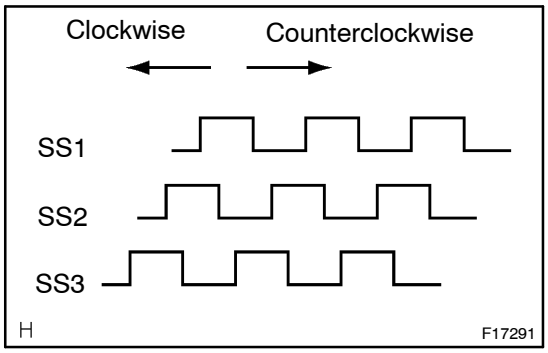
DIAS5–01

CIRCUIT INSPECTION

DTC	C1511 / 11	Steering Angle Sensor Malfunction



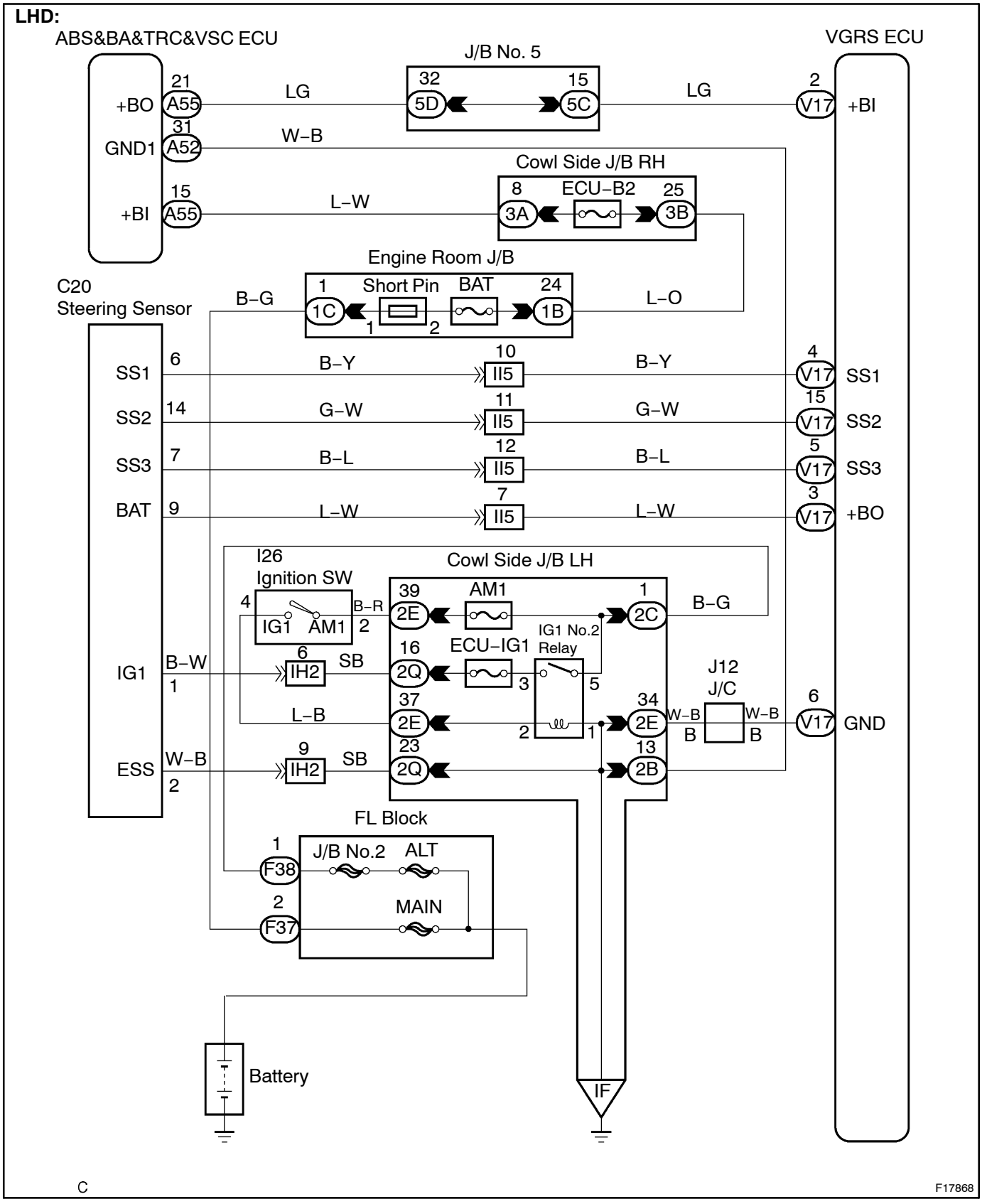
CIRCUIT DESCRIPTION

The VGRS ECU receives the steering sensor signals (SS1, SS2, SS3), and judges the steering condition to drive the VGRS actuator.

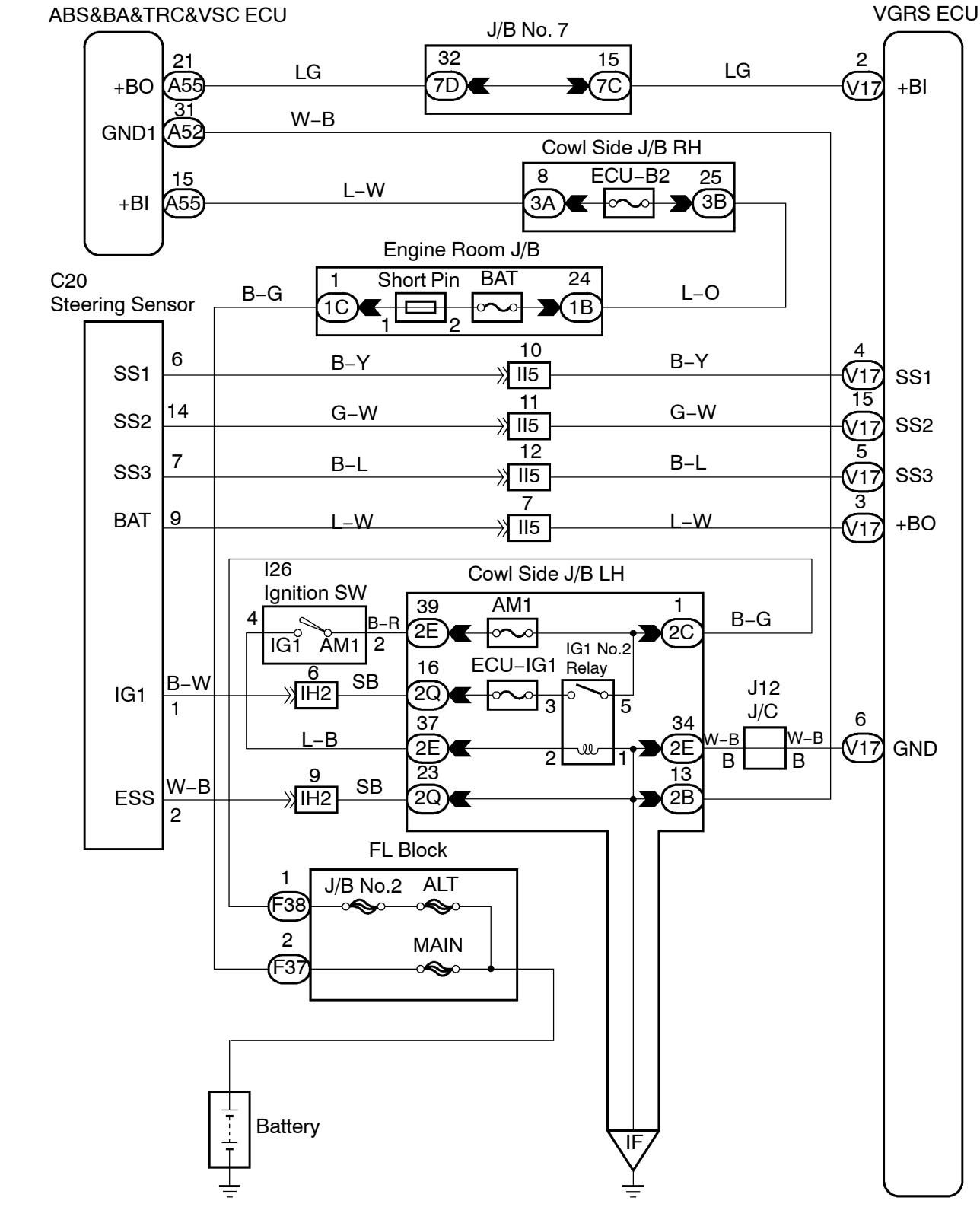
When the steering sensor signal is abnormal, the VGRS ECU records the DTC and illuminates the VGRS warning light.

DTC No.	DTC Detecting Condition	Trouble Area
C1511/11	The system detects a momentary interruption of the steering angle sensor signal (SS1, SS2, SS3) 10 times, or an open circuit for more than 0.12 sec.	• Steering angle sensor • Steering angle sensor circuit • VGRS ECU • Skid control ECU

WIRING DIAGRAM



RHD:


ABS&BA&TRC&VSC ECU
VGRS ECU
J/B No. 7
+BO
GND1
+BI
LG
W–B
L–W
Cowl Side J/B RH
ECU–B2
Engine Room J/B
Short Pin
BAT
C20
Steering Sensor
B–G
L–O
SS1
SS2
SS3
BAT
B–Y
G–W
B–L
I26
Ignition SW
IG1
AM1
B–R
Cowl Side J/B LH
ECU–IG1
IG1 No.2
Relay
J12
J/C
B–W
SB
L–B
W–B
ESS
GND
FL Block
J/B No.2
ALT
MAIN
Battery
IF
C
F17868

INSPECTION PROCEDURE

HINT:

- Determine the trouble area by checking the steering sensor signal using hand–held tester.
- When not using hand–held tester, go to step 3.

1	**Observe the data for SS1, SS2, SS3 on the hand–held tester.**

PREPARATION:

(a) Connect the hand–held tester to the DLC3.

(b) Start the engine.

CHECK:

Check each steering sensor signal (SS1, SS2, SS3) while slowly turning the steering wheel.

OK:

STR SENS1: High or Low
STR SENS2: High or Low
STR SENS3: High or Low

All OK	A
All NG	B
Other	C

A → **Replace VGRS ECU.**

C → **Go to step 3.**

B

Proceed to step 2.

2	**Inspect power supply voltage of steering angle sensor.**

HINT:

- When a malfunction is found in the power supply voltage of the steering angle sensor, the sensor outputs become abnormal.
- The power supply has 2 systems, IG and BAT.

PREPARATION:

(a) Turn the ignition switch OFF.
(b) Disconnect the steering angle sensor connector (C20).
(c) Turn the ignition switch ON.

CHECK:

(a) Measure voltage between terminals 1 and 2 of the steering angle sensor harness side connector.

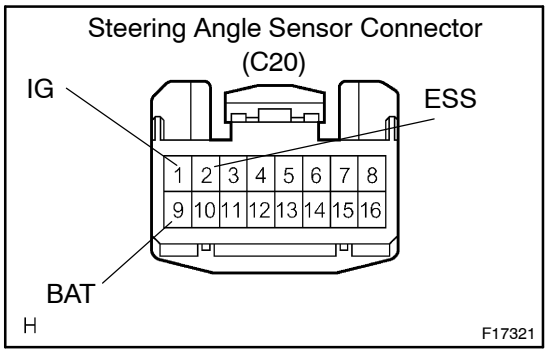
OK:

10 to 14 V

(b) Measure voltage between terminals 9 and 2 of the steering angle sensor harness side connector.

OK:

10 to 14 V



OK	A
NG (IG power supply terminals 1 and 2)	B
NG (BAT power supply terminals 9 and 2)	C

B	**Check or replace harness or connector.**
C	**Go to step 4.**

A

Proceed to step 3.

3	Inspect output of steering angle sensor.

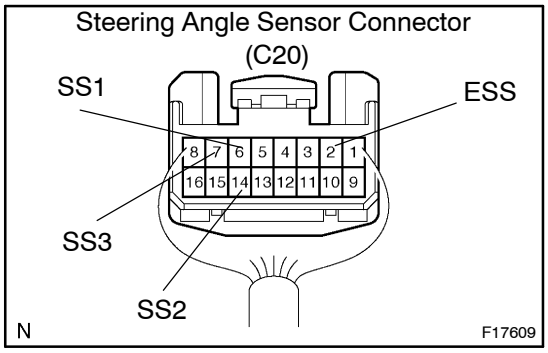
HINT:
Check the output when slowly turning the steering wheel to judge whether the sensor is good.

PREPARATION:

(a) Turn the ignition switch OFF.
(b) Disconnect the VGRS ECU connector (V17).
(c) Turn the ignition switch ON.

CHECK:

When slowly turning the steering wheel, measure the resistance between terminals of the steering angle sensor connector (C20).



OK:

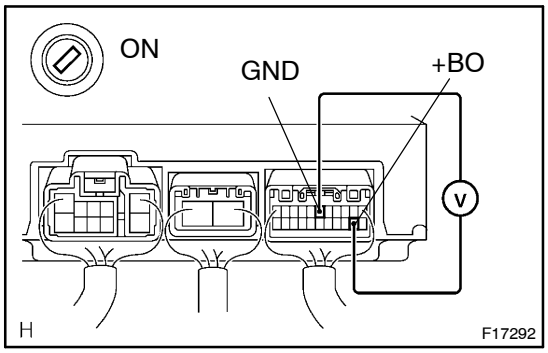
Symbols (Terminals No.)	Resistance
SS1 – ESS (6) – (2)	Alternates below 1 kΩ and above 100 kΩ
SS2 – ESS (14) – (2)	
SS3 – ESS (7) – (2)	

OK	Go to step 8.

NG

Replace steering angle sensor.

4	**Check voltage between terminal +BO and GND of VGRS ECU.**

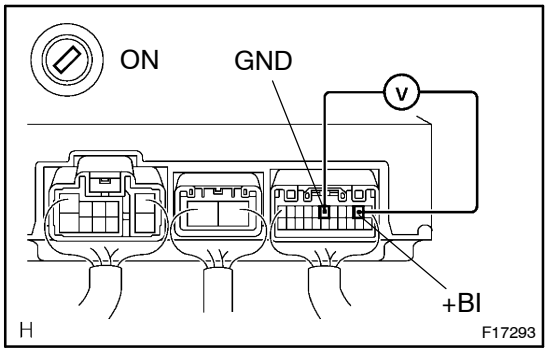


PREPARATION:
Turn the ignition switch ON.
CHECK:
Measure the voltage between terminal +BO and GND of the VGRS ECU.
OK:
10 to 14V

OK	**Check and repair the wire harness and connector between steering angle sensor and VGRS ECU.**

NG

5	**Check voltage between terminal +BI and GND of VGRS ECU.**



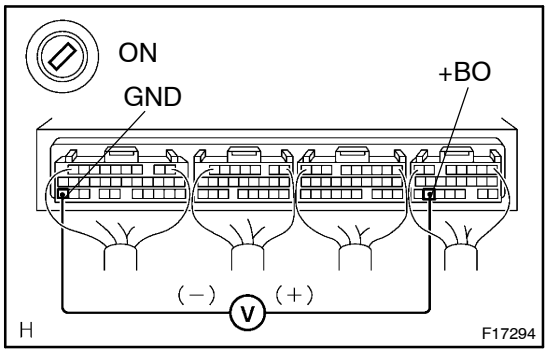
PREPARATION:
Turn the ignition switch ON.
CHECK:
Measure the voltage between terminal +BI and GND of the VGRS ECU.
OK:
10 to 14 V

OK	**Replace VGRS ECU.**

NG

Proceed to step 6.

6	Check voltage between terminal +BO and GND of skid control ECU.

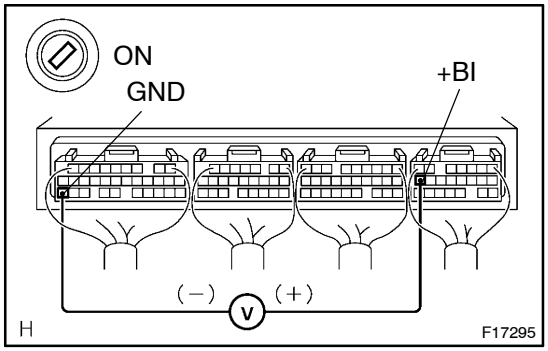


PREPARATION:
Turn the ignition switch ON.
CHECK:
Measure the voltage between terminal +BO and GND of the skid control ECU.
OK:
10 to 14 V

OK	Check and repair the wire harness and connector between skid control ECU and VGRS ECU.

NG

7	Check voltage between terminal +BI and GND of skid control ECU.



PREPARATION:
Turn the ignition switch ON.
CHECK:
Measure the voltage between terminal +BI and GND of the skid control ECU.
OK:
10 to 14 V

OK	Replace skid control ECU.

NG

Repair or replace +BI circuit.

8	**Check for open or short circuit in harness and connector between steering angle sensor and VGRS ECU (See page IN–38).**

PREPARATION:

(a) Turn the ignition switch OFF.

(b) Disconnect the steering angle sensor connector and VGRS ECU connector.

CHECK:

Check the continuity between each terminal SS1, SS2 and SS3 of the steering angle sensor connector and the VGRS ECU connector.

OK:

Continuity

CHECK:

Check the continuity between each terminal SS1, SS2 and SS3 of the VGRS ECU connector and body ground.

OK:

No continuity

NG → **Repair or replace harness and connector.**

OK

Replace VGRS ECU.