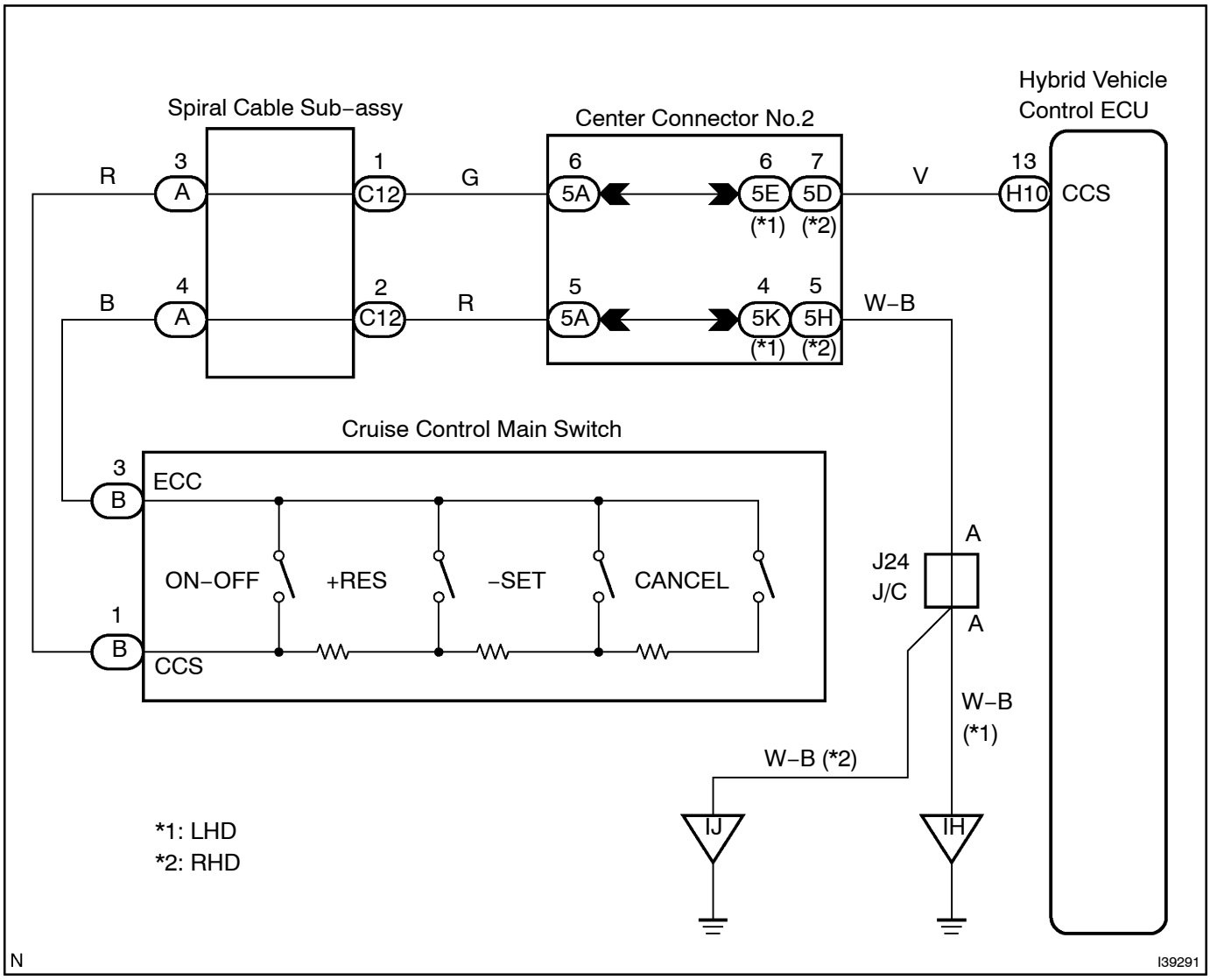
CRUISE CONTROL SWITCH CIRCUIT

CIRCUIT DESCRIPTION

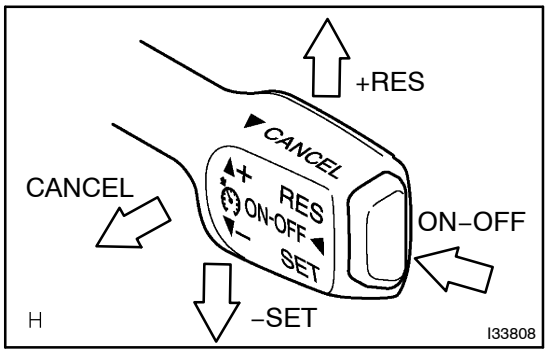
The cruise control main switch operates seven functions: SET, COAST, TAP–DOWN, RESUME, ACCEL, TAP–UP, and CANCEL. The SET, TAP–DOWN and COAST functions, and the RESUME and, TAP–UP ACCEL functions share the same switch. Each function can be controlled by moving the switch in the directions of the arrows on the cruise control main switch assy. The switch will return automatically after being released. The internal contact point of the cruise control main switch is turned on with the switch operation. Then the hybrid vehicle control ECU reads the voltage value which has been changed by the resistance in the switch in order to control SET, COAST, RESUME, ACCEL, and CANCEL.

WIRING DIAGRAM



INSPECTION PROCEDURE

1	READ VALUE OF INTELLIGENT TESTER II



(a) Connect the intelligent tester II to the DLC3.
(b) Turn the power switch on (IG).
(c) Select the items "Main SW M–CPU", "Main SW S–CPU", "CANCEL Switch", "SET/COAST Switch", and "RES/ACC Switch" in the DATA LIST, and check the display on the tester screen when the cruise control main switch is operated.

HYBRID VEHICLE CONTROL ECU:

Item	Measurement Item/ Display (Range)	Normal Condition	Diagnostic Note
Main SW M–CPU	Cruise main switch signal (Main CPU)/ON or OFF	ON: Cruise control main switch ON–OFF button is pushed on OFF: Cruise control main switch ON–OFF button is pushed off	–
Main SW S–CPU	Cruise main switch signal (Sub CPU)/ON or OFF	ON: Cruise control main switch ON–OFF button is pushed on OFF: Cruise control main switch ON–OFF button is pushed off	–
CANCEL Switch	CANCEL switch signal/ON or OFF	ON: Cruise control main switch is pulled to CANCEL OFF: Cruise control main switch is not pulled to CANCEL	–
SET/COAST Switch	–/SET switch signal/ON or OFF	ON: Cruise control main switch is pushed to –/SET OFF: Cruise control main switch is not pushed to –/SET	–
RES/ACC Switch	+/RES switch signal/ON or OFF	ON: Cruise control main switch is pushed to +/RES OFF: Cruise control main switch is not pushed to +/RES	–

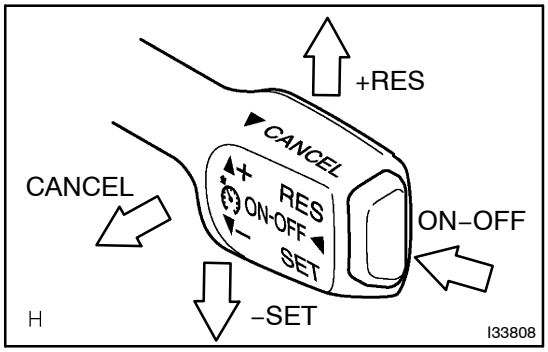
OK:
When cruise control main switch operation is performed, the standard values will be above.

NG → **Go to step 3**

OK

PROCEED TO NEXT CIRCUIT INSPECTION SHOWN ON PROBLEM SYMPTOMS TABLE
(SEE PAGE 05–2451)

2 INSPECT HYBRID VEHICLE CONTROL ECU

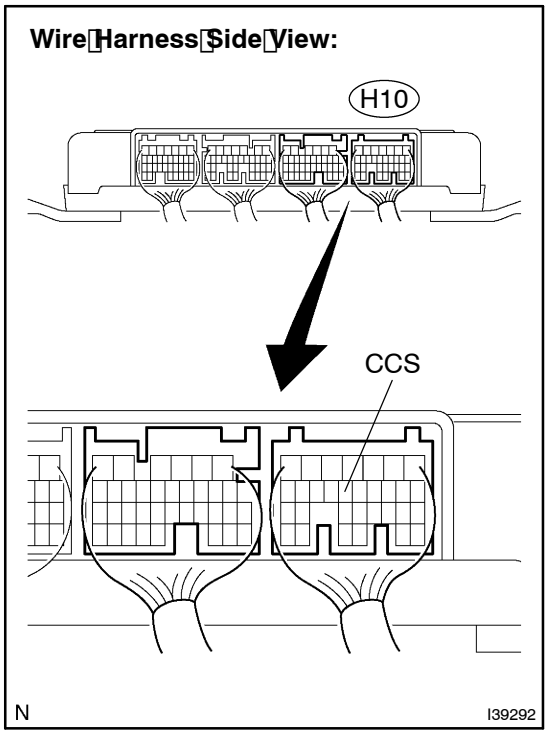


(a) Turn the power switch on (IG).

(b) Measure the voltage according to the value(s) in the table below.

Standard:

Symbol (Terminal Connection)	Switch Condition	Specified Value
CCS (H10–13) – Body ground	Neutral	10 to 14 V
CCS (H10–13) – Body ground	+RES	6.6 to 10.1 V
CCS (H10–13) – Body ground	–SET	4.5 to 7.1 V
CCS (H10–13) – Body ground	CANCEL	2.3 to 4.0 V
CCS (H10–13) – Body ground	ON–OFF button is on	Below 1 V

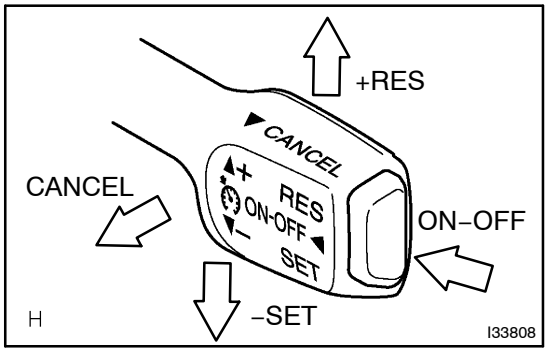


NG → **Go to step 3**

OK

PROCEED TO NEXT CIRCUIT INSPECTION SHOWN ON PROBLEM SYMPTOMS TABLE
(SEE PAGE 05–2451)

3 INSPECT CRUISE CONTROL MAIN SWITCH

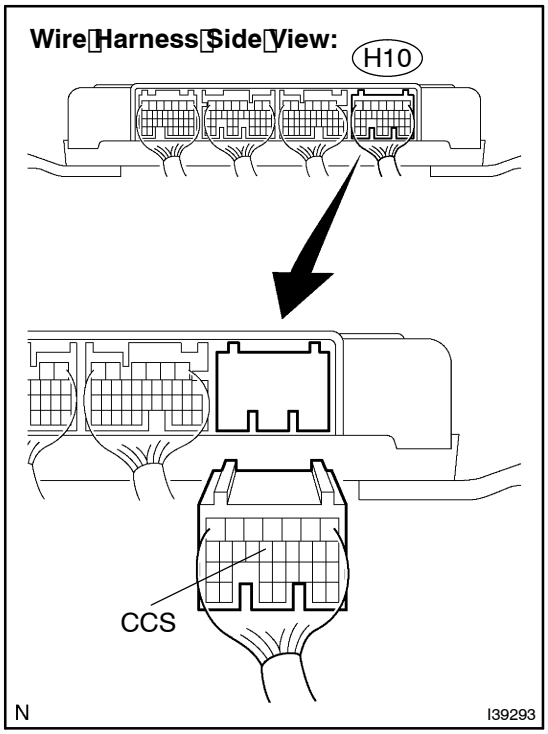


(a) Disconnect the H10 connector of the hybrid vehicle control ECU.

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

Standard:

Symbol (Terminal Connection)	Switch Condition	Specified Value
CCS (H10–13) – Body ground	Neutral	10 kΩ or higher
CCS (H10–13) – Body ground	+RES	210 to 270 Ω
CCS (H10–13) – Body ground	–SET	560 to 700 Ω
CCS (H10–13) – Body ground	CANCEL	1,380 to 1,700 Ω
CCS (H10–13) – Body ground	ON–OFF button is on	Below 1 Ω

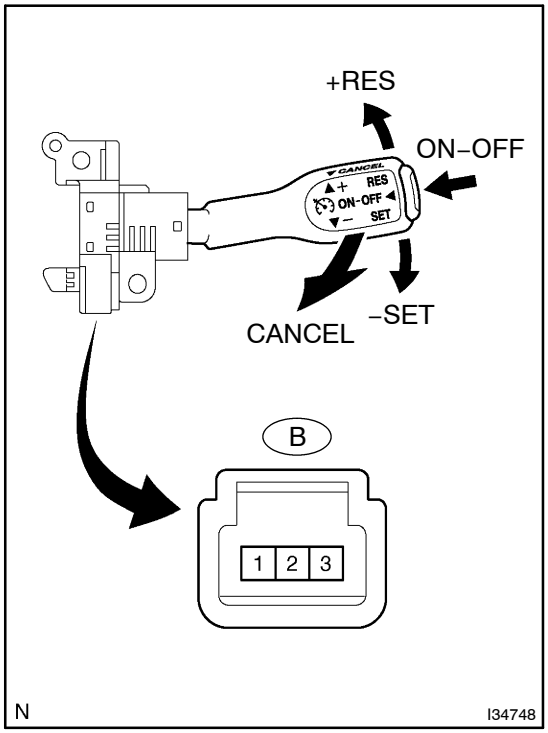


NG → Go to step 4

OK

REPLACE HYBRID VEHICLE CONTROL ECU (SEE PAGE 21–128)

4 INSPECT CRUISE CONTROL MAIN SWITCH



(a) Disconnect the cruise main control switch connector.
(b) Measure the resistance according to the value(s) in the table below.

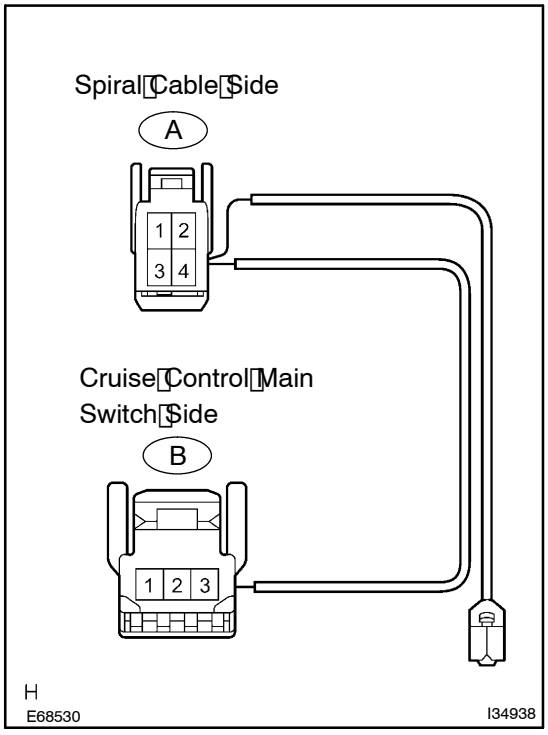
Standard:

Tester Connection	Switch Condition	Specified Value
B–1 – B–3	Neutral	10 kΩ or higher
B–1 – B–3	+RES	210 to 270 Ω
B–1 – B–3	–SET	560 to 700 Ω
B–1 – B–3	CANCEL	1,380 to 1,700 Ω
B–1 – B–3	ON–OFF button is on	Below 1 Ω

NG → **REPLACE CRUISE CONTROL MAIN SWITCH (SEE PAGE 32–1)**

OK

5 CHECK HARNESS AND CONNECTOR (CRUISE CONTROL MAIN SWITCH – SPIRAL CABLE SUB–ASSY)



(a) Disconnect the spiral cable side connector.
(b) Measure the resistance according to the value(s) in the table below.

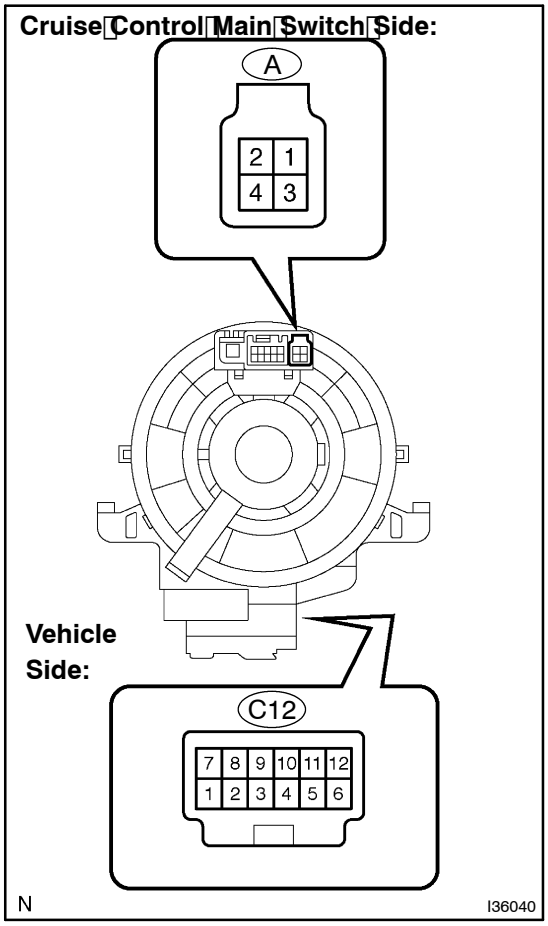
Standard:

Terminal Connection	Condition	Specified Value
A–3 – B–1	Always	Below 1 Ω
A–4 – B–3	Always	Below 1 Ω

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

OK

6 INSPECT SPIRAL CABLE SUB–ASSY



(a) Disconnect the spiral cable connector.

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

Standard:

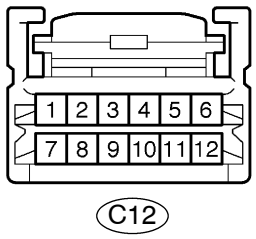
Terminal Connection	Condition	Specified Value
A–3 – C12–1	Always	Below 1 Ω
A–4 – C12–2	Always	Below 1 Ω

NG → **REPLACE SPIRAL CABLE SUB–ASSY (SEE PAGE 60–29)**

OK

7	CHECK HARNESS AND CONNECTOR (SPIRAL CABLE SUB–ASSY – HYBRID VEHICLE CONTROL ECU)

Spiral Cable Sub–assy Connector
Side Connector Front View:



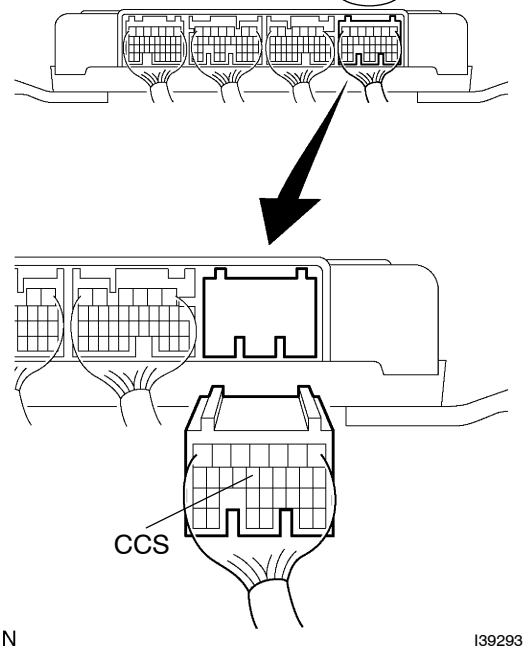
N I39295

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

Standard:

Symbol (Terminal Connection)	Condition	Specified Value
CCS (H10–13) – C12–1	Always	Below 1 Ω
CCS (H10–13) – Body ground	Always	10 kΩ or higher

Hybrid Vehicle Control ECU
Wire Harness Side View: H10



N I39293

NG → **REPAIR OR REPLACE HARNESS OR CONNECTOR (SPIRAL CABLE SUB–ASSY – HYBRID VEHICLE CONTROL ECU)**

OK

REPAIR OR REPLACE HARNESS OR CONNECTOR (SPIRAL CABLE SUB–ASSY – BODY GROUND)