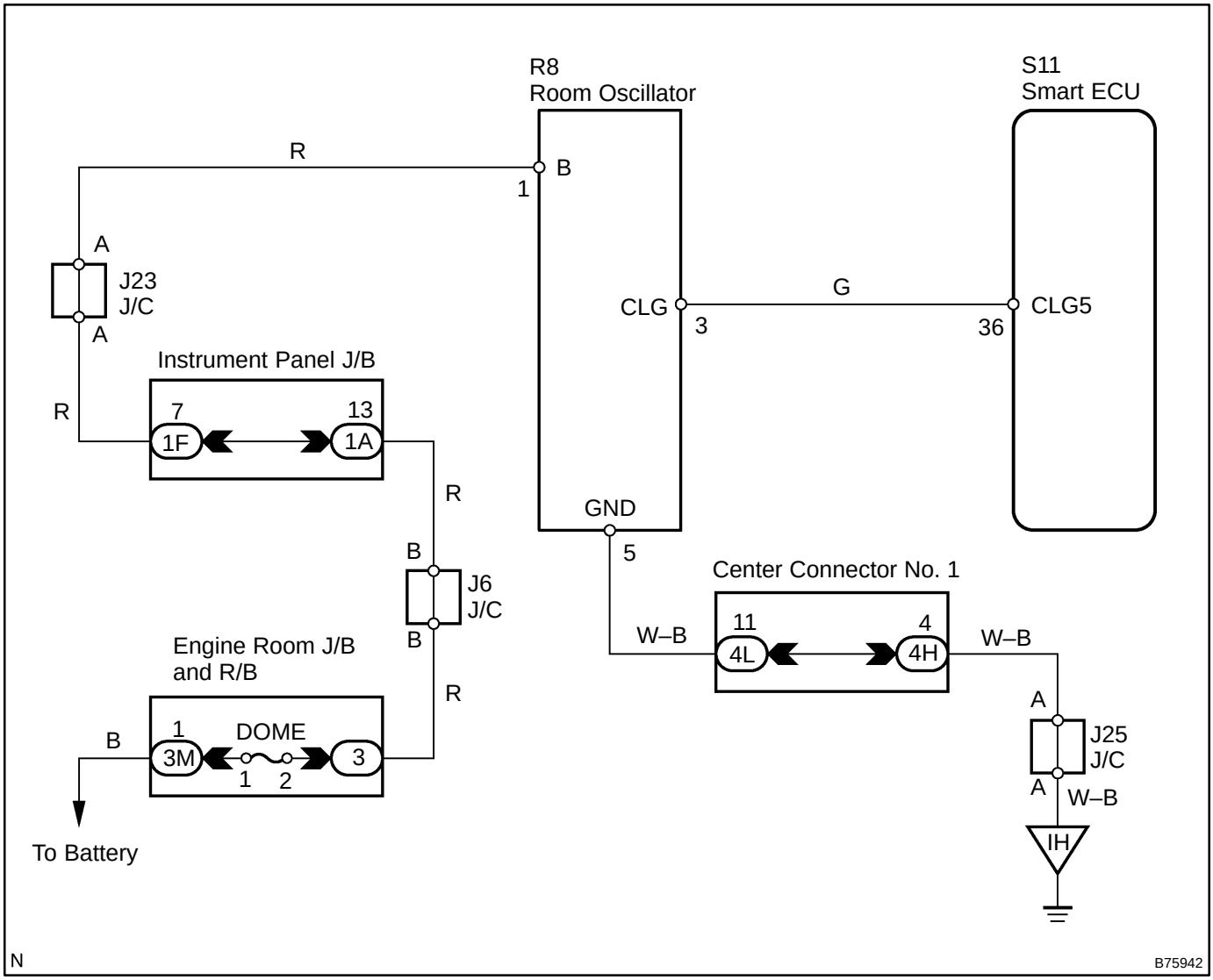
HYBRID VEHICLE CONTROL SYSTEM DOES NOT START USING SMART IGNITION FUNCTION (STARTS WHEN KEY IS INSERTED)

CIRCUIT DESCRIPTION

If the smart ignition function does not operate, insert the smart key into the key slot and check if the hybrid control system starts. If the hybrid control system starts (the transponder key ECU outputs a start permission to the hybrid control system and the hybrid control system starts), it is considered that only the smart ignition system is malfunctioning.

If the driver's door is opened and closed, the power switch changes from ON (ACC) to OFF, or the power switch is changed from OFF to ON, the smart ECU uses the wireless door lock receiver to send a request signal to the smart key. Then, the smart key transmits its ID code to the door control receiver. The ID code, which is then sent to the smart ECU, is verified by the smart ECU and the verification result is sent to the transponder key ECU. The transponder key ECU and the smart ECU communicate encryption codes each other using the multiplex communication line. When the return code from the smart ECU matches the ID code in memory, the transponder key ECU sends a hybrid control system start permission signal to the hybrid control ECU. Pressing the power switch then starts the hybrid control system. Turning the power switch from ON (ACC) to OFF stops the hybrid control system.

WIRING DIAGRAM



INSPECTION PROCEDURE

1	CHECK SMART LOCK AND UNLOCK OPERATION

(a) Check that the smart lock and unlock function operates normally.
OK: Smart lock and unlock function operates normally.

NG → **OTHER PROBLEM (See page 05–2167)**

OK

2	READ VALUE OF HAND–HELD TESTER

(a) Connect the hand–held tester (with CAN VIM) to the DLC3.
(b) Turn the power switch from OFF to ON (IG) and press the hand–held tester main switch ON.
(c) Select the items below in the DATA LIST and read the displays on the hand–held tester.
Smart ECU:

Item		Normal Condition	Diagnostic Note
KEY UNLK WRN SW	Key unlock warning switch/ ON or OFF	ON: Key is in key slot OFF: No key is in key slot	–

OK: ”ON” (key is in key slot) appears on the screen.

NG → **Go to PUSH BUTTON START SYSTEM (See page 05–2429)**

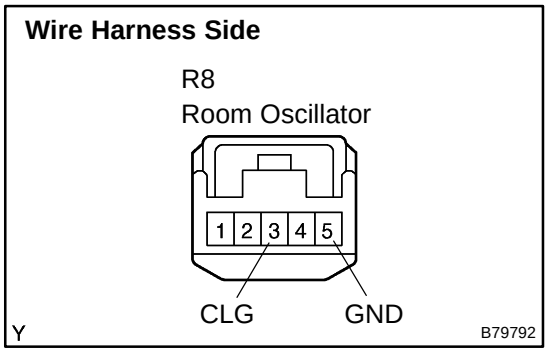
OK

3	PERFORM ACTIVE TEST USING HAND–HELD TESTER

(a) Connect the hand–held tester (with CAN VIM) to the DLC3.
(b) Turn the power switch from OFF to ON (IG) and press the hand–held tester main switch ON.
(c) Select the item below in the ACTIVE TEST and then check that the oscillator operates.
SMART ECU:

Item	Test Details	Diagnostic Note
FR TRANSMITTER	Front Transmitter ON/OFF	–

OK: ”ON” (front transmitter) appears on the screen.
When the smart key is brought close to the the room oscillator, the oscillator is turned ON and the indicator on the smart key illuminates.



(d) Measure the frequency of the oscillator connector.
Standard:

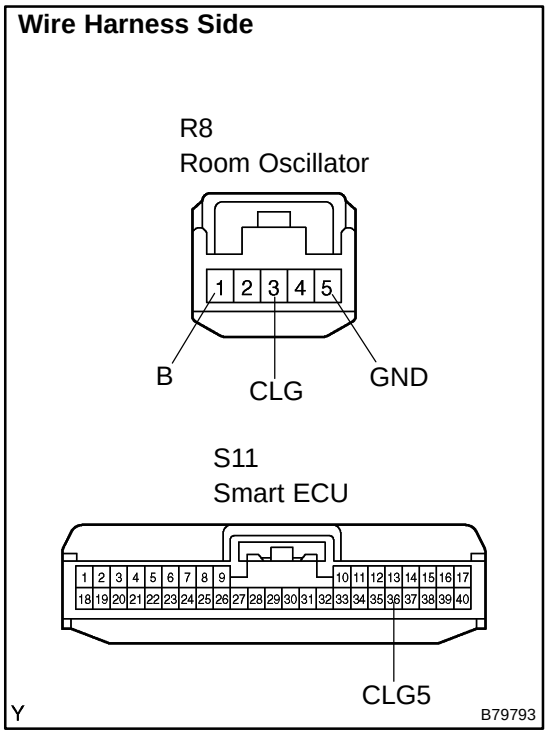
Tester Connection	Condition	Specified Condition
R8–3 (CLG) – R8–5 (GND)	During ACTIVE TEST	Some Hz

NG → **Go to step 4**

OK

REPLACE ROOM OSCILLATOR

4	CHECK WIRE HARNESS (ROOM OSCILLATOR – SMART ECU AND BODY GROUND)



(a) Disconnect the R8 oscillator connector.
(b) Disconnect the S11 ECU connector.
(c) Measure the voltage and resistance of the wire harness side connectors.

Standard:

Tester Connection	Specified Condition
R8–1 (B) – Body ground	10 to 14 V
R8–5 (GND) – Body ground	Below 1 Ω
R8–3 (CLG) – S11–36 (CLG5)	Below 1 Ω
R8–3 (CLG) or S11–36 (CLG5) – Body ground	10 kΩ or higher

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

OK

REPLACE SMART ECU