

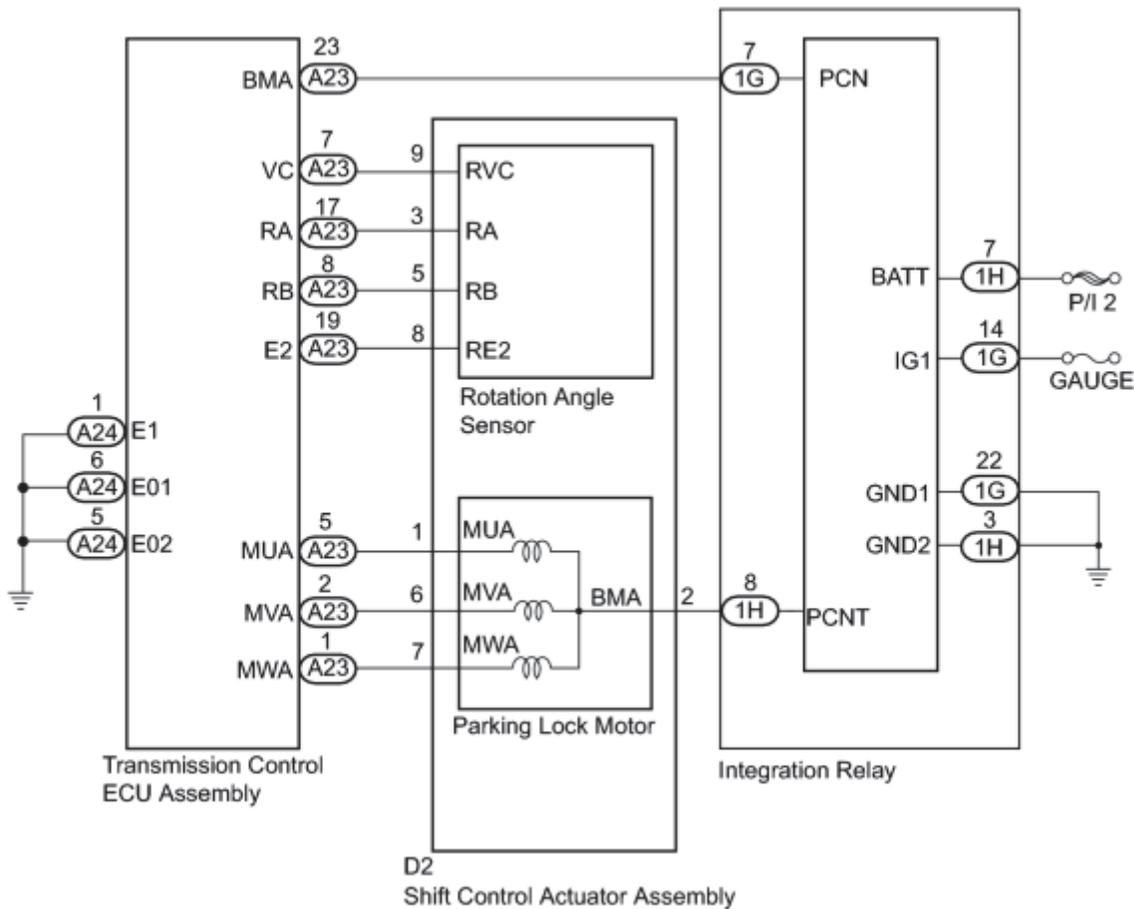
DTC	C2300	Actuator System Malfunction
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DESCRIPTION

The shift control actuator consists of the parking lock motor and the rotation angle sensor. The transmission control ECU receives a P position switch signal from the power management control ECU (HV CPU) and activates the parking lock motor by controlling current, causing the parking lock mechanism to switch. The transmission control ECU also detects the rotor rotation angle through the rotation angle sensor to control timing of current application to the coils. The transmission control ECU outputs this DTC when it detects a malfunction in the shift control actuator system.

DTC No.	DTC Detection Condition	Trouble Area
C2300	Open or short in the integration relay or shift control actuator assembly (parking lock motor or rotation angle sensor), or internal malfunction of the shift control actuator assembly (parking lock motor or rotation angle sensor).	<ul style="list-style-type: none"> • Transmission control ECU assembly • Auxiliary battery • Integration relay • Shift control actuator assembly • Hybrid vehicle transaxle assembly • Wire harness or connector

WIRING DIAGRAM



INSPECTION PROCEDURE

NOTICE:

It is not possible to clear the following DTCs using the Techstream: DTCs C2300 (Actuator System Malfunction), C2301 (Shift Changing Time Malfunction), C2303 (Short in Power Source Relay Circuit), C2304 (Open or Short Circuit in U Phase), C2305 (Open or Short Circuit in V Phase), C2306 (Open or Short Circuit in W Phase), C2307 (Power Supply) and C2309 (Open in B+ Circuit). After the repair, it is necessary to disconnect the P CON MAIN fuse and wait for at least 60 seconds to clear the DTCs.

PROCEDURE

1. CHECK FREEZE FRAME DATA

- (a) Connect the Techstream to the DLC3.
- (b) Turn the power switch on (IG).
- (c) Enter the following menus: Chassis / Transmission Control / Trouble Codes.

(d) Read the freeze frame data "Current flag record" of C2300.

Result

Result	Proceed to
OFF	A
ON	B

(e) Turn the power switch off.

B ▶ REPLACE TRANSMISSION CONTROL ECU ASSEMBLY

A



2.	CHECK DTC OUTPUT (TRANSMISSION CONTROL)
----	---

(a) Connect the Techstream to the DLC3.

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

(c) Enter the following menus: Chassis / Transmission Control / Trouble Codes.

(d) Check if DTCs are output.

Result

Result	Proceed to
Any of the following DTCs are not output.	A
Any of the following DTCs are output.	B

DTC No.	Relevant Diagnosis
C2304	Open or Short Circuit in U Phase
C2305	Open or Short Circuit in V Phase
C2306	Open or Short Circuit in W Phase

(e) Turn the power switch off.

B ▶ GO TO DTC CHART

A



3.	CHECK FREEZE FRAME DATA
----	-------------------------

(a) Connect the Techstream to the DLC3.

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

(c) Enter the following menus: Chassis / Transmission Control / Trouble Codes.

(d) Read the freeze frame data of C2300.

Result

Result	Proceed to
IG (+B) voltage is 9 V or more	A
IG (+B) voltage is less than 9 V	B

(e) Turn the power switch off.

REPLACE AUXILIARY BATTERY

A



4. CLEAR DTC

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

(b) Enter the following menus: Chassis / Transmission Control / Trouble Codes.

(c) Read and record the DTCs and freeze frame data.

(d) Turn the power switch off.

(e) Disconnect the P CON MAIN fuse and wait for at least 60 seconds.

(f) Check for DTCs again to see if the DTCs are cleared.

NEXT



5. CHARGE AUXILIARY BATTERY

(a) Charge the auxiliary battery.

NEXT



6. CHECK DTC OUTPUT (SIMULATION TEST)

(a) Connect the Techstream to the DLC3.

(b) Release the brake pedal and turn the power switch on (IG).

HINT:

Do not turn the power switch on (READY).

(c) Depress the brake pedal and move the selector lever to N.

(d) Enter the following menus: Chassis / Transmission Control / Trouble Codes.

(e) Check if DTCs are output.

Result

Result	Proceed to
C2300 is output	A
DTC is not output.	B

(f) Turn the power switch off.

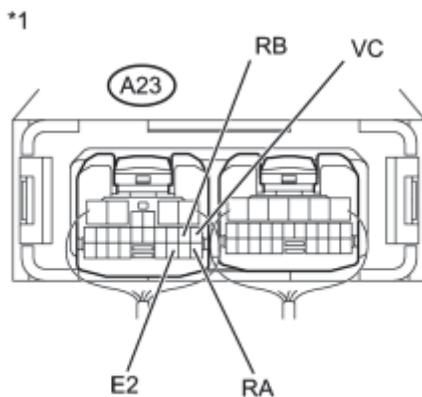
B END (AUXILIARY BATTERY WAS INSUFFICIENTLY CHARGED)

A

7. CHECK TRANSMISSION CONTROL ECU ASSEMBLY (VC, RA, RB, E2)

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

Standard Voltage:



Tester Connection	Condition	Specified Condition
A23-7 (VC) - A23-19 (E2)	Engine stopped (hybrid system stopped), power switch on (IG)	4.5 to 5.5 V
A23-17 (RA) - A23-19 (E2)	Power switch off to on (IG)	0 to 1.5 V ←→ 4 to 5.5 V
A23-8 (RB) - A23-19 (E2)	Power switch off to on (IG)	0 to 1.5 V ←→ 4 to 5.5 V

Text in Illustration

*1	Component with harness connected (Transmission Control ECU Assembly)
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(b) Turn the power switch off.

NG [CHECK HARNESS AND CONNECTOR \(TRANSMISSION CONTROL ECU ASSEMBLY - SHIFT CONTROL ACTUATOR\)](#)

OK



8. CHECK HARNESS AND CONNECTOR (SHIFT CONTROL ACTUATOR ASSEMBLY POWER SOURCE CIRCUIT)

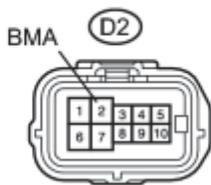
(a) Disconnect the D2 shift control actuator assembly.

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

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

Standard Voltage:

*1



Tester Connection	Switch Condition	Specified Condition
D2-2 (BMA) - Body ground	Power switch on (IG)	9 to 14 V

Text in Illustration

*1	Front view of wire harness connector (to Shift Control Actuator Assembly)
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(d) Turn the power switch off.

(e) Connect the shift control actuator assembly.

NG [CHECK HARNESS AND CONNECTOR \(INTEGRATION RELAY POWER SOURCE CIRCUIT\)](#)

OK



9. READ VALUE USING TECHSTREAM (U, V, W VOLTAGE)

(a) Connect the Techstream to the DLC3.

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

(c) Enter the following menus: Chassis / Transmission Control / Data List / U Phase Voltage Value, V Phase Voltage Value, W Phase Voltage Value.

(d) Read the data list displayed on the Techstream.

Result:

Tester Display	Switch Condition	Specified Condition
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Tester Display	Switch Condition	Specified Condition
U Phase Voltage Value	Power switch on (IG)	9 to 14 V
V Phase Voltage Value	Power switch on (IG)	9 to 14 V
W Phase Voltage Value	Power switch on (IG)	9 to 14 V

Turn the power switch off.

NG ► [CHECK HARNESS AND CONNECTOR \(TRANSMISSION CONTROL ECU ASSEMBLY - SHIFT CONTROL ACTUATOR\)](#)

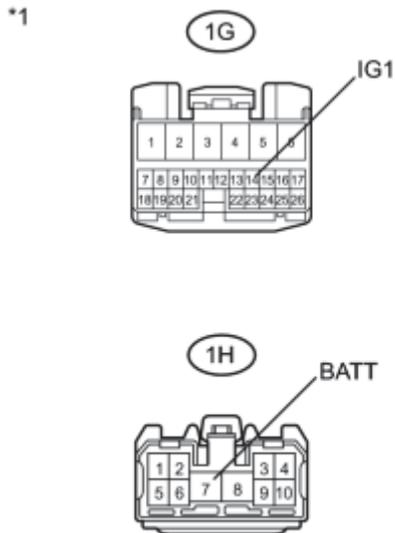
OK ► **REPLACE TRANSMISSION CONTROL ECU ASSEMBLY**

10.	CHECK HARNESS AND CONNECTOR (INTEGRATION RELAY POWER SOURCE CIRCUIT)
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(a) Disconnect the 1G and 1H integration relay connectors.

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

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



Standard Voltage:

Tester Connection	Condition	Specified Condition
1H-7 (BATT) - Body ground	Always	9 to 14 V
1G-14 (IG1) - Body ground	Power switch on (IG)	9 to 14 V

Text in Illustration

*1	Front view of wire harness connector (to Integration Relay)
----	--

(d) Turn the power switch off.

(e) Connect the integration relay connectors.

NG ► **CHECK AND REPAIR POWER SOURCE CIRCUIT**

OK



11.	CHECK HARNESS AND CONNECTOR (SHIFT CONTROL ACTUATOR ASSEMBLY -
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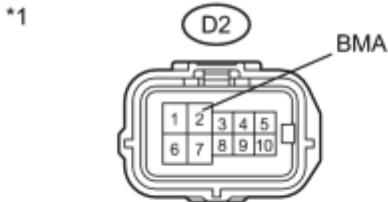
INTEGRATION RELAY)

(a) Disconnect the D2 shift control actuator assembly connector.

(b) Disconnect the 1H integration relay connector.

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

Standard Resistance (Check for Open):



Tester Connection	Switch Condition	Specified Condition
D2-2 (BMA) - 1H-8 (PCNT)	Power switch off	Below 1 Ω

Standard Resistance (Check for Short):



Tester Connection	Switch Condition	Specified Condition
D2-2 (BMA) or 1H-8 (PCNT) - Body ground and other terminals	Power switch off	10 k Ω or higher

Text in Illustration

*1	Front view of wire harness connector (to Shift Control Actuator Assembly)
*2	Front view of wire harness connector (to Integration Relay)

(d) Connect the integration relay connector.

(e) Connect the shift control actuator assembly connector.

NG REPAIR OR REPLACE HARNESS OR CONNECTOR

OK



12.

CHECK HARNESS AND CONNECTOR (TRANSMISSION CONTROL ECU ASSEMBLY - INTEGRATION RELAY)

(a) Disconnect the A23 transmission control ECU assembly connector.

(b) Disconnect the 1G integration relay connector.

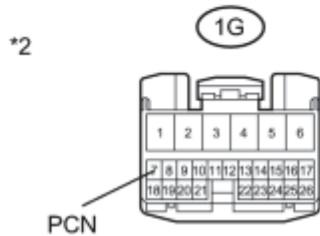
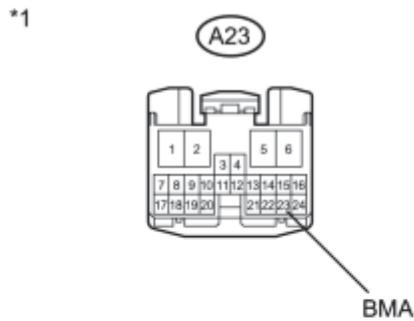
(c) Measure the resistance according to the value(s) in the table below.

Standard Resistance (Check for Open):

Tester Connection	Switch Condition	Specified Condition
A23-23 (BMA) - 1G-7 (PCN)	Power switch off	Below 1 Ω

Standard Resistance (Check for Short):

Tester Connection	Switch Condition	Specified Condition
A23-23 (BMA) or 1G-7 (PCN) - Body ground and other terminals	Power switch off	10 k Ω or higher



Text in Illustration

*1	Front view of wire harness connector (to Transmission Control ECU Assembly)
*2	Front view of wire harness connector (to Integration Relay)

(d) Connect the integration relay connector.

(e) Connect the transmission control ECU assembly connector.

NG ► REPAIR OR REPLACE HARNESS OR CONNECTOR

OK



13. CHECK HARNESS AND CONNECTOR (INTEGRATION RELAY - BODY GROUND)

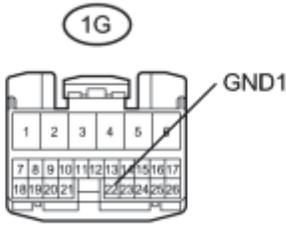
(a) Disconnect the 1G and 1H integration relay connectors.

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

Standard Resistance (Check for Open):

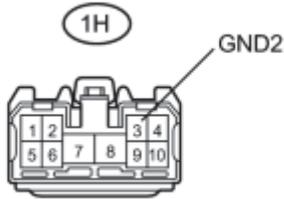
Tester Connection	Switch Condition	Specified Condition
1G-22 (GND1) - Body ground	Power switch off	Below 1 Ω
1H-3 (GND2) - Body ground	Power switch off	Below 1 Ω

*1



Text in Illustration

*1	Front view of wire harness connector (to Integration Relay)
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(c) Connect the integration relay connectors.

NG ► REPAIR OR REPLACE HARNESS OR CONNECTOR

OK ► REPLACE INTEGRATION NO.1 RELAY

14.	CHECK HARNESS AND CONNECTOR (TRANSMISSION CONTROL ECU ASSEMBLY - SHIFT CONTROL ACTUATOR)
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(a) Disconnect the A23 transmission control ECU assembly connector.

(b) Disconnect the D2 shift control actuator assembly connector.

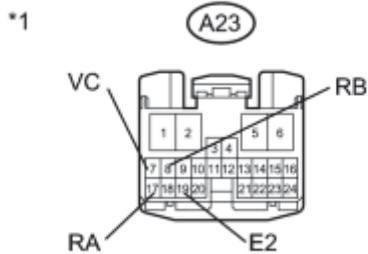
(c) Measure the resistance according to the value(s) in the table below.

Standard Resistance (Check for Open):

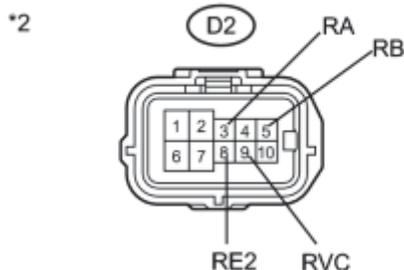
Tester Connection	Switch Condition	Specified Condition
A23-7 (VC) - D2-9 (RVC)	Power switch off	Below 1 Ω
A23-17 (RA) - D2-3 (RA)	Power switch off	Below 1 Ω
A23-8 (RB) - D2-5 (RB)	Power switch off	Below 1 Ω
A23-19 (E2) - D2-8 (RE2)	Power switch off	Below 1 Ω

Standard Resistance (Check for Short):

Tester Connection	Switch Condition	Specified Condition
A23-7 (VC) or D2-9 (RVC) - Body	Power switch	10 kΩ or higher



ground and other terminals	off	
A23-17 (RA) or D2-3 (RA) - Body ground and other terminals	Power switch off	10 kΩ or higher
A23-8 (RB) or D2-5 (RB) - Body ground and other terminals	Power switch off	10 kΩ or higher
A23-19 (E2) or D2-8 (RE2) - Body ground and other terminals	Power switch off	10 kΩ or higher



Text in Illustration

*1	Front view of wire harness connector (to Transmission Control ECU Assembly)
*2	Front view of wire harness connector (to Shift Control Actuator Assembly)

(d) Connect the shift control actuator assembly connector.

(e) Connect the transmission control ECU assembly connector.

NG ► REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

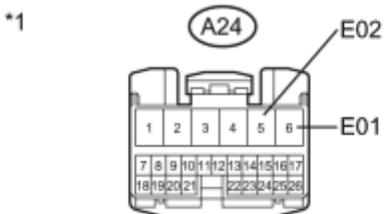


15.	CHECK HARNESS AND CONNECTOR (TRANSMISSION CONTROL ECU ASSEMBLY - BODY GROUND)
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(a) Disconnect the A24 transmission control ECU assembly connector.

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

Standard Resistance (Check for Open):



Tester Connection	Switch Condition	Specified Condition
A24-6 (E01) - Body ground	Power switch off	Below 1 Ω
A24-5 (E02) - Body ground	Power switch off	Below 1 Ω

Text in Illustration

*1	Front view of wire harness connector (to Transmission Control ECU Assembly)
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H

Result:

Result	Proceed to
Abnormal	A
Normal	B

(c) Connect the transmission control ECU assembly connector.

B [CHECK SHIFT CONTROL ACTUATOR ASSEMBLY](#)

A [REPAIR OR REPLACE HARNESS OR CONNECTOR](#)

16.	CHECK HARNESS AND CONNECTOR (TRANSMISSION CONTROL ECU ASSEMBLY - SHIFT CONTROL ACTUATOR)
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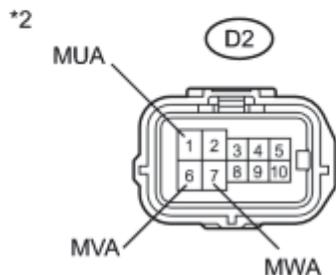
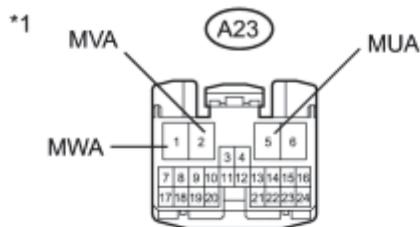
(a) Disconnect the A23 transmission control ECU assembly connector.

(b) Disconnect the D2 shift control actuator assembly connector.

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

Standard Resistance (Check for Open):

Tester Connection	Switch Condition	Specified Condition
A23-5 (MUA) - D2-1 (MUA)	Power switch off	Below 1 Ω
A23-2 (MVA) - D2-6 (MVA)	Power switch off	Below 1 Ω
A23-1 (MWA) - D2-7 (MWA)	Power switch off	Below 1 Ω



Standard Resistance (Check for Short):

Tester Connection	Switch Condition	Specified Condition
A23-5 (MUA) or D2-1 (MUA) - Body ground and other terminals	Power switch off	10 k Ω or higher
A23-2 (MVA) or D2-6 (MVA) - Body ground and other terminals	Power switch off	10 k Ω or higher
A23-1 (MWA) or D2-7 (MWA) - Body ground and other terminals	Power switch off	10 k Ω or higher

Text in Illustration

*1	Front view of wire harness connector (to Transmission Control ECU Assembly)
----	--

*2	Front view of wire harness connector (to Shift Control Actuator Assembly)
----	--

- (d) Connect the shift control actuator assembly connector.
- (e) Connect the transmission control ECU assembly connector.

NG ► REPAIR OR REPLACE HARNESS OR CONNECTOR

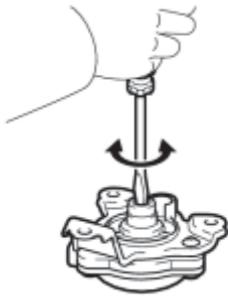
OK



17.	CHECK SHIFT CONTROL ACTUATOR ASSEMBLY
-----	---------------------------------------

- (a) Disconnect the shift control actuator assembly connector.
- (b) Remove the shift control actuator 3 bolts INFO.
- (c) Slightly pull the shift control actuator assembly from the hybrid vehicle transaxle.

(d) Using a screwdriver with its tip wrapped with protective tape or a piece of cloth, rotate the shaft.



P

OK:

The shift control actuator assembly turns smoothly.

- During this inspection, make sure to use a screwdriver with its tip wrapped with protective tape or a piece of cloth to prevent the splines of the actuator from being damaged.
- The shift control actuator cannot be disassembled.

NG ► REPLACE SHIFT CONTROL ACTUATOR ASSEMBLY

OK



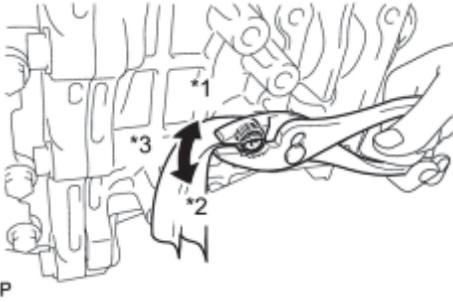
18.	CHECK HYBRID VEHICLE TRANSAXLE ASSEMBLY
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(a) Wrap the shaft with a piece of cloth and turn it using pliers.

OK:

The shaft rotates smoothly in the lock and unlock directions.

- Rotates the shaft using torque within 4 to 7 N*m (41 to 71 kgf*cm, 36 to 61 in.*lbf).



- During this inspection, ensure to use a piece of cloth to prevent the shaft splines from being damaged.

Text in Illustration

*1	Lock
*2	Unlock
*3	Rotate approximately 20°.

(b) Set the shaft in the lock position after the inspection.

NG ► REPLACE HYBRID VEHICLE TRANSAXLE ASSEMBLY

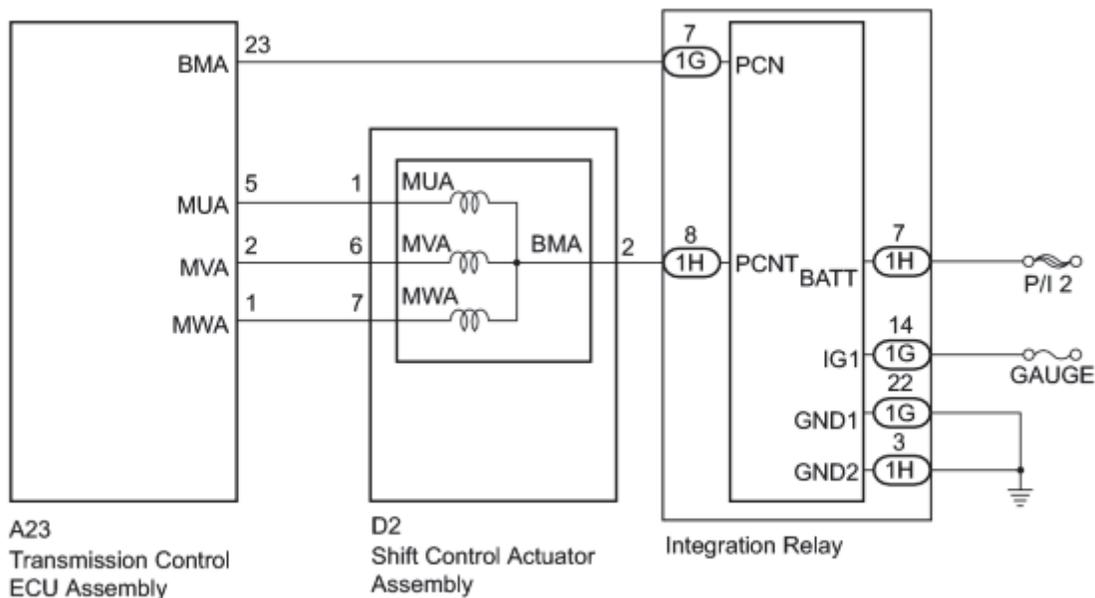
OK ► REPLACE TRANSMISSION CONTROL ECU ASSEMBLY

DESCRIPTION

The transmission control ECU receives a P position switch signal from the power management control ECU (HV CPU) and then activates the shift control actuator. At the same time, the transmission control ECU detects the length of time it takes for the parking lock mechanism to switch. The transmission control ECU outputs this DTC when this length of time is longer than specification.

DTC No.	DTC Detection Condition	Trouble Area
C2301	A shift control actuator assembly (parking lock motor) internal malfunction (parking lock motor spins freely) is detected for 2 seconds or more.	<ul style="list-style-type: none"> • Auxiliary battery • Shift control actuator assembly • Hybrid vehicle transaxle assembly • Transmission control ECU assembly

WIRING DIAGRAM



INSPECTION PROCEDURE

NOTICE:

It is not possible to clear the following DTCs using the Techstream: DTCs C2300 (Actuator System Malfunction), C2301 (Shift Changing Time Malfunction), C2303 (Short in Power Source Relay Circuit), C2304 (Open or Short Circuit in U Phase), C2305 (Open or Short Circuit in V Phase), C2306 (Open or Short Circuit in W Phase), C2307 (Power Supply) and C2309 (Open in B+ Circuit). After the repair, it is necessary to disconnect the P CON MAIN fuse and wait for at least 60 seconds to clear the DTCs.

PROCEDURE

1. CHECK FREEZE FRAME DATA

- (a) Connect the Techstream to the DLC3.
- (b) Turn the power switch on (IG).
- (c) Enter the following menus: Chassis / Transmission Control / Trouble Codes.
- (d) Read the freeze frame data of C2301.

Result

Result	Proceed to
IG (+B) voltage is 9 V or more	A
IG (+B) voltage is less than 9 V	B

- (e) Turn the power switch off.

REPLACE AUXILIARY BATTERY

A



2. CLEAR DTC

- (a) Turn the power switch on (IG).
- (b) Enter the following menus: Chassis / Transmission Control / Trouble Codes.
- (c) Read and record the DTCs and freeze frame data.
- (d) Turn the power switch off.
- (e) Disconnect the P CON MAIN fuse and wait for at least 60 seconds.
- (f) Check for DTCs again to see if the DTCs are cleared.

NEXT



3. CHARGE AUXILIARY BATTERY

(a) Charge the auxiliary battery.

NEXT



4. CHECK DTC OUTPUT (SIMULATION TEST)

(a) Connect the Techstream to the DLC3.

(b) Release the brake pedal and turn the power switch on (IG).

HINT:

Do not turn the power switch on (READY).

(c) Depress the brake pedal and move the selector lever to N.

(d) Enter the following menus: Chassis / Transmission Control / Trouble Codes.

(e) Check if DTCs are output.

Result

Result	Proceed to
C2301 is output	A
DTC is not output.	B

(f) Turn the power switch off.

B END (AUXILIARY BATTERY WAS INSUFFICIENTLY CHARGED)

A



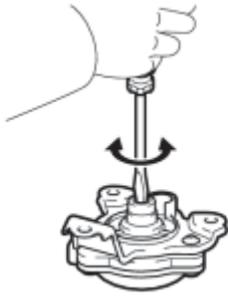
5. CHECK SHIFT CONTROL ACTUATOR ASSEMBLY

(a) Disconnect the shift control actuator assembly connector.

(b) Remove the shift control actuator 3 bolts .

(c) Slightly pull the shift control actuator assembly from the hybrid vehicle transaxle.

(d) Using a screwdriver with its tip wrapped with protective tape or a piece of cloth, rotate the shaft.



OK:

The shift control actuator assembly turns smoothly.

- During this inspection, make sure to use a screwdriver with its tip wrapped with protective tape or a piece of cloth to prevent the splines of the actuator from being damaged.
- The shift control actuator cannot be disassembled.

NG ▶ REPLACE SHIFT CONTROL ACTUATOR ASSEMBLY

OK



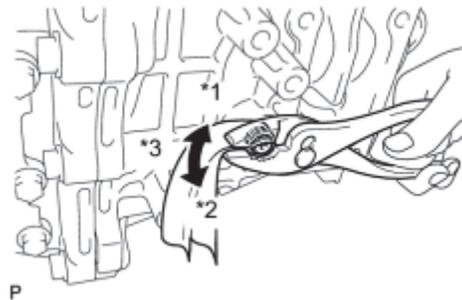
6. CHECK HYBRID VEHICLE TRANSAXLE ASSEMBLY

(a) Wrap the shaft with a piece of cloth and turn it using pliers.

OK:

The shaft rotates smoothly in the lock and unlock directions.

- Rotates the shaft using torque within 4 to 7 N*m (41 to 71 kgf*cm, 36 to 61 in.*lbf).
- During this inspection, ensure to use a piece of cloth to prevent the shaft splines from being damaged.



Text in Illustration

*1	Lock
*2	Unlock
*3	Rotate approximately 20°.

(b) Set the shaft in the lock position after the inspection.

NG ▶ REPLACE HYBRID VEHICLE TRANSAXLE ASSEMBLY

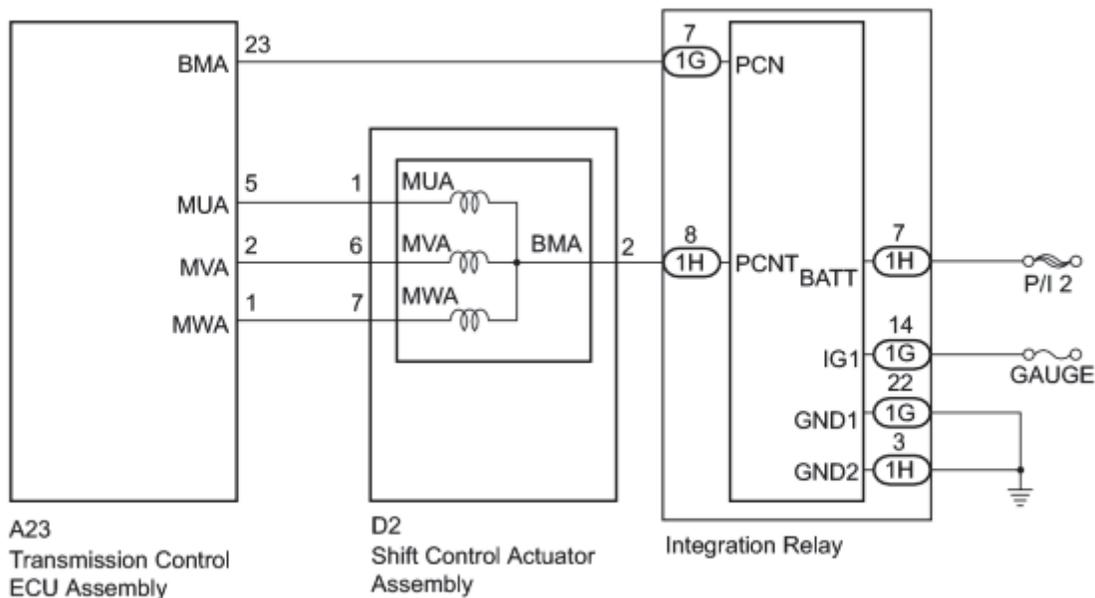
OK ▶ REPLACE TRANSMISSION CONTROL ECU ASSEMBLY

DESCRIPTION

The integration relay is activated by output voltage from the transmission control ECU and supplies power to the shift control actuator (parking lock motor). The transmission control ECU outputs this DTC when it detects a malfunction in the integration relay.

DTC No.	DTC Detection Condition	Trouble Area
C2303	When the integration relay is off, voltage of transmission control ECU terminal MUA, MVA and MWA are 6 V or more for 0.064 seconds or more.	<ul style="list-style-type: none"> Transmission control ECU assembly Integration relay Wire harness or connector

WIRING DIAGRAM



INSPECTION PROCEDURE

NOTICE:

It is not possible to clear the following DTCs using the Techstream: DTCs C2300 (Actuator System Malfunction), C2301 (Shift Changing Time Malfunction), C2303 (Short in Power Source Relay Circuit), C2304 (Open or Short Circuit in U Phase), C2305 (Open or Short Circuit in V Phase), C2306 (Open or Short Circuit in W Phase), C2307 (Power Supply) and C2309 (Open in B+ Circuit). After the repair, it is necessary to disconnect the P CON MAIN fuse and wait for at least 60 seconds to clear the DTCs.

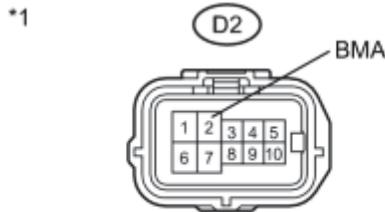
PROCEDURE

1.	CHECK SHIFT CONTROL ACTUATOR ASSEMBLY (SHIFT CONTROL ACTUATOR ASSEMBLY POWER SOURCE CIRCUIT)
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(a) Disconnect the D2 shift control actuator assembly connector.

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

Standard Voltage:



Tester Connection	Switch Condition	Specified Condition
D2-2 (BMA) - Body ground	Power switch off	Below 1 V

Text in Illustration

*1	Front view of wire harness connector (to Shift Control Actuator Assembly)
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(c) Connect the shift control actuator assembly connector.

(d) Turn the power switch off.

NG [CHECK HARNESS AND CONNECTOR \(TRANSMISSION CONTROL ECU ASSEMBLY - INTEGRATION RELAY\)](#)

OK

2.	CHECK HARNESS AND CONNECTOR (TRANSMISSION CONTROL ECU ASSEMBLY - SHIFT CONTROL ACTUATOR)
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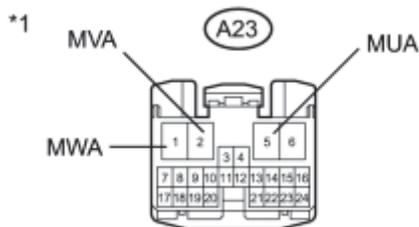
(a) Disconnect the A23 transmission control ECU assembly connector.

(b) Disconnect the D2 shift control actuator assembly connector.

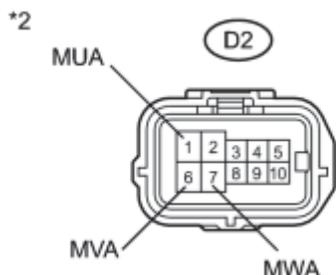
(c) Measure the resistance according to the value(s) in the table below.

Standard Resistance (Check for Short):

Tester Connection	Switch	Specified
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	Condition	Condition
A23-5 (MUA) or D2-1 (MUA) - Body ground and other terminals	Power switch off	10 kΩ or higher
A23-2 (MVA) or D2-6 (MVA) - Body ground and other terminals	Power switch off	10 kΩ or higher
A23-1 (MWA) or D2-7 (MWA) - Body ground and other terminals	Power switch off	10 kΩ or higher



Text in Illustration

*1	Front view of wire harness connector (to Transmission Control ECU Assembly)
*2	Front view of wire harness connector (to Shift Control Actuator Assembly)

(d) Connect the shift control actuator assembly connector.

(e) Connect the transmission control ECU assembly connector.

NG ► REPAIR OR REPLACE HARNESS OR CONNECTOR

OK ► REPLACE TRANSMISSION CONTROL ECU ASSEMBLY

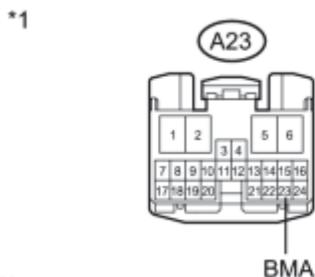
3.	CHECK HARNESS AND CONNECTOR (TRANSMISSION CONTROL ECU ASSEMBLY - INTEGRATION RELAY)
----	---

(a) Disconnect the A23 transmission control ECU assembly connector.

(b) Disconnect the 1G integration relay connector.

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

Standard Resistance (Check for Short):



Tester Connection	Switch Condition	Specified Condition
A23-23 (BMA) - Body ground and other terminals	Power switch off	10 kΩ or higher

Text in Illustration

*1	Front view of wire harness connector (to Transmission Control ECU Assembly)
----	--

- (d) Connect the integration relay connector.
- (e) Connect the transmission control ECU assembly connector.

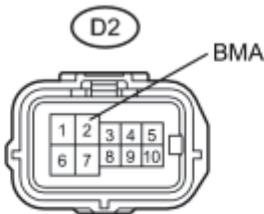
NG ► REPAIR OR REPLACE HARNESS OR CONNECTOR
 OK ▼

4.	CHECK HARNESS AND CONNECTOR (SHIFT CONTROL ACTUATOR ASSEMBLY - INTEGRATION RELAY)
-----------	--

- (a) Disconnect the D2 shift control actuator assembly connector.
- (b) Disconnect the 1H integration relay connector.
- (c) Measure the resistance according to the value(s) in the table below.

Standard Resistance (Check for Short):

*1



Tester Connection	Switch Condition	Specified Condition
D2-2 (BMA) - Body ground and other terminals	Power switch off	10 kΩ or higher

Text in Illustration

H

*1	Front view of wire harness connector (to Shift Control Actuator Assembly)
----	--

- (d) Connect the integration relay connector.
- (e) Connect the shift control actuator assembly connector.

NG ► REPAIR OR REPLACE HARNESS OR CONNECTOR
 OK ► REPLACE INTEGRATION NO.1 RELAY

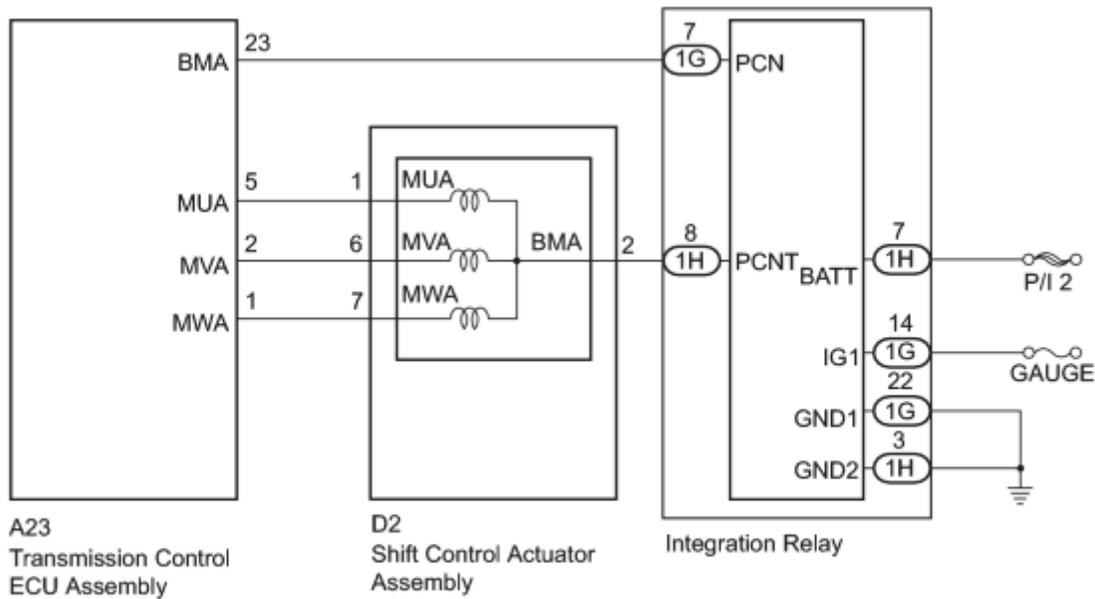
DTC	C2304	Open or Short Circuit in U Phase
DTC	C2305	Open or Short Circuit in V Phase
DTC	C2306	Open or Short Circuit in W Phase

DESCRIPTION

The shift control actuator consists of the parking lock motor and the rotation angle sensor. The transmission control ECU receives a P position switch signal from the power management control ECU (HV CPU) and activates the parking lock motor by controlling current, causing the parking lock mechanism to switch. The transmission control ECU outputs these DTCs when it detects a malfunction in the parking lock motor system.

DTC No.	DTC Detection Condition	Trouble Area
C2304	With the power switch on (IG) (battery voltage is 8 V or more), voltage of transmission control ECU terminal MUA is 6 V or less for 1 second or more.	<ul style="list-style-type: none"> • Auxiliary battery • Transmission control ECU assembly • Shift control actuator assembly • Integration relay • Wire harness or connector
C2305	With the power switch on (IG) (battery voltage is 8 V or more), voltage of transmission control ECU terminal MVA is 6 V or less for 1 second or more.	
C2306	With the power switch on (IG) (battery voltage is 8 V or more), voltage of transmission control ECU terminal MWA is 6 V or less for 1 second or more.	

WIRING DIAGRAM



INSPECTION PROCEDURE

NOTICE:

It is not possible to clear the following DTCs using the Techstream: DTCs C2300 (Actuator System Malfunction), C2301 (Shift Changing Time Malfunction), C2303 (Short in Power Source Relay Circuit), C2304 (Open or Short Circuit in U Phase), C2305 (Open or Short Circuit in V Phase), C2306 (Open or Short Circuit in W Phase), C2307 (Power Supply) and C2309 (Open in B+ Circuit). After the repair, it is necessary to disconnect the P CON MAIN fuse and wait for at least 60 seconds to clear the DTCs.

PROCEDURE

1. CHECK DTC OUTPUT (TRANSMISSION CONTROL)

- (a) Connect the Techstream to the DLC3.
- (b) Turn the power switch on (IG).
- (c) Enter the following menus: Chassis / Transmission Control / Trouble Codes.
- (d) Check if DTCs are output.

Result

Result	Proceed to
C2304, C2305 and C2306 are detected simultaneously	A
One of C2304, C2305 and C2306 is detected	B

HINT:

- If DTCs C2304, 2305 and 2306 are stored at the same time, there may be a malfunction in the parking lock motor (BMA signal) power source circuit.
- If DTC C2304, 2305 or 2306 is stored individually, there may be a malfunction in the parking lock motor (MUA, MVA or MWA signal) circuits.

(e) Turn the power switch off.

READ VALUE USING TECHSTREAM (U, V, W VOLTAGE)

A



2. CHECK FREEZE FRAME DATA

(a) Connect the Techstream to the DLC3.

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

(c) Enter the following menus: Chassis / Transmission Control / Trouble Codes.

(d) Read the freeze frame data of C2304, 2305 and 2306.

Result

Result	Proceed to
IG (+B) voltage is 9 V or more	A
IG (+B) voltage is less than 9 V	B

(e) Turn the power switch off.

REPLACE AUXILIARY BATTERY

A



3. CLEAR DTC

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

(b) Enter the following menus: Chassis / Transmission Control / Trouble Codes.

- (c) Read and record the DTCs and freeze frame data.
- (d) Turn the power switch off.
- (e) Disconnect the P CON MAIN fuse and wait for at least 60 seconds.
- (f) Check for DTCs again to see if the DTCs are cleared.

NEXT



4.	CHARGE AUXILIARY BATTERY
----	--------------------------

- (a) Charge the auxiliary battery.

NEXT



5.	CHECK DTC OUTPUT (SIMULATION TEST)
----	------------------------------------

- (a) Connect the Techstream to the DLC3.
- (b) Release the brake pedal and turn the power switch on (IG).

HINT:

Do not turn the power switch on (READY).

- (c) Depress the brake pedal and move the selector lever to N.
- (d) Enter the following menus: Chassis / Transmission Control / Trouble Codes.
- (e) Check if DTCs are output.

Result

Result	Proceed to
C2304, 2305 or 2306 is output	A
DTC is not output.	B

- (f) Turn the power switch off.

B END (AUXILIARY BATTERY WAS INSUFFICIENTLY CHARGED)

A

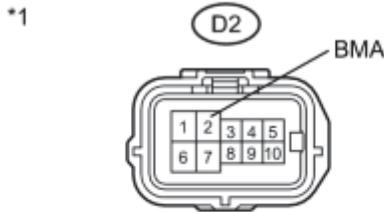


6. CHECK HARNESS AND CONNECTOR (SHIFT CONTROL ACTUATOR ASSEMBLY POWER SOURCE CIRCUIT)

- (a) Disconnect the D2 shift control actuator assembly connector.
- (b) Turn the power switch on (IG)

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

Standard Voltage:



Tester Connection	Switch Condition	Specified Condition
D2-2 (BMA) - Body ground	Power switch on (IG)	9 to 14 V

Text in Illustration

H	Front view of wire harness connector
*1	(to Shift Control Actuator Assembly)

- (d) Turn the power switch off.
- (e) Connect the shift control actuator assembly connector.

NG [CHECK HARNESS AND CONNECTOR \(INTEGRATION RELAY POWER SOURCE CIRCUIT\)](#)

OK

7. READ VALUE USING TECHSTREAM (U, V, W VOLTAGE)

- (a) Connect the Techstream to the DLC3.
- (b) Turn the power switch on (IG).
- (c) Enter the following menus: Chassis / Transmission Control / Data List / U Phase Voltage Value, V Phase Voltage Value, W Phase Voltage Value.
- (d) Read the Data List displayed on the Techstream.

Result:

Tester Display	Switch Condition	Specified Condition
U Phase Voltage Value	Power switch on (IG)	9 to 14 V
V Phase Voltage Value	Power switch on (IG)	9 to 14 V

Tester Display	Switch Condition	Specified Condition
W Phase Voltage Value	Power switch on (IG)	9 to 14 V

(e) Turn the power switch off.

NG [CHECK HARNESS AND CONNECTOR \(TRANSMISSION CONTROL ECU ASSEMBLY - SHIFT CONTROL ACTUATOR\)](#)

OK [REPLACE TRANSMISSION CONTROL ECU ASSEMBLY](#)

8.	CHECK HARNESS AND CONNECTOR (TRANSMISSION CONTROL ECU ASSEMBLY - SHIFT CONTROL ACTUATOR)
----	--

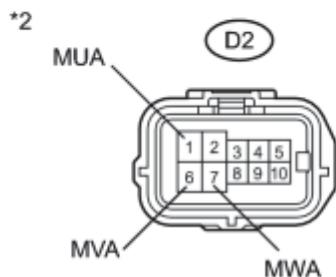
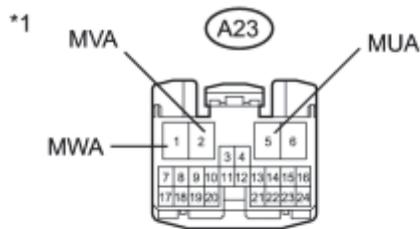
(a) Disconnect the A23 transmission control ECU assembly connector.

(b) Disconnect the D2 shift control actuator assembly connector.

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

Standard Resistance (Check for Open):

Tester Connection	Switch Condition	Specified Condition
A23-5 (MUA) - D2-1 (MUA)	Power switch off	Below 1 Ω
A23-2 (MVA) - D2-6 (MVA)	Power switch off	Below 1 Ω
A23-1 (MWA) - D2-7 (MWA)	Power switch off	Below 1 Ω



Standard Resistance (Check for Short):

Tester Connection	Switch Condition	Specified Condition
A23-5 (MUA) or D2-1 (MUA) - Body ground and other terminals	Power switch off	10 k Ω or higher
A23-2 (MVA) or D2-6 (MVA) - Body ground and other terminals	Power switch off	10 k Ω or higher
A23-1 (MWA) or D2-7 (MWA) - Body ground and other terminals	Power switch off	10 k Ω or higher

Text in Illustration

*1	Front view of wire harness connector (to Transmission Control ECU Assembly)
*2	Front view of wire harness connector (to Shift Control Actuator Assembly)

- (d) Connect the shift control actuator assembly connector.
- (e) Connect the transmission control ECU assembly connector.

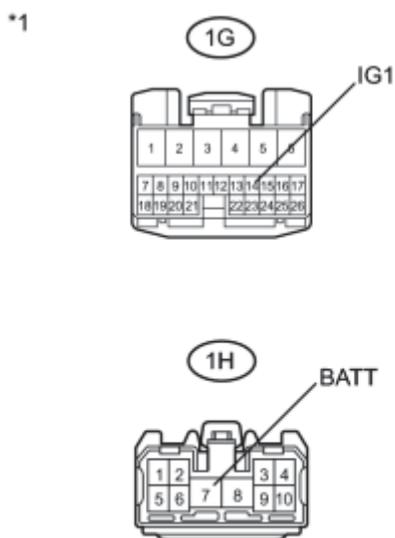
NG ► REPAIR OR REPLACE HARNESS OR CONNECTOR

OK ► REPLACE SHIFT CONTROL ACTUATOR ASSEMBLY

9. CHECK HARNESS AND CONNECTOR (INTEGRATION RELAY POWER SOURCE CIRCUIT)

- (a) Disconnect the 1G and 1H integration relay connectors.
- (b) Turn the power switch on (IG)

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



Standard Voltage:

Tester Connection	Switch Condition	Specified Condition
1H-7 (BATT) - Body ground	Always	9 to 14 V
1G-14 (IG1) - Body ground	Power switch on (IG)	9 to 14 V

Text in Illustration

*1	Front view of wire harness connector (to Integration Relay)
----	--

- (d) Turn the power switch off.
- (e) Connect the integration relay connectors.

NG ► CHECK AND REPAIR POWER SOURCE CIRCUIT

OK



10. CHECK HARNESS AND CONNECTOR (SHIFT CONTROL ACTUATOR ASSEMBLY - INTEGRATION RELAY)

- (a) Disconnect the D2 shift control actuator assembly connector.
- (b) Disconnect the 1H integration relay connector.

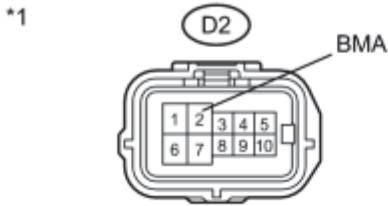
(c) Measure the resistance according to the value(s) in the table below.

Standard Resistance (Check for Open):

Tester Connection	Switch Condition	Specified Condition
D2-2 (BMA) - 1H-8 (PCNT)	Power switch off	Below 1 Ω

Standard Resistance (Check for Short):

Tester Connection	Switch Condition	Specified Condition
D2-2 (BMA) or 1H-8 (PCNT) - Body ground and other terminals	Power switch off	10 k Ω or higher



Text in Illustration

*1	Front view of wire harness connector (to Shift Control Actuator Assembly)
*2	Front view of wire harness connector (to Integration Relay)

(d) Connect the integration relay connector.

(e) Connect the shift control actuator assembly connector.

NG REPAIR OR REPLACE HARNESS OR CONNECTOR

OK



11. CHECK HARNESS AND CONNECTOR (TRANSMISSION CONTROL ECU ASSEMBLY - INTEGRATION RELAY)

(a) Disconnect the A23 transmission control ECU assembly connector.

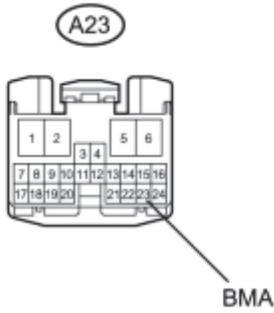
(b) Disconnect the 1G integration relay connector.

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

Standard Resistance (Check for Open):

Tester Connection	Switch Condition	Specified Condition
A23-23 (BMA) - 1G-7 (PCN)	Power switch off	Below 1 Ω

*1

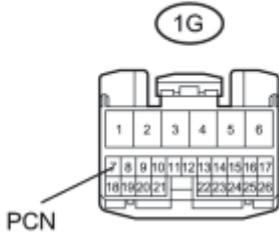


Standard Resistance (Check for Short):

Tester Connection	Switch Condition	Specified Condition
A23-23 (BMA) or 1G-7 (PCN) - Body ground and other terminals	Power switch off	10 k Ω or higher

Text in Illustration

*2



*1	Front view of wire harness connector (to Transmission Control ECU Assembly)
*2	Front view of wire harness connector (to Integration Relay)

(d) Connect the integration relay connector.

(e) Connect the transmission control ECU assembly connector.

NG REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

12. CHECK HARNESS AND CONNECTOR (INTEGRATION RELAY - BODY GROUND)

(a) Disconnect the 1G and 1H integration relay connectors.

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

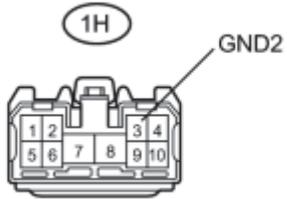
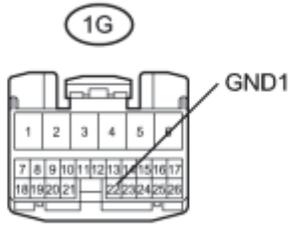
Standard Resistance (Check for Open):

Tester Connection	Switch Condition	Specified Condition
1G-22 (GND1) - Body ground	Power switch off	Below 1 Ω
1H-3 (GND2) - Body ground	Power switch off	Below 1 Ω

Text in Illustration

*1	Front view of wire harness connector (to Integration Relay)
----	--

*1



(c) Connect the integration relay connectors.

NG ► REPAIR OR REPLACE HARNESS OR CONNECTOR

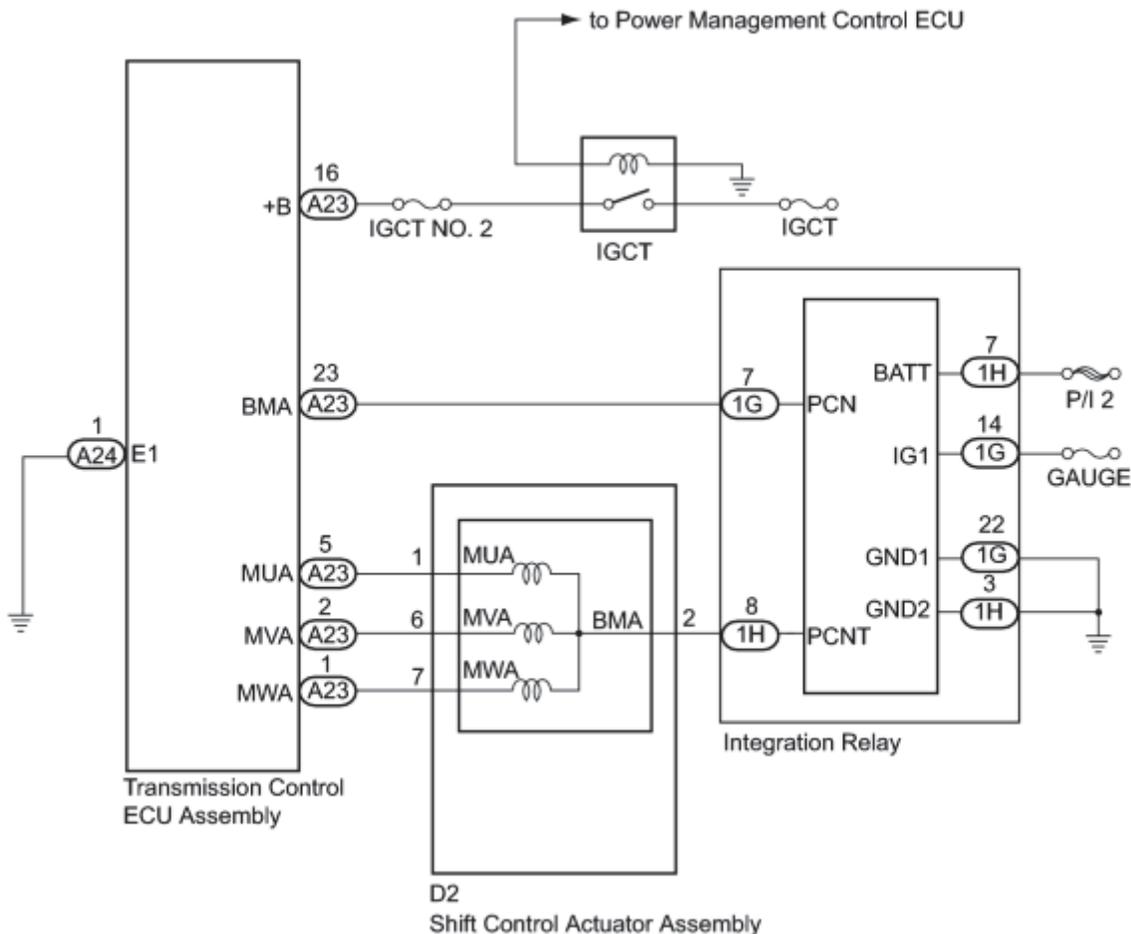
OK ► REPLACE INTEGRATION NO.1 RELAY

DESCRIPTION

The shift control actuator consists of the parking lock motor and the rotation angle sensor. The transmission control ECU receives a P position switch signal from the power management control ECU (HV CPU) and activates the parking lock motor by controlling current, causing the parking lock mechanism to switch. The transmission control ECU outputs this DTC when it detects a malfunction in the parking lock motor system and/or the ground circuit.

DTC No.	DTC Detection Condition	Trouble Area
C2307	With the power switch on (IG) (IG circuit malfunction is not detected), current of the parking lock motor is 50 A or more or open in the transmission control ECU terminal E1 circuit for 1 second or more.	<ul style="list-style-type: none"> • Transmission control ECU assembly • Wire harness or connector

WIRING DIAGRAM



INSPECTION PROCEDURE

NOTICE:

It is not possible to clear the following DTCs using the Techstream: DTCs C2300 (Actuator System Malfunction), C2301 (Shift Changing Time Malfunction), C2303 (Short in Power Source Relay Circuit), C2304 (Open or Short Circuit in U Phase), C2305 (Open or Short Circuit in V Phase), C2306 (Open or Short Circuit in W Phase), C2307 (Power Supply) and C2309 (Open in B+ Circuit). After the repair, it is necessary to disconnect the P CON MAIN fuse and wait for at least 60 seconds to clear the DTCs.

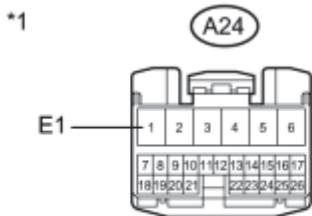
PROCEDURE

1.	CHECK HARNESS AND CONNECTOR (TRANSMISSION CONTROL ECU ASSEMBLY - BODY GROUND)
----	---

(a) Disconnect the A24 transmission control ECU assembly connector.

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

Standard Resistance (Check for Open):



Tester Connection	Switch Condition	Specified Condition
A24-1 (E1) - Body ground	Power switch off	Below 1 Ω

Text in Illustration

H

*1	Front view of wire harness connector (to Transmission Control ECU Assembly)
----	--

(c) Connect the transmission control ECU assembly connector.

NG ► REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

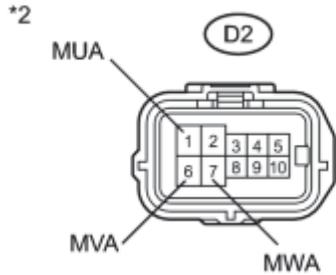
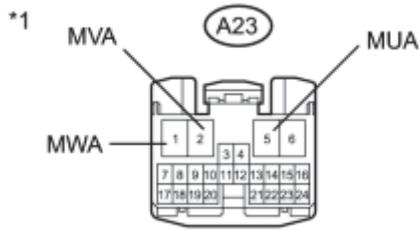
2.	CHECK HARNESS AND CONNECTOR (TRANSMISSION CONTROL ECU ASSEMBLY - SHIFT CONTROL ACTUATOR)
----	--

(a) Disconnect the A23 transmission control ECU assembly connector.

(b) Disconnect the D2 shift control actuator assembly connector.

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

Standard Resistance (Check for Short):



Tester Connection	Switch Condition	Specified Condition
A23-5 (MUA) or D2-1 (MUA) - Body ground and other terminals	Power switch off	10 kΩ or higher
A23-2 (MVA) or D2-6 (MVA) - Body ground and other terminals	Power switch off	10 kΩ or higher
A23-1 (MWA) or D2-7 (MWA) - Body ground and other terminals	Power switch off	10 kΩ or higher

Text in Illustration

*1	Front view of wire harness connector (to Transmission Control ECU Assembly)
*2	Front view of wire harness connector (to Shift Control Actuator Assembly)

(d) Connect the shift control actuator assembly connector.

(e) Connect the transmission control ECU assembly connector.

NG ► REPAIR OR REPLACE HARNESS OR CONNECTOR

OK ► REPLACE TRANSMISSION CONTROL ECU ASSEMBLY

DTC	C2308	EEPROM Malfunction
-----	-------	--------------------

DESCRIPTION

The transmission control ECU assembly monitors its internal operation and it will set this DTC when it detects an EEPROM malfunction. If this DTC is output, replace the transmission control ECU assembly.

DTC No.	DTC Detection Condition	Trouble Area
C2308	EEPROM malfunction	Transmission control ECU assembly

INSPECTION PROCEDURE

PROCEDURE

1.	REPLACE TRANSMISSION CONTROL ECU ASSEMBLY
----	---

(a) Replace the transmission control ECU assembly .

NEXT  END

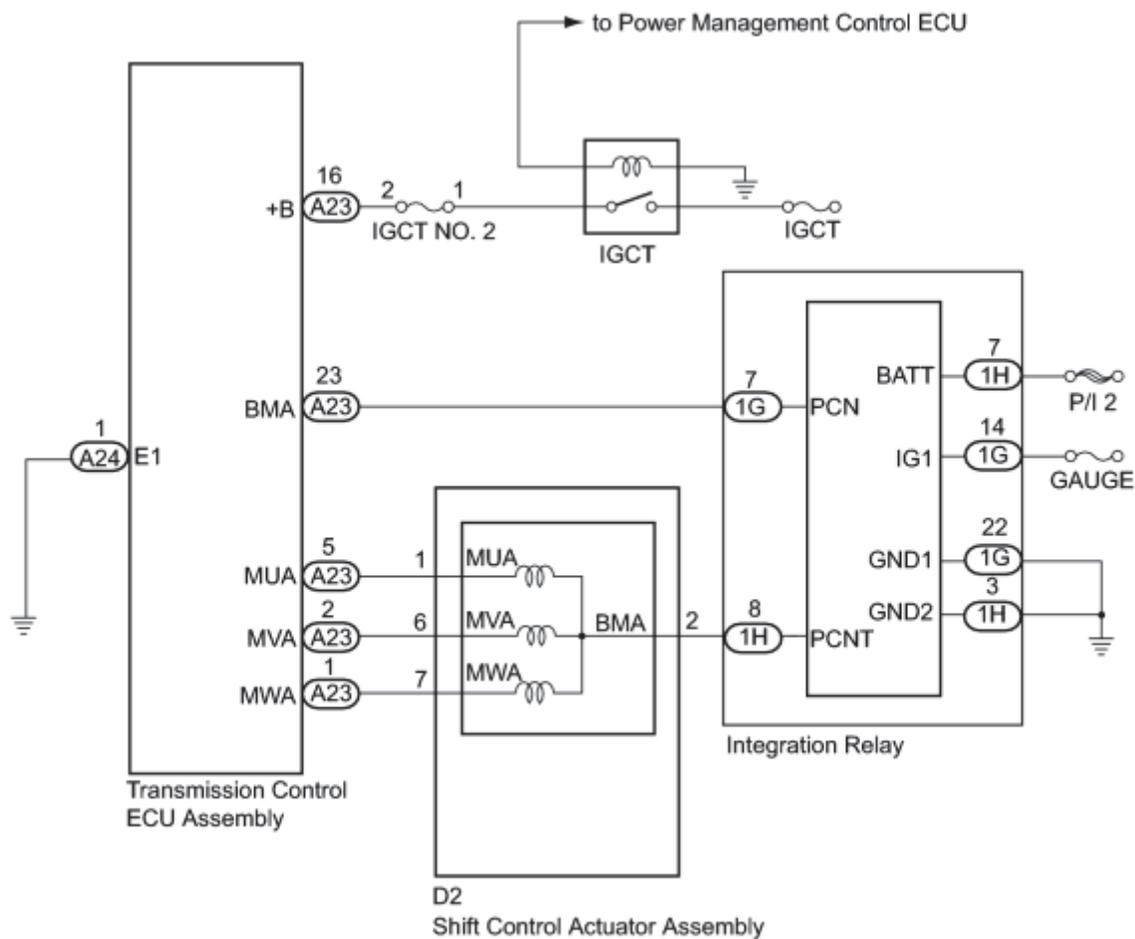
DTC	C2309	Open in B+ Circuit
-----	-------	--------------------

DESCRIPTION

Battery voltage will be applied to the +B terminal when the power switch is turned on (IG). When a +B terminal voltage malfunction is detected, the transmission control ECU outputs this DTC.

DTC No.	DTC Detection Condition	Trouble Area
C2309	With the power switch on (IG), voltage of transmission control ECU terminal +B is 3 V or less for 1 second or more.	<ul style="list-style-type: none"> Transmission control ECU assembly Auxiliary battery Wire harness or connector

WIRING DIAGRAM



INSPECTION PROCEDURE

NOTICE:

It is not possible to clear the following DTCs using the Techstream: DTCs C2300 (Actuator System Malfunction), C2301 (Shift Changing Time Malfunction), C2303 (Short in Power Source Relay Circuit), C2304 (Open or Short Circuit in U Phase), C2305 (Open or Short Circuit in V Phase), C2306 (Open or Short Circuit in W Phase), C2307 (Power Supply) and C2309 (Open in B+ Circuit). After the repair, it is necessary to disconnect the P CON MAIN fuse and wait for at least 60 seconds to clear the DTCs.

PROCEDURE

1.	READ VALUE USING TECHSTREAM (IG(+B) VOLTAGE VALUE)
----	--

- (a) Connect the Techstream to the DLC3.
- (b) Turn the power switch on (IG).
- (c) Enter the following menus: Chassis / Transmission Control / Data List / IG(+B) Voltage Value.
- (d) Read the Data List displayed on the Techstream.

Result:

Result	Proceed to
3 V or less	A
Other than above	B

- (e) Turn the power switch off.

REPLACE TRANSMISSION CONTROL ECU ASSEMBLY

A


2.	READ VALUE USING TECHSTREAM (BATTERY VOLTAGE VALUE)
----	---

- (a) Connect the Techstream to the DLC3.
- (b) Turn the power switch on (IG).
- (c) Enter the following menus: Chassis / Transmission Control / Data List / Battery Voltage Value.
- (d) Read the Data List displayed on the Techstream.

Result:

Result	Proceed to
9 V or less	A
Other than above	B

(e) Turn the power switch off.

B▶ CHARGE OR REPLACE AUXILIARY BATTERY

A
▼

3.	CHECK HARNESS AND CONNECTOR (TRANSMISSION CONTROL ECU ASSEMBLY - IGCT NO. 2 FUSE)
----	---

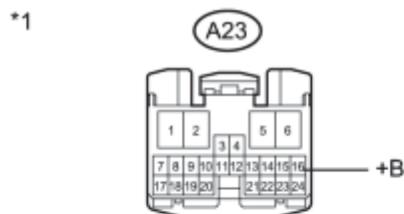
(a) Disconnect the A23 transmission control ECU assembly connector.

(b) Remove the IGCT No. 2 fuse from the engine room junction block assembly.

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

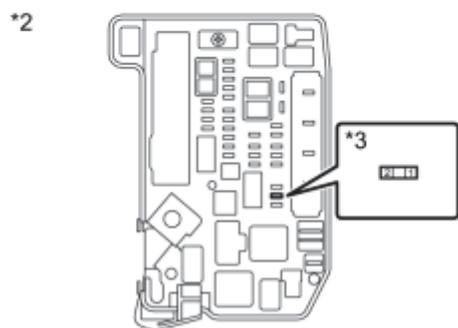
Standard resistance (Check for Open):

Tester Connection	Switch Condition	Specified Condition
A23-16 (+B) - 2 (IGCT No. 2 fuse)	Power switch off	Below 1 Ω



Standard resistance (Check for Short):

Tester Connection	Switch Condition	Specified Condition
A23-16 (+B) - Body ground and other terminals	Power switch off	10 kΩ or higher



Text in Illustration

*1	Front view of wire harness connector (to Transmission Control ECU Assembly)
*2	Engine Room Junction Block Assembly
*3	IGCT No. 2 fuse

NOTICE:

Be careful not to break the fuse holder by forcing the tester probes into it during this inspection.

(d) Install the IGCT No. 2 fuse.

(e) Connect the transmission control ECU assembly connector.

NG▶ REPAIR OR REPLACE HARNESS OR CONNECTOR

OK  CHECK AND REPAIR POWER SOURCE CIRCUIT

DESCRIPTION

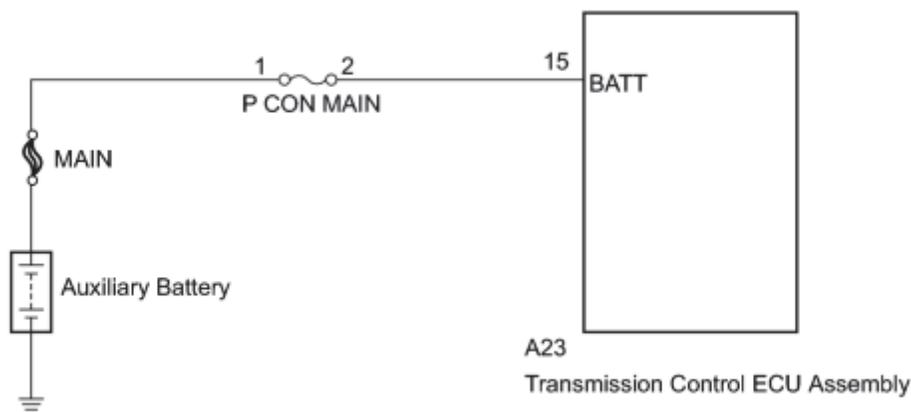
The battery voltage is constantly applied to terminal BATT. The terminal BATT voltage is used to power the transmission control ECU memory. The transmission control ECU outputs this DTC when it detects a malfunction related to terminal BATT.

HINT:

When there is an open or short in the BATT circuit, information on the actuator position ("P position" or "non-P position") stored in the transmission control ECU is cleared every time the power switch is turned off. Therefore, the ECU works to recognize the position each time the power switch is turned on (IG). As a result, the time from when the power switch is turned on (IG) until "READY ON" is indicated may become longer than normal.

DTC No.	DTC Detection Condition	Trouble Area
C2310	With the power switch on (IG) (IG circuit malfunction is not detected), voltage of transmission control ECU terminal BATT is 8 V or less for 1 second or more.	<ul style="list-style-type: none"> • P CON MAIN fuse • Transmission control ECU assembly • Wire harness or connector

WIRING DIAGRAM



H

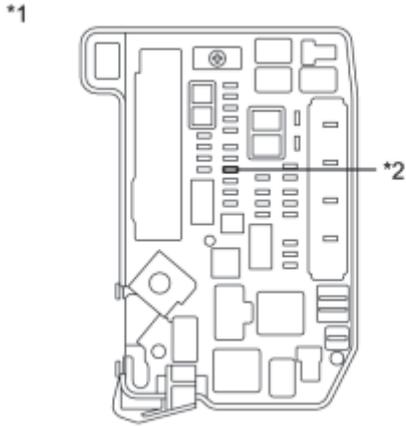
INSPECTION PROCEDURE

PROCEDURE

1. INSPECT FUSE (P CON MAIN)

(a) Remove the P CON MAIN fuse from the engine room junction block assembly.

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



Standard Resistance:

Tester Connection	Switch Condition	Specified Condition
P CON MAIN fuse	Always	Below 1 Ω

Text in Illustration

*1	Engine Room Junction Block Assembly
*2	P CON MAIN fuse

(c) Install the P CON MAIN fuse.

NG REPLACE FUSE (P CON MAIN)

OK

2. READ VALUE USING TECHSTREAM (BATT VOLTAGE VALUE)

(a) Connect the Techstream to the DLC3.

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

(c) Enter the following menus: Chassis / Transmission Control / Data List / Battery Voltage Value.

(d) Read the Data List displayed on the Techstream.

Result:

Tester Display	Condition	Specified Condition
Battery Voltage Value	Always	9 to 14 V

(e) Turn the power switch off.

NG [CHECK HARNESS AND CONNECTOR \(TRANSMISSION CONTROL ECU ASSEMBLY - P CON MAIN FUSE\)](#)

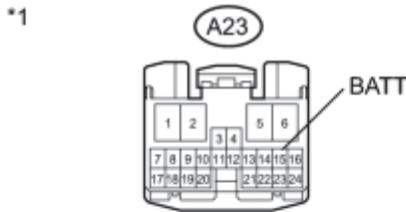
OK ▶ REPLACE TRANSMISSION CONTROL ECU ASSEMBLY

3.	CHECK HARNESS AND CONNECTOR (TRANSMISSION CONTROL ECU ASSEMBLY - P CON MAIN FUSE)
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- (a) Disconnect the A23 transmission control ECU assembly connector.
- (b) Disconnect the P CON MAIN fuse from the engine room junction block assembly.
- (c) Measure the resistance according to the value(s) in the table below.

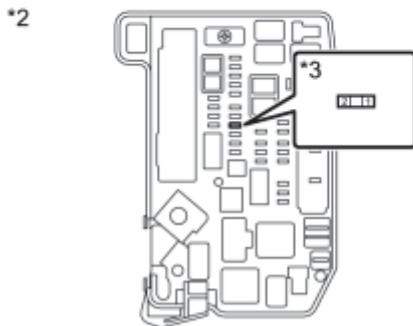
Standard Resistance (Check for Open):

Tester Connection	Switch Condition	Specified Condition
A23-15 (BATT) - 2 (P CON MAIN fuse)	Power switch off	Below 1 Ω



Standard Resistance (Check for Short):

Tester Connection	Switch Condition	Specified Condition
A23-15 (BATT) or 2 (P CON MAIN fuse) - Body ground and other terminals	Power switch off	10 kΩ or higher



Text in Illustration

*1	Front view of wire harness connector (to Transmission Control ECU Assembly)
*2	Engine Room Junction Block Assembly
*3	P CON MAIN fuse

NOTICE:

Be careful not to break the fuse holder by forcing the tester probes into it during this inspection.

- (d) Install the P CON MAIN fuse.
- (e) Connect the transmission control ECU assembly connector.

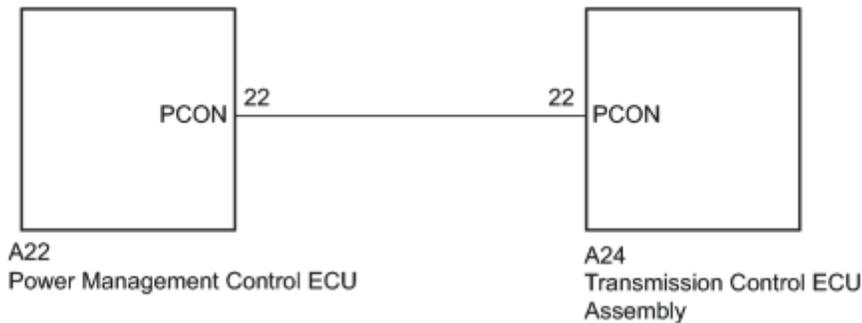
NG ▶ REPAIR OR REPLACE HARNESS OR CONNECTOR
OK ▶ CHECK AND REPAIR POWER SOURCE CIRCUIT

DESCRIPTION

The transmission control ECU receives a P position switch signal from the power management control ECU (HV CPU) and activates the parking lock motor by controlling current, causing the parking lock mechanism to switch. The transmission control ECU outputs this DTC when it detects a communication error between the power management control ECU (HV CPU) and the transmission control ECU.

DTC No.	DTC Detection Condition	Trouble Area
C2311	With the power switch on (IG) (IG circuit malfunction is not detected), a signal cannot be received from the power management control ECU (open or short in the PCON terminal circuit) or a pulse signal malfunction is received from the power management control ECU for 2 second or more.	<ul style="list-style-type: none"> • Transmission control ECU assembly • Power management control ECU • Wire harness or connector

WIRING DIAGRAM



INSPECTION PROCEDURE

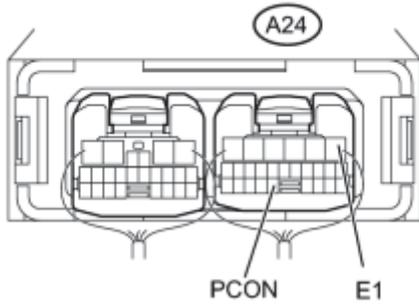
PROCEDURE

1. CHECK TRANSMISSION CONTROL ECU ASSEMBLY

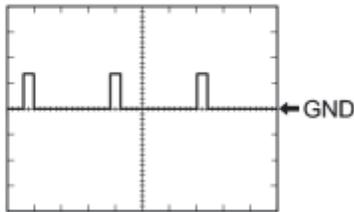
(a) Turn the power switch on (IG).

(b) Connect an oscilloscope between the transmission control ECU assembly terminals specified in the table below, and measure the

*1



*2



waveform.

Item	Contents
Symbols	PCON - E1
Tool setting	5 V/DIV., 20 msec./DIV.
Vehicle condition	Power switch on (IG)

OK:

The waveform appears as shown in the illustration.

Text in Illustration

*1	Component with harness connected (Transmission Control ECU Assembly)
*2	Waveform

HINT:

Perform this inspection with the connector connected.

(c) Turn the power switch off.

NG [CHECK HARNESS AND CONNECTOR \(TRANSMISSION CONTROL ECU - POWER MANAGEMENT CONTROL ECU\)](#)

OK [REPLACE TRANSMISSION CONTROL ECU ASSEMBLY](#)

2.	CHECK HARNESS AND CONNECTOR (TRANSMISSION CONTROL ECU - POWER MANAGEMENT CONTROL ECU)
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(a) Disconnect the A24 transmission control ECU assembly connector.

(b) Disconnect the A22 power management control ECU connector.

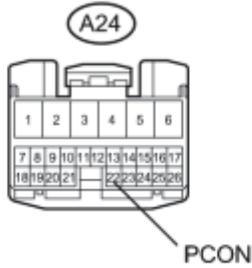
(c) Measure the resistance according to the value(s) in the table below.

Standard Resistance (Check for Open):

Tester Connection	Switch Condition	Specified Condition
A24-22 (PCON) - A22-22 (PCON)	Power switch off	Below 1 Ω

Standard Resistance (Check for Short):

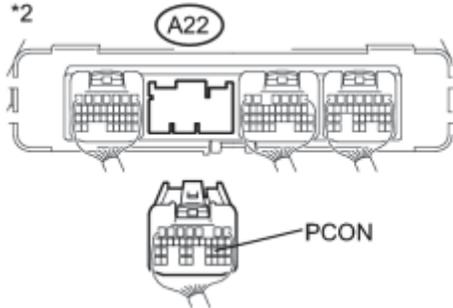
*1



Tester Connection	Switch Condition	Specified Condition
A24-22 (PCON) or A22-22 (PCON) - Body ground and other terminals	Power switch off	10 kΩ or higher

Text in Illustration

*2



*1	Front view of wire harness connector (to Transmission Control ECU Assembly)
*2	Rear view of wire harness connector (to Power Management Control ECU)

(d) Connect the power management control ECU connector.

(e) Connect the transmission control ECU assembly connector.

NG ► REPAIR OR REPLACE HARNESS OR CONNECTOR

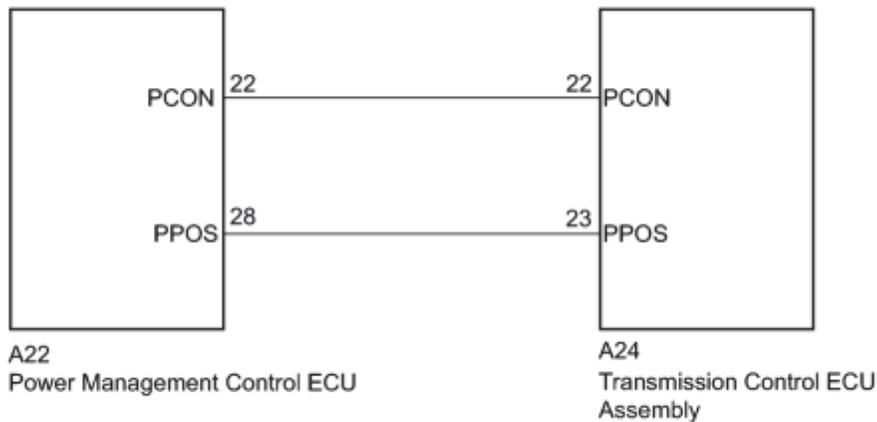
OK ► REPLACE POWER MANAGEMENT CONTROL ECU

DESCRIPTION

The transmission control ECU receives a P position switch signal from the power management control ECU (HV CPU) and activates the parking lock motor by controlling current, causing the parking lock mechanism to switch. When the power management control ECU (HV CPU) detects a malfunction with the P position switch or P position signal, it sends an information signal to the transmission control ECU. After receiving this signal, the transmission control ECU outputs this DTC.

DTC No.	DTC Detection Condition	Trouble Area
C2315	With the power switch on (IG) (IG circuit malfunction is not detected), a malfunction signal is received from the power management control ECU for 2 second or more.	Power management control ECU

WIRING DIAGRAM



INSPECTION PROCEDURE

PROCEDURE

- CHECK DTC OUTPUT (HV)

(a) Connect the Techstream to the DLC3.

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

(c) Enter the following menus: Powertrain / Hybrid Control / Trouble Codes.

(d) Check if DTCs are output.

Result

Result	Proceed to
Any of the following DTCs are not output.	A
Any of the following DTCs are output.	B

DTC No.	Relevant Diagnosis
P0851-579	Park/Neutral Switch Input Circuit Low
P0852-580	Park/Neutral Switch Input Circuit High
P085D-599	Gear Shift Control Module "A" Performance
P0861-597	Gear Shift Control Module "A" Communication Circuit Low
P0862-598	Gear Shift Control Module "A" Communication Circuit High
U1107-436	Lost Communication with Power Management Module

(e) Turn the power switch off.

B ▶ GO TO DTC CHART

A ▶ REPLACE POWER MANAGEMENT CONTROL ECU

DTC	U0146	Lost Communication with Body ECU
-----	-------	----------------------------------

DESCRIPTION

The transmission control ECU receives signals from the main body ECU via CAN communication. When a lost CAN communication malfunction is detected, the transmission control ECU stores this DTC.

DTC No.	DTC Detection Condition	Trouble Area
U0146	With the power switch on (IG), a signal cannot be received from the main body ECU for 10 seconds or more.	CAN communication system

INSPECTION PROCEDURE

PROCEDURE

1.	GO TO CAN COMMUNICATION SYSTEM
----	--------------------------------

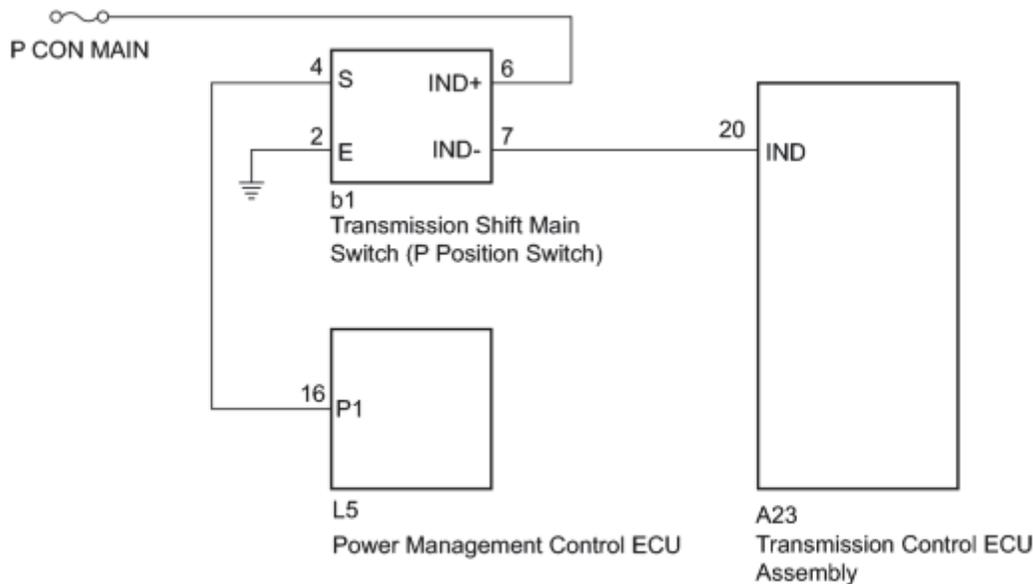
(a) Troubleshoot the CAN communication system .

NEXT  END

DESCRIPTION

The indicator light comes on when the P position switch is pressed (the P position is engaged), goes off when the switch is released (the P position is disengaged) and blinks when a system malfunction occurs.

WIRING DIAGRAM



H

INSPECTION PROCEDURE

PROCEDURE

1. CHECK TRANSMISSION SHIFT MAIN SWITCH (INDICATOR LIGHT)

- (a) Turn the power switch on (IG).
- (b) Depress the brake pedal and move the selector lever to N.
- (c) Inspect the indicator light condition by operating the transmission shift main switch (P position switch).

Result

Condition of Indicator Light	Proceed to
Indicator light does not go off. (Remains on)	A
Indicator light does not come on.	B

(d) Turn the power switch off.

B ▶ CHECK HARNESS AND CONNECTOR (TRANSMISSION SHIFT MAIN SWITCH POWER SOURCE CIRCUIT)

A



2.	CHECK TRANSMISSION SHIFT MAIN SWITCH (INDICATOR LIGHT)
----	--

(a) Disconnect the A23 transmission control ECU assembly.

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

(c) Inspect the indicator light condition by operating the transmission shift main switch (P position switch).

Result

Condition of Indicator Light	Proceed to
Comes on	A
Does not come on	B

NOTICE:

Turning the power switch on (IG) with the transmission control ECU assembly connector disconnected causes other DTCs to be stored. Clear the DTCs after performing this inspection.

(d) Turn the power switch off.

(e) Connect the transmission control ECU assembly connector.

B ▶ REPLACE TRANSMISSION CONTROL ECU ASSEMBLY

A



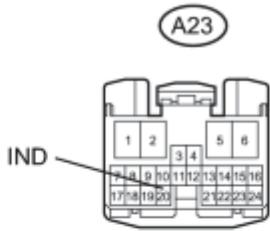
3.	CHECK HARNESS AND CONNECTOR (TRANSMISSION CONTROL ECU - TRANSMISSION SHIFT MAIN SWITCH)
----	---

(a) Disconnect the A23 transmission control ECU assembly connector.

(b) Disconnect the b1 transmission shift main switch (P position switch) connector.

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

*1

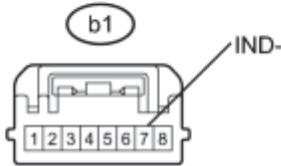


Standard Resistance (Check for Short):

Tester Connection	Switch Condition	Specified Condition
A23-20 (IND) or b1-7 (IND-) - Body ground and other terminals	Power switch off	10 kΩ or higher

Text in Illustration

*2



*1	Front view of wire harness connector (to Transmission Control ECU Assembly)
*2	Front view of wire harness connector (to Transmission Shift Main Switch (P Position Switch))

(d) Connect the transmission shift main switch (P position switch) connector.

(e) Connect the transmission control ECU assembly connector.

NG ► REPAIR OR REPLACE HARNESS OR CONNECTOR

OK ► REPLACE TRANSMISSION SHIFT MAIN SWITCH

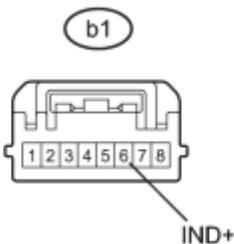
4.	CHECK HARNESS AND CONNECTOR (TRANSMISSION SHIFT MAIN SWITCH POWER SOURCE CIRCUIT)
----	---

(a) Disconnect the b1 transmission shift main switch (P position switch) connector.

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

Standard Voltage:

*1



Tester Connection	Switch Condition	Specified Condition
b1-6 (IND+) - Body ground	Power switch off	9 to 14 V

Text in Illustration

H

*1	Front view of wire harness connector (to Transmission Shift Main Switch (P Position Switch))
----	---

(c) Connect the transmission shift main switch (P position switch) connector.

NG ▶ CHECK AND REPAIR POWER SOURCE CIRCUIT

OK

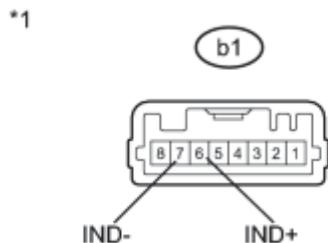


5. INSPECT TRANSMISSION SHIFT MAIN SWITCH

(a) Disconnect the b1 transmission shift main switch (P position switch) connector.

(b) Apply auxiliary battery voltage between terminals b1-6 (IND+) and b1-7 (IND-) and check the indicator light.

Result:



H

Condition	Specified Condition
Auxiliary battery voltage applied between terminals b1-6 (IND+) and b1-7 (IND-)	Comes on

Text in Illustration

*1	Component without harness connected (Transmission Shift Main Switch (P Position Switch))
----	---

(c) Connect the transmission shift main switch (P position switch) connector.

NG ▶ REPLACE TRANSMISSION SHIFT MAIN SWITCH

OK



6. CHECK HARNESS AND CONNECTOR (TRANSMISSION CONTROL ECU - TRANSMISSION SHIFT MAIN SWITCH)

(a) Disconnect the A23 transmission control ECU assembly connector.

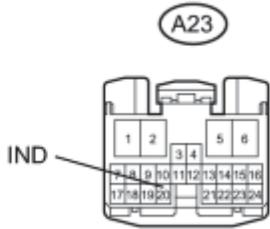
(b) Disconnect the b1 transmission shift main switch (P position switch) connector.

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

Standard Resistance (Check for Open):

Tester Connection	Switch Condition	Specified Condition
A23-20 (IND) - b1-7 (IND-)	Power switch off	Below 1 Ω

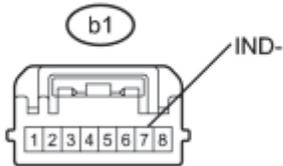
*1



Text in Illustration

*1	Front view of wire harness connector (to Transmission Control ECU Assembly)
*2	Front view of wire harness connector (to Transmission Shift Main Switch (P Position Switch))

*2



(d) Connect the transmission shift main switch (P position switch) connector.

(e) Connect the transmission control ECU assembly connector.

NG ► REPAIR OR REPLACE HARNESS OR CONNECTOR

OK ► REPLACE TRANSMISSION CONTROL ECU ASSEMBLY