Last Modified: 12-04-2024	6.11:8.1.0	**Doc ID:** RM1000000028X4D
Model Year Start: 2023	**Model:** Prius Prime	**Prod Date Range:** [12/2022 -]
Title: BRAKE CONTROL / DYNAMIC CONTROL SYSTEMS: ELECTRONICALLY CONTROLLED BRAKE SYSTEM: C14D71C; Multi-axis Acceleration Sensor Module "A" Supply Voltage Circuit Voltage Out of Range; 2023 - 2024 MY Prius Prius Prime [12/2022 -]		

DTC	**C14D71C**	**Multi-axis Acceleration Sensor Module "A" Supply Voltage Circuit Voltage Out of Range**

DESCRIPTION

The airbag ECU assembly has a built-in yaw rate and acceleration sensor.

This DTC is stored when the No. 2 skid control ECU (brake actuator assembly) receives a sensor supply voltage malfunction signal from the yaw rate and acceleration sensor (airbag ECU assembly).

This DTC may be stored due to an intermittent low power source voltage.

DTC NO.	DETECTION ITEM	DTC DETECTION CONDITION	TROUBLE AREA	MIL	DTC OUTPUT FROM	PRIORITY	NOTE
C14D71C	Multi-axis Acceleration Sensor Module "A" Supply Voltage Circuit Voltage Out of Range	When the +BS terminal voltage is from 9.5 to 17.4 V at a vehicle speed exceeding 3 km/h (2 mph), an acceleration sensor power source malfunction signal is received for 10 seconds or more.	• Wire harness and connector • Acceleration sensor (airbag ECU assembly)	Comes on	Brake/EPB	A	• SAE Code: C14D7 • Output ECU: No. 2 skid control ECU (brake actuator assembly)

MONITOR DESCRIPTION

The No. 2 skid control ECU (brake actuator assembly) receives valid or invalid information from the yaw rate and acceleration sensor (airbag ECU assembly) power supply voltage via CAN communication. When the vehicle is being driven and an invalid yaw rate and acceleration sensor (airbag ECU assembly) power supply voltage is received via CAN communication for a certain amount of time, the No. 2 skid control ECU (brake actuator assembly) judges that the power supply voltage of the yaw rate and acceleration sensor (airbag ECU assembly) is abnormal and illuminates the MIL and stores this DTC.

MONITOR STRATEGY

Related DTCs	C14D7: Acceleration sensor voltage circuit open
Required Sensors/Components(Main)	Yaw rate and acceleration sensor (airbag ECU assembly)
Required Sensors/Components(Related)	Speed sensor
Frequency of Operation	Continuous
Duration	10 seconds
MIL Operation	Immediately
Sequence of Operation	None

TYPICAL ENABLING CONDITIONS

Monitor runs whenever the following DTCs are not stored	C137D: Brake system voltage circuit high U0125: Lost communication with multi-axis acceleration sensor module
All of the following conditions are met	A, B, C, D, E, F and G
A. Communication status with yaw rate and acceleration sensor (airbag ECU assembly)	Valid
B. Following condition is met	More than 0.012 seconds
IGR voltage	3.5 V or more
C. Following condition is met	More than 0.22 seconds
+BS voltage	17.4 V or less
D. Following condition is met	More than 0.22 seconds
+BS voltage	9.5 V or higher
E. Vehicle speed	More than 3 km/h (1.86 mph)
F. IGR voltage	Higher than 10 V
G. IGP voltage	Higher than 10 V

TYPICAL MALFUNCTION THRESHOLDS

YGS1 (CAN Data)	On

COMPONENT OPERATING RANGE

Communication status with yaw rate and acceleration sensor (airbag ECU assembly)	Valid
YGS1 (CAN Data)	Off

CONFIRMATION DRIVING PATTERN

NOTICE:

When performing the normal judgment procedure, make sure that the driver door is closed and is not opened at any time during the procedure.

HINT:

- After repair has been completed, clear the DTC and then check that the vehicle has returned to normal by performing the following All Readiness check procedure.
- When clearing the permanent DTCs, refer to the "CLEAR PERMANENT DTC" procedure.

1. Connect the GTS to the DLC3.
2. Turn the ignition switch to ON and turn the GTS on.
3. Clear the DTCs (even if no DTCs are stored, perform the clear DTC procedure).
4. Turn the ignition switch off.
5. Turn the ignition switch to ON (READY) and turn the GTS on.
6. Drive the vehicle at a speed of 5 km/h (3 mph) or more for 10 seconds or more. [*]

HINT:

[*]: Normal judgment procedure.

The normal judgment procedure is used to complete DTC judgment and also used when clearing permanent DTCs.

7. Enter the following menus: Chassis / Brake/EPB* / Utility / All Readiness.

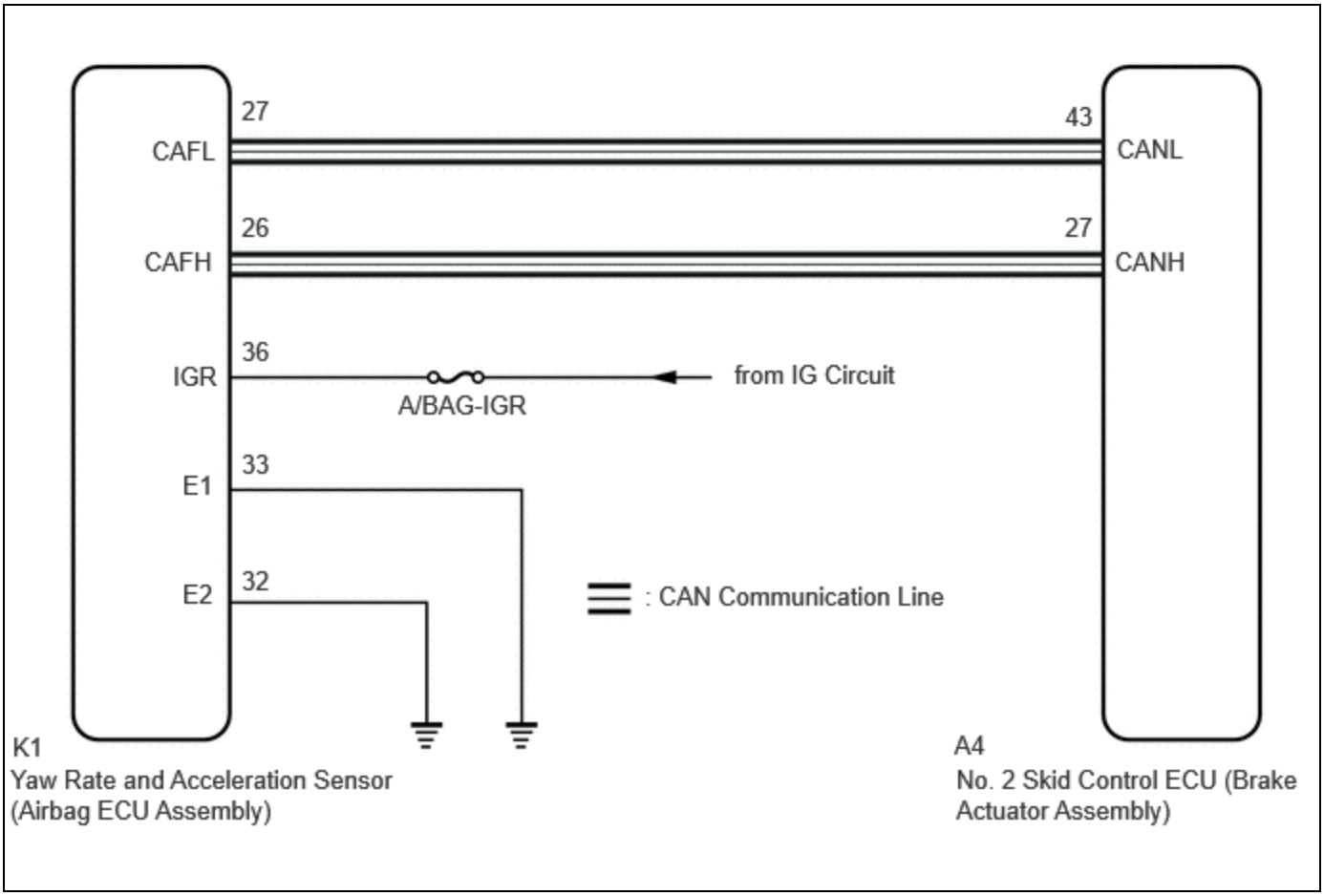
*: Electric Parking Brake System

8. Check the DTC judgment result.

HINT:

- If the judgment result shows NORMAL, the system is normal.
- If the judgment result shows ABNORMAL, the system has a malfunction.
- If the judgment result shows INCOMPLETE, perform driving pattern again.

WIRING DIAGRAM



CAUTION / NOTICE / HINT

NOTICE:

Inspect the fuses for circuits related to this system before performing the following procedure.

PROCEDURE

1.	**CHECK HARNESS AND CONNECTOR (IGR TERMINAL)**

Procedure1

(a) Make sure that there is no looseness at the locking part and the connecting part of the connectors.

OK:

The connector is securely connected.

Pre-procedure1

(b) Disconnect the K1 yaw rate and acceleration sensor (airbag ECU assembly) connector.

Procedure2

(c) Check both the connector case and the terminals for deformation and corrosion.

OK:

No deformation or corrosion.

Pre-procedure2

(d) Turn the ignition switch to ON.

Procedure3

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

Standard Voltage:

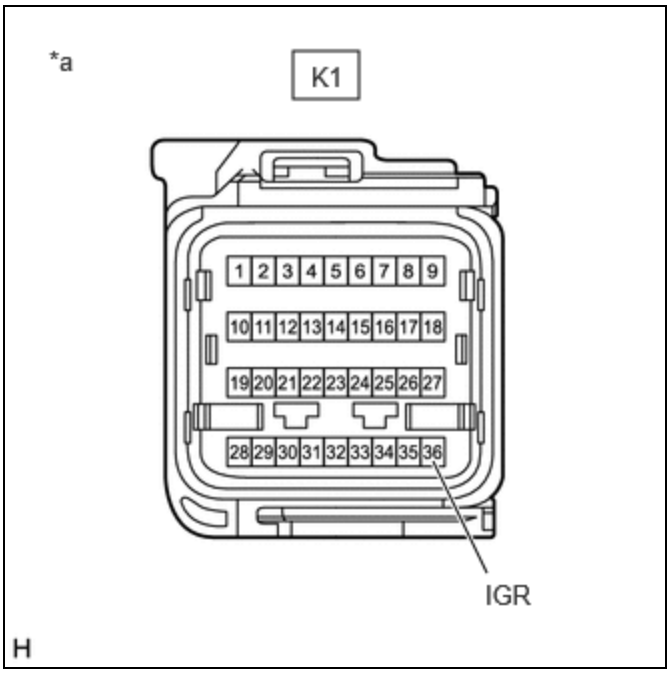
EWD INFO

Click Location & Routing(K1)
Click Connector(K1)

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION	RESULT
K1-36 (IGR) - Body ground	Ignition switch ON	11 to 14 V	V

Result:

PROCEED TO
OK
NG



*a	Front view of wire harness connector (to Yaw Rate and Acceleration Sensor (Airbag ECU Assembly))

Post-procedure1

(f) None

NG ▶ **REPAIR OR REPLACE HARNESS OR CONNECTOR**

OK ▼

2.	CHECK HARNESS AND CONNECTOR (E1 AND E2 TERMINAL)

Pre-procedure1

(a) Turn the ignition switch off.

Procedure1

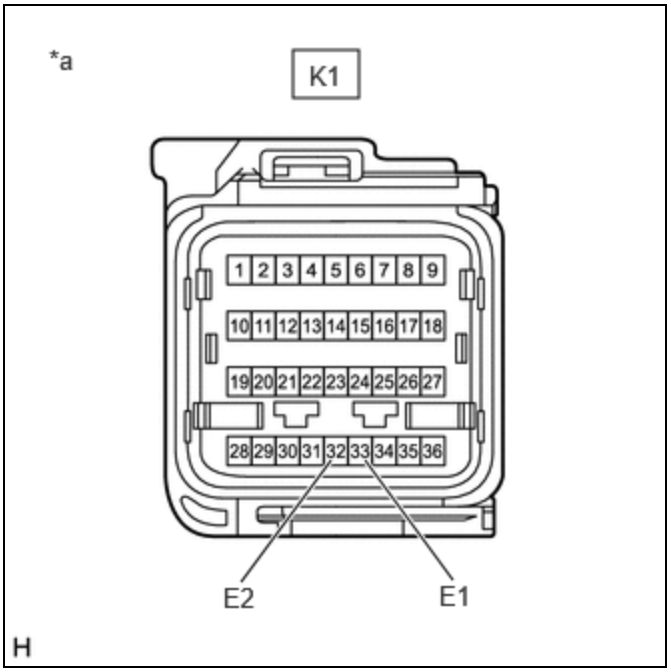
(b) Measure the resistance according to the value(s) in the table below.

Standard Resistance:

EWD INFO

Click Location & Routing(K1)
Click Connector(K1)

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION	RESULT
K1-33 (E1) - Body ground	1 minute or more after disconnecting the cable from the negative (-) auxiliary battery terminal	Below 1 Ω	Ω
K1-32 (E2) - Body ground	1 minute or more after disconnecting the cable from the negative (-) auxiliary battery terminal	Below 1 Ω	Ω



*a	Front view of wire harness connector (to Yaw Rate and Acceleration Sensor (Airbag ECU Assembly))

Result:

PROCEED TO
OK

PROCEED TO
NG

Post-procedure1

(c) None

NG ▶ **REPAIR OR REPLACE HARNESS OR CONNECTOR**

OK

▼

3.	CLEAR DTC

Pre-procedure1

(a) Reconnect the K1 yaw rate and acceleration sensor (airbag ECU assembly) connector.

Procedure1

(b) Clear the DTCs.

Chassis > Brake/EPB > Clear DTCs

Post-procedure1

(c) Turn the ignition switch off.

NEXT

▼

4.	RECONFIRM DTC

Pre-procedure1

(a) Based on the Freeze Frame Data and interview with the customer, attempt to reproduce the conditions when the malfunction occurred.

Procedure1

(b) Check if the same DTC is output.

Chassis > Brake/EPB > Trouble Codes

RESULT	PROCEED TO
C14D71C is not output	A
C14D71C is output	B

Post-procedure1

(c) None

A ▶ **USE SIMULATION METHOD TO CHECK**

B ▶ **REPLACE AIRBAG ECU ASSEMBLY** INFO