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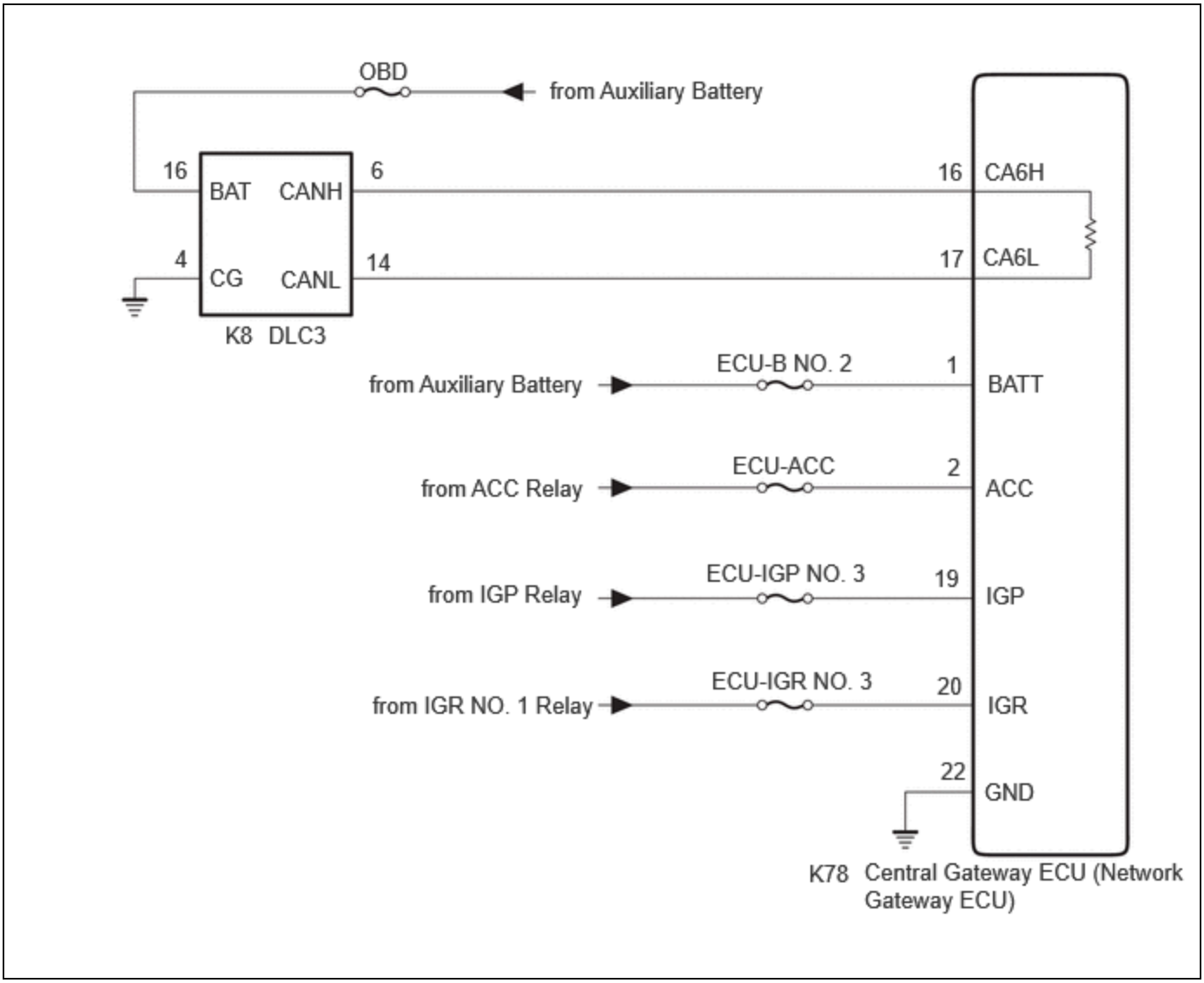
Model Year Start: 2023	**Model:** Prius	**Prod Date Range:** [12/2022 -]
Title: NETWORKING: CAN COMMUNICATION SYSTEM (for HEV Model): Check CAN Communication Connection; 2023 - 2024 MY Prius [12/2022 -]		

Check CAN Communication Connection

DESCRIPTION

SYMPTOM	TROUBLE AREA
Check CAN Communication Connection	• CAN branch line or connector • Power source circuit of central gateway ECU (network gateway ECU) • Central gateway ECU (network gateway ECU) ground circuit • Central gateway ECU (network gateway ECU) • Power source circuit of DLC3 • DLC3 ground circuit

WIRING DIAGRAM



CAUTION / NOTICE / HINT

CAUTION:

When performing the confirmation driving pattern, obey all speed limits and traffic laws.

NOTICE:

- Because the order of diagnosis is important to allow correct diagnosis, make sure to begin troubleshooting using How to Proceed with Troubleshooting when CAN communication system related DTCs are output.

  Click here INFO
- Before measuring the resistance of the CAN bus, turn the ignition switch off and leave the vehicle for 1 minute or more without operating the key or any switches, or opening or closing the doors. After that, disconnect the cable from the negative (-) auxiliary battery terminal and leave the vehicle for 10 minutes or more before measuring the resistance.
- After the ignition switch is turned off, there may be a waiting time before disconnecting the negative (-) auxiliary battery terminal.

  Click here INFO
- When disconnecting and reconnecting the auxiliary battery.

HINT:

When disconnecting and reconnecting the auxiliary battery, there is an automatic learning function that completes learning when the respective system is used.

Click here INFO

- Some parts must be initialized and set when replacing or removing and installing parts.

Click here INFO

- After performing repairs, perform the DTC check procedure and confirm that the DTCs are not output again.

  DTC check procedure: Turn the ignition switch to ON and wait for 1 minute or more. Then operate the suspected malfunctioning system and drive the vehicle at 60 km/h (37 mph) or more for 5 minutes or more.
- After the repair, perform the CAN bus check and check that all the ECUs and sensors connected to the CAN communication system are displayed as normal.

Click here INFO

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

HINT:

- Before disconnecting related connectors for inspection, push in on each connector body to check that the connector is not loose or disconnected.
- When a connector is disconnected, check that the terminals and connector body are not cracked, deformed or corroded.

PROCEDURE

1.	**CHECK GTS OPERATION**

(a) Connect the GTS to the DLC3 of another vehicle.

(b) Turn the ignition switch to ON.

(c) Turn the GTS on.

(d) Check that the GTS and ECUs can communicate with the ignition switch ON.

HINT:

- ECUs and sensors are not displayed on the "Communication Bus Check" screen when the GTS cannot communicate with the vehicle.
- If communication between the GTS and ECUs is not possible, either the GTS or vehicle has a malfunction.
- If communication between the GTS and ECUs is still not possible even when the GTS is connected to another vehicle, the GTS has a malfunction. Perform the self tests described in the GTS operator's manual. (The GTS may be malfunctioning or its battery may be discharged.)

RESULT	PROCEED TO
OK (Communication between the GTS and the vehicle is not possible but communication is possible when connected to another vehicle.)	A
NG (Communication is not possible between the GTS and the vehicle, nor between the GTS and another vehicle.)	B

B ▶ **REFER TO GTS OPERATOR'S MANUAL**

A

2.	**CHECK HARNESS AND CONNECTOR (DLC3 POWER SOURCE CIRCUIT)**

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

Standard Voltage:

EWD INFO

Click Location & Routing(K8)
Click Connector(K8)

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
K8-16 (BAT) - Body ground	Ignition switch off	11 to 14 V

(b) Disconnect the cable from the negative (-) auxiliary battery terminal.

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

Standard Resistance:

EWD INFO

Click Location & Routing(K8)
Click Connector(K8)

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
K8-4 (CG) - Body ground	Cable disconnected from negative (-) auxiliary battery terminal	Below 1 Ω

NG ▶ **REPAIR OR REPLACE HARNESS OR CONNECTOR (DLC3 POWER SOURCE CIRCUIT)**

OK ▼

3.	**CHECK OPEN IN CAN BUS LINES**

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

Standard Resistance:

EWD INFO

Click Location & Routing(K8)
Click Connector(K8)

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
K8-6 (CANH) - K8-14 (CANL)	Cable disconnected from negative (-) auxiliary battery terminal	Below 70 Ω

NG ▶ **GO TO STEP 7**

OK ▼

4.	CHECK SHORT IN CAN BUS LINES

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

Standard Resistance:

EWD INFO

Click Location & Routing(K8)
Click Connector(K8)

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
K8-6 (CANH) - K8-14 (CANL)	Cable disconnected from negative (-) auxiliary battery terminal	54 Ω or higher
K8-6 (CANH) - K8-4 (CG)	Cable disconnected from negative (-) auxiliary battery terminal	200 Ω or higher
K8-14 (CANL) - K8-4 (CG)		
K8-6 (CANH) - K8-16 (BAT)	Cable disconnected from negative (-) auxiliary battery terminal	6 kΩ or higher
K8-14 (CANL) - K8-16 (BAT)		

NG ▶ **GO TO STEP 6**

OK ▼

5.	CHECK HARNESS AND CONNECTOR (POWER SOURCE CIRCUIT)

(a) Disconnect the K78 central gateway ECU (network gateway ECU) connector.

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

Standard Resistance:

EWD INFO

Click Location & Routing(K78)
Click Connector(K78)

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
K78-22 (GND) - Body ground	Cable disconnected from negative (-) auxiliary battery terminal	Below 1 Ω

(c) Reconnect the cable to the negative (-) auxiliary battery terminal.

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

Standard Voltage:

EWD INFO

Click Location & Routing(K78)
Click Connector(K78)

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
K78-1 (BATT) - Body ground	Ignition switch off	11 to 14 V
K78-2 (ACC) - Body ground	Ignition switch ACC	11 to 14 V
K78-19 (IGP) - Body ground	Ignition switch ON	11 to 14 V
K78-20 (IGR) - Body ground	Ignition switch ON	11 to 14 V

OK ▶ **REPLACE CENTRAL GATEWAY ECU (NETWORK GATEWAY ECU)**

NG ▶ **REPAIR OR REPLACE HARNESS OR CONNECTOR (POWER SOURCE CIRCUIT)**

6.	**CHECK SHORT IN CAN BUS LINES**

(a) Disconnect the K78 central gateway ECU (network gateway ECU) connector.

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

Standard Resistance:

EWD INFO

Click Location & Routing(K78,K8)
Click Connector(K78)
Click Connector(K8)

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
K78-16 (CA6H) - K78-17 (CA6L)	Cable disconnected from negative (-) auxiliary battery terminal	1 MΩ or higher
K78-16 (CA6H) - K8-4 (CG)	Cable disconnected from negative (-) auxiliary battery terminal	200 Ω or higher
K78-17 (CA6L) - K8-4 (CG)		
K78-16 (CA6H) - K8-16 (BAT)	Cable disconnected from negative (-) auxiliary battery terminal	6 kΩ or higher
K78-17 (CA6L) - K8-16 (BAT)		

OK ▶ **REPLACE CENTRAL GATEWAY ECU (NETWORK GATEWAY ECU)**

NG ▶ **REPAIR OR REPLACE HARNESS OR CONNECTOR (DLC3 - CENTRAL GATEWAY ECU (NETWORK GATEWAY ECU))**

7.	**CHECK FOR OPEN IN CAN BUS LINES (CENTRAL GATEWAY ECU (NETWORK GATEWAY ECU) - DLC3)**

(a) Disconnect the K78 central gateway ECU (network gateway ECU) connector.

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

Standard Resistance:

EWD INFO

Click Location & Routing(K78,K8)
Click Connector(K78)
Click Connector(K8)

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
K78-16 (CA6H) - K8-6 (CANH)	Cable disconnected from negative (-) auxiliary battery terminal	Below 1 Ω
K78-17 (CA6L) - K8-14 (CANL)		

OK ▶ **REPLACE CENTRAL GATEWAY ECU (NETWORK GATEWAY ECU)**

NG ▶ **REPAIR OR REPLACE HARNESS OR CONNECTOR (CENTRAL GATEWAY ECU (NETWORK GATEWAY ECU) - DLC3)**