

<b>Last Modified:</b> 12-04-2024	6.11:8.1.0	<b>Doc ID:</b> RM10000002BJEO
<b>Model Year Start:</b> 2023	<b>Model:</b> Prius Prime	<b>Prod Date Range:</b> [03/2023 - ]
<b>Title:</b> METER / GAUGE / DISPLAY: METER / GAUGE SYSTEM: B150013; Fuel Sender Circuit Open; 2023 - 2024 MY Prius Prius Prime [03/2023 - ]		

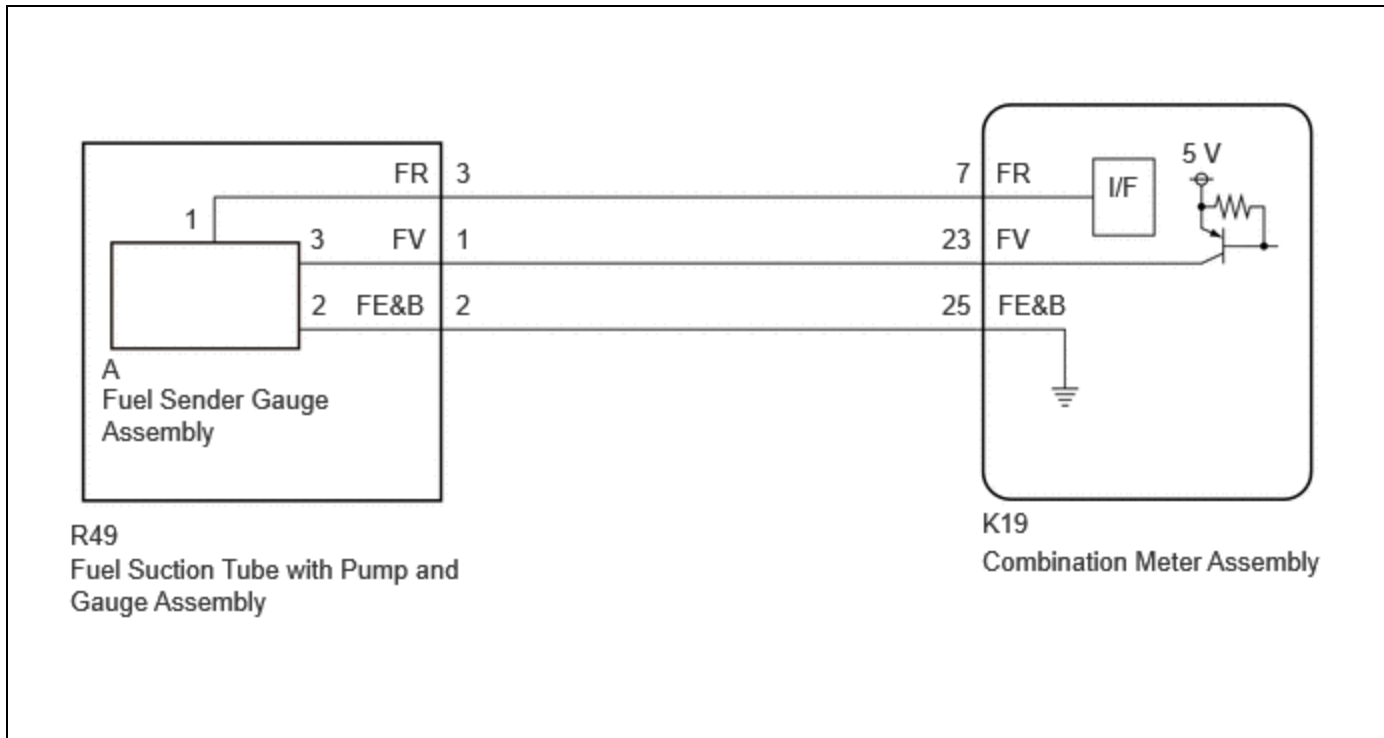
<b>DTC</b>	<b>B150013</b>	<b>Fuel Sender Circuit Open</b>
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## DESCRIPTION

The fuel sender gauge assembly is connected to the combination meter assembly via direct line. If there is an open or short in the direct line, the combination meter assembly stores DTC B150013.

DTC NO.	DETECTION ITEM	DTC DETECTION CONDITION	TROUBLE AREA	DTC OUTPUT FROM	PRIORITY
B150013	Fuel Sender Circuit Open	Diagnosis Condition: <ul style="list-style-type: none"> <li>Ignition switch ON</li> <li>IG power source voltage is 9.5 V or more</li> </ul> Malfunction Status: <ul style="list-style-type: none"> <li>Voltage signal from fuel sender gauge assembly is 0.2 V or less</li> <li>Voltage signal from fuel sender gauge assembly is 4.7 V or more</li> </ul> Malfunction Time: <p>10 seconds or more</p>	<ul style="list-style-type: none"> <li>Fuel suction tube with pump and gauge assembly</li> <li>Fuel sender gauge assembly</li> <li>Harness or connector</li> <li>Combination meter assembly</li> </ul>	Combination Meter	A

## WIRING DIAGRAM



## CAUTION / NOTICE / HINT

### NOTICE:

- When replacing the combination meter assembly, always replace it with a new one. If a combination meter assembly which was installed to another vehicle is used, the information stored in it will not match the information from the vehicle and a DTC may be stored.
- When replacing the combination meter assembly, update the ECU security key.

[Click here](#) INFO

## PROCEDURE

<b>1.</b>	<b>READ VALUE USING GTS</b>
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(a) Read the Data List according to the display on the GTS.

### Body Electrical > Combination Meter > Data List

TESTER DISPLAY	MEASUREMENT ITEM	RANGE	NORMAL CONDITION	DIAGNOSTIC NOTE
Fuel Input	Fuel level input	Min.: 0.00 L, Max.: 655.35 L or Unset	<p><b>for HEV Model (except 4WD Model)</b></p> <ul style="list-style-type: none"> <li>Fuel receiver gauge indicates F: 37.06 L</li> <li>Fuel receiver gauge indicates 3/4: 28.93 L</li> <li>Fuel receiver gauge indicates 1/2: 20.80 L</li> </ul>	The detected value of the fuel sender gauge assembly is displayed.

TESTER DISPLAY	MEASUREMENT ITEM	RANGE	NORMAL CONDITION	DIAGNOSTIC NOTE
			<ul style="list-style-type: none"> <li>• Fuel receiver gauge indicates 1/4: 12.66 L</li> <li>• Fuel receiver gauge indicates E: 4.53 L</li> <li><b>for HEV Model (for 4WD Model)</b></li> <li>• Fuel receiver gauge indicates F: 34.78 L</li> <li>• Fuel receiver gauge indicates 3/4: 27.18 L</li> <li>• Fuel receiver gauge indicates 1/2: 19.59 L</li> <li>• Fuel receiver gauge indicates 1/4: 11.99 L</li> <li>• Fuel receiver gauge indicates E: 4.39 L</li> <li><b>for PHEV Model</b></li> <li>• Fuel receiver gauge indicates F: 34.60 L</li> <li>• Fuel receiver gauge indicates 3/4: 27.30 L</li> <li>• Fuel receiver gauge indicates 1/2: 20.00 L</li> <li>• Fuel receiver gauge indicates 1/4: 12.00 L</li> <li>• Fuel receiver gauge indicates E: 4.00 L</li> </ul>	

**Body Electrical > Combination Meter > Data List**

TESTER DISPLAY
Fuel Input

RESULT	PROCEED TO
Fuel level data can be displayed on the GTS	A
Fuel level data cannot be displayed on the GTS	B

**A ▶ REPLACE COMBINATION METER ASSEMBLY**

**B**



**2. INSPECT FUEL SENDER GAUGE ASSEMBLY**

for 2ZR-FXE: Click here [INFO](#)

for M20A-FXS (for HEV Model): Click here [INFO](#)

for M20A-FXS (for PHEV Model): Click here [INFO](#)

**NG ▶ REPLACE FUEL SENDER GAUGE ASSEMBLY**

for 2ZR-FXE: Click here [INFO](#)

for M20A-FXS (for HEV Model): Click here [INFO](#)

for M20A-FXS (for PHEV Model): Click here [INFO](#)

**OK**



**3. INSPECT FUEL SUCTION TUBE WITH PUMP AND GAUGE ASSEMBLY**

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

Standard Resistance:

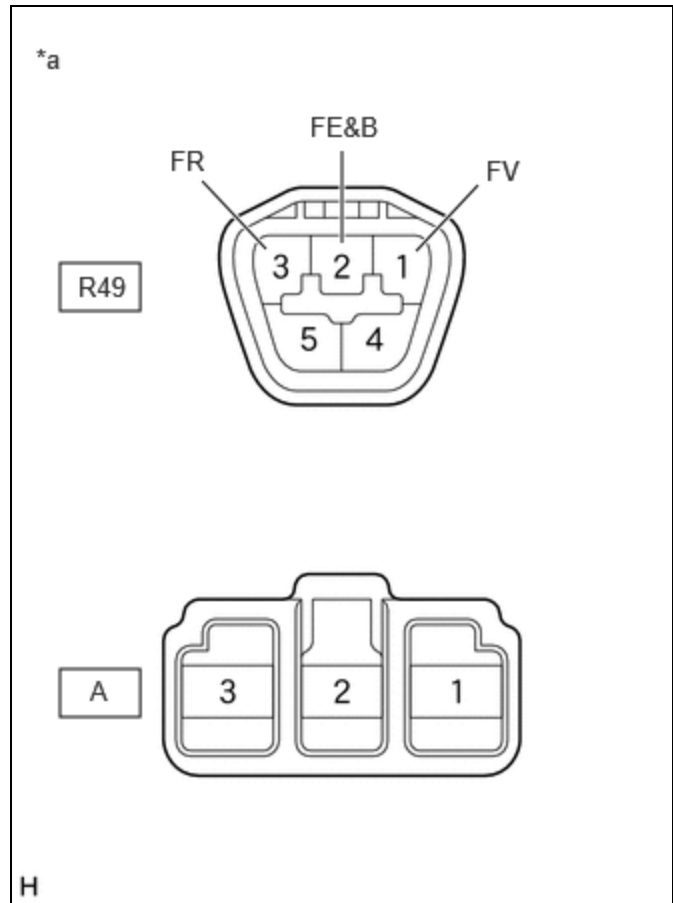


[Click Location & Routing\(R49\)](#)

[Click Connector\(R49\)](#)

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION	RESULT
R49-1 (FV) - A-3	Always	Below 1 Ω	Ω
R49-2 (FE&B) - A-2	Always	Below 1 Ω	Ω
R49-3 (FR) - A-1	Always	Below 1 Ω	Ω
R49-1 (FV) - R49-2 (FE&B)	Always	10 kΩ or higher	kΩ

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION	RESULT
or A-3 - A-2			
R49-1 (FV) - R49-3 (FR) or A-3 - A-1	Always	10 kΩ or higher	kΩ
R49-2 (FE&B) - R49-3 (FR) or A-2 - A-1	Always	10 kΩ or higher	kΩ



\*a Component without harness connected (Fuel Suction Tube with Pump and Gauge Assembly)

**NG** ▶ **REPLACE FUEL SUCTION TUBE WITH PUMP AND GAUGE ASSEMBLY**

for 2ZR-FXE: [Click here](#) **INFO**

for M20A-FXS (for HEV Model): [Click here](#) **INFO**

for M20A-FXS (for PHEV Model): [Click here](#) **INFO**

**OK**



<b>4.</b>	<b>CHECK HARNESS AND CONNECTOR (FUEL SUCTION TUBE WITH PUMP AND GAUGE ASSEMBLY - COMBINATION METER ASSEMBLY)</b>
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Pre-procedure1

(a) Disconnect the K19 combination meter assembly connector.

## Procedure1

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

Standard Resistance:



[Click Location & Routing\(R49,K19\).](#)

[Click Connector\(R49\).](#)

[Click Connector\(K19\).](#)

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION	RESULT
R49-3 (FR) - K19-7 (FR)	Always	Below 1 $\Omega$	$\Omega$
R49-2 (FE&B) - K19-25 (FE&B)	Always	Below 1 $\Omega$	$\Omega$
R49-1 (FV) - K19-23 (FV)	Always	Below 1 $\Omega$	$\Omega$
R49-3 (FR) or K19-7 (FR) - Body ground	Always	10 k $\Omega$ or higher	k $\Omega$
R49-1 (FV) or K19-23 (FV) - Body ground	Always	10 k $\Omega$ or higher	k $\Omega$

Post-procedure1

(c) None

**OK** ► **REPLACE COMBINATION METER ASSEMBLY**

**NG** ► **REPAIR OR REPLACE HARNESS OR CONNECTOR**

