Last Modified: 12-04-2024	6.11:8.1.0	**Doc ID:** RM100000002AQOS
Model Year Start: 2023	**Model:** Prius Prime	**Prod Date Range:** [03/2023 -]
Title: HEATING / AIR CONDITIONING: AIR CONDITIONING SYSTEM (for PHEV Model): P0EC115; Refrigerant Outlet Sensor Circuit Short to Battery or Open; 2023 - 2024 MY Prius Prime [03/2023 -]		

DTC	**P0EC115**	**Refrigerant Outlet Sensor Circuit Short to Battery or Open**

DESCRIPTION

The refrigerant outlet sensor (discharge temperature sensor) is installed to the refrigerant piping after the compressor with motor assembly, and detects the refrigerant temperature after it passes through the compressor with motor assembly.

The resistance of the refrigerant outlet sensor (discharge temperature sensor) changes in accordance with the refrigerant gas temperature. Resistance increases as the refrigerant gas temperature drops and decreases as the temperature rises.

The heat pump ECU assembly outputs a voltage to the refrigerant outlet sensor (discharge temperature sensor) and reads voltage changes that result from the changes in the resistance of the refrigerant outlet sensor (discharge temperature sensor).

DTC NO.	DETECTION ITEM	DTC DETECTION CONDITION	TROUBLE AREA	MIL	MEMORY	DTC OUTPUT FROM	PRIORITY	NOTE
P0EC115	Refrigerant Outlet Sensor Circuit Short to Battery or Open	Diagnosis Condition: Ignition switch ON Malfunction Status: Open or short to +B in refrigerant outlet sensor (discharge temperature sensor) circuit Detection Time: Continuously for 4 seconds or more	• Refrigerant outlet sensor (discharge temperature sensor) • Harness or connector • Air conditioning amplifier assembly • Heat pump ECU assembly	Does not come on	Memorized	Air Conditioner	A	-

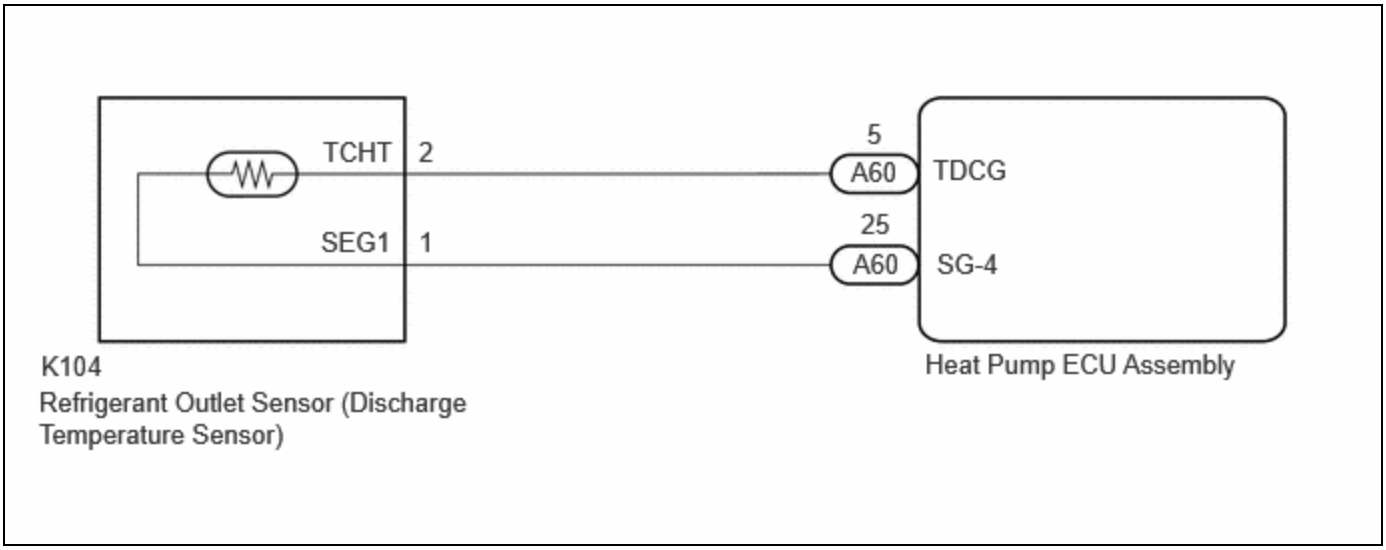
DTC Detection Condition Combination Table

		VEHICLE CONDITION	
		PATTERN 1	PATTERN 2
Diagnosis Condition	Ignition switch ON	○	○
Malfunction	Open in refrigerant outlet sensor (discharge temperature sensor) circuit	○	-
	Short to +B in refrigerant outlet sensor (discharge temperature sensor) circuit	-	○
Detection Time		Continuously for 4 seconds or more	Continuously for 4 seconds or more
Trip Count		1 trip	1 trip

HINT:

If the conditions of either of these patterns are detected, a DTC will be stored

WIRING DIAGRAM



PROCEDURE

1.	**CHECK REFRIGERANT OUTLET SENSOR (DISCHARGE TEMPERATURE SENSOR) CIRCUIT**

Pre-procedure1

(a) Disconnect the K104 refrigerant outlet sensor (discharge temperature sensor) connector.

Procedure1

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

Standard Voltage:

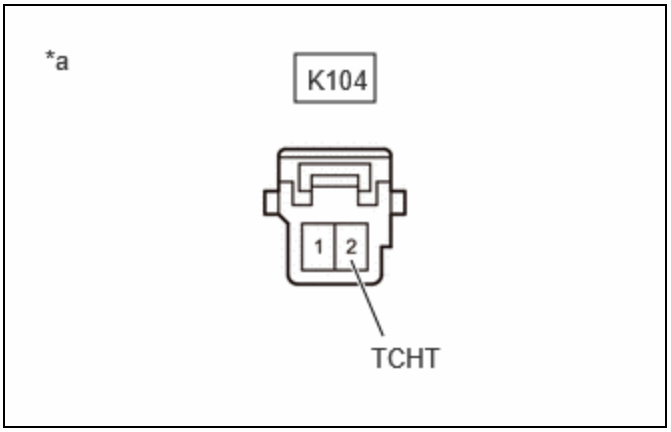
EWD INFO

[Click Location & Routing(K104)]
[Click Connector(K104)]

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION	RESULT
K104-2 (TCHT) - Body ground	Ignition switch ON	0 to 5.5 V	V

Result:

PROCEED TO
OK
NG



*a	Front view of wire harness connector (to Refrigerant Outlet Sensor (discharge temperature sensor))

Post-procedure1

(c) None

NG ▶ **GO TO STEP 5**

OK
▼

2.	**CLEAR DTC**

(a) Clear the DTCs.

Body Electrical > Air Conditioner > Clear DTCs

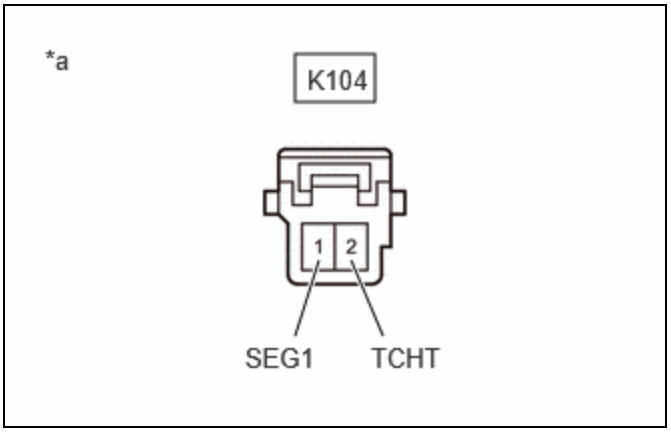
NEXT
▼

3.	**CHECK FOR DTC**

Pre-procedure1

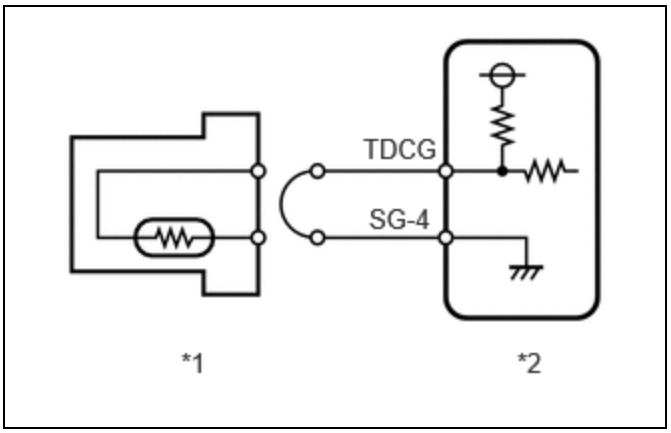
(a) Turn the ignition switch off.

(b) Disconnect the K104 refrigerant outlet sensor (discharge temperature sensor) connector.



*a	Front view of wire harness connector (to Refrigerant Outlet Sensor (discharge temperature sensor))

(c) Connect terminals 1 and 2 of the refrigerant outlet sensor (discharge temperature sensor) on the wire harness side.



*1	Refrigerant Outlet Sensor (Discharge Temperature Sensor)
*2	Heat Pump ECU Assembly

(d) Turn the ignition switch to ON and wait for 4 seconds or more.

Procedure1

(e) Check for DTCs.

Body Electrical > Air Conditioner > Trouble Codes

RESULT	PROCEED TO
P0EC111 is output	A
P0EC115 is output	B

Post-procedure1

(f) None

A ▶ **REPLACE REFRIGERANT OUTLET SENSOR (DISCHARGE TEMPERATURE SENSOR)**

B ▼

4.	**CHECK HARNESS AND CONNECTOR (REFRIGERANT OUTLET SENSOR (DISCHARGE TEMPERATURE SENSOR) - HEAT PUMP ECU ASSEMBLY)**

Pre-procedure1

(a) Disconnect the K104 refrigerant outlet sensor (discharge temperature sensor) connector.

(b) Disconnect the A60 heat pump ECU assembly connector.

Procedure1

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

Standard Resistance:

EWD INFO

Click Location & Routing(K104,A60)
Click Connector(K104)
Click Connector(A60)

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION	RESULT
K104-2 (TCHT) - A60-5 (TDCG)	Always	Below 1 Ω	Ω
K104-1 (SEG1) - A60-25 (SG-4)	Always	Below 1 Ω	Ω

Post-procedure1

(d) None

OK ▶ **REPLACE HEAT PUMP ECU ASSEMBLY**

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

5.	**CHECK HARNESS AND CONNECTOR (REFRIGERANT OUTLET SENSOR (DISCHARGE TEMPERATURE SENSOR) - HEAT PUMP ECU ASSEMBLY)**

Pre-procedure1

(a) Disconnect the K104 refrigerant outlet sensor (discharge temperature sensor) connector.

(b) Disconnect the A60 heat pump ECU assembly connector.

Procedure1

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

Standard Resistance:

EWD INFO

Click Location & Routing(K104,A60)
Click Connector(K104)
Click Connector(A60)

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION	RESULT
K104-2 (TCHT) or A60-5 (TDCG) - Other terminals and body ground	Always	10 kΩ or higher	kΩ

Post-procedure1

(d) None

OK ▶ **REPLACE HEAT PUMP ECU ASSEMBLY**

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