Last Modified: 12-04-2024	6.11:8.1.0	**Doc ID:** RM100000002BM12
Model Year Start: 2023	**Model:** Prius Prime	**Prod Date Range:** [03/2023 -]
Title: M20A-FXS (ENGINE CONTROL): SFI SYSTEM: P14CE12,P14CE14,P241812,P241814; EVAP System Switching Valve Control Circuit "B" High Circuit Short to Battery; 2023 - 2024 MY Prius Prius Prime [03/2023 -]		

DTC	**P14CE12**	**EVAP System Switching Valve Control Circuit "B" High Circuit Short to Battery**

DTC	**P14CE14**	**EVAP System Switching Valve Control Circuit "B" Low Circuit Short to Ground or Open**

DTC	**P241812**	**EVAP System Switching Valve Control Circuit High Circuit Short to Battery**

DTC	**P241814**	**EVAP System Switching Valve Control Circuit Low Circuit Short to Ground or Open**

DESCRIPTION

Refer to EVAP (Evaporative Emission) System.

Click here INFO

DTC NO.	DETECTION ITEM	DTC DETECTION CONDITION	TROUBLE AREA	MIL	DTC OUTPUT FROM	PRIORITY	NOTE
P14CE12	EVAP System Switching Valve Control Circuit "B" High Circuit Short to Battery	Short in CCV B circuit for 0.5 seconds or more (1 trip detection logic).	• Short in fuel vapor-containment valve circuit • Fuel vapor-containment valve • ECM	Comes on	Engine	A	SAE Code: P14D1
P14CE14	EVAP System Switching Valve Control Circuit "B" Low Circuit Short to Ground or Open	Open or short in CCV B circuit for 0.5 seconds or more (1 trip detection logic).	• Open or short in fuel vapor-containment valve circuit • Fuel vapor-containment valve • ECM	Comes on	Engine	A	SAE Code: P14D0

DTC NO.	DETECTION ITEM	DTC DETECTION CONDITION	TROUBLE AREA	MIL	DTC OUTPUT FROM	PRIORITY	NOTE
P241812	EVAP System Switching Valve Control Circuit High Circuit Short to Battery	Short in CCV A circuit for 0.5 seconds or more (1 trip detection logic).	• Short in fuel vapor-containment valve circuit • Fuel vapor-containment valve • ECM	Comes on	Engine	A	SAE Code: P2420
P241814	EVAP System Switching Valve Control Circuit Low Circuit Short to Ground or Open	Open or short in CCV A circuit for 0.5 seconds or more (1 trip detection logic).	• Open or short in fuel vapor-containment valve circuit • Fuel vapor-containment valve • ECM	Comes on	Engine	A	SAE Code: P2419

DTC NO.	MONITORING ITEM	DETECTION TIMING	DETECTION LOGIC	SAE CODE
P14CE12	CCV B circuit range check (high current)	Always	1 trip	P14D1
P14CE14	CCV B circuit range check (low voltage)			P14D0
P241812	CCV A circuit range check (high current)			P2420
P241814	CCV A circuit range check (low voltage)			P2419

MONITOR DESCRIPTION

These DTCs are stored if an open or short in the fuel vapor-containment valve circuit is detected.

Example:

- If the CCA+, CCA-, CCB+ or CCB- operation signal is off, but the step motor output signal is on, the ECM determines that there is a short in the fuel vapor-containment valve circuit, and stores a DTC P14CE12 or P241812.
- If the CCA+, CCA-, CCB+ or CCB- operation signal is on, and the step motor output signal is off, the ECM determines that there is an open or short in the fuel vapor-containment valve circuit, and stores a DTC P14CE14 or P241814.

MONITOR STRATEGY

Required Sensors/Components (Main)	Fuel vapor-containment valve
Required Sensors/Components (Related)	-
Frequency of Operation	Continuous
Duration	0.5 seconds
MIL Operation	Immediate

Sequence of Operation	None

TYPICAL ENABLING CONDITIONS

Monitor runs whenever the following DTCs are not stored	None
Auxiliary battery voltage	10 V or higher

TYPICAL MALFUNCTION THRESHOLDS

P14D0

Both of the following conditions are met	-
Command to motor phase B	OFF
Either of the following conditions is met	A or B
A. Motor phase B positive terminal voltage level	Low
B. Motor phase B negative terminal voltage level	Low

P14D1

Either of the following conditions is met	A or B
A. Motor phase B positive terminal current detected by motor driver IC	2.5 A or more
B. Motor phase B negative terminal current detected by motor driver IC	2.5 A or more

P2419

Both of the following conditions are met	-
Command to motor phase A	OFF
Either of the following conditions is met	A or B
A. Motor phase A positive terminal voltage level	Low
B. Motor phase A negative terminal voltage level	Low

P2420

Either of the following conditions is met	A or B
A. Motor phase A positive terminal current detected by motor driver IC	2.5 A or more
B. Motor phase A negative terminal current detected by motor driver IC	2.5 A or more

CONFIRMATION DRIVING PATTERN

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.

  Click here INFO
- When clearing the permanent DTCs, refer to the "CLEAR PERMANENT DTC" procedure.

Click here INFO

1. Clear the DTCs (even if no DTCs are stored, perform the clear DTC procedure).
2. Turn the ignition switch off and wait for at least 30 seconds.
3. Turn the ignition switch to ON.
4. Wait 5 seconds or more [A].
5. Enter the following menus: Powertrain / Engine / Trouble Codes [B].
6. Read the pending DTCs.

HINT:

- If a pending DTC is output, the system is malfunctioning.
- If a pending DTC is not output, perform the following procedure.

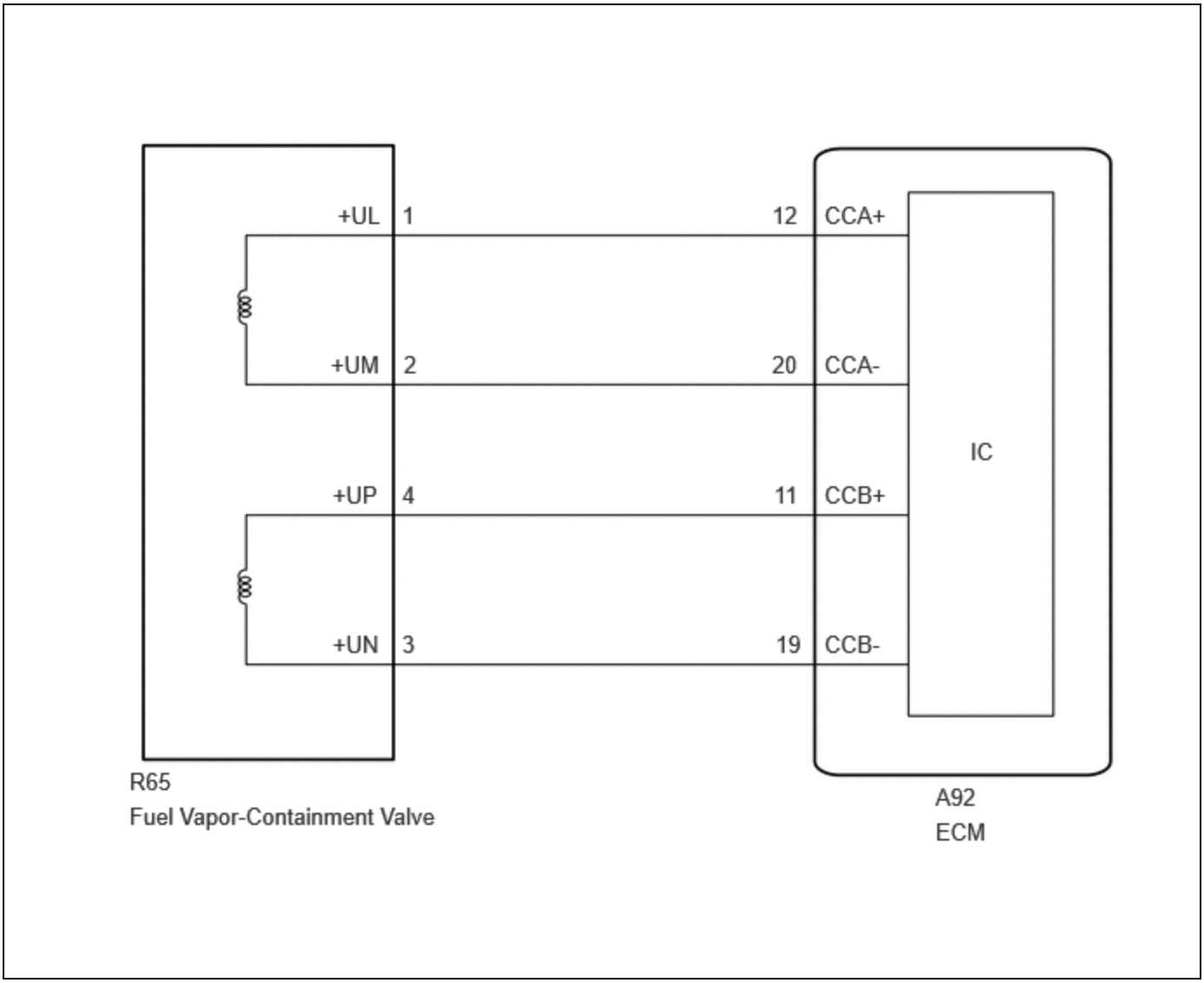
7. Enter the following menus: Powertrain / Engine / Utility / All Readiness.
8. Input the DTC: P14CE12, P14CE14, P241812 or P241814.
9. Check the DTC judgment result.

HINT:

- If the judgment result is NORMAL, the system is normal.
- If the judgment result is ABNORMAL, the system is malfunctioning.
- If the judgment result is INCOMPLETE, perform the steps [A] through [B] again.
- [A] to [B]: Normal judgment procedure.

  The normal judgment procedure is used to complete DTC judgment and also used when clearing permanent DTCs.
- When clearing the permanent DTCs, do not disconnect the cable from the auxiliary battery terminal or attempt to clear the DTCs during this procedure, as doing so will clear the universal trip and normal judgment histories.

WIRING DIAGRAM



CAUTION / NOTICE / HINT

NOTICE:

- Vehicle Control History may be stored in the hybrid vehicle control ECU if the engine is malfunctioning. Certain vehicle condition information is recorded when Vehicle Control History is stored. Reading the vehicle conditions recorded in both the freeze frame data and Vehicle Control History can be useful for troubleshooting.

  for HEV Model: Click here INFO

  for PHEV Model: Click here INFO

  (Select Powertrain in Health Check and then check the time stamp data.)
- If any "Engine Malfunction" Vehicle Control History item has been stored in the hybrid vehicle control ECU, make sure to clear it. However, as all Vehicle Control History items are cleared simultaneously, if any Vehicle Control History items other than "Engine Malfunction" are stored, make sure to perform any troubleshooting for them before clearing Vehicle Control History.

  for HEV Model: Click here INFO

  for PHEV Model: Click here INFO

HINT:

If the cable is disconnected from the Auxiliary Battery terminal, the fuel vapor containment valve cannot close completely and an EVAP SYSTEM DTC will be stored. If the DTC is output, drive the vehicle at a speed of 10

km/h (6 mph) or more and then leave the vehicle for 30 seconds or more. Then perform the Evaporative System Check again.

PROCEDURE

1.	**CLEAR DTC**

Pre-procedure1

(a) None.

Procedure1

(b) Clear the DTC after recording the Freeze Frame Data and DTC.

Powertrain > Engine > Clear DTCs

Post-procedure1

(c) Turn the ignition switch off and wait for at least 30 seconds.

NEXT

2.	**READ OUTPUT DTC (IN ADDITION TO DTC P14CE12, P14CE14, P241812 OR P241814)**

(a) Read the DTCs.

Powertrain > Engine > Trouble Codes

RESULT	PROCEED TO
P14CE12, P14CE14, P241812 or P241814 is output	A
DTCs are not output	B

B **CHECK FOR INTERMITTENT PROBLEMS**

A

3.	**CHECK HARNESS AND CONNECTOR**

Pre-procedure1

(a) Disconnect the ECM connector.

Procedure1

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

Standard Resistance:

EWD INFO

Click Location & Routing(A92)
Click Connector(A92)

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION	RESULT
A92-12 (CCA+) - A92-20 (CCA-)	20°C (68°F)	29 to 33 Ω	Ω
A92-11 (CCB+) - A92-19 (CCB-)	20°C (68°F)	29 to 33 Ω	Ω
A92-12 (CCA+) or A92-20 (CCA-) - Body ground and other terminals	Always	10 kΩ or higher	kΩ
A92-11 (CCB+) or A92-19 (CCB-) - Body ground and other terminals	Always	10 kΩ or higher	kΩ

HINT:

The standard values shown are fuel vapor-containment valve resistance values.

Post-procedure1

(c) None.

OK ▶ **REPLACE ECM**

NG ▼

4.	**INSPECT FUEL VAPOR CONTAINMENT VALVE**

for HEV Model: Click here INFO

for PHEV Model: Click here INFO

OK ▶ **REPAIR OR REPLACE HARNESS OR CONNECTOR (FUEL VAPOR-CONTAINMENT VALVE - ECM)**

NG ▶ **REPLACE FUEL VAPOR-CONTAINMENT VALVE**

for HEV Model: Click here INFO

for PHEV Model: Click here INFO