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Model Year Start: 2023	**Model:** Prius Prime	**Prod Date Range:** [12/2022 -]
Title: M20A-FXS (ENGINE CONTROL): SFI SYSTEM: FAIL-SAFE CHART; 2023 - 2024 MY Prius Prius Prime [12/2022 -]		

FAIL-SAFE CHART

If any of the following DTCs are stored, the ECM enters fail-safe mode to allow the vehicle to be driven temporarily or stops fuel injection.

DTC CODE	COMPONENT	FAIL-SAFE OPERATION	FAIL-SAFE DEACTIVATION CONDITION
P001001 P001600 P136001 P136201 P261401	Cam timing control motor with EDU assembly	The cam timing control motor with EDU assembly is operated to the most retarded position.	Pass condition detected and then ignition switch turned off
P001100 P001200	VVT system	Idling up (misfire prevention), or the cam timing control motor with EDU assembly is operated to the most retarded position.	Pass condition detected and then ignition switch turned off
P001500	VVT system	• Idle up (control of combustion worsening). • Stopping fuel-cut control	Pass condition detected
P003012 P003013 P101A9E	Air fuel ratio sensor (sensor 1) heater	The ECM turns off the air fuel ratio sensor (sensor 1) heater.	Ignition switch off
P003612 P003613 P102A9E	Air fuel ratio sensor (sensor 2) heater	The ECM turns off the air fuel ratio sensor (sensor 2) heater.	Ignition switch off
P006900 P222611 P222615	• Manifold absolute pressure sensor • Atmospheric pressure sensor (ECM)	The ECM maintains the last learned atmospheric pressure value.	Pass condition detected
P008700 P008800 P123513	Fuel (engine room side) pump assembly (for high pressure side)	• The ECM performs fuel-cut when the engine speed and engine load are high. • The fuel pressure is set to 200 kPa (2 kgf/cm ^{2,} 29 psi)	Ignition switch off
P010012 P010014	Mass air flow meter sub-assembly	The ECM calculates ignition timing according to the engine speed and throttle valve position.	Pass condition detected and then ignition switch turned off
P011011 P011015	Intake air temperature sensor (mass air flow	The ECM estimates the intake air temperature to be 20°C (68°F).	Pass condition detected and then ignition switch turned

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	meter sub-assembly)		off
P011511 P011515	Engine coolant temperature sensor	The ECM estimates the engine coolant temperature to be 80°C (176°F).	Pass condition detected
P012011 P012015 P01201C P022011 P022015 P060444 P060647 P060747 P060787 P060E49 P065714 P06579E P16B09F P210018 P210019 P211172 P211173 P211900 P211904 P211977 P21199B P21352B	Electronic throttle control system	The ECM cuts off throttle actuator current and the throttle valve is returned to a 7.5° throttle position by the return spring. The ECM controls the fuel injection duration and ignition timing in accordance with the engine torque requested by the hybrid vehicle control ECU. Fuel-cut is performed intermittently.*1	Pass condition detected and then ignition switch turned off
P019011 P019015	Fuel pressure sensor (for high pressure)	• The ECM performs fuel-cut when the engine speed and engine load are high. • The fuel pressure is set to 200 kPa (2 kgf/cm ^{2} , 29 psi)	Pass condition detected and then ignition switch turned off
P020113 P020213 P020313 P020413 P062D13	ECM (injector driver)	The ECM performs fuel-cut for abnormal cylinder when the dual injection is performed.	Pass condition detected and then ignition switch turned off
P030000 P030027 P030085 P030100 P030200 P030300 P030400 *2	• Fuel injector assembly • Electronic throttle control system	When a catalyst-damaging misfire occurs (MIL blinking), the following fail-safe operation is performed for catalyst overheat malfunction prevention. 1. Under a low load and at a low engine speed: - Fuel cut is performed on the malfunctioning cylinder. 2. Under a high load and at a high engine speed:	Pass condition detected and then ignition switch turned off

DTC CODE	COMPONENT	FAIL-SAFE OPERATION	FAIL-SAFE DEACTIVATION CONDITION
		- Throttle valve opening angle control is performed. - Fuel cut is performed on all cylinders or the malfunctioning cylinder.	
P032511 P032515	Knock control sensor	The ECM sets the ignition timing to maximum retard + 5°CA.	Ignition switch off
P040000 P04019C P04029B P040318 P040319 P140018 P140019	EGR valve assembly	The ECM fully closes the EGR valve and stops EGR control.	Pass condition detected
P052012 P052014 P052024 P05202A	Oil pressure sensor (oil pressure and temperature sensor)	Current to the oil pressure control valve assembly is cut in order to fully close the oil pressure control valve assembly so that the pump operates at maximum capacity.	Pass condition detected and then ignition switch turned off
P052477 P15F009 P15F077	Engine oil pressure control system	• Current to the oil pressure control valve assembly is cut in order to fully close the oil pressure control valve assembly so that the pump operates at maximum capacity. • The maximum engine speed is limited in accordance with the abnormal pressure.	Pass condition detected and then ignition switch turned off
P059A71 P05A079 P05A212 P15AD87	Swing grille actuator assembly	The grille shutter system control is suspended.	Normal system condition detected, ignition switch turned off then ON and normal grille shutter closing and opening operation performed
P06DA13	Oil pressure control valve assembly	Current to the oil pressure control valve assembly is cut in order to fully close the oil pressure control valve assembly so that the pump operates at maximum capacity.	Pass condition detected and then ignition switch turned off
P107A11 P107A15	No. 2 fuel pressure sensor (for low pressure side)	• Fuel pump (for low pressure side) control is maintained. • Output power is limited.	Pass condition detected and then ignition switch turned off

DTC CODE	COMPONENT	FAIL-SAFE OPERATION	FAIL-SAFE DEACTIVATION CONDITION
P15F109	Engine oil pressure control system	• Current to the oil pressure control valve assembly is cut in order to fully close the oil pressure control valve assembly so that the pump operates at maximum capacity. • Air amount is limited.	Pass condition detected and then ignition switch turned off
P15F177	Engine oil pressure control system	Current to the oil pressure control valve assembly is cut in order to fully close the oil pressure control valve assembly so that the pump operates at maximum capacity.	Pass condition detected and then ignition switch turned off
P21CF13 P21D013 P21D113 P21D213	Port fuel injector assembly	• The ECM performs fuel-cut for abnormal cylinder when the dual injection is performed. • Engine speed is limited. • Output power is limited.	Pass condition detected and then ignition switch turned off
P223711 P223712 P223713 P223716 P223717 P22371B P225111 P225112	Air fuel ratio sensor (sensor 1)	Air fuel ratio sensor (sensor 1) air fuel ratio feedback control is stopped.	Pass condition detected and then ignition switch turned off
P22AB11 P22AB12 P22AB13 P22AB16 P22AB17 P22B211 P22B212	Air fuel ratio sensor (sensor 2)	• Control based on air fuel ratio sensor (sensor 2) air fuel ratio feedback is stopped. • The ECM turns off the air fuel ratio sensor (sensor 2) heater.	Pass condition detected and then ignition switch turned off
P26CA12 P26CA31 P26CB71	Engine water pump assembly	• When the engine coolant temperature reaches 105°C (221°F), the engine speed is limited to 2500 rpm or less. • Output duty ratio of the WPO terminal repeats a cycle of 0% for 0 to 5 seconds and then 85% for 5 to 30 seconds.	Pass condition detected and then ignition switch turned off
P26CA14	Engine water pump assembly	• When the engine coolant temperature reaches 105°C (221°F), the engine speed is limited to 2500 rpm or less. • The engine water pump assembly is controlled at a duty ratio of	Pass condition detected and then ignition switch turned off

DTC CODE	COMPONENT	FAIL-SAFE OPERATION	FAIL-SAFE DEACTIVATION CONDITION
		85%.	
P26CE37	Engine water pump assembly	The engine water pump assembly is temporarily operated and stopped in a repeating cycle. • The output duty ratio of the WPO terminal repeats a cycle of 0% for 0 to 5 seconds and then 85% for 5 to 30 seconds.	Pass condition detected and then ignition switch turned off

HINT:

- *1: The vehicle can be driven slowly when the accelerator pedal is depressed firmly and slowly. If the accelerator pedal is depressed quickly, the vehicle may speed up and slow down erratically.
- *2: Misfire-related fail-safe operations occur when catalyst overheat malfunctions occur.