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Model Year Start: 2023	**Model:** Prius Prime	**Prod Date Range:** [03/2023 -]
Title: HEATING / AIR CONDITIONING: AIR CONDITIONING SYSTEM (for PHEV Model): PROBLEM SYMPTOMS TABLE; 2023 - 2024 MY Prius Prime [03/2023 -]		

PROBLEM SYMPTOMS TABLE

NOTICE:

- Perform the inspection when the vehicle is at ambient temperature. If this is not done, there could be a risk of injury depending on the location being inspected.
- Inspect the fuses and relays related to this system before inspecting the suspected areas below.
- The air conditioning system uses the CAN communication system. First, confirm that there is no malfunction in the CAN communication system. Refer to the How to Proceed with Troubleshooting procedure.

Click here INFO

VEHICLE CHECK ITEMS

HINT:

- You can reduce the number of systems to check by using the results of the following operation check.
- Perform the following checks based on Customer Feedback and the vehicle condition.
- The customer's opinion may not be consistent with the actual problem (e.g.: the cooling performance of the air conditioner is bad → actually, the wind volume is weak). It is important to check the problem symptoms accurately and judge correctly based on various sources of information.
- Judgment as to whether the air conditioner panel is normal or abnormal can be judged by checking if the indicator illuminates or turns off when the switch is operated.
- During servo motor initialization, the AUTO indicator light comes on, and then goes off when initialization has finished.
- If the performance of the air conditioner is poor or there is a foul odor, check for clogging in the clean air filter.

Malfunction Operation/Function:

COMMON FUNCTION OF COOL AND HEATER FUNCTION				ONLY COOL AIR FUNCTION	ONLY HEATER FUNCTION	SUSPECTED AREA
A/C SWITCH OPERATION	BLOWER OPERATION	RECIRCULATION/FRESH FUNCTION	AIR OUTLET CHANGING FUNCTION			
x	o	o	o	x	x	Go to "Problem Symptoms Table: Air Conditioning Control"
o	o	o	o	x	o	Go to "Problem Symptoms Table: Cooling Function"
o	o	o	o	o	x	Go to "Problem Symptoms Table: Heater Function"
o	x	o	o	x	x	Go to "Problem Symptoms Table: Blower Control"
o	o	x	o	x	x	Go to "Problem Symptoms Table: Air Inlet Control"

COMMON FUNCTION OF COOL AND HEATER FUNCTION				ONLY COOL AIR FUNCTION	ONLY HEATER FUNCTION	SUSPECTED AREA
A/C SWITCH OPERATION	BLOWER OPERATION	RECIRCULATION/FRESH FUNCTION	AIR OUTLET CHANGING FUNCTION			
o	o	o	x	x	x	Go to "Problem Symptoms Table: Air Outlet Control"
x	x	x	x	x	x	Air Conditioning Amplifier Assembly or Air Conditioner Unit Assembly is Defective

AIR CONDITIONING CONTROL

SYMPTOM	SUSPECTED AREA	LINK
Air conditioning system cannot be operated using air conditioning control assembly (With the exception of the switch indicators, no inputs are reflected when other switches operated)	• LIN communication line (air conditioning amplifier assembly - air conditioning control assembly) • +B or ground in air conditioning amplifier assembly circuit • Air conditioning amplifier assembly • Air conditioning control assembly • Harness or connector	INFO
Air conditioning system cannot be operated using air conditioning control assembly (Air conditioning system display operates)	• Air conditioning control assembly	INFO
Air conditioning system cannot be operated using air conditioning control assembly immediately after starting the hybrid system* (Air conditioning system display operates) (Only AUTO indicator illuminates) (A/C switch indicator does not illuminate)	• Refer to "INITIALIZATION"	INFO
A/C switch indicator does not illuminate	• Air conditioning amplifier assembly • Air conditioning control assembly • Servo motor • Damper and damper link • Refrigerant pressure • Ambient temperature	INFO

*: If the air conditioning system cannot be operated and only the AUTO indicator illuminates for a certain amount of time after turning the ignition switch to ON (IG), the servo motor may be automatically initializing.

Automatic initialization is performed when the cable is disconnected from the auxiliary battery terminal or a deviation in the servo motor position is detected.

COOLING FUNCTION

SYMPTOM	SUSPECTED AREA	LINK
Cool air is not discharged (Air is discharged)	• Compressor with motor assembly • Refrigerant pressure • Refrigerant volume • Outer heat exchanger (cooler condenser assembly) • Cooling fan system • Servo motor (air mix) • Damper and damper link • Evaporator temp. sensor (No. 1 cooler thermistor) • Air conditioning pressure sensor power source circuit • High inlet air temperature • Cooling electric expansion valve (cooler expansion valve) • Heating electric expansion valve (magnet valve assembly) • Evaporator front magnetic valve (No. 1 magnet valve assembly) • Low pressure magnetic valve (No. 3 magnet valve assembly) • High pressure magnetic valve (No. 2 magnet valve assembly) • Evaporator pressure regulator sub-assembly • Internal condenser temperature sensor • Outer heat exchanger refrigerant temperature sensor (No. 1 air conditioning thermistor assembly) • Evaporator refrigerant temperature sensor (No. 2 air conditioning thermistor assembly) • Ambient temp. sensor (thermistor assembly) • Heat pump ECU assembly	INFO
• Cooling effectiveness is poor • Cooling response is slow	• ECO mode condition • Compressor with motor assembly • Refrigerant volume • Outer heat exchanger (cooler condenser assembly) • Cooling fan system • Damper and damper link • Solar sensor (automatic light control sensor) • High inlet air temperature • Harness or connector	INFO

HEATER FUNCTION

SYMPTOM	SUSPECTED AREA	LINK
• No warm air comes out (Blower control is normal) • Outlet air temperature does not increase (Blower control is normal)	• Refrigerant pressure • Cooling electric expansion valve (cooler expansion valve) • Heating electric expansion valve (magnet valve assembly) • Low pressure magnetic valve (No. 3 magnet valve assembly) • High pressure magnetic valve (No. 2 magnet valve assembly) • Engine coolant temperature	INFO

SYMPTOM	SUSPECTED AREA	LINK
	• Servo motor (air mix) • Damper and damper link • Warm-up control • Heater radiator unit sub-assembly • Heat pump ECU assembly • Internal condenser temperature sensor • Outer heat exchanger refrigerant temperature sensor (No. 1 air conditioning thermistor assembly) • Evaporator refrigerant temperature sensor (No. 2 air conditioning thermistor assembly) • Evaporator temp. sensor (No. 1 cooler thermistor) • Air conditioning pressure sensor	

BLOWER CONTROL

SYMPTOM	SUSPECTED AREA	LINK
No air flows from the registers	• Blower motor with fan sub-assembly • Air conditioning amplifier assembly • Warm-up control • Engine coolant temperature sensor • Harness or connector	INFO
Airflow volume cannot be changed	• Air conditioning amplifier assembly • Blower motor with fan sub-assembly • Harness or connector	INFO
• Airflow volume is constantly low • Airflow volume sometimes becomes low	• ECO mode condition • Blower motor with fan sub-assembly • Air conditioning amplifier assembly • Clean air filter • Evaporator or heater radiator fins • Evaporator temp. sensor (No. 1 cooler thermistor) • Aspirator pipe not connected properly • Harness or connector	INFO

AIR INLET CONTROL

SYMPTOM	SUSPECTED AREA	LINK
• Recirculation/fresh mode changes without permission • Recirculation/fresh mode light blinks	• Ambient temperature • Refrigerant pressure • Air conditioning pressure sensor circuit • Engine coolant temperature	INFO
• Air inlet mode cannot be changed between recirculation/fresh	• Servo motor (air inlet) • Damper and damper link • Engine coolant temperature	INFO

SYMPTOM	SUSPECTED AREA	LINK
• Exhaust gas odors can be smelled when air inlet mode set to recirculation mode	• Air conditioner unit assembly • Engine coolant temperature	

AIR OUTLET CONTROL

SYMPTOM	SUSPECTED AREA	LINK
Air outlet mode cannot be changed (Air outlet display changes)	• Servo motor (mode) • Damper and damper link • Air conditioner unit assembly	INFO
Air outlet mode cannot be changed (Air outlet display does not change)	• Air conditioning control assembly	INFO

DEFROSTER CONTROL

SYMPTOM	SUSPECTED AREA	LINK
Windshield frequently fogs up	• Refrigerant volume • Compressor with motor assembly • Servo motor (mode) • Damper and damper link • Cooling electric expansion valve (cooler expansion valve) • Heating electric expansion valve (magnet valve assembly) • Evaporator front magnetic valve (No. 1 magnet valve assembly) • Low pressure magnetic valve (No. 3 magnet valve assembly) • High pressure magnetic valve (No. 2 magnet valve assembly) • Internal condenser temperature sensor • Outer heat exchanger refrigerant temperature sensor (No. 1 air conditioning thermistor assembly) • Evaporator refrigerant temperature sensor (No. 2 air conditioning thermistor assembly) • Evaporator temp. sensor (No. 1 cooler thermistor) • Air conditioning pressure sensor • Heat pump ECU assembly	INFO