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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): B143B7F; Air Inlet Damper Control Servo Motor Actuator Stuck Off; 2023 - 2024 MY Prius Prime [03/2023 -]		

DTC	B143B7F	Air Inlet Damper Control Servo Motor Actuator Stuck Off
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DESCRIPTION

The No. 1 blower damper servo sub-assembly sends pulse signals to inform the air conditioning amplifier assembly of the damper position.

The air conditioning amplifier assembly activates the motor (normal or reverse) based on these signals to move the No. 1 blower damper servo sub-assembly to the appropriate position to change the air inlet mode (fresh, recirculation/fresh, and recirculation).

DTC NO.	DETECTION ITEM	DTC DETECTION CONDITION	TROUBLE AREA	MIL	MEMORY	DTC OUTPUT FROM	PRIORITY	NOTE
B143B7F	Air Inlet Damper Control Servo Motor Actuator Stuck Off	Diagnosis Condition: No. 1 blower damper servo sub-assembly operating Malfunction: <ul style="list-style-type: none"> Air inlet damper servo operation request signals are output but the air inlet damper position sensor value does not change. Air inlet damper servo operation request signals are 	<ul style="list-style-type: none"> No. 1 blower damper servo sub-assembly No. 1 air conditioning radiator damper servo sub-assembly Air conditioning harness assembly Blower assembly 	Does not come on	Memorized	Air Conditioner	A	-

DTC NO.	DETECTION ITEM	DTC DETECTION CONDITION	TROUBLE AREA	MIL	MEMORY	DTC OUTPUT FROM	PRIORITY	NOTE
		<p>output but the air inlet damper position sensor value is abnormal.</p> <p>Detection Time:</p> <p>Continuously for 30 seconds or more</p>						

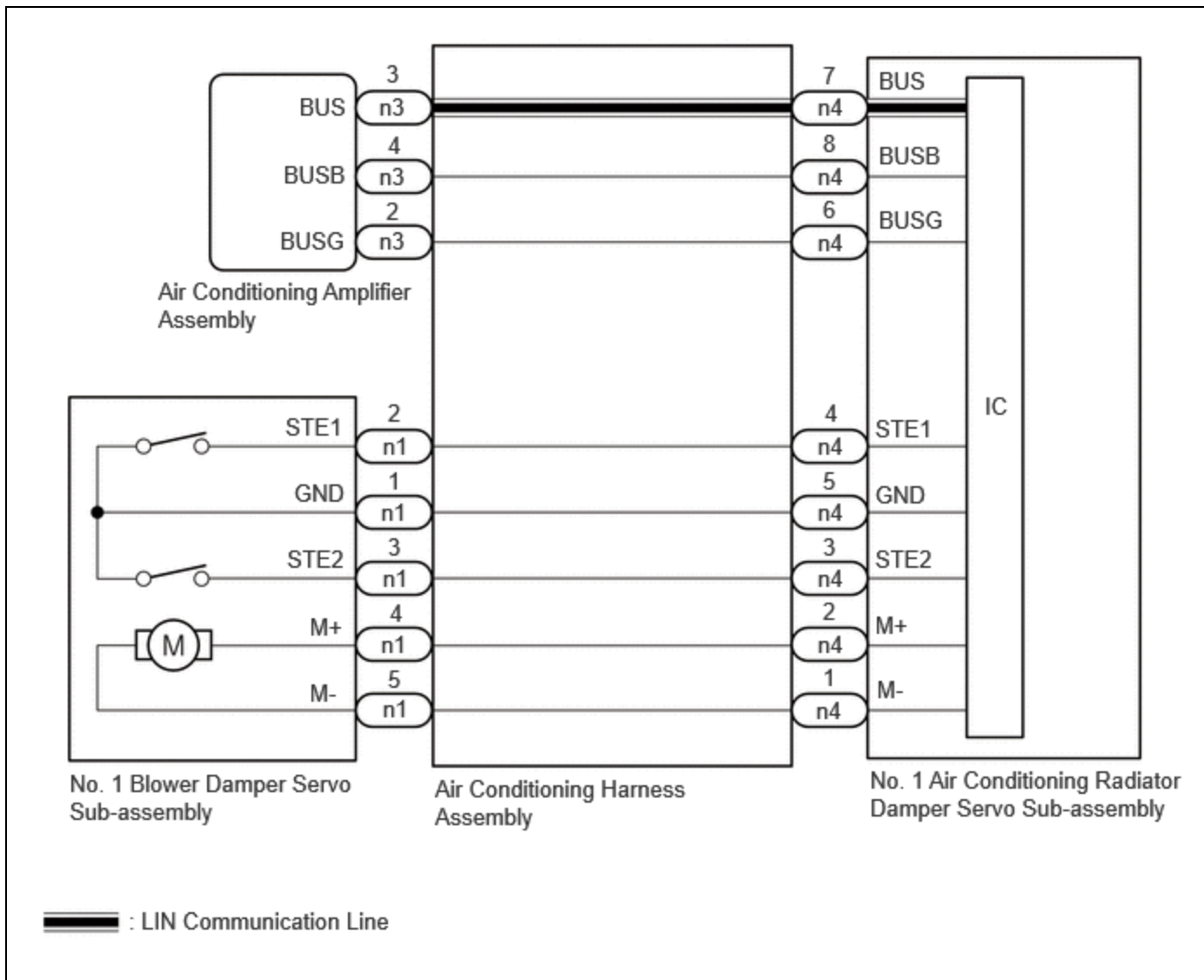
DTC Detection Condition Combination Table

		VEHICLE CONDITION	
		PATTERN 1	PATTERN 2
Diagnosis Condition	No. 1 blower damper servo sub-assembly operating	○	○
Malfunction	Air inlet damper servo operation request signals are output but the air inlet damper position sensor value does not change.	○	-
	Air inlet damper servo operation request signals are output but the air inlet damper position sensor value is abnormal.	-	○
Detection Time		Continuously for 30 seconds or more	Continuously for 30 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



CAUTION / NOTICE / HINT

NOTICE:

- This DTC is also output for the damper link, damper lock, etc. Before performing inspection, perform servomotor initialization and check that there are no mechanical malfunctions.

[Click here](#) INFO

- This DTC is also output when servomotor initialization has failed. When servomotor initialization has failed, repair any malfunctions and perform servomotor initialization again.

[Click here](#) INFO

PROCEDURE

1.	CHECK NO. 1 BLOWER DAMPER SERVO SUB-ASSEMBLY (INSTALLATION CONDITION)
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(a) Check that the No. 1 blower damper servo sub-assembly is installed correctly.

HINT:

[Click here](#) INFO

OK:

No. 1 blower damper servo sub-assembly is installed correctly.

NG ▶ **REINSTALL NO. 1 BLOWER DAMPER SERVO SUB-ASSEMBLY**

OK



2.	CHECK NO. 1 BLOWER DAMPER SERVO SUB-ASSEMBLY (MOTOR, LINK, DAMPER)
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(a) Check for a wire harness caught between the links of the motors and dampers.

OK:

No wire harnesses are caught between the links of the motors and dampers.

NG ▶ **REMOVE PINCHED WIRE HARNESS**

OK



3.	PERFORM ACTIVE TEST USING GTS
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(a) Perform the Active Test according to the display on the GTS.

Body Electrical > Air Conditioner > Active Test

TESTER DISPLAY	MEASUREMENT ITEM	CONTROL RANGE	DIAGNOSTIC NOTE
Air Inlet Damper Control Servo Motor	This test activates the air inlet damper control servo motor. (No. 1 blower damper servo sub-assembly)	128: Min 384: Max	Operate with the ignition switch ON.

Body Electrical > Air Conditioner > Data List

TESTER DISPLAY	MEASUREMENT ITEM	RANGE	NORMAL CONDITION	INSPECTION ITEM
Air Inlet Damper Control Servo Motor Actual Pulse	No. 1 blower damper servo sub-assembly actual pulse	128 to 384	<ul style="list-style-type: none"> Fresh: 220 (pulse) Recirculation: 256 (pulse) 	No. 1 blower damper servo sub-assembly circuit malfunction

Body Electrical > Air Conditioner > Active Test

ACTIVE TEST DISPLAY
Air Inlet Damper Control Servo Motor

DATA LIST DISPLAY
Air Inlet Damper Control Servo Motor Actual Pulse

OK:

The value of the Data List changes in accordance with the operation of the Active Test.

NG  **GO TO STEP 8**

OK



4. PERFORM ACTIVE TEST USING GTS

(a) Perform the Active Test according to the display on the GTS.

Body Electrical > Air Conditioner > Active Test

TESTER DISPLAY	MEASUREMENT ITEM	CONTROL RANGE	DIAGNOSTIC NOTE
Air Inlet Damper Control Servo Motor	This test activates the air inlet damper control servo motor. (No. 1 blower damper servo sub-assembly)	128: Min 384: Max	Operate with the ignition switch ON.

Body Electrical > Air Conditioner > Data List

TESTER DISPLAY	MEASUREMENT ITEM	RANGE	NORMAL CONDITION	INSPECTION ITEM
Air Inlet Damper Control Servo Motor Target Pulse	No. 1 blower damper servo sub-assembly target pulse	128 to 384	<ul style="list-style-type: none"> Fresh: 220 (pulse) Recirculation: 256 (pulse) 	No. 1 blower damper servo sub-assembly circuit malfunction
Air Inlet Damper Control Servo Motor Actual Pulse	No. 1 blower damper servo sub-assembly actual pulse	128 to 384	<ul style="list-style-type: none"> Fresh: 220 (pulse) Recirculation: 256 (pulse) 	No. 1 blower damper servo sub-assembly circuit malfunction

Body Electrical > Air Conditioner > Active Test

ACTIVE TEST DISPLAY
Air Inlet Damper Control Servo Motor

DATA LIST DISPLAY
Air Inlet Damper Control Servo Motor Target Pulse
Air Inlet Damper Control Servo Motor Actual Pulse

OK:

The target pulse value of the Data List matches the actual pulse.

OK ► **USE SIMULATION METHOD TO CHECK**

NG



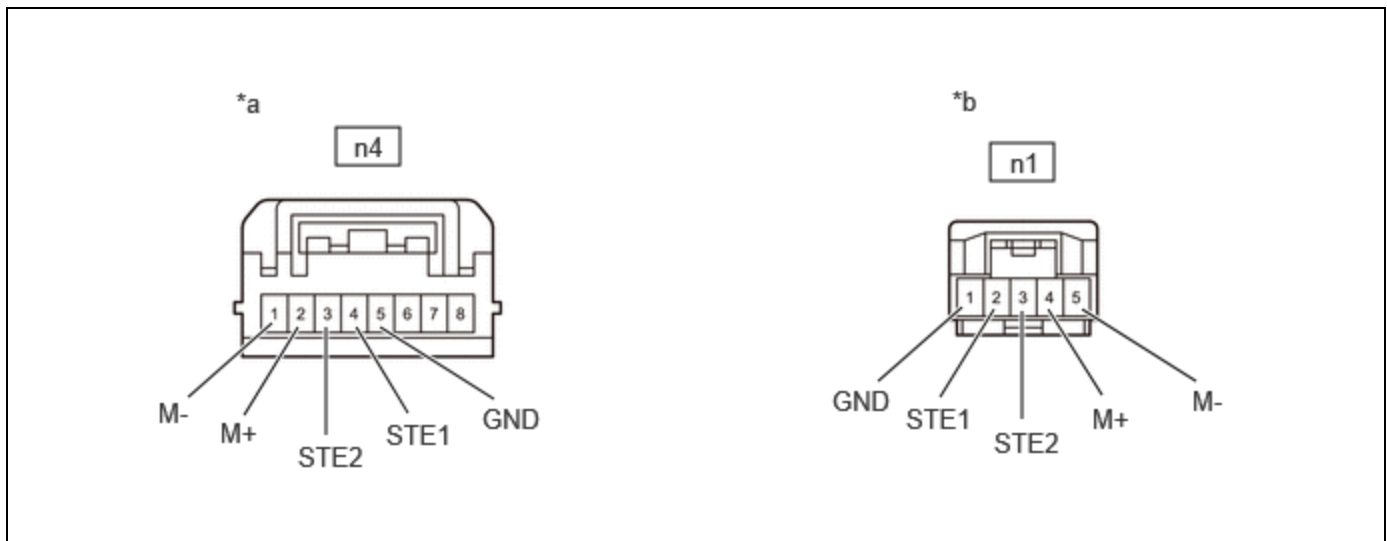
5.	INSPECT AIR CONDITIONING HARNESS ASSEMBLY
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Pre-procedure1

- (a) Disconnect the n4 No. 1 air conditioning radiator damper servo sub-assembly connector.
- (b) Disconnect the n1 No. 1 blower damper servo sub-assembly connector.

Procedure1

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



*a	Front view of wire harness connector (to No. 1 Air Conditioning Radiator Damper Servo Sub-assembly)	*b	Front view of wire harness connector (to No. 1 Blower Damper Servo Sub- assembly)
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Standard Resistance:



[Click Location & Routing\(n4,n1\)](#)

[Click Connector\(n4\)](#)

[Click Connector\(n1\)](#)

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION	RESULT
n4-1 (M-) - n1-5 (M-)	Always	Below 1 Ω	Ω
n4-2 (M+) - n1-4 (M+)	Always	Below 1 Ω	Ω
n4-3 (STE2) - n1-3 (STE2)	Always	Below 1 Ω	Ω
n4-4 (STE1) - n1-2 (STE1)	Always	Below 1 Ω	Ω
n4-5 (GND) - n1-1 (GND)	Always	Below 1 Ω	Ω
n4-1 (M-) or n1-5 (M-) - Other terminals and body ground	Always	10 k Ω or higher	k Ω
n4-2 (M+) or n1-4 (M+) - Other terminals and body ground	Always	10 k Ω or higher	k Ω
n4-3 (STE2) or n1-3 (STE2) - Other terminals and body ground	Always	10 k Ω or higher	k Ω
n4-4 (STE1) or n1-2 (STE1) - Other terminals and body ground	Always	10 k Ω or higher	k Ω

Post-procedure1

(d) None

NG **REPLACE AIR CONDITIONING HARNESS ASSEMBLY**

OK



6.	REPLACE NO. 1 BLOWER DAMPER SERVO SUB-ASSEMBLY
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HINT:

Click here

NEXT



7.	PERFORM ACTIVE TEST USING GTS
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(a) Perform the Active Test according to the display on the GTS.

Body Electrical > Air Conditioner > Active Test

TESTER DISPLAY	MEASUREMENT ITEM	CONTROL RANGE	DIAGNOSTIC NOTE
Air Inlet Damper Control Servo Motor	This test activates the air inlet damper control servo motor. (No. 1 blower damper servo sub-assembly)	128: Min 384: Max	Operate with the ignition switch ON.

Body Electrical > Air Conditioner > Data List

TESTER DISPLAY	MEASUREMENT ITEM	RANGE	NORMAL CONDITION	INSPECTION ITEM
Air Inlet Damper Control Servo Motor Actual Pulse	No. 1 blower damper servo sub-assembly actual pulse	128 to 384	<ul style="list-style-type: none"> Fresh: 220 (pulse) Recirculation: 256 (pulse) 	No. 1 blower damper servo sub-assembly circuit malfunction

Body Electrical > Air Conditioner > Active Test

ACTIVE TEST DISPLAY
Air Inlet Damper Control Servo Motor

DATA LIST DISPLAY
Air Inlet Damper Control Servo Motor Actual Pulse

OK:

The value of the Data List changes in accordance with the operation of the Active Test.

OK ► **END**

NG ► **REPLACE AIR CONDITIONING HARNESS ASSEMBLY**

8.	PERFORM ACTIVE TEST USING GTS
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(a) Perform the Active Test according to the display on the GTS.

Body Electrical > Air Conditioner > Active Test

TESTER DISPLAY	MEASUREMENT ITEM	CONTROL RANGE	DIAGNOSTIC NOTE
Front Air Outlet Damper Control Servo Motor	This test activates the front air outlet damper control servo motor. (No. 1 air conditioning radiator damper servo sub-assembly (mode))	128: Min 384: Max	Operate with the ignition switch ON.

Body Electrical > Air Conditioner > Data List

TESTER DISPLAY	MEASUREMENT ITEM	RANGE	NORMAL CONDITION	INSPECTION ITEM
Front Air Outlet Damper Control Servo Motor Actual Pulse	No. 1 air conditioning radiator damper servo sub-assembly (mode) actual pulse	128 to 384	<ul style="list-style-type: none"> • FACE: 256 (pulse) • B/L: 267 (pulse) • FOOT-0: 288 (pulse) • FOOT: 297 (pulse) • FOOT-D: 305 (pulse) • F/D: 320 (pulse) • D/F: 339 (pulse) • DEF: 348 (pulse) 	No. 1 air conditioning radiator damper servo sub-assembly (front mode) circuit malfunction

Body Electrical > Air Conditioner > Active Test

ACTIVE TEST DISPLAY
Front Air Outlet Damper Control Servo Motor

DATA LIST DISPLAY
Front Air Outlet Damper Control Servo Motor Actual Pulse

OK:

The value of the Data List changes in accordance with the operation of the Active Test.

OK  **GO TO STEP 6**

NG**9. CHECK BLOWER ASSEMBLY (DAMPER)**

Pre-procedure1

(a) Remove the No. 1 blower damper servo sub-assembly.

HINT:[Click here](#) 

Procedure1

(b) Operate the dampers by hand.

OK:

The dampers are easily operated by hand.

Post-procedure1

(c) None

OK  **REPLACE AIR CONDITIONING AMPLIFIER ASSEMBLY****NG**  **REPAIR OR REPLACE BLOWER ASSEMBLY**