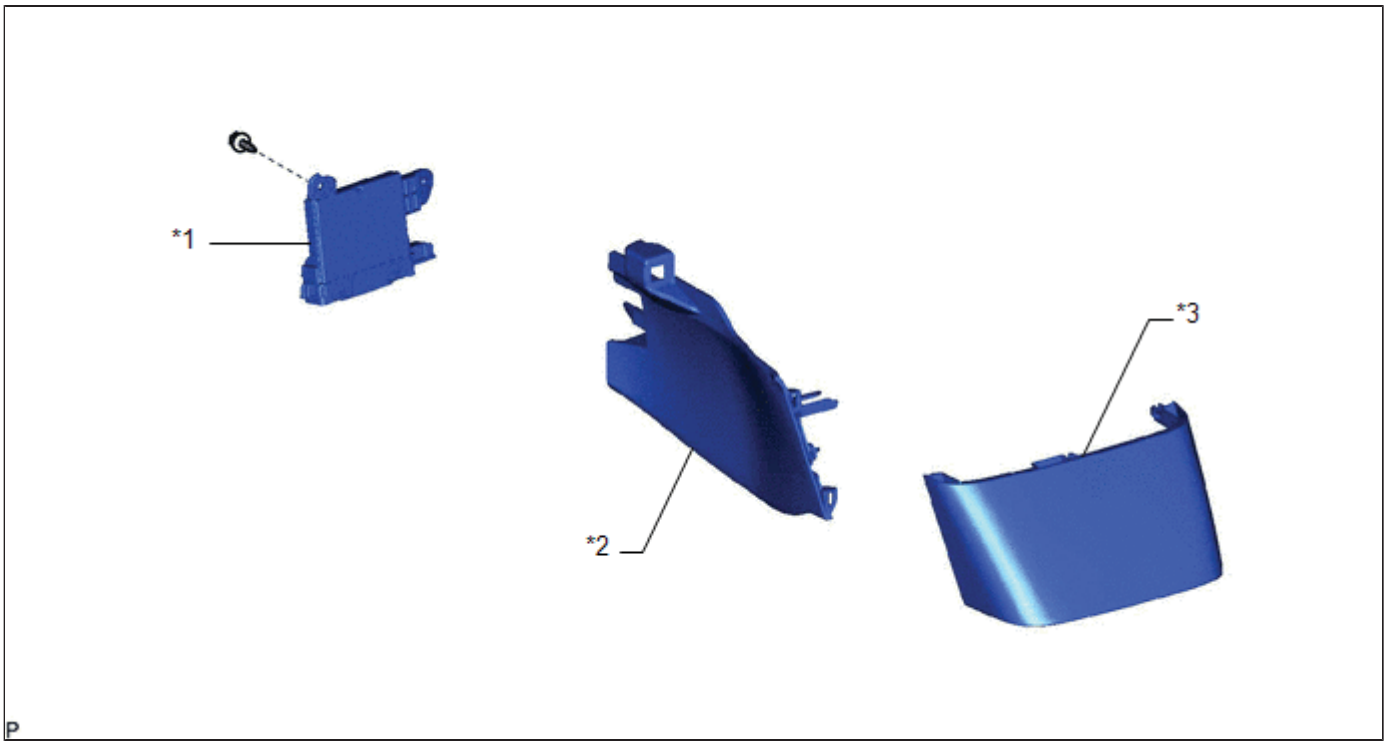
Last Modified: 01-14-2019	6.8:8.0.48	**Doc ID:** RM100000000TBX1
Model Year Start: 2016	**Model:** Prius	**Prod Date Range:** [11/2015 -]
Title: HEATING / AIR CONDITIONING: AIR CONDITIONING AMPLIFIER: COMPONENTS; 2016 - 2019 MY Prius [11/2015 -]		

COMPONENTS

ILLUSTRATION



*1	AIR CONDITIONING AMPLIFIER ASSEMBLY	*2	FRONT NO. 1 CONSOLE BOX INSERT
*3	LOWER CENTER INSTRUMENT CLUSTER FINISH PANEL SUB-ASSEMBLY	-	-

Last Modified: 01-14-2019	6.8:8.0.48	**Doc ID:** RM100000000TBX3
Model Year Start: 2016	**Model:** Prius	**Prod Date Range:** [11/2015 -]
Title: HEATING / AIR CONDITIONING: AIR CONDITIONING AMPLIFIER: INSTALLATION; 2016 - 2019 MY Prius [11/2015 -]		

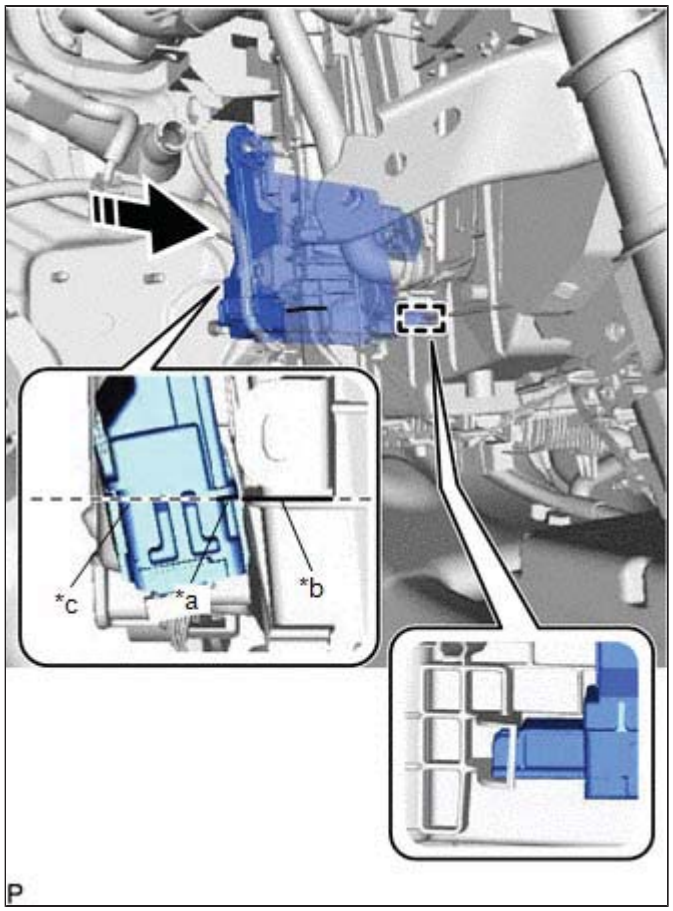
INSTALLATION

PROCEDURE

1. INSTALL AIR CONDITIONING AMPLIFIER ASSEMBLY

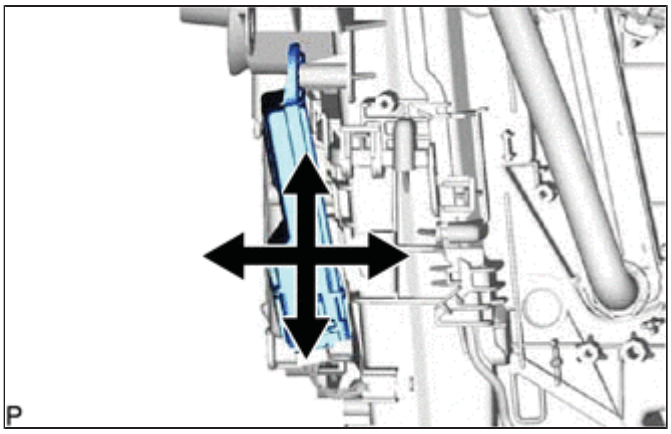
(a) Connect each connector.

(b) Align the rib of the air conditioning amplifier assembly with the rib of the air conditioner unit assembly and engage the guide as shown in the illustration.



*a	Rib of Air Conditioning Amplifier Assembly
*b	Rib of Air Conditioner Unit Assembly
*c	Align
➡	Install in this Direction

(c) Move the air conditioning amplifier assembly in each direction shown in the illustration to check that the guide is securely engaged.



(d) Install the air conditioning amplifier assembly with the screw.

2. INSTALL FRONT NO. 1 CONSOLE BOX INSERT

Click here INFO INFO INFO

3. INSTALL LOWER CENTER INSTRUMENT CLUSTER FINISH PANEL SUB-ASSEMBLY

Click here INFO INFO

4. INSTALL ACCELERATOR PEDAL SENSOR ASSEMBLY

Click here INFO INFO

5. INSTALL REAR CONSOLE BOX ASSEMBLY

Click here INFO INFO

6. INITIALIZATION SERVO MOTOR

Click here INFO

Last Modified: 01-14-2019	6.8:8.0.48	**Doc ID:** RM100000000TBX2
Model Year Start: 2016	**Model:** Prius	**Prod Date Range:** [11/2015 -]
Title: HEATING / AIR CONDITIONING: AIR CONDITIONING AMPLIFIER: REMOVAL; 2016 - 2019 MY Prius [11/2015 -]		

REMOVAL

CAUTION / NOTICE / HINT

The necessary procedures (adjustment, calibration, initialization or registration) that must be performed after parts are removed and installed, or replaced during air conditioning amplifier assembly removal/installation are shown below.

Necessary Procedure After Parts Removed / Installed / Replaced

REPLACED PART OR PERFORMED PROCEDURE	NECESSARY PROCEDURE	EFFECT/INOPERATIVE FUNCTION WHEN NECESSARY PROCEDURE NOT PERFORMED	LINK
Air conditioning amplifier assembly	Initialize servo motor (Air conditioning system)	DTCs are stored	INFO

PROCEDURE

1. REMOVE REAR CONSOLE BOX ASSEMBLY

Click here INFO INFO

2. REMOVE ACCELERATOR PEDAL SENSOR ASSEMBLY

Click here INFO INFO

3. REMOVE LOWER CENTER INSTRUMENT CLUSTER FINISH PANEL SUB-ASSEMBLY

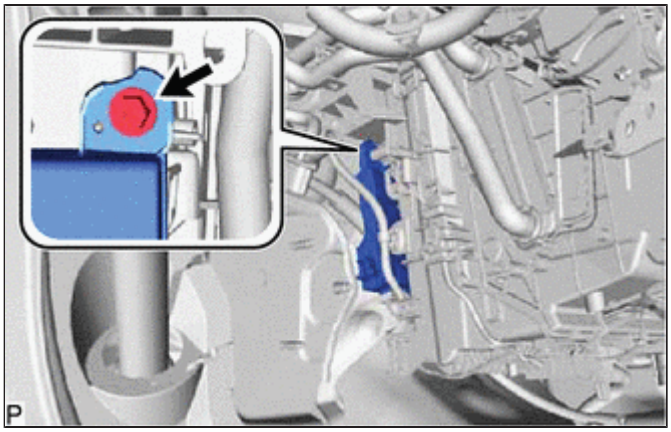
Click here INFO INFO INFO

4. REMOVE FRONT NO. 1 CONSOLE BOX INSERT

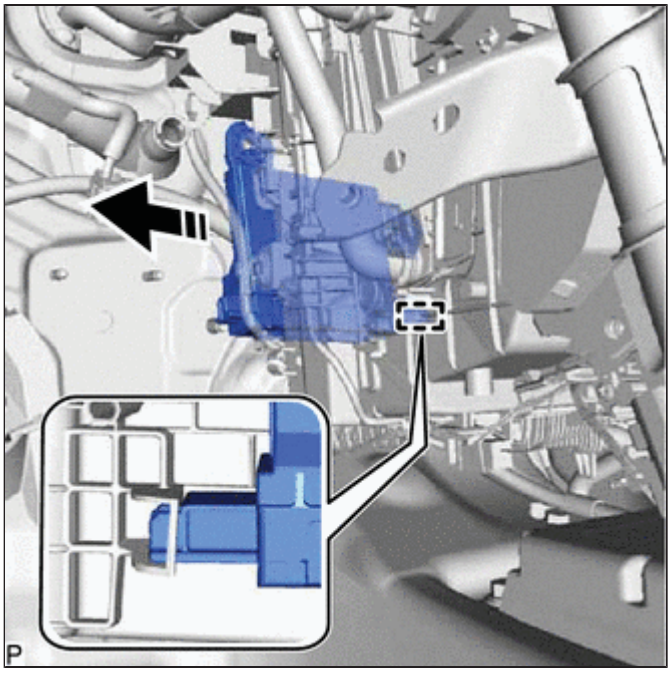
Click here INFO INFO INFO

5. REMOVE AIR CONDITIONING AMPLIFIER ASSEMBLY

(a) Remove the screw.

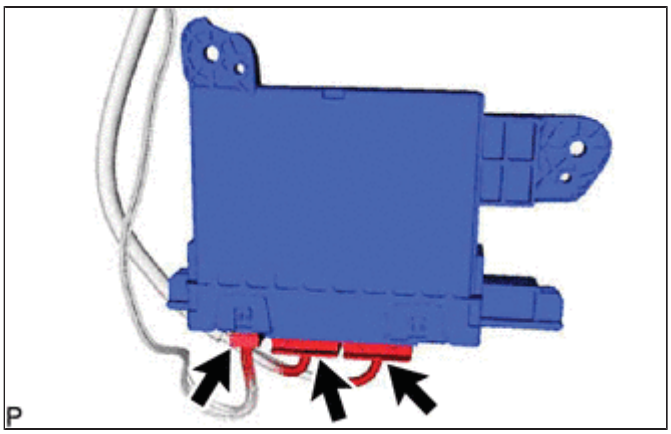


(b) Disengage the guide to remove the air conditioning amplifier assembly as shown in the illustration.



➡	Remove in this Direction

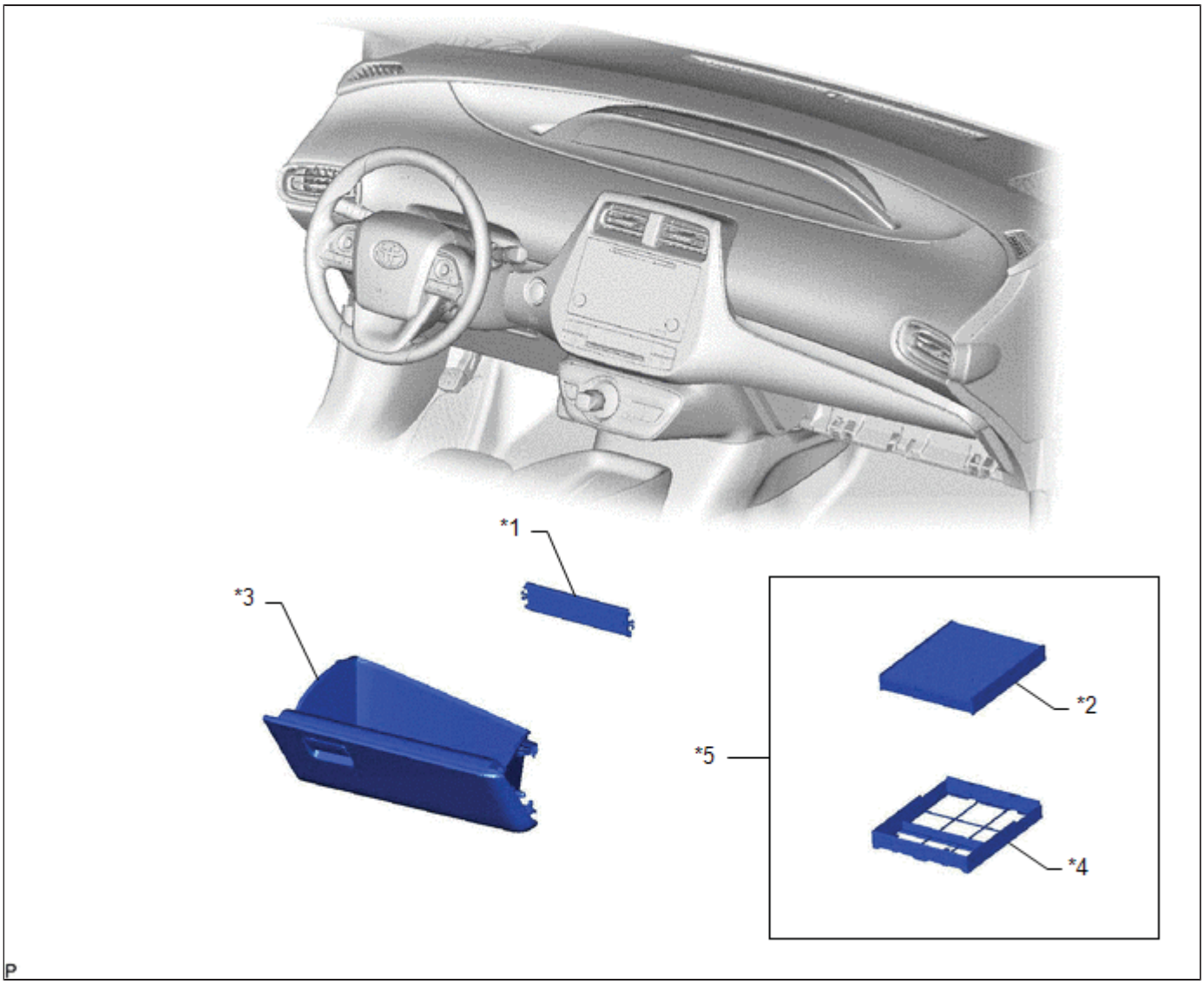
(c) Disconnect each connector.



Last Modified: 01-14-2019	6.8:8.0.48	**Doc ID:** RM100000000TBWU
Model Year Start: 2016	**Model:** Prius	**Prod Date Range:** [11/2015 -]
Title: HEATING / AIR CONDITIONING: AIR CONDITIONING FILTER: COMPONENTS; 2016 - 2019 MY Prius [11/2015 -]		

COMPONENTS

ILLUSTRATION



*1	AIR FILTER COVER PLATE	*2	CLEAN AIR FILTER
*3	GLOVE COMPARTMENT DOOR ASSEMBLY	*4	COOLING UNIT PARTS
*5	AIR FILTER SUB-ASSEMBLY	-	-

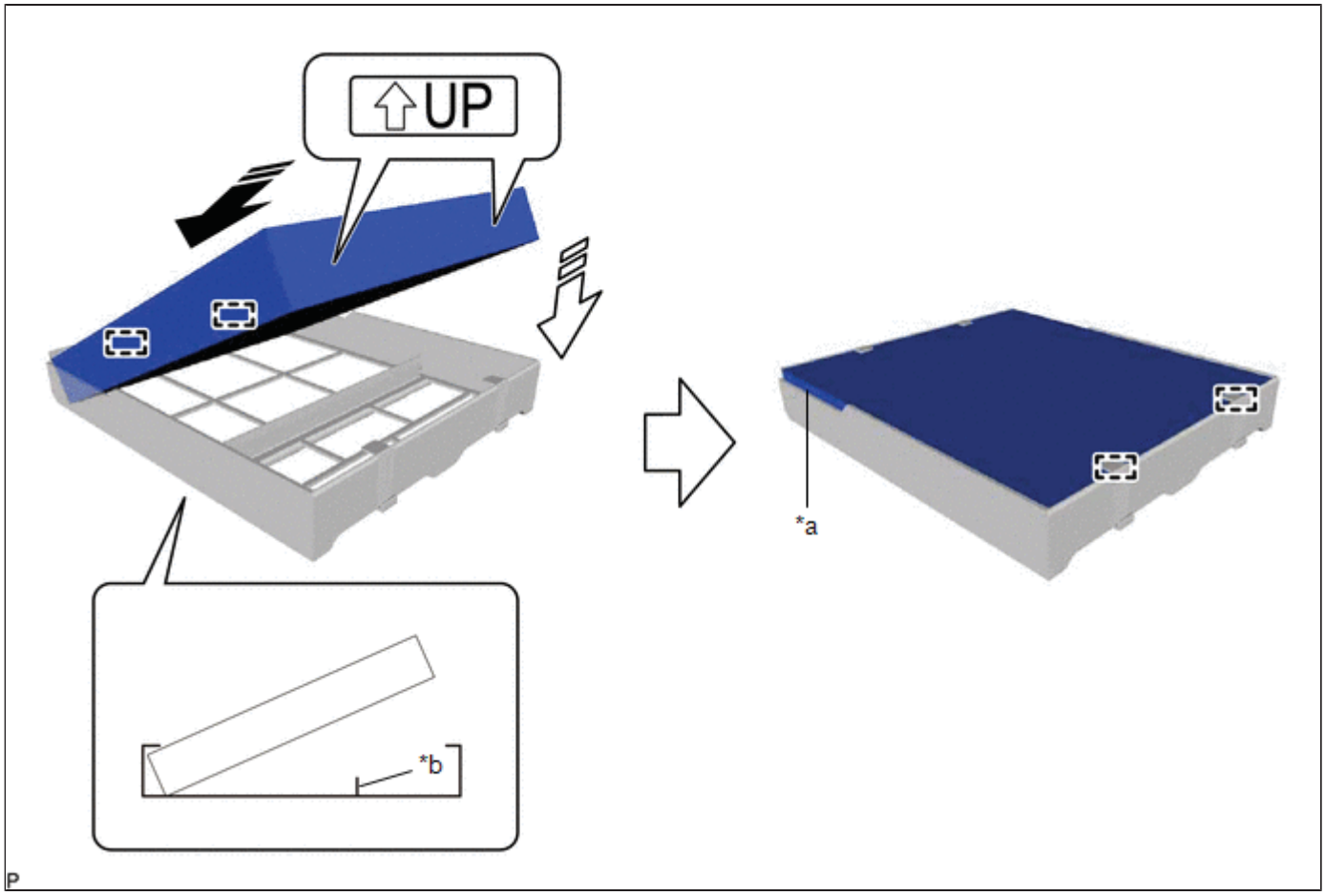
Last Modified: 01-14-2019	6.8:8.0.48	**Doc ID:** RM100000000TBWW
Model Year Start: 2016	**Model:** Prius	**Prod Date Range:** [11/2015 -]
Title: HEATING / AIR CONDITIONING: AIR CONDITIONING FILTER: INSTALLATION; 2016 - 2019 MY Prius [11/2015 -]		

INSTALLATION

PROCEDURE

1. INSTALL CLEAN AIR FILTER

(a) Engage the 2 guides on the cutout side of the cooling unit parts and then engage the 2 guides as shown in the illustration to install the clean air filter.

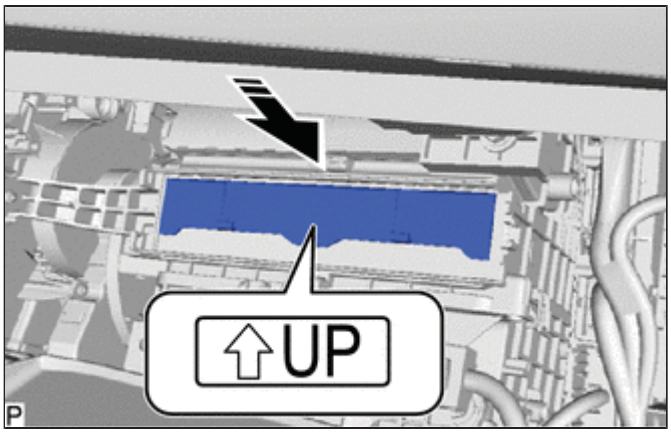


*a	Cutout	*b	Rib
	Install in this Direction (1)		Install in this Direction (2)

NOTICE:

- Make sure that the "UP" marks are facing the correct direction before installing the clean air filter.
- Make sure that there is no clearance between the clean air filter and cooling unit parts and that the clean air filter is not deformed.

(b) Install the air filter sub-assembly as shown in the illustration.



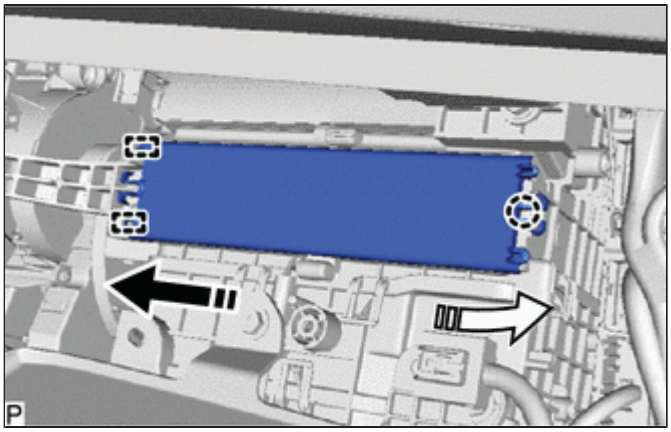
➡	Install in this Direction

NOTICE:

Make sure that the "UP" mark is facing the correct direction before installing the air filter sub-assembly.

2. INSTALL AIR FILTER COVER PLATE

(a) Engage the 2 guides and claw as indicated by the arrows, in the order shown in the illustration to install the air filter cover plate.



➡	Install in this Direction (1)
⇨	Install in this Direction (2)

3. INSTALL GLOVE COMPARTMENT DOOR ASSEMBLY

Click here INFO INFO

Last Modified: 01-14-2019	6.8:8.0.48	**Doc ID:** RM100000000TBWV
Model Year Start: 2016	**Model:** Prius	**Prod Date Range:** [11/2015 -]
Title: HEATING / AIR CONDITIONING: AIR CONDITIONING FILTER: REMOVAL; 2016 - 2019 MY Prius [11/2015 -]		

REMOVAL

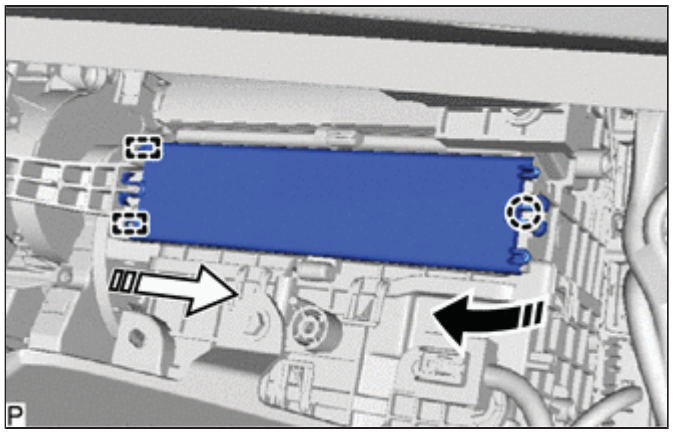
PROCEDURE

1. REMOVE GLOVE COMPARTMENT DOOR ASSEMBLY

Click here INFO INFO INFO

2. REMOVE AIR FILTER COVER PLATE

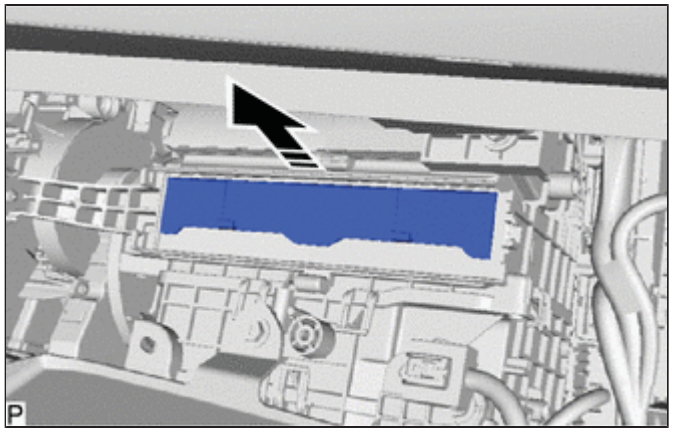
(a) Disengage the claw and 2 guides as indicated by the arrows, in the order shown in the illustration to remove the air filter cover plate.



	Remove in this Direction (1)
	Remove in this Direction (2)

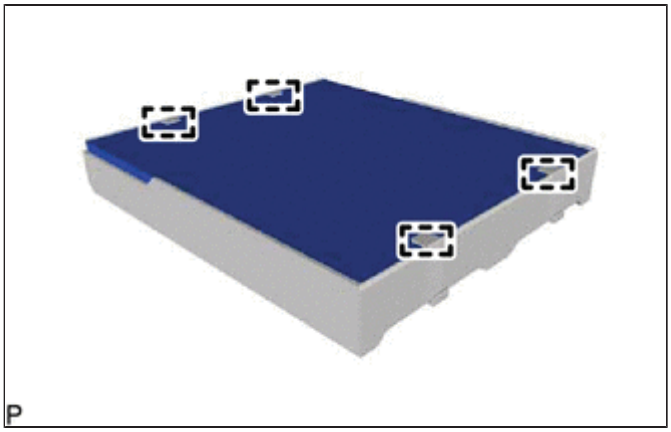
3. REMOVE CLEAN AIR FILTER

(a) Remove the air filter sub-assembly as shown in the illustration.



	Remove in this Direction

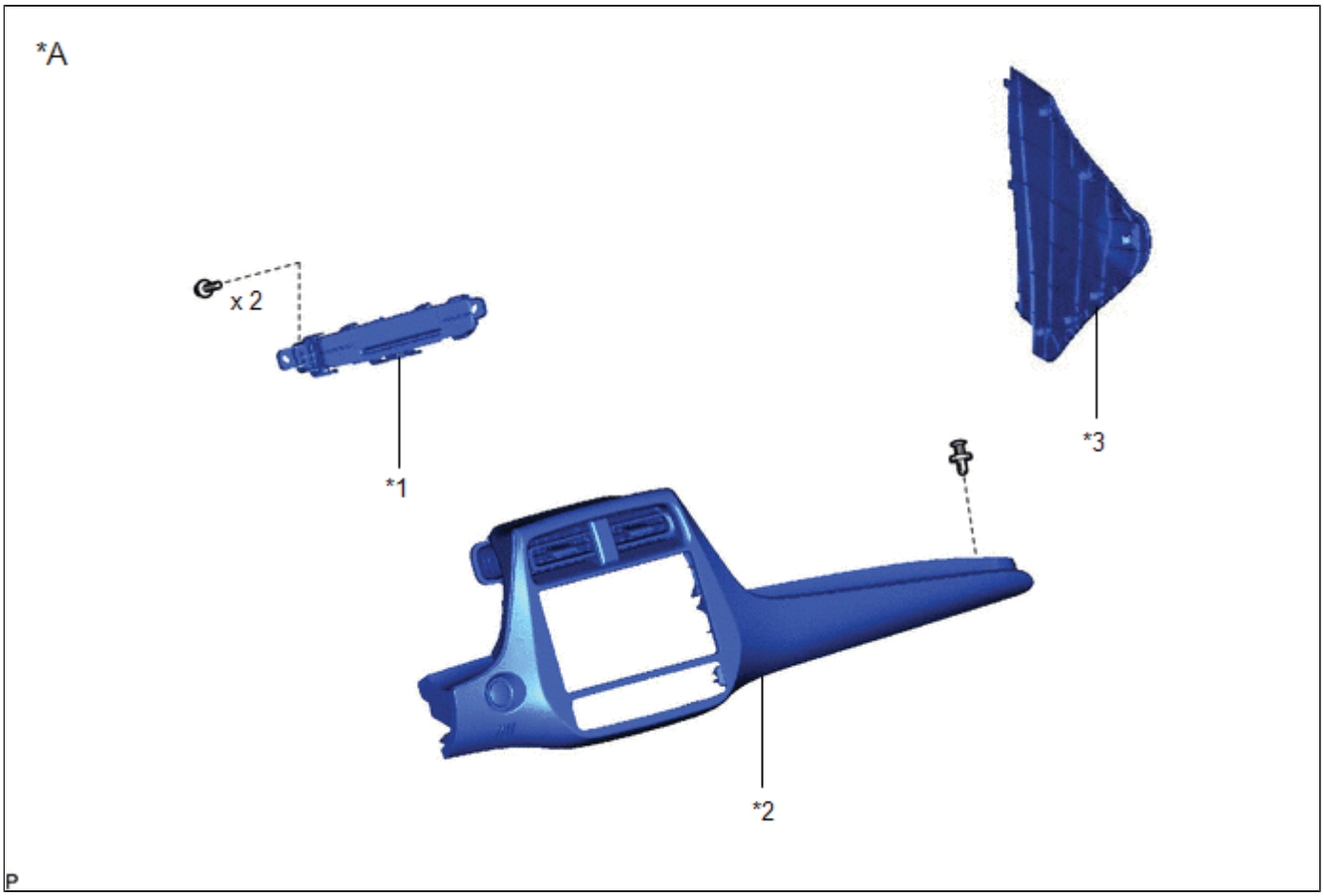
(b) Disengage the 4 guides to remove the clean air filter from the cooling unit parts.



Last Modified: 01-14-2019	6.8:8.0.48	**Doc ID:** RM1000000018JEW
Model Year Start: 2018	**Model:** Prius	**Prod Date Range:** [11/2017 -]
Title: HEATING / AIR CONDITIONING: AIR CONDITIONING PANEL: COMPONENTS; 2018 - 2019 MY Prius [11/2017 -]		

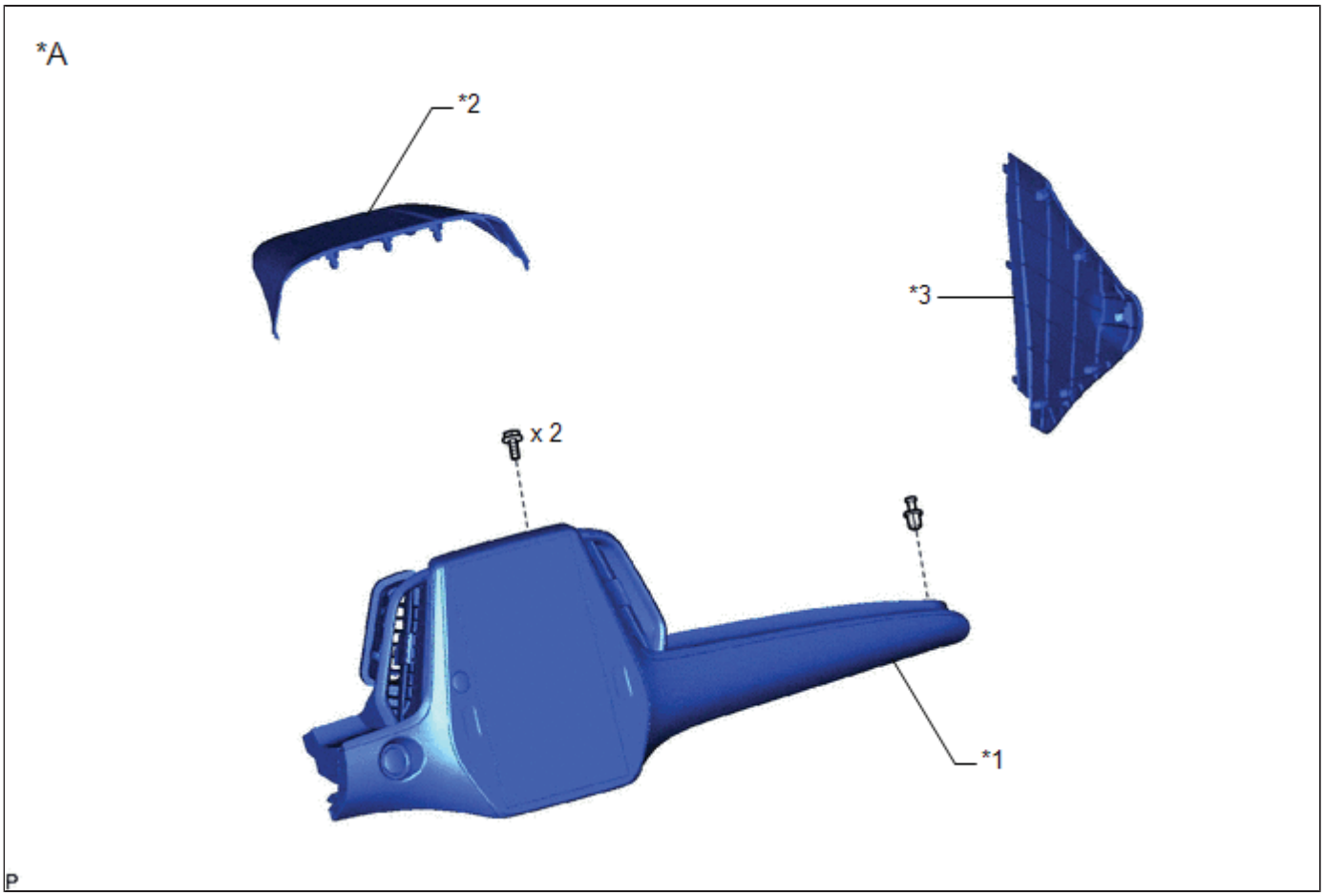
COMPONENTS

ILLUSTRATION



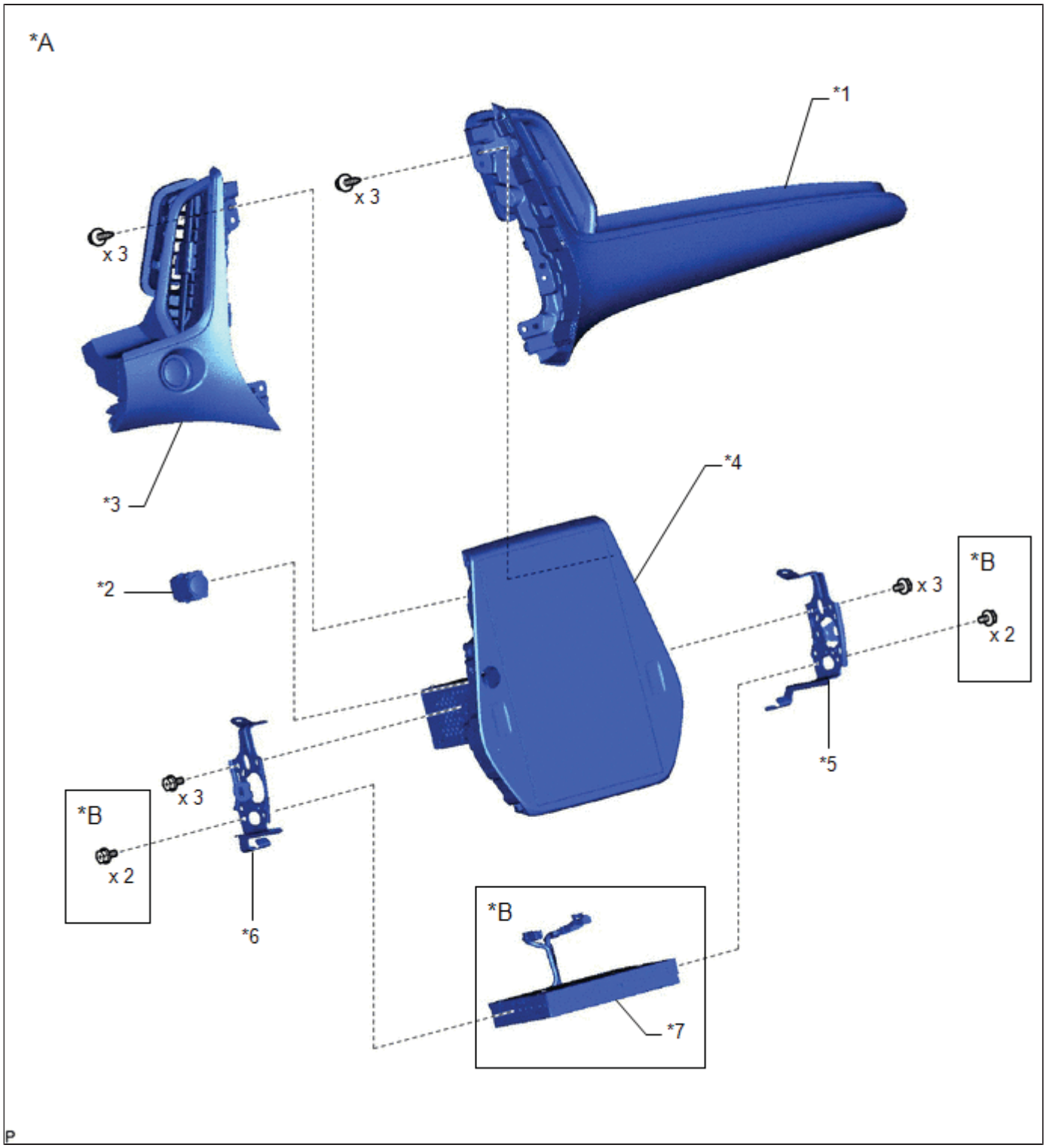
*A	except 11.6 Inch Display	-	-
*1	AIR CONDITIONING CONTROL ASSEMBLY	*2	CENTER INSTRUMENT CLUSTER FINISH PANEL SUB-ASSEMBLY
*3	INSTRUMENT PANEL FINISH PANEL END RH	-	-

ILLUSTRATION



*A	for 11.6 Inch Display	-	-
*1	CENTER INSTRUMENT CLUSTER FINISH PANEL SUB-ASSEMBLY WITH NAVIGATION RECEIVER ASSEMBLY	*2	CENTER INSTRUMENT CLUSTER FINISH PANEL UPPER
*3	INSTRUMENT PANEL FINISH PANEL END RH	-	-

ILLUSTRATION



*A	for 11.6 Inch Display	*B	w/ Satellite Radio
*1	CENTER INSTRUMENT CLUSTER FINISH PANEL SUB-ASSEMBLY	*2	HAZARD WARNING SIGNAL SWITCH ASSEMBLY
*3	INSTRUMENT CLUSTER FINISH PANEL SUB-ASSEMBLY	*4	NAVIGATION RECEIVER ASSEMBLY
*5	NO. 1 RADIO BRACKET	*6	NO. 2 RADIO BRACKET

*7	STEREO COMPONENT TUNER ASSEMBLY WITH WIRE	-	-

Last Modified: 01-14-2019	6.8:8.0.48	**Doc ID:** RM1000000018JHL
Model Year Start: 2018	**Model:** Prius	**Prod Date Range:** [11/2017 -]
Title: HEATING / AIR CONDITIONING: AIR CONDITIONING PANEL: INSTALLATION; 2018 - 2019 MY Prius [11/2017 -]		

INSTALLATION

PROCEDURE

1. INSTALL STEREO COMPONENT TUNER ASSEMBLY WITH WIRE (for 11.6 Inch Display with Satellite Radio)

2. INSTALL NAVIGATION RECEIVER ASSEMBLY (for 11.6 Inch Display)

3. INSTALL NO. 2 RADIO BRACKET (for 11.6 Inch Display)

Click here INFO

4. INSTALL NO. 1 RADIO BRACKET (for 11.6 Inch Display)

Click here INFO

5. INSTALL HAZARD WARNING SIGNAL SWITCH ASSEMBLY (for 11.6 Inch Display)

Click here INFO

6. CONNECT STEREO COMPONENT TUNER ASSEMBLY WITH WIRE (for 11.6 Inch Display with Satellite Radio)

Click here INFO

7. INSTALL CENTER INSTRUMENT CLUSTER FINISH PANEL SUB-ASSEMBLY (for 11.6 Inch Display)

Click here INFO

8. INSTALL INSTRUMENT CLUSTER FINISH PANEL SUB-ASSEMBLY (for 11.6 Inch Display)

Click here INFO

9. INSTALL AIR CONDITIONING CONTROL ASSEMBLY (except 11.6 Inch Display)

(a) Engage the 4 guides and claw.

(b) Install the air conditioning control assembly with the 2 screws.

10. INSTALL CENTER INSTRUMENT CLUSTER FINISH PANEL SUB-ASSEMBLY (except 11.6 Inch Display)

Click here INFO

11. INSTALL CENTER INSTRUMENT CLUSTER FINISH PANEL SUB-ASSEMBLY WITH NAVIGATION RECEIVER ASSEMBLY (for 11.6 Inch Display)

Click here INFO

12. INSTALL CENTER INSTRUMENT CLUSTER FINISH PANEL UPPER (for 11.6 Inch Display)

Click here INFO

13. INSTALL INSTRUMENT PANEL FINISH PANEL END RH

Click here INFO

14. CONNECT CABLE TO NEGATIVE AUXILIARY BATTERY TERMINAL (for 11.6 Inch Display)

Click here INFO INFO

Last Modified: 01-14-2019	6.8:8.0.48	**Doc ID:** RM100000001GLC7
Model Year Start: 2019	**Model:** Prius	**Prod Date Range:** [12/2018 -]
Title: HEATING / AIR CONDITIONING: AIR CONDITIONING PANEL: REMOVAL; 2019 MY Prius [12/2018 -]		

REMOVAL

CAUTION / NOTICE / HINT

The necessary procedures (adjustment, calibration, initialization, or registration) that must be performed after parts are removed and installed, or replaced during air conditioning panel removal/installation are shown below.

Necessary Procedures After Parts Removed / Installed / Replaced

REPLACED PART OR PERFORMED PROCEDURE	NECESSARY PROCEDURE	EFFECT/INOPERATIVE FUNCTION WHEN NECESSARY PROCEDURE NOT PERFORMED	LINK
Disconnect cable from negative auxiliary battery terminal	Memorize steering angle neutral point	Lane departure alert system (w/ Steering Control)	INFO
		Intelligent clearance sonar system*1	
		Simple advanced parking guidance system*1	
		Pre-collision system	
		AFS (Adaptive Front-lighting System)	
	Initialize back door lock	Power door lock control system	INFO

*1: When performing learning using the Techstream.

Click here INFO

PROCEDURE

1. PRECAUTION (for 11.6 Inch Display)

NOTICE:

After turning the power switch off, waiting time may be required before disconnecting the cable from the negative (-) auxiliary battery terminal. Therefore, make sure to read the disconnecting the cable from the negative (-) auxiliary battery terminal notices before proceeding with work.

Click here INFO

Click here INFO

2. DISCONNECT CABLE FROM NEGATIVE AUXILIARY BATTERY TERMINAL (for 11.6 Inch Display)

Click here INFO

3. REMOVE INSTRUMENT PANEL FINISH PANEL END RH

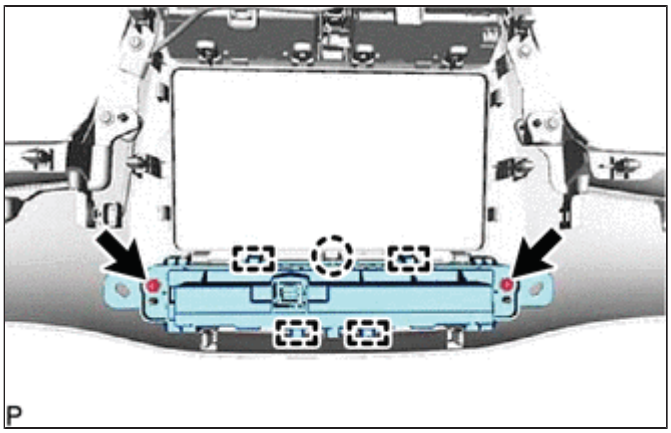
Click here INFO

4. REMOVE CENTER INSTRUMENT CLUSTER FINISH PANEL SUB-ASSEMBLY (except 11.6 Inch Display)

Click here INFO

5. REMOVE AIR CONDITIONING CONTROL ASSEMBLY (except 11.6 Inch Display)

(a) Remove the 2 screws.



(b) Disengage the claw and 4 guides to remove the air conditioning control assembly.

6. REMOVE CENTER INSTRUMENT CLUSTER FINISH PANEL UPPER (for 11.6 Inch Display)

Click here INFO

7. REMOVE CENTER INSTRUMENT CLUSTER FINISH PANEL SUB-ASSEMBLY WITH NAVIGATION RECEIVER ASSEMBLY (for 11.6 Inch Display)

Click here INFO

8. REMOVE INSTRUMENT CLUSTER FINISH PANEL SUB-ASSEMBLY (for 11.6 Inch Display)

Click here INFO

9. REMOVE CENTER INSTRUMENT CLUSTER FINISH PANEL SUB-ASSEMBLY (for 11.6 Inch Display)

Click here INFO

10. DISCONNECT STEREO COMPONENT TUNER ASSEMBLY WITH WIRE (for 11.6 Inch Display with Satellite Radio)

Click here INFO

11. REMOVE HAZARD WARNING SIGNAL SWITCH ASSEMBLY (for 11.6 Inch Display)

Click here INFO

12. REMOVE NO. 1 RADIO BRACKET (for 11.6 Inch Display)

Click here INFO

13. REMOVE NO. 2 RADIO BRACKET (for 11.6 Inch Display)

Click here INFO

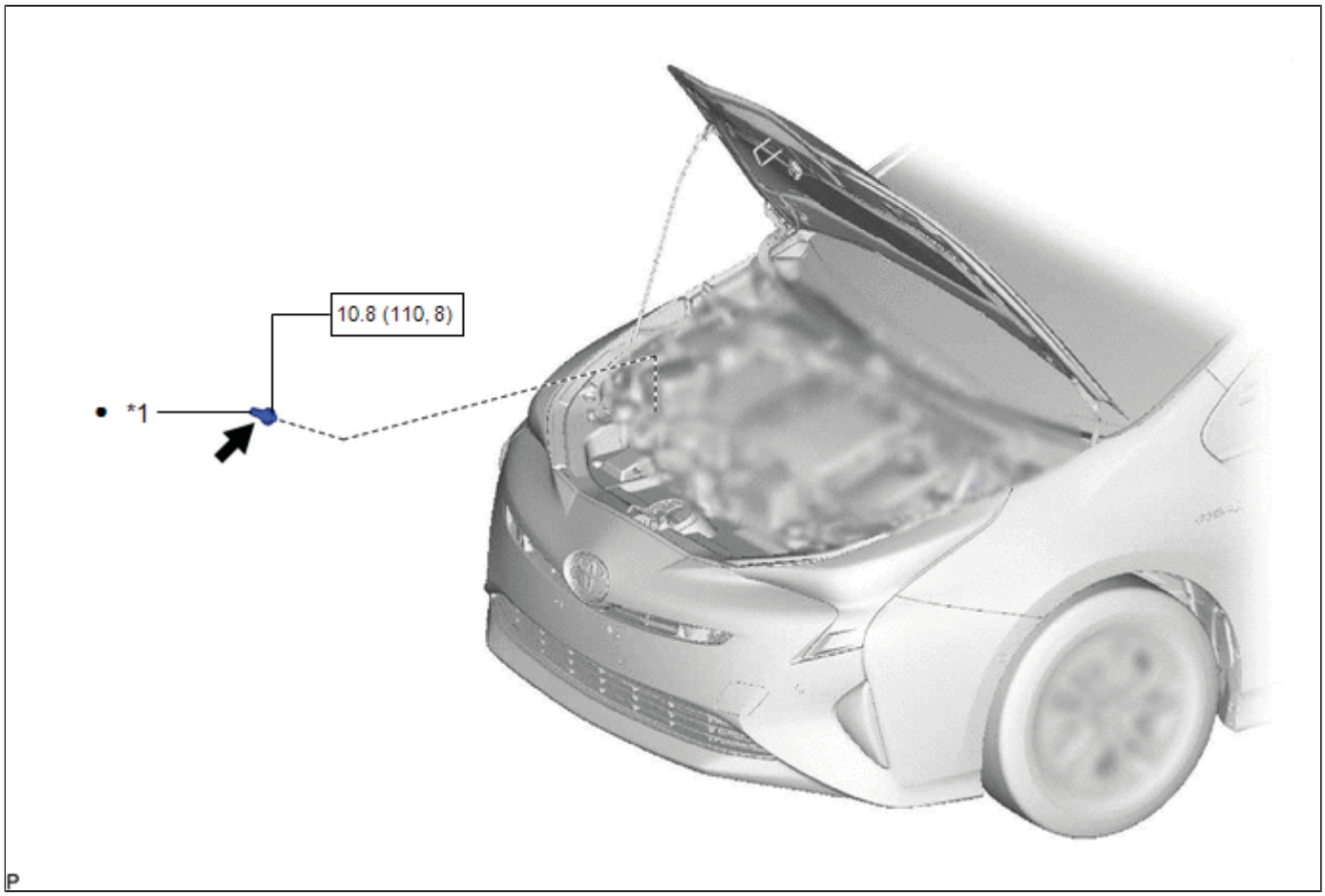
14. REMOVE NAVIGATION RECEIVER ASSEMBLY (for 11.6 Inch Display)

15. REMOVE STEREO COMPONENT TUNER ASSEMBLY WITH WIRE (for 11.6 Inch Display with Satellite Radio)

Last Modified: 01-14-2019	6.8:8.0.48	**Doc ID:** RM100000000T88J
Model Year Start: 2016	**Model:** Prius	**Prod Date Range:** [11/2015 -]
Title: HEATING / AIR CONDITIONING: AIR CONDITIONING PRESSURE SENSOR: COMPONENTS; 2016 - 2019 MY Prius [11/2015 -]		

COMPONENTS

ILLUSTRATION



*1	AIR CONDITIONER PRESSURE SENSOR	-	-
□	N*m (kgf*cm, ft.*lbf): Specified torque	•	Non-reusable part
➡	Compressor oil ND-OIL 11 or equivalent	-	-

Last Modified: 01-14-2019	6.8:8.0.48	**Doc ID:** RM100000000T88L
Model Year Start: 2016	**Model:** Prius	**Prod Date Range:** [11/2015 -]
Title: HEATING / AIR CONDITIONING: AIR CONDITIONING PRESSURE SENSOR: INSTALLATION; 2016 - 2019 MY Prius [11/2015 -]		

INSTALLATION

PROCEDURE

1. INSTALL AIR CONDITIONER PRESSURE SENSOR

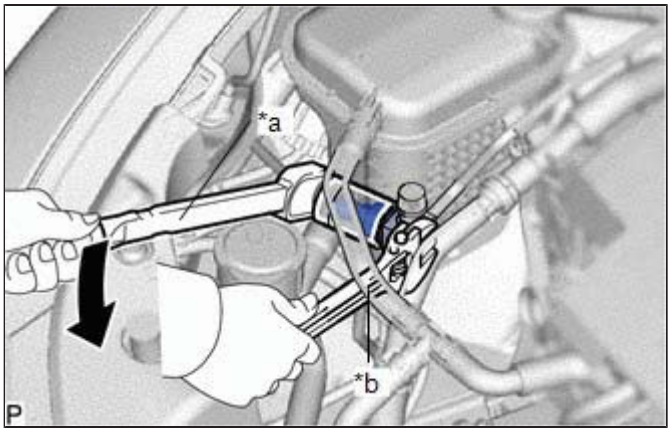
(a) Remove the vinyl tape from the air conditioner tube and accessory assembly.

(b) Sufficiently apply compressor oil to a new air conditioner pressure sensor and the fitting surface of the air conditioner pressure sensor.

Compressor Oil:
ND-OIL 11 or equivalent

(c) Using a 27 mm deep socket wrench, install the air conditioner pressure sensor as shown in the illustration.

Torque:
10.8 N·m {110 kgf·cm, 8 ft·lbf}



*a	Turn
*b	Hold

(d) Connect the connector.

2. CHARGE AIR CONDITIONING SYSTEM WITH REFRIGERANT

Click here INFO

3. WARM UP COMPRESSOR

Click here INFO

4. INSPECT FOR REFRIGERANT LEAK

Click here INFO

Last Modified: 01-14-2019	6.8:8.0.48	**Doc ID:** RM100000000T88M
Model Year Start: 2016	**Model:** Prius	**Prod Date Range:** [11/2015 -]
Title: HEATING / AIR CONDITIONING: AIR CONDITIONING PRESSURE SENSOR: ON-VEHICLE INSPECTION; 2016 - 2019 MY Prius [11/2015 -]		

ON-VEHICLE INSPECTION

PROCEDURE

1. INSPECT AIR CONDITIONER PRESSURE SENSOR

(a) Check the wire harness.

(1) Disconnect the A29 air conditioner pressure sensor connector.

(2) Disconnect the F57 air conditioning amplifier assembly connector.

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

Standard Resistance:

EWD INFO

Click Location & Routing(A29)
Click Location & Routing(F57)
Click Connector(A29)
Click Connector(F57)

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
A29-1 (-) - F57-2 (SG-2)	Always	Below 1 Ω
A29-2 (PR) - F57-24 (PRE)	Always	Below 1 Ω
A29-3 (+) - F57-6 (S5 -3)	Always	Below 1 Ω
A29-1 (-) or F57-2 (SG-2) - Body ground	Always	10 kΩ or higher
A29-2 (PR) or F57-24 (PRE) - Body ground	Always	10 kΩ or higher
A29-3 (+) or F57-6 (S5 -3) - Body ground	Always	10 kΩ or higher

If the resistance is not as specified, repair the wire harness.

(4) Reconnect the F57 air conditioning amplifier assembly connector.

(5) Turn the power switch on (IG).

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

Standard Voltage:

EWD INFO

Click Location & Routing(A29)
Click Connector(A29)

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
A29-3 (+) - Body ground	Power switch on (IG)	4.75 to 5.25 V

If the voltage is not as specified, repair the wire harness or replace air conditioning amplifier assembly.

(b) Check the air conditioner pressure sensor.

(1) Connect the connector to the air conditioner pressure sensor.

(2) Install a manifold gauge set.

(3) Turn the A/C switch on.

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

HINT:

Check from the rear of the connector while it is connected to the air conditioning amplifier assembly.

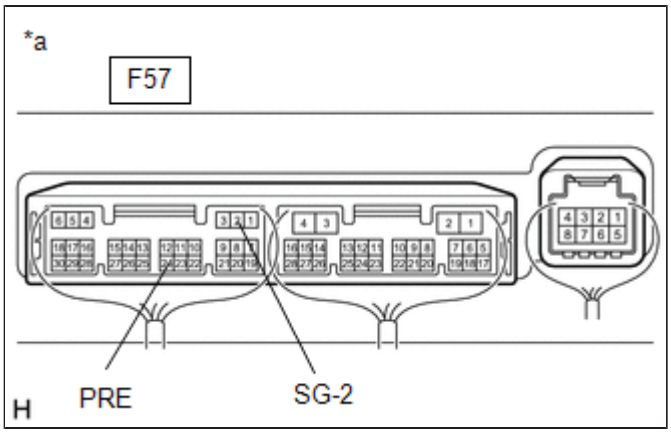
Standard Voltage:

EWD INFO

Click Location & Routing(F57)

Click Connector(F57)

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
F57-24 (PRE) - F57-2 (SG-2)	Refrigerant pressure: Normal pressure (less than 3025 kPa (30.8 kgf/cm^2, 439 psi) and more than 176 kPa (1.8 kgf/cm^2, 26 psi))	0.74 to 4.61 V



*a	Component with harness connected (Air Conditioning Amplifier Assembly)

If the voltage is not as specified, replace the air conditioner pressure sensor.

Last Modified: 01-14-2019	6.8:8.0.48	**Doc ID:** RM100000000T88K
Model Year Start: 2016	**Model:** Prius	**Prod Date Range:** [11/2015 -]
Title: HEATING / AIR CONDITIONING: AIR CONDITIONING PRESSURE SENSOR: REMOVAL; 2016 - 2019 MY Prius [11/2015 -]		

REMOVAL

PROCEDURE

1. RECOVER REFRIGERANT FROM REFRIGERATION SYSTEM

Click here INFO

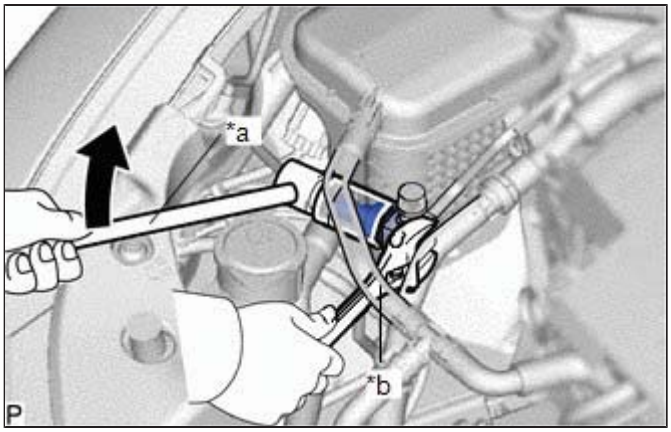
2. REMOVE AIR CONDITIONER PRESSURE SENSOR

(a) Disconnect the connector.

(b) Using a 27 mm deep socket wrench, remove the air conditioner pressure sensor as shown in the illustration.

NOTICE:

Seal the openings of the disconnected parts using vinyl tape to prevent entry of moisture and foreign matter.



*a	Turn
*b	Hold

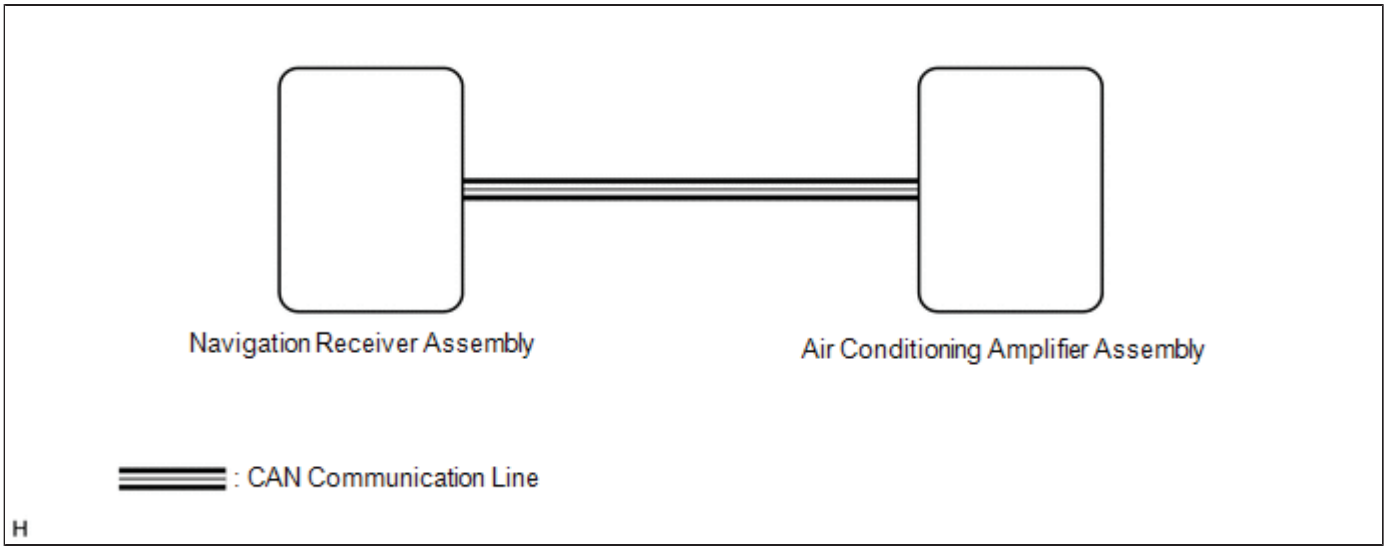
Last Modified: 01-14-2019	6.8:8.0.48	**Doc ID:** RM1000000018K1Z
Model Year Start: 2018	**Model:** Prius	**Prod Date Range:** [11/2017 -]
Title: HEATING / AIR CONDITIONING: AIR CONDITIONING SYSTEM: Air Conditioning Control Panel Circuit; 2018 - 2019 MY Prius [11/2017 -]		

Air Conditioning Control Panel Circuit

DESCRIPTION

The navigation receiver assembly switch signals are sent to the air conditioning amplifier assembly via CAN communication.

WIRING DIAGRAM



PROCEDURE

1.	**CHECK CAN COMMUNICATION SYSTEM**

(a) Using the Techstream, check for CAN communication system DTCs.

Click here INFO INFO

RESULT	PROCEED TO
CAN DTCs are not output	A
CAN DTCs are output	B

B ▶ **GO TO CAN COMMUNICATION SYSTEM** INFO INFO

A

2.	**CHECK NAVIGATION RECEIVER ASSEMBLY**

(a) Check the operation of the navigation system and then operate the air conditioning system using the navigation receiver assembly.

RESULT	PROCEED TO
Only the air conditioning function does not operate	A
The navigation receiver assembly does not operate	B

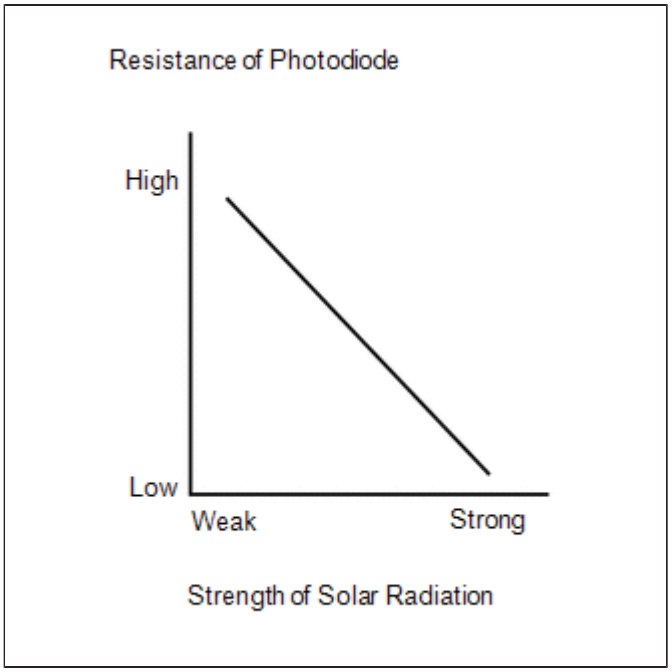
A ▶ **REPLACE AIR CONDITIONING AMPLIFIER ASSEMBLY**

B ▶ **GO TO NAVIGATION SYSTEM**

Last Modified: 01-14-2019	6.8:8.0.48	**Doc ID:** RM100000000RW4W
Model Year Start: 2016	**Model:** Prius	**Prod Date Range:** [11/2015 -]
Title: HEATING / AIR CONDITIONING: AIR CONDITIONING SYSTEM: B14A2; Driver Side Solar Sensor Short Circuit; 2016 - 2019 MY Prius [11/2015 -]		

DTC	**B14A2**	**Driver Side Solar Sensor Short Circuit**

DESCRIPTION

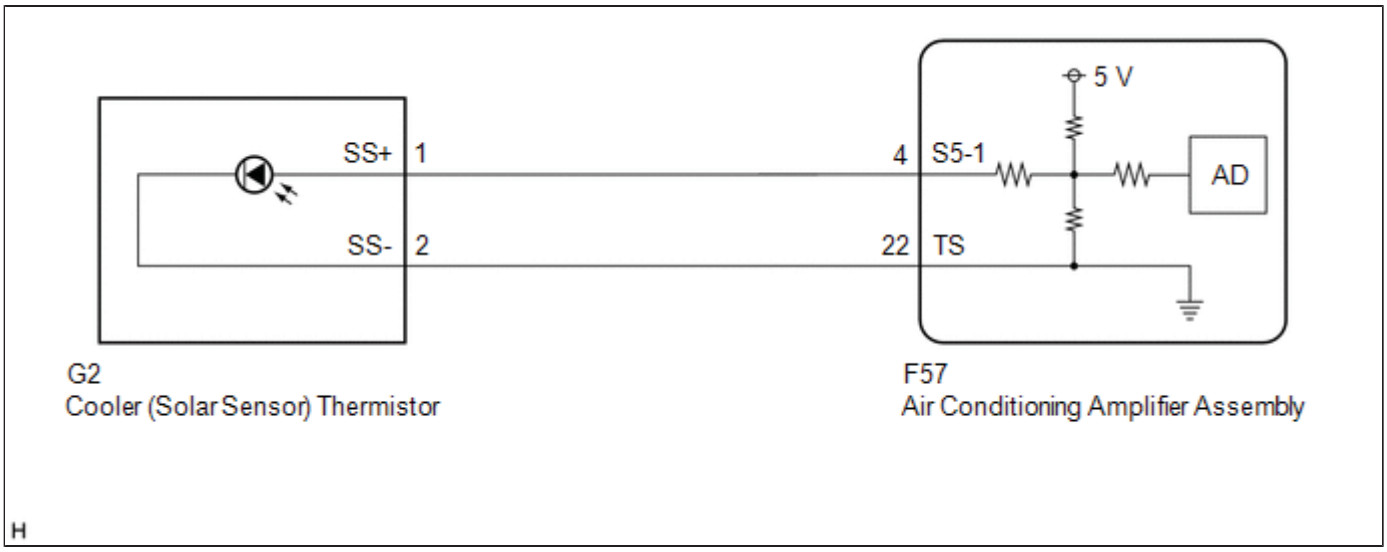


The cooler (solar sensor) thermistor is installed on the upper side of the instrument panel. It detects sunlight to control air conditioning control in AUTO mode. The output voltage from the cooler (solar sensor) thermistor varies in accordance with the amount of sunlight. When the sunlight increases, the output voltage increases. As the sunlight decreases, the output voltage decreases. The air conditioning amplifier assembly detects changes in the output voltage from the cooler (solar sensor) thermistor.

DTC NO.	DETECTION ITEM	DTC DETECTION CONDITION	TROUBLE AREA	MEMORY
B14A2	Driver Side Solar Sensor Short Circuit	Short in cooler (solar sensor) thermistor circuit	• Cooler (solar sensor) thermistor • Harness or connector • Air conditioning amplifier assembly	Memorized (4 sec. or more)*

*: The air conditioning amplifier assembly stores this DTC if the malfunction has occurred for the period of time indicated in the brackets.

WIRING DIAGRAM



PROCEDURE

1.	**READ VALUE USING TECHSTREAM**

(a) Connect the Techstream to the DLC3.

(b) Turn the power switch on (IG).

(c) Turn the Techstream on.

(d) Enter the following menus: Body Electrical / Air Conditioner / Data List.

(e) Read the Data List according to the display on the Techstream.

Body Electrical > Air Conditioner > Data List

TESTER DISPLAY	MEASUREMENT ITEM	RANGE	NORMAL CONDITION	DIAGNOSTIC NOTE
Solar Sensor (D Side)	Solar sensor	Min.: 0 Max.: 255	Solar sensor value increase as brightness increases	-

Body Electrical > Air Conditioner > Data List

TESTER DISPLAY
Solar Sensor (D Side)

OK:

The display is as specified in the normal condition column.

RESULT	PROCEED TO
OK (When troubleshooting according to Problem Symptoms Table)	A

OK (When troubleshooting according to the DTC)	B
NG	C

A ▶ **PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE** INFO INFO INFO INFO

B ▶ **REPLACE AIR CONDITIONING AMPLIFIER ASSEMBLY**

C
▼

2.	**CHECK HARNESS AND CONNECTOR (POWER SOURCE CIRCUIT)**

(a) Disconnect the G2 cooler (solar sensor) thermistor connector.

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

Standard Voltage:

EWD INFO

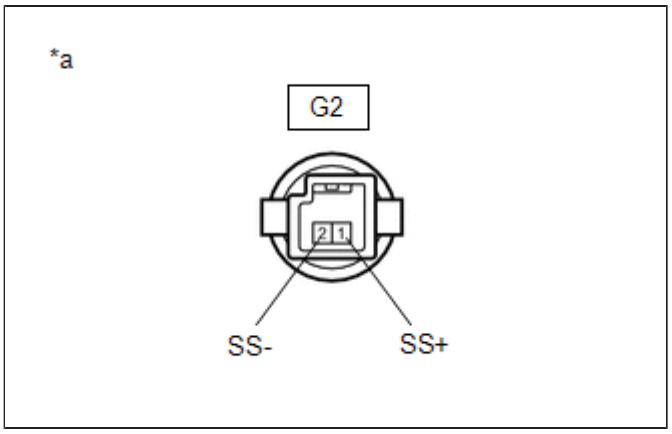
Click Location & Routing(G2)
Click Connector(G2)

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
G2-1 (SS+) - G2-2 (SS-)	Power switch off	Below 1 V
G2-1 (SS+) - G2-2 (SS-)	Power switch on (IG)	4.5 to 5.5 V

NG ▶ **GO TO STEP 4**

OK
▼

3.	**INSPECT COOLER (SOLAR SENSOR) THERMISTOR**



*a	Component with harness connected (Cooler (Solar Sensor) Thermistor)

(a) Remove the cooler (solar sensor) thermistor.

HINT:

Click here INFO

(b) Connect the cooler (solar sensor) thermistor connector.

(c) Turn the power switch on (IG).

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

Standard Voltage:

EWD INFO

Click Location & Routing(G2)
Click Connector(G2)

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
G2-1 (SS+) - G2-2 (SS-)	Sensor subjected to electric light	0.8 to 4.3 V
G2-1 (SS+) - G2-2 (SS-)	Sensor covered with cloth	Below 0.8 V

NOTICE:

- The connection procedure for using a digital tester such as a TOYOTA electrical tester is shown above. When using an analog tester, connect the negative (-) lead to terminal 1 and the positive (+) lead to terminal 2 of the cooler (solar sensor) thermistor.
- Do not bring the positive and negative tester probes too close to each other as a short circuit may occur.

HINT:

- Use an incandescent light for inspection. Bring it within about 30 cm (11.8 in.) of the cooler (solar sensor) thermistor.
- As the inspection light is moved away from the sensor, the voltage will decrease.

OK ▶ **REPLACE AIR CONDITIONING AMPLIFIER ASSEMBLY**

NG ▶ **REPLACE COOLER (SOLAR SENSOR) THERMISTOR**

4.	**CHECK HARNESS AND CONNECTOR (AIR CONDITIONING AMPLIFIER ASSEMBLY - COOLER (SOLAR SENSOR) THERMISTOR)**

(a) Disconnect the F57 air conditioning amplifier assembly connector.

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

Standard Resistance:

EWD INFO

Click Location & Routing(F57)
Click Location & Routing(G2)
Click Connector(F57)
Click Connector(G2)

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
F57-4 (S5 -1) - G2-1 (SS+)	Always	Below 1 Ω
F57-22 (TS) - G2-2 (SS-)	Always	Below 1 Ω
F57-4 (S5 -1) or G2-1 (SS+) - Body ground	Always	10 kΩ or higher
F57-22 (TS) or G2-2 (SS-) - Body ground	Always	10 kΩ or higher

OK ▶ **REPLACE AIR CONDITIONING AMPLIFIER ASSEMBLY**

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

Last Modified: 01-14-2019	6.8:8.0.48	**Doc ID:** RM100000000RW4X
Model Year Start: 2016	**Model:** Prius	**Prod Date Range:** [11/2015 -]
Title: HEATING / AIR CONDITIONING: AIR CONDITIONING SYSTEM: B14A8,B14A9,B14AA; Glass Temperature Sensor Circuit; 2016 - 2019 MY Prius [11/2015 -]		

DTC	**B14A8**	**Glass Temperature Sensor Circuit**

DTC	**B14A9**	**Glass Surroundings Temperature Sensor Circuit**

DTC	**B14AA**	**Glass Humidity Sensor Circuit**

DESCRIPTION

- B14A8:The air conditioning amplifier assembly detects the windshield glass surface temperature from this circuit. The air conditioning amplifier assembly applies voltage to the air conditioning thermistor assembly (glass temperature sensor). As the windshield glass surface temperature rises, the resistance decreases. The air conditioning amplifier assembly detects the change in resistance as the windshield glass surface temperature changes.
- B14A9:The air conditioning amplifier assembly detects the temperature of the area near the windshield glass using this circuit. The air conditioning amplifier assembly applies voltage to the air conditioning thermistor assembly (glass surroundings temperature sensor). As the temperature of the area near the windshield glass rises, the resistance decreases. The air conditioning amplifier assembly detects the change in resistance as the windshield glass surroundings temperature changes.
- B14AA:The air conditioning thermistor assembly (glass humidity sensor) detects cabin humidity. The voltage of the air conditioning thermistor assembly (glass humidity sensor) changes in accordance with cabin humidity. The air conditioning amplifier assembly reads the changes in output voltage of the air conditioning thermistor assembly (glass humidity sensor).

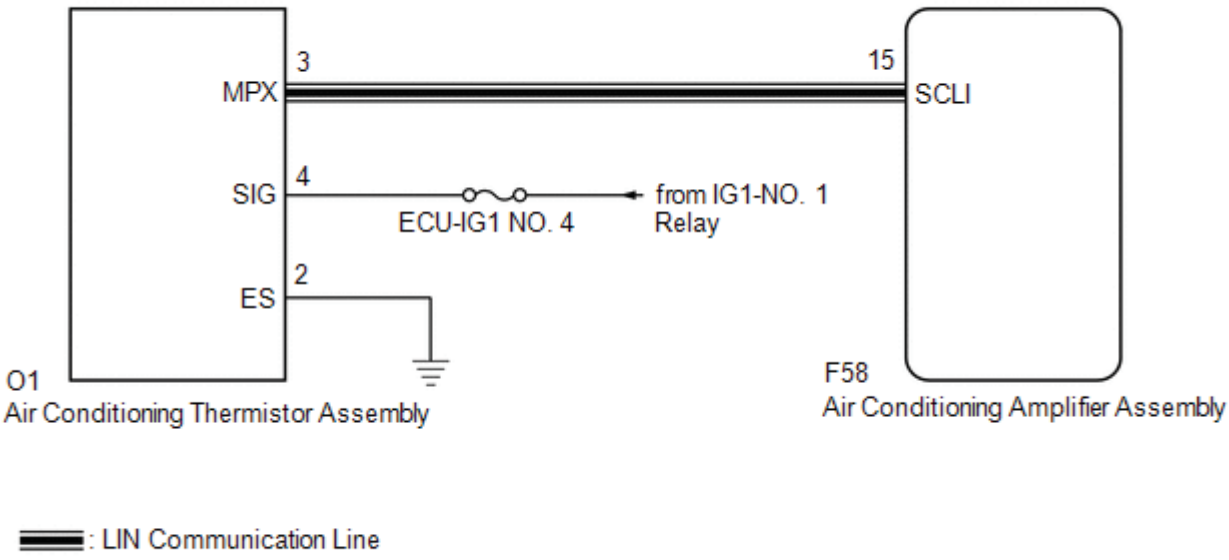
The glass temperature sensor is integrated with the air conditioning thermistor assembly.

DTC NO.	DETECTION ITEM	DTC DETECTION CONDITION	TROUBLE AREA	MEMORY
B14A8	Glass Temperature Sensor Circuit	Open or short in glass temperature sensor circuit	Air conditioning thermistor assembly (glass temperature sensor)	Memorized (4 sec. or more)
B14A9	Glass Surroundings Temperature Sensor Circuit	Open or short in glass surroundings temperature sensor circuit	Air conditioning thermistor assembly (glass surroundings temperature sensor)	Memorized (4 sec. or more)
B14AA	Glass Humidity Sensor Circuit	Open or short in glass humidity sensor circuit	Air conditioning thermistor assembly (glass humidity sensor)	Memorized (4 sec. or more)

*: The air conditioning amplifier assembly stores this DTC if the malfunction has occurred for the period of time

indicated in the brackets.

WIRING DIAGRAM



CAUTION / NOTICE / HINT

NOTICE:

Inspect the fuses for circuits related to this system before performing the following procedure.

HINT:

The air conditioning thermistor assembly must be replaced if the glass temperature sensor is malfunctioning.

PROCEDURE

1.	**CHECK FOR DTC**

(a) Check for DTCs.

Click here INFO

Body Electrical > Air Conditioner > Trouble Codes

RESULT	PROCEED TO
DTC B1279 is output	A
DTC B1373 is output	B
DTC B14A8 is output	C
DTC B14A9 is output	

DTC B14AA is output	

A ▶ GO TO DTC B1279

B ▶ GO TO DTC B1373

C ▶ REPLACE AIR CONDITIONING THERMISTOR ASSEMBLY

Last Modified: 01-14-2019	6.8:8.0.48	**Doc ID:** RM100000000RW51
Model Year Start: 2016	**Model:** Prius	**Prod Date Range:** [11/2015 -]
Title: HEATING / AIR CONDITIONING: AIR CONDITIONING SYSTEM: B14B2; Lost Communication with Front Panel LIN; 2016 - 2019 MY Prius [11/2015 -]		

DTC	**B14B2**	**Lost Communication with Front Panel LIN**

DESCRIPTION

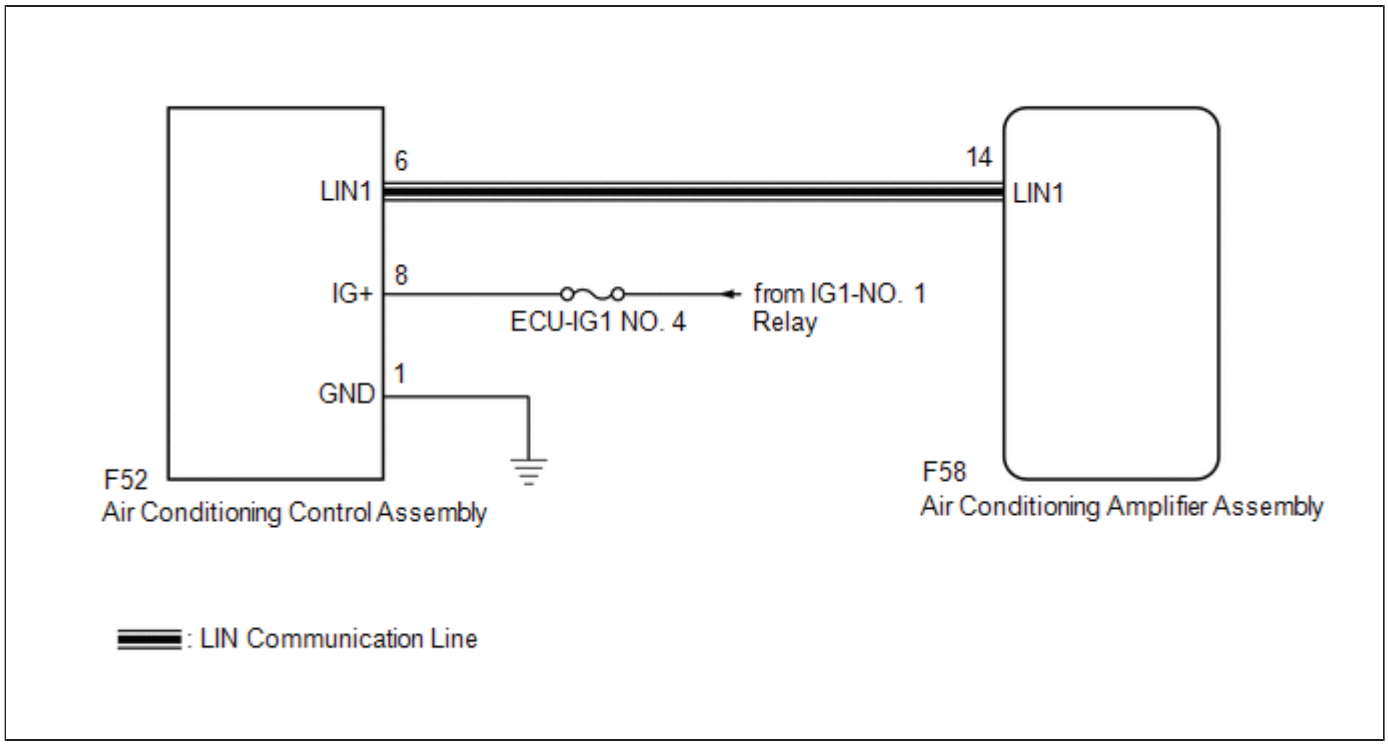
The air conditioning control assembly communicates with the air conditioning amplifier assembly via LIN communication.

If the LIN communication system malfunctions, the air conditioning amplifier assembly does not operate even if the air conditioning control assembly is operated.

DTC NO.	DETECTION ITEM	DTC DETECTION CONDITION	TROUBLE AREA	MEMORY
B14B2	Lost Communication with Front Panel LIN	Lost communication with air conditioning control assembly	• Harness or connector between air conditioning control assembly and IG power source • Harness or connector between air conditioning control assembly and body ground • LIN communication system • Air conditioning control assembly • Air conditioning amplifier assembly	Memorized (10 sec. or more)*

*: The air conditioning amplifier assembly stores this DTC if the malfunction has occurred for the period of time indicated in the brackets.

WIRING DIAGRAM



CAUTION / NOTICE / HINT

NOTICE:

Inspect the fuses for circuits related to this system before performing the following procedure.

PROCEDURE

1.	**CHECK HARNESS AND CONNECTOR (AIR CONDITIONING CONTROL ASSEMBLY - IG POWER SOURCE)**

(a) Disconnect the F52 air conditioning control assembly connector.

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

Standard Voltage:

EWD INFO

Click Location & Routing(F52)
Click Connector(F52)

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
F52-8 (IG+) - Body ground	Power switch on (IG)	11 to 14 V
F52-8 (IG+) - Body ground	Power switch off	Below 1 V

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

OK

2.	**CHECK HARNESS AND CONNECTOR (AIR CONDITIONING CONTROL ASSEMBLY - BODY GROUND)**

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

Standard Resistance:

EWD INFO

Click Location & Routing(F52)
Click Connector(F52)

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
F52-1 (GND) - Body ground	Always	Below 1 Ω

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

OK

3.	**CHECK HARNESS AND CONNECTOR (AIR CONDITIONING AMPLIFIER ASSEMBLY - AIR CONDITIONING CONTROL ASSEMBLY)**

(a) Disconnect the F58 air conditioning amplifier assembly connector.

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

Standard Resistance:

EWD INFO

Click Location & Routing(F52,F58)
Click Connector(F52)
Click Connector(F58)

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
F52-6 (LIN1) - F58-14 (LIN1)	Always	Below 1 Ω
F52-6 (LIN1) or F58-14 (LIN1) - Body ground	Always	10 kΩ or higher

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

OK

4.	INSPECT AIR CONDITIONING AMPLIFIER ASSEMBLY

(a) Reconnect the F58 air conditioning amplifier assembly connector.

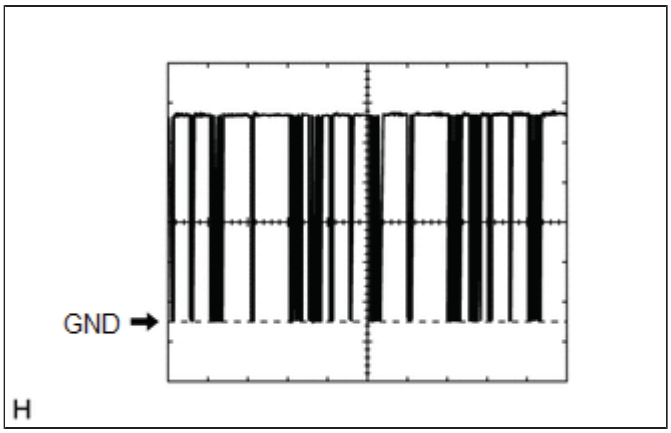
(b) Turn the power switch on (IG).

(c) Connect an oscilloscope to terminals F58-14 (LIN1) and F58-4 (GND) of the air conditioning amplifier assembly and check the waveform.

OK:

Waveform is similar to that shown in the illustration.

ITEM	CONTENT
Tool Setting	2 V/DIV., 20 ms./DIV.
Vehicle Condition	Power switch on (IG)



NG ▶ **REPLACE AIR CONDITIONING AMPLIFIER ASSEMBLY**

OK

5.	INSPECT AIR CONDITIONING CONTROL ASSEMBLY

(a) Reconnect the F52 air conditioning control assembly connector.

(b) Turn the power switch on (IG).

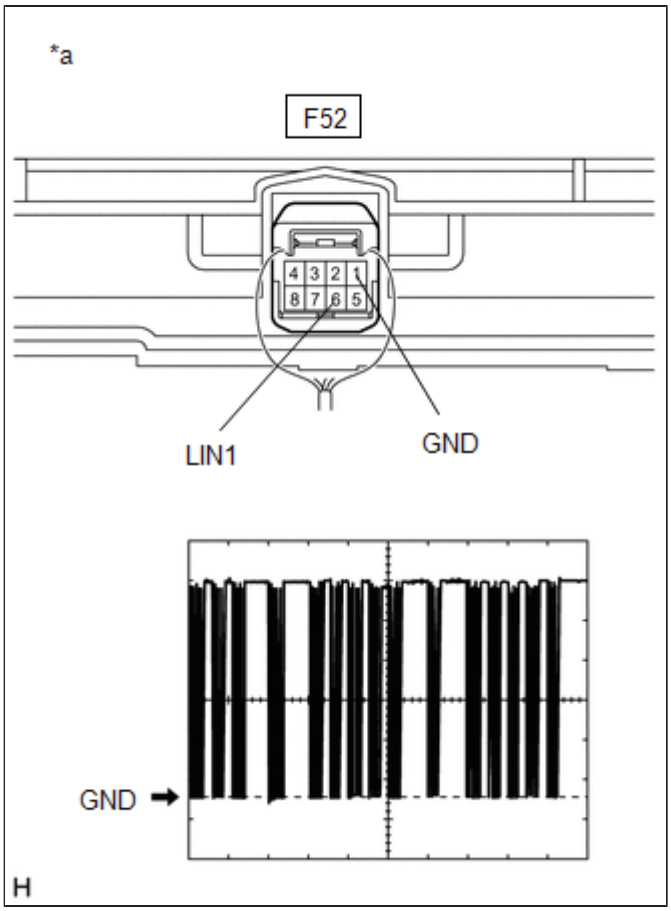
(c) Connect an oscilloscope to terminals F52-6 (LIN1) and F52-1 (GND) of the air conditioning control assembly and

check the waveform.

OK:

Waveform is similar to that shown in the illustration.

ITEM	CONTENT
Tool Setting	2 V/DIV., 20 ms./DIV.
Vehicle Condition	Power switch on (IG)



*a	Component with harness connected (Air Conditioning Control Assembly)

OK ▶ **REPLACE AIR CONDITIONING AMPLIFIER ASSEMBLY**

NG ▶ **REPLACE AIR CONDITIONING CONTROL ASSEMBLY** INFO

INFO INFO INFO

Last Modified: 01-14-2019	6.8:8.0.48	**Doc ID:** RM100000000RW3U
Model Year Start: 2016	**Model:** Prius	**Prod Date Range:** [11/2015 -]
Title: HEATING / AIR CONDITIONING: AIR CONDITIONING SYSTEM: B14B8; Refrigerant Shortage; 2016 - 2019 MY Prius [11/2015 -]		

DTC	**B14B8**	**Refrigerant Shortage**

DESCRIPTION

This DTC is stored if the amount of refrigerant in the air conditioning system is insufficient.

The air conditioning amplifier assembly receives the ambient temperature signal, refrigerant pressure signal, etc. from various sensors.

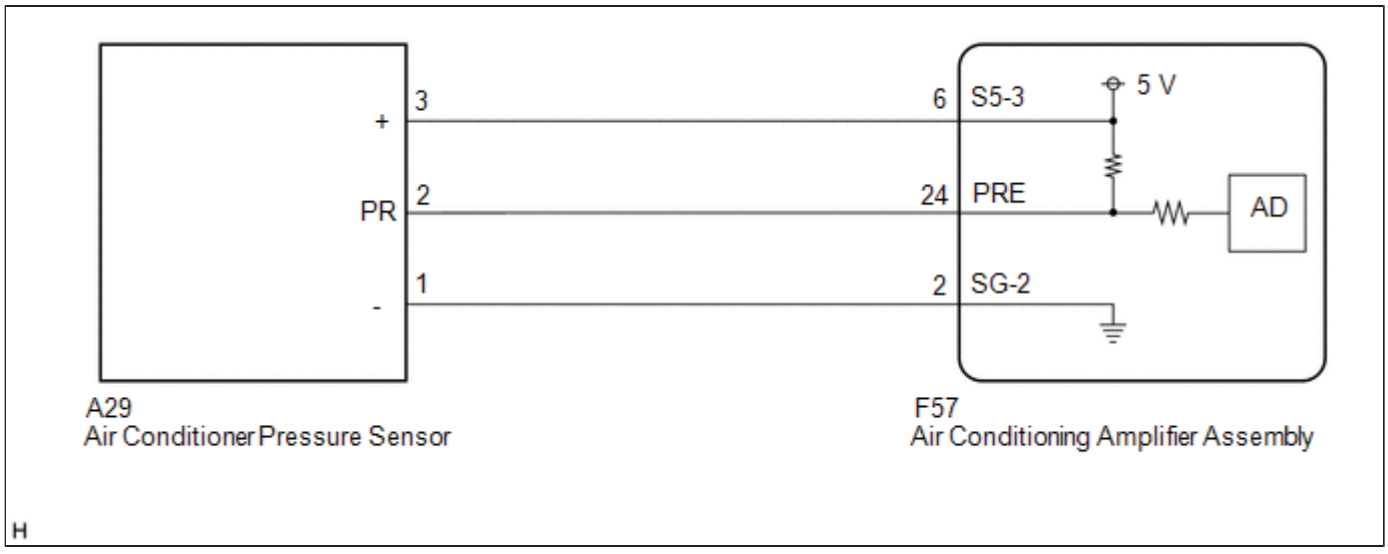
Based on these signals, the air conditioning amplifier assembly detects the amount of refrigerant.

The A/C switch indicator is turned off and the air conditioning system is stopped if the amount of refrigerant is insufficient.

DTC NO.	DETECTION ITEM	DTC DETECTION CONDITION	TROUBLE AREA	MEMORY
B14B8	Refrigerant Shortage	When following condition is detected in refrigerant shortage check in normal operation: Amount of refrigerant is insufficient	• Refrigerant pipe line • Cooler expansion valve • Air conditioning amplifier assembly	Memorized (15 min. or more)*

*: The air conditioning amplifier assembly stores this DTC if the malfunction has occurred for the period of time indicated in the brackets.

WIRING DIAGRAM



PROCEDURE

1.	CHECK REFRIGERANT PRESSURE

(a) Connect the Techstream to the DLC3.

(b) Turn the power switch on (IG).

(c) Turn the Techstream on.

(d) Enter the following menus: Body Electrical / Air Conditioner / Data List.

(e) Read the Data List according to the display on the Techstream.

Body Electrical > Air Conditioner > Data List

TESTER DISPLAY	MEASUREMENT ITEM	RANGE	NORMAL CONDITION	DIAGNOSTIC NOTE
Regulator Pressure Sensor	Air conditioner pressure sensor	Min.: -456.6 kPaG Max.: 3294.3 kPaG	Actual refrigerant pressure displayed	-

Body Electrical > Air Conditioner > Data List

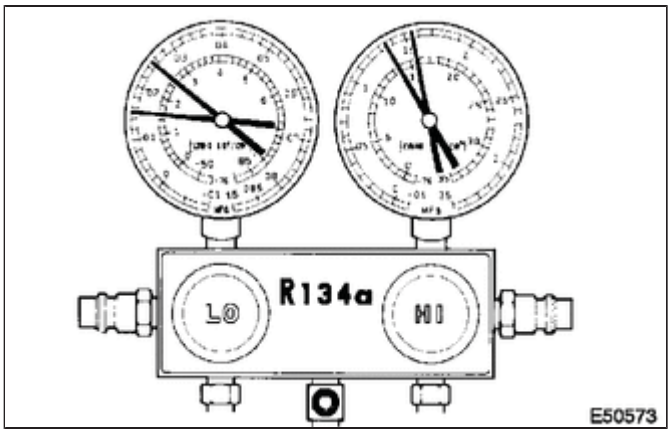
TESTER DISPLAY
Regulator Pressure Sensor

(f) Install a manifold gauge set.

Click here INFO

(g) Read the manifold gauge pressure when the following conditions are met.

(1) Prepare the vehicle according to the table below.



Measurement Condition:

ITEM	CONDITION
Vehicle doors	Fully open
Temperature setting	MAX COLD
Blower speed	HI
A/C switch	On
Recirculation/fresh switch	RECIRCULATION
Interior temperature	25 to 35°C (77 to 95°F)

Standard Pressure:

Low pressure side

150 to 250 kPa (1.5 to 2.5 kgf/cm^2, 22 to 36 psi)

High pressure side

1370 to 1570 kPa (14 to 16 kgf/cm^2, 199 to 228 psi)

(h) Compare the values displayed in the Data List and on the manifold gauge.

OK:

The values displayed in the Data List and on the manifold gauge match.

OK ▶ **CHECK REFRIGERANT PRESSURE**

NG ▼

2.	**CHECK HARNESS AND CONNECTOR (POWER SOURCE CIRCUIT)**

(a) Disconnect the A29 air conditioner pressure sensor connector.

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

Standard Voltage:

EWD INFO

Click Location & Routing(A29)
Click Connector(A29)

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
A29-3 (+) - A29-1 (-)	Power switch on (IG)	4.75 to 5.25 V

NG ▶ **GO TO STEP 7**

OK ▼

3.	**CHECK HARNESS AND CONNECTOR (AIR CONDITIONER PRESSURE SENSOR - BODY GROUND)**

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

Standard Resistance:

EWD INFO

Click Location & Routing(A29)
Click Connector(A29)

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
A29-1 (-) - Body ground	Always	Below 1 Ω

NG ▶ **GO TO STEP 6**

OK ▼

4.	**CHECK HARNESS AND CONNECTOR (AIR CONDITIONING AMPLIFIER ASSEMBLY - AIR CONDITIONER PRESSURE SENSOR)**

(a) Disconnect the F57 air conditioning amplifier assembly connector.

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

Standard Resistance:

EWD INFO

Click Location & Routing(A29)
Click Location & Routing(F57)
Click Connector(A29)
Click Connector(F57)

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
A29-2 (PR) - F57-24 (PRE)	Always	Below 1 Ω
A29-2 (PR) or F57-24 (PRE) - Body ground	Always	10 kΩ or higher

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

OK ▼

5.	**INSPECT AIR CONDITIONER PRESSURE SENSOR (SENSOR SIGNAL CIRCUIT)**

(a) Measure the voltage when the following conditions are met.

Measurement Condition:

ITEM	CONDITION
Vehicle doors	Fully open
Temperature setting	MAX COLD

Blower speed	HI
A/C switch	On
Recirculation/fresh switch	RECIRCULATION
Interior temperature	25 to 35°C (77 to 95°F)

NOTICE:

- If refrigerant pressure on the high pressure side becomes extremely high during the inspection (if the voltage exceeds 4.61 V), the fail-safe function stops compressor operation. Therefore, measure the voltage before the fail-safe operation.
- It is necessary to measure the voltage for a certain amount of time (approximately 10 minutes) because the malfunction may recur after a while.

HINT:

When the outside air temperature is low (below -1.5°C (29.3°F)), the compressor stops due to operation of the thermistor assembly and the No. 1 cooler thermistor to prevent the evaporator from freezing. In this case, perform the inspection in a warm indoor environment.

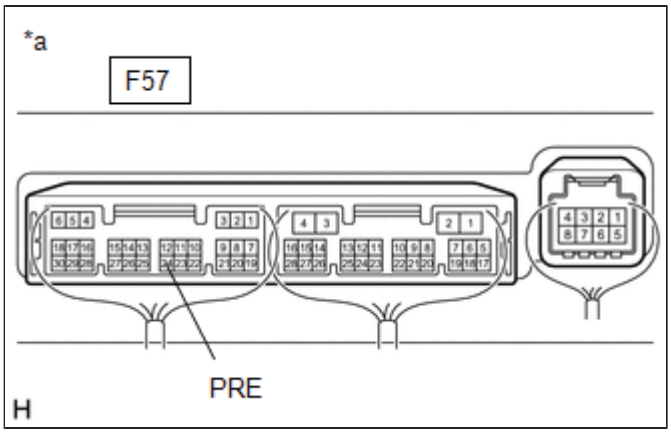
(1) Measure the voltage according to the value(s) in the table below.

Standard Voltage:

EWD INFO

Click Location & Routing(F57)
Click Connector(F57)

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
F57-24 (PRE) - Body ground	Power switch on (IG) (A/C switch: On)	0.74 to 4.61 V



*a	Component with harness connected (Air Conditioning Amplifier Assembly)

(b) Connect the Techstream to the DLC3.

(c) Turn the power switch on (IG).

(d) Turn the Techstream on.

(e) Enter the following menus: Body Electrical / Air Conditioner / Data List.

(f) Read the Data List according to the display on the Techstream.

Body Electrical > Air Conditioner > Data List

TESTER DISPLAY	MEASUREMENT ITEM	RANGE	NORMAL CONDITION	DIAGNOSTIC NOTE
Regulator Pressure Sensor	Air conditioner pressure sensor	Min.: -456.6 kPaG Max.: 3294.3 kPaG	Actual refrigerant pressure displayed	-

TESTER DISPLAY
Regulator Pressure Sensor

OK:

The voltage and value displayed in the Data List change.

RESULT	PROCEED TO
OK	A
NG (The voltage changes but the value displayed in the Data List does not change.)	
NG (The voltage does not change.)	B

A ▶ **REPLACE AIR CONDITIONING AMPLIFIER ASSEMBLY**

B ▶ **REPLACE AIR CONDITIONER PRESSURE SENSOR**

6.	**CHECK HARNESS AND CONNECTOR (AIR CONDITIONING AMPLIFIER ASSEMBLY - AIR CONDITIONER PRESSURE SENSOR)**

(a) Disconnect the F57 air conditioning amplifier assembly connector.

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

Standard Resistance:

EWD INFO

Click Location & Routing(A29)
Click Location & Routing(F57)
Click Connector(A29)
Click Connector(F57)

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
A29-1 (-) - F57-2 (SG-2)	Always	Below 1 Ω
A29-1 (-) or F57-2 (SG-2) - Body ground	Always	10 kΩ or higher

OK ▶ **REPLACE AIR CONDITIONING AMPLIFIER ASSEMBLY**

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

	CHECK HARNESS AND CONNECTOR (AIR CONDITIONING AMPLIFIER ASSEMBLY - AIR

7.	**CONDITIONER PRESSURE SENSOR)**

(a) Disconnect the F57 air conditioning amplifier assembly connector.

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

Standard Resistance:

EWD INFO

Click Location & Routing(A29)
Click Location & Routing(F57)
Click Connector(A29)
Click Connector(F57)

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
A29-3 (+) - F57-6 (S5 -3)	Always	Below 1 Ω
A29-3 (+) or F57-6 (S5 -3) - Body ground	Always	10 kΩ or higher

OK ▶ **REPLACE AIR CONDITIONING AMPLIFIER ASSEMBLY**

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

Last Modified: 01-14-2019	6.8:8.0.48	**Doc ID:** RM100000000T6LT
Model Year Start: 2016	**Model:** Prius	**Prod Date Range:** [11/2015 -]
Title: HEATING / AIR CONDITIONING: AIR CONDITIONING SYSTEM: B1245; Lost Communication with Wiper ECU LIN; 2016 - 2019 MY Prius [11/2015 -]		

DTC	**B1245**	**Lost Communication with Wiper ECU LIN**

DESCRIPTION

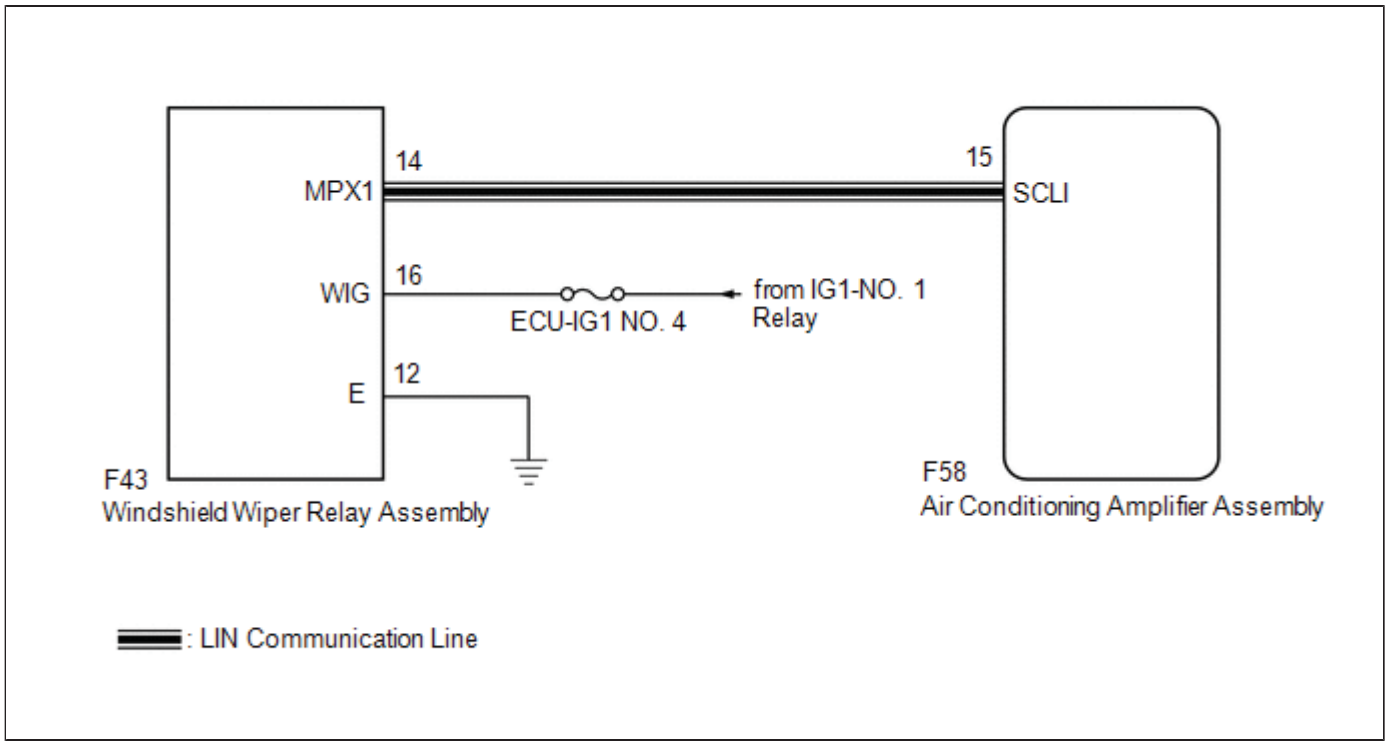
The air conditioning amplifier assembly and windshield wiper relay assembly communicate via LIN communication.

The air conditioning amplifier assembly stores this DTC if communication becomes abnormal.

DTC NO.	DETECTION ITEM	DTC DETECTION CONDITION	TROUBLE AREA	MEMORY
B1245	Lost Communication with Wiper ECU LIN	Lost communication with windshield wiper relay assembly	• Harness or connector between windshield wiper relay assembly and IG power source • Harness or connector between windshield wiper relay assembly and body ground • LIN communication system • Windshield wiper relay assembly	Memorized (10 sec. or more)*

*: The air conditioning amplifier assembly stores this DTC if the malfunction has occurred for the period of time indicated in the brackets.

WIRING DIAGRAM



CAUTION / NOTICE / HINT

NOTICE:

Inspect the fuses for circuits related to this system before performing the following procedure.

PROCEDURE

1.	**CHECK FOR DTC**

(a) Check for DTCs.

Click here INFO

Body Electrical > Air Conditioner > Trouble Codes

RESULT	PROCEED TO
DTC B1373 is output	A
DTC B1373 is not output	B

A ▶ **GO TO DTC B1373**

B ▼

2.	**CHECK HARNESS AND CONNECTOR (WINDSHIELD WIPER RELAY ASSEMBLY - IG POWER SOURCE)**

(a) Disconnect the F43 windshield wiper relay assembly connector.

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

Standard Voltage:

EWD INFO

Click Location & Routing(F43)
Click Connector(F43)

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
F43-16 (WIG) - Body ground	Power switch on (IG)	11 to 14 V
F43-16 (WIG) - Body ground	Power switch off	Below 1 V

NG ▶ REPAIR OR REPLACE HARNESS OR CONNECTOR

OK ▼

3.	CHECK HARNESS AND CONNECTOR (WINDSHIELD WIPER RELAY ASSEMBLY - BODY GROUND)

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

Standard Resistance:

EWD INFO

Click Location & Routing(F43)
Click Connector(F43)

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
F43-12 (E) - Body ground	Always	Below 1 Ω

NG ▶ REPAIR OR REPLACE HARNESS OR CONNECTOR

OK ▼

4.	CHECK HARNESS AND CONNECTOR (AIR CONDITIONING AMPLIFIER ASSEMBLY - WINDSHIELD WIPER RELAY ASSEMBLY)

(a) Disconnect the F58 air conditioning amplifier assembly connector.

(b) Disconnect the O1 air conditioning thermistor assembly connector.

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

Standard Resistance:

EWD INFO

Click Location & Routing(F43,F58)
Click Connector(F43)
Click Connector(F58)

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
F43-14 (MPX1) - F58-15 (SCLI)	Always	Below 1 Ω
F43-14 (MPX1) or F58-15 (SCLI) - Body ground	Always	10 kΩ or higher

OK ▶ REPLACE WINDSHIELD WIPER RELAY ASSEMBLY INFO INFO

NG ▶ REPAIR OR REPLACE HARNESS OR CONNECTOR

Last Modified: 01-14-2019	6.8:8.0.48	**Doc ID:** RM100000000T6MY
Model Year Start: 2016	**Model:** Prius	**Prod Date Range:** [11/2015 -]
Title: HEATING / AIR CONDITIONING: AIR CONDITIONING SYSTEM: B1279; Lost Communication with Humidity/Rain Sensor LIN; 2016 - 2019 MY Prius [11/2015 -]		

DTC	**B1279**	**Lost Communication with Humidity/Rain Sensor LIN**

DESCRIPTION

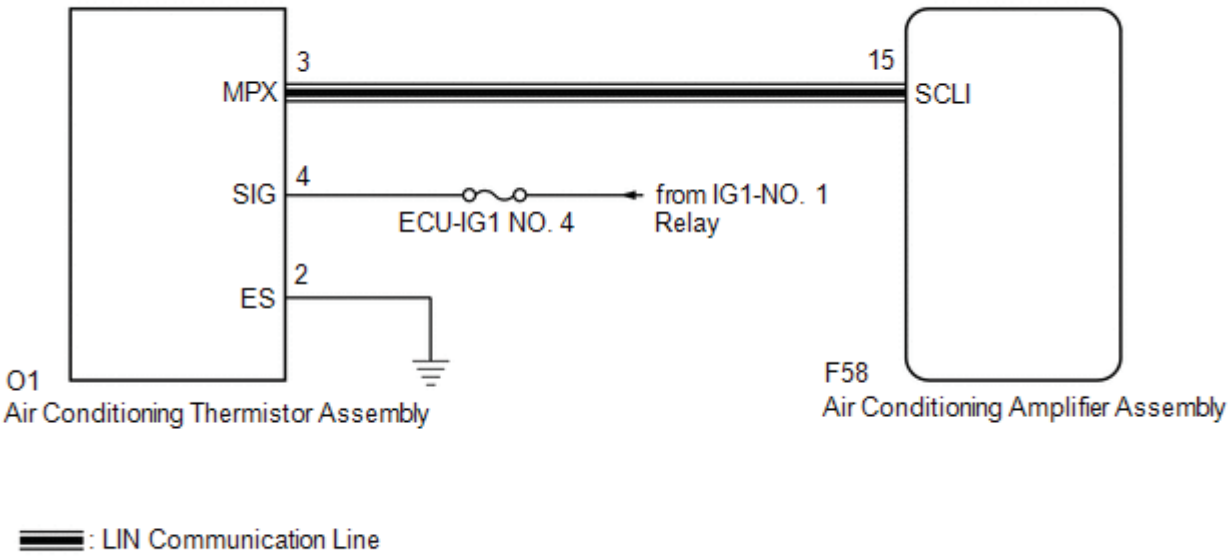
The air conditioning amplifier assembly and air conditioning thermistor assembly communicate via LIN communication.

The air conditioning amplifier assembly stores this DTC if communication becomes abnormal.

DTC NO.	DETECTION ITEM	DTC DETECTION CONDITION	TROUBLE AREA	MEMORY
B1279	Lost Communication with Humidity/Rain Sensor LIN	Lost communication with air conditioning thermistor assembly	• Harness or connector between air conditioning thermistor assembly and IG power source • Harness or connector between air conditioning thermistor assembly and body ground • LIN communication system • Air conditioning amplifier assembly • Air conditioning thermistor assembly	Memorized (10 sec. or more)*

*: The air conditioning amplifier assembly stores this DTC if the malfunction has occurred for the period of time indicated in the brackets.

WIRING DIAGRAM



CAUTION / NOTICE / HINT

NOTICE:

Inspect the fuses for circuits related to this system before performing the following procedure.

HINT:

The air conditioning thermistor assembly must be replaced if the glass temperature sensor is malfunctioning.

PROCEDURE

1.	**CHECK FOR DTC**

(a) Check for DTCs.

Body Electrical > Air Conditioner > Trouble Codes

RESULT	PROCEED TO
B1373 is not output	A
B1373 is output	B

B ▶ GO TO DTC B1373

A ▼

2.	**CHECK HARNESS AND CONNECTOR (AIR CONDITIONING THERMISTOR ASSEMBLY - IG POWER SOURCE)**

(a) Disconnect the O1 air conditioning thermistor assembly connector.

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

Standard Voltage:

Click Location & Routing(O1)
Click Connector(O1)

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
O1-4 (SIG) - Body ground	Power switch on (IG)	11 to 14 V
O1-4 (SIG) - Body ground	Power switch off	Below 1 V

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

OK ▼

3.	**CHECK HARNESS AND CONNECTOR (AIR CONDITIONING THERMISTOR ASSEMBLY - BODY GROUND)**

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

Standard Resistance:

Click Location & Routing(O1)
Click Connector(O1)

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
O1-2 (ES) - Body ground	Always	Below 1 Ω

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

OK ▼

4.	**CHECK HARNESS AND CONNECTOR (AIR CONDITIONING AMPLIFIER ASSEMBLY - AIR CONDITIONING THERMISTOR ASSEMBLY)**

(a) Disconnect the F58 air conditioning amplifier assembly connector.

(b) Disconnect the F43 windshield wiper relay assembly connector.

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

Standard Resistance:

EWD INFO

Click Location & Routing(O1)
Click Location & Routing(F58)
Click Connector(O1)
Click Connector(F58)

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
O1-3 (MPX) - F58-15 (SCLI)	Always	Below 1 Ω
O1-3 (MPX) or F58-15 (SCLI) - Body ground	Always	10 kΩ or higher

OK ▶ **REPLACE AIR CONDITIONING THERMISTOR ASSEMBLY**

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

Last Modified: 01-14-2019	6.8:8.0.48	**Doc ID:** RM100000000T6N1
Model Year Start: 2016	**Model:** Prius	**Prod Date Range:** [11/2015 -]
Title: HEATING / AIR CONDITIONING: AIR CONDITIONING SYSTEM: B1373; Lost Communication with Wiper System LIN BUS; 2016 - 2019 MY Prius [11/2015 -]		

DTC	**B1373**	**Lost Communication with Wiper System LIN BUS**

DESCRIPTION

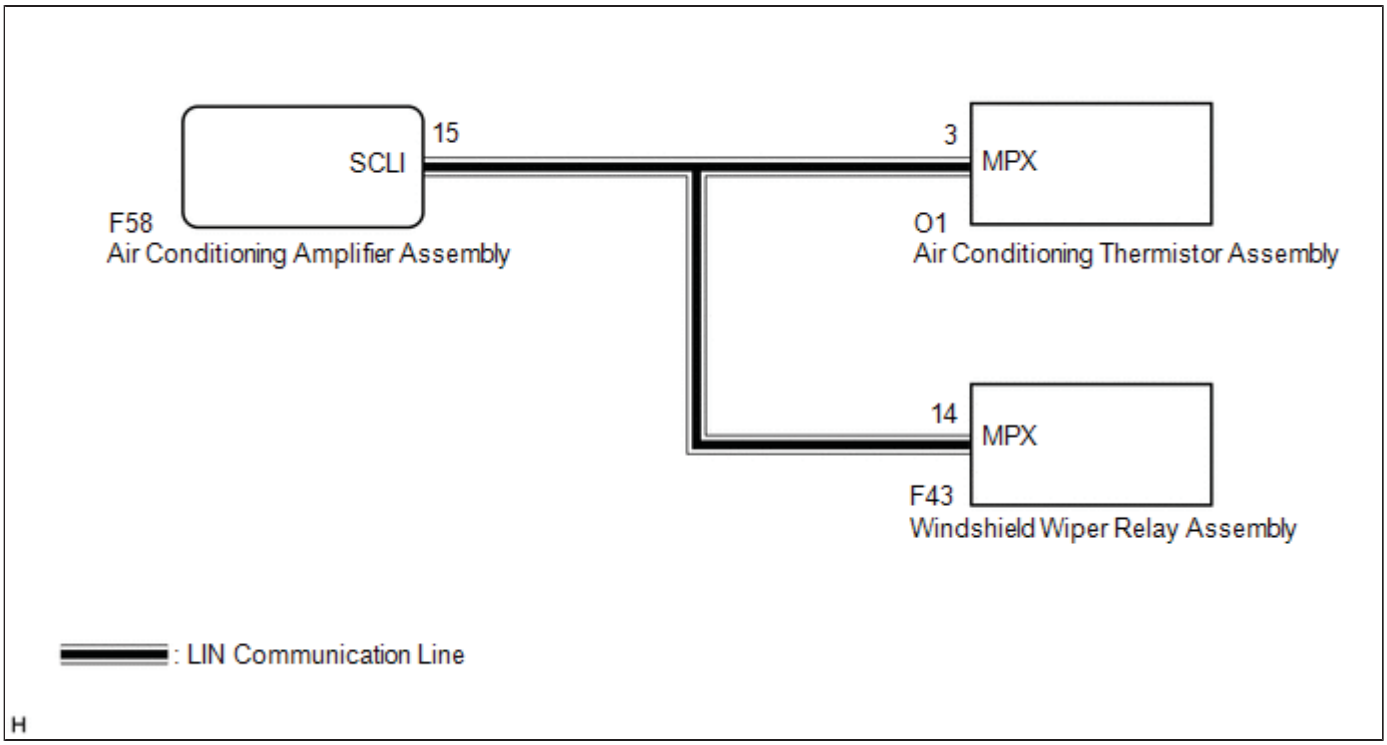
The air conditioning amplifier assembly communicates with the windshield wiper relay assembly, windshield wiper relay assembly and air conditioning thermistor assembly via LIN communication.

If a malfunction occurs in the LIN communication line and a communication error occurs, this DTC is stored.

DTC NO.	DETECTION ITEM	DTC DETECTION CONDITION	TROUBLE AREA	MEMORY
B1373	Lost Communication with Wiper System LIN BUS	Lost communication with wiper system LIN communication line	• LIN communication system • Air conditioning amplifier assembly • Windshield wiper relay assembly • Air conditioning thermistor assembly	Memorized (7 sec. or more)*

*: The air conditioning amplifier assembly stores this DTC if the malfunction has occurred for the period of time indicated in the brackets.

WIRING DIAGRAM



CAUTION / NOTICE / HINT

HINT:

The air conditioning thermistor assembly must be replaced if the glass temperature sensor is malfunctioning.

PROCEDURE

1.	**CHECK HARNESS AND CONNECTOR (AIR CONDITIONING AMPLIFIER ASSEMBLY - AIR CONDITIONING THERMISTOR ASSEMBLY, WINDSHIELD WIPER RELAY ASSEMBLY)**

(a) Disconnect the F58 air conditioning amplifier assembly connector.

(b) Disconnect the O1 air conditioning thermistor assembly connector.

(c) Disconnect the F43 windshield wiper relay assembly connector.

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

Standard Resistance:

EWD INFO

Click Location & Routing(F58)
Click Location & Routing(O1)
Click Connector(F58)
Click Connector(O1)

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
F58-15 (SCLI) - O1-3 (MPX)	Always	Below 1 Ω
F58-15 (SCLI) or O1-3 (MPX) - Body ground	Always	10 kΩ or higher

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK ↓

2.	CHECK FOR DTC

(a) Connect the F58 air conditioning amplifier assembly connector.

(b) Connect the O1 air conditioning thermistor assembly connector.

(c) Check for DTCs.

Body Electrical > Air Conditioner > Trouble Codes

RESULT	PROCEED TO
B1373 is not output	A
B1373 is output	B

A → REPLACE WINDSHIELD WIPER RELAY ASSEMBLY INFO INFO

B ↓

3.	CHECK FOR DTC

(a) Connect the F43 windshield wiper relay assembly connector.

(b) Disconnect the O1 air conditioning thermistor assembly connector.

(c) Check for DTCs.

Body Electrical > Air Conditioner > Trouble Codes

RESULT	PROCEED TO
B1373 is not output	A
B1373 is output	B

A ▶ REPLACE AIR CONDITIONING THERMISTOR ASSEMBLY

B ▶ REPLACE AIR CONDITIONING AMPLIFIER ASSEMBLY

Last Modified: 01-14-2019	6.8:8.0.48	**Doc ID:** RM100000000RW3Y
Model Year Start: 2016	**Model:** Prius	**Prod Date Range:** [11/2015 -]
Title: HEATING / AIR CONDITIONING: AIR CONDITIONING SYSTEM: B1411/11; Room Temperature Sensor Circuit; 2016 - 2019 MY Prius [11/2015 -]		

DTC	**B1411/11**	**Room Temperature Sensor Circuit**

DESCRIPTION

The cooler (room temp. sensor) thermistor is installed in the instrument panel to detect the cabin temperature, which is used to control the air conditioning system. The resistance of the cooler (room temp. sensor) thermistor changes in accordance with the cabin temperature. As the temperature decreases, the resistance increases. As the temperature increases, the resistance decreases.

The air conditioning amplifier assembly applies voltage (5 V) to the cooler (room temp. sensor) thermistor and reads voltage changes due to changes in the resistance of the cooler (room temp. sensor) thermistor.

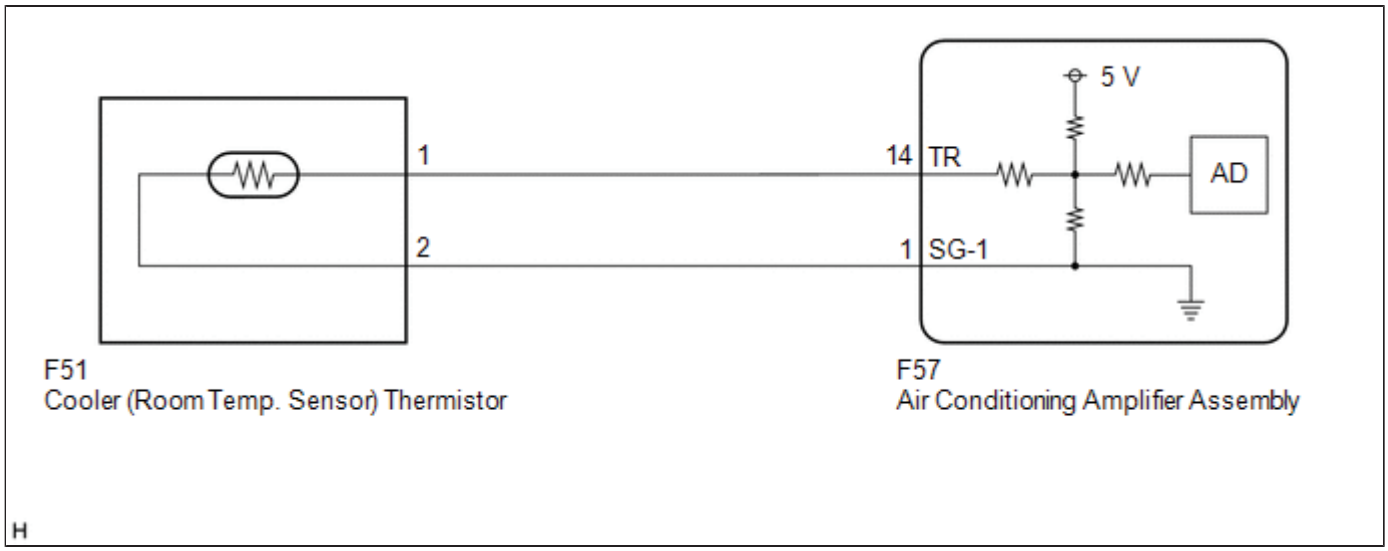
DTC NO.	DETECTION ITEM	DTC DETECTION CONDITION	TROUBLE AREA	MEMORY
B1411/11	Room Temperature Sensor Circuit	Open or short in room temperature sensor circuit	• Cooler (room temp. sensor) thermistor • Harness or connector between cooler (room temp. sensor) thermistor and air conditioning amplifier assembly • Air conditioning amplifier assembly	Memorized (4 sec. or more)*

*: The air conditioning amplifier assembly stores this DTC if the malfunction has occurred for the period of time indicated in the brackets.

HINT:

If the cabin temperature is approximately -18.6°C (-1.48°F) or lower, DTC B1411/11 may be output even though the system is normal.

WIRING DIAGRAM



PROCEDURE

1.	**READ VALUE USING TECHSTREAM**

(a) Connect the Techstream to the DLC3.

(b) Turn the power switch on (IG).

(c) Turn the Techstream on.

(d) Enter the following menus: Body Electrical / Air Conditioner / Data List.

(e) Read the Data List according to the display on the Techstream.

Body Electrical > Air Conditioner > Data List

TESTER DISPLAY	MEASUREMENT ITEM	RANGE	NORMAL CONDITION	DIAGNOSTIC NOTE
Room Temperature Sensor	Cooler (room temp. sensor) thermistor	Min.: -6.50°C (20.30°F) Max.: 57.25°C (135.05°F)	Actual cabin temperature displayed	-

Body Electrical > Air Conditioner > Data List

TESTER DISPLAY
Room Temperature Sensor

OK:
The display is as specified in the normal condition column.

Result	PROCEED TO
NG	A
OK (When troubleshooting according to Problem Symptoms Table)	B
OK (When troubleshooting according to the DTC)	C

B ▶ **PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE** INFO INFO INFO INFO

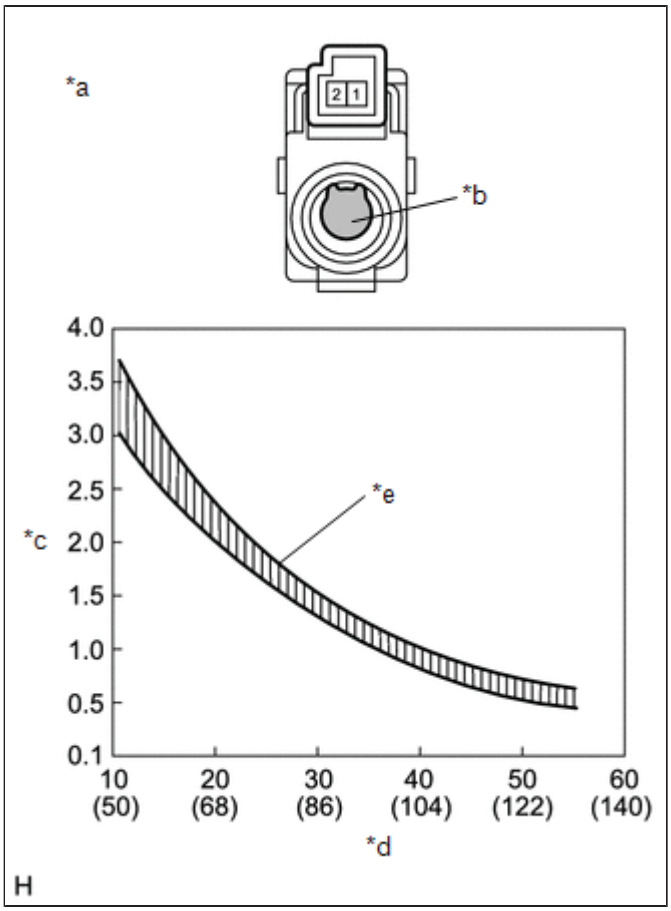
C ▶ **REPLACE AIR CONDITIONING AMPLIFIER ASSEMBLY**

A

2.	INSPECT COOLER (ROOM TEMP. SENSOR) THERMISTOR

(a) Remove the cooler (room temp. sensor) thermistor.

Click here INFO INFO



*a	Component without harness connected (Cooler (Room Temp. Sensor) Thermistor)
*b	Sensing Portion
*c	Resistance (kΩ)
*d	Temperature (°C (°F))
*e	Allowable Range

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

Standard Resistance:

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
	10°C (50°F)	3.00 to 3.73 kΩ
	15°C (59°F)	2.45 to 2.88 kΩ

1 - 2	20°C (68°F)	1.95 to 2.30 kΩ
	25°C (77°F)	1.60 to 1.80 kΩ
	30°C (86°F)	1.28 to 1.47 kΩ
	35°C (95°F)	1.00 to 1.22 kΩ
	40°C (104°F)	0.80 to 1.00 kΩ
	45°C (113°F)	0.65 to 0.85 kΩ
	50°C (122°F)	0.50 to 0.70 kΩ
	55°C (131°F)	0.44 to 0.60 kΩ
	60°C (140°F)	0.36 to 0.50 kΩ

NOTICE:

- Hold the sensor only by its connector. Touching the sensing portion may change the resistance value.
- When measuring, the sensor temperature must be the same as the ambient temperature.

HINT:

As the temperature increases, the resistance decreases (see the graph).

NG ▶ **REPLACE COOLER (ROOM TEMP. SENSOR) THERMISTOR**

INFO INFO

OK ▼

3.	**CHECK HARNESS AND CONNECTOR (COOLER (ROOM TEMP. SENSOR) THERMISTOR - AIR CONDITIONING AMPLIFIER ASSEMBLY)**

(a) Disconnect the F57 air conditioning amplifier assembly connector.

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

Standard Resistance:

EWD INFO

Click Location & Routing(F57,F51)
Click Connector(F57)
Click Connector(F51)

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
F57-14 (TR) - F51-1	Always	Below 1 Ω
F57-1 (SG-1) - F51-2	Always	Below 1 Ω
F57-14 (TR) or F51-1 - Body ground	Always	10 kΩ or higher
F57-1 (SG-1) or F51-2 - Body ground	Always	10 kΩ or higher

OK ▶ REPLACE AIR CONDITIONING AMPLIFIER ASSEMBLY

NG ▶ REPAIR OR REPLACE HARNESS OR CONNECTOR

Last Modified: 01-14-2019	6.8:8.0.48	**Doc ID:** RM100000000RW3W
Model Year Start: 2016	**Model:** Prius	**Prod Date Range:** [11/2015 -]
Title: HEATING / AIR CONDITIONING: AIR CONDITIONING SYSTEM: B1412/12; Ambient Temperature Sensor Circuit; 2016 - 2019 MY Prius [11/2015 -]		

DTC	**B1412/12**	**Ambient Temperature Sensor Circuit**

DESCRIPTION

The thermistor assembly is installed in front of the cooler condenser assembly to detect the ambient temperature, which is used to control the air conditioning system. This sensor is connected to the air conditioning amplifier assembly and detects fluctuations in the ambient temperature. This data is used for controlling the cabin temperature. The sensor sends a signal to the air conditioning amplifier assembly. The resistance of the thermistor assembly changes in accordance with the ambient temperature. As the temperature decreases, the resistance increases. As the temperature increases, the resistance decreases.

The air conditioning amplifier assembly applies voltage (5 V) to the thermistor assembly and reads voltage changes due to changes in the resistance of the thermistor assembly.

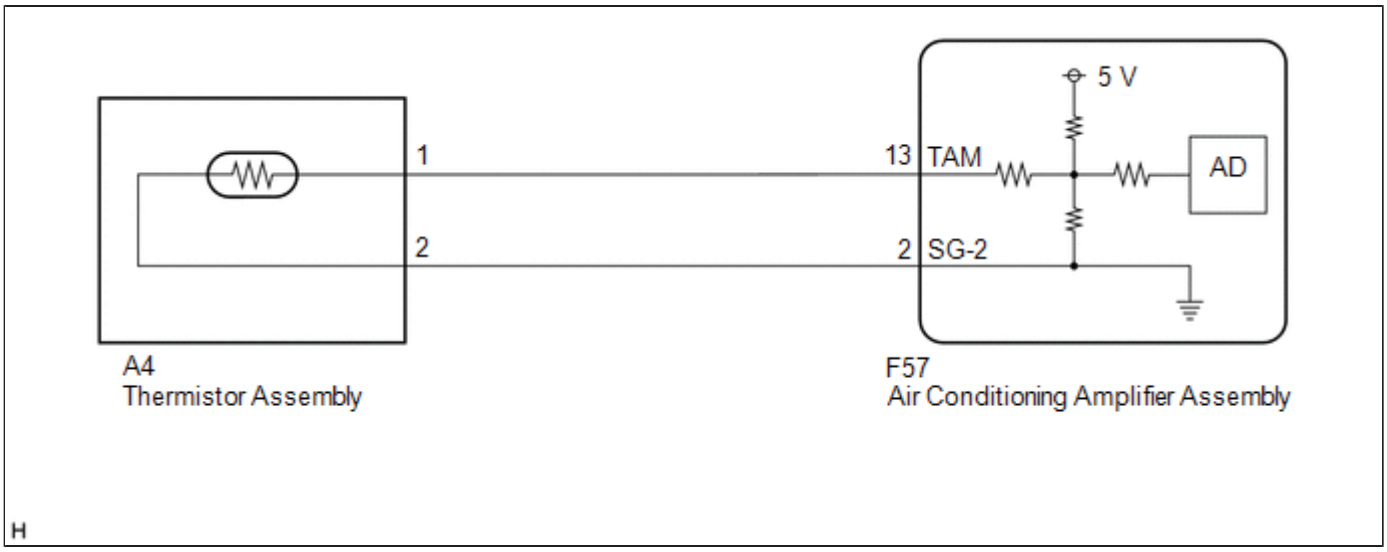
DTC NO.	DETECTION ITEM	DTC DETECTION CONDITION	TROUBLE AREA	MEMORY
B1412/12	Ambient Temperature Sensor Circuit	Open or short in ambient temperature sensor circuit	• Thermistor assembly • Harness or connector between thermistor assembly and air conditioning amplifier assembly • Air conditioning amplifier assembly	Memorized (4 sec. or more)*

*: The air conditioning amplifier assembly stores this DTC if the malfunction has occurred for the period of time indicated in the brackets.

HINT:

If the ambient temperature is approximately -52.9°C (-63.22°F) or lower, DTC B1412/12 may be output even though the system is normal.

WIRING DIAGRAM



PROCEDURE

1.	**READ VALUE USING TECHSTREAM**

(a) Connect the Techstream to the DLC3.

(b) Turn the power switch on (IG).

(c) Turn the Techstream on.

(d) Enter the following menus: Body Electrical / Air Conditioner / Data List.

(e) Read the Data List according to the display on the Techstream.

Body Electrical > Air Conditioner > Data List

TESTER DISPLAY	MEASUREMENT ITEM	RANGE	NORMAL CONDITION	DIAGNOSTIC NOTE
Ambient Temp Sensor	Thermistor assembly	Min.: -23.30°C (-9.94°F) Max.: 65.95°C (150.71°F)	Actual ambient temperature displayed	-

Body Electrical > Air Conditioner > Data List

TESTER DISPLAY
Ambient Temp Sensor

OK:

The display is as specified in the normal condition column.

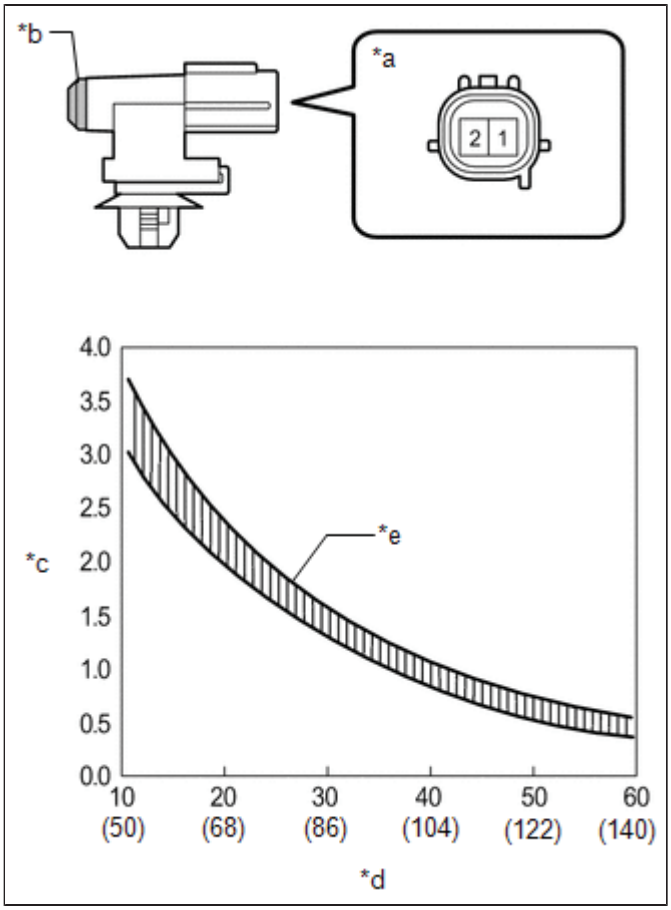
OK ▶ **REPLACE AIR CONDITIONING AMPLIFIER ASSEMBLY**

NG

2.	INSPECT THERMISTOR ASSEMBLY

(a) Remove the thermistor assembly.

Click here INFO



*a	Component without harness connected (Thermistor Assembly)
*b	Sensing Portion
*c	Resistance (kΩ)
*d	Temperature (°C (°F))
*e	Allowable Range

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

Standard Resistance:

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
	10°C (50°F)	3.00 to 3.73 kΩ
	15°C (59°F)	2.45 to 2.88 kΩ
	20°C (68°F)	1.95 to 2.30 kΩ

1 - 2	25°C (77°F)	1.60 to 1.80 kΩ
	30°C (86°F)	1.28 to 1.47 kΩ
	35°C (95°F)	1.00 to 1.22 kΩ
	40°C (104°F)	0.80 to 1.00 kΩ
	45°C (113°F)	0.65 to 0.85 kΩ
	50°C (122°F)	0.50 to 0.70 kΩ
	55°C (131°F)	0.44 to 0.60 kΩ
	60°C (140°F)	0.36 to 0.50 kΩ

NOTICE:

- Hold the sensor only by its connector. Touching the sensing portion may change the resistance value.
- When measuring, the sensor temperature must be the same as the ambient temperature.

HINT:

As the temperature increases, the resistance decreases (see the graph).

NG ▶ **REPLACE THERMISTOR ASSEMBLY**

OK ▼

3.	**CHECK HARNESS AND CONNECTOR (THERMISTOR ASSEMBLY - AIR CONDITIONING AMPLIFIER ASSEMBLY)**

(a) Disconnect the F57 air conditioning amplifier assembly connector.

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

Standard Resistance:

EWD INFO

Click Location & Routing(F57)
Click Location & Routing(A4)
Click Connector(F57)
Click Connector(A4)

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
F57-13 (TAM) - A4-1	Always	Below 1 Ω
F57-2 (SG-2) - A4-2	Always	Below 1 Ω
F57-13 (TAM) or A4-1 - Body ground	Always	10 kΩ or higher
F57-2 (SG-2) or A4-2 - Body ground	Always	10 kΩ or higher

OK ▶ **REPLACE AIR CONDITIONING AMPLIFIER ASSEMBLY**

NG ▶ REPAIR OR REPLACE HARNESS OR CONNECTOR

Last Modified: 01-14-2019	6.8:8.0.48	**Doc ID:** RM100000001FYIP
Model Year Start: 2019	**Model:** Prius	**Prod Date Range:** [12/2018 -]
Title: HEATING / AIR CONDITIONING: AIR CONDITIONING SYSTEM: B1413/13; Evaporator Temperature Sensor Circuit; 2019 MY Prius [12/2018 -]		

DTC	**B1413/13**	**Evaporator Temperature Sensor Circuit**

DESCRIPTION

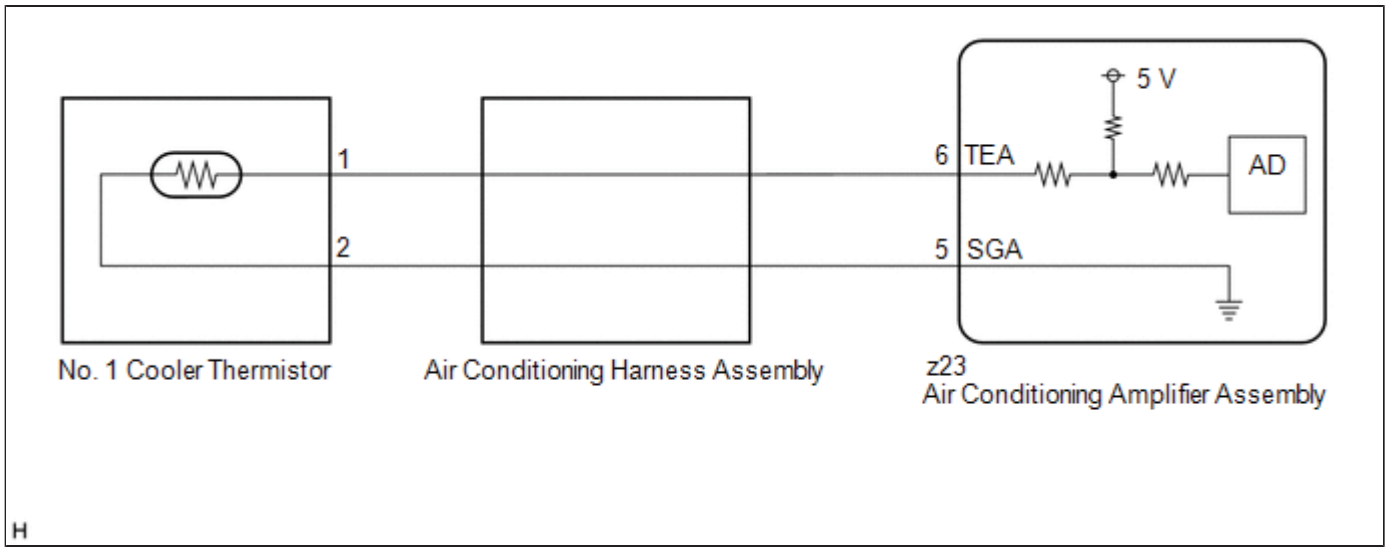
The No. 1 cooler thermistor is installed to the evaporator in the air conditioner unit to detect the temperature of the cooled air that has passed through the evaporator, which is used to control the air conditioning system. It sends signals to the air conditioning amplifier assembly. The resistance of the No. 1 cooler thermistor changes in accordance with the temperature of the cooled air that has passed through the evaporator. As the temperature decreases, the resistance increases. As the temperature increases, the resistance decreases.

The air conditioning amplifier assembly applies voltage (5 V) to the No. 1 cooler thermistor and reads voltage changes as the resistance of the No. 1 cooler thermistor changes. This sensor is used for frost prevention.

DTC NO.	DETECTION ITEM	DTC DETECTION CONDITION	TROUBLE AREA	MEMORY
B1413/13	Evaporator Temperature Sensor Circuit	Open or short in evaporator temperature sensor circuit	• No. 1 cooler thermistor • Air conditioning harness assembly • Air conditioning amplifier assembly	Memorized (4 sec. or more)*

*: The air conditioning amplifier assembly stores this DTC if the malfunction has occurred for the period of time indicated in the brackets.

WIRING DIAGRAM



PROCEDURE

1.	READ VALUE USING TECHSTREAM

(a) Connect the Techstream to the DLC3.

(b) Turn the power switch on (IG).

(c) Turn the Techstream on.

(d) Enter the following menus: Body Electrical / Air Conditioner / Data List.

(e) Read the Data List according to the display on the Techstream.

Body Electrical > Air Conditioner > Data List

TESTER DISPLAY	MEASUREMENT ITEM	RANGE	NORMAL CONDITION	DIAGNOSTIC NOTE
Evaporator Fin Thermistor	No. 1 cooler thermistor	Min.: -29.70°C (-21.46°F) Max.: 59.55°C (139.19°F)	Actual evaporator temperature displayed	-

Body Electrical > Air Conditioner > Data List

TESTER DISPLAY
Evaporator Fin Thermistor

OK:
The display is as specified in the normal condition column.

RESULT	PROCEED TO
NG	A
OK (When troubleshooting according to Problem Symptoms Table)	B
OK (When troubleshooting according to the DTC)	C

B ▶ PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE

C ▶ REPLACE AIR CONDITIONING AMPLIFIER ASSEMBLY

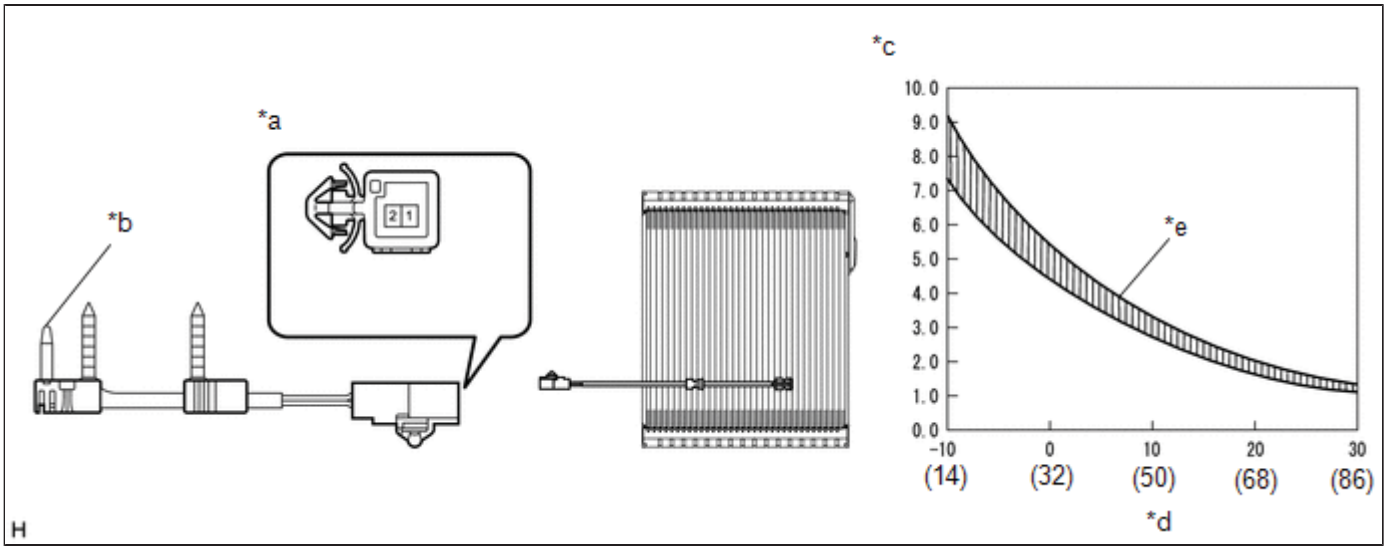
A ▼

2.	INSPECT NO. 1 COOLER THERMISTOR

(a) Remove the No. 1 cooler thermistor.

Click here INFO

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



*a	Component without harness connected (No. 1 Cooler Thermistor)	*b	Sensing Portion
*c	Resistance (kΩ)	*d	Temperature (°C (°F))
*e	Allowable Range	-	-

Standard Resistance:

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
1 - 2	-10°C (14°F)	7.30 to 9.10 kΩ
	-5°C (23°F)	5.65 to 6.95 kΩ
	0°C (32°F)	4.40 to 5.35 kΩ
	5°C (41°F)	3.40 to 4.15 kΩ
	10°C (50°F)	2.70 to 3.25 kΩ
	15°C (59°F)	2.14 to 2.58 kΩ
	20°C (68°F)	1.71 to 2.05 kΩ
	25°C (77°F)	1.38 to 1.64 kΩ
	30°C (86°F)	1.11 to 1.32 kΩ

NOTICE:

- Hold the sensor only by its connector. Touching the sensing portion may change the resistance value.
- When measuring, the sensor temperature must be the same as the ambient temperature.

HINT:

As the temperature increases, the resistance decreases (see the graph).

NG ▶ **REPLACE NO. 1 COOLER THERMISTOR**

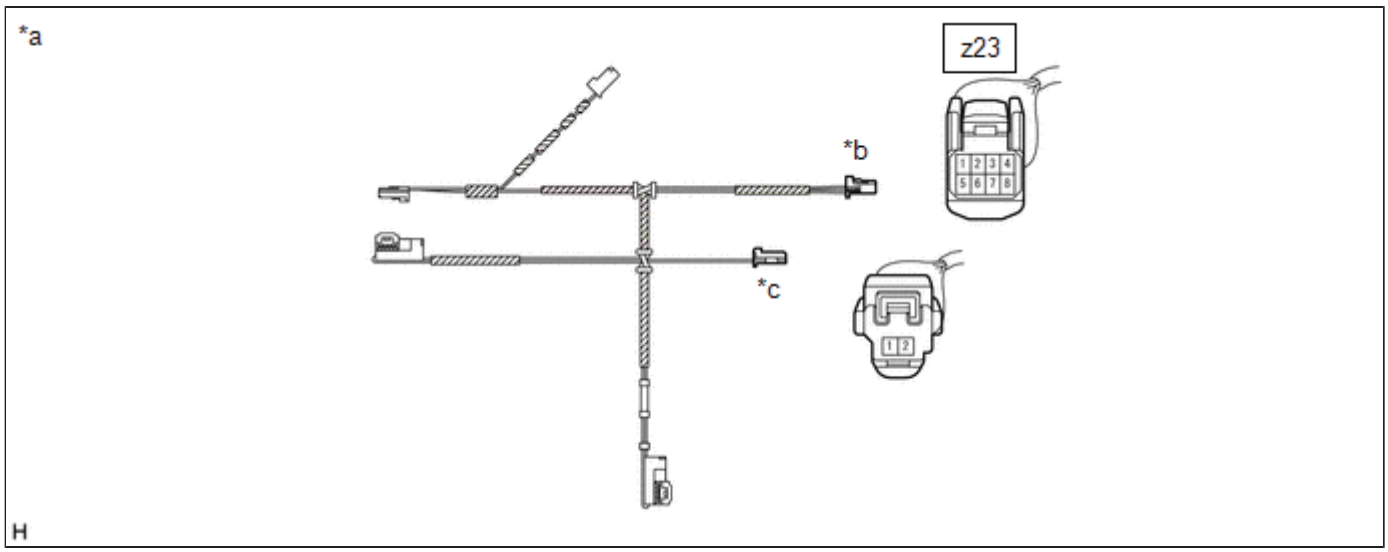
OK ▼

3.	INSPECT AIR CONDITIONING HARNESS ASSEMBLY

(a) Remove the air conditioning harness assembly.

Click here INFO

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



*a	Air Conditioning Harness Assembly	*b	Front view of wire harness connector (to Air Conditioning Amplifier Assembly)
*c	Front view of wire harness connector (to No. 1 Cooler Thermistor)	-	-

Standard Resistance:

EWD INFO

Click Location & Routing(z23)
Click Connector(z23)

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
z23-5 (SGA) - 2	Always	Below 1 Ω
z23-6 (TEA) - 1	Always	Below 1 Ω

OK ▶ **REPLACE AIR CONDITIONING AMPLIFIER ASSEMBLY**

Last Modified: 01-14-2019	6.8:8.0.48	**Doc ID:** RM100000000RW3M
Model Year Start: 2016	**Model:** Prius	**Prod Date Range:** [11/2015 -]
Title: HEATING / AIR CONDITIONING: AIR CONDITIONING SYSTEM: B1423; Pressure Sensor Circuit; 2016 - 2019 MY Prius [11/2015 -]		

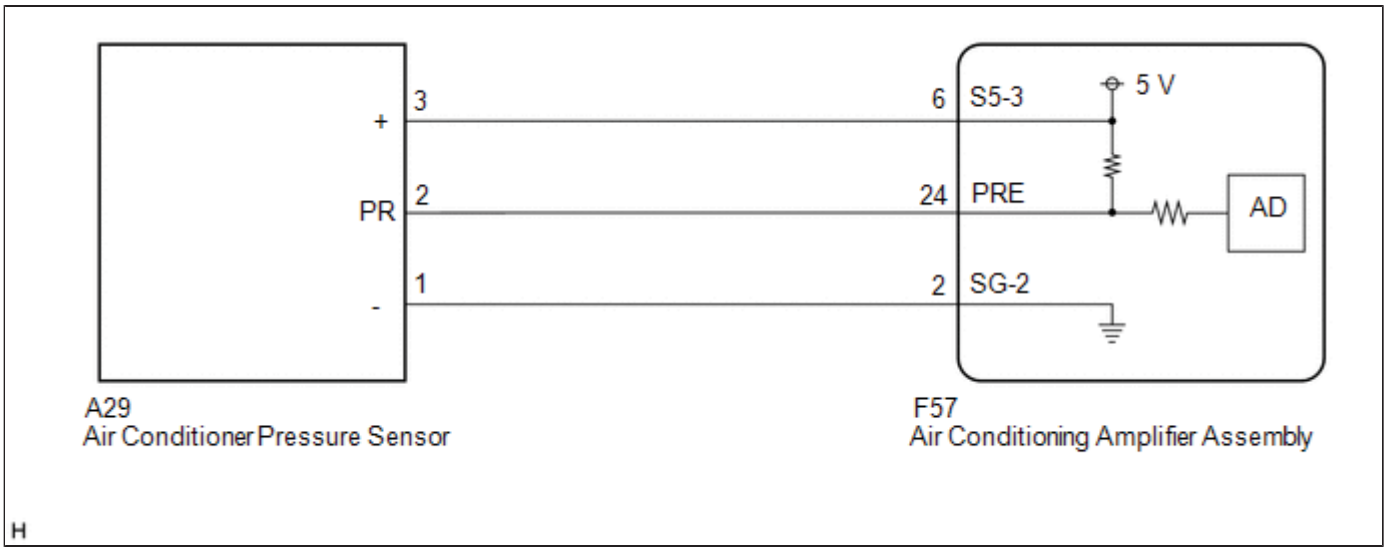
DTC	**B1423**	**Pressure Sensor Circuit**

DESCRIPTION

This DTC is stored if refrigerant pressure on the high pressure side is extremely low (176 kPa (1.8 kgf/cm^2, 26 psi) or less) or extremely high (3025 kPa (30.8 kgf/cm^2, 439 psi) or more). The air conditioner pressure sensor, which is installed to the high pressure side pipe to detect refrigerant pressure, sends a refrigerant pressure signal to the air conditioning amplifier assembly. The air conditioning amplifier assembly converts this signal to a pressure value according to the sensor characteristics and uses it to control the compressor.

DTC NO.	DETECTION ITEM	DTC DETECTION CONDITION	TROUBLE AREA	MEMORY
B1423	Pressure Sensor Circuit	• Open or short in air conditioner pressure sensor circuit • Refrigerant pressure on high pressure side is extremely low (176 kPa (1.8 kgf/cm^2, 26 psi) or less) or extremely high (3025 kPa (30.8 kgf/cm^2, 439 psi) or more)	• Air conditioner pressure sensor • Harness or connector • Air conditioning amplifier assembly • Cooler expansion valve (blocked, stuck) • Cooler condenser assembly (blocked, deterioration of cooling capacity due to dirt) • Cooler dryer (moisture in the refrigerant cycle cannot be absorbed) • Cooling fan system (cooler condenser assembly cannot be cooled down) • Air conditioning system (leaks, blocked)	-

WIRING DIAGRAM



CAUTION / NOTICE / HINT

HINT:

If DTC B1423 and B14B8 are output at the same time, troubleshoot for DTC B14B8 first.

Click here INFO

PROCEDURE

1.	**CHECK FOR DTC**

(a) Check for DTCs.

Body Electrical > Air Conditioner > Trouble Codes

RESULT	PROCEED TO
B14B8 is not output	A
B14B8 is output	B

B ▶ **GO TO DTC B14B8**

A ▼

2.	**CHECK REFRIGERANT SHORTAGE**

(a) Prepare the vehicle according to the table below.

Measurement Condition:

ITEM	CONDITION
A/C switch	On
Ambient temperature*	0 to 49°C (32 to 120°F)
Blower speed	HI

*: If the ambient temperature is not within the range shown, do not perform this check.

(b) Connect the Techstream to the DLC3.

(c) Turn the power switch on (READY).

(d) Turn the Techstream on.

(e) Enter the following menus: Body Electrical / Air Conditioner / Utility / Refrigerant Gas Volume Check.

Body Electrical > Air Conditioner > Utility

TESTER DISPLAY
Refrigerant Gas Volume Check

RESULT	AMOUNT OF REFRIGERANT
Refrigerant shortage	Insufficient or leakage
Refrigerant correct	Correct

RESULT	PROCEED TO
Insufficient or leakage	A
Correct	B

B **GO TO STEP 4**

A

3.	**REPAIR AIR CONDITIONING SYSTEM LEAK**

(a) Identify the area where refrigerant leaks from.

HINT:

Click here INFO

(b) Repair the identified area of the air conditioning system.

(c) Evacuate the air conditioning system.

NEXT CHARGE SYSTEM WITH REFRIGERANT

4.	CHECK REFRIGERANT PRESSURE

(a) Connect the Techstream to the DLC3.

(b) Turn the power switch on (IG).

(c) Turn the Techstream on.

(d) Enter the following menus: Body Electrical / Air Conditioner / Data List.

(e) Read the Data List according to the display on the Techstream.

Body Electrical > Air Conditioner > Data List

TESTER DISPLAY	MEASUREMENT ITEM	RANGE	NORMAL CONDITION	DIAGNOSTIC NOTE
Regulator Pressure Sensor	Air conditioner pressure sensor	Min.: -456.6 kPaG Max.: 3294.3 kPaG	Actual refrigerant pressure displayed	-

Body Electrical > Air Conditioner > Data List

TESTER DISPLAY
Regulator Pressure Sensor

(f) Install a manifold gauge set.

HINT:

Click here INFO

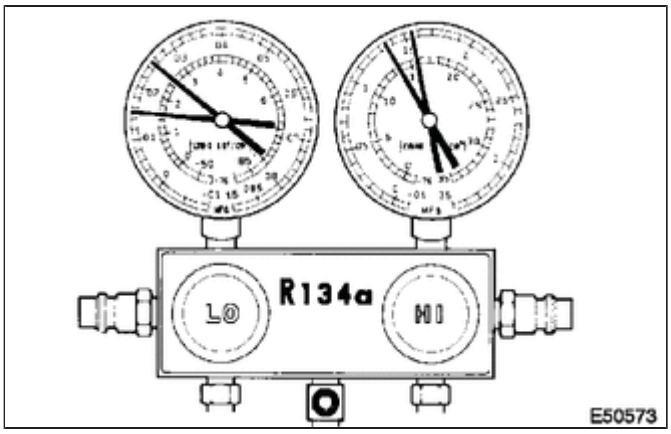
(g) Read the manifold gauge pressure when the following conditions are met.

(1) Prepare the vehicle according to the table below.

Measurement Condition:

ITEM	CONDITION
Vehicle doors	Fully open
Temperature setting	MAX COLD
Blower speed	HI
A/C switch	On

Recirculation/fresh switch	RECIRCULATION
Interior temperature	25 to 35°C (77 to 95°F)



Standard Pressure:

Low pressure side

150 to 250 kPa (1.5 to 2.5 kgf/cm^2, 22 to 36 psi)

High pressure side

1370 to 1570 kPa (14 to 16 kgf/cm^2, 199 to 228 psi)

(h) Compare the values displayed in the Data List and on the manifold gauge.

OK:

The values displayed in the Data List and on the manifold gauge match.

OK ▶ **CHECK REFRIGERANT PRESSURE**

NG ▼

5.	**CHECK HARNESS AND CONNECTOR (POWER SOURCE CIRCUIT)**

(a) Disconnect the A29 air conditioner pressure sensor connector.

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

Standard Voltage:

EWD INFO

Click Location & Routing(A29)
Click Connector(A29)

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
A29-3 (+) - A29-1 (-)	Power switch on (IG)	4.75 to 5.25 V

NG ▶ **GO TO STEP 10**

OK

6.	**CHECK HARNESS AND CONNECTOR (AIR CONDITIONER PRESSURE SENSOR - BODY GROUND)**

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

Standard Resistance:

EWD INFO

Click Location & Routing(A29)
Click Connector(A29)

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
A29-1 (-) - Body ground	Always	Below 1 Ω

NG ▶ **GO TO STEP 9**

OK

7.	**CHECK HARNESS AND CONNECTOR (AIR CONDITIONING AMPLIFIER ASSEMBLY - AIR CONDITIONER PRESSURE SENSOR)**

(a) Disconnect the F57 air conditioning amplifier assembly connector.

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

Standard Resistance:

EWD INFO

Click Location & Routing(A29)
Click Location & Routing(F57)
Click Connector(A29)
Click Connector(F57)

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
A29-2 (PR) - F57-24 (PRE)	Always	Below 1 Ω
A29-2 (PR) or F57-24 (PRE) - Body ground	Always	10 kΩ or higher

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

OK

8.	INSPECT AIR CONDITIONER PRESSURE SENSOR (SENSOR SIGNAL CIRCUIT)

(a) Measure the voltage when the following conditions are met.

Measurement Condition:

ITEM	CONDITION
Vehicle doors	Fully open
Temperature setting	MAX COLD
Blower speed	HI
A/C switch	On
Recirculation/fresh switch	RECIRCULATION
Interior temperature	25 to 35°C (77 to 95°F)

NOTICE:

- If refrigerant pressure on the high pressure side becomes extremely high during the inspection (if the voltage exceeds 4.61 V), the fail-safe function stops compressor operation. Therefore, measure the voltage before the fail-safe operation.
- It is necessary to measure the voltage for a certain amount of time (approximately 10 minutes) because the malfunction may recur after a while.

HINT:

When the outside air temperature is low (below -1.5°C (29.3°F)), the compressor stops due to operation of the thermistor assembly and the No. 1 cooler thermistor to prevent the evaporator from freezing. In this case, perform the inspection in a warm indoor environment.

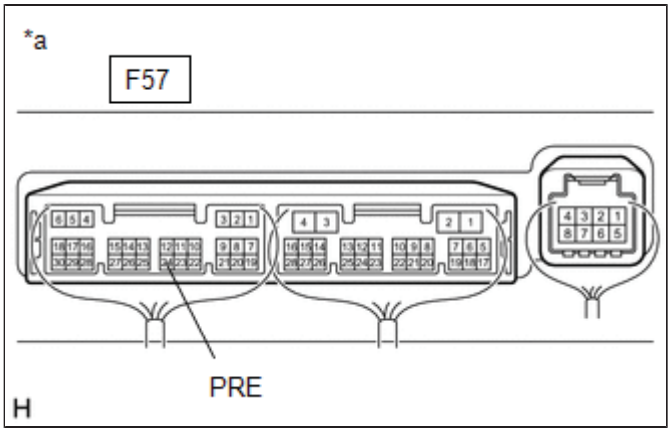
(1) Measure the voltage according to the value(s) in the table below.

Standard Voltage:

EWD INFO

Click Location & Routing(F57)
Click Connector(F57)

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
F57-24 (PRE) - Body	Power switch on	



*a	Component with harness connected (Air Conditioning Amplifier Assembly)

ground	(IG) (A/C switch: On)	0.74 to 4.61 V

(b) Connect the Techstream to the DLC3.

(c) Turn the power switch on (IG).

(d) Turn the Techstream on.

(e) Enter the following menus: Body Electrical / Air Conditioner / Data List.

(f) Read the Data List according to the display on the Techstream.

Body Electrical > Air Conditioner > Data List

TESTER DISPLAY	MEASUREMENT ITEM	RANGE	NORMAL CONDITION	DIAGNOSTIC NOTE
Regulator Pressure Sensor	Air conditioner pressure sensor	Min.: -456.6 kPaG Max.: 3294.3 kPaG	Actual refrigerant pressure displayed	-

Body Electrical > Air Conditioner > Data List

TESTER DISPLAY
Regulator Pressure Sensor

OK:

The voltage and value displayed in the Data List change.

RESULT	PROCEED TO
OK	A
NG (The voltage changes but the value displayed in the Data List does not change.)	
NG (The voltage does not change.)	B

A ▶ **REPLACE AIR CONDITIONING AMPLIFIER ASSEMBLY**

B ▶ **REPLACE AIR CONDITIONER PRESSURE SENSOR**

9.	**CHECK HARNESS AND CONNECTOR (AIR CONDITIONING AMPLIFIER ASSEMBLY - AIR CONDITIONER PRESSURE SENSOR)**

(a) Disconnect the F57 air conditioning amplifier assembly connector.

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

Standard Resistance:

EWD INFO

Click Location & Routing(A29)
Click Location & Routing(F57)
Click Connector(A29)
Click Connector(F57)

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
A29-1 (-) - F57-2 (SG-2)	Always	Below 1 Ω
A29-1 (-) or F57-2 (SG-2) - Body ground	Always	10 kΩ or higher

OK ▶ REPLACE AIR CONDITIONING AMPLIFIER ASSEMBLY

NG ▶ REPAIR OR REPLACE HARNESS OR CONNECTOR

10.	CHECK HARNESS AND CONNECTOR (AIR CONDITIONING AMPLIFIER ASSEMBLY - AIR CONDITIONER PRESSURE SENSOR)

(a) Disconnect the F57 air conditioning amplifier assembly connector.

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

Standard Resistance:

EWD INFO

Click Location & Routing(A29)
Click Location & Routing(F57)
Click Connector(A29)
Click Connector(F57)

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
A29-3 (+) - F57-6 (S5 -3)	Always	Below 1 Ω
A29-3 (+) or F57-6 (S5 -3) - Body ground	Always	10 kΩ or higher

OK ▶ REPLACE AIR CONDITIONING AMPLIFIER ASSEMBLY

NG ▶ REPAIR OR REPLACE HARNESS OR CONNECTOR

Last Modified: 01-14-2019	6.8:8.0.48	**Doc ID:** RM100000001FYJT
Model Year Start: 2019	**Model:** Prius	**Prod Date Range:** [12/2018 -]
Title: HEATING / AIR CONDITIONING: AIR CONDITIONING SYSTEM: B1441; Air Mix Damper Control Servo Motor Circuit (Passenger Side); 2019 MY Prius [12/2018 -]		

DTC	**B1441**	**Air Mix Damper Control Servo Motor Circuit (Passenger Side)**

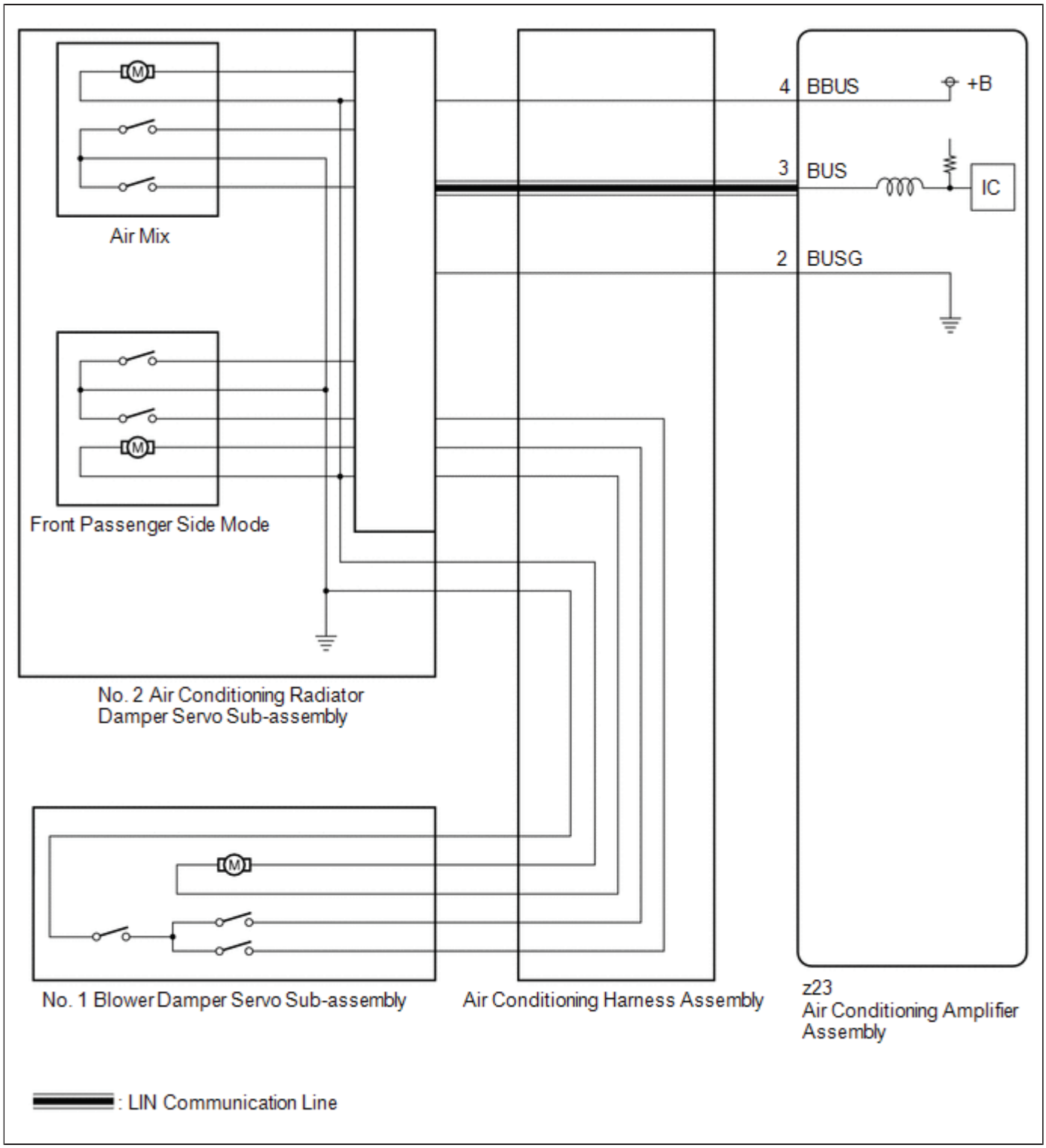
DESCRIPTION

The No. 2 air conditioning radiator 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 air mix damper to the appropriate position. This adjusts the amount of air passing through the heater core after passing the evaporator and controls the temperature of the output air. The air conditioning amplifier assembly communicates with the servo through a communication/driver IC and wiring assembly called the air conditioning harness assembly.

DTC NO.	DETECTION ITEM	DTC DETECTION CONDITION	TROUBLE AREA	MEMORY
B1441	Air Mix Damper Control Servo Motor Circuit (Passenger Side)	Air mix damper position sensor value does not change even if air conditioning amplifier assembly operates No. 2 air conditioning radiator damper servo sub-assembly	• No. 2 air conditioning radiator damper servo sub-assembly • Air conditioning harness assembly • Air conditioning amplifier assembly • Air conditioning radiator assembly	Memorized (30 sec. or more)*

*: The air conditioning amplifier assembly stores this DTC if the malfunction has occurred for the period of time indicated in the brackets.

WIRING DIAGRAM



CAUTION / NOTICE / HINT

HINT:

- Confirm that no mechanical problem is present because this DTC can be output when either a damper link or damper is mechanically locked.
- When installing the damper servo motor, make sure to install it correctly.

Click here INFO

PROCEDURE

1.	**CHECK FOR DTC**

(a) Check for DTCs.

Body Electrical > Air Conditioner > Trouble Codes

RESULT	PROCEED TO
B1441, B1442 and B1448 are output	A
B1497 is output	B
B1441 is output	C

A ▶ **REPLACE NO. 2 AIR CONDITIONING RADIATOR DAMPER SERVO SUB-ASSEMBLY**

B ▶ **GO TO DTC B1497**

C ▼

2.	**INSPECT NO. 2 AIR CONDITIONING RADIATOR DAMPER SERVO SUB-ASSEMBLY (MOTOR, LINK, DAMPER)**

(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.	**INSPECT AIR CONDITIONING RADIATOR ASSEMBLY (DAMPER)**

(a) Remove the No. 2 air conditioning radiator damper servo sub-assembly.

HINT:

Click here INFO

(b) Operate the dampers by hand.

OK:

The dampers are easily operated by hand.

OK ▶ **REPLACE NO. 2 AIR CONDITIONING RADIATOR DAMPER SERVO SUB-ASSEMBLY**

NG ▶ **REPLACE AIR CONDITIONING RADIATOR ASSEMBLY**

Last Modified: 01-14-2019	6.8:8.0.48	**Doc ID:** RM100000001FYJU
Model Year Start: 2019	**Model:** Prius	**Prod Date Range:** [12/2018 -]
Title: HEATING / AIR CONDITIONING: AIR CONDITIONING SYSTEM: B1442; Air Inlet Damper Control Servo Motor Circuit; 2019 MY Prius [12/2018 -]		

DTC	**B1442**	**Air Inlet Damper Control Servo Motor Circuit**

DESCRIPTION

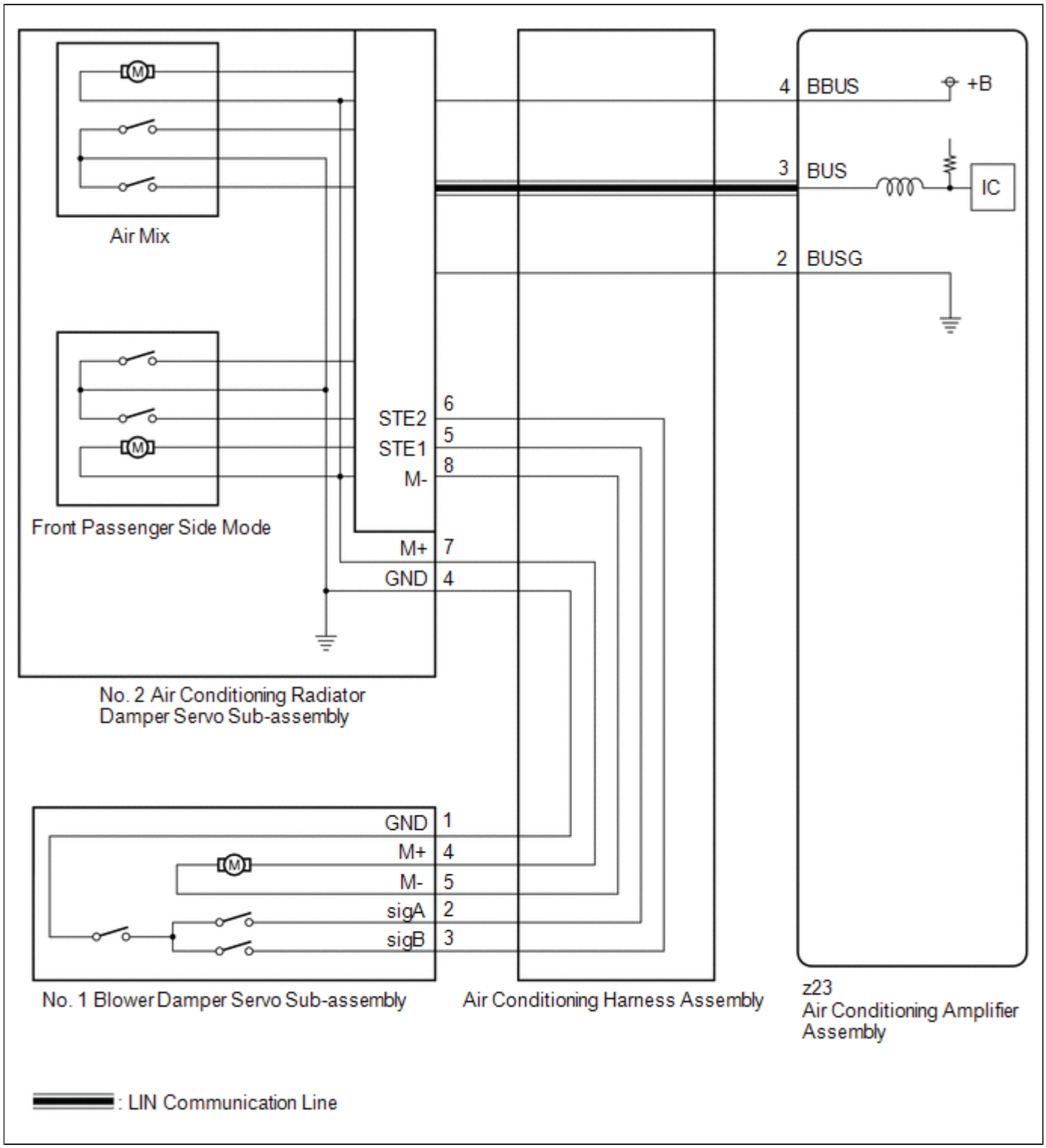
The No. 1 blower damper servo sub-assembly sends pulse signals to inform the air conditioning amplifier assembly of the damper position. The air conditioning amplifier assembly activates the motor (normal or reverse) based on these signals to move the air inlet damper to the appropriate position to change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

The air conditioning amplifier assembly communicates with the servo through a communication/driver IC and wiring assembly called the air conditioning harness assembly.

DTC NO.	DETECTION ITEM	DTC DETECTION CONDITION	TROUBLE AREA	MEMORY
B1442	Air Inlet Damper Control Servo Motor Circuit	Air inlet damper position sensor value does not change even if air conditioning amplifier assembly operates No. 1 blower damper servo sub-assembly	• No. 1 blower damper servo sub-assembly • No. 2 air conditioning radiator damper servo sub-assembly • Air conditioning harness assembly • Air conditioning amplifier assembly • Blower assembly	Memorized (30 sec. or more)*

*: The air conditioning amplifier assembly stores this DTC if the malfunction has occurred for the period of time indicated in the brackets.

WIRING DIAGRAM



CAUTION / NOTICE / HINT

HINT:

- Confirm that no mechanical problem is present because this DTC can be output when either a damper link or damper is mechanically locked.
- When installing the damper servo motor, make sure to install it correctly.

Click here INFO

PROCEDURE

1.	**CHECK FOR DTC**

(a) Check for DTCs.

Body Electrical > Air Conditioner > Trouble Codes

RESULT	PROCEED TO
B1441, B1442 and B1448 are output	A
B1497 is output	B
B1442 is output	C

A ▶ **REPLACE NO. 2 AIR CONDITIONING RADIATOR DAMPER SERVO SUB-ASSEMBLY**

B ▶ **GO TO DTC B1497**

C ▼

2.	**INSPECT BLOWER ASSEMBLY**

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

HINT:

Click here INFO

(b) Operate the air inlet control dampers by hand.

OK:

The air inlet control dampers are easily operated by hand.

NG ▶ **REPLACE BLOWER ASSEMBLY**

OK ▼

3.	**INSPECT AIR CONDITIONING HARNESS ASSEMBLY**

(a) Disconnect the No. 2 air conditioning radiator damper servo sub-assembly connector.

(b) Disconnect the No. 1 blower damper servo sub-assembly connector.

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

Standard Resistance:

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
6 (STE2) - 3 (sigB)	Always	Below 1 Ω
5 (STE1) - 2 (sigA)	Always	Below 1 Ω
8 (M-) - 5 (M-)	Always	Below 1 Ω
7 (M+) - 4 (M+)	Always	Below 1 Ω
4 (GND) - 1 (GND)	Always	Below 1 Ω
6 (STE2) or 3 (sigB) - Body ground	Always	10 kΩ or higher
5 (STE1) or 2 (sigA) - Body ground	Always	10 kΩ or higher
8 (M-) or 5 (M-) - Body ground	Always	10 kΩ or higher
7 (M+) or 4 (M+) - Body ground	Always	10 kΩ or higher

NG ▶ **REPLACE AIR CONDITIONING HARNESS ASSEMBLY**

OK ▼

4.	**PERFORM ACTIVE TEST USING TECHSTREAM**

(a) Connect the No. 2 air conditioning radiator damper servo sub-assembly connector.

(b) Remove the No. 3 air conditioning radiator damper servo sub-assembly.

HINT:

Click here INFO

(c) Connect the No. 1 blower damper servo sub-assembly connector to the No. 3 air conditioning radiator damper servo sub-assembly.

(d) Connect the Techstream to the DLC3.

(e) Turn the power switch on (IG).

(f) Turn the Techstream on.

(g) Enter the following menus: Body Electrical / Air Conditioner / Active Test.

(h) Perform the Active Test according to the display on the Techstream.

Body Electrical > Air Conditioner > Active Test

TESTER DISPLAY	MEASUREMENT ITEM	CONTROL RANGE	DIAGNOSTIC NOTE

Air Inlet Damper Targ Pulse	No. 1 blower damper servo sub-assembly pulse*	Min.: 128 Max.: 383	Operates between 220 to 256 pulses

*: Thus this Active Test is for the No. 1 blower damper servo sub-assembly, in this case it is used to check the operation of the No. 3 air conditioning radiator damper servo sub-assembly.

Body Electrical > Air Conditioner > Active Test

TESTER DISPLAY
Air Inlet Damper Targ Pulse

OK:
The No. 3 air conditioning radiator damper servo sub-assembly operates.

OK ▶ **REPLACE NO. 1 BLOWER DAMPER SERVO SUB-ASSEMBLY**

NG ▶ **REPLACE NO. 2 AIR CONDITIONING RADIATOR DAMPER SERVO SUB-ASSEMBLY**

Last Modified: 01-14-2019	6.8:8.0.48	**Doc ID:** RM100000001FYJV
Model Year Start: 2019	**Model:** Prius	**Prod Date Range:** [12/2018 -]
Title: HEATING / AIR CONDITIONING: AIR CONDITIONING SYSTEM: B1443; Air Outlet Damper Control Servo Motor Circuit; 2019 MY Prius [12/2018 -]		

DTC	**B1443**	**Air Outlet Damper Control Servo Motor Circuit**

DESCRIPTION

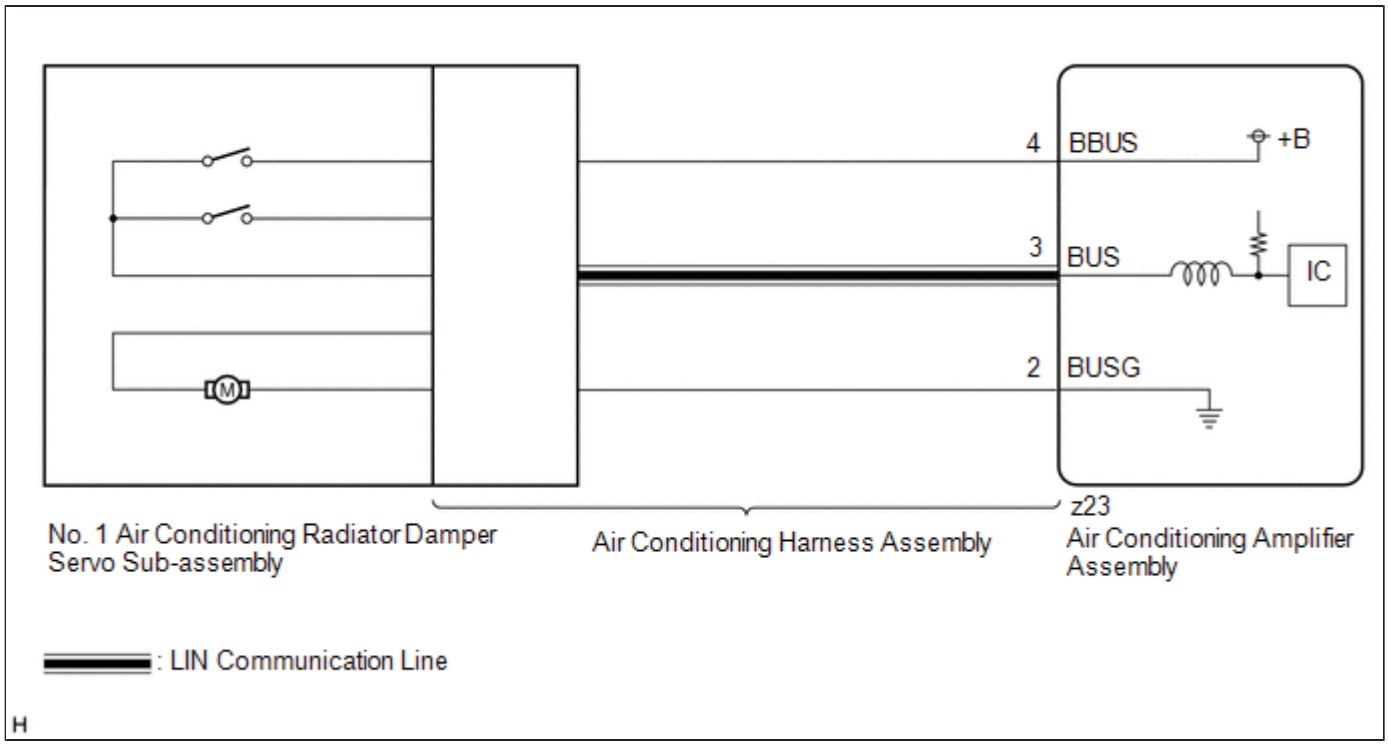
The No. 1 air conditioning radiator damper servo sub-assembly sends pulse signals to inform the air conditioning amplifier assembly of the damper position. The air conditioning amplifier assembly activates the motor (normal or reverse) based on these signals to move the air outlet damper to the appropriate position, which controls the air outlet switching.

The air conditioning amplifier assembly communicates with the servo through a communication/driver IC and wiring assembly called the air conditioning harness assembly.

DTC NO.	DETECTION ITEM	DTC DETECTION CONDITION	TROUBLE AREA	MEMORY
B1443	Air Outlet Damper Control Servo Motor Circuit	Air outlet damper position sensor value does not change even if air conditioning amplifier assembly operates No. 1 air conditioning radiator damper servo sub-assembly	• No. 1 air conditioning radiator damper servo sub-assembly • Air conditioning harness assembly • Air conditioning amplifier assembly • Air conditioning radiator assembly	Memorized (30 sec. or more)*

*: The air conditioning amplifier assembly stores this DTC if the malfunction has occurred for the period of time indicated in the brackets.

WIRING DIAGRAM



CAUTION / NOTICE / HINT

HINT:

- Confirm that no mechanical problem is present because this DTC can be output when either a damper link or damper is mechanically locked.
- When installing the damper servo motor, make sure to install it correctly.

Click here INFO

PROCEDURE

1.	**CHECK FOR DTC**

(a) Check for DTCs.

Body Electrical > Air Conditioner > Trouble Codes

RESULT	PROCEED TO
B1497 is not output	A
B1497 is output	B

B ▶ GO TO DTC B1497

A ▼

2.	**INSPECT NO. 1 AIR CONDITIONING RADIATOR DAMPER SERVO SUB-ASSEMBLY (INSTALLATION CONDITION)**

(a) Check that the No. 1 air conditioning radiator damper servo sub-assembly is installed correctly.

HINT:

Click here INFO

OK:

The No. 1 air conditioning radiator damper servo sub-assembly is installed correctly.

NG ▶ **INSTALL NO. 1 AIR CONDITIONING RADIATOR DAMPER SERVO SUB-ASSEMBLY CORRECTLY**

OK ▼

3.	**INSPECT NO. 1 AIR CONDITIONING RADIATOR DAMPER SERVO SUB-ASSEMBLY (MOTOR, LINK, DAMPER)**

(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 ▼

4.	**INSPECT AIR CONDITIONING RADIATOR ASSEMBLY (DAMPER)**

(a) Remove the No. 1 air conditioning radiator damper servo sub-assembly.

HINT:

Click here INFO

(b) Operate the dampers by hand.

OK:

The dampers are easily operated by hand.

NG ▶ **REPLACE AIR CONDITIONING RADIATOR ASSEMBLY**

OK

5.	PERFORM ACTIVE TEST USING TECHSTREAM

(a) Remove the No. 3 air conditioning radiator damper servo sub-assembly.

HINT:

Click here INFO

(b) Connect the No. 3 air conditioning radiator damper servo sub-assembly connector to the No. 1 air conditioning radiator damper servo sub-assembly.

(c) Connect the Techstream to the DLC3.

(d) Turn the power switch on (IG).

(e) Turn the Techstream on.

(f) Enter the following menus: Body Electrical / Air Conditioner / Active Test.

(g) Perform the Active Test according to the display on the Techstream.

Body Electrical > Air Conditioner > Active Test

TESTER DISPLAY	MEASUREMENT ITEM	CONTROL RANGE	DIAGNOSTIC NOTE
A/O Servo Pulse(Rr D)	No. 3 air conditioning radiator damper servo sub-assembly pulse*	Min.: 128 Max.: 383	Operates between 250 to 297 pulses

*: Thus this Active Test is for the No. 3 air conditioning radiator damper servo sub-assembly, in this case it is used to check the operation of the No. 1 air conditioning radiator damper servo sub-assembly.

Body Electrical > Air Conditioner > Active Test

TESTER DISPLAY
A/O Servo Pulse(Rr D)

OK:

The No. 1 air conditioning radiator damper servo sub-assembly operates.

OK ▶ **REPLACE AIR CONDITIONING HARNESS ASSEMBLY**

NG ▶ **REPLACE NO. 1 AIR CONDITIONING RADIATOR DAMPER SERVO SUB-ASSEMBLY**

Last Modified: 01-14-2019	6.8:8.0.48	**Doc ID:** RM100000001FYJW
Model Year Start: 2019	**Model:** Prius	**Prod Date Range:** [12/2018 -]
Title: HEATING / AIR CONDITIONING: AIR CONDITIONING SYSTEM: B1448; Passenger Side FACE Servo Motor Circuit; 2019 MY Prius [12/2018 -]		

DTC	**B1448**	**Passenger Side FACE Servo Motor Circuit**

DESCRIPTION

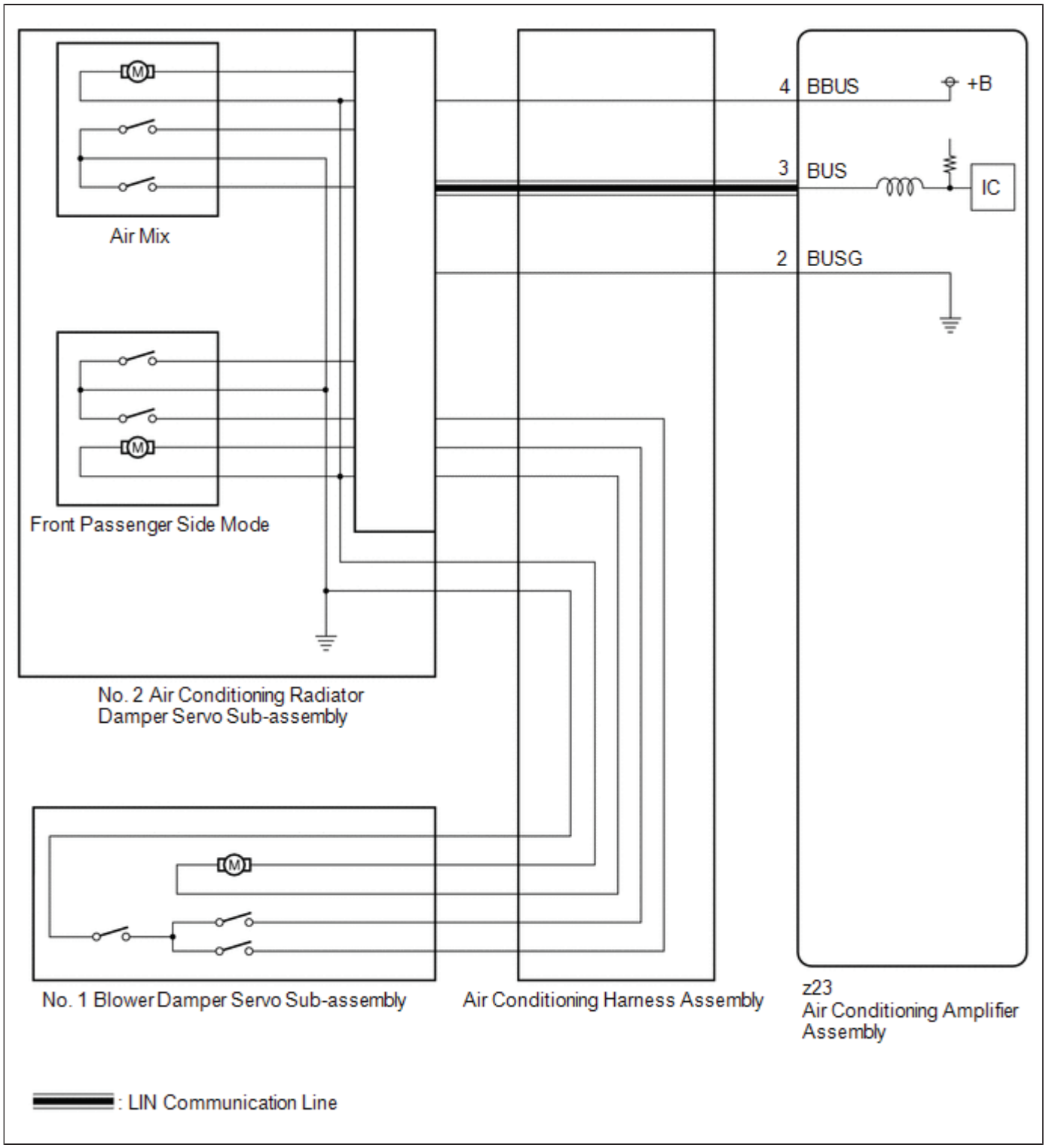
The No. 2 air conditioning radiator damper servo sub-assembly sends pulse signals to inform the air conditioning amplifier assembly of the damper position. The air conditioning amplifier assembly activates the motor (normal or reverse) based on these signals to move the air outlet damper to the appropriate position, which controls the air outlet switching.

The air conditioning amplifier assembly communicates with the servo through a communication/driver IC and wiring assembly called the air conditioning harness assembly.

DTC NO.	DETECTION ITEM	DTC DETECTION CONDITION	TROUBLE AREA	MEMORY
B1448	Passenger Side FACE Servo Motor Circuit	Air outlet damper position sensor value does not change even if air conditioning amplifier assembly operates No. 2 air conditioning radiator damper servo sub-assembly	• No. 2 air conditioning radiator damper servo sub-assembly • Air conditioning harness assembly • Air conditioning amplifier assembly • Air conditioning radiator assembly	Memorized (30 sec. or more)*

*: The air conditioning amplifier assembly stores this DTC if the malfunction has occurred for the period of time indicated in the brackets.

WIRING DIAGRAM



CAUTION / NOTICE / HINT

HINT:

- Confirm that no mechanical problem is present because this DTC can be output when either a damper link or damper is mechanically locked.
- When installing the damper servo motor, make sure to install it correctly.

Click here INFO

PROCEDURE

1.	**CHECK FOR DTC**

(a) Check for DTCs.

Body Electrical > Air Conditioner > Trouble Codes

RESULT	PROCEED TO
B1441, B1442 and B1448 are output	A
B1497 is output	B
B1448 is output	C

A ▶ **REPLACE NO. 2 AIR CONDITIONING RADIATOR DAMPER SERVO SUB-ASSEMBLY**

B ▶ **GO TO DTC B1497**

C ▼

2.	**INSPECT NO. 2 AIR CONDITIONING RADIATOR DAMPER SERVO SUB-ASSEMBLY (MOTOR, LINK, DAMPER)**

(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.	**INSPECT AIR CONDITIONING RADIATOR ASSEMBLY (DAMPER)**

(a) Remove the No. 2 air conditioning radiator damper servo sub-assembly.

HINT:

Click here INFO

(b) Operate the dampers by hand.

OK:

The dampers are easily operated by hand.

OK ▶ **REPLACE NO. 2 AIR CONDITIONING RADIATOR DAMPER SERVO SUB-ASSEMBLY**

NG ▶ **REPLACE AIR CONDITIONING RADIATOR ASSEMBLY**

Last Modified: 01-14-2019	6.8:8.0.48	**Doc ID:** RM100000001FYJX
Model Year Start: 2019	**Model:** Prius	**Prod Date Range:** [12/2018 -]
Title: HEATING / AIR CONDITIONING: AIR CONDITIONING SYSTEM: B1449; Rear Air Outlet Damper Control Servo Motor Circuit; 2019 MY Prius [12/2018 -]		

DTC	**B1449**	**Rear Air Outlet Damper Control Servo Motor Circuit**

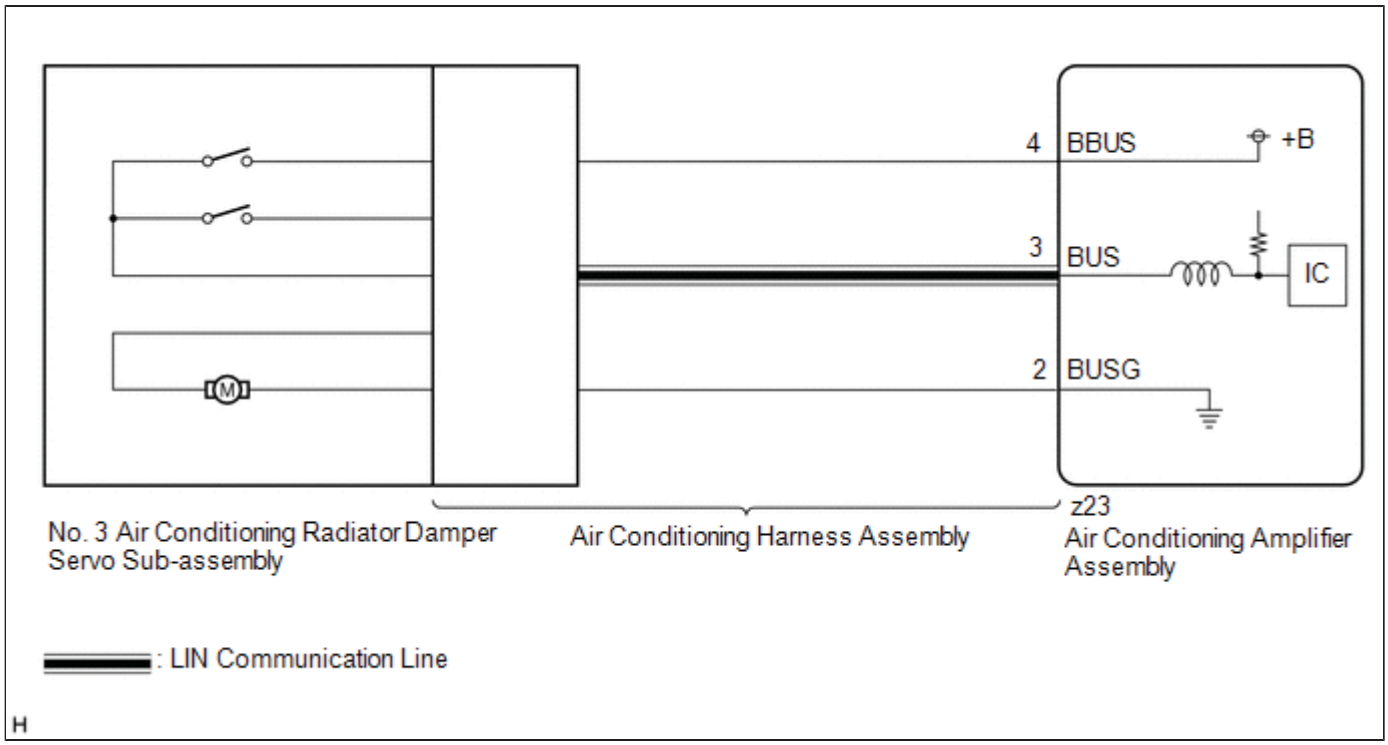
DESCRIPTION

The No. 3 air conditioning radiator 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 air mix damper to the appropriate position, which controls the rear air outlet switching. The air conditioning amplifier assembly communicates with the servo through a communication/driver IC and wiring assembly called the air conditioning harness assembly.

DTC NO.	DETECTION ITEM	DTC DETECTION CONDITION	TROUBLE AREA	MEMORY
B1449	Rear Air Outlet Damper Control Servo Motor Circuit	Air mix damper position sensor value does not change even if air conditioning amplifier assembly operates No. 3 air conditioning radiator damper servo sub-assembly	• No. 3 air conditioning radiator damper servo sub-assembly • Air conditioning harness assembly • Air conditioning amplifier assembly • Air conditioning radiator assembly	Memorized (30 sec. or more)*

*: The air conditioning amplifier assembly stores this DTC if the malfunction has occurred for the period of time indicated in the brackets.

WIRING DIAGRAM



CAUTION / NOTICE / HINT

HINT:

- Confirm that no mechanical problem is present because this DTC can be output when either a damper link or damper is mechanically locked.
- When installing the damper servo motor, make sure to install it correctly.

Click here INFO

PROCEDURE

1.	**CHECK FOR DTC**

(a) Check for DTCs.

Body Electrical > Air Conditioner > Trouble Codes

RESULT	PROCEED TO
B1497 is not output	A
B1497 is output	B

B ▶ GO TO DTC B1497

A ▼

2.	**INSPECT INSTALL NO. 3 AIR CONDITIONING RADIATOR DAMPER SERVO SUB-ASSEMBLY CORRECTLY**

(a) Check that the No. 3 air conditioning radiator damper servo sub-assembly is installed correctly.

HINT:

Click here INFO

OK:

The No. 3 air conditioning radiator damper servo sub-assembly is installed correctly.

NG ▶ **INSTALL NO. 3 AIR CONDITIONING RADIATOR DAMPER SERVO SUB-ASSEMBLY CORRECTLY**

OK ▼

3.	**INSPECT NO. 3 AIR CONDITIONING RADIATOR DAMPER SERVO SUB-ASSEMBLY (MOTOR, LINK, DAMPER)**

(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 ▼

4.	**INSPECT AIR CONDITIONING RADIATOR ASSEMBLY (DAMPER)**

(a) Remove the No. 3 air conditioning radiator damper servo sub-assembly.

HINT:

Click here INFO

(b) Operate the dampers by hand.

OK:

The dampers are easily operated by hand.

NG ▶ **REPLACE AIR CONDITIONING RADIATOR ASSEMBLY**

OK

5.	PERFORM ACTIVE TEST USING TECHSTREAM

(a) Remove the No. 1 air conditioning radiator damper servo sub-assembly.

HINT:

Click here INFO

(b) Connect the No. 1 air conditioning radiator damper servo sub-assembly connector to the No. 3 air conditioning radiator damper servo sub-assembly.

(c) Connect the Techstream to the DLC3.

(d) Turn the power switch on (IG).

(e) Turn the Techstream on.

(f) Enter the following menus: Body Electrical / Air Conditioner / Active Test.

(g) Perform the Active Test according to the display on the Techstream.

Body Electrical > Air Conditioner > Active Test

TESTER DISPLAY	MEASUREMENT ITEM	CONTROL RANGE	DIAGNOSTIC NOTE
Air Outlet Servo Pulse (P)	No. 1 air conditioning radiator damper servo sub-assembly pulse*	Min.: 128 Max.: 383	Operates between 164 to 256 pulses

*: Thus this Active Test is for the No. 1 air conditioning radiator damper servo sub-assembly, in this case it is used to check the operation of the No. 3 air conditioning radiator damper servo sub-assembly.

Body Electrical > Air Conditioner > Active Test

TESTER DISPLAY
Air Outlet Servo Pulse (P)

OK:

The No. 3 air conditioning radiator damper servo sub-assembly operates.

OK ▶ **REPLACE AIR CONDITIONING HARNESS ASSEMBLY**

NG ▶ **REPLACE NO. 3 AIR CONDITIONING RADIATOR DAMPER SERVO SUB-ASSEMBLY**

Last Modified: 01-14-2019	6.8:8.0.48	**Doc ID:** RM100000000RW4K
Model Year Start: 2016	**Model:** Prius	**Prod Date Range:** [11/2015 -]
Title: HEATING / AIR CONDITIONING: AIR CONDITIONING SYSTEM: B1471; A/C Inverter High Voltage Power Resource System Malfunction; 2016 - 2019 MY Prius [11/2015 -]		

DTC	**B1471**	**A/C Inverter High Voltage Power Resource System Malfunction**

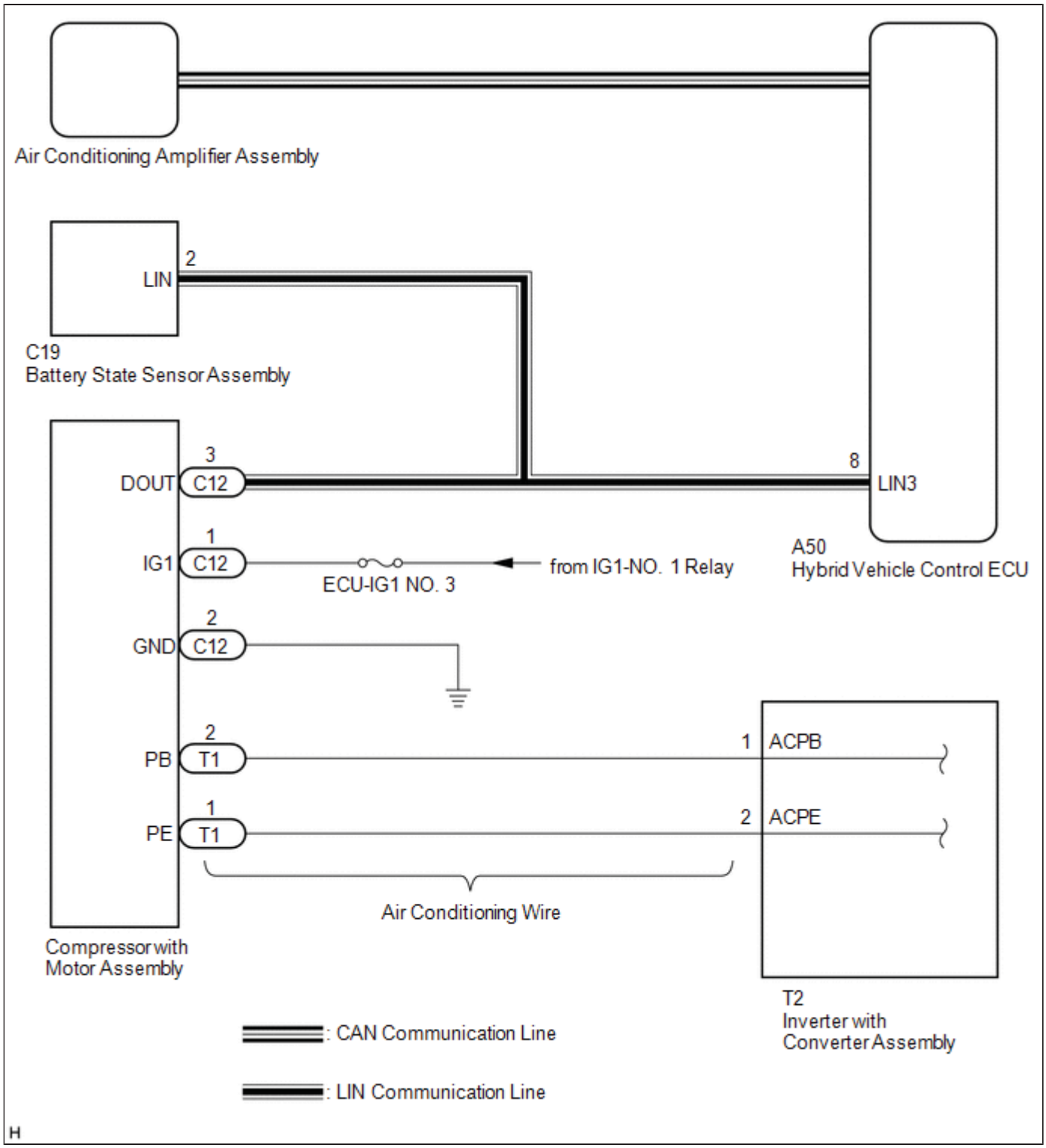
DESCRIPTION

The hybrid vehicle control ECU monitors the voltage of the HV battery. The hybrid vehicle control ECU stops compressor control and stores this DTC when the monitored voltage is outside the specified range.

This DTC will be stored as a history DTC. Compressor control may not resume unless the power switch is turned off.

DTC NO.	DETECTION ITEM	DTC DETECTION CONDITION	TROUBLE AREA	MEMORY
B1471	A/C Inverter High Voltage Power Resource System Malfunction	• Open or short in A/C inverter high voltage power resource system • Boost inverter malfunctioning	• Air conditioning wire (harness or connector between compressor with motor assembly and inverter with converter assembly) • Compressor with motor assembly • Hybrid control system • CAN communication system	Memorized

WIRING DIAGRAM



CAUTION / NOTICE / HINT

CAUTION:

- Before inspecting the high-voltage system, take safety precautions such as wearing insulated gloves and removing the service plug grip to prevent electrical shocks. After removing the service plug grip, put it in your pocket to prevent other technicians from accidentally reconnecting it while you are working on the high-voltage system.
- Do not touch the high-voltage connectors or terminals for 10 minutes after the service plug grip is removed.

NOTICE:

- Inspect the fuses for circuits related to this system before performing the following procedure.
- After turning the power switch off, waiting time may be required before disconnecting the cable from the negative (-)

auxiliary battery terminal. Therefore, make sure to read the disconnecting the cable from the negative (-) auxiliary battery terminal notices before proceeding with work.

Click here INFO INFO INFO

- The hybrid control system and air conditioning system output DTCs separately. Perform troubleshooting for the hybrid control system first if DTCs for both systems are output simultaneously.

PROCEDURE

1.	**CHECK CAN COMMUNICATION SYSTEM**

(a) Using the Techstream, check if the CAN communication system is functioning normally.

HINT:

Click here INFO INFO

RESULT	PROCEED TO
CAN communication system DTCs are not output	A
CAN communication system DTCs are output	B

B ▶ **GO TO CAN COMMUNICATION SYSTEM** INFO INFO

A ▼

2.	**CONFIRM MODEL**

(a) Choose the model to be inspected.

RESULT	PROCEED TO
for Nickel Metal Hydride Battery	A
for Lithium-ion Battery	B

B ▶ **GO TO STEP 7**

A ▼

3.	CHECK FOR DTC

(a) Check if hybrid control system DTCs are output.

Powertrain > Hybrid Control > Trouble Codes

RESULT	PROCEED TO
DTCs are not output	A
DTCs are output	B

B ▶ **GO TO HYBRID CONTROL SYSTEM**

A ▼

4.	INSPECT AIR CONDITIONING WIRE

CAUTION:

Be sure to wear insulated gloves.

(a) Disconnect the T1 and T2 air conditioning wire connectors.

HINT:

Click here INFO INFO

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

Standard Resistance:

EWD INFO

Click Location & Routing(T1,T2)
Click Connector(T1)
Click Connector(T2)

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
T1-2 (PB) - T2-1 (ACPB)	Always	Below 1 Ω

NG ▶ **GO TO STEP 6**

OK ▼

5.	INSPECT AIR CONDITIONING WIRE

CAUTION:

Be sure to wear insulated gloves.

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

Standard Resistance:

EWD INFO

Click Location & Routing(T1,T2)
Click Connector(T1)
Click Connector(T2)

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
T1-1 (PE) - T2-2 (ACPE)	Always	Below 1 Ω

OK ▶ REPLACE COMPRESSOR WITH MOTOR ASSEMBLY INFO INFO INFO INFO

NG ▶ REPLACE AIR CONDITIONING WIRE INFO INFO INFO INFO

6.	INSPECT AIR CONDITIONING WIRE

CAUTION:

Be sure to wear insulated gloves.

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

Standard Resistance:

EWD INFO

Click Location & Routing(T1)
Click Connector(T1)

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
T1-2 (PB) - Body ground	Always	10 kΩ or higher

OK ▶ REPLACE COMPRESSOR WITH MOTOR ASSEMBLY INFO INFO INFO INFO

NG ▶ REPLACE AIR CONDITIONING WIRE INFO INFO INFO INFO

7.	**CHECK FOR DTC**

(a) Check if hybrid control system DTCs are output.

Powertrain > Hybrid Control > Trouble Codes

RESULT	PROCEED TO
DTCs are not output	A
DTCs are output	B

B ▶ **GO TO HYBRID CONTROL SYSTEM**

A

▼

8.	**INSPECT AIR CONDITIONING WIRE**

CAUTION:

Be sure to wear insulated gloves.

(a) Disconnect the T1 and T2 air conditioning wire connectors.

HINT:

Click here INFO INFO

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

Standard Resistance:

EWD INFO

Click Location & Routing(T1,T2)
Click Connector(T1)
Click Connector(T2)

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
T1-2 (PB) - T2-1 (ACPB)	Always	Below 1 Ω

NG ▶ **GO TO STEP 10**

OK

▼

9.	INSPECT AIR CONDITIONING WIRE

CAUTION:

Be sure to wear insulated gloves.

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

Standard Resistance:

EWD INFO

Click Location & Routing(T1,T2)
Click Connector(T1)
Click Connector(T2)

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
T1-1 (PE) - T2-2 (ACPE)	Always	Below 1 Ω

OK ▶ REPLACE COMPRESSOR WITH MOTOR ASSEMBLY INFO INFO INFO INFO

NG ▶ REPLACE AIR CONDITIONING WIRE INFO INFO INFO INFO

10.	INSPECT AIR CONDITIONING WIRE

CAUTION:

Be sure to wear insulated gloves.

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

Standard Resistance:

EWD INFO

Click Location & Routing(T1)
Click Connector(T1)

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
T1-2 (PB) - Body ground	Always	10 kΩ or higher

OK ▶ REPLACE COMPRESSOR WITH MOTOR ASSEMBLY INFO INFO INFO INFO

NG ▶ REPLACE AIR CONDITIONING WIRE INFO INFO INFO INFO

Last Modified: 01-14-2019	6.8:8.0.48	**Doc ID:** RM100000000RW4L
Model Year Start: 2016	**Model:** Prius	**Prod Date Range:** [11/2015 -]
Title: HEATING / AIR CONDITIONING: AIR CONDITIONING SYSTEM: B1472/72; A/C Inverter High Voltage Output System Malfunction; 2016 - 2019 MY Prius [11/2015 -]		

DTC	**B1472/72**	**A/C Inverter High Voltage Output System Malfunction**

DESCRIPTION

The inverter in the compressor with motor assembly outputs high-voltage electricity to operate the motor. If there is an open or short in the output circuit, the hybrid vehicle control ECU will stop compressor operation and store this DTC. This DTC will be stored as a history DTC. The compressor operation remains stopped until both the history and current DTCs are cleared.

DTC NO.	DETECTION ITEM	DTC DETECTION CONDITION	TROUBLE AREA	MEMORY
B1472/72	A/C Inverter High Voltage Output System Malfunction	Open or short in A/C inverter high voltage output circuit	• Compressor with motor assembly • CAN communication system	Memorized

CAUTION / NOTICE / HINT

CAUTION:

- Before inspecting the high-voltage system, take safety precautions such as wearing insulated gloves and removing the service plug grip to prevent electrical shocks. After removing the service plug grip, put it in your pocket to prevent other technicians from accidentally reconnecting it while you are working on the high-voltage system.
- Do not touch the high-voltage connectors or terminals for 10 minutes after the service plug grip is removed.

NOTICE:

- After turning the power switch off, waiting time may be required before disconnecting the cable from the negative (-) auxiliary battery terminal. Therefore, make sure to read the disconnecting the cable from the negative (-) auxiliary battery terminal notices before proceeding with work.

  Click here INFO INFO INFO
- The hybrid control system and air conditioning system output DTCs separately. Perform troubleshooting for the hybrid control system first if DTCs for both systems are output simultaneously.

PROCEDURE

1.	**CHECK CAN COMMUNICATION SYSTEM**

(a) Using the Techstream, check if the CAN communication system is functioning normally.

Click here INFO INFO

RESULT	PROCEED TO
CAN communication system DTCs are not output	A

CAN communication system DTCs are output	B

A ▶ REPLACE COMPRESSOR WITH MOTOR ASSEMBLY INFO INFO INFO INFO

B ▶ GO TO CAN COMMUNICATION SYSTEM INFO INFO INFO INFO

Last Modified: 01-14-2019	6.8:8.0.48	**Doc ID:** RM100000000RW4M
Model Year Start: 2016	**Model:** Prius	**Prod Date Range:** [11/2015 -]
Title: HEATING / AIR CONDITIONING: AIR CONDITIONING SYSTEM: B1473; A/C Inverter Start-up Signal System Malfunction; 2016 - 2019 MY Prius [11/2015 -]		

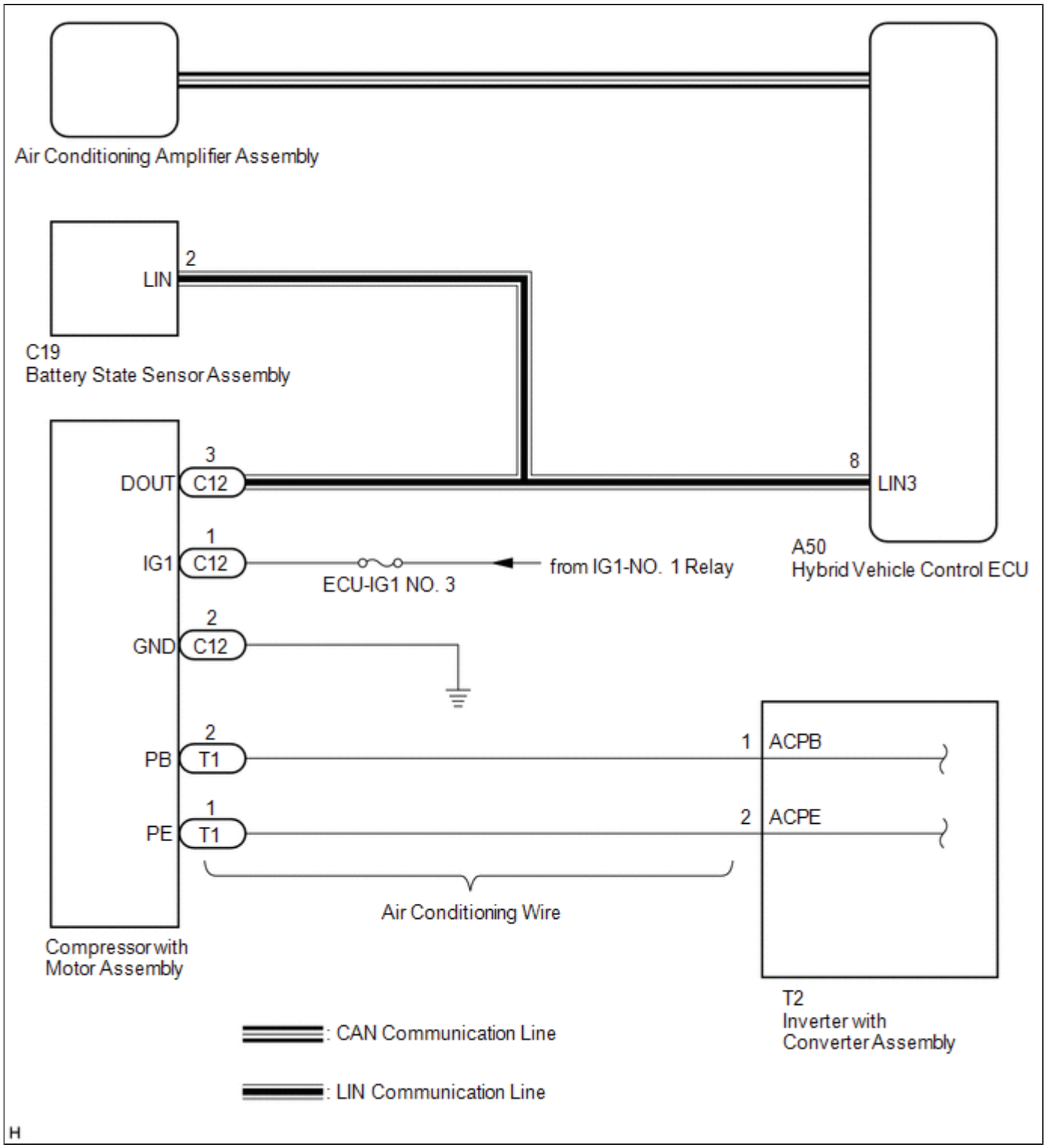
DTC	**B1473**	**A/C Inverter Start-up Signal System Malfunction**

DESCRIPTION

The inverter activation signal is sent to the compressor with motor assembly from the hybrid vehicle control ECU. Compressor control is stopped and this DTC is stored if there is an open or short in the signal circuit.

DTC NO.	DETECTION ITEM	DTC DETECTION CONDITION	TROUBLE AREA	MEMORY
B1473	A/C Inverter Start-up Signal System Malfunction	Open or short in A/C inverter start-up signal circuit	• Harness or connector • Compressor with motor assembly • Hybrid vehicle control ECU • Hybrid control system • CAN communication system	-

WIRING DIAGRAM



CAUTION / NOTICE / HINT

CAUTION:

- Before inspecting the high-voltage system, take safety precautions such as wearing insulated gloves and removing the service plug grip to prevent electrical shocks. After removing the service plug grip, put it in your pocket to prevent other technicians from accidentally reconnecting it while you are working on the high-voltage system.
- Do not touch the high-voltage connectors or terminals for 10 minutes after the service plug grip is removed.

NOTICE:

- After turning the power switch off, waiting time may be required before disconnecting the cable from the negative (-) auxiliary battery terminal. Therefore, make sure to read the disconnecting the cable from the negative (-) auxiliary

battery terminal notices before proceeding with work.

Click here INFO INFO INFO

- The hybrid control system and air conditioning system output DTCs separately. Perform troubleshooting for the hybrid control system first if DTCs for both systems are output simultaneously.

PROCEDURE

1.	**CHECK CAN COMMUNICATION SYSTEM**

(a) Using the Techstream, check if the CAN communication system is functioning normally.

HINT:

Click here INFO INFO

RESULT	PROCEED TO
CAN communication system DTCs are not output	A
CAN communication system DTCs are output	B

B ▶ **GO TO CAN COMMUNICATION SYSTEM** INFO INFO

A ▼

2.	**CHECK FOR DTC**

(a) Check if air conditioning system DTCs are output.

Body Electrical > Air Conditioner > Trouble Codes

RESULT	PROCEED TO
B1473 and B1498 are output simultaneously	A
Only B1473 is output	B

A ▶ **GO TO DTC B1498**

B ▼

3.	**CONFIRM MODEL**

(a) Choose the model to be inspected.

RESULT	PROCEED TO
for Nickel Metal Hydride Battery	A
for Lithium-ion Battery	B

B ▶ GO TO STEP 6

A ▼

4.	**CHECK FOR DTC**

(a) Check if hybrid control system DTCs are output.

Powertrain > Hybrid Control > Trouble Codes

RESULT	PROCEED TO
DTCs are not output	A
DTCs are output	B

B ▶ GO TO HYBRID CONTROL SYSTEM

A ▼

5.	**PERFORM ACTIVE TEST USING TECHSTREAM**

(a) Connect the Techstream to the DLC3.

(b) Turn the power switch on (IG).

(c) Turn the Techstream on.

(d) Enter the following menus: Body Electrical / Air Conditioner / Active Test.

(e) Perform the Active Test according to the display on the Techstream.

Body Electrical > Air Conditioner > Active Test

TESTER DISPLAY	MEASUREMENT ITEM	CONTROL RANGE	DIAGNOSTIC NOTE
Compressor Target Speed	Compressor with motor assembly	Min.: 0, Max.: 7500	-

Body Electrical > Air Conditioner > Active Test

TESTER DISPLAY
Compressor Target Speed

OK:
Compressor with motor assembly operates normally.

OK ▶ **REPLACE AIR CONDITIONING AMPLIFIER ASSEMBLY**

NG ▶ **REPLACE COMPRESSOR WITH MOTOR ASSEMBLY** INFO INFO INFO

6.	CHECK FOR DTC

(a) Check if hybrid control system DTCs are output.

Powertrain > Hybrid Control > Trouble Codes

RESULT	PROCEED TO
DTCs are not output	A
DTCs are output	B

B ▶ **GO TO HYBRID CONTROL SYSTEM**

A ▼

7.	PERFORM ACTIVE TEST USING TECHSTREAM

(a) Connect the Techstream to the DLC3.

(b) Turn the power switch on (IG).

(c) Turn the Techstream on.

(d) Enter the following menus: Body Electrical / Air Conditioner / Active Test.

(e) Perform the Active Test according to the display on the Techstream.

Body Electrical > Air Conditioner > Active Test

TESTER DISPLAY	MEASUREMENT ITEM	CONTROL RANGE	DIAGNOSTIC NOTE
Compressor Target Speed	Compressor with motor assembly	Min.: 0, Max.: 7500	-

Body Electrical > Air Conditioner > Active Test

TESTER DISPLAY
Compressor Target Speed

OK:

Compressor with motor assembly operates normally.

OK ▶ **REPLACE AIR CONDITIONING AMPLIFIER ASSEMBLY**

NG ▶ **REPLACE COMPRESSOR WITH MOTOR ASSEMBLY** INFO INFO INFO

Last Modified: 01-14-2019	6.8:8.0.48	**Doc ID:** RM100000000RW4N
Model Year Start: 2016	**Model:** Prius	**Prod Date Range:** [11/2015 -]
Title: HEATING / AIR CONDITIONING: AIR CONDITIONING SYSTEM: B1474/74; A/C Inverter Malfunction; 2016 - 2019 MY Prius [11/2015 -]		

DTC	**B1474/74**	**A/C Inverter Malfunction**

DESCRIPTION

DTC NO.	DETECTION ITEM	DTC DETECTION CONDITION	TROUBLE AREA	MEMORY
B1474/74	A/C Inverter Malfunction	A/C inverter malfunction	• Compressor with motor assembly • CAN communication system	Memorized

CAUTION / NOTICE / HINT

CAUTION:

- Before inspecting the high-voltage system, take safety precautions such as wearing insulated gloves and removing the service plug grip to prevent electrical shocks. After removing the service plug grip, put it in your pocket to prevent other technicians from accidentally reconnecting it while you are working on the high-voltage system.
- Do not touch the high-voltage connectors or terminals for 10 minutes after the service plug grip is removed.

NOTICE:

- After turning the power switch off, waiting time may be required before disconnecting the cable from the negative (-) auxiliary battery terminal. Therefore, make sure to read the disconnecting the cable from the negative (-) auxiliary battery terminal notices before proceeding with work.

  Click here INFO INFO INFO
- The hybrid control system and air conditioning system output DTCs separately. Perform troubleshooting for the hybrid control system first if DTCs for both systems are output simultaneously.

PROCEDURE

1.	**CHECK CAN COMMUNICATION SYSTEM**

(a) Using the Techstream, check if the CAN communication system is functioning normally.

Click here INFO INFO

RESULT	PROCEED TO
CAN communication system DTCs are not output	A
CAN communication system DTCs are output	B

A ▶ **REPLACE COMPRESSOR WITH MOTOR ASSEMBLY** INFO INFO INFO INFO

B GO TO CAN COMMUNICATION SYSTEM INFO INFO INFO INFO

Last Modified: 01-14-2019	6.8:8.0.48	**Doc ID:** RM100000000RW4O
Model Year Start: 2016	**Model:** Prius	**Prod Date Range:** [11/2015 -]
Title: HEATING / AIR CONDITIONING: AIR CONDITIONING SYSTEM: B1475; A/C Inverter Cooling / Heating System Malfunction; 2016 - 2019 MY Prius [11/2015 -]		

DTC	**B1475**	**A/C Inverter Cooling / Heating System Malfunction**

DESCRIPTION

The temperature sensor of the compressor with motor assembly detects the A/C inverter temperature.

If the temperature exceeds the maximum, operation of the compressor with motor assembly will be stopped, and this DTC will be stored.

DTC NO.	DETECTION ITEM	DTC DETECTION CONDITION	TROUBLE AREA	MEMORY
B1475	A/C Inverter Cooling / Heating System Malfunction	A/C inverter temperature outside specified range (temperature too high) or open or short to ground in temperature sensor circuit	• Cooling fan system • Refrigerant volume • Compressor with motor assembly • CAN communication system	Memorized

CAUTION / NOTICE / HINT

CAUTION:

- Before inspecting the high-voltage system, take safety precautions such as wearing insulated gloves and removing the service plug grip to prevent electrical shocks. After removing the service plug grip, put it in your pocket to prevent other technicians from accidentally reconnecting it while you are working on the high-voltage system.
- Do not touch the high-voltage connectors or terminals for 10 minutes after the service plug grip is removed.

NOTICE:

- After turning the power switch off, waiting time may be required before disconnecting the cable from the negative (-) auxiliary battery terminal. Therefore, make sure to read the disconnecting the cable from the negative (-) auxiliary battery terminal notices before proceeding with work.

  Click here INFO INFO INFO
- The hybrid control system and air conditioning system output DTCs separately. Perform troubleshooting for the hybrid control system first if DTCs for both systems are output simultaneously.

PROCEDURE

1.	**CHECK CAN COMMUNICATION SYSTEM**

(a) Using the Techstream, check if the CAN communication system is functioning normally.

HINT:

Click here INFO INFO

RESULT	PROCEED TO
CAN communication system DTCs are not output	A
CAN communication system DTCs are output	B

B ▶ **GO TO CAN COMMUNICATION SYSTEM** INFO INFO

A ▼

2.	PERFORM ACTIVE TEST USING TECHSTREAM

(a) Connect the Techstream to the DLC3.

(b) Turn the power switch on (IG).

(c) Turn the Techstream on.

(d) Enter the following menus: Powertrain / Engine / Active Test.

(e) Perform the Active Test according to the display on the Techstream.

Powertrain > Engine > Active Test

TESTER DISPLAY	MEASUREMENT ITEM	CONTROL RANGE	DIAGNOSTIC NOTE
Control the Engine Cooling Fan	Control engine cooling fan motor	ON/OFF	Perform this test when the following conditions are met: • Power switch is on (IG) • Engine is stopped • Shift lever in P

Powertrain > Engine > Active Test

TESTER DISPLAY
Control the Engine Cooling Fan

OK:

Engine cooling fan operates smoothly.

NG ▶ GO TO COOLING FAN SYSTEM

OK ▼

3.	CHECK REFRIGERANT PRESSURE

(a) Install a manifold gauge set.

HINT:

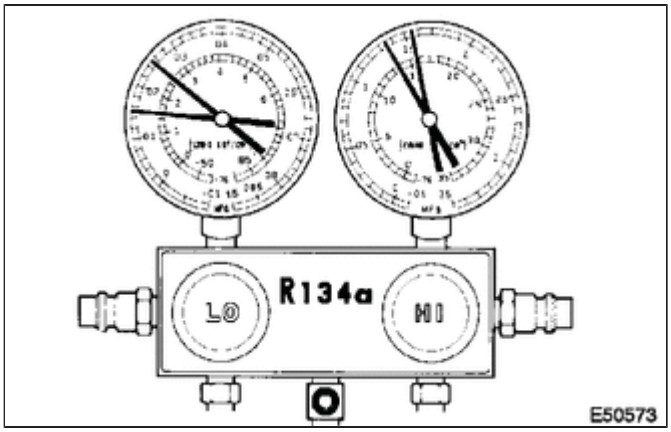
Click here INFO

(b) Turn the power switch on (READY).

(c) Read the manifold gauge pressure when the following conditions are met.

(1) Prepare the vehicle according to the table below.

ITEM	CONDITION
Vehicle doors	Fully open
Temperature setting	MAX COLD
Blower speed	HI
A/C switch	On
Recirculation/fresh switch	RECIRCULATION
Interior temperature	25 to 35°C (77 to 95°F)



Standard Pressure:

Low pressure side

150 to 250 kPa (1.5 to 2.5 kgf/cm^2, 22 to 36 psi)

High pressure side

1370 to 1570 kPa (14 to 16 kgf/cm^2, 199 to 228 psi)

NG ▶ CHARGE REFRIGERANT

OK ▼

4.	CLEAR DTC

(a) Clear the DTCs.

Body Electrical > Air Conditioner > Clear DTCs

NEXT

5.	**READ OUTPUT DTC (DTC B1475)**

(a) Turn the power switch on (READY).

(b) Prepare the vehicle according to the table below.

ITEM	CONDITION
Blower speed	HI
A/C switch	On
Temperature setting	MAX COLD

(c) Check for DTCs.

Body Electrical > Air Conditioner > Trouble Codes

RESULT	PROCEED TO
B1475 is not output	A
B1475 is output	B

NOTICE:

If the engine idles continuously when ambient temperature is high, the compressor with motor assembly may automatically stop to protect the inverter circuit, and DTC B1475 may be stored.

A **SYSTEM IS OK**

B **REPLACE COMPRESSOR WITH MOTOR ASSEMBLY** INFO INFO

Last Modified: 01-14-2019	6.8:8.0.48	**Doc ID:** RM100000000RW4P
Model Year Start: 2016	**Model:** Prius	**Prod Date Range:** [11/2015 -]
Title: HEATING / AIR CONDITIONING: AIR CONDITIONING SYSTEM: B1476/76; A/C Inverter Load System Malfunction; 2016 - 2019 MY Prius [11/2015 -]		

DTC	**B1476/76**	**A/C Inverter Load System Malfunction**

DESCRIPTION

The operation of the compressor with motor assembly is stopped and this DTC is stored if the rotation load is too large or too small while the compressor with motor assembly is operating.

Possible causes are refrigerant leaks, overcharged refrigerant, insufficient cooling due to a condenser fan circuit malfunction, or compressor lock.

DTC NO.	DETECTION ITEM	DTC DETECTION CONDITION	TROUBLE AREA	MEMORY
B1476/76	A/C Inverter Load System Malfunction	Motor rotation load while compressor is operating is too large or too small	• Refrigerant volume • Compressor with motor assembly • Cooling fan system • CAN communication system	Memorized

CAUTION / NOTICE / HINT

CAUTION:

- Before inspecting the high-voltage system, take safety precautions such as wearing insulated gloves and removing the service plug grip to prevent electrical shocks. After removing the service plug grip, put it in your pocket to prevent other technicians from accidentally reconnecting it while you are working on the high-voltage system.
- Do not touch the high-voltage connectors or terminals for 10 minutes after the service plug grip is removed.

NOTICE:

- After turning the power switch off, waiting time may be required before disconnecting the cable from the negative (-) auxiliary battery terminal. Therefore, make sure to read the disconnecting the cable from the negative (-) auxiliary battery terminal notices before proceeding with work.

  Click here INFO INFO INFO
- The hybrid control system and air conditioning system output DTCs separately. Perform troubleshooting for the hybrid control system first if DTCs for both systems are output simultaneously.

PROCEDURE

1.	**CHECK CAN COMMUNICATION SYSTEM**

(a) Using the Techstream, check if the CAN communication system is functioning normally.

Click here INFO INFO

RESULT	PROCEED TO
CAN communication system DTCs are not output	A
CAN communication system DTCs are output	B

B ▶ **GO TO CAN COMMUNICATION SYSTEM** INFO INFO

A ▼

2.	PERFORM ACTIVE TEST USING TECHSTREAM

(a) Connect the Techstream to the DLC3.

(b) Turn the power switch on (IG).

(c) Turn the Techstream on.

(d) Enter the following menus: Powertrain / Engine and ECT / Active Test.

(e) Perform the Active Test according to the display on the Techstream.

Powertrain > Engine > Active Test

TESTER DISPLAY	MEASUREMENT ITEM	CONTROL RANGE	DIAGNOSTIC NOTE
Control the Engine Cooling Fan	Control engine cooling fan motor	ON/OFF	Perform this test when the following conditions are met: • Power switch is on (IG) • Engine is stopped • Shift lever in P

Powertrain > Engine > Active Test

TESTER DISPLAY
Control the Engine Cooling Fan

NG ▶ **GO TO COOLING FAN SYSTEM**

OK

3.	CHECK REFRIGERANT PRESSURE

(a) Install a manifold gauge set.

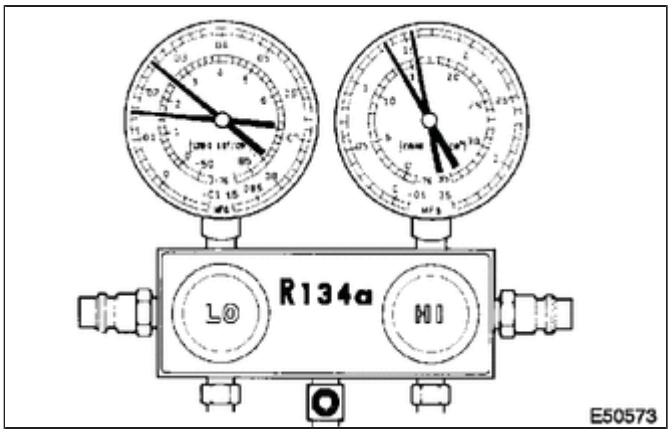
Click here INFO

(b) Turn the power switch on (READY).

(c) Read the manifold gauge pressure when the following conditions are met.

(1) Prepare the vehicle according to the table below.

ITEM	CONDITION
Vehicle doors	Fully open
Temperature setting	MAX COLD
Blower speed	HI
A/C switch	On
Recirculation/fresh switch	RECIRCULATION
Interior temperature	25 to 35°C (77 to 95°F)



Standard Pressure:

Low pressure side

150 to 250 kPa (1.5 to 2.5 kgf/cm^2, 22 to 36 psi)

High pressure side

1370 to 1570 kPa (14 to 16 kgf/cm^2, 199 to 228 psi)

OK ▶ REPLACE COMPRESSOR WITH MOTOR ASSEMBLY INFO INFO INFO

NG ▶ CHARGE REFRIGERANT

Last Modified: 01-14-2019	6.8:8.0.48	**Doc ID:** RM100000000RW4Q
Model Year Start: 2016	**Model:** Prius	**Prod Date Range:** [11/2015 -]
Title: HEATING / AIR CONDITIONING: AIR CONDITIONING SYSTEM: B1477/77; A/C Inverter Low Voltage Power Resource System Malfunction; 2016 - 2019 MY Prius [11/2015 -]		

DTC	**B1477/77**	**A/C Inverter Low Voltage Power Resource System Malfunction**

DESCRIPTION

The compressor with motor assembly monitors the inverter control power source voltage. The hybrid vehicle control ECU stops the compressor control and stores this DTC if the monitored voltage is outside the specified range.

This DTC will be stored as a history DTC. Compressor control may not resume unless the power switch is turned off.

DTC NO.	DETECTION ITEM	DTC DETECTION CONDITION	TROUBLE AREA	MEMORY
B1477/77	A/C Inverter Low Voltage Power Resource System Malfunction	Open or short to ground in inverter control power voltage circuit	• Compressor with motor assembly • CAN communication system	Memorized

CAUTION / NOTICE / HINT

CAUTION:

- Before inspecting the high-voltage system, take safety precautions such as wearing insulated gloves and removing the service plug grip to prevent electrical shocks. After removing the service plug grip, put it in your pocket to prevent other technicians from accidentally reconnecting it while you are working on the high-voltage system.
- Do not touch the high-voltage connectors or terminals for 10 minutes after the service plug grip is removed.

NOTICE:

- After turning the power switch off, waiting time may be required before disconnecting the cable from the negative (-) auxiliary battery terminal. Therefore, make sure to read the disconnecting the cable from the negative (-) auxiliary battery terminal notices before proceeding with work.

  Click here INFO INFO INFO
- The hybrid control system and air conditioning system output DTCs separately. Perform troubleshooting for the hybrid control system first if DTCs for both systems are output simultaneously.

PROCEDURE

1.	**CHECK CAN COMMUNICATION SYSTEM**

(a) Using the Techstream, check if the CAN communication system is functioning normally.

Click here INFO INFO

RESULT	PROCEED TO

CAN communication system DTCs are not output	A
CAN communication system DTCs are output	B

A ▶ REPLACE COMPRESSOR WITH MOTOR ASSEMBLY INFO INFO INFO INFO

B ▶ GO TO CAN COMMUNICATION SYSTEM INFO INFO INFO INFO

Last Modified: 01-14-2019	6.8:8.0.48	**Doc ID:** RM100000001FYJZ
Model Year Start: 2019	**Model:** Prius	**Prod Date Range:** [12/2018 -]
Title: HEATING / AIR CONDITIONING: AIR CONDITIONING SYSTEM: B1497; BUS IC Communication Malfunction; 2019 MY Prius [12/2018 -]		

DTC	**B1497**	**BUS IC Communication Malfunction**

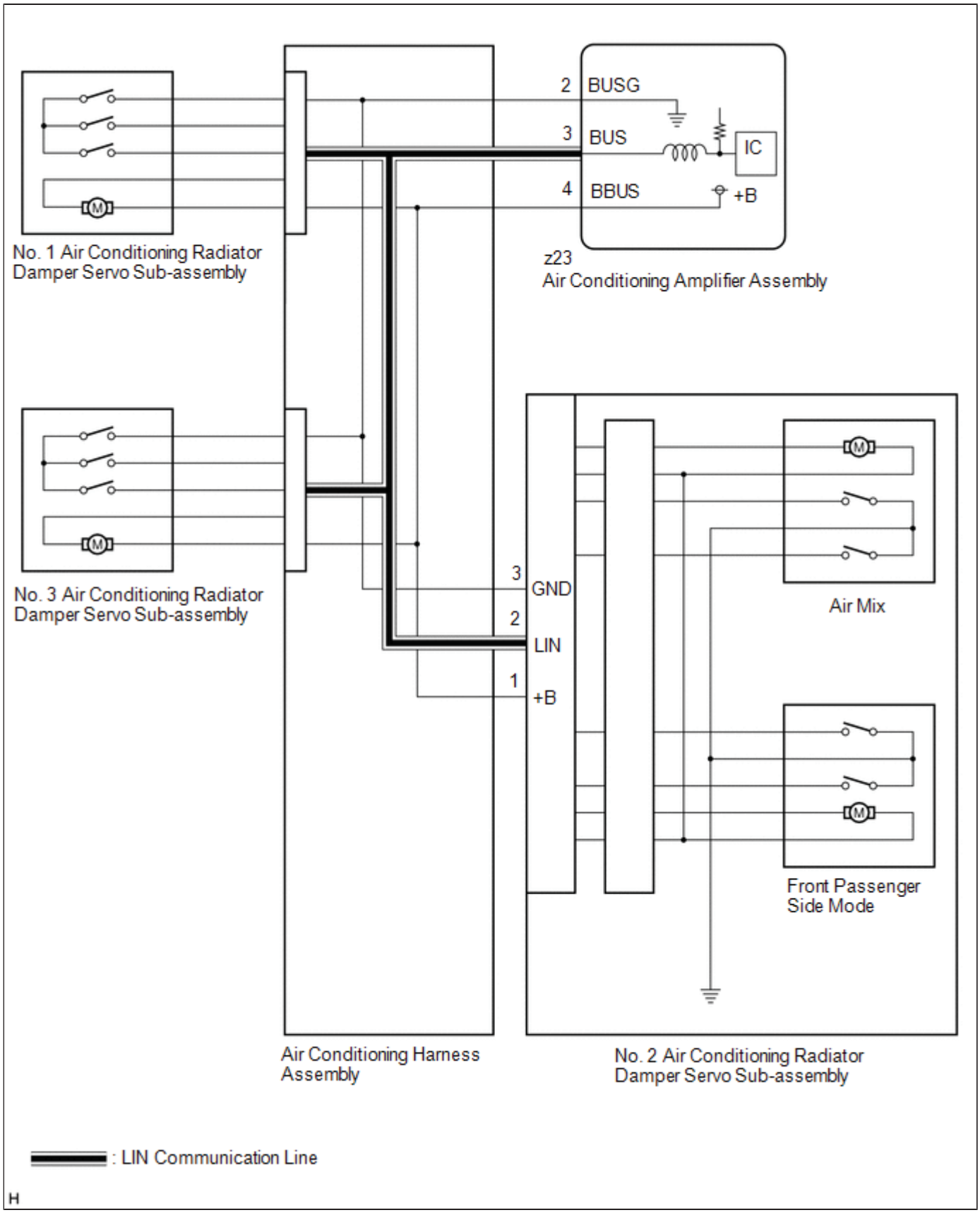
DESCRIPTION

The air conditioning harness assembly connects the air conditioning amplifier assembly and the servo motors. The air conditioning amplifier assembly supplies power and sends operation instructions to each servo motor through the air conditioning harness assembly. Each servo motor sends damper position information to the air conditioning amplifier assembly.

DTC NO.	DETECTION ITEM	DTC DETECTION CONDITION	TROUBLE AREA	MEMORY
B1497	BUS IC Communication Malfunction	Error or open in communication line	• Air conditioning harness assembly • No. 1 air conditioning radiator damper servo sub-assembly • No. 2 air conditioning radiator damper servo sub-assembly • No. 3 air conditioning radiator damper servo sub-assembly • Air conditioning amplifier assembly	Memorized (10 sec. or more)*

*: The air conditioning amplifier assembly stores this DTC if the malfunction has occurred for the period of time indicated in the brackets.

WIRING DIAGRAM



PROCEDURE

1.	PERFORM ACTIVE TEST USING TECHSTREAM

(a) Connect the Techstream to the DLC3.

(b) Turn the power switch on (IG).

(c) Turn the Techstream on.

(d) Enter the following menus: Body Electrical / Air Conditioner / Active test.

(e) Perform the Active Test according to the display on the Techstream.

Body Electrical > Air Conditioner > Active Test

TESTER DISPLAY	MEASUREMENT ITEM	CONTROL RANGE	DIAGNOSTIC NOTE
Air Mix Servo Targ Pulse(D)	No. 2 air conditioning radiator damper servo sub-assembly (air mix) pulse	Min.: 128 Max.: 383	Operates between 165 to 257 pulses
Air Outlet Servo Pulse (D)	No. 1 air conditioning radiator damper servo sub-assembly pulse	Min.: 128 Max.: 383	Operates between 164 to 256 pulses
A/O Servo Pulse(Rr D)	No. 3 air conditioning radiator damper servo sub-assembly pulse	Min.: 128 Max.: 383	Operates between 250 to 297 pulses

Body Electrical > Air Conditioner > Active Test

TESTER DISPLAY
Air Mix Servo Targ Pulse(D)

Body Electrical > Air Conditioner > Active Test

TESTER DISPLAY
Air Outlet Servo Pulse (D)

Body Electrical > Air Conditioner > Active Test

TESTER DISPLAY
A/O Servo Pulse(Rr D)

OK:
Each damper servo motor operates smoothly.

RESULT	PROCEED TO
All of the damper servo motors are malfunctioning	A

Any of the damper servo motors is normal.	B

B ▶ **GO TO STEP 4**

A

▼

2.	**PERFORM ACTIVE TEST USING TECHSTREAM**

(a) Disconnect the No. 2 air conditioning radiator damper servo sub-assembly connector.

(b) Connect the Techstream to the DLC3.

(c) Turn the power switch on (IG).

(d) Turn the Techstream on.

(e) Enter the following menus: Body Electrical / Air Conditioner / Active test.

(f) Perform the Active Test according to the display on the Techstream.

Body Electrical > Air Conditioner > Active Test

TESTER DISPLAY	MEASUREMENT ITEM	CONTROL RANGE	DIAGNOSTIC NOTE
A/O Servo Pulse(Rr D)	No. 3 air conditioning radiator damper servo sub-assembly pulse	Min.: 128 Max.: 383	Operates between 250 to 297 pulses

Body Electrical > Air Conditioner > Active Test

TESTER DISPLAY
A/O Servo Pulse(Rr D)

OK:
The damper servo motor operates smoothly.

OK ▶ **REPLACE NO. 2 AIR CONDITIONING RADIATOR DAMPER SERVO SUB-ASSEMBLY**

NG

▼

3.	INSPECT AIR CONDITIONING AMPLIFIER ASSEMBLY

NOTICE:

When inspecting the air conditioning amplifier assembly, do not bring the tester probes too close to each other as a short circuit may occur.

(a) Disconnect the z23 air conditioning amplifier assembly connector.

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

Standard Resistance:

EWD INFO

Click Location & Routing(z23)
Click Connector(z23)

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
z23-2 (BUSG) - Body ground	Always	Below 1 Ω

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

Standard Voltage:

EWD INFO

Click Location & Routing(z23)
Click Connector(z23)

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
z23-4 (BBUS) - Body ground	Power switch on (IG)	11 to 14 V

(d) Turn the power switch on (IG).

(e) Connect an oscilloscope to terminals z23-2 (BUSG) and z23-3 (BUS) of the air conditioning amplifier assembly and check the waveform.

OK:

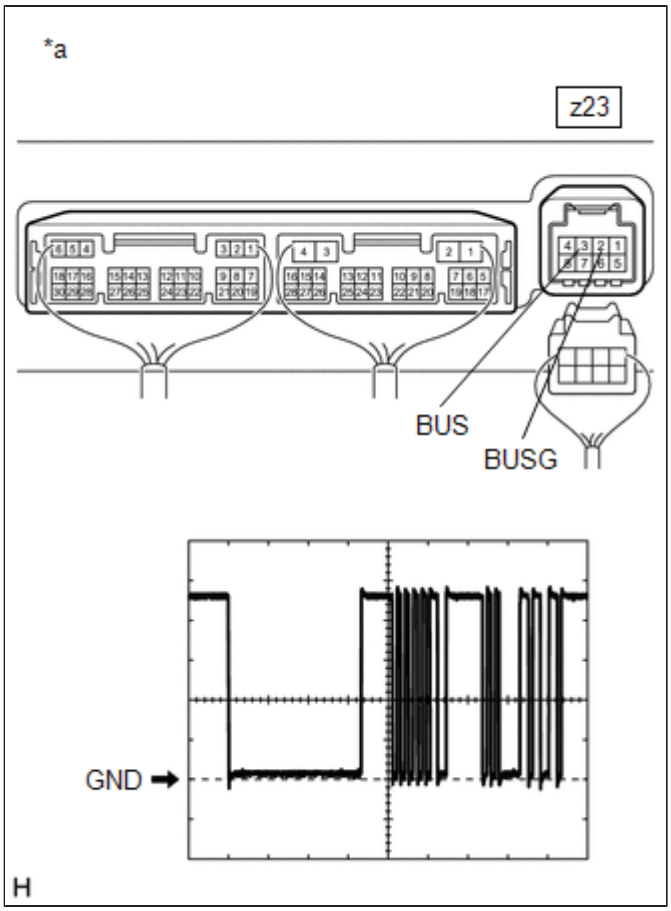
Waveform is similar to that shown in the illustration.

HINT:

The waveform varies with the blower speed.

ITEM	CONTENT
Tool Setting	2 V/DIV., 2 ms./DIV.

Vehicle Condition	Power switch on (IG)



*a	Component with harness connected (Air Conditioning Amplifier Assembly)

OK ▶ **REPLACE AIR CONDITIONING HARNESS ASSEMBLY**

NG ▶ **REPLACE AIR CONDITIONING AMPLIFIER ASSEMBLY**

4.	**PERFORM ACTIVE TEST USING TECHSTREAM**

(a) Connect the Techstream to the DLC3.

(b) Turn the power switch on (IG).

(c) Turn the Techstream on.

(d) Enter the following menus: Body Electrical / Air Conditioner / Active test.

(e) Perform the Active Test according to the display on the Techstream.

Body Electrical > Air Conditioner > Active Test

TESTER DISPLAY	MEASUREMENT ITEM	CONTROL RANGE	DIAGNOSTIC NOTE
Air Mix Servo Targ	No. 2 air conditioning radiator damper servo sub-	Min.: 128	Operates between 165 to

Pulse(D)	assembly (air mix) pulse	Max.: 383	257 pulses
Air Outlet Servo Pulse (D)	No. 1 air conditioning radiator damper servo sub-assembly pulse	Min.: 128 Max.: 383	Operates between 164 to 256 pulses
A/O Servo Pulse(Rr D)	No. 3 air conditioning radiator damper servo sub-assembly pulse	Min.: 128 Max.: 383	Operates between 250 to 297 pulses

Body Electrical > Air Conditioner > Active Test

TESTER DISPLAY
Air Mix Servo Targ Pulse(D)

Body Electrical > Air Conditioner > Active Test

TESTER DISPLAY
Air Outlet Servo Pulse (D)

Body Electrical > Air Conditioner > Active Test

TESTER DISPLAY
A/O Servo Pulse(Rr D)

OK:

Each damper servo motor operates smoothly.

RESULT	PROCEED TO
Only the No. 2 air conditioning radiator damper servo sub-assembly does not operate.	A
Only the No. 1 air conditioning radiator damper servo sub-assembly does not operate.	B
Only the No. 3 air conditioning radiator damper servo sub-assembly does not operate.	
Only the No. 1 air conditioning radiator damper servo sub-assembly operates.	

B ▶ **REPLACE AIR CONDITIONING HARNESS ASSEMBLY**

A ▼

	INSPECT AIR CONDITIONING HARNESS ASSEMBLY (AIR CONDITIONING AMPLIFIER

5.	ASSEMBLY - NO. 2 AIR CONDITIONING RADIATOR DAMPER SERVO SUB-ASSEMBLY)

(a) Disconnect the z23 air conditioning amplifier assembly connector.

(b) Disconnect the No. 2 air conditioning radiator damper servo sub-assembly connector.

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

Standard Resistance:

EWD INFO

Click Location & Routing(z23)
Click Connector(z23)

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
z23-2 (BUSG) - 3 (GND)	Always	Below 1 Ω
z23-3 (BUS) - 2 (LIN)	Always	Below 1 Ω
z23-4 (BBUS) - 1 (+B)	Always	Below 1 Ω

OK ▶ REPLACE NO. 2 AIR CONDITIONING RADIATOR DAMPER SERVO SUB-ASSEMBLY

NG ▶ REPLACE AIR CONDITIONING HARNESS ASSEMBLY

Last Modified: 01-14-2019	6.8:8.0.48	**Doc ID:** RM100000000RW4R
Model Year Start: 2016	**Model:** Prius	**Prod Date Range:** [11/2015 -]
Title: HEATING / AIR CONDITIONING: AIR CONDITIONING SYSTEM: B1498; Communication Malfunction (A/C Inverter Local); 2016 - 2019 MY Prius [11/2015 -]		

DTC	**B1498**	**Communication Malfunction (A/C Inverter Local)**

DESCRIPTION

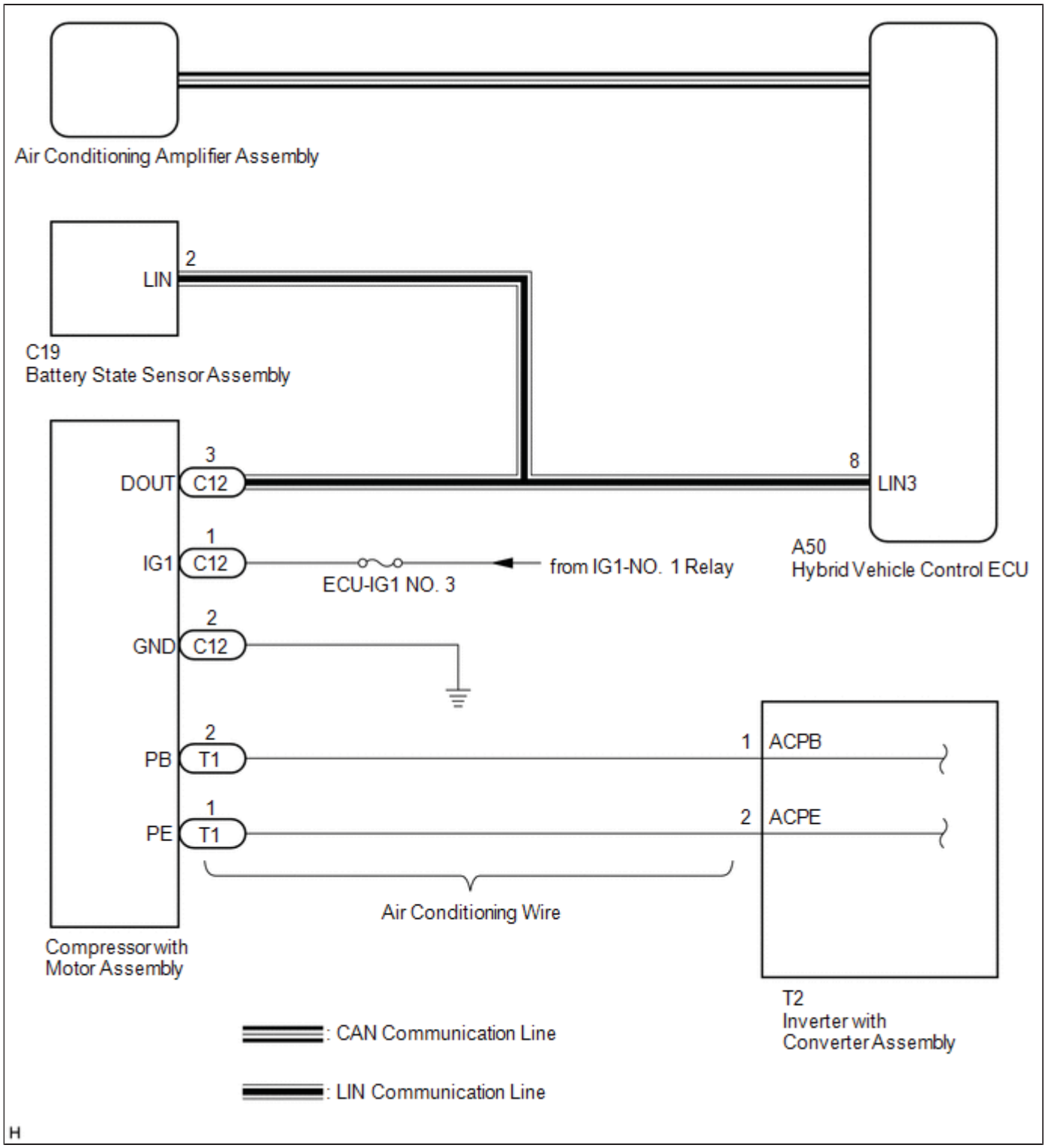
The hybrid vehicle control ECU and compressor with motor assembly communicate via direct line. Compressor control is stopped and this DTC is stored if communication information is cut off or abnormal information is received.

This DTC is also detected if high-voltage electricity supplied from the inverter with converter assembly to the compressor control circuit is shut off.

This DTC will be stored as a history DTC.

DTC NO.	DETECTION ITEM	DTC DETECTION CONDITION	TROUBLE AREA	MEMORY
B1498	Communication Malfunction (A/C Inverter Local)	• Error or open in communication line between the hybrid vehicle control ECU and compressor with motor assembly • High-voltage power source shut off	• Harness or connector between compressor with motor assembly and body ground • Harness or connector between hybrid vehicle control ECU and compressor with motor assembly, battery state sensor assembly • Hybrid vehicle control ECU • Compressor with motor assembly • Air conditioning wire (harness or connector between compressor with motor assembly and inverter with converter assembly) • CAN communication system • Hybrid control system	Memorized

WIRING DIAGRAM



CAUTION / NOTICE / HINT

CAUTION:

- Before inspecting the high-voltage system, take safety precautions such as wearing insulated gloves and removing the service plug grip to prevent electrical shocks. After removing the service plug grip, put it in your pocket to prevent other technicians from accidentally reconnecting it while you are working on the high-voltage system.
- Do not touch the high-voltage connectors or terminals for 10 minutes after the service plug grip is removed.

NOTICE:

- Inspect the fuses for circuits related to this system before performing the following procedure.
- After turning the power switch off, waiting time may be required before disconnecting the cable from the negative (-)

auxiliary battery terminal. Therefore, make sure to read the disconnecting the cable from the negative (-) auxiliary battery terminal notices before proceeding with work.

Click here INFO INFO INFO

- The hybrid control system and air conditioning system output DTCs separately. Perform troubleshooting for the hybrid control system first if DTCs for both systems are output simultaneously.
- Depending on the timing of the power supply to the 12 V power supply circuit and high-voltage circuit when the power switch is turned on (READY), an abnormal information signal may be output, causing this DTC to be stored. If the output DTC is a code that was memorized in the past, check the fuses and wire harnesses. If there is no malfunction, clear the DTC.

PROCEDURE

1.	**CHECK CAN COMMUNICATION SYSTEM**

(a) Using the Techstream, check if the CAN communication system is functioning normally.

HINT:

Click here INFO INFO

RESULT	PROCEED TO
CAN communication system DTCs are not output	A
CAN communication system DTCs are output	B

B ▶ **GO TO CAN COMMUNICATION SYSTEM** INFO INFO

A ▼

2.	**CHECK FOR DTC**

(a) Check if hybrid control system DTCs are output.

Powertrain > Hybrid Control > Trouble Codes

RESULT	PROCEED TO
Both P058A01 and P162B87 are not output	A
P058A01 and P162B87 are output	B

B ▶ **GO TO STEP 9**

A

3.	CHECK HARNESS AND CONNECTOR (COMPRESSOR WITH MOTOR ASSEMBLY - BODY GROUND)

CAUTION:

Do not disconnect the connector on the high-voltage side.

(a) Disconnect the C12 compressor with motor assembly connector.

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

Standard Resistance:

EWD INFO

Click Location & Routing(C12)
Click Connector(C12)

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
C12-2 (GND) - Body ground	Always	Below 1 Ω

NG ▶ REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

4.	CHECK HARNESS AND CONNECTOR (COMPRESSOR WITH MOTOR ASSEMBLY - IG CIRCUIT, GROUND)

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

Standard Voltage:

EWD INFO

Click Location & Routing(C12)
Click Connector(C12)

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
C12-1 (IG1) - C12-2 (GND)	Power switch on (IG)	11 to 14 V
C12-1 (IG1) - C12-2 (GND)	Power switch off	Below 1 V

NG ▶ REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

5.	**CHECK HARNESS AND CONNECTOR (HYBRID VEHICLE CONTROL ECU - COMPRESSOR WITH MOTOR ASSEMBLY)**

(a) Disconnect the A50 hybrid vehicle control ECU connector.

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

Standard Resistance:

EWD INFO

Click Location & Routing(A50)
Click Location & Routing(C12)
Click Connector(A50)
Click Connector(C12)

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
A50-8 (LIN3) - C12-3 (DOUT)	Always	Below 1 Ω
A50-8 (LIN3) or C12-3 (DOUT) - Body ground	Always	10 kΩ or higher

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

OK

6.	**INSPECT AIR CONDITIONING WIRE**

CAUTION:

Be sure to wear insulated gloves.

(a) Disconnect the T1 and T2 air conditioning wire connectors.

HINT:

Click here INFO INFO

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

Standard Resistance:

EWD INFO

Click Location & Routing(T1,T2)
Click Connector(T1)

Click Connector(T2)

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
T1-2 (PB) - T2-1 (ACPB)	Always	Below 1 Ω
T1-2 (PB) or T2-1 (ACPB) - Body ground	Always	10 kΩ or higher

NG ▶ GO TO STEP 8

OK ▼

7.	INSPECT AIR CONDITIONING WIRE

CAUTION:

Be sure to wear insulated gloves.

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

Standard Resistance:

EWD INFO

Click Location & Routing(T1,T2)
Click Connector(T1)
Click Connector(T2)

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
T1-1 (PE) - T2-2 (ACPE)	Always	Below 1 Ω
T1-1 (PE) or T2-2 (ACPE) - Body ground	Always	10 kΩ or higher

OK ▶ REPLACE COMPRESSOR WITH MOTOR ASSEMBLY INFO INFO INFO INFO

NG ▶ REPLACE AIR CONDITIONING WIRE INFO INFO INFO INFO

8.	INSPECT AIR CONDITIONING WIRE

CAUTION:

Be sure to wear insulated gloves.

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

Standard Resistance:

EWD INFO

Click Location & Routing(T1)
Click Connector(T1)

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
T1-2 (PB) - Body ground	Always	10 kΩ or higher

OK ▶ REPLACE COMPRESSOR WITH MOTOR ASSEMBLY INFO INFO INFO INFO

NG ▶ REPLACE AIR CONDITIONING WIRE INFO INFO INFO INFO

9.	CHECK FOR DTC

(a) Disconnect the C19 battery state sensor assembly connector.

(b) Check if air conditioning system DTCs are output.

Body Electrical > Air Conditioner > Trouble Codes

RESULT	PROCEED TO
B1498 is not output	A
B1498 is output	B

A ▶ REPLACE BATTERY STATE SENSOR ASSEMBLY INFO INFO

B ▼

10.	CHECK FOR DTC

(a) Reconnect the C19 battery state sensor assembly connector.

(b) Disconnect the C12 compressor with motor assembly connector.

(c) Check if hybrid control system DTCs are output.

Powertrain > Hybrid Control > Trouble Codes

RESULT	PROCEED TO

Both P058A01 and P162B87 are not output	A
P058A01 and P162B87 are output	B

A ▶ **REPLACE COMPRESSOR WITH MOTOR ASSEMBLY** INFO INFO

B ▼

11.	**CHECK HARNESS AND CONNECTOR (HYBRID VEHICLE CONTROL ECU - COMPRESSOR WITH MOTOR ASSEMBLY, BATTERY STATE SENSOR ASSEMBLY)**

(a) Disconnect the A50 hybrid vehicle control ECU connector.

(b) Disconnect the C19 battery state sensor assembly connector.

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

Standard Resistance:

EWD INFO

Click Location & Routing(A50)
Click Location & Routing(C12,C19)
Click Connector(A50)
Click Connector(C12)
Click Connector(C19)

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
A50-8 (LIN3) - C12-3 (DOUT)	Always	Below 1 Ω
A50-8 (LIN3) - C19-2 (LIN)	Always	Below 1 Ω
A50-8 (LIN3) or C12-3 (DOUT) - Body ground	Always	10 kΩ or higher
A50-8 (LIN3) or C19-2 (LIN) - Body ground	Always	10 kΩ or higher

OK ▶ **REPLACE HYBRID VEHICLE CONTROL ECU** INFO INFO

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

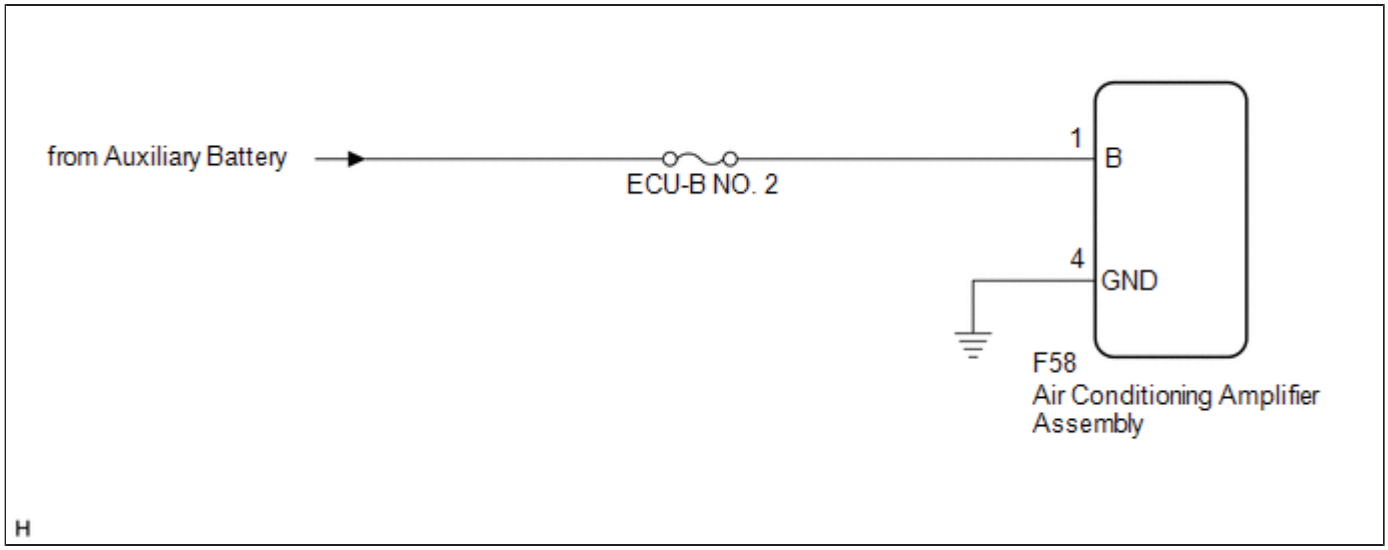
Last Modified: 01-14-2019	6.8:8.0.48	**Doc ID:** RM100000000RW3O
Model Year Start: 2016	**Model:** Prius	**Prod Date Range:** [11/2015 -]
Title: HEATING / AIR CONDITIONING: AIR CONDITIONING SYSTEM: Back-up Power Source Circuit; 2016 - 2019 MY Prius [11/2015 -]		

Back-up Power Source Circuit

DESCRIPTION

The back-up power source circuit for the air conditioning amplifier assembly is shown below. Power is supplied even when the power switch is off. This power is used for diagnostic trouble code memory, etc.

WIRING DIAGRAM



CAUTION / NOTICE / HINT

NOTICE:

Inspect the fuses for circuits related to this system before performing the following procedure.

PROCEDURE

1.	**CHECK HARNESS AND CONNECTOR (AIR CONDITIONING AMPLIFIER ASSEMBLY - POWER SOURCE)**

(a) Disconnect the F58 air conditioning amplifier assembly connector.

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

Standard Voltage:

EWD INFO

Click Location & Routing(F58)
Click Connector(F58)

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
F58-1 (B) - Body ground	Power switch off	11 to 14 V

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

OK
▼

2.	**CHECK HARNESS AND CONNECTOR (AIR CONDITIONING AMPLIFIER ASSEMBLY - BODY GROUND)**

(a) Disconnect the F58 air conditioning amplifier assembly connector.

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

Standard Resistance:

EWD INFO

Click Location & Routing(F58)
Click Connector(F58)

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
F58-4 (GND) - Body ground	Always	Below 1 Ω

OK ▶ **PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE** INFO INFO INFO

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

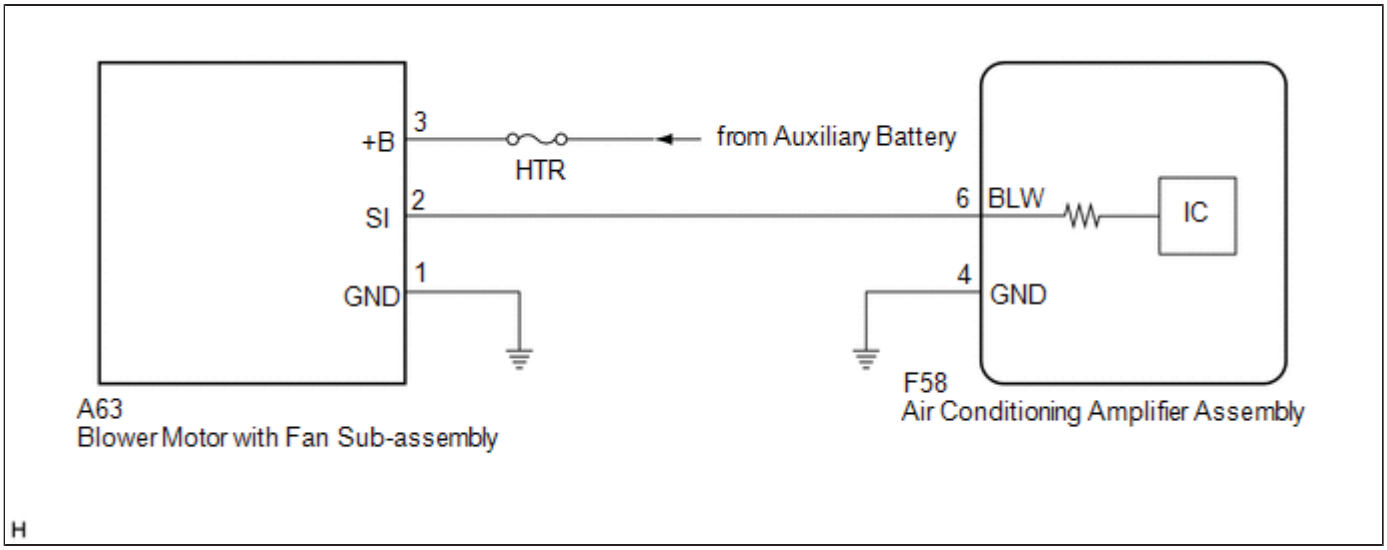
Last Modified: 01-14-2019	6.8:8.0.48	**Doc ID:** RM100000001FZTN
Model Year Start: 2019	**Model:** Prius	**Prod Date Range:** [12/2018 -]
Title: HEATING / AIR CONDITIONING: AIR CONDITIONING SYSTEM: Blower Motor Circuit; 2019 MY Prius [12/2018 -]		

Blower Motor Circuit

DESCRIPTION

The blower motor with fan sub-assembly is operated by signals from the air conditioning amplifier assembly. Blower motor speed signals are transmitted in accordance with changes in the duty ratio.

WIRING DIAGRAM



CAUTION / NOTICE / HINT

NOTICE:

Inspect the fuses for circuits related to this system before performing the following procedure.

PROCEDURE

1.	**PERFORM ACTIVE TEST USING TECHSTREAM**

(a) Connect the Techstream to the DLC3.

(b) Turn the power switch on (IG).

(c) Turn the Techstream on.

(d) Enter the following menus: Body Electrical / Air Conditioner / Active Test.

(e) Perform the Active Test according to the display on the Techstream.

Body Electrical > Air Conditioner > Active Test

TESTER DISPLAY	MEASUREMENT ITEM	CONTROL RANGE	DIAGNOSTIC NOTE
Blower Motor	Blower motor with fan sub-assembly	Min.: 0, Max.: 31	-

Body Electrical > Air Conditioner > Active Test

TESTER DISPLAY
Blower Motor

RESULT	PROCEED TO
OK	A
NG (Blower motor with fan sub-assembly does not operate)	B
NG (Blower motor with fan sub-assembly operates but does not change speed)	C

A ▶ **PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE**

C ▶ **GO TO STEP 6**

B ▼

2.	**CHECK HARNESS AND CONNECTOR (BLOWER MOTOR WITH FAN SUB-ASSEMBLY - BODY GROUND)**

(a) Disconnect the A63 blower motor with fan sub-assembly connector.

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

Standard Resistance:

EWD INFO

Click Location & Routing(A63)
Click Connector(A63)

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
A63-1 (GND) - Body ground	Always	Below 1 Ω

REPAIR OR REPLACE HARNESS OR CONNECTOR

NG

OK

3.	**CHECK HARNESS AND CONNECTOR (BLOWER MOTOR WITH FAN SUB-ASSEMBLY - AUXILIARY BATTERY)**

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

Standard Voltage:

EWD INFO

Click Location & Routing(A63)
Click Connector(A63)

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
A63-3 (+B) - Body ground	Power switch off	11 to 14 V

NG **REPAIR OR REPLACE HARNESS OR CONNECTOR**

OK

4.	**CHECK HARNESS AND CONNECTOR (AIR CONDITIONING AMPLIFIER ASSEMBLY - BLOWER MOTOR WITH FAN SUB-ASSEMBLY)**

(a) Disconnect the F58 air conditioning amplifier assembly connector.

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

Standard Resistance:

EWD INFO

Click Location & Routing(F58)
Click Location & Routing(A63)
Click Connector(F58)
Click Connector(A63)

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
F58-6 (BLW) - A63-2 (SI)	Always	Below 1 Ω
F58-6 (BLW) or A63-2 (SI) - Body ground	Always	10 kΩ or higher

NG ▶ REPAIR OR REPLACE HARNESS OR CONNECTOR

OK ▼

5.	INSPECT BLOWER MOTOR WITH FAN SUB-ASSEMBLY

(a) Reconnect the A63 blower motor with fan sub-assembly connector.

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

Standard Voltage:

EWD INFO

Click Location & Routing(F58)
Click Connector(F58)

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
F58-6 (BLW) - Body ground	Always	4.75 to 5.25 V

NG ▶ REPLACE BLOWER MOTOR WITH FAN SUB-ASSEMBLY

OK ▼

6.	INSPECT AIR CONDITIONING AMPLIFIER ASSEMBLY

(a) Reconnect the F58 air conditioning amplifier assembly connector.

(b) Turn the power switch on (IG).

(c) Turn the blower switch on (LO).

(d) Connect an oscilloscope to terminals F58-6 (BLW) and F58-4 (GND) of the air conditioning amplifier assembly and

check the waveform.

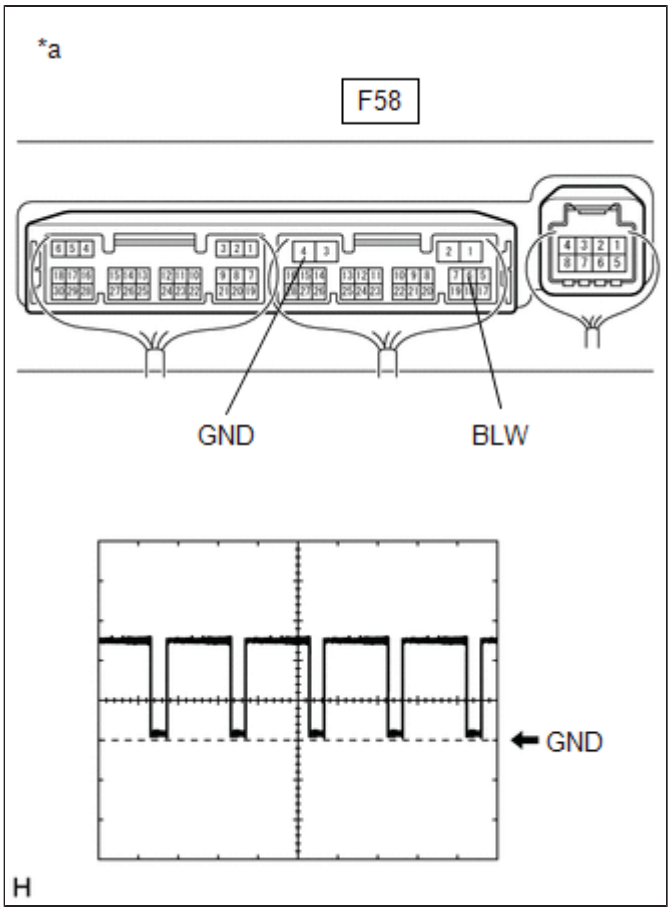
OK:

Waveform is similar to that shown in the illustration.

HINT:

The waveform varies with the blower speed.

ITEM	CONTENT
Tool Setting	2 V/DIV., 1 ms./DIV.
Vehicle Condition	• Power switch on (IG) • Blower switch: LO



*a	Component with harness connected (Air Conditioning Amplifier Assembly)

OK ▶ **REPLACE BLOWER MOTOR WITH FAN SUB-ASSEMBLY**

NG ▶ **REPLACE AIR CONDITIONING AMPLIFIER ASSEMBLY**

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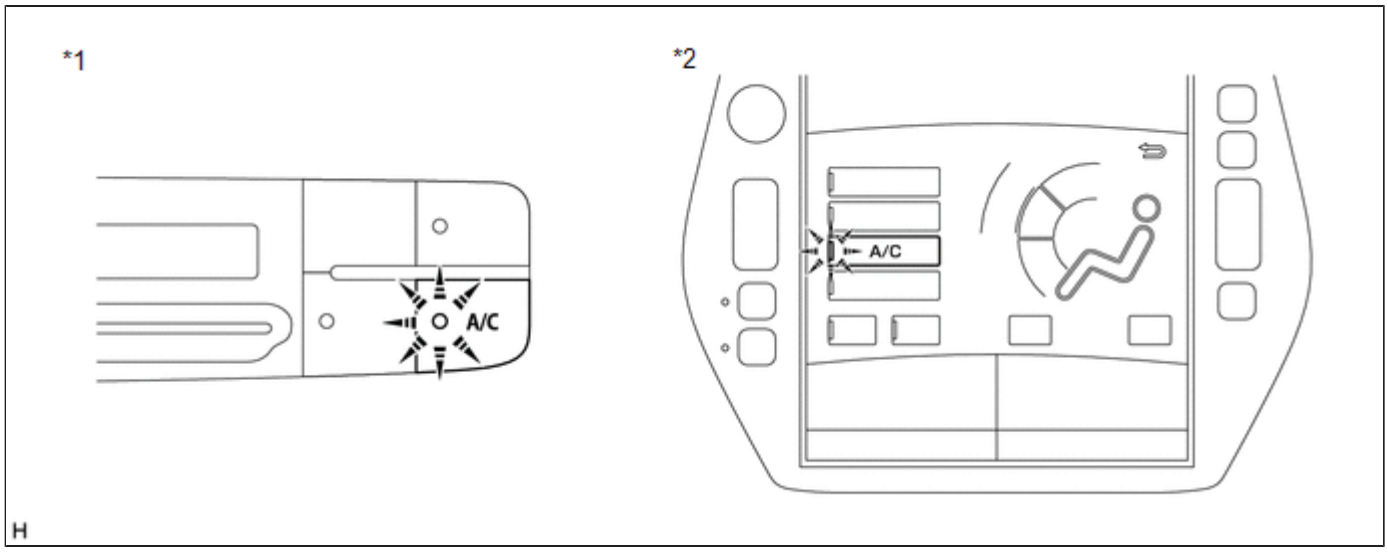
Model Year Start: 2018	**Model:** Prius	**Prod Date Range:** [11/2017 -]
Title: HEATING / AIR CONDITIONING: AIR CONDITIONING SYSTEM: CHECK MODE PROCEDURE; 2018 - 2019 MY Prius [11/2017 -]		

CHECK MODE PROCEDURE

REFRIGERANT SHORTAGE CHECK IN NORMAL OPERATION (CHECK A/C SWITCH INDICATOR AND DTC)

(a) Turn the power switch on (READY).

(b) Check that the A/C switch indicator remains on when the following conditions are met.



*1	Air Conditioning Control Assembly (for 7 Inch Display)	*2	Navigation Receiver Assembly (for 11.6 Inch Display)

Measurement Condition:

ITEM	CONDITION
A/C switch	On
A/C operation time	15 minutes or more
Ambient temperature*	0 to 49°C (32 to 120°F)
Engine coolant temperature	45°C (113°F) or more

*: If the ambient temperature is not within the range shown, do not perform this check.

HINT:

The A/C switch indicator and air conditioning system turn off if the amount of refrigerant in the system is insufficient.

(c) Connect the Techstream to the DLC3.

(d) Check for DTC B14B8.

Click here INFO

Result:

RESULT	AMOUNT OF REFRIGERANT	CORRECTIVE ACTION

DTC B14B8 is output	Empty or nearly empty	Check for refrigerant leaks using a halogen leak detector, and repair if necessary. Click here INFO
DTC B14B8 is not output	Correct or insufficient	Perform a refrigerant shortage check using the Techstream.

REFRIGERANT SHORTAGE CHECK USING TECHSTREAM

(a) Connect the Techstream to the DLC3.

(b) Turn the power switch on (READY).

(c) Turn the Techstream on.

(d) Enter the following menus: Body Electrical / Air Conditioner / Utility / Refrigerant Gas Volume Check.

Body Electrical > Air Conditioner > Utility

TESTER DISPLAY
Refrigerant Gas Volume Check

(e) According to the display on the Techstream, perform the refrigerant shortage check when the following conditions are met.

Measurement Condition:

ITEM	CONDITION
A/C switch	On
Ambient temperature*	0 to 49°C (32 to 120°F)
Blower speed	HI

*: If the ambient temperature is not within the range shown, do not perform this check.

HINT:

- Refer to the Techstream operator's manual for further details.
- A message indicating a refrigerant shortage is displayed on the Techstream and the air conditioning system turns off if the amount of refrigerant in the system is insufficient.
- DTCs are not stored when performing the refrigerant shortage check using the Techstream.

Result:

RESULT	AMOUNT OF REFRIGERANT	CORRECTIVE ACTION
Refrigerant shortage	Insufficient or leakage	1. Check for refrigerant leaks using a halogen leak detector, and repair if necessary. 2. Evacuate the air conditioning system and charge it with the appropriate volume of new or purified refrigerant. Click here INFO
Refrigerant correct	Correct	-

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Model Year Start: 2018	**Model:** Prius	**Prod Date Range:** [11/2017 -]
Title: HEATING / AIR CONDITIONING: AIR CONDITIONING SYSTEM: CUSTOMIZE PARAMETERS; 2018 - 2019 MY Prius [11/2017 -]		

CUSTOMIZE PARAMETERS

CUSTOMIZE AIR CONDITIONING SYSTEM

(a) Customizing with the Techstream.

NOTICE:

- When the customer requests a change in a function, first make sure that the function can be customized.
- Be sure to make a note of the current settings before customizing.
- When troubleshooting a function, first make sure that the function is set to the default setting.

HINT:

The following items can be customized.

(1) Connect the Techstream.

(2) Turn the power switch on (IG).

(3) Turn the Techstream on.

(4) Enter the following menus: Customize Setting / Air Conditioner.

(5) Select the setting by referring to the table below.

Air Conditioner

TESTER DISPLAY	DESCRIPTION	DEFAULT	SETTING	ECU
S-FLOW Control Auto Function	Function to turn the S-FLOW control on automatically when the power switch is turned on (IG)	ON	0:ON,1:OFF	Air conditioning amplifier assembly
Set Temperature Shift	Function to perform control with the shifted temperature versus the displayed temperature	Normal	00001:-2C,00010:-1C,00100:Normal,01000:+1C,10000:+2C	Air conditioning amplifier assembly
Compressor Mode	Function to turn the A/C on automatically by pressing the AUTO button when the blower is on and the A/C is off	Automatic	0:Automatic,1:Manual	Air conditioning amplifier assembly
Foot/DEF Auto Mode	Function to turn the airflow to foot/defroster automatically when AUTO	ON	0:ON,1:OFF	Air conditioning amplifier assembly

	mode is on			
Foot/DEF Automatic Blow Up Function	Function to increase the blower level automatically when the defroster is on	ON	0:ON,1:OFF	Air conditioning amplifier assembly
Ambient Temperature Shift	Function to display the shifted ambient temperature versus the actual ambient temperature	Normal	0000001:-3C,0000010:-2C,0000100:-1C,0001000:Normal,0010000:+1C,0100000:+2C,1000000:+3C	Air conditioning amplifier assembly
ECO MODE Cancel	Function to cancel ECO mode when set to ON	ON	0:OFF,1:ON	Air conditioning amplifier assembly
Noise and Vibration Reduction	Function to change the speed of the compressor when set to ON	OFF	0:OFF,1:ON	Air conditioning amplifier assembly
Refrigerant Shortage Check	Function to cancel the refrigerant shortage check (check performed during normal operation) when set to ON	ON	0:ON,1:OFF	Air conditioning amplifier assembly
Fan speed increment control	Function to set the speed to reach the target blower fan speed when AUTO mode is on	Normal	001:Slow,010:Normal,100:Fast	Air conditioning amplifier assembly
Outside Air Mode Auto Switch Function	Function to automatically change the air inlet to FRESH mode when the power switch is off for 60 seconds	ON	0:ON,1:OFF	Air conditioning amplifier assembly

(b) Customizing with the multi-display (w/ Multi-display).

(1) Turn the power switch on (IG).

(2) Enter the following menus:

Type A: SETUP / Vehicle / Vehicle Customization / Climate Settings.
Type B: APPS / Setup / Vehicle / Vehicle Customization / Climate Settings.
Type C: MENU / Settings / Vehicle / Vehicle Customization / Climate Settings.

(3) Select the setting by referring to the table below.

Climate Settings

DISPLAY	DEFAULT	CONTENT	SETTING	ECU
Auto A/C Mode	On	Function to turn the A/C on automatically by pressing the AUTO button when the blower is on and the A/C is off	On or Off	Air conditioning amplifier assembly

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Model Year Start: 2016	**Model:** Prius	**Prod Date Range:** [11/2015 -]
Title: HEATING / AIR CONDITIONING: AIR CONDITIONING SYSTEM: DATA LIST / ACTIVE TEST; 2016 - 2019 MY Prius [11/2015 -]		

DATA LIST / ACTIVE TEST

DATA LIST

NOTICE:

In the table below, the values listed under "Normal Condition" are reference values. Do not depend solely on these reference values when deciding whether a part is faulty or not.

HINT:

Using the Techstream to read the Data List allows the values or states of switches, sensors, actuators and other items to be read without removing any parts. This non-intrusive inspection can be very useful because intermittent conditions or signals may be discovered before parts or wiring is disturbed. Reading the Data List information early in troubleshooting is one way to save diagnostic time.

(a) Connect the Techstream to the DLC3.

(b) Turn the power switch on (IG).

(c) Turn the Techstream on.

(d) Enter the following menus: Body Electrical / Air Conditioner / Data List.

(e) Read the Data List according to the display on the Techstream.

Body Electrical > Air Conditioner > Data List

TESTER DISPLAY	MEASUREMENT ITEM	RANGE	NORMAL CONDITION	DIAGNOSTIC NOTE
Room Temperature Sensor	Cooler (room temp. sensor) thermistor	Min.: -6.50°C (20.30°F) Max.: 57.25°C (135.05°F)	Actual cabin temperature displayed	-
Ambient Temp Sensor	Thermistor assembly	Min.: -23.30°C (-9.94°F) Max.: 65.95°C (150.71°F)	Actual ambient temperature displayed	-
Adjusted Ambient Temp	Adjusted ambient temperature	Min.: -30.80°C (-23.44°F) Max.: 50.80°C (123.44°F)	-	-
Evaporator Fin Thermistor	No. 1 cooler thermistor	Min.: -29.70°C (-21.46°F) Max.: 59.55°C (139.19°F)	Actual evaporator temperature displayed	-

Evaporator Target Temp	Evaporator target temperature	Min.: -327.68°C (-557.82°F) Max.: 327.67°C (621.81°F)	Evaporator target temperature displayed	-
Solar Sensor (D Side)	Solar sensor	Min.: 0 Max.: 255	Solar sensor value increases as brightness increases	-
Engine Coolant Temp	Engine coolant temperature sensor	Min.: 1.30°C (34.34°F) Max.: 90.55°C (194.99°F)	Actual engine coolant temperature displayed	-
Blower Motor Speed Level	Blower motor speed level	Min.: 0 Max.: 31	Displayed speed level increases in range between 0 and 31 as blower motor speed increases	-
Regulator Pressure Sensor	Air conditioner pressure sensor	Min.: -456.6 kPaG Max.: 3294.3 kPaG	Actual refrigerant pressure displayed	-
Air Outlet Servo Pulse (R)	No. 3 air conditioning radiator damper servo sub-assembly target pulse	Min.: 128 Max.: 383	• FACE: 250 (pulse) • B/L: 281 (pulse) • FOOT-F: 287 (pulse) • FOOT: 297 (pulse) • S-FLOW (Front Seat Control Modes): 250 (pulse)	-
Air Outlet Servo Actual Pls(R)	No. 3 air conditioning radiator damper servo sub-assembly actual pulse	Min.: 128 Max.: 383	• FACE: 250 (pulse) • B/L: 281 (pulse) • FOOT-F: 287 (pulse) • FOOT: 297 (pulse) • S-FLOW (Front Seat Control Modes): 250 (pulse)	-
Air Mix Servo Targ Pulse(D)	No. 2 air conditioning radiator damper servo sub-assembly (air mix) target pulse	Min.: 128 Max.: 383	• MAX COLD: 257 (pulse) • MAX HOT: 165 (pulse)	-
Air Mix Servo Actual Pulse(D)	No. 2 air conditioning radiator damper servo sub-assembly (air mix) actual pulse	Min.: 128 Max.: 383	• MAX COLD: 257 (pulse) • MAX HOT: 165 (pulse)	-
			• FACE: 256 (pulse) • FACE1: 256 (pulse)	

Air Outlet Servo Pulse (D)	No. 1 air conditioning radiator damper servo sub-assembly target pulse	Min.: 128 Max.: 383	• FACE2: 256 (pulse) • B/L: 245 (pulse) • B/L2: 245 (pulse) • FOOT-R: 215 (pulse) • FOOT-M: 215 (pulse) • FOOT: 215 (pulse) • FOOT-D: 207 (pulse) • FOOT-0: 224 (pulse) • FOOT-F: 215 (pulse) • FOOT/DEF: 192 (pulse) • DEF: 164 (pulse) • S-FLOW (Single Seat Control Modes): 164 (pulse)	-
Air Outlet Servo Actu Pulse(D)	No. 1 air conditioning radiator damper servo sub-assembly actual pulse	Min.: 128 Max.: 383	• FACE: 256 (pulse) • FACE1: 256 (pulse) • FACE2: 256 (pulse) • B/L: 245 (pulse) • B/L2: 245 (pulse) • FOOT-R: 215 (pulse) • FOOT-M: 215 (pulse) • FOOT: 215 (pulse) • FOOT-D: 207 (pulse) • FOOT-0: 224 (pulse) • FOOT-F: 215 (pulse) • FOOT/DEF: 192 (pulse) • DEF: 164 (pulse) • S-FLOW (Single Seat Control Modes): 164 (pulse)	-
Air Outlet Servo Targ Pulse(P)	No. 2 air conditioning radiator damper servo sub-assembly (front passenger side mode) target pulse	Min.: 128 Max.: 383	• FACE: 256 (pulse) • FACE1: 256 (pulse) • FACE2: 256 (pulse) • B/L: 267 (pulse) • B/L2: 267 (pulse) • FOOT-R: 297 (pulse) • FOOT-M: 297 (pulse) • FOOT: 297 (pulse) • FOOT-D: 305 (pulse) • FOOT-0: 288 (pulse) • FOOT-F: 297 (pulse) • FOOT/DEF: 320 (pulse) • DEF: 348 (pulse) • S-FLOW (Single Seat Control Modes): 348 (pulse)	-

Air Outlet Servo Actu Pulse(P)	No. 2 air conditioning radiator damper servo sub-assembly (front passenger side mode) actual pulse	Min.: 128 Max.: 383	FACE: 256 (pulse) • FACE1: 256 (pulse) • FACE2: 256 (pulse) • B/L: 267 (pulse) • B/L2: 267 (pulse) • FOOT-R: 297 (pulse) • FOOT-M: 297 (pulse) • FOOT: 297 (pulse) • FOOT-D: 305 (pulse) • FOOT-0: 288 (pulse) • FOOT-F: 297 (pulse) • FOOT/DEF: 320 (pulse) • DEF: 348 (pulse) • S-FLOW (Single Seat Control Modes): 348 (pulse)	-
Air Inlet Damper Targ Pulse	No. 1 blower damper servo sub-assembly target pulse	Min.: 128 Max.: 383	• Recirculation: 256 (pulse) • Fresh: 220 (pulse)	-
Air Inlet Damper Actual Pulse	No. 1 blower damper servo sub-assembly actual pulse	Min.: 128 Max.: 383	• Recirculation: 256 (pulse) • Fresh: 220 (pulse)	-
Compressor Speed	Compressor speed	Min.: 0 rpm Max.: 65535 rpm	Actual compressor speed displayed	-
Compressor Target Speed	Compressor target speed	Min.: 0 rpm Max.: 65535 rpm	Compressor target speed displayed	-
Shift Set Temperature	Shift set temperature	2C decr, 1C decr, Normal, 1C incr, 2C incr	Customized value displayed	-
Compressor Mode	Compressor mode	Auto or Manual	Customized value displayed	-
Noise and Vibration Reduction	Noise and vibration reduction	OFF or ON	Customized value displayed	-
ECO MODE Cancel	ECO drive mode cancel	OFF or ON	Customized value displayed	-
ECO Switch	-	-	-	Not applicable to

				the vehicle
Refrigerant Shortage Check	Refrigerant shortage check	ON or OFF	Customized value displayed	-
Fan speed increment control	Fan speed increment control	Slow, Normal, Fast	Customized value displayed	-
Foot/DEF Auto Mode	Foot/defroster auto mode	ON or OFF	Customized value displayed	-
Foot/DEF Auto Blow Up	Foot/defroster auto blower speed increase	ON or OFF	Customized value displayed	-
Ambient Temperature Shift	Ambient temperature shift	3C decr, 2C decr, 1C decr, Normal, 1C incr, 2C incr, 3C incr	Customized value displayed	-
Compressor Drive Check	Compressor drive check	OK or NG	NG: Compressor does not operate OK: Compressor operates	-
Glass Temperature	Windshield glass temperature	Min.: -327.68°C (-557.82°F) Max.: 327.67°C (621.81°F)	Actual windshield glass temperature is displayed	*
Glass Surroundings Temperature	Temperature around windshield glass	Min.: -327.68°C (-557.82°F) Max.: 327.67°C (621.81°F)	Actual temperature around windshield glass is displayed	*
Glass Humidity	Windshield glass humidity	Min.: 0.00% Max.: 100.00%	Actual windshield glass humidity is displayed	*
Refrigerant Gas Type	Refrigerant gas type	R134a or 1234yf	Refrigerant gas type displayed	-
Set Temperature (D Side)	Driver side set temperature	Min.: MAX COLD Max.: MAX HOT	Driver side set temperature displayed	-
Outside Air Mode Auto	Outside air mode auto switch			

Switch Function	function	ON or OFF	Customized value displayed	-
S-FLOW Control Auto Function	S-FLOW control auto function	ON or OFF	Customized value displayed	-
Communication Wiper ECU	Existence of function	With or Without	With: w/ Wiper ECU Without: w/o Wiper ECU	-
Communication Wiper Switch	Existence of function	With or Without	With: w/ Wiper switch Without: w/o Wiper switch	-
Communication Humidity/Rain Sensor	Existence of function	With or Without	With: w/ Humidity sensor Without: w/o Humidity sensor	-
Number of Trouble Codes	Number of trouble codes	Min.: 0 Max.: 255	Number of DTCs displayed	-

*: w/ Humidity Sensor

ACTIVE TEST

HINT:

Using the Techstream to perform Active Tests allows relays, VSVs, actuators and other items to be operated without removing any parts. This non-intrusive functional inspection can be very useful because intermittent operation may be discovered before parts or wiring is disturbed. Performing Active Tests early in troubleshooting is one way to save diagnostic time. Data List information can be displayed while performing Active Tests.

(a) Connect the Techstream to the DLC3.

(b) Turn the power switch on (IG).

(c) Turn the Techstream on.

(d) Enter the following menus: Body Electrical / Air Conditioner / Active Test.

(e) Perform the Active Test according to the display on the Techstream.

Body Electrical > Air Conditioner > Active Test

TESTER DISPLAY	MEASUREMENT ITEM	CONTROL RANGE	DIAGNOSTIC NOTE
Blower Motor	Blower motor with fan sub-assembly	Min.: 0, Max.: 31	-
Compressor Target Speed	Compressor with motor assembly	Min.: 0, Max.: 7500	-
Defogger Relay	Rear window defogger	OFF, ON	-

(Rear)			
Air Mix Servo Targ Pulse(D)	No. 2 air conditioning radiator damper servo sub-assembly (air mix) pulse	Min.: 128 Max.: 383	Operates between 165 to 257 pulses
Air Outlet Servo Pulse (D)	No. 1 air conditioning radiator damper servo sub-assembly pulse	Min.: 128 Max.: 383	Operates between 164 to 256 pulses
Air Inlet Damper Targ Pulse	No. 1 blower damper servo sub-assembly pulse	Min.: 128 Max.: 383	Operates between 220 to 256 pulses
Air Outlet Servo Pulse (P)	No. 2 air conditioning radiator damper servo sub-assembly (front passenger side mode) pulse	Min.: 128 Max.: 383	Operates between 256 to 348 pulses
A/O Servo Pulse(Rr D)	No. 3 air conditioning radiator damper servo sub-assembly pulse	Min.: 128 Max.: 383	Operates between 250 to 297 pulses

Powertrain > Engine and ECT > Active Test

TESTER DISPLAY	MEASUREMENT ITEM	CONTROL RANGE	DIAGNOSTIC NOTE
Control the Electric Cooling Fan	Control electric cooling fan motor	ON/OFF	Perform this test when the following conditions are met: • Power switch is on (IG) • Engine is stopped • Shift lever in P

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Model Year Start: 2018	**Model:** Prius	**Prod Date Range:** [11/2017 -]
Title: HEATING / AIR CONDITIONING: AIR CONDITIONING SYSTEM: DIAGNOSIS SYSTEM; 2018 - 2019 MY Prius [11/2017 -]		

DIAGNOSIS SYSTEM

DESCRIPTION

Air conditioning system data and Diagnostic Trouble Codes (DTCs) can be read through the Data Link Connector 3 (DLC3) of the vehicle. When the system seems to be malfunctioning, use the Techstream to check for malfunctions and perform troubleshooting.

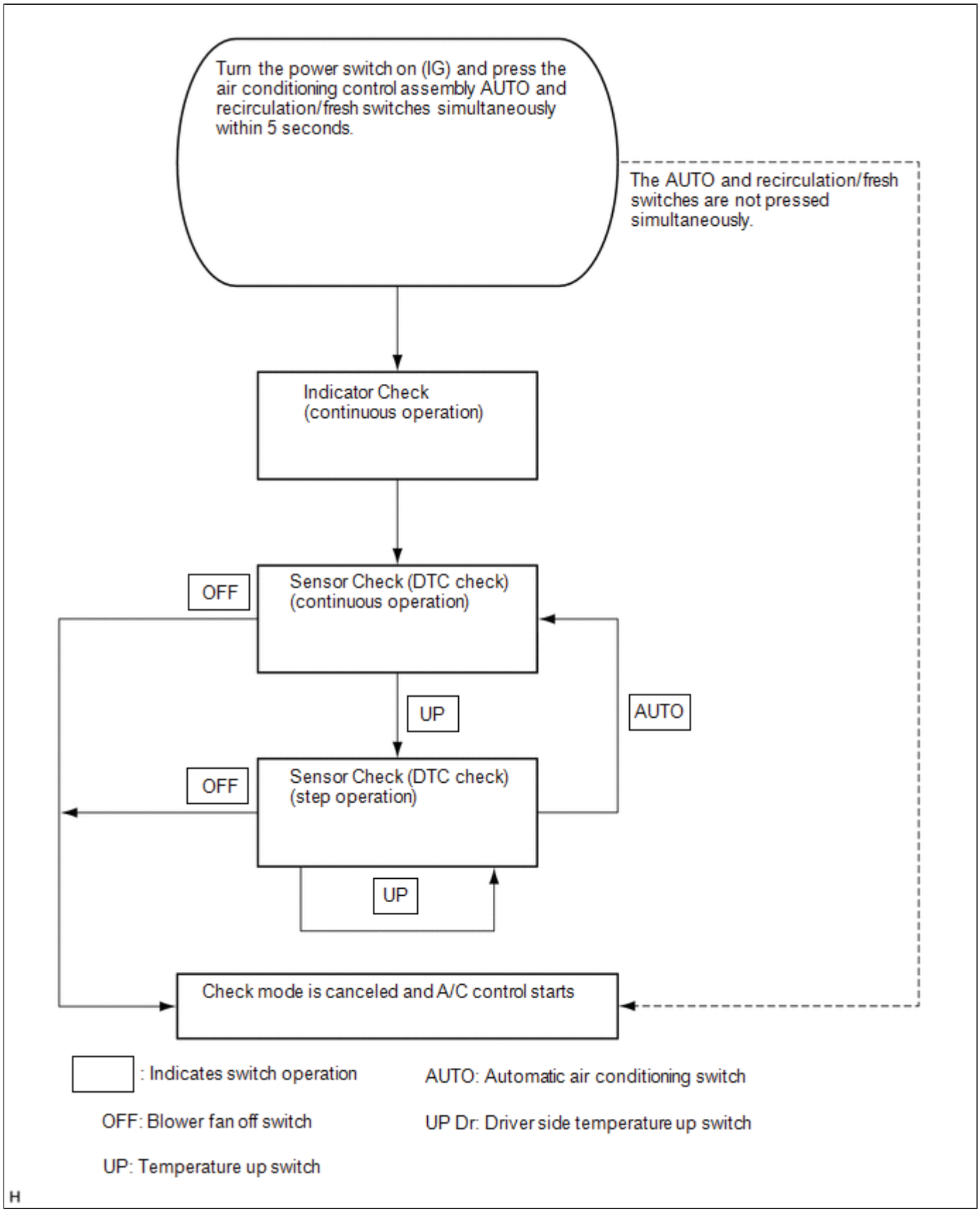
CHECK DLC3

Check the DLC3.

Click here INFO

LIST OF OPERATION METHODS

By operating each of the air conditioning control switches as shown in the diagram below, it is possible to enter diagnostic check mode.



INDICATOR CHECK

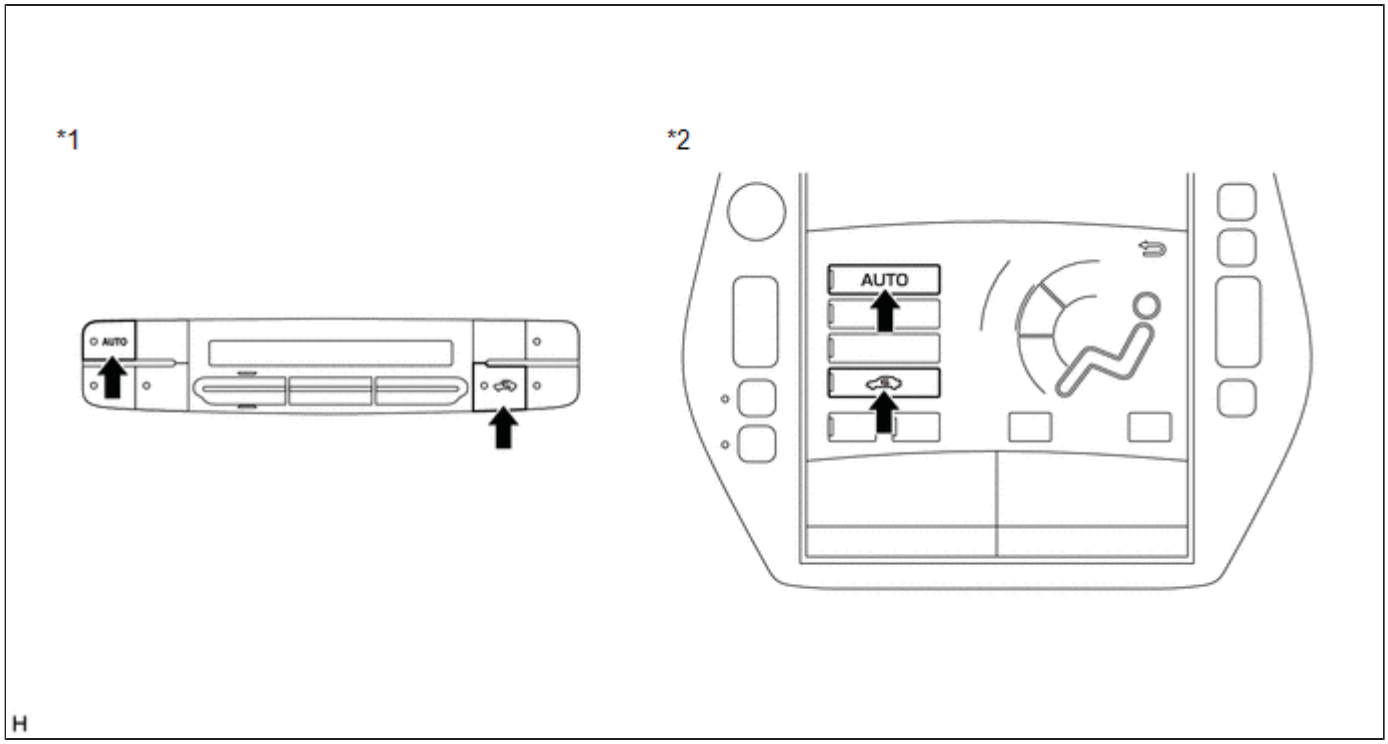
(a) Turn the power switch off.

(b) Turn the power switch on (ACC) and wait at least 5 seconds. (for 11.6 Inch Display)

(c) Turn the power switch on (IG) and press the air conditioning control assembly*1 or navigation receiver assembly*2

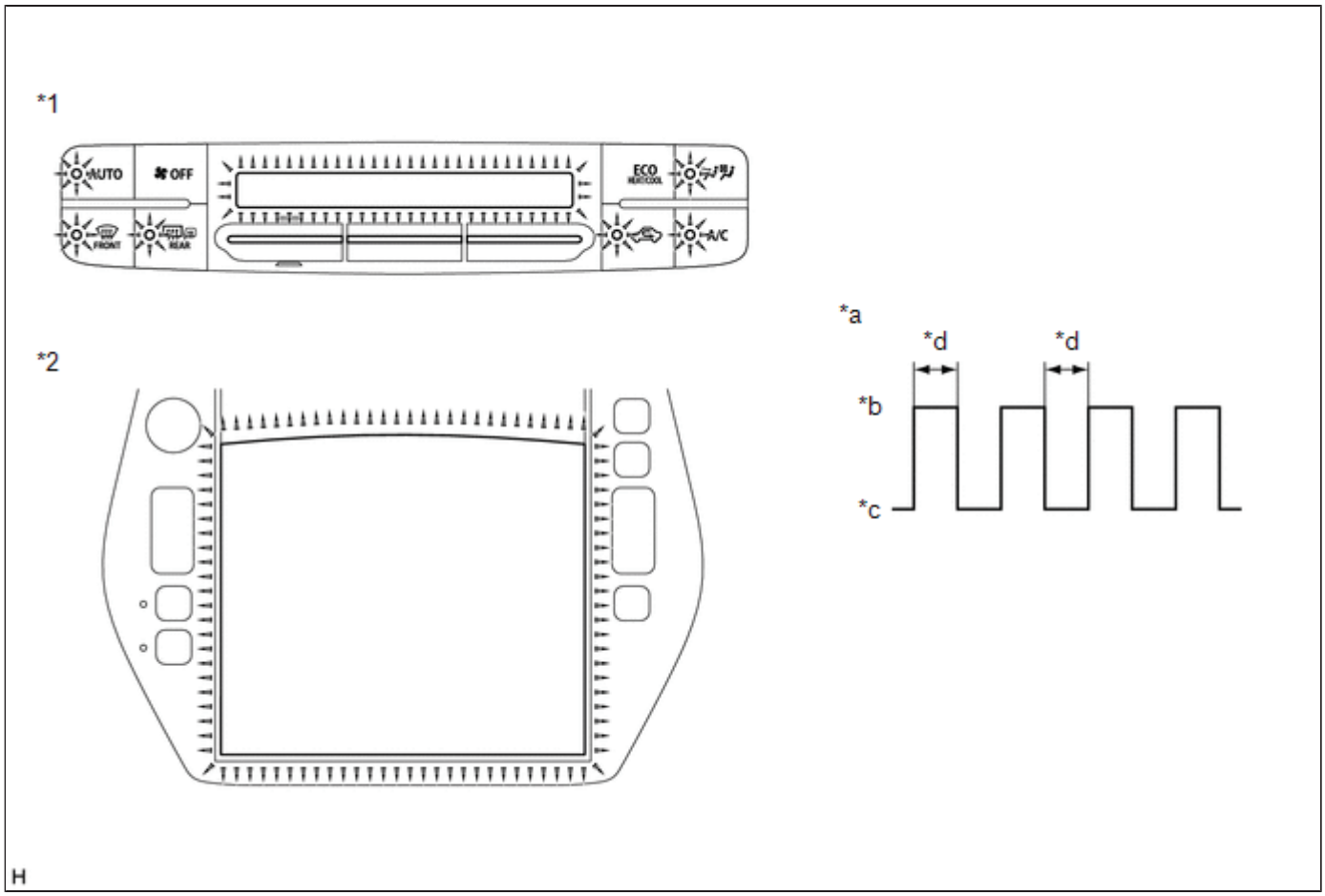
AUTO and recirculation/fresh switches simultaneously within 5 seconds.

*1: for 7 Inch Display
*2: for 11.6 Inch Display



*1	Air Conditioning Control Assembly (for 7 Inch Display)	*2	Navigation Receiver Assembly (for 11.6 Inch Display)

(d) The indicator check is automatically performed when panel diagnosis is activated. Check that the indicators light up and go off 4 times at 1 second intervals continuously.



*1	Air Conditioning Control Assembly (for 7 Inch Display)	*2	Navigation Receiver Assembly (for 11.6 Inch Display)
*a	Indicator Blinking Pattern	*b	ON
*c	OFF	*d	1 Sec.

HINT:

- The sensor check automatically starts when the indicator check is completed.
- Press the OFF switch to cancel check mode.

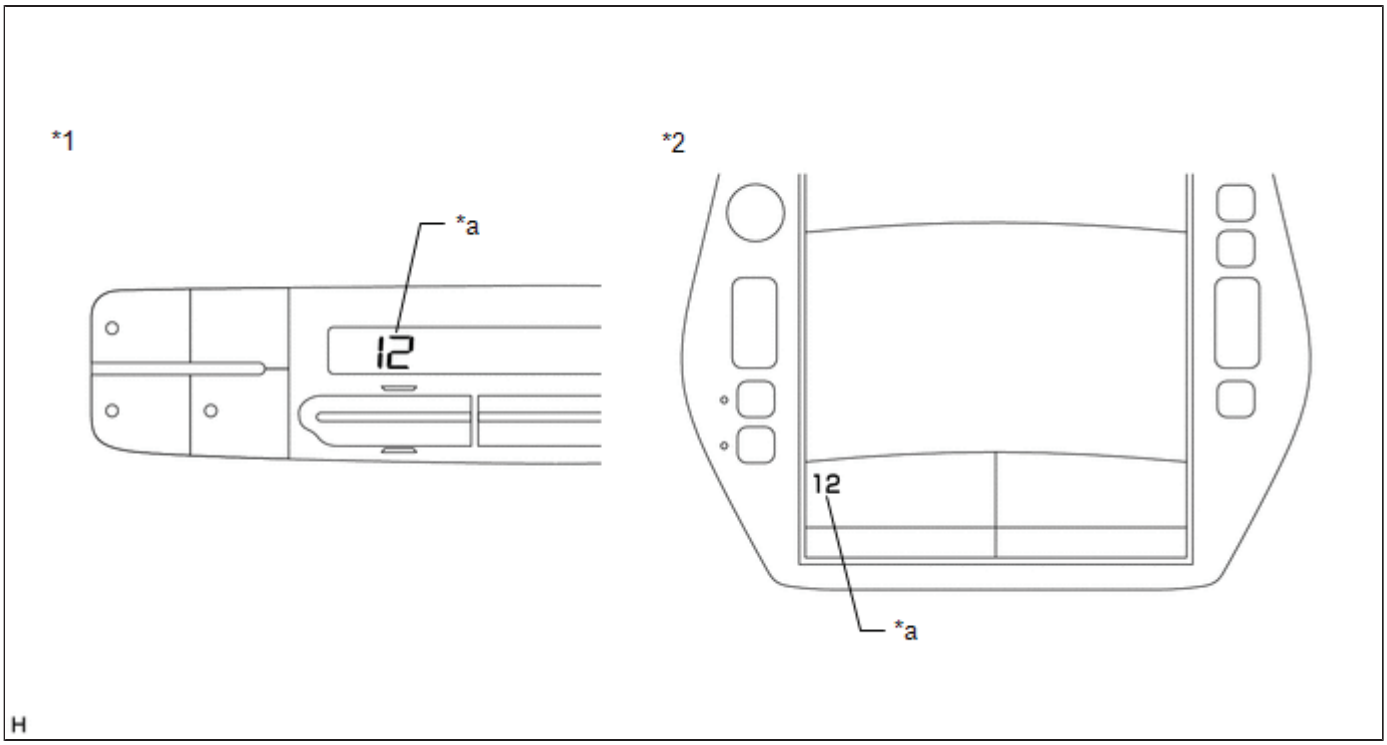
SENSOR CHECK (DTC CHECK)

(a) Perform the indicator check.

HINT:

After the indicator check is completed, the system enters DTC check mode automatically.

(b) Read the DTCs displayed on the display.



*1	Air Conditioning Control Assembly (for 7 Inch Display)	*2	Navigation Receiver Assembly (for 11.6 Inch Display)
*3	Diagnostic Trouble Code (DTC)	-	-

NOTICE:

In sensor check mode, which is automatically entered after indicator check mode, troubleshooting may be partially performed. Be sure to perform the sensor check again.

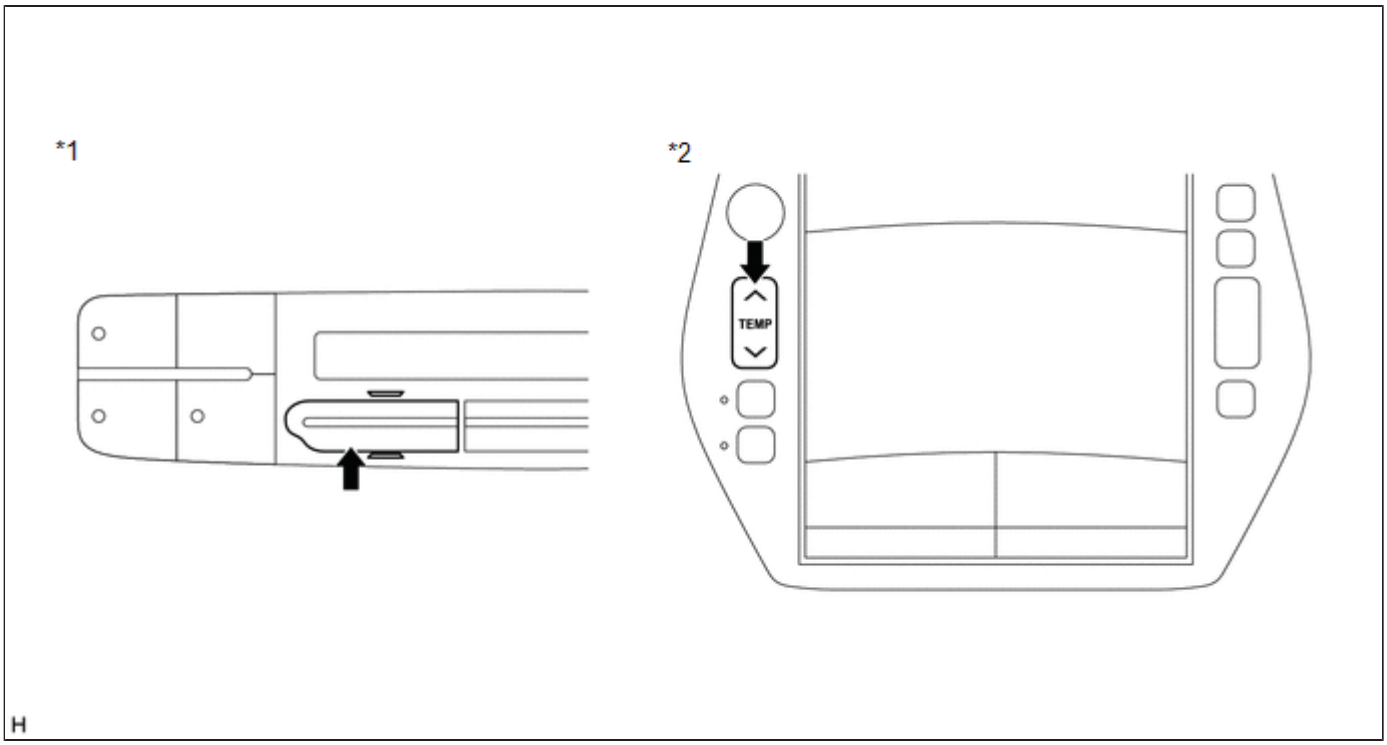
HINT:

Refer to Diagnostic Trouble Code Chart for details of the codes.

Click here INFO INFO

- When there are no problems, DTC 00 is output.
- As an example, the illustration shows that DTC 12 is output.

(c) If the DTCs are difficult to read because they change automatically, Push the TEMP up switch to display the steps one at a time so that they can be read easily. The items are displayed step by step each time the TEMP up switch is pushed.



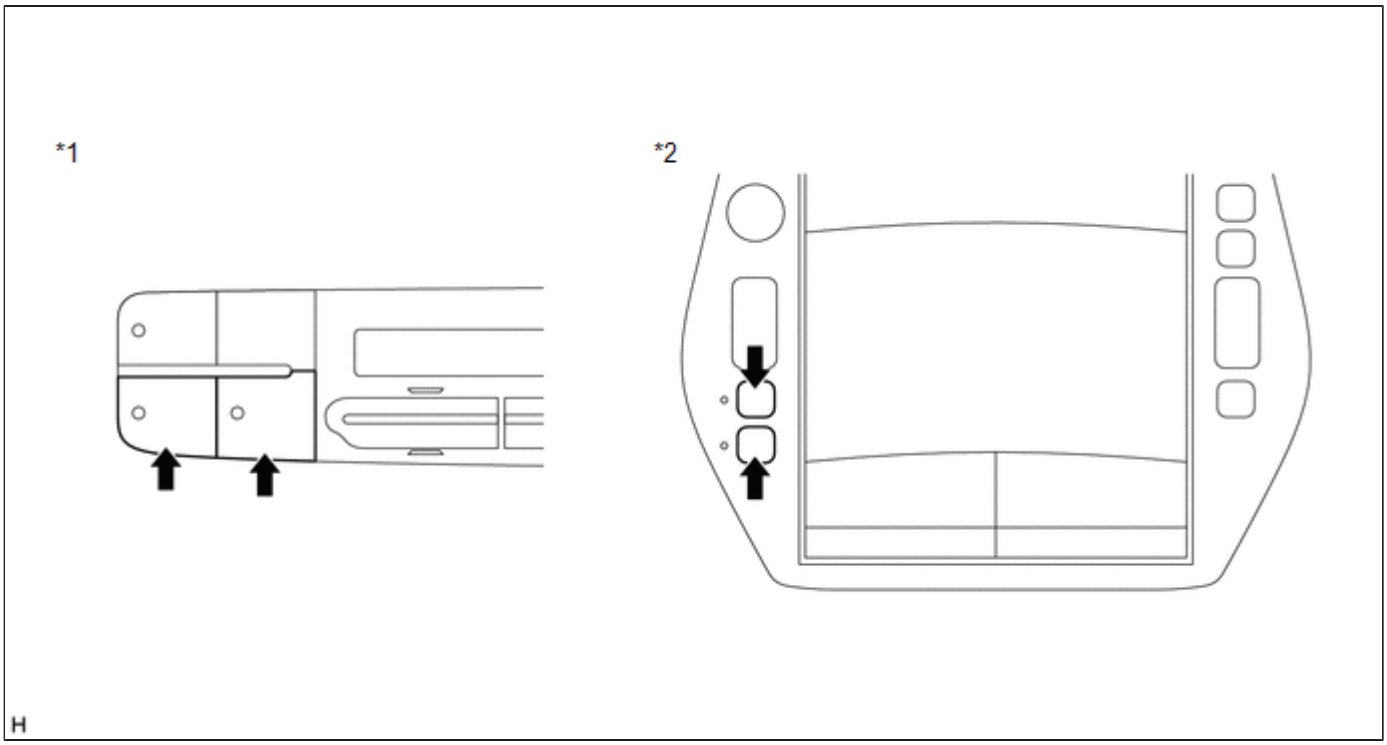
*1	Air Conditioning Control Assembly (for 7 Inch Display)	*2	Navigation Receiver Assembly (for 11.6 Inch Display)

HINT:

Press the OFF switch to finish panel diagnosis.

(d) Clear the DTCs.

(1) During the sensor check, press the front defroster switch and rear defogger switch simultaneously.



*1	Air Conditioning Control Assembly (for 7 Inch Display)	*2	Navigation Receiver Assembly (for 11.6 Inch Display)

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Model Year Start: 2019	**Model:** Prius	**Prod Date Range:** [12/2018 -]
Title: HEATING / AIR CONDITIONING: AIR CONDITIONING SYSTEM: DIAGNOSTIC TROUBLE CODE CHART; 2019 MY Prius [12/2018 -]		

DIAGNOSTIC TROUBLE CODE CHART

AIR CONDITIONING SYSTEM

DTC NO.	DETECTION ITEM	DTC DETECTION CONDITION	LINK
B1245	Lost Communication with Wiper ECU LIN	Lost communication with windshield wiper relay assembly	INFO
B1279	Lost Communication with Humidity/Rain Sensor LIN	Lost communication with air conditioning thermistor assembly	INFO
B1373	Lost Communication with Wiper System LIN BUS	Lost communication with wiper system LIN communication line	INFO
B1411/11	Room Temperature Sensor Circuit	Open or short in room temperature sensor circuit	INFO
B1412/12	Ambient Temperature Sensor Circuit	Open or short in ambient temperature sensor circuit	INFO
B1413/13	Evaporator Temperature Sensor Circuit	Open or short in evaporator temperature sensor circuit	INFO
B1423	Pressure Sensor Circuit	• Open or short in air conditioner pressure sensor circuit • Refrigerant pressure on high pressure side is extremely low (176 kPa (1.8 kgf/cm^2, 26 psi) or less) or extremely high (3025 kPa (30.8 kgf/cm^2, 439 psi) or more)	INFO
B1441	Air Mix Damper Control Servo Motor Circuit (Passenger Side)	Air mix damper position sensor value does not change even if air conditioning amplifier assembly operates No. 2 air conditioning radiator damper servo sub-assembly	INFO
B1442	Air Inlet Damper Control Servo Motor Circuit	Air inlet damper position sensor value does not change even if air conditioning amplifier assembly operates No. 1 blower damper servo sub-assembly	INFO
B1443	Air Outlet Damper Control Servo Motor Circuit	Air outlet damper position sensor value does not change even if air conditioning amplifier assembly operates No. 1 air conditioning radiator damper servo sub-assembly	INFO

B1448	Passenger Side FACE Servo Motor Circuit	Air outlet damper position sensor value does not change even if air conditioning amplifier assembly operates No. 2 air conditioning radiator damper servo sub-assembly	INFO
B1449	Rear Air Outlet Damper Control Servo Motor Circuit	Air mix damper position sensor value does not change even if air conditioning amplifier assembly operates No. 3 air conditioning radiator damper servo sub-assembly	INFO
B1471	A/C Inverter High Voltage Power Resource System Malfunction	• Open or short in A/C inverter high voltage power resource system • Boost inverter malfunctioning	INFO
B1472/72	A/C Inverter High Voltage Output System Malfunction	Open or short in A/C inverter high voltage output circuit	INFO
B1473	A/C Inverter Start-up Signal System Malfunction	Open or short in A/C inverter start-up signal circuit	INFO
B1474/74	A/C Inverter Malfunction	A/C inverter malfunction	INFO
B1475	A/C Inverter Cooling / Heating System Malfunction	A/C inverter temperature outside specified range (temperature too high) or open or short to ground in temperature sensor circuit	INFO
B1476/76	A/C Inverter Load System Malfunction	Motor rotation load while compressor is operating is too large or too small	INFO
B1477/77	A/C Inverter Low Voltage Power Resource System Malfunction	Open or short to ground in inverter control power voltage circuit	INFO
B1497	BUS IC Communication Malfunction	Error or open in communication line	INFO
B1498	Communication Malfunction (A/C Inverter Local)	• Error or open in communication line between the hybrid vehicle control ECU and compressor with motor assembly • High-voltage power source shut off	INFO
B14A2	Driver Side Solar Sensor Short Circuit	Short in cooler (solar sensor) thermistor circuit	INFO
B14A8	Glass Temperature Sensor Circuit	Open or short in glass temperature sensor circuit	INFO
B14A9	Glass Surroundings Temperature Sensor Circuit	Open or short in glass surroundings temperature sensor circuit	INFO

B14AA	Glass Humidity Sensor Circuit	Open or short in glass humidity sensor circuit	INFO
B14B2	Lost Communication with Front Panel LIN	Lost communication with air conditioning control assembly	INFO
B14B8	Refrigerant Shortage	When following condition is detected in refrigerant shortage check in normal operation: Amount of refrigerant is insufficient	INFO
P1C7C49	Hybrid/EV Battery Voltage System Isolation (A/C Area) Internal Electronic Failure	High voltage system insulation malfunction	INFO
U0131	Lost Communication with Electric Power Steering ECU	No communication with power steering ECU assembly	INFO
U0142	Lost Communication with Main Body ECU	No communication with main body ECU (multiplex network body ECU)	INFO
U0151	Lost Communication with Restraints Control Module	No communication with airbag sensor assembly	INFO
U0155	Lost Communication with Combination Meter	No communication with combination meter assembly	INFO
U0163	Lost Communication with Navigation Control Module	No communication with navigation receiver assembly*	INFO
U0293	Lost Communication with HV ECU	No communication with hybrid vehicle control ECU	INFO

Last Modified: 01-14-2019	6.8:8.0.48	**Doc ID:** RM100000000RW43
Model Year Start: 2016	**Model:** Prius	**Prod Date Range:** [11/2015 -]
Title: HEATING / AIR CONDITIONING: AIR CONDITIONING SYSTEM: DTC CHECK / CLEAR; 2016 - 2019 MY Prius [11/2015 -]		

DTC CHECK / CLEAR

DTC CHECK USING TECHSTREAM

(a) Connect the Techstream to the DLC3.

(b) Turn the power switch on (IG).

(c) Turn the Techstream on.

(d) Enter the following menus: Body Electrical / Air Conditioner / Trouble Codes.

Body Electrical > Air Conditioner > Trouble Codes

(e) Check for DTCs.

DTC CLEAR USING TECHSTREAM

(a) Connect the Techstream to the DLC3.

(b) Turn the power switch on (IG).

(c) Turn the Techstream on.

(d) Enter the following menus: Body Electrical / Air Conditioner / Trouble Codes.

Body Electrical > Air Conditioner > Clear DTCs

(e) Clear the DTCs.

Last Modified: 01-14-2019	6.8:8.0.48	**Doc ID:** RM100000000RW45
Model Year Start: 2016	**Model:** Prius	**Prod Date Range:** [11/2015 -]
Title: HEATING / AIR CONDITIONING: AIR CONDITIONING SYSTEM: HOW TO PROCEED WITH TROUBLESHOOTING; 2016 - 2019 MY Prius [11/2015 -]		

HOW TO PROCEED WITH TROUBLESHOOTING

CAUTION / NOTICE / HINT

HINT:

- Use the following procedure to troubleshoot the air conditioning system.
- *: Use the Techstream.

PROCEDURE

1.	**VEHICLE BROUGHT TO WORKSHOP**

NEXT

2.	**INSPECT AUXILIARY BATTERY VOLTAGE**

(a) Inspect the auxiliary battery voltage with the power switch off.

Standard Voltage:
11 to 14 V

If the voltage is below 11 V, recharge or replace the auxiliary battery before proceeding to the next step.

NEXT

3.	**CHECK COMMUNICATION FUNCTION OF CAN COMMUNICATION SYSTEM***

(a) Using the Techstream, check for CAN communication system DTCs.

Click here INFO

RESULT	PROCEED TO
CAN communication system DTCs are not output	A

CAN communication system DTCs are output	B

B GO TO CAN COMMUNICATION SYSTEM INFO INFO

A

4.	CHECK FOR DTC*

(a) Check for DTCs and note any codes that are output.

Click here INFO

Body Electrical > Air Conditioner > Trouble Codes

(b) Clear the DTCs.

Click here INFO

Body Electrical > Air Conditioner > Clear DTCs

(c) Recheck for DTCs. Based on the DTCs output above, try to force output of the air conditioning system DTC by simulating the operation indicated by the DTC.

Click here INFO

Body Electrical > Air Conditioner > Trouble Codes

RESULT	PROCEED TO
DTCs are not output	A
DTCs are output	B

B GO TO DIAGNOSTIC TROUBLE CODE CHART INFO INFO INFO

A

5.	PROBLEM SYMPTOMS TABLE

(a) Refer to Problem Symptoms Table.

Click here INFO INFO INFO

RESULT	PROCEED TO
Fault is not listed in Problem Symptoms Table	A
Fault is listed in Problem Symptoms Table	B

B ▶ GO TO PROBLEM SYMPTOMS TABLE INFO INFO INFO

A ▼

6.	OVERALL ANALYSIS AND TROUBLESHOOTING*

(a) Panel diagnosis (indicator check, sensor check).

Click here INFO INFO

(b) Data List / Active Test.

Click here INFO

(c) Terminals of ECU.

Click here INFO INFO INFO

(d) On-vehicle Inspection.

(e) Inspection.

NEXT ▼

7.	ADJUST, REPAIR OR REPLACE

NEXT ▶ END

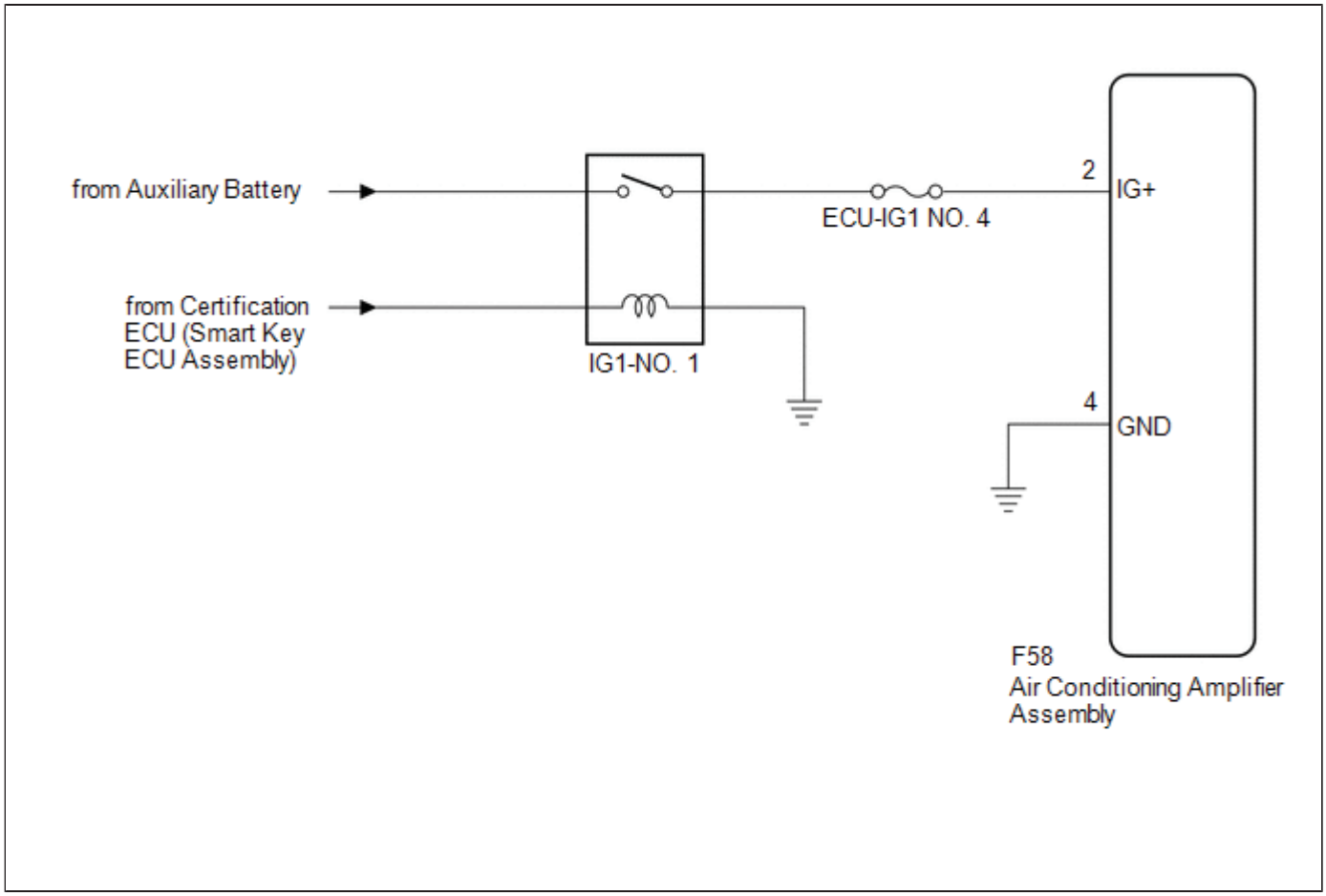
Last Modified: 01-14-2019	6.8:8.0.48	**Doc ID:** RM100000000RW3N
Model Year Start: 2016	**Model:** Prius	**Prod Date Range:** [11/2015 -]
Title: HEATING / AIR CONDITIONING: AIR CONDITIONING SYSTEM: IG Power Source Circuit; 2016 - 2019 MY Prius [11/2015 -]		

IG Power Source Circuit

DESCRIPTION

Power source voltage is supplied to the air conditioning amplifier assembly when the power switch is turned on (IG). This power is used for operating the air conditioning amplifier assembly, servo motors, etc.

WIRING DIAGRAM



CAUTION / NOTICE / HINT

NOTICE:

Inspect the fuses for circuits related to this system before performing the following procedure.

PROCEDURE

1.	**CHECK HARNESS AND CONNECTOR (AIR CONDITIONING AMPLIFIER ASSEMBLY - IG POWER SOURCE)**

(a) Disconnect the F58 air conditioning amplifier assembly connector.

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

Standard Voltage:

EWD INFO

Click Location & Routing(F58)
Click Connector(F58)

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
F58-2 (IG+) - Body ground	Power switch off	Below 1 V
F58-2 (IG+) - Body ground	Power switch on (IG)	11 to 14 V

NG ▶ REPAIR OR REPLACE HARNESS OR CONNECTOR

OK ▼

2.	CHECK HARNESS AND CONNECTOR (AIR CONDITIONING AMPLIFIER ASSEMBLY - BODY GROUND)

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

Standard Resistance:

EWD INFO

Click Location & Routing(F58)
Click Connector(F58)

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
F58-4 (GND) - Body ground	Always	Below 1 Ω

OK ▶ PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE INFO INFO INFO

NG ▶ REPAIR OR REPLACE HARNESS OR CONNECTOR

Last Modified: 01-14-2019	6.8:8.0.48	**Doc ID:** RM100000000RW40
Model Year Start: 2016	**Model:** Prius	**Prod Date Range:** [11/2015 -]
Title: HEATING / AIR CONDITIONING: AIR CONDITIONING SYSTEM: INITIALIZATION; 2016 - 2019 MY Prius [11/2015 -]		

INITIALIZATION

INITIALIZATION SERVO MOTOR

(a) Turn the power switch off.

(b) Connect the Techstream to the DLC3.

(c) Turn the power switch on (IG).

(d) Press the A/C OFF switch.

(e) Turn the Techstream on.

(f) Enter the following menus: Body Electrical / Air Conditioner / Utility / Servomotor Initialization.

(g) According to the Techstream display, perform servo motor initialization.

Body Electrical > Air Conditioner > Utility

TESTER DISPLAY
Servomotor Initialization

HINT:

During initialization, the AUTO indicator light comes on, and then goes off when initialization has finished.

(h) According to the Techstream display, select the Exit switch to finish initialization.

Last Modified: 01-14-2019	6.8:8.0.48	**Doc ID:** RM100000000RW4S
Model Year Start: 2016	**Model:** Prius	**Prod Date Range:** [11/2015 -]
Title: HEATING / AIR CONDITIONING: AIR CONDITIONING SYSTEM: P1C7C49; Hybrid/EV Battery Voltage System Isolation (A/C Area) Internal Electronic Failure; 2016 - 2019 MY Prius [11/2015 -]		

DTC	**P1C7C49**	**Hybrid/EV Battery Voltage System Isolation (A/C Area) Internal Electronic Failure**

DESCRIPTION

This DTC is stored if there is insulation malfunction in the high-voltage circuit in the air conditioning system. Possible causes are poor insulation in the compressor with motor assembly, or mixing of any oil other than ND-OIL 11 in the refrigerant cycle.

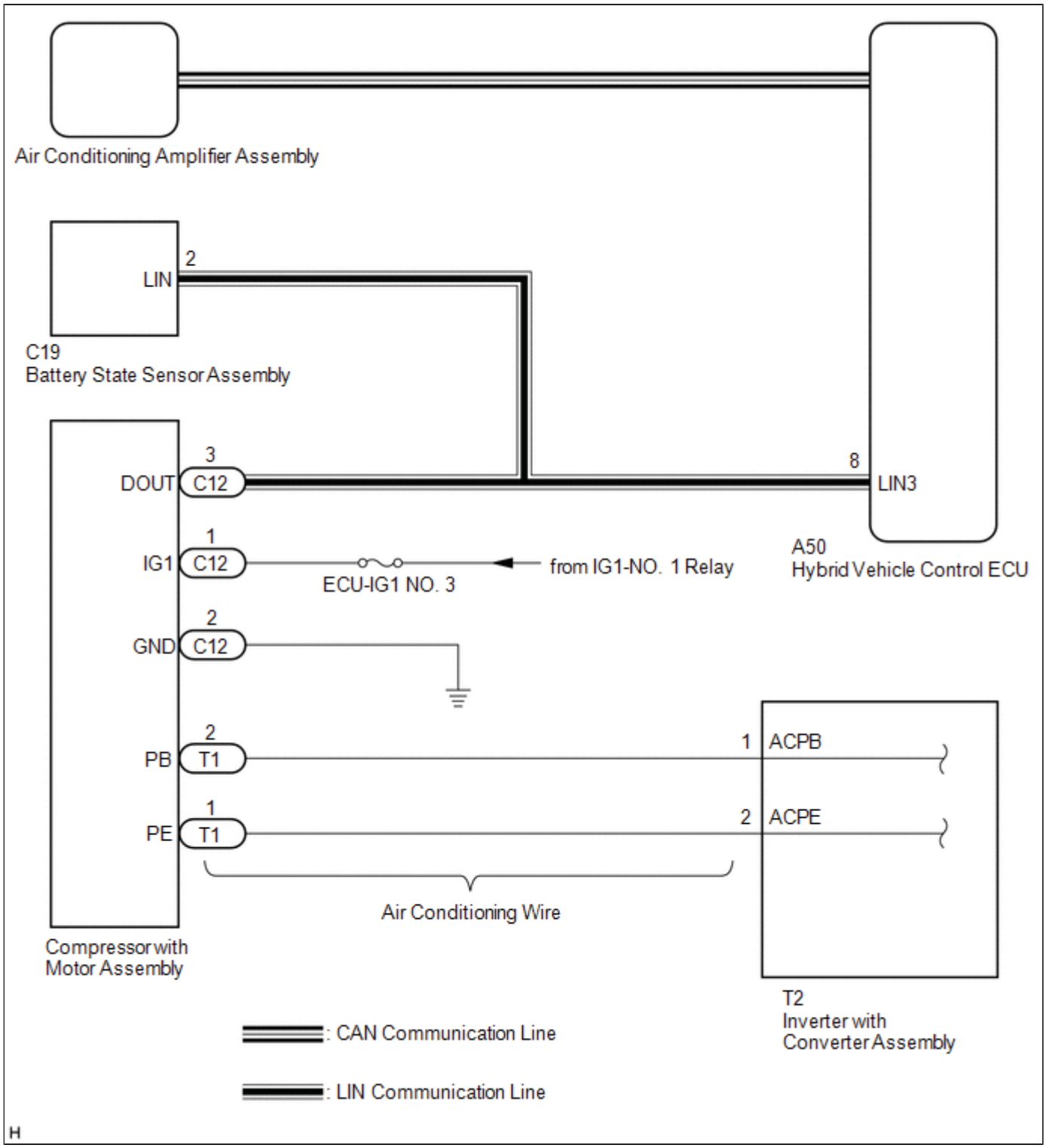
A high-voltage motor is built into the compressor with motor assembly and is cooled directly with refrigerant. Compressor oil (ND-OIL 11) with high insulation performance is used because leakage of electrical power may occur if regular compressor oil (ND-OIL 8) is used.

CAUTION:

- Before inspecting the high-voltage system, take safety precautions such as wearing insulated gloves and removing the service plug grip to prevent electrical shocks. After removing the service plug grip, put it in your pocket to prevent other technicians from accidentally reconnecting it while you are working on the high-voltage system.
- Do not touch the high-voltage connectors or terminals for 10 minutes after the service plug grip is removed.

DTC NO.	DETECTION ITEM	DTC DETECTION CONDITION	TROUBLE AREA	MEMORY
P1C7C49	Hybrid/EV Battery Voltage System Isolation (A/C Area) Internal Electronic Failure	High voltage system insulation malfunction	• Compressor oil • Refrigerant pipe line • Compressor with motor assembly • CAN communication system	Memorized

WIRING DIAGRAM



CAUTION / NOTICE / HINT

CAUTION:

- Before inspecting the high-voltage system, take safety precautions such as wearing insulated gloves and removing the service plug grip to prevent electrical shocks. After removing the service plug grip, put it in your pocket to prevent other technicians from accidentally reconnecting it while you are working on the high-voltage system.
- Do not touch the high-voltage connectors or terminals for 10 minutes after the service plug grip is removed.

NOTICE:

- After turning the power switch off, waiting time may be required before disconnecting the cable from the negative (-) auxiliary battery terminal. Therefore, make sure to read the disconnecting the cable from the negative (-) auxiliary

battery terminal notices before proceeding with work.

Click here INFO INFO INFO

- Electrical insulation performance may decrease significantly if even a small amount of oil other than ND-OIL 11 is used (or enters) in the refrigerant cycle, causing a DTC to be output.
- If oil other than ND-OIL 11 is accidentally used and a DTC is output, collect as much of the oil in the refrigerant cycle into the compressor with motor assembly as possible and replace it with ND-OIL 11 to increase the ND-OIL 11 ratio.
- Replace the main components of the refrigerant cycle (evaporator, condenser, and compressor) if a large amount of oil other than ND-OIL 11 enters the system. Failing to do so may cause electrical insulation performance to remain low, causing a DTC to be stored.
- The hybrid control system and air conditioning system output DTCs separately. Perform troubleshooting for the hybrid control system first if DTCs for both systems are output simultaneously.

HINT:

If it can be confirmed that any compressor oil other than ND-OIL 11 has been used, replace the main components of the refrigerant cycle.

PROCEDURE

1.	**CHECK CAN COMMUNICATION SYSTEM**

(a) Using the Techstream, check if the CAN communication system is functioning normally.

HINT:

Click here INFO INFO

RESULT	PROCEED TO
CAN communication system DTCs are not output	A
CAN communication system DTCs are output	B

B ▶ **GO TO CAN COMMUNICATION SYSTEM** INFO INFO

A ▼

2.	**INSPECT COMPRESSOR WITH MOTOR ASSEMBLY**

CAUTION:

Because the compressor with motor assembly has a high-voltage circuit, put on insulated gloves and remove the service plug grip to cut off the high-voltage circuit before inspecting the compressor with motor assembly.

(a) Clear the DTCs.

Powertrain > Hybrid Control > Clear DTCs

(b) Turn the power switch on (READY).

(c) Prepare the vehicle according to the table below for 3 minutes.

ITEM	CONDITION
Blower speed	HI
Temperature setting	MAX COLD
A/C switch	On

(d) Turn the power switch off.

(e) Remove the service plug grip.

HINT:

Click here INFO INFO

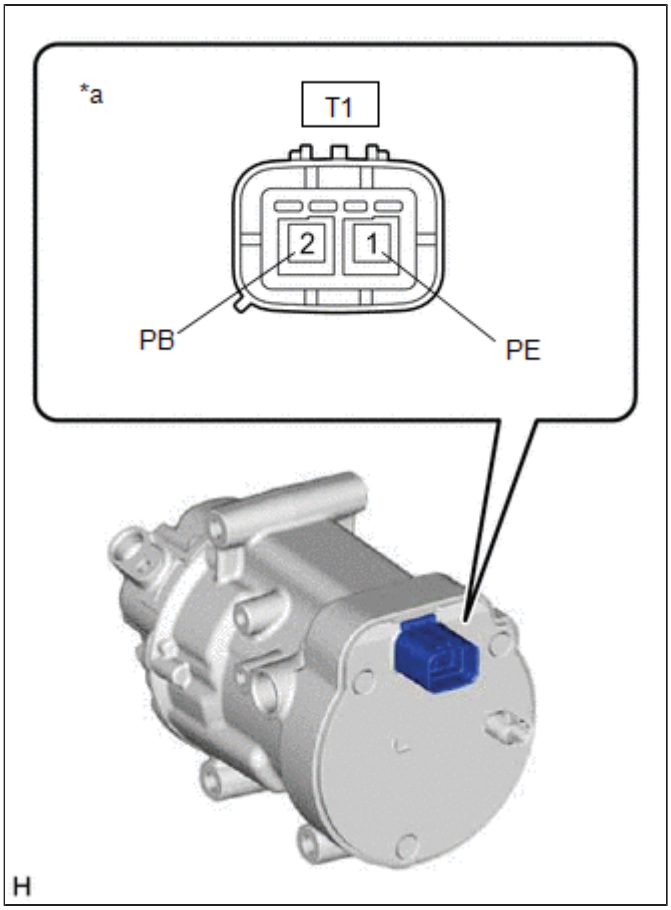
CAUTION:

Do not touch the high-voltage connectors or terminals for 10 minutes after the service plug grip is removed.

NOTICE:

After removing the service plug grip, turning the power switch on (READY) may cause a malfunction. Do not turn the power switch on (READY) with the service plug grip removed.

(f) Disconnect the compressor with motor assembly connector.



*a	Component without harness connected (Compressor with Motor Assembly)

(g) Using a megohmmeter, measure the resistance according to the value(s) in the table below.

Standard Resistance:

EWD INFO

Click Location & Routing(T1)
Click Connector(T1)

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
T1-1 (PE) - Body ground	Always	2 MΩ or higher
T1-2 (PB) - Body ground	Always	2 MΩ or higher

NG ▶ **REPLACE COMPRESSOR WITH MOTOR ASSEMBLY** INFO INFO

OK ▼

3.	**INSPECT REFRIGERANT CYCLE**

CAUTION:

Because the compressor with motor assembly has a high-voltage circuit, put on insulated gloves and remove the service plug grip to cut off the high-voltage circuit before inspecting the compressor with motor assembly.

(a) Reconnect the compressor with motor assembly connector.

(b) Install the service plug grip.

HINT:

Click here INFO

(c) Turn the power switch on (READY).

(d) Set the A/C temperature to 25°C (77°F) and blower switch to LO and operate the compressor with motor assembly for 10 minutes to circulate the refrigerant and collect as much compressor oil as possible in the compressor with motor assembly.

(e) Turn the power switch off.

(f) Using a spot cooler or other tool, cool down the compressor with motor assembly for 30 minutes, or leave the vehicle overnight before inspection.

NOTICE:

Do not operate the compressor before inspection.

(g) Remove the service plug grip.

CAUTION:

Do not touch the high-voltage connectors or terminals for 10 minutes after the service plug grip is removed.

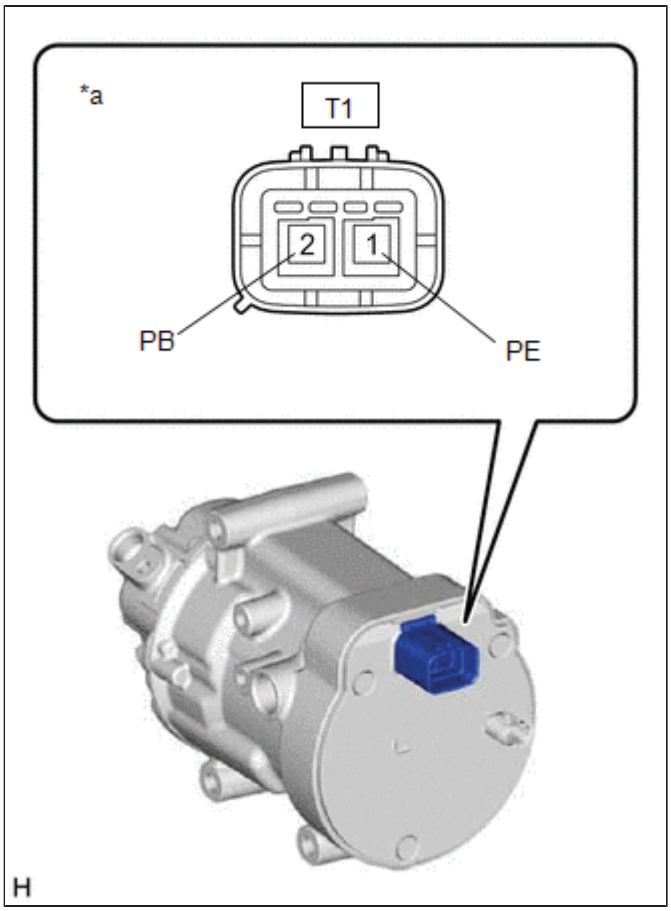
NOTICE:

After removing the service plug grip, turning the power switch on (READY) may cause a malfunction. Do not turn the power switch on (READY) with the service plug grip removed.

HINT:

Click here INFO INFO

(h) Disconnect the compressor with motor assembly connector.



*a	Component without harness connected (Compressor with Motor Assembly)

(i) Using a megohmmeter, measure the resistance according to the value(s) in the table below.

Standard Resistance:

EWD INFO

Click Location & Routing(T1)
Click Connector(T1)

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
T1-1 (PE) - Body ground	Always	3 MΩ or higher
T1-2 (PB) - Body ground	Always	3 MΩ or higher

NOTICE:

If the result is not as specified, replace the compressor without operating it.

OK ▶ **REPLACE COMPRESSOR WITH MOTOR ASSEMBLY** INFO INFO INFO

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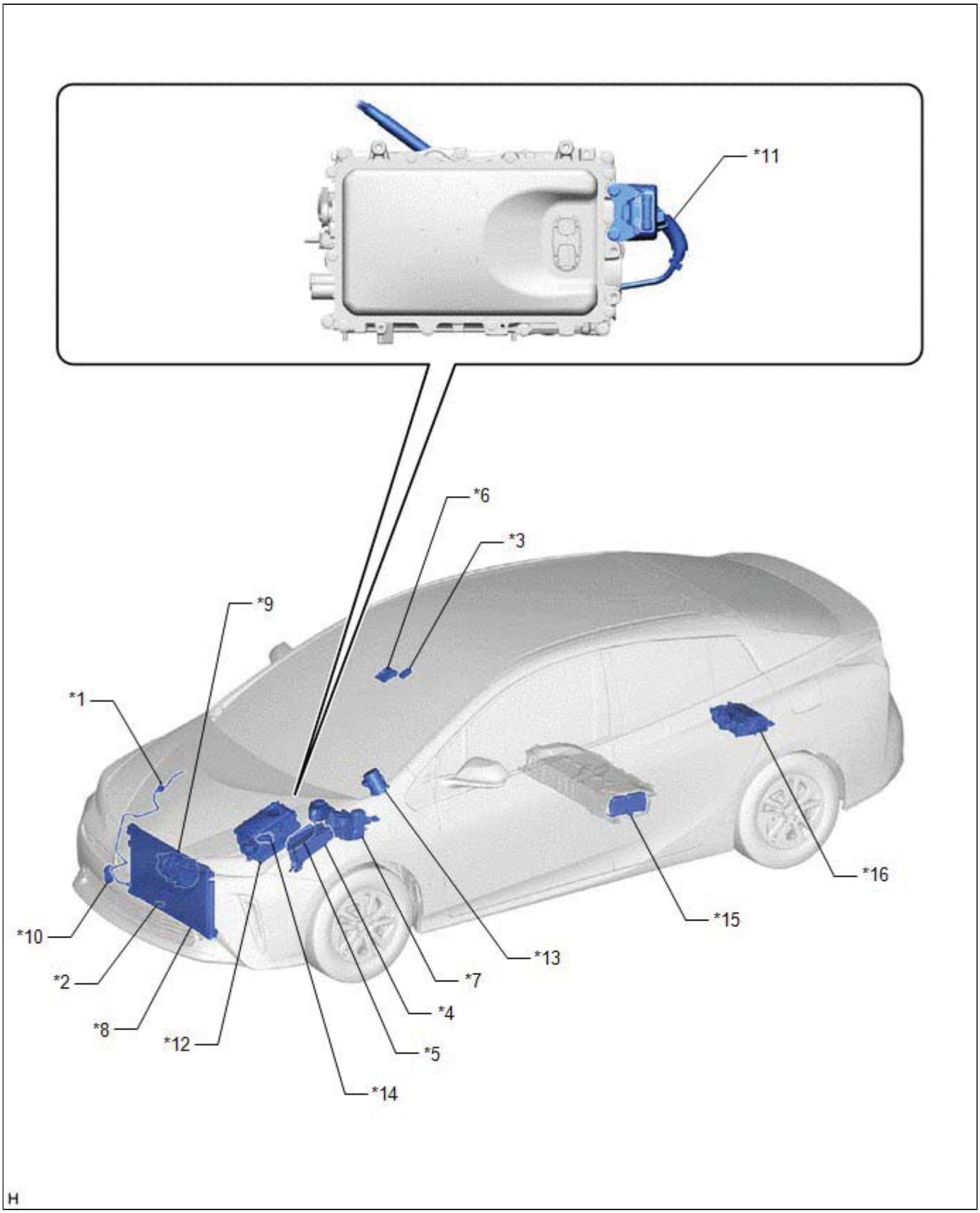
Model Year Start: 2019	**Model:** Prius	**Prod Date Range:** [12/2018 -]
Title: HEATING / AIR CONDITIONING: AIR CONDITIONING SYSTEM: PARTS LOCATION; 2019 MY Prius [12/2018 -]		

PARTS LOCATION

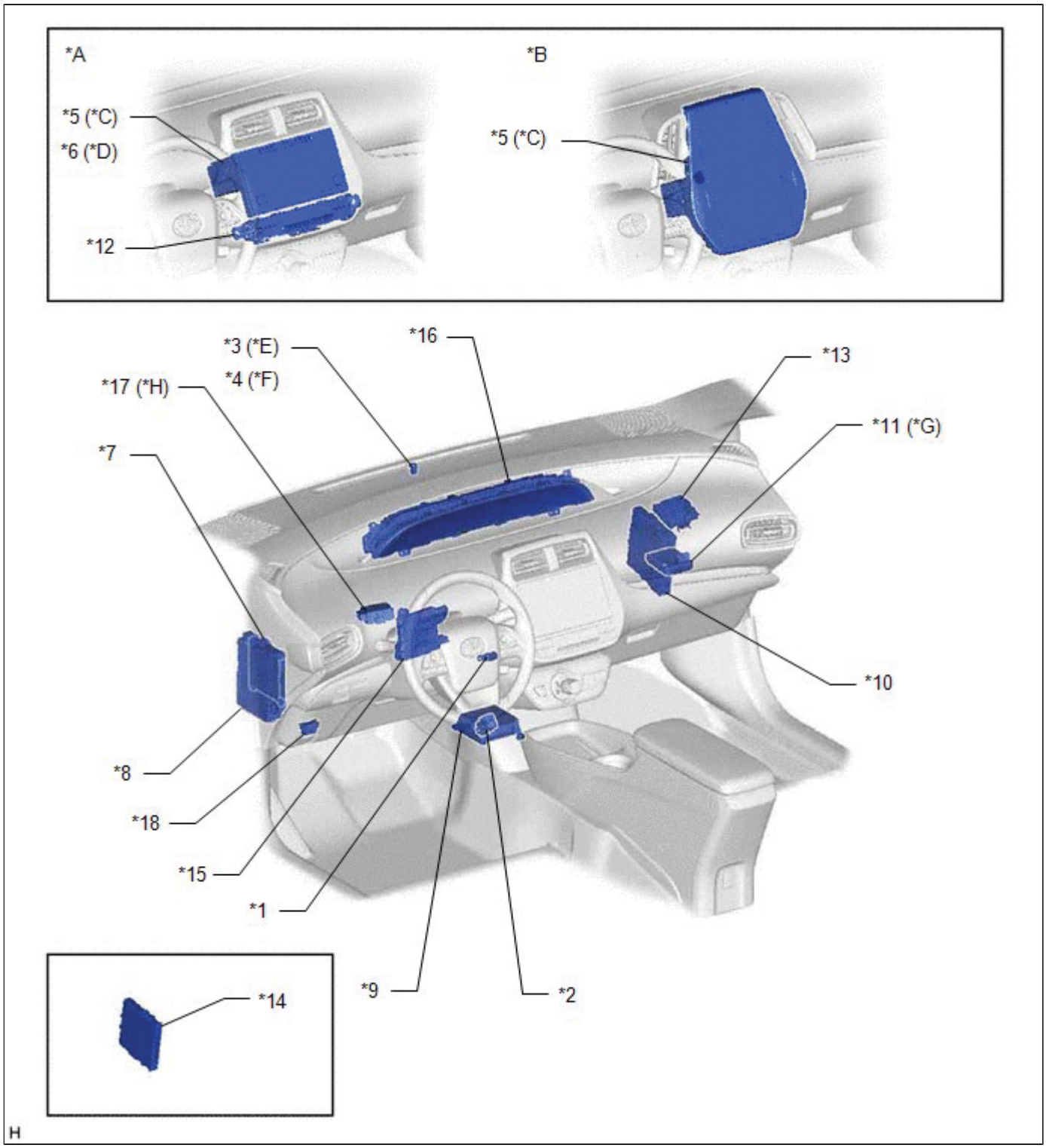
ILLUSTRATION



*1	AIR CONDITIONER PRESSURE SENSOR	*2	THERMISTOR ASSEMBLY
			NO. 1 ENGINE ROOM RELAY BLOCK AND NO. 1 JUNCTION BLOCK

*3	AIR CONDITIONING THERMISTOR ASSEMBLY (w/ Humidity Sensor)	*4	ASSEMBLY - HTR FUSE - S/HTR F/L FUSE
*5	ECM	*6	FORWARD RECOGNITION CAMERA (w/ Pre-collision System)
*7	SKID CONTROL ECU (BRAKE BOOSTER WITH MASTER CYLINDER ASSEMBLY)	*8	COOLER CONDENSER ASSEMBLY
*9	COMPRESSOR WITH MOTOR ASSEMBLY	*10	SWING GRILL ACTUATOR ASSEMBLY
*11	AIR CONDITIONING WIRE	*12	INVERTER WITH CONVERTER ASSEMBLY
*13	POWER STEERING ECU ASSEMBLY	*14	BATTERY STATE SENSOR ASSEMBLY
*15	BATTERY ECU ASSEMBLY (for Lithium-ion Battery)	*16	REAR HYBRID MOTOR CONTROL INVERTER ASSEMBLY (for AWD)

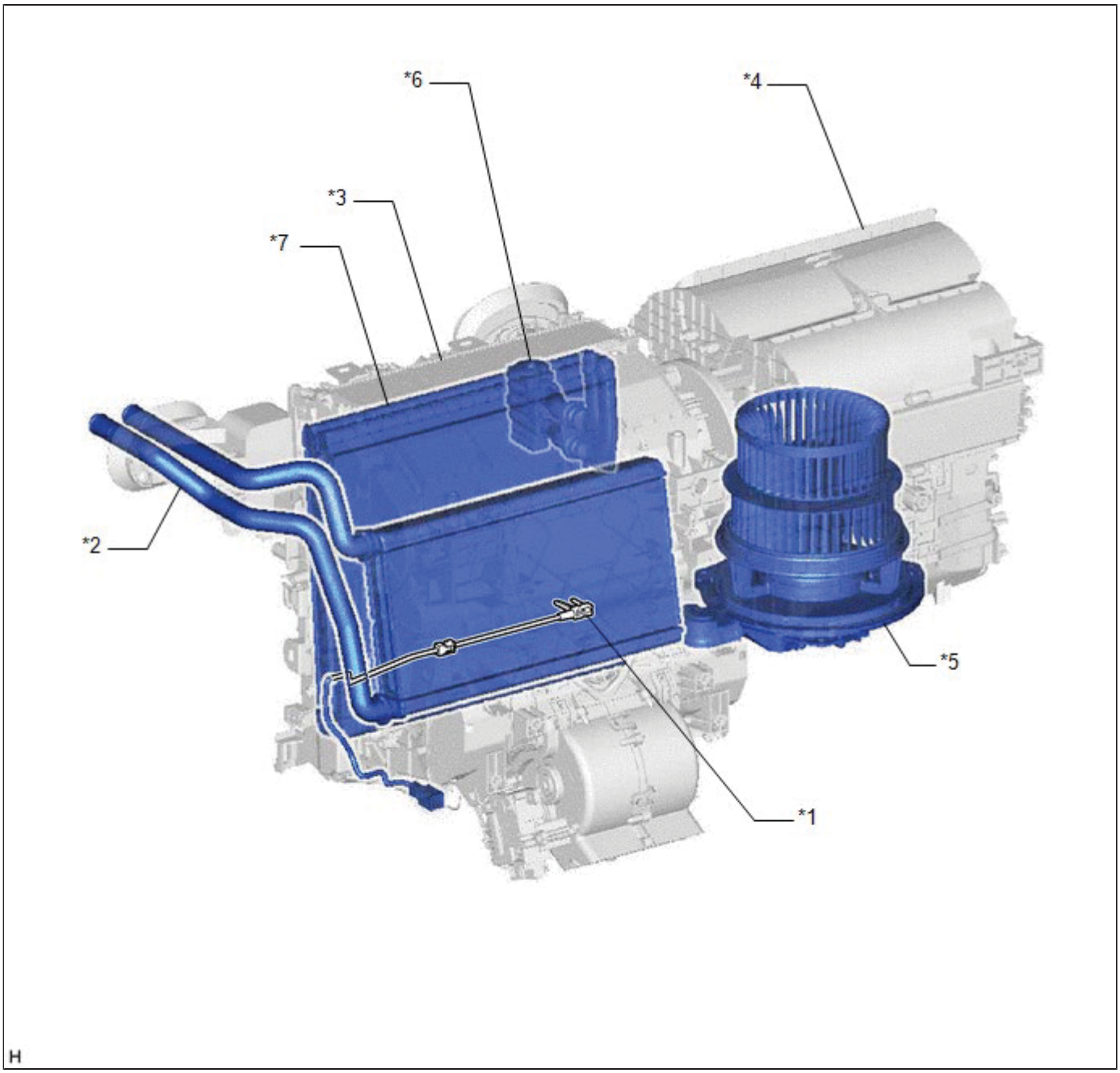
ILLUSTRATION



*A	except 11.6 Inch Display	*B	for 11.6 Inch Display
*C	w/ Navigation System	*D	w/ Audio and Visual System
*E	w/ Automatic Light Control	*F	w/o Automatic Light Control
*G	w/ Pre-collision System	*H	w/ Auto Wiper System
*1	COOLER (ROOM TEMP. SENSOR) THERMISTOR	*2	SEAT HEATER SWITCH (for Driver Side)
*3	AUTOMATIC LIGHT CONTROL SENSOR	*4	COOLER (SOLAR SENSOR) THERMISTOR

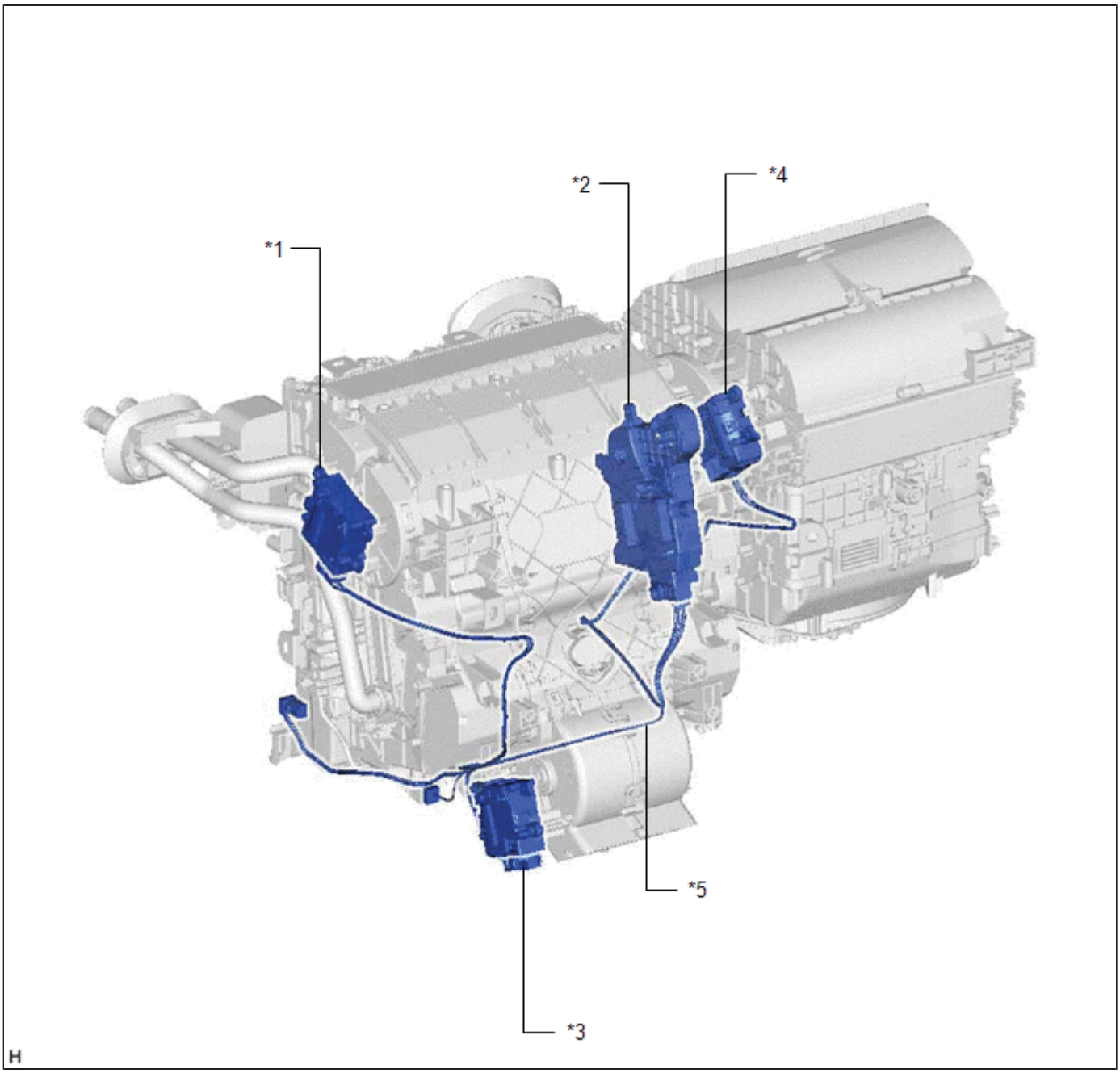
*5	NAVIGATION RECEIVER ASSEMBLY	*6	RADIO AND DISPLAY RECEIVER ASSEMBLY
*7	MAIN BODY ECU (MULTIPLEX NETWORK BODY ECU)	*8	INSTRUMENT PANEL JUNCTION BLOCK ASSEMBLY - ECU-B NO. 2 FUSE - ECU-IG1 NO. 3 FUSE - ECU-IG1 NO. 4 FUSE
*9	AIRBAG SENSOR ASSEMBLY	*10	HYBRID VEHICLE CONTROL ECU
*11	DRIVING SUPPORT ECU ASSEMBLY	*12	AIR CONDITIONING CONTROL ASSEMBLY
*13	CLEARANCE WARNING ECU ASSEMBLY	*14	CERTIFICATION ECU (SMART KEY ECU ASSEMBLY)
*15	AIR CONDITIONING AMPLIFIER ASSEMBLY	*16	COMBINATION METER ASSEMBLY
*17	WINDSHIELD WIPER RELAY ASSEMBLY	*18	DLC3

ILLUSTRATION



*1	NO. 1 COOLER THERMISTOR	*2	HEATER RADIATOR UNIT SUB-ASSEMBLY
*3	AIR CONDITIONING RADIATOR ASSEMBLY	*4	BLOWER ASSEMBLY
*5	BLOWER MOTOR WITH FAN SUB-ASSEMBLY	*6	COOLER EXPANSION VALVE
*7	NO. 1 COOLER EVAPORATOR SUB-ASSEMBLY	-	-

ILLUSTRATION



*1	NO. 1 AIR CONDITIONING RADIATOR DAMPER SERVO SUB-ASSEMBLY	*2	NO. 2 AIR CONDITIONING RADIATOR DAMPER SERVO SUB-ASSEMBLY
*3	NO. 3 AIR CONDITIONING RADIATOR DAMPER SERVO SUB-ASSEMBLY	*4	NO. 1 BLOWER DAMPER SERVO SUB-ASSEMBLY
*5	AIR CONDITIONING HARNESS ASSEMBLY	-	-

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Model Year Start: 2019	**Model:** Prius	**Prod Date Range:** [12/2018 -]
Title: HEATING / AIR CONDITIONING: AIR CONDITIONING SYSTEM: PRECAUTION; 2019 MY Prius [12/2018 -]		

PRECAUTION

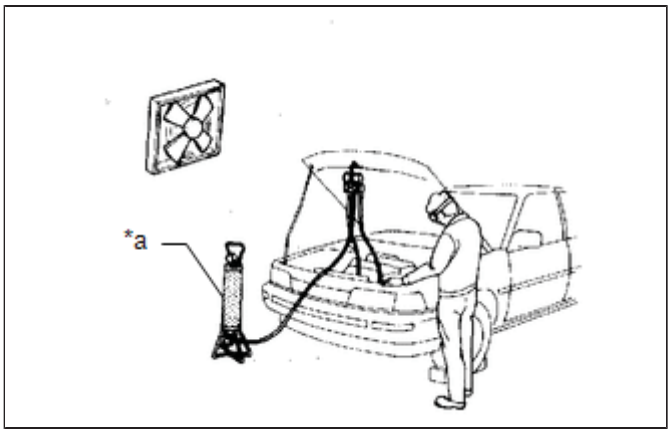
PRECAUTION FOR DISCONNECTING CABLE FROM NEGATIVE AUXILIARY BATTERY TERMINAL

NOTICE:

When disconnecting the cable from the negative (-) auxiliary battery terminal, initialize the following systems after the cable is reconnected.

SYSTEM NAME	SEE PROCEDURE
Lane Departure Alert System (w/ Steering Control)	INFO
Intelligent Clearance Sonar System	
Simple Advanced Parking Guidance System	
Power Door Lock Control System	
Pre-collision System	
AFS (Adaptive Front-lighting System)	

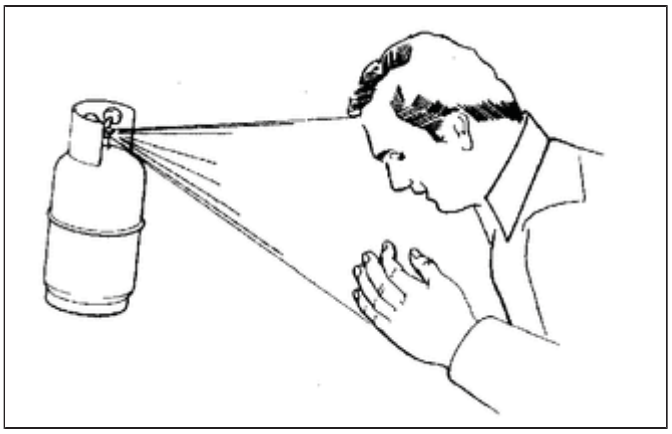
DO NOT HANDLE REFRIGERANT IN AN ENCLOSED AREA OR NEAR AN OPEN FLAME



*a	Charging Cylinder

ALWAYS WEAR EYE PROTECTION

BE CAREFUL NOT TO GET LIQUID REFRIGERANT IN YOUR EYES OR ON YOUR SKIN



If liquid refrigerant gets in your eyes or on your skin.

(a) Wash the area with lots of cold water.

CAUTION:

Do not rub your eyes or skin.

(b) Apply clean petroleum jelly to the skin.

(c) Go immediately to a hospital or see a physician for professional treatment.

NEVER HEAT CONTAINER OR EXPOSE CONTAINER TO AN OPEN FLAME

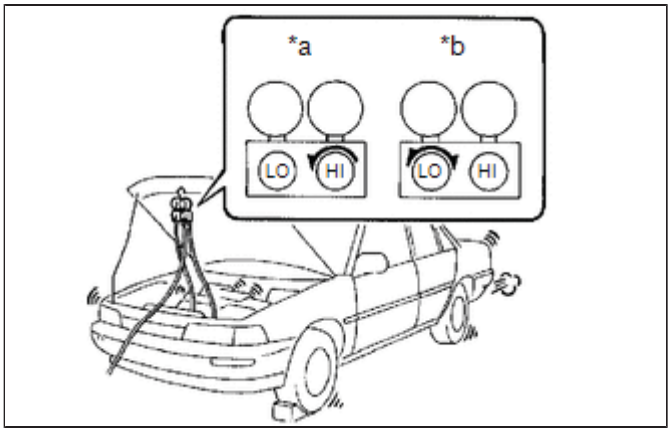
BE CAREFUL NOT TO DROP CONTAINER OR APPLY PHYSICAL SHOCKS TO IT

DO NOT OPERATE COMPRESSOR WITHOUT ENOUGH REFRIGERANT IN REFRIGERANT SYSTEM

If there is not enough refrigerant in the air conditioning system, oil lubrication will be insufficient and the compressor may be damaged.

Necessary care should be taken to avoid this.

DO NOT OPEN HIGH PRESSURE MANIFOLD VALVE WHILE COMPRESSOR IS OPERATING



*a	Wrong
*b	Okay

Open and close only the low pressure valve.

If the high pressure valve is opened, refrigerant will flow in the reverse direction causing the charging cylinder to rupture.

BE CAREFUL NOT TO OVERCHARGE SYSTEM WITH REFRIGERANT

If the system is overcharged with refrigerant, it causes problems such as insufficient cooling, poor fuel economy, engine overheating, etc.

DO NOT OPERATE ENGINE AND COMPRESSOR WITH NO REFRIGERANT

CAUTION:

Doing so may damage the inside of the compressor because the compressor parts always move regardless of whether the air conditioning system is turned on or off.

SUPPLEMENTAL RESTRAINT SYSTEM (SRS)

This vehicle is equipped with a Supplemental Restraint System (SRS). Failure to carry out service operations in the correct sequence could cause the SRS to unexpectedly deploy during servicing, possibly leading to a serious accident. Before servicing (including removal or installation of parts, inspection or replacement), be sure to read the precautionary notices.

Click here INFO

GENERAL PRECAUTION

While using the auxiliary battery during inspection, do not bring the positive (+) and negative (-) tester probes too close to each other as a short circuit may occur.

Last Modified: 01-14-2019	6.8:8.0.48	**Doc ID:** RM100000001FLBJ
Model Year Start: 2019	**Model:** Prius	**Prod Date Range:** [12/2018 -]
Title: HEATING / AIR CONDITIONING: AIR CONDITIONING SYSTEM: PROBLEM SYMPTOMS TABLE; 2019 MY Prius [12/2018 -]		

PROBLEM SYMPTOMS TABLE

HINT:

- Use the table below to help determine the cause of problem symptoms. If multiple suspected areas are listed, the potential causes of the symptoms are listed in order of probability in the "Suspected Area" column of the table. Check each symptom by checking the suspected areas in the order they are listed. Replace parts as necessary.
- Inspect the fuses and relays related to this system before inspecting the suspected areas below.

Air Conditioning System

SYMPTOM	SUSPECTED AREA	LINK
All functions of the air conditioning system do not operate	IG power source circuit	INFO
	Back-up power source circuit	INFO
	LIN communication circuit*3	INFO
	Air conditioning control panel circuit*4	INFO
	Air conditioning amplifier assembly	INFO
Air flow Control: No blower operation	Blower motor circuit	INFO
	LIN communication circuit*3	INFO
	Air conditioning control panel circuit*4	INFO
	Air conditioning amplifier assembly	INFO
Air flow control: No blower control	Blower motor circuit	INFO
	LIN communication circuit*3	INFO
	Air conditioning control panel circuit*4	INFO
	Air conditioning amplifier assembly	INFO

Air flow control: Insufficient air flow	Blower motor circuit	INFO
	Air conditioning amplifier assembly	INFO
Temperature control: Cooling effectiveness is poor	Refrigerant shortage check using the Techstream	INFO
	Refrigerant volume	-
	Refrigerant pressure	INFO
	Cooler expansion valve	INFO
	Compressor with motor assembly	INFO
	Air conditioning amplifier assembly	INFO
Temperature control: No cool air comes out	Refrigerant shortage check using the Techstream	INFO
	Refrigerant volume	-
	Refrigerant pressure	INFO
	Air conditioner pressure sensor circuit	INFO
	LIN communication circuit*3	INFO
	Air conditioning control panel circuit*4	INFO
	Air mix damper control servo motor circuit	INFO
	Evaporator temperature sensor circuit	INFO
	Room temperature sensor circuit	INFO
	Ambient temperature sensor circuit	INFO
	Cooler expansion valve	INFO

	Air conditioning wire	INFO
	No. 2 air conditioning radiator damper servo sub-assembly	INFO
	Air conditioning harness assembly	INFO
	Compressor with motor assembly	INFO
	Air conditioning amplifier assembly	INFO
	Hybrid vehicle control ECU	INFO
	ECM	INFO
Temperature control: No warm air comes out	LIN communication circuit*3	INFO
	Air conditioning control panel circuit*4	INFO
	Air mix damper control servo motor circuit	INFO
	Evaporator temperature sensor circuit	INFO
	Room temperature sensor circuit	INFO
	Ambient temperature sensor circuit	INFO
	No. 2 air conditioning radiator damper servo sub-assembly	INFO
	Air conditioning harness assembly	INFO
	Air conditioning amplifier assembly	INFO
	Hybrid vehicle control ECU	INFO
	ECM	INFO

	Refrigerant shortage check using the Techstream	INFO
	Refrigerant volume	-
	Refrigerant pressure	INFO
	Solar sensor circuit*1, *5	INFO
	Solar sensor circuit*1, *6	INFO
	Solar sensor circuit*2	INFO
	Air conditioning wire	INFO
	Room temperature sensor circuit	INFO
	Ambient temperature sensor circuit	INFO
	LIN communication circuit*3	INFO
	Air conditioning control panel circuit*4	INFO
Temperature control: Output air is warmer or cooler than the set temperature or response is slow	Air mix damper control servo motor circuit	INFO
	Air inlet damper control servo motor circuit	INFO
	Heater radiator unit sub-assembly	INFO
	Cooler expansion valve	INFO
	No. 2 air conditioning radiator damper servo sub-assembly	INFO
	No. 1 blower damper servo sub-assembly	INFO
	Air conditioning harness assembly	INFO

	Air conditioning amplifier assembly	INFO
	Hybrid vehicle control ECU	INFO
	ECM	INFO
	CAN communication system*1	INFO
Temperature control: No temperature control (only MAX COLD or MAX HOT)	LIN communication circuit*3	INFO
	Air conditioning control panel circuit*4	INFO
	Air mix damper control servo motor circuit	INFO
	Room temperature sensor circuit	INFO
	Ambient temperature sensor circuit	INFO
	Evaporator temperature sensor circuit	INFO
	Solar sensor circuit*1, *5	INFO
	Solar sensor circuit*1, *6	INFO
	Solar sensor circuit*2	INFO
	No. 2 air conditioning radiator damper servo sub-assembly	INFO
	Air conditioning harness assembly	INFO
	Air conditioning amplifier assembly	INFO
	CAN communication system*1	INFO
	Refrigerant shortage check using the Techstream	INFO
	Refrigerant volume	-

Temperature control: Output air temperature is different between left and right registers (the set temperature is the same for both)	Refrigerant pressure	INFO
	Air mix damper control servo motor circuit	INFO
	Automatic light control sensor	INFO
	No. 2 air conditioning radiator damper servo sub-assembly	INFO
	Air conditioning harness assembly	INFO
	Air conditioning amplifier assembly	INFO
No air inlet control	LIN communication circuit*3	INFO
	Air conditioning control panel circuit*4	INFO
	Air inlet damper control servo motor circuit	INFO
	No. 1 blower damper servo sub-assembly	INFO
	Air conditioning harness assembly	INFO
	Air conditioning amplifier assembly	INFO
No air flow mode control	LIN communication circuit*3	INFO
	Air conditioning control panel circuit*4	INFO
	Air outlet damper control servo motor circuit (for driver side)	INFO
	Air outlet damper control servo motor circuit (for front passenger side)	INFO
	No. 2 air conditioning radiator damper servo sub-assembly	INFO

	No. 1 air conditioning radiator damper servo sub-assembly	INFO
	Air conditioning harness assembly	INFO
	Air conditioning amplifier assembly	INFO
Diagnostic trouble codes (DTCs) are not recorded. Set mode is cleared when the power switch is turned off	Back-up power source circuit	INFO
	Air conditioning amplifier assembly	INFO

*1: w/ Automatic Light Control
*2: w/o Automatic Light Control
*3: except 11.6 Inch Display
*4: for 11.6 Inch Display
*5: w/ AFS
*6: w/o AFS

Last Modified: 01-14-2019	6.8:8.0.48	**Doc ID:** RM1000000018JLA
Model Year Start: 2018	**Model:** Prius	**Prod Date Range:** [11/2017 -]
Title: HEATING / AIR CONDITIONING: AIR CONDITIONING SYSTEM: SYSTEM DESCRIPTION; 2018 - 2019 MY Prius [11/2017 -]		

SYSTEM DESCRIPTION

GENERAL

The air conditioning system has the following controls.

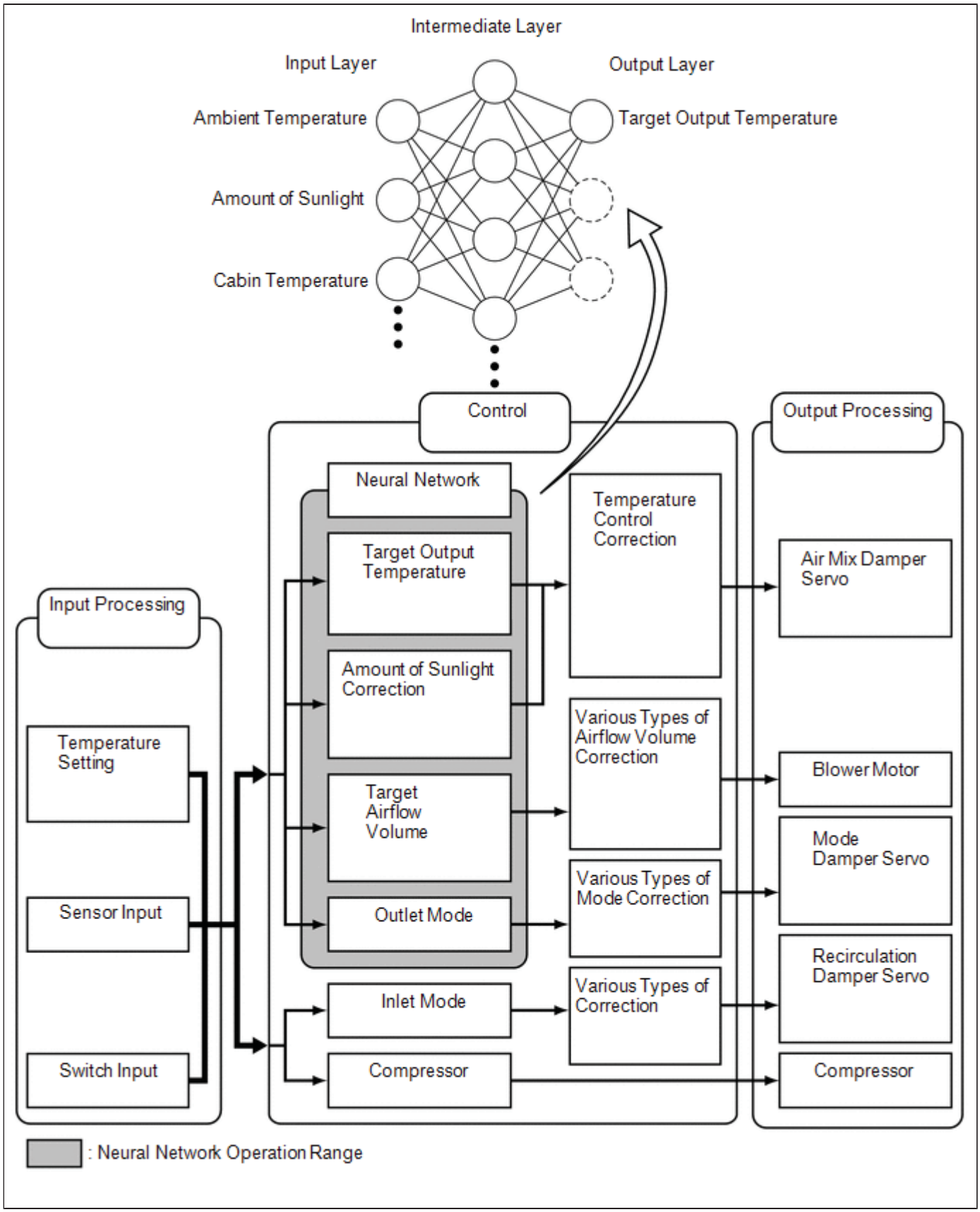
CONTROL	OUTLINE
Neural Network Control	This control is capable of performing complex control by artificially simulating the information processing method of the nervous system of living organisms in order to establish a complex input/output relationship similar to that of a human brain.
Outlet Air Temperature Control	Based on the temperature set by the temperature control dial, neural network control calculates outlet air temperature based on input signals from various sensors.
Blower Control	Controls the blower motor in accordance with the airflow volume that has been calculated by neural network control based on input signals from various sensors.
Air Outlet Control	Automatically switches the air outlets in accordance with the outlet mode that has been calculated by neural network control.
	In accordance with the engine coolant temperature, ambient air temperature, amount of sunlight, required blower, outlet temperature and vehicle speed conditions, this control automatically switches the blower outlet to foot/defroster mode to prevent the windows from becoming fogged up when the ambient air temperature is low.
Air Inlet Control	Automatically controls the air inlet control damper to help achieve the calculated outlet air temperature that is required.
	Drives the air inlet control servo motor according to the operation of the air inlet control switch and moves the dampers to the fresh or recirculation position.
Electric Inverter Compressor Control	Based on the target evaporator temperature (which is calculated through signals from the cooler (room temp. sensor) thermistor, thermistor assembly and automatic light control sensor) and the actual evaporator temperature that is detected by the No. 1 cooler thermistor the air conditioning amplifier assembly calculates the target compressor speed and controls the compressor speed.
	The air conditioning amplifier assembly calculates the target evaporator temperature (based on signals from the cooler (room temp. sensor) thermistor, thermistor assembly, automatic light control sensor and No. 1 cooler thermistor) and controls the compressor speed to an extent that will not inhibit proper cooling performance and defogging performance.
	Turns the A/C on automatically when the AUTO button is pressed when the blower is on and the A/C is off.
	Decreases the compressor speed in order to ensure quietness when the vehicle is stopped or the engine is off.
Defroster Control	Defroster control logic is used to improve defroster performance.
S-FLOW Control	When the S-FLOW switch is turned on, the air outlets operate in a front seat control mode.
Rear	Refer to Rear Defogger System.

Defogger Control	Click here INFO
ECO Mode Control	When the pattern select switch assembly (DRIVE MODE switch) or air conditioning control assembly (ECO HEAT/COOL switch) is turned on, the air conditioning amplifier assembly limits the air conditioning system performance.
Diagnosis	A Diagnostic Trouble Code (DTC) is stored in memory when the air conditioning amplifier assembly detects a problem with the air conditioning system.

NEURAL NETWORK CONTROL

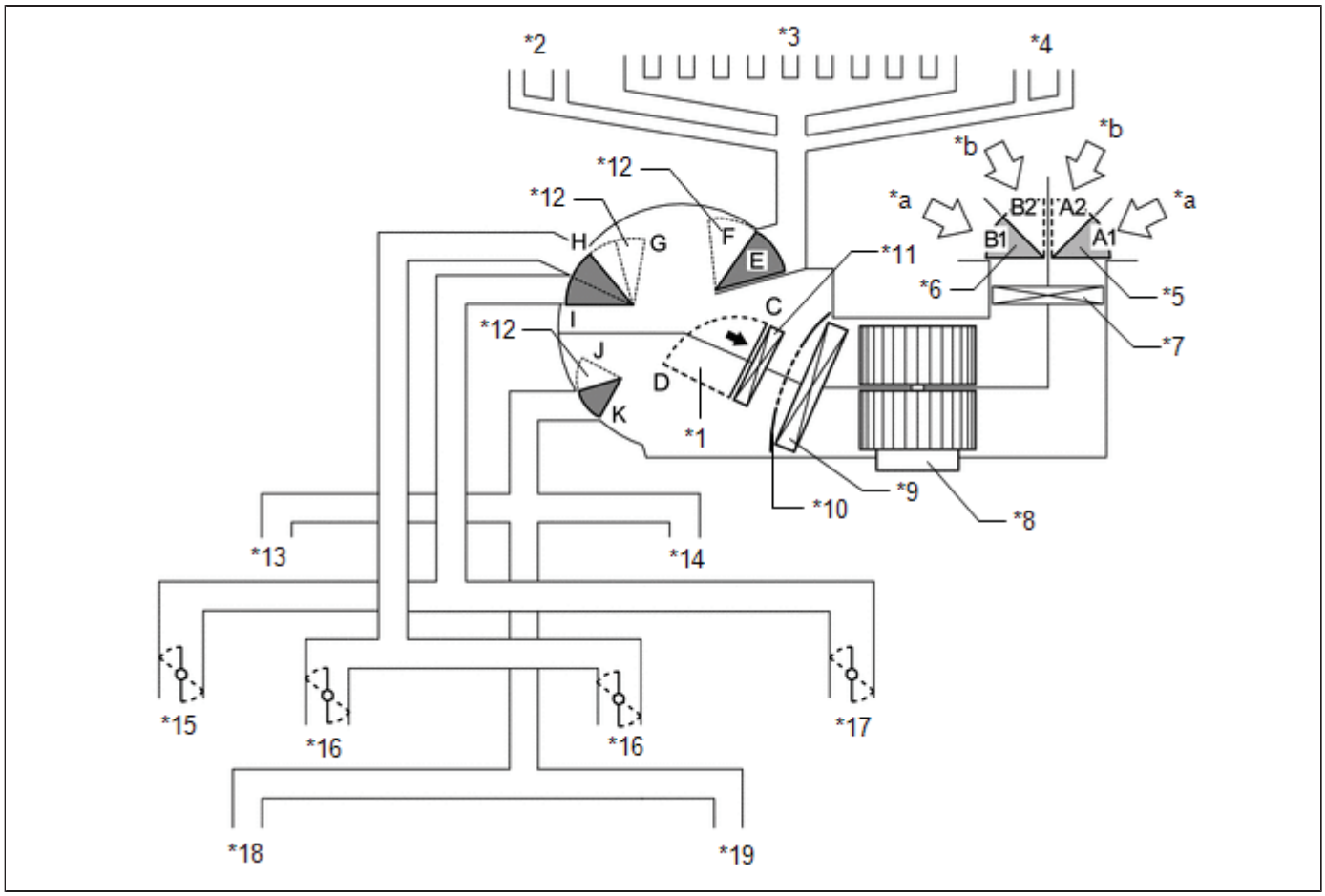
- In previous automatic air conditioning systems, the air conditioning amplifier assembly determined the required outlet air temperature and blower air volume in accordance with the calculation formula that has been obtained based on information received from the sensors.

  However, because the senses of a person are rather complex, a given temperature is sensed differently, depending on the environment in which the person is situated. For example, a given amount of solar radiation can feel comfortably warm in a cold climate, or extremely uncomfortable in a hot climate. Therefore, as a technique for effecting a higher level of control, a neural network has been adopted in the automatic air conditioning system. With this technique, the data that has been collected under varying environmental conditions is stored in the air conditioning amplifier assembly. The air conditioning amplifier assembly can then effect control to provide enhanced air conditioning comfort.
- The neural network control consists of neurons in the input layer, intermediate layer and output layer. The input layer neurons process the input data of the outside temperature, the amount of sunlight and the room temperature based on the outputs of the switches and sensors, and output them to the intermediate layer neurons. Based on this data, the intermediate layer neurons adjust the strength of the links among the neurons. The sum of these is then calculated by the output layer neurons in the form of the required outlet temperature, solar correction, target airflow volume and outlet mode control volume. Accordingly, the air conditioning amplifier assembly controls the servo motors and blower motor in accordance with the control volumes that have been calculated by the neural network control.



MODE POSITION AND DAMPER OPERATION

(a) Mode Position and Damper Operation



*1	Air Mix Control Damper	*2	Driver Side Side Defroster
*3	Front Defroster	*4	Front Passenger Side Side Defroster
*5	Air Inlet Control Damper (Lower Side)	*6	Air Inlet Control Damper (Upper Side)
*7	Clean Air Filter	*8	Blower with Fan Motor Sub-assembly
*9	No. 1 Cooler Evaporator Sub-assembly	*10	Air Mix Control Damper
*11	Heater Radiator Unit Sub-assembly	*12	Mode Switching Damper
*13	Driver Side Footwell Register	*14	Front Passenger Side Footwell Register
*15	Driver Side Side Register	*16	Center Register
*17	Front Passenger Side Side Register	*18	Driver Side Rear Footwell Register
*19	Front Passenger Side Rear Footwell Register	-	-
*a	Recirculated Air	*b	Fresh Air

Functions of Main Dampers

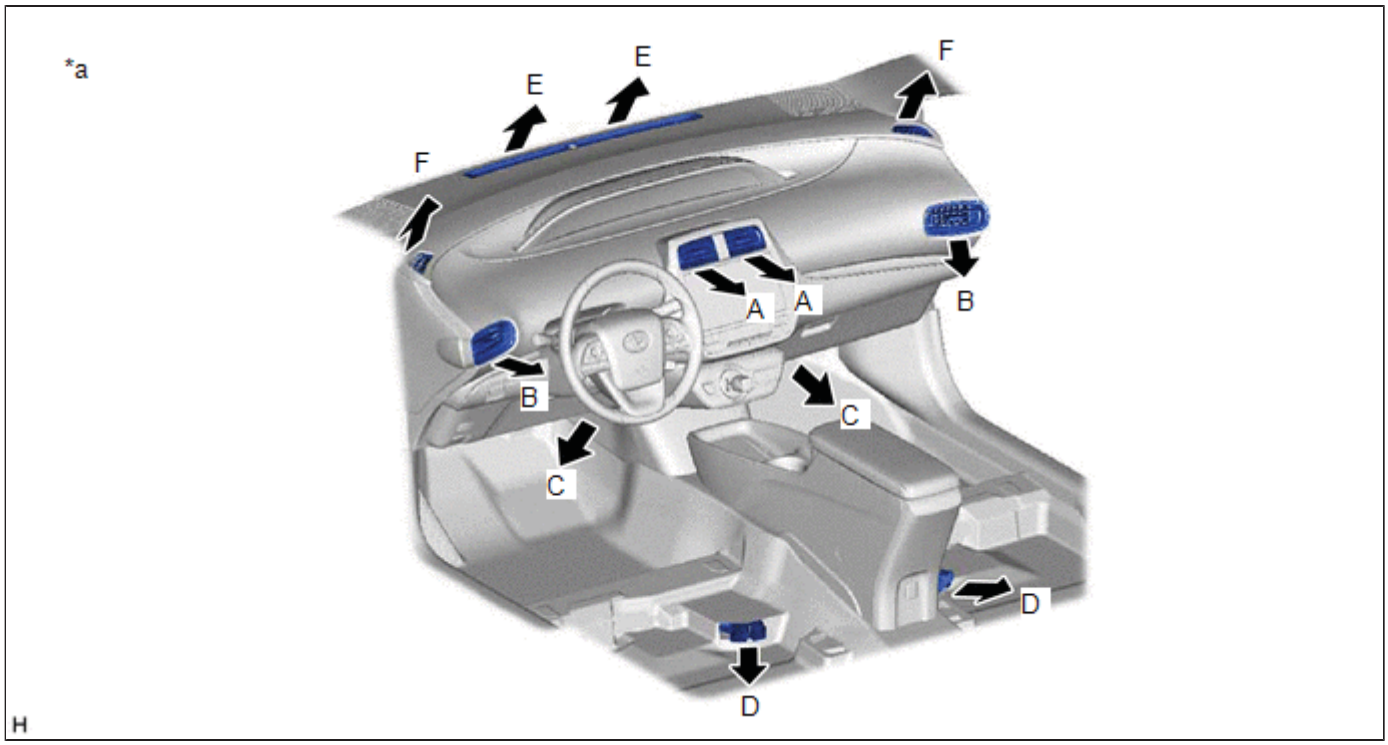
CONTROL DAMPER	OPERATION POSITION	DAMPER POSITION	OPERATION
Air Inlet Control Damper	FRESH	A1, B1	Allows fresh air to enter.
	RECIRCULATION	A2, B2	Causes internal air to recirculate.
Air Mix Control	Temperature Setting: 16°C (61°F) to 30°C	C1 - C2	Varies the front passenger side mixture ratio of the fresh air and the recirculation air in order to regulate the temperature continuously from HI to LO.

Damper	(86°F)	D2 - D1	Varies the driver side mixture ratio of the fresh air and the recirculation air in order to regulate the temperature continuously from HI to LO.
Air Outlet Control Damper	DEF 	F, H, K	Defrosts the windshield through the center defroster, side defrosters and side registers.
	FOOT/DEF 	F, H, J to K	Defrosts the windshield through the center defroster, side defrosters and side registers, while air is also blown out from the front and rear footwell register ducts.
	FOOT 	E, (E to F)*, H, J	Air blows out of the front and rear footwell register ducts and side registers. In addition, air blows out slightly from the center defroster and side defrosters.
	B/L 	E, G to I, J to K	Air blows out of the center registers, side registers and front and rear footwell register ducts.
	FACE 	E, G, K	Air blows out of the center registers and side registers.

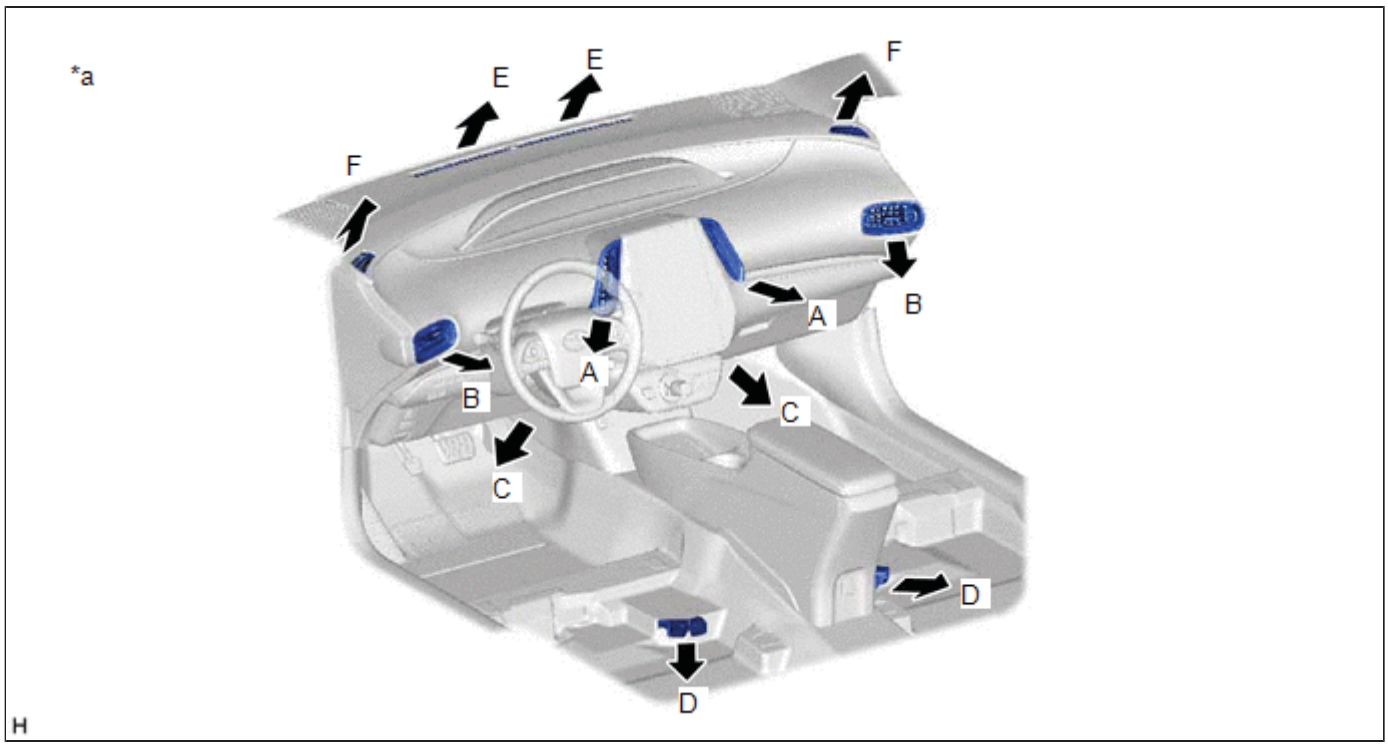
AIR OUTLETS AND AIRFLOW VOLUME

The size of each circle ○ indicates the ratio of airflow volume.

(a) Air Outlets and Airflow Volume (for All Seat Control Modes).



*a	for 7 Inch Display	-	-

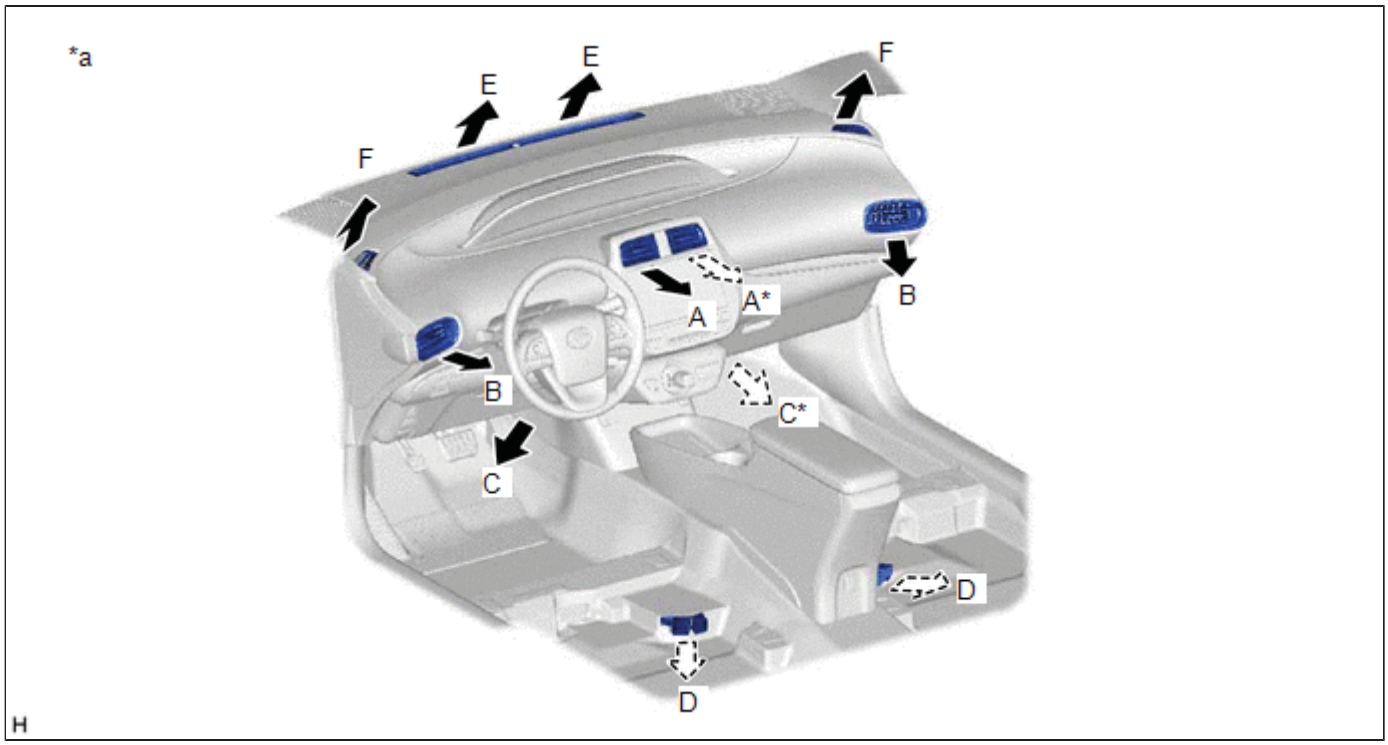


*a	for 11.6 Inch Display	-	-

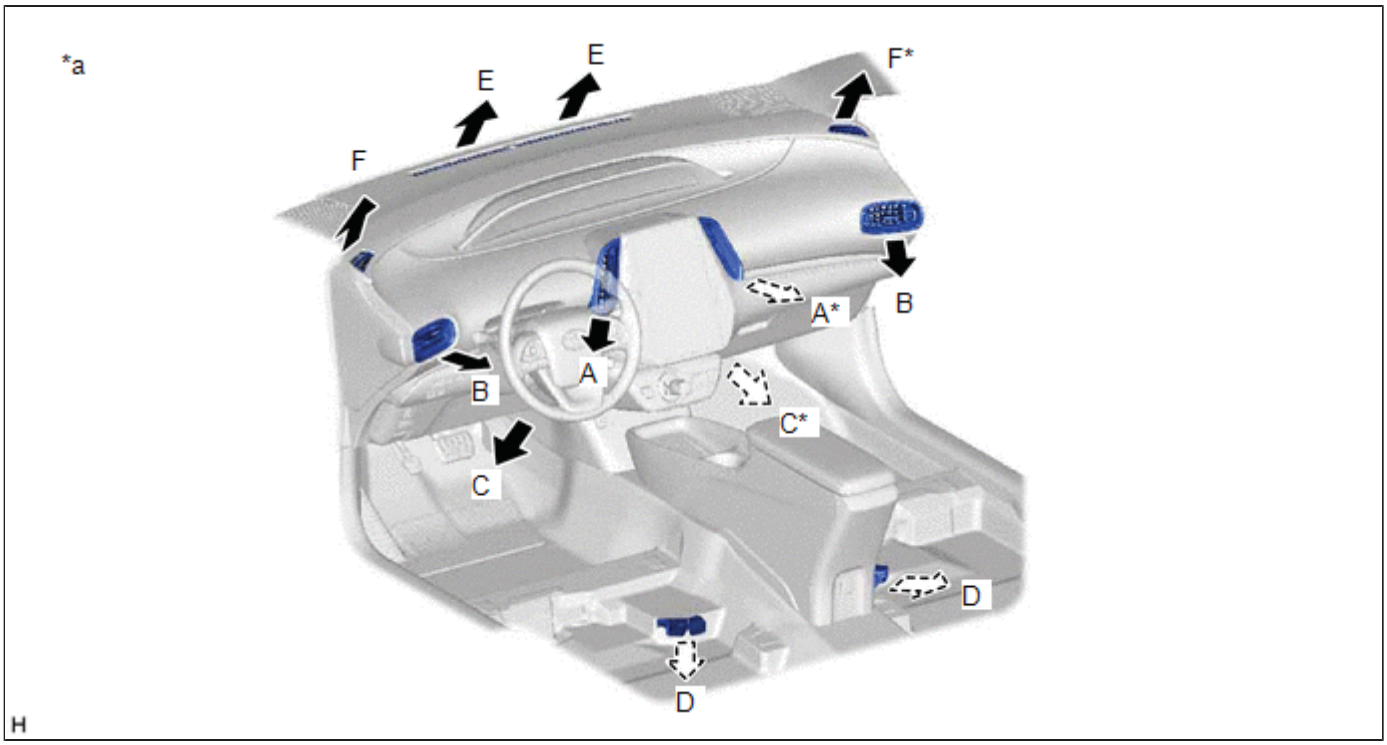
MODE	FACE		FOOT		DEF	
	CENTER	SIDE	FRONT	REAR	CENTER	SIDE
	A	B	C	D	E	F
FACE						

	○	○	—	—	—	—
B/L	○	○	○	○	—	∘
FOOT	—	∘	○	○	∘	∘
FOOT/DEF	—	∘	○	○	○	∘
DEF	—	○	—	—	○	○

(b) Air Outlet and Airflow Volume (for Front Seat Control Modes).



*a	for 7 Inch Display	-	-



*a	for 11.6 Inch Display	-	-

*: Airflow is stopped when the front passenger seat is not occupied.

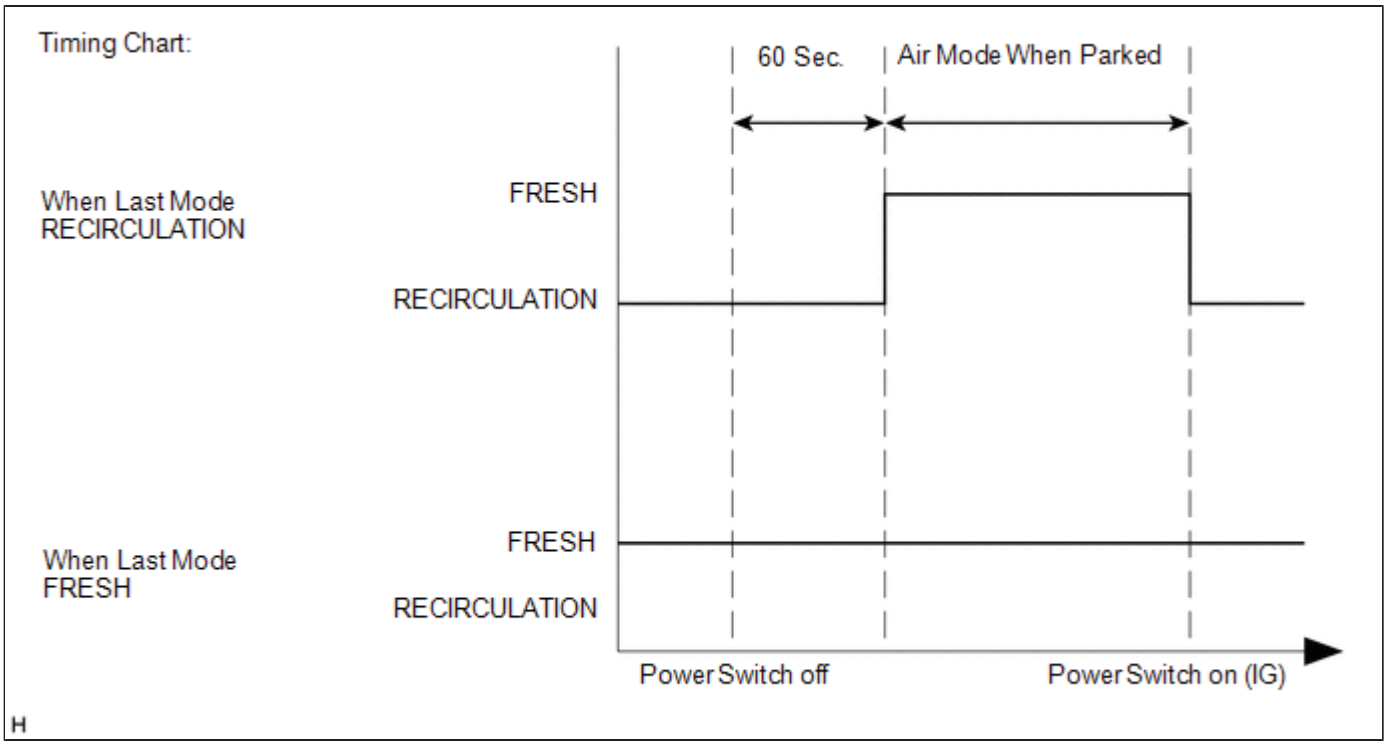
MODE	FACE		FOOT		DEF	
	CENTER	SIDE	FRONT	REAR	CENTER	SIDE
	A	B	C	D	E	F
FACE	○	○	—	—	—	—
B/L	○	○	○	—	—	∘
FOOT	—	∘	○	—	∘	∘
FOOT/DEF	—	∘	○	—	○	∘
DEF						

	—	○	—	—	○	○

PARKING FRESH CONTROL

When 60 seconds have elapsed since the power switch has been turned off, the air conditioning amplifier assembly uses control logic which automatically changes the air inlet to FRESH mode to purge undesired odors from the air conditioning unit.

This logic will therefore reduce undesired odors upon starting the air conditioning system.



COMPRESSOR WITH MOTOR ASSEMBLY

(a) General

HINT:

In order to ensure the proper insulation of the internal high-voltage portion of the compressor and the compressor housing, this vehicle has adopted a compressor oil (ND-OIL 11) with a high level of insulation performance. Therefore, never use a compressor oil other than ND-OIL 11 type compressor oil or equivalent.

(1) Along with the use of the hybrid system on this vehicle, an electric inverter compressor that is driven by a motor is used. The basic construction and operation of this compressor are the same as an ordinary scroll compressor, except that it is driven by an electric motor.

(2) The Air Conditioning (A/C) inverter is integrated into the compressor with motor assembly.

(3) The electric motor is actuated by 3-phase alternating current (244.8 V) supplied by the A/C inverter. As a result, the air conditioning control system on this vehicle is actuated without depending on the operation of the engine, thus realizing a comfortable air conditioning system and low fuel consumption.

(4) Due to the use of an electric inverter compressor, the compressor speed can be controlled at the required speed calculated by the air conditioning amplifier assembly. Thus, the cooling and dehumidification performance and power consumption have been optimized.

(5) Low-moisture permeation hoses are used for the suction and discharge hoses at the compressor in order to

minimize the entry of moisture into the refrigeration cycle.

(6) The compressor uses high-voltage alternating current. If a short or open circuit occurs in the compressor, the hybrid vehicle control ECU will cut off the A/C inverter circuit in order to stop the power supply to the compressor motor.

(b) Compressor Speed Control

(1) The air conditioning amplifier assembly calculates the target compressor speed based on the target evaporator temperature (calculated from the temperature control switch, cooler (room temp. sensor) thermistor, thermistor assembly, and automatic light control sensor) and the actual evaporator temperature detected by the No. 1 cooler thermistor. Then, the air conditioning amplifier assembly transmits the target speed to the hybrid vehicle control ECU. The hybrid vehicle control ECU controls the A/C inverter based on the target speed data in order to control the compressor to a speed that suits the operating condition of the air conditioning system.

(2) The air conditioning amplifier assembly calculates the target evaporator temperature (based on signals from the cooler (room temp. sensor) thermistor, thermistor assembly, automatic light control sensor and No. 1 cooler thermistor) and controls the compressor speed to an extent that will not inhibit proper cooling performance and defogging performance. As a result, comfort and low fuel consumption can be realized.

NO. 1 COOLER THERMISTOR

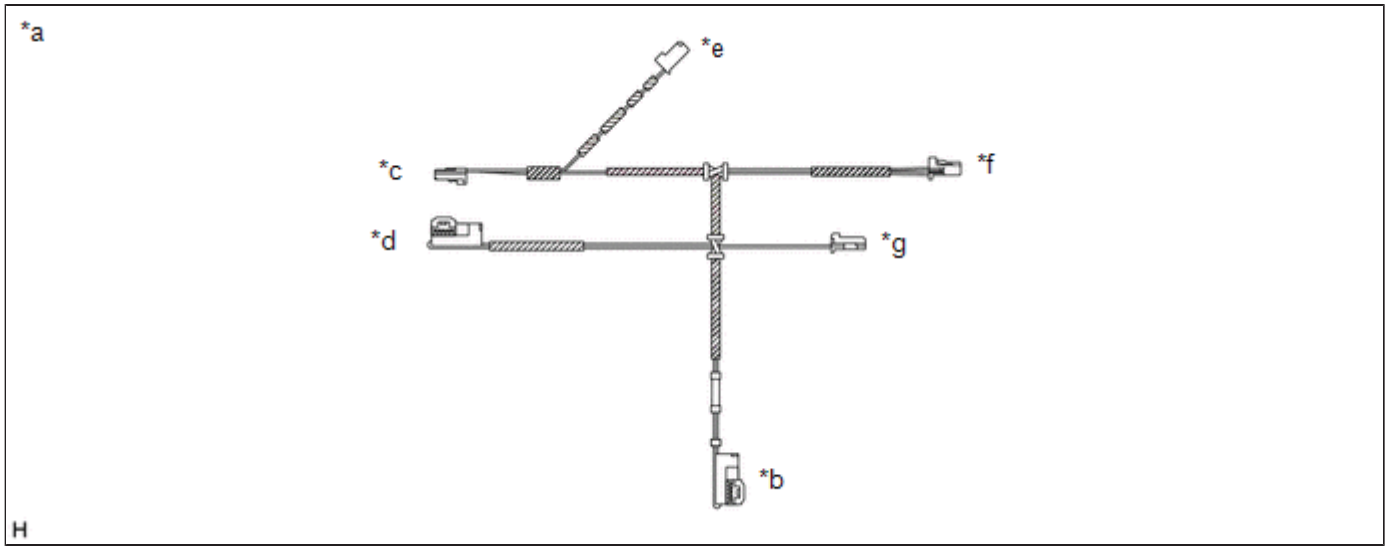
The No. 1 cooler thermistor detects the temperature of the cool air immediately after the evaporator in the form of resistance changes, and outputs it to the air conditioning amplifier assembly.

BLOWER MOTOR WITH FAN SUB-ASSEMBLY

The blower motor has a built-in blower controller, and is controlled using duty control performed by the air conditioning amplifier assembly.

BUS CONNECTOR (AIR CONDITIONING HARNESS ASSEMBLY)

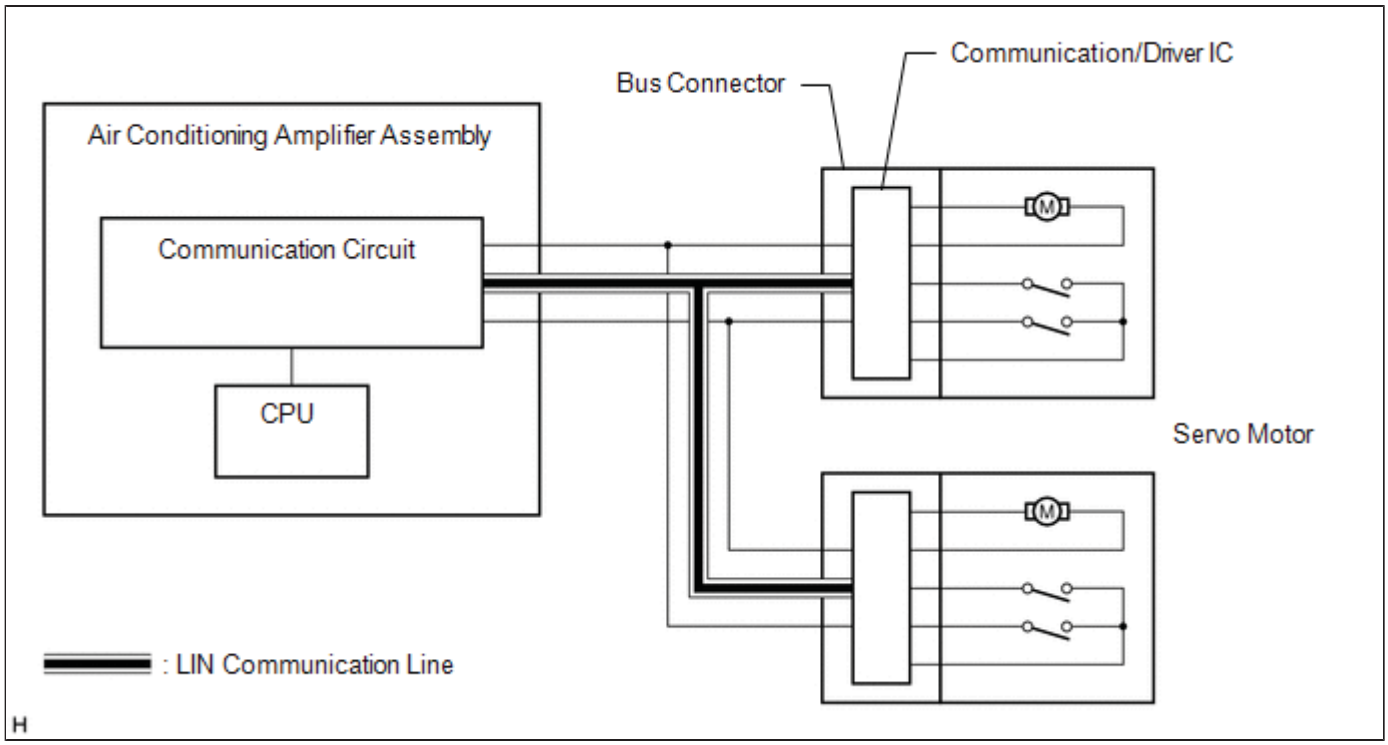
(a) Bus connectors are used in the wire harness that connects the servo motors to the air conditioning amplifier assembly.



*a	Example	*b	Bus Connector (to No. 1 Air Conditioning Radiator Damper Servo Sub-assembly)
*c	Bus Connector (to No. 2 Air Conditioning Radiator Damper Servo Sub-assembly)	*d	Bus Connector (to No. 3 Air Conditioning Radiator Damper Servo Sub-assembly)
*e	Bus Connector (to No. 1 Blower Damper Servo Sub-	*f	to Air Conditioning Amplifier Assembly

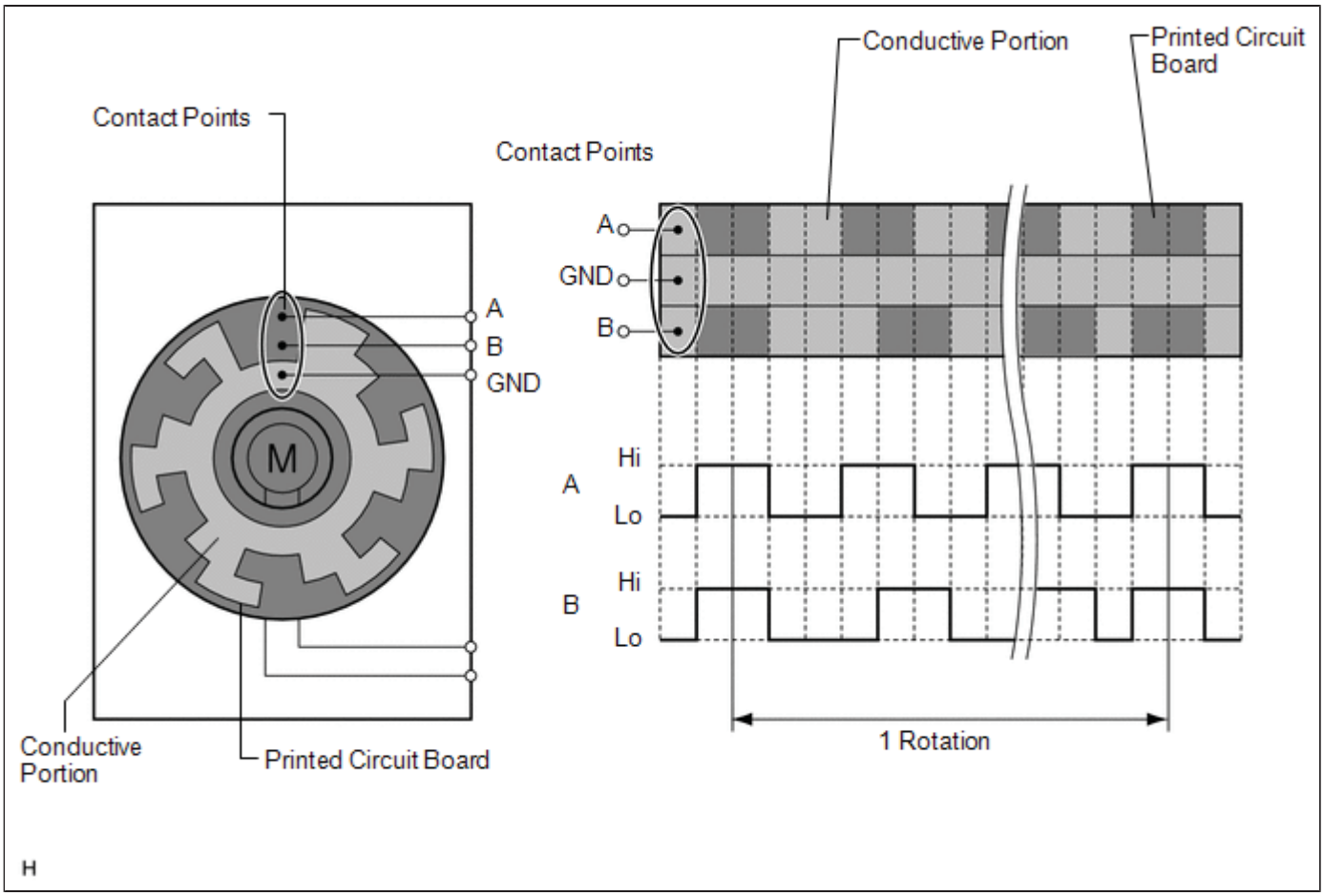
	assembly)		
*g	to No. 1 Cooler Thermistor	-	-

(b) Each bus connector has a built-in communication/driver IC which communicates with the air conditioning amplifier assembly, actuates the servo motor, and has a position detection function. This enables bus communication for the servo motor wire harness, for a more lightweight construction and a reduced number of wires.



SERVO MOTOR

A pulse pattern type servo motor consists of a printed circuit board and a servo motor. The printed circuit board has three contact points, and can transmit two ON-OFF signals to the air conditioning amplifier assembly based on the difference of the pulse phases. The bus connector can detect the damper position and movement direction with these signals.



AIR CONDITIONING THERMISTOR ASSEMBLY (w/ Humidity Sensor)

The air conditioning thermistor assembly detects the amount of raindrops on the windshield glass, the temperature of the windshield glass, and the temperature and humidity around the windshield glass and sends signals to the air conditioning amplifier assembly.

COOLER (ROOM TEMP. SENSOR) THERMISTOR

The cooler (room temp. sensor) thermistor detects the cabin temperature based on changes in the resistance of its built-in thermistor and sends a signal to the air conditioning amplifier assembly.

THERMISTOR ASSEMBLY

The thermistor assembly detects the outside temperature based on changes in the resistance of its built-in thermistor and sends a signal to the air conditioning amplifier assembly.

AUTOMATIC LIGHT CONTROL SENSOR

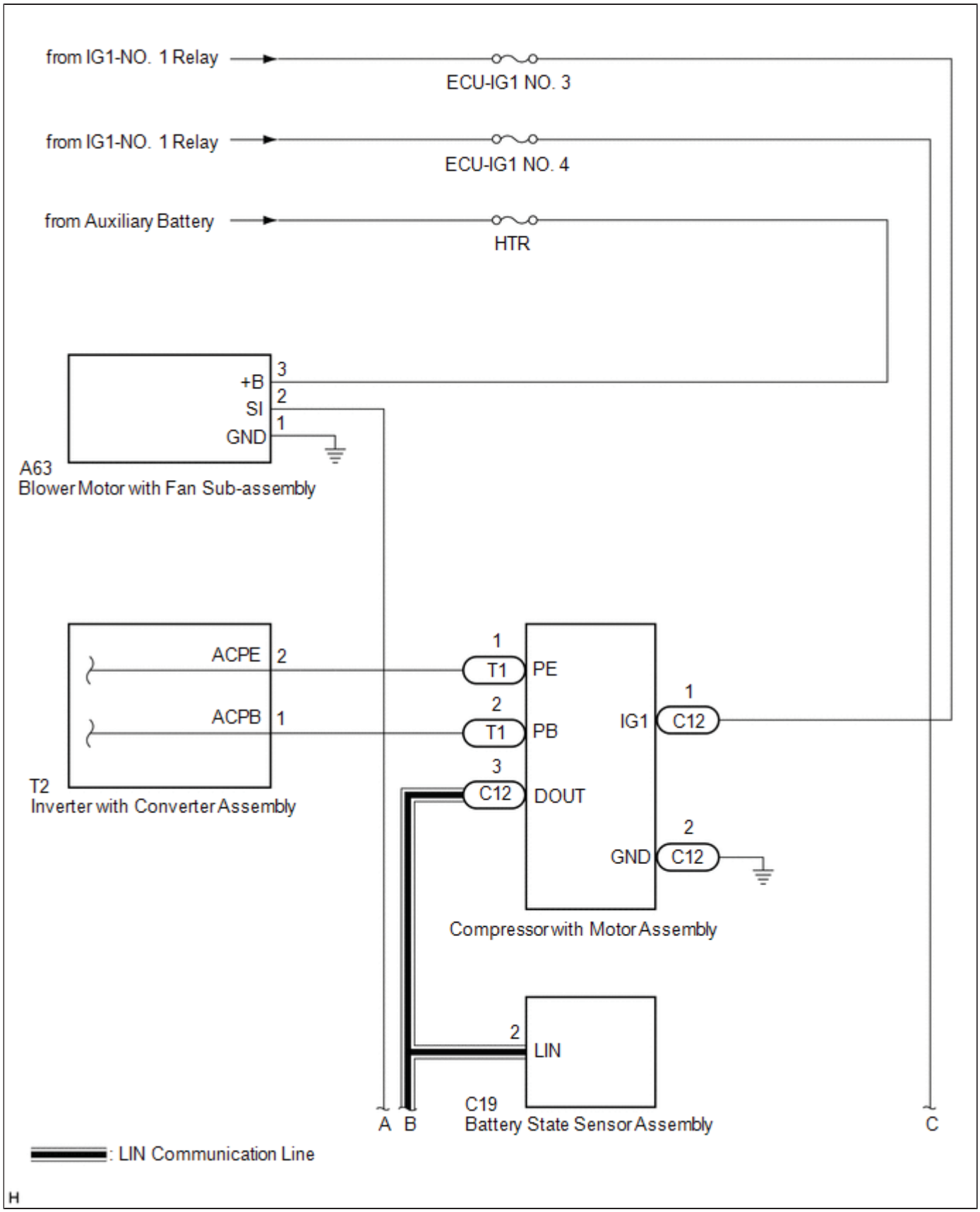
The automatic light control sensor detects (in the form of changes in the current that flows through the built-in photo diode) the changes in the amount of sunlight and outputs these sunlight strength signals to the air conditioning amplifier assembly.

AIR CONDITIONER PRESSURE SENSOR

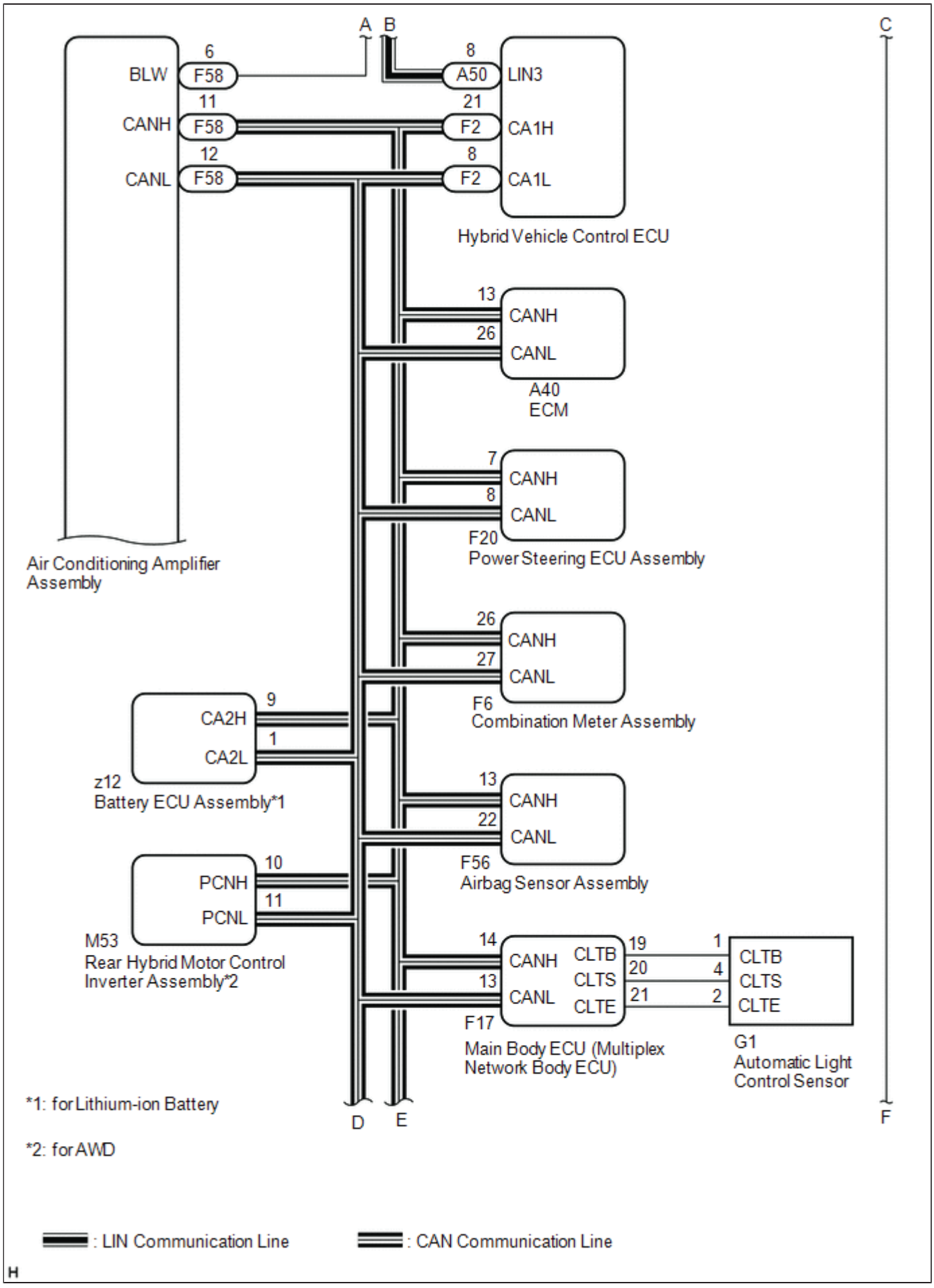
The air conditioner pressure sensor detects the refrigerant pressure and outputs it to the air conditioning amplifier assembly in the form of voltage changes.

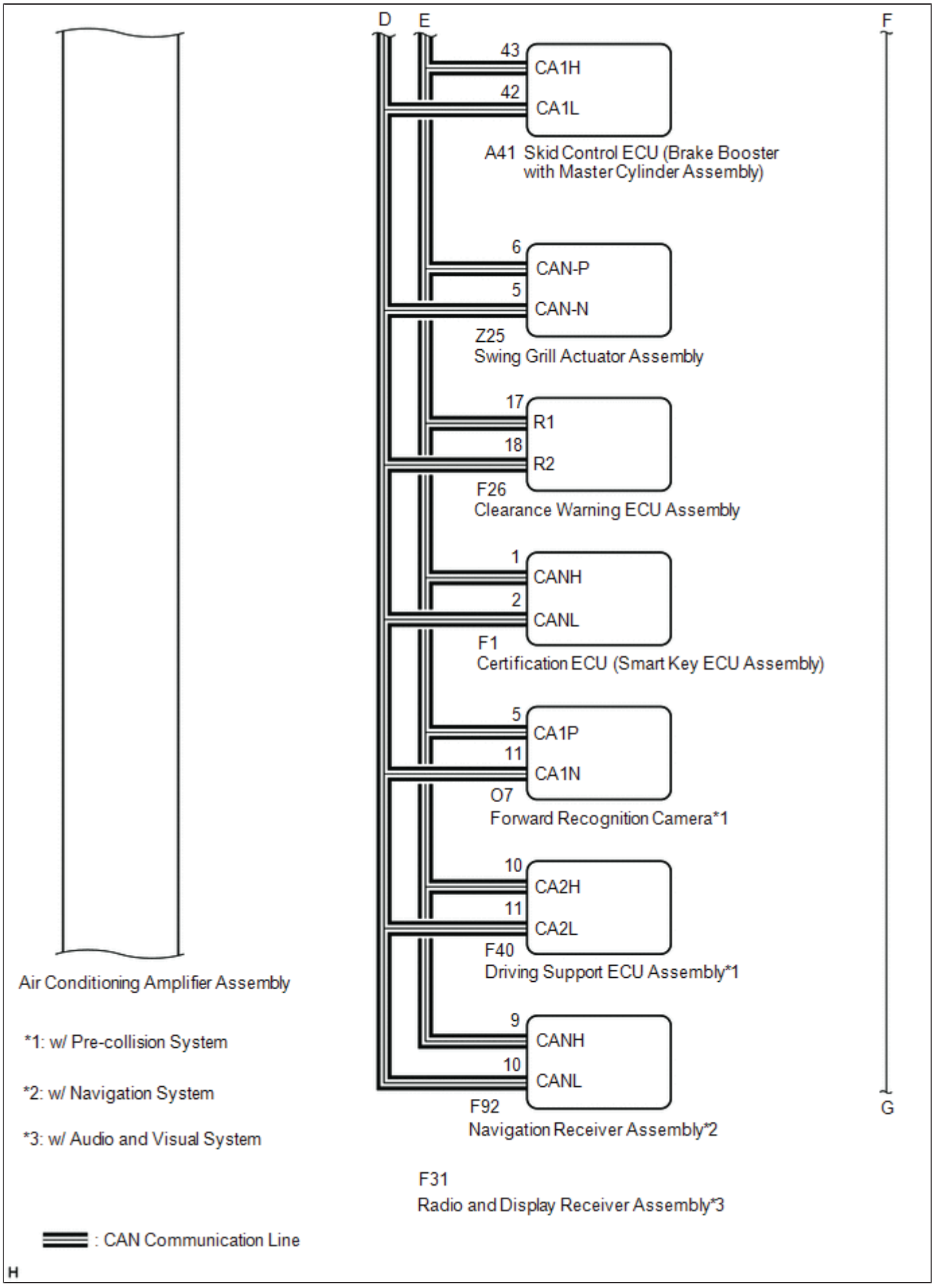
Last Modified: 01-14-2019	6.8:8.0.48	**Doc ID:** RM100000001FLBG
Model Year Start: 2019	**Model:** Prius	**Prod Date Range:** [12/2018 -]
Title: HEATING / AIR CONDITIONING: AIR CONDITIONING SYSTEM: SYSTEM DIAGRAM; 2019 MY Prius [12/2018 -]		

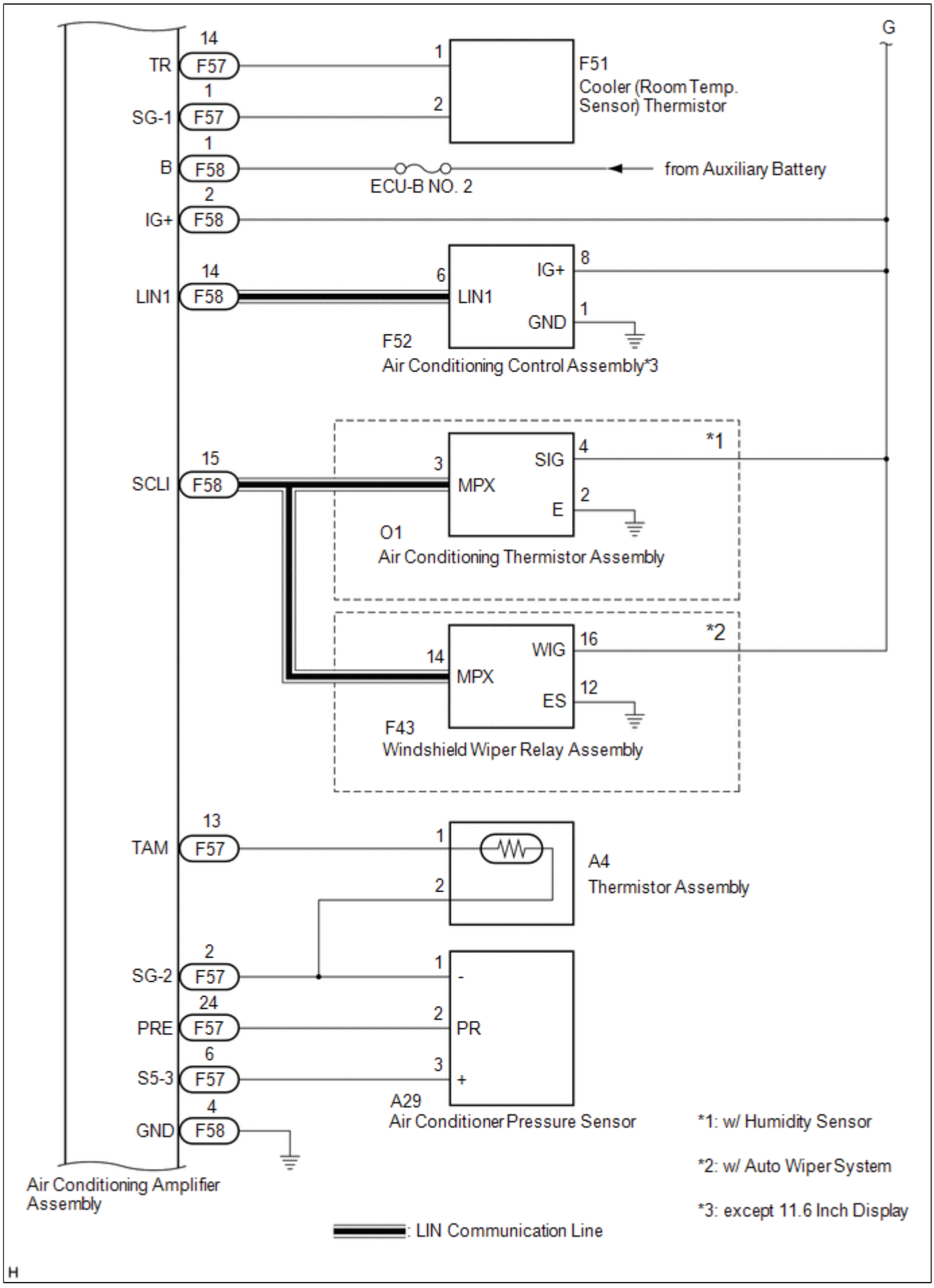
SYSTEM DIAGRAM

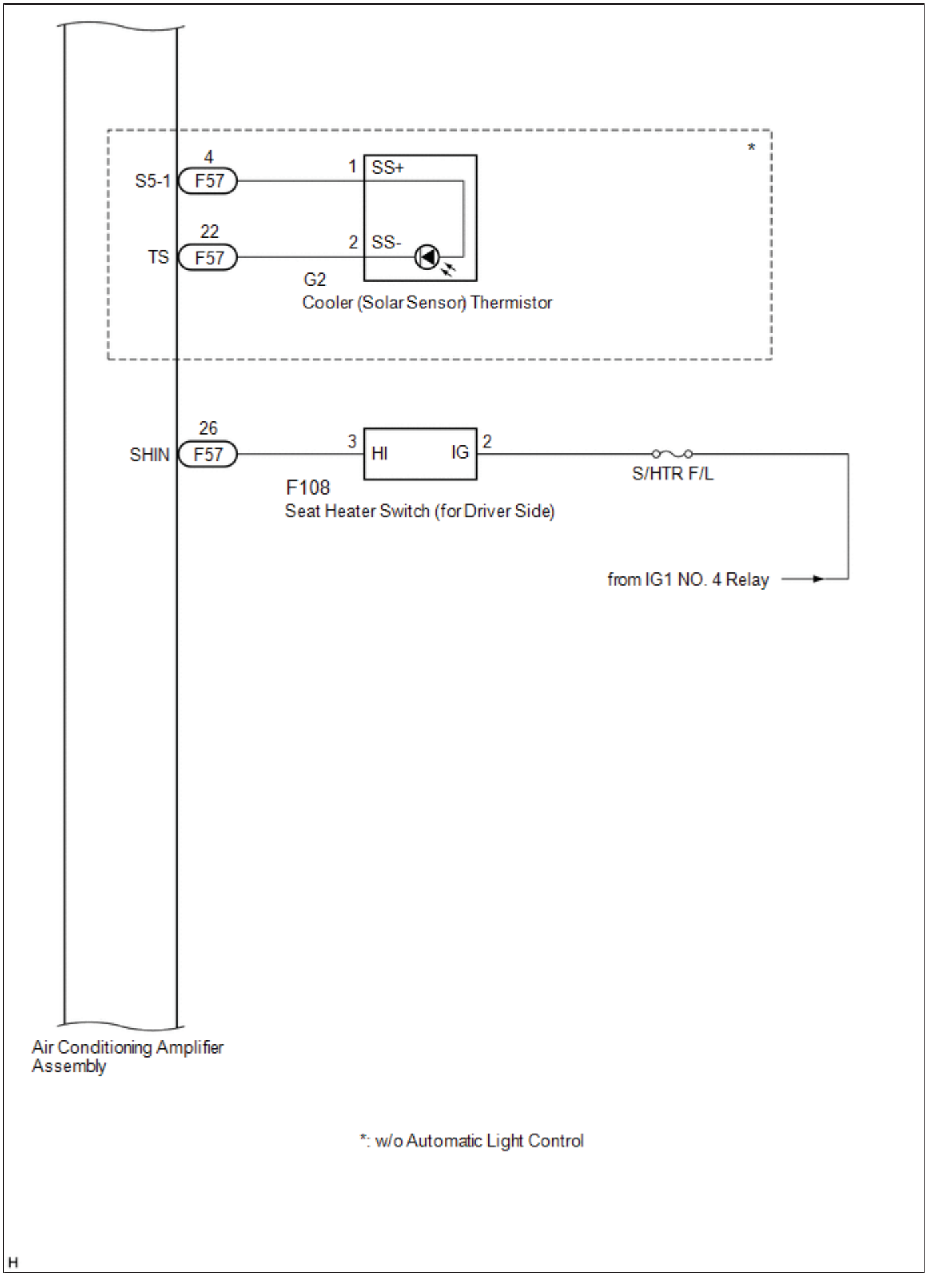

from IG1-NO. 1 Relay
ECU-IG1 NO. 3
from IG1-NO. 1 Relay
ECU-IG1 NO. 4
from Auxiliary Battery
HTR
+B
SI
GND
3
2
1
A63
Blower Motor with Fan Sub-assembly
ACPE
ACPB
2
1
T2
Inverter with Converter Assembly
1
T1
PE
2
T1
PB
3
C12
DOUT
IG1
C12
1
GND
C12
2
Compressor with Motor Assembly
2
LIN
C19
Battery State Sensor Assembly
A
B
C
: LIN Communication Line

H


A
B
C
BLW
6
F58
8
A50
LIN3
CANH
11
F58
21
F2
CA1H
CANL
12
F58
8
F2
CA1L
Hybrid Vehicle Control ECU
13
CANH
26
CANL
A40
ECM
7
CANH
8
CANL
F20
Power Steering ECU Assembly
Air Conditioning Amplifier Assembly
26
CANH
27
CANL
F6
Combination Meter Assembly
9
CA2H
1
CA2L
z12
Battery ECU Assembly*1
13
CANH
22
CANL
F56
Airbag Sensor Assembly
10
PCNH
11
PCNL
M53
Rear Hybrid Motor Control Inverter Assembly*2
14
CANH
13
CANL
CLTB
CLTS
CLTE
19
20
21
1
4
2
CLTB
CLTS
CLTE
F17
Main Body ECU (Multiplex Network Body ECU)
G1
Automatic Light Control Sensor
D
E
F
*1: for Lithium-ion Battery
*2: for AWD
: LIN Communication Line
: CAN Communication Line
H

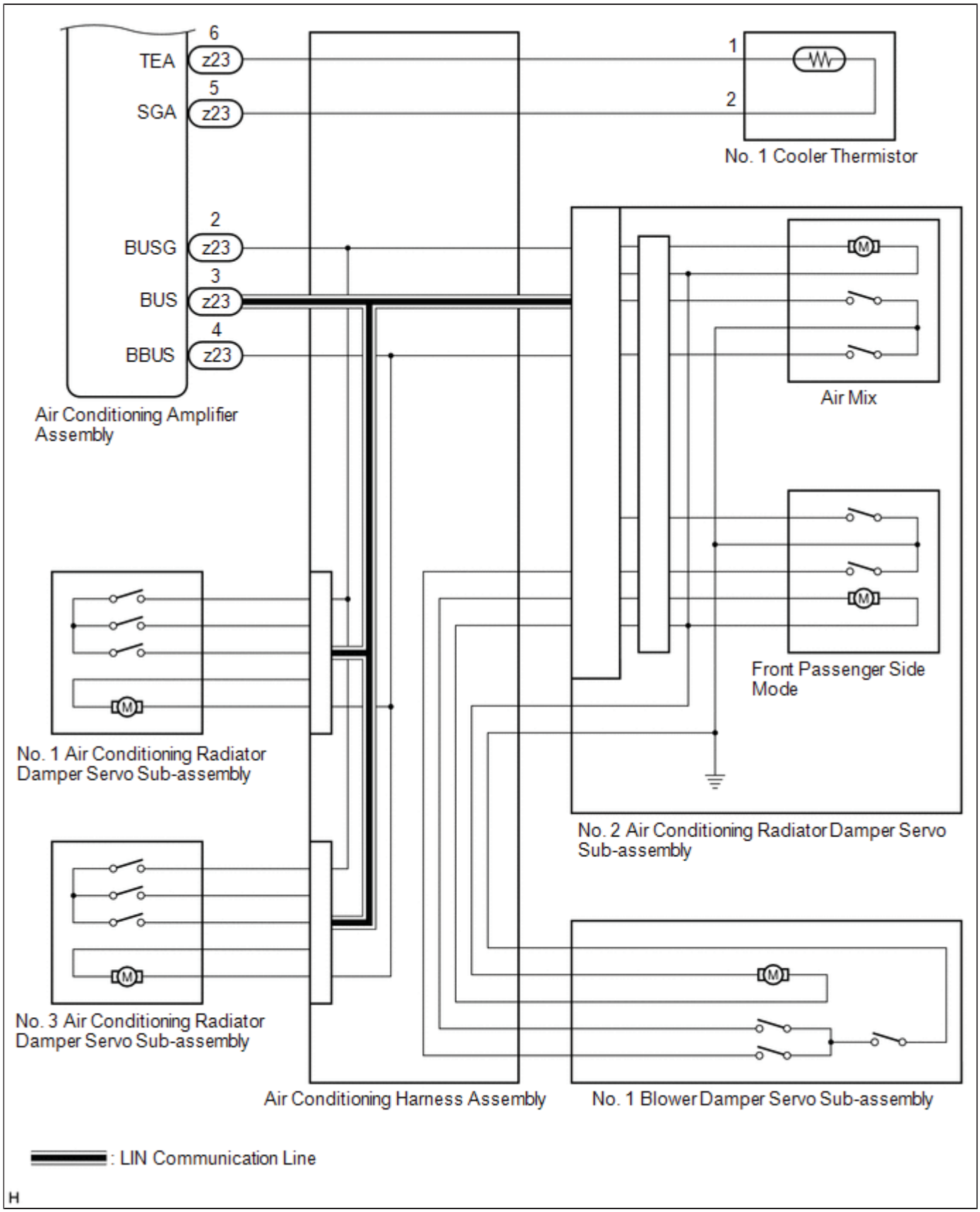

D
E
F
43
CA1H
42
CA1L
A41 Skid Control ECU (Brake Booster with Master Cylinder Assembly)
6
CAN-P
5
CAN-N
Z25
Swing Grill Actuator Assembly
17
R1
18
R2
F26
Clearance Warning ECU Assembly
1
CANH
2
CANL
F1
Certification ECU (Smart Key ECU Assembly)
5
CA1P
11
CA1N
O7
Forward Recognition Camera*1
10
CA2H
11
CA2L
F40
Driving Support ECU Assembly*1
9
CANH
10
CANL
F92
Navigation Receiver Assembly*2
F31
Radio and Display Receiver Assembly*3
G
Air Conditioning Amplifier Assembly
*1: w/ Pre-collision System
*2: w/ Navigation System
*3: w/ Audio and Visual System
: CAN Communication Line
H


G
14
TR
F57
1
F51
Cooler (Room Temp. Sensor) Thermistor
1
SG-1
F57
2
1
B
F58
ECU-B NO. 2
from Auxiliary Battery
2
IG+
F58
14
LIN1
F58
6
LIN1
IG+
8
GND
1
F52
Air Conditioning Control Assembly*3
15
SCLI
F58
3
MPX
SIG
4
*1
E
2
O1
Air Conditioning Thermistor Assembly
14
MPX
WIG
16
*2
ES
12
F43
Windshield Wiper Relay Assembly
13
TAM
F57
1
2
A4
Thermistor Assembly
2
SG-2
F57
1
-
24
PRE
F57
2
PR
6
S5-3
F57
3
+
A29
Air Conditioner Pressure Sensor
4
GND
F58
Air Conditioning Amplifier Assembly
*1: w/ Humidity Sensor
*2: w/ Auto Wiper System
*3: except 11.6 Inch Display
: LIN Communication Line
H



*: w/o Automatic Light Control

H



Communication Table

SENDER	RECEIVER	SIGNAL	COMMUNICATION LINE
		Electricity load at low voltage state signal	

Air conditioning amplifier assembly	Hybrid vehicle control ECU	Air conditioner pressure sensor signal	CAN
		Electro motion compressor command acceleration signal	
		In-vehicle temperature signal	
		Transmission system heating performance assistance request signal	
		Blower level indicator signal	
		Heater idle up request signal	
		Engine ON request signal	
		Charging control inhibit signal	
		Electro motion compressor target revolutions signal	
		Ambient temperature before correction signal	
		Ambient temperature display signal	
		Electro motion compressor start signal	
		Humidity control for electro motion compressor start signal	
		A/C cycle state signal	
		Prior A/C control request signal	
		A/C mode signal (EV drive distance)	
		Standby for inverter request signal	
		Inlet state signal (for cooling battery)	
		A/C control state signal	
Air conditioning amplifier assembly	ECM	Air conditioner pressure sensor signal	CAN
		Transmission system heating performance assistance request signal	
		Motor cooling fan drive request signal	
		Water stop valve open request signal	
		Heater idle up request signal	
		Ambient temperature before correction signal	
		Ambient temperature display signal	
		Prior A/C control request signal	
		A/C mode signal (EV drive distance)	
		Recirculation indicator signal	
		Fresh indicator signal	
		A/C indicator signal	
		Blower level indicator signal	

Air conditioning amplifier assembly	Combination meter assembly	Blower manual status signal	CAN
		S-FLOW switch indicator signal	
		A/C on-screen request signal	
		S-FLOW state signal	
		Temperature display signal	
		A/C eco state indicator signal	
		A/C eco judge signal	
		Seat priority indicator request signal	
		Control information signal	
		Switch select information signal	
		In-vehicle temperature signal	
		Ambient temperature display signal	
		Ambient temperature display whole number/decimal (0/0.5°C) signal	
		A/C control state signal	
Air conditioning amplifier assembly	Navigation receiver assembly*1 Radio and display receiver assembly*2	A/C mode signal (EV drive distance)	CAN
		A/C display request signal	
		A/C warning on-screen request signal	
		Switch state control request signal	
		Buzzer on request signal	
		AUTO indicator signal	
		Front defroster indicator signal	
		Rear defogger indicator signal	
		Recirculation indicator signal	
		Fresh indicator signal	
		A/C indicator signal	
		Blower level indicator signal	
		Outlet indicator signal	
		Blower manual status signal	
		S-FLOW switch indicator signal	
		A/C on-screen request signal	
		S-FLOW state signal	
		A/C eco display request signal	
		Temperature display signal	
		A/C energy level signal	
		A/C eco state indicator signal	
		Seat priority indicator request signal	
		A/C screen select information signal	

		Temperature unit select information signal	
		Blower step select information signal	
		Speech recognition level information signal	
		Switch select information signal	
		Destination select information signal	
		Control information signal	
		A/C recirculation/fresh collaborated with navigation information signal	
		Rear defogger drive request signal	
		In-vehicle temperature signal	
		Ambient temperature display signal	
		Ambient temperature display whole number/decimal (0/0.5°C) signal	
		A/C control state signal	
Air conditioning amplifier assembly	Skid control ECU (brake booster with master cylinder assembly)	Ambient temperature before correction signal	CAN
Air conditioning amplifier assembly	Driving support ECU assembly*3	Ambient temperature display signal	CAN
Air conditioning amplifier assembly	Forward recognition camera*3	Ambient temperature display signal	CAN
Air conditioning amplifier assembly	Clearance warning ECU assembly	Ambient temperature display signal	CAN
Air conditioning amplifier assembly	Swing grill actuator assembly	Ambient temperature sensor data signal	CAN
		Air conditioner pressure sensor data signal	
Air conditioning amplifier assembly	Battery ECU assembly*5	In-vehicle temperature signal	CAN
		Front blower level indicator signal	
		Ambient temperature display signal	
		Prior A/C control request signal	
		Inlet state signal (for cooling battery)	
Air conditioning amplifier assembly	Rear hybrid motor control inverter assembly*6	Ambient temperature before correction signal	CAN
		Ambient temperature display signal	
		A/C control state signal	
		A/C ventilation request signal	
		Shift position P signal	
		Shift position R signal	
		Shift position N signal	
		Eco mode indicator signal	
		Auxiliary battery maximum temperature signal	

Hybrid vehicle control ECU	Air conditioning amplifier assembly	IGBDON request signal from HV	CAN
		State of STB (standby) signal	
		Compulsion recycle request signal	
		Compulsion recycle request signal A/C inverter and HV ECU communication signal	
		A/C permission electric power signal	
		READY on signal	
		A/C inverter main voltage signal	
		A/C inverter output signal	
		Motor overload information signal	
		Motor start information signal	
		A/C inverter internal power source malfunction signal	
		STB wire short signal	
		A/C inverter temperature information signal	
		Self-check signal	
		Thermistor cold temperature malfunction signal	
		Inlet air temperature reduction request flag signal	
		A/C motor revolution signal	
		A/C input power signal	
		A/C inverter temperature signal	
		A/C inverter voltage signal	
		A/C Inverter CPU error flag signal	
		A/C Inverter CPU initialization flag signal	
		A/C inverter identification signal	
		HV battery cooling before charging flag signal	
		A/C compressor motor load ratio signal	
		Emergency generating flag signal	
	Air conditioning amplifier	Engine speed data signal	
		Intake air temperature signal	
		Intake air temperature sensor fail flag signal	
		Estimated flux of electric water pump signal	
		Flag for water stop valve close condition signal	

ECM	assembly		CAN
		Compulsory internal air circulation at high coolant temperature command signal	
		Soak timer test failed signal	
		Soak time signal	
		Engine coolant temperature signal	
		Heater water temperature signal	
		ETHW calculated in engine control signal	
Combination meter assembly	Air conditioning amplifier assembly	Vehicle speed signal	CAN
		Front passenger side seat occupant status signal	
		S-FLOW on/off signal	
		Blower customize signal	
		Eco air conditioning switch signal	
		Blower up switch signal	
		Blower down switch signal	
		Recirculation/fresh switch signal	
		TEMP up switch signal	
		TEMP down switch signal	
Navigation receiver assembly*1 Radio and display receiver assembly*2	Air conditioning amplifier assembly	AVN1S04 valid information signal	CAN
		A/C ECO switch status signal	
		Panel design information signal	
		AUTO switch state signal	
		Front defroster switch state signal	
		Rear defogger switch state signal	
		Air inlet switch state signal	
		OFF switch state signal	
		A/C switch state signal	
		Mode switch state signal	
		Blower up switch state signal	
		Blower down switch state signal	
		Air outlet switch state signal	
		TEMP up switch state signal	
		TEMP down switch state signal	
		Seat speech recognition mode information signal	
		Seat speech recognition date addition subtraction information signal	
		Seat speech recognition temperature	

		directions data signal	
Main body ECU (multiplex network body ECU)	Air conditioning amplifier assembly	Security control signal	CAN
		Hood courtesy switch signal	
		Wireless key switch on time signal	
		Wireless smart communication data signal	
		Auto dimmer signal	
		ACC switch signal	
		Driver side seat courtesy switch signal	
		Front passenger side seat courtesy switch signal	
		Rear right side courtesy switch signal	
		Rear left side courtesy switch signal	
		Back door courtesy switch signal	
		Driver side door lock position switch signal	
		Front passenger side door lock position switch signal	
		Rear right side door lock position switch signal	
		Rear left side door lock position switch signal	
		Back door lock position switch signal	
		Destination symbol signal	
		Destination package signal	
		Steering wheel signal	
		Solar data (R) signal	
		Solar data (L) signal	
		A/C function information signal	
Power steering ECU assembly	Air conditioning amplifier assembly	Loading control level signal	CAN
Airbag sensor assembly	Air conditioning amplifier assembly	Front passenger side seat occupant status signal	CAN
Certification ECU (smart key ECU assembly)	Air conditioning amplifier assembly	Push start switch signal	CAN
		Key signal for push start system use	
		Power mode signal	
Battery ECU assembly*5	Air conditioning amplifier assembly	A/C ventilation request signal	CAN
		S-FLOW display instruction signal	
		ECO display instruction signal	
		Entire front panel display instruction signal	
		AUTO display instruction signal	

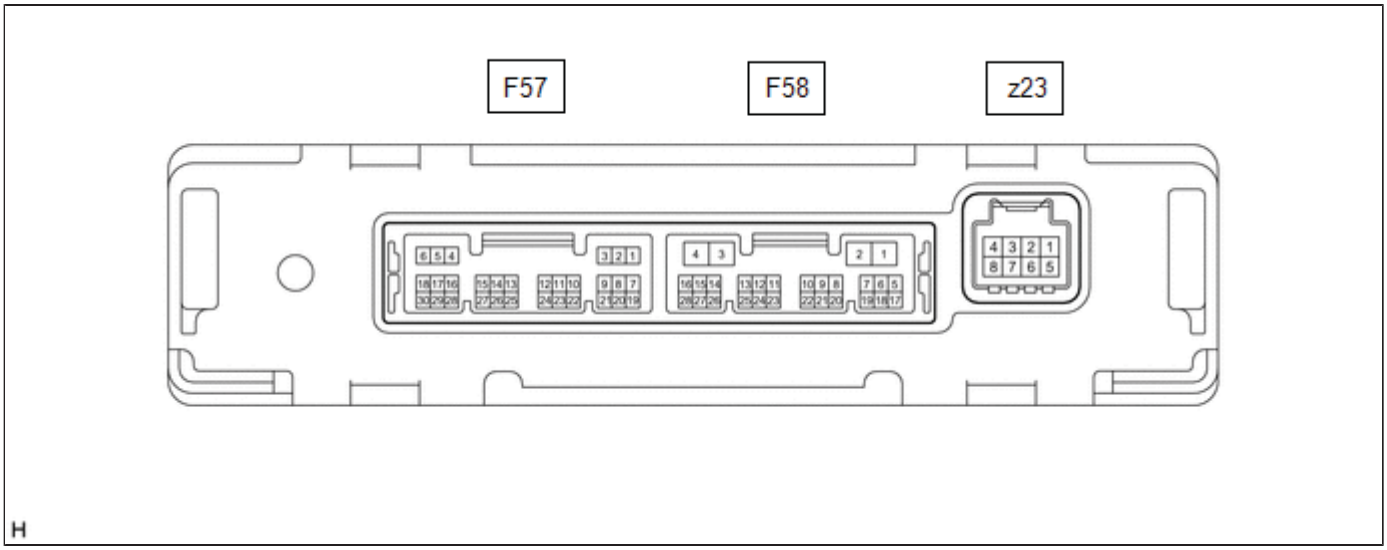
Air conditioning amplifier assembly	Air conditioning control assembly*4	Blower level display instruction signal	LIN
		Recirculation/fresh display instruction signal	
		Air outlet display instruction signal	
		Rear defogger display instruction signal	
		Set temperature display instruction signal	
		Dimmer signal	
		A/C display instruction signal	
Air conditioning control assembly*4	Air conditioning amplifier assembly	Independent control A/C information signal	LIN
		AUTO switch operation signal	
		OFF switch operation signal	
		A/C switch operation signal	
		ECO switch operation signal	
		Blower switch operation signal (up, down)	
		S-FLOW switch operation signal	
		Air outlet switch operation signal	
		Front defroster switch operation signal	
		Rear defogger switch operation signal	
		Set temperature switch operation signal	
		Recirculation/fresh switch operation signal	

*1: w/ Navigation System
*2: w/ Audio and Visual System
*3: w/ Pre-collision System
*4: except 11.6 Inch Display
*5: for Lithium-ion Battery
*6: for AWD

Last Modified: 01-14-2019	6.8:8.0.48	**Doc ID:** RM100000001FYIO
Model Year Start: 2019	**Model:** Prius	**Prod Date Range:** [12/2018 -]
Title: HEATING / AIR CONDITIONING: AIR CONDITIONING SYSTEM: TERMINALS OF ECU; 2019 MY Prius [12/2018 -]		

TERMINALS OF ECU

AIR CONDITIONING AMPLIFIER ASSEMBLY



HINT:

Check from the rear of the connector while it is connected to the air conditioning amplifier assembly.

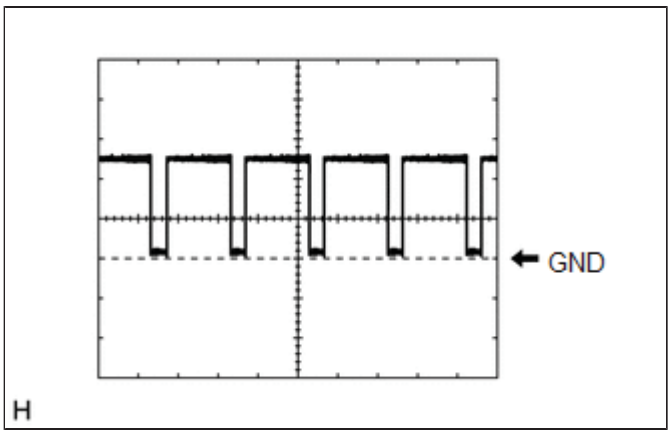
TERMINAL NO. (SYMBOL)	WIRING COLOR	TERMINAL DESCRIPTION	CONDITION	SPECIFIED CONDITION
F57-1 (SG-1) - Body ground	LG - Body ground	Ground for cooler (room temp. sensor) thermistor	Always	Below 1 V
F57-2 (SG-2) - Body ground	P - Body ground	Ground for thermistor assembly, air conditioner pressure sensor	Always	Below 1 V
F57-4 (S5-1) - F58-4 (GND)*1	L - W-B	Power supply for cooler (solar sensor) thermistor	Power switch on (IG)	4.5 to 5.5 V
			Power switch off	Below 1 V
F57-6 (S5-3) - F57-2 (SG-2)	GR - P	Power supply for air conditioner pressure sensor	Power switch on (IG)	4.75 to 5.25 V
			Power switch off	Below 1 V
F57-13 (TAM) - F57-2 (SG-2)	BE - P	Thermistor assembly signal	• Power switch on (IG) • Ambient temperature: 25°C (77°F)	1.35 to 1.75 V
			• Power switch on (IG) • Ambient temperature: 40°C (104°F)	0.9 to 1.2 V

F57-14 (TR) - F57-1 (SG-1)	B - LG	Cooler (room temp. sensor) thermistor signal	• Power switch on (IG) • Cabin temperature: 25°C (77°F)	1.8 to 2.2 V
			• Power switch on (IG) • Cabin temperature: 40°C (104°F)	1.2 to 1.6 V
F57-22 (TS) - F58-4 (GND)*1	BE - W-B	Cooler (solar sensor) thermistor signal	• Power switch on (IG) • Cooler (solar sensor) thermistor subjected to electric light	0.8 to 4.3 V
			• Power switch on (IG) • Cooler (solar sensor) thermistor covered with cloth	Below 0.8 V
F57-24 (PRE) - F57-2 (SG-2)	SB - P	Air conditioner pressure sensor signal	• Power switch on (READY) • Air conditioning system operating • Refrigerant pressure: Abnormal pressure (more than 3025 kPa (30.8 kgf/cm^2, 439 psi))	4.61 V or higher
			• Power switch on (READY) • Air conditioning system operating • Refrigerant pressure: Abnormal pressure (less than 176 kPa (1.8 kgf/cm^2, 26 psi))	Below 0.74 V
			• Power switch on (READY) • Air conditioning system operating • Refrigerant pressure: Normal pressure (less than 3025 kPa (30.8 kgf/cm^2, 439 psi) and more than 176 kPa (1.8 kgf/cm^2, 26 psi))	0.74 to 4.61 V
F57-26 (SHIN) - F58-4 (GND)*2	R - W-B	Seat heater switch signal	• Power switch on (IG) • Seat heater switch (for driver side) off	11 to 14 V
			• Power switch on (IG) • Seat heater switch (for driver side) on	Below 1 V
F58-1 (B) - F58-4 (GND)	V - W-B	Power source (Back-up)	Power switch off	11 to 14 V
F58-2 (IG+) - F58-4 (GND)	B - W-B	Power source (IG)	Power switch on (IG)	11 to 14 V
			Power switch off	Below 1 V
F58-4 (GND) -	W-B - Body	Ground for main power supply	Always	Below 1 V

Body ground	ground			
F58-6 (BLW) - F58-4 (GND)	SB - W-B	Blower motor speed control signal	• Power switch on (IG) • Blower switch: LO	Pulse generation (See waveform 1)
F58-11 (CANH) - F58-12 (CANL)	BE - W	CAN communication signal	CAN communication is performed	Pulse generation
F58-14 (LIN1) - F58-4 (GND)*5	SB - W-B	LIN communication signal (Air conditioning control assembly)	Power switch on (IG)	Pulse generation (See waveform 2)
F58-15 (SCLI) - F58-4 (GND)*3	G - W-B	LIN communication signal (Air conditioning thermistor assembly*3, windshield wiper relay assembly*4)	Power switch on (IG)	Pulse generation
z23-2 (BUSG) - Body ground	-	Ground for BUS IC	Always	Below 1 V
z23-3 (BUS) - z23-2 (BUSG)	-	BUS IC control signal	Power switch on (IG)	Pulse generation (See waveform 3)
z23-4 (BBUS) - z23-2 (BUSG)	-	Power supply for BUS IC	Power switch off	11 to 14 V
z23-5 (SGA) - Body ground	-	Ground for No. 1 cooler thermistor	Always	Below 1 V
z23-6 (TEA) - z23-5 (SGA)	GR - GR	No. 1 cooler thermistor signal	• Power switch on (IG) • Evaporator temperature: 0°C (32°F)	1.7 to 2.1 V
			• Power switch on (IG) • Evaporator temperature: 15°C (59°F)	0.9 to 1.3 V

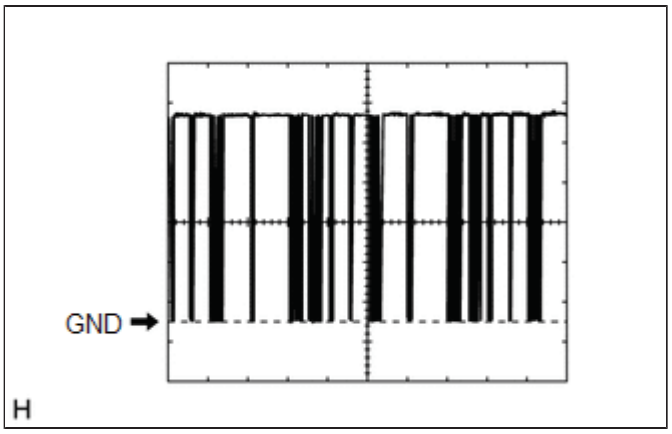
*1: w/o Automatic Light Control
*2: w/ Seat Heater System
*3: w/ Humidity Sensor
*4: w/ Auto Wiper System
*5: except 11.6 Inch Display

(a) Waveform 1:



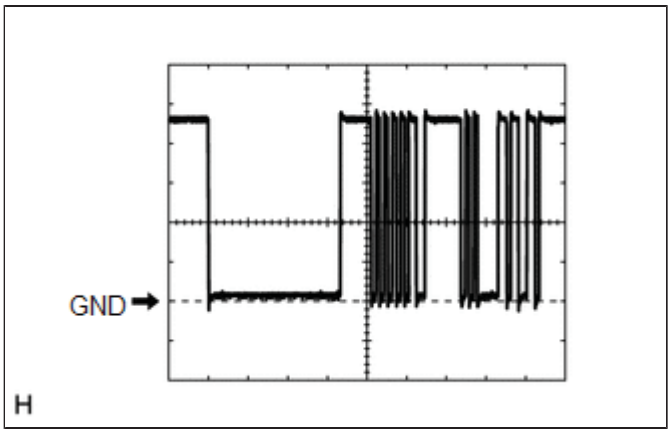
ITEM	CONTENT
Terminal No.	F58-6 (BLW) - F58-4 (GND)
Tool Setting	2 V/DIV., 1 ms./DIV.
Vehicle Condition	• Power switch on (IG) • Blower switch: LO

(b) Waveform 2:



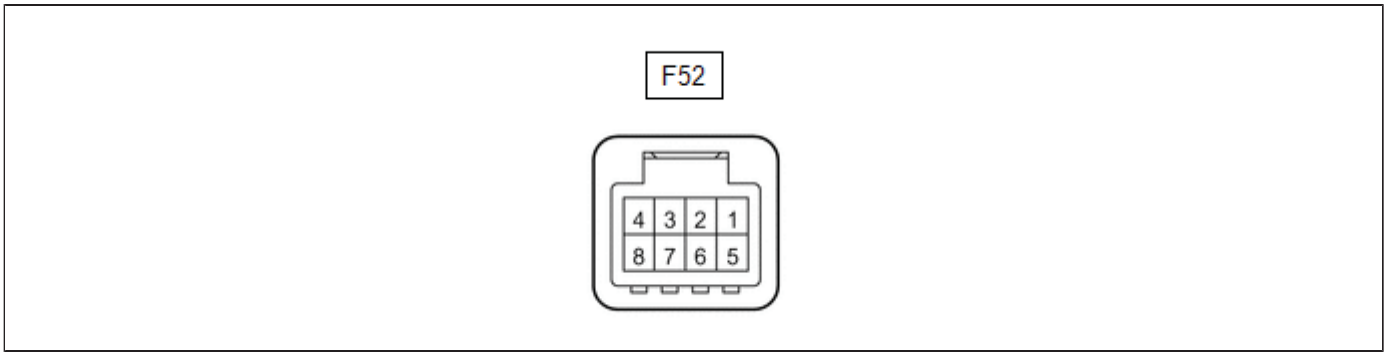
ITEM	CONTENT
Terminal No.	F58-14 (LIN1) - F58-4 (GND)
Tool Setting	2 V/DIV., 20 ms./DIV.
Vehicle Condition	Power switch on (IG)

(c) Waveform 3:



ITEM	CONTENT
Terminal No.	z23-3 (BUS) - z23-2 (BUSG)
Tool Setting	2 V/DIV., 2 ms./DIV.
Vehicle Condition	Power switch on (IG)

AIR CONDITIONING CONTROL ASSEMBLY (except 11.6 Inch Display)



HINT:

Check from the rear of the connector while it is connected to the air conditioning control assembly.

TERMINAL NO. (SYMBOL)	WIRING COLOR	TERMINAL DESCRIPTION	CONDITION	SPECIFIED CONDITION
F52-1 (GND) - Body ground	W-B - Body ground	Ground for air conditioning control assembly	Always	Below 1 V
F52-4 (ILL+) - Body ground	W - Body ground	Illumination signal	Light control switch off	Below 1 V
			Light control switch in tail or head position	11 to 14 V
F52-5 (ILL-) - Body ground	V - Body ground	Illumination signal	Always	Below 1 V
F52-6 (LIN1) - Body ground	SB - Body ground	LIN communication signal	Power switch on (IG)	Pulse generation
F52-8 (IG+) - F52-1 (GND)	LG - W-B	Power source (IG)	Power switch off	Below 1 V
			Power switch on (IG)	11 to 14 V

CHECK NAVIGATION RECEIVER ASSEMBLY (for 11.6 Inch Display)

Click here INFO

HYBRID VEHICLE CONTROL ECU

for Nickel Metal Hydride Battery: Click here INFO

for Lithium-ion Battery: Click here INFO

Last Modified: 01-14-2019	6.8:8.0.48	**Doc ID:** RM1000000018JM1
Model Year Start: 2018	**Model:** Prius	**Prod Date Range:** [11/2017 -]
Title: HEATING / AIR CONDITIONING: AIR CONDITIONING SYSTEM: U0131,U0142,U0151,U0155,U0163,U0293; Lost Communication with Electric Power Steering ECU; 2018 - 2019 MY Prius [11/2017 -]		

DTC	**U0131**	**Lost Communication with Electric Power Steering ECU**

DTC	**U0142**	**Lost Communication with Main Body ECU**

DTC	**U0151**	**Lost Communication with Restraints Control Module**

DTC	**U0155**	**Lost Communication with Combination Meter**

DTC	**U0163**	**Lost Communication with Navigation Control Module**

DTC	**U0293**	**Lost Communication with HV ECU**

DESCRIPTION

DTC NO.	DETECTION ITEM	DTC DETECTION CONDITION	TROUBLE AREA	MEMORY
U0131	Lost Communication with Electric Power Steering ECU	No communication with power steering ECU assembly	• CAN communication system • Power steering ECU assembly	Memorized
U0142	Lost Communication with Main Body ECU	No communication with main body ECU (multiplex network body ECU)	• CAN communication system • Main body ECU (multiplex network body ECU)	Memorized
U0151	Lost Communication with Restraints Control Module	No communication with airbag sensor assembly	• CAN communication system • Airbag sensor assembly	Memorized
U0155	Lost Communication with Combination Meter	No communication with combination meter assembly	• CAN communication system • Combination meter	Memorized

			assembly	
U0163	Lost Communication with Navigation Control Module	No communication with navigation receiver assembly*	• CAN communication system • Navigation receiver assembly*	Memorized
U0293	Lost Communication with HV ECU	No communication with hybrid vehicle control ECU	• CAN communication system • Hybrid vehicle control ECU	Memorized

*: for 11.6 Inch Display

PROCEDURE

1.	**GO TO CAN COMMUNICATION SYSTEM**

HINT:

Refer to CAN Communication System.

Click here INFO INFO

NEXT END

Last Modified: 01-14-2019	6.8:8.0.48	**Doc ID:** RM100000000T88B
Model Year Start: 2016	**Model:** Prius	**Prod Date Range:** [11/2015 -]
Title: HEATING / AIR CONDITIONING: AMBIENT TEMPERATURE SENSOR: INSTALLATION; 2016 - 2019 MY Prius [11/2015 -]		

INSTALLATION

PROCEDURE

1. INSTALL THERMISTOR ASSEMBLY

(a) Connect the connector.

(b) Engage the clamp to install the thermistor assembly.

2. INSTALL FRONT BUMPER ASSEMBLY

Click here INFO INFO

Last Modified: 01-14-2019	6.8:8.0.48	**Doc ID:** RM100000000TBWT
Model Year Start: 2016	**Model:** Prius	**Prod Date Range:** [11/2015 -]
Title: HEATING / AIR CONDITIONING: BLOWER UNIT: INSTALLATION; 2016 - 2019 MY Prius [11/2015 -]		

INSTALLATION

PROCEDURE

1. INSTALL BLOWER ASSEMBLY

(a) Engage the 3 guides and 2 claws.

(b) Install the blower assembly to the air conditioning radiator assembly with the 2 screws.

(c) Engage 4 guides.

(d) Connect the connector.

2. INSTALL NO. 2 AIR DUCT

Click here INFO

3. INSTALL AIR CONDITIONER UNIT ASSEMBLY

Click here INFO INFO INFO

Last Modified: 01-14-2019	6.8:8.0.48	**Doc ID:** RM100000000SJU1
Model Year Start: 2016	**Model:** Prius	**Prod Date Range:** [11/2015 -]
Title: HEATING / AIR CONDITIONING: CONDENSER: ON-VEHICLE INSPECTION; 2016 - 2019 MY Prius [11/2015 -]		

ON-VEHICLE INSPECTION

PROCEDURE

1. INSPECT COOLER CONDENSER ASSEMBLY

(a) If the cooler condenser assembly fins are dirty, clean them with water and dry them with compressed air.

NOTICE:

Do not damage the cooler condenser assembly fins.

(b) If any cooler condenser assembly fins are bent, straighten them using a screwdriver or pliers.

2. INSPECT FOR REFRIGERANT LEAK

(a) Using a halogen leak detector, check the pipe joints for refrigerant leaks.

(b) If a refrigerant leak is detected in a joint, check the torque of the bolt of the joint.

Last Modified: 01-14-2019	6.8:8.0.48	**Doc ID:** RM100000000T87X
Model Year Start: 2016	**Model:** Prius	**Prod Date Range:** [11/2015 -]
Title: HEATING / AIR CONDITIONING: FRONT BLOWER MOTOR: INSTALLATION; 2016 - 2019 MY Prius [11/2015 -]		

INSTALLATION

PROCEDURE

1. INSTALL BLOWER MOTOR WITH FAN SUB-ASSEMBLY

(a) Install the blower motor with fan sub-assembly with the 3 screws.

NOTICE:

Replace the blower motor with fan sub-assembly if it has been dropped or subjected to a severe impact.

(b) Connect the connector.

(c) Engage the clamp.

2. INSTALL NO. 2 INSTRUMENT PANEL UNDER COVER SUB-ASSEMBLY

Click here INFO INFO

Last Modified: 01-14-2019	6.8:8.0.48	**Doc ID:** RM100000000T885
Model Year Start: 2016	**Model:** Prius	**Prod Date Range:** [11/2015 -]
Title: HEATING / AIR CONDITIONING: ROOM TEMPERATURE SENSOR: INSTALLATION; 2016 - 2019 MY Prius [11/2015 -]		

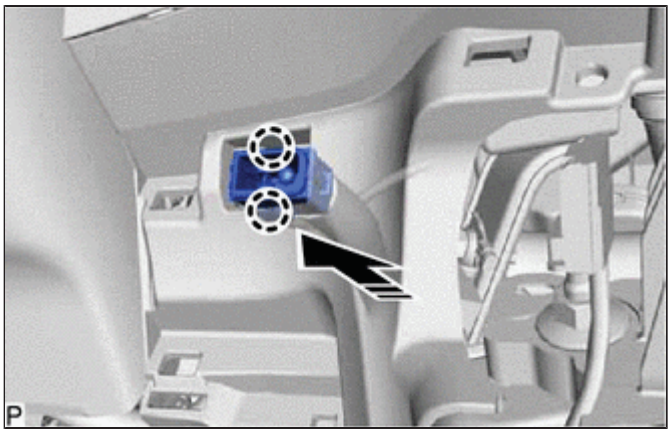
INSTALLATION

PROCEDURE

1. INSTALL COOLER (ROOM TEMP. SENSOR) THERMISTOR

(a) Connect the connector and aspirator.

(b) Engage the 2 claws to install the cooler (room temp. sensor) thermistor as shown in the illustration.



➡	Install in this Direction

2. INSTALL NO. 2 LOWER INSTRUMENT PANEL FINISH PANEL

Click here INFO INFO

3. INSTALL SHIFT LEVER HOLE COVER

Click here INFO INFO

4. INSTALL LOWER CENTER INSTRUMENT CLUSTER FINISH PANEL SUB-ASSEMBLY

Click here INFO INFO

5. INSTALL GLOVE COMPARTMENT DOOR ASSEMBLY

Click here INFO INFO

6. INSTALL LOWER NO. 1 INSTRUMENT PANEL AIRBAG ASSEMBLY

Click here INFO

7. INSTALL REAR CONSOLE BOX ASSEMBLY

Click here INFO INFO

Last Modified: 01-14-2019	6.8:8.0.48	**Doc ID:** RM100000000T88H
Model Year Start: 2016	**Model:** Prius	**Prod Date Range:** [11/2015 -]
Title: HEATING / AIR CONDITIONING: SOLAR SENSOR: INSTALLATION; 2016 - 2019 MY Prius [11/2015 -]		

INSTALLATION

PROCEDURE

1. INSTALL AUTOMATIC LIGHT CONTROL SENSOR

(a) Engage the 2 claws to install the automatic light control sensor.

(b) Connect the connector.

2. INSTALL DEFROSTER NOZZLE ASSEMBLY

Click here INFO

3. INSTALL NO. 1 INSTRUMENT PANEL PIN

Click here INFO

4. INSTALL UPPER INSTRUMENT PANEL ASSEMBLY

Click here INFO