Last Modified: 12-04-2024	6.11:8.1.0	**Doc ID:** RM100000002BEMJ
Model Year Start: 2023	**Model:** Prius Prime	**Prod Date Range:** [03/2023 -]
Title: HEATING / AIR CONDITIONING: AIR CONDITIONING SYSTEM (for PHEV Model): P05347A; Refrigerant Gas Fluid Leak or Seal Failure; 2023 - 2024 MY Prius Prime [03/2023 -]		

DTC	**P05347A**	**Refrigerant Gas Fluid Leak or Seal Failure**

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.

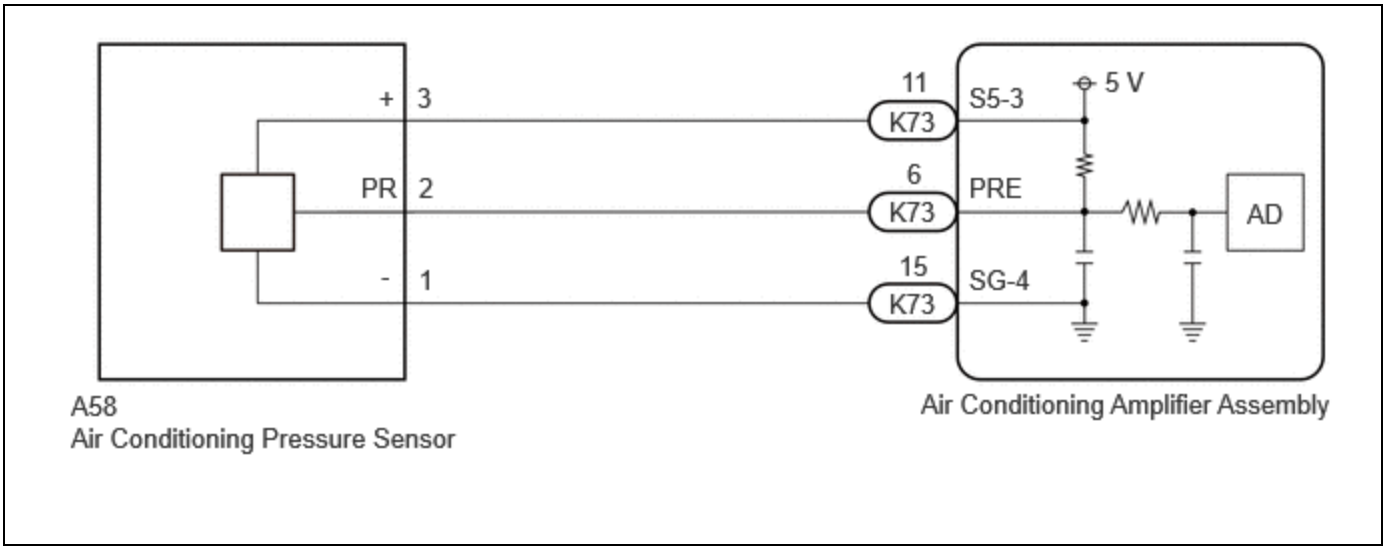
Based on these signals, the air conditioning amplifier assembly detects the amount of refrigerant.

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	MIL	MEMORY	DTC OUTPUT FROM	PRIORITY	NOTE
P05347A	Refrigerant Gas Fluid Leak or Seal Failure	Diagnosis Condition: Normal operation refrigerant amount check conditions are met. The following condition is detected in the normal operation refrigerant shortage check Malfunction: Amount of refrigerant is judged to be insufficient by normal operation refrigerant	• Refrigerant volume • Air conditioning pressure sensor • Harness or connector • Air conditioning amplifier assembly	Does not come on	Memorized	Air Conditioner	A	-

DTC NO.	DETECTION ITEM	DTC DETECTION CONDITION	TROUBLE AREA	MIL	MEMORY	DTC OUTPUT FROM	PRIORITY	NOTE
		amount check. Amount of refrigerant is insufficient Detection Time: Air conditioning system operating time: 15 minutes or more						

WIRING DIAGRAM



PROCEDURE

1.	**CHECK DTC (AIR CONDITIONING SYSTEM AND HYBRID BATTERY CONTROL SYSTEM)**

(a) Check for DTCs.

Body Electrical > Air Conditioner > Trouble Codes

HINT:

Check even when the DTCs detected for temporary failures.

RESULT	PROCEED TO
No DTCs in the table below are output	A
Any of the DTCs in the table below are output	B

RELEVANT DTC	
P007011	Ambient Temperature Sensor Circuit Short to Ground
P007015	Ambient Temperature Sensor Circuit Short to Battery or Open
P05301C	Refrigerant Pressure Sensor Circuit Voltage Out of Range
P153A62	Ambient Temperature Sensor / External Condenser Refrigerant Temperature Sensor Signal Compare Failure

B ▶ **GO TO DIAGNOSTIC TROUBLE CODE CHART**

A

2.	**CHECK REFRIGERANT PRESSURE**

Pre-procedure1

(a) Install a manifold gauge set.

HINT:

Click here INFO

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

Measurement Condition:

ITEM	CONDITION
Doors	Fully open
A/C Switch	On
Recirculation/fresh Control Switch	Recirculation
Set Temperature	MAX COLD
Blower Speed	HI
Air Conditioning Air Inlet Temperature	25 to 35°C (77 to 95°F)

Procedure1

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

Body Electrical > Air Conditioner > Data List

TESTER DISPLAY	MEASUREMENT ITEM	RANGE	NORMAL CONDITION	DIAGNOSTIC NOTE
Regulator Pressure Sensor	Air conditioning pressure sensor	-32768 to 32767 kPa(gauge) (-32.768 to 32.767 MPaG)	Actual refrigerant pressure displayed	• Refrigerant line (gas leak etc.) • Air conditioning pressure sensor circuit malfunction

Body Electrical > Air Conditioner > Data List

TESTER DISPLAY
Regulator Pressure Sensor

RESULT	PROCEED TO
Data List value and manifold gauge set value do not match	A
Data List value matches manifold gauge set value	B

Post-procedure1

(d) None

B ▶ **INSPECT REFRIGERANT PRESSURE WITH MANIFOLD GAUGE SET**

A ▼

3.	**CHECK HARNESS AND CONNECTOR (AIR CONDITIONING PRESSURE SENSOR - POWER SOURCE)**

Pre-procedure1

(a) Disconnect the A58 air conditioning pressure sensor connector.

Procedure1

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

Standard Voltage:

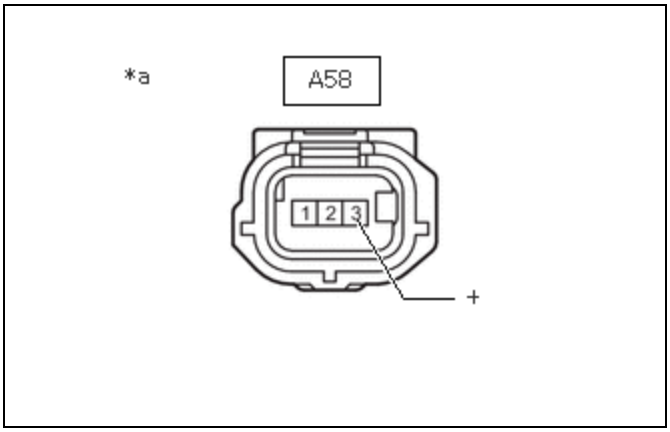
EWD INFO

Click Location & Routing(A58)
Click Connector(A58)

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION	RESULT
A58-3 (+) - Body ground	Ignition switch ON	4.75 to 5.25 V	V

Result:

PROCEED TO
OK
NG



*a	Front view of wire harness connector (to Air Conditioner Pressure Sensor)

Post-procedure1

(c) None

NG ▶ **GO TO STEP 8**

OK ▼

4.	**CHECK HARNESS AND CONNECTOR (AIR CONDITIONING PRESSURE SENSOR - BODY GROUND)**

Pre-procedure1

(a) Disconnect the A58 air conditioning pressure sensor connector.

Procedure1

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

Standard Resistance:

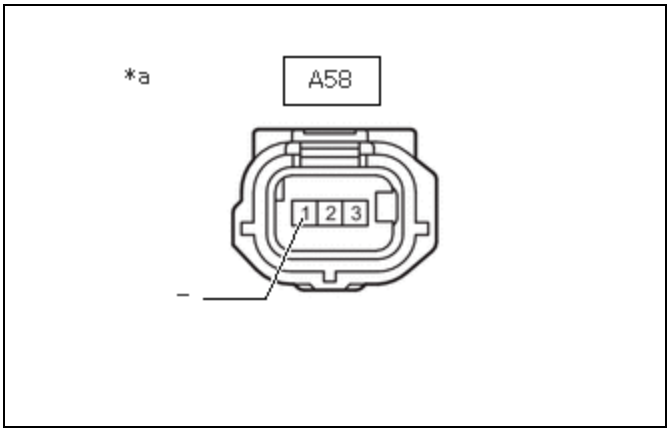
EWD INFO

Click Location & Routing(A58)
Click Connector(A58)

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION	RESULT
A58-1 (-) - Body ground	Always	Below 1 Ω	Ω

Result:

PROCEED TO
OK
NG



*a	Front view of wire harness connector (to Air Conditioner Pressure Sensor)

Post-procedure1

(c) None

NG ▶ **GO TO STEP 7**

OK ▼

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

Pre-procedure1

(a) Disconnect the A58 air conditioning pressure sensor connector.

(b) Disconnect the K73 air conditioning amplifier assembly connector.

Procedure1

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

Standard Resistance:

EWD INFO

Click Location & Routing(A58,K73)
Click Connector(A58)
Click Connector(K73)

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION	RESULT
A58-2 (PR) - K73-6 (PRE)	Always	Below 1 Ω	Ω
A58-2 (PR) or K73-6 (PRE) - Other terminals and body ground	Always	10 kΩ or higher	kΩ

Post-procedure1

(d) None

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

OK ▼

6.	**INSPECT AIR CONDITIONING AMPLIFIER ASSEMBLY (SENSOR SIGNAL CIRCUIT)**

NOTICE:

- If refrigerant pressure on the high pressure side becomes extremely high, the fail-safe function stops compressor 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 ambient temp. sensor (thermistor assembly) and the evaporator temp. sensor (No. 1 cooler thermistor) to prevent the evaporator from freezing. In this case, perform the inspection in a warm indoor environment.

Pre-procedure1

(a) Connect the K73 air conditioning amplifier assembly connector.

(b) Connect the A58 air conditioning pressure sensor connector.

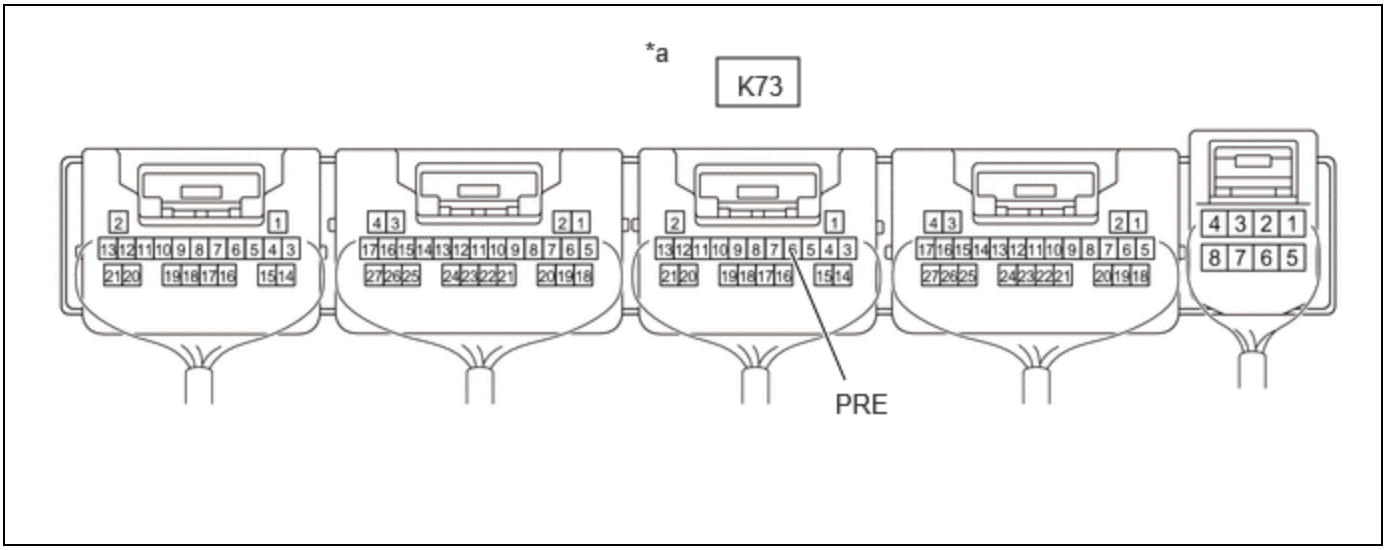
(c) Prepare the vehicle according to the table below.

Measurement Condition:

ITEM	CONDITION
Doors	Fully open
A/C Switch	On
Recirculation/fresh Control Switch	Recirculation
Set Temperature	MAX COLD
Blower Speed	HI
Air Conditioning Air Inlet Temperature	25 to 35°C (77 to 95°F)

Procedure1

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



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

Standard Voltage:

EWD INFO

Click Location & Routing(K73)
Click Connector(K73)

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
K73-6 (PRE) - Body ground	A/C Switch ON (When compressor with motor assembly running)	0.74 to 4.61 V

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

Body Electrical > Air Conditioner > Data List

TESTER DISPLAY	MEASUREMENT ITEM	RANGE	NORMAL CONDITION	DIAGNOSTIC NOTE
Regulator Pressure Sensor	Air conditioning pressure sensor	-32768 to 32767 kPa(gauge) (-32.768 to 32.767 MPaG)	Actual refrigerant pressure displayed	• Refrigerant line (gas leak etc.) • Air conditioning pressure sensor circuit malfunction

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.)	B
NG (The voltage does not change.)	C

Post-procedure1

(f) None

A ▶ **REPLACE AIR CONDITIONING AMPLIFIER ASSEMBLY**

B ▶ **REPLACE AIR CONDITIONING AMPLIFIER ASSEMBLY**

C ▶ **REPLACE AIR CONDITIONING PRESSURE SENSOR**

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

Pre-procedure1

(a) Disconnect the A58 air conditioning pressure sensor connector.

(b) Disconnect the K73 air conditioning amplifier assembly connector.

Procedure1

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

Standard Resistance:

EWD INFO

Click Location & Routing(A58,K73)
Click Connector(A58)
Click Connector(K73)

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION	RESULT
A58-1 (-) - K73-15 (SG-4)	Always	Below 1 Ω	Ω
A58-1 (-) or K73-15 (SG-4) - Other terminals and body ground	Always	10 kΩ or higher	kΩ

Post-procedure1

(d) None

OK ▶ **REPLACE AIR CONDITIONING AMPLIFIER ASSEMBLY**

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

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

Pre-procedure1

(a) Disconnect the A58 air conditioning pressure sensor connector.

(b) Disconnect the K73 air conditioning amplifier assembly connector.

Procedure1

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

Standard Resistance:

EWD INFO

Click Location & Routing(A58,K73)
Click Connector(A58)
Click Connector(K73)

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION	RESULT
A58-3 (+) - K73-11 (S5 -3)	Always	Below 1 Ω	Ω
A58-3 (+) or K73-11 (S5 -3) - Other terminals and body ground	Always	10 kΩ or higher	kΩ

Post-procedure1

(d) None

OK ▶ **REPLACE AIR CONDITIONING AMPLIFIER ASSEMBLY**

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