DTC	B1423/23	Pressure Sensor Circuit

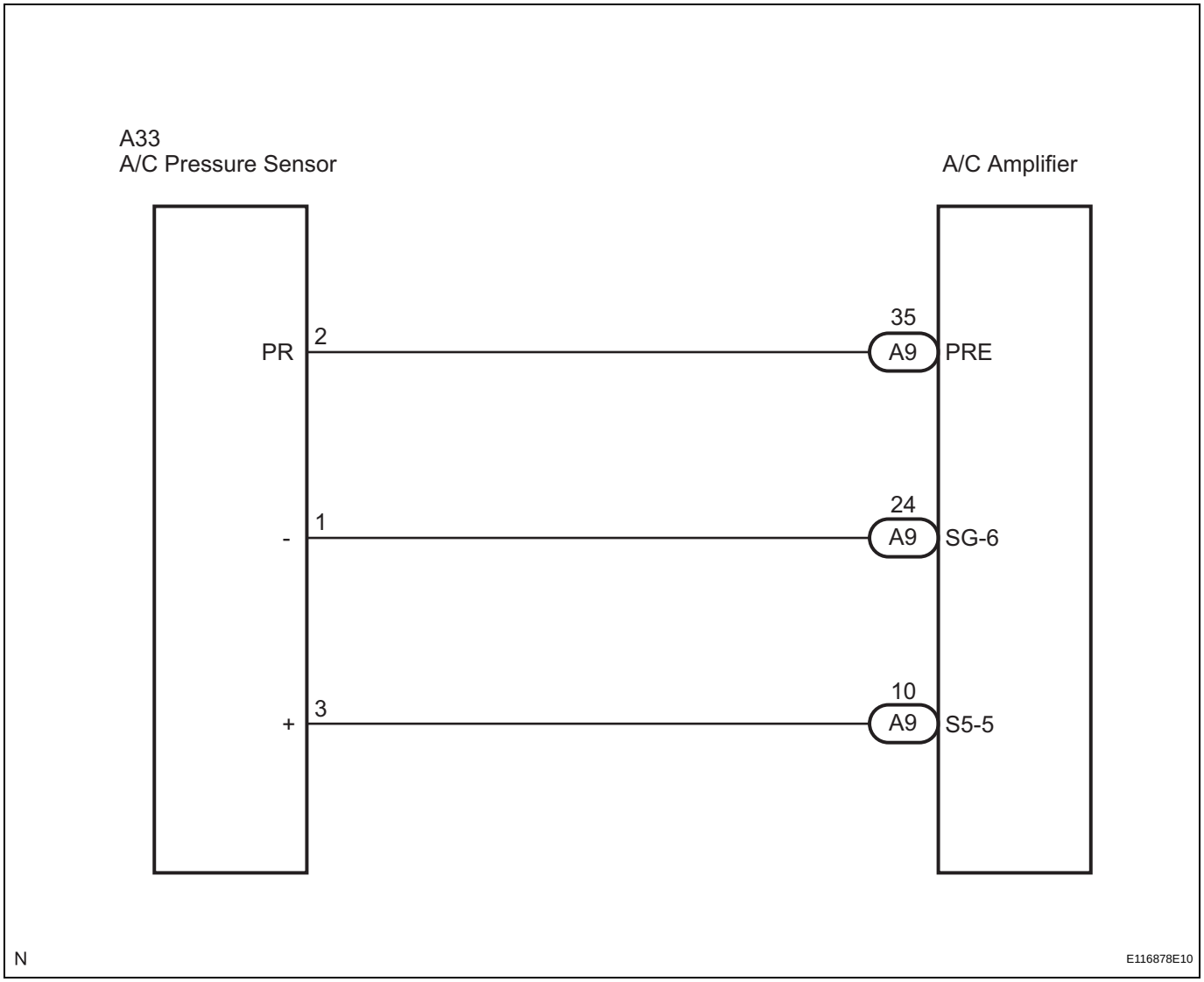
DESCRIPTION

This DTC is output when refrigerant pressure on the high pressure side is extremely low (0.19 MPa (2.0 kgf/cm^2, 28 psi) or less) or extremely high (3.14 MPa (32.0 kgf/cm^2, 455 psi) or more). The pressure sensor, which is installed on the pipe of the high pressure side to detect refrigerant pressure, outputs a refrigerant pressure signal to the A/C amplifier. The A/C amplifier converts this signal to pressure according to the sensor characteristics to control the compressor.

AC

DTC No.	DTC Detection Condition	Trouble Area
B1423/23	• Open or short in pressure sensor circuit • Refrigerant pressure on the high pressure side is extremely low (0.19 MPa (2.0 kgf/cm^2, 28 psi) or less) or extremely high (3.14 MPa (32.0 kgf/cm^2, 455 psi) or more).	• Pressure sensor • Harness or connector between pressure sensor and A/C amplifier • A/C amplifier • Expansion valve (blocked, stuck) • Condenser (blocked, deterioration of cooling capacity due to dirt) • Cooler dryer (moisture in the refrigerant cycle cannot be absorbed) • Cooling fan system (condenser cannot be cooled down) • A/C system (leaks, blocked)

WIRING DIAGRAM

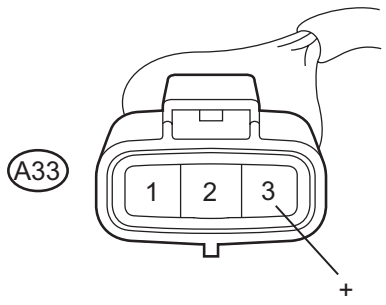


AC

INSPECTION PROCEDURE

1 CHECK HARNESS AND CONNECTOR (POWER SOURCE CIRCUIT)

Front view of wire harness connector:
(to A/C Pressure Sensor)



H E124477E13

(a) Disconnect the connector from the A/C pressure sensor.
(b) Measure the voltage according to the value(s) in the table below.

Standard voltage

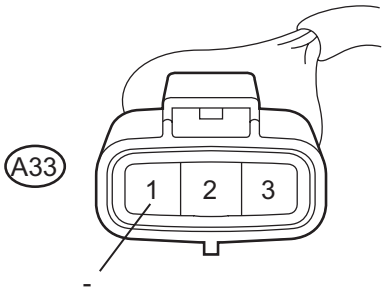
Tester Connection	Condition	Specified Condition
A33-3 (+) - Body ground	Ignition switch ON	Approx. 5 V

NG → **Go to step 5**

OK

2 CHECK HARNESS AND CONNECTOR (GROUND CIRCUIT)

Front view of wire harness connector:
(to A/C Pressure Sensor)



H E124477E14

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

Standard resistance

Tester Connection	Condition	Specified Condition
A33-1 (-) - Body ground	Always	Below 1 Ω

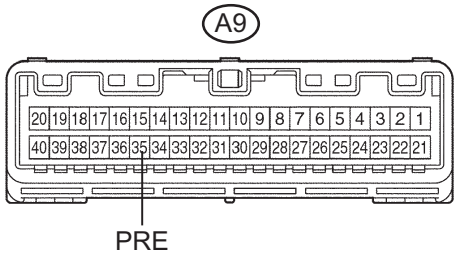
NG → **Go to step 6**

OK

3 INSPECT A/C PRESSURE SENSOR (SENSOR SIGNAL CIRCUIT)

(a) Reconnect the connector to the A/C pressure sensor.

Component with harness connected:
(A/C Amplifier)



E145185E02

(b) Remove the A/C amplifier with connectors still connected.

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

Standard voltage

Tester Connection	Condition	Specified Condition
A9-35 (PRE) - Body ground	Ignition switch ON (A/C: OFF)	0.7 to 4.8 V

HINT:
If the measured voltage is not within the normal range, there may be a malfunction in the A/C amplifier, A/C pressure sensor, or wire harness. It is also possible that the amount of refrigerant may not be appropriate.

AC

NG → **Go to step 7**

OK

4 INSPECT A/C PRESSURE SENSOR (SENSOR SIGNAL CIRCUIT)

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

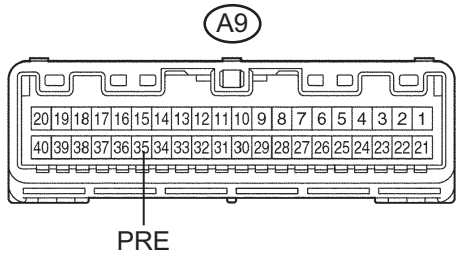
Item	Condition
Vehicle Doors	Fully open
Temperature Setting	MAX COLD
Blower Speed	HI
A/C Switch	ON
R/F Switch	RECIRCULATION
Interior Temperature	25 to 35°C (77 to 95°F)
Engine Speed	2000 rpm

NOTICE:

- **If refrigerant pressure on the high pressure side becomes extremely high during the inspection (if the voltage exceeds 4.8 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 problem symptom 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 temperature sensor and the evaporator temperature sensor to prevent the evaporator from freezing. In this case, perform the inspection in a warm indoor environment.

Component with harness connected:
(A/C Amplifier)



E145185E02

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

Standard voltage

Tester Connection	Condition	Specified Condition
A9-35 (PRE) - Body ground	Ignition switch ON (A/C: ON)	0.7 to 4.8 V

Result

Result	Proceed to
OK (When troubleshooting according to DTC)	A
OK (When troubleshooting according to PROBLEM SYMPTOMS TABLE)	B
NG	C

B → **PROCEED TO NEXT CIRCUIT INSPECTION SHOWN IN PROBLEM SYMPTOMS TABLE**

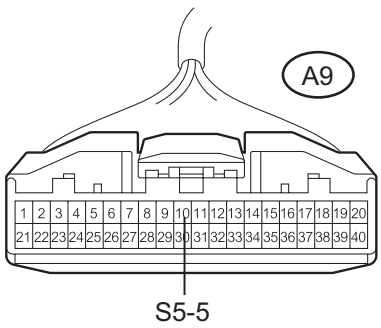
C → **Go to step 13**

A

REPLACE A/C AMPLIFIER

5 CHECK HARNESS AND CONNECTOR (A/C AMPLIFIER - A/C PRESSURE SENSOR)

Front view of wire harness connector:
(to A/C Amplifier)

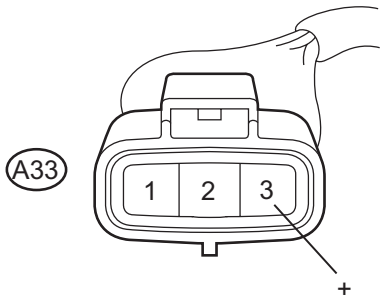


H

E143742E30

(a) Disconnect the connector from the A/C amplifier.

Front view of wire harness connector:
(to A/C Pressure Sensor)



H E124477E13

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

Standard resistance

Tester Connection	Condition	Specified Condition
A33-3 (+) - A9-10 (S5-5)	Always	Below 1 Ω
A9-10 (S5-5) - Body ground	Always	10 kΩ or higher

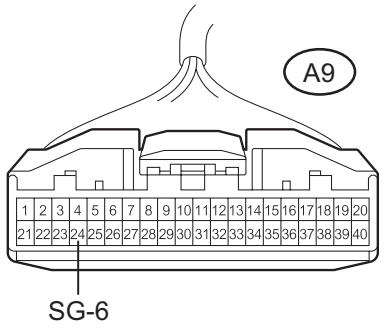
NG → **REPAIR OR REPLACE HARNESS OR CONNECTOR**

OK

REPLACE A/C AMPLIFIER

6 CHECK HARNESS AND CONNECTOR (A/C AMPLIFIER - A/C PRESSURE SENSOR)

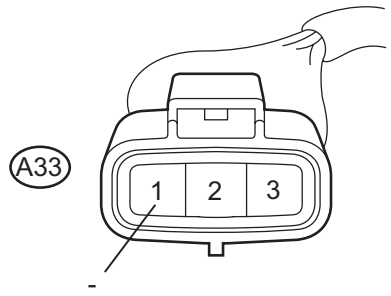
Front view of wire harness connector:
(to A/C Amplifier)



H E143742E31

(a) Disconnect the connector from the A/C amplifier.

Front view of wire harness connector:
(to A/C Pressure Sensor)



H E124477E14

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

Standard resistance

Tester Connection	Condition	Specified Condition
A33-1 (-) - A9-24 (SG-6)	Always	Below 1 Ω
A9-24 (SG-6) - Body ground	Always	10 kΩ or higher

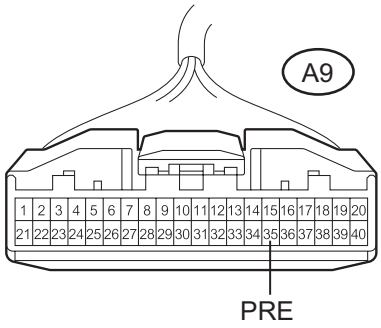
NG → **REPAIR OR REPLACE HARNESS OR CONNECTOR**

OK

REPLACE A/C AMPLIFIER

7 CHECK HARNESS AND CONNECTOR (A/C AMPLIFIER - A/C PRESSURE SENSOR)

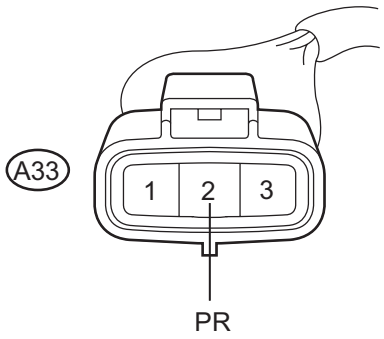
Front view of wire harness connector:
(to A/C Amplifier)



H E143742E32

(a) Disconnect the connector from the A/C amplifier.

Front view of wire harness connector:
(to A/C Pressure Sensor)



H E124477E15

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

Standard resistance

Tester Connection	Condition	Specified Condition
A33-2 (PR) - A9-35 (PRE)	Always	Below 1 Ω
A9-35 (PRE) - Body ground	Always	10 kΩ or higher

NG → **REPAIR OR REPLACE HARNESS OR CONNECTOR**

AC

OK

8 CHECK FOR A/C SYSTEM LEAK

(a) Install the manifold gauge set.
(b) Recover the refrigerant from the A/C system using a refrigerant recovery unit.
(c) Evacuate the A/C system and check that vacuum can be maintained in it.

OK:

Vacuum can be maintained in the A/C system.

HINT:
If vacuum cannot be maintained in the A/C system, refrigerant may be leaking from it. In this case, it is necessary to repair or replace the leaking part of the A/C system.

NG → **Go to step 12**

OK

9 CHARGE REFRIGERANT

(a) Add an appropriate amount of refrigerant (See page AC-173).

NEXT

10 RECHECK DTC

(a) Recheck for the DTC when the following conditions are satisfied.

Item	Condition
Vehicle Doors	Fully open
Temperature Setting	MAX COLD
Blower Speed	HI

Item	Condition
A/C Switch	ON
R/F Switch	RECIRCULATION
Interior Temperature	25 to 35°C (77 to 95°F)
Engine Speed	2000 rpm

NOTICE:
If refrigerant pressure on the high pressure side becomes high, the DTC will be set. It is necessary to measure the voltage for a certain amount of time (approximately 10 minutes) because the DTC may be set after the A/C operates for 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 temperature sensor and the evaporator temperature sensor to prevent the evaporator from freezing. In this case, perform the inspection in a warm indoor environment.

Result

Result	Proceed to
DTC B1423 is output	**A**
DTC B1423 is not output	**B**

NOTICE:
If the DTC was set due to an insufficient or excessive amount of refrigerant, the problem may have been solved after performing the previous step. However, the root cause of insufficient refrigerant may be refrigerant leaks. The root cause of excessive refrigerant may be adding refrigerant when the level was insufficient. Therefore, identify and repair the area where refrigerant leaks from as necessary.

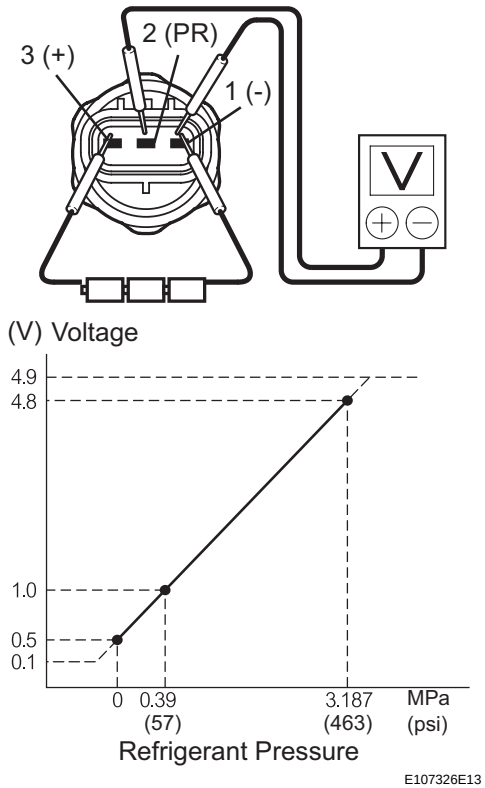
B → **END**

A

11 INSPECT A/C PRESSURE SENSOR

(a) Install the manifold gauge set.
(b) Disconnect the connector from the A/C pressure sensor.

Component without harness connected:
(A/C Pressure Sensor)



(c) Connect the three 1.5 V dry cell batteries' positive (+) lead to terminal 3, and the negative (-) lead to terminal 1.
(d) Connect the voltmeter's positive (+) lead to terminal 2, and the negative (-) lead to terminal 1.
(e) Measure the voltage according to the value(s) in the table below.

Standard voltage

Tester Connection	Condition	Specified Condition
2 - 1	Refrigerant pressure: 0.39 to 3.187 MPa (57 to 463 psi)	1.0 to 4.8 V

AC

NG → **REPLACE A/C PRESSURE SENSOR**

OK

REPLACE A/C AMPLIFIER

12 REPAIR A/C SYSTEM LEAK

(a) Identify the area where refrigerant leaks from (See page AC-173).
(b) Repair the identified area of the A/C system.
(c) Evacuate the A/C system.

NEXT

CHARGE REFRIGERANT (See page AC-173)

13 INSPECT COOLING FAN SYSTEM

(a) Check if the cooling fan operates normally (See page CO-4).

NG → **REPAIR COOLING FAN SYSTEM**

OK

14	CHARGE REFRIGERANT

(a) Use a refrigerant recovery unit to recover refrigerant.
(b) Evacuate the A/C system.
(c) Add an appropriate amount of refrigerant (See page AC-173).

HINT:
If refrigerant is added and the system has not been properly evacuated (insufficient vacuum time), moisture in the air remaining in the system will freeze in the expansion valve, blocking the flow on the high pressure side. Therefore, in order to confirm the problem, recover the refrigerant and properly evacuate the system. Add an appropriate amount of refrigerant, and check for the DTC.

NEXT

15	RECHECK DTC

(a) Recheck for the DTC when the following conditions are satisfied.

Item	Condition
Vehicle Doors	Fully open
Temperature Setting	MAX COLD
Blower Speed	HI
A/C Switch	ON
R/F Switch	RECIRCULATION
Interior Temperature	25 to 35°C (77 to 95°F)
Engine Speed	2000 rpm

NOTICE:
If refrigerant pressure on the high pressure side becomes high, the DTC will be set. It is necessary to measure the voltage for a certain amount of time (approximately 10 minutes) because the DTC may be set after the A/C operates for 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 temperature sensor and the evaporator temperature sensor to prevent the evaporator from freezing. In this case, perform the inspection in a warm indoor environment.

- If refrigerant is added and the system has not been properly evacuated (insufficient vacuum time), moisture in the air remaining in the system will freeze in the expansion valve, blocking the flow on the high pressure side. Therefore, in order to confirm the problem, recover the refrigerant and properly evacuate the system. Add an appropriate amount of refrigerant, and check for the DTC. If the DTC is not output after this work, it indicates that the cooler dryer in the condenser is not able to absorb moisture in the refrigerant cycle. In this case, it is necessary to replace the cooler dryer in order to complete the repair.

Result

Result	Proceed to
DTC B1423 is output	A
DTC B1423 is not output	B

B → **REPLACE COOLER DRYER**

A

16 REPLACE EXPANSION VALVE

(a) Replace the expansion valve with a normal one (See page AC-186).
HINT:
Replace the expansion valve with a normal one because the expansion valve is either stuck or clogged.

NEXT

17 CHARGE REFRIGERANT

(a) Add an appropriate amount of refrigerant (See page AC-173).

NEXT

18 RECHECK DTC

(a) Recheck for the DTC when the following conditions are satisfied.

Item	Condition
Vehicle Doors	Fully open
Temperature Setting	MAX COLD
Blower Speed	HI
A/C Switch	ON
R/F Switch	RECIRCULATION
Interior Temperature	25 to 35°C (77 to 95°F)
Engine Speed	2000 rpm

NOTICE:
If refrigerant pressure on the high pressure side becomes high, the DTC will be set. It is necessary to measure the voltage for a certain amount of time (approximately 10 minutes) because the DTC may be set after the A/C operates for 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 temperature sensor and the evaporator temperature sensor to prevent the evaporator from freezing. In this case, perform the inspection in a warm indoor environment.
- If refrigerant pressure is not normal after replacing the expansion valve with a normal one, the condenser or pipes may be clogged due to dirt, dust or other contaminant. In this case, clean or replace the condenser or pipes.

Result

Result	Proceed to
DTC B1423 is not output	A
DTC B1423 is output	B

B → **REPLACE CONDENSER**

A

END