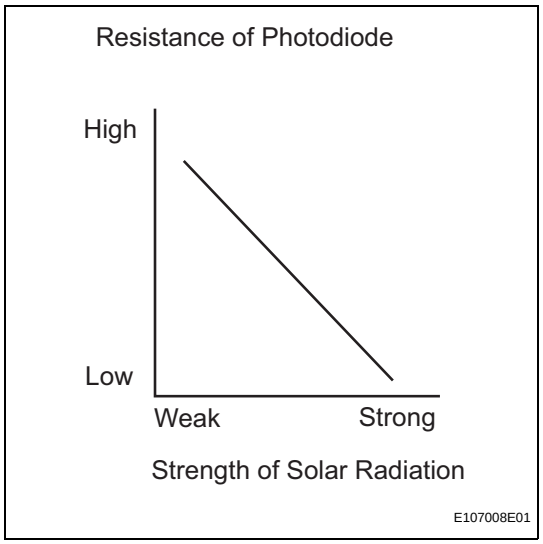
DTC	B1421/21	Solar Sensor Circuit (Passenger Side)

DESCRIPTION

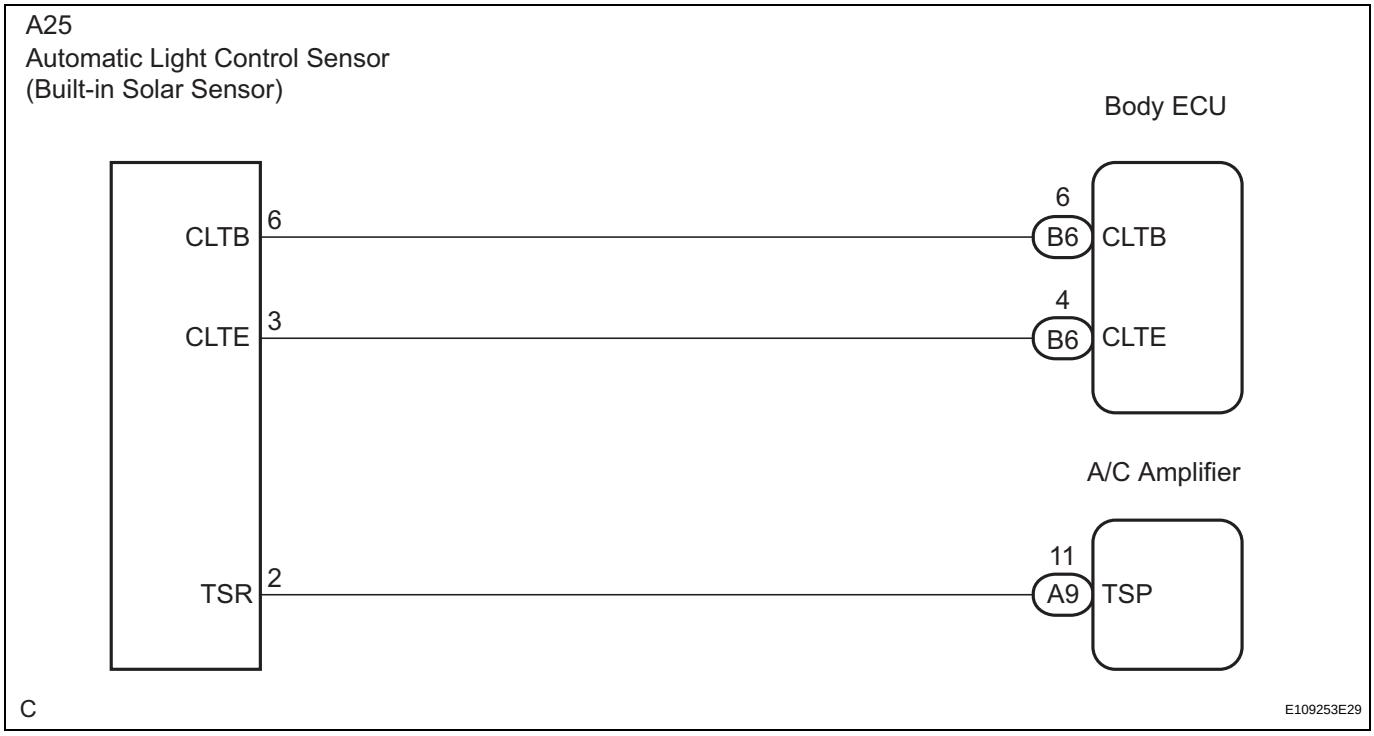


The solar sensor, which is installed on the upper side of the instrument panel, detects sunlight and controls the air conditioning in AUTO mode. The output voltage from the solar sensor varies according to the amount of sunlight. When the sunlight increases, the output voltage increases. As the sunlight decreases, the output voltage decreases. The A/C amplifier detects voltage output from the solar sensor.

DTC No.	DTC Detection Condition	Trouble Area
B1421/21	Open or short in passenger side solar sensor circuit	• Solar sensor • Harness or connector between solar sensor and A/C amplifier • Harness or connector between solar sensor and body ECU • A/C amplifier • Body ECU

AC

WIRING DIAGRAM



AC

INSPECTION PROCEDURE

HINT:

- If DTC B1244 is output at the same time, troubleshoot DTC B1244 first (See page LI-16).
- If the check is performed in a dark place, DTC B1421/21 or B1424/24 (solar sensor circuit abnormal) may be output even though the system is normal.

1	READ VALUE OF INTELLIGENT TESTER

(a) Connect the intelligent tester to the DLC3.
(b) Turn the ignition switch to the ON position and turn the intelligent tester main switch on.
(c) Expose the sensing portion of the solar sensor to light.
HINT:
Use an incandescent light for inspection.
(d) Select the item below in the DATA LIST, and read the display on the intelligent tester.

DATA LIST / AIR CONDITIONER:

Tester Display	Measurement Item/Range	Normal Condition	Diagnostic Note
SOLAR SENS-P (Solar sensor (P side))	Passenger side solar sensor / min.: 0, max.: 255	Passenger side solar sensor value increases as brightness increases	-

OK:

The display is as specified in the normal condition column.

Result

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

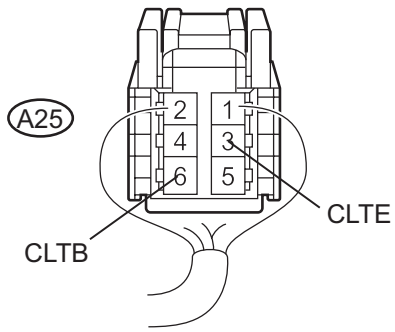
B → **PROCEED TO NEXT CIRCUIT INSPECTION SHOWN IN PROBLEM SYMPTOMS TABLE**

C → **REPLACE A/C AMPLIFIER**

A

2 CHECK HARNESS AND CONNECTOR (SOLAR SENSOR)

Front view of wire harness connector:
(to Solar Sensor)



H E124476E31

(a) Disconnect the solar sensor connector.
(b) Measure the voltage according to the value(s) in the table below.

Standard voltage

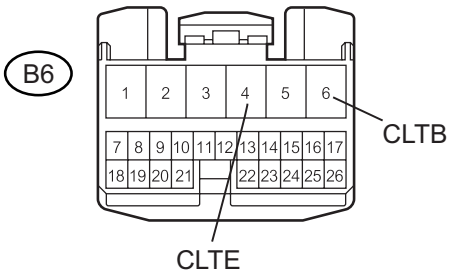
Tester Connection	Condition	Specified Condition
A25-6 (CLTB) - A25-3 (CLTE)	Ignition switch OFF	Below 1 V
A25-6 (CLTB) - A25-3 (CLTE)	Ignition switch ON	11 to 14 V

OK → **Go to step 4**

NG

3 CHECK HARNESS AND CONNECTOR (SOLAR SENSOR - BODY ECU)

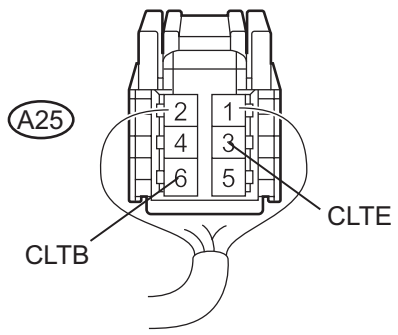
Front view of wire harness connector:
(to Body ECU)



H C160415E05

(a) Disconnect the body ECU connector.

Front view of wire harness connector:
(to Solar Sensor)



H E124476E31

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

Standard resistance

Tester Connection	Condition	Specified Condition
B6-6 (CLTB) - A25-6 (CLTB)	Always	Below 1 Ω
B6-4 (CLTE) - A25-3 (CLTE)	Always	Below 1 Ω
B6-6 (CLTB) - Body ground	Always	10 kΩ or higher
B6-4 (CLTE) - Body ground	Always	10 kΩ or higher

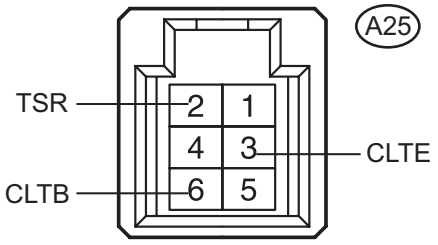
NG → **REPAIR OR REPLACE HARNESS OR CONNECTOR**

OK

REPLACE BODY ECU

4 CHECK SOLAR SENSOR

Component with harness connected:
(Solar Sensor)



P E109215E31

(a) Remove the solar sensor with its connector still connected.

(b) Connect the positive (+) lead from the battery to terminal 6 (CLTB), and the negative (-) lead to terminal 3 (CLTE) of the solar sensor.

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

Standard voltage

Tester Connection	Condition	Specified Condition
A25-2 (TSR) - A25-3 (CLTE)	Sensor is subjected to electric light	0.8 to 4.3 V
A25-2 (TSR) - A25-3 (CLTE)	Sensor is covered with a cloth	Below 0.8 V

NOTICE:
While using the battery during inspection, do not bring the positive and negative tester probes too close to each other as a short circuit may occur.
HINT:

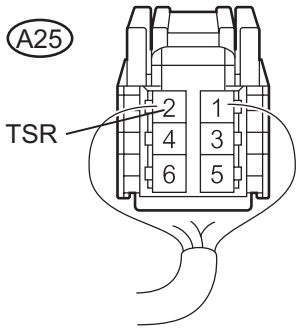
- Use an incandescent light for inspection. Bring it within about 30 cm (11.8 in.) of the solar sensor.
- As the inspection light is moved away from the sensor, the voltage increases.

NG → **REPLACE SOLAR SENSOR**

OK

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

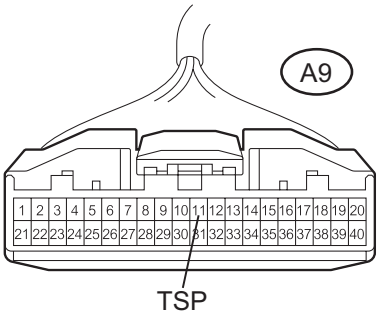
Front view of wire harness connector:
(to Solar Sensor)



H E124476E32

(a) Disconnect the solar sensor connector.

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



H E143742E28

(b) Disconnect the A/C amplifier connector.
(c) Measure the resistance according to the value(s) in the table below.

Standard resistance

Tester Connection	Condition	Specified Condition
A9-11 (TSP) - A25-2 (TSR)	Always	Below 1 Ω
A9-11 (TSP) - Body ground	Always	10 kΩ or higher

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

OK

REPLACE A/C AMPLIFIER

AC