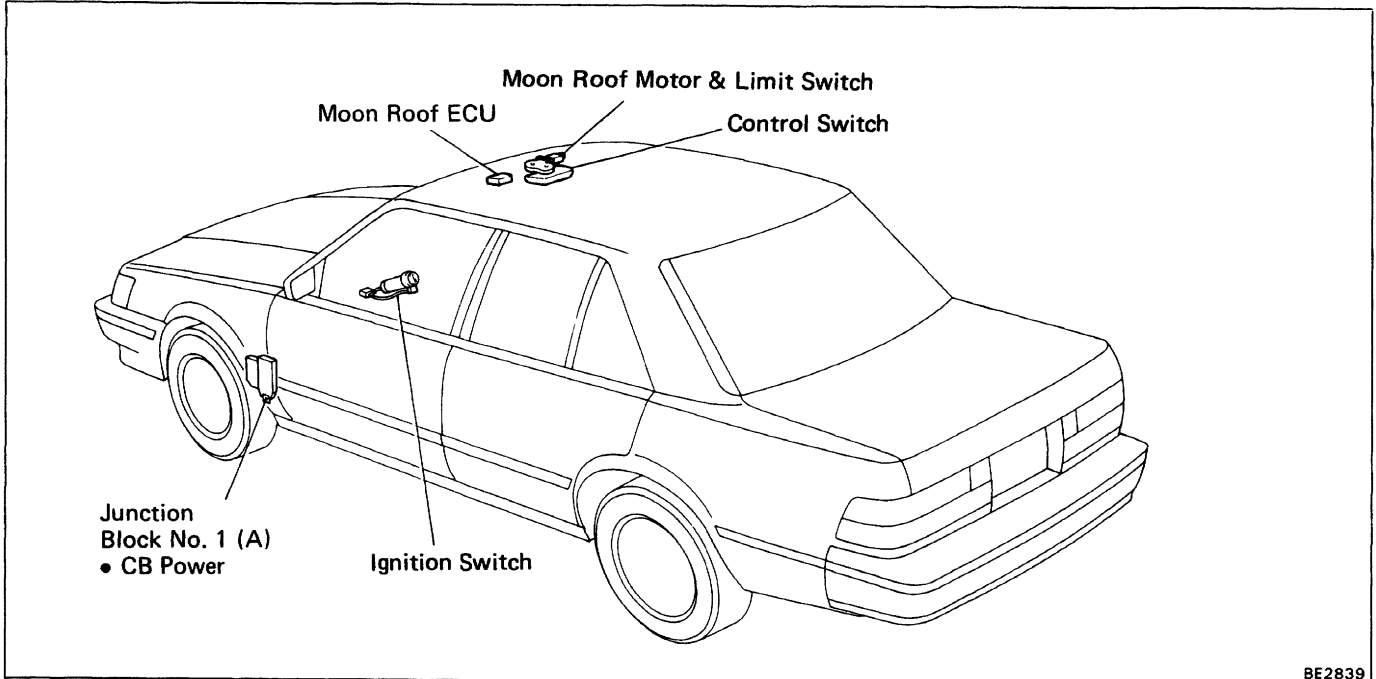


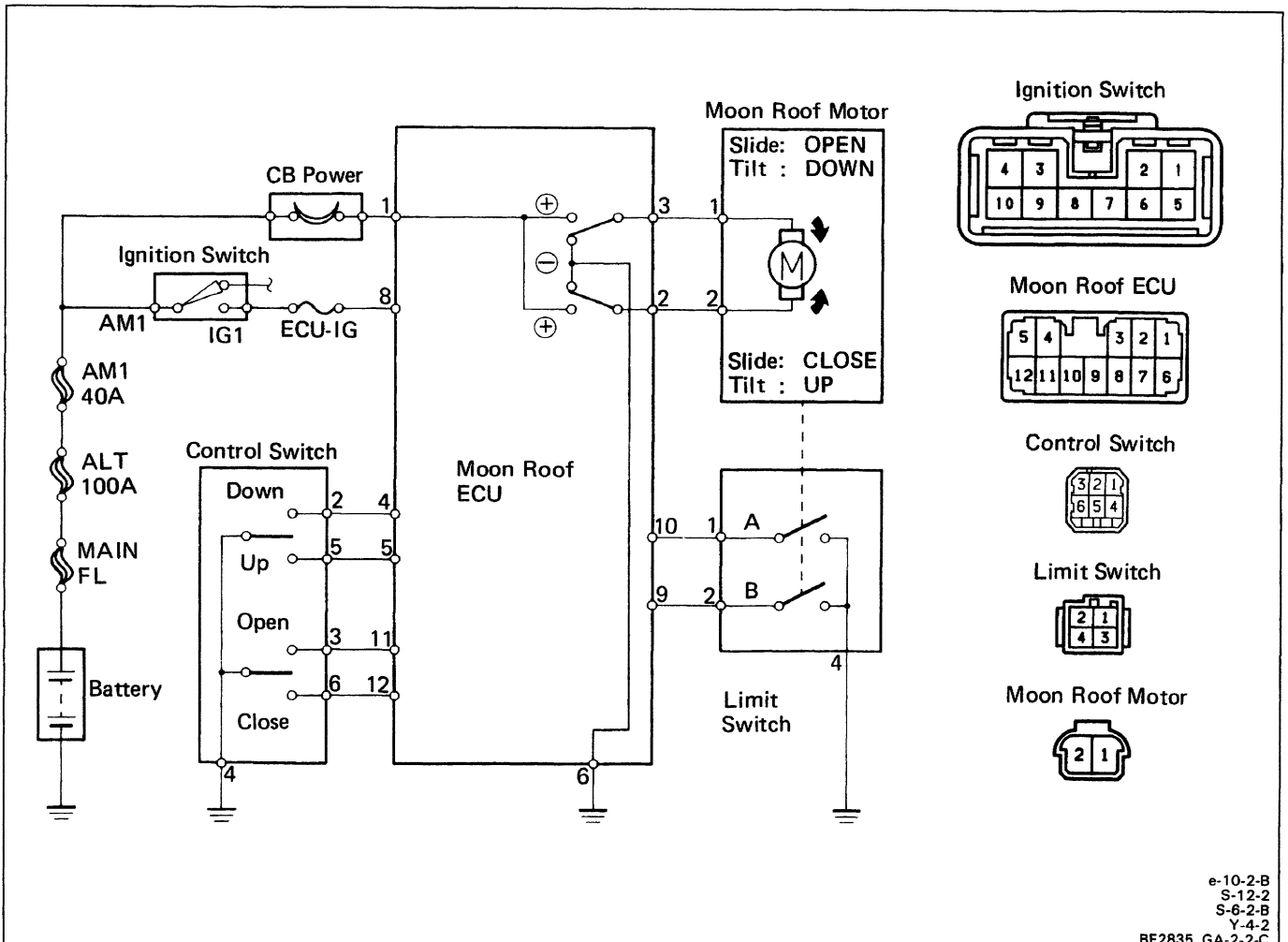
MOON ROOF SYSTEM

Parts Location

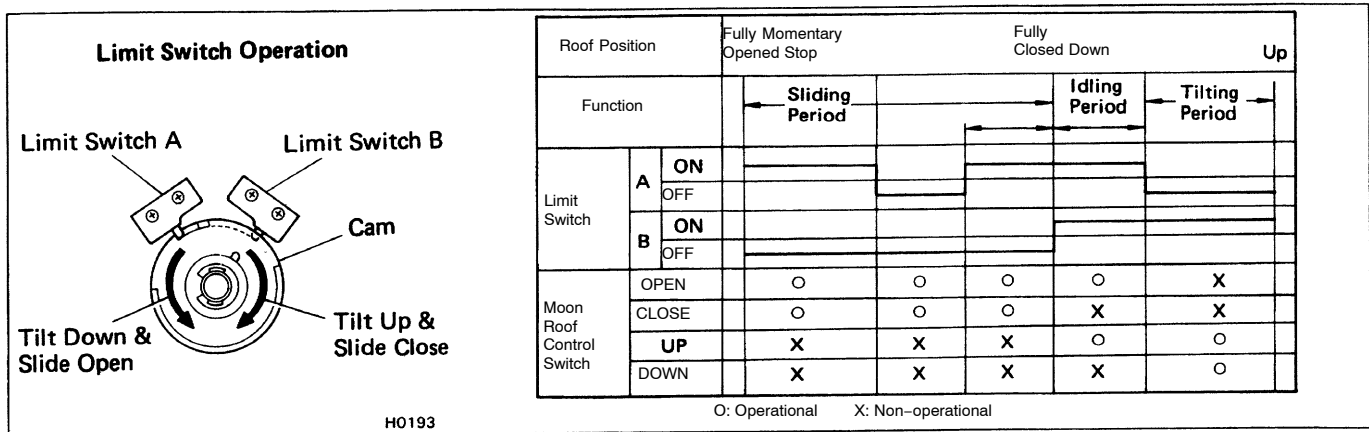


BE2839

Wiring and Connector Diagrams



e-10-2-B
S-12-2
S-6-2-B
Y-4-2
BE2835 GA-2-2-C



System Description

Standby Operation

- Current flows from the CB Power to terminal 1 of the Moon Roof ECU. (hereafter called ECU)
- When the ignition switch is on, the current flows from the ECU-IG fuse to terminal 8 of the ECU.

Operation

1. OPEN operation

When the switch on the "OPEN" side of the control switch is pushed, continuity is produced between terminal 11 of the ECU and body ground. Then, the ECU operates, the current flows through terminal 1 of the ECU → terminal 3 → terminal 1 of the moon roof motor → Y terminal 2 → terminal 2 of the ECU → Y terminal 6 → the body ground, and the motor starts to run in order to open the moon roof.

2. CLOSE operation

When the switch on the "CLOSE" side of the control switch is pushed, continuity is produced between terminal 12 of the ECU and body ground. Then, the ECU operates, the current flows through terminal 1 of the ECU → terminal 2 → terminal 2 of the moon roof motor → terminal 1 → terminal 3 of the ECU → terminal 6 → the body ground, and the motor starts to run in order to close the moon roof.

Momentary Stop

When the moon roof reaches about 100 mm (3.94 in.) short of the fully closed position, limit switch A is turned from ON to OFF, so there is no continuity between terminal 2 of the ECU and the body ground. As a result, because the ECU ceases to operate, the buzzer sounds and the moon roof stops at that position for approximately 2 seconds.

Then the moon roof moves to fully closed position.

3. Tilt up operation

When the switch on the "UP" side of the control switch is pushed, continuity is produced between terminal 5 of the ECU and body ground. Then, the ECU operates, the current flows through terminal 1 of the ECU → terminal 2 → terminal 2 of the moon roof motor → terminal 1 → terminal 3 of the ECU → terminal 6 → the body ground, and the motor starts to run in order to tilt up the moon roof.

4. Tilt Down operation

When the switch on the "DOWN" side of the control switch is pushed, continuity is produced between terminal 4 of the ECU and body ground. Then the ECU operates, the current flows through terminal 1 of the ECU → terminal 3 → terminal 1 of the moon roof motor → terminal 2 → terminal 2 of the ECU → terminal 6 → the body ground, and the motor starts to run in order to tilt down the moon roof.

System Inspection

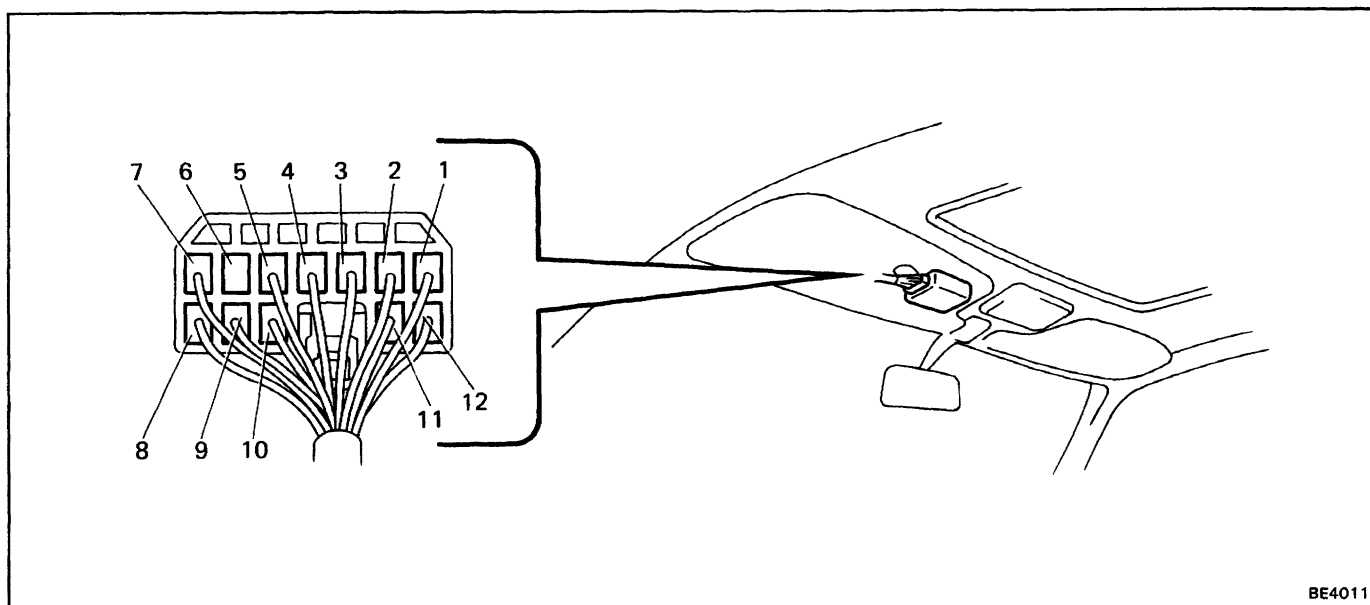
(See page BE-5 for How to Inspect)

- (1) First, select the applicable item in the **Trouble** Column of the trouble chart, then look at the applicable codes in the **Check Order** column.
- (2) Using the inspection chart, inspect the first item shown in the **Check Order** column.
- (3)-1 If the inspection result is good, check the next item. If there are no further codes, advance to step (4).
- (3)-2 If the inspection result is no good, inspect the item in the Possible Cause column in the inspection chart. After inspecting, check the system operation again. If the result is still no good, inspect the next item.
- (4) If all inspection items are good, inspect the applicable item in the **Possible Cause** column in the trouble chart.

[Trouble Chart]

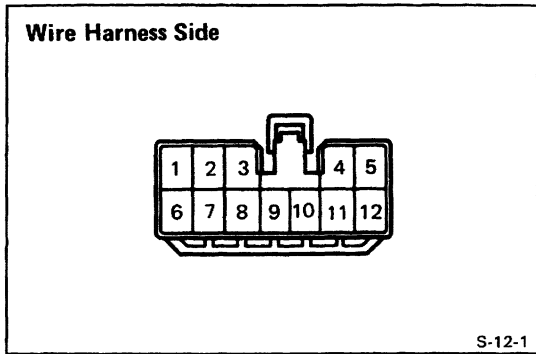
Trouble		Check Order	Possible Cause
OPEN	Does not move.	A → E → F → G → H → I →	Moon Roof ECU faulty.
	Stops halfway.		
CLOSE	Does not move.	B → E → F → J → K → L →	Moon Roof ECU faulty.
	Stops halfway.		
	Does not stop momentarily at momentary stop position.	→	Limit Switch faulty.
	Returns and stops before the fully closed position.	→	Limit Switch faulty.
	Moves to fully up position through the fully closed position.	→	Limit Switch faulty.
UP	Does not move.	C → E → F → M → N → O →	Moon Roof ECU faulty.
	Stops halfway.		
DOWN	Does not move.	D → E → F → P → Q → R →	Moon Roof ECU faulty.
	Stops halfway.		

[Part Location and Connector Diagram]



[Inspection Chart]

CODE	CONNECTION	CHECK CONDITION	SPECIFIED VALUE	POSSIBLE CAUSE
A	—	Push "DOWN" on the control switch	Does not moves to the open side	Limit switch faulty.
B	—	Push "UP" on the control switch	Does not moves to the close side	Limit switch faulty.
C	—	Push "CLOSE" on the control switch	Does not moves to the tilt up side	Limit switch faulty.
D	—	Push "OPEN" on the control switch	Does not moves to the tilt down side	Limit switch faulty.
E	8 - Ground	Ignition switch ON	Battery voltage	Power source circuit faulty
F	6 - Ground	Constant	Continuity	Body ground circuit faulty
G	Ground terminal 11	Ignition switch ON	Moves to the Open side	Control Switch circuit faulty
H	Ground terminal 2	Push "OPEN" on the control switch	Moves to the Open side	Moon Roof Motor faulty
I	3 - Ground	Push "OPEN" on the control switch	Battery voltage	Moon Roof ECU faulty
J	Ground terminal 12	Ignition switch ON	Moves to the Close side	Control Switch circuit faulty
K	Ground terminal 3	Push "CLOSE" on the control switch	Moves to the Close side	Moon Roof Motor faulty
L	2 - Ground	Push "CLOSE" on the control switch	Battery voltage	Moon Roof ECU faulty
M	Ground terminal 5	Ignition switch ON	Moves to the tilt UP side	Control Switch circuit faulty
N	Ground terminal 3	Push "UP" on the control switch	Moves to the tilt UP side	Moon Roof Motor faulty
O	2 - Ground	Push "UP" on the control switch	Battery voltage	Moon Roof ECU faulty
P	Ground terminal 4	Ignition switch ON	Moves to the tilt Down side	Control Switch circuit faulty
Q	Ground terminal 2	Push "DOWN" on the control switch	Moves to the tilt Down side	Moon Roof Motor faulty
R	3 - Ground	Push "DOWN" on the control switch	Battery voltage	Moon Roof ECU faulty



Parts Inspection

1. INSPECT MOON ROOF ECU

Disconnect the ECU and inspect the connector on the wire harness side as shown in the chart below.

Check for	Tester connection	Condition	Specification Value
Voltage	1 - Ground	Constant	Battery voltage
Continuity	2-3	Constant	Continuity
	4 - Ground	Turn tilt DOWN switch ON	Continuity
	5 - Ground	Turn tilt UP switch ON	Continuity
	6 - Ground	Constant	Continuity
Voltage	8 - Ground	Turn ignition switch ON	Battery voltage
Continuity	9 - Ground	See to Limit Switch Operation chart (See to BE-65)	
	10 - Ground	See to Limit Switch Operation chart (See to BE-65)	
	11 - Ground	Turn slide OPEN switch ON	Continuity
	12 - Ground	Turn slide CLOSE switch ON	Continuity

If circuit is correct, replace the moon roof ECU.

2. INSPECT SWITCHES

(Control Switch/ Continuity)

BE2857 S-6-2-B

Terminals		1	2	3	4	5	6
Switch Position							
Slide switch	OPEN			○	○		
	CLOSE				○	○	○
Tilt switch	UP				○	○	
	DOWN		○	○			

(Limit Switch/ Continuity)

BE2859 Y-4-2

Terminals		1	2	3	4
Switch position					
Limit switch A	OFF (SW pin pushed in)				
	ON (SW pin released)		○	○	○
Limit switch B	OFF (SW pin pushed in)				
	ON (SW pin released)		○	○	○

If continuity is not as specified, replace the switch.

3. INSPECT OF MOON ROOF MOTOR

- (a) Connect the positive (+) lead from the battery to terminal 1 and the negative (-) lead to terminal 2 and check that the motor turns clockwise.
 - (b) Connect the positive (+) lead from the battery to terminal 2 and the negative (-) lead to terminal 1 and check that the motor turns counterclockwise.
- If operation is not as specified, replace the motor.

