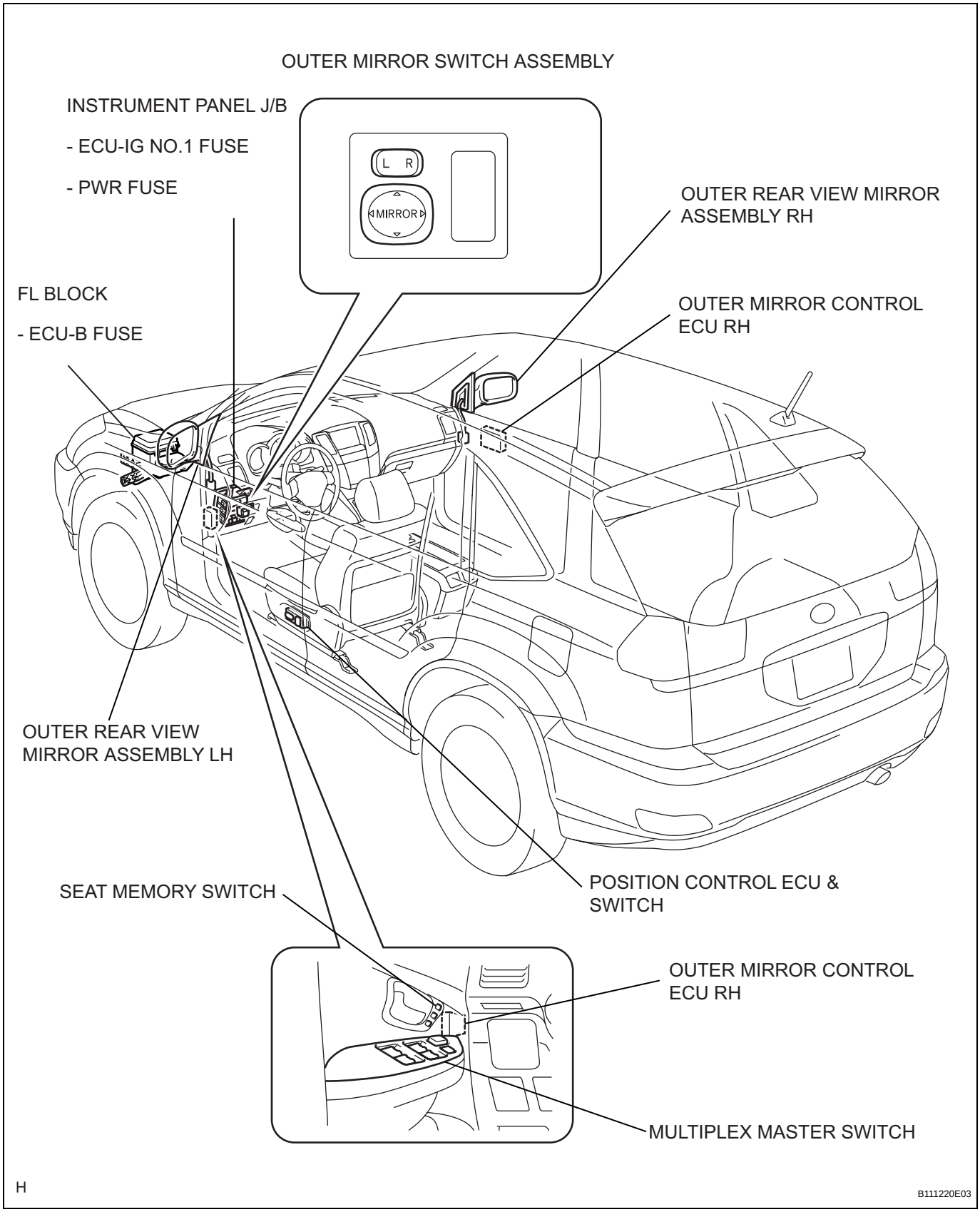
POWER MIRROR CONTROL SYSTEM (w/ Memory)

PRECAUTION

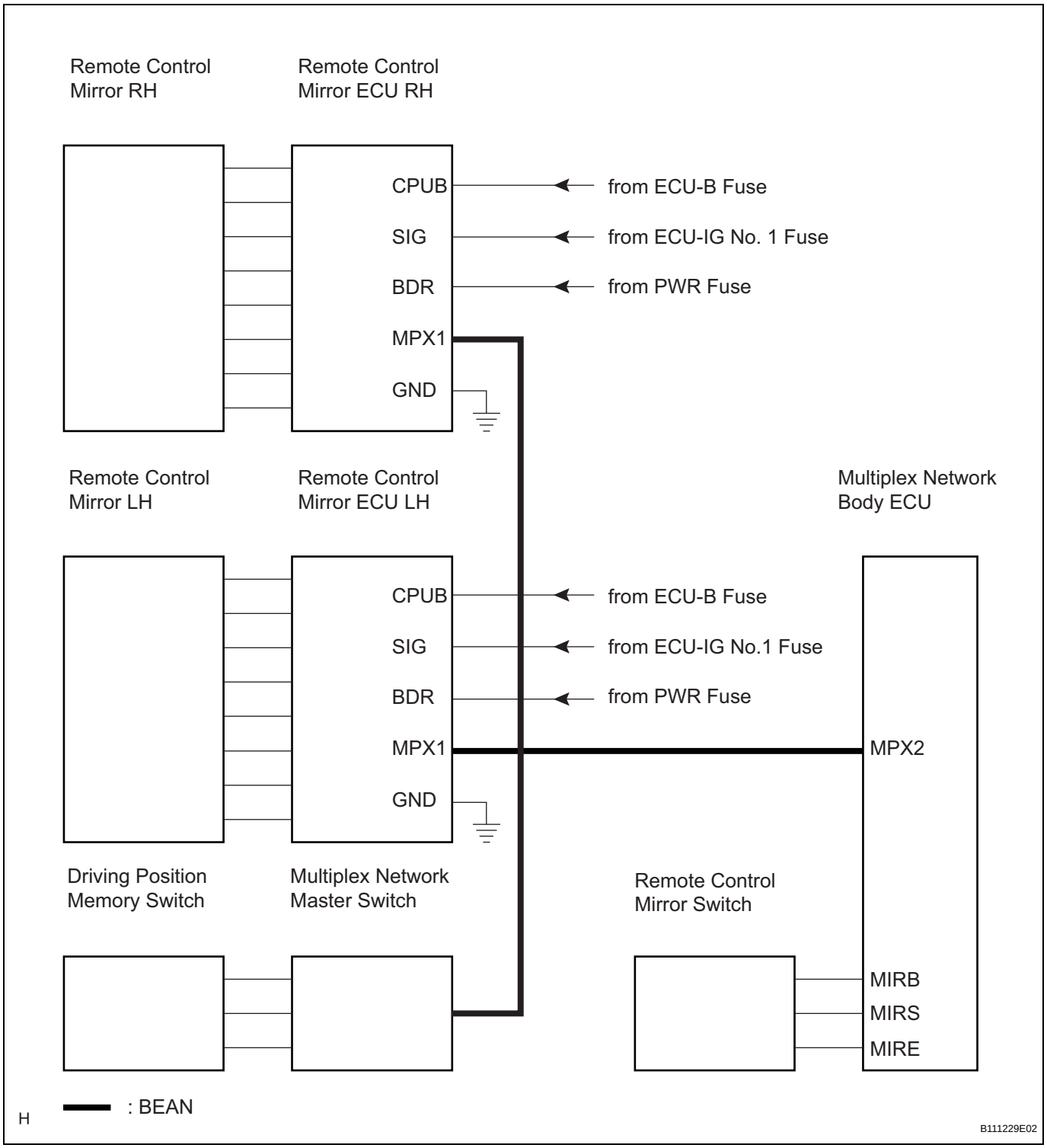
NOTICE:
When disconnecting the negative (-) battery cable, initialize the following systems after the cable is reconnected.

System Name	See Procedure
Lighting System (Adaptive Front-Lighting System)	LI-17
Sliding Roof Control	RF-4 and RF-22
Power Window Control System	WS-12
Power Back Door System	ED-33

PARTS LOCATION



SYSTEM DIAGRAM



MI

SYSTEM DESCRIPTION

The power mirror control system with memory function moves the power mirror to the memorized position when the seat memory switch is pressed. The system is controlled by the seat ECU (position control ECU & switch assembly built into the driver side seat) whose memory function records the desired position of the mirror and the outer mirror control ECU which commands the mirror motor to operate. When the power mirror control system with memory function is operating normally, pressing the seat memory switch activates the seat ECU to send a signal to the outer mirror control ECU via BEAN, which then commands the mirror to move the memorized position.

HOW TO PROCEED WITH TROUBLESHOOTING

HINT:

- Use this procedure to troubleshoot the power mirror control system.
- The intelligent tester should be used in steps 3 and 5.

1	VEHICLE BROUGHT TO WORKSHOP

NEXT

2	CUSTOMER PROBLEM ANALYSIS CHECK AND SYMPTOM CHECK

NEXT

3	CHECK COMMUNICATION FUNCTION OF BODY MULTIPLEX COMMUNICATION SYSTEM (BEAN)

HINT:

See page MP-6

(a) Use the intelligent tester to check for normal function of the multiplex communication system.
  (1) (ECU unconnected, communication line malfunctioning) If no code are output, proceed to A.
  (2) (ECU unconnected, communication line malfunctioning) If any codes are output, proceed to B.

B → GO TO MULTIPLEX COMMUNICATION SYSTEM

A

4	PROBLEM SYMPTOMS TABLE

HINT:

See page MI-5

NEXT

5	OVERALL ANALYSIS AND TROUBLESHOOTING

(a) Data list/Active test
  HINT:
  See page MI-9
(b) Circuit inspection
(c) Terminals of ECU
  HINT:
  See page MI-6

NEXT

6	**ADJUST, REPAIR OR REPLACE**

NEXT

END

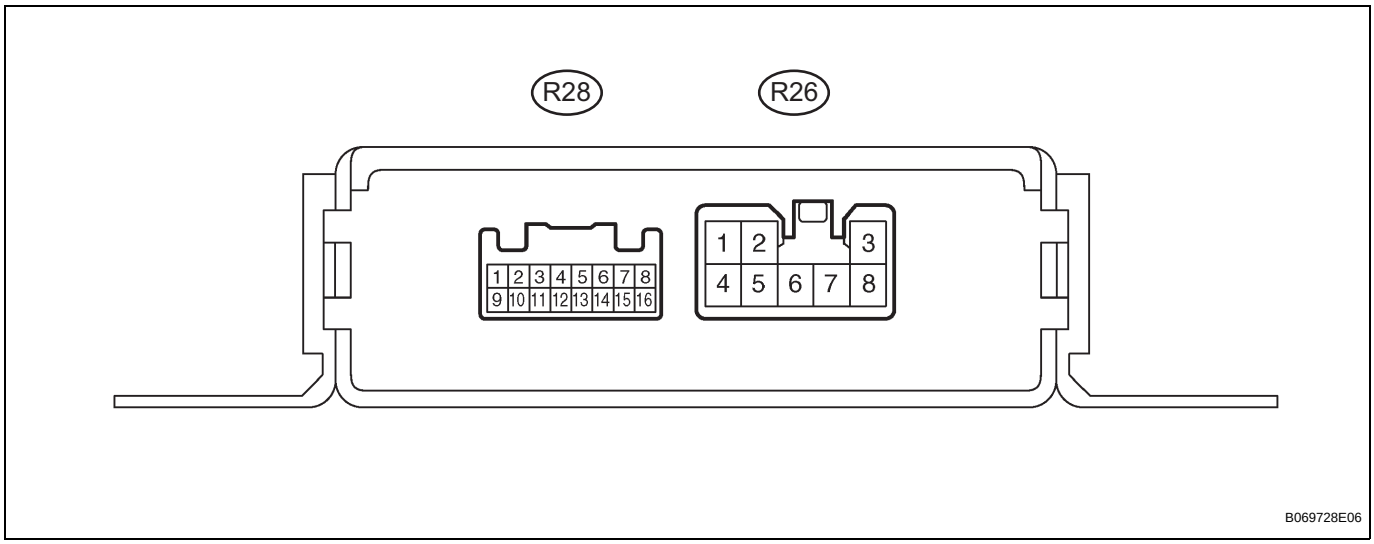
PROBLEM SYMPTOMS TABLE

Power Mirror Control System

Symptom	Suspected area	See page
Power mirrors cannot be adjusted manually	1. Power source circuit	MI-22
	2. Outer mirror switch circuit	MI-13
	3. Outer mirror motor circuit	MI-16
	4. Outer mirror switch	MI-38
	5. Outer rear view mirror	MI-33
Power mirrors do not move to memorized positions	1. Driving position switch circuit	MI-19
	2. Seat memory switch	-
	3. Position control ECU & switch	-
	4. Multiplex network master switch	-
Either driver side or passenger side power mirror cannot be adjusted manually	1. Power source circuit	MI-22
	2. Outer mirror switch circuit	MI-13
	3. Outer mirror motor circuit	MI-16
	4. Outer mirror switch	MI-38
	5. Outer rear view mirror	MI-33

TERMINALS OF ECU

1. CHECK OUTER MIRROR CONTROL ECU LH



(a) Disconnect the R26 connector.
(b) Measure the voltage and resistance according to the value(s) in the table below.

Standard voltage

Symbols (Terminal No.)	Wiring Color	Terminal Description	Condition	Specified Condition
BDR (R26-3) - Body ground	G - Body ground	+B power supply	Always	10 to 14 V
CPUB (R26-7) - Body ground	L-B - Body ground	+B power supply	Always	10 to 14 V
SIG (R26-8) - Body ground	GR - Body ground	Ignition power supply	Ignition switch OFF → ON	0 V → 10 to 14 V

Standard resistance

Symbols (Terminal No.)	Wiring Color	Terminal Description	Condition	Specified Condition
GND (R26-1) - Body ground	W-B - Body ground	Ground	Always	Below 1 Ω

If the result is not as specified, there may be a malfunction on the wire harness side.
(c) Reconnect the R26 connector.
(d) Measure the voltage according to the value(s) in the table below.

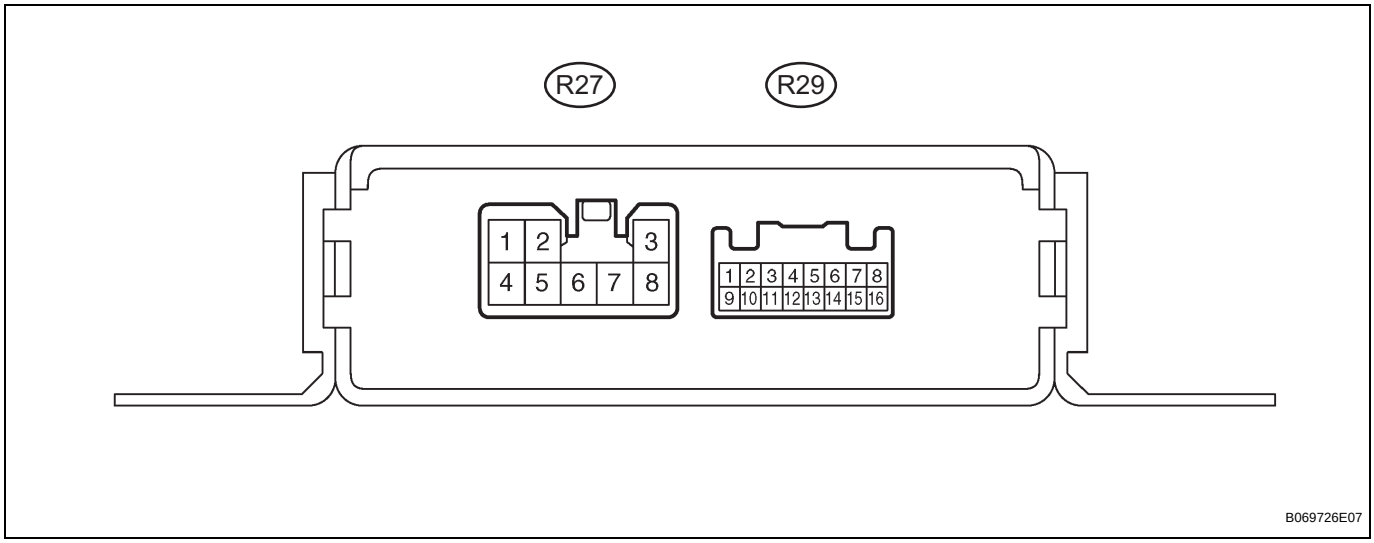
MI

Standard voltage

Symbols (Terminal No.)	Wiring Color	Terminal Description	Condition	Specified Condition
LMVR (R28-1) - Body ground	V - Body ground	Outer mirror switch signal (Up or Right)	Ignition switch ACC, Left/Right adjustment switch L side, Mirror switch OFF→ UP or Right	0 V → 10 to 14 V
HTR+ (R28-4) - HTR- (R23-12)	B - B	Mirror heater signal	Mirror heater switch ON	0 V → 10 to 14 V
LVC (R28-5) - Body ground	R-W - Body ground	Power source for mirror position sensor	Ignition switch OFF → ACC	0 V → 0 to 5 V

Symbols (Terminal No.)	Wiring Color	Terminal Description	Condition	Specified Condition
VSSR (R28-6) - Body ground	Y-B - Body ground	Vertical direction position signal	Ignition switch ACC, Left/Right adjustment switch L side, Mirror switch uppermost position → lowermost position	0 V → 1 to 3 V
LMHR (R28-9) - Body ground	BR - Body ground	Outer mirror switch signal (Left or Down)	Ignition switch ACC, Left/Right adjustment switch L side, Mirror switch OFF→ LEFT or DOWN	0 V → 10 to 14 V
LM+R (R28-10) - Body ground	R - Body ground	Outer mirror switch signal (Right or Down)	Ignition switch ACC, Left/Right adjustment switch L side, Mirror switch OFF→ RIGHT or DOWN	0 V → 10 to 14 V
HSSR (R28-13) - Body ground	P - Body ground	Horizontal direction position signal	Ignition switch ACC, Left/Right adjustment switch L side, Mirror switch innermost position → outermost position	0 V → 1 to 3 V

2. CHECK OUTER MIRROR CONTROL ECU RH



(a) Disconnect the R27 connector.
(b) Measure the voltage and resistance according to the value(s) in the table below.

Standard voltage

Symbols (Terminal No.)	Wiring Color	Terminal Description	Condition	Specified Condition
BDR (R27-3) - Body ground	G - Body ground	+B power supply	Always	10 to 14 V
CPUB (R27-7) - Body ground	L-B - Body ground	+B power supply	Always	10 to 14 V
SIG (R27-8) - Body ground	GR - Body ground	Ignition power supply	Ignition switch OFF → ON	0 V → 10 to 14 V

Standard resistance

Symbols (Terminal No.)	Wiring Color	Terminal Description	Condition	Specified Condition
GND (R27-1) - Body ground	W-B - Body ground	Ground	Always	Below 1 Ω

If the result is not as specified, there may be a malfunction on the wire harness side.

(c) Reconnect the R27 connector.

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

Standard voltage

Symbols (Terminal No.)	Wiring Color	Terminal Description	Condition	Specified Condition
LMVR (R29-1) - Body ground	V - Body ground	Outer mirror switch signal (Up or Right)	Ignition switch ACC, Left/Right adjustment switch L side, Mirror switch OFF→ UP or Right	0 V → 10 to 14 V
HTR+ (R29-4) - HTR- (R29-12)	B - B	Mirror heater signal	Mirror heater switch ON	0 V → 10 to 14 V
LVC (R29-5) - Body ground	R-W - Body ground	Power source for mirror position sensor	Ignition switch OFF → ACC	0 V → 0 to 5 V
VSSR (R29-6) - Body ground	Y-B - Body ground	Vertical direction position signal	Ignition switch ACC, Left/Right adjustment switch L side, Mirror switch uppermost position → lowermost position	0 V → 1 to 3 V
LMHR (R29-9) - Body ground	BR - Body ground	Outer mirror switch signal (Left or Down)	Ignition switch ACC, Left/Right adjustment switch L side, Mirror switch OFF→ LEFT or DOWN	0 V → 10 to 14 V
LM+R (R29-10) - Body ground	R - Body ground	Outer mirror switch signal (Right or Down)	Ignition switch ACC, Left/Right adjustment switch L side, Mirror switch OFF→ RIGHT or DOWN	0 V → 10 to 14 V
HSSR (R29-13) - Body ground	P - Body ground	Horizontal direction position signal	Ignition switch ACC, Left/Right adjustment switch L side, Mirror switch innermost position → outermost position	0 V → 1 to 3 V

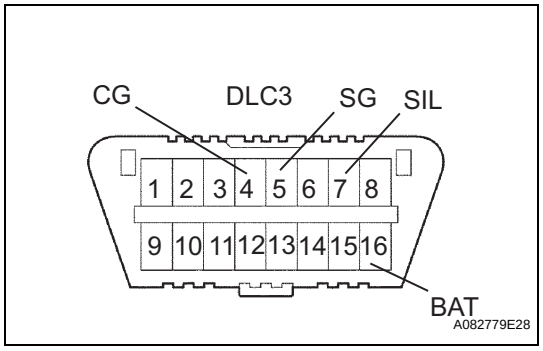
DIAGNOSIS SYSTEM

1. DESCRIPTION

(a) Data of the system can be read from the Data Link Connector 3 (DLC3) of the vehicle. Therefore, when the system seems to be malfunctioning, use the intelligent tester to check for a malfunction and repair it.

2. CHECK DLC3

(a) The vehicle's ECM uses ISO 9141-2 communication protocol. The terminal arrangement of the DLC3 complies with SAE J1962 and matches the ISO 9141-2 format.



Standard

Tester Connection	Condition	Specified Condition
7 (Bus + line) - 5 (Signal ground)	During communication	Pulse generation
4 (Chassis ground) - Body ground	Constant	Below 1 Ω
5 (Signal ground) - Body ground	Constant	Below 1 Ω
16 (B+) - Body ground	Constant	9 to 14 V

HINT:

If the screen displays a communication error message after you have connected the cable of the intelligent tester to the DLC3, turned the ignition switch ON and used the intelligent tester, the problem may be on the vehicle side or tester side.

- If communication is normal when the tester is connected to another vehicle, inspect the DLC3 of the original vehicle.
- If communication is still impossible when the tester is connected to another vehicle, the problem is probably in the tester itself, so consult the Service Department listed in the tester's instruction manual.

DATA LIST / ACTIVE TEST

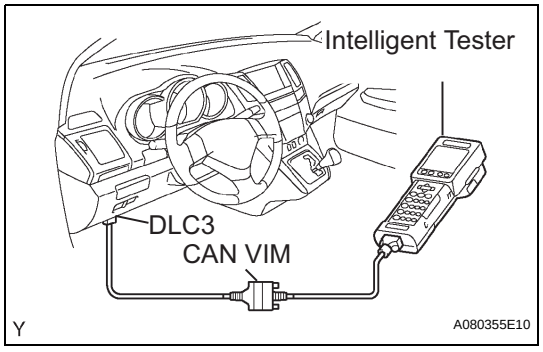
1. USING INTELLIGENT TESTER

(a) Connect the intelligent tester to the DLC3.

(b) Monitor the ECU data by following the prompts on the tester screen.

HINT:

The intelligent tester has a "Snapshot" function which records the monitored data. Refer to the intelligent tester operator's manual for further details.



MI

2. DATA LIST

HINT:

Using the DATA LIST displayed on the intelligent tester, you can read the value of the switch, sensor, actuator, etc. without parts removal. Reading the DATA LIST as the first step of troubleshooting is one way to shorten the labor time.

(a) Connect the intelligent tester to the DLC3.
(b) Turn the ignition switch ON.
(c) Read the DATA LIST according to the display on the tester.

MIRROR-L/MIRROR-R

Item	Test Details	Diagnostic Note
MIRR POS SEN V	Vertical mirror position/MIN: 0, MAX 5 V	Within range from 0 to 5 V
MIRR POS SEN H	Horizontal mirror position/MIN: 0, MAX 5 V	Within range from 0 to 5 V
MIRR MEM 1	Mirror position memorized in memory switch M1/NOT MEM or MEM	MEM: Memorized NOT MEM: Not memorized
MIRR MEM 2	Mirror position memorized in memory switch M2/NOT MEM or MEM	MEM: Memorized NOT MEM: Not memorized

MASTER SW

Item	Test Details	Diagnostic Note
SEAT SET SW	Seat memory set switch signal/ON or OFF	ON: Memory set switch is pressed OFF: Memory set switch is not pressed
SEAT MEM M1	Seat memory switch M1 signal/ON or OFF	ON: Seat memory M1 switch is pressed OFF: Seat memory M1 switch is not pressed
SEAT MEM M2	Seat memory switch M2 signal/ON or OFF	ON: Seat memory M2 switch is pressed OFF: Seat memory M2 switch is not pressed

D-SEAT

Item	Test Details	Diagnostic Note
POWER VOLTAGE	Power supply for position control ECU & switch/MIN: 0 V, MAX: 19.89 V	Within range from 11 to 14 V
IG SW	Ignition switch status/ON or OFF	ON: Ignition switch is ON OFF: Ignition switch is OFF
KEY UNLOCK SW	Key unlock warning switch signal/ON or OFF	ON: Key is in ignition key cylinder OFF: Key is not in ignition key cylinder
PNP SW	Park/Neutral position switch signal/ON or OFF	ON: Shift in P position OFF: Shift in any position except neutral
M1 SW	Seat memory switch M1 signal/ON or OFF	ON: Seat memory switch M1 is ON OFF: Seat memory switch M1 is OFF
M2 SW	Seat memory switch M2 signal/ON or OFF	ON: Seat memory switch M2 is ON OFF: Seat memory switch M2 is OFF
SET SW	Seat memory set switch signal/ON or OFF	ON: Memory set switch is ON OFF: Memory set switch is OFF
MEM M1 SW	Driving position memorized in seat memory switch M1/NOT MEM or MEM	MEM: Memorized NOT MEM: Not memorized
MEM M2 SW	Driving position memorized in seat memory switch M2/NOT MEM or MEM	MEM: Memorized NOT MEM: Not memorized
D-MIRR MEM M1	Driver side mirror position memorized in seat memory switch M1/NOT MEM or MEM	MEM: Memorized NOT MEM: Not memorized
D-MIRR MEM M2	Driver side mirror position memorized in seat memory switch M2/NOT MEM or MEM	MEM: Memorized NOT MEM: Not memorized
P-MIRR MEM M1	Passenger side mirror position memorized in seat memory switch M1/NOT MEM or MEM	MEM: Memorized NOT MEM: Not memorized
P-MIRR MEM M2	Passenger side mirror position memorized in seat memory switch M2/NOT MEM or MEM	MEM: Memorized NOT MEM: Not memorized

Item	Test Details	Diagnostic Note
D-MIRR MEM POS 1	Driver side mirror position memorized in seat memory switch M1/MIN: 0, MAX: 65535	Within range from 0 to 65535
P-MIRR MEM POS 1	Passenger side mirror position memorized in seat memory switch M1/MIN: 0, MAX: 65535	Within range from 0 to 65535
D-MIRR MEM POS 2	Driver side mirror position memorized in seat memory switch M2/MIN: 0, MAX: 65535	Within range from 0 to 65535
P-MIRR MEM POS 2	Passenger side mirror position memorized in seat memory switch M2/MIN: 0, MAX: 65535	Within range from 0 to 65535

BODY

Item	Test Details	Diagnostic Note
MIRR SEL SW R	Mirror selection switch signal for RH mirror/ ON or OFF	ON: Switch is in Right position OFF: Switch is in neutral or Left position
MIRR SEL SW L	Mirror selection switch signal for LH mirror/ ON or OFF	ON: Switch is in Left position OFF: Switch is in neutral or Right position
MIRR POS SW R	Mirror position switch signal (Right)/ON or OFF	ON: Switch R is ON OFF: Any switch except R is ON or all switches are OFF
MIRR POS SW L	Mirror position switch signal (Left)/ON or OFF	ON: Switch L is ON OFF: Any switch except L is ON or all switches are OFF
MIRR POS SW UP	Mirror position switch signal (Up)/ON or OFF	ON: Switch UP is ON OFF: Any switch except UP is ON or all switches are OFF
MIRR POS SW DWN	Mirror position switch signal (Down)/ON or OFF	ON: Switch DOWN is ON OFF: Any switch except DOWN is ON or all switches are OFF

3. ACTIVE TEST

HINT:

Performing the ACTIVE TEST using the intelligent tester allows you to operate the relay, VSV, actuator, etc. without parts removal. Performing the ACTIVE TEST as the first step of troubleshooting is one way to shorten the labor time. It is possible to display the DATA LIST during the ACTIVE TEST.

(a) Connect the intelligent tester to the DLC3.

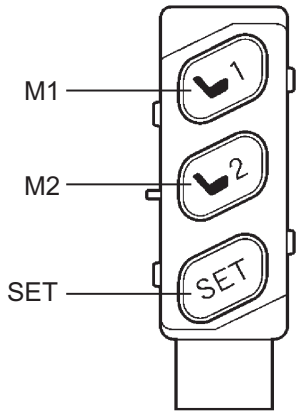
(b) Turn the ignition switch ON.

(c) Perform the ACTIVE TEST according to the display on the tester.

MIRROR-L/MIRROR-R

Item	Test Details
MIRR UP/DOWN	Mirror vertical operation: UP/DOWN
MIRR RIGHT/LEFT	Mirror horizontal operation: RIGHT/LEFT
MIRR HEATER	Mirror heater operation: OFF/ON

Seat Memory Switch:



ON-VEHICLE INSPECTION

1. CHECK MEMORY AND REACTIVATION FUNCTION

(a) Turn the ignition switch ON and move the shift lever into the P position.

(b) Move the seat into the foremost position and uppermost position using each seat switch.

(c) Check that the buzzer sounds for 0.5 second and the seat position is recorded when the M1 switch is pressed while the SET switch is held down.

(d) Move the seat out of the foremost position and uppermost position using each seat switch.

(e) Check that the buzzer sounds for 0.5 second and the seat position is recorded when the M2 switch is pressed while the SET switch is held down.

(f) Check that the buzzer sounds for 0.1 second and the seat automatically moves into the foremost position and uppermost position (set positions) when the M1 switch is pressed.

(g) Check that the buzzer sounds for 0.1 second and the seat automatically moves out of the foremost position and uppermost position (set positions) when the M2 switch is pressed.

(h) Check that the seat automatically moves into the set position when the M1 or M2 switch is pressed within 30 seconds after the ignition switch is turned OFF, the key is pulled out from the key cylinder and the driver side door is opened.

(i) Move the seat into the maximum positions of the slide movement, and disconnect the negative terminal of the battery while the memory switch is in the ON position. Then leave the seat in the position for 3 minutes. The seat position memory will be erased.

(j) Move the seat into all the maximum positions (front/rear and up/down) using each seat switch.

(k) Check that the seat does not move (the seat position is not recorded) when the M1 switch or the M2 switch is pressed, after the M1 switch and M2 switch are pressed at one time while the SET switch is held down.

Mirror Switch Circuit

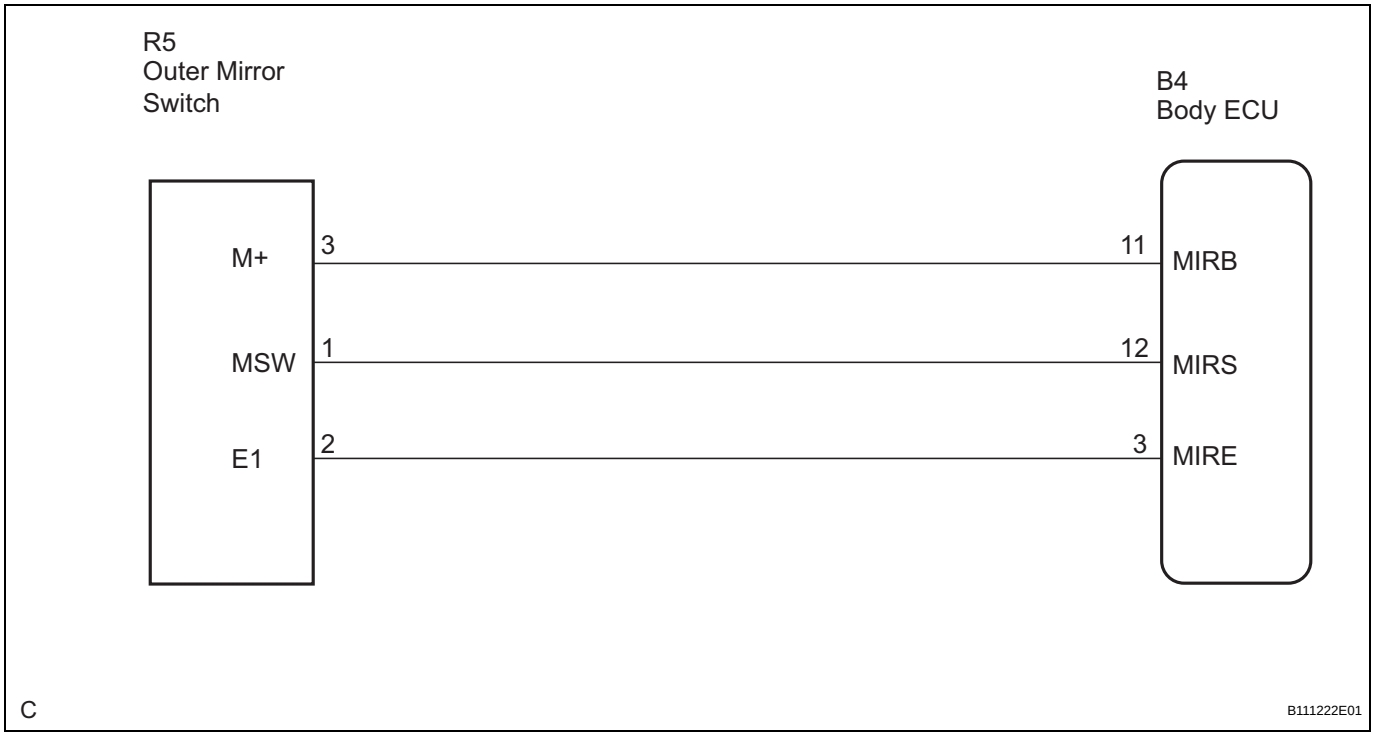
DESCRIPTION

A switch signal of the outer mirror switch is transmitted to the selected outer mirror control ECU by way of the multiplex network body ECU. Then, the outer mirror control ECU activates the mirror motor to move the mirror UP, DOWN, RIGHT and LEFT in response to the input.

HINT:

The power mirror control system is a part of the multiplex communication system. This system features shared communication wiring that reduces the wiring complexity of the communication lines. The first step in any repair is to confirm the proper operation of the communication system. Proceed with troubleshooting after the communication has been verified (See the Multiplex Communication System).

WIRING DIAGRAM



1	READ VALUE ON INTELLIGENT TESTER

(a) Check the DATA LIST for proper function of the outer mirror switches.

MI

BODY

Item	Measurement Item/Display (Range)	Normal Condition
MIRR SEL SW L	Mirror selection switch signal for LH mirror/ON or OFF	ON: Switch is in Left position OFF: Switch is in neutral or Right position
MIRR SEL SW R	Mirror selection switch signal for RH mirror/ ON or OFF	ON: Switch is in Right position OFF: Switch is in neutral or Left position
MIRR POS SW L	Mirror position switch signal (Left)/ON or OFF	ON: Switch L is ON OFF: Any switch except L is ON or all switches are OFF
MIRR POS SW R	Mirror position switch signal (Right)/ON or OFF	ON: Switch R is ON OFF: Any switch except R is ON or all switches are OFF

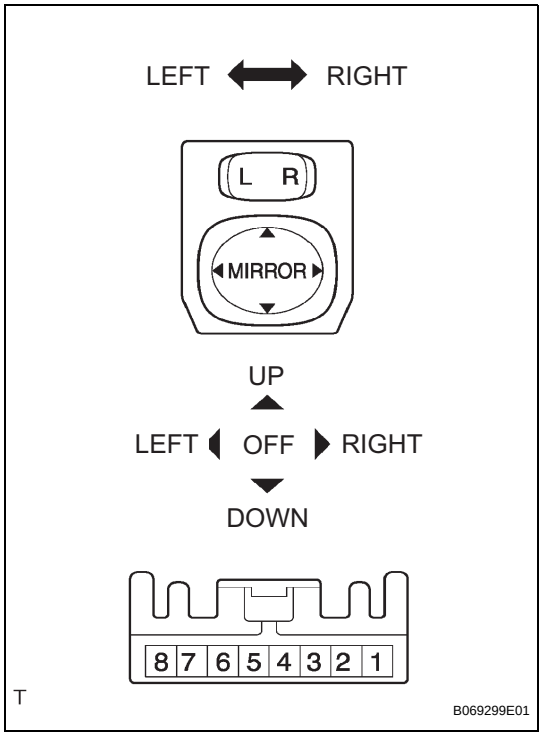
Item	Measurement Item/Display (Range)	Normal Condition
MIRR POS SW UP	Mirror position switch signal (Up)/ON or OFF	ON: Switch UP is ON OFF: Any switch except UP is ON or all switches are OFF
MIRR POS SW DWN	Mirror position switch signal (Down)/ON or OFF	ON: Switch DOWN is ON OFF: Any switch except DOWN is ON or all switches are OFF

NG → **Go to step 2**

OK

CHECK AND REPLACE OUTER MIRROR CONTROL ECU

2 INSPECT OUTER MIRROR SWITCH



(a) Remove the outer mirror switch.
(b) Measure the resistance according to the value(s) in the table below when the switch is operated.

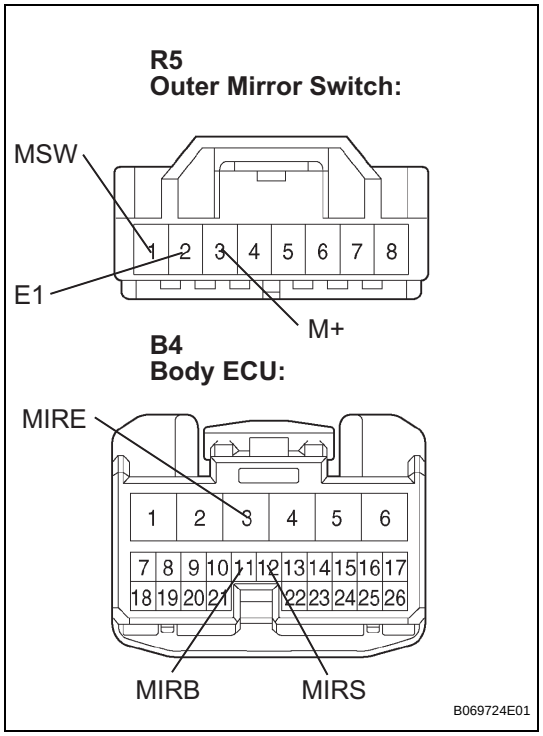
Standard resistance

Tester Connection	Switch Position	Specified Condition
2 - 3	OFF	10 kΩ or higher
	UP	225 to 275 Ω
	DOWN	437 to 503 Ω
	LEFT	744 to 856 Ω
	RIGHT	437 to 503 Ω
1 - 2	L	90 to 110 Ω
	R	10 Ω or less

NG → **REPLACE OUTER MIRROR SWITCH**

OK

3	CHECK WIRE HARNESS (OUTER MIRROR SWITCH - BODY ECU)



(a) Disconnect the R5 and B4 connectors.
(b) Measure the resistance according to the value(s) in the table below.

Standard resistance

Tester Connection	Condition	Specified Condition
R5-3 (M+) - B4-11 (MIRB)	Always	Below 1 Ω
R5-1 (MSW) - B4-12 (MIRS)	Always	Below 1 Ω
R5-2 (E1) - B4-3 (MIRE)	Always	Below 1 Ω
R5-3 (M+) - Body ground	Always	10 kΩ or higher
R5-1 (MSW) - Body ground	Always	10 kΩ or higher
R5-2 (E1) - Body ground	Always	10 kΩ or higher

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

OK

PROCEED TO NEXT INSPECTION SHOWN IN PROBLEM SYMPTOMS TABLE

Mirror Motor Circuit

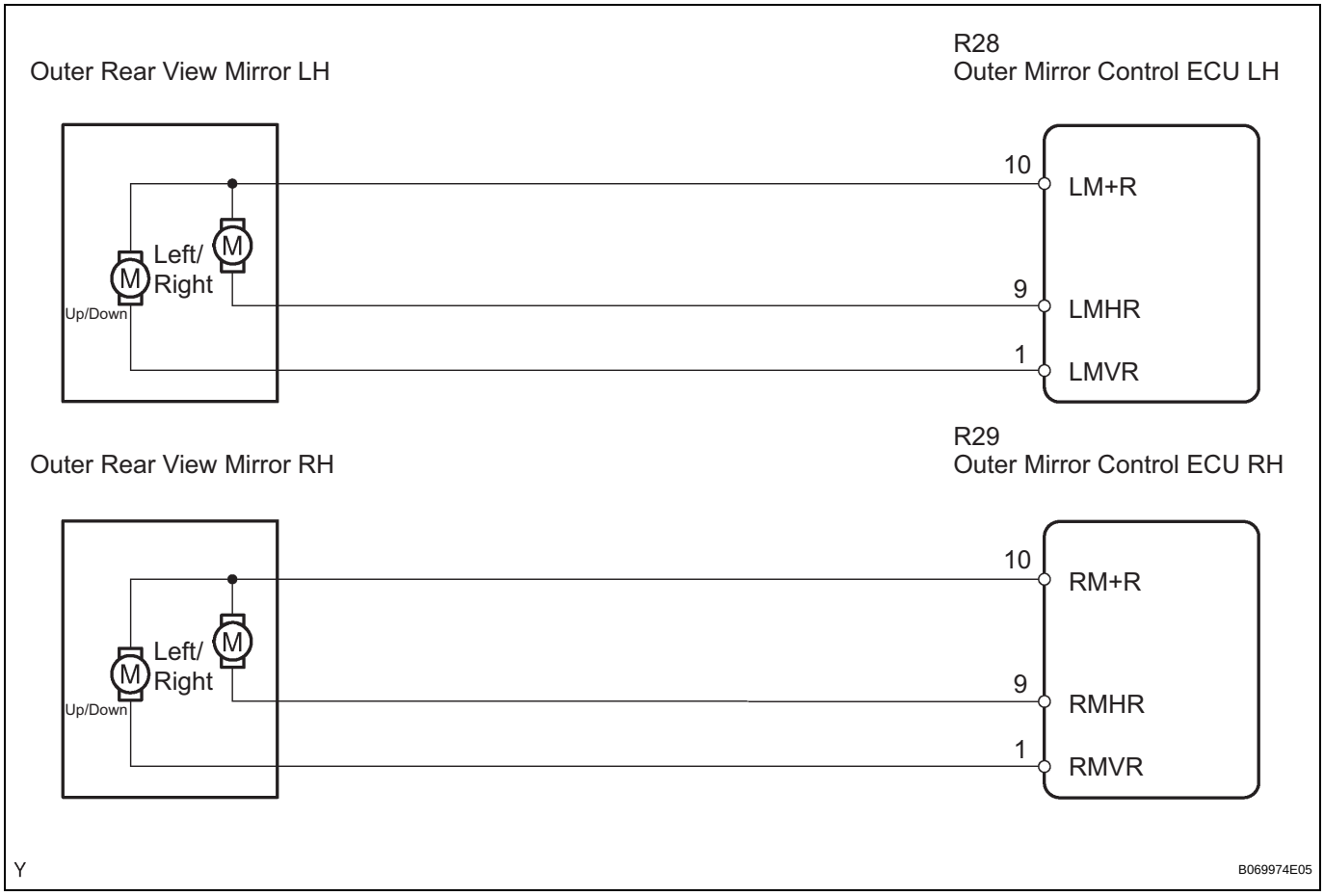
DESCRIPTION

Mirror control switch and memorized mirror position signals (from the position control ECU & switch (seat ECU)) are sent to the mirror control ECU. The mirror control ECU moves the selected mirror UP, DOWN, LEFT and RIGHT in response to the input.

HINT:

The power mirror control system is a part of the multiplex communication system. This system features shared communication wiring that reduces the wiring complexity of the communication lines. The first step in any repair is to confirm the proper operation of the communication system. Proceed with troubleshooting after the communication has been verified (See the Multiplex Communication System).

WIRING DIAGRAM



MI

1	PERFORM ACTIVE TEST USING INTELLIGENT TESTER

(a) Select the ACTIVE TEST, use the intelligent tester to issue a control command, and then check that the outer rear view mirrors.

MIRROR-L/MIRROR-R

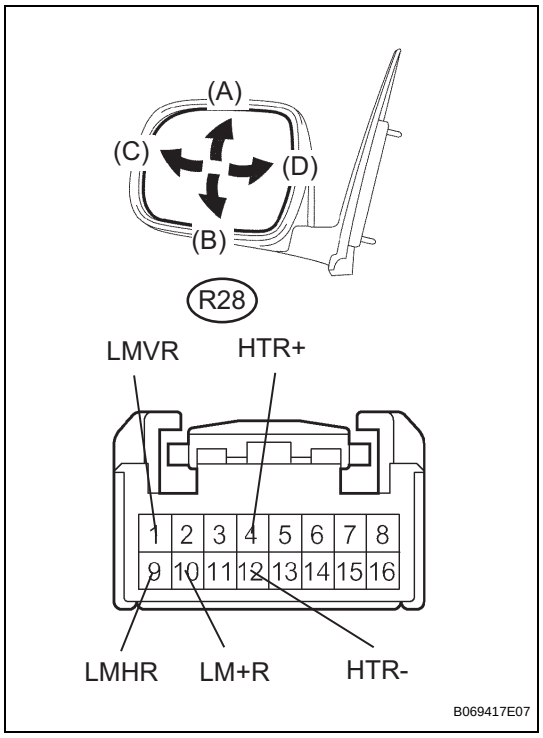
Item	Test Details
MIRR UP/DOWN	Mirror vertical operation: UP/DOWN
MIRR RIGHT/LEFT	Mirror horizontal operation: RIGHT/LEFT

NG → **Go to step 2**

OK

REPLACE OUTER MIRROR CONTROL ECU

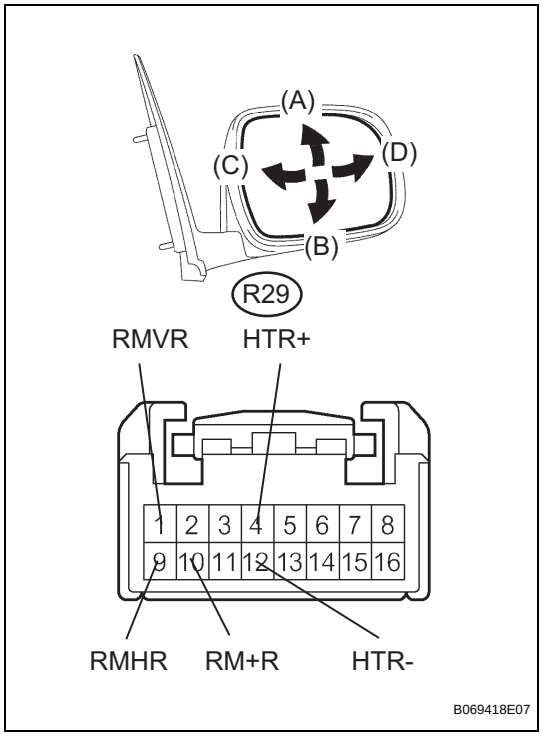
2 INSPECT OUTER REAR VIEW MIRROR



(a) Outer rear view mirror LH:
Disconnect the R28 connector.
(b) Apply battery voltage and check operation of the mirror face.

Standard

Measurement Condition	Mirror Operation
Battery positive (+) → R28-1 (LMVR) Battery negative (-) → R28-10 (LM+R)	Turns upward (A)
Battery positive (+) → R28-10 (LM+R) Battery negative (-) → R28-1 (LMVR)	Turns downward (B)
Battery positive (+) → R28-9 (LMHR) Battery negative (-) → R28-10 (LM+R)	Turns left (C)
Battery positive (+) → R28-10 (LM+R) Battery negative (-) → R28-9 (LMHR)	Turns right (D)



(c) Outer rear view mirror RH:
Disconnect the R29 connector.
(d) Apply battery voltage and check operation of the mirror face.

Standard

Measurement Condition	Mirror Operation
Battery positive (+) → R29-1 (RMVR) Battery negative (-) → R29-10 (RM+R)	Turns upward (A)
Battery positive (+) → R29-10 (RM+R) Battery negative (-) → R29-1 (RMVR)	Turns downward (B)
Battery positive (+) → R29-9 (RMHR) Battery negative (-) → R29-10 (RM+R)	Turns left (C)
Battery positive (+) → R29-10 (RM+R) Battery negative (-) → R29-9 (RMHR)	Turns right (D)

NG → **REPLACE OUTER REAR VIEW MIRROR**

MI

OK

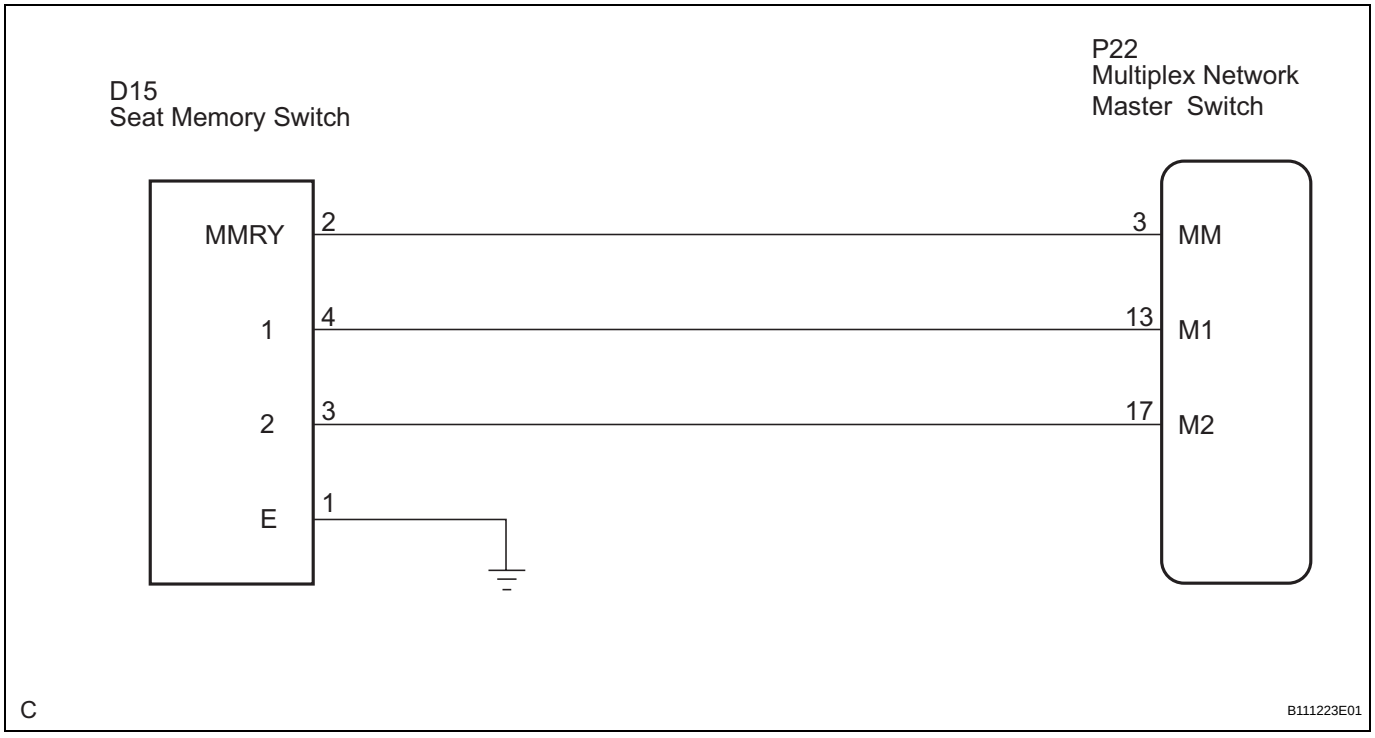
REPLACE OUTER MIRROR CONTROL ECU

Driving Position Memory Switch Circuit (w/ Memory)

DESCRIPTION

When the seat memory switch M1 or M2 is pressed, the position control ECU & switch (Seat ECU) transmits a signal of the memorized mirror position to the outer mirror control ECU by way of the power window regulator master switch. Then, the outer mirror control ECU drives the mirror motor.
HINT:
The power mirror control system is a part of the multiplex communication system. This system features shared communication wiring that reduces the wiring complexity of the communication lines. The first step in any repair is to confirm the proper operation of the communication system. Proceed with troubleshooting after the communication has been verified (See the Multiplex Communication System).

WIRING DIAGRAM



1	READ VALUE ON INTELLIGENT TESTER

(a) Check the DATA LIST for proper function of the seat memory switch.

D-SEAT

Item	Switch Position	Specified condition
D-MIRR MEM M1	Driver side mirror position memorized in seat memory switch M1/NOT MEM or MEM	MEM: Memorized NOT MEM: Not memorized
D-MIRR MEM M2	Driver side mirror position memorized in seat memory switch M2/NOT MEM or MEM	
P-MIRR MEM M1	Passenger side mirror position memorized in seat memory switch M1/NOT MEM or MEN	
P-MIRR MEM M2	Passenger side mirror position memorized in seat memory switch M2/NOT MEM or MEN	

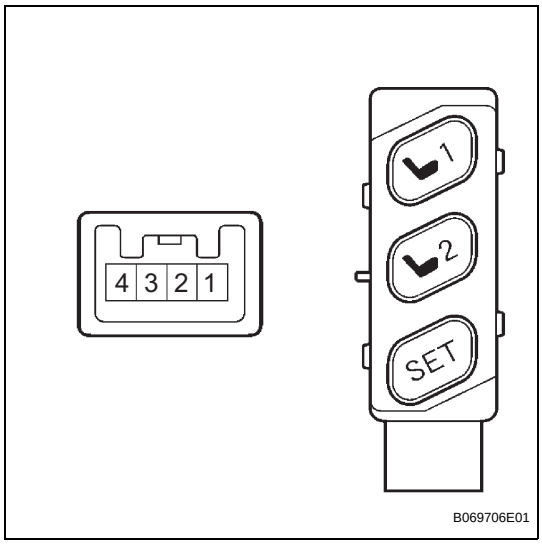
NG → **Go to step 2**

MI

OK

CHECK AND REPLACE OUTER MIRROR CONTROL ECU

2 **CHECK SEAT MEMORY SWITCH**



(a) Remove the seat memory switch.
(b) Measure the resistance according to the value(s) in the table below when the switch is operated.

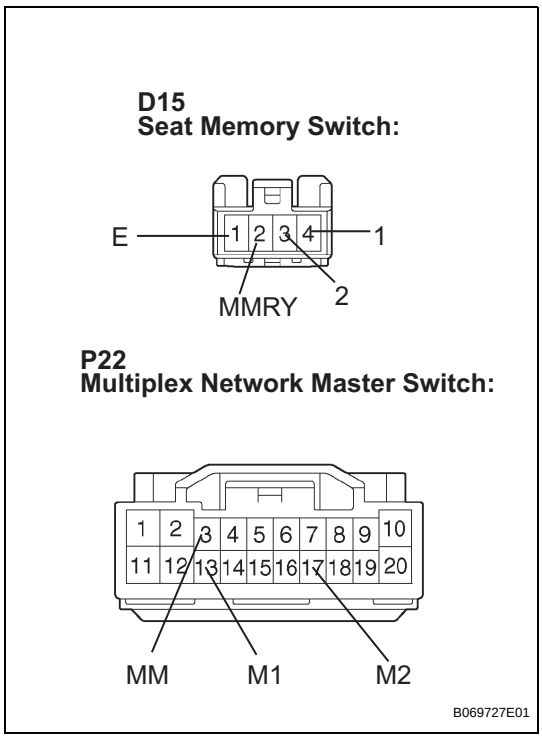
Standard resistance

Tester Connection	Switch Condition	Specified Condition
3 - 4	"SET" switch ON	Below 1 Ω
1 - 4	"1" switch ON	Below 1 Ω
2 - 4	"2" switch ON	Below 1 Ω

NG → **REPLACE SEAT MEMORY SWITCH**

OK

3 **CHECK WIRE HARNESS (SEAT MEMORY SWITCH - MULTIPLEX NETWORK MASTER SWITCH)**



(a) Disconnect the D15 and P22 switch connectors.
(b) Measure the resistance according to the value(s) in the table below.

Standard resistance

Tester Connection	Condition	Specified Condition
D15-2 (MMRY) - P22-3 (MM)	Always	Below 1 Ω
D15-4 (1) - P22-13 (M1)	Always	Below 1 Ω
D15-3 (2) - P22-17 (M2)	Always	Below 1 Ω
D15-1 (E) - Body ground	Always	Below 1 Ω

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

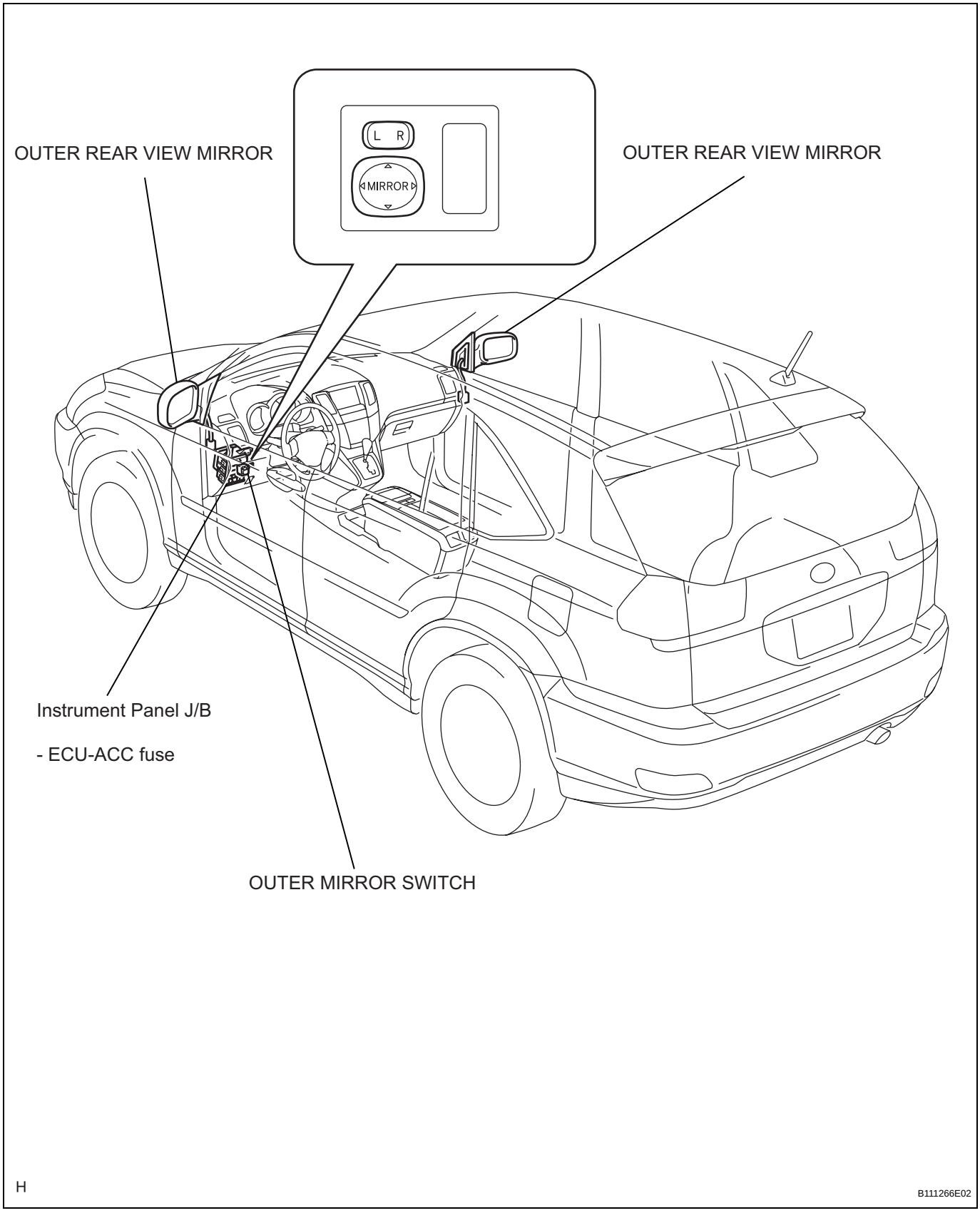
MI

OK

REPLACE POSITION CONTROL ECU & SWITCH ASSEMBLY

POWER MIRROR CONTROL SYSTEM (w/o Memory)

PARTS LOCATION



MI

H

B111266E02

PROBLEM SYMPTOMS TABLE

Power Mirror Control System

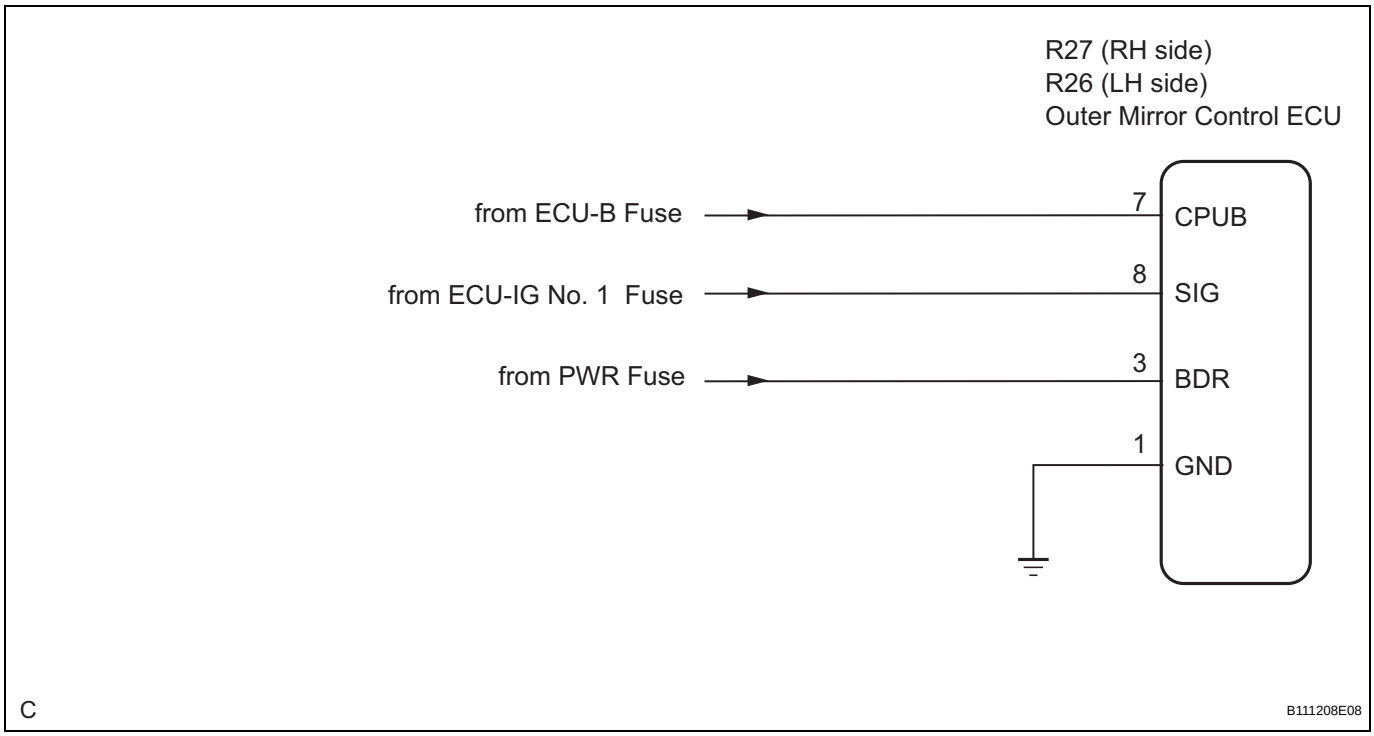
Symptom	Suspected area	See page
Power mirror cannot be adjusted manually	1. ECU-ACC fuse	-
	2. Outer Mirror Switch	MI-38
	3. Outer Rear View Mirror Assembly	MI-33
	4. Wire harness	-

Power Source Circuit

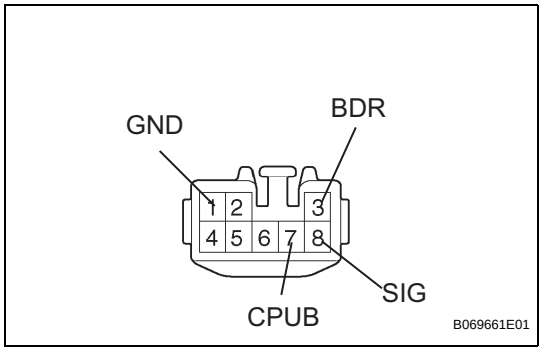
DESCRIPTION

This is the power source circuit for the outer mirror control ECU.

WIRING DIAGRAM



1	INSPECT OUTER MIRROR CONTROL ECU (POWER SOURCE)



(a) Disconnect the R26 (R27) connector.
(b) Measure the voltage and resistance according to the value(s) in the table below.

Outer mirror control ECU LH:
Standard voltage

Tester Connection	Condition	Specified Condition
R26-3 (BDR) - Body ground	Always	10 to 14 V
R26-7 (CPUB) - Body ground	Always	10 to 14 V
R26-8 (SIG) - Body ground	Ignition switch ON	10 to 14 V

Standard resistance

Tester Connection	Condition	Specified Condition
R26-1 (GND) - Body ground	Always	Below 1 Ω

Outer mirror control ECU RH:
Standard voltage

MI

Tester Connection	Condition	Specified Condition
R27-3 (BDR) - Body ground	Always	10 to 14 V
R27-7 (CPUB) - Body ground	Always	10 to 14 V
R27-8 (SIG) - Body ground	Ignition switch ON	10 to 14 V

Standard resistance

Tester Connection	Condition	Specified Condition
R27-1 (GND) - Body ground	Always	Below 1 Ω

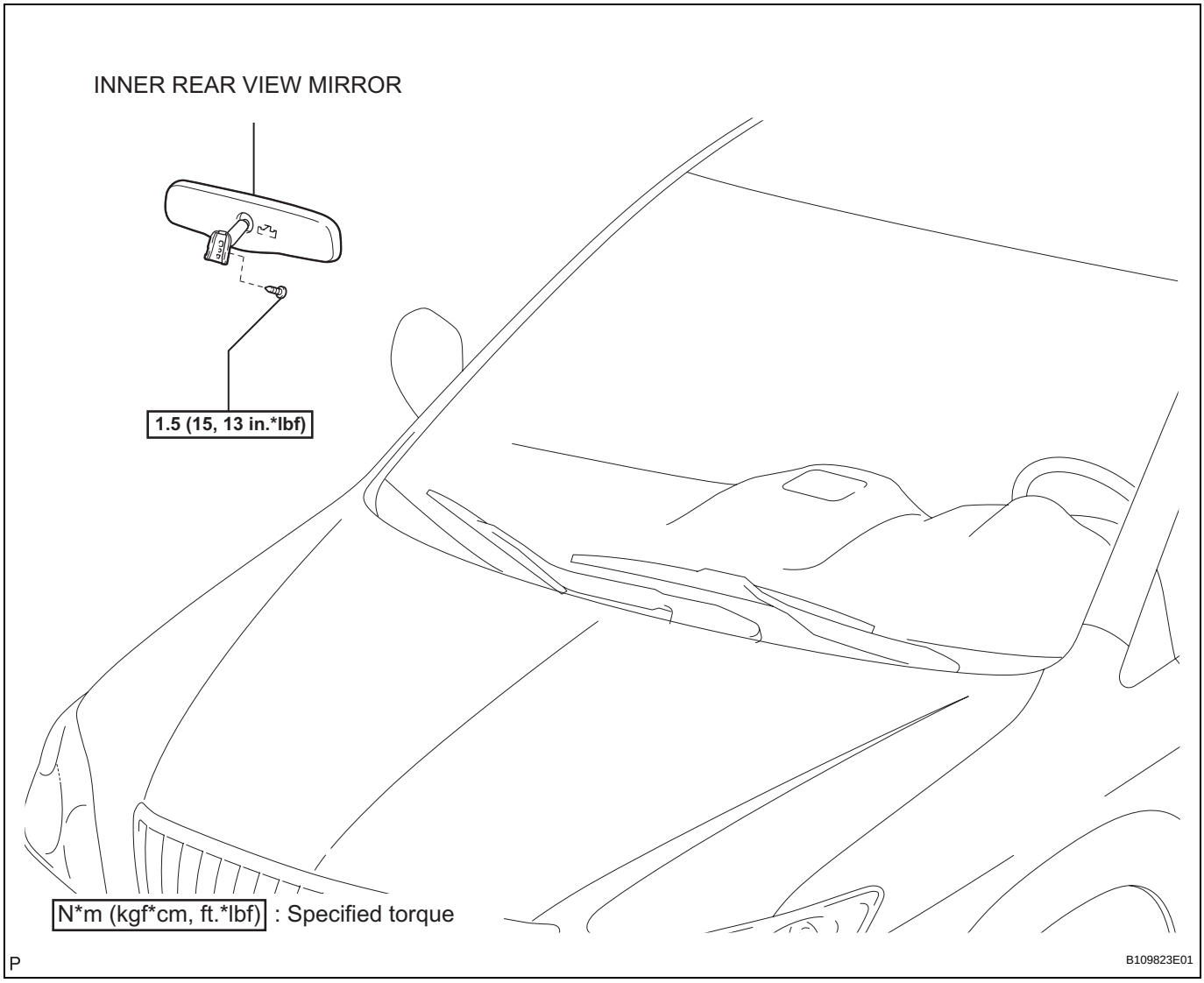
NG → **REPAIR OR REPLACE WIRE HARNESS**

OK

REPLACE OUTER MIRROR CONTROL ECU

INNER REAR VIEW MIRROR

COMPONENTS



CALIBRATION

1. SELECT COMPASS DISPLAY MODE

(a) The COMP switch allows you to select the Display or Non-display mode of the compass.

2. SET ZONE

(a) Deviation between the "magnetic north" and "actual north" differs depending on the location. Therefore, adjustment of the magnetism is required. Since the magnetic condition differs depending on the area where the vehicle is used, it is necessary for each user to set the zone (Refer to Compass Zone Map). The zone setting can be changed using the COMP switch of the inner mirror.

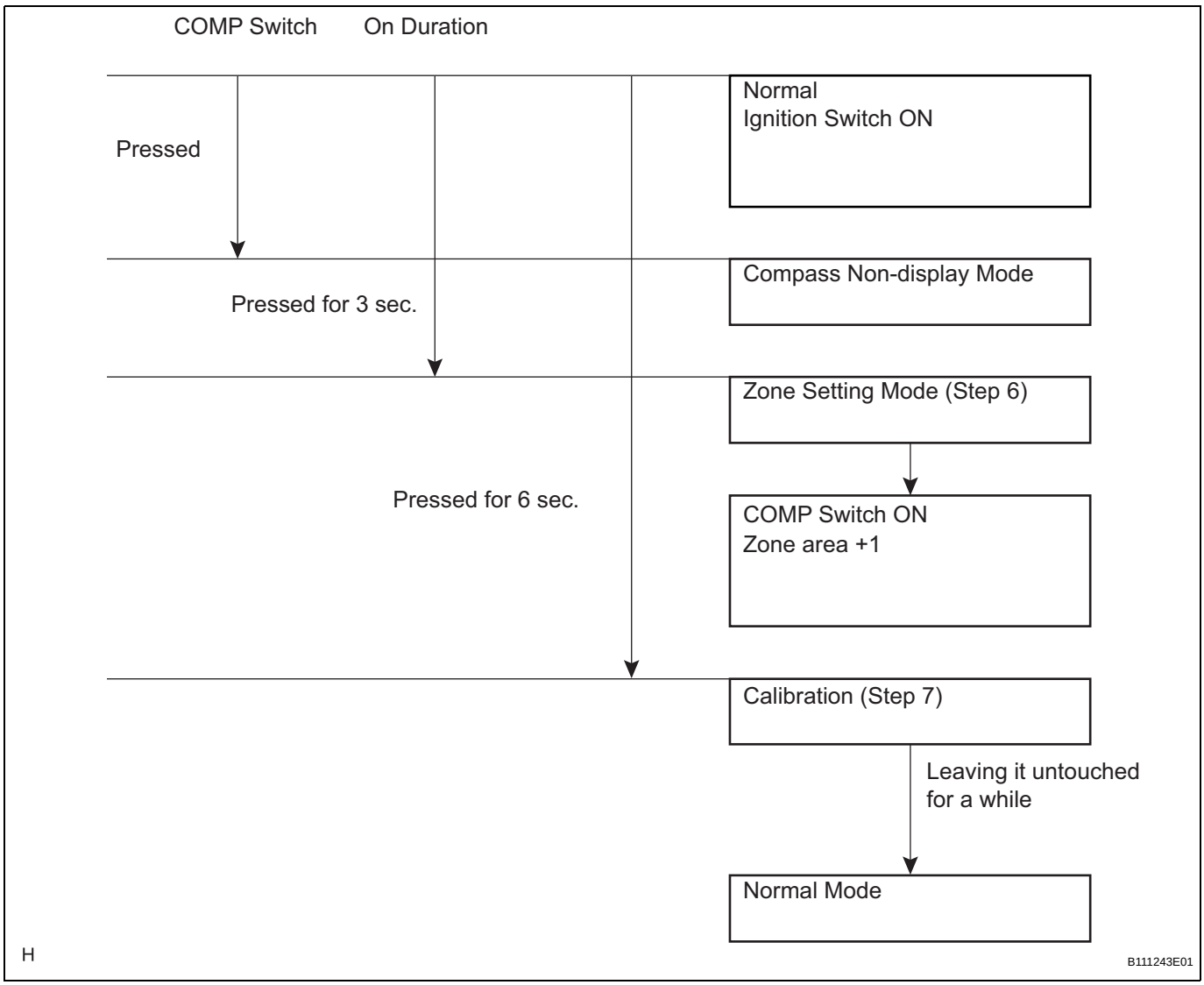
3. PERFORM CALIBRATION

(a) Because each vehicle has its own magnetic field, calibration should be performed for each vehicle. This compass function is used when storing the record of the vehicle's magnetic field.

4. WHEN COMPASS IS MAGNETIZED

(a) A compass could be magnetized during shipping by vessels or freight cars. Therefore, make sure to perform calibration and ensure that calibration is performed properly before delivery. If it cannot be done (cannot be completed in spite of driving around several times), it may be caused by magnetization. Demagnetize the vehicle using a demagnetizer and perform calibration again.

5. SET COMPASS



6. ZONE SETTING MODE

(a) Pressing the COMP switch for 3 seconds in the normal mode will activate the zone setting mode. A number (1 to 15) is displayed on the compass display.

NOTICE:

In the initial state, "8" is displayed.

(b) The displayed number increases by 1 every time the COMP switch is pressed. Referring to the map, check the number for the area where the vehicle will be used and set the zone number.

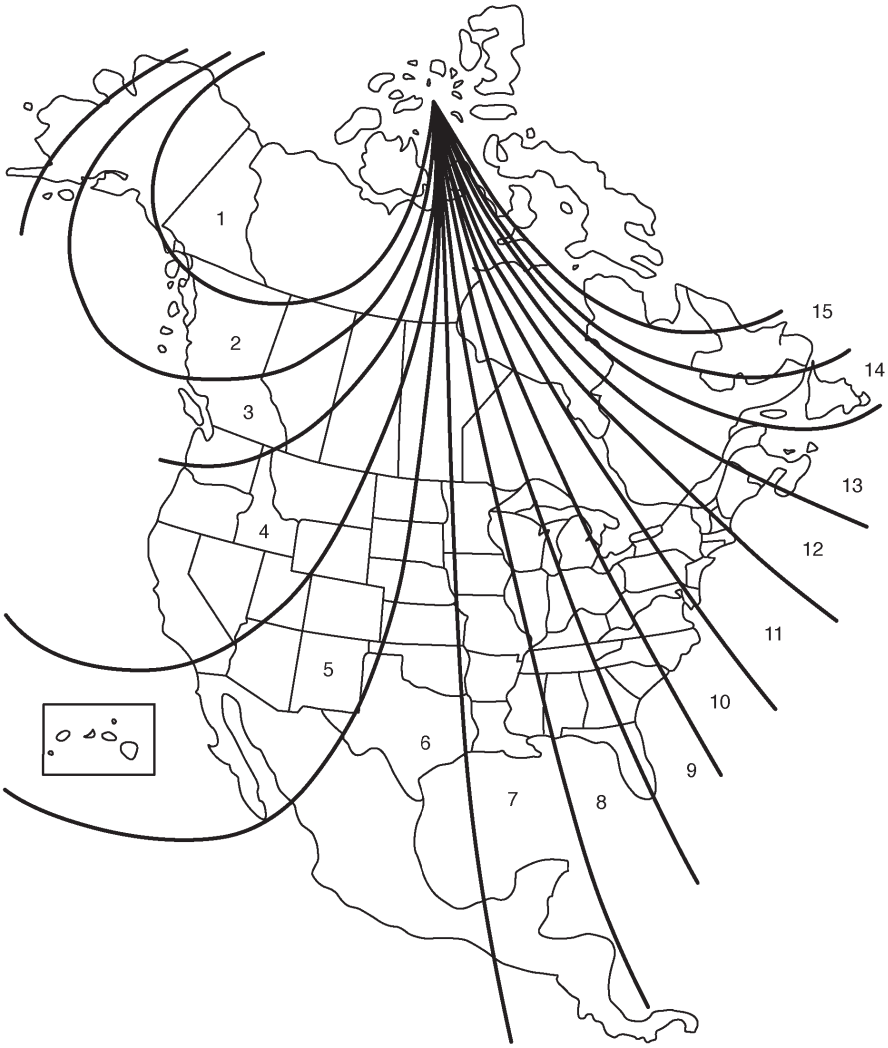
(c) Leave it untouched for several seconds after setting and check that the compass display shows an azimuthal direction (N, NE, E, SE, S, SW, W or NW) or "C".

7. CALIBRATION SETTING MODE

(a) Pressing the COMP switch for 6 seconds in the normal mode will activate the calibration setting mode.

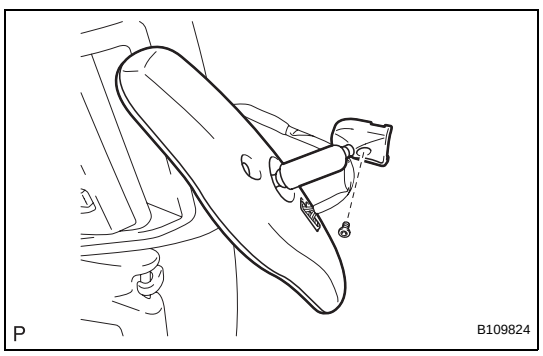
(b) Drive the vehicle at a slow speed of 8 km/h (5 mph) or less in the circular direction.
(c) Driving around the circle 1 to 3 times will display the azimuthal direction on the display, completing the calibration.
NOTICE:
After the calibration is completed, it is not necessary to perform the above procedures unless the magnetic field strength is drastically changed. If this happens, the azimuthal display will be changed to "C".

Zone Setting Map:



T

B057087E01

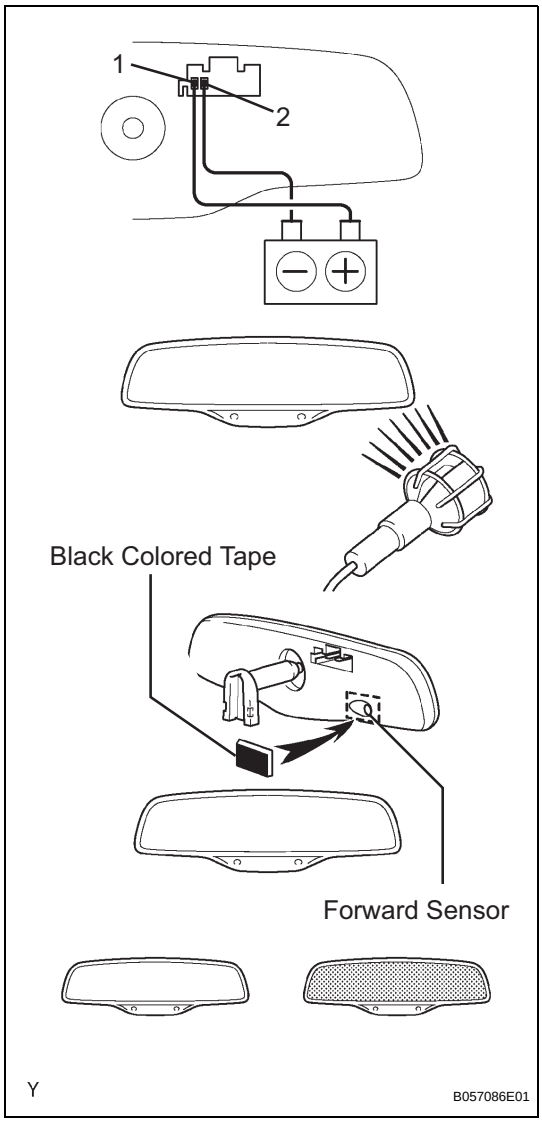


P

B109824

REMOVAL

1. REMOVE INNER REAR VIEW MIRROR
(a) Disconnect the connector.
(b) Using a "torx" socket wrench (T20), remove the screw and the inner rear view mirror.



INSPECTION

1. INSPECT INNER REAR VIEW MIRROR ASSEMBLY

(a) Inspect operation of the electrochromic inner mirror.

(1) Connect the positive (+) lead from the battery to terminal 1 and the negative (-) lead to terminal 2.

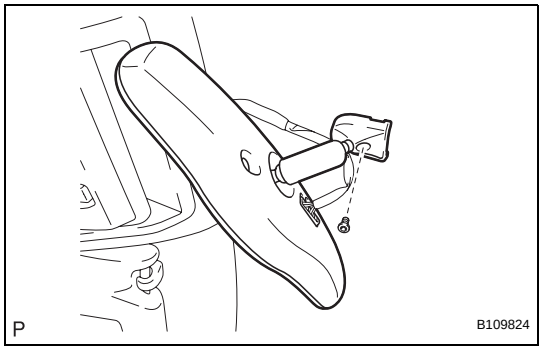
(2) Attach black colored tape to the forward sensor to prevent it from sensing.

(3) Light up the mirror with an electric light, and check that the mirror surface changes from bright to dark.

Standard:

Mirror surface changes from bright to dark

If the result is not as specified, replace the mirror assembly.



INSTALLATION

1. INSTALL INNER REAR VIEW MIRROR

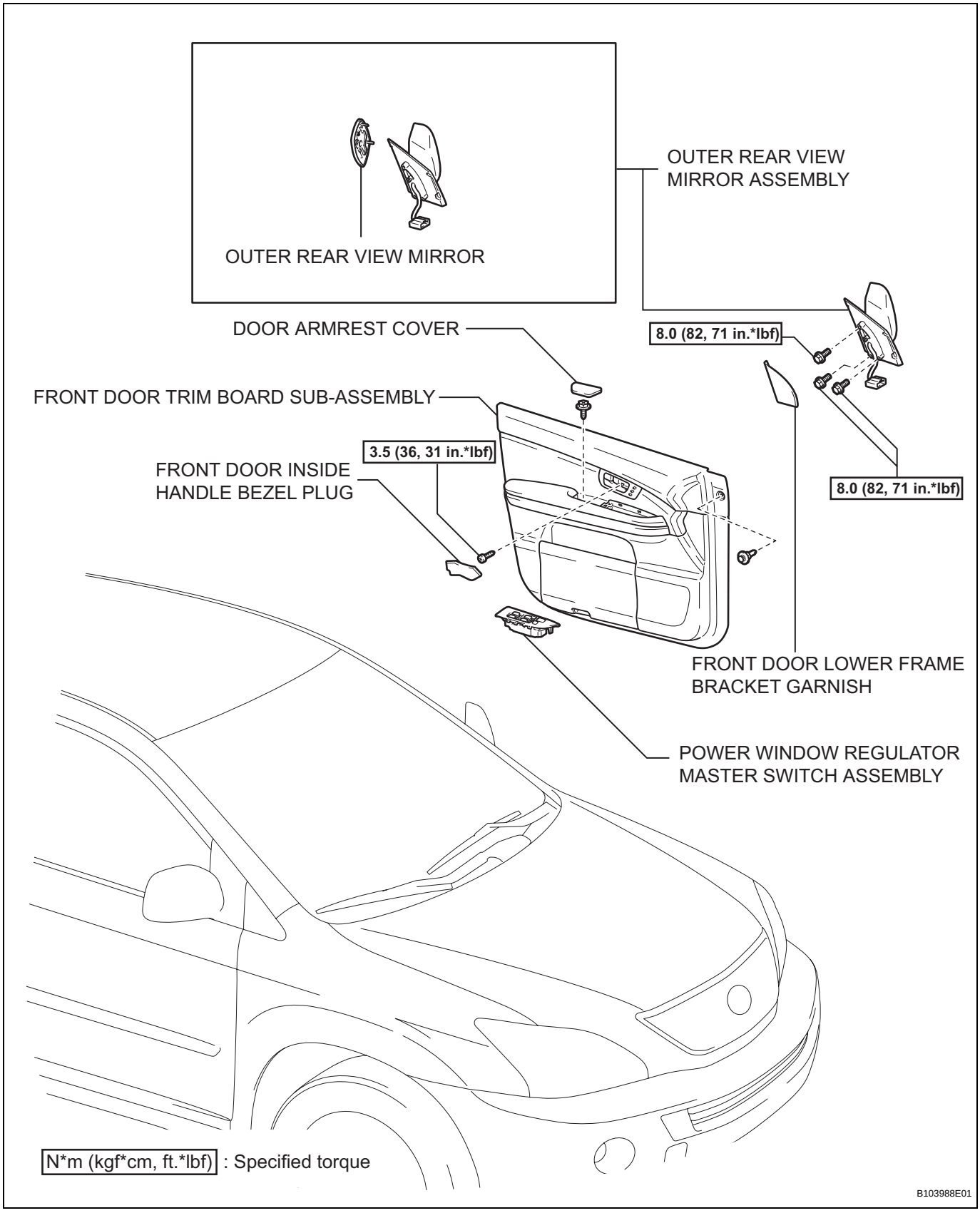
(a) Using a "torx" socket wrench (T20), install the inner rear view mirror with the screw.

Torque: 1.5 N*m (15 kgf*cm, 13 in.*lbf)

(b) Connect the connector.

OUTER REAR VIEW MIRROR

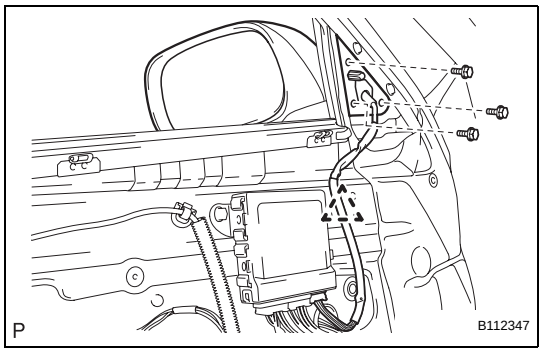
COMPONENTS



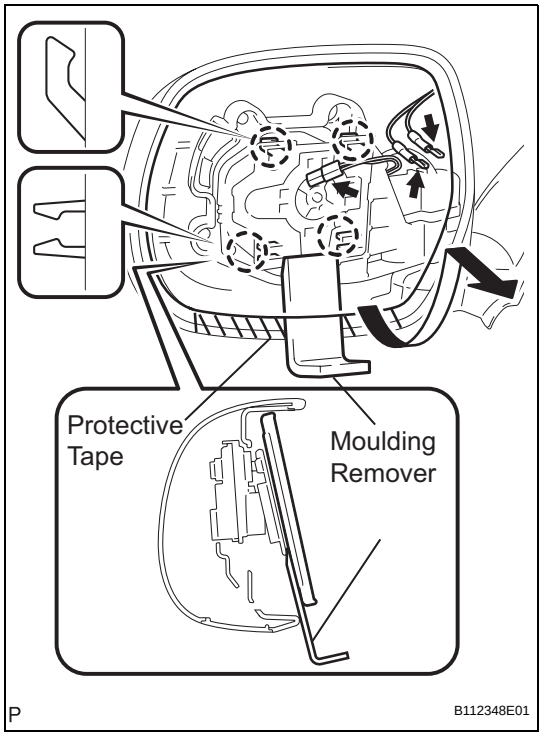
MI

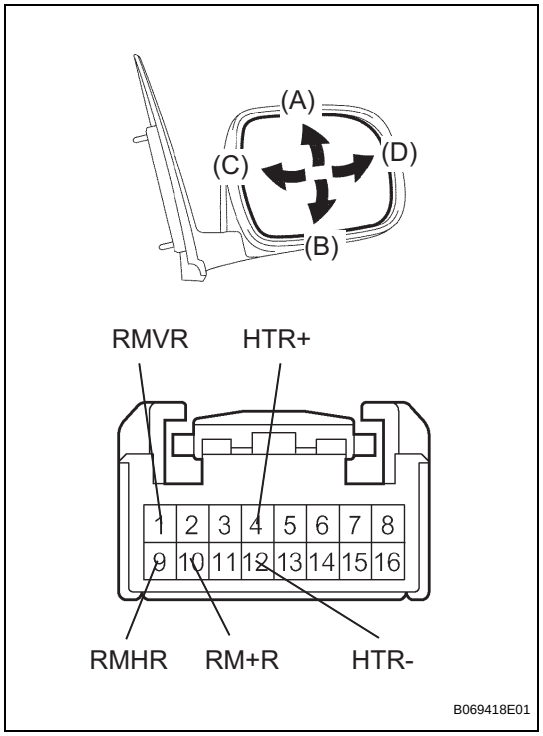
REMOVAL

1. **REMOVE FRONT DOOR INSIDE HANDLE BEZEL PLUG (See page ED-100)**
2. **REMOVE POWER WINDOW REGULATOR MASTER SWITCH ASSEMBLY (See page ED-100)**
3. **REMOVE DOOR ARMREST COVER (See page ED-100)**
4. **REMOVE FRONT DOOR LOWER FRAME BRACKET GARNISH (See page ED-100)**
5. **REMOVE FRONT DOOR TRIM BOARD SUB-ASSEMBLY (See page ED-101)**
6. **REMOVE OUTER REAR VIEW MIRROR ASSEMBLY**
   (a) Disconnect the connector and remove the clamp.
   (b) Remove the 3 bolts and the outer rear view mirror assembly.



7. **REMOVE OUTER REAR VIEW MIRROR**
   (a) Push the upper part of the mirror surface and tilt it.
   (b) Apply protective tape on the outer rear view mirror assembly.
   (c) Using a moulding remover, disengage the 2 claws at the lower part of the outer rear view mirror.
   (d) Pull the mirror in the direction indicated by the arrow shown in the illustration to disengage the 2 claws on the upper part of the outer rear view mirror, and separate the outer rear view mirror sub-assembly.
   (e) Disconnect each connector and remove the outer rear view mirror.





INSPECTION

1. INSPECT OUTER REAR VIEW MIRROR ASSEMBLY RH (W/ MEMORY)

(a) Inspect outer mirror motor operation.

(1) Remove the outer rear view mirror assembly.

(2) Apply battery voltage and check operation of the mirror face, as shown in the table and illustration.

Standard

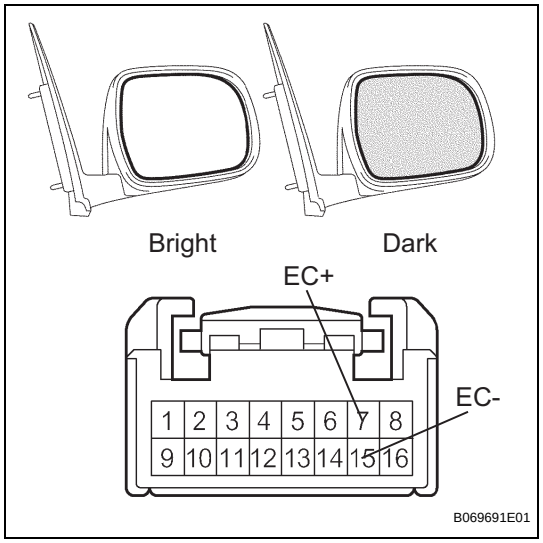
Measurement Condition	Specified Condition
Battery positive (+) → Terminal 1 (RMVR) Battery negative (-) → Terminal 10 (RM+R)	Turns upward (A)
Battery positive (+) → Terminal 10 (RM+R) Battery negative (-) → Terminal 1 (RMVR)	Turns downward (B)
Battery positive (+) → Terminal 9 (RMHR) Battery negative (-) → Terminal 10 (RM+R)	Turns left (C)
Battery positive (+) → Terminal 10 (RM+R) Battery negative (-) → Terminal 9 (RMHR)	Turns right (D)

(b) Inspect outer mirror heater operation.

(1) Apply battery voltage and check operation of the mirror face, as shown in the table and illustration.

Standard

Measurement Condition	Specified Condition
Battery positive (+) → Terminal 4 (HTR+) Battery negative (-) → Terminal 12 (HTR-)	Mirror surface temperature becomes higher

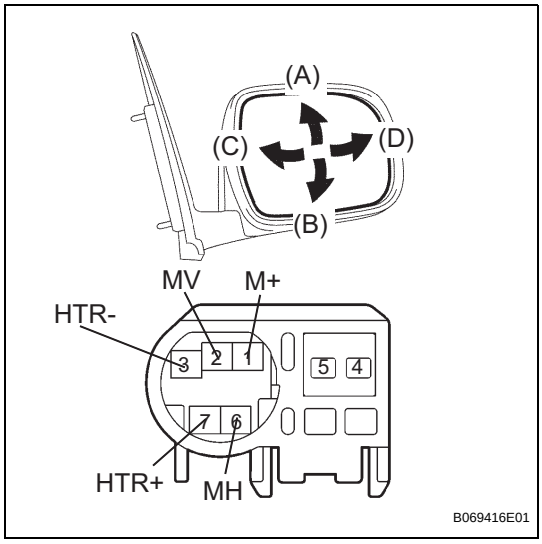


(c) Inspect electrochromic outer mirror operation.

(1) Apply battery voltage and check operation of the mirror face, as shown in the table and illustration.

Standard

Measurement Condition	Specified Condition
Battery positive (+) → Terminal 7 (EC+) Battery negative (-) → Terminal 15 (EC-)	Mirror surface changes to dark



2. INSPECT OUTER REAR VIEW MIRROR ASSEMBLY RH (W/O MEMORY)

(a) Inspect outer mirror motor operation.

(1) Remove the outer rear view mirror assembly.

(2) Apply battery voltage and check operation of the mirror face, as shown in the table and illustration.

Standard

Measurement Condition	Specified Condition
Battery positive (+) → Terminal 2 (MV) Battery negative (-) → Terminal 1 (M+)	Turns upward (A)
Battery positive (+) → Terminal 1 (M+) Battery negative (-) → Terminal 2 (MV)	Turns downward (B)
Battery positive (+) → Terminal 6 (MH) Battery negative (-) → Terminal 1 (M+)	Turns left (C)
Battery positive (+) → Terminal 1 (M+) Battery negative (-) → Terminal 6 (MH)	Turns right (D)

(b) Inspect outer mirror heater operation.

(1) Apply battery voltage and check operation of the mirror face, as shown in the table and illustration.

Standard

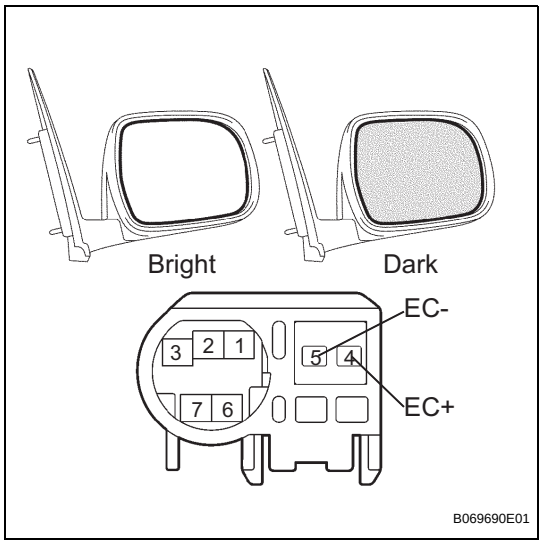
Measurement Condition	Specified Condition
Battery positive (+) → Terminal 7 (HTR+) Battery negative (-) → Terminal 3 (HTR-)	Mirror surface temperature becomes higher

(c) Inspect electrochromic outer mirror operation.

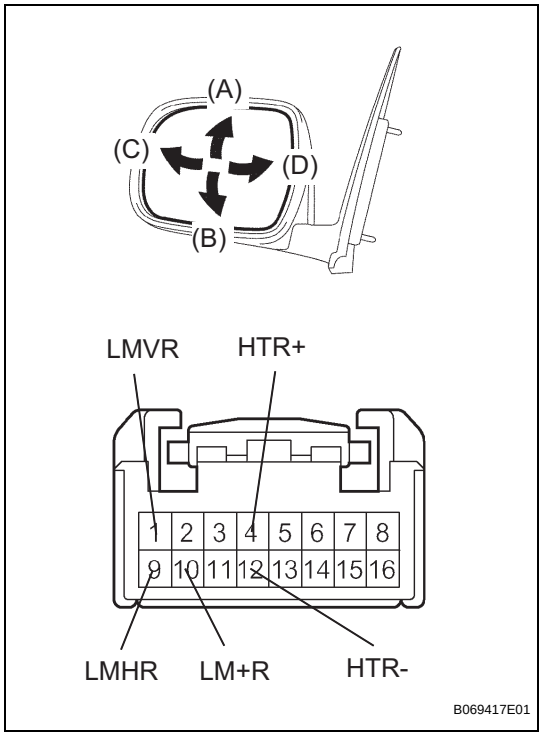
(1) Apply battery voltage and check operation of the mirror face, as shown in the table and illustration.

Standard

Measurement Condition	Specified Condition
Battery positive (+) → Terminal 4 (EC+) Battery negative (-) → Terminal 5 (EC-)	Mirror surface changes to dark



MI



3. INSPECT OUTER REAR VIEW MIRROR ASSEMBLY LH (W/ MEMORY)

(a) Inspect outer mirror motor operation.

(1) Remove the outer rear view mirror assembly.

(2) Apply battery voltage and check operation of the mirror face, as shown in the table and illustration.

Standard

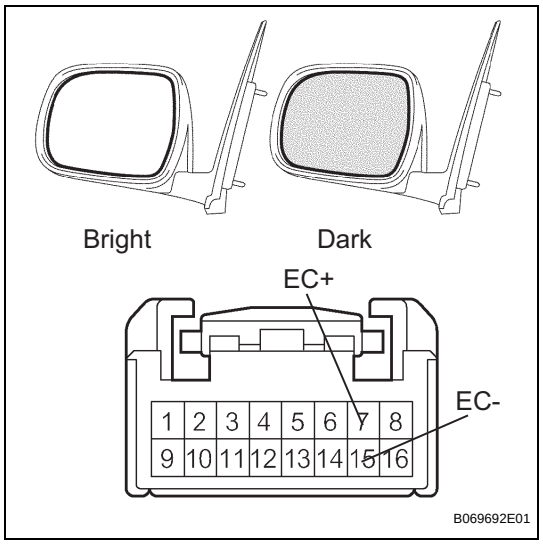
Measurement Condition	Specified Condition
Battery positive (+) → Terminal 1 (LMVR) Battery negative (-) → Terminal 10 (LM+R)	Turns upward (A)
Battery positive (+) → Terminal 10 (LM+R) Battery negative (-) → Terminal 1 (LMVR)	Turns downward (B)
Battery positive (+) → Terminal 9 (LMHR) Battery negative (-) → Terminal 10 (LM+R)	Turns left (C)
Battery positive (+) → Terminal 10 (LM+R) Battery negative (-) → Terminal 9 (LMHR)	Turns right (D)

(b) Inspect outer mirror heater operation.

(1) Apply battery voltage and check operation of the mirror face, as shown in the table and illustration.

Standard

Measurement Condition	Specified Condition
Battery positive (+) → Terminal 4 (HTR+) Battery negative (-) → Terminal 12 (HTR-)	Mirror surface temperature becomes higher



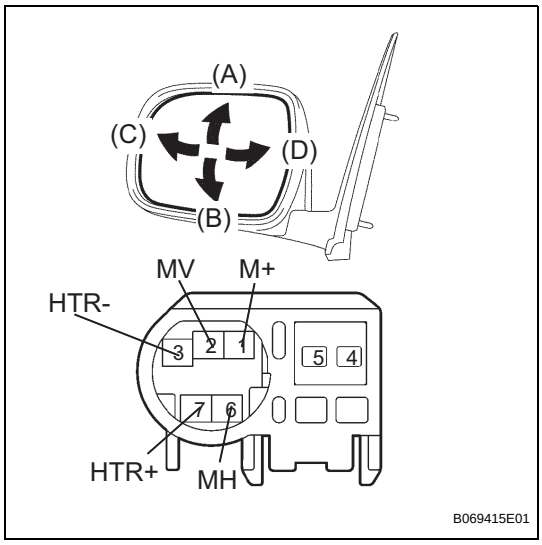
(c) Inspect electrochromic outer mirror operation.

(1) Apply battery voltage and check operation of the mirror face, as shown in the table and illustration.

Standard

Measurement Condition	Specified Condition
Battery positive (+) → Terminal 7 (EC+) Battery negative (-) → Terminal 15 (EC-)	Mirror surface changes to dark

MI



4. INSPECT OUTER REAR VIEW MIRROR ASSEMBLY LH (W/O MEMORY)

(a) Inspect outer mirror motor operation.

(1) Apply battery voltage and check operation of the mirror face, as shown in the table and illustration.

Standard

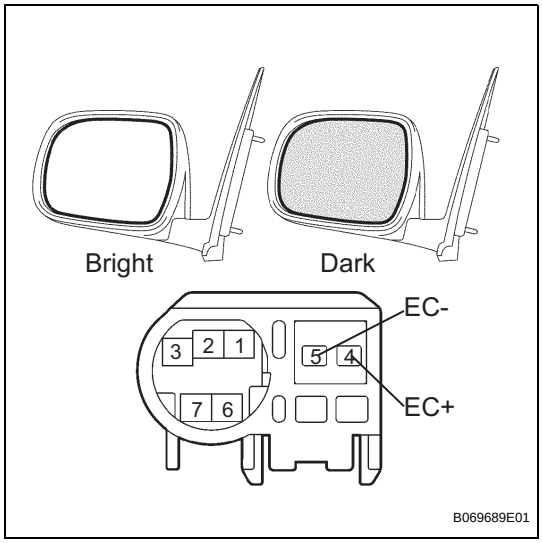
Measurement Condition	Specified Condition
Battery positive (+) → Terminal 2 (MV) Battery negative (-) → Terminal 1 (M+)	Turns upward (A)
Battery positive (+) → Terminal 1 (M+) Battery negative (-) → Terminal 2 (MV)	Turns downward (B)
Battery positive (+) → Terminal 6 (MH) Battery negative (-) → Terminal 1 (M+)	Turns left (C)
Battery positive (+) → Terminal 1 (M+) Battery negative (-) → Terminal 6 (MH)	Turns right (D)

(b) Inspect outer mirror heater operation.

(1) Apply battery voltage and check operation of the mirror face, as shown in the table and illustration.

Standard

Measurement Condition	Specified Condition
Battery positive (+) → Terminal 7 (HTR+) Battery negative (-) → Terminal 3 (HTR-)	Mirror surface temperature becomes higher

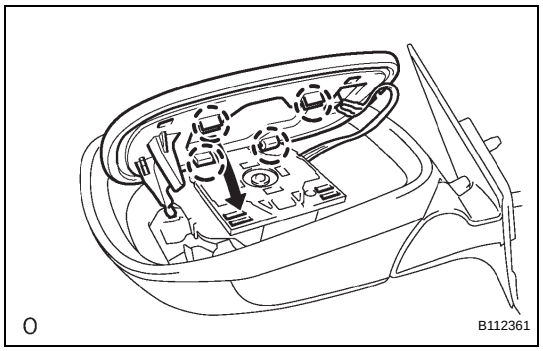


(c) Inspect electrochromic outer mirror operation.

(1) Apply battery voltage and check operation of the mirror face, as shown in the table and illustration.

Standard

Measurement Condition	Specified Condition
Battery positive (+) → Terminal 4 (EC+) Battery negative (-) → Terminal 5 (EC-)	Mirror surface changes to dark



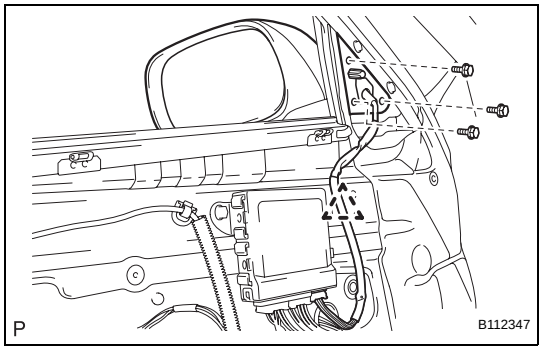
INSTALLATION

1. INSTALL OUTER REAR VIEW MIRROR

(a) Connect each connector.

(b) Engage the 2 claws on the upper part of the outer rear view mirror.

(c) Engage the 2 claws on the lower part of the outer rear view mirror as shown in the illustration, and install the outer rear view mirror.



2. INSTALL OUTER REAR VIEW MIRROR ASSEMBLY

(a) Install the outer rear view mirror assembly with the 3 bolts.

Torque: 8.0 N*m (82 kgf*cm, 71 in.*lbf)

(b) Connect the connector and install the clamp.

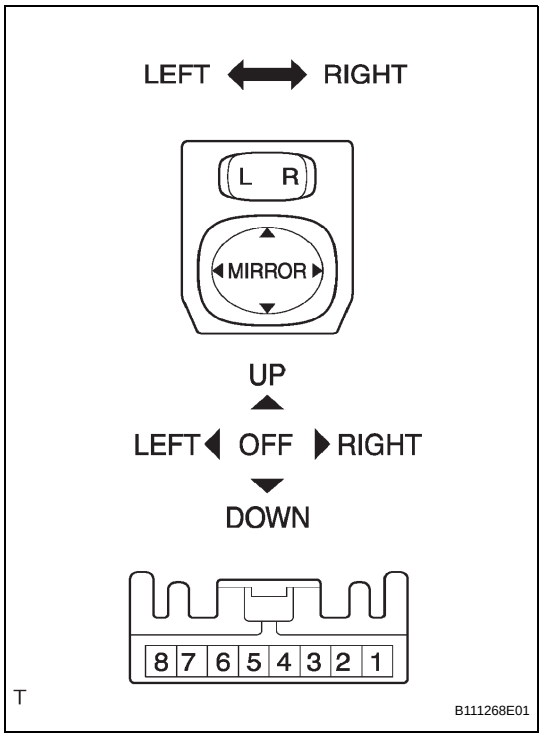
3. REMOVE FRONT DOOR TRIM BOARD SUB-ASSEMBLY

4. REMOVE FRONT DOOR LOWER FRAME BRACKET GARNISH

5. REMOVE DOOR ARMREST COVER

6. REMOVE POWER WINDOW REGULATOR MASTER SWITCH ASSEMBLY

7. REMOVE FRONT DOOR INSIDE HANDLE BEZEL PLUG



OUTER MIRROR SWITCH

INSPECTION

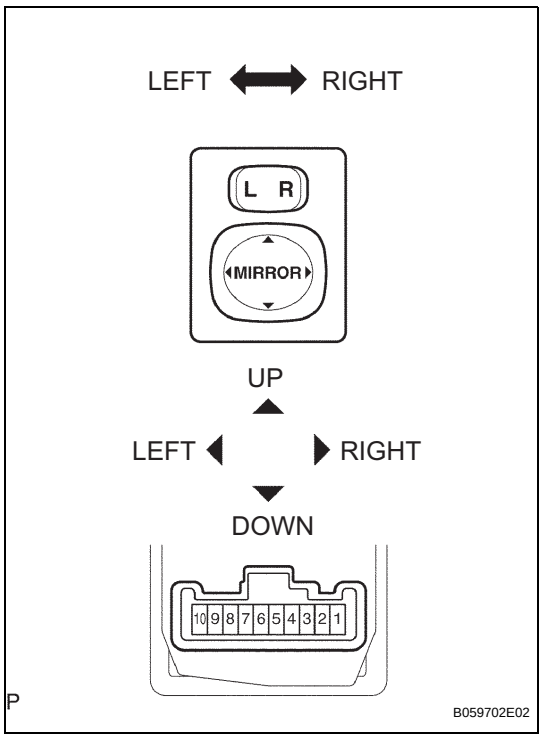
1. INSPECT OUTER MIRROR SWITCH (W/ MEMORY SEAT)

(a) Inspect the outer mirror switch.

(b) Measure the resistance according to the value(s) in the table below when the switch is operated.

Standard resistance

Tester Connection	Switch Position	Specified Condition
2 - 3	OFF	10 kΩ or higher
	UP	225 to 275 Ω
	DOWN	437 to 503 Ω
	LEFT	744 to 856 Ω
	RIGHT	437 to 503 Ω
1 - 2	L	90 to 110 Ω
	R	10 Ω or less



2. INSPECT OUTER MIRROR SWITCH (W/O MEMORY SEAT)

(a) Inspect the outer mirror switch.

(b) Measure the resistance according to the value(s) in the table below when the switch is operated.

Standard resistance:

Select "L" on the left/right adjustment switch

Tester Connection	Switch Position	Specified Condition
4 - 8	UP	Below 1 Ω
6 - 7		
4 - 7	DOWN	
6 - 8		
5 - 8	LEFT	
6 - 7		
5 - 7	RIGHT	
6 - 8		

Select "R" on the left/right adjustment switch

Tester Connection	Switch Position	Specified Condition
3 - 8	UP	Below 1 Ω
6 - 7		
3 - 7	DOWN	
6 - 8		
2 - 8	LEFT	
6 - 7		
2 - 7	RIGHT	
6 - 8		