POWER MIRROR CONTROL SYSTEM (w/ Memory)

PRECAUTION

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

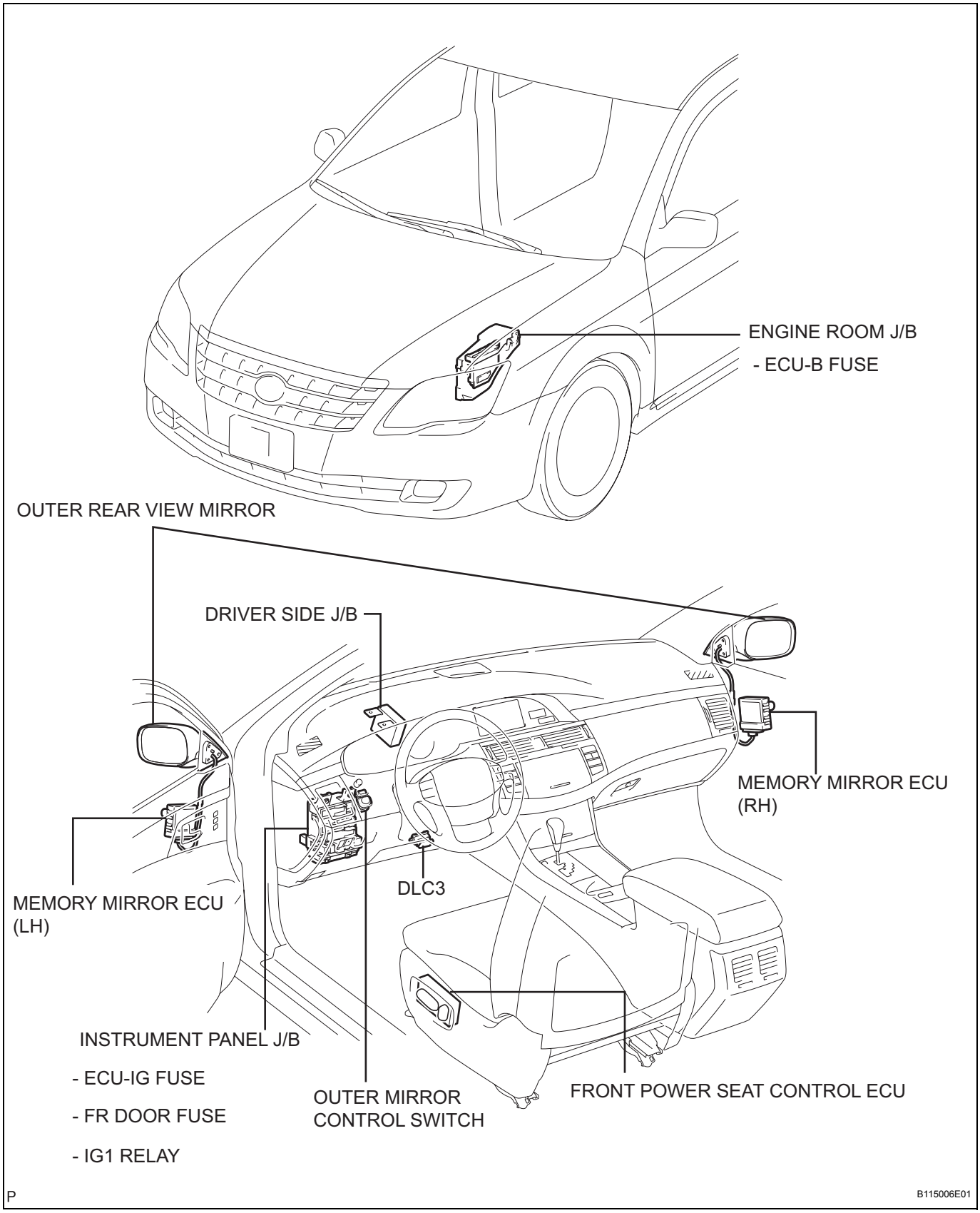
System Name	See procedure
Power Window Control Control System	IN-29
Sliding Roof System	IN-29

1. EXPRESSIONS OF IGNITION SWITCH

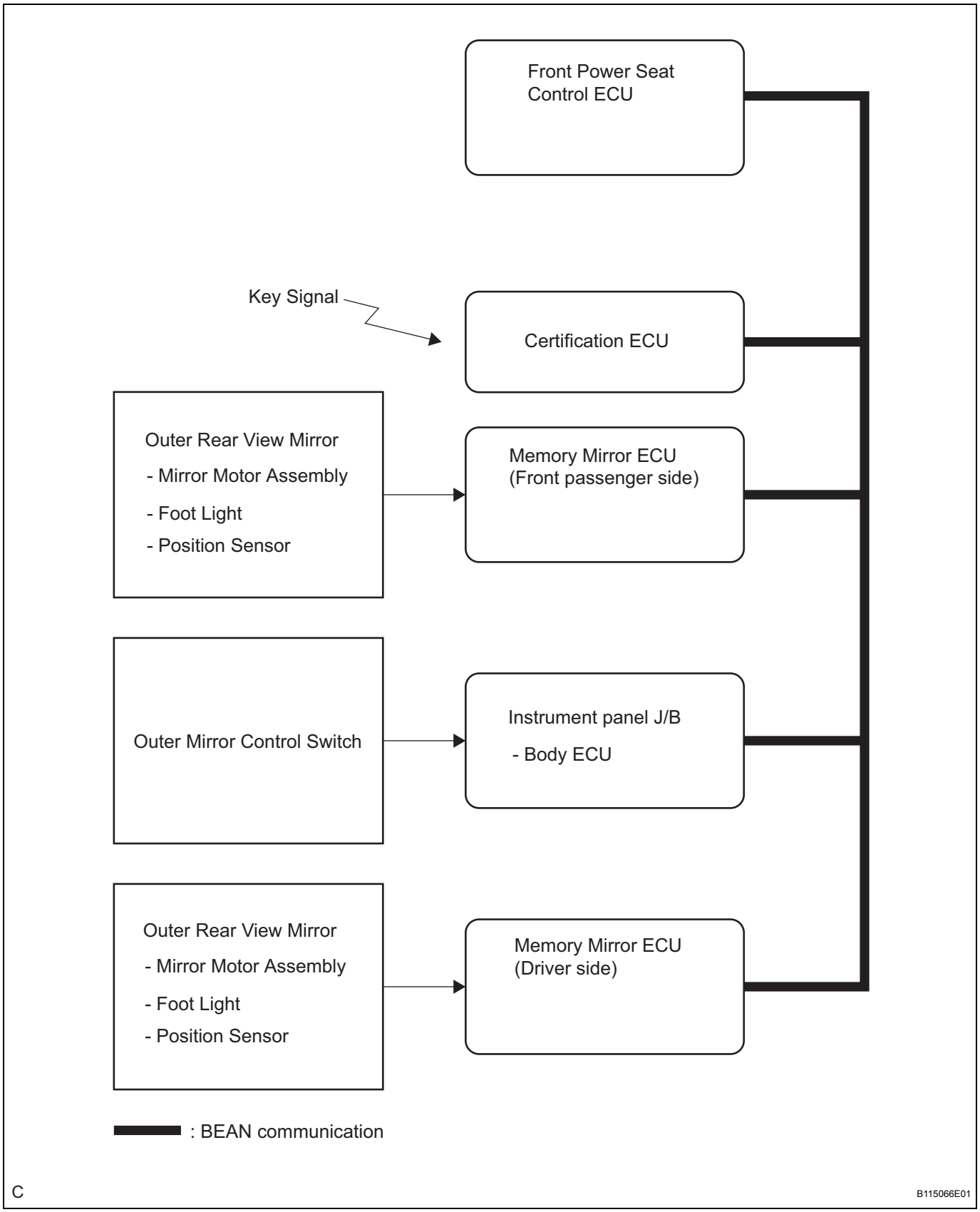
The type ignition switch used on this model differs according to the specifications of the vehicle.
The expressions listed in the table below are used in this section.

Switch Type		Ignition Switch (position)	Engine Switch (condition)
Expression	Ignition Switch off	LOCK	Off
	Ignition Switch on (IG)	ON	On (IG)
	Ignition Switch on (ACC)	ACC	On (ACC)
	Engine Start	START	Start

PARTS LOCATION



SYSTEM DIAGRAM



MI

SIGNAL COMMUNICATION TABLE:

Transmitting ECU (Transmitter)	Receiving ECU	Signals	Communication method
Power seat control ECU	memory mirror ECU (LH)	Memory switch status signal	BEAN
Power seat control ECU	memory mirror ECU (RH)	Memory switch status signal	BEAN
Memory mirror ECU (LH)	Power seat control ECU	Current switch status signal (Power mirror position)	BEAN
Memory mirror ECU (RH)	Power seat control ECU	Current switch status signal (Power mirror position)	BEAN
Certification ECU	memory mirror ECU (LH)	OPEN/CLOSE door lock signal	BEAN
Certification ECU	memory mirror ECU (RH)	OPEN/CLOSE door lock signal	BEAN
Body ECU	memory mirror ECU (LH)	• Body system signal • Mirror adjustment signal • Diagnostic tool request • Diagnostic erase	BEAN
Body ECU	memory mirror ECU (RH)	• Body system signal • Mirror adjustment signal • Diagnostic tool request • Diagnostic erase	BEAN

SYSTEM DESCRIPTION

1. POWER MIRROR CONTROL SYSTEM DESCRIPTION

This system has these functions: automatic glare-resistant electrochromic (EC) mirror, electrical remote control type mirror, memory function, foot light function, and rear window defogger-linked mirror defogger.

2. FUNCTION OF MAIN COMPONENT

Components	Function
Vertical mirror motor	Receives signal from memory mirror ECU and adjusts remote control mirror in the vertical direction.
Horizontal mirror motor	Receives signal from memory mirror ECU and adjusts remote control mirror in the horizontal direction.
Mirror defogger	Receives signal from defogger relay and starts mirror defogger.
EC mirror cell	Varies reflection rate of mirror through function of EC elements.
Mirror control switch	After selecting "R" or "L" switch, control switches change angle of mirror. Mirror signals are sent to memory mirror ECU through body ECU.
Mirror master switch	Consists of "R" and "L" switch. One must be chosen before mirror control switches can be operated.
Mirror position sensor	Detects remote control mirror position. This data is detested by memory mirror ECU.
Set switch Memory switch	When set switch and memory switches are pressed simultaneously, SET, 1 or 2 switch is input to body ECU and remote control mirror position is recorded. Then, when memory switch is pressed, 1 or 2 switch is input to memory mirror ECU and remote control mirror position changes according to memory.

3. SYSTEM OPERATION

The remote control mirror has following features:

Function	Outline
Ignition switch-linked automatic electrical retractable mirror	This function automatically retracts remote control mirrors when ignition switch is turned from ON to LOCK. This feature improves convenience of vehicle by eliminating need to manually operate mirror retract switch after stopping vehicle.
Manual electrical retractable mirror	This function retracts remote control mirrors when mirror retract switch is pressed.
Electrical remote control type mirror	When mirror control switch is operated, this function moves mirror surface vertically or laterally to enable driver to attain optimal mirror angle. Setting mirror master switch to "R" position operates right mirror, and to "L" position operates left mirror.
Rear window defogger-linked mirror defogger	This function automatically turns on mirror defogger when rear window defogger switch is turned on. After 15 minutes have elapsed from time this function has been activated, rear window defogger turns off automatically, and mirror defogger also turns off.
Wiper-linked mirror defogger	To improve rear visibility in the rain, this system automatically turns on mirror defogger when wiper switch is turned on.
Automatic glare-resistant EC mirror	This function helps to reduce glare/reflection in inner mirror during nighttime driving for safe driving conditions. Glare/reflection from vehicle headlights behind driver could blind driver and cause dangerous driving conditions.
Memory function	This function stores adjusted mirror position in driver and front passenger memory mirror ECU.

HOW TO PROCEED WITH TROUBLESHOOTING

HINT:

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

1	VEHICLE BROUGHT TO WORKSHOP

NEXT

2	CUSTOMER PROBLEM ANALYSIS CHECK AND SYMPTOM CHECK

NEXT

3	INSPECT COMMUNICATION FUNCTION OF LARGE-SCALE MULTIPLEX COMMUNICATION SYSTEM (BEAN)

(a) Use the intelligent tester to check for normal function of the multiplex communication system.
  (1) (ECU unconnected, communication line malfunctioning) Without code outputs, proceed to A.
  (2) (ECU unconnected, communication line malfunctioning) With code outputs, proceed to B.

B → GO TO MULTIPLEX COMMUNICATION SYSTEM

A

4	PROBLEM SYMPTOMS TABLE

(a) If the fault is not listed on the problem symptoms table, proceed to A.
(b) If the fault is listed on the problem symptoms table, proceed to B.

B → Go to step 6

A

5	OVERALL ANALYSIS AND TROUBLESHOOTING

(a) DATA LIST/ACTIVE TEST (See page MI-9)
  (1) Inspection with the intelligent tester (DATE LIST).
  (2) Inspection with the intelligent tester (ACTIVE TEST).
(b) Terminal of ECU (See page MI-7).

NEXT

6	**ADJUSTMENT, REPAIR OR REPLACE**

NEXT

END

PROBLEM SYMPTOMS TABLE

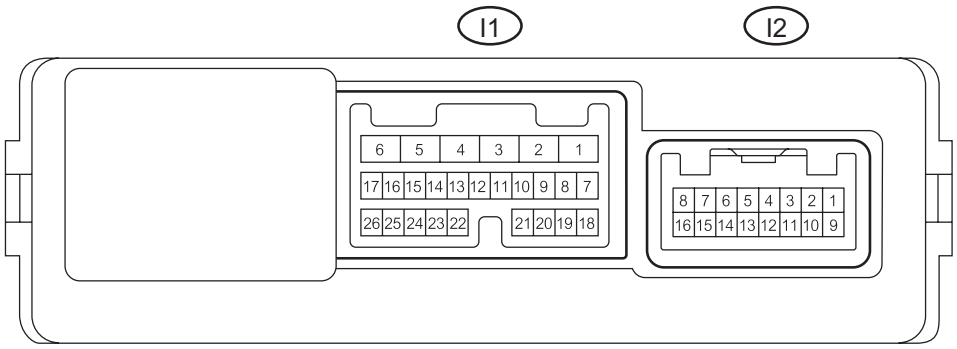
POWER MIRROR CONTROL SYSTEM (w/ Memory)

Symptom	Suspected area	See page
Power mirror cannot be adjusted manually.	1. ECU power source circuit	MI-25
	2. Remote control mirror switch circuit	MI-15
	3. Mirror motor circuit	MI-18
	4. Outer mirror control switch	MI-40
	5. Memory mirror ECU	-
	6. Outer rear view mirror assembly	-
	7. Wire harness	-
Either driver side or passenger side power mirror cannot be adjusted manually.	1. ECU power source circuit	MI-25
	2. Remote control mirror switch circuit	MI-15
	3. Mirror motor circuit	MI-18
	4. Outer mirror control switch	MI-40
	5. Memory mirror ECU	-
	6. Outer rear view mirror assembly	-
	7. Wire harness	-
Power mirrors do not move to memorized positions.	1. ECU power source circuit	MI-25
	2. Remote control mirror switch circuit	MI-15
	3. Mirror motor circuit	MI-18
	4. Outer mirror control switch	MI-40
	5. Memory mirror ECU	-
	6. Outer rear view mirror assembly	-
	7. Wire harness	-
Foot lamp does not light up.	1. Lighting System (*1)	-
	2. Foot light circuit	MI-11
	3. Memory mirror ECU	-
	4. Outer rear view mirror assembly	-
	5. Wire harness	-
Memory function dose not operate.	1. Position sensor circuit	MI-22
	2. Power seat control ECU &power seat switch	-
	3. Memory mirror ECU	-
	4. Outer rear view mirror assembly	-
	5. Wire harness	-
Automatic glare-resistant electrochromic mirror system does not operate.	1. Inner rear view mirror assembly	MI-35
	2. Outer rear view mirror assembly	-
	3. Wire harness	-
Mirror heater system does not operate.	1. Check window defogger system	MI-37
	2. Outer rear view mirror assembly	-
	3. Wire harness	-

HINT:
*1: Front interior light, engine switch illumination and center console spots is abnormal light up.

TERMINALS OF ECU

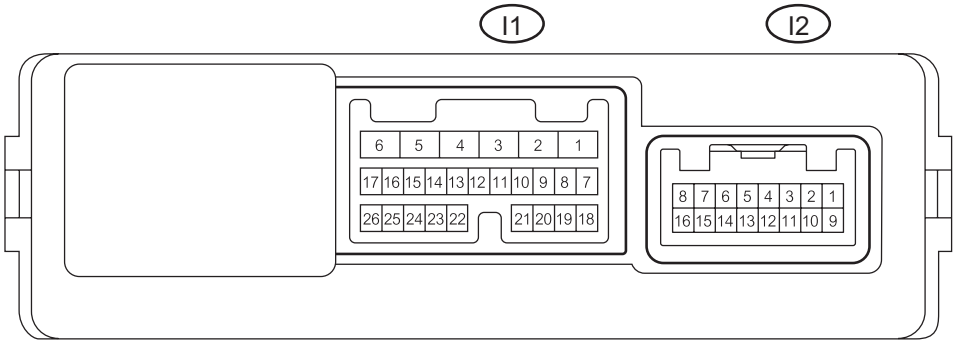
1. MEMORY MIRROR ECU (LH)



Symbols (Terminal No.)	Wiring Color	Terminal Description	Condition	Specified Condition
GND (I1-1) - Body ground	W-B - Body ground	Ground	Constant	Below 1 V
SIG (I1-3) - Body ground	GR - Body ground	Ignition power supply	Ignition switch OFF → ON	0 V → 10 to 14 V
CPUB (I1-4) - Body ground	W - Body ground	Battery (ECU power source)	Constant	10 to 14 V
BDR (I1-6) - Body ground	W - Body ground	Battery (Drive motor power supply for mirror face adjustment)	Constant	10 to 14 V
MPX1 (I1-8) - Body ground	- Body ground	Multiplex communication line	-	-
DMVR (I2-1) - Body ground	LG - Body ground	Outer mirror motor output / (Up / Down)	Ignition switch ACC, Up / Down adjustment switch L side, Mirror switch OFF → Up / Down	10 to 14 V
LP (I2-2) - Body ground	LG - Body ground	Puddle light signal	Receive the Input door LOCK or UNLOCK signal	10 to 14 V
DVC (I2-5) - Body ground	Y - Body ground	Power source for mirror position sensor	Ignition switch OFF → ACC	0 to 5 V
VSSR (I2-6) - Body ground	G - Body ground	Vertical direction position signal	Ignition switch ACC, Left/ Right adjustment switch L side, Mirror switch uppermost position → lowermost position	1 to 3 V
DMHR (I2-9) - Body ground	W - Body ground	Outer mirror motor output / (Left / Right)	Ignition switch ACC, Left / Right adjustment switch L side, Mirror switch OFF → Left / Right	10 to 14 V
DM+R (I2-10) - Body ground	R - Body ground	Outer mirror motor output / (All)	Ignition switch ACC, Left / Right, Up / Down adjustment switch L side, Mirror switch OFF → All	10 to 14 V
HSSR (I2-13) - Body ground	L - Body ground	Horizontal direction position signal	Ignition switch ACC, Left / Right adjustment switch L side, Mirror switch innermost position → outermost position	1 to 3 V
DE2 (I2-14) - Body ground	W-B - Body ground	Ground	Constant	Below 1 V

If the result is not as specified, replace the mirror assembly or the ECU may be malfunctioning.

2. MEMORY MIRROR ECU (RH)



Symbols (Terminal No.)	Wiring Color	Terminal Description	Condition	Specified Condition
GND (H1-1) - Body ground	W-B - Body ground	Ground	Constant	Below 1 V
SIG (H1-3) - Body ground	GR - Body ground	Ignition power supply	Ignition switch OFF → ON	0 V → 10 to 14 V
CPUB (H1-4) - Body ground	W - Body ground	Battery (ECU power source)	Constant	10 to 14 V
BDR (H1-6) - Body ground	V - Body ground	Battery (Drive motor power supply for mirror face adjustment)	Constant	10 to 14 V
MPX1 (H1-8) - Body ground	- Body ground	Multiplex communication line	-	-
PMVR (H2-1) - Body ground	LG - Body ground	Outer mirror motor output / (Up / Down)	Ignition switch on (ACC), Up / Down adjustment switch R side, Mirror switch OFF → Up/Down	10 to 14 V
LP (H2-2) - Body ground	LG - Body ground	Puddle light signal	Receive the Input door LOCK or UNLOCK signal	10 to 14 V
PVC (H2-5) - Body ground	Y - Body ground	Power source for mirror position sensor	Ignition switch OFF → ACC	0 to 5 V
VSSR (H2-6) - Body ground	G - Body ground	Vertical direction position signal	Ignition switch on (ACC), Left/Right adjustment switch R side, Mirror switch uppermost position → lowermost position	1 to 3 V
PMHR (H2-9) - Body ground	V - Body ground	Outer mirror motor output / (Left / Right)	Ignition switch on (ACC), Left / Right adjustment switch R side, Mirror switch OFF → Left / Right	10 to 14 V
PM+R (H2-10) - Body ground	R - Body ground	Outer mirror motor output / (All)	Ignition switch ACC, Left / Right, Up / Down adjustment switch L side, Mirror switch OFF → All	10 to 14 V
HSSR (H2-13) - Body ground	L - Body ground	Horizontal direction position signal	Ignition switch on (ACC), Left / Right adjustment switch R side, Mirror switch innermost position → outermost position	1 to 3 V
DE2 (H2-14) - Body ground	W-B - Body ground	Ground	Constant	Below 1 V

If the result is not as specified, replace the mirror assembly or the ECU may be malfunctioning.

MI

DATA LIST / ACTIVE TEST

1. 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 way to shorten the labor time.

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

Standard (Outer mirror control ECU):

Item	Measurement Item / Display (Range)	Normal Condition
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
FOOT LIGHT SETUP	Foot light illumination time	OFF/7.5S/15S/30S
MIRROR MEM 1	Mirror position is memorized in memory switch M1 / NOT MEM or MEM	MEM: Memorized NOT MEM: Not memorized
MIRROR MEM 2	Mirror position is memorized in memory switch M2 / NOT MEM or MEM	MEM: Memorized NOT MEM: Not memorized

2. ACTIVE TEST

HINT:

Performing the ACTIVE TEST using the intelligent tester allows you to operate the the relay, VSV, actuator, etc. without 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 (IG).
(c) Perform the ACTIVE TEST according to the display on the tester.

Standard (Outer mirror control ECU):

Item	Test Details
MIRR UP / DOWN	Mirror vertical operation UP / DOWN
MIRR RIGHT / LEFT	Mirror horizontal operation RIGHT / LEFT / DOWN
FOOT LIGHT	Illumination operation ON / OFF

Door Mirror Foot Light Circuit

DESCRIPTION

When the memory mirror ECU receives the signal(s) from the certification ECU through BEAN communication, it illuminates the foot light. The foot light is installed on the bottom of the outer rear view mirror and comes on or does off according to the following conditions.

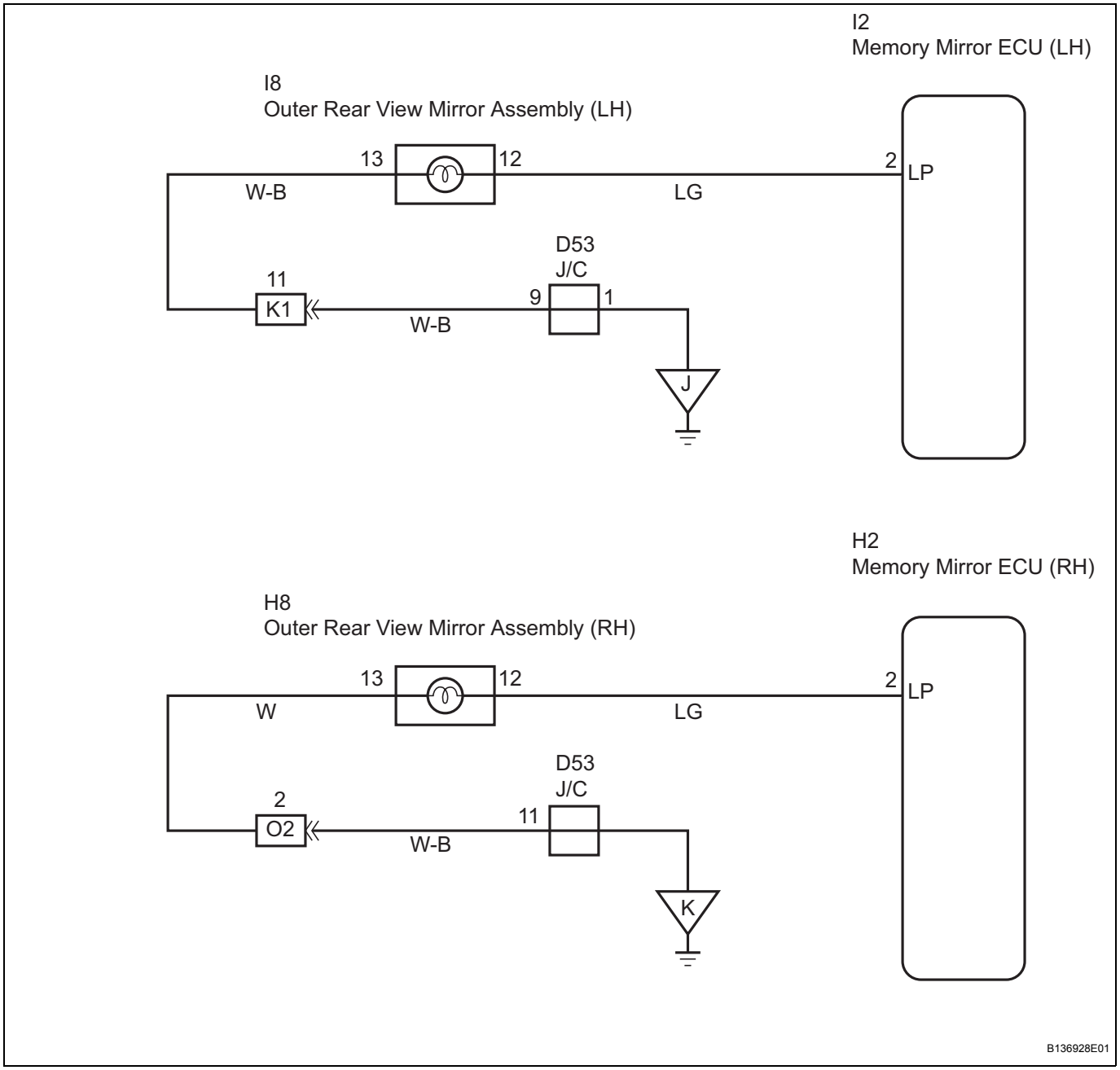
The light comes on when:

- Doors are unlocked by wireless operation.
- The key code ID (key code recognition signal) for smart key system matches.
- The driver's door is manually unlocked with the shift lever is in the P position or the ignition off. (Both driver's and passenger's side come on.)

The light goes off when:

- Doors are locked by wireless operation.
- Doors are locked by the smart key system.
- The setting time has elapsed after the light come on.
- The setting time has elapsed after the driver's or passenger's door is closed while the light is on.
- The ignition is off and the shift lever is in any position other than P.
- Doors are locked or unlocked by interlock operation or manual switch.

WIRING DIAGRAM



INSPECTION PROCEDURE

1	READ VALUE OF INTELLIGENT TESTER

(a) Check the ACTIVE TEST for proper functioning of the seat memory switch.

OUTER MIRROR CONTROL ECU

Item	Test Details
FOOT LIGHT	Illumination operation ON/OFF

OK:

Foot light comes on

MI

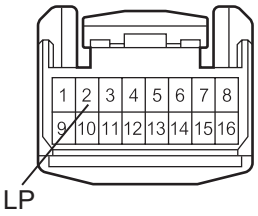
OK → **PROCEED TO NEXT CIRCUIT INSPECTION SHOWN IN PROBLEM SYMPTOMS TABLE**

NG

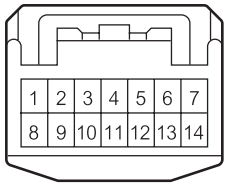
2	CHECK WIRE HARNESS (OUTER REAR VIEW MIRROR ASSEMBLY - MEMORY MIRROR ECU)

Wire Harness side:

I2
Memory Mirror ECU (LH)



I8
Outer Rear View Mirror Assembly (LH)



H

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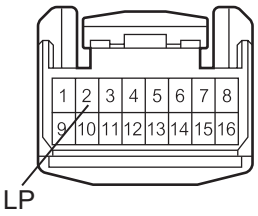
(a) LH:
(1) Disconnect the I2 and I8 connectors.
(2) Check the resistance of the wire harness side connectors.

Standard resistance

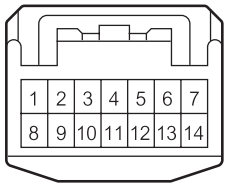
Tester Connection	Condition	Specified Condition
I8-12 - I2-2	Always	Below 1 Ω
I8-13 - Body ground		
I8-12 - Body ground		10 kΩ or higher

Wire Harness side:

H2
Memory Mirror ECU (RH)



H8
Outer Rear View Mirror Assembly (RH)



H

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(b) RH:
(1) Disconnect the H2 and H8 connectors.
(2) Check the resistance of the wire harness side connectors.

Standard resistance

Tester Connection	Condition	Specified Condition
H8-12 - H2-2	Always	Below 1 Ω
H8-13 - Body ground		
H8-12 - Body ground		10 kΩ or higher

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

MI

OK

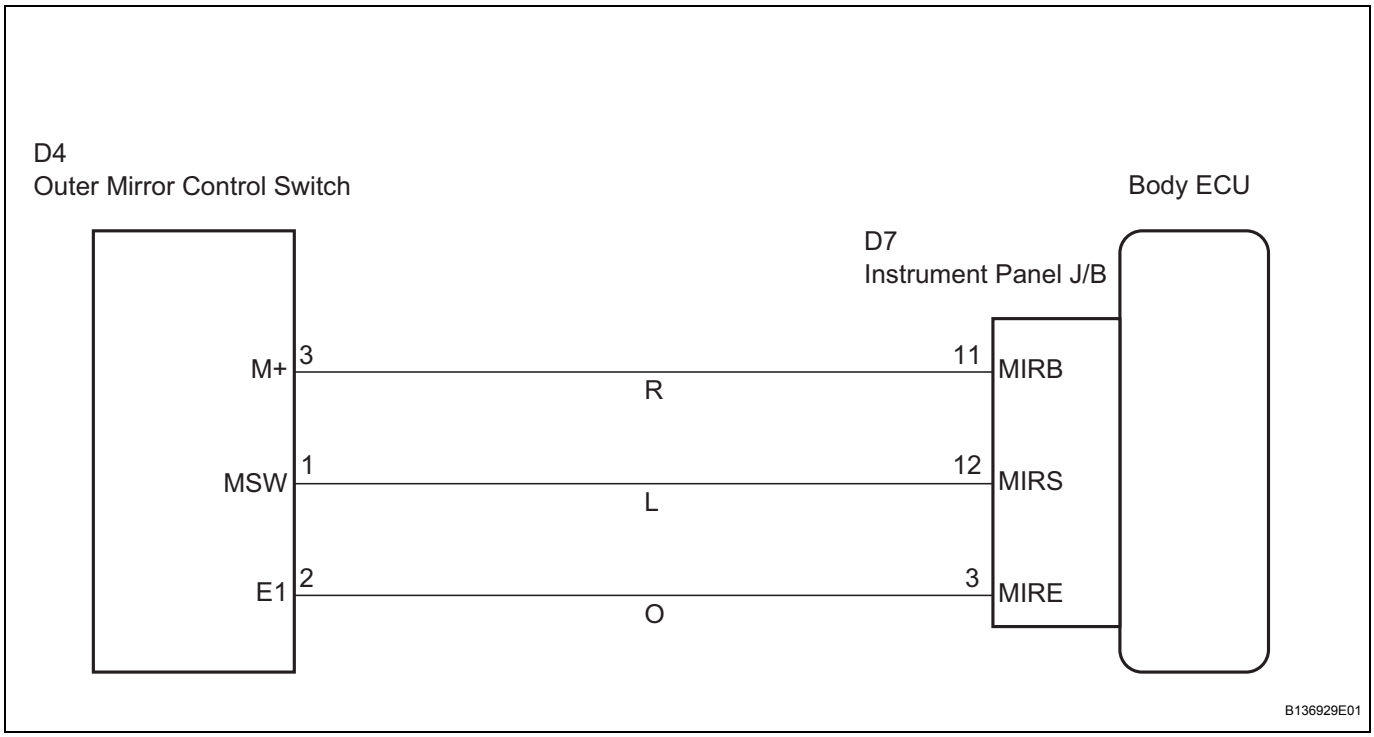
PROCEED TO NEXT CIRCUIT INSPECTION SHOWN IN PROBLEM SYMPTOMS TABLE

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 body ECU. Then, the memory mirror ECU activates the mirror motor to move the mirror UP, DOWN, RIGHT and LEFT in response to the inputs.
HINT:
The power mirror control system is 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 Multiplex Communication System).
WIRING DIAGRAM

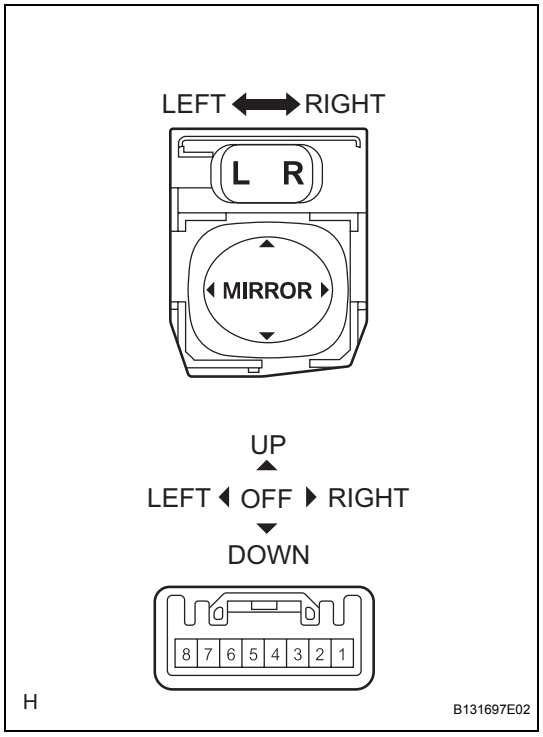
WIRING DIAGRAM



MI

INSPECTION PROCEDURE

1 INSPECT OUTER MIRROR SWITCH ASSEMBLY



(a) Remove the outer mirror switch assembly.
(b) Measure the resistance between the wire harness connectors.

Vertical and horizontal operation

Tester Connection	Switch Position	Specified Condition
2 - 3	OFF	10 kΩ or higher
	UP	100 Ω
	DOWN	250 Ω
	LEFT	470 Ω
	RIGHT	800 Ω

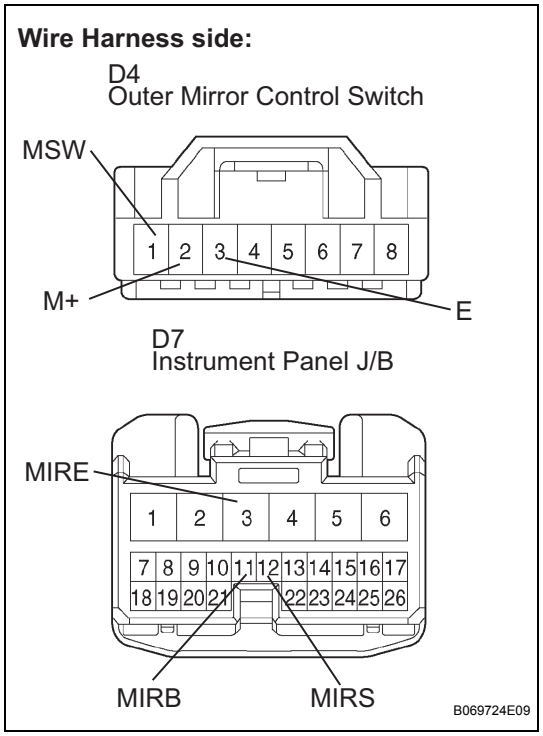
Left or right side operation

Tester Connection	Switch Position	Specified Condition
1 - 2	L	100 Ω
	R	10 Ω or less

NG → **REPLACE OUTER MIRROR SWITCH ASSEMBLY**

OK

2 CHECK WIRE HARNESS (OUTER MIRROR SWITCH ASSEMBLY - INSTRUMENT PANEL J/B)



(a) Disconnect the D4 and D7 connectors.
(b) Measure the resistance between the wire harness connectors.

Standard resistance

Tester Connection	Switch Position	Specified Condition
D4-1 - D7-12	Always	Below 1 Ω
D4-2 - D7-3		
D4-3 - D7-11		
D4-1 - Body ground		10 kΩ or higher
D4-1 - Body ground		
D4-1 - Body ground		

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

MI

OK

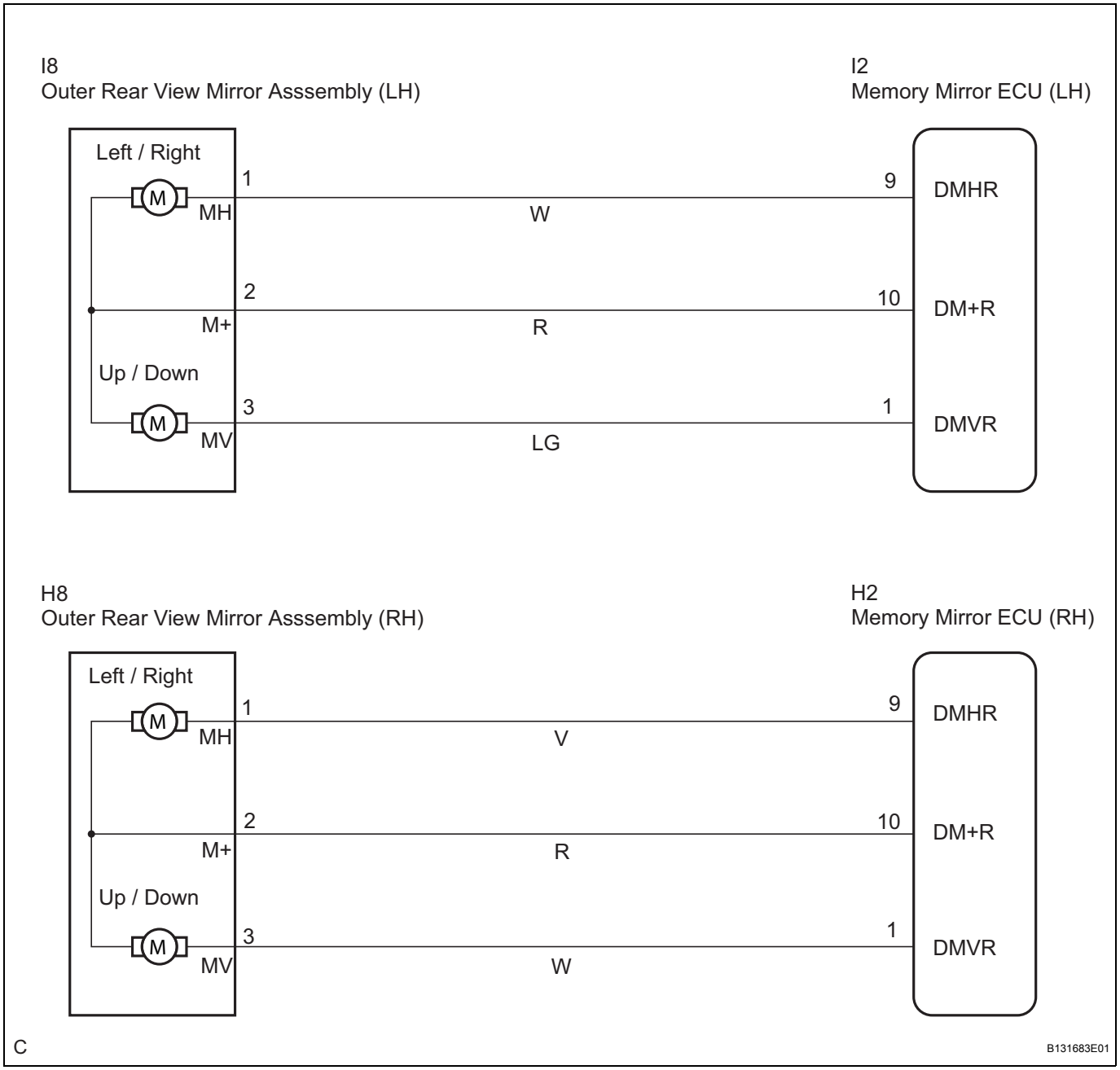
PROCEED TO NEXT CIRCUIT INSPECTION SHOWN IN PROBLEM SYMPTOMS TABLE

Mirror Motor Circuit

DESCRIPTION

A mirror control switch signal and memorized mirror positions are set to the memory mirror ECU. The memory mirror ECU drive the selected mirror UP, DOWN, LEFT and RIGHT in response to the inputs.
HINT:
The power mirror control system is part of the large-scale 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 Multiplex Communication system).

WIRING DIAGRAM



MI

INSPECTION PROCEDURE

1	PERFORM ACTIVE TEST USING INTELLIGENT TESTER

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

OUTER MIRROR CONTROL ECU:

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

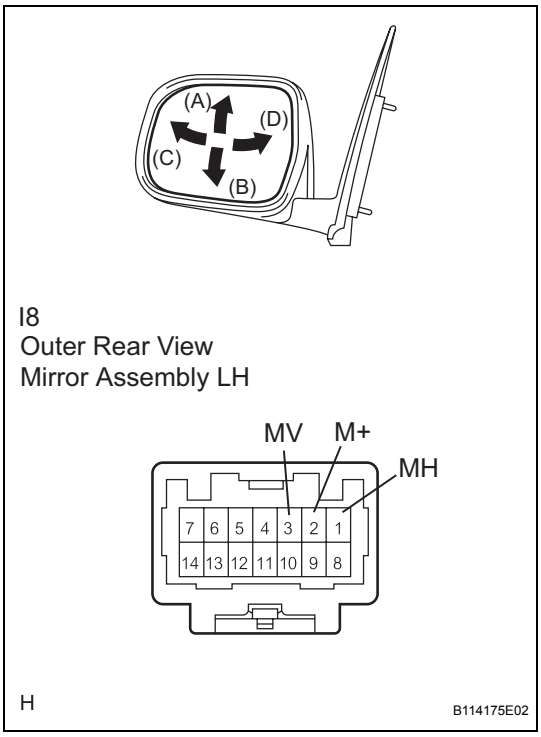
OK:
Mirror is UP / DOWN or RIGHT / LEFT

NG → **Go to step 2**

OK

PROCEED TO NEXT CIRCUIT INSPECTION SHOWN IN PROBLEM SYMPTOMS TABLE

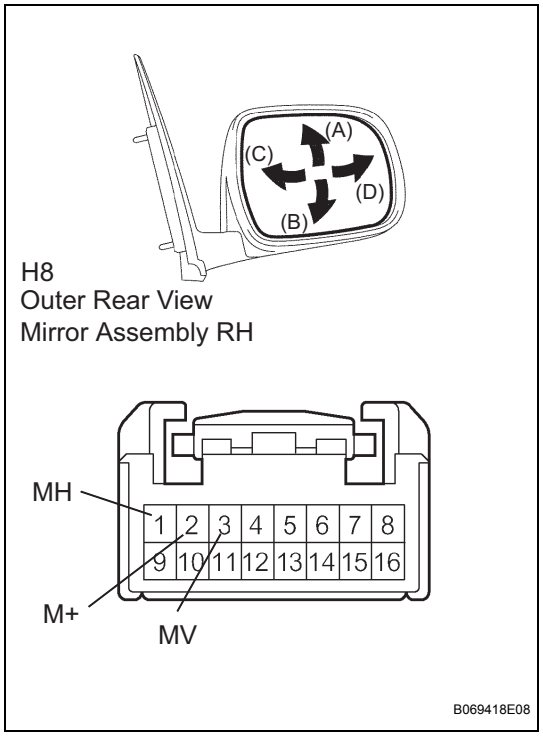
2	INSPECT OUTER REAR VIEW MIRROR ASSEMBLY



(a) LH:
(1) Disconnect the I8 connector.
(2) Apply battery voltage and check operation of the mirror face.
Standard

Measurement Condition	Mirror Operation
Battery positive (+) → I8-3 (MV) Battery negative (-) → I8-2 (M+)	**Turns upward (A)**
Battery positive (+) → I8-2 (M+) Battery negative (-) → I8-3 (MV)	**Turns downward (B)**
Battery positive (+) → I8-2 (M+) Battery negative (-) → I8-1 (MH)	**Turns left (C)**
Battery positive (+) → I8-1 (MH) Battery negative (-) → I8-2 (M+)	**Turns right (D)**

If the result is not as specified, proceed to NG-A



(b) RH:
(1) Disconnect the H8 mirror connector.
(2) Apply battery voltage and check operation of the mirror face.

Standard

Measurement Condition	Mirror Operation
Battery positive (+) → I8-3 (MV) Battery negative (-) → I8-2 (M+)	Turns upward (A)
Battery positive (+) → I8-2 (M+) Battery negative (-) → I8-3 (MV)	Turns downward (B)
Battery positive (+) → I8-2 (M+) Battery negative (-) → I8-1 (MH)	Turns left (C)
Battery positive (+) → I8-1 (MH) Battery negative (-) → I8-2 (M+)	Turns right (D)

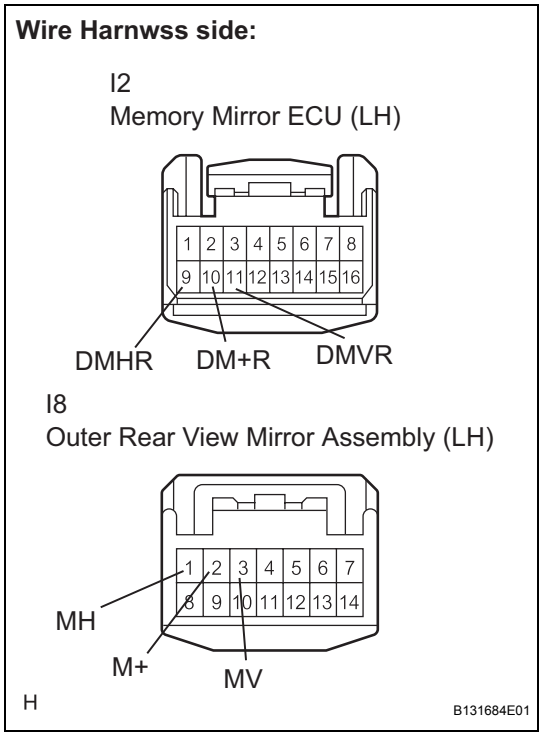
If the result is not as specified, proceed to NG-B

NG-A → **REPLACE OUTER REAR VIEW MIRROR ASSEMBLY LH**

NG-B → **REPLACE OUTER REAR VIEW MIRROR ASSEMBLY RH**

OK

3	CHECK WIRE HARNESS (OUTER REAR VIEW MIRROR ASSEMBLY - MEMORY MIRROR ECU)



(a) LH:
(1) Disconnect the I2 and I8 connectors.
(2) Check the resistance of the wire harness side connectors.

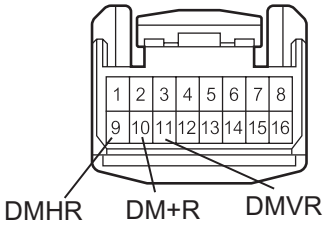
Resistance

Tester Connection	Condition	Specified Condition
I8-1 - I2-9	Always	Below 1 Ω
I8-2 - I2-10	Always	Below 1 Ω
I8-3 - I2-1	Always	Below 1 Ω
I8-1 - Body ground	Always	10 kΩ or higher
I8-2 - Body ground	Always	10 kΩ or higher
I8-3 - Body ground	Always	10 kΩ or higher

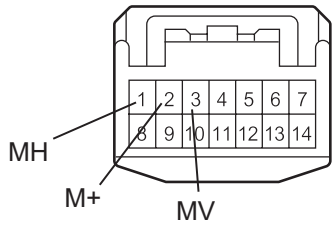
MI

Wire Harnwss side:

H2
Memory Mirror ECU (RH)



H8
Outer Rear View Mirror Assembly (RH)



H

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(b) RH:
(1) Disconnect the H2 and H8 connectors.
(2) Check the resistance of the wire harness side connectors.

Resistance

Tester Connection	Condition	Specified Condition
I8-1 - I2-9	Always	Below 1 Ω
I8-2 - I2-10	Always	Below 1 Ω
I8-3 - I2-1	Always	Below 1 Ω
I8-1 - Body ground	Always	10 kΩ or higher
I8-2 - Body ground	Always	10 kΩ or higher
I8-3 - Body ground	Always	10 kΩ or higher

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

OK

PROCEED TO NEXT CIRCUIT INSPECTION SHOWN IN PROBLEM SYMPTOMS TABLE

Position Sensor Circuit

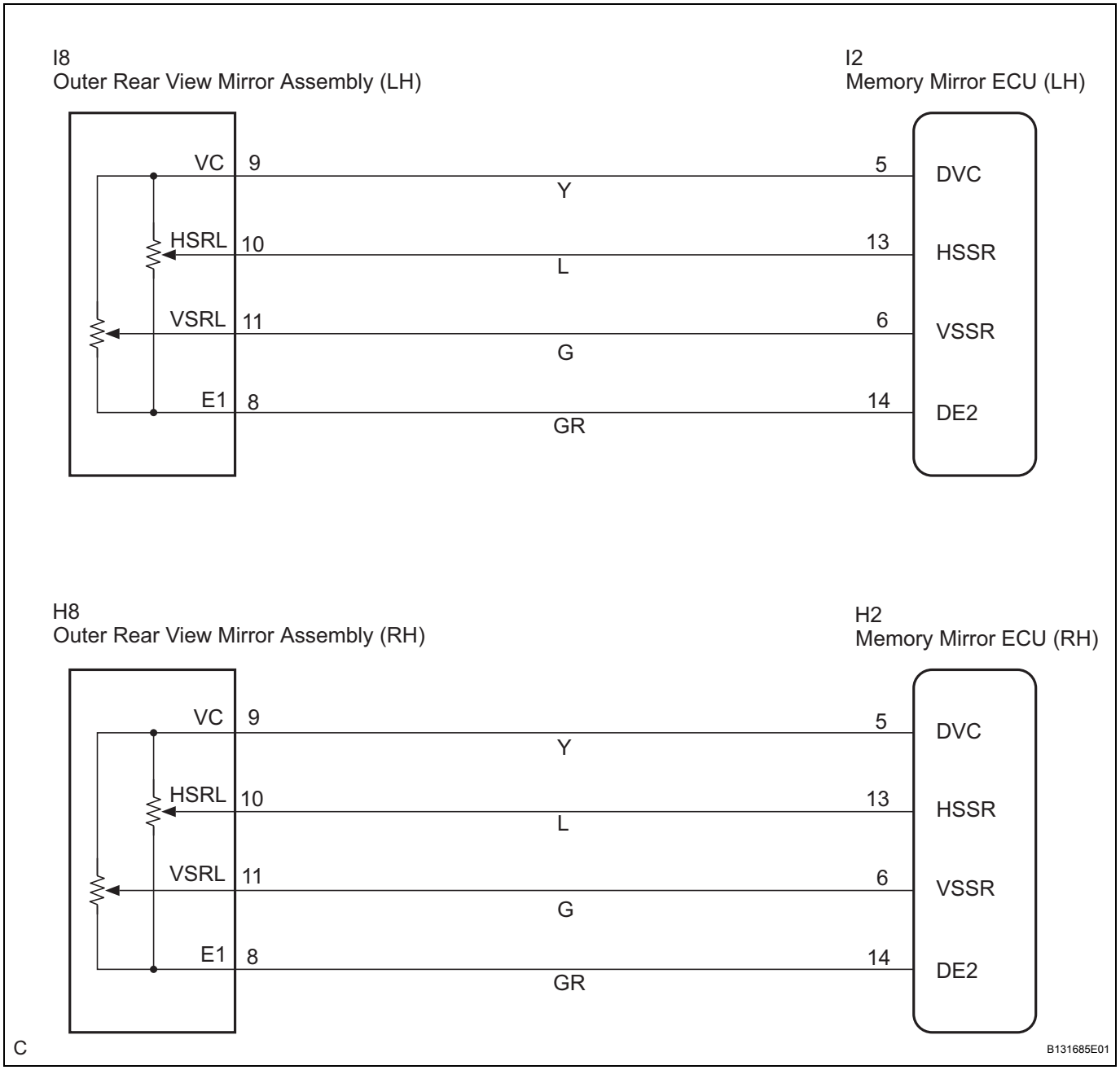
DESCRIPTION

When SET and 1 or 2 are pressed, the position sensor detects the mirror position and sends the signal to the memory mirror ECU. Then when position 1 or 2 is pressed, the memory mirror ECU drives the mirror motor based on the memorized sensor positions.

HINT:

The power mirror control system is 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 Multiplex Communication System).

WIRING DIAGRAM



MI

INSPECTION PROCEDURE

1	READ VALUE OF INTELLIGENT TESTER

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

OUTER MIRROR CONTROL ECU:

Item	Switch Position	Specified condition
MIR POS SEN V	Mirror position sensor voltage (Vertical direction)	0 to 5 V
MIR POS SEN H	Mirror position sensor voltage (Horizontal direction)	0 to 5 V

OK:
0 to 5 V is displayed

NG → **Go to step 2**

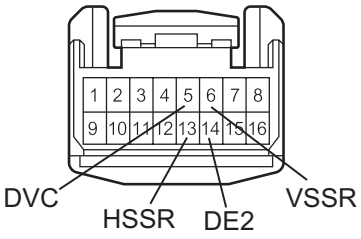
OK

PROCEED TO NEXT CIRCUIT INSPECTION SHOWN IN PROBLEM SYMPTOMS TABLE

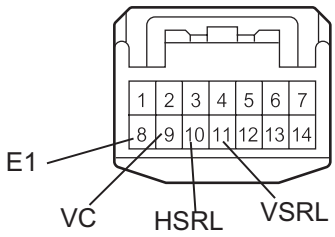
2	CHECK WIRE HARNESS (OUTER REAR VIEW MIRROR ASSEMBLY - MEMORY MIRROR ECU)

Wire Harnwss side:

I2
Memory Mirror ECU (LH)



I8
Outer Rear View Mirror Assembly (LH)



H

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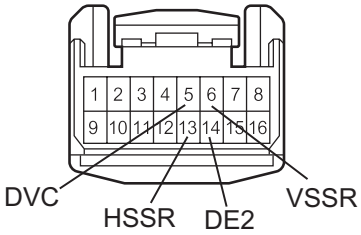
(a) LH:
(1) Disconnect the I2 and I8 connectors.
(2) Check the resistance of the wire harness side connectors.
Resistance

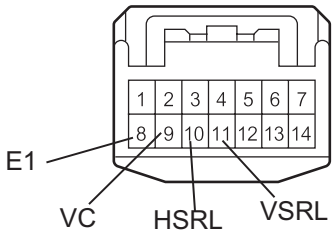
Tester Connection (Symbols)	Condition	Specified Condition
I8-8 - I2-14	Always	Below 1 Ω
I8-9 - I2-5	Always	Below 1 Ω
I8-10 - I2-13	Always	Below 1 Ω
I8-11 - I2-6	Always	Below 1 Ω
I8-8 - Body ground	Always	10 kΩ or higher
I8-9 - Body ground	Always	10 kΩ or higher
I8-10 - Body ground	Always	10 kΩ or higher
I8-11 - Body ground	Always	10 kΩ or higher

Wire Harnwss side:

H2
Memory Mirror ECU (RH)



H8
Outer Rear View Mirror Assembly (RH)



H

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(b) RH:
(1) Disconnect the H2 and H8 connectors.
(2) Check the resistance of the wire harness side connectors.

Resistance

Tester Connection (Symbols)	Condition	Specified Condition
I8-8 - I2-14	Always	Below 1 Ω
I8-9 - I2-5	Always	Below 1 Ω
I8-10 - I2-13	Always	Below 1 Ω
I8-11 - I2-6	Always	Below 1 Ω
I8-8 - Body ground	Always	10 kΩ or higher
I8-9 - Body ground	Always	10 kΩ or higher
I8-10 - Body ground	Always	10 kΩ or higher
I8-11 - Body ground	Always	10 kΩ or higher

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

OK

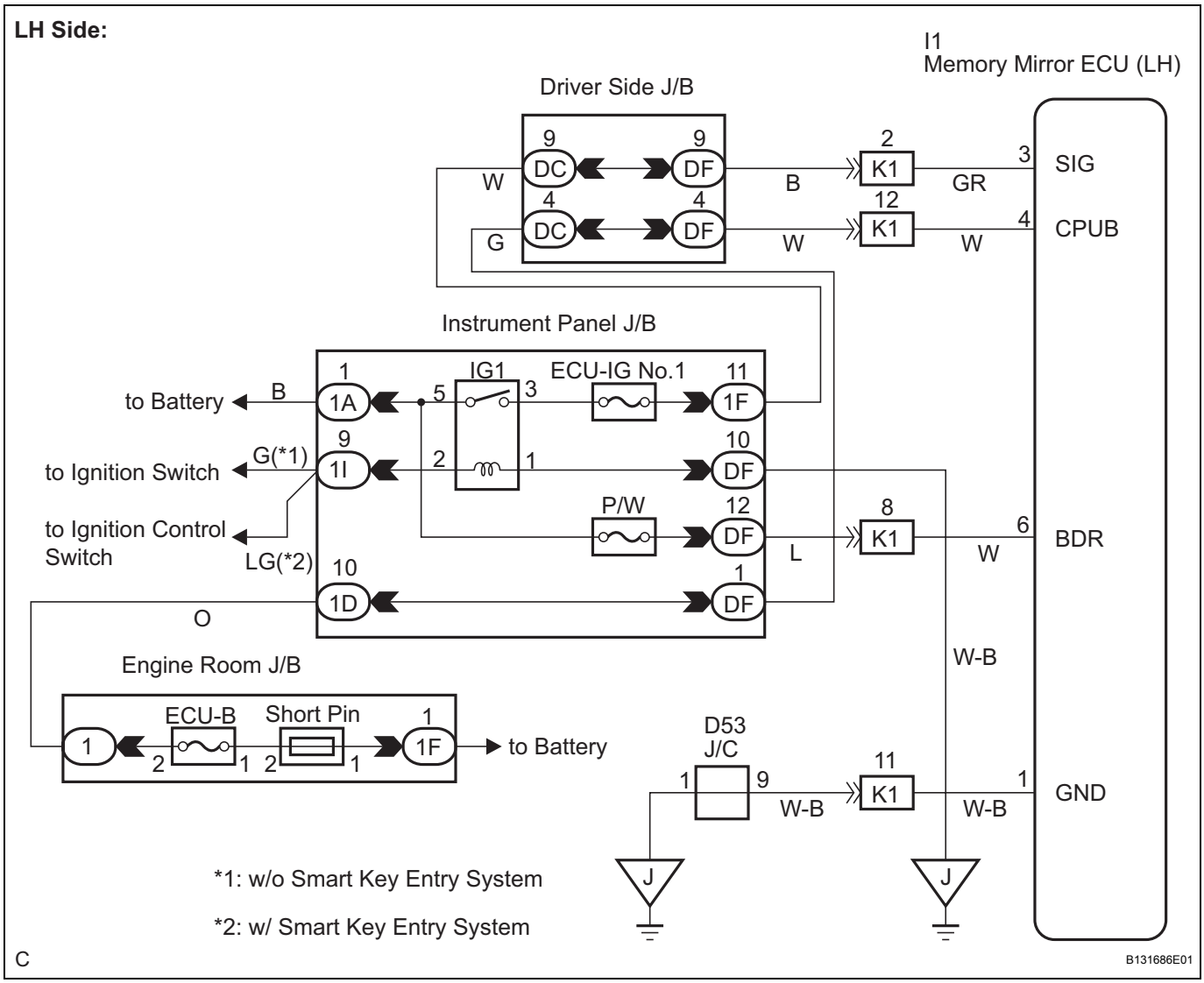
PROCEED TO NEXT CIRCUIT INSPECTION SHOWN IN PROBLEM SYMPTOMS TABLE

ECU Power Source Circuit

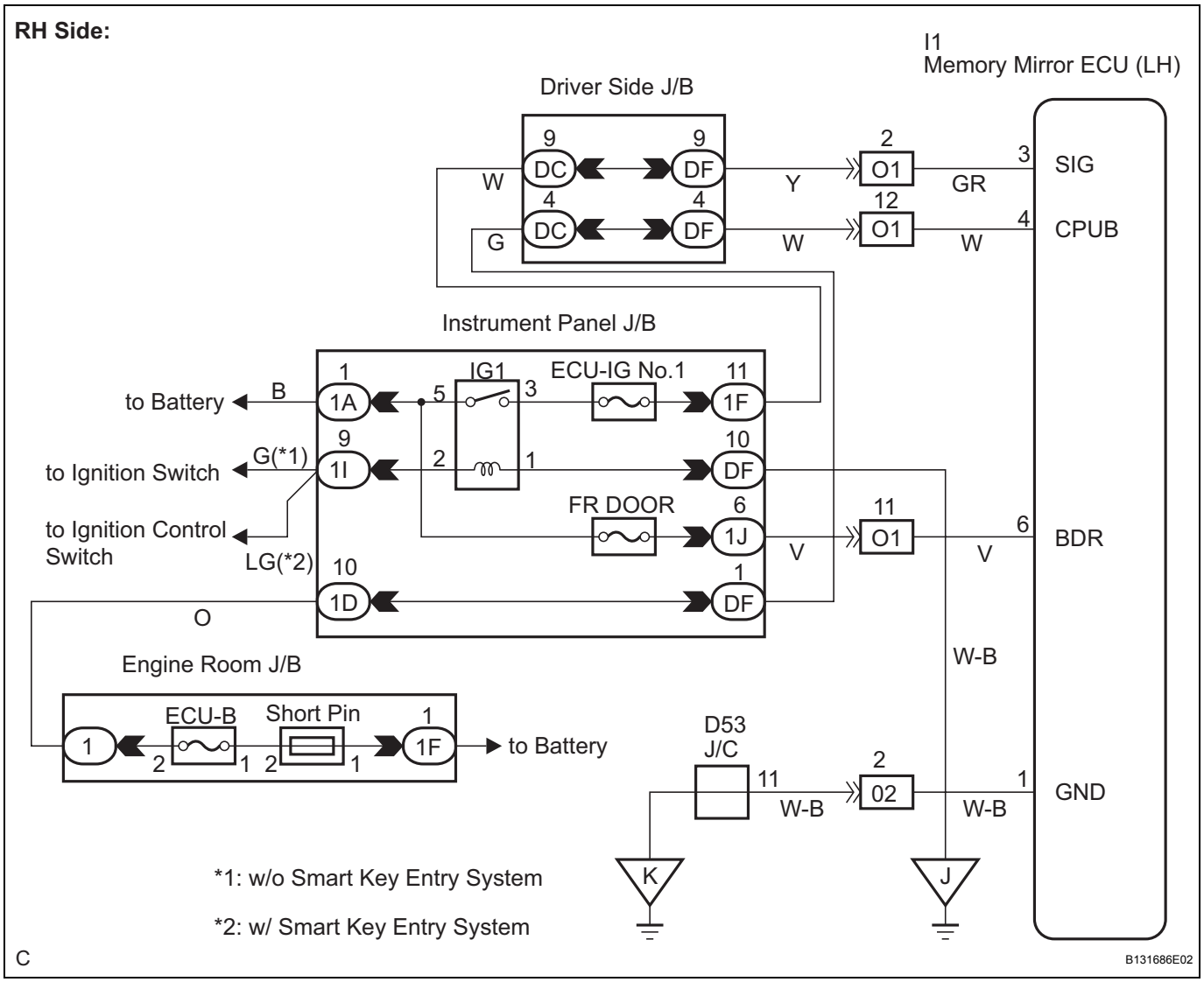
DESCRIPTION

This is the power source circuit for the memory mirror ECU

WIRING DIAGRAM

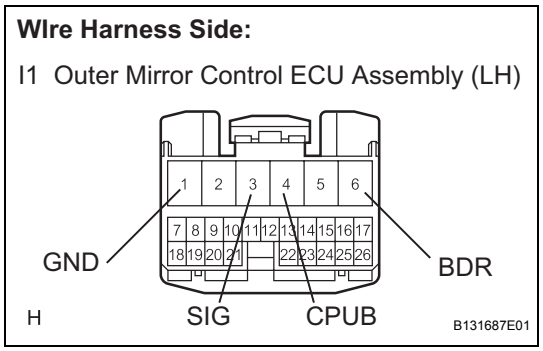


MI



INSPECTION PROCEDURE

1	CHECK MEMORY MIRROR ECU (POWER SOURCE)



(a) LH:
(1) Disconnect the I1 connector.
(2) Measure the resistance according to the value(s) in the table below.

Resistance

Tester Connection	Condition	Specified Condition
I1-1 (GND) - Body ground	Always	Below 1 Ω

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

Voltage

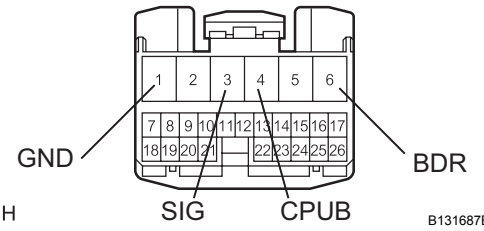
Tester Connection	Condition	Specified Condition
I1-3 (SIG) - Body ground	Ignition switch OFF → ON	0 V → 10 to 14 V

MI

Tester Connection	Condition	Specified Condition
I1-4 (CPUB) - Body ground	Constant	10 to 14 V
I1-6 (BDR) - Body ground	Constant	10 to 14 V

Wire Harness Side:

H1 Outer Mirror Control ECU Assembly (RH)



(b) RH:

(1) Disconnect the H1 connector.

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

Resistance

Tester Connection	Condition	Specified Condition
H1-1 (GND) - Body ground	Always	Below 1 Ω

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

Voltage

Tester Connection	Condition	Specified Condition
H1-3 (SIG) - Body ground	Ignition switch OFF → ON	0 V → 10 to 14 V
H1-4 (CPUB) - Body ground	Constant	10 to 14 V
H1-6 (BDR) - Body ground	Constant	10 to 14 V

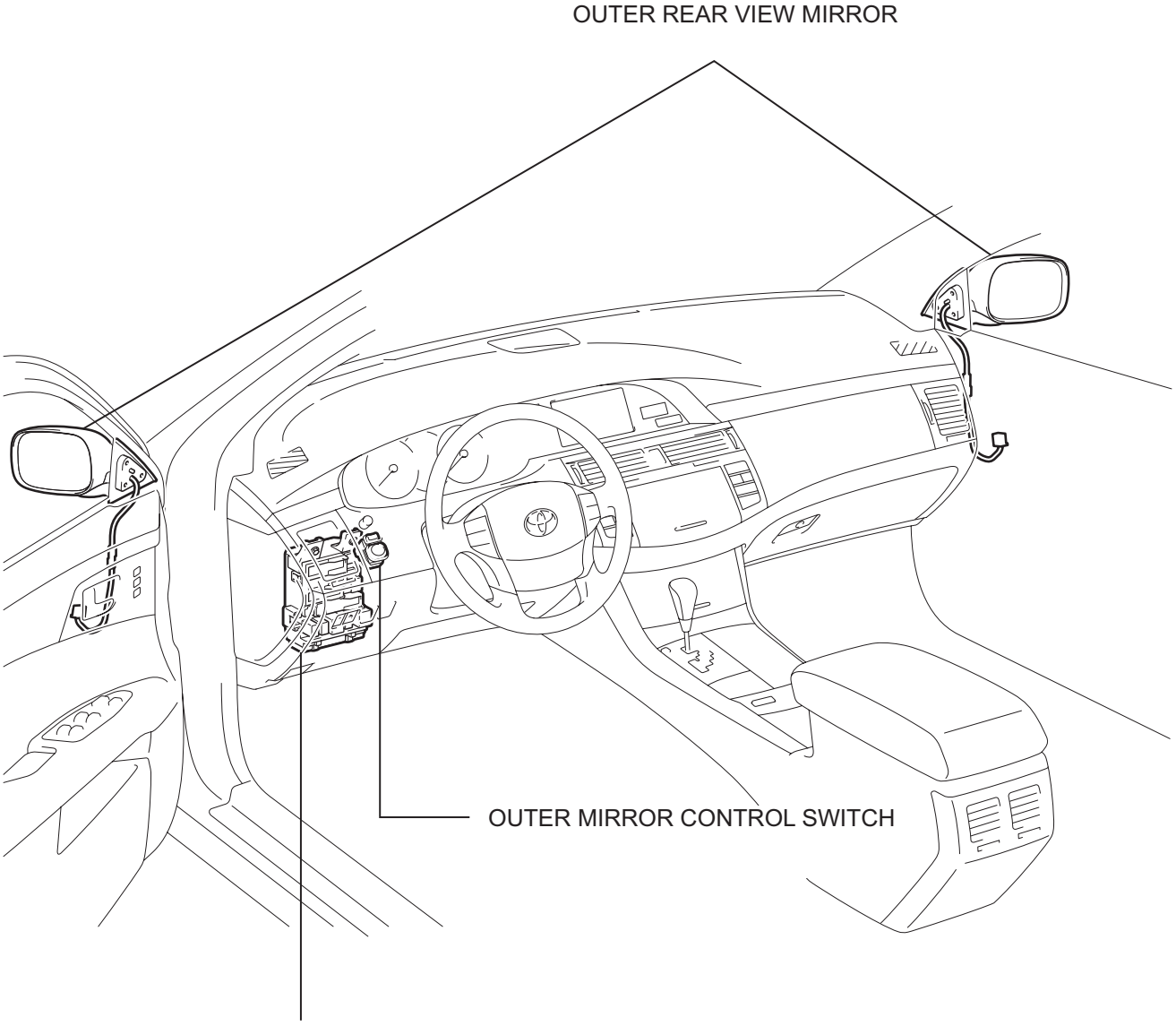
NG → **REPAIR OR REPLACE HARNESS AND CONNECTOR**

OK

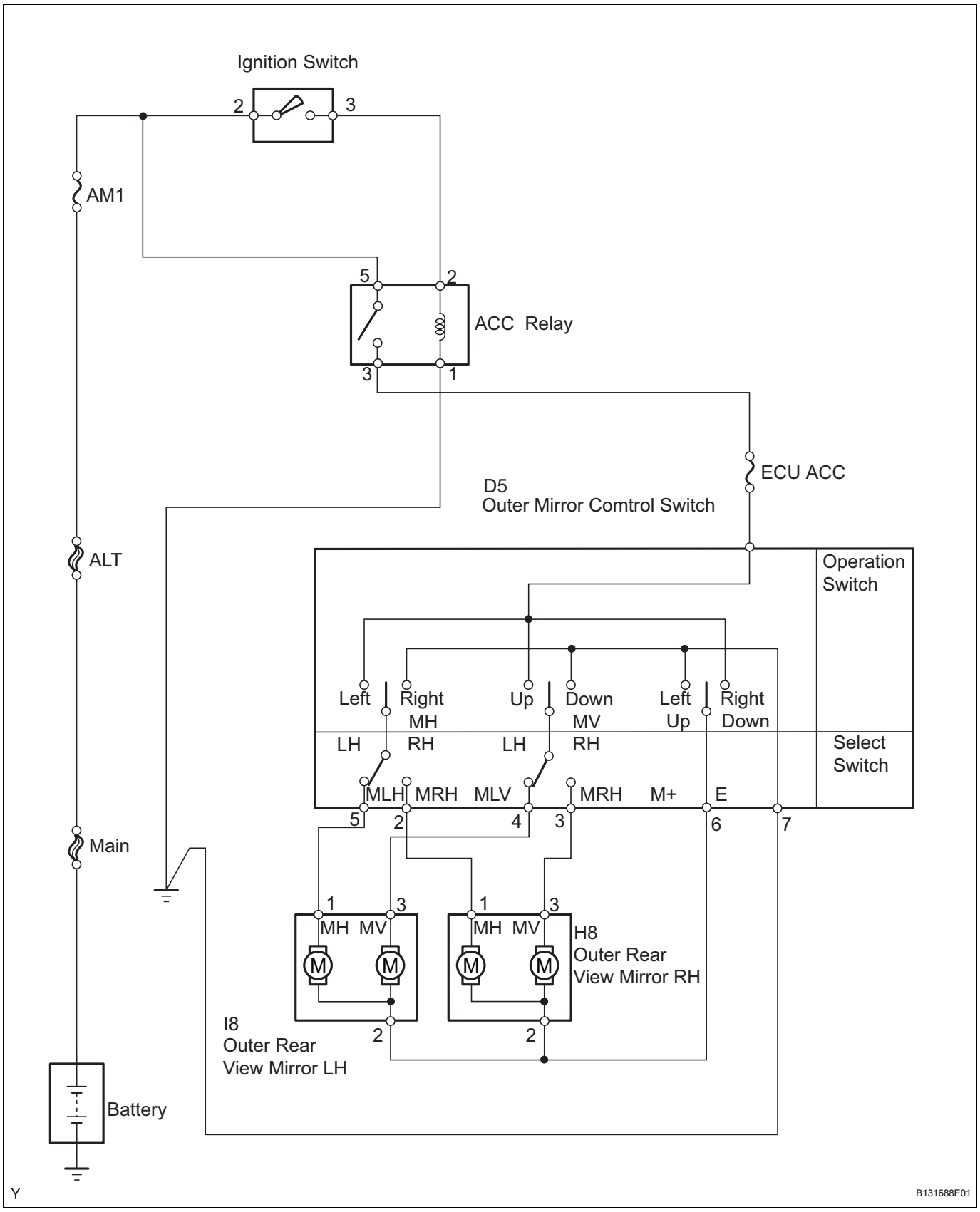
PROCEED TO NEXT CIRCUIT INSPECTION SHOWN IN PROBLEM SYMPTOMS TABLE

POWER MIRROR CONTROL SYSTEM (w/o Memory)

PARTS LOCATION



SYSTEM DIAGRAM



MI

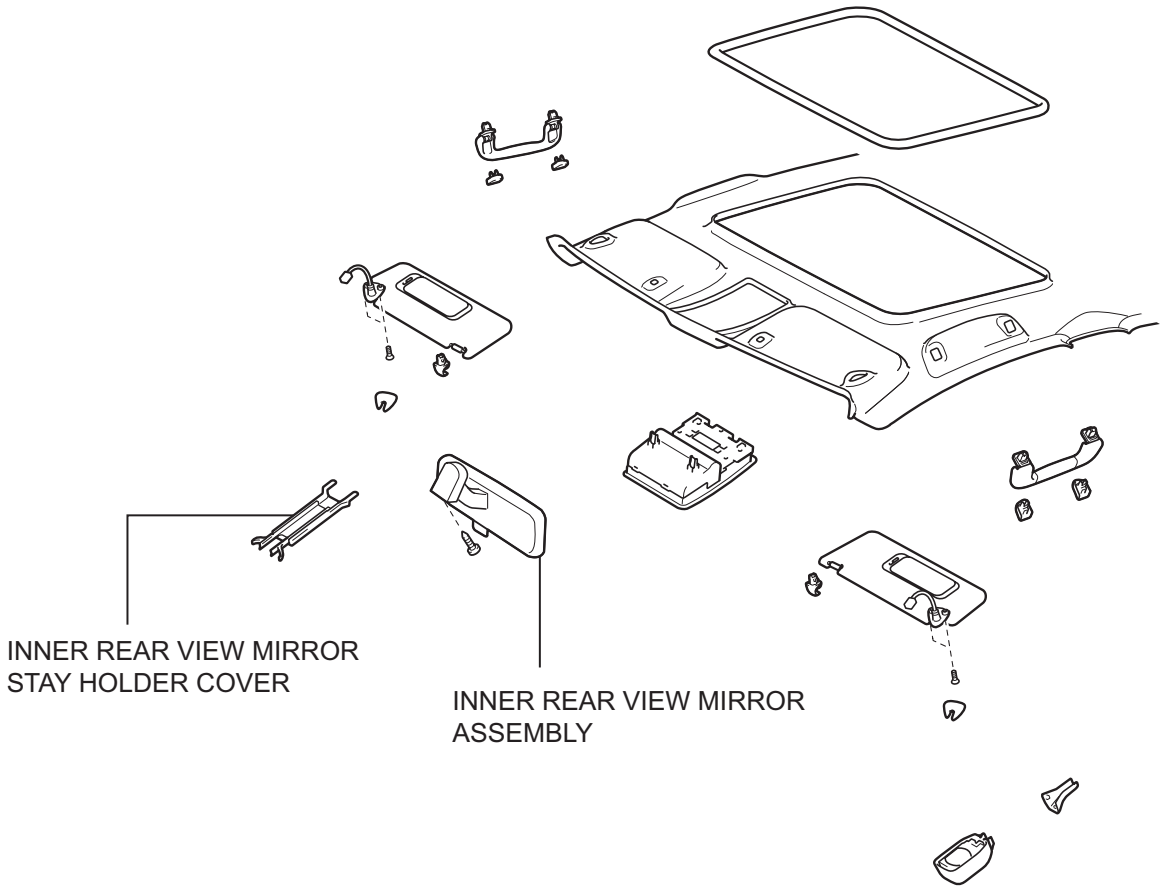
PROBLEM SYMPTOMS TABLE

POWER MIRROR CONTROL SYSTEM

Symptom	Suspected area	See page
Mirror does not operate	1. Outer mirror control switch	MI-40
	2. Outer rear view mirror assembly	-
	3. Wire harness	-
Mirror operates abnormally	1. Outer mirror control switch	MI-40
	2. Outer rear view mirror assembly	-
	3. Wire harness	-

INNER REAR VIEW MIRROR

COMPONENTS



P

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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. Because 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.

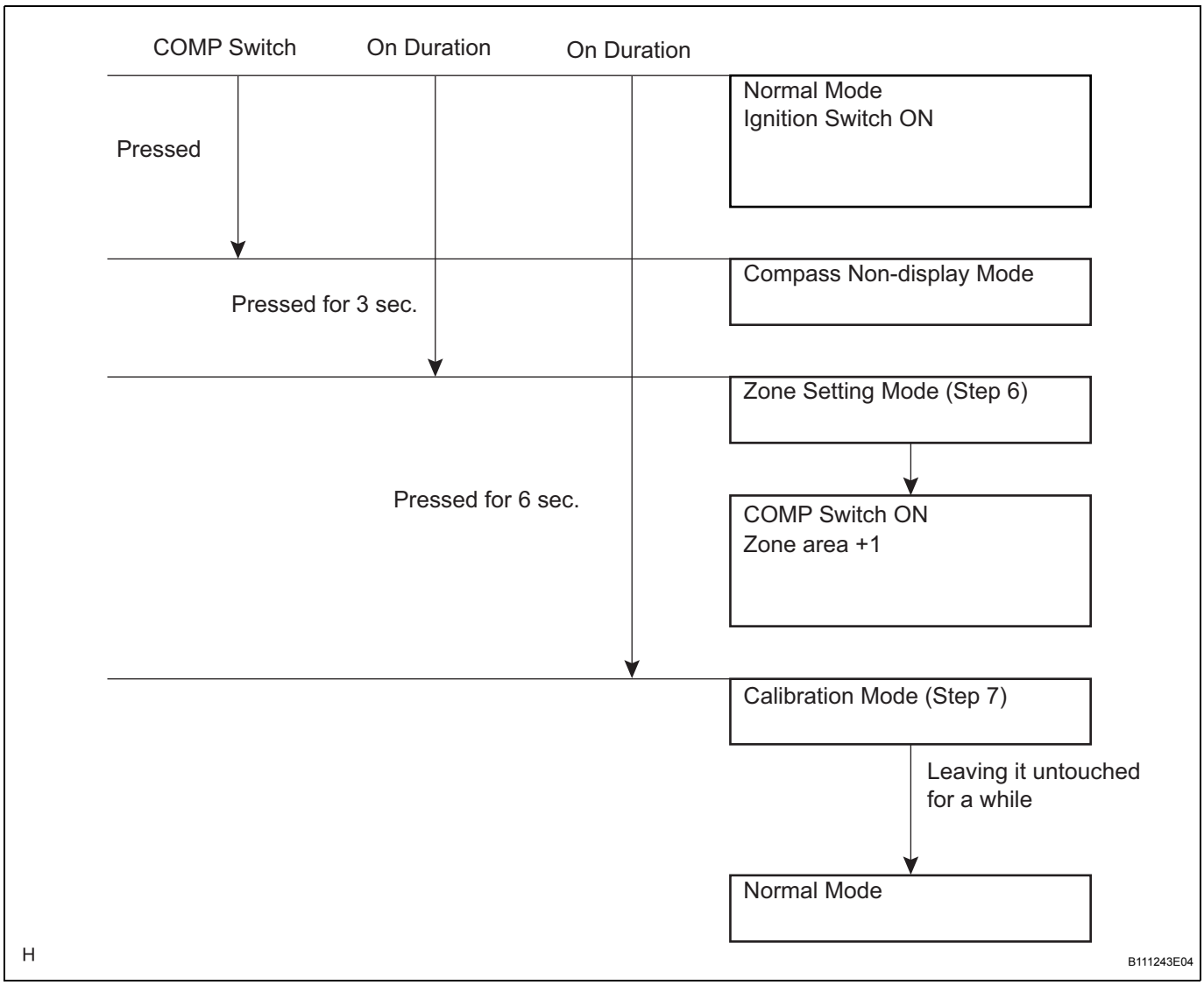
3. PERFORM CALIBRATION

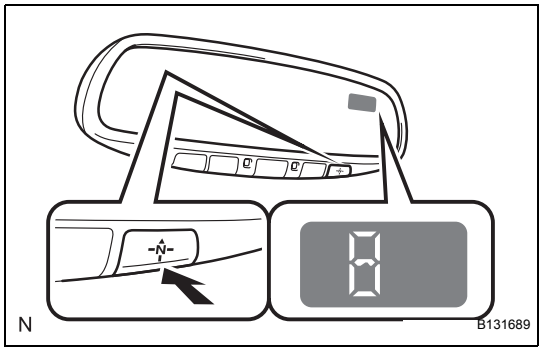
(a) Because each vehicle has its own magnetic field, calibration should be performed for each individual vehicle. This compass function is used when storing the record of the vehicle's magnetic field.

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 this 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





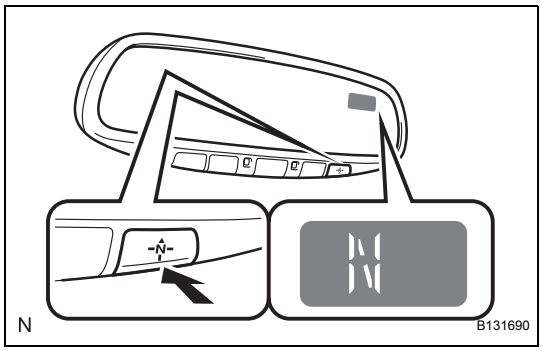
6. ZONE SETTING MODE

(a) Pressing the comp switch for 3 seconds in the normal mode will activate the zone setting mode. A number (1 - 15) is displayed on the compass display.
HINT:
In the initial state, "8" is displayed.

(b) The displayed number increases + 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".

MI



7. CALIBRATION SETTING MODE

(a) Pressing the comp switch for 6 seconds in the normal mode will activate the calibration setting mode. "C" is displayed on the compass display.

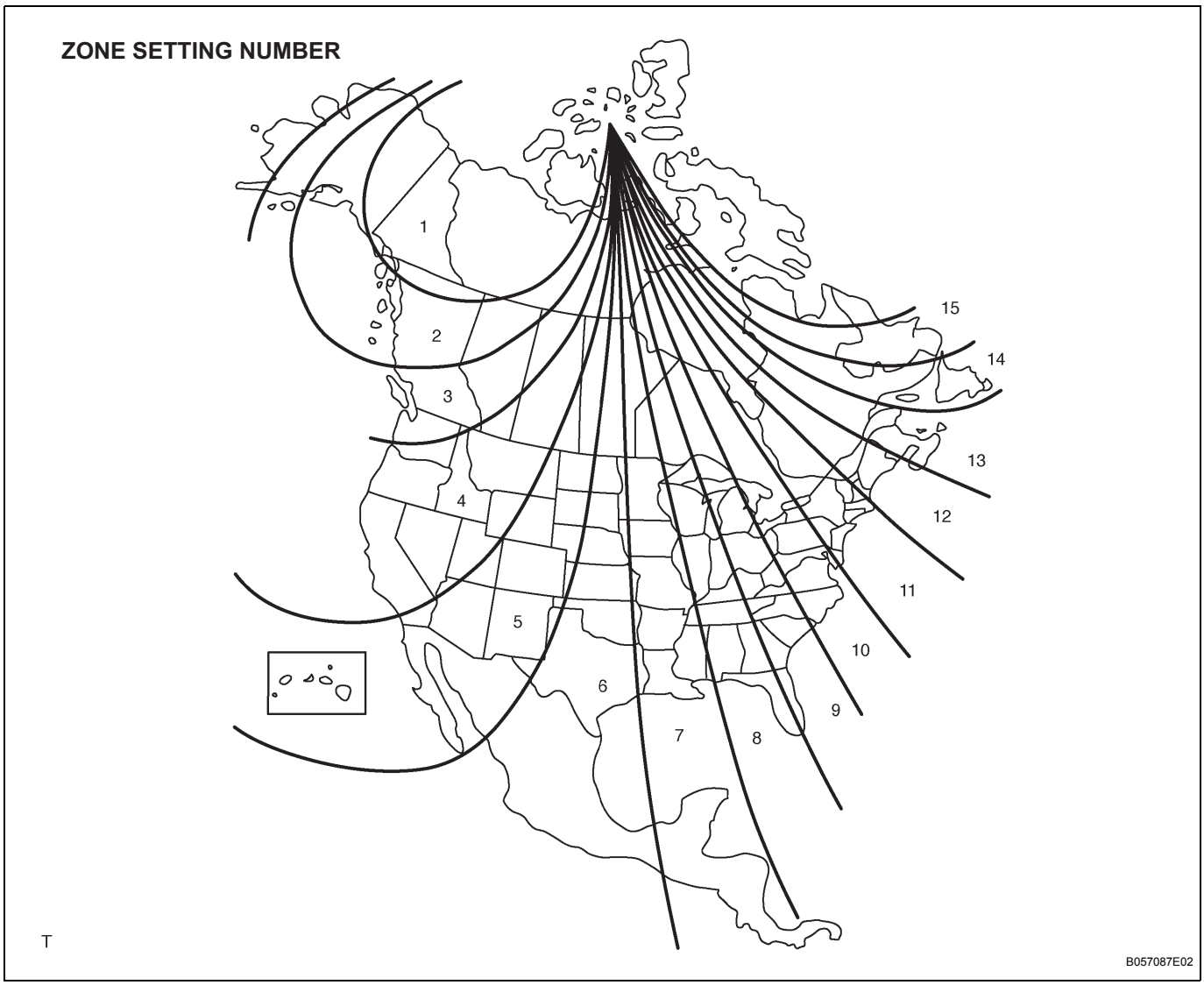
(b) Drive the vehicle at a slow speed of 8 km/h (5mph) or less in the circular direction.

(c) Driving around the circle 1 to 3 times will display the azimuthal direction on the display, completing the calibration.

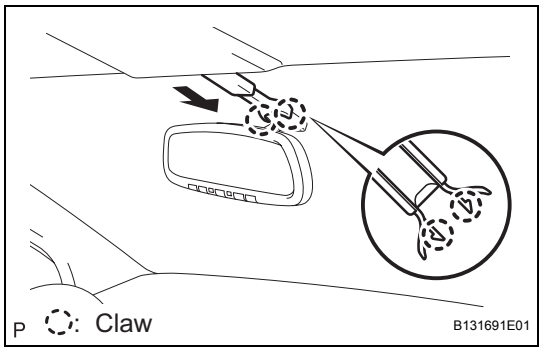
HINT:

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".

(d) The zone setting numbers are as follows:



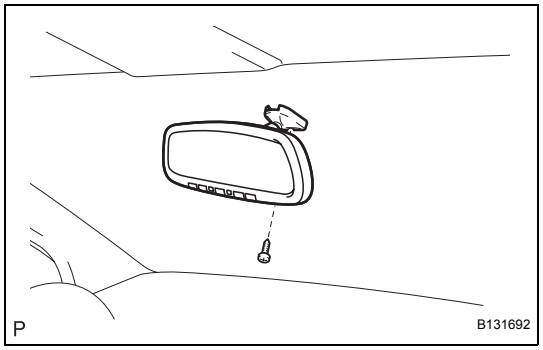
MI



REMOVAL

1. REMOVE INNER REAR VIEW MIRROR STAY HOLDER COVER

(a) Release the 2 claws and remove the rain sensor cover.



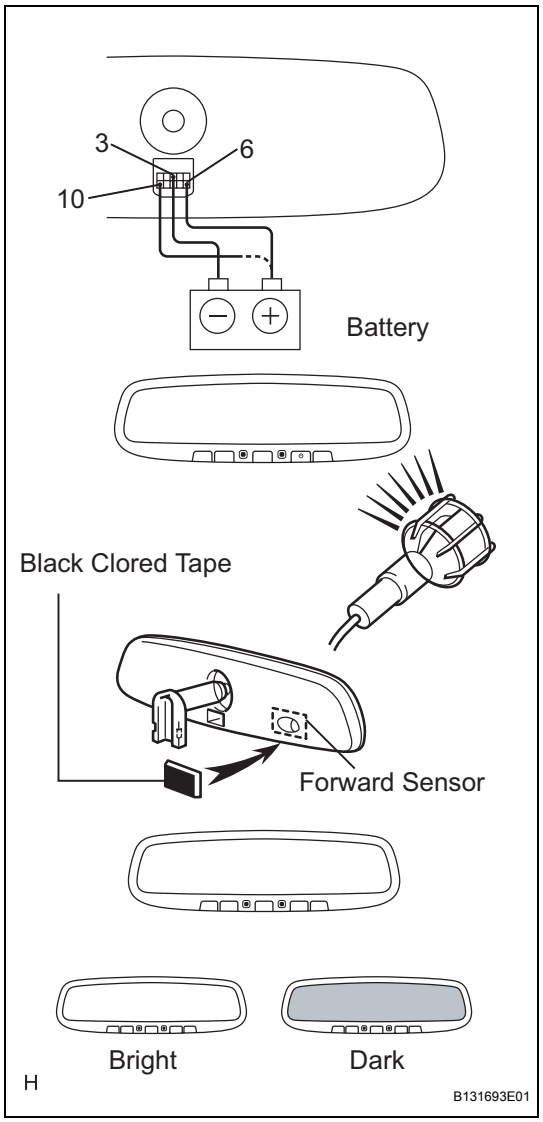
2. REMOVE INNER REAR VIEW MIRROR ASSEMBLY

(a) Remove the screw.
(b) Remove the inner rear view mirror cover.
(c) Disconnect the connector.
(d) Remove the inner rear view mirror assembly.

INSPECTION

1. INSPECT INNER REAR VIEW MIRROR ASSEMBLY

(a) Inspect operation of the electron chromic inner mirror.
  (1) Connect the positive (+) lead from the battery to terminal 6, 10 and the negative (-) lead to terminal 3.
  (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.
  If the result is not as specified, replace the mirror assembly



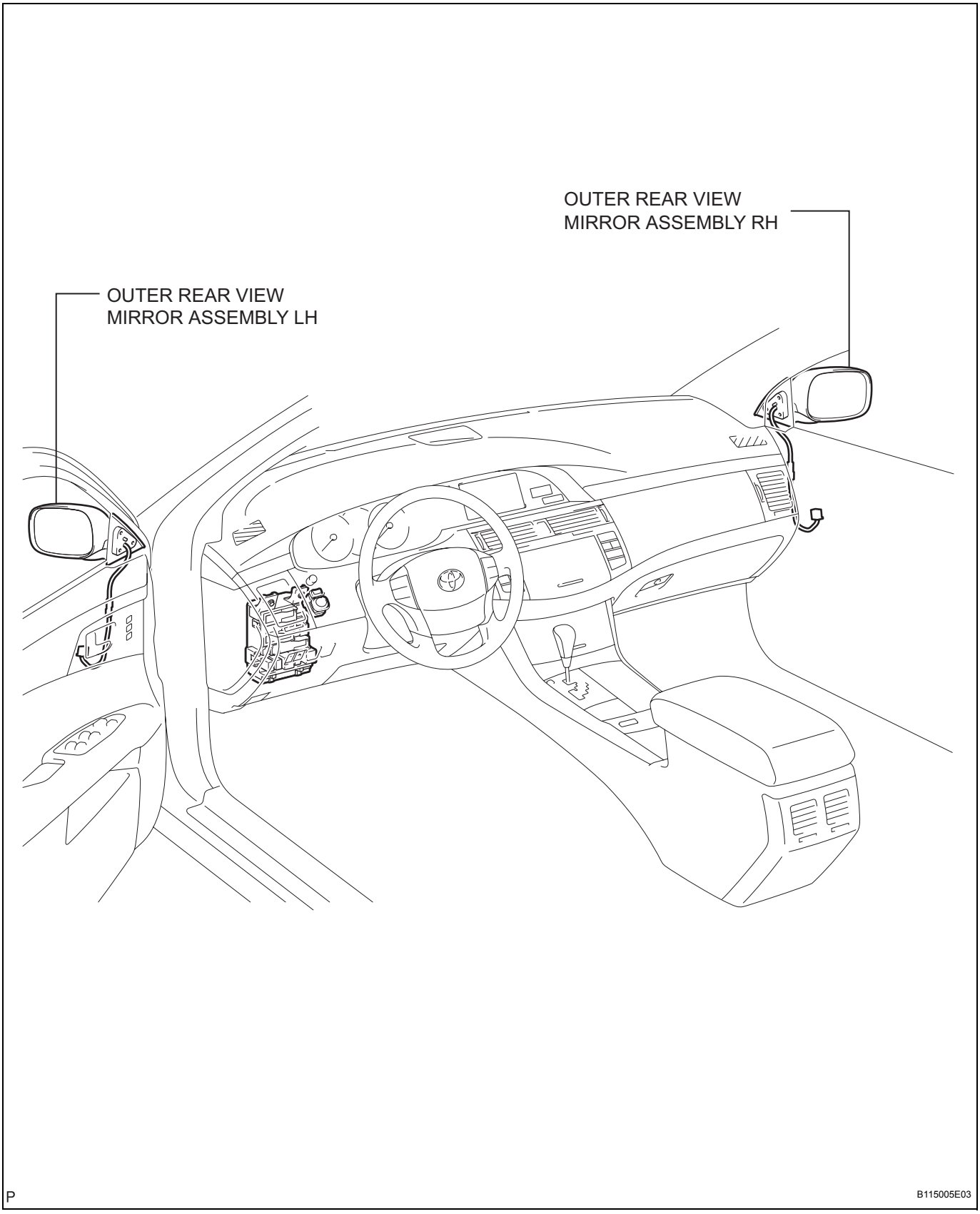
MI

INSTALLATION

1. **INSTALL INNER REAR VIEW MIRROR ASSEMBLY**
2. **INSTALL INNER REAR VIEW MIRROR STAY HOLDER COVER**

OUTER REAR VIEW MIRROR

COMPONENTS



REMOVAL

HINT:
- Use the procedures for the RH side and LH side.
- The procedures listed below are for the LH side.

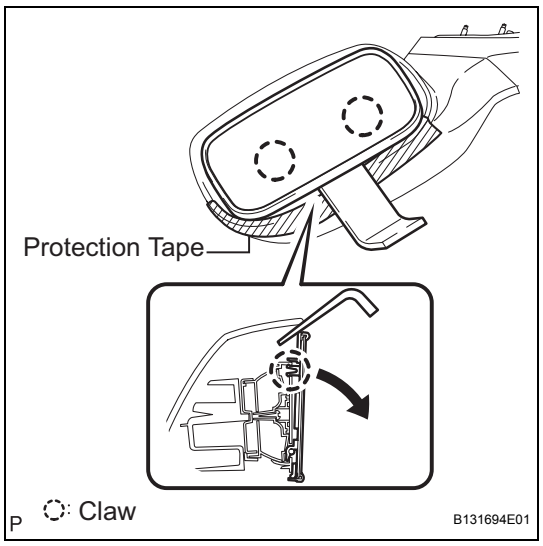
1. REMOVE OUTER REAR VIEW MIRROR ASSEMBLY LH

2. REMOVE OUTER REAR VIEW MIRROR LH

(a) Tape the lower part of outer mirror body with protection tape.

(b) Using a roof-moulding remover, disengage the 2 claws at the upper part of the mirror.

(c) Pull out the outer rear view mirror.



INSPECTION

1. INSPECT OUTER REAR VIEW MIRROR ASSEMBLY LH

(a) Inspect outer mirror operation .

(1) Disconnect the I8 connector.

(2) Apply battery voltage and check operation of the mirror face.

Standard

Measurement Condition	Mirror Operation
Battery positive (+) → I8-3 (MV) Battery positive (-) → I8-2 (M+)	Turns upward (A)
Battery positive (+) → I8-2 (M+) Battery positive (-) → I8-3 (MV)	Turns downward (B)
Battery positive (+) → I8-2 (M+) Battery positive (-) → I8-1 (MH)	Turns left (C)
Battery positive (+) → I8-1 (MH) Battery positive (-) → I8-2 (M+)	Turns right (D)

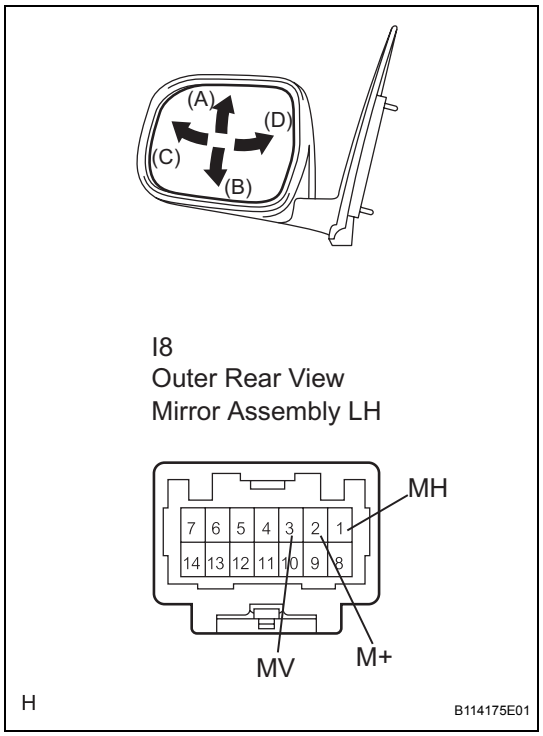
(b) Inspect outer mirror heater operation.

(1) Apply battery voltage and check operation of the mirror heater.

HINT:

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.

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



MI

OK

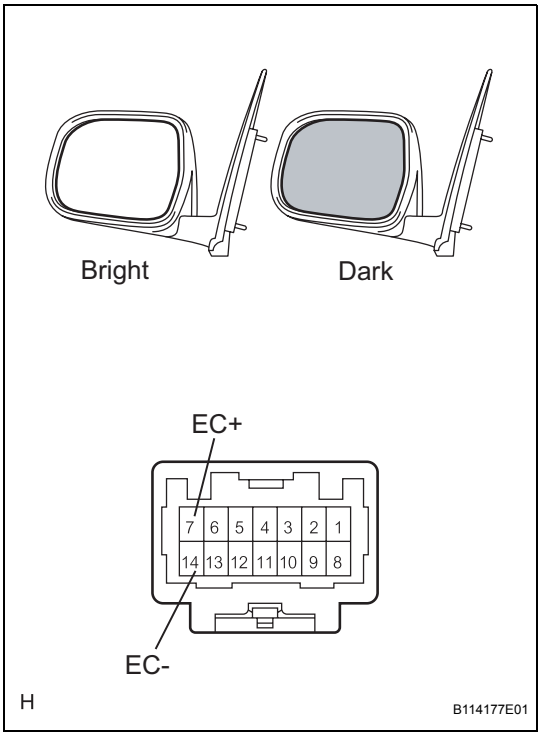
Measurement Condition	Specified Condition
Battery positive (+) → Terminal I8-6 (HTR+) Battery negative (-) → Terminal I8-13 (HTR-)	Mirror becomes warm

(c) Inspect electrochromic outer mirror operation.
(1) Apply battery voltage and check operation of the mirror, as shown in the table and illustration.

Standard

Measurement Condition	Mirror Operation
Battery positive (+) → Terminal 7 (EC+) Battery positive (-) → Terminal 14 (EC-)	Mirror surface changes to dark

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



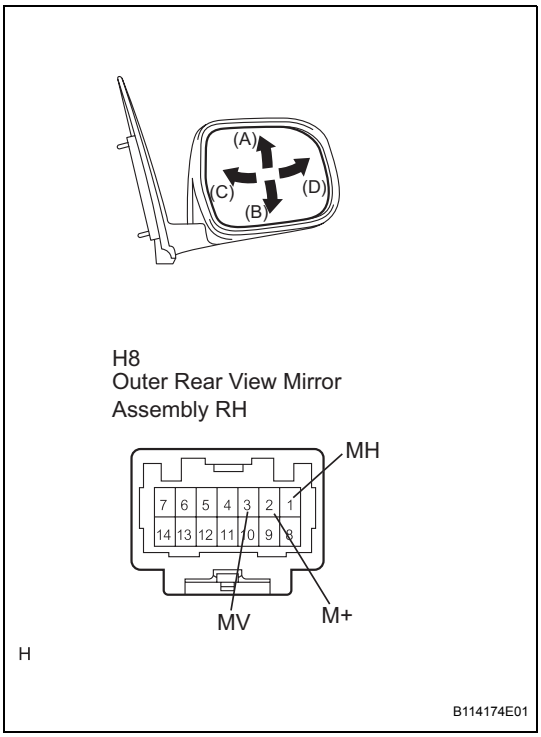
2. INSPECT OUTER REAR VIEW MIRROR ASSEMBLY RH

(a) Inspect outer mirror operation.
(1) Disconnect the H8 mirror connector.
(2) Apply battery voltage and check operation of the mirror face.

Standard

Measurement Condition	Mirror Operation
Battery positive (+) → I8-3 (MV) Battery positive (-) → I8-2 (M+)	Turns upward (A)
Battery positive (+) → I8-2 (M+) Battery positive (-) → I8-3 (MV)	Turns downward (B)
Battery positive (+) → I8-2 (M+) Battery positive (-) → I8-1 (MH)	Turns left (C)
Battery positive (+) → I8-1 (MH) Battery positive (-) → I8-2 (M+)	Turns right (D)

(b) Inspect outer mirror heater operation.
(1) Apply battery voltage and check operation of the mirror heater.
HINT:
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.



MI

OK:

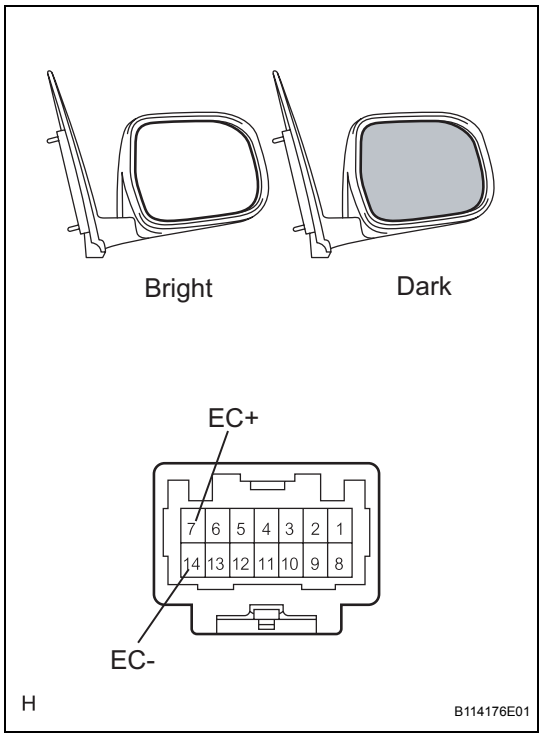
Measurement Condition	Specified Condition
Battery positive (+) → Terminal I8-6 (HTR+) Battery negative (-) → Terminal I8-13 (HTR-)	Mirror becomes warm

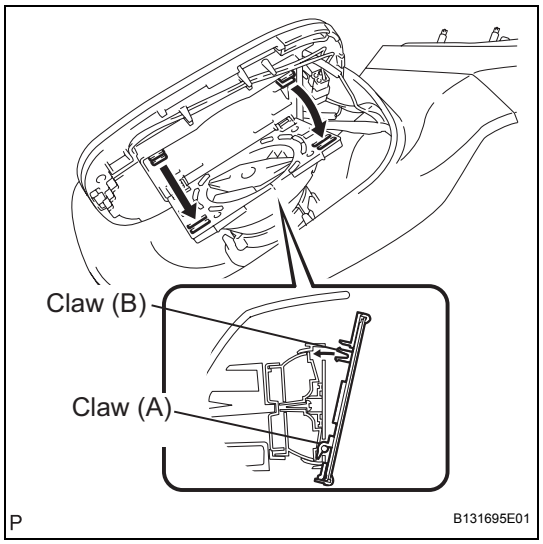
If the result is not as specified, replace the mirror assembly.

(c) Inspect electrochromic outer mirror operation.
(1) Apply battery voltage and check operation of the mirror, as shown in the table and illustration.
Standard

Measurement Condition	Mirror Operation
Battery positive (+) → Terminal 7 (EC+) Battery positive (-) → Terminal 14 (EC-)	Mirror surface changes to dark

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



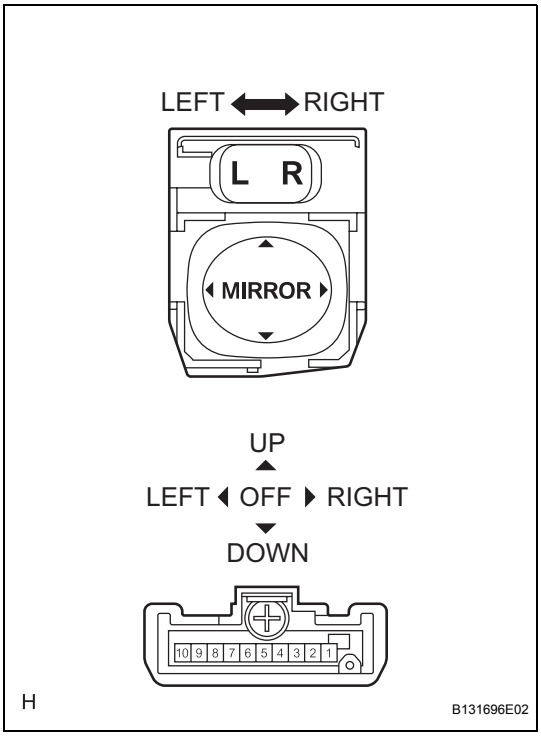


INSTALLATION

1. INSTALL OUTER REAR VIEW MIRROR LH

(a) Insert claws (A) at in the lower part of of the mirror into the actuator holes.
(b) Set the mirror in the actuator.
(c) Securely engage 2 claws (B) at the upper part of the mirror.

MI



OUTER MIRROR SWITCH

INSPECTION

1. INSPECT OUTER MIRROR SWITCH ASSEMBLY (W/O MEMORY)

(a) Select "L" on the left/right adjustment switch: Check the switch resistance.

Resistance

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

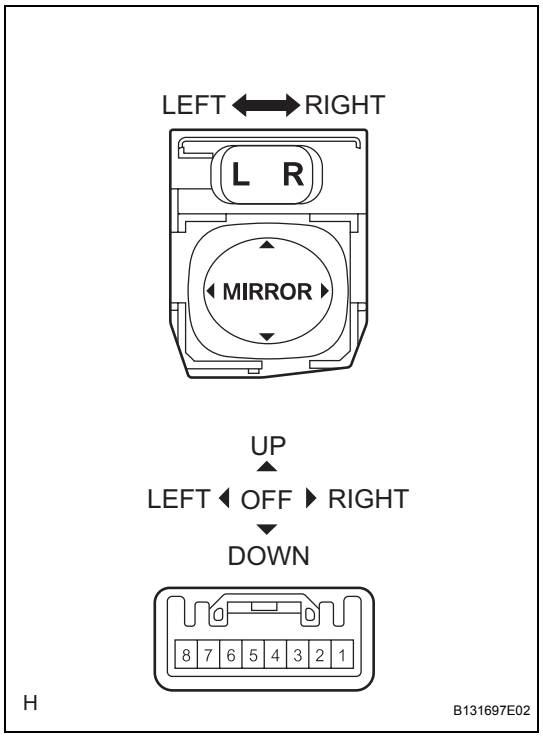
If the result is not as specified, replace the switch assembly.

(b) Select "R" on the left/right adjustment switch: Check the switch resistance.

Resistance

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

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



2. INSPECT OUTER MIRROR SWITCH ASSEMBLY (W/ MEMORY)

(a) Check the mirror switch resistance.

Resistance

Tester Connection	Switch Position	Specified Condition
2 - 3	OFF	10 Ω or higher
2 - 3	UP	100 Ω
2 - 3	DOWN	250 Ω
2 - 3	LEFT	470 Ω
2 - 3	RIGHT	800 Ω

If the result not as specified, replace the switch assembly.

(b) Check the left/right adjustment switch resistance.

Standard

Tester Connection	Switch Position	Specified Condition
1 - 2	L	100 Ω
1 - 2	R	10 Ω or less