GROUP 42

BODY

CONTENTS

HOOD

BODY DIAGNOSIS

INTRODUCTION TO HOOD DIAGNOSIS

M1421005800136

Wind noise at the hood may be caused by improper hood adjustment.

HOOD DIAGNOSTIC TROUBLESHOOTING STRATEGY

M1421005900111

Use these steps to plan your diagnostic strategy. If you follow them carefully, you will be sure that you have exhausted most of the possible ways to find a hood fault.

1. Gather information from the customer.
2. Verify that the condition described by the customer exists.
3. Find the malfunction by following the Symptom Chart.
4. Verify malfunction is eliminated.

SYMPTOM CHART

M1421006000092

SYMPTOMS	INSPECTION PROCEDURE	REFERENCE PAGE
Difficult locking and unlocking	1	P.42-3
Uneven body clearance	2	P.42-4
Uneven height	3	P.42-4

SYMPTOM PROCEDURES

INSPECTION PROCEDURE 1: Difficult locking and unlocking

DIAGNOSIS

STEP 1. Check the release cable routing condition.

Q: Is the release cable routing condition good?
YES : Go to Step 2.
NO : Repair it, then go to Step 4.

STEP 2. Check the engagement of the hood latch and hood striker.

Q: Are the hood latch and hood striker engaged correctly?
YES : Go to Step 3.
NO : Adjust it. Refer to P.42-5. Then go to Step 4.

STEP 3. Check for proper lubrication of release cable.

Q: Is the release cable properly lubricated?
YES : Go to Step 4.
NO : Lubricate, then go to Step 4.

STEP 4. Check symptoms.

Q: Does the hood lock operate easily?
YES : This diagnosis is complete.
NO : Return to Step 1.

INSPECTION PROCEDURE 2: Uneven body clearance

DIAGNOSIS

STEP 1. Check the hood installation condition.

Q: Is the hood installation in good condition?
YES : Go to Step 2.
NO : Adjust it. Refer to P.42-5. Then go to Step 2.

STEP 2. Check symptoms.

Q: Is the clearance with the body even?
YES : This diagnosis is complete.
NO : Return to Step 1.

INSPECTION PROCEDURE 3: Uneven height

DIAGNOSIS

STEP 1. Check the hood bumper height.

Q: Is the hood bumper height proper?
YES : Go to Step 2.
NO : Adjust it. Refer to P.42-5. Then go to Step2.

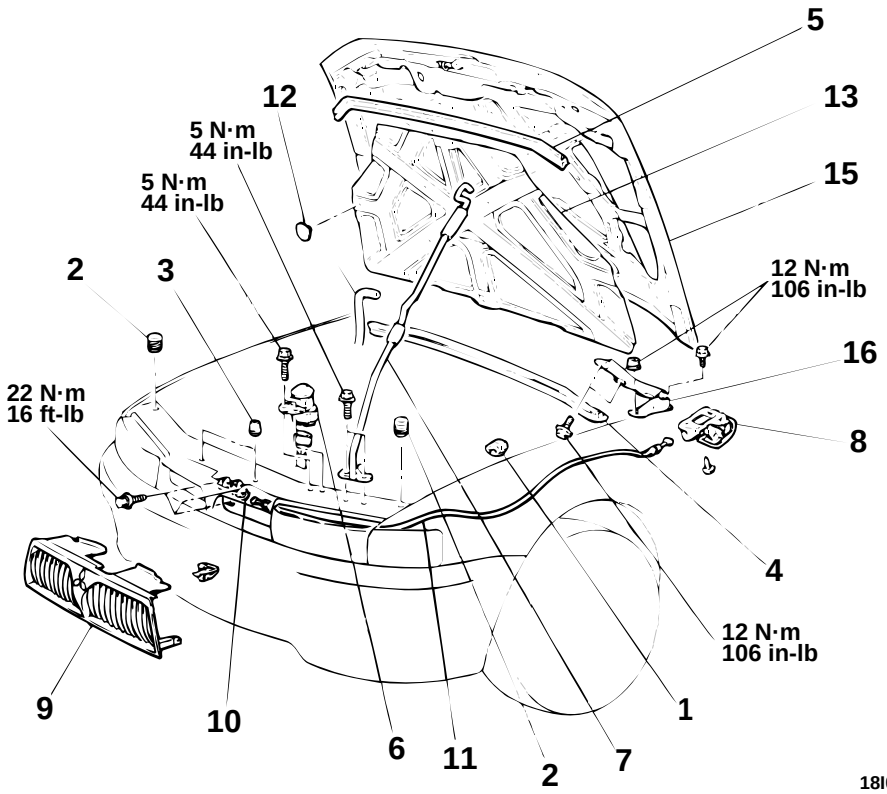
STEP 2. Check symptoms.

Q: Are the hood and body height even?
YES : This diagnosis is complete.
NO : Return to Step 1.

HOOD

REMOVAL AND INSTALLATION

M1421001600077



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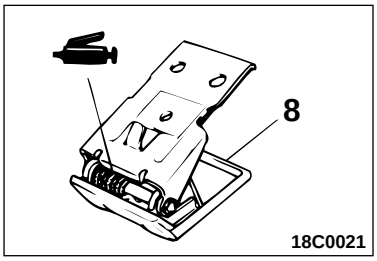

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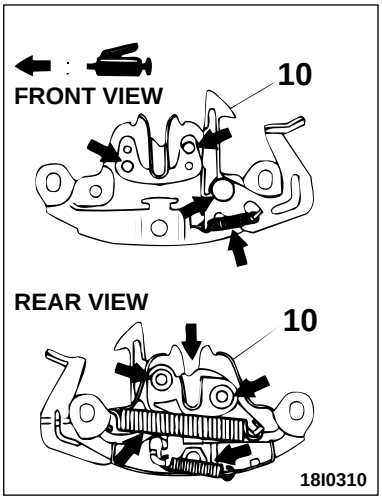

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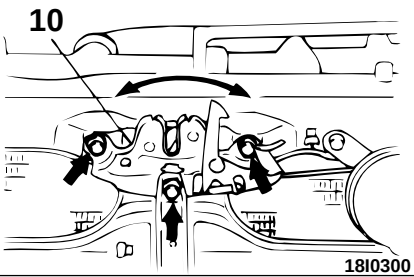

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ADJUSTMENT OF HOOD LATCH AND HOOD STRIKER ENGAGEMENT

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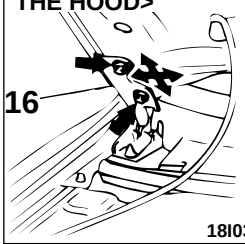

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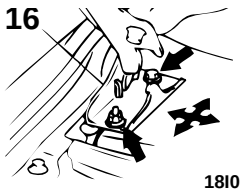
<WHEN REPLACING THE HOOD AND THE HOOD HINGE>



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18I0310

ADJUSTMENT OF HOOD INSTALLATION AND BUMPER

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AC000554 AB

1. HOOD DAMPER
>>A<< 2. HOOD BUMPER A
>>A<< 3. HOOD BUMPER B
4. HOOD WEATHERSTRIP
5. FRONT HOOD WEATHERSTRIP
6. HOOD SWITCH <VEHICLES WITH THEFT-ALARM SYSTEM>
7. HOOD SUPPORT ROD
8. HOOD LOCK RELEASE HANDLE <<A>>

HOOD LATCH REMOVAL STEPS <<A>>
9. RADIATOR GRILLE
10. HOOD LATCH

HOOD LOCK RELEASE CABLE REMOVAL STEPS
- SPLASH SHIELD (REFER TO P.42-7.)

8. HOOD LOCK RELEASE HANDLE
9. RADIATOR GRILLE
10. HOOD LATCH
11. HOOD LOCK RELEASE CABLE

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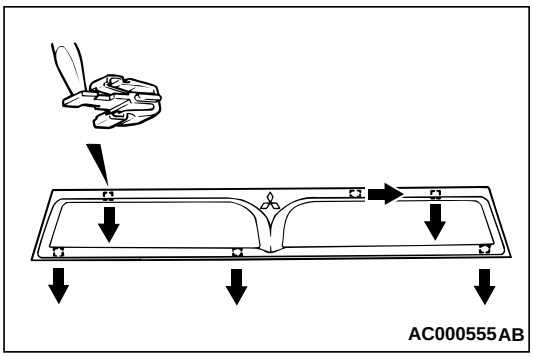
HOOD INSULATOR REMOVAL STEPS
12. CLIP
13. HOOD INSULATOR

HOOD AND HOOD HINGE REMOVAL STEPS
14. WASHER HOSE CONNECTION
15. HOOD
- FRONT DECK GARNISH (REFER TO GROUP 51, WINDSHIELD WIPER AND WASHER P.51-12.)

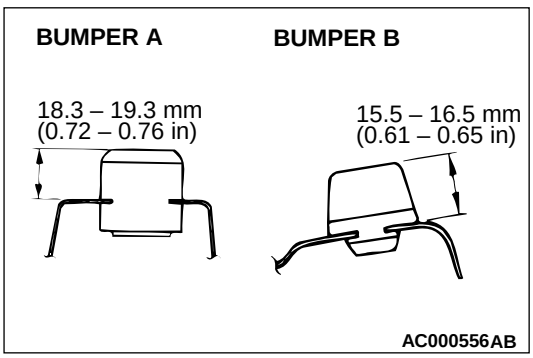
16. HOOD HINGE



REMOVAL SERVICE POINT

<<A>> RADIATOR GRILLE REMOVAL

Remove the radiator grille by pushing all tabs of the radiator grille clips in the direction of the arrows with a flat-tipped screwdriver, then lightly pull the radiator grille toward you.



INSTALLATION SERVICE POINT

>>A<< BUMPER B/BUMPER A INSTALLATION

Install bumpers A and B as shown in the illustration.
Be sure they are adjusted so the hood is even with the body on all sides.

INSPECTION

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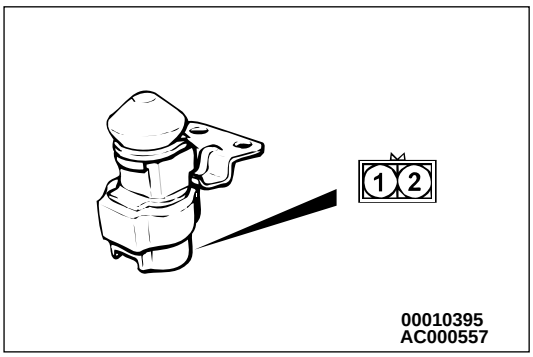
HOOD SWITCH CONTINUITY CHECK <VEHICLES WITH THEFT-ALARM SYSTEM>



SWITCH POSITION	TESTER CONNECTION	SPECIFIED CONDITION
Hood switch unpressed	1 – 2	Continuity
Hood switch depressed	-	No Continuity

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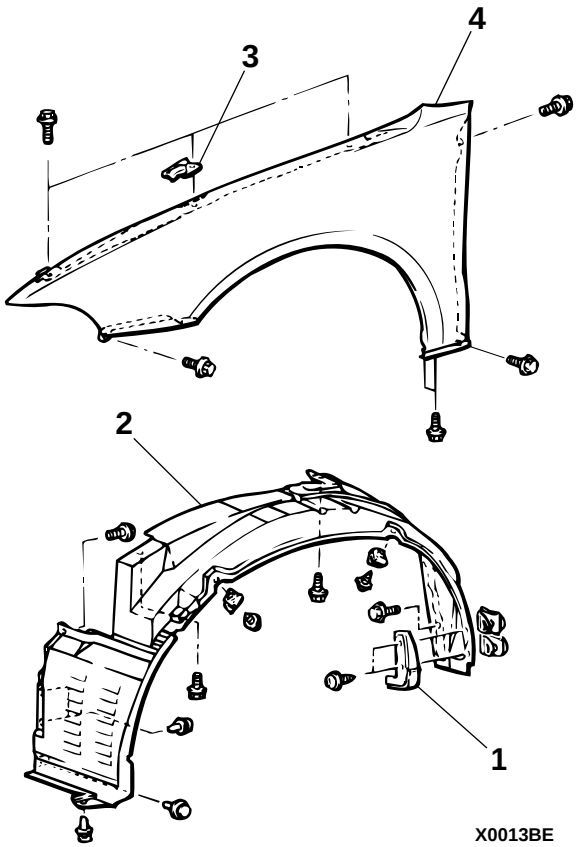
FENDER

REMOVAL AND INSTALLATION

M1421001900078

Pre-removal and Post-installation Operation
- Front Bumper Removal and Installation (Refer to GROUP 51, Front Bumper P.51-2.)
- Headlight Removal and Installation (Refer to GROUP 54A, Headlight, Front Turn-signal Light and Position Light Assembly P.54A-72.)
- Fender Garnish Assembly Removal and Installation <Vehicles with Fender Garnish Assembly> (Refer to GROUP 51, Grilles, moldings and Garnishes P.51-7.)



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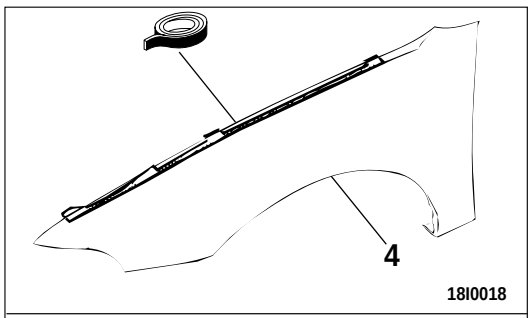

SEALANT
3M™ AAD PART NO.8625 OR EQUIVALENT

AC000558AB

REMOVAL STEPS
1. FRONT STONEGUARD <VEHICLES WITH STONEGUARD>
2. SPLASH SHIELD
3. HOOD DAMPER BRACKET
4. FENDER

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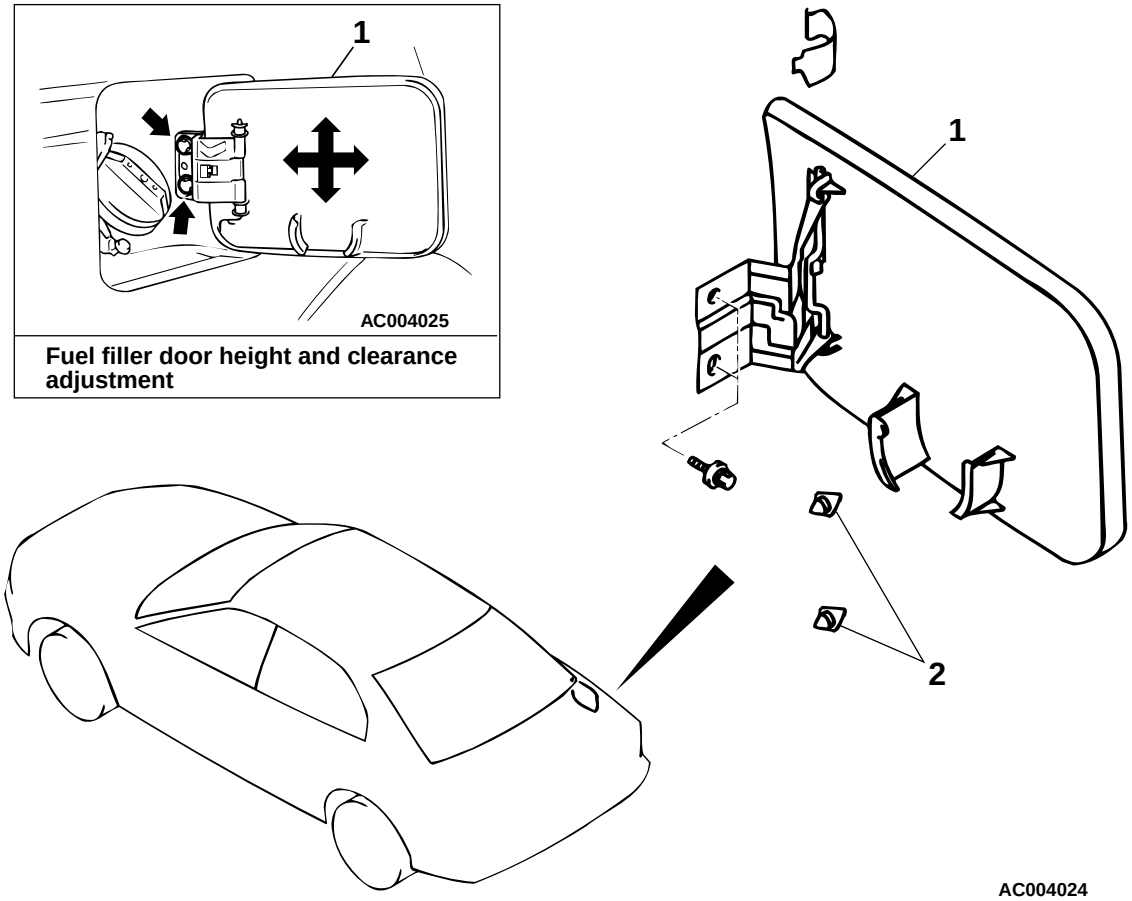
FUEL FILLER LID

REMOVAL AND INSTALLATION

M1421002500084

Fuel filler door height and clearance adjustment



REMOVAL STEPS
1. FUEL FILLER DOOR ASSEMBLY
2. BUMPER

WINDOW GLASS

WINDOW GLASS

GENERAL

M1422000100083

The windshield and rear window glass are attached by an urethane-base adhesive to the window frame. This adhesive provides improved glass holding and sealing, and also permits use of body openings having a greater structural strength.

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ITEMS

ITEM	APPLICATION	QUANTITY
Wire (dia × length)	For cutting adhesive	Five pieces of wire 0.6 mm × 1 m (0.02 in × 3.3 ft)
Glass adhesive knife	For cutting adhesive	One
Sealant gun	For adhesive application	One
Wiping shop towels	-	As required
Sealer	For prevention of water leaks and gathering after adhesive application	As required
3M™ AAD Part No. 8906 or equivalent	For cleaning	As required
Glass holder MB990480	For holding of window glass	Two
Window molding remover MB990449	For roof drip molding removal	One

WINDOW GLASS DIAGNOSIS

INTRODUCTION TO WINDOW GLASS DIAGOSIS

M1422006700094

If water leaks from the windshield, or the rear window glass, the seal or body flange may be faulty.

WINDOW GLASS DIAGNOSTIC TROUBLESHOOTING STRATEGY

M1422006800091

Use these steps to plan your diagnostic strategy. If you follow them carefully, you will be sure that you have exhausted most of the possible ways to find a window glass fault.

1. Gather information from the customer.
2. Verify that the condition described by the customer exists.
3. Find the malfunction by following the Symptom Chart.
4. Verify malfunction is eliminated.

WINDOW GLASS DIAGNOSTIC TROUBLE SYMPTOM CHART

M1422006900106

SYMPTOMS	INSPECTION PROCEDURE	REFERENCE PAGE
Water leak through windshield	1	P.42-9
Water leak through rear window glass		

SYMPTOM PROCEDURES

INSPECTION PROCEDURE 1: Water leak through windshield/Water leak through rear window glass

DIAGNOSIS

STEP 1. Check if the seal is faulty.

Q: Is the seal faulty?
YES : Repair it, then go to Step 3.
NO : Go to Step 2.

STEP 2. Check if the body flange is deformed.

Q: Is the body flange deformed?
YES : Repair or replace it, then go to Step 3.
NO : Go to Step 3.

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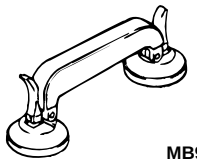
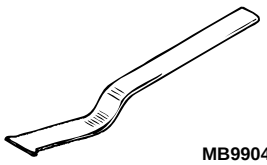
STEP 3. Check symptoms.

Q: Is any water leaking?
YES : Return to Step 1.
NO : This diagnosis complete.

SPECIAL TOOLS

M1422000600077

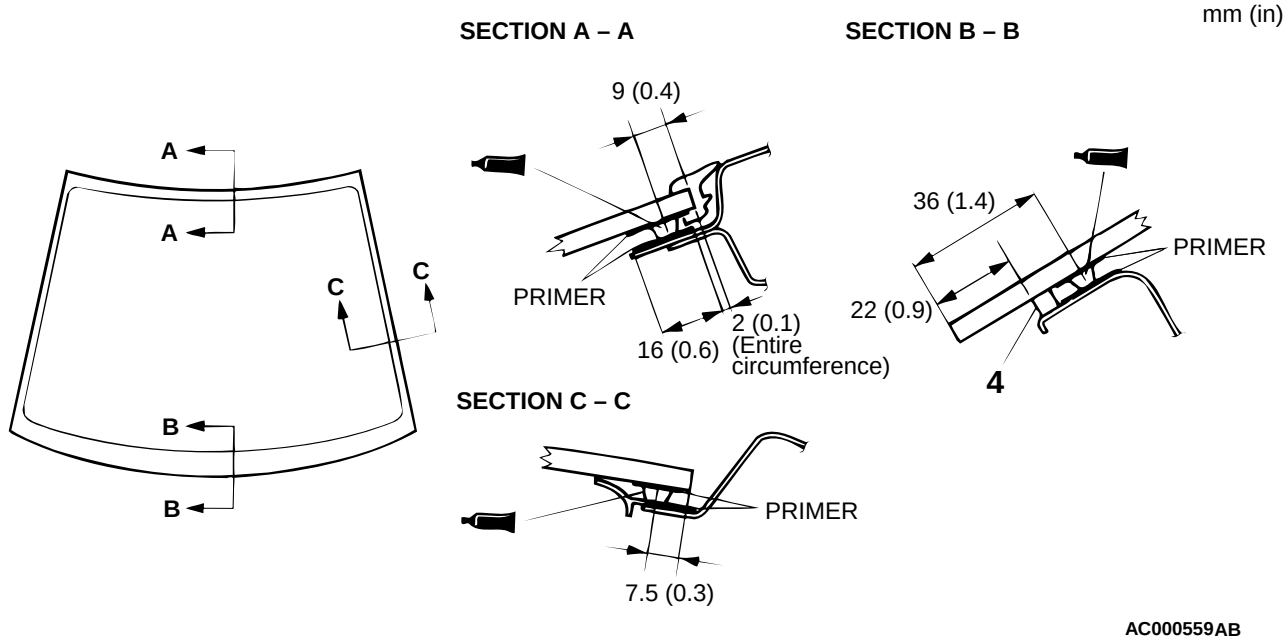
TOOL	TOOL NUMBER AND NAME	REPLACED BY MILLER TOOL NUMBER	APPLICATION
 MB990480	MB990480 Glass holder	General service tool	Removal and installation of window glass
 MB990449	MB990449 Window molding remover	General service tool	Removal of drip molding

WINDSHIELD

REMOVAL AND INSTALLATION

M1422001000089

Pre-removal and Post-installation Operation
- Front Deck Garnish Removal and Installation (Refer to GROUP 51,Windshield Wiper and Washer P.51-12.)
- Front Pillar Trim Removal and Installation (Refer to GROUP 52A, Trims P.52A-12.)
- Headlining Removal and Installation (Refer to GROUP 52A, Headlining P.52A-14.)



ADHESIVE: 3M™ AAD PART NO.8609 SUPER FAST URETHANE AND 3M™ AAD PART NO.8608 SUPER FAST URETHANE PRIMER OR EQUIVALENT

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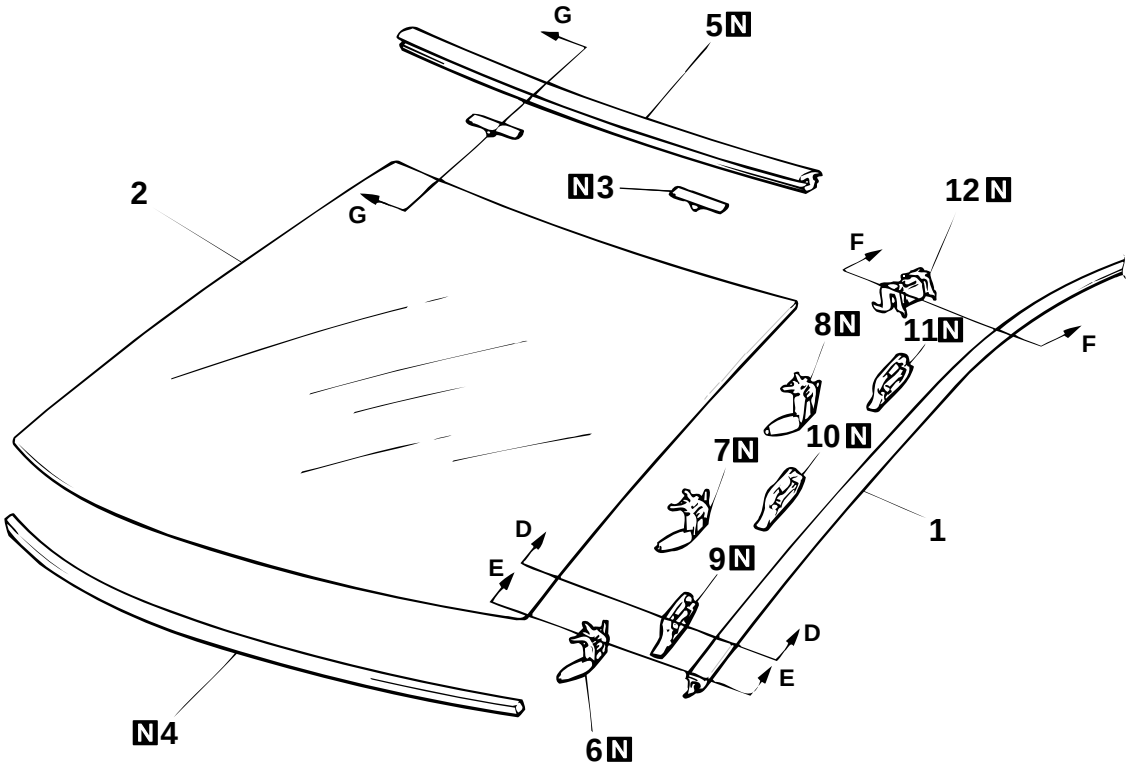

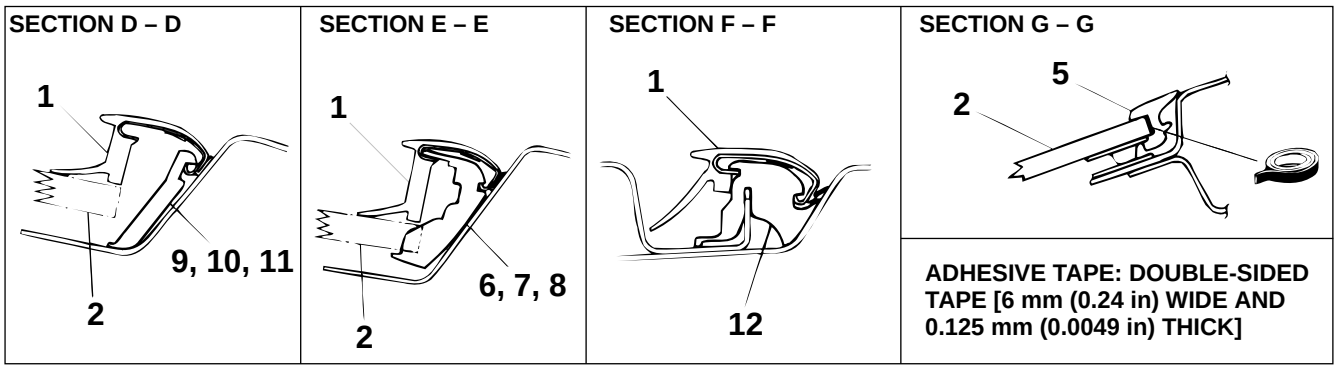

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REMOVAL STEPS

<<A>> >>D<< 1. ROOF DRIP MOLDING
<<B>> >>C<< 2. WINDSHIELD
>>C<< 3. GLASS STOPPER
>>C<< 4. WINDOW SPACER
>>C<< 5. WINDSHIELD UPPER MOLDING
>>B<< 6. FRONT DRIP MOLDING CLIP A
>>B<< 7. FRONT DRIP MOLDING CLIP B
>>B<< 8. FRONT DRIP MOLDING CLIP C
>>A<< 9. DRIP MOLDING CLIP A

REMOVAL STEPS (Continued)

>>A<< 10. DRIP MOLDING CLIP B
>>A<< 11. DRIP MOLDING CLIP C
12. ROOFDRIP MOLDING CLIP

Required Special ToolS:

- MB990449: Window Molding Remover
- MB990480: Glass Holder

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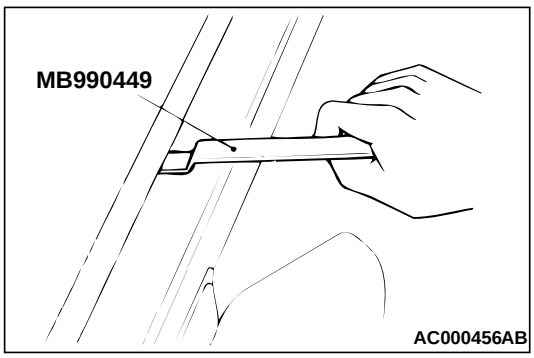
REMOVAL SERVICE POINTS

<<A>> ROOF DRIP MOLDING

⚠ CAUTION

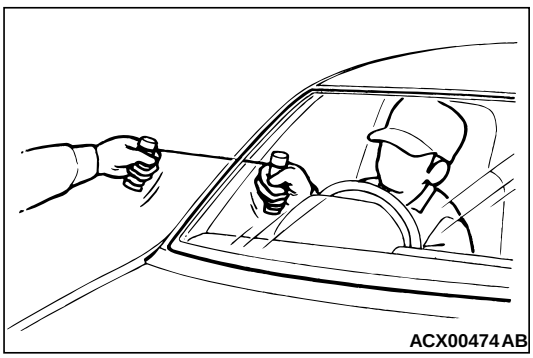
If the roof drip molding has become warped, it should not be reused.

Use special tool MB990449 to lever out the roof drip molding.



<<B>> WINDSHIELD REMOVAL

1. To protect the body (paint surface), apply cloth tape to all body areas around the installed
2. Make mating marks on the windshield and body.
3. Using piano wire.
   (1) Using a sharp-point drill, make a hole in the windshield adhesive.
   (2) Pass the piano wire from the inside of the vehicle through the hole.
   (3) Using a sharp-point drill, make a hole in the windshield adhesive.
   (4) Pass the piano wire from the inside of the vehicle through the hole.



⚠ CAUTION

Do not let the piano wire touch the edge of the windshield.

   (5) Pull the piano wire alternately from the inside and outside along the windshield to cut the adhesive.

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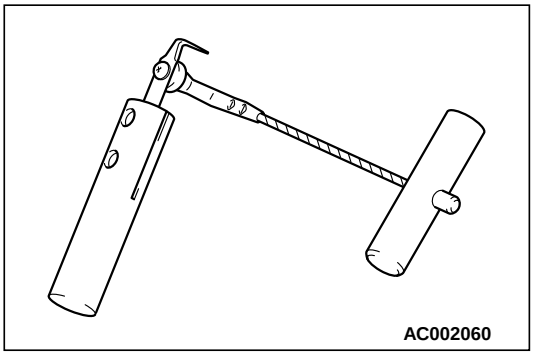
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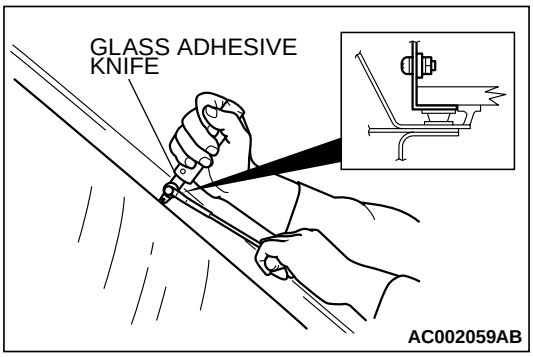

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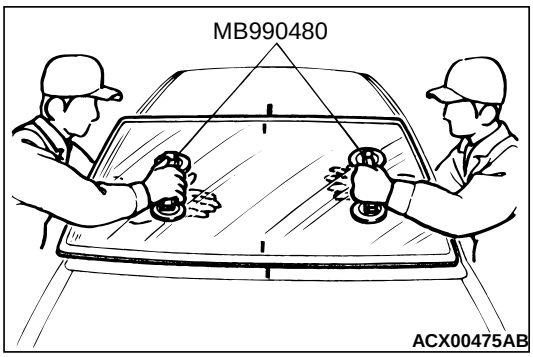
⚠ CAUTION
Putting glass adhesive knife too deeply into windshield adhesive may damage windshield.

4. Using glass adhesive knife
   Keep glass adhesive knife at right angles with the windshield edge, and put the blade at windshield edge and surface. Then cut away adhesive along the windshield edge.



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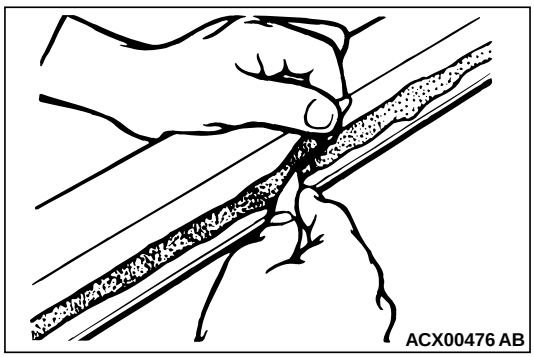
5. Use special tool MB990480 to remove the windshield.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⚠ CAUTION
- **Be careful not to remove more adhesive than is necessary.**
- **Be careful also not to damage the paintwork on the body surface with the knife. If the paintwork is damaged, repair the damaged area with repair paint or anti-rust agent.**

6. Use a knife to cut away the remaining adhesive so that the thickness is within 2 mm (0.08 inch) around the entire circumference of the body flange.
7. Finish the flange surfaces so that they are smooth.

⚠ CAUTION
Allow the cleaned area to dry for at least three minutes. Do not touch any surface that has been cleaned.

8. When reusing the windshield, remove the adhesive still adhering to the windshield, and clean with 3M™ AAD Part number 8906 or equivalent.
9. Clean the body side in the same way.

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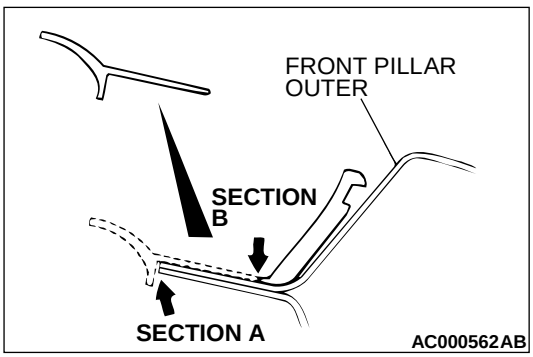
INSTALLATION SERVICE POINTS

>>A<< DRIP MOLDING CLIP A/DRIP MOLDING CLIP B/ DRIP MOLDING CLIP C INSTALLATION

1. The drip molding clips A, B and C differ according to where they are used, so check the identification color before installation.

APPLICABLE LOCATION	IDENTIFICATION COLOR
Drip molding clip A	Red
Drip molding clip B	Blue
Drip molding clip C	White



2. After installing the clip to the front pillar outer in alignment with its section A, cut from section B.

>>B<< FRONT DRIP MOLDING CLIP A/FRONT DRIP MOLDING CLIP B/FRONT DRIP MOLDING CLIP C INSTALLATION

The clips A, B and C differ according to where they are used, so check the identification color before installation.

APPLICABLE LOCATION		IDENTIFICATION COLOR
Front drip molding clip A	LH	Green
	RH	Pink
Front drip molding clip B		Blue
Front drip molding clip C		Orange

>>C<< WINDSHIELD UPPER MOLDING/WINDOW SPACER/ GLASS STOPPER/WINDSHIELD INSTALLATION

1. When replacing the windshield, temporarily set the windshield against the body, and place a mating mark on the windshield and body.
2. Use 3M™ AAD Part number 8906 or equivalent to degrease the inside and outside of the windshield and the body flanges.

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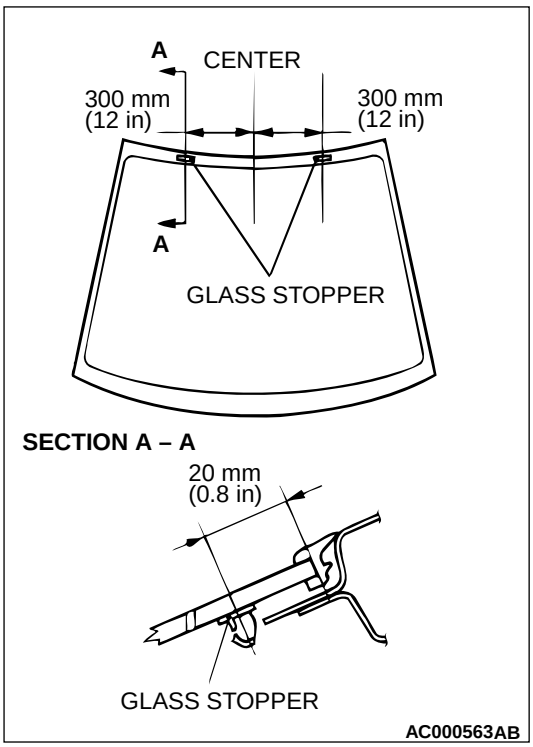
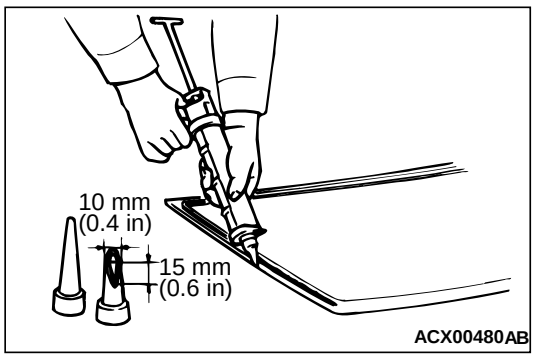
⚠ CAUTION

- **The primer strengthens the adhesive, so be sure to apply it evenly around the entire circumference. However, a too thick application will weaken the adhesive.**
- **Do not touch the coated surface.**

3. Soak a sponge in the primer, and apply evenly to the windshield and the body in the specified places.
4. Apply the primer, and then let it dry for 3 to 30 minutes, depending on ambient temperature and humidity.
5. Install the windshield upper molding to the windshield.
6. Place the window spacer to the windshield so that it inclines toward the windshield and its right and left clearances are equal. Then install the spacer firmly so that it is firmly anchored.
7. Install the glass stopper to the shown dimension.





8. Fill a sealant gun with adhesive. Then apply the adhesive evenly around the windshield within 30 minutes after applying the primer.
9. Align the mating marks on the windshield and the body, and lightly press the windshield evenly so that it adheres completely.
10. Use a spatula or similar tool to remove any excessive adhesive. Clean the surface with 3M™ AAD Part number 8906 or equivalent. Avoid moving the vehicle until the adhesive sets.

⚠ CAUTION

- **Do not move the vehicle unless absolutely necessary.**
- **When testing for water leakage, do not pinch the end of the hose to spray the water.**

11. Wait 30 minutes or more, and then test for water leakage.

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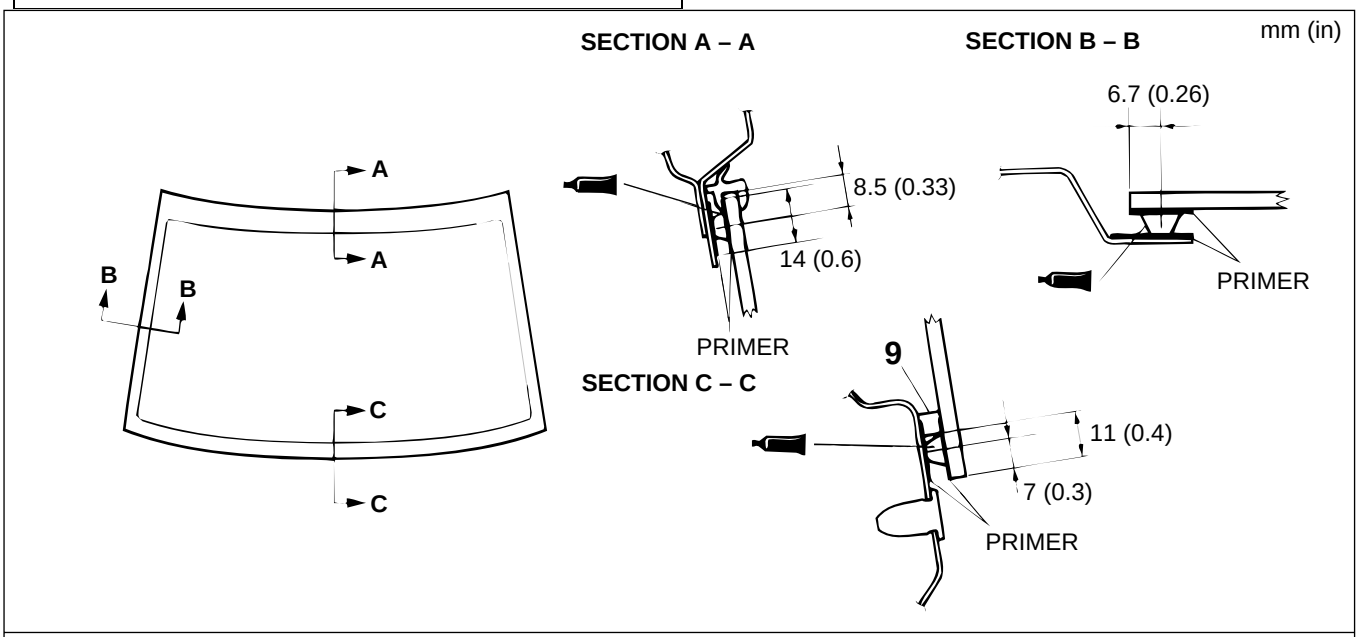
>>D<< ROOF DRIP MOLDING INSTALLATION
Install the clip to the roof drip molding before installing the molding to the vehicle body.

REAR WINDOW GLASS

REMOVAL AND INSTALLATION

M1422001600036

Pre-removal and Post-installation Operation
- High-mounted Stoplight Removal Installation <Rear Shelf Mounted Type> (Refer to GROUP 54A, High-Mounted stoplight P.54A-79.)
- Rear Pillar Trim Removal and Installation (Refer to GROUP 52A, Trims P.52A-12.)
- Headlining Removal and Installation (Refer to GROUP 52A, Headlining P.52A-14.)



ADHESIVE: 3M™ AAD PART NO. 8609 SUPER FAST URETHANE AND 3M™ AAD PART NO.8608 SUPER FAST URETHANE PRIMER OR EQUIVALENT

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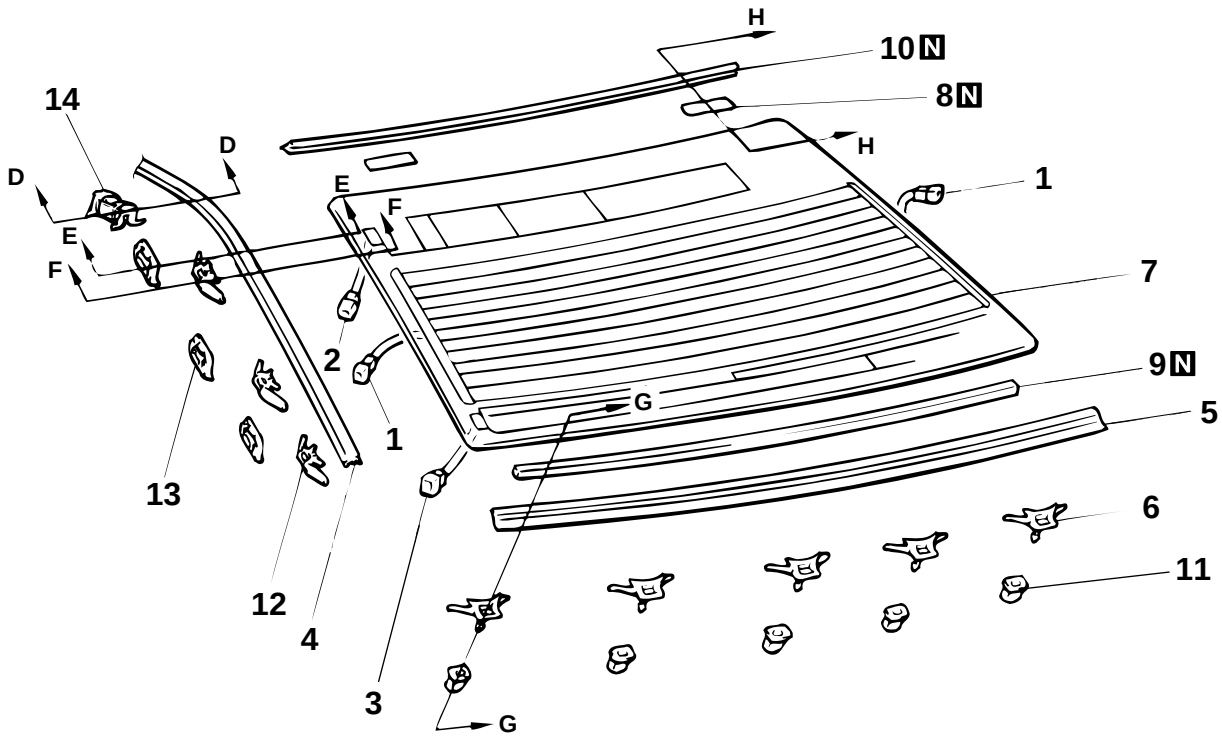

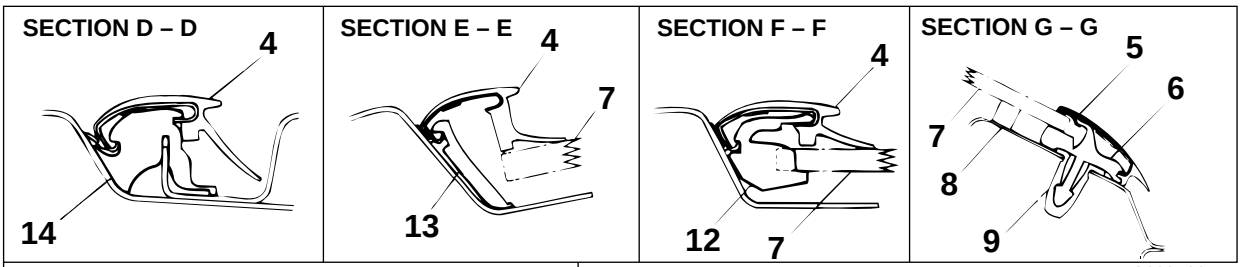

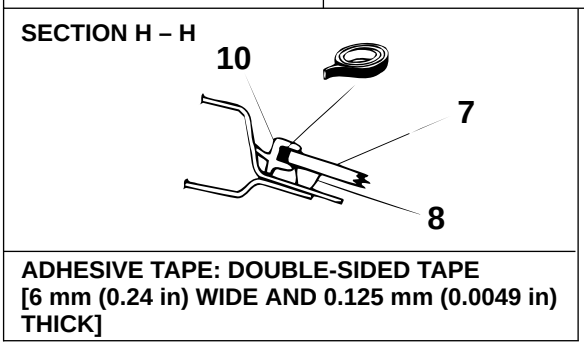

ADHESIVE TAPE: DOUBLE-SIDED TAPE [6 mm (0.24 in) WIDE AND 0.125 mm (0.0049 in) THICK]

REMOVAL STEPS

1. HARNESS CONNECTOR (FOR REAR WINDOW DEFOGGER)
2. HARNESS CONNECTOR (FOR MAIN GLASS ANTENNA)
3. HARNESS CONNECTOR (FOR SUB GLASS ANTENNA)

<<A>> >>C<< 4. ROOF DRIP MOLDING

<<B>> 5. REAR WINDOW LOWER MOLDING

6. REAR WINDOW MOLDING CLIP

<<C>> >>B<< 7. REAR WINDOW GLASS

>>B<< 8. GLASS STOPPER

REMOVAL STEPS (Continued)

>>B<< 9. WINDOW SPACER

>>B<< 10. REAR WINDOW UPPER MOLDING

11. CLIP GROMMET

12. REAR DRIP MOLDING CLIP D

>>A<< 13. DRIP MOLDING CLIP

14. ROOF DRIP MOLDING CLIP

Required Special Tool:

- MB990449: Window Molding Remover

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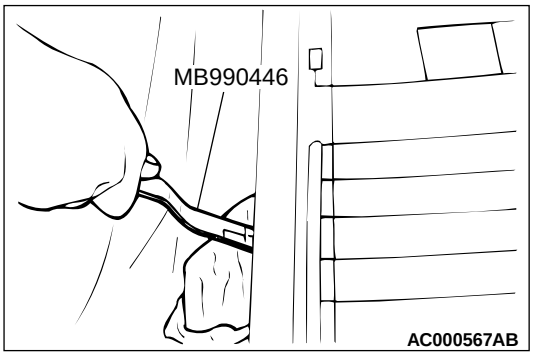
REMOVAL SERVICE POINTS

<<A>> ROOF DRIP MOLDING REMOVAL

⚠ CAUTION

If the drip molding has become warped, it should not be reused.

Use special tool MB990449 to lever out the molding.

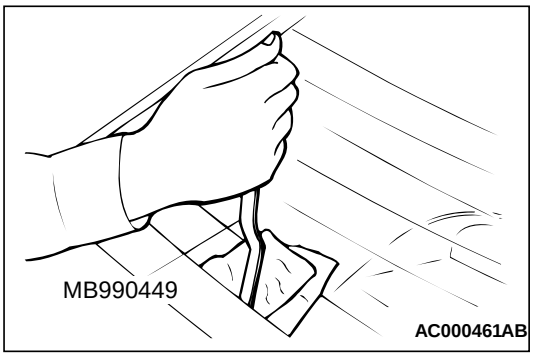


<<B>> REAR WINDOW LOWER MOLDING REMOVAL

⚠ CAUTION

If the drip molding has become warped, it should not be reused.

Use special tool MB990449 to lever out the molding.



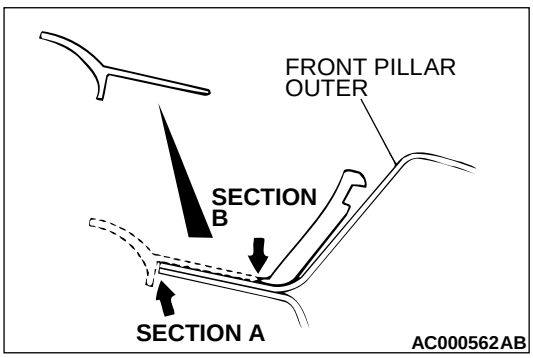
<<C>> REAR WINDOW GLASS REMOVAL

Remove the rear window glass using the same procedure as for the windshield. (Refer to P.42-10.)

INSTALLATION SERVICE POINTS

>>A<< DRIP MOLDING CLIP INSTALLATION

After installing the clip to the rear pillar outer in alignment with its section A, cut from section B.



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>>B<< REAR WINDOW UPPER MOLDING/WINDOW SPACER/GLASS STOPPER/REAR WINDOW GLASS INSTALLATION
Install the rear window glass in the same manner as for the windshield. (Refer to P.42-10.)

>>C<< ROOF DRIP MOLDING INSTALLATION
Install the clip to the roof drip molding before installing the molding to the vehicle body.

DOOR

GENERAL DESCRIPTION

M1423000100086

OPERATION

CENTRAL DOOR LOCKING SYSTEM

The central door locking system operates the door lock actuator to lock or unlock the doors using the operation of the door lock switch or key built into the driver's side inside door lock knob and power window (main or sub) switch.The system has the following operations and features.

- All doors can be locked or unlocked using the front door (LH or RH) key cylinder key operation.
- All doors can be locked using the driver's inside door lock knob.
- All doors can be locked using the door lock switch built into the front power window (main or sub <RH>) switch.
- A key reminder function that automatically unlocks all doors when door lock operation is performed and the front doors are opened while the key is inserted into the ignition switch is provided.

POWER WINDOWS

Power windows are used in all vehicles. When the power window (main or sub) switch is operated, the door windows will open or close.This system has the following operations and features.

- When the power window main switch lock/unlock switch is locked, the door windows can only be opened or closed by the power window main switch on the driver's door.
- A timer function has been provided so that when front doors are closed and the ignition is turned off, the power window can be operated for 30 seconds from the time the ignition is turned off.
- The power window main switch contains a one-touch down switch that will automatically open driver's side door window only.

CENTRAL DOOR LOCKING SYSTEM DIAGNOSIS

M1427000700068

The central door locking system is controlled by the simplified wiring system (SWS). For troubleshooting, refer to GROUP 54B, Diagnosis P.54B-9.

POWER WINDOW DIAGNOSIS

INTRODUCTION TO POWER WINDOW DIAGNOSIS

M1429002600063

The power window relay is controlled by the simplified wiring system (SWS). For trouble-shooting, refer to GROUP 54B, Diagnosis P.54B-9. When the power window switch (main or sub) is operated, the power window motor operates and opens or closes the door window.

A timer function has been provided to allow the door windows to be opened or closed in 30 seconds after the ignition switch is turned from "ON" to "LOCK" (OFF) position when a front door <LH> and <RH> is closed (door switch is OFF). When the lock switch is changed from unlock to lock, the door windows can only be opened or closed by the power window main switch on the driver's side.
If the following types of symptom occur, there may be a fault.

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- None of the door windows open or close.
- There are door windows that do not open or close using the power window (main or sub) switch.
- The windows cannot be opened or closed using the power window (main or sub) switch within 30 seconds after the ignition switch is turned from "ON" to "LOCK" (OFF) position.

POWER WINDOW DIAGNOSTIC TROUBLESHOOTING STRATEGY

M1429002700060

Use these steps to plan your diagnostic strategy. If you follow them carefully, you will be sure that you have exhausted most of the possible ways to find a power windows fault.

1. Gather information from customer.
2. Verify that the condition described by the customer exists.
3. Find the malfunction by following the Symptom Chart.
4. Verify malfunction is eliminated.

SYMPTOM CHART

M1429002800078

SYMPTOMS	INSPECTION PROCEDURE	REFERENCE PAGE
Scan tool communication with all system is not possible.	-	Refer to GROUP 13A, Diagnosis P.13A-312 or GROUP 13B, Diagnosis P.13B-389.
The ETACS-ECU input signal and diagnostic trouble code cannot be checked by the scan tool.	-	Refer to GROUP 54B, Diagnosis P.54B-9
None of the door windows open or close.	-	Refer to GROUP 54B, Diagnosis P.54B-9.
Only the front door window <LH> does not open and close.	1	P.42-21
Only the front door window <RH> does not open and close.	2	P.42-23
Only the rear door window <LH> does not open and close.	3	P.42-27
Only the rear door window <RH> does not open and close.	4	P.42-31
There are door windows that do not open or close using the power window sub switch (on passenger's door). (However, they open or close when the power window main switch is used.)	5	P.42-37
None of the door windows are opened or closed by the power window main switch (on driver's door). (However, they are opened or closed by the power window sub switch.)	6	P.42-41
The door windows cannot be opened or closed by the power window (main or sub) switch within 30 seconds after the ignition switch is turned from "ON" to "LOCK" (OFF) position. (However, this is before the front doors LH and RH are opened.)	-	Refer to GROUP 54B, Diagnosis P.54B-9.

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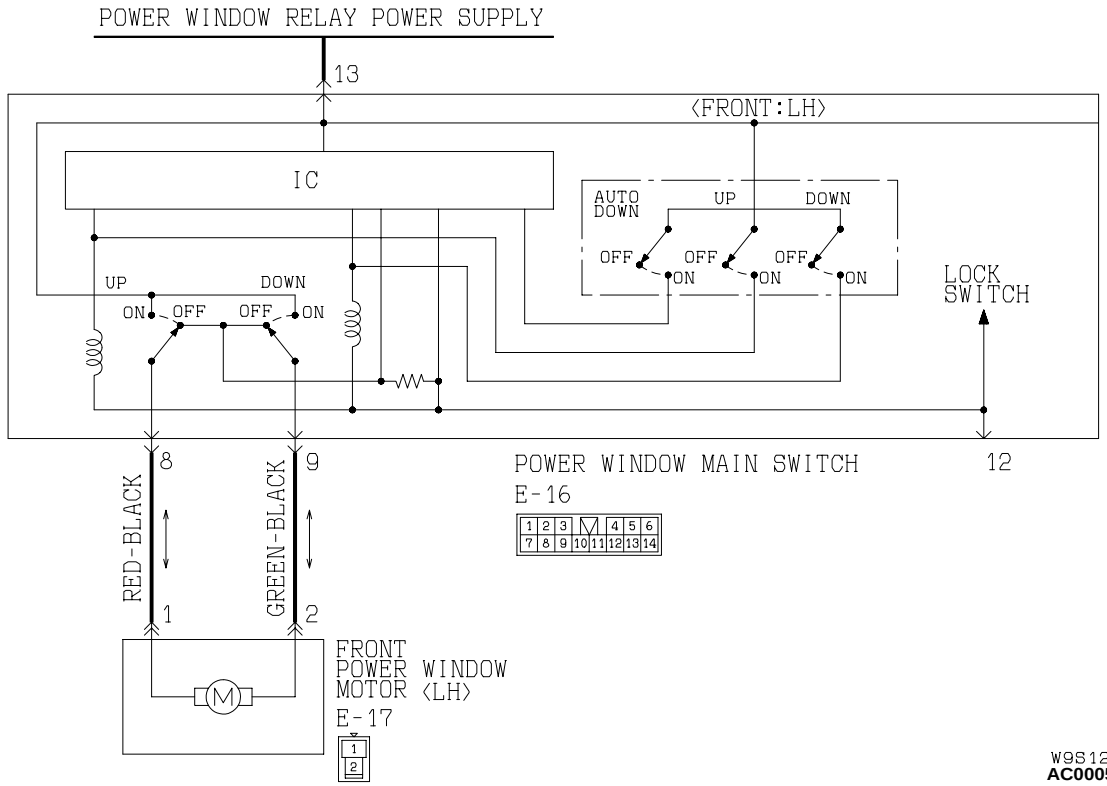
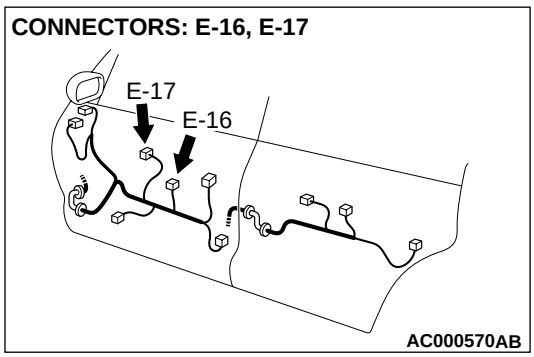
SYMPTOM PROCEDURES

INSPECTION PROCEDURE 1: Only the front door window <LH> does not open and close.

Front Power Window Motor <LH> Drive Circuit





CIRCUIT OPERATION

- When the power window switch is operated up or down, the operation side relay turns on, the power window motor operates, and opens or closes the door window <LH>.

TECHNICAL DESCRIPTION (COMMENT)

- The cause may be a malfunction of the front power window motor <LH> drive circuit.

TROUBLESHOOTING HINTS

- Malfunction of the power window relay.
- Malfunction of the ETACS-ECU.
- Damaged harness wires or connectors.

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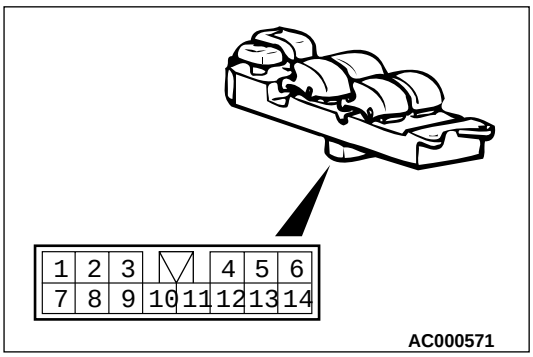
DIAGNOSIS



STEP 1. Check the power window main switch continuity.

(1) Remove the power window main switch. (Refer to P.42-54.)

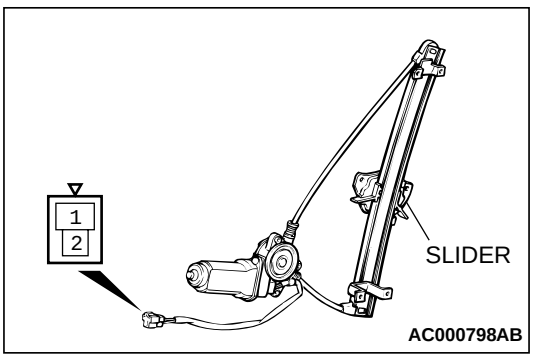
(2) Check the continuity when the power window main switch <LH> is turned to the UP position or DOWN position.

FRONT <LH> SWITCH POSITION	TESTER CONNECTION	SPECIFIED CONDITION
UP	8 – 13, 9 – 12	Continuity
OFF	8 – 9 – 12	Continuity
DOWN	8 – 12, 9 – 13	Continuity

Q: Is the power window main switch damaged?

YES : Replace it, then go to Step 4.

NO : Go to Step 2.



STEP 2. Check the front power window motor <LH> operation.

(1) Remove the power window motor <LH>. (Refer to P.42-56.)

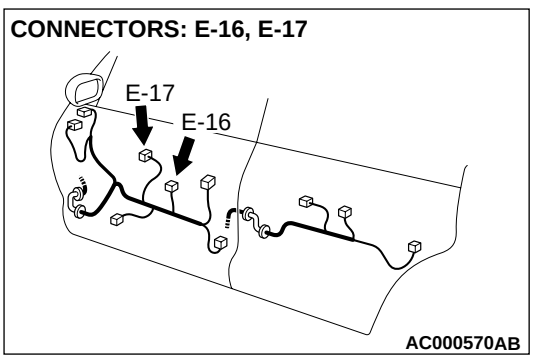
(2) Connect a battery directly to the motor terminals and check that the motor runs smoothly.

TESTER CONNECTION	SLIDER POSITION
1–Battery(+), 2–Battery(-)	UP
2–Battery(+), 1–Battery(-)	DOWN

Q: Is the front power window motor <LH> damaged?

YES : Replace it, then go to Step 4.

NO : Go to Step 3.



STEP 3. Check the harness wires between power window main switch connector E-16 and front power window motor <LH> connector E-17.

Q: Are there any damaged wires between power window main switch connector E-16 and front power window motor <LH> connector E-17?

YES : Repair them, then go to Step 4.

NO : Go to Step 4.

STEP 4. Check symptoms

Q: Does the front door window <LH> open and close normally?

YES : This diagnosis is complete.

NO : Return to Step 1.

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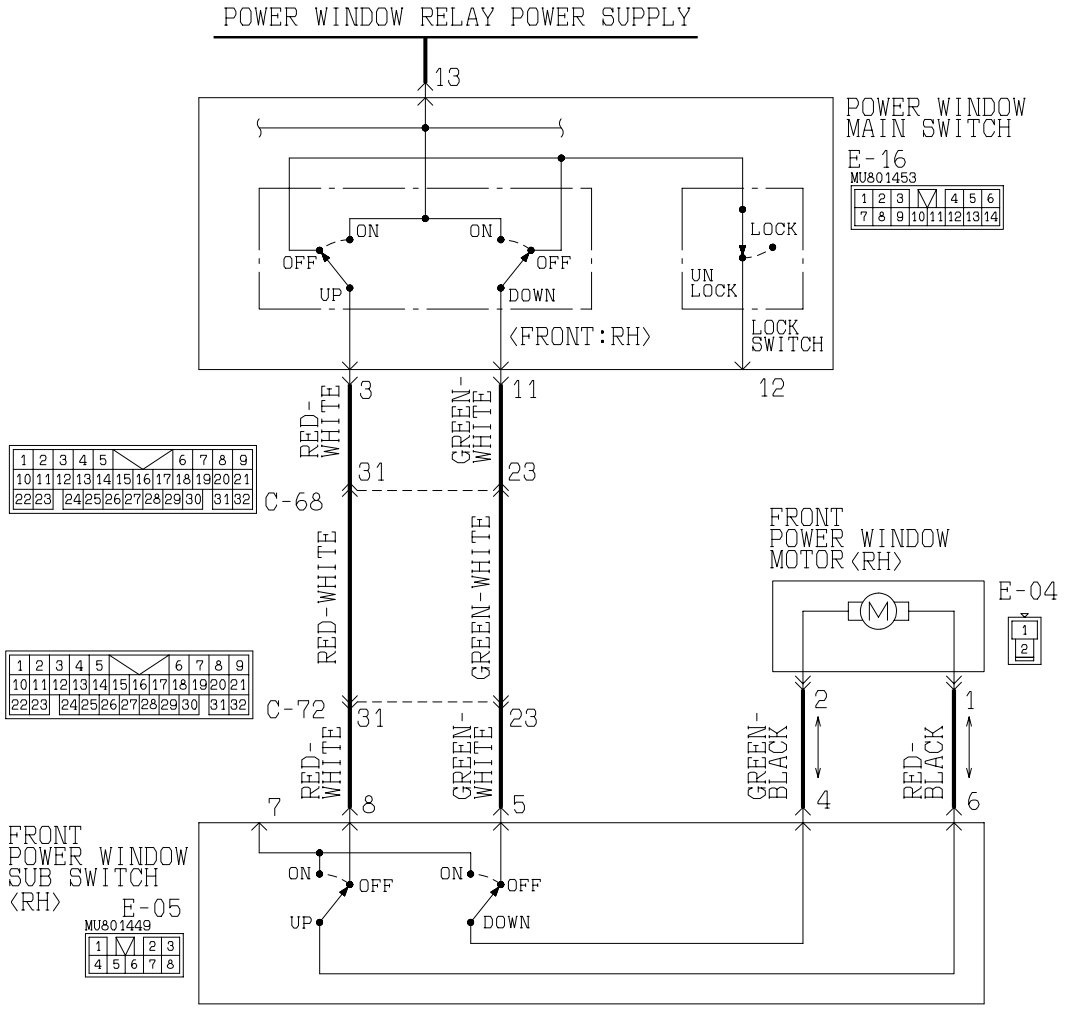
INSPECTION PROCEDURE 2: Only the front door window <RH> does not open and close.

Front Power Window Motor <RH> Drive Circuit



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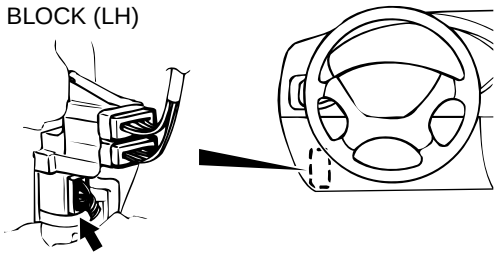
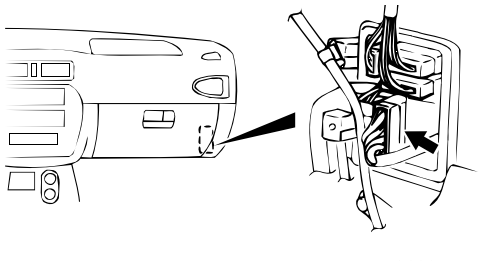
CONNECTOR: C-68
CONNECTOR
BLOCK (LH)



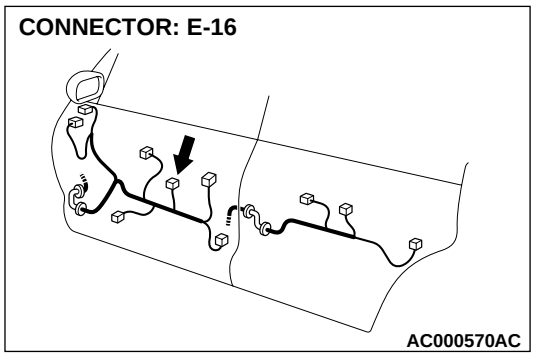
AC003079AG

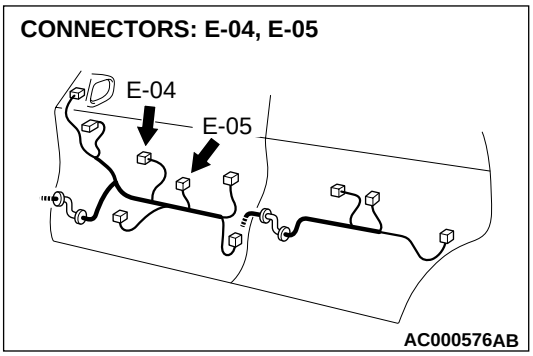
CONNECTOR: C-72
CONNECTOR
BLOCK (RH)



AC003415 AD

TSB Revision





CIRCUIT OPERATION

- When the power window switch is operated up or down, the power window motor operates and opens or closes the door window.

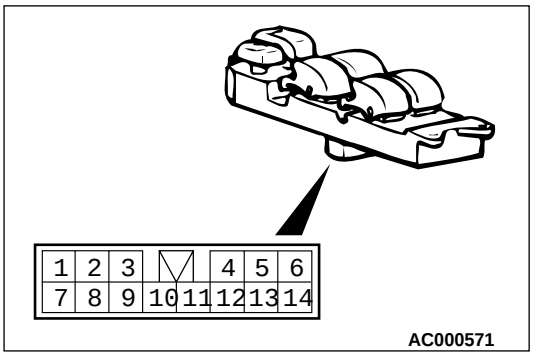
TECHNICAL DESCRIPTION (COMMENT)

- The cause may be a malfunction of the front power window motor <RH> drive circuit.

TROUBLESHOOTING HINTS

- Malfunction of the power window main switch
- Malfunction of the front power window sub-switch <RH>
- Malfunction of the front power window motor <RH>
- Damaged harness wires or connectors

DIAGNOSIS



STEP 1. Check the power window main switch continuity.

(1) Remove the power window main switch. (Refer to P.42-54.)

(2) Check the continuity when the front power window main switch <RH> is turned to the UP position or DOWN position.

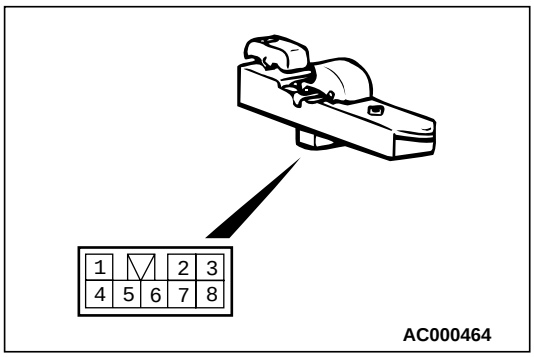
FRONT <RH> SWITCH POSITION		TESTER CONNECTION	SPECIFIED CONDITION
When the lock switch is locked.	UP	3 – 13	Continuity
	OFF	3 – 11	Continuity
	DOWN	11 – 13	Continuity
When the lock switch is unlocked.	UP	3 – 13, 11 – 12	Continuity
	OFF	3 – 11 – 12	Continuity
	DOWN	11 – 13, 3 – 12	Continuity

Q: Is the power window main switch damaged?

YES : Replace it, then go to Step 6.

NO : Go to Step 2.

TSB Revision



STEP 2. Check the front power window sub-switch continuity.

(1) Remove the front power window sub-switch <RH>. (Refer to P.42-54.)

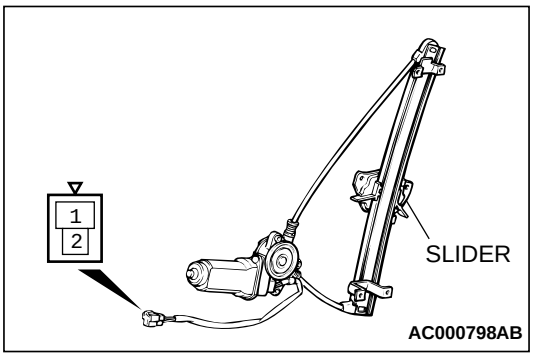
(2) Check the continuity when the front power window sub-switch <RH> is turned to the UP position or DOWN position.

SWITCH POSITION	TESTER CONNECTION	SPECIFIED CONDITION
UP	4 – 5, 6 – 7	Continuity
OFF	4 – 5, 6 – 8	Continuity
DOWN	6 – 8, 4 – 7	Continuity

Q: Is the front power window sub-switch <RH> damaged?

YES : Replace it, then go to Step 6.

NO : Go to Step 3.



STEP 3. Check the front power window motor <RH> operation.

(1) Remove the front power window regulator <RH>. (Refer to P.42-56.)

(2) Connect a battery directly to the motor terminals and check that the motor runs smoothly.

TESTER CONNECTION	SLIDER POSITION
1–Battery(+), 2–Battery(-)	UP
2–Battery(+), 1–Battery(-)	DOWN

Q: Is the front power window motor <RH> damaged?

YES : Replace it, then go to Step 6.

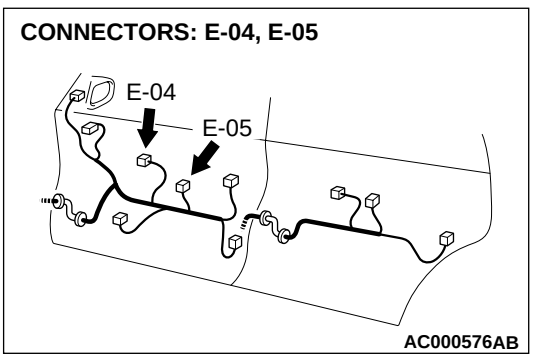
NO : Go to Step 4.

STEP 4. Check the harness wires between front power window sub-switch <RH> connector E-05 and front power window motor <RH> connector E-04.

Q: Are there any damaged wires between front power window sub-switch <RH> connector E-05 and front power window motor <RH> connector E-04?

YES : Repair them, then go to Step 6.

NO : Go to Step 5.



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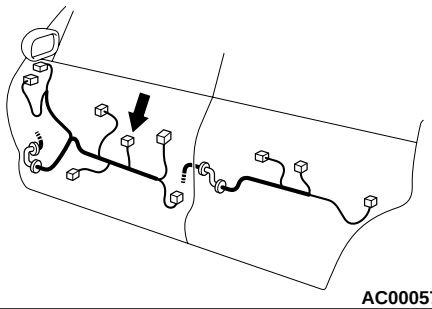
STEP 5. Check the harness wires between power window main switch connector E-16 and front power window sub-switch <RH> connector E-05.

Q: Are there any damaged wires between power window main switch connector E-16 and front power window sub-switch <RH> connector E-05?

YES : Repair them, then go to Step 6.
NO : Go to Step 6.

CONNECTOR: E-16



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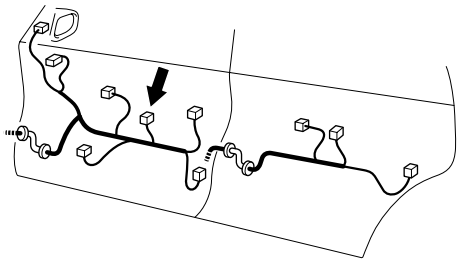
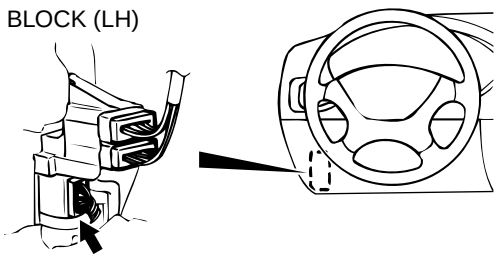
CONNECTOR: E-05



AC000576AC

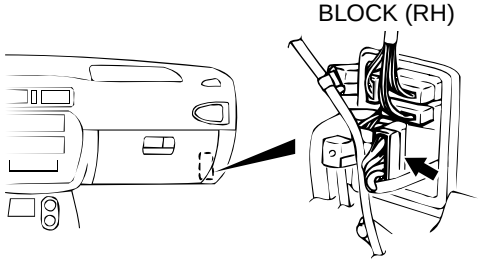
CONNECTOR: C-68
CONNECTOR
BLOCK (LH)



AC003079AG

NOTE: After inspecting intermediate connector C-68 or C-72, inspect the wire. If intermediate connector C-68 or C-72 is damaged, repair or replace it. Refer to GROUP 00E P.00E-2, Harness Connector Inspection. Then go to Step 6.

CONNECTOR: C-72
CONNECTOR
BLOCK (RH)



AC003415AD

STEP 6. Check symptoms

Q: Does the door window <RH> open and close normally?

YES : This diagnosis is complete.
NO : Return to Step 1.

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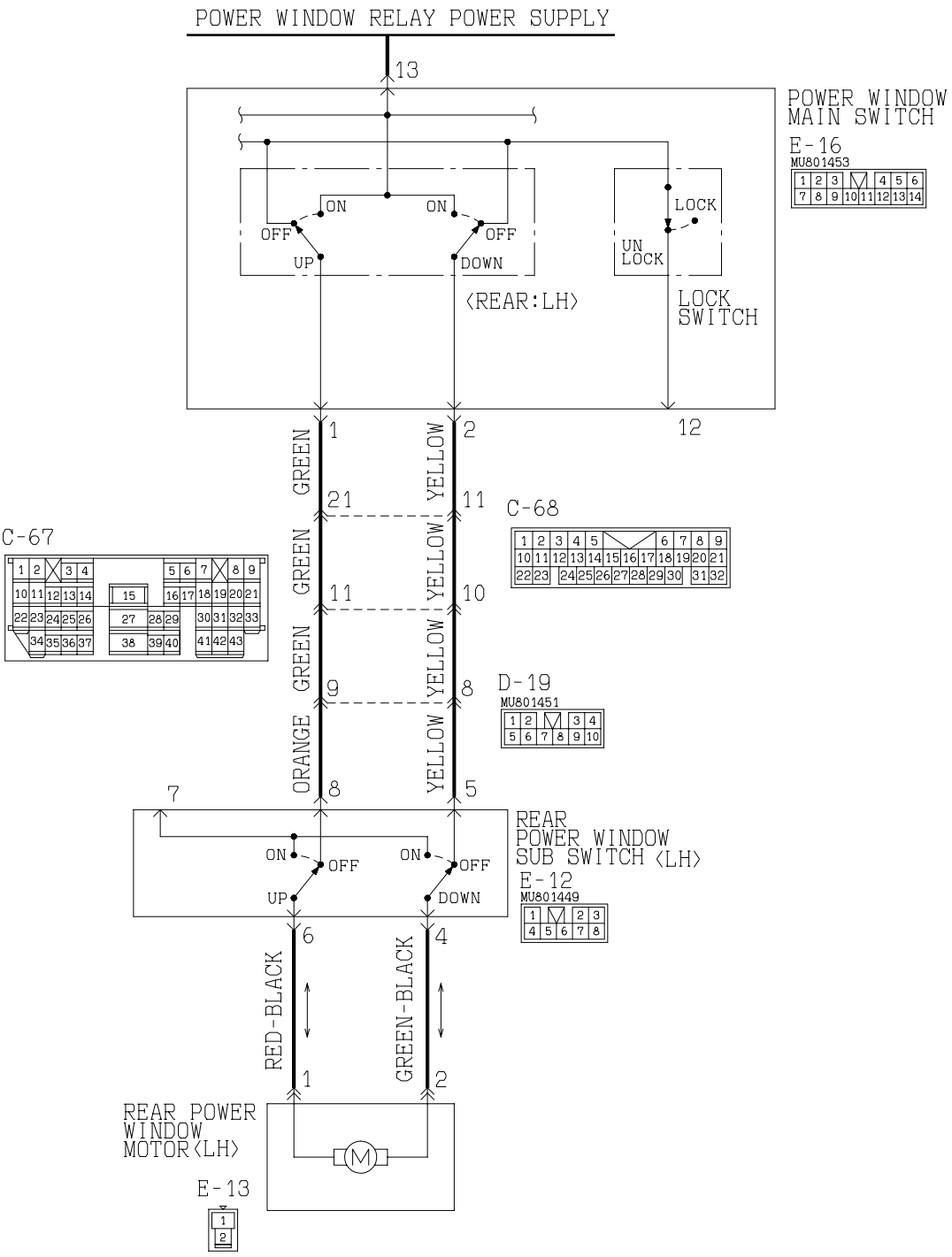
INSPECTION PROCEDURE 3: Only the rear door window <LH> does not open and close.

Rear Power Window Motor <LH> Drive Circuit



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AC000580AB

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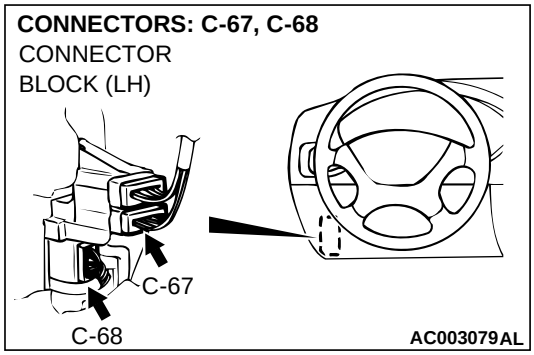
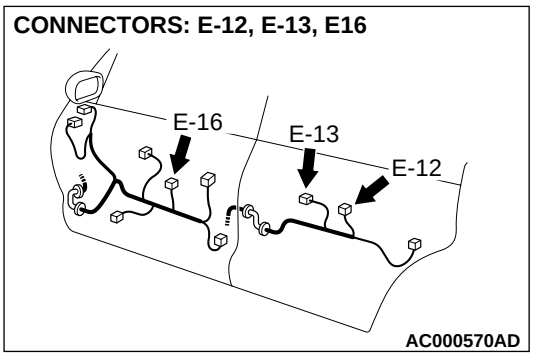
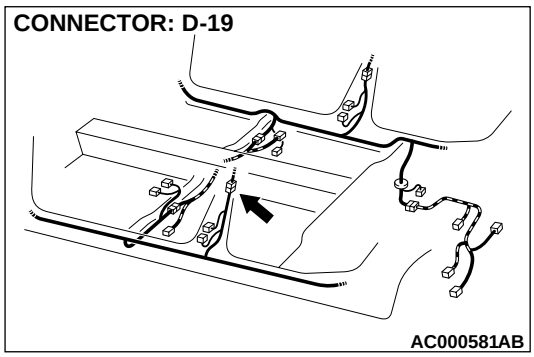






CIRCUIT OPERATION

- When the rear power window switch is operated up or down, the rear power window motor operates and opens or closes the door window.

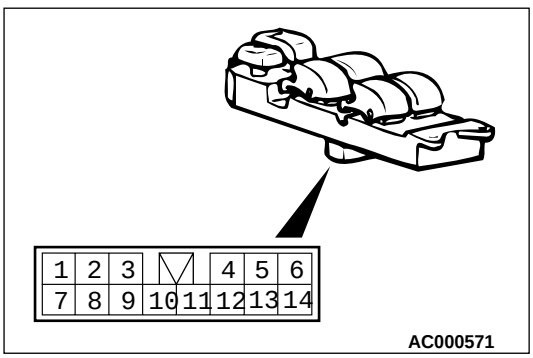
TECHNICAL DESCRIPTION (COMMENT)

- The cause may be a malfunction of the rear power window motor <LH> drive circuit.

TROUBLESHOOTING HINTS

- Malfunction of the power window main switch
- Malfunction of the rear power window sub-switch <LH>
- Malfunction of the rear power window motor <LH>
- Damaged harness wires or connectors

DIAGNOSIS



STEP 1. Check the power window main switch continuity.

(1) Remove the power window main switch. (Refer to P.42-54.

(2) Check the continuity when the rear power window main switch <LH> is turned to the UP position or DOWN position.

REAR <LH> SWITCH POSITION		TESTER CONNECTION	SPECIFIED CONDITION
When the lock switch is locked.	UP	1 – 13	Continuity
	OFF	1 – 2	Continuity
	DOWN	2 – 13	Continuity
When the lock switch is un-locked.	UP	1 – 13, 2 – 12	Continuity
	OFF	1 – 2 – 12	Continuity
	DOWN	2 – 13, 1 – 12	Continuity

Q: Is the power window main switch damaged?

YES : Replace it, then go to Step 6.

NO : Go to Step 2.

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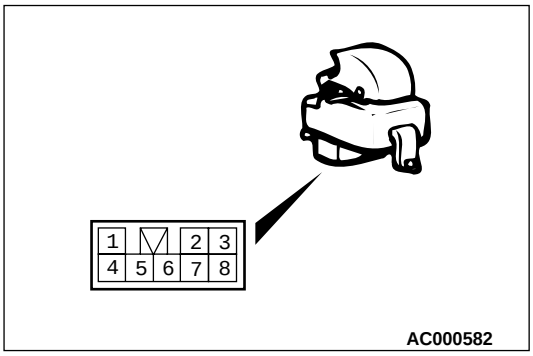


STEP 2. Check the rear power window sub-switch <LH> continuity.

(1) Remove the rear power window sub-switch <LH>. (Refer to P.42-54.

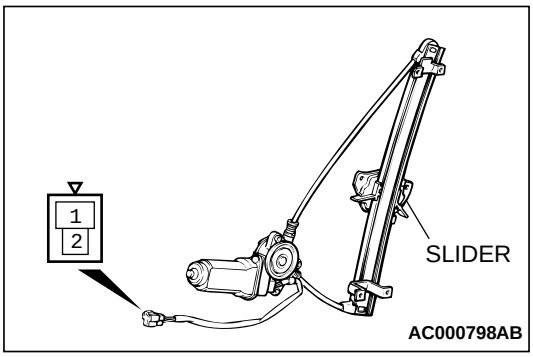
(2) Check the continuity when the rear power window sub-switch <LH> is turned to the UP position or DOWN position.

SWITCH POSITION	TESTER CONNECTION	SPECIFIED CONDITION
UP	4 – 5, 6 – 7	Continuity
OFF	4 – 5, 6 – 8	Continuity
DOWN	4 – 7, 6 – 8	Continuity

Q: Is the rear power window sub-switch <LH> damaged?

YES : Replace it, then go to Step 6.

NO : Go to Step 3.



STEP 3. Check the rear power window motor <LH> operation.

(1) Remove the rear power window regulator <LH>. (Refer to P.42-56.

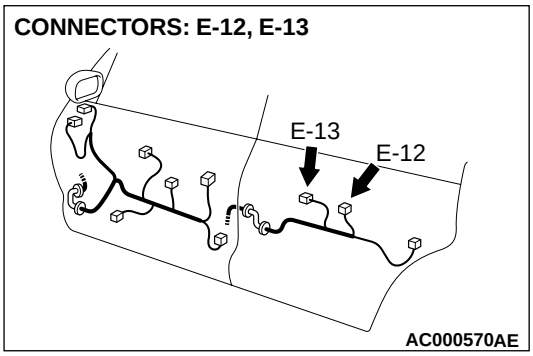
(2) Connect a battery directly to the motor terminals and check that the motor runs smoothly.

TESTER CONNECTION	SLIDER POSITION
1–Battery(+), 2–Battery(-)	UP
2–Battery(+), 1–Battery(-)	DOWN

Q: Is the rear power window motor <LH> damaged?

YES : Replace it, then go to Step 6.

NO : Go to Step 4.



STEP 4. Check the harness wires between rear power window sub-switch <LH> connector E-12 and rear power window motor <LH> connector E-13.

Q: Are there any damaged wires between rear power window sub-switch <LH> connector E-12 and rear power window motor <LH> connector E-13?

YES : Repair them, then go to Step 6.

NO : Go to Step 5.

TSB Revision

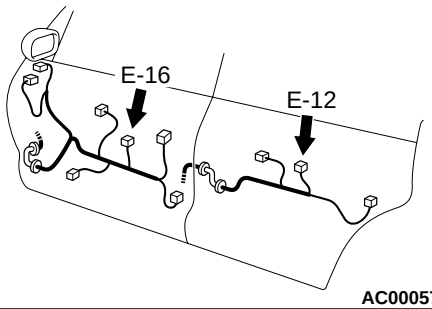
STEP 5. Check the harness wires between power window main switch connector E-16 and rear power window sub-switch <LH> connector E-12.

Q: Are there any damaged wires between power window main switch connector E-16 and rear power window sub-switch <LH> connector E-12?

YES : Repair them, then go to Step 6.

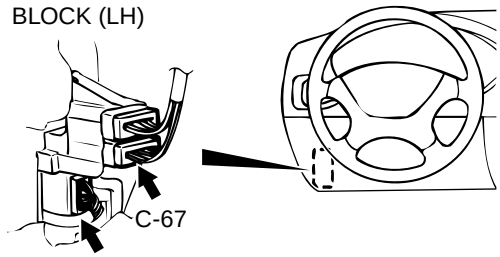
NO : Go to Step 6.

CONNECTORS: E-12, E-16



AC000570AF

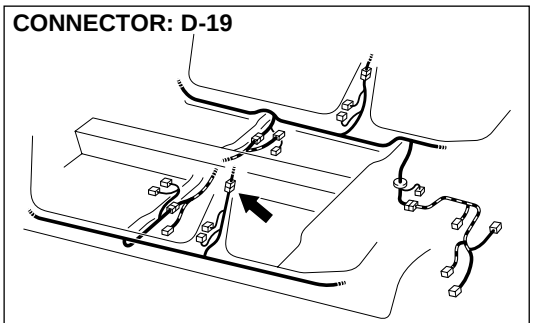
CONNECTORS: C-67, C-68



AC003079AL

NOTE: After inspecting intermediate connector C-67, C-68 or D-19, inspect the wire. If intermediate connector C-67, C-68 or D-19 is damaged, repair or replace it. Refer to GROUP 00E P.00E-2, Harness Connector Inspection. Then go to Step 6.

CONNECTOR: D-19



AC000581AB

STEP 6. Check symptoms

Q: Does the rear door window <LH> open and close normally?

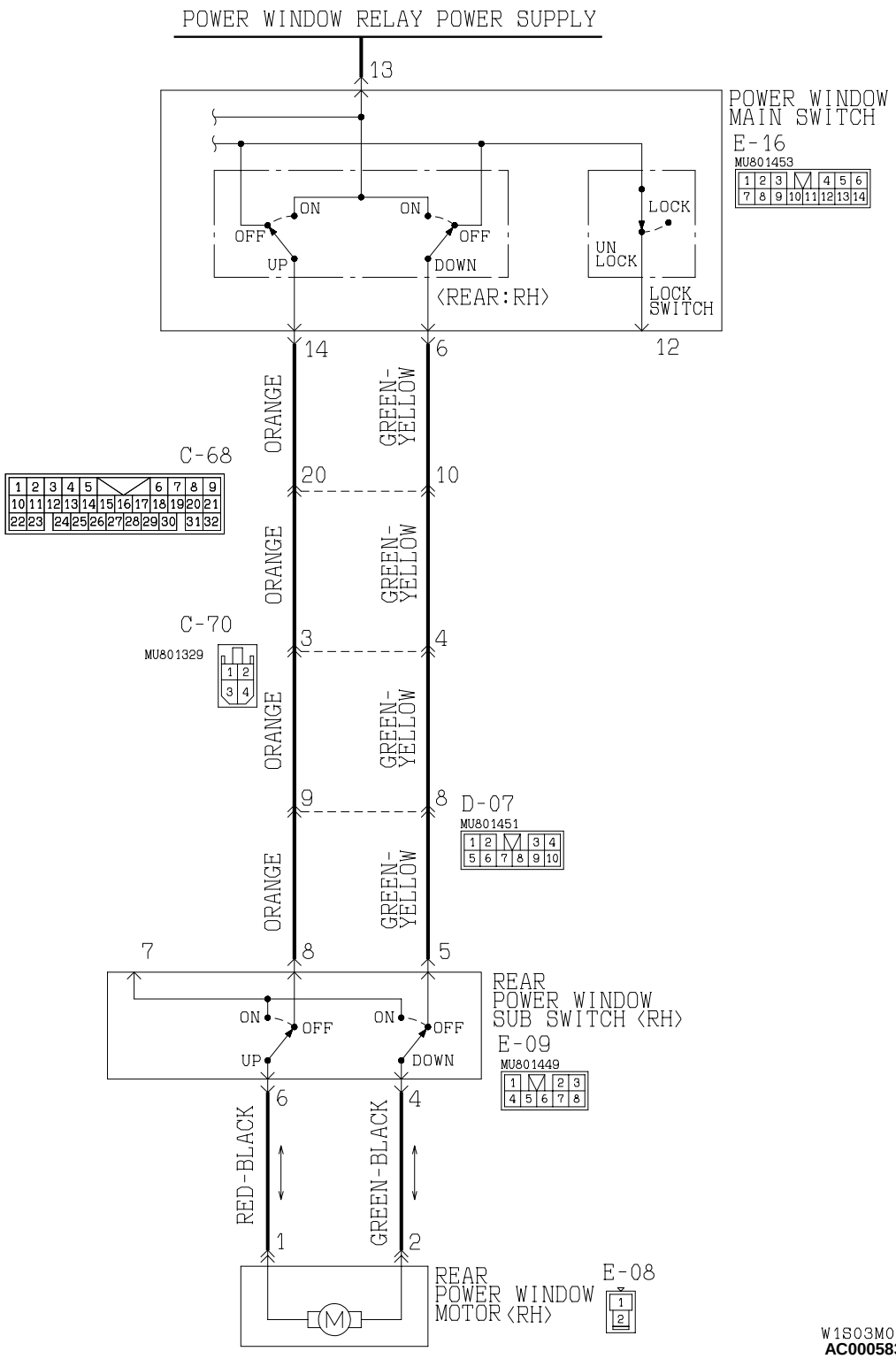
YES : This diagnosis is complete.

NO : Return to Step 1.

TSB Revision

INSPECTION PROCEDURE 4: Only the rear door window <RH> does not open and close.

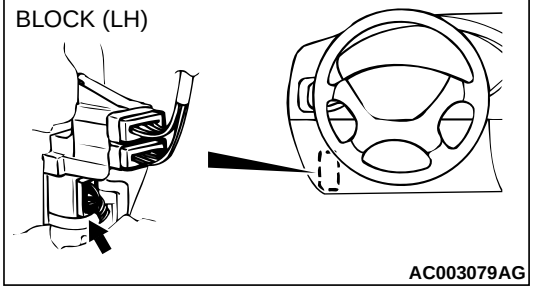
Rear Power Window Motor <RH> Drive Circuit



W1S03M02AA
AC000583AB

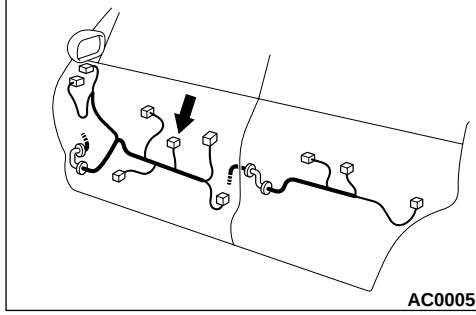
TSB Revision

CONNECTOR: C-68
CONNECTOR
BLOCK (LH)



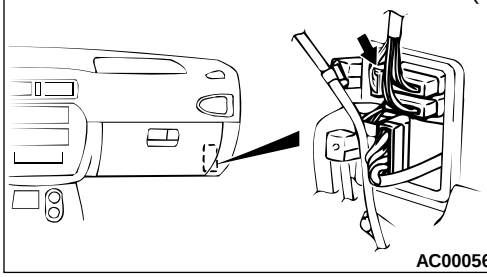
AC003079AG

CONNECTOR: E-16



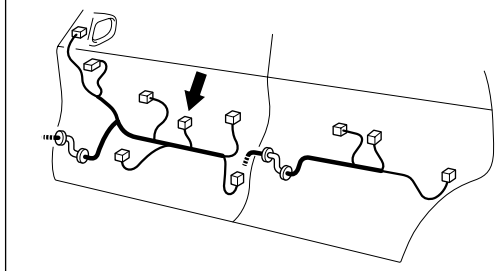
AC000570AC

CONNECTOR: C-70
CONNECTOR BLOCK (RH)



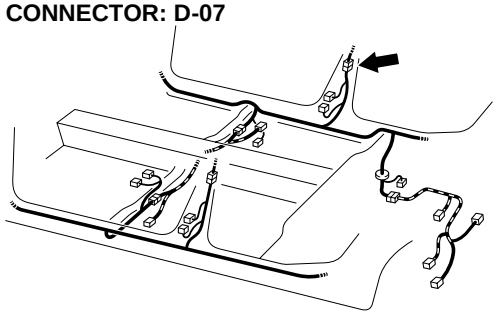
AC000564AB

CONNECTOR: E-05



AC000576AC

CONNECTOR: D-07



AC000581AC

CIRCUIT OPERATION

- When the rear power window switch is operated up or down, the rear power window motor operates, and opens or closes the door window.

TECHNICAL DESCRIPTION (COMMENT)

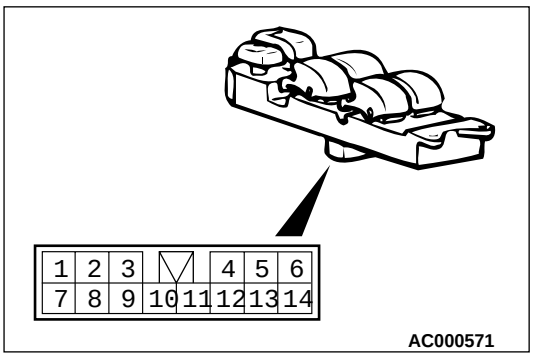
- The cause may be a malfunction of the rear power window motor <RH> drive circuit.

TROUBLESHOOTING HINTS

- Malfunction of the power window main switch
- Malfunction of the rear power window sub-switch <RH>
- Malfunction of the rear power window motor <RH>
- Damaged harness wires or connectors

TSB Revision

DIAGNOSIS



STEP 1. Check the power window main switch continuity.

(1) Remove the power window main switch. (Refer to P.42-54.)

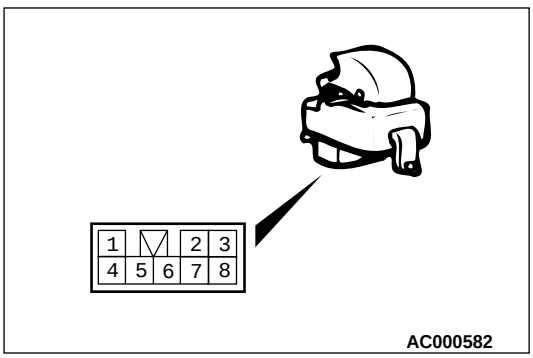
(2) Check the continuity when the rear power window main switch <RH> is turned to the UP position or DOWN position.

REAR <RH> SWITCH POSITION		TESTER CONNECTION	SPECIFIED CONDITION
When the lock switch is locked.	UP	13 – 14	Continuity
	OFF	6 – 14	Continuity
	DOWN	6 – 13	Continuity
When the lock switch is unlocked.	UP	6 – 12, 13 – 14	Continuity
	OFF	6 – 12 – 14	Continuity
	DOWN	12 – 14, 6 – 13	Continuity

Q: Is the power window main switch damaged?

YES : Replace it, then go to Step 6.

NO : Go to Step 2.



STEP 2. Check the rear power window sub-switch <RH> continuity.

(1) Remove the rear power window sub-switch <RH>. (Refer to P.42-54.

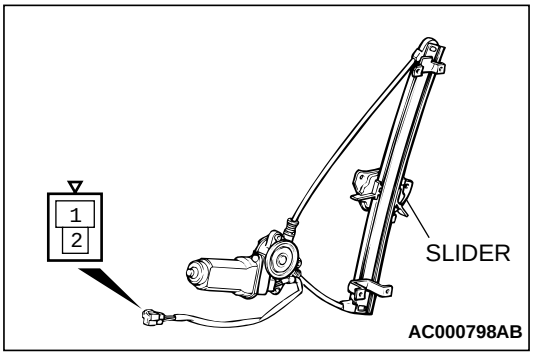
(2) Check the continuity when the rear power window sub-switch <RH> is turned to the UP position or DOWN position.

SWITCH POSITION	TESTER CONNECTION	SPECIFIED CONDITION
UP	4 – 5, 6 – 7	Continuity
OFF	4 – 5, 6 – 8	Continuity
DOWN	4 – 7, 6 – 8	Continuity

Q: Is the rear power window sub-switch <RH> damaged?

YES : Replace it, then go to Step 6.

NO : Go to Step 3.



STEP 3. Check the rear power window motor <RH> operation.

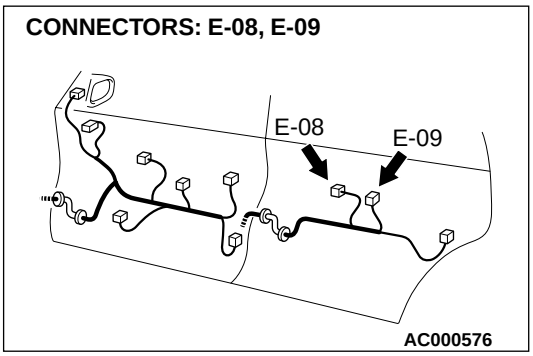
(1) Remove the rear power window regulator <RH>. (Refer to P.42-56.

(2) Connect a battery directly to the motor terminals and check that the motor runs smoothly.

TESTER CONNECTION	SLIDER POSITION
1–Battery(+), 2–Battery(-)	UP
2–Battery(+), 1–Battery(-)	DOWN

Q: Is the rear power window motor <RH> damaged?

YES : Replace it, then go to Step 6.
NO : Go to Step 4.



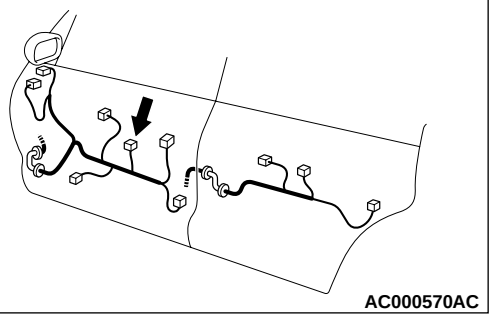
STEP 4. Check the harness wires between rear power window sub-switch <RH> connector E-09 and rear power window motor <RH> connector E-08.

Q: Are there any damaged wires between rear power window sub-switch connector <RH> E-09 and rear power window motor <RH> connector E-08?

YES : Repair them, then go to Step 6.
NO : Go to Step 5.

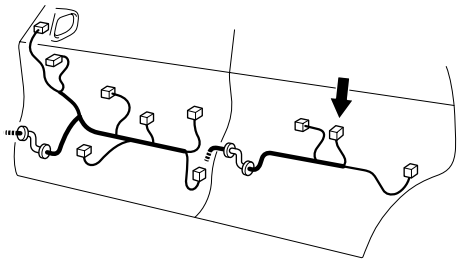
TSB Revision

CONNECTOR: E-16



AC000570AC

CONNECTOR: E-09



AC000576AE

STEP 5. Check the harness wires between power window main switch connector E-16 and rear power window sub-switch <RH> connector E-09.

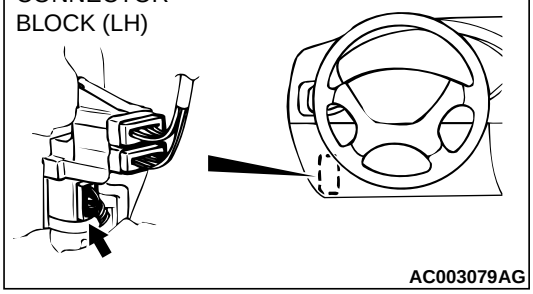
Q: Are there any damaged wires between power window main switch connector E-16 and rear power window sub-switch <RH> connector E-09?

YES : Repair them, then go to Step 6.

NO : Go to Step 6.

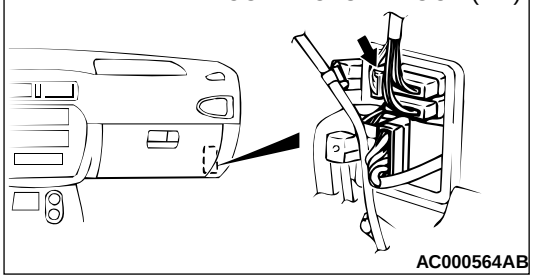
TSB Revision

CONNECTOR: C-68
CONNECTOR
BLOCK (LH)



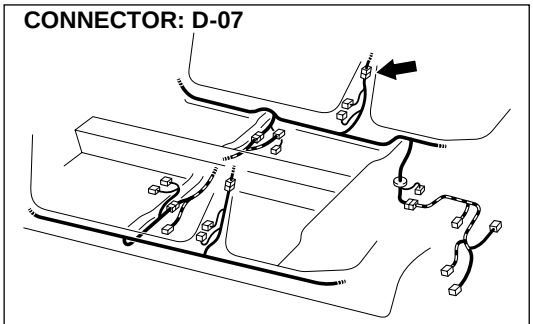
AC003079AG

CONNECTOR: C-70
CONNECTOR BLOCK (RH)



AC000564AB

CONNECTOR: D-07



AC000581AC

NOTE: After inspecting intermediate connector C-68, C-70 or D-07, inspect the wire. If intermediate connector C-68, C-70 or D-07 is damaged, repair or replace it. Refer to GROUP 00E P.00E-2, Harness Connector Inspection. Then go to Step 6.

STEP 6. Check symptoms

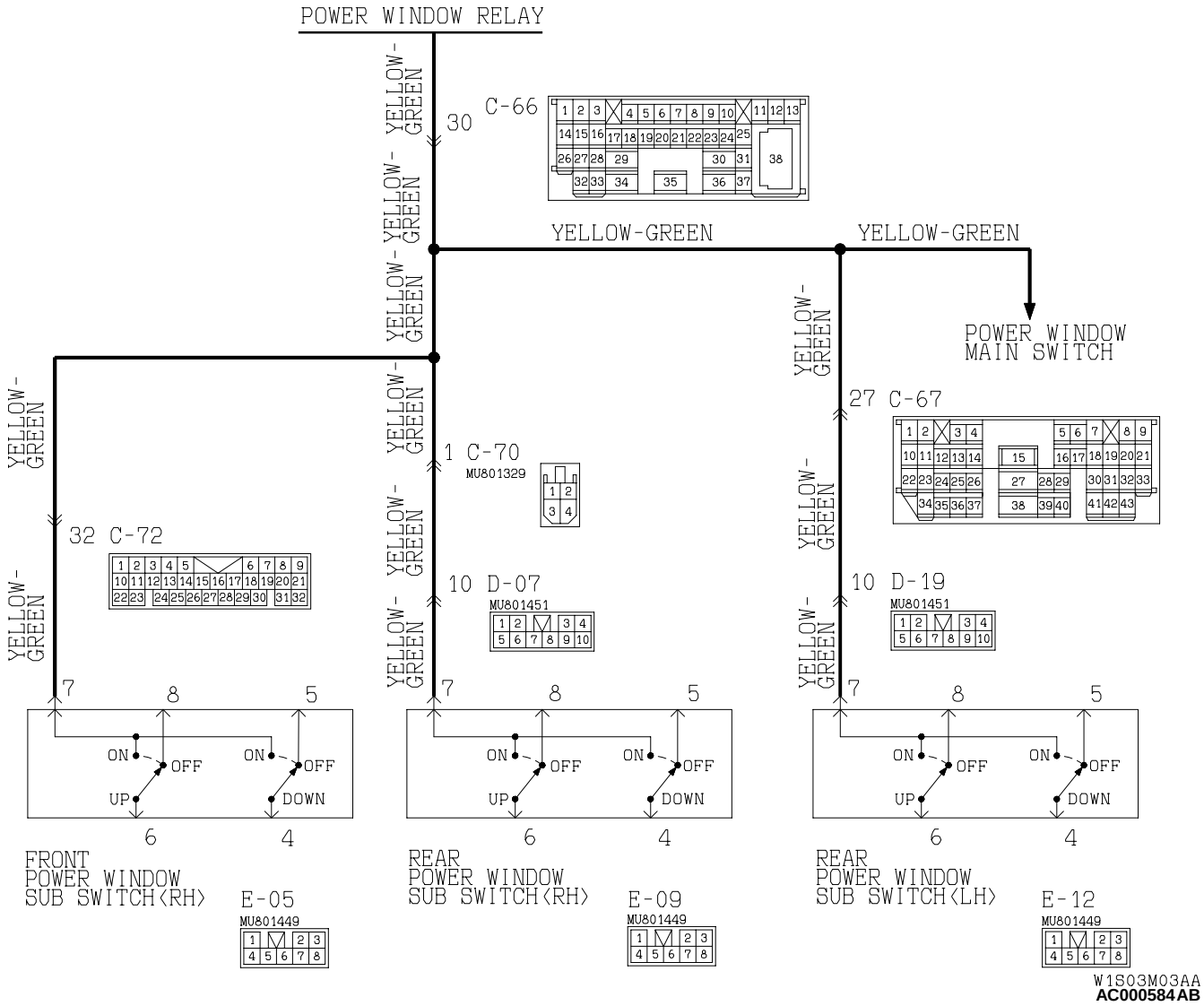
Q: Does the rear door window <RH> open and close normally?

YES : This diagnosis is complete.
NO : Return to Step 1.

TSB Revision

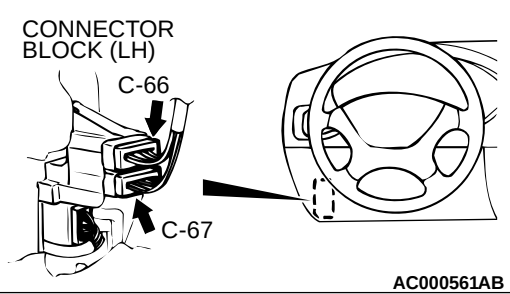
INSPECTION PROCEDURE 5: Some door windows do not open or close using the power window sub switch (on passenger's door). (However, they open or close when the power window main switch is used.)

Power Window Sub Switch Power Supply



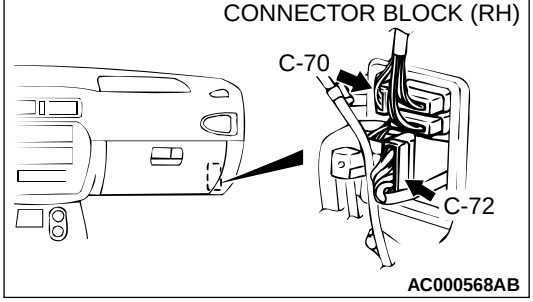
W1S03M03AA
AC000584AB

CONNECTORS: C-66, C-67



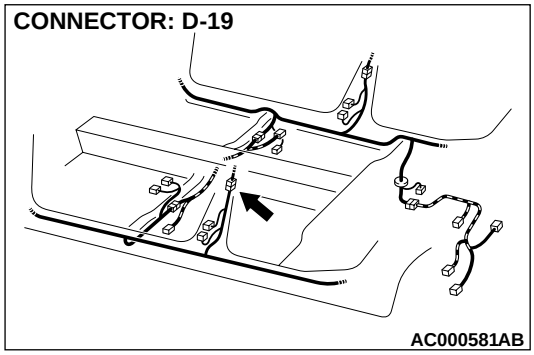
AC000561AB

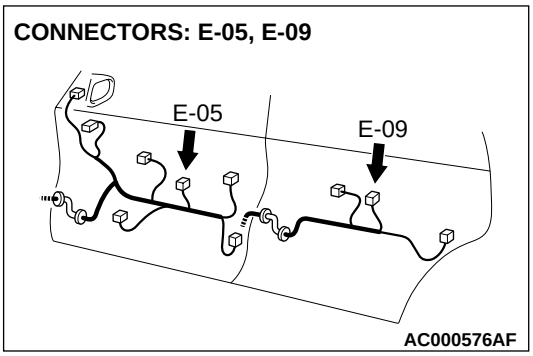
CONNECTORS: C-70, C-72

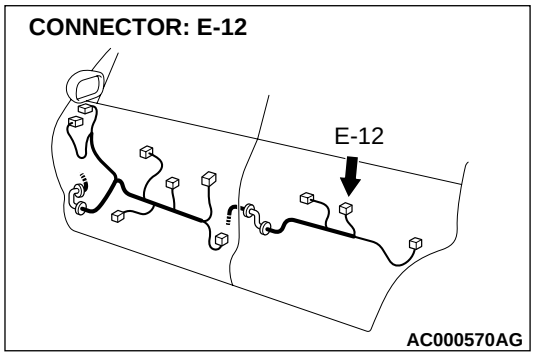


AC000568AB

TSB Revision







CIRCUIT OPERATION

- Power is supplied to the power window sub-switch from the power window relay.

TECHNICAL DESCRIPTION (COMMENT)

- The cause may be a malfunction of the power window sub-switch power supply circuit.

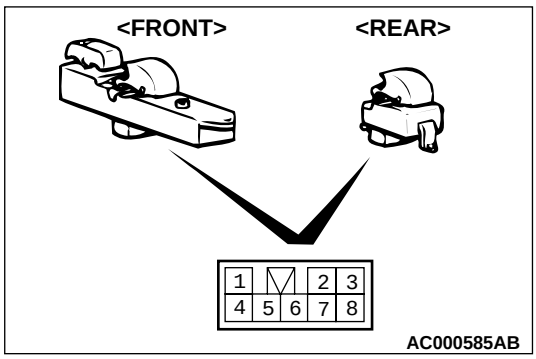
TROUBLESHOOTING HINTS

- Malfunction of the front power window sub-switch <RH>
- Malfunction of the rear power window sub-switch <LH>
- Malfunction of the rear power window sub-switch <RH>
- Damaged harness wires or connectors

DIAGNOSIS

Required Special Tool:

- MB991223: Harness Set



STEP 1. Check the power window sub-switch continuity.

(1) Remove the power window sub-switch. (Refer to P.42-54.)

(2) Check the continuity when the power window sub-switch is turned to the UP position or DOWN position.

SWITCH POSITION	TESTER CONNECTION	SPECIFIED CONDITION
UP	4 – 5, 6 – 7	Continuity
OFF	4 – 5, 6 – 8	Continuity
DOWN	6 – 8, 4 – 7	Continuity

Q: Is the power window sub-switch damaged?

YES : Replace it, then go to Step 3.

NO : Go to Step 2.

TSB Revision

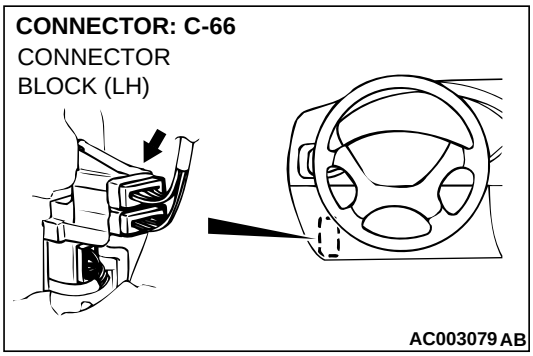
STEP 2. Check the harness wires between power window sub-switch <RH> connector E-05 <Front: RH>, E-09 <Rear: RH> or E-12 <Rear: LH> and connector block connector C-66.

Q: Are there any damaged wires between power window sub-switch <RH> connector E-05 <Front: RH>, E-09 <Rear: RH> or E-12 <Rear: LH> and connector block connector C-66?

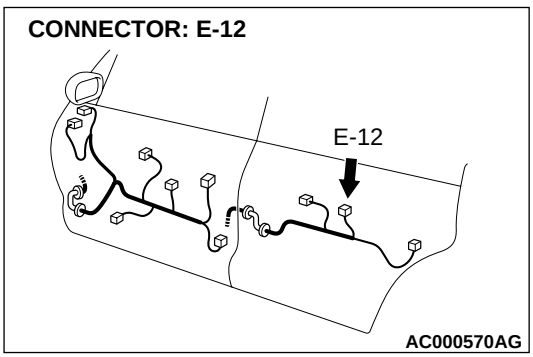
YES : Repair them, then go to Step 3.

NO : Go to Step 3.

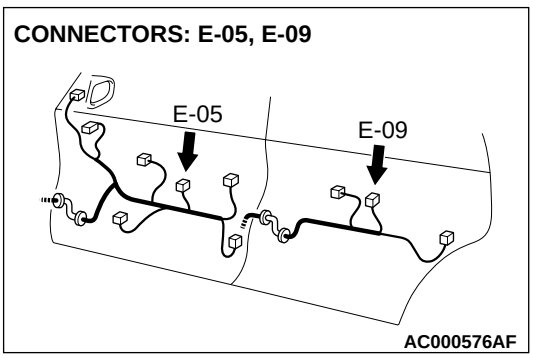
CONNECTOR: C-66

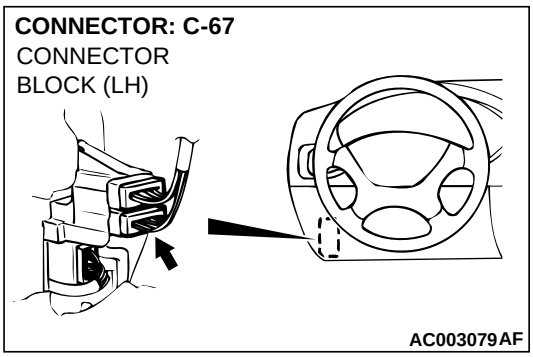


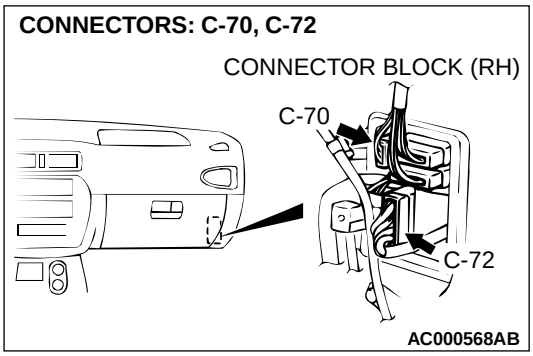
CONNECTOR: E-12

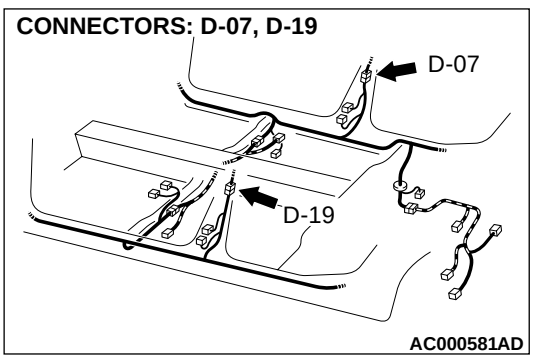


CONNECTORS: E-05, E-09









NOTE: After inspecting intermediate connector C-67, C-70, C-72, D-07 or D-19, inspect the wire. If intermediate connector C-67, C-70, C-72, D-07 or D-19 is damaged, repair or replace it. Refer to GROUP 00E P.00E-2, Harness Connector Inspection. Then go to Step 3.

STEP 3. Check symptoms

Q: Can the power window sub-switch on the passenger's door open or close all door windows?

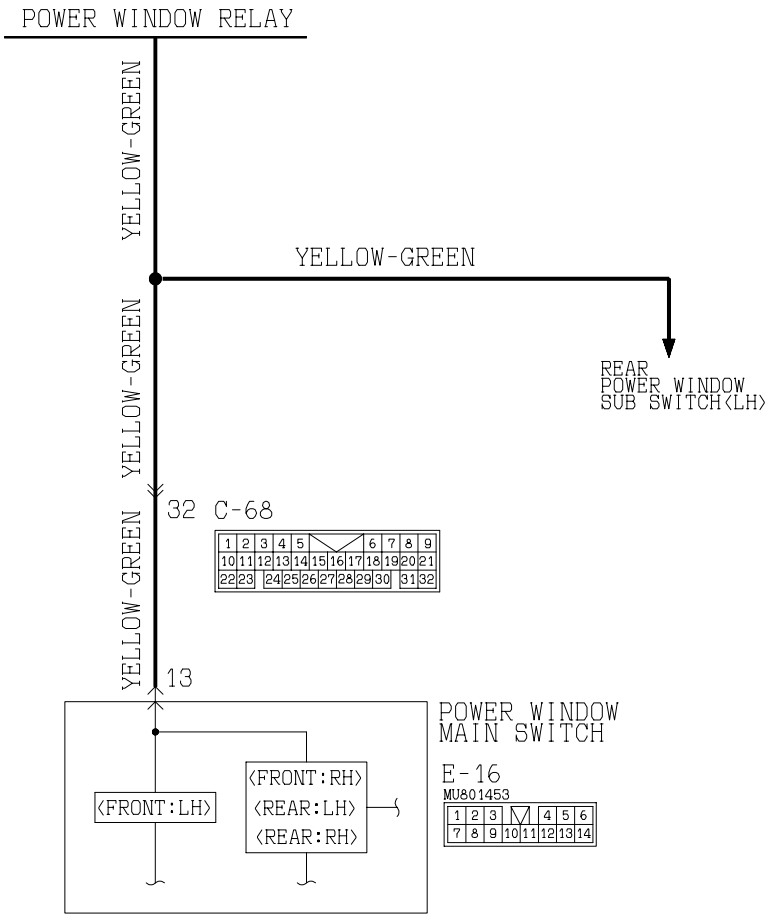
YES : This diagnosis is complete.

NO : Return to Step 1.

TSB Revision

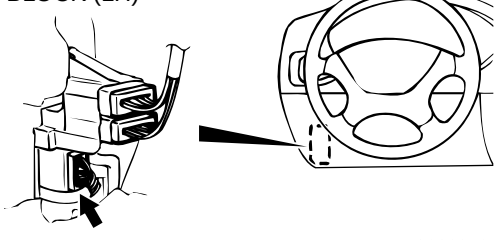
INSPECTION PROCEDURE 6: None of the door windows are opened or closed by the power window main switch (on driver's door). (However, they are opened or closed by the power window sub switch.)

Power Window Main Switch Power Sub Circuit

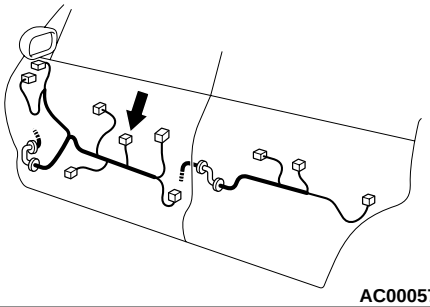


CONNECTOR: C-68

CONNECTOR
BLOCK (LH)



CONNECTOR: E-16



CIRCUIT OPERATION

- Power is supplied to the power window sub-switch from the power window relay.

TECHNICAL DESCRIPTION

- The cause may be a malfunction of the power window main switch power supply circuit.

TROUBLESHOOTING HINTS

- Damaged harness wires or connectors

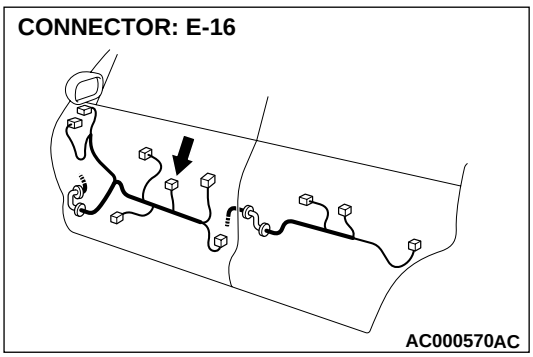
TSB Revision

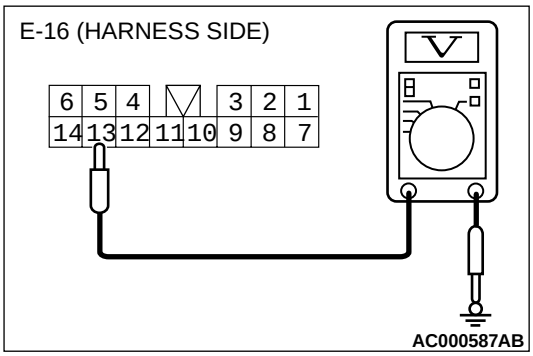
DIAGNOSIS

Required Special Tool:
- MB991223: Harness Set

STEP 1. Check the power supply line at power window main switch connector E-16.

(1) Remove the power window main switch. (Refer to P.42-54.)





(2) Measure at the harness side the voltage between terminal 13 and ground when the ignition switch is turned ON.
- Voltage should be approximately 12 volts (battery positive voltage).

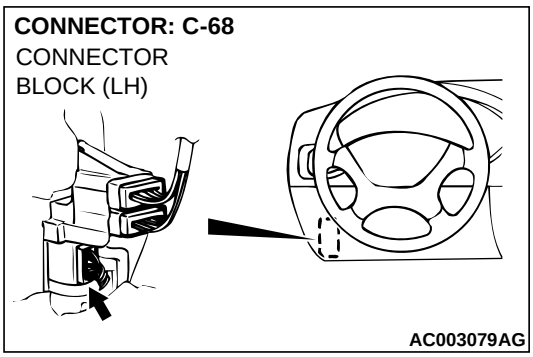
Q: Is the voltage approximately 12 volts?

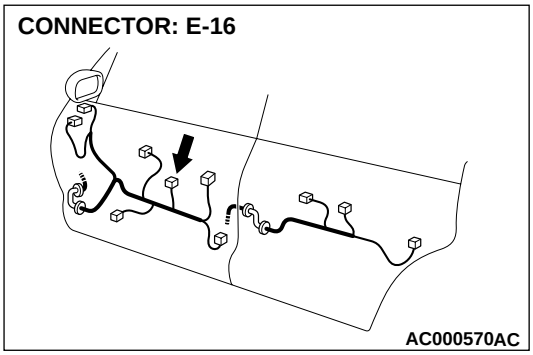
YES : Go to Step 3.
NO : Go to Step 2.

STEP 2. Check the harness wires between power window main switch connector E-16 and connector block connector C-68.

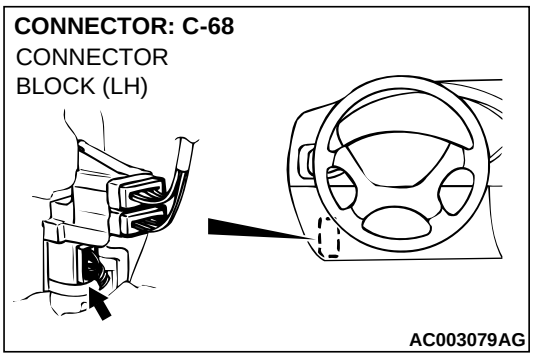
Q: Are there any damaged wires between power window main switch connector E-16 and connector block connector C-68?

YES : Repair them, then go to Step 3.
NO : Go to Step 3.





TSB Revision



NOTE: After inspecting intermediate connector C-68, inspect the wire. If connector block connector C-68 is damaged, repair or replace it. Refer to GROUP 00E P.00E-2, Harness Connector Inspection. Then go to Step 3.

STEP 3. Check symptoms.

Q: Can the power window main switch on the driver's door open or close all door windows?

YES : This diagnosis is complete.
NO : Return to Step 1.

DOOR DIAGNOSIS

INTRODUCTION TO GLASS AND DOOR DIAGNOSIS

M1423007300092

Glass and door faults include water leaks and improper opening and closing. Causes for these faults can include faults in the glass, weatherstrip, drain hole, waterproof film or door installation.

GLASS AND DOOR DIAGNOSTIC TROUBLESHOOTING STRATEGY

M1423006700097

Use these steps to plan your diagnostic strategy. If you follow them carefully, you will be sure that you have exhausted most of the possible ways to find a glass and door fault.

1. Gather information from the customer.
2. Verify that the condition described by the customer exists.
3. Find the malfunction by following the Symptom Chart.
4. Verify malfunction is eliminated.

SYMPTOM CHART

M1423007000110

SYMPTOMS	INSPECTION PROCEDURE	REFERENCE PAGE
Water leak through door window glass	1	P.42-44
Door window malfunction	2	P.42-44
Water leak through door edge	3	P.42-44
Water leak from door center	4	P.42-45
Door hard to open	5	P.42-45
Door does not open or close completely	6	P.42-45
Uneven gap between body	7	P.42-46
Wind noise around door	8	P.42-46

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SYMPTOM PROCEDURES

INSPECTION PROCEDURE 1: Water leak through door window glass

DIAGNOSIS

STEP 1. Check the door window glass installation.

Q: Is the door window glass installed correctly?
YES : Go to Step 2.
NO : Adjust it. Refer to P.42-48. Then go to Step 3.

STEP 2. Check the clearance at the top of the window glass.

Q: Is the clearance at the top of the window glass correct?
YES : Go to Step 3.
NO : Adjust it. Refer to P.42-48. Then go to Step 3.

STEP 3. Check symptoms.

Q: Is any water leaking?
YES : Return to Step 1.
NO : This diagnosis is complete.

INSPECTION PROCEDURE 2: Door window malfunction

DIAGNOSIS

STEP 1. Check the door window installation condition.

Q: Is the door window installation condition good?
YES : Go to Step 2.
NO : Adjust it. (Refer to P.42-48.) Then go to Step 4 .

STEP 2. Check the door sash.

Q: Is the door sash in good condition?
YES : Go to Step 3.
NO : Repair or replace it, then go to Step 4.

STEP 3. Inspect the window regulator assembly.

Q: Is the window regulator assembly in good condition?
YES : Go to Step 4.
NO : Repair or replace it, then go to Step 4.

STEP 4. Check symptoms.

Q: Does the door window operate correctly?
YES : This diagnosis is complete.
NO : Return to Step 1.

INSPECTION PROCEDURE 3: Water leak through door edge

DIAGNOSIS

STEP 1. Check the weatherstrip.

Q: Is the weatherstrip in good condition?
YES : Go to Step 2.
NO : Replace it, then go to Step 3.

STEP 2. Check door fit (alignment).

Q: Is the door fit (alignment) correct?
YES : Go to Step 3.
NO : Adjust it. Refer to P.42-48. Then go to Step 3.

STEP 3. Check symptoms.

Q: Is any water leaking?
YES : Return to Step 1.
NO : This diagnosis is complete.

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INSPECTION PROCEDURE 4: Water leak from door center

DIAGNOSIS

STEP 1. Check the drain hole.

Q: Is the drain hole clogged?
YES : Replace it, then go to Step 3.
NO : Go to Step 2.

STEP 2. Check the weatherstrip.

Q: Is the weatherstrip in good condition?
YES : Go to Step 3.
NO : Repair or replace it, then go to Step 3.

STEP 3. Check symptoms.

Q: Is any water leaking?
YES : Return to Step 1.
NO : This diagnosis is complete.

INSPECTION PROCEDURE 5: Door hard to open

DIAGNOSIS

STEP 1. Adjust the latch and striker engagement.
Refer to P.42-48.

Q: Is the latch and striker engagement adjusted?
YES : Go to Step 2.
NO : Adjust it. Refer to P.42-48. Then go to Step 4.

STEP 2. Check for possible lock rod damage.

Q: Is the possible lock rod damaged?
YES : Repair or replace it, then go to Step 4.
NO : Go to Step 3.

STEP 3. Check door handle flexibility (amount of movement of handle required to open door).

Q: Is the door handle flexibility good?
YES : Go to Step 4.
NO : Adjust it. Refer to P.42-50 and P.42-50. Then go to Step 4.

STEP 4. Check symptoms.

Q: Does the door open easily?
YES : This diagnosis is complete.
NO : Return to Step 1.

INSPECTION PROCEDURE 6: Door does not open or close completely

DIAGNOSIS

STEP 1. Check the door hinge position.

Q: Is the door hinge correct?
YES : Go to Step 2.
NO : Adjust it. Refer to P.42-48. Then go to Step 4.

STEP 2. Check the door.

Q: Is the door in good condition?
YES : Go to Step 3.
NO : Repair or replace it, then go to Step 4.

STEP 3. Check the grease.

Q: Is the door check or door hinge grease sufficient?
YES : Go to Step 4.
NO : Apply the grease, then go to Step 4.

STEP 4. Check symptoms.

Q: Does the door open and close correctly?
YES : This diagnosis is complete.
NO : Return to Step 1.

INSPECTION PROCEDURE 7: Uneven gap between body

DIAGNOSIS

Adjust the door fit. Refer to P.42-49. Then check that the gap has been improved.

INSPECTION PROCEDURE 8: Wind noise around door

DIAGNOSIS

STEP 1. Check the weatherstrip for holding condition.

Q: Is the weatherstrip holding firmly?
YES : Go to Step 2.
NO : Adjust fit of door.Refer to P.42-49.Then go to Step 5 .

STEP 2. Check the weatherstrip for installation condition.

Q: Is the weatherstrip for installed properly?
YES : Go to Step 3.
NO : Repair or replace it.Then go to Step 5.

STEP 3. Check the clearance.

Q: Is the clearance between the door glass and the door weatherstrip holder proper?
YES : Go to Step 4.
NO : Adjust it. Refer to P.42-49. Then go to Step 5.

STEP 4. Check the door.

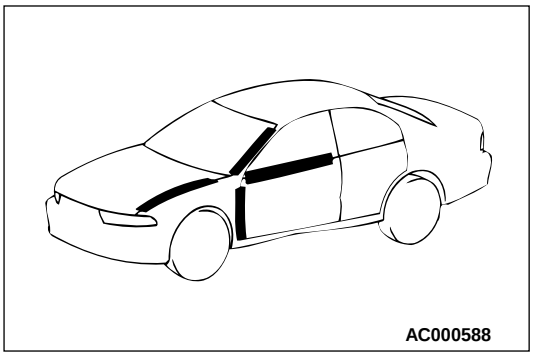
Q: Is the door deformed?
YES : Repair or replace it. then go to Step 5.
NO : Go to Step 5.

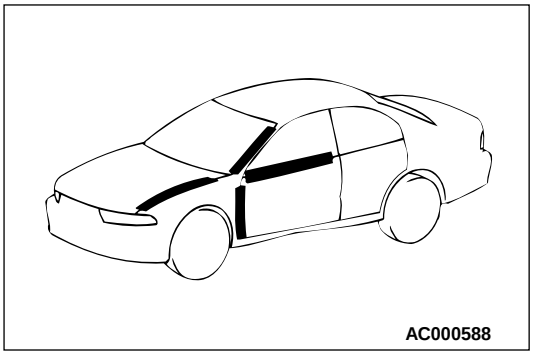
STEP 5. Check symptoms.

Q: Has the wind noise been improved?
YES : Return to Step 1.
NO : This diagnosis complete.

HOW TO LOCATE WIND NOISE

M1421004200078





1. Attach cloth tape to every place, such as panel seams, projections, molding seams, glass and body seams, etc. which might conceivably be the source of wind noise.
2. Then make a road test to check that the places not covered by tape are not sources of wind noise.
3. Remove the strips of tape one by one, making a road test after each is removed, until a wind noise source is discovered.

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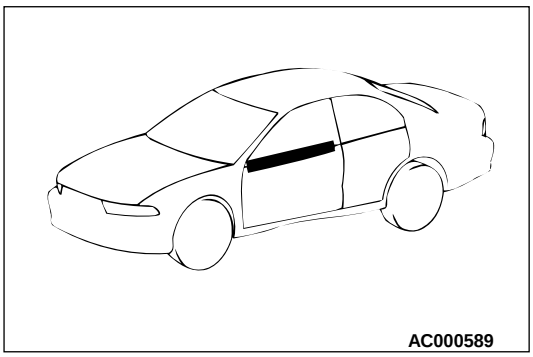
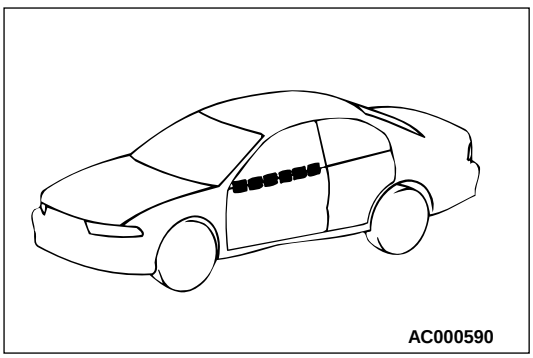

AC000589

4. When such a place is found, cover it again and repeat the procedure to check if there are any other noise source.
5. If no others are found, the last remaining tape is the only source.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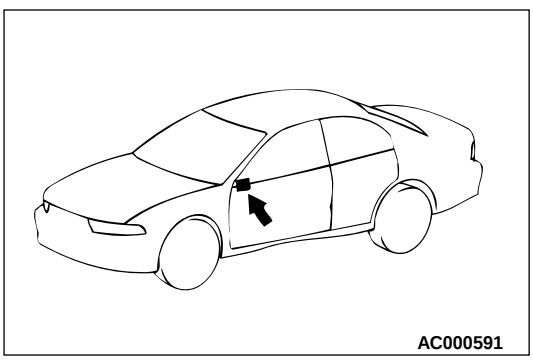
6. Cut the remaining piece of tape into smaller pieces, attach it again as it was before, and then remove the pieces one by one to narrow down the source.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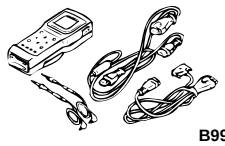
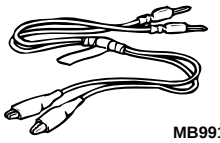
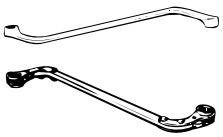
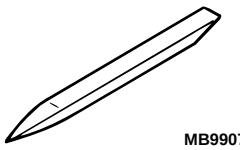
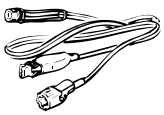
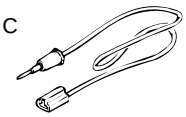
7. Check that wind noise occurs when the last remaining tape is removed, and that noise does not occur when it is re-attached.
8. When the source(s) of the wind noise is finally located, attach butyl tape, body sealer or similar material to obstruct this source as much as possible.

SPECIAL TOOLS

M1423000600081

TOOL	TOOL NUMBER AND NAME	REPLACED BY MILLER TOOL NUMBER	APPLICATION
 B991502	MB991502 Scan tool (MUT-II)	MB991496-OD	ETACS-ECU input signal or diagnostic trouble code checking
 MB991529	MB991529 Diagnostic trouble code check harness	Tool not necessary if scan tool (MUT-II) is available	ETACS-ECU input signal checking (when using a voltmeter)
 MB990900	MB990900 or MB991164 Door adjusting wrench	MB990900-01	Adjustment of door fit
 MB990784	MB990784 Ornament remover	General service tool	Removal of trim, etc.
A  B  C  D  MB991223AD	MB991223 Harness set • A: MB991219 Test harness • B: MB991220 LED harness • C: MB991221 LED harness adapter • D: MB991222 Probe	MB991223	Measurement of terminal voltage • A: Connector pin contact pressure inspection • B: Power circuit inspection • C: Power circuit inspection • D: Commercial tester connection

ON-VEHICLE SERVICE

DOOR FIT ADJUSTMENT

M1423001100034

Required Special Tool:

- MB990900 or MB991164: Door adjusting Wrench

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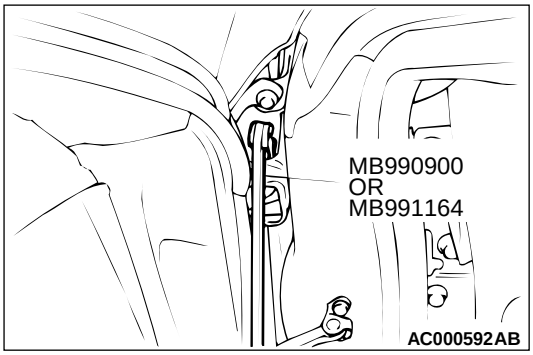
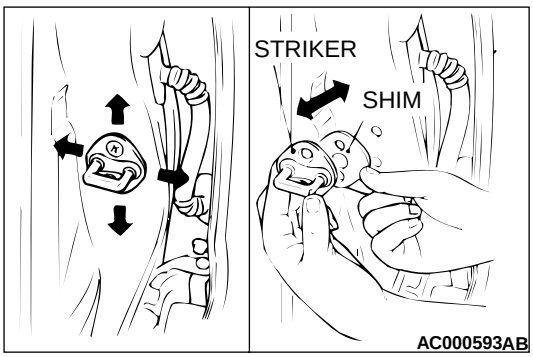
⚠ CAUTION
- **Attach protection tape to the fender and door edges where the hinge is installed.**
- **Do not rotate special tool MB991164 with a torque of over 98 N·m (72 ft-lb)**



1. Use the special tool MB990900 or MB991164 to loosen the hinge mounting bolts on the body side, and then adjust the clearance around the door so that it is uniform on all sides.
2. When there is a stepped section in the door and body, use special tool MB990900 or MB991164 to loosen the hinge mounting bolts on the door side, and then adjust the door fit.



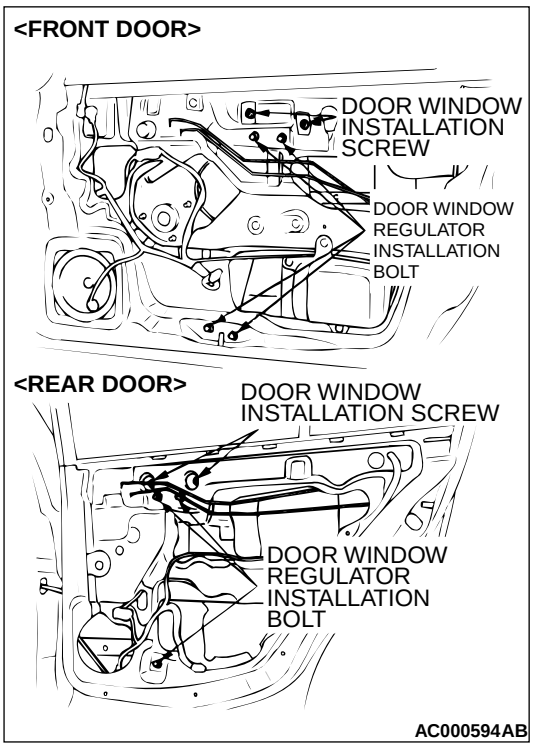
3. If the door opening and closing are stiff, adjust the linking of the striker and the door latch using the shim, while moving the striker up and down, or left and right.

DOOR WINDOW GLASS ADJUSTMENT

M1423001000071

When the door window glass is completely open or closed, inspect to see if the door window glass fits properly into the door window channels and run smoothly in them, and if it dose not, use the following instructions to adjust the door window glass.

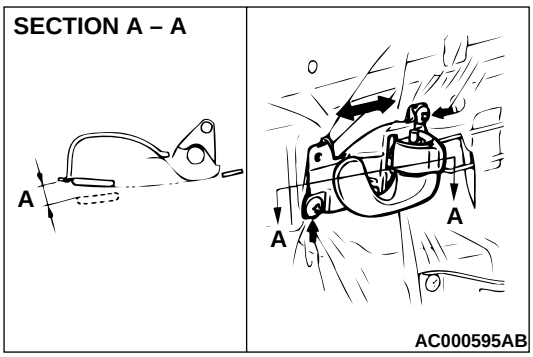
1. Remove the door trim and waterproof film. (Refer to P.42-54.)



2. With the door window glass completely closed, loosen the door window regulator installation bolts and the door window glass installation screws through the adjustment holes to slightly adjust the door window glass.
3. Again completely close the door window glass and then fully tighten the door window regulator installation bolts and the door window glass installation screws through the adjustment holes.

DOOR INSIDE HANDLE PLAY CHECK AND ADJUSTMENT

M1423001500065

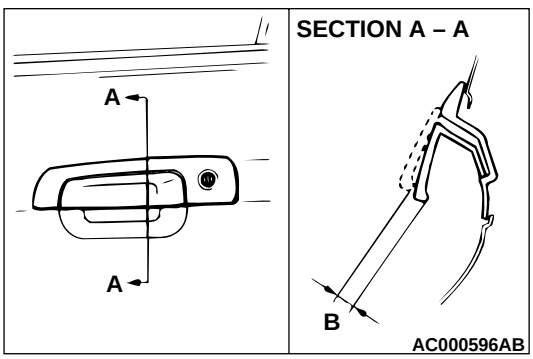


1. Check that the door inside handle play is within the standard value range.

   Standard value (A): 5.3 mm (0.21 inches) or more
2. If the door inside handle play is outside the standard value range, remove the door trim. (Refer to P.42-54.)
3. Loosen the inside handle mounting screws, and then move the inside handle back and forth to adjust the play.

DOOR OUTSIDE HANDLE PLAY CHECK

M1423001600062



1. Check that the door outside handle play is within the standard value range.

   Standard value (B):
   Front door: 3.7 mm (0.15 inches) or more
   Rear door: 2.4 mm (0.09 inches) or more
2. If the door outside handle play is not within the standard value range, check the door outside handle or the door latch assembly. Replace, if necessary.

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CIRCUIT BREAKER (INCORPORATED IN THE POWER WINDOW MOTOR) INSPECTION

M1429001000057

1. Pull the power window switch to the UP position to fully close the door window glass, and keep pulling the switch for a further 10 seconds.
2. Release the power window switch from the UP position and immediately press it to the DOWN position. The condition of the circuit breaker is good if the door window glass starts to move downwards within 60 seconds.

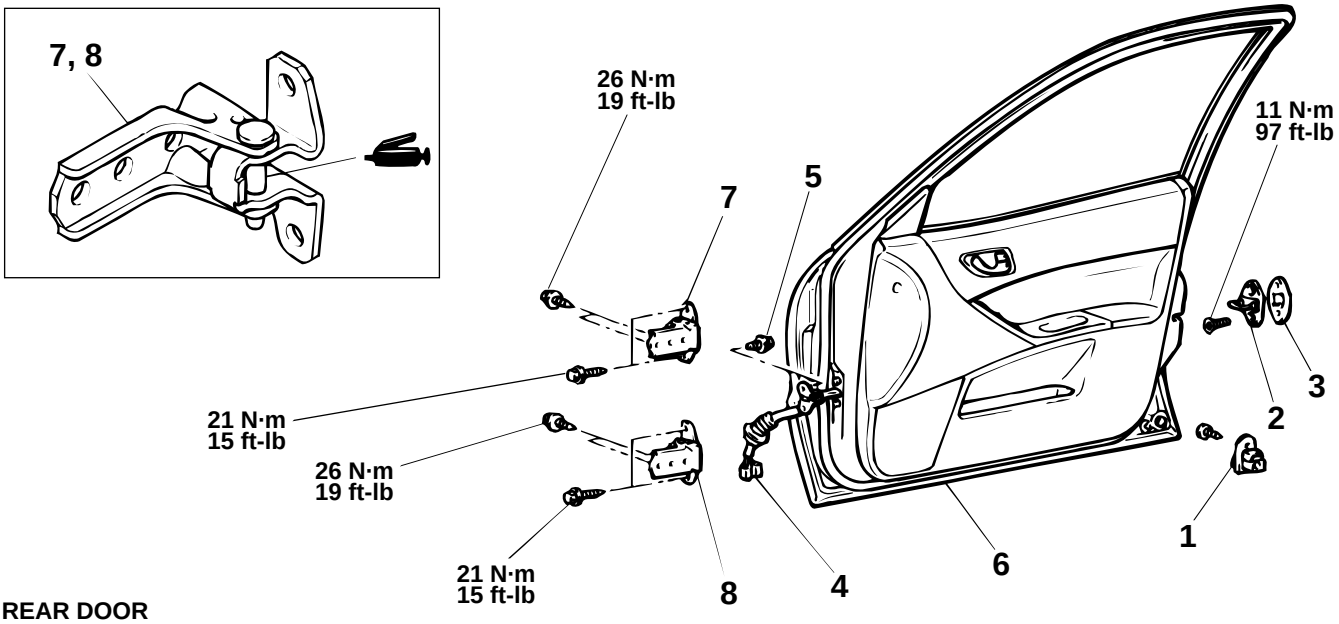
DOOR ASSEMBLY

REMOVAL AND INSTALLATION

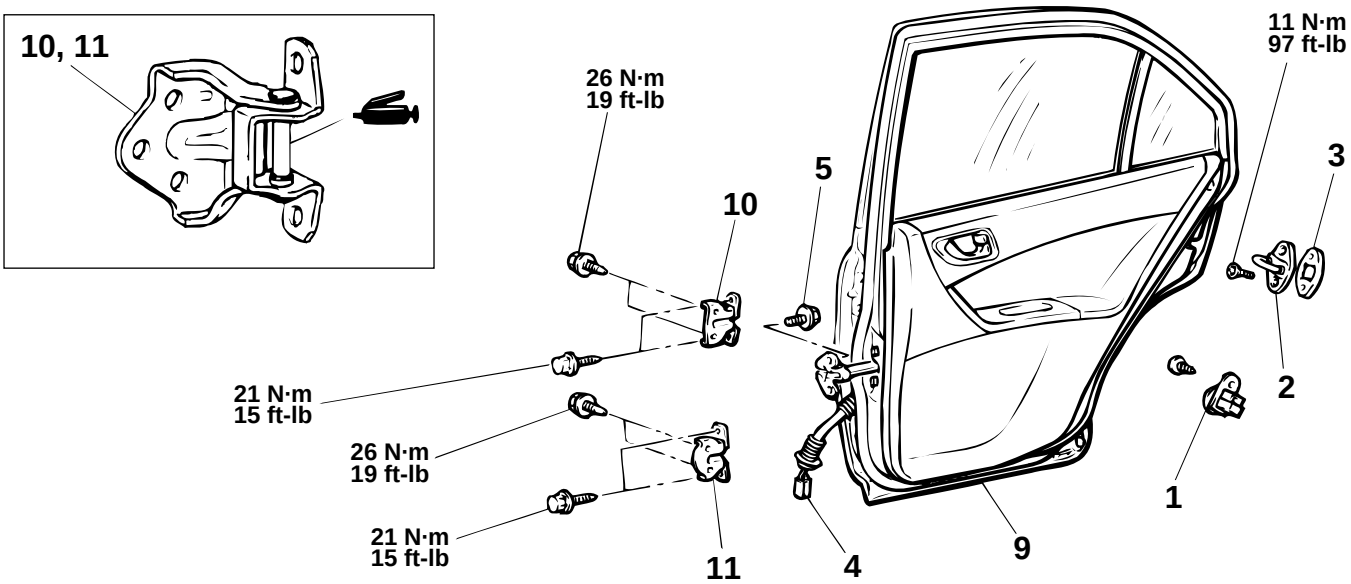
M1423002200078

Post-installation Operation
- Door Fit Adjustment (Refer to P.42-48.)

FRONT DOOR



REAR DOOR



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1. DOOR SWITCH

STRIKER REMOVAL STEPS

2. STRIKER
3. STRIKER SHIM

FRONT DOOR ASSEMBLY REMOVAL STEPS

- FRONT SCUFF PLATE AND COWL SIDE TRIM (REFER TO GROUP 52A, TRIMS P.52A-12.)

4. HARNESS CONNECTOR
5. DOOR CHECK INSTALLATION BOLT
6. FRONT DOOR ASSEMBLY

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FRONT DOOR ASSEMBLY REMOVAL STEPS (Continued)

7. FRONT DOOR UPPER HINGE
8. FRONT DOOR LOWER HINGE

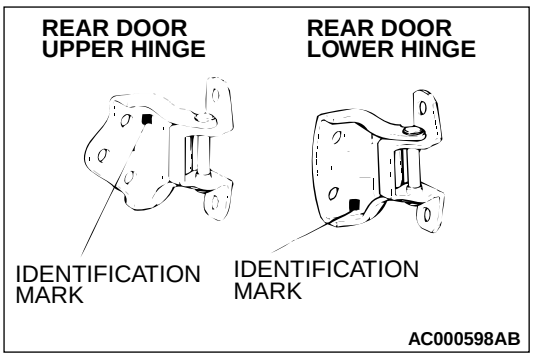
REAR DOOR ASSEMBLY REMOVAL STEPS

- CENTER PILLAR LOWER TRIM (REFER TO GROUP 52A, TRIMS P.52A-12.)

4. HARNESS CONNECTOR
5. DOOR CHECK INSTALLATION BOLT
9. REAR DOOR ASSEMBLY

>>A<< 10. REAR DOOR UPPER HINGE

>>A<< 11. REAR DOOR LOWER HINGE



INSTALLATION SERVICE POINT

>>A<< REAR DOOR LOWER HINGE/REAR DOOR UPPER HINGE INSTALLATION

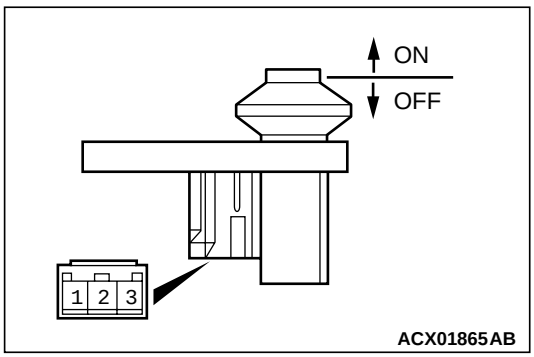
The rear door hinges differ according to where they are used, so check identification mark before installation.

APPLICABLE LOCATION		IDENTIFICATION MARK
Rear left door	Upper hinge	M2
	Lower hinge	O2
Rear right door	Upper hinge	N2
	Lower hinge	P2

INSPECTION

M1423006000087

DOOR SWITCH CONTINUITY CHECK



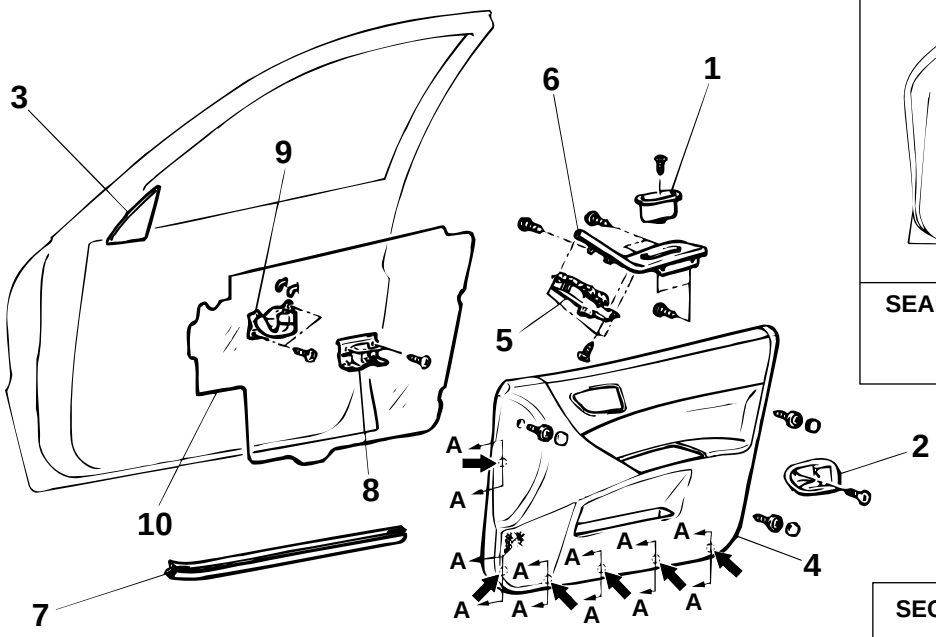
SWITCH POSITION	TESTER CONNECTION	SPECIFIED CONDITION
Released (ON)	1 – 2 – 3	Continuity
Depressed (OFF)	-	No Continuity

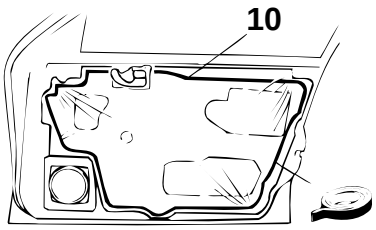
DOOR TRIM AND WATERPROOF FILM

REMOVAL AND INSTALLATION

M1423004300071

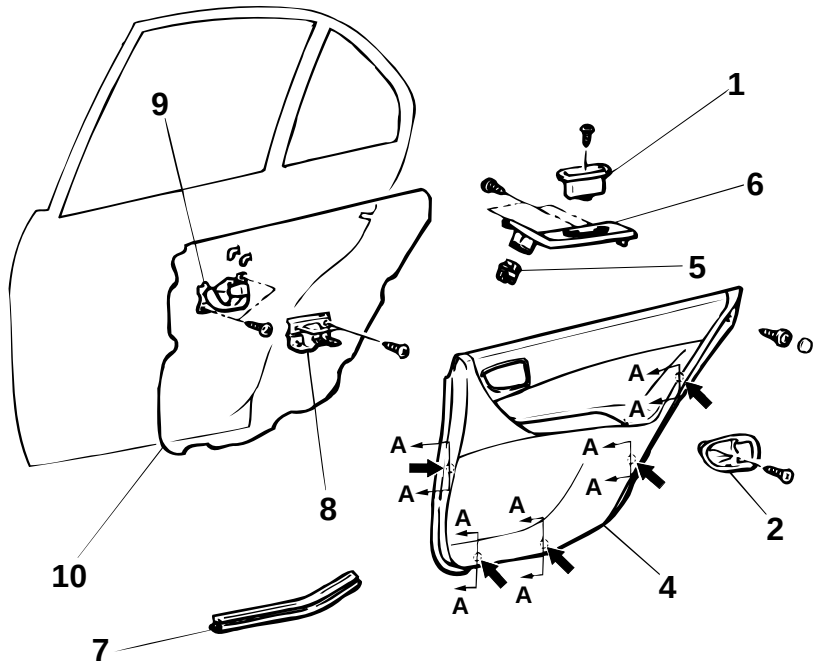
FRONT DOOR



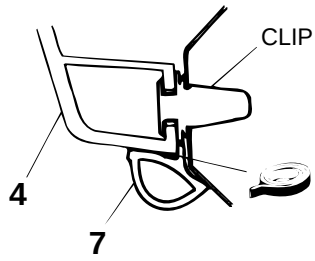


SEALANT:
3M™ AAD PART NO. 8625 OR EQUIVALENT

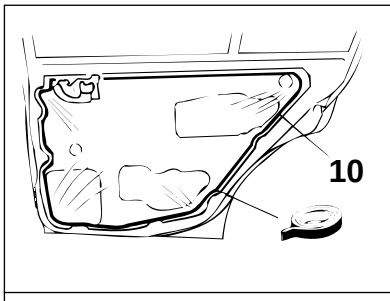
REAR DOOR



SECTION A – A



SEALANT:
3M™ AAD PART NO. 8625 OR EQUIVALENT



SEALANT:
3M™ AAD PART NO. 8625 OR EQUIVALENT

NOTE
⬅ : CLIP POSITION

AC000600AB

REMOVAL STEPS
1. PULL HANDLE BOX
2. INSIDE HANDLE COVER

REMOVAL STEPS (Continued)
3. INNER DELTA COVER OR TWEETER COVER
4. DOOR TRIM

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REMOVAL STEPS (Continued)
5. POWER WINDOW (MAIN OR SUB) SWITCH
6. POWER WINDOW SWITCH PANEL
7. DOOR WEATHERSTRIP LOWER
8. PULL HANDLE BOX BRACKET

REMOVAL STEPS (Continued)
9. DOOR INSIDE HANDLE
10. WATERPROOF FILM

Required Special Tool:
- MB990784: Ornament Remover

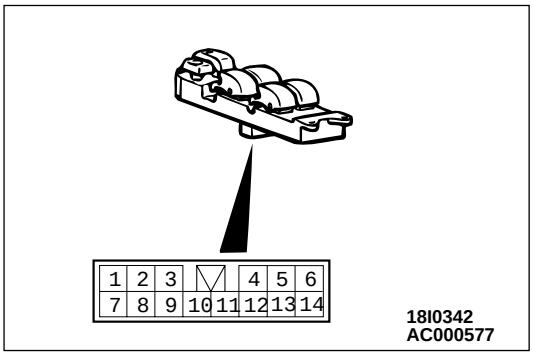
INSPECTION

M1429001600093

POWER WINDOW SWITCH CONTINUITY CHECK

Power window main switch's front <LH> switch check

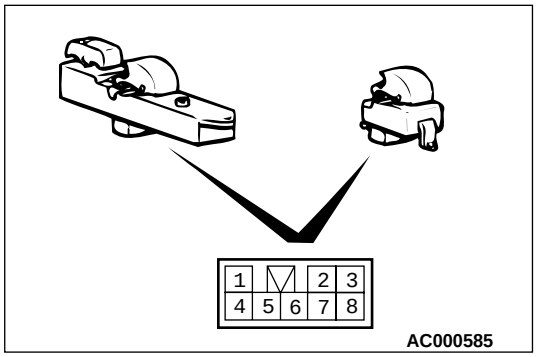
Connect the terminal number 13 to the battery (+) post, and the terminal number 12 to the battery (-) post.



Main switch

SWITCH POSITION		TESTER CONNECTION	SPECIFIED CONDITION
FRONT (LH)	UP	8 – 13, 9 – 12,	Continuity
	OFF	8 – 9 – 12	Continuity
	DOWN	9 – 13, 8 – 12	Continuity
FRONT (RH)	UP	3 – 13, 11 – 12*	Continuity
	OFF	3 – 11, 3 -11 – 12*	Continuity
	DOWN	11 – 13, 3 – 12*	Continuity
REAR (LH)	UP	1 – 13, 2 – 12*	Continuity
	OFF	1 – 2, 1 – 2 – 12*	Continuity
	DOWN	2 – 13, 1 – 12*	Continuity
REAR (RH)	UP	13 – 14, 6 – 12*	Continuity
	OFF	6 – 14, 6 – 12* – 14	Continuity
	DOWN	6 – 13, 12 – 14*	Continuity

*NOTE: *: Set switch to UNLOCK position*



Sub switch

SWITCH POSITION		TESTER CONNECTION	SPECIFIED CONDITION
Sub switch	UP	4 – 5, 6 – 7	Continuity
	OFF	4 – 5, 6 – 8	Continuity
	DOWN	4 – 7, 6 – 8	Continuity

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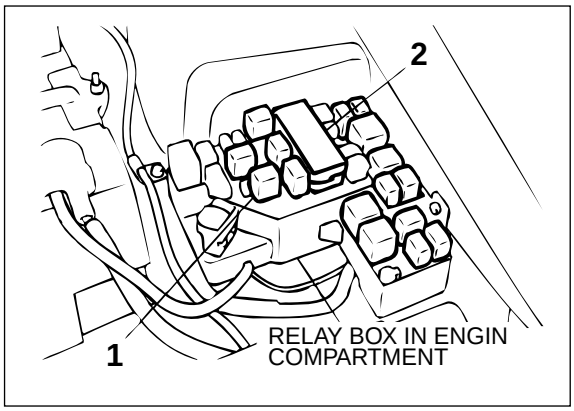
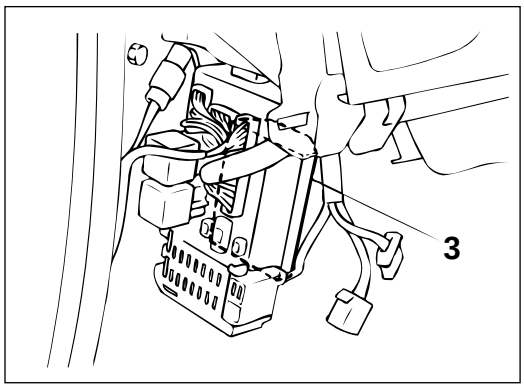
DOOR GLASS AND REGULATOR

REMOVAL AND INSTALLATION

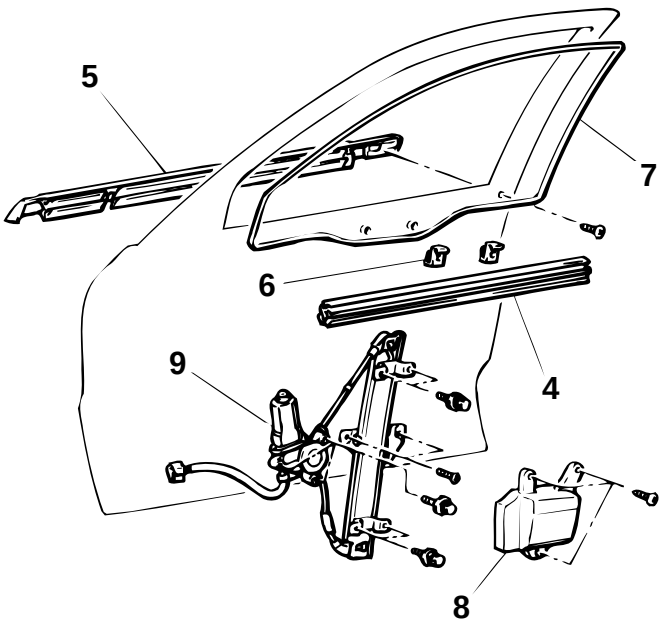
M1429001300070

Pre-removal Operation	Post-installation Operation
• Door Trim and Waterproof Film Removal (Refer to P.42-54.)	• Door Window Glass Adjustment (Refer to P.42-49.) • Door Trim and Waterproof Film Removal (Refer to P.42-54.)

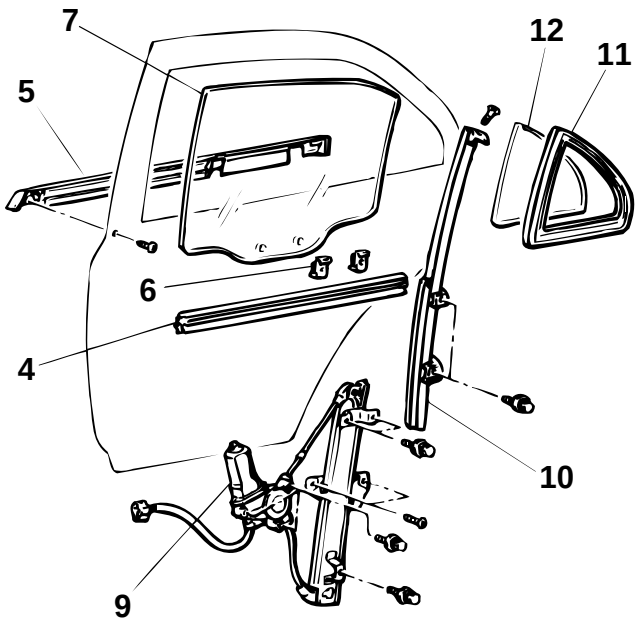




FRONT DOOR



REAR DOOR



AC000601AB

1. POWER WINDOW RELAY
2. FRONT-ECU
3. ETACS-ECU

DOOR WINDOW GLASS AND DOOR WINDOW REGULATOR ASSEMBLY REMOVAL STEPS

4. DOOR WINDOW INNER WEATHERSTRIP
5. DOOR BELTLINE MOLDING
6. DOOR WINDOW GLASS HOLDER

>>A<< 7. DOOR WINDOW GLASS

DOOR WINDOW GLASS AND DOOR WINDOW REGULATOR ASSEMBLY REMOVAL STEPS (Continued)

8. DOOR INNER LOWER IMPACT-ABSORBING CORE <FRONT DOOR ONLY>
9. DOOR WINDOW REGULATOR ASSEMBLY

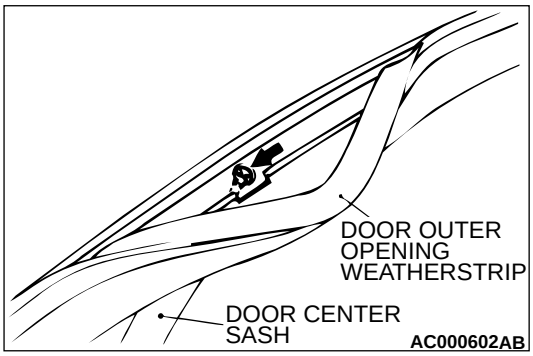
STATIONARY WINDOW GLASS REMOVAL STEPS

<<A>> 10. DOOR CENTER SASH
11. STATIONARY WINDOW WEATHERSTRIP
12. STATIONARY WINDOW GLASS

TSB Revision

REMOVAL SERVICE POINT

<<A>> DOOR CENTER SASH REMOVAL



1. Remove the door outer opening weatherstrip from the door center sash only.
2. Remove the door center sash mounting screws, and then remove the door center sash from the door panel.

INSTALLATION SERVICE POINT

>>A<< DOOR WINDOW GLASS INSTALLATION

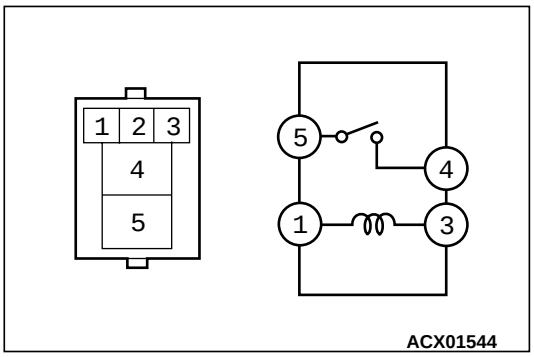
1. Temporarily secure the door window glass to the door window regulator.
2. After raising the door window glass as far as it will go, fully secure the door window glass to the door window regulator assembly.

NOTE: When the door window glass is closed fully, the door limit switch will be reset.

INSPECTION

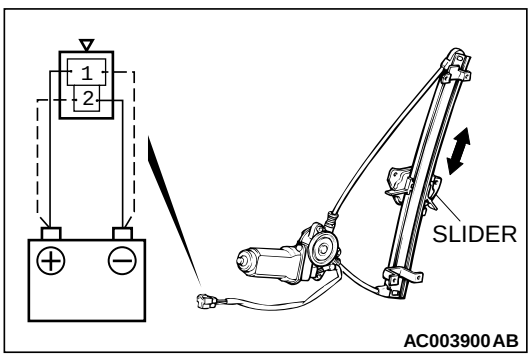
M1429001400088

POWER WINDOW RELAY CONTINUITY CHECK



BATTERY VOLTAGE	TESTER CONNECTION	SPECIFIED CONDITION
Not applied	1 – 3	Continuity
1-Battery (-) terminal,3-battery (+)terminal	4 – 5	Continuity

POWER WINDOW MOTOR CHECK



1. Connect a battery directly to the motor terminals and check that the motor runs smoothly.
2. Check that the motor runs in the opposite direction when the battery is connected with the polarity reversed.
3. If defect is found, replace the window regulator as an assembly.

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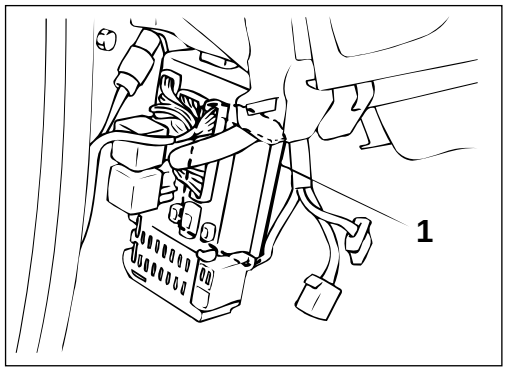
DOOR HANDLE AND LATCH

REMOVAL AND INSTALLATION

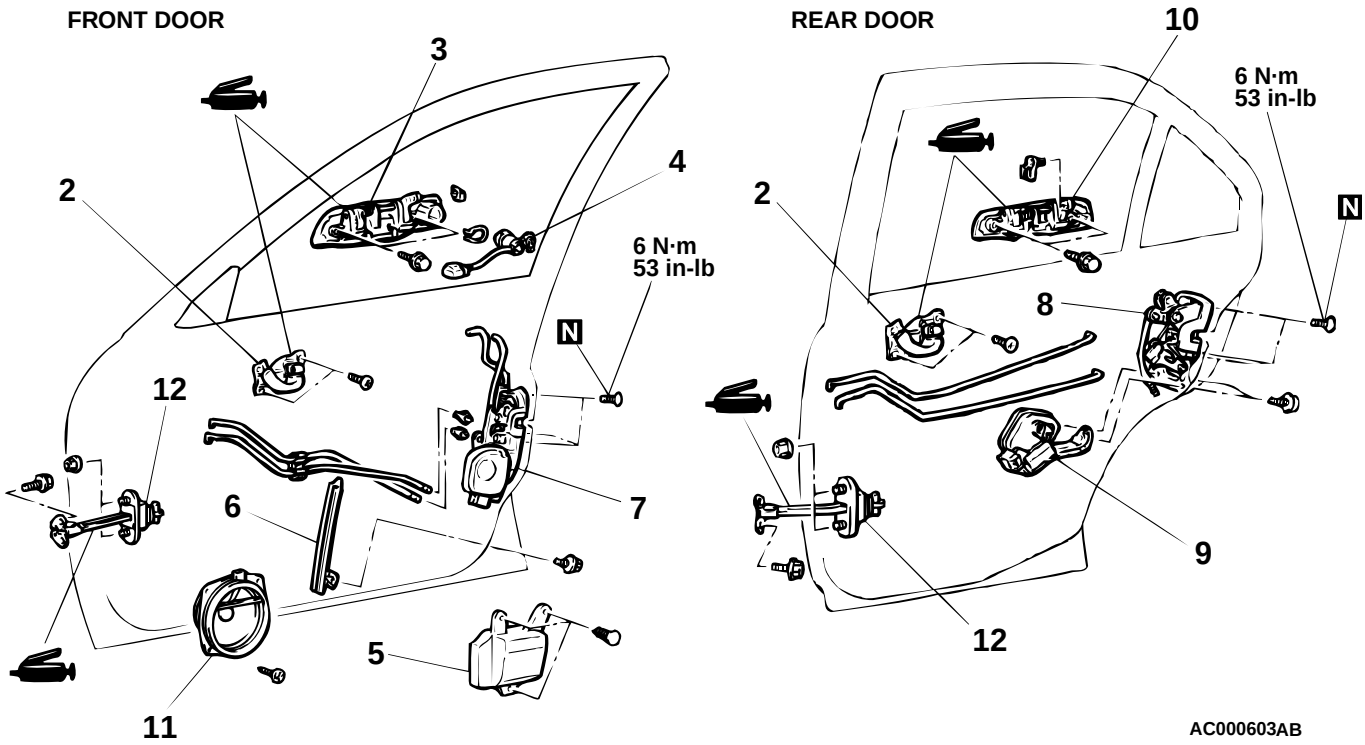
M1423004600094

Pre-removal Operation	Post-installation Operation
• Door Trim and Waterproof Film Removal (Refer to P.42-54.)	• Door Inside Handle Play Check (Refer to P.42-50.) • Door Outside Handle Play Check (Refer to P.42-50.) • Door Trim and Waterproof Film Installation (Refer to P.42-54.)



FRONT DOOR

REAR DOOR



AC000603AB

1. ETACS-ECU

FRONT DOOR HANDLE AND DOOR LATCH ASSEMBLY REMOVAL STEPS

2. DOOR INSIDE HANDLE
3. DOOR OUTSIDE HANDLE
4. DOOR LOCK KEY CYLINDER
5. DOOR INNER LOWER IMPACT-ABSORBING CORE
6. REAR LOWER SASH
7. DOOR LATCH ASSEMBLY

REAR DOOR HANDLE AND DOOR LATCH ASSEMBLY REMOVAL STEPS

2. DOOR INSIDE HANDLE
- DOOR CENTER SASH (REFER TO P.42-56.)

8. DOOR LATCH ASSEMBLY
9. DOOR LOCK ACTUATOR
10. DOOR OUTSIDE HANDLE

DOOR CHECK REMOVAL STEPS

11. DOOR SPEAKER <FRONT DOOR ONLY>
12. DOOR CHECK

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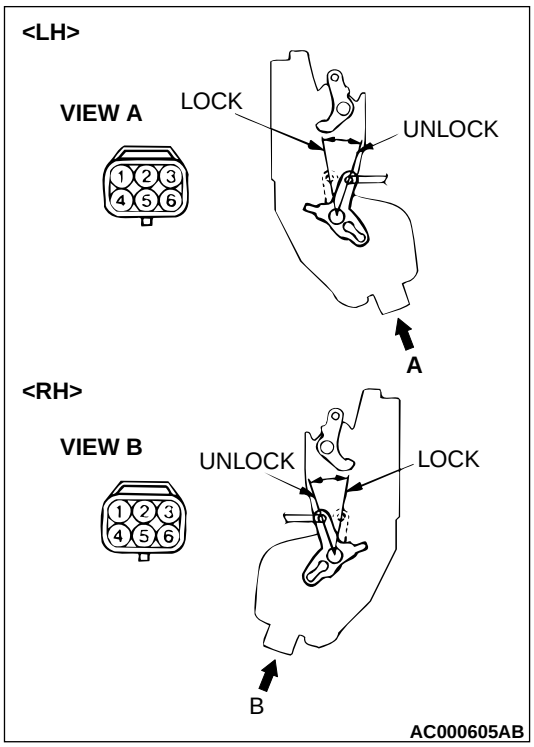
INSPECTION

M1423004700143

FRONT DOOR LOCK ACTUATOR CHECK



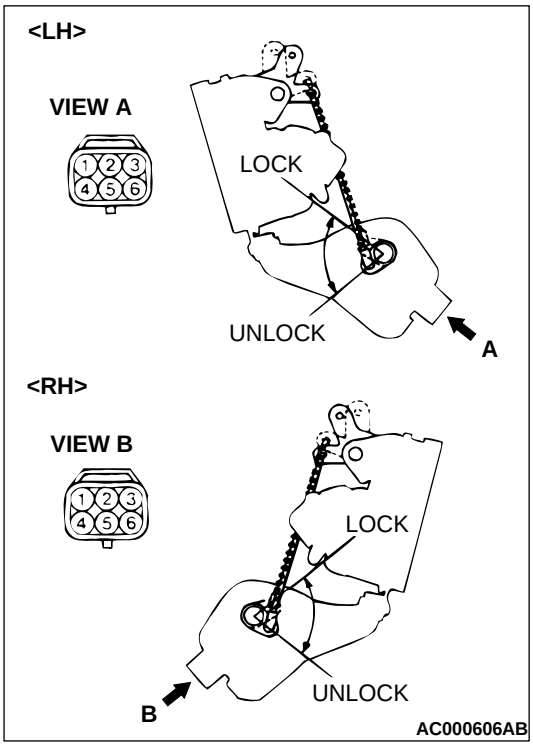
<LH>

SWITCH POSITION	TESTER CONNECTION	SPECIFIED CONDITION
LOCK	4-Battery(+)→6-Battery(-), 1 – 3	Lock position →Unlock position, Continuity
UNLOCK	4-Battery(-)→6-Battery(+), 1 – 2	Unlock position →Lock position, Continuity

<RH>

SWITCH POSITION	TESTER CONNECTION	SPECIFIED CONDITION
LOCK	4-Battery(-)→6-Battery(+), 1 – 3	Lock position →Unlock position, Continuity
UNLOCK	4-Battery(+)→6-Battery(-), 2 – 3	Unlock position →Lock position, Continuity

REAR DOOR LOCK ACTUATOR CHECK



<LH>

SWITCH POSITION	TESTER CONNECTION	SPECIFIED CONDITION
LOCK	4-Battery(-)→6-Battery(+), 1 – 2*	Lock position →Unlock position, Continuity
UNLOCK	4-Battery(+)→6-Battery(-), 1 – 3*	Unlock position →Lock position, Continuity

*NOTE: *: indicates the vehicle equipped with the theft-alarm system.*

<RH>

SWITCH POSITION	TESTER CONNECTION	SPECIFIED CONDITION
LOCK	4-Battery(+)→6-Battery(-), 1 – 2*	Lock position →Unlock position, Continuity
UNLOCK	4-Battery(-)→6-Battery(+), 1 – 3*	Unlock position →Lock position, Continuity

*NOTE: *: indicates the vehicle equipped with the theft-alarm system.*

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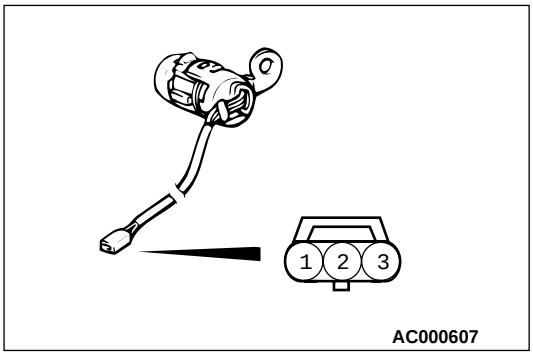
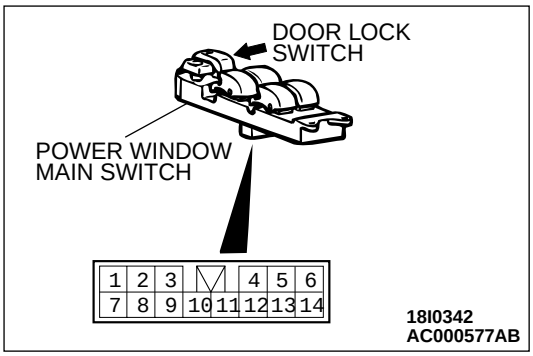
DOOR LOCK KEY CYLINDER SWITCH CHECK <VEHICLES WITH CENTRAL DOOR LOCKING SYSTEM>



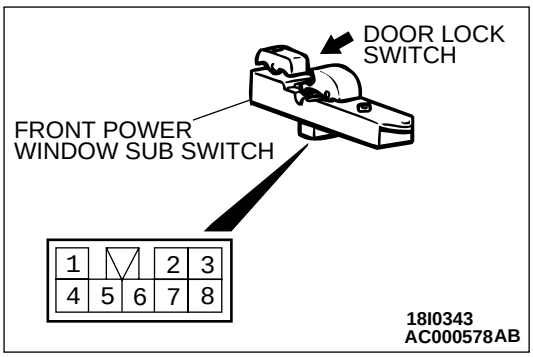
SWITCH POSITION	TESTER CONNECTION	SPECIFIED CONDITION
LOCK	2 – 3	Continuity
NEUTRAL (OFF)	-	No Continuity
UNLOCK	1 – 2	Continuity

DOOR LOCK SWITCH CONTINUITY CHECK

Remove the power window switch. (Refer to P.42-54.)



SWITCH POSITION	TESTER CONNECTION	SPECIFIED CONDITION
LOCK	5 – 12	Continuity
OFF	-	No Continuity
UNLOCK	10 – 12	Continuity



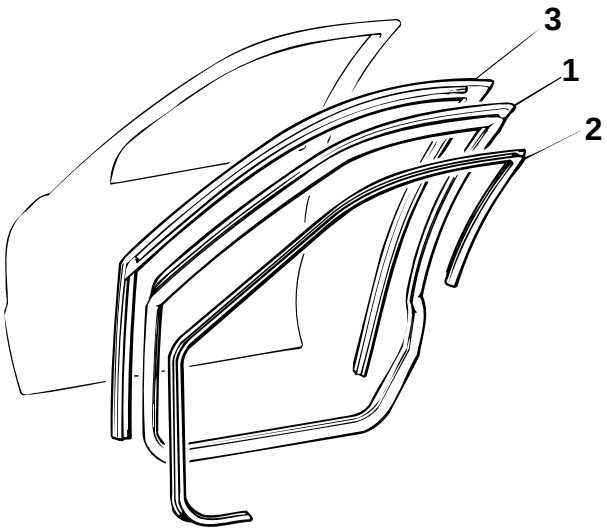
SWITCH POSITION	TESTER CONNECTION	SPECIFIED CONDITION
LOCK	1 – 2	Continuity
OFF	-	No Continuity
UNLOCK	2 – 3	Continuity

WINDOW GLASS RUNCHANNEL AND DOOR OPENING WEATHER-STRIP

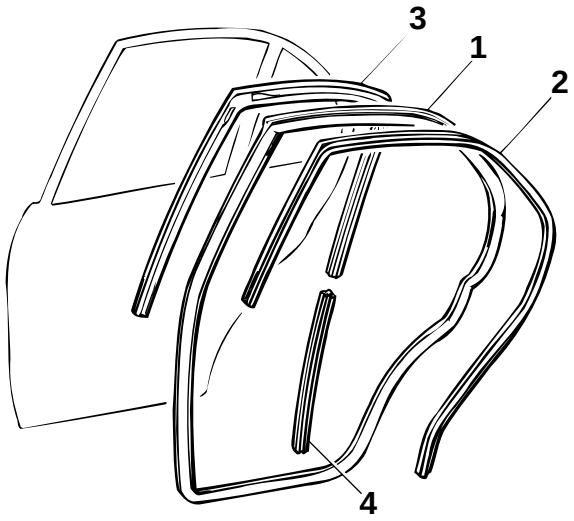
REMOVAL AND INSTALLATION

M1423003100074

FRONT DOOR



REAR DOOR



AC000608AB

<<A>> >>A<< 1. DOOR OUTER OPENING WEATHERSTRIP

DOOR INNER OPENING WEATHERSTRIP REMOVAL STEPS

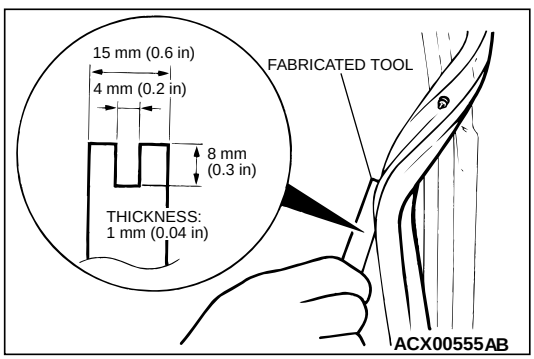
- FRONT SCUFF PLATE, REAR SCUFF PLATE, CENTER PILLAR LOWER TRIM AND COWL SIDE TRIM (REFER TO GROUP 52A, TRIMS P.52A-12.)

2. DOOR INNER OPENING WEATHERSTRIP

DOOR WINDOW GLASS RUNCHANNEL REMOVAL STEPS

- DOOR TRIM WATERPROOF FILM (REFER TO P.42-54.)

3. DOOR WINDOW GLASS RUNCHANNEL
4. DOOR WINDOW GLASS LOWER RUNCHANNEL



REMOVAL SERVICE POINT

<<A>> DOOR OUTER OPENING WEATHERSTRIP REMOVAL

Make a fabricated tool as shown in the illustration to remove the door weatherstrip.

INSTALLATION SERVICE POINT

>>A<< DOOR OUTER OPENING WEATHERSTRIP INSTALLATION

The clip color identifies the left and right weatherstrips so be sure to use the colors so as to install correctly.

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APPLICABLE SIDE	IDENTIFICATION COLOR
Right door	Orange
Left door	Natural (White)

TRUNK LID

TRUNK LID DIAGNOSIS

INTRODUCTION TO TRUNK LID DIAGNOSIS

M1421005800147

Difficult locking and unlocking, uneven clearance and height, and generation of wind noise from the trunk lid may be caused by improper adjustment of the trunk lid.

TRUNK LID DIAGNOSTIC TROUBLESHOOTING STRATEGY

M1421005900122

Use these steps to plan your diagnostic strategy. If you follow them carefully, you will be sure that you have exhausted most of the possible ways to find a trunk lid fault.

1. Gather information from the customer.
2. Verify that the condition described by the customer exists.
3. Find the malfunction by following the Symptom Chart.
4. Verify malfunction is eliminated.

SYMPTOM CHART

M1421006000100

SYMPTOMS	INSPECTION PROCEDURE	REFERENCE PAGE
Difficult locking and unlocking	1	P.42-62
Uneven body clearance	2	P.42-63
Uneven height	3	P.42-63

SYMPTOM PROCEDURES

INSPECTION PROCEDURE 1: Difficult locking and unlocking

DIAGNOSIS

STEP 1. Check the release cable routing condition.

Q: Is the release cable routing condition good?
YES : Go to Step 3.
NO : Repair it, then go to Step 2.

STEP 2. Check the engagement of the trunk lid latch and trunk lid striker.

Q: Are the trunk lid latch and trunk lid striker engaged correctly?
YES : Adjust it. Refer to P.42-64.
NO : Then go to Step 3.

STEP 3. Check symptoms.

Q: Does the trunk lid lock operate easily?
YES : This diagnosis is complete.
NO : Return to Step 1.

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INSPECTION PROCEDURE 2: Uneven body clearance

DIAGNOSIS

STEP 1. Check the trunk lid installation condition.

Q: Is the trunk lid installation in good condition?
YES : Adjust it. Refer to P.42-64.
NO : Then go to Step 2.

STEP 2. Check symptoms.

Q: Is the clearance with the body even?
YES : This diagnosis is complete.
NO : Return to Step 1.

INSPECTION PROCEDURE 3: Uneven height

DIAGNOSIS

STEP 1. Check the trunk lid bumper height.

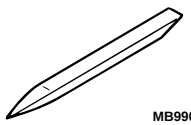
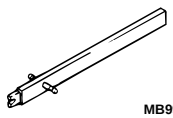
Q: Is the trunk lid bumper height proper?
YES : Adjust it. Refer to P.42-64.
NO : Then go to Step 2.

STEP 2. Check symptoms.

Q: Are the trunk lid and body height even?
YES : This diagnosis is complete.
NO : Return to Step 1.

SPECIAL TOOLS

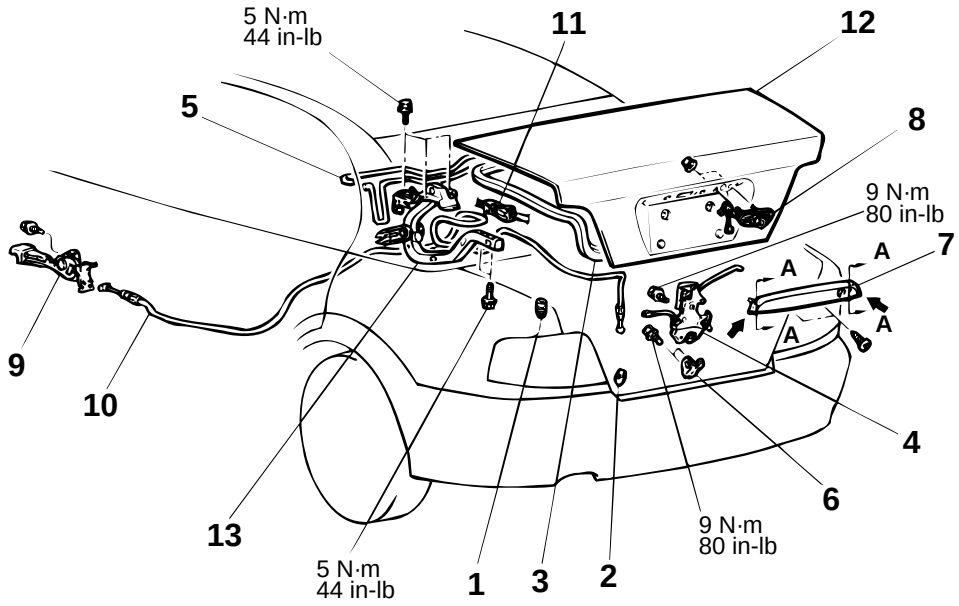
M1421000600041

TOOL	TOOL NUMBER AND NAME	REPLACED BY MILLER TOOL NUMBER	APPLICATION
 MB990784	MB990784 Ornament remover	General service tool	Removal of license plate light garnish
 MB991244	MB991244 Torsion bar remover and installer	-	Removal and installation of trunk lid torsion bar

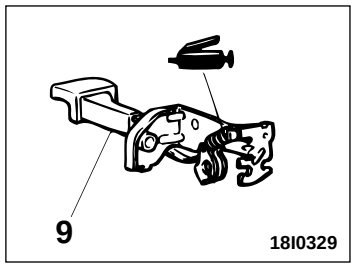
TRUNK LID

REMOVAL AND INSTALLATION

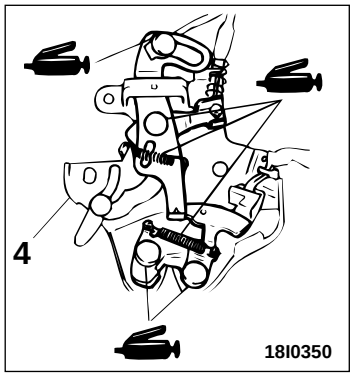
M1421002200050



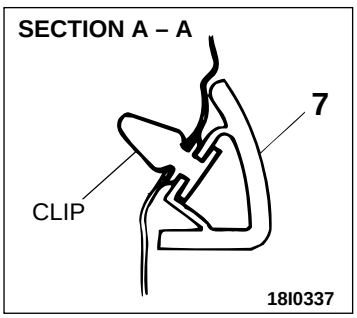
18I0369
00007925



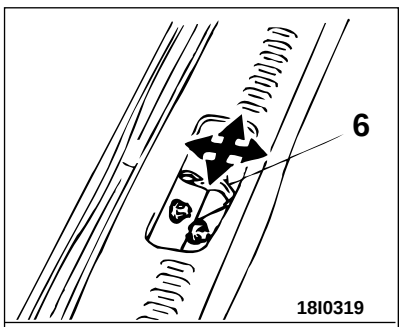
18I0329



18I0350

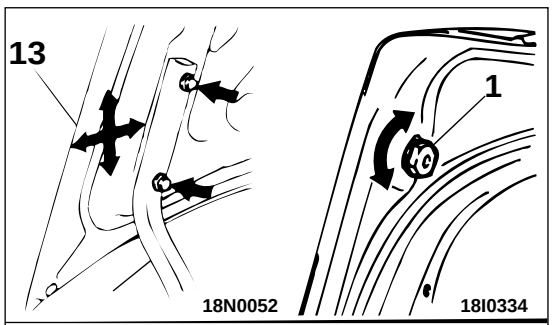


18I0337



18I0319

ADJUSTMENT OF TRUNK LID AND TRUNK LID STRIKER ENGAGEMENT



18N0052

18I0334

ADJUSTMENT OF CLEARANCE AND HEIGHT AROUND TRUNK LID

AC000610AB

>>C<< 1. TRUNK LID BUMPER A
>>C<< 2. TRUNK LID BUMPER B
>>B<< 3. TRUNK LID WEATHERSTRIP
4. TRUNK LID LATCH
<<A>> >>A<< 5. TRUNK LID TORSION BAR

TRUNK LID STRIKER REMOVAL STEPS

- REAR END TRIM COVER (REFER TO GROUP 52A, TRIMS P.52A-12.)

6. TRUNK LID STRIKER

TRUNK LID LOCK CYLINDER REMOVAL STEPS

7. LICENSE PLATE LIGHT GARNISH
8. TRUNK LID LOCK KEY CYLINDER

TRUNK LID RELEASE HANDLE AND TRUNK LID RELEASE CABLE REMOVAL STEPS

- FRONT SEAT (DRIVER'S SIDE) (REFER TO GROUP 52A, FRONT SEAT ASSEMBLY P.52A-15.)
- REAR SEAT (REFER TO GROUP 52A, REAR SEAT ASSEMBLY P.52A-20.)
- FRONT SCUFF PLATE (DRIVER'S SIDE) AND REAR SCUFF PLATE (LH SIDE) (REFER TO GROUP 52A, TRIMS P.52A-12.)

9. TRUNK LID RELEASE HANDLE
10. TRUNK LID LOCK RELEASE CABLE

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TRUNK LID AND TRUNK LID HINGE REMOVAL STEPS

- REAR SPOILER (REFER TO GROUP 51, REAR SPOILER P.51-11.)

5. TRUNK LID TORSION BAR
11. HARNESS CONNECTOR
12. TRUNK LID

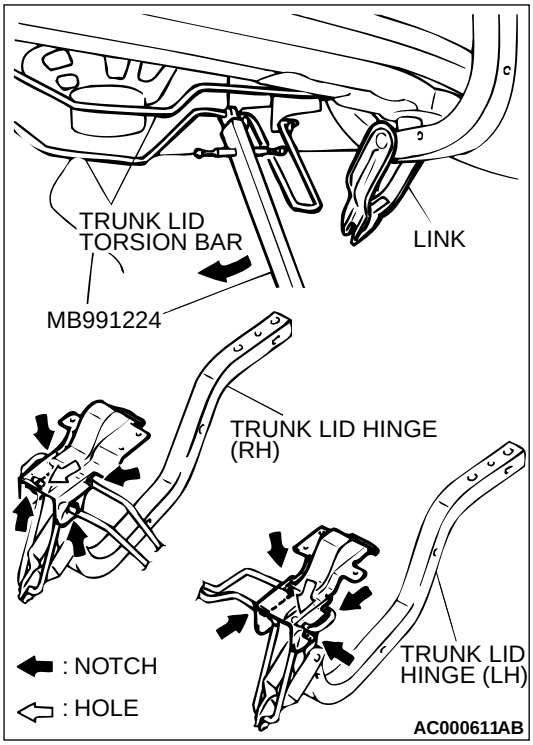
TRUNK LID AND TRUNK LID HINGE REMOVAL STEPS

- REAR SHELF TRIM (REFER TO GROUP 52A, TRIMS P.52A-12.)

13. TRUNK LID HINGE

Required Special ToolS:

- MB990784: Ornament Remover
- MB991244: Torsion Bar Remover and Installer



REMOVAL SERVICE POINT

<<A>> TRUNK LID TORSION BAR REMOVAL

1. Install the special tool MB991244 as shown in the figure. Push down the special tool MB991244 to remove the trunk lid torsion bar from the link.
2. Remove the trunk lid torsion bar from the trunk lid hinge notches and holes.

INSTALLATION SERVICE POINTS

>>A<< TRUNK LID TORSION BAR INSTALLATION

1. Check the identification color on the center of the trunk lid torsion bar because the trunk lid torsion bar differs according to the vehicle equipment.

EQUIPMENT	IDENTIFICATION COLOR
Vehicles without rear spoiler	-
Vehicles with rear spoiler	Red

2. Install the trunk lid torsion bar to the trunk lid hinge notches and holes.

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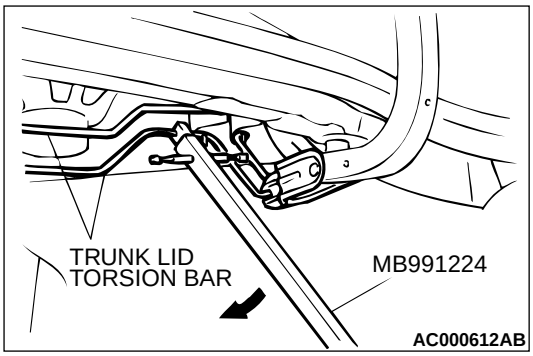
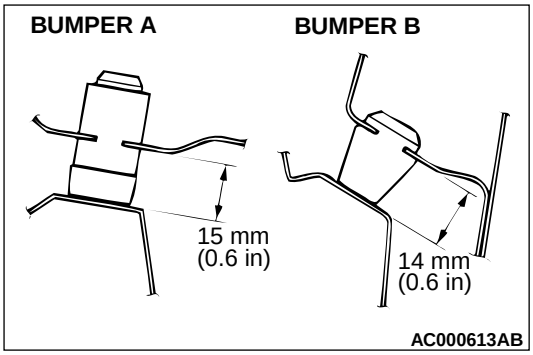


3. Install special tool MB991244 as shown in the figure. Push down special tool MB991244 to install the trunk lid torsion bar in the link.

>>B<< TRUNK LID WEATHERSTRIP INSTALLATION
Install the trunk lid weatherstrip so that the marking and the joint are aligned with the body center line.

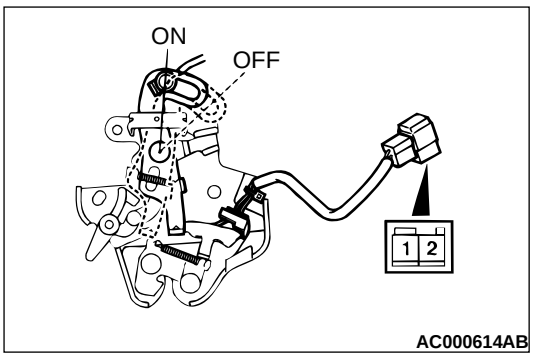
>>C<< BUMPER B/BUMPER A INSTALLATION
Install the bumper A and B as shown in the figure.



INSPECTION

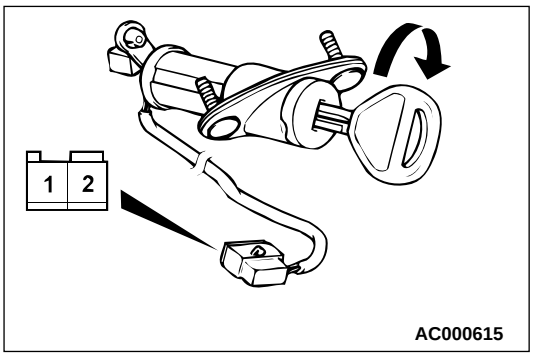
M1421004800036

TRUNK LID LATCH SWITCH CONTINUITY CHECK



SWITCH POSITION	TESTER CONNECTION	SPECIFIED CONDITION
ON (Latch open)	1 – 2	Continuity
OFF (Latch shut)	-	No continuity

TRUNK LID LOCK KEY CYLINDER SWITCH CONTINUITY CHECK <VEHICLES WITH THEFT-ALARM SYSTEM>



SWITCH POSITION	TESTER CONNECTION	SPECIFIED CONDITION
ON (Neutral)	1 – 2	Continuity
OFF (Unlock)	-	No continuity

KEYLESS ENTRY SYSTEM

GENERAL DESCRIPTION

M1428000100069

Some models are equipped with a radio-controlled keyless entry system. The main features are:

- Antenna and receiver are incorporated in the ETACS-ECU.
- ID code can be registered by using the scan tool (MUT-II).
- Transmitter is a key holder type, which incorporates lock switch, unlock switch, and panic switch.
- The signal causes the room light to flash twice when the door is locked, or light for 15 seconds when the door unlocked.
- The signal causes the turn signal light to flash twice when the door is locked, or flash four times when the door is unlock.

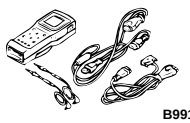
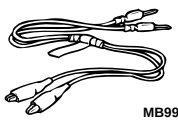
KEYLESS ENTRY SYSTEM DIAGNOSIS

M1428000700061

The keyless entry system is controlled by the Simplified Wiring System (SWS). For troubleshooting, refer to GROUP 54B, Diagnosis P.54B-9.

SPECIAL TOOLS

M1428000600064

TOOL	TOOL NUMBER AND NAME	REPLACED BY MILLER TOOL NUMBER	APPLICATION
 B991502	MB991502 Scan tool (MUT-II)	DRB-III scan tool	For registration of secret code
 MB991529	MB991529 Diagnostic trouble code check harness	MB991529	For setting of hazard answerback function

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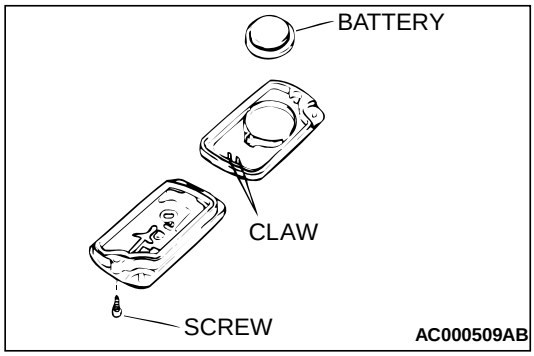
ON-VEHICLE SERVICE

HOW TO REPLACE OF THE TRANSMITTER BATTERY

M1428000900065

⚠ CAUTION

Do not allow water or dust stick to enter the inside of the transmitter when it is open. Also, do not touch the precision electronic device.



1. Remove the set screw to remove the battery from the transmitter.
2. Install a battery with its (+) side face-down.

   Battery required for replacement: Coin type battery CR2032
3. Insert the claw first, and assemble the transmitter.
4. Verify that the keyless entry system operates.

ENABLING/DISABLING THE ANSWERBACK FUNCTION

M1428003200054

If the keyless entry system locks or unlocks the doors, the dome light flashes or illuminates, the hazard warning light flashes (hazard answerback function) and the horn sounds (horn answerback function). The hazard and horn answerback functions can be enabled or disabled according to the following procedure:

ENABLING/DISABLING THE HAZARD ANSWERBACK FUNCTION

The hazard answerback function can be enabled or disabled by one of the two following procedures.

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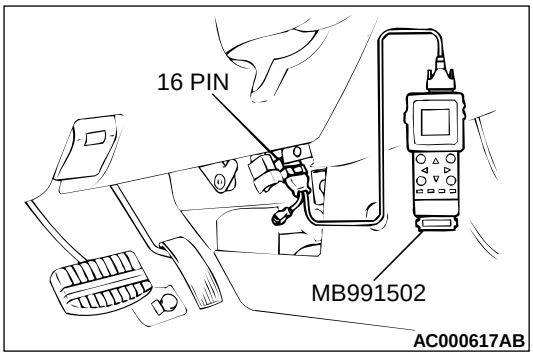

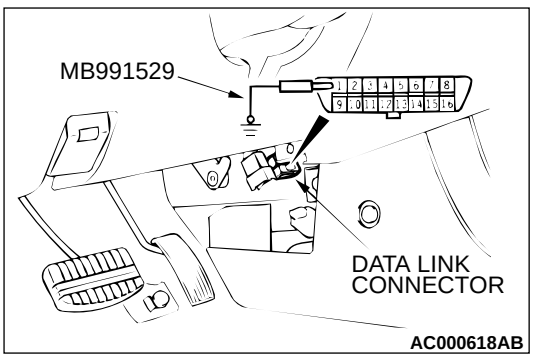

<When the transmitter is used after connecting scan tool MB991502 to the data link connector or grounding data link connector terminal (1)>

1. Enter the hazard answerback customize mode by observing one of the following steps. If the ETACS-ECU enters the customize mode, its tone alarm will sound once.
   (1) Connect scan tool MB991502 to the data link connector terminal (1).
   (2) Turn the ignition switch to "LOCK"(OFF) position.
   (3) Close the driver's side door.
   (4) Leave the windshield washer switch on for at least ten seconds. Then the ETACS-ECU tone alarm will sound once.
2. If the transmitter "LOCK" switch is pushed consecutively twice (within two seconds), the ETACS-ECU tone alarm will sound, indicating that the hazard answerback function can be enabled or disabled when the doors are locked.
   - **Enable the hazard answerback function when the doors are locked: The ETACS-ECU tone alarm will sound once.**
   - **Disable the hazard answerback function when the doors are locked: The ETACS-ECU tone alarm will sound twice.**
3. If the transmitter "UNLOCK" switch is pushed consecutively twice (within two seconds), the ETACS-ECU tone alarm will sound, indicating that the hazard answerback function can be enabled or disabled when the doors are unlocked.
   - **Enable the hazard answerback function when the doors are unlocked: The ETACS-ECU tone alarm will sound once.**
   - **Disable the hazard answerback function when the doors are unlocked: The ETACS-ECU tone alarm will sound twice.**
4. Exit the hazard answerback customize mode by observing one of the following steps.
   (1) Disconnect scan tool MB991502 from the data link connector, or disconnect data link connector terminal (1) form the ground.
   (2) Turn the ignition switch to position other then "LOCK"(OFF), or remove the ignition key.
   (3) Open the driver's side door,

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NOTE: If any operation is not done for at least three minutes after the ETACS-ECU has entered the customize mode, the hazard answerback customize mode will be canceled automatically.

<When only the transmitter is used>

1. Remove the ignition key.
2. Push the "LOCK" switch while holding the "UNLOCK" switch pushed for four to ten seconds.
3. If the "LOCK" switch and "UNLOCK" switch are released in that order, the ETACS-ECU tone alarm will sound, indicating that the hazard answerback function can be enabled or disabled when the doors are locked.
   - **Enable the hazard answerback function when the doors are locked: The ETACS-ECU tone alarm will sound once.**
   - **Disable the hazard answerback function when the doors are locked: The ETACS-ECU tone alarm will sound twice.**
4. If the "UNLOCK" switch and "LOCK" switch are released in that order, the ETACS-ECU tone alarm will sound, indicating that the hazard answerback function can be enabled or disabled when the door are unlocked.
   - **Enable the hazard answerback function when the doors are unlocked: The ETACS-ECU tone alarm will sound once.**
   - **Disable the hazard answerback function when the doors are unlocked: The ETACS-ECU tone alarm will sound twice.**

ENABLING/DISABLING THE HORN ANSWERBACK FUNCTION

1. Remove the ignition key.
2. Push the "UNLOCK" switch while holding the "LOCK" switch pushed for four to ten seconds.
3. If the "LOCK" switch and "UNLOCK" switch are released at the same time, the ETACS-ECU tone alarm will sound, indicating that the horn answerback function can be enabled or disabled.
   - **Enable the horn answerback function: The ETACS-ECU tone alarm will sound once.**
   - **Disable the horn answerback function: The ETACS-ECU tone alarm will sound twice.**

HOW TO REGISTER SECRET CODE

M1428001000065

Each individual secret code is registered inside the transmitter, and so it is necessary to resister these codes with the EEPROM inside the receiver in the following cases.

- When the transmitter or ETACS-ECU is replaced
- If more transmitters are to be used

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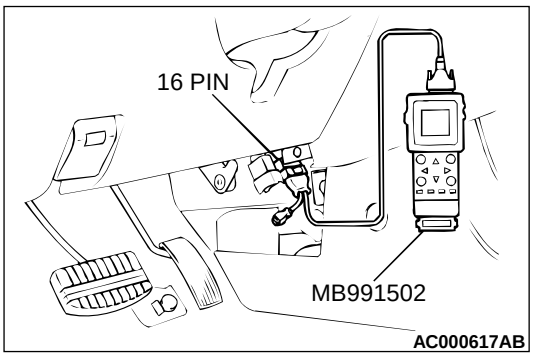
- If it appears that a problem is occurring because of faulty registration of a code.

A maximum of four different codes can be stored in the EEPROM memory (four different transmitters can be used). When the code for the first transmitter is registered, the previously registered codes for all transmitters are cleared. Therefore, if you are using four transmitters or are adding more transmitters, the codes for all transmitters must be registered at the same time.

1. Check that the doors lock normally when the key is used.
2. Insert the ignition key.

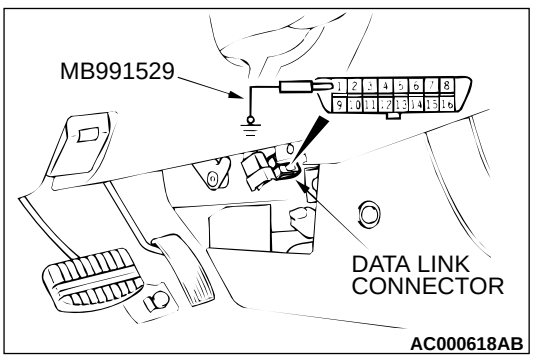
⚠ CAUTION

To prevent damage to scan tool MB991502, always turn the ignition switch to "LOCK" (OFF) position before connecting or disconnecting scan tool MB991502.



3. Connect the scan tool to the data link connector. If the scan tool is not used, ground terminal (1) of the data link connector.

   NOTE: This will connect terminal (1) of the data link connector to ground, and the system will be in secret code registration standby mode.

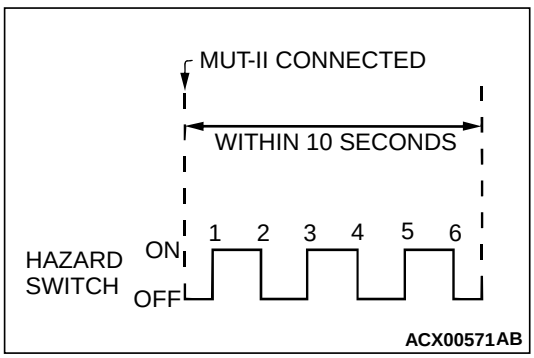


4. Press the hazard switch six times within 10 seconds.

   NOTE: At this time the code registration monitor request is output (all doors locked and unlocked) and becomes registration mode.

   NOTE: The hazard warning light switch is turned on and off alternately whenever it is pushed.

5. Press the transmitter switch, and then press it two times within 10 seconds of the first press. This will register the code.
6. When registration is completed, the code registration monitor request is output (all doors locked and unlocked).
7. If you are using two or more transmitters or have added a second transmitter, the same registration procedure should be carried out within one minute after registering the code for the first transmitter. After the second registration is completed, the code registration monitor request is output (all doors locked and unlocked).
8. Registration mode will be canceled under the following conditions:



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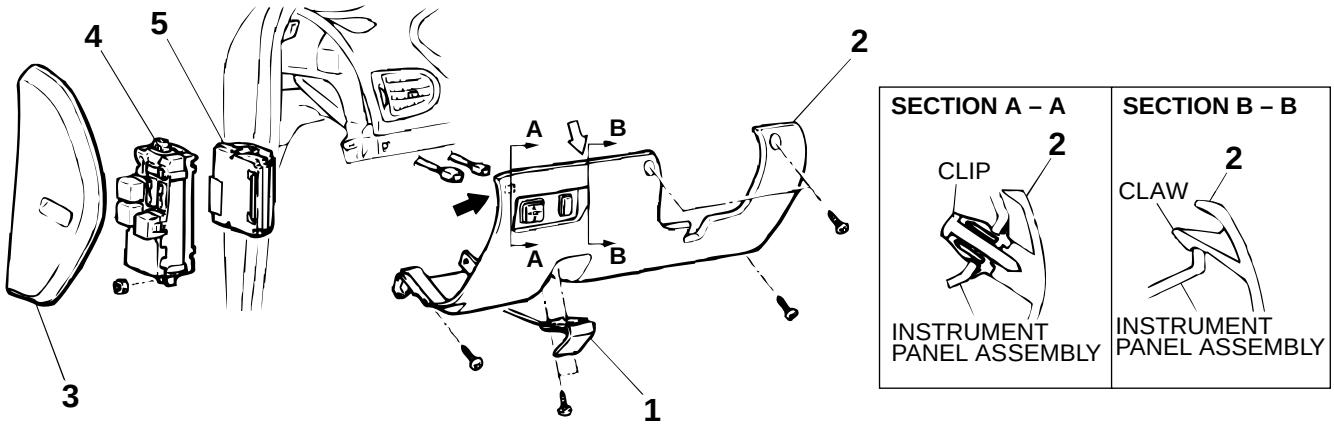
- When the secret code for four transmitters has been registered;
- When one minute has been passed after registration mode started;
- When scan tool MB991502 is disconnected (the ground connection is broken);
- When the key is removed from the key cylinder;

9. After the registration is completed, carry out the following work, and then check that the keyless entry system operates normally.
- Remove the ignition key.
- Close all of the doors.

REMOVAL AND INSTALLATION

M1428001300055



NOTE
⬅ : CLIP POSITION
⇦ : CLAW POSITION

AC000619AB

REMOVAL STEPS
1. HOOD LOCK RELEASE HANDLE
2. FRONT DRIVER'S SIDE UNDER COVER

REMOVAL STEPS (Continued)
3. INSTRUMENT SIDE COVER (LH)
4. JUNCTION BLOCK
5. ETACS-ECU

SUNROOF

GENERAL DESCRIPTION

M1426000100074

A motor-driven inner slide-type glass sunroof with a tilt-up mechanism is adopted in some models as a standard or optional equipment. Even when the sunroof is fully closed, a sufficient amount of lighting and a feeling of openness can still be obtained by opening the sunroof sunshade.

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SUNROOF DIAGNOSIS

INTRODUCTION TO SUNROOF DIAGNOSIS

M1426003100039

The operation of the sunroof is controlled by the sunroof-ECU. By operating the sunroof switch, the sunroof-ECU rotates the sunroof motor. If the following type of symptom occurs, there may be a fault

- The sunroof motor does not conduct load detection operation.
- The illumination light of the sunroof switch does not illuminate.
- The sunroof does not operate.

SUNROOF DIAGNOSTIC TROUBLESHOOTING STRATEGY

M1426001700024

Use these steps to plan your diagnostic strategy. If you follow them carefully, you will be sure that you have exhausted most of the possible ways to find a sunroof fault.

1. Gather information from customer.
2. Verify that the condition described by the customer exists.
3. Find the malfunction by following the Symptom Chart.
4. Verify malfunction is eliminated.

SYMPTOM CHART

M1426002000028

SYMPTOMS	INSPECTION PROCEDURE	REFERENCE PAGE
The sunroof does not operate when the ignition switch is turned to "ON".	1	P.42-74
The sunroof does not operate when the sunroof switch is operated.	2	P.42-77
The sunroof motor does not operate.	3	P.42-79
The sunroof motor does not stop rotating when the roof lid reaches the fully closed/opened position.	4	P.42-81
The sunroof motor does not stop after overload condition. • The sunroof motor does not stop even when the roof lid motion is hampered (by obstruction, etc.) during tilt up operation. • The sunroof motor does not reverse operation even when the roof lid motion is hampered (by obstruction, etc.) during tilt down operation, and does not return to the tilt up completed state. • The sunroof motor does not stop even when the roof lid motion is hampered (by obstruction, etc.) during slide open operation. • The sunroof motor does not stop after reverse operation even when the roof lid motion is hampered (by obstruction, etc.) during slide closed operation.	5	P.42-83
Safety mechanism does not function.	6	P.42-85

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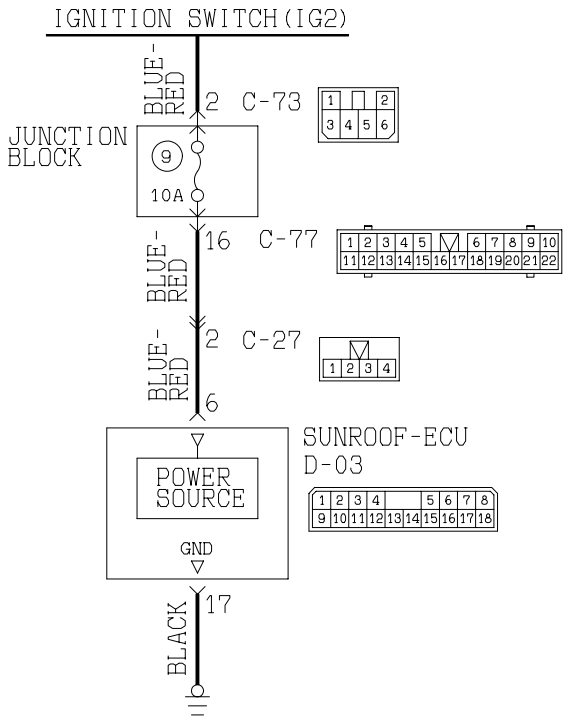
SYMPTOM PROCEDURES

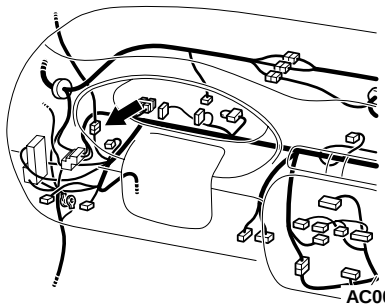
INSPECTION PROCEDURE 1: The sunroof does not operate when the ignition switch is turned to "ON".

Sunroof-ECU Power Suplly and Ground Circuit



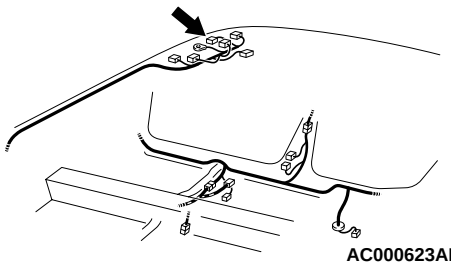
W1S03M05AA
AC000620AB

CONNECTOR: C-27



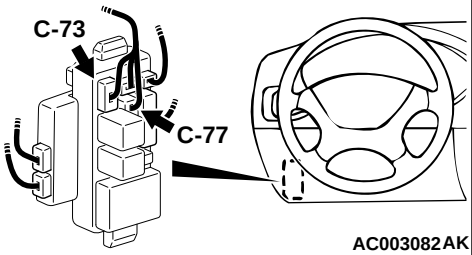
AC000621AB

CONNECTOR: D-03



AC000623AB

CONNECTORS: C-73, C-77
JUNCTION BLOCK
(FRONT VIEW)



AC003082AK

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CIRCUIT OPERATION

- The sunroof-ECU power is supplied from ignition switch (IG2).

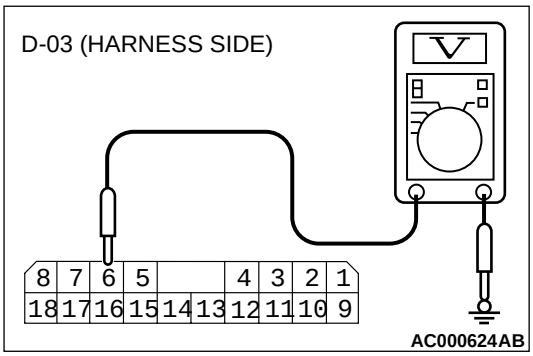
TECHNICAL DESCRIPTION (COMMENT)

- The cause may be a malfunction of the sunroof-ECU power supply circuit system or the ground circuit system.

TROUBLESHOOTING HINTS

- Malfunction of the sunroof-ECU
- Damaged harness wires or connectors

DIAGNOSIS

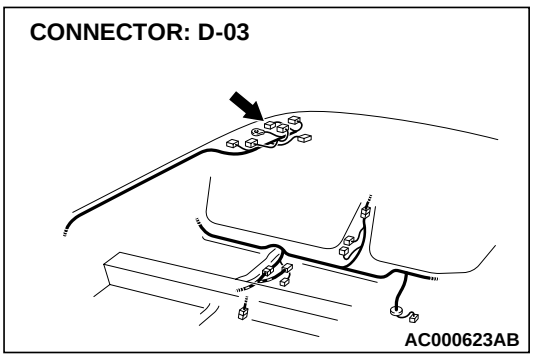


STEP 1. Check the power supply line at the sunroof-ECU connector D-03.

(1) Remove the headlining. (Refer to GROUP 52A, Headlining P.52A-14.)
(2) Disconnect the sunroof-ECU connector D-03 and measure at the harness side.
(3) Turn the ignition key "ON".
(4) Measure the voltage between terminal 6 and ground.
- Voltage should be approximately 12 volts (battery positive voltage).

Q: Is the voltage approximately 12 volts?

YES : Go to Step 3.
NO : Go to Step 2.



STEP 2. Check the harness wires between ignition switch (IG2) and the sunroof-ECU connector D-03.

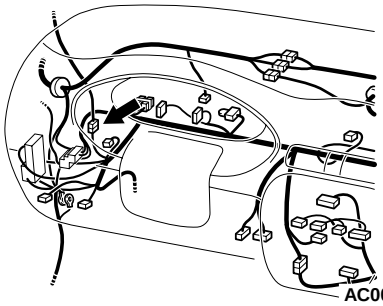
(1) Remove the column cover.
(2) Check the harness wires between ignition switch (IG2) and sunroof-ECU connector D-03.

Q: Are there any damaged wires between ignition switch (IG2) and sunroof-ECU connector D-03?

YES : Repair them, then go to Step 3.
NO : Go to Step 4.

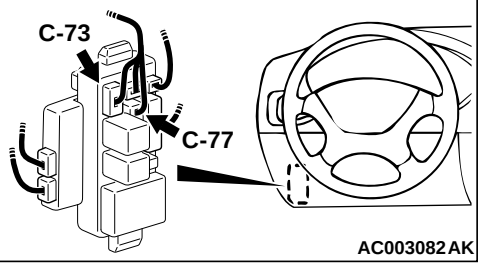
TSB Revision

CONNECTOR: C-27



AC000621AB

CONNECTORS: C-73, C-77
JUNCTION BLOCK
(FRONT VIEW)



AC003082AK

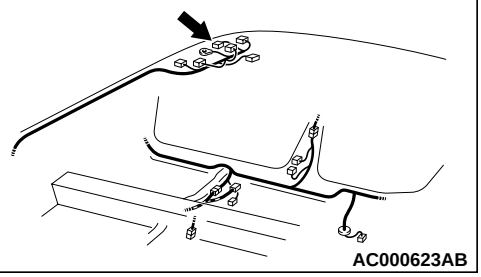
NOTE: After inspecting intermediate connector C-27, C-73 or C-77 inspect the wire. If intermediate connector C-27, C-73 or C-77 are damaged, repair or replace them. Refer to GROUP 00E P.00E-2, Harness Connector Inspection. Then go to Step 3.

STEP 3. Check the harness wire between sunroof-ECU connector D-03 and ground.

Q: Is the harness wire between sunroof-ECU connector D-03 and ground damaged?

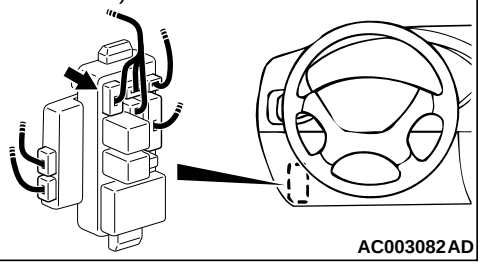
YES : Repair it, then go to Step 4.
NO : Replace the sunroof-ECU. Then go to Step 4.

CONNECTOR: D-03



AC000623AB

CONNECTOR: C-73
JUNCTION BLOCK
(FRONT VIEW)



AC003082AD

NOTE: After inspecting intermediate connector C-73 inspect the wire. If intermediate connector C-73 are damaged, repair or replace them. Refer to GROUP 00E P.00E-2, Harness Connector Inspection. Then go to Step 4.

STEP 4. Check symptoms

Q: Does the sunroof open and close normally?

YES : This diagnosis is complete.
NO : Return to Step 1.

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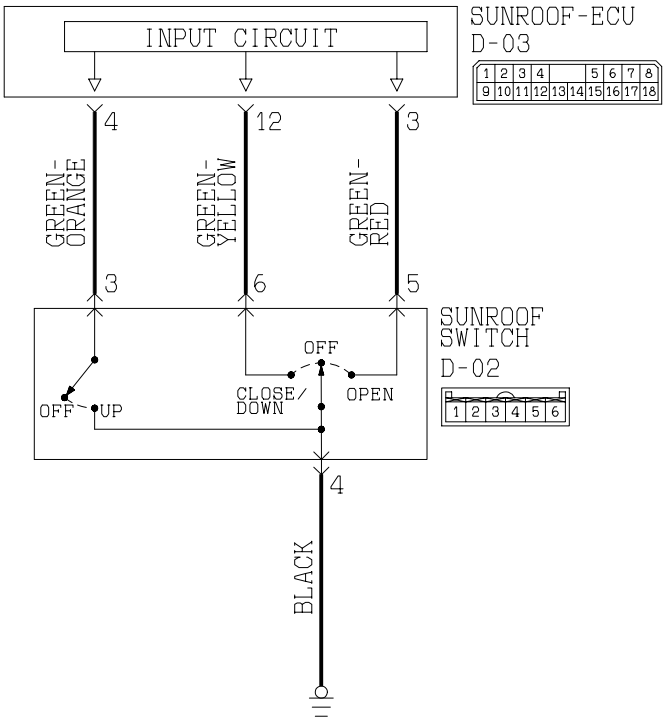
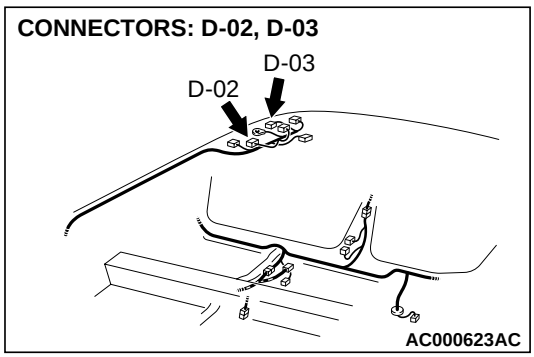
INSPECTION PROCEDURE 2: The sunroof does not operate when the sunroof switch is operated.

Sunroof Switch Circuit



W1S03M06AA
AC000627AB



CIRCUIT OPERATION

- The sunroof-ECU monitors the sunroof switch status (slide open, slide closed, tilt down, tilt up) and operates the sunroof motor.

TECHNICAL DESCRIPTION (COMMENT)

- The cause may be a malfunction of the sunroof switch power supply circuit system or of the ground circuit system.

TROUBLESHOOTING HINTS

- Malfunction of the sunroof-ECU
- Malfunction of the sunroof switch
- Damaged harness wires or connectors

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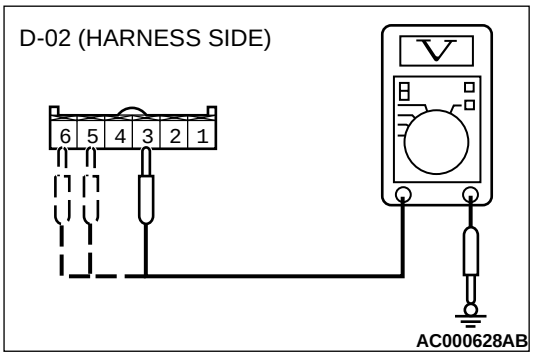
DIAGNOSIS

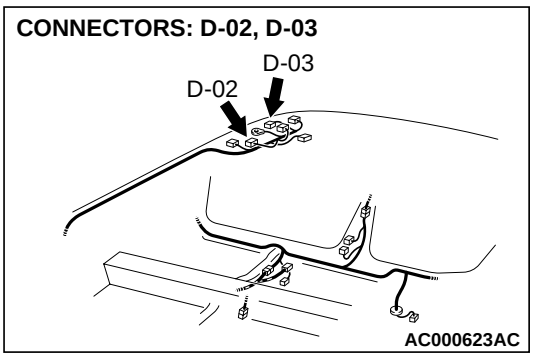


STEP 1. Check the power supply line at the sunroof switch connector D-02.

(1) Remove the headlining. (Refer to GROUP 52A, Headlining P.52A-14.)
(2) Disconnect the sunroof switch connector D-02 and measure at the harness side.
(3) Turn the ignition key "ON".
(4) Measure the voltage between terminal 3 and ground, between terminal 5 and ground, and between terminal 6 and ground.
- Voltage should be approximately 12 volts (battery positive voltage).

Q: Is the voltage approximately 12 volts?

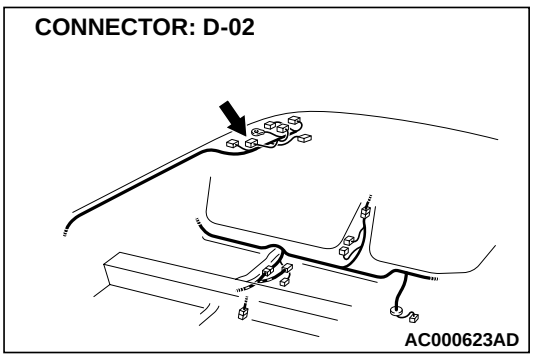
YES : Go to Step 3.
NO : Go to Step 2.



STEP 2. Check the harness wires between sunroof switch connector D-02 and sunroof-ECU connector D-03.

Q: Are there any damaged wires between sunroof switch connector D-02 and sunroof-ECU connector D-03?

YES : Repair them, then go to Step 3.
NO : Replace the sunroof-ECU. Then go to Step 3.



STEP 3. Check the harness wire between sunroof switch connector D-02 and ground.

Q: Is the harness wire between sunroof switch connector D-02 and ground damaged?

YES : Repair it, then go to Step 4.
NO : Replace the sunroof switch. Then go to Step 4.

STEP 4. Check symptoms

Q: Does the sunroof open and close normally?

YES : This diagnosis is complete.
NO : Return to Step 1.

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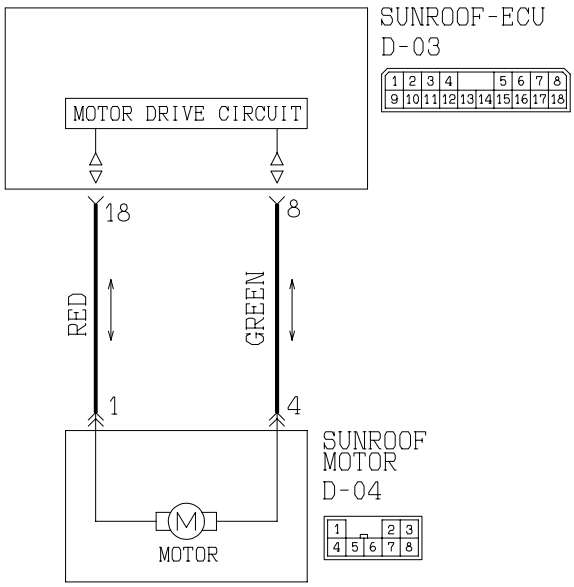
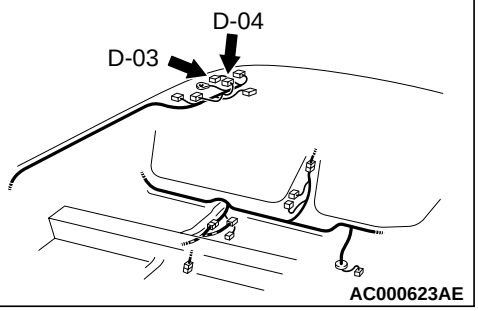
INSPECTION PROCEDURE 3: The sunroof motor does not operate.

Sunroof Motor Circuit



W9S15M02A
AC000629AB

CONNECTORS: D-03, D-04



AC000623AE

CIRCUIT OPERATION

- The sunroof-ECU monitors the sunroof switch status (slide open, slide close, tilt down, tilt up) and the load detection sensor in the sunroof motor and operates the sunroof motor.

TECHNICAL DESCRIPTION (COMMENT)

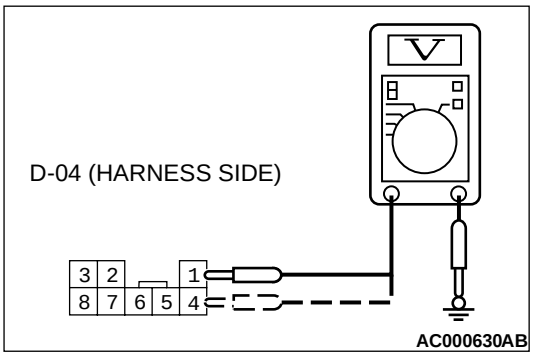
- The cause may be a malfunction of the sunroof motor power supply/ground circuit system.

TROUBLESHOOTING HINTS

- Malfunction of the sunroof-ECU
- Malfunction of the sunroof motor
- Damaged harness wires or connectors

TSB Revision

DIAGNOSIS

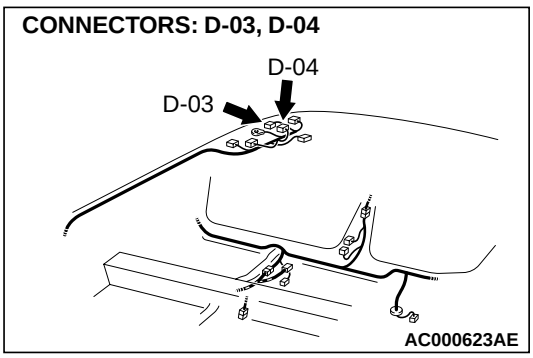


STEP 1. Check the power supply/ground line at the sunroof motor connector D-04.

(1) Remove the headlining. (Refer to GROUP 52A, Headlining P.52A-14.)
(2) Disconnect the sunroof motor connector D-04 and measure at the harness side.
(3) Turn the ignition key "ON".
(4) Measure the voltage between terminal 1 and ground while the sunroof switch is depressing to the slide open/close position. And measure the voltage between terminal 4 and ground while the sunroof switch is depressing to the slide open/close position.
- Voltage should be approximately 12 volts (battery positive voltage).

Q: Is the voltage approximately 12 volts?

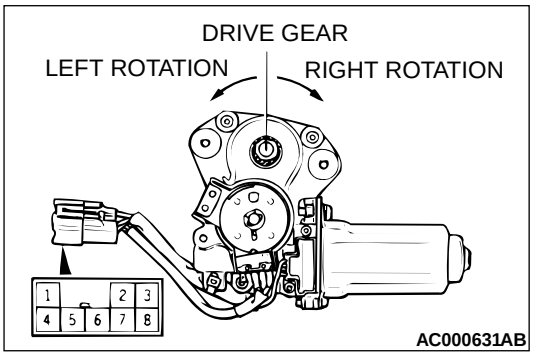
YES : Go to Step 3.
NO : Go to Step 2.



STEP 2. Check the harness wires between sunroof-ECU connector D-03 and sunroof motor connector D-04.

Q: Are there any damaged wires between sunroof-ECU connector D-03 and sunroof motor connector D-04?

YES : Repair them, then go to Step 3.
NO : Replace the sunroof-ECU. Then go to Step 3.



STEP 3. Check the sunroof motor.

(1) Remove the sunroof motor. (Refer to P.42-92.)
(2) Check the direction of rotation of the drive gear when the battery is connected to the connector.

TESTER CONNECTION	DRIVE GEAR ROTATION DIRECTION
1–Battery(+), 4–Battery(-)	LEFT
4–Battery(+), 1–Battery(-)	RIGHT

Q: Is the sunroof motor damaged?

YES : Replace it, then go to Step 4.
NO : Go to Step 4.

STEP 4. Check symptoms

Q: Does the sunroof open and close normally?

YES : This diagnosis is complete.
NO : Return to Step 1.

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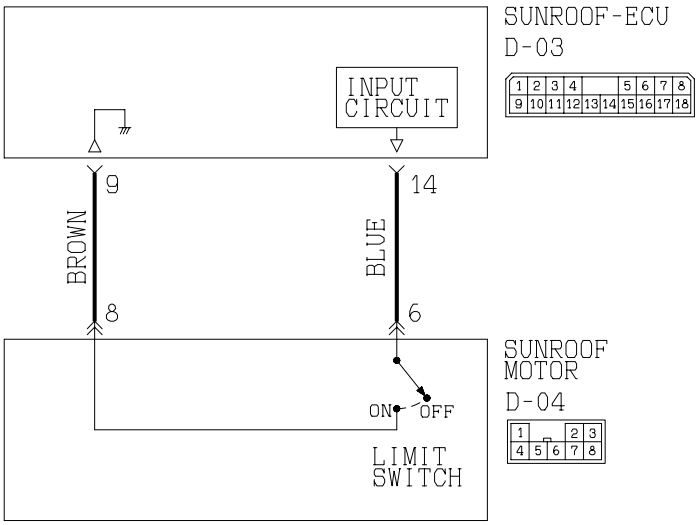
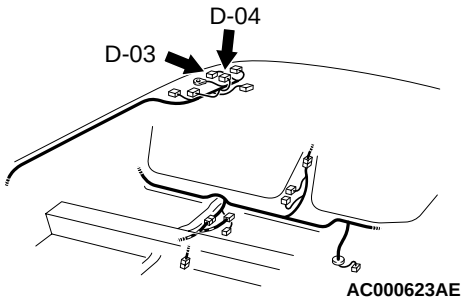
INSPECTION PROCEDURE 4: The sunroof motor does not stop rotating when the roof lid reaches the fully closed/opened position.

Sunroof Motor Limit Switch Circuit



W9S15M03A
AC000632AB

CONNECTORS: D-03, D-04



AC000623AE

CIRCUIT OPERATION

- When the sunroof motor operation fully closes or fully opens the roof lid, the sunroof-ECU uses a limit switch signal to stop the sunroof motor.

TECHNICAL DESCRIPTION (COMMENT)

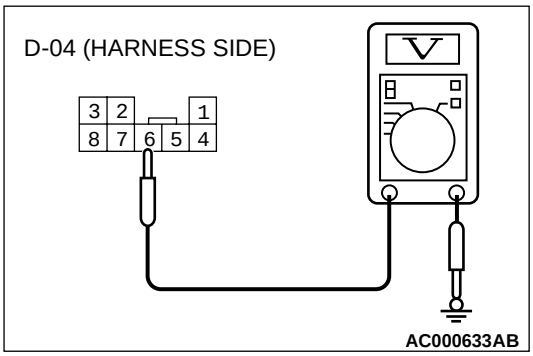
- The cause may be a malfunction of the sunroof motor limit switch power supply circuit system or the ground circuit system.

TROUBLESHOOTING HINTS

- Malfunction of the sunroof-ECU
- Malfunction of the sunroof motor limit switch
- Damaged harness wires or connectors

TSB Revision

DIAGNOSIS

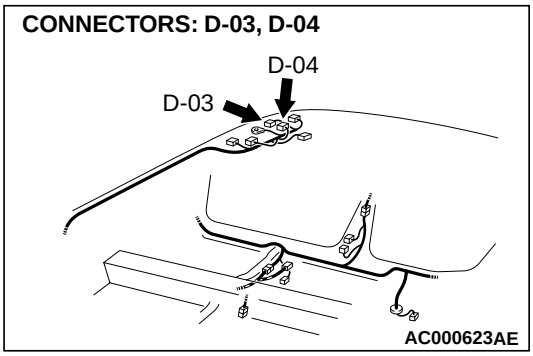


STEP 1. Check the power supply/ground line at the sunroof motor connector D-04.

(1) Remove the headlining. (Refer to GROUP 52A, Headlining P.52A-14.)
(2) Disconnect the sunroof motor connector D-04 and measure at the harness side.
(3) Turn the ignition key "ON".
(4) Measure the voltage between terminal 6 and ground.
- Voltage should be approximately 12 volts (battery positive voltage).

Q: Is the voltage approximately 12 volts?

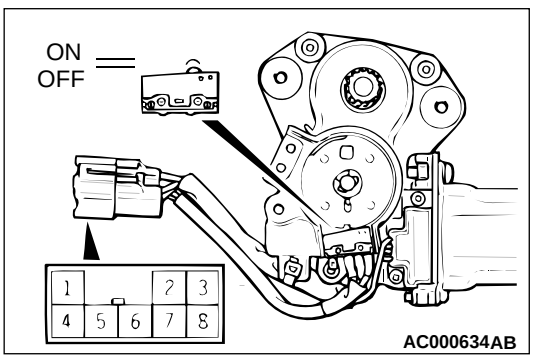
YES : Go to Step 4.
NO : Go to Step 2.



STEP 2. Check the harness wires between sunroof-ECU connector D-03 and sunroof motor connector D-04.

Q: Are there any damaged wires between sunroof-ECU connector D-03 and sunroof motor connector D-04?

YES : Repair them, then go to Step 3.
NO : Replace the sunroof-ECU. Then go to Step 4.



STEP 3. Check the sunroof motor limit switch.

(1) Remove the limit switch from the sunroof motor. (Refer to P.42-92.)
(2) Check the limit switch continuity.

SWITCH POSITION	TESTER CONNECTION	SPECIFIED CONDITION
ON	6 – 8	Continuity
OFF	–	No continuity

Q: Is the limit switch damaged?

YES : Replace the sunroof motor. Then go to Step 4.
NO : Replace the sunroof-ECU. Then go to Step 4.

STEP 4. Check symptoms

Q: Does the sunroof open and close normally?

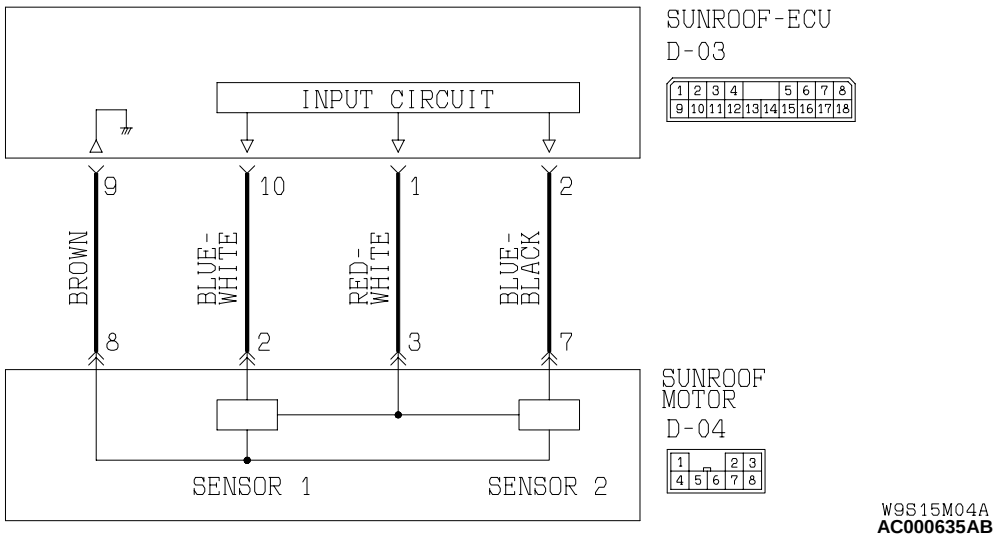
YES : This diagnosis is complete.
NO : Return to Step 1.

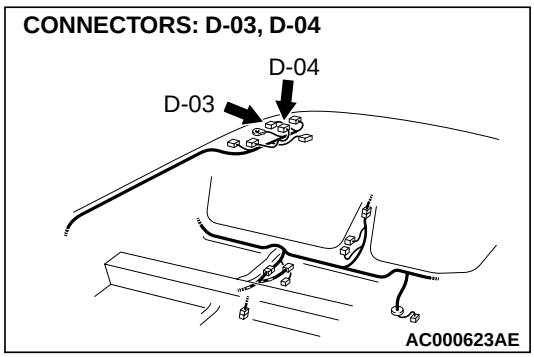
TSB Revision

INSPECTION PROCEDURE 5: The motor does not stop after overload condition.

- The sunroof motor does not stop even the roof lid motion is hampered (by obstruction, etc.) during tilt up operation.
- The sunroof motor does not reverse operation even when the roof lid motion is hampered (by obstruction, etc.) during tilt down operation, and does not return to the tilt up completed state.
- The sunroof motor does not stop even when the roof lid motion is hampered (by obstruction, etc.) during slide open operation.
- The sunroof motor does not stop after reverse operation even when the roof lid motion is hampered (by obstruction, etc.) during slide closed operation.

Sunroof Motor Overload Sensor Circuit





CIRCUIT OPERATION

- The sunroof-ECU monitors the load conditions from the amount of current flowing to the motor. If more than the standard amount of current is flowing, the direction of motor operation is reversed to prevent jamming.

TECHNICAL DESCRIPTION (COMMENT)

- The cause may be a malfunction of the sunroof motor sensor power supply circuit system or the ground circuit system.

TROUBLESHOOTING HINTS

- Malfunction of the sunroof-ECU
- Malfunction of the sunroof motor sensor
- Damaged harness wires or connectors

TSB Revision

DIAGNOSIS

STEP 1. Check the harness wires between sunroof-ECU connector D-03 and sunroof motor connector D-04.

(1) Remove the headlining. (Refer to GROUP 52A, Headlining P.52A-14.)

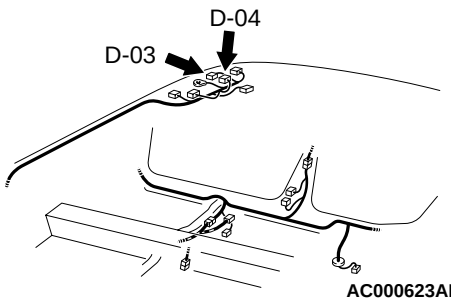
(2) Check the harness wires between sunroof-ECU connector D-03 and sunroof motor connector D-04.

Q: Are there any damaged wires between sunroof-ECU connector D-03 and sunroof motor connector D-04?

YES : Repair them, then go to Step 2.

NO : Go to Step 2.

CONNECTORS: D-03, D-04



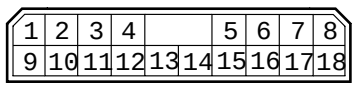
AC000623AE

STEP 2. Check the sunroof-ECU terminal voltage.

(1) Remove the sunroof-ECU from the sunroof motor. (Refer to P.42-92.)

(2) Check the sunroof-ECU terminal voltage.

Sunroof-ECU Connector Terminal Arrangement



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TERMINAL NO.	CHECK ITEM	CHECK CONDITION	NORMAL CONDITION
1	Sensor power supply	Ignition switch: ON	Battery positive voltage
2	Sensor 1	When motor is operating	Battery positive voltage (pulse)
9	Sensor earth	Always	0V
10	Sensor 2	When motor is operating	Battery positive voltage (pulse)

Q: Is the sunroof -ECU terminal voltage normal?

YES : Replace the sunroof-ECU. Then go to Step 3.

NO : Replace the sunroof motor. Then go to Step 3.

STEP 3. Check symptoms

Q: Are the harness wires, sunroof-ECU and sunroof motor sensor normal?

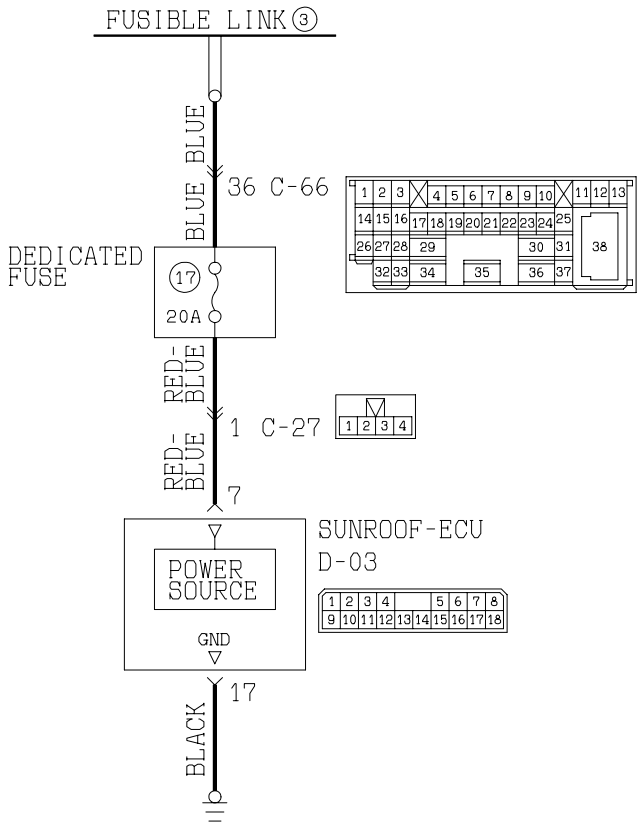
YES : This diagnosis is complete.

NO : Return to Step 1.

TSB Revision

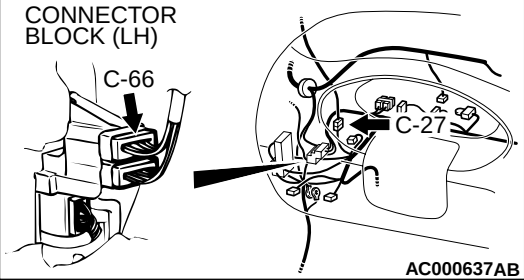
INSPECTION PROCEDURE 6: Safety mechanism does not function.

Sunroof-ECU Power Supply for 30 seconds timer Circuit and Ground Circuit



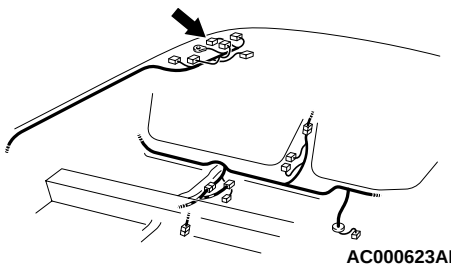
W1S03M07AA
AC000636AB

CONNECTORS: C-27, C-66



AC000637AB

CONNECTOR: D-03



AC000623AB

CIRCUIT OPERATION

- The power for the safety mechanism circuit in the sunroof-ECU is supplied from fusible link number 3.

TECHNICAL DESCRIPTION (COMMENT)

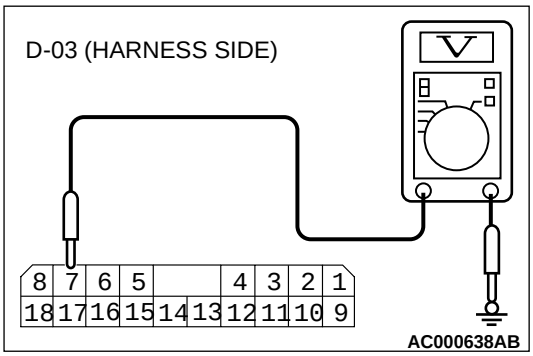
- The cause may be a malfunction of the sunroof-ECU power supply for safety mechanism circuit system or of the ground circuit system.

TROUBLESHOOTING HINTS

- Malfunction of the sunroof-ECU
- Damaged harness wires or connectors

TSB Revision

DIAGNOSIS



STEP 1. Check the power supply line at the sunroof-ECU connector D-03.

(1) Remove the headlining. (Refer to GROUP 52A, Headlining P.52A-14.)

(2) Disconnect the sunroof-ECU connector D-03 and measure at the harness side.

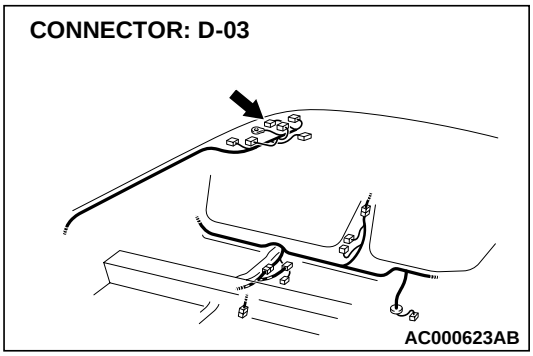
(3) Measure the voltage between terminal 7 and ground.

- Voltage should be approximately 12 volts (battery positive voltage).

Q: Is the voltage approximately 12 volts?

YES : Go to Step 3.

NO : Go to Step 2.

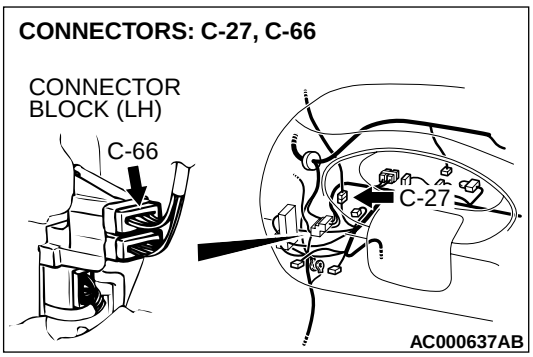


STEP 2. Check the harness wires between fusible link number 3 and sunroof-ECU connector D-03.

Q: Are there any damaged wires between fusible link number 3 and sunroof-ECU connector D-03?

YES : Repair them, then go to Step 3.

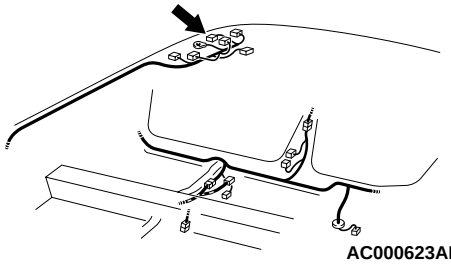
NO : Go to Step 4.



NOTE: After inspecting intermediate connectors C-27 and C-66, inspect the wire. If intermediate connectors C-27 or C-66 are damaged, repair or replace them. Refer to GROUP 00E P.00E-2, Harness Connector Inspection. Then go to Step 3.

TSB Revision

CONNECTOR: D-03



AC000623AB

STEP 3. Check the harness wires between sunroof-ECU connector D-03and ground.

Q: Are there any damaged wires between sunroof-ECU connector D-03 and ground?

YES : Repair them, then go to Step 4.

NO : Replace the sunroof-ECU. Then go to Step 4.

STEP 4. Check symptoms

Q: Are the intermediate connectors, harness wires, and sunroof-ECU normal?

YES : This diagnosis is complete.

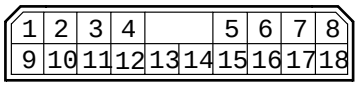
NO : Return to Step 1.

CHECKING AT THE SUNROOF-ECU

M1426002400026

TERMINAL VOLTAGE CHART

Sunroof-ECU Connector Terminal Arrangement



AC004260AB

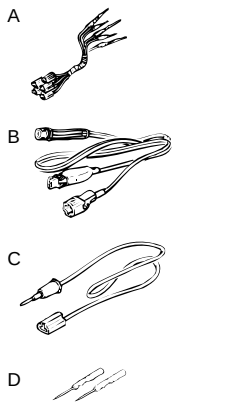
TERMINAL NO.	CHECK ITEM	CHECK STATE		NORMAL STATE
1	Sensor power supply	Ignition switch: ON		Battery positive voltage
2	Sensor 1	When motor is operating		Battery positive voltage (pulse)
3	Sunroof switch (open) input	Sunroof switch (open position)	ON	0V
			OFF	Battery positive voltage
4	Sunroof switch (up) input	Sunroof switch (up position)	ON	0V
			OFF	Battery positive voltage
6	ECU power supply	Ignition switch: ON		Battery positive voltage
7	ECU power supply	Always		Battery positive voltage
8	Motor output	While sunroof is closing or moving up		Battery positive voltage
		Other then the above		0V
9	Sensor earth	Always		0V
10	Sensor 2	When motor is operating		Battery positive voltage (pulse)

TSB Revision

TERMINAL NO.	CHECK ITEM	CHECK STATE		NORMAL STATE
12	Sunroof switch (close or down) input	Sunroof switch (close position or down position)	ON	0V
			OFF	Battery positive voltage
14	Limit switch input	From tilt up condition to fully-close condition		Battery positive voltage
		From fully-closed condition to fully-open condition		0V
17	Earth	Always		0V
18	Motor output	While sunroof is opening or moving down		Battery positive voltage
		Other then the above		0V

SPECIAL TOOL

M1426000600068

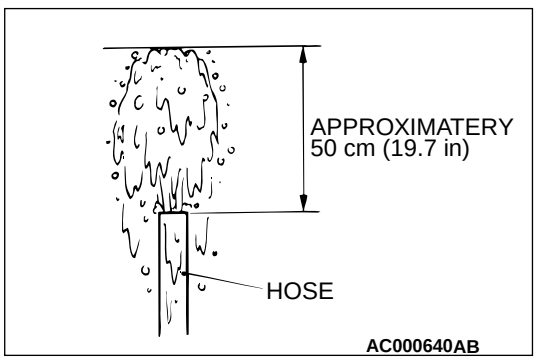
TOOL	TOOL NUMBER AND NAME	REPLACED BY MILLER TOOL NUMBER	APPLICATION
	MB991223 Harness set • A: MB991219 Test harness • B: MB991220 LED harness • C: MB991221 LED harness adapter • D: MB991222 Probe	MB991223	Measurement of terminal voltage • A: Connector pin contact pressure inspection • B: Power circuit inspection • C: Power circuit inspection • D: Commercial tester connection

ON-VEHICLE SERVICE

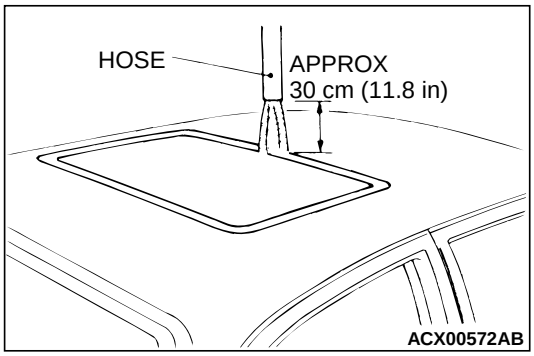
WATER TEST

M1426000900070

1. Close the roof lid tightly.
2. Hold hose upward and adjust the fountain of water to approximately 50 cm (19.7 inches) high.



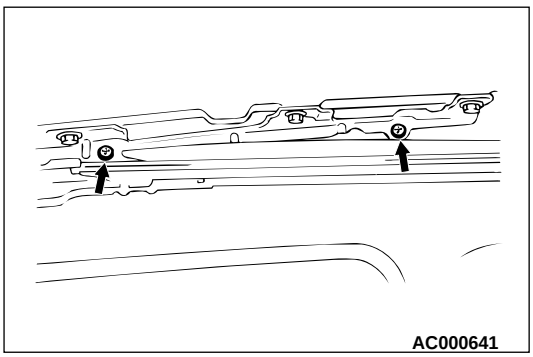
TSB Revision



3. Pour water over the roof from approximately 30 cm (11.8 inches) above roof for more than 5 minutes.
4. Check if any water leaks can be found in the room while watering.Even though there are any water leaks around the roof lid glass, it can be acceptable as long as water is caught in the drip area.
5. In the event of leakage, check the drain pipe, weatherstrip contact and others.

SUNROOF FIT ADJUSTMENT

M1426001000070



1. Fully close the roof lid glass.
2. Fully open the sunshade.
3. Loosen the roof lid glass assembly mounting screws (four), and then slide the roof lid glass assembly along the slot in the drive cable assembly to adjust the height of the roof lid glass. Check that an even clearance exists around the roof lid glass end and body.
4. After adjustment, check to be sure that the sunroof operates smoothly.

SUNROOF OPERATION CHECK

M1426002600086

Check that the following items. If faulty, replace the sunroof-ECU.

⚠ CAUTION

Check that the following items are normal before carrying out this operation check.

1. **Installation condition of the sunroof assembly**
2. **Installation condition, deforms and foreign material of the sunroof drive cable**
3. **Unfitted sunroof lid glass**
4. **Sunroof switch and sunroof motor assembly**

NO.	SUNROOF INITIAL POSITION	SWITCH OPERATION	JUDGMENT (NORMAL)
01	Fully closed	Ignition switch: "ON" • Sunroof switch: OPEN	The sunroof automatically opens.
02	Fully open	Ignition switch: "ON" • Sunroof switch: CLOSE	The sunroof closes while the sunroof switch is pushed to the CLOSE position. Approximately 5 to 10 mm (0.2 to 0.4 in) before completely closed the sunroof will close automatically.
03	Fully closed (tilt down)	Ignition switch: "ON" • Sunroof switch: TILT UP	The sunroof will automatically tilt up.

TSB Revision

NO.	SUNROOF INITIAL POSITION	SWITCH OPERATION	JUDGMENT (NORMAL)
04	Tilt up	Ignition switch: "ON" • Sunroof switch: TILT DOWN	The sunroof closes while the sunroof switch is pushed to the TILT DOWN position. The sunroof automatically will be moved approximately 5 to 10 mm (0.2 to 0.4 in) toward the open side from the completely closed position, and then closes completely.
05	Fully closed or while opening	Ignition switch: "ON" 1. Sunroof switch: OPEN 2. Sunroof switch: CLOSE (The sunroof switch is pushed to the CLOSE position while the sunroof is automatically opening. The time of pushing: Within two seconds)	The sunroof stops the automatic open operation.
06	Fully closed or while opening	Ignition switch: "ON" 1. Sunroof switch: OPEN 2. Sunroof switch: CLOSE (The sunroof switch is pushed to the CLOSE position while the sunroof is automatically opening. The time of pushing: More than two seconds)	The sunroof stops the automatic open operation, and the sunroof close while the sunroof switch is pushed to the CLOSE position.
07	Fully closed or while opening	Ignition switch: "ON" 1. Sunroof switch: OPEN 2. Sunroof switch: CLOSE (The sunroof switch is pushed to the OPEN position again while the sunroof is automatically opening.)	The sunroof continue the automatic open operation.
08	Fully closed (tilt down)	Ignition switch: "ON" 1. Sunroof switch: TILT UP 2. Sunroof switch: OPEN, CLOSE TILT UP, or TILT DOWN (Each direction switch of the sunroof switch is pushed while the sunroof is conducting the automatic tilt up operation.)	The sunroof will continue automatic operation until tilted up.
09	While closed or opening	Ignition switch: "ON" 1. Sunroof switch: OPEN. 2. Sunroof switch: TILT UP (The sunroof switch is pushed to the TILT UP position during sunroof automatic open opertion.)	The sunroof will stop the automatic operation.

TSB Revision

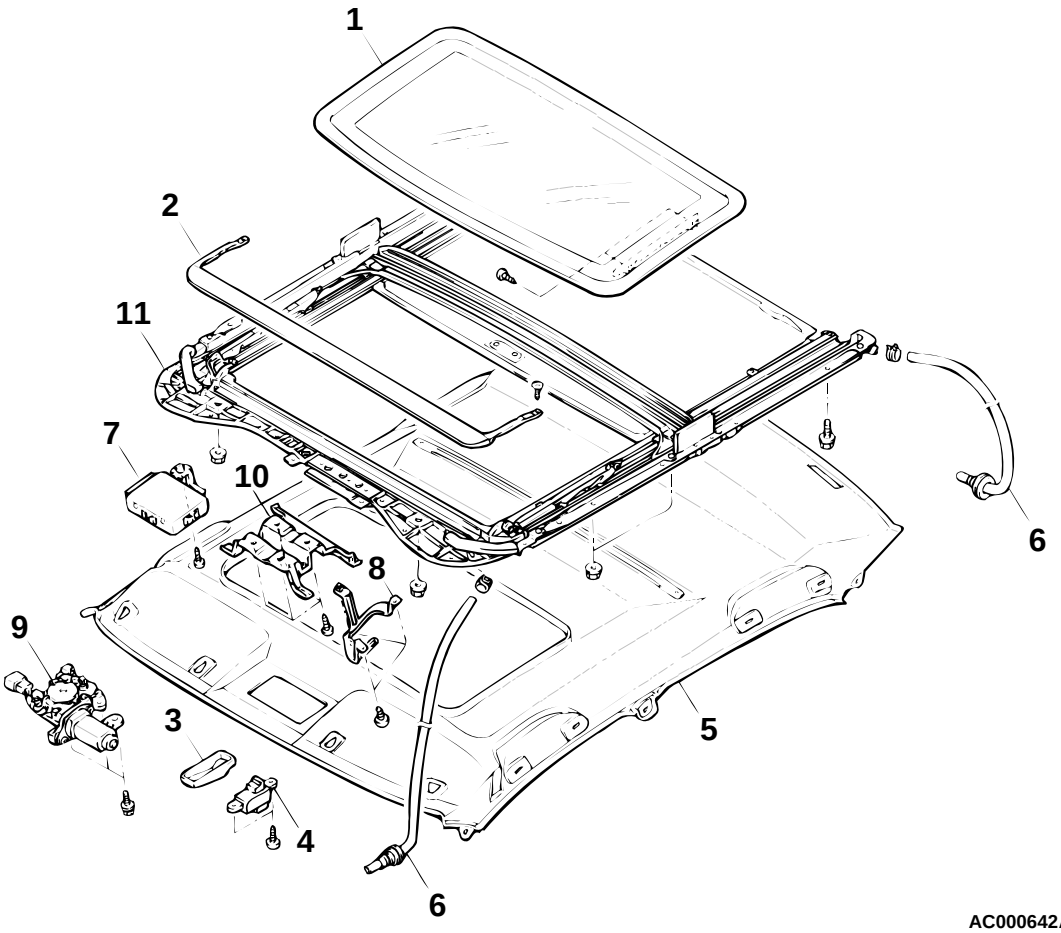
NO.	SUNROOF INITIAL POSITION	SWITCH OPERATION	JUDGMENT (NORMAL)
10	Fully opened or while closing	Ignition switch: "ON" • Sunroof switch: OPEN Block the sunroof before the sunroof is fully closed.	The sunroof moves back toward open and stops.
11	Fully closed or while opening	Ignition switch: "ON" • Sunroof switch: OPEN Block the sunroof before the sunroof is fully open.	The sunroof stops.
12	Fully closed (tilt down)	Ignition switch: "ON" • Sunroof switch: TILT UP Block the sunroof before the tilt-up operation finishes.	The sunroof stops.
13	Tilt up	Ignition switch: "ON" • Sunroof switch: TILT DOWN Block the sunroof before the tilt-down operation finishes.	The sunroof tilt up and stops.
14	Fully opened or while closing	Ignition switch: "OFF"	The sunroof does not move.
15	Fully closed or while opening	Ignition switch: "OFF"	The sunroof does not move.
16	Tilt up	Ignition switch: "OFF"	The sunroof does not move.
17	Tilt down	Ignition switch: "OFF"	The sunroof does not move.

SUNROOF ASSEMBLY

REMOVAL AND INSTALLATION

M1426001200074

Post-installation Operation <Roof lid glass assembly, Sunroof assembly>
- Sunroof Fit Adjustment (Refer to P.42-89.)
- Sunroof Water Test (Refer to P.42-88.)



AC000642AB

1. ROOF LID GLASS ASSEMBLY
2. ROOF WIND DEFLECTOR PANEL

SUNROOF SWITCH REMOVAL STEPS

3. SUNROOF SWITCH COVER
4. SUNROOF SWITCH

DRAIN HOSE REMOVAL STEPS

- SPLASH SHIELD (FRONT DRAIN HOSE.) (REFER TO P.42-7.)

5. HEADLINING (REFER TO GROUP 52A, HEADLINING P.52A-14.)

<<A>> >>B<< 6. DRAIN HOSE

SUNROOF-ECU REMOVAL STEPS

5. HEADLINING (REFER TO GROUP 52A, HEADLINING P.52A-14.)
7. SUNROOF-ECU

SUNROOF MOTOR REMOVAL STEPS

5. HEADLINING (REFER TO GROUP 52A, HEADLINING P.52A-14.)

<<B>> 8. SUNROOF SWITCH BRACKET

<<C>> >>A<< 9. SUNROOF MOTOR

SUNROOF ASSEMBLY REMOVAL STEPS

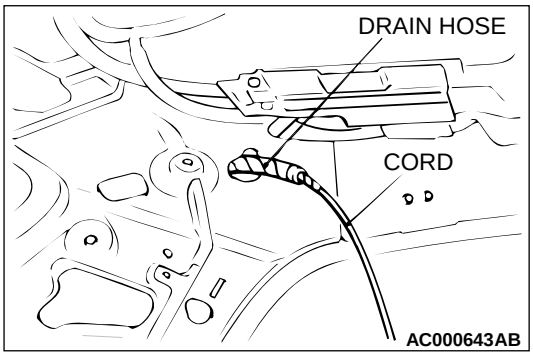
5. HEADLINING (REFER TO GROUP 52A, HEADLINING P.52A-14.)
6. DRAIN HOSE CONNECTION
10. ROOM LAMP BRACKET
11. SUNROOF ASSEMBLY

Required Special Tools:
- MB991244: Torsion Bar Remover and Installer

TSB Revision

REMOVAL SERVICE POINTS

<<A>> DRAIN HOSE REMOVAL

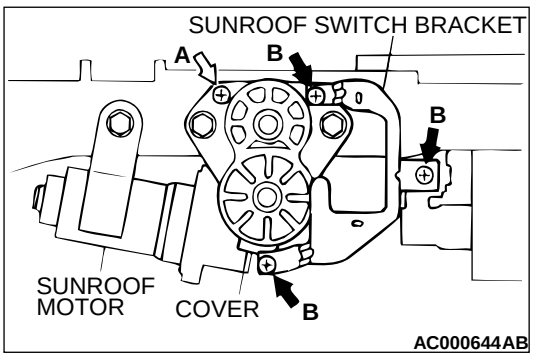


Tie a cord to the end of the drain hose, and wind tape around the tie until it is smooth. Then pull the drain hose out into the wheel housing.

<<B>> SUNROOF SWITCH BRACKET REMOVAL

⚠ CAUTION

Absolutely do not remove screw A shown in the figure. If the sunroof switch bracket is removed after screw A is removed, the sunroof motor cover will come off and the gears in the sunroof motor will come apart.



Remove the three screws B shown in the figure, and remove the sunroof switch bracket.

<<C>> SUNROOF MOTOR REMOVAL

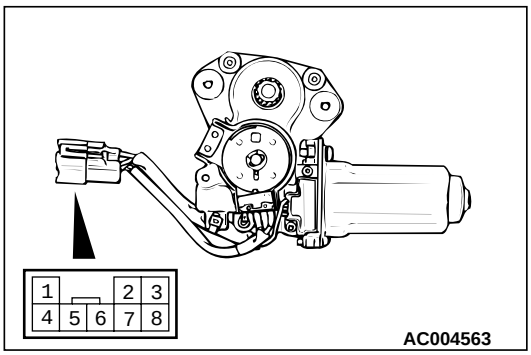
⚠ CAUTION

Always close the roof lid glass fully before removing the sunroof motor. If the fully-closed positions of the roof lid glass and the sunroof motor are not the same, the sunroof will not operate properly.

INSTALLATION SERVICE POINTS

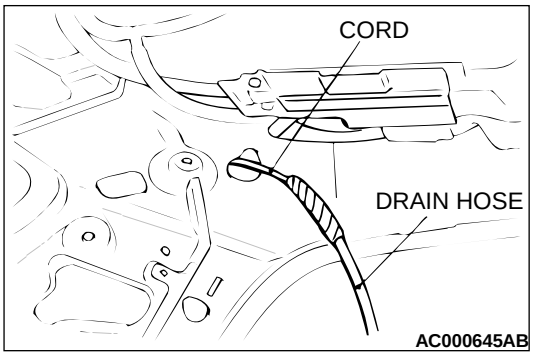
>>A<< SUNROOF MOTOR ASSEMBLY INSTALLATION

If the fully-closed position of the sunroof motor is incorrect, set the motor to the fully-closed position by the procedure given blow before installing the motor.

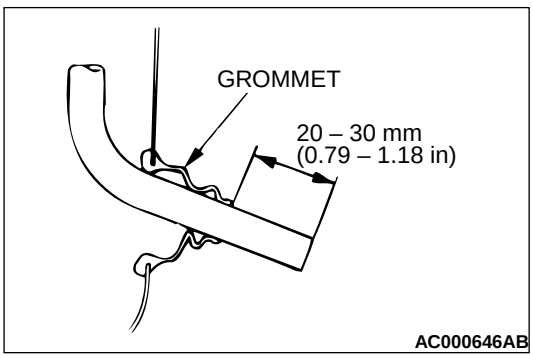


1. Connect a circuit analyser between terminals (5) and (6) of the motor connector.
2. Operate the motor until the position is reached at which continuity switches from on to off or from off to on, and then install the motor.

>>B<< DRAIN HOSE INSTALLATION



1. Tie the cord that was used during removal to the end of the drain hose, and wind tape around it so that there is no unevenness.
2. Pull the cord to pull through the drain hose.

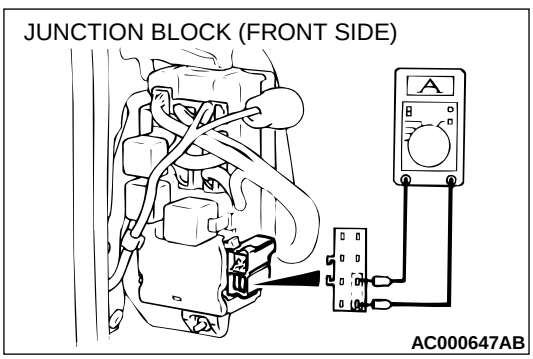


3. Make the protrusion from the drain hose grommet as shown in the illustration.

INSPECTION

M1426001300082

ROOF LID GLASS OPERATION CURRENT CHECK



1. Remove the sunroof fuse and connect a circuit analyser as shown in the illustration.
2. Press the sunroof switch to the ON position, and then measure the operation current in the intervals between the point when the sunroof starts to operate, when it is fully open, when it is fully closed and when it is fully tilted up.

   Standard value: 7 A or less [at 20°X (68°F)]
3. If the operation current is outside the standard value, check the following points.
   - Installation condition, warping or jamming of sunroof assembly
   - Sticking of drive cable
   - Tilt of roof lid glass

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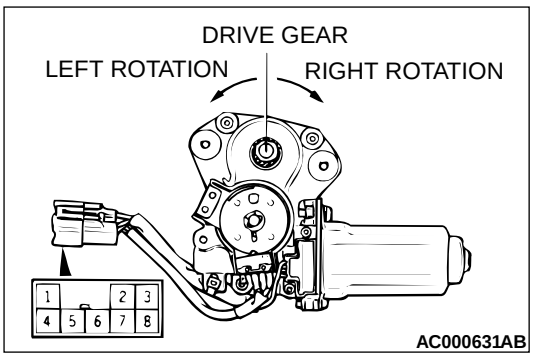
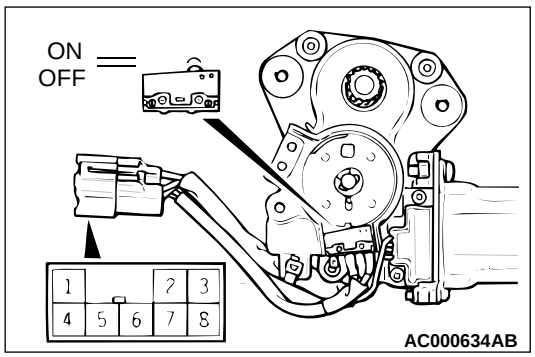
SUNROOF MOTOR CHECK



Check the direction of rotation of the drive gear when the battery is connected to the connector.

TESTER CONNECTION	DRIVE GEAR ROTATION DIRECTION
1–Battery(+), 4–Battery(-)	LEFT
4–Battery(+), 1–Battery(-)	RIGHT

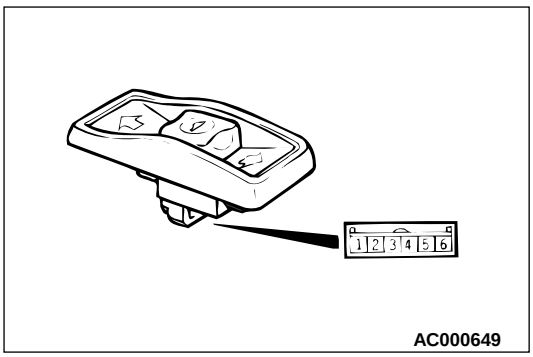
LIMIT SWITCH CONTINUITY CHECK



Remove the limit switch from the sunroof motor, and then check the operation of the limit switch.

SWITCH POSITION	TESTER CONNECTION	SPECIFIED CONDITION
ON	6 – 8	Continuity
OFF	–	No Continuity

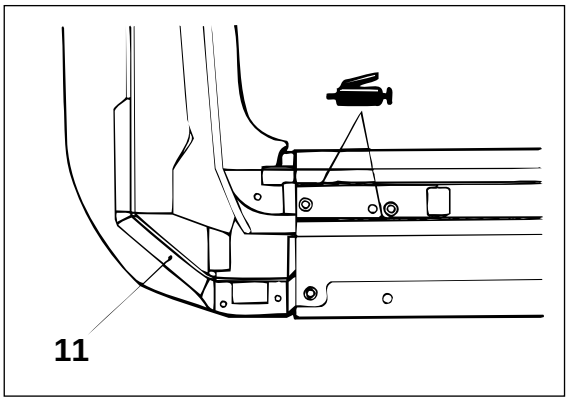
SUNROOF SWITCH CONTINUITY CHECK

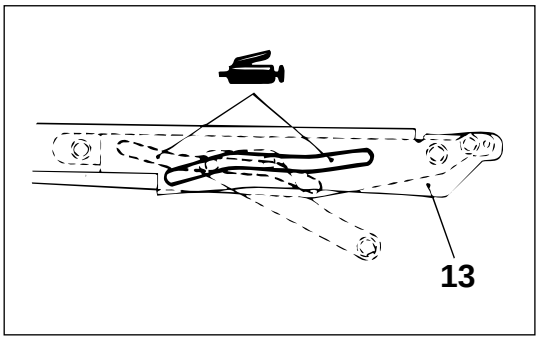


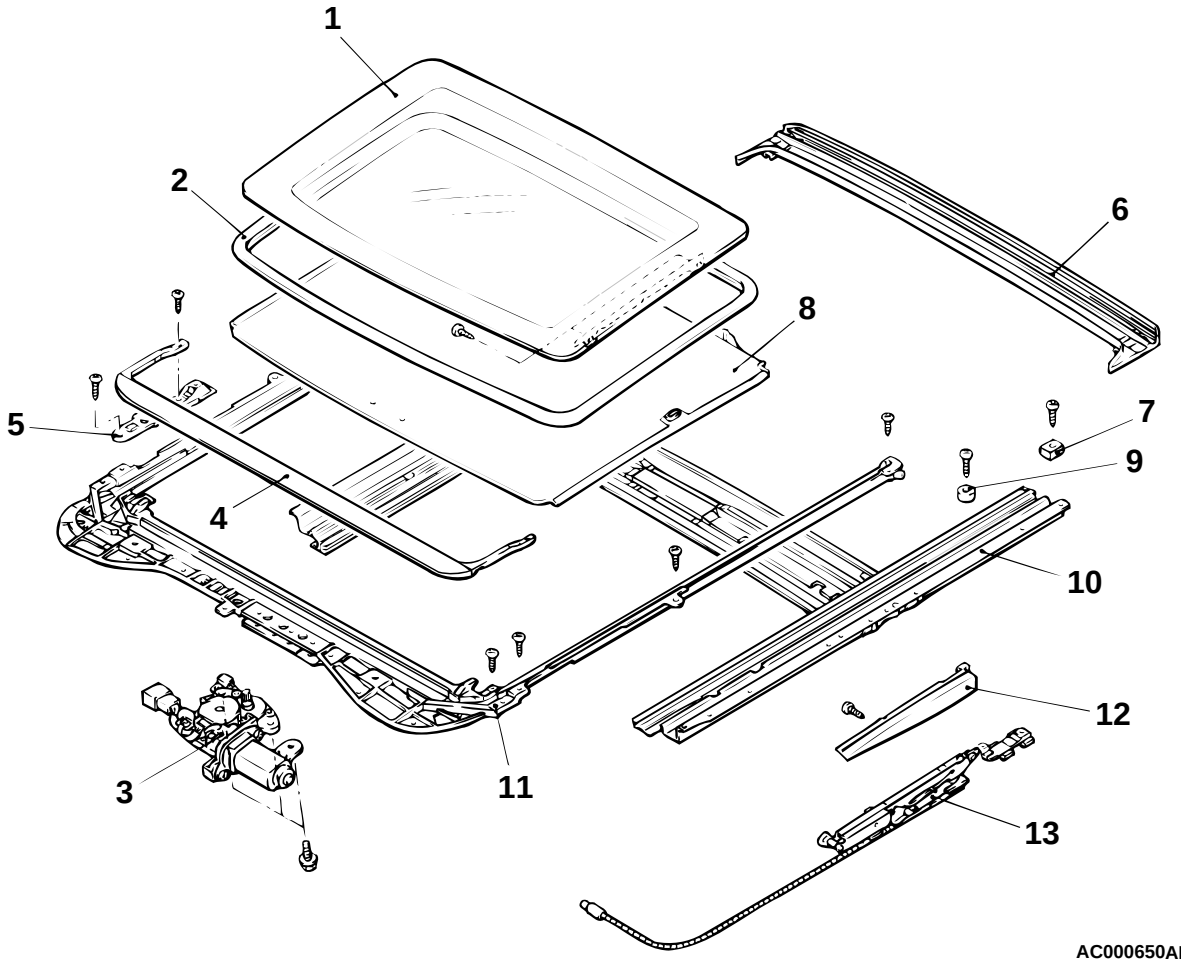
SWITCH POSITION	TESTER CONNECTION	SPECIFIED CONDITION
SLIDE OPEN	4 – 5	Continuity
OFF	–	No Continuity
TILT UP	3 – 4	Continuity
SLIDE CLOSE, TILT DOWN	4 – 6	Continuity

DISASSEMBLY AND ASSEMBLY

M1426001400067







DISASSEMBLY STEPS

1. ROOF LID GLASS ASSEMBLY
2. WEATHERSTRIP
3. SUNROOF MOTOR
4. ROOF WIND DEFLECTOR PANEL
5. GUIDE BLOCK
6. ROOF DRIP CHANNEL
7. PANEL STOPPER

DISASSEMBLY STEPS (Continued)

8. SUNSHADE ASSEMBLY
9. GUIDE RAIL STOPPER
10. RAIL SUB ASSEMBLY
11. HOUSING SUB ASSEMBLY
12. SIDE DEFLECTOR
13. DRIVE CABLE ASSEMBLY

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SPECIFICATIONS

FASTENER TIGHTENING SPECIFICATIONS

M1421005300056

ITEMS		SPECIFICATIONS
Door	Door hinge bolt (body side)	26 N·m (19 ft-lb)
	Door hinge bolt (door side)	21 N·m (15 ft-lb)
	Door latch assembly screw	6 N·m (53 in-lb)
	Striker screw	11 N·m (97 in-lb)
Hood	Hood hinge bolt	12 N·m (106 in-lb)
	Hood hinge nut (body side)	12 N·m (106 in-lb)
	Hood latch bolt	22 N·m (16 ft-lb)
	Hood support rod bolt	5 N·m (44 in-lb)
	Hood switch bolt	5 N·m (44 in-lb)
Trunk lid	Trunk lid hinge bolt	5 N·m (44 in-lb)
	Trunk lid latch bolt	9 N·m (80 in-lb)
	Trunk lid striker bolt	9 N·m (80 in-lb)

SERVICE SPECIFICATIONS

M1421000300051

<DOOR>

ITEM		STANDARD VALUE
Door inside handle play mm (in)		5.3 (0.21) or more
Door outside handle play mm (in)	Front door	3.7 (0.15) or more
	Rear door	2.4 (0.09) or more

<SUNROOF>

ITEM	STANDARD VALUE
Roof lid glass operation current A	7A or less [at 20°C (68°F)]

SEALANTS AND ADHESIVES

M1421000500055

<DOOR>

ITEMS	SPECIFIED SEALANT	REMARK
Waterproof film	3M™ AAD Part No. 8625 or equivalent	Ribbon sealer

<FENDER>

ITEMS	SPECIFIED SEALANT	REMARK
Fender	3M™ AAD Part No. 8625 or equivalent	Ribbon sealer

<WINDOW GLASS>

ITEMS	SPECIFIED ADHESIVES
Rear window glass	3M™ AAD Part No. 8609 Super Fast Urethane and 3M™ AAD Part No. 8608 Super Fast Urethane Primer or equivalent
Windshield	

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COMPONENT IDENTIFICATIONS

M1421005400086

<DOOR HINGES>

APPLICABLE LOCATION		IDENTIFICATION MARK
Rear left side door	Upper hinge	M2
	Lower hinge	O2
Rear right side door	Upper hinge	N2
	Lower hinge	P2

<DOOR OUTER OPENING WEATHERSTRIP>

APPLICABLE SIDE	IDENTIFICATION COLOR
Left door	Natural (White)
Right door	Orange

<DRIP MOLDING CLIP>

APPLICABLE LOCATION		IDENTIFICATION COLOR
Drip molding clip A		Red
Drip molding clip B		Blue
Drip molding clip C		White
Front drip molding clip A	LH	Green
	RH	Pink
Front drip molding clip B		Blue
Front drip molding clip C		Orange

<TRUNK LID TORSION BAR>

EQUIPMENT	IDENTIFICATION COLOR
Vehicles without air spoiler	-
Vehicles with air spoiler	Red