GROUP 42

BODY

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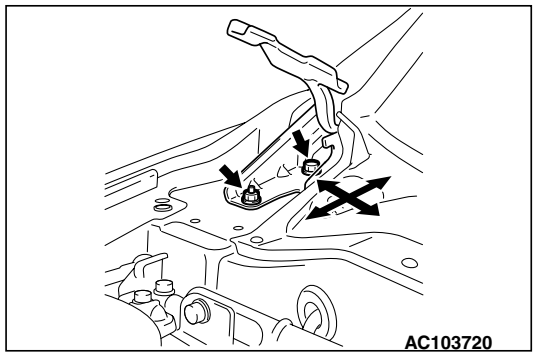
HOOD

ON-VEHICLE SERVICE

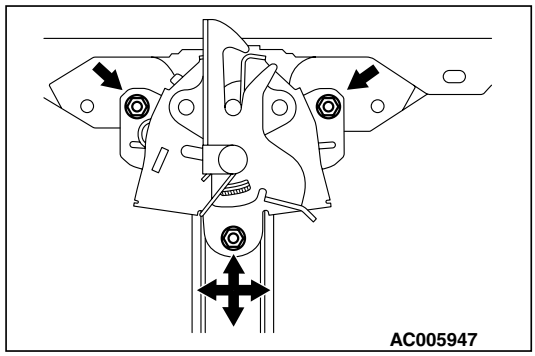
ADJUSTMENT OF CLEARANCE AROUND HOOD

M1421007200107



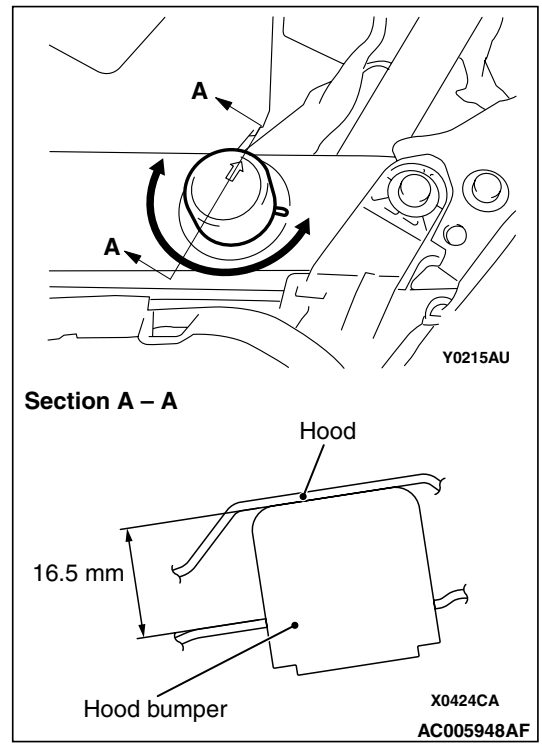
ADJUSTMENT OF ALIGNMENT OF HOOD STEPPED PORTION AND HOOD STRIKER

M1421007300104



ADJUSTMENT OF HOOD HEIGHT

M1421007400101

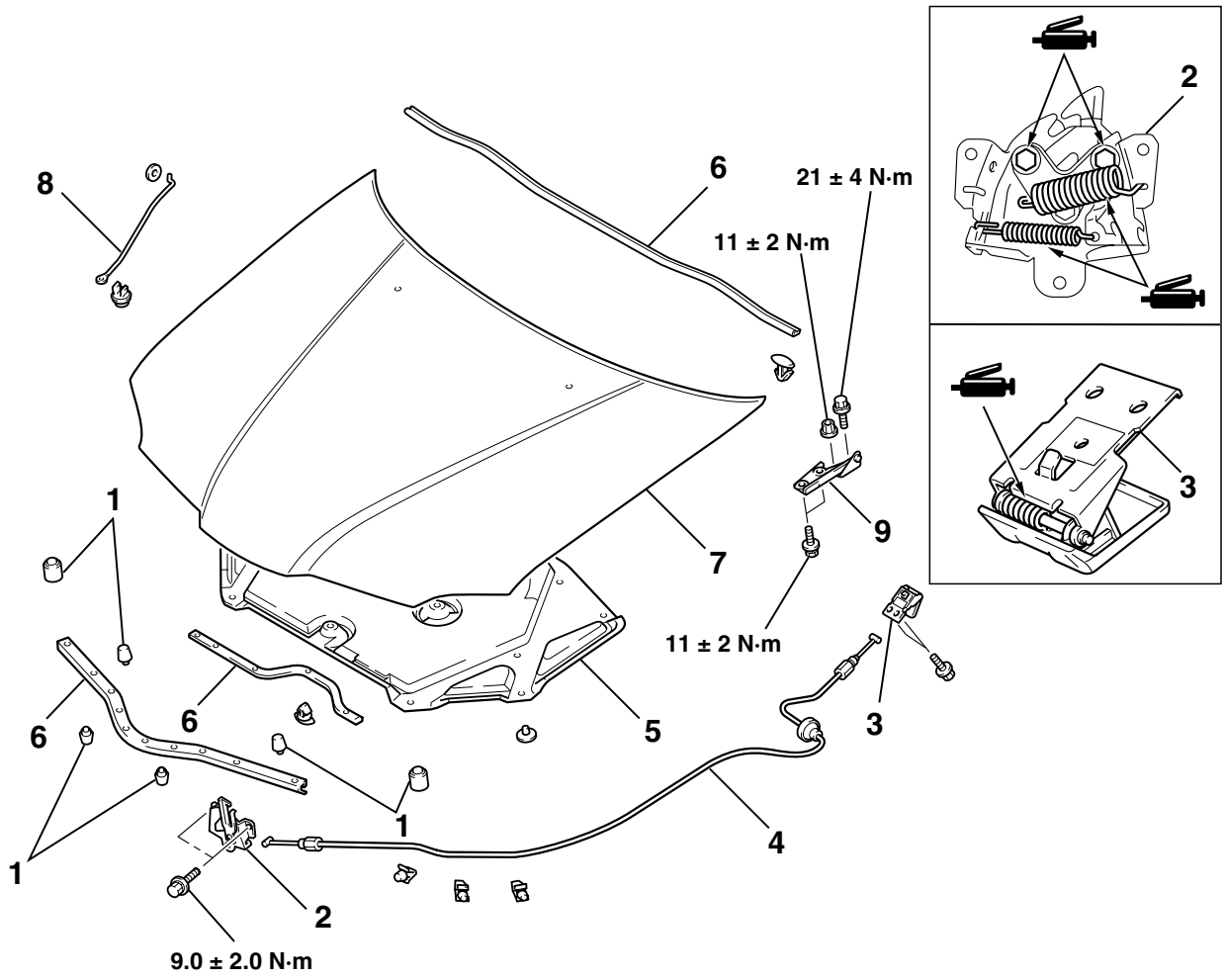


Rotate the hood bumper by using the arrow mark on the hood bumper as a guide to adjust the hood height. If the hood bumper is rotated just one turn, the hood height changes by approximately 3 mm.

HOOD

REMOVAL AND INSTALLATION

M1421001600301



AC107422 AB

Removal

1. Hood bumper

Hood latch and hood lock release cable removal steps

- Radiator grille (Refer to GROUP 51, Radiator grille P.51-10).

2. Hood latch

- Splash shield (Refer to P.42-6).

3. Hood lock release handle
4. Hood lock release cable

Hood and hood hinge removal steps

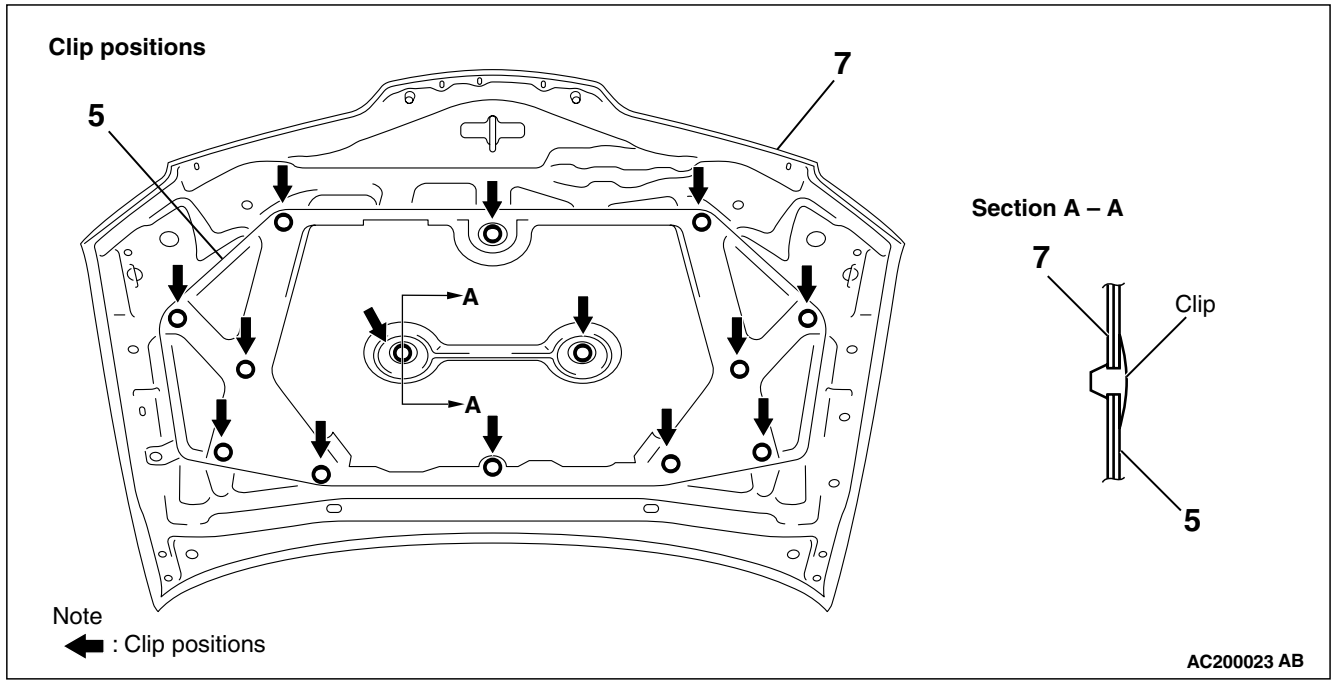
5. Hood insulator
6. Hood weatherstrip

- Washer hose (Refer to GROUP 51, Windshield washer P.51-23).

7. Hood
8. Hood support rod

- Front deck garnish (Refer to GROUP 51, Windshield wiper P.51-20).

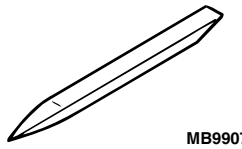
9. Hood hinge


Clip positions
7
5
A
A
Section A – A
7
Clip
5
Note
: Clip positions
AC200023 AB

FENDER

SPECIAL TOOL

M1421000600212

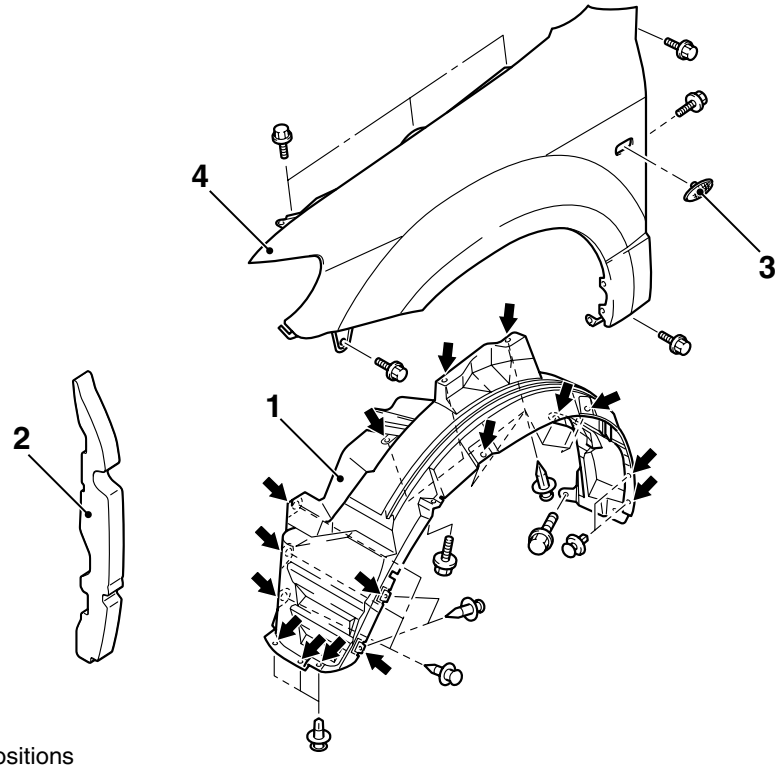
Tool	Number	Name	Use
 MB990784	MB990784	Ornament remover	Side turn-signal lamp removal

FENDER

REMOVAL AND INSTALLATION

M1421001900283

Pre-removal and Post-installation Operation
- Front Bumper Removal and Installation (Refer to GROUP 51, Front Bumper P.51-3).
- Front Deck Garnish Removal and Installation (Refer to GROUP 51, Windshield Wiper P.51-20).



Note
◀ : Clip positions

AC301492 AB

Removal Steps
- Side sill garnish (Refer to GROUP 51, Garnish P.51-12).

1. Splash shield
2. Front pillar pad

<<A>> >>A<<

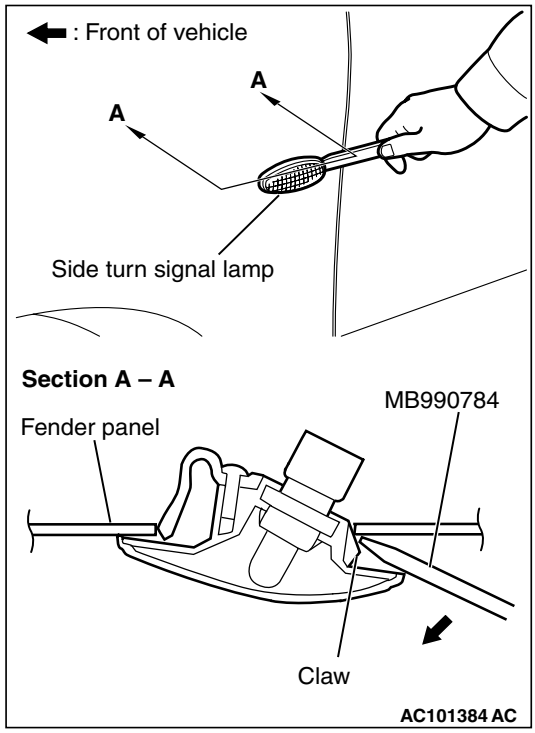
Removal Steps (Continued)

3. Side turn signal lamp
- Headlamp assembly (Refer to GROUP 54A, Headlamp P.54A-51).

4. Fender

REMOVAL SERVICE POINT

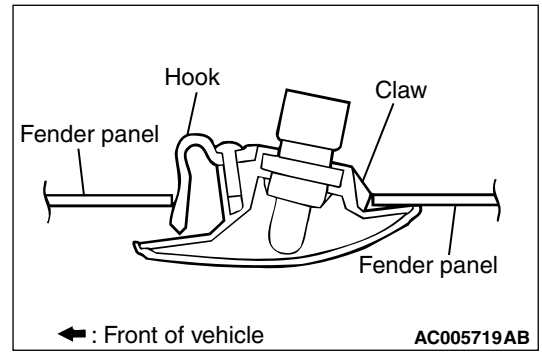
<<A>> SIDE TURN SIGNAL LAMP REMOVAL



Use an appropriate tool such as MB990874 to pry out the tab from the fender, and remove the side turn signal lamp.

INSTALLATION SERVICE POINT

>>A<< SIDE TURN SIGNAL LAMP INSTALLATION



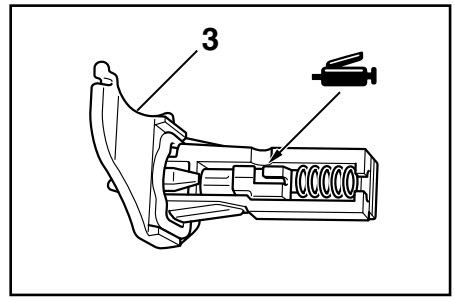
Engage the hook with the fender panel, and install the side turn signal lamp.

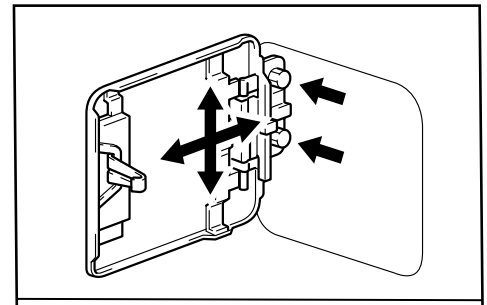
FUEL FILLER LID

REMOVAL AND INSTALLATION

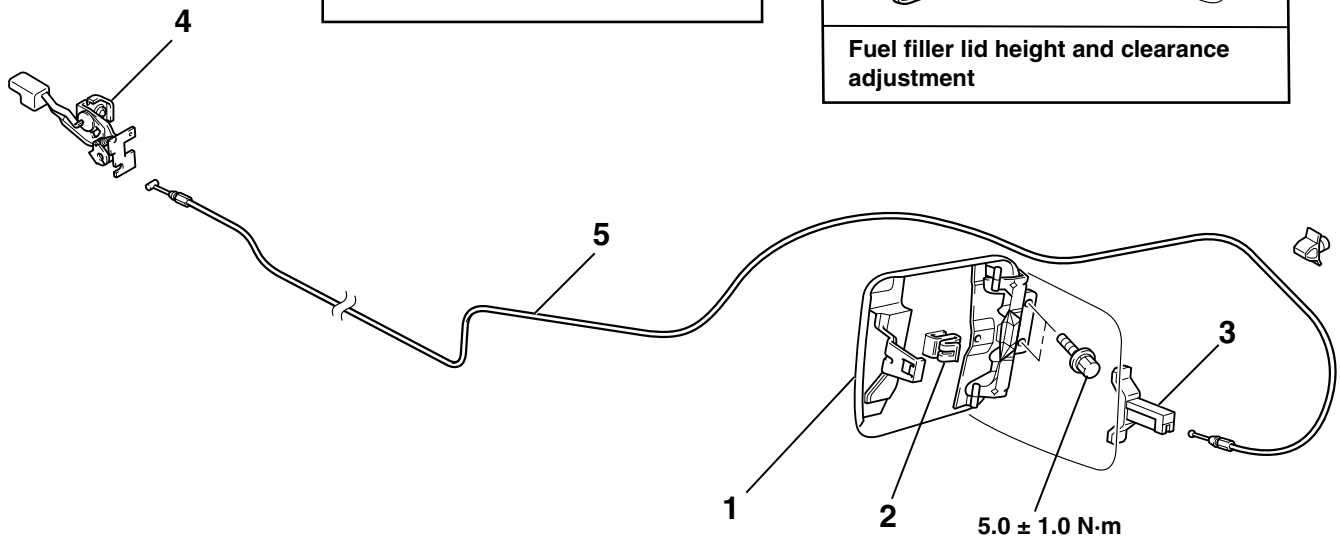
M1421002500255

Pre-removal and Post-installation Operation
- Rear Seat Removal and Installation (Refer to GROUP 52A, Rear Seat P.52A-25).
- Front Seat Assembly (Driver's Seat Side) Removal and Installation (Refer to GROUP 52A, Front Seat P.52A-21).
- Front Seat Belt Anchor Bolt (Driver's Side) Removal and Installation (Refer to GROUP 52A, Front Seat Belt P.52A-29).
- Front Scuff Plate (Driver's Side), Rear Scuff Plate (Driver's Side), Centre Pillar Lower Trim (Driver's Side) Removal and Installation (Refer to GROUP 52A, Trims P.52A-10).
- Floor Console Removal and Installation (Refer to GROUP 52A, Floor Console P.52A-8).





Fuel filler lid height and clearance adjustment



AC107424 AB

Removal steps
1. Fuel filler lid panel assembly
2. Clip
3. Fuel filler lid hook assembly
4. Fuel filler lid lock release handle

Removal steps (Continued)
- Quarter lower trim (Refer to GROUP 52A, Trims P.52A-10).
- Protector C (Refer to GROUP 36, Parking brake P.36-6).

5. Fuel filler lid lock release cable

WINDOW GLASS

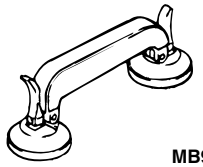
ADHESIVE

M1422000500069

Item	Specified adhesive
Windshield	3M ATD Part No.8609 Super Fast Urethane Auto Glass Sealant or equivalent 3M ATD Part No.8608 Super Fast Urethane Primer or equivalent
Quarter window glass	
Tailgate window glass	
Roof window glass	

SPECIAL TOOL

M1422000600271

Tool	Number	Name	Use
 MB990480	MB990480	Window glass holder	Window glass removal and installation

GENERAL

M1422000100340

The windshield, quarter window glass, tailgate window glass and roof window glass are attached by an urethane-base adhesive to the window frame. This adhesive provides improved glass holding and sealing, and also gives body openings a greater structural strength.

ITEMS

Name	Remark
Adhesive	3M ATD Part No.8609 Super Fast Urethane Auto Glass Sealant or equivalent
Primer	3M ATD Part No.8608 Super Fast Urethane Primer or equivalent
Spacers	Available as service part
Dam	Available as service part
Anti-rust solvent (or Tectyl 506T.Valvoline Oil Company)	For rust prevention
Isopropyl alcohol	For grease removal from bonded surface
Steel piano wire	Dia. × length... 0.6mm × 1m For cutting adhesive
Glass adhesive knife	For cutting adhesive
Adhesive gun	For pressing-out adhesive

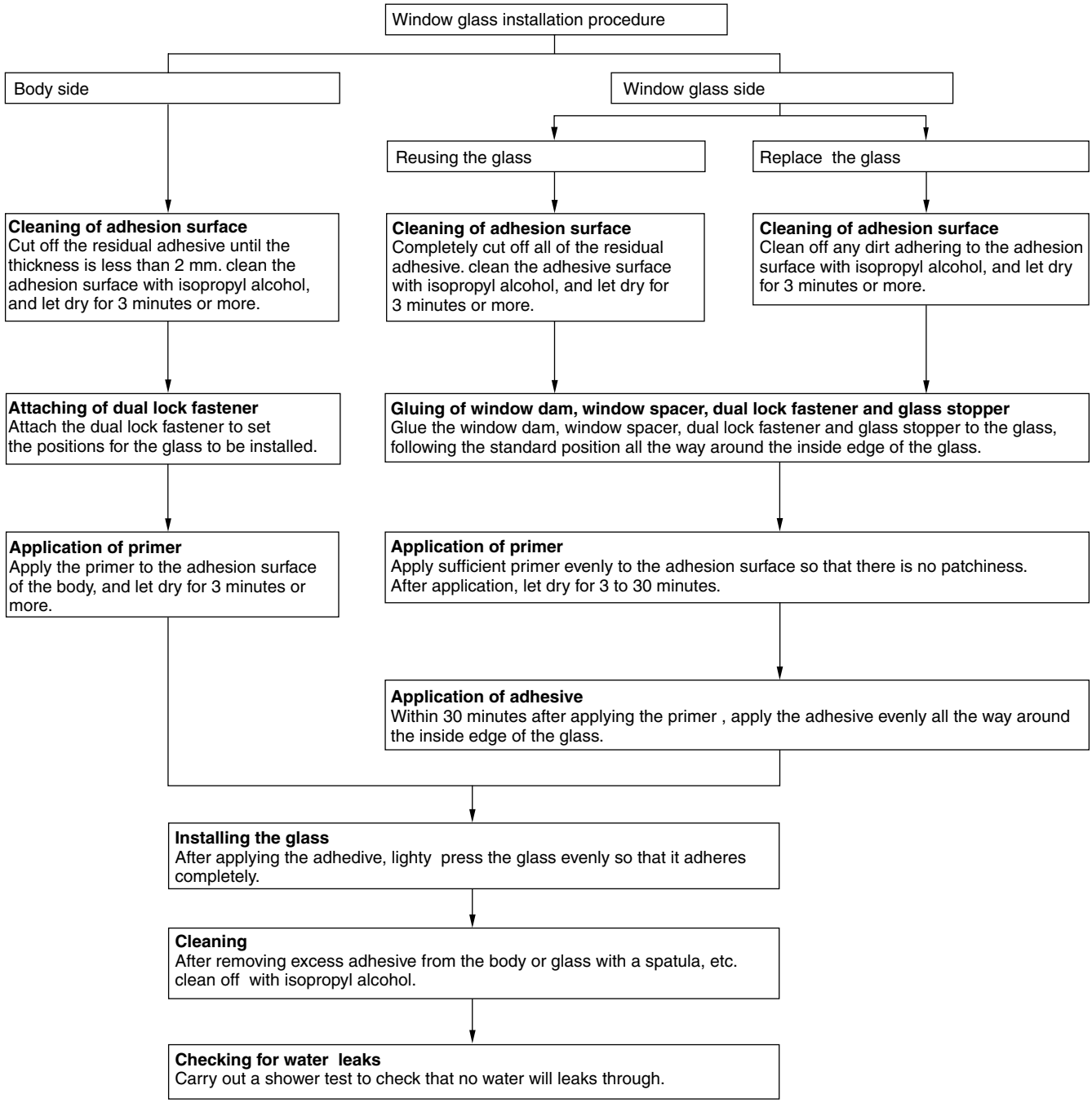
HANDLING OF AUTO WINDOW SEALER

Keep the sealant in a cool place, not exposed to the direct rays of the sun. Do not place any heavy article on the sealant nor press it, otherwise it will become deformed. Avoid storing the sealant for more than 6 months, because it will lose its sealing effect.

BODY PINCH-WELD FLANGE SERVICING

Before servicing the body pinch-weld flange, remove old adhesive completely. If the flange requires painting, bake it after painting is completed.

WINDOW GLASS INSTALLATION



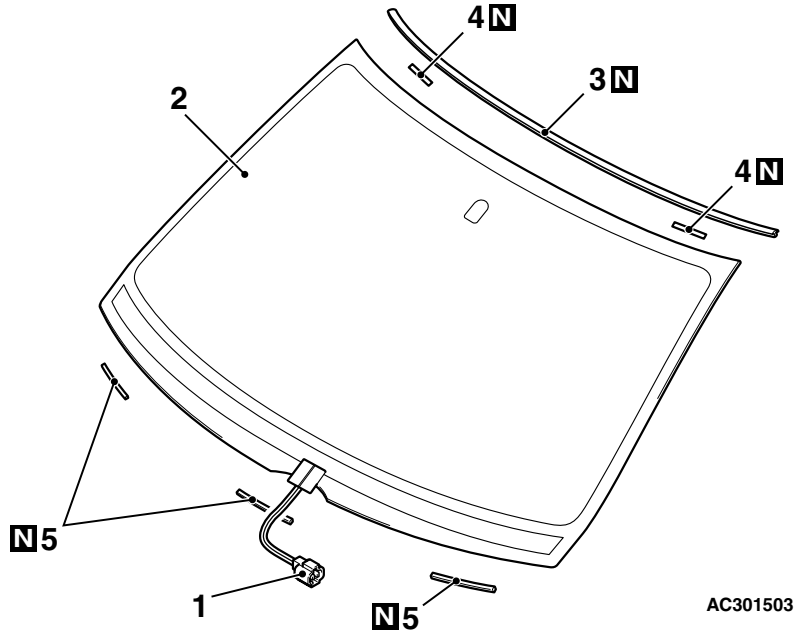
AC300393

WINDSHIELD

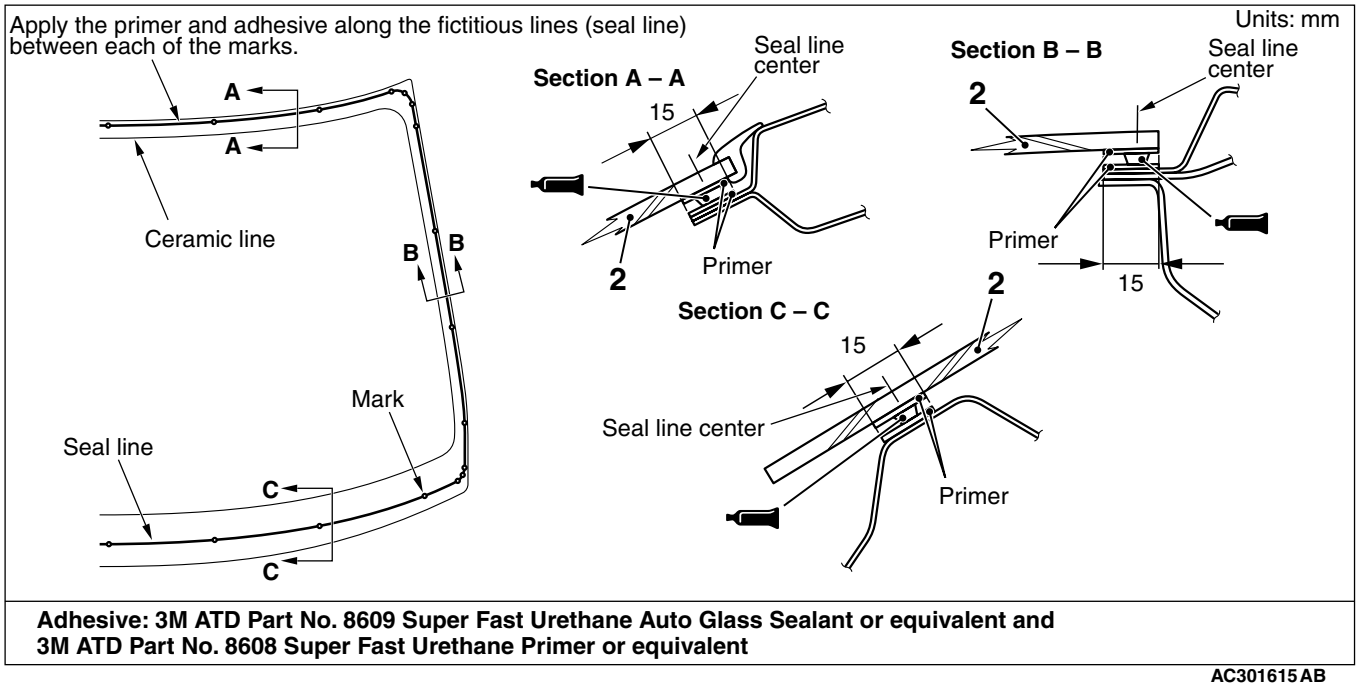
REMOVAL AND INSTALLATION

M1422001000294

Pre-removal and Post-installation Operation
- Front Deck Garnish Removal and Installation (Refer to GROUP 51, Windshield Wiper P.51-20).
- Roof Drip Moulding Removal and Installation (Refer to GROUP 51, Moulding P.51-14).
- Front Pillar Trim Removal and Installation (Refer to GROUP 52A, Trims P.52A-10).



AC301503



Adhesive: 3M ATD Part No. 8609 Super Fast Urethane Auto Glass Sealant or equivalent and 3M ATD Part No. 8608 Super Fast Urethane Primer or equivalent

AC301615AB

Removal steps
1. Harness connector (Refer to GROUP 51, Wiper deicer P.51-39).

<<A>> >>B<< 2. Windshield

Removal steps (Continued)

>>A<< 3. Windshield moulding

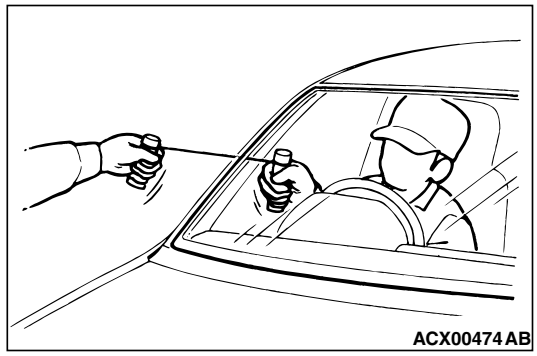
>>A<< 4. Glass stopper

>>A<< 5. Windshield spacer

REMOVAL SERVICE POINT

<<A>> WINDSHIELD REMOVAL

1. To protect the body (paint surface), apply cloth tape to all body areas around the installed windshield.
2. Make mating marks on the windshield and body.



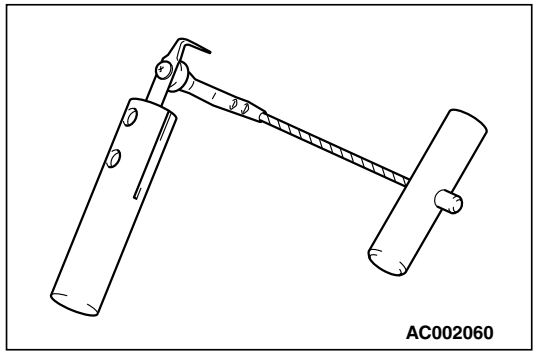
3. Using piano wire.
   (1) Using a sharp-point drill, make a hole in the windshield adhesive.
   (2) Pass the piano wire from the inside of the vehicle through the hole.

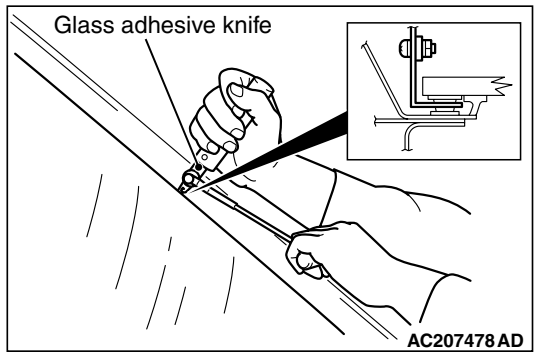
⚠ CAUTION

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

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

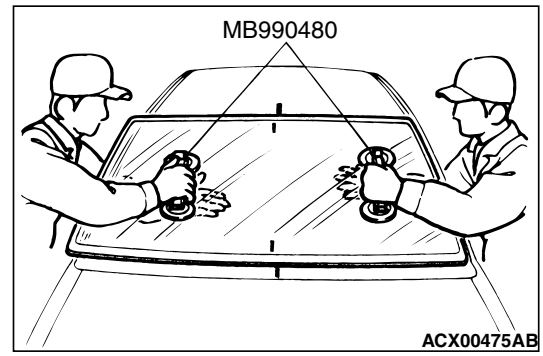
⚠ CAUTION





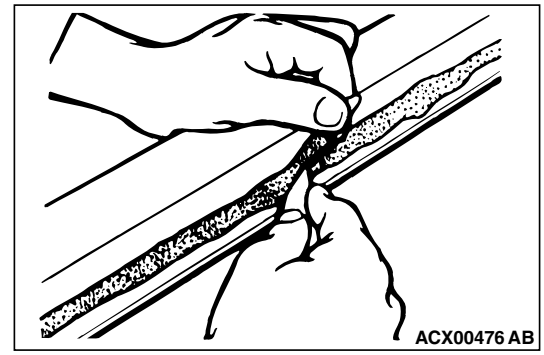
Inserting the glass adhesive knife too deeply into windshield adhesive may damage windshield.

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.



5. Use special tool (MB990480) to remove the windshield.

⚠ 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 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 isopropyl alcohol.
9. Clean the body side in the same way.

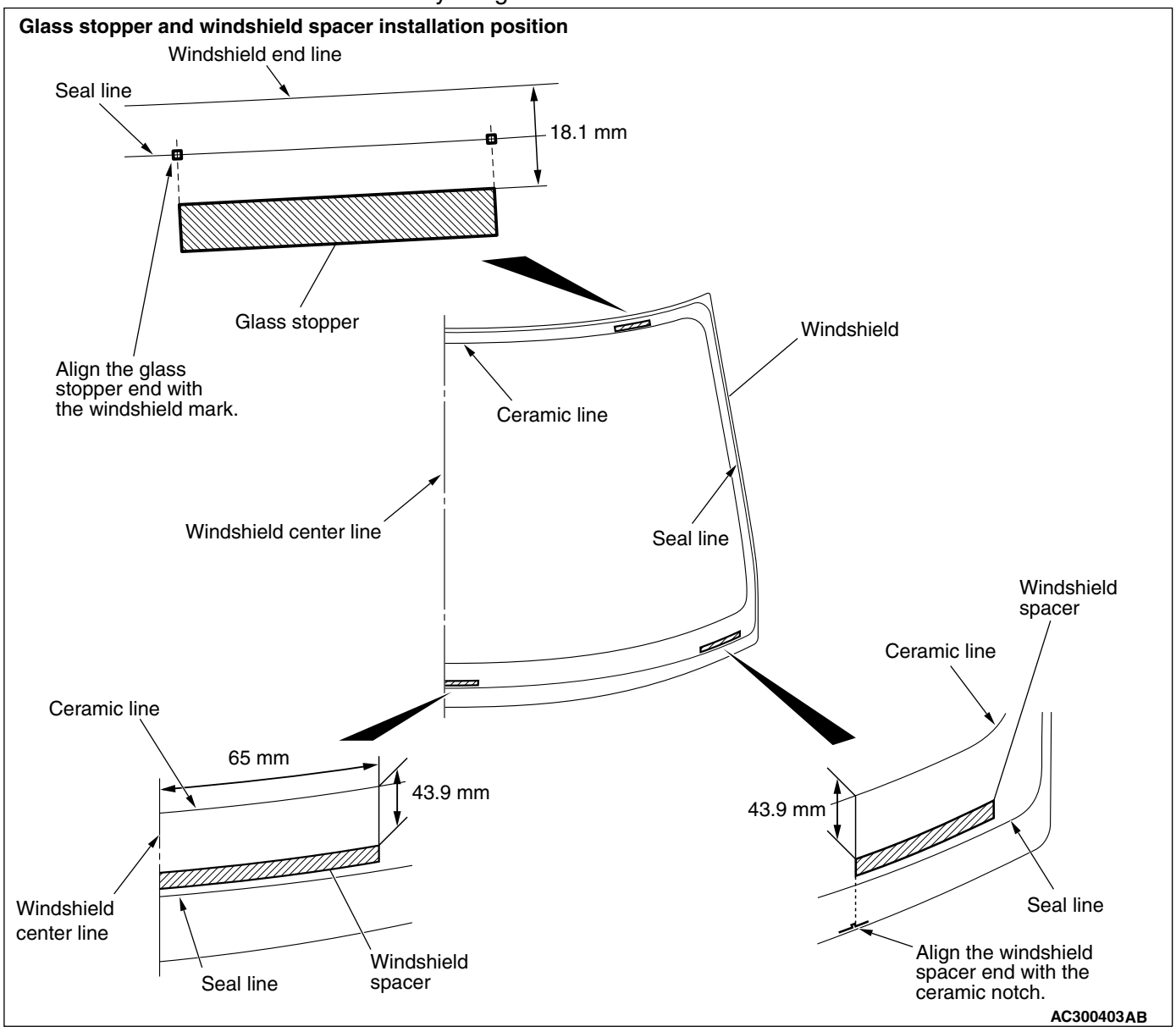
INSTALLATION SERVICE POINTS

>>A<< WINDSHIELD SPACER/GLASS STOPPER/ WINDSHIELD MOULDING INSTALLATION

⚠ CAUTION

Leave the degreased parts for 3 or more minutes to dry well, before starting on the next step. Do not touch the degreased parts.

1. Use isopropyl alcohol to degrease the inside and outside of the windshield and the body flanges.



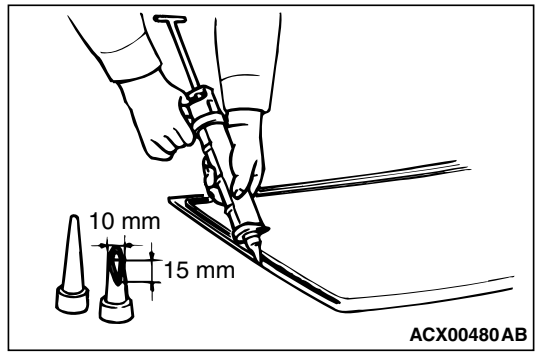
2. The inner side of the windshield is curved, therefore, make a point to assemble the glass stopper and windshield spacer without any lifting and assemble in the position shown.
3. Install the windshield moulding.

>>B<< WINDSHIELD INSTALLATION

1. When replacing the windshield, temporarily set the windshield against the body, and place a mating mark on the windshield and body.

⚠ 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.**

2. Soak a sponge in the primer, and apply evenly to the windshield and the body in the specified places.
3. Allow the windshield to dry for at least three minutes after applying primer.



4. Fill a sealant gun with adhesive. Then apply the adhesive evenly around the windshield within 30 minutes after applying the primer.

   NOTE: Cut the tip of the sealant gun nozzle into a V shape to simplify adhesive application.
5. Align the mating marks on the windshield and the body, and lightly press the windshield evenly so that it adheres completely.
6. Use a spatula or similar tool to remove any excessive adhesive. Clean the surface with isopropyl alcohol. Avoid moving the vehicle until the adhesive sets.
7. Bond the windshield to the body, and install the roof drip moulding quickly before the adhesive cures. (Refer to GROUP51, Moulding P.51-14).

⚠ 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.**

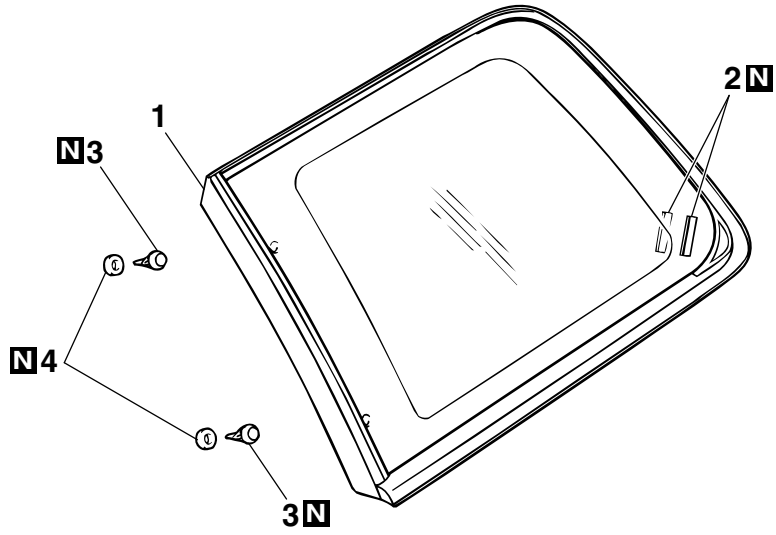
8. Wait 30 minutes or more, and then test for water leakage.

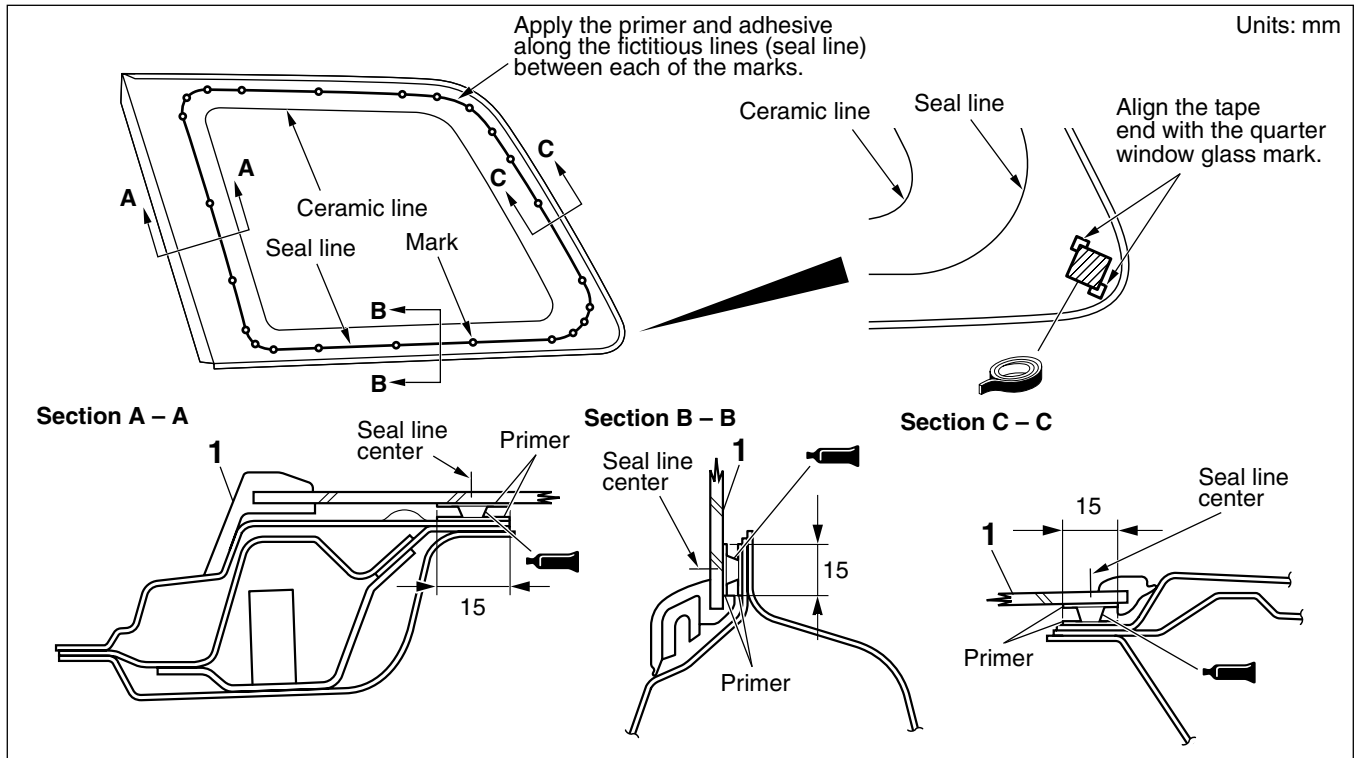
QUARTER WINDOW GLASS

REMOVAL AND INSTALLATION

M1422002500225

Pre-removal and Post-installation Operation
- Quarter Trim Upper Removal and Installation (Refer to GROUP 52A, Trims P.52A-10).





Adhesive: 3M ATD Part No. 8609 Super Fast Urethane Auto Glass Sealant or equivalent and 3M ATD Part No. 8608 Super Fast Urethane Primer or equivalent

Adhesive tape: Double-sided tape [15 mm width, 15 mm length and 0.8 mm thickness]

AC107211AB

Removal steps

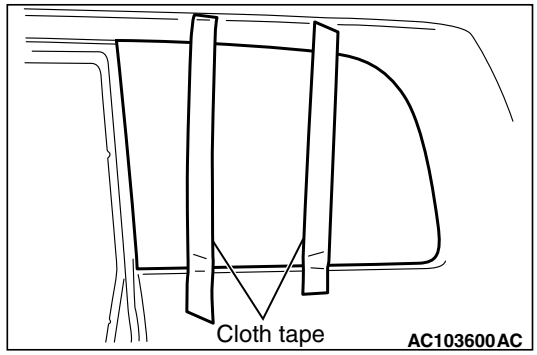
<<A>> >>B<< 1. Quarter window glass assembly
>>A<< 2. Dual lock fastener

Removal steps (Continued)

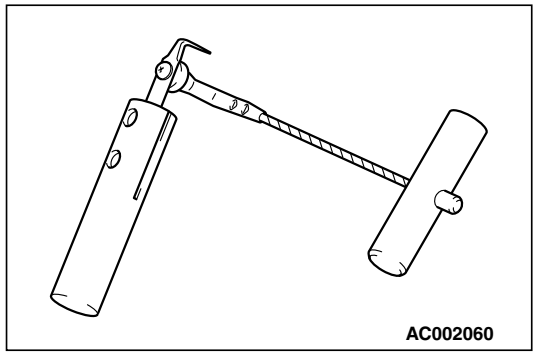
>>A<< 3. Clip
>>A<< 4. Gasket

REMOVAL SERVICE POINT

<<A>> QUARTER WINDOW GLASS REMOVAL

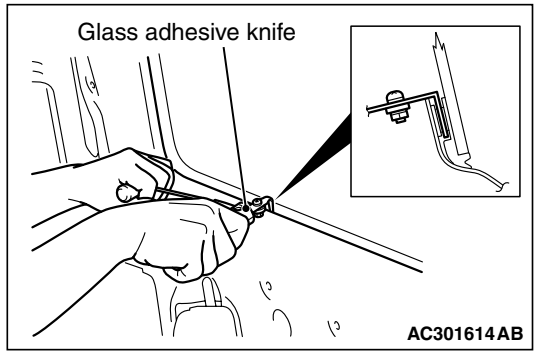


1. Apply cloth tape to protect the quarter window glass.



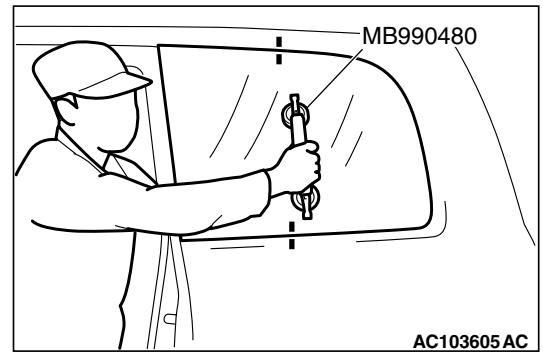
2. Use glass adhesive knife to cut away adhesive.

⚠ CAUTION



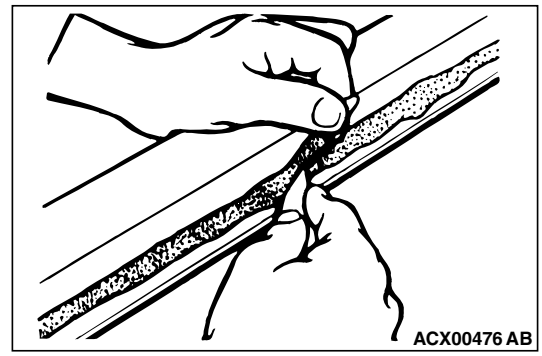
Inserting the adhesive knife too deeply into windshield adhesive may damage quarter window glass.

3. Keep the glass adhesive knife at right angles with body flange (from inside the vehicle), and put the blade at body flange. Then cut away adhesive along the body flange.



4. Make mating marks on the quarter window glass and body.
5. Use special tool (MB990480) to remove the quarter window glass.

⚠ 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 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 quarter window glass, remove the adhesive still adhering to the quarter window glass, and clean with isopropyl alcohol.
9. Clean the body side in the same way.

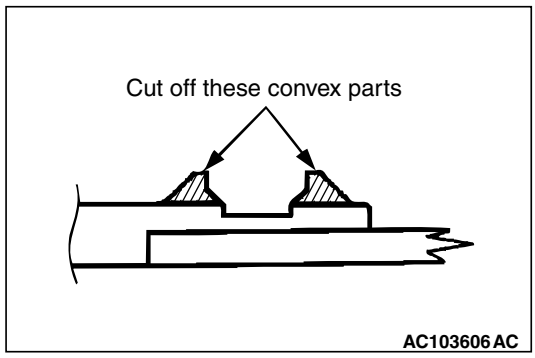
INSTALLATION SERVICE POINTS

>>A<< GASKET/CLIP/DUAL LOCK FASTENER INSTALLATION

1. Carry out the following procedure to re-install quarter window glass.

⚠ CAUTION
Do not forget gasket.

(1) Fit clips into body.

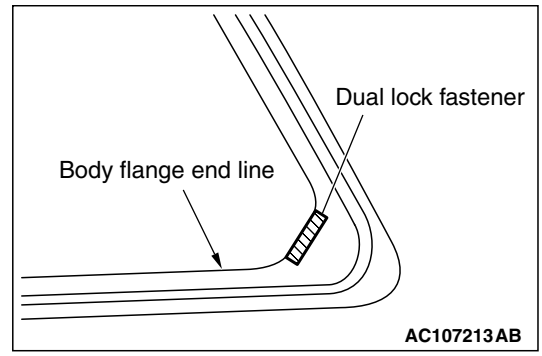


(2) Cut away clip fitting convex on quarter window glass.

NOTE: Convex gets broken when quarter window glass is removed.

⚠ CAUTION
Leave the degreased parts for 3 or more minutes to dry well, before starting on the next step. Do not touch the degreased parts.

2. Use isopropyl alcohol to degrease the inside and outside of the quarter window glass and the body flanges.



3. Assemble the dual lock fastener according to the standard location of the body flange.
4. Assemble the dual lock fastener to the quarter window glass relative to the body flange dual lock fastener.

>>B<< QUARTER WINDOW GLASS INSTALLATION

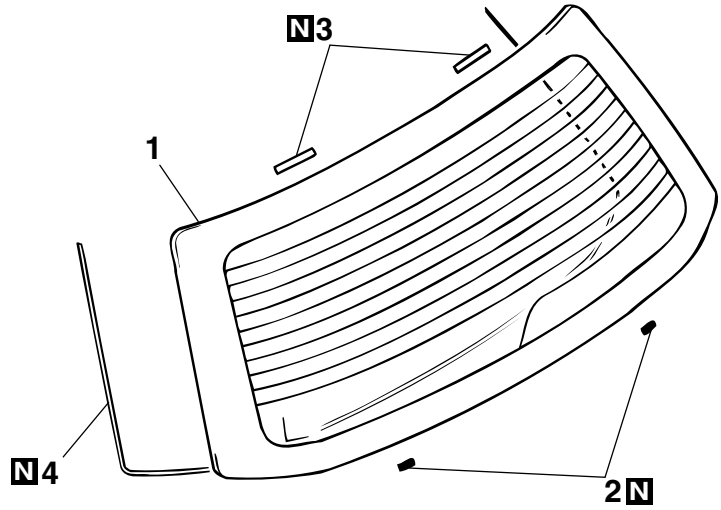
Remove the quarter window glass using the same procedure as for the windshield removal (Refer to P.42-11).

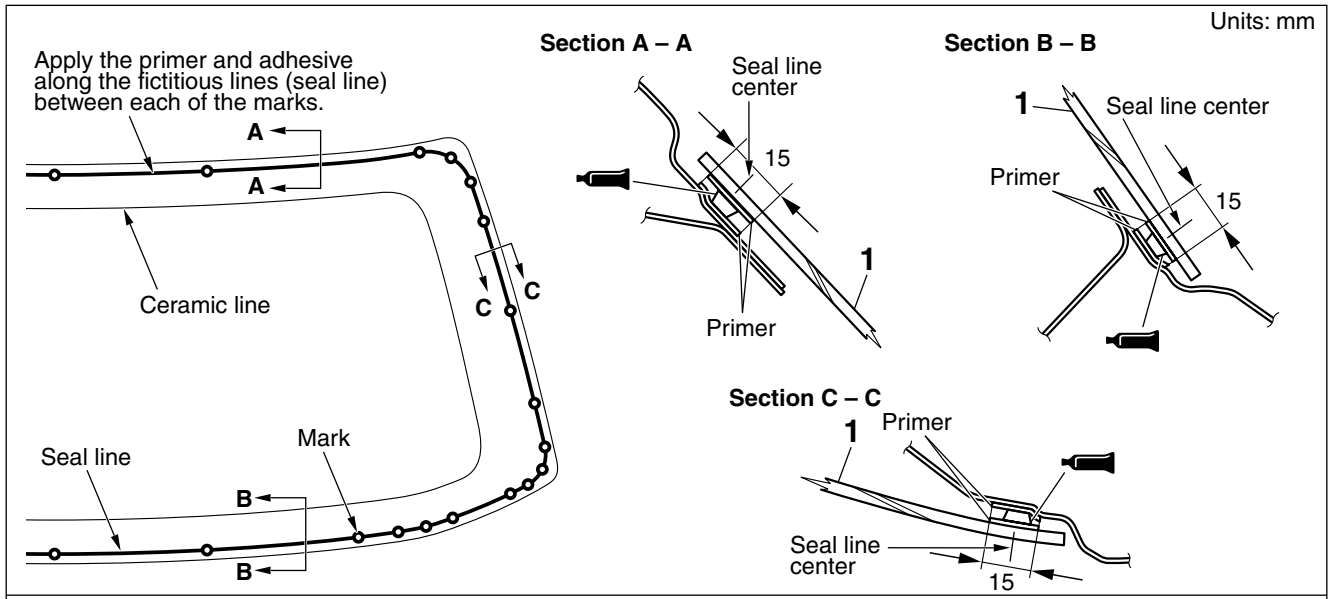
TAILGATE WINDOW GLASS

REMOVAL AND INSTALLATION

M1422003700158

Pre-removal and Post-installation Operation
- Tailgate Trim Removal and Installation (Refer to GROUP 52A, Tailgate Trim P.52A-17).
- Rear Wiper Arm Assembly Removal and Installation (Refer to GROUP 51, Rear Wiper and Washer P.51-26).





Adhesive: 3M ATD Part No. 8609 Super Fast Urethane Auto Glass Sealant or equivalent and 3M ATD Part No. 8608 Super Fast Urethane Primer or equivalent

AC107209AB

Removal steps
- Harness connector

<<A>> >>B<< 1. Tailgate window glass
>>A<< 2. Dual lock fastener

Removal steps (Continued)

>>A<< 3. Glass stopper
>>A<< 4. Window dam

REMOVAL SERVICE POINT

<<A>> TAILGATE WINDOW GLASS REMOVAL

Remove the tailgate window glass using the same procedure as for the windshield. (Refer to P.42-11).

INSTALLATION SERVICE POINTS

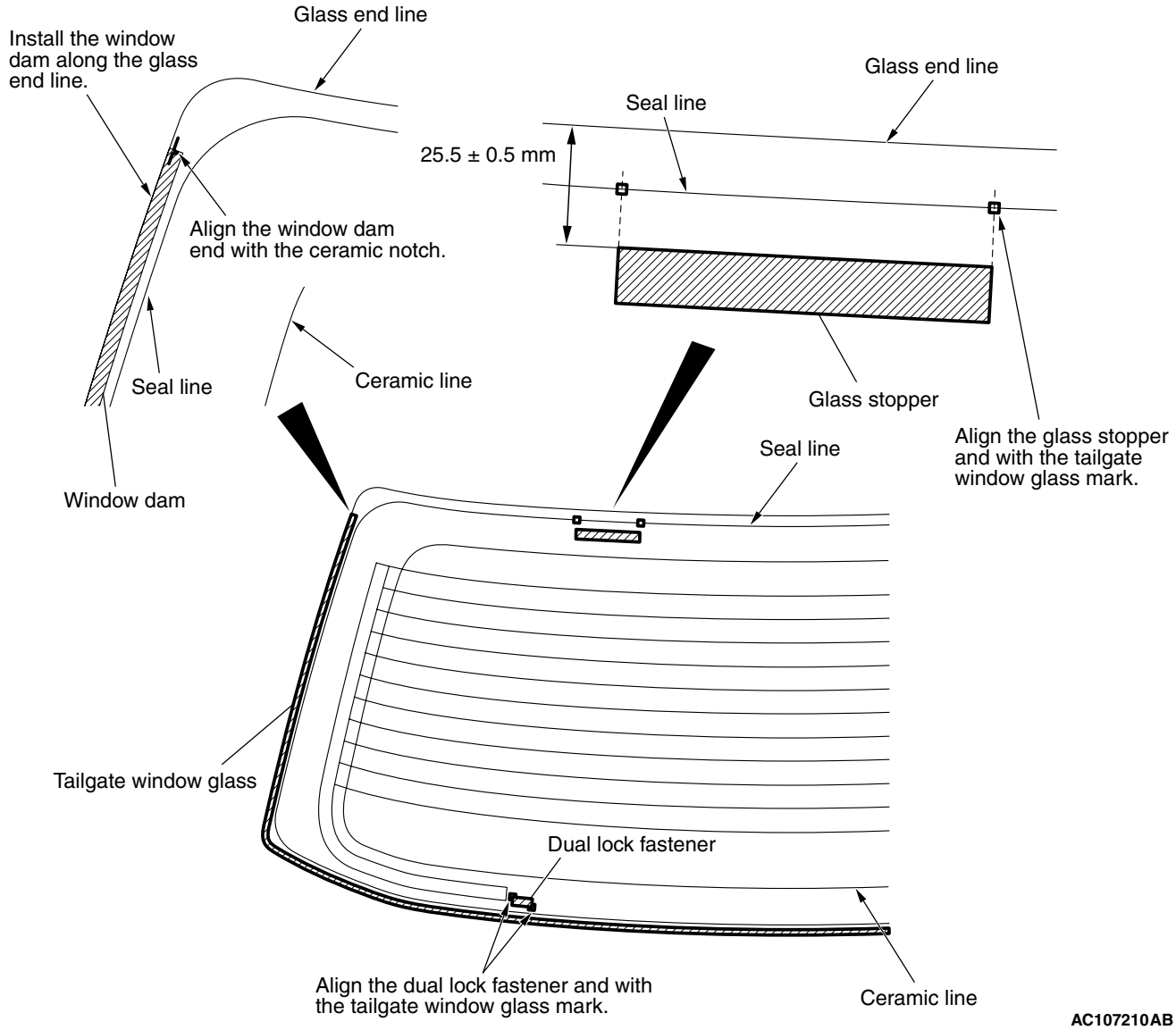
>>A<< WINDOW DAM/GLASS STOPPER/DUAL LOCK FASTENER INSTALLATION

⚠ CAUTION

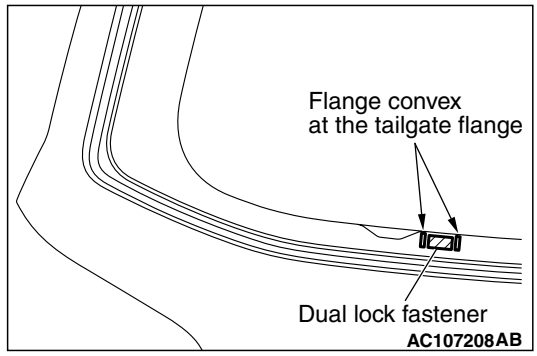
Leave the degreased parts for 3 or more minutes to dry well, before starting on the next step. Do not touch the degreased parts.

1. Use isopropyl alcohol to degrease the inside and outside edges of the tailgate window glass and the surface of the tailgate flange.

Glass stopper, window dam and dual lock fastener installation position



2. Assemble the window dam, glass stopper and dual lock fastener to the tailgate window glass location shown.



3. Assemble the dual lock fastener in alignment with the protrusion of the tailgate flange.

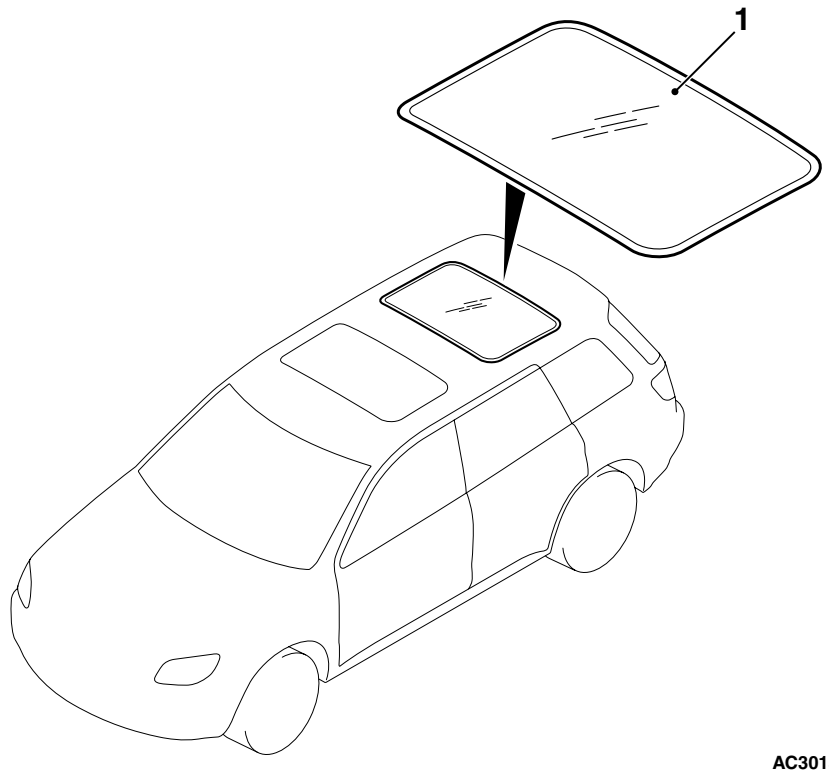
>>B<< TAILGATE WINDOW GLASS INSTALLATION

Install the tailgate window glass in the same way as for the windshield installation (Refer to P.42-11).

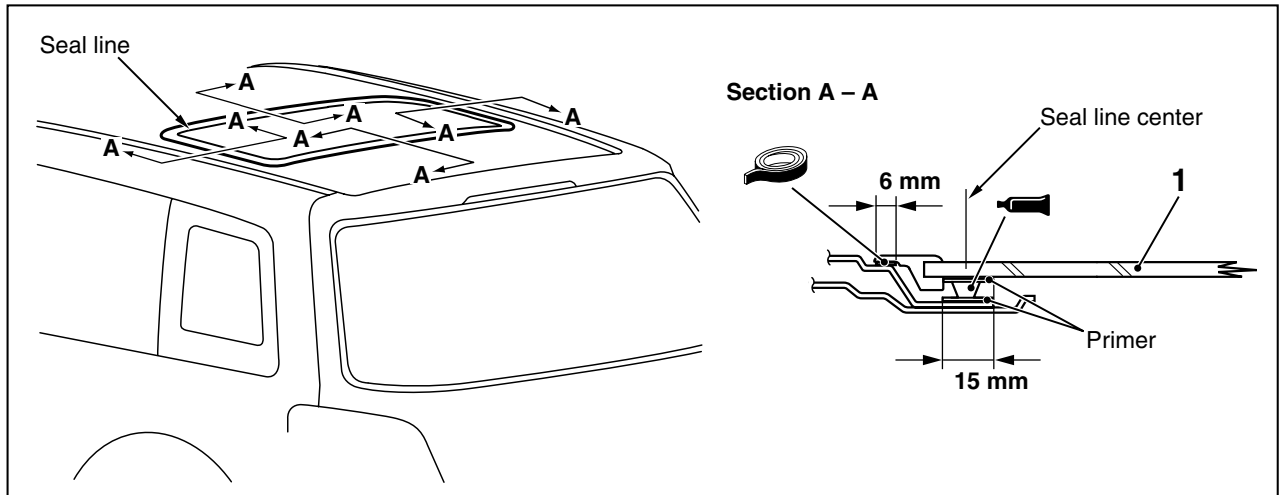
ROOF WINDOW GLASS

REMOVAL AND INSTALLATION

M1422004300045



AC301504



Adhesive: 3M ATD Part No. 8609 Super Fast Urethane Auto Glass Sealant or equivalent and 3M ATD Part No. 8608 Super Fast Urethane Primer or equivalent
Adhesive tape: Double-sided tape [6 mm width, 0.5 mm thickness]

AC301821AB

Removal steps
- Frame assembly (Refer to GROUP 52A – Headlining P.52A-19).

<<A>> **>>A<<** 1. Roof window glass assembly

REMOVAL SERVICE POINT

<<A>> ROOF WINDOW GLASS ASSEMBLY REMOVAL

Remove by the same procedure as for the quarter window glass (Refer to P.42-15).

INSTALLATION SERVICE POINT

>>A<< ROOF WINDOW GLASS ASSEMBLY INSTALLATION

Install by the same procedure as for the windshield (Refer to P.42-11).

DOOR

SERVICE SPECIFICATIONS

M1423000300079

Item		Standard value
Power window operation current (Power supply voltage 14.5 ± 0.5 V, at 25 °C) A		5 ± 1
Door outside handle play mm	Front door	2.6 ± 2.5
	Rear door	1.3 ± 1.3
Door inside handle play mm	Front door	10.4 ± 9.6
	Rear door	10 ± 9.6

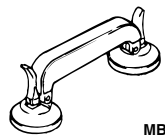
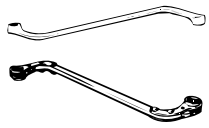
SEALANT

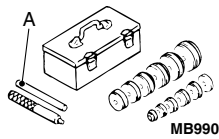
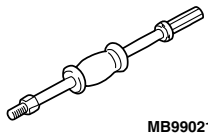
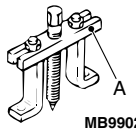
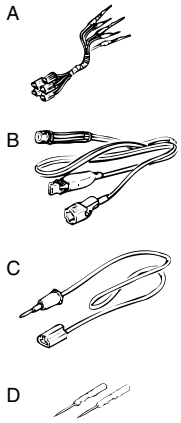
M1423000500073

Item	Specified sealant
Door waterproof film	3M ATD Part No.8633 or equivalent

SPECIAL TOOLS

M1423000600315

Tool	Number	Name	Use
 MB990480	MB990480	Window glass holder	Removal of power window regulator and motor assembly
 MB990900	MB990900 or MB991164	Door hinge adjusting wrench	Door alignment

Tool	Number	Name	Use
 MB990925AF	MB990925 A: MB990939	Bearing and oil seal installer set A: Brass bar	Door striker adjustment
 MB990211	MB990211	Sliding hammer	
 MB990241AE	MB990241 A: MB990243	Axle shaft puller A: Body puller	
 MB991223AD	MB991223 A: MB991219 B: MB991220 C: MB991221 D: MB991222	Harness set A: Test harness B: LED harness C: LED harness adapter D: Probe	Terminal voltage measurement A: For checking connector pin contact pressure B: For checking power supply circuit C: For checking power supply circuit D: For connecting a locally sourced tester

TROUBLESHOOTING

M1423000700282

The door system is controlled by the Smart Wiring System (SWS). For troubleshooting, refer to GROUP 54B, Diagnosis P.54B-12 or GROUP 54C, Diagnosis P.54C-4.

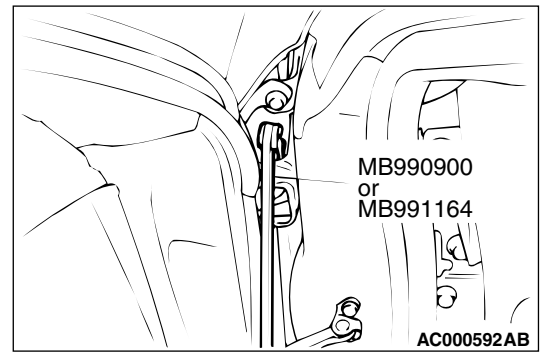
ON-VEHICLE SERVICE

DOOR FIT ADJUSTMENT

M1423001100164

⚠ CAUTION

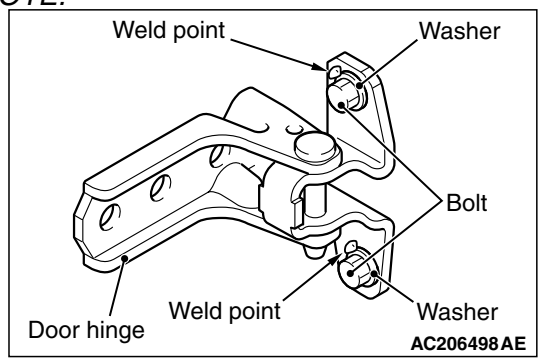
- **Attach protection tape to the fender and door edges where the hinge is installed.**
- **Do not rotate special tool (MB991164) with a torque of over 98 N·m.**



AC000592AB

1. Use 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. If a door is not flush with its surrounding panels, loosen the door-side door hinge mounting bolts and obtain the flushness by moving the door.

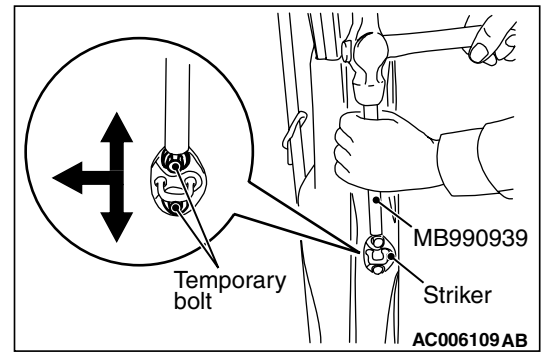
NOTE:



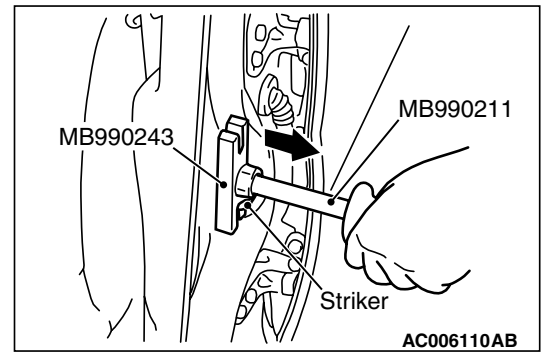
If the door hinge mounting bolt washers are welded, grind off the welding according to the procedure below beforehand.

1. *Remove the door hinge (Refer to P.42-28).*
2. *Use a chisel or grinder to release the door hinge mounting bolt washer, which is welded to the door hinge.*
3. *On completion, paint the affected area with a suitable touch-in brush to prevent corrosion.*
4. *Install the door hinge (Refer to P.42-28).*

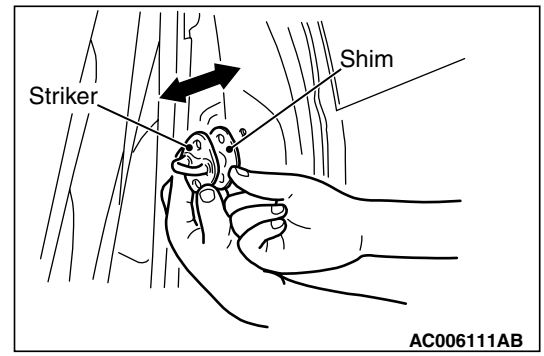
3. When the door is stiff to lock and unlock:



(1) Adjustment by using the striker (toward the inside of the vehicle and vertical direction)
Install an appropriate bolt instead of the striker mounting bolt, and use special tool (MB990939) and a hammer to tap the bolt to the desired direction.



(2) Adjustment by using the striker (toward the outside of the vehicle)
Use special tools (MB990211 and MB990243) to pull the striker toward the outside of the vehicle.



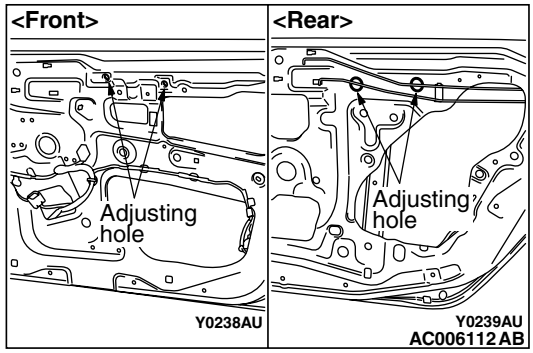
(3) Adjustment by using shims (forward and rearward)
Increase or decrease the number of shims so that the striker engages with the door latch properly.

DOOR WINDOW GLASS ADJUSTMENT

M1423001000305

Check that the door glass moves while contacting the door glass channel when it is raised and lowered fully. If not, adjust the door window according to the following procedures.

1. Remove the door trim assembly (Refer to GROUP 52A, Door trim P.52A-13).
2. Remove the waterproof film. (Refer to P.42-37).



3. Loosen the door glass mounting screw via the adjusting hole with the door window glass fully closed, then lower the window glass a little.
4. Fully close the door window glass again and tighten the door glass mounting screw firmly via the adjusting hole.

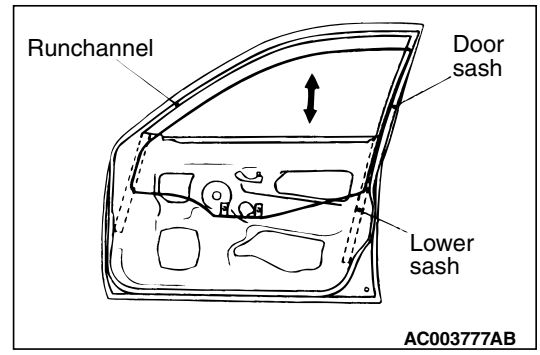
GLASS SLIDING MECHANISM CHECK AND ADJUSTMENT

M1429000900080

If the window glass automatically starts moving downwards at the wrong time while it is being raised, carry out the following adjustment or replacement procedures.

1. Remove the door trim assembly. (Refer to GROUP 52A, Door trim P.52A-13).
2. Remove the waterproof film. (Refer to P.42-37).
3. Remove the window regulator assembly from the door window glass, and then raise and lower the door window glass by hand to check the operation force.

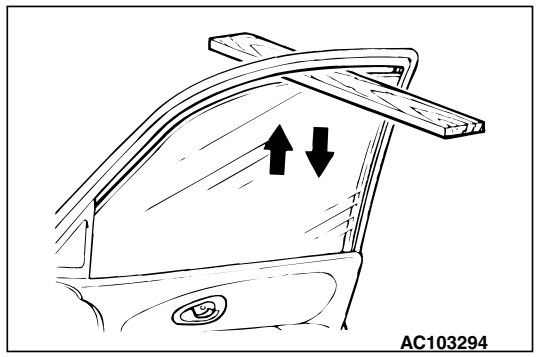
   NOTE: Insert a cushion or similar object to prevent damage to the glass if it should happen to fall down.



4. If the door window glass does not move up and down smoothly, check or repair the following points.
   - Check the installation condition of the runchannel.
   - Repair any twisting in the door sash.
   - Check the installation condition of the lower sash or the centre sash.
5. If repair or adjustment is not possible, replace the door assembly.

POWER WINDOW SAFETY MECHANISM CHECK

M1429001000251

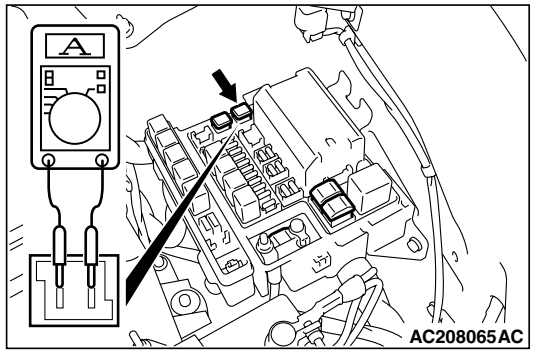


1. Place a wooden board about 10 mm thick as shown. Then, raise the window glass.
2. Check that the window lowers by about 150 mm when the window clamps the board. If this doesn't happen, carry out troubleshooting. Refer to GROUP 54B, Diagnosis P.54B-12, refer to GROUP 54C, Diagnosis P.54C-4.

   NOTE: If the anti-trap function (safety mechanism) is activated consecutively three times or more, make the power window switch learn the fully closed position of the power window (Refer to P.42-30).

POWER WINDOW OPERATING CURRENT CHECK

M1429001100162

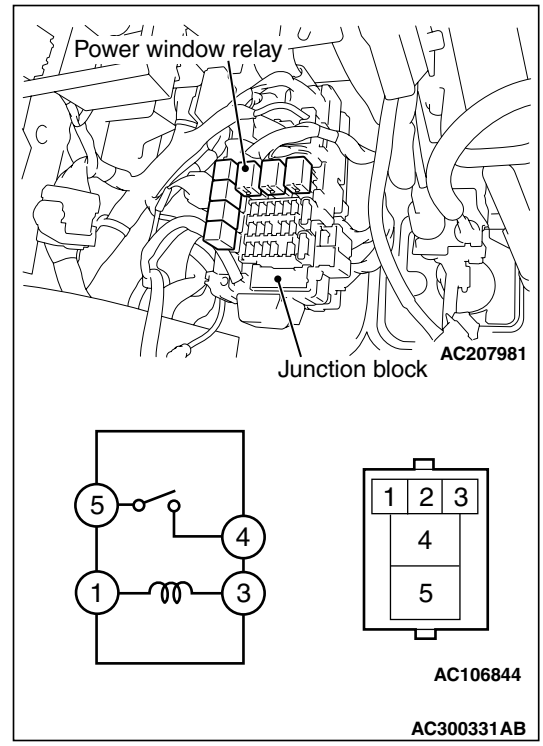


1. Remove the power window fuse and connect an ammeter as shown in the illustration.
2. When the power window switch is pressed to the "UP" position, a large amount of current flows at the time the window starts to close and when it is fully closed, so measure the operation current in the interval between these two points.

   Standard value: 5 ± 1A (Power supply voltage 14.5 ± 0.5V, 25°C)
3. If the operation current is outside the standard value, refer to GROUP 54B, Diagnosis P.54B-12, refer to GROUP 54C, Diagnosis P.54C-4.

POWER WINDOW RELAY CHECK

M1429001800183



BATTERY VOLTAGE	TESTER CONNECTION	SPECIFIED CONDITION
Not applied	4 – 5	Open circuit
• Connect terminal No.1 and the positive battery terminal. • Connect terminal No.3 and the negative battery terminal.		Less than 2 ohms

CIRCUIT BREAKER (INCORPORATED IN THE POWER WINDOW MOTOR) INSPECTION

M1429001700108

1. Pull the power window switch to the UP position to fully close the door window glass, and keep pulling the switch for 10 additional 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.

POWER WINDOW CHECK

M1429004400173

Check the system as described below. If the system does not work, carry out troubleshooting. Refer to GROUP 54B, Diagnosis P.54B-12 or GROUP 54C, Diagnosis P.54C-4.

- Operate the power window switch of each seat to check that the power window works.
- Turn on the power window lock switch of the power window main switch, and operate the front passenger's and rear power window sub switches to check that the power windows do not work.
- Turn on the power window lock switch of the power window main switch, and operate the power window main switch to check that each power window operates.

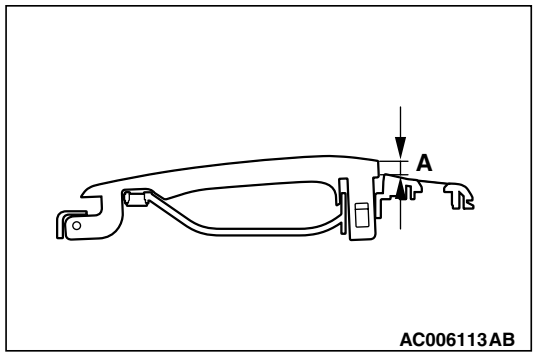
CENTRAL DOOR LOCKING SYSTEM INSPECTION

M1427001100111

Check that the central door locking system works by operating the key cylinder and the inside lock knob (driver's door).Carry out troubleshooting if the system does not activate. Refer to GROUP 54B, Diagnosis P.54B-12, refer to GROUP 54C, Diagnosis P.54C-4.

DOOR OUTSIDE HANDLE PLAY CHECK

M1423001600255



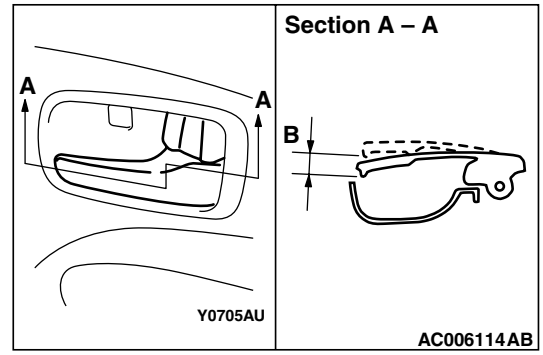
1. Check that the door outside handle play is within the standard value range.

   Standard value (A):
   Front door: 2.6 ± 2.5 mm
   Rear door: 1.3 ± 1.3 mm

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.

DOOR INSIDE HANDLE PLAY ADJUSTMENT

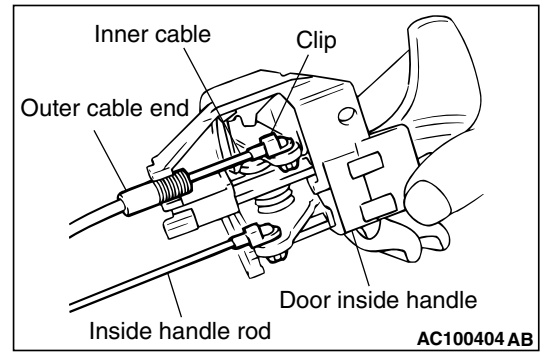
M1423001500270



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

   Standard value (B):
   Front door: 10.4 ± 9.6 mm
   Rear door: 10 ± 9.6 mm

2. If the door inside handle play is outside the standard value range.
3. Remove the door trim assembly (Refer to GROUP 52A, Door trim P.52A-13).
4. Remove the waterproof film (Refer to P.42-37).



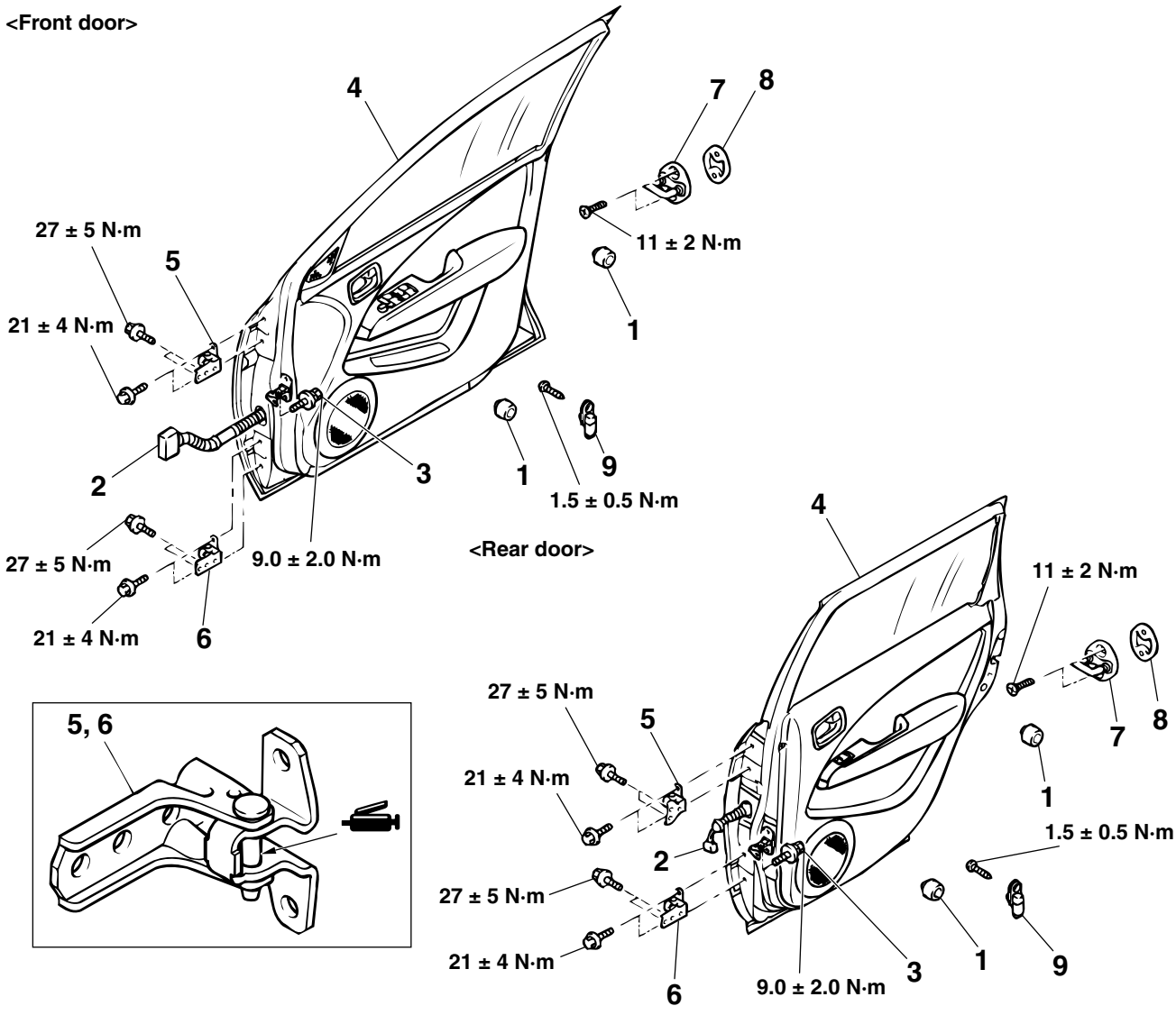
5. Adjust the door inside handle play with the outer cable end connecting the door inside handle and inside lock cable.

DOOR ASSEMBLY

REMOVAL AND INSTALLATION

M1423002200261

Post-installation Operation
- Door Fit Adjustment (Refer to P.42-23).



AC103073 AC

Removal
1. Damper

Door assembly removal steps
- Scuff Plate and Cowl Side Trim (Refer to GROUP 52A, Trims P.52A-10).

2. Harness connector
3. Door check connecting bolt
4. Door assembly

Door assembly removal steps
5. Door upper hinge
6. Door lower hinge

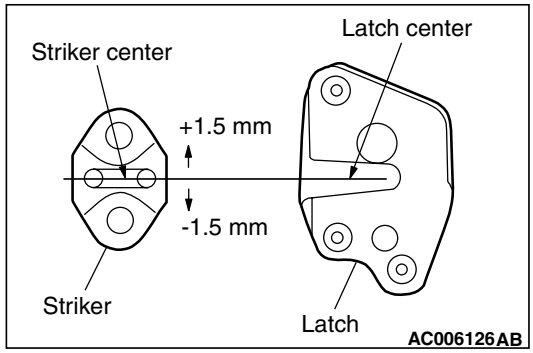
Striker removal steps

>>A<< 7. Striker
8. Striker shim

Door switch removal
9. Door switch

INSTALLATION SERVICE POINT

>>A<< STRIKER INSTALLATION

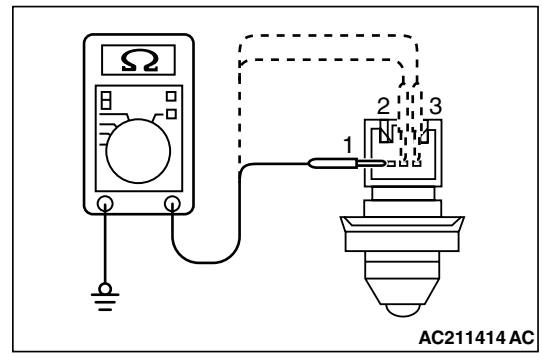


Align the centre of the striker and latch within ±1.5 mm, and install.

INSPECTION

M1423006000300

DOOR SWITCH CHECK



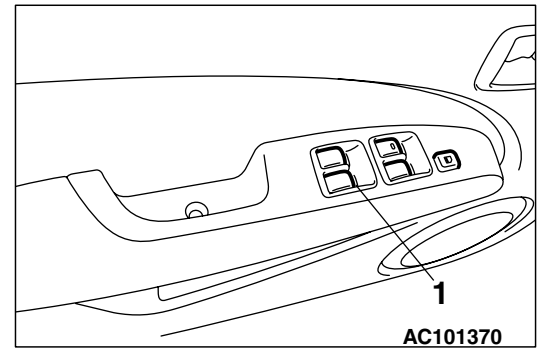
SWITCH POSITION	TESTER CONNECTION	SPECIFIED CONDITION
Released (ON)	1 – switch body, 2 – switch body, 3 – switch body	Less than 2 ohms
Depressed (OFF)	1 – switch body, 2 – switch body, 3 – switch body	Open circuit

DOOR GLASS AND REGULATOR

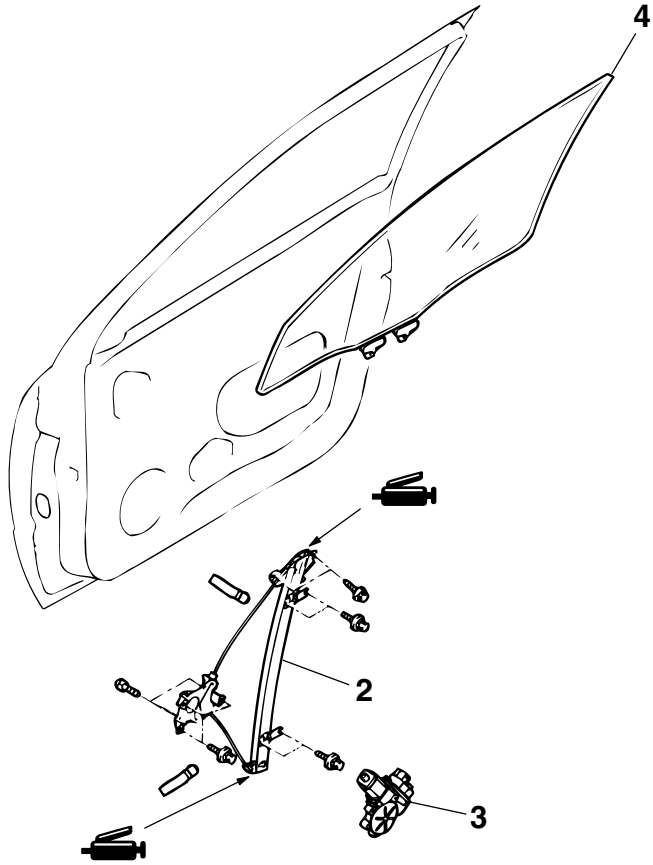
REMOVAL AND INSTALLATION

M1429001300285

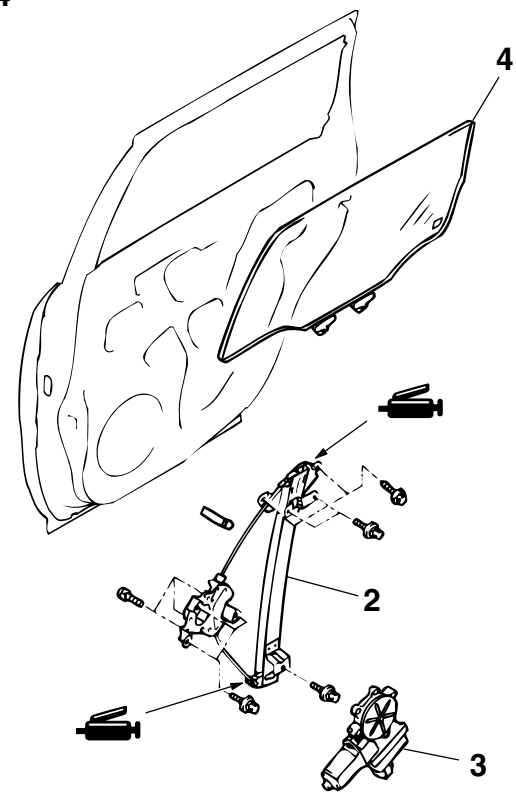
Pre-removal Operation	Post-installation Operation
• Door Trim Assembly Removal (Refer to GROUP 52A, Door Trim P.52A-13). • Waterproof Film Removal (Refer to P.42-37).	• Door Window Glass Adjustment (Refer to P.42-25). • Waterproof Film Installation (Refer to P.42-37). • Door Trim Assembly Installation (Refer to GROUP 52A, Door Trim P.52A-13).



<Front door>



<Rear door>



AC300452 AB

Power window switch removal steps

>>B<< • Post-installation operation check
1. Power window switch (Refer to GROUP 52A, Door trim P.52A-13).

Door window regulator assembly removal steps

>>B<< • Post-installation operation check
<<A>> >>A<< 2. Window regulator assembly
<<A>> 3. Power window motor assembly

Door window glass removal steps

- Window glass runchannel <Rear door> (Refer to P.42-37).
- Lower sash <rear door> (Refer to P.42-37).
- Door latch assembly <Rear door> (Refer to P.42-33).
- Door beltline moulding (Refer to P.42-37).
- Door beltline inner weatherstrip (Refer to P.42-37).

4. Door window glass

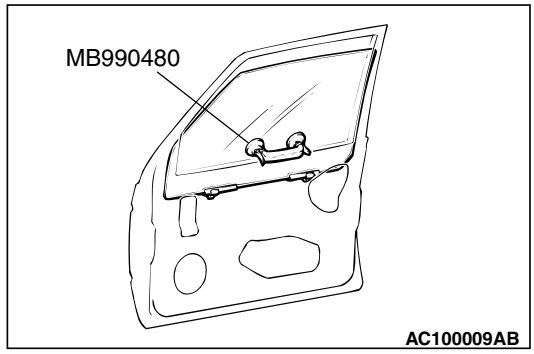
REMOVAL SERVICE POINT

<<A>> WINDOW REGULATOR ASSEMBLY/ POWER WINDOW MOTOR ASSEMBLY REMOVAL

1. Remove the door window glass installation bolts.

⚠ CAUTION

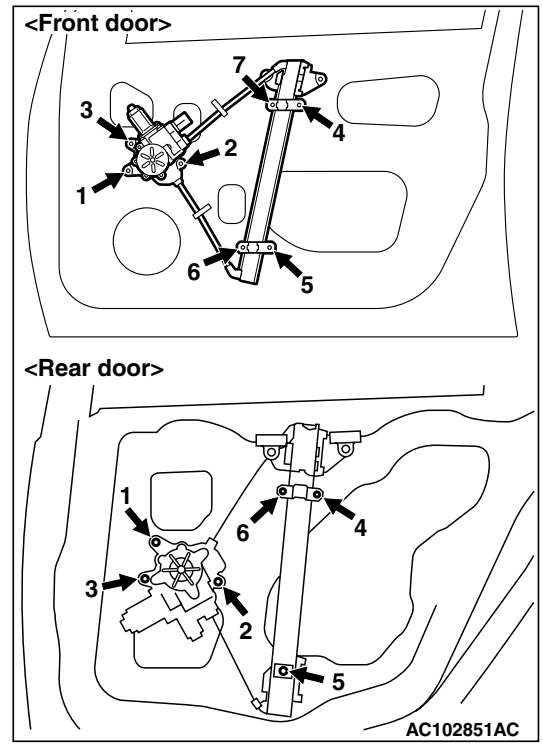
If tinting film is adhered to the door window glass, attach special tool MB990480 to the outside of the glass to prevent the film from peeling off.



2. Lift the door window glass, and attach special tool MB990480 to the glass as shown to prevent the glass from falling.
3. Remove the window regulator assembly and power window motor assembly.

INSTALLATION SERVICE POINTS

>>A<< WINDOW REGULATOR ASSEMBLY INSTALLATION



When installing the window regulator assembly, tighten the bolts to the specified torque in the order shown.

>>B<< Post-installation operation check

When the following procedures are carried out, make the power window switch learn the fully closed position of the power window. (Refer to P.42-32).

- Power window regulator removal or replacement
- Power window switch removal or replacement

INSPECTION

M1429001400260

How to make the power window switch learn the fully closed position of the power window

How to make the power window switch learn the fully closed position when the power window switch is removed, or the power window regulator assembly is removed or replaced

1. If the anti-trap function (safety mechanism) is activated consecutively three times or more, the fully closed position that the power window switch has learned will be erased (initialized).
2. Operate the power window switch and fully open the door window glass.

⚠ CAUTION

The anti-trap function does not work until the power window switch completes learning the fully closed position (It is because the anti-trap function is reset).

3. Operate the power window switch and fully close the door window glass. The power window activates for 0.7 seconds and stops automatically when the power window switch is pressed once. Repeat this operation until the door window glass fully closes and release the switch once. Then, hold the power window switch to the fully closed side again for one second so that the power window switch completes learning the fully closed position.

NOTE: If the power window switch is operated to open the door window glass while the switch is learning, learning will be cancelled. If this happens, return to step 2.

How to make the power window switch learn the fully closed position when the power window switch is replaced with a new one

⚠ CAUTION

The anti-trap function does not work until the power window switch completes learning the fully closed position (It is because the anti-trap function is reset).

Operate the power window main switch to fully close the door window glass by one-shot up action so that the power window switch will complete learning (Initialization is not needed).

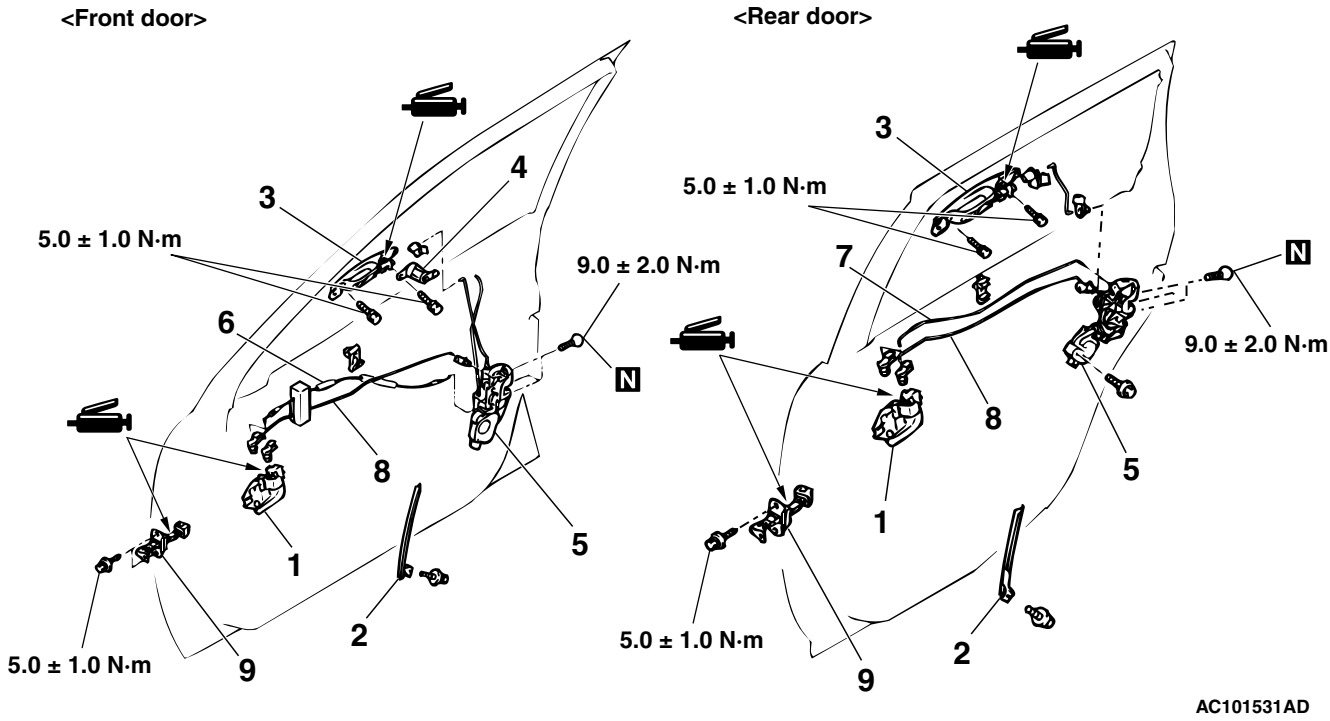
NOTE: When the power window sub switch of each seat is replaced, operate the power window main switch to fully close the applicable power window by one-shot up action (It is because the power window sub switch does not have one-shot up/down function).

DOOR HANDLE AND LATCH

REMOVAL AND INSTALLATION

M1423004600306

Pre-removal Operation	Post-installation Operation
• Door Trim Assembly Removal (Refer to GROUP 52A Door Trim P.52A-13).	• Door Inside Handle Play Check (Refer to P.42-27). • Door Outside Handle Play Check (Refer to P.42-27). • Door Trim Assembly Installation (Refer to GROUP 52A, Door Trim P.52A-13).



Door handle and door latch assembly removal steps

>>C<< 1. Door inside handle
- Waterproof film (Refer to P.42-37).

>>B<< 2. Lower sash
3. Door outside handle
4. Door lock key cylinder
5. Door latch assembly

Door handle and door latch assembly removal steps (Continued)

6. Inside lock cable
7. Inside lock rod
8. Inside handle rod

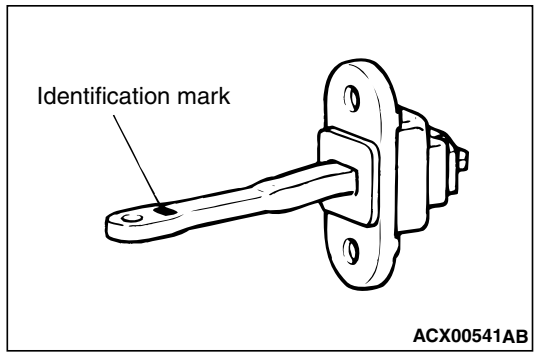
Door check removal steps

- Waterproof film (Refer to P.42-37).

>>A<< 9. Door check

INSTALLATION SERVICE POINTS

>>A<< DOOR CHECK INSTALLATION



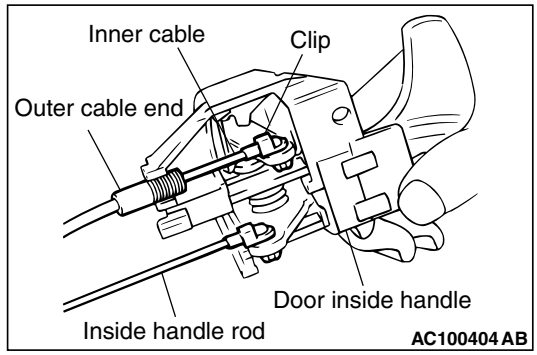
Install the door check so that the identification mark faces upwards.

ITEM		IDENTIFICATION MARK
Front Door	Left door	39L
	Right door	39R
Rear Door	Left door	40L
	Right door	40R

>>B<< LOWER SASH INSTALLATION

Securely insert the rear lower sash into the window rear sash.

>>C<< DOOR INSIDE HANDLE INSTALLATION

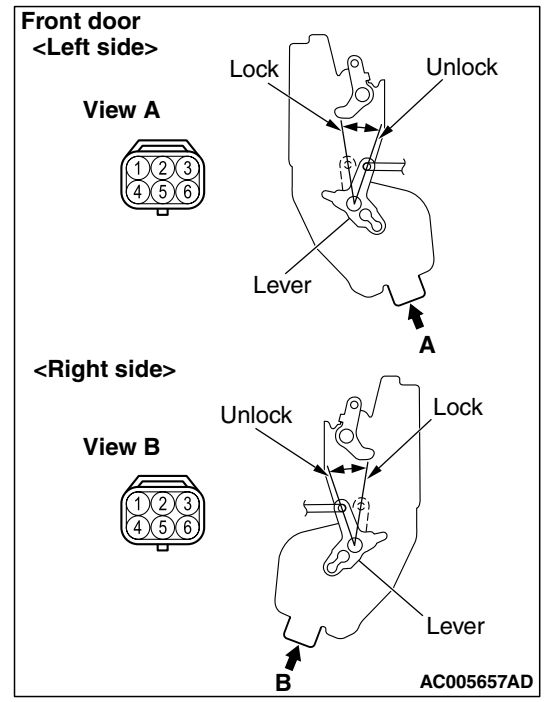


1. Install the inside lock cable to the door inside handle as follows:
   (1) Install the inner cable end in the inside lock cable to the clip in the door inside handle.
   (2) Turn the inside lock knob to the door lock position.
   (3) Install the outer cable end to the door inside handle securely.
   (4) Install the clip to the inner cable.
2. Install the inside handle rod to the door inside handle.
3. Install the door inside handle to the door.

INSPECTION

M1423004700370

FRONT DOOR LOCK ACTUATOR CHECK



Actuator Operation Check <Left side>

LEVER POSITION	BATTERY CONNECTION	LEVER OPERATION
At the "LOCK" position	• Connect terminal No.6 and the negative battery terminal. • Connect terminal No.4 and the positive battery terminal.	The lever moves from the "LOCK" position to the "UNLOCK" position.
At the "UNLOCK" position	• Connect terminal No.4 and the negative battery terminal. • Connect terminal No.6 and the positive battery terminal.	The lever moves from the "UNLOCK" position to the "LOCK" position.

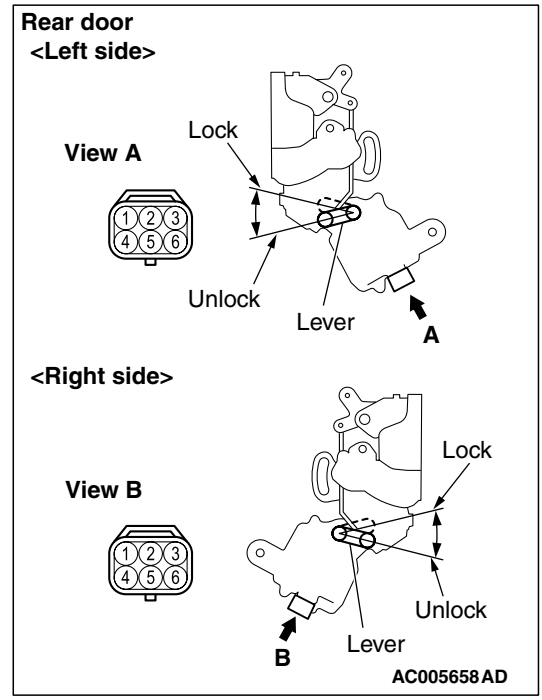
Actuator Switch Check <Left side>

LEVER POSITION	TESTER CONNECTION	SPECIFIED CONDITION
At the "LOCK" position	1 – 3	Less than 2 ohms
At the "UNLOCK" position	1 – 2	Less than 2 ohms

Actuator Operation Check <Right side>

LEVER POSITION	BATTERY CONNECTION	LEVER OPERATION
At the "LOCK" position	• Connect terminal No.4 and the negative battery terminal. • Connect terminal No.6 and the positive battery terminal.	The lever moves from the "LOCK" position to the "UNLOCK" position.
At the "UNLOCK" position	• Connect terminal No.6 and the negative battery terminal. • Connect terminal No.4 and the positive battery terminal.	The lever moves from the "UNLOCK" position to the "LOCK" position.

REAR DOOR LOCK ACTUATOR CHECK



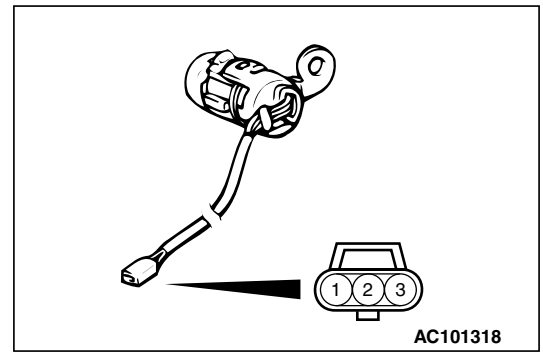
Actuator Operation Check <Left side>

LEVER POSITION	BATTERY CONNECTION	LEVER OPERATION
At the "LOCK" position	• Connect terminal No.3 and the negative battery terminal. • Connect terminal No.2 and the positive battery terminal.	The lever moves from the "LOCK" position to the "UNLOCK" position.
At the "UNLOCK" position	• Connect terminal No.2 and the negative battery terminal. • Connect terminal No.3 and the positive battery terminal.	The lever moves from the "UNLOCK" position to the "LOCK" position.

Actuator Operation Check <Right side>

LEVER POSITION	BATTERY CONNECTION	LEVER OPERATION
At the "LOCK" position	• Connect terminal No.2 and the negative battery terminal. • Connect terminal No.3 and the positive battery terminal.	The lever moves from the "LOCK" position to the "UNLOCK" position.
At the "UNLOCK" position	• Connect terminal No.3 and the negative battery terminal. • Connect terminal No.2 and the positive battery terminal.	The lever moves from the "UNLOCK" position to the "LOCK" position.

DOOR LOCK KEY CYLINDER SWITCH CHECK



<Right side>

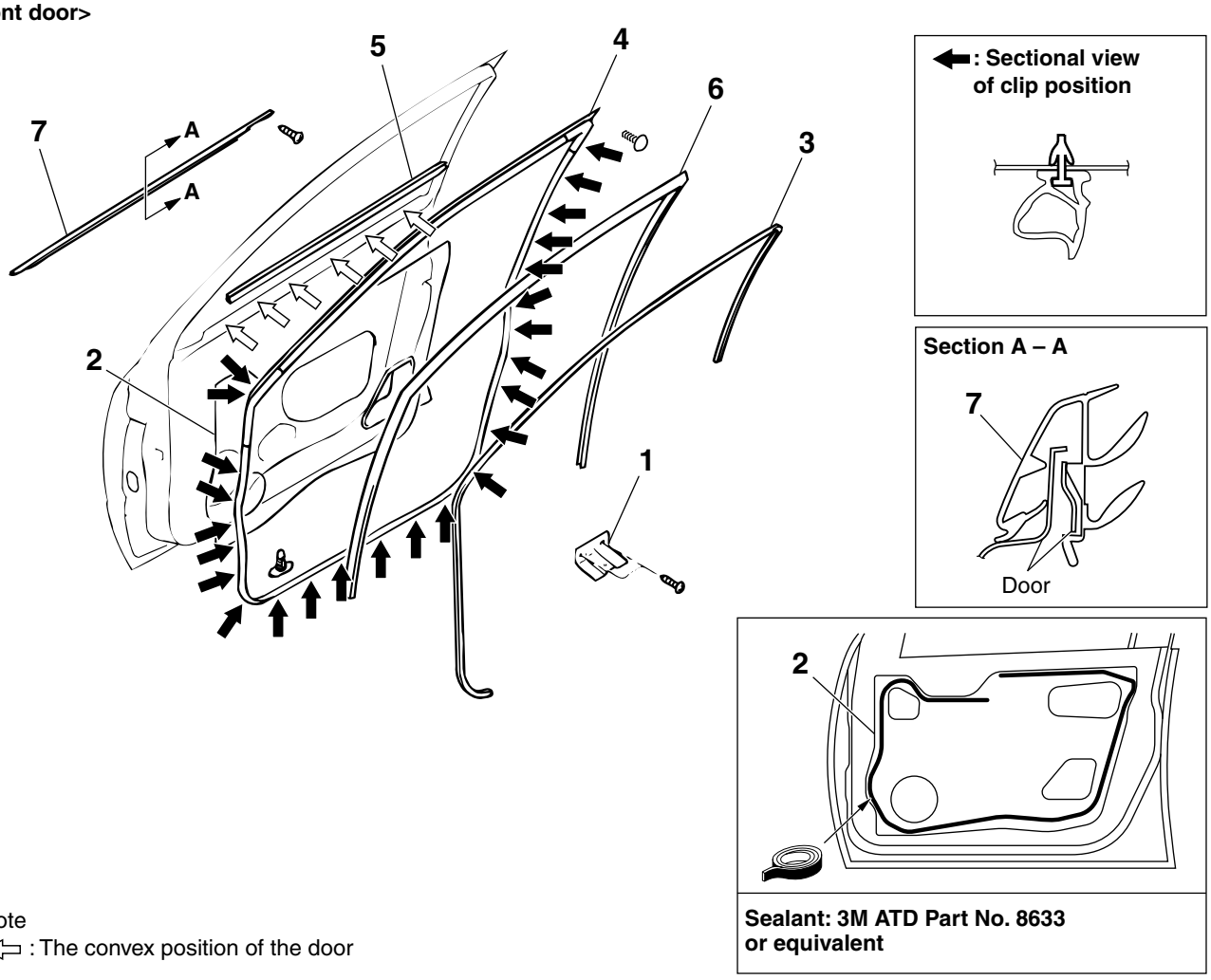
SWITCH POSITION	TESTER CONNECTION	SPECIFIED CONDITION
LOCK	1 – 2	Less than 2 ohms
NEUTRAL (OFF)	1 – 2, 2 – 3	Open circuit
UNLOCK	2 – 3	Less than 2 ohms

WINDOW GLASS RUNCHANNEL AND DOOR OPENING WEATHERSTRIP

REMOVAL AND INSTALLATION

M1423003100278

<Front door>



Note
⇦ : The convex position of the door

AC103084 AC

Waterproof film removal steps
- Door trim assembly (Refer to GROUP 52A, Door Trim P.52A-13).

1. Pull handle bracket
2. Waterproof film

Door inner opening weatherstrip removal steps
- Cowl side trim (Refer to GROUP 52A, Trims P.52A-10).

3. Door inner opening weatherstrip (body side)

Door outer opening weatherstrip removal steps
- Front door check mounting bolt (body side) (Refer to P.42-28).

<<A>> >>C<< 4. Door outer opening weatherstrip

Door beltline inner weatherstrip removal steps
- Door trim assembly (Refer to GROUP 52A, Door Trim P.52A-13).

5. Door beltline inner weatherstrip

Door window glass runchannel removal steps
- Door trim assembly (Refer to GROUP 52A, Door Trim P.52A-13).

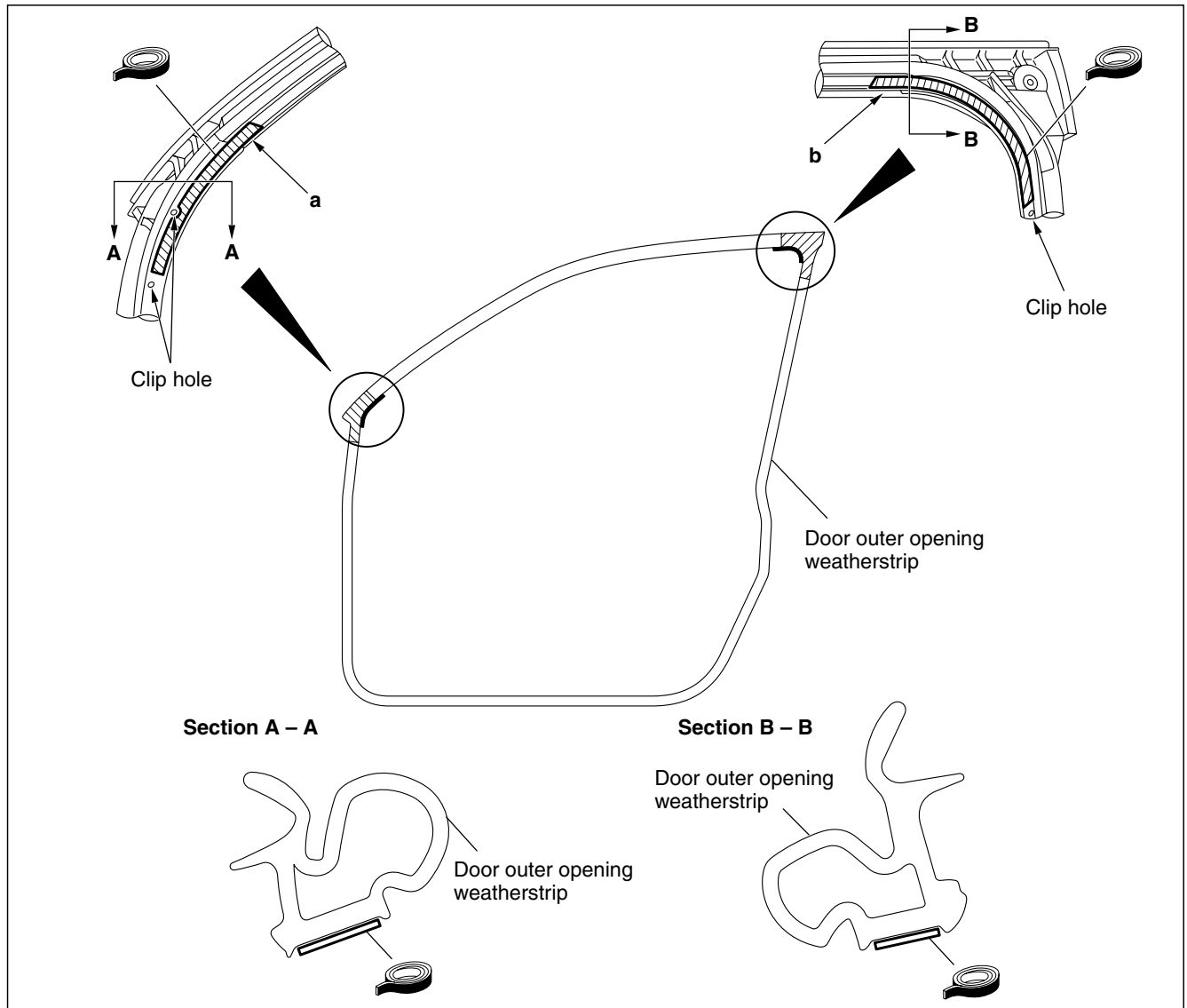
1. Pull handle bracket
2. Waterproof film
5. Door beltline inner weatherstrip

>>B<< 6. Door window glass runchannel

Door beltline moulding removal steps
- Door mirror assembly (Refer to GROUP 51, Door Mirror P.51-52).

7. Door beltline moulding

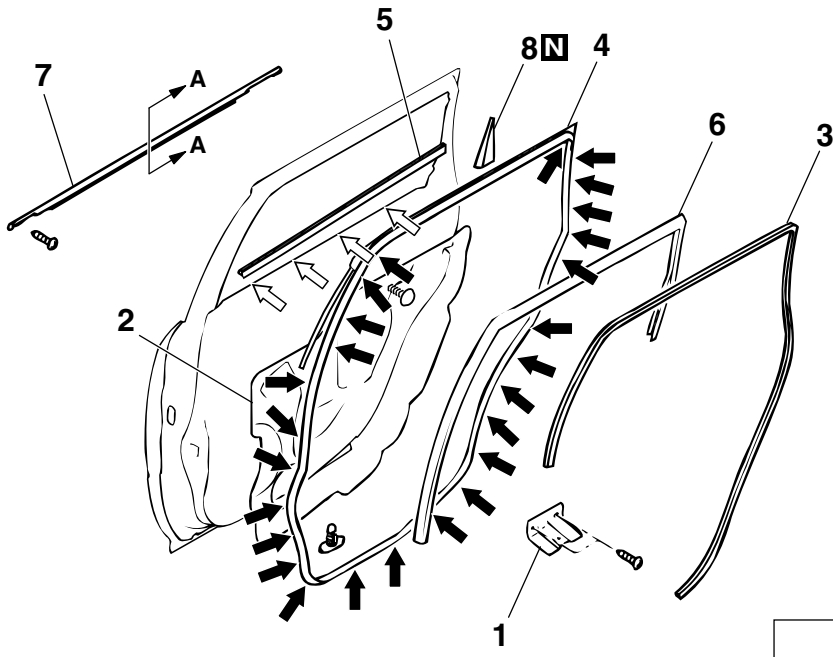
DOUBLE-SIDED TAPE POSITION

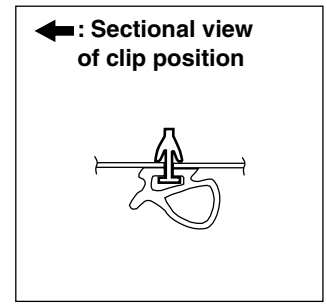


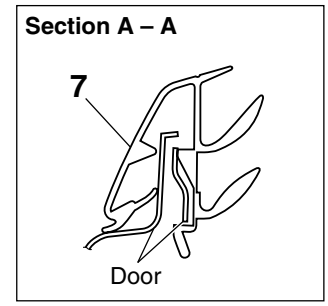
Adhesive tape: Double-sided tape a [7 mm width, 100 mm length and 0.8 mm thickness], b [7 mm width, 130 mm length and 0.8 mm thickness]

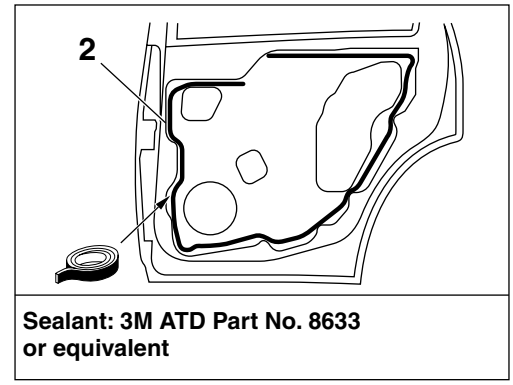
AC103492 AC

<Rear door>









Note
⇦ : The convex position of the door

AC103491 AC

Waterproof film removal steps
- Door trim assembly (Refer to GROUP 52A, Door Trim P.52A-13).

1. Pull handle bracket
2. Waterproof film

Door inner opening weatherstrip removal steps
- Rear seat (Refer to GROUP 52A, Trims P.52A-10).
- Scuff plate (Refer to GROUP 52A, Trims P.52A-10).

3. Door inner opening weatherstrip (body side)

Door outer opening weatherstrip removal steps
- Rear door check mounting bolt (body side) (Refer to P.42-28).

<<A>> >>C<< 4. Door outer opening weatherstrip

Door beltline inner weatherstrip removal steps
- Door trim assembly (Refer to GROUP 52A, Door Trim P.52A-13).

5. Door beltline inner weatherstrip

Door window glass runchannel removal steps
- Door trim assembly (Refer to GROUP 52A, Door Trim P.52A-13).

1. Pull handle bracket
2. Waterproof film
5. Door beltline inner weatherstrip
6. Door window glass runchannel

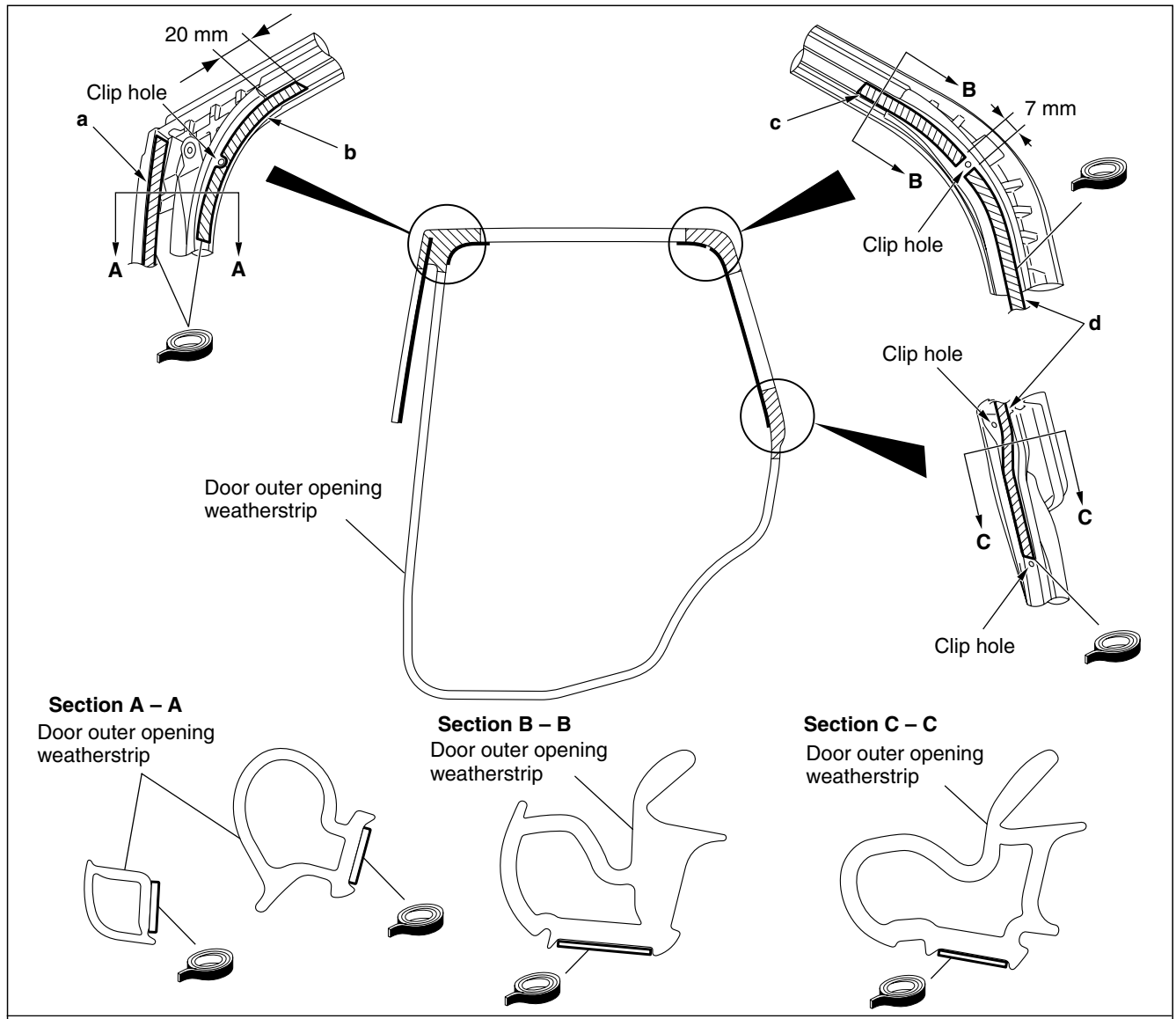
Door beltline moulding removal

7. Door beltline moulding

Door tape removal steps
- Door trim assembly (Refer to GROUP 52A, Door Trim P.52A-13).

>>A<< 8. Door tape

DOUBLE-SIDED TAPE POSITION

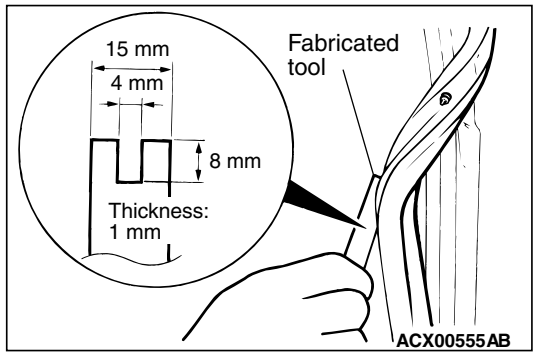


**Adhesive tape: Double-sided tape a, d [7 mm width and 0.8 mm thickness],
b [7 mm width, 110 mm length and 0.8 mm thickness], c [7 mm width, 62 mm length and 0.8 mm thickness]**

AC103128 AC

REMOVAL SERVICE POINT

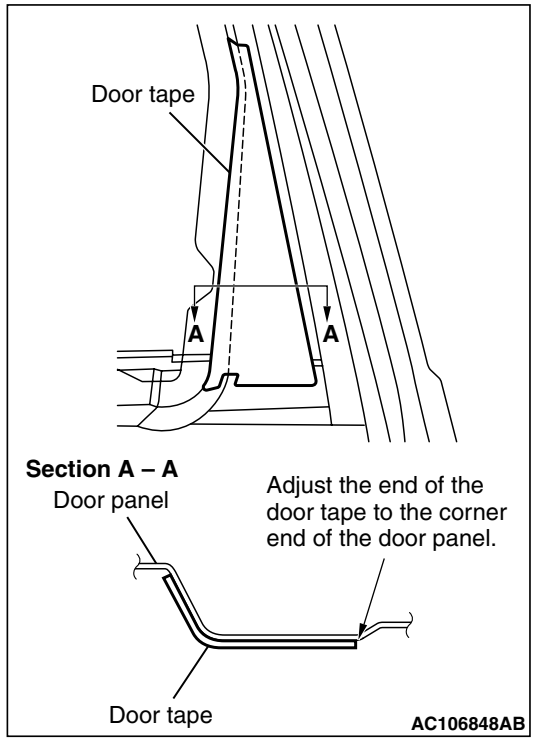
<<A>> DOOR OUTER OPENING WEATHERSTRIP REMOVAL



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

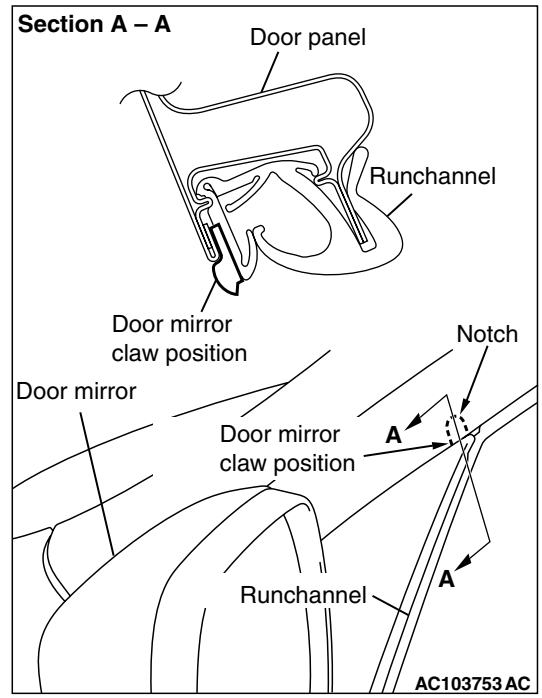
INSTALLATION SERVICE POINTS

>>A<< DOOR TAPE <REAR DOOR> INSTALLATION



Apply the door tape in the location shown in the Figure of the instructions.

>>B<< DOOR WINDOW GLASS RUNCHANNEL <FRONT DOOR> INSTALLATION



Assemble the run channel cut-out area with the thumb of the door mirror.

>>C<< DOOR OUTER OPENING WEATHERSTRIP INSTALLATION

The clip colour identifies the left and right weatherstrips so be sure to see the colours so as to install correctly.

APPLICABLE SIDE	IDENTIFICATION COLOUR
Left door	Natural (White)
Right door	Pink

TAILGATE

SERVICE SPECIFICATIONS

M1421000300244

Item	Standard value
Tailgate handle play mm	2.3 to 5.9

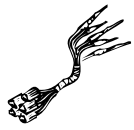
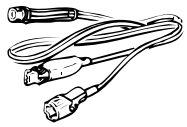
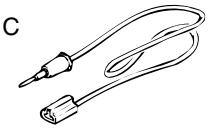
SEALANTS

M1424000500076

Item	Specified sealant
Tailgate waterproof film	3M ATD Part No.8633 or equivalent
Tailgate hinge	3M ATD Part No.8531 Heavy drip check sealer, 3M ATD Part No.8646 Automotive joint and seam sealer or equivalent

SPECIAL TOOL

M1424000600158

Tool	Number	Name	Use
A  B  C  D  MB991223AD	MB991223 A: MB991219 B: MB991220 C: MB991221 D: MB991222	Harness set A: Test harness B: LED harness C: LED harness adapter D: Probe	Terminal voltage measurement A: For checking connector pin contact pressure B: For checking power supply circuit C: For checking power supply circuit D: For connecting a locally sourced tester

TROUBLESHOOTING

M1424000700188

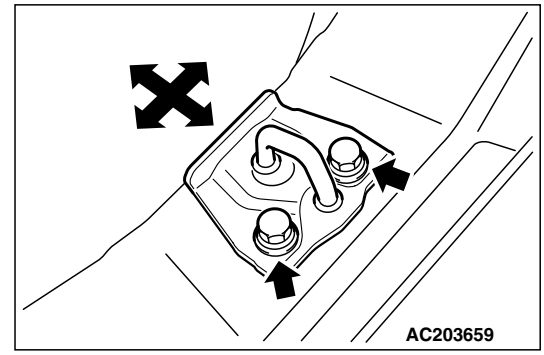
The tailgate system is controlled by the Smart Wiring System (SWS). For troubleshooting, refer to GROUP 54B, Diagnosis P.54B-12 or GROUP 54C, Diagnosis P.54C-4.

ON-VEHICLE SERVICE

TAILGATE FIT ADJUSTMENT

M1424000900115

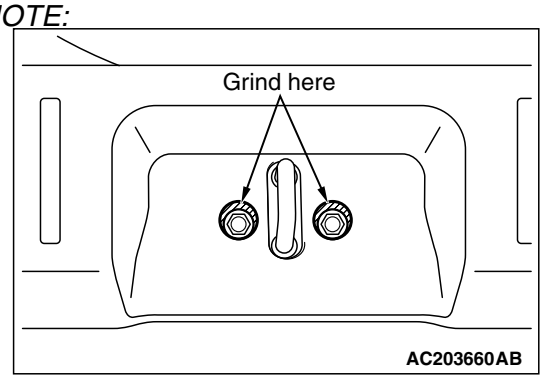
1. If the striker and latch mesh badly, replace the striker and striker installation blots with replacement parts (striker: MR523105, striker installation blot: MU000474).


AC203659

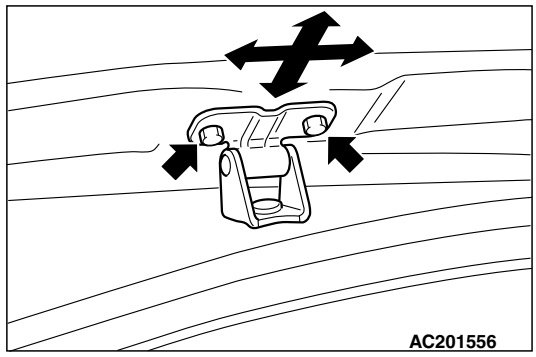
2. Move the replaced striker forward and backward or to the left and right to adjust, after bolt the striker temporarily.

3. After adjusting, tighten the bolts to the specified torque [24 ± 4 N·m].

NOTE:



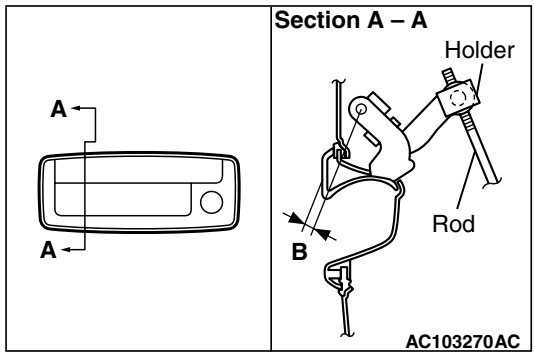
When the bolt head interferes with the rear end trim, rasp the interference area with a round file.



4. If uneven clearance is present between tailgate and body, reposition the hinge to adjust the clearance.

TAILGATE HANDLE PLAY CHECK

M1424002400116



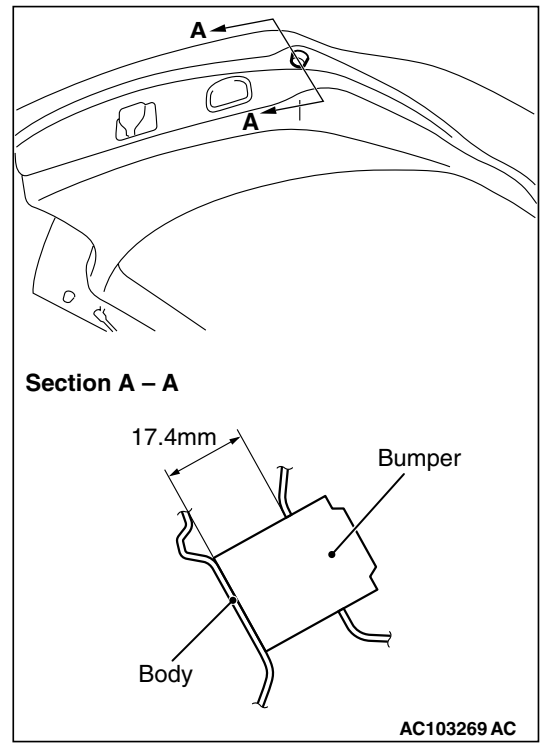
1. Check the tailgate handle play.

Standard value (B): 2.3 – 5.9 mm

2. If it deviates from the standard value, remove the lower tailgate trim (Refer to GROUP 52A, tailgate trim P.52A-17) and waterproof film (Refer to P.42-44).
3. Remove the holder from the tailgate handle and adjust according to the tailgate latch rod and tailgate handle connection position.

ADJUSTMENT OF TAILGATE HEIGHT

M1424003500075



Turn the tailgate bumper using the arrow of the tailgate bumper as a guideline to adjust the height of the tailgate. The bumper height is altered by approximately 3mm by turning the tailgate bumper one rotation.

TAILGATE

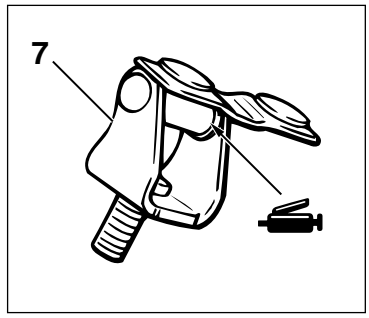
REMOVAL AND INSTALLATION

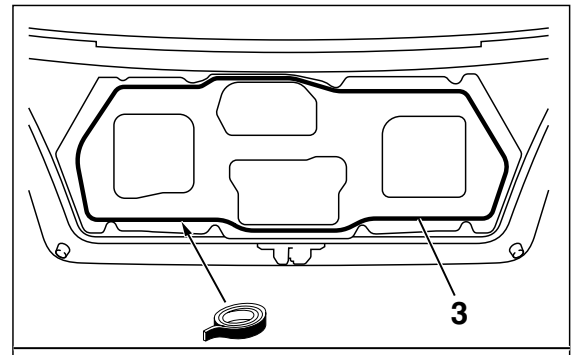
M1424001100156

⚠ CAUTION

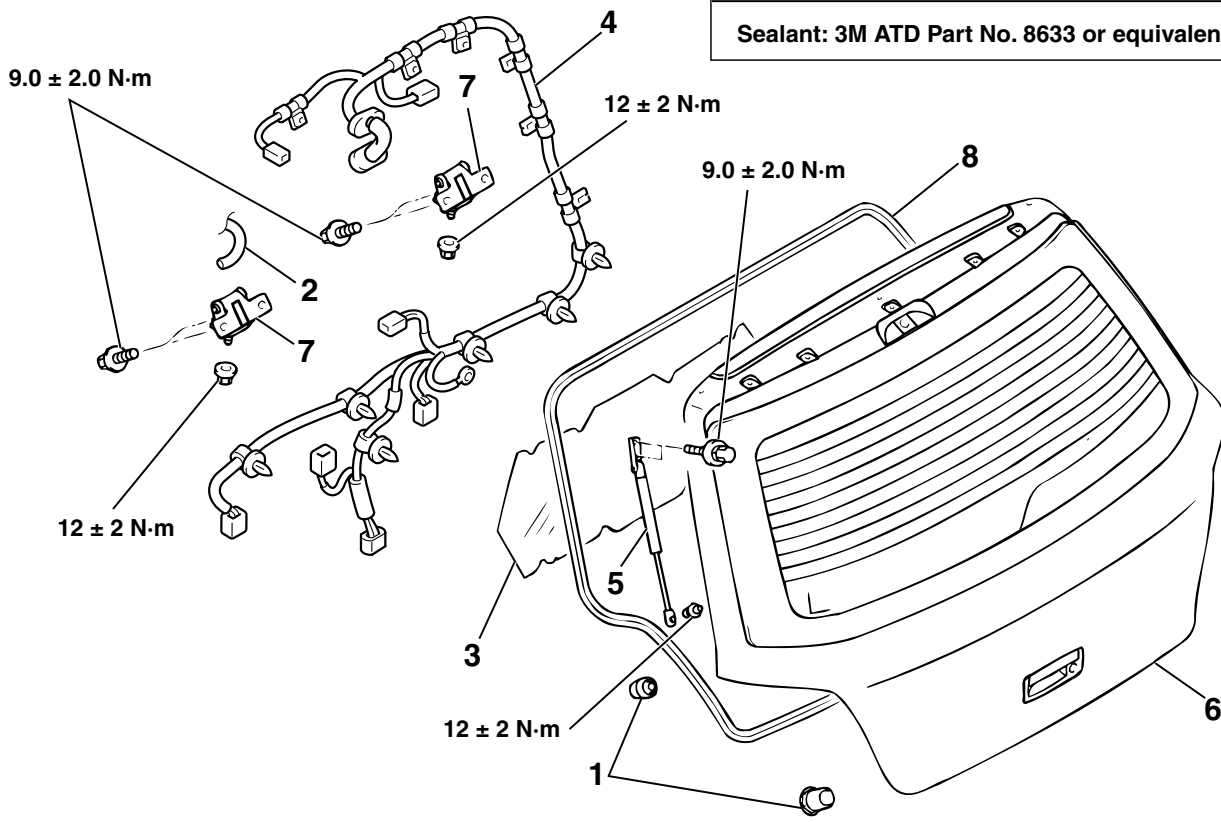
- **Do not disassemble or throw the tailgate gas spring into fire.**
- **Punch a hole in the gas spring before disposal to release the gas inside.**
- **Ensure the tailgate gas spring piston rod does not come into contact with foreign material.**

Pre-removal Operation	Post-installation Operation
• Tailgate Spoiler Assembly Removal (Refer to GROUP 51, Tailgate Spoiler P.51-16). • Tailgate Trim Assembly Removal (Refer to GROUP 52A, Tailgate Trim P.52A-17). • Rear Wiper Motor Removal (Refer to GROUP 51, Rear Wiper and Washer P.51-26).	• Tailgate Fit Adjustment (Refer to P.42-42). • Rear Wiper Motor Installation (Refer to GROUP 51, Rear Wiper and Washer P.51-26). • Tailgate Trim Assembly Installation (Refer to GROUP 52A, Tailgate Trim P.52A-17). • Tailgate Spoiler Assembly Installation (Refer to GROUP 51, Tailgate Spoiler P.51-16).





Sealant: 3M ATD Part No. 8633 or equivalent



AC102859 AC

Tailgate assembly removal steps
1. Bumper
2. Rear washer hose
3. Waterproof film
4. Tailgate wiring harness

<<A>> 5. Tailgate gas spring
6. Tailgate assembly

Tailgate assembly removal steps
- Headlining (Refer to GROUP 52A, Headlining P.52A-19).

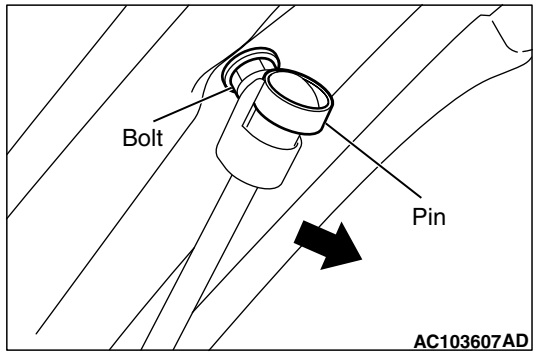
>>B<< 7. Tailgate hinge

Tailgate opening weatherstrip removal

>>A<< 8. Tailgate opening weatherstrip

REMOVAL SERVICE POINT

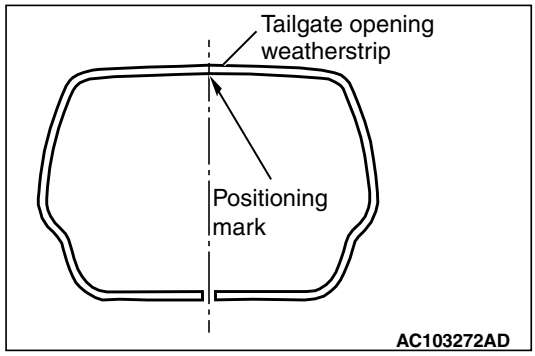
<<A>> TAILGATE GAS SPRING REMOVAL



As shown in the Figure, slide the pin upward, then remove the tailgate gas spring in the direction of the arrow to unscrew the bolt.

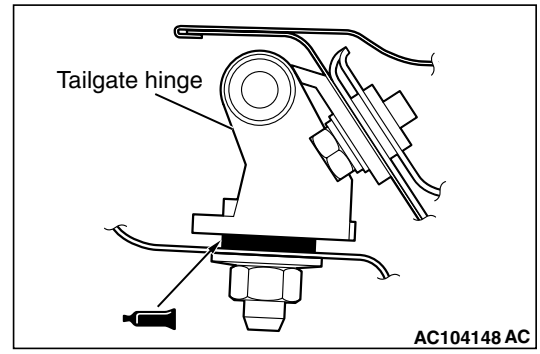
INSTALLATION SERVICE POINTS

>>A<< TAILGATE OPENING WEATHERSTRIP INSTALLATION



Assemble so the tailgate opening weatherstrip marking is at the centre of the body.

>>B<< TAILGATE HINGE INSTALLATION



Apply the specified sealing agent to the tailgate hinge assembly surface to assembly the tailgate hinge.

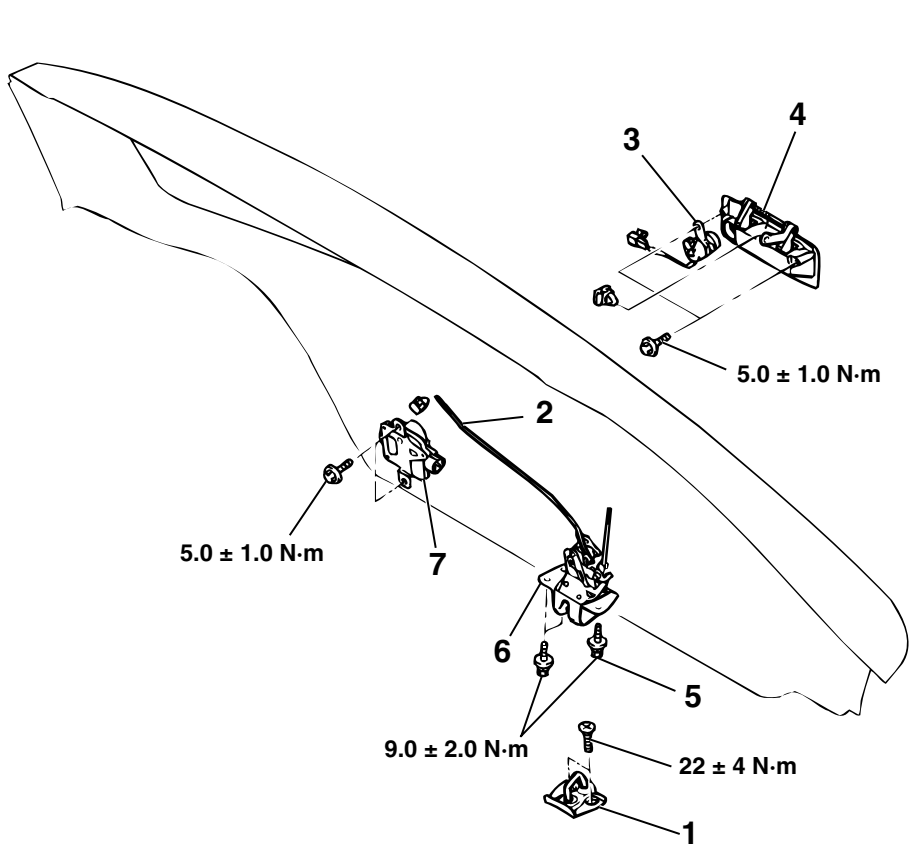
Specified Adhesive: 3M ATD Part No.8531 Heavy drip check sealer, 3M ATD Part No.8646 Automotive joint and seam sealer or equivalent

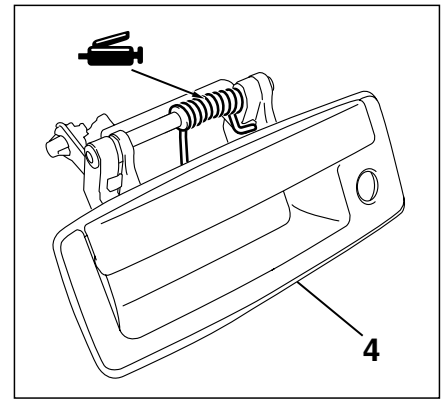
TAILGATE HANDLE AND LATCH

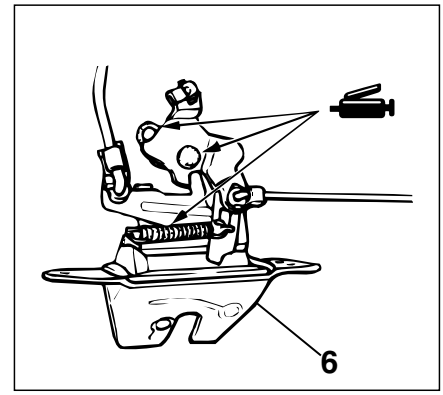
REMOVAL AND INSTALLATION

M1424001700147

Pre-removal Operation
- Tailgate Handle Play Check (Refer to P.42-43).







AC102861AC

Striker removal steps
- Rear end trim (Refer to GROUP 52A, Trims P.52A-10).

>>A<< 1. Striker

Tailgate handle and lock key cylinder removal steps
- Lower tailgate trim (Refer to GROUP 52A, Tailgate Trim P.52A-17).
- Waterproof film (Refer to P.42-44).

2. Tailgate Lock Actuator Connection
3. Tailgate lock key cylinder
4. Tailgate handle

Tailgate latch removal steps
- Lower tailgate trim (Refer to GROUP 52A, Tailgate Trim P.52A-17).
- Waterproof film (Refer to P.42-44).

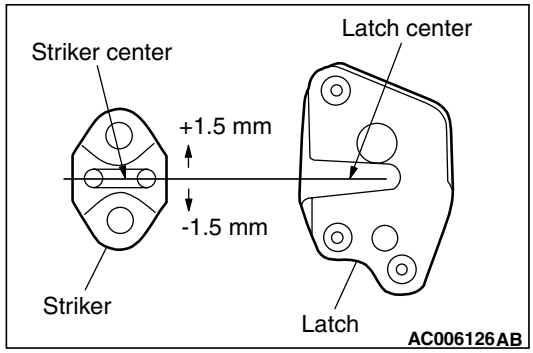
5. Bolt (earth)
6. Tailgate latch assembly

Tailgate lock actuator removal steps
- Lower tailgate trim (Refer to GROUP 52A, Tailgate Trim P.52A-17).
- Waterproof film (Refer to P.42-44).

7. Tailgate lock actuator

INSTALLATION SERVICE POINT

>>A<< STRIKER INSTALLATION

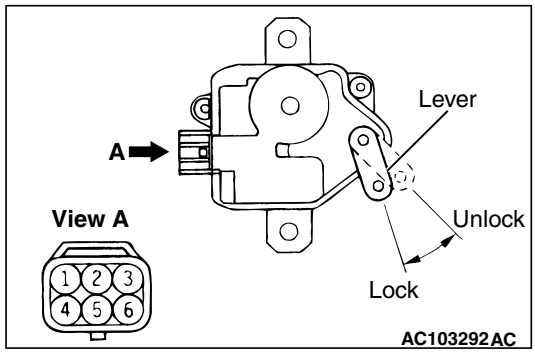


Assemble so the distance between the centre of the striker and centre of the latch is ±1.5mm or less.

INSPECTION

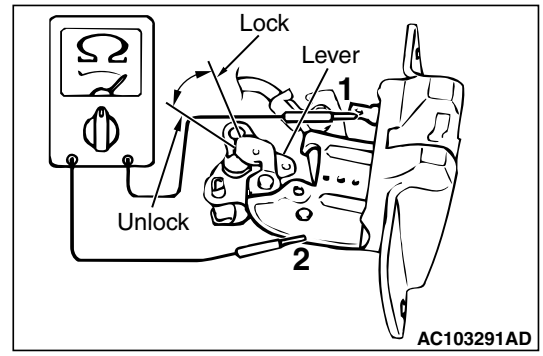
M1424001200120

TAILGATE LOCK ACTUATOR CHECK



LEVER POSITION	BATTERY CONNECTION	LEVER OPERATION
At the "LOCK" position	• Connect terminal No.2 and the negative battery terminal. • Connect terminal No.3 and the positive battery terminal.	The lever moves from the "LOCK" position to the "UNLOCK" position.
At the "UNLOCK" position	• Connect terminal No.3 and the negative battery terminal. • Connect terminal No.2 and the positive battery terminal.	The lever moves from the "UNLOCK" position to the "LOCK" position.

TAILGATE LATCH CHECK <Vehicles for keyless entry system>

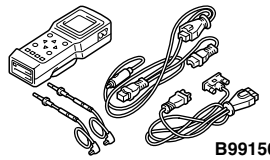
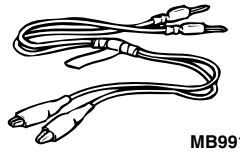


LEVER POSITION	TESTER CONNECTION	SPECIFIED CONDITION
At the "LOCK" position	1 – 2 (Earth)	Open circuit
At the "UNLOCK" position		Less than 2 ohms

KEYLESS ENTRY SYSTEM

SPECIAL TOOLS

M1428000600257

Tool	Number	Name	Use
 B991502	MB991502	MUT-II sub-assembly	Encrypted code registration
 MB991529	MB991529	Diagnosis code check harness	

TROUBLESHOOTING

M1428000700254

The keyless entry system is controlled by the Smart Wiring System (SWS). For troubleshooting, refer to GROUP 54B, Diagnosis P.54B-12 or GROUP 54C, Diagnosis P.54C-4.

ON-VEHICLE SERVICE

KEYLESS ENTRY SYSTEM CHECK

M1428001400074

Check the system as described below. If the system does not work, carry out troubleshooting. Refer to GROUP 54B, Diagnosis P.54B-12, refer to GROUP 54C, Diagnosis P.54C-4.

- Operate the transmitter to check that the doors and tailgate can be locked and unlocked.
- Operate the transmitter to check that the answerback function works in response to door and tailgate locking/unlocking.

NOTE:

- *The adjustment function allows you to change the answerback setting as follows. Prior to that check, confirm which setting is activated.*
  - *The hazard warning lamps flash twice when locked and once when unlocked. The room lamp flashes twice when locked and illuminates for 15 seconds when unlocked.*
  - *The hazard warning lamps do not flash when locked and flash once when unlocked. The room lamp flashes twice when locked and illuminates for 15 seconds when unlocked.*
  - *The hazard warning lamps flash twice when locked and do not flash when unlocked. The room lamp flashes twice when locked and illuminates for 15 seconds when unlocked.*
  - *The hazard warning lamps do not flash when both locked and unlocked. The room lamp flashes twice when locked and illuminates for 15 seconds when unlocked.*

KEYLESS ENTRY SYSTEM TIMER LOCK FUNCTION INSPECTION

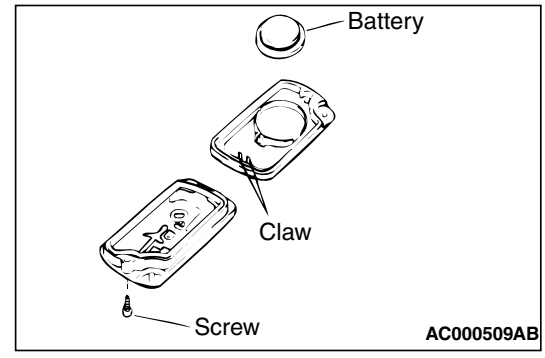
M1428004000097

Push the transmitter unlock button and check to see that the doors and tailgate lock within 30 seconds. If it doesn't, then execute troubleshooting remedies. Refer to GROUP 54B, Diagnosis P.54B-12, refer to GROUP 54C, Diagnosis P.54C-4.

HOW TO REPLACE THE TRANSMITTER BATTERY

M1428000900236

⚠ CAUTION
Do not allow water or dust 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

M1428003200195

If the keyless entry system locks or unlocks the doors, the room lamp flashes or illuminates, the hazard warning lamp flashes (hazard answerback function). The hazard answerback function can be enabled or disabled according to the following procedure:

ENABLING/DISABLING THE HAZARD ANSWERBACK FUNCTION

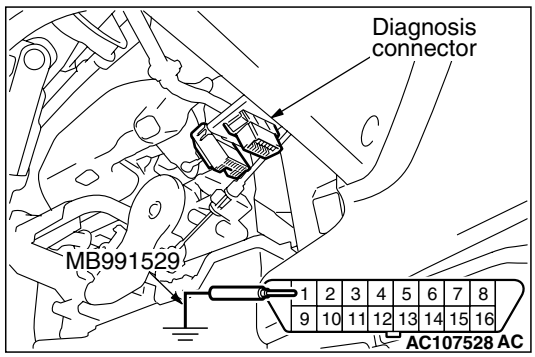
The hazard answerback function can be enabled or disabled by one of the two following procedures.

<When using the transmitter after diagnosis connector (1) is earthed>

1. Enter the hazard answerback customize mode by performing one of the following steps. If the ETACS-ECU enters the customize mode, its buzzer will sound once.
   (1) Turn the ignition switch to “LOCK”(OFF) position.
   (2) Turn off the hazard warning lamp switch.

⚠ CAUTION

Before connecting or disconnecting the earth, turn the ignition switch to the "LOCK" (OFF) position.



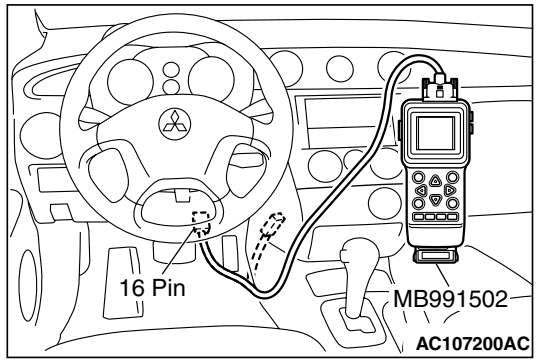
   (3) Connect the diagnosis connector to the special tool (MB991529).
   (4) Close the driver's side door.
   (5) Keep the windshield washer switch on for at least ten seconds. Then the ETACS-ECU buzzer will sound once.
2. If the transmitter “LOCK” button is pushed consecutively twice (within two seconds), the ETACS-ECU buzzer 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 buzzer will sound once.**
   - **Disable the hazard answerback function when the doors are locked: The ETACS-ECU buzzer will sound twice.**
3. If the transmitter “UNLOCK” button is pushed consecutively twice (within two seconds), the ETACS-ECU buzzer 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 buzzer will sound once.**
   - **Disable the hazard answerback function when the doors are unlocked: The ETACS-ECU buzzer will sound twice.**
4. Exit the hazard answerback customize mode by observing one of the following steps.
   (1) Disconnect diagnosis connector terminal (1) form the earth.
   (2) Turn the ignition switch to position other then “LOCK”(OFF), or remove the ignition key.
   (3) Open the driver's side door,
   (4) Any other warning buzzer output occurs.

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 the transmitter is used after connecting MUT-II to the diagnosis connector>

1. Enter the hazard answerback customize mode by performing one of the following steps. If the ETACS-ECU enters the customize mode, its buzzer will sound once.
   (1) Turn the ignition switch to “LOCK”(OFF) position.
   (2) Turn off the hazard warning lamp switch.

⚠ **CAUTION**
Before connecting or disconnecting the MUT-II, turn the ignition switch to the "LOCK" (OFF) position.



(3) Connect the MUT-II to the diagnosis connector.
(4) Close the driver's side door.
(5) Keep the windshield washer switch on for at least ten seconds. Then the ETACS-ECU buzzer will sound once.

2. If the transmitter "LOCK" button is pushed consecutively twice (within two seconds), the ETACS-ECU buzzer 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 buzzer will sound once.**
   - **Disable the hazard answerback function when the doors are locked: The ETACS-ECU buzzer will sound twice.**
3. If the transmitter "UNLOCK" button is pushed consecutively twice (within two seconds), the ETACS-ECU buzzer 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 buzzer will sound once.**
   - **Disable the hazard answerback function when the doors are unlocked: The ETACS-ECU buzzer will sound twice.**
4. Exit the hazard answerback customize mode by observing one of the following steps.
   (1) Disconnect MUT-II from the diagnosis connector.
   (2) Turn the ignition switch to position other then "LOCK"(OFF), or remove the ignition key.
   (3) Open the driver's side door,
   (4) Any other warning buzzer output occurs.

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.

HOW TO REGISTER SECRET CODE

M1428001000269

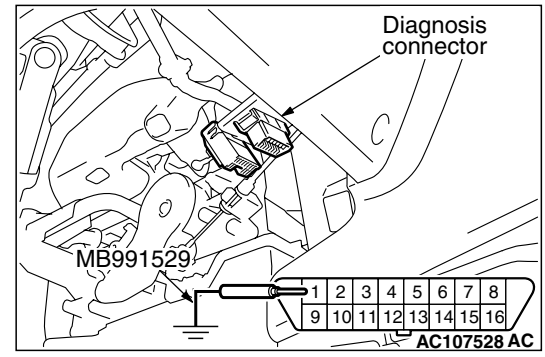
Each individual secret code is registered inside the transmitter, and so it is necessary to resister these codes with the EEPROM inside the receiver in the following cases.
- When the transmitter or ETACS-ECU is replaced
- If more transmitters are to be used
- If it appears that a problem is occurring 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.

When the MUT-II is not used

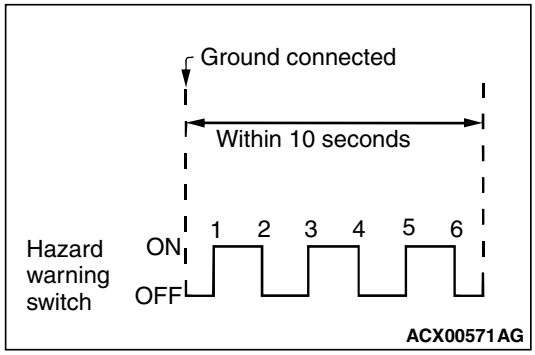
1. Check that the doors lock normally when the key is used.
2. Insert the ignition key.

⚠ **CAUTION**
Before connecting or disconnecting the earth, turn the ignition switch to the "LOCK" (OFF) position.



3. Connect the diagnosis connector to the special tool (MB991529).

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



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

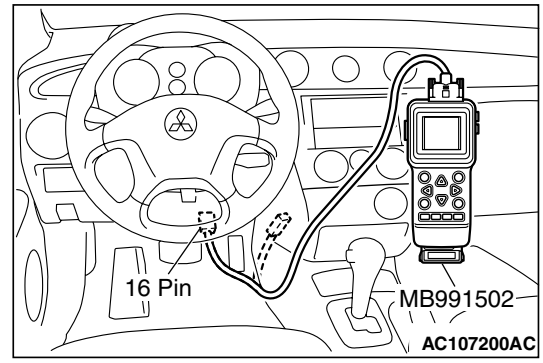
   NOTE: Once the process is completed six times, then it will operate with all doors and tailgate lock and unlock operations once and then go to the save mode.

   NOTE: The hazard warning lamp 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. Once the program is saved, it will operate once with the all doors and tailgate lock and unlock operations.
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.
8. Registration mode will be canceled under the following conditions:
   - When the secret code for four transmitters has been registered;
   - When one minute has passed after registration mode started;
   - When the diagnosis connector is disconnected from earth
   - When the key is removed from the key cylinder;
9. After the registration is completed, remove the ignition key and close all the doors, and then check that the keyless entry system operates normally.

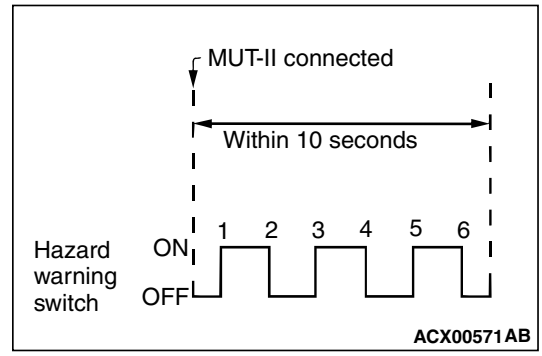
When the MUT-II is used

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

⚠ CAUTION
Before connecting or disconnecting the MUT-II, turn the ignition switch to the "LOCK" (OFF) position.



3. Connect the MUT-II to the diagnosis connector.



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

   NOTE: Once the process is completed six times, then it will operate with all doors and tailgate lock and unlock operations once and then go to the save mode.

   NOTE: The hazard warning lamp 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. Once the program is saved, it will operate once with the all doors and tailgate lock and unlock operations.
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.
8. Registration mode will be canceled under the following conditions:
   - When the secret code for four transmitters has been registered;
   - When one minute has passed after registration mode started;
   - When the MUT-II is disconnected from the diagnosis connector

- When the key is removed from the key cylinder;

9. After the registration is completed, remove the ignition key and close all the doors, and then check that the keyless entry system operates normally.

SUNROOF ASSEMBLY

SERVICE SPECIFICATIONS

M1421000300255

Item	Standard value
Roof lid glass operation current A (at 20 °C)	7 or less

TROUBLESHOOTING

CHECK CHART FOR TROUBLE SYMPTOMS

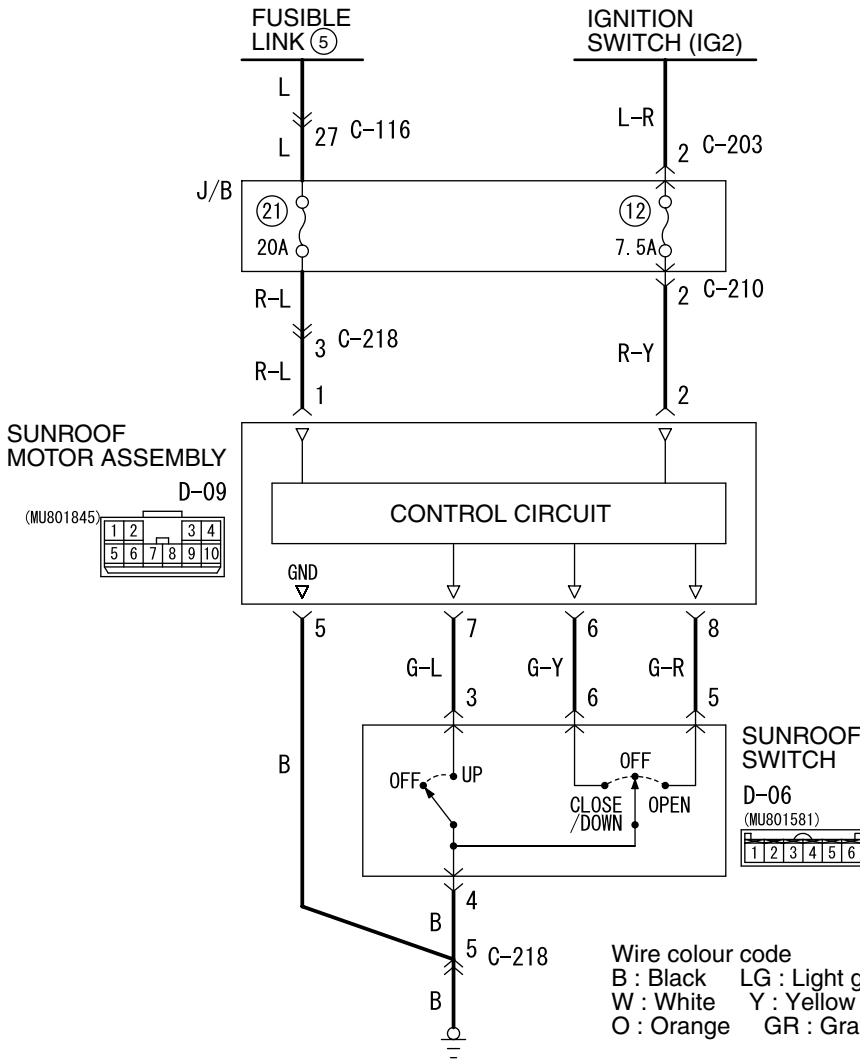
M1426002000095

Symptom	Inspection procedure number	Reference page
Sunroof does not work at all.	1	P.42-53
Any of the sunroof switch positions is defective.	2	P.42-58
Sunroof anti-trap function does not work normally.	3	P.42-60

INSPECTION PROCEDURE 1: The sunroof does not work at all.

⚠ CAUTION
Whenever the ECU is replaced, ensure that the input and output signal circuits are normal.

Sunroof-ECU Power Supply Circuit



Wire colour code
B : Black LG : Light green G : Green L : Blue
W : White Y : Yellow SB : Sky blue BR : Brown
O : Orange GR : Gray R : Red P : Pink V : Violet

W3Z07E02AA

COMMENTS ON TROUBLE SYMPTOM

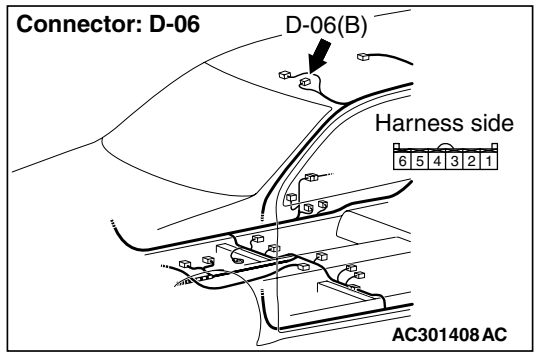
If the sunroof does not work at all, these power supply circuit(s), these earth circuit(s), sunroof switch or the sunroof motor assembly (sunroof ECU) may be defective.

Possible causes

- Malfunction of the sunroof switch
- Malfunction of the sunroof motor assembly (sunroof ECU)
- Damaged harness wires and connectors

Diagnostic procedure

STEP 1. Connector check: D-06 sunroof switch connector



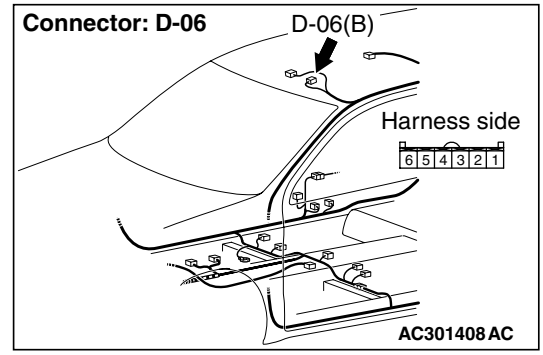
Q: Is the check result normal?
YES : Go to Step 2.
NO : Repair the connector.

STEP 2. Check the sunroof switch.

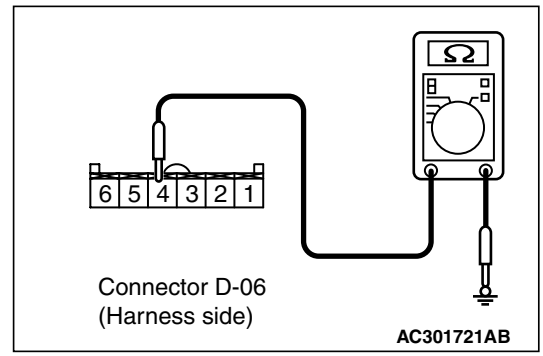
Refer to sunroof switch continuity checkP.42-64.

Q: Is the check result normal?
YES : Go to Step 3.
NO : Replace the sunroof switch.

STEP 3. Measure the resistance at the D-06 sunroof switch connector.



(1) Disconnect the connector, and measure at the wiring harness side.

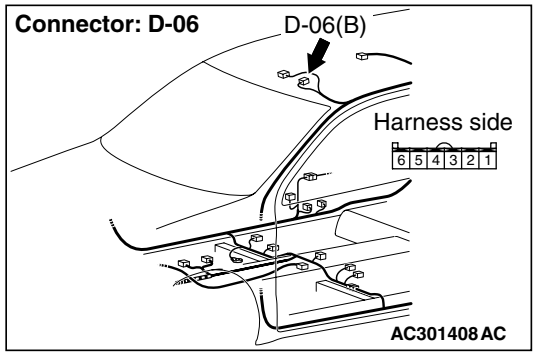


(2) Continuity between D-06 sunroof switch connector terminal No.4 and body earth

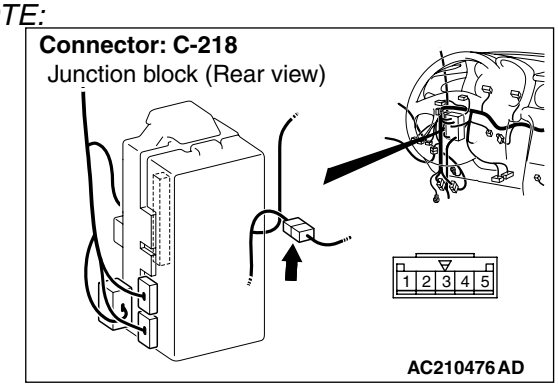
OK: 2Ω or less

Q: Is the check result normal?
YES : Go to Step 5.
NO : Go to Step 4.

STEP 4. Check the wiring harness between D-06 sunroof switch connector terminal No.4 and body earth.



NOTE:



Prior to the wiring harness inspection, check intermediate connector C-218, and repair if necessary.

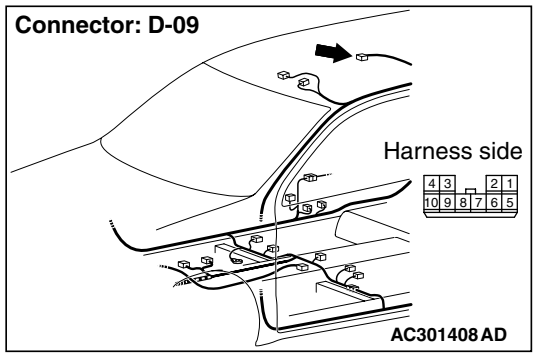
- Check the earth wires for open circuit.

Q: Is the check result normal?

YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 – How to Cope with Intermittent Malfunction P.00-6).

NO : Repair the wiring harness.

STEP 5. Connector check: D-09 sunroof motor assembly connector

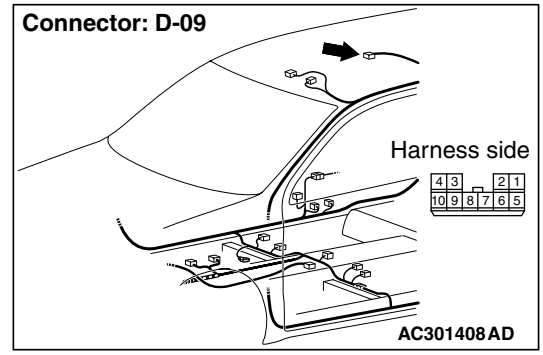


Q: Is the check result normal?

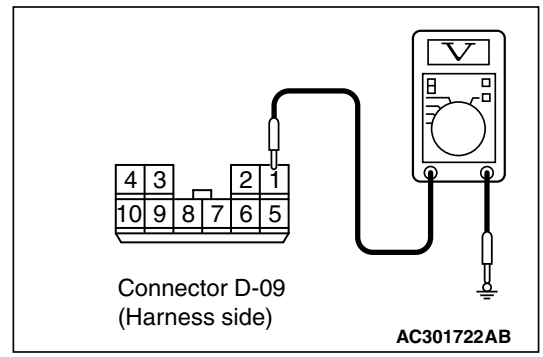
YES : Go to Step 6.

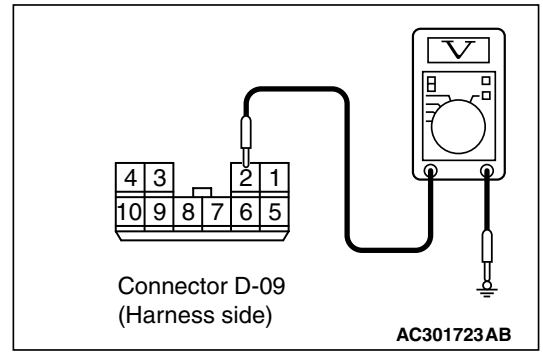
NO : Repair the connector.

STEP 6. Measure the voltage at the D-09 sunroof motor assembly connector.



(1) Disconnect the sunroof motor assembly connector, and measure at the harness side.





(2) Check the voltage between the sunroof motor assembly connector and body earth.

- Voltage between D-09 sunroof motor assembly connector terminal No.1 and body earth.
- Voltage between D-09 sunroof motor assembly connector terminal No.2 and body earth.

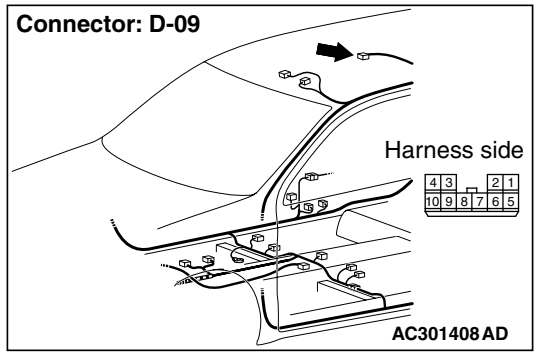
OK: Battery positive voltage

Q: Is the check result normal?

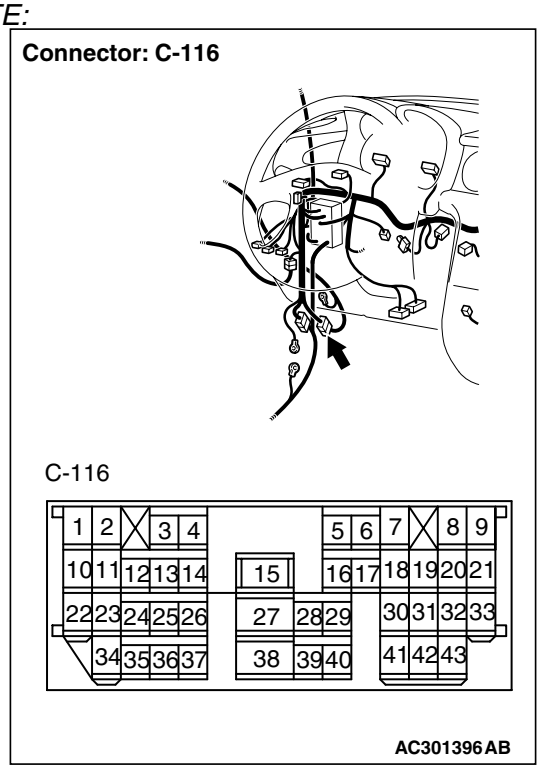
YES : Go to Step 8.

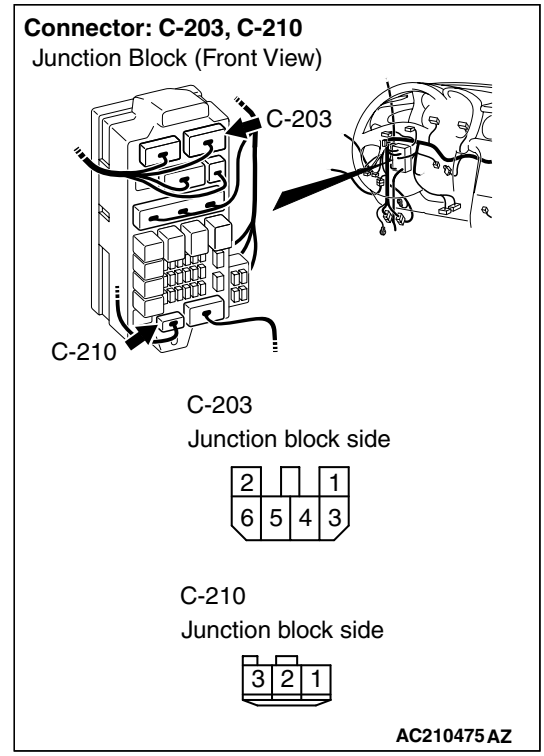
NO : Go to Step 7.

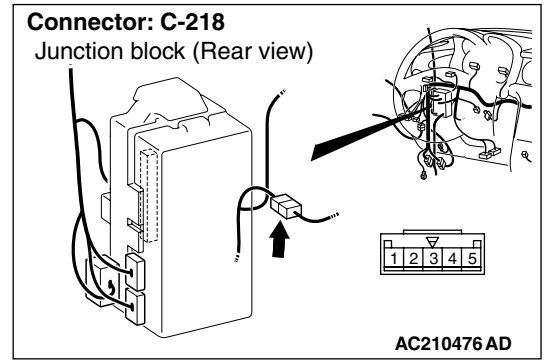
STEP 7. Check the wiring harness between D-09 sunroof motor assembly connector (terminal Nos. 1 and 2) and the battery.



NOTE:







Prior to the wiring harness inspection, check the junction block connectors C-203, C-210 and the intermediate connectors C-218, C-116 and repair if necessary.

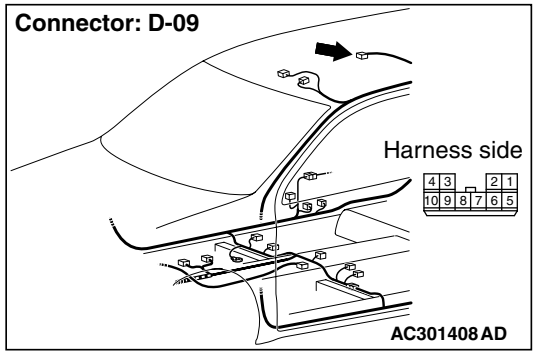
- Check the power supply line for open circuit.

Q: Is the check result normal?

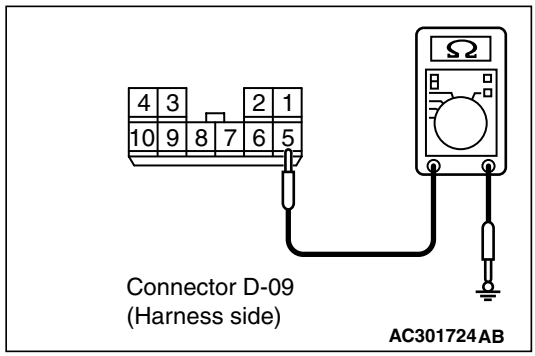
YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 – How to Cope with Intermittent Malfunction P.00-6).

NO : Repair the wiring harness.

STEP 8. Measure the resistance at the D-09 sunroof motor assembly connector.



(1) Disconnect the sunroof motor assembly connector, and measure at the harness side.

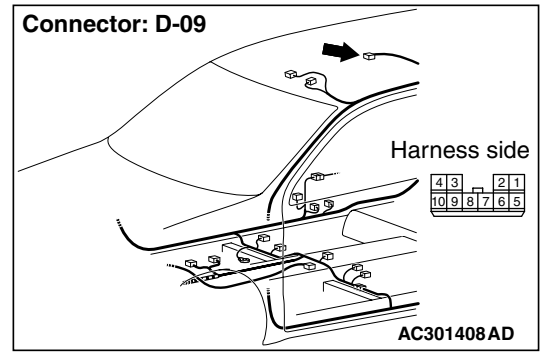


(2) Check the resistance between the sunroof motor assembly connector and body earth.
- Resistance between D-09 sunroof motor assembly connector terminal No.5 and body earth.

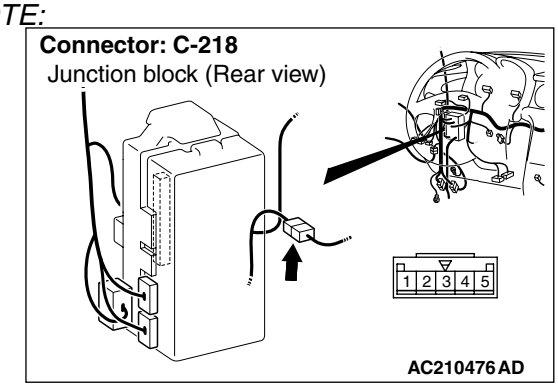
OK: 2Ω or less

Q: Is the check result normal?
YES : Go to Step 10.
NO : Go to Step 9.

STEP 9. Check the wiring harness between D-09 sunroof motor assembly connector terminal No.5 and body earth.



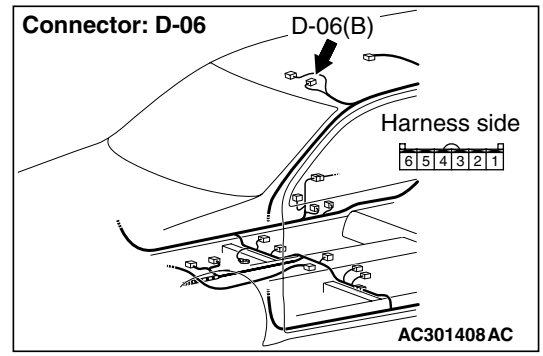
NOTE:



Prior to the wiring harness inspection, check intermediate connector C-218, and repair if necessary.
- Check body earth line for open circuit.

Q: Is the check result normal?
YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 – How to Cope with Intermittent Malfunction P.00-6).
NO : Repair the wiring harness.

STEP 10. Connector check: D-06 sunroof switch connector



Q: Is the check result normal?
YES : Go to Step 11.
NO : Repair the connector.

STEP 11. Retest the system.

The sunroof assembly should now work normally.

Q: Is the check result normal?

YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 – How to Cope with Intermittent Malfunction P.00-6).

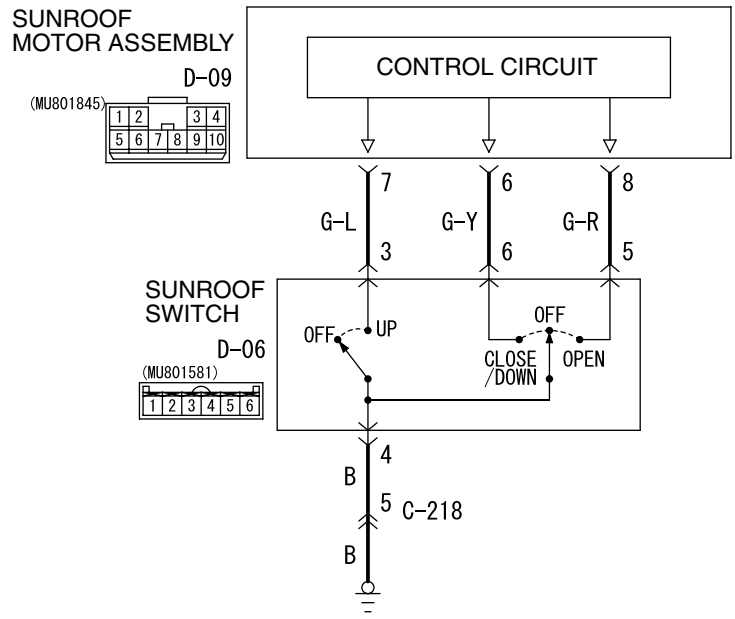
NO : Replace the sunroof motor assembly.

INSPECTION PROCEDURE 2: Any of the sunroof switch positions is defective.

⚠ CAUTION

Whenever the ECU is replaced, ensure that the input and output signal circuits are normal.

Sunroof Switch Circuit



Wire colour code
B : Black LG : Light green G : Green L : Blue W : White Y : Yellow SB : Sky blue
BR : Brown O : Orange GR : Gray R : Red P : Pink V : Violet

W3Z07E01AA

COMMENTS ON TROUBLE SYMPTOM

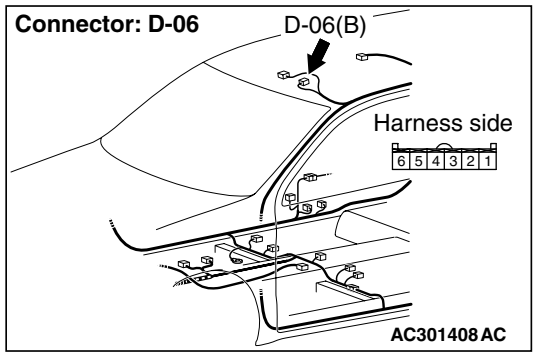
If any of the sunroof switch positions is defective, the communication line between the sunroof switch and the sunroof motor assembly (sunroof-ECU) may be defective.

Possible causes

- Malfunction of the sunroof switch
- Malfunction of the sunroof motor assembly (sunroof ECU)
- Damaged harness wires and connectors

Diagnostic procedure

STEP 1. Connector check: D-06 sunroof switch connector



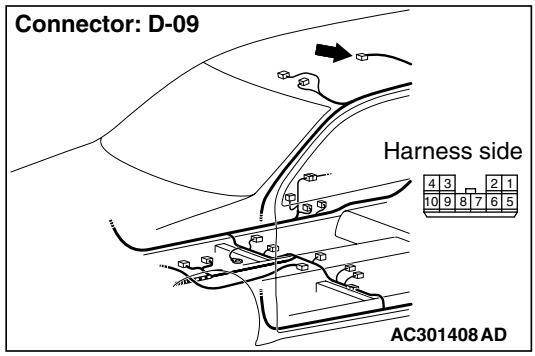
Q: Is the check result normal?
YES : Go to Step 2.
NO : Repair the connector.

STEP 2. Check the sunroof switch.

Refer to sunroof switch continuity checkP.42-64.

Q: Is the check result normal?
YES : Go to Step 3.
NO : Replace the sunroof switch.

STEP 3. Connector check: D-09 sunroof motor assembly connector

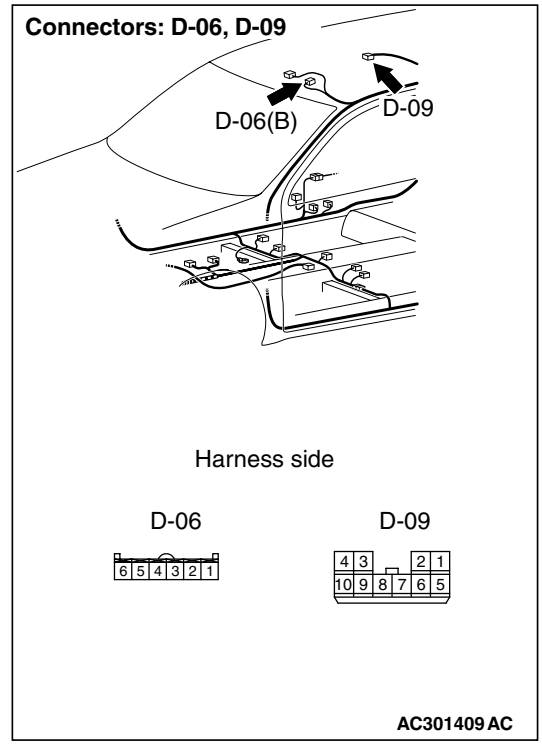


Q: Is the check result normal?
YES : Go to Step 4.
NO : Repair the connector.

STEP 4. Retest the system.

Q: Which switch position is defective?
"TILT UP" : Go to Step 5.
"OPEN" : Go to Step 6.
"CLOSE/DOWN" : Go to Step 7.

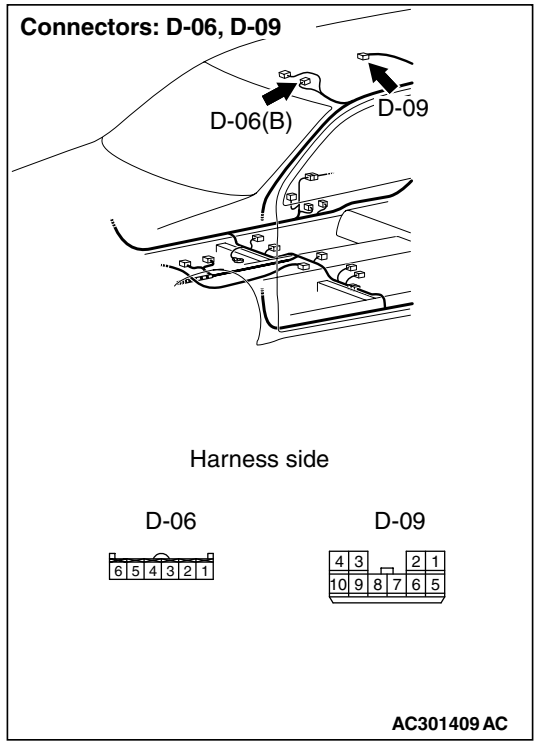
STEP 5. Check the wiring harness between D-09 sunroof motor assembly connector terminal No.7 and D-06 sunroof switch connector terminal No.3.



- Check the communication line for open circuit.

Q: Is the check result normal?
YES : Replace the sunroof motor assembly.
NO : Repair the wiring harness.

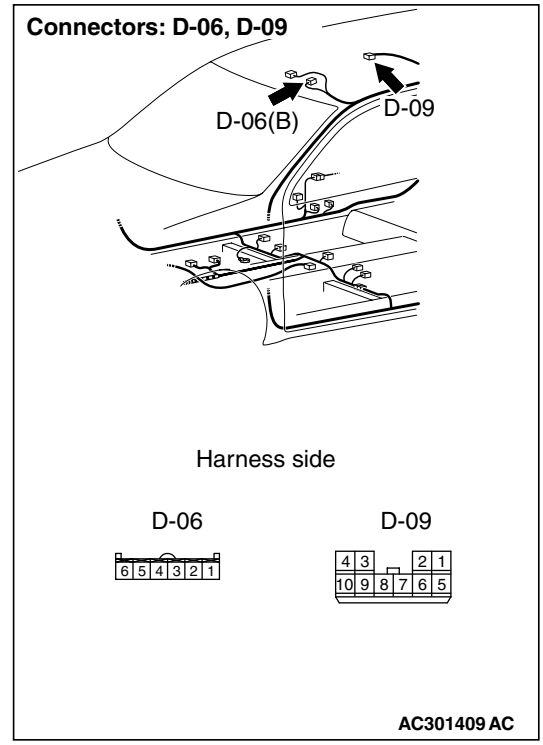
STEP 6. Check the wiring harness between D-09 sunroof motor assembly connector terminal No.8 and D-06 sunroof switch connector terminal No.5.



- Check the communication line for open circuit.

Q: Is the check result normal?
YES : Replace the sunroof motor assembly.
NO : Repair the wiring harness.

STEP 7. Check the wiring harness between D-09 sunroof motor assembly connector terminal No.6 and D-06 sunroof switch connector terminal No.6.



- Check the communication line for open circuit.

Q: Is the check result normal?
YES : Replace the sunroof motor assembly.
NO : Repair the wiring harness.

INSPECTION PROCEDURE 3: Sunroof anti-trap function does not work normally.

⚠ CAUTION
Whenever the ECU is replaced, ensure that the input and output signal circuits are normal.

OPERATION
This function is activated by the sunroof motor assembly (sunroof-ECU).

COMMENTS ON TROUBLE SYMPTOM
If the sunroof anti-trap function does not work, the sunroof motor assembly (sunroof-ECU) may be defective.

Possible causes
- Malfunction of the sunroof motor assembly (sunroof ECU)

Diagnostic procedure

Retest the system.
Check that the sunroof anti-trap function work normally.

Q: Is the check result normal?
YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 – How to Cope with Intermittent Malfunction P.00-6).
NO : Replace the sunroof motor assembly.

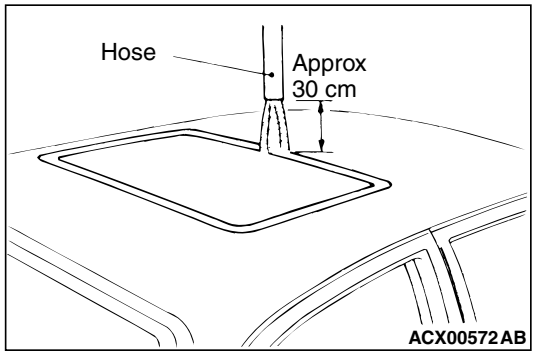
ON-VEHICLE SERVICE

WATER TEST

M1426000900241

Check if there are any leaks in the sunroof by the following procedure.

1. Fully close the roof lid glass.
2. Adjust the water pressure so that water comes out of the hose to a height of approximately 50 cm when the hose is held vertically facing upwards.

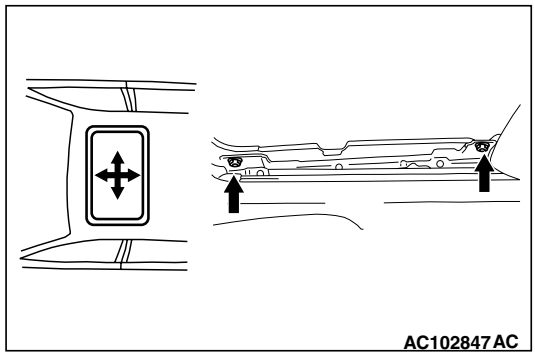


3. Hold the end of the hose approximately 30 cm above the roof and let the water run onto the weatherstrip for 5 minutes or more.
4. Check if any water leaks can be found in the room while watering. Even though there are any water leaks around the roof lid glass, it can be acceptable as long as water is caught in the drip area.

SUNROOF FIT ADJUSTMENT

M1426001000252

1. Fully close the roof lid glass.
2. Fully open the sunshade.
3. Remove the decoration cover (Refer to P.42-63).



4. To adjust the roof lid glass in the front/back or left/right direction, loosen the nuts securing the roof lid glass assembly, then move the roof lid glass assembly to the front/back or left/right. Check to see that the space between the roof lid glass and body is even across the entire circumference.
5. Adjust the roof lid glass height according to the number of the adjusting plate pieces. Check to see that the height of the roof lid glass is even with the body.
6. After adjustment, check to be sure that the sunroof operates smoothly.

SUNROOF CHECK

M1426004700089

Check to see that the sunroof operates by pressing the sunroof switch. Perform troubleshooting if operations malfunction. (Refer to P.42-52).

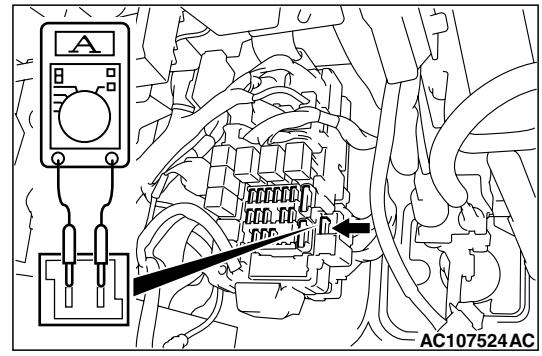
SUNROOF SAFETY FUNCTION CHECK

M1426004400107

1. Close the roof lid glass by applying an approximately 10mm thickness wood chip placed at a right angle to the roof lid glass.
2. Check to see if the roof lid glass opens after the motor turns when the roof lid glass catches the wooden chip. (Refer to P.42-52).

ROOF LID GLASS OPERATION CURRENT CHECK

M1426003200133



1. Remove the fuse of the sunroof, then connect the circuit tester as shown in the Figure.
2. Turn ON the sunroof switch, then measure the operating current of the intermediary segment when the sunroof is moving, with the sunroof fully closed, when the sunroof is fully opened and when the sunroof is tilted fully up.

Standard value: 7 A or less (at 20 °C)

3. Check the following areas if the operating current of exceeds the standard value.
   - Sunroof installation, deformation and appearance of any foreign substances.
   - Drive cable installation.
   - Tilting of roof lid glass.

SUNROOF INITIALIZATION

M1426004600093

1. Assemble the roof lid glass assembly and sunroof motor assembly to the sunroof assembly.
2. Connect the sunroof motor assembly connector and sunroof switch connector to the wire ring harness connector on the vehicle side.
3. Fully open the roof lid glass by pressing the sunroof switch, then fully close the sunroof by pressing the close switch again.
4. Continuously press the close switch for a minimum of 3 seconds after the sunroof is fully closed.
5. Press the open switch to fully open the sunroof, then press the close switch to fully close the sunroof.

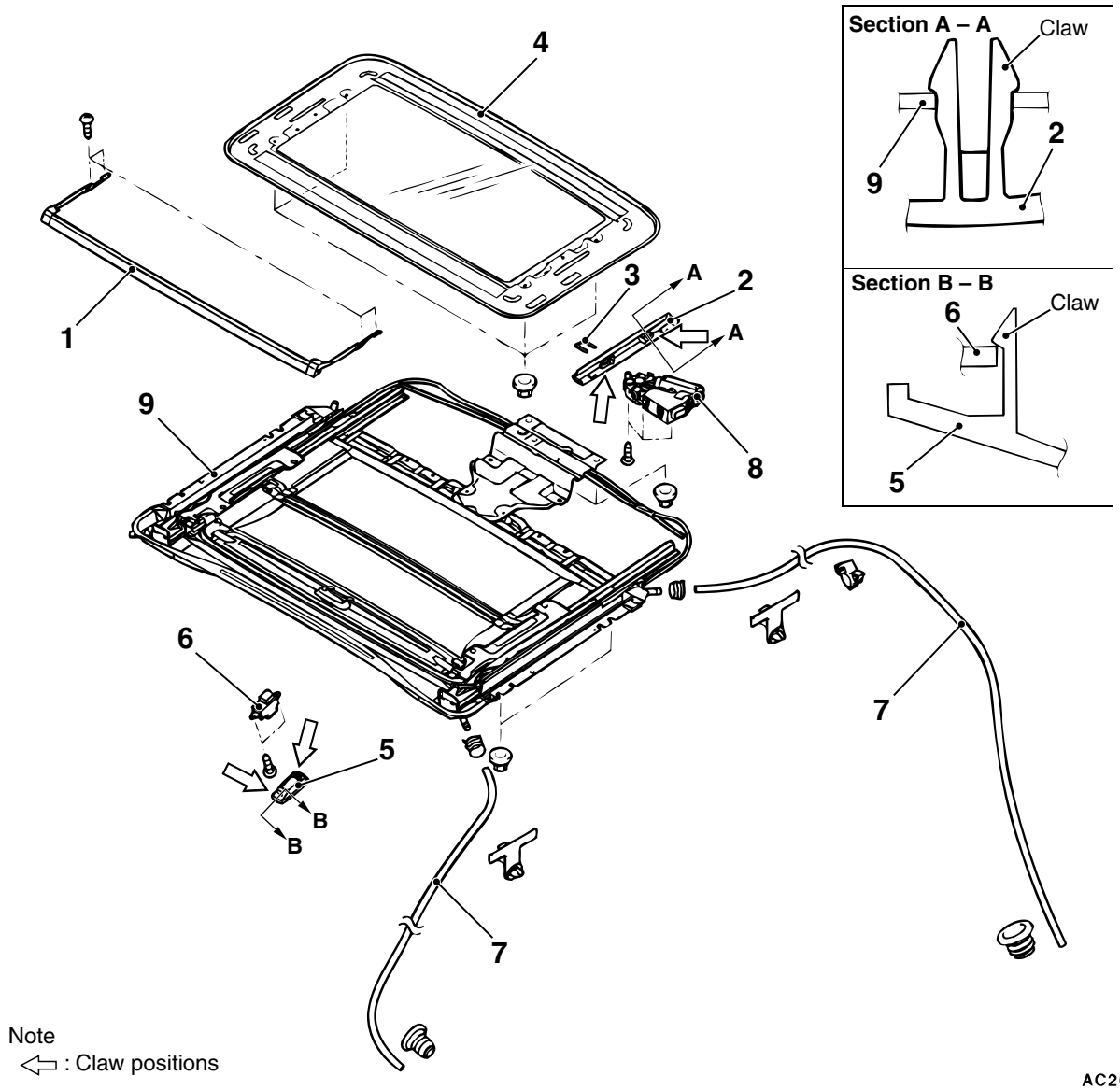
NOTE: Do not stop the sunroof before the sunroof is fully opened or fully closed in Step 5, above. If the fully open or closed operation is interrupted/stopped, start over from Step 3.

SUNROOF ASSEMBLY

REMOVAL AND INSTALLATION

M1426001200278

Post-installation Operation <Roof lid glass assembly, Sunroof assembly>
- Sunroof Water Test (Refer to P.42-61).
- Sunroof Fit Adjustment (Refer to P.42-61).
- Sunroof Initializing Adjustment (Refer to P.42-62).



Note
⇦ : Claw positions

AC201053AC

Removal
1. Deflector assembly

Roof lid glass assembly removal steps
2. Decoration cover
3. Adjusting plate
4. Roof lid glass assembly

Sunroof switch removal steps
5. Sunroof switch cover
6. Sunroof switch

Drain pipe removal steps
5. Sunroof switch cover
- Headlining (Refer to GROUP 52A, Headlining P.52A-19).
- Cowl side trim (Refer to GROUP 52A, Trims P.52A-10).

>>A<< 7. Drain pipe

Sunroof motor assembly removal steps

5. Sunroof switch cover
- Headlining (Refer to GROUP 52A, Headlining P.52A-19).

8. Sunroof motor assembly

Sunroof assembly removal steps

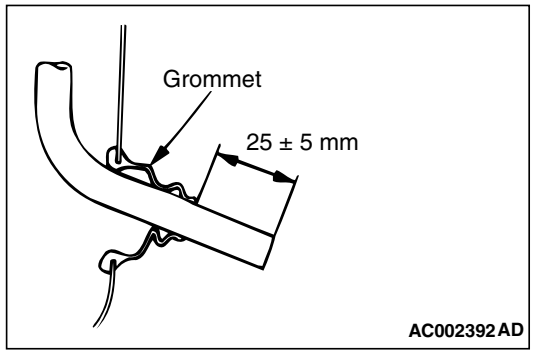
5. Sunroof switch cover
6. Sunroof switch
- Headlining (Refer to GROUP 52A P.52A-19).

>>A<< 7. Drain pipe connection

9. Sunroof assembly

INSTALLATION SERVICE POINTS

>>A<< DRAIN PIPE INSTALLATION

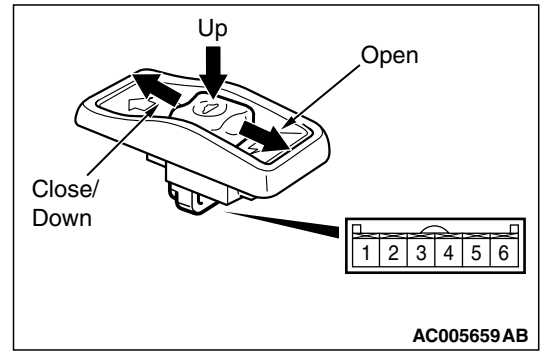


Install the grommet, and then position the drain pipe so that it protrudes from the grommet as shown in the illustration.

INSPECTION

M1426001600113

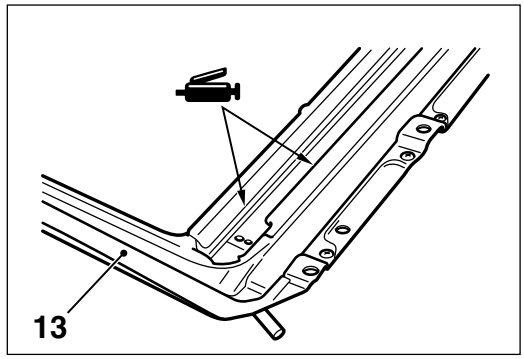
SUNROOF SWITCH CONTINUITY CHECK

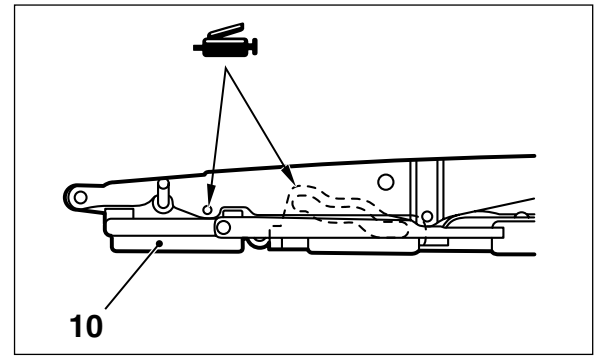


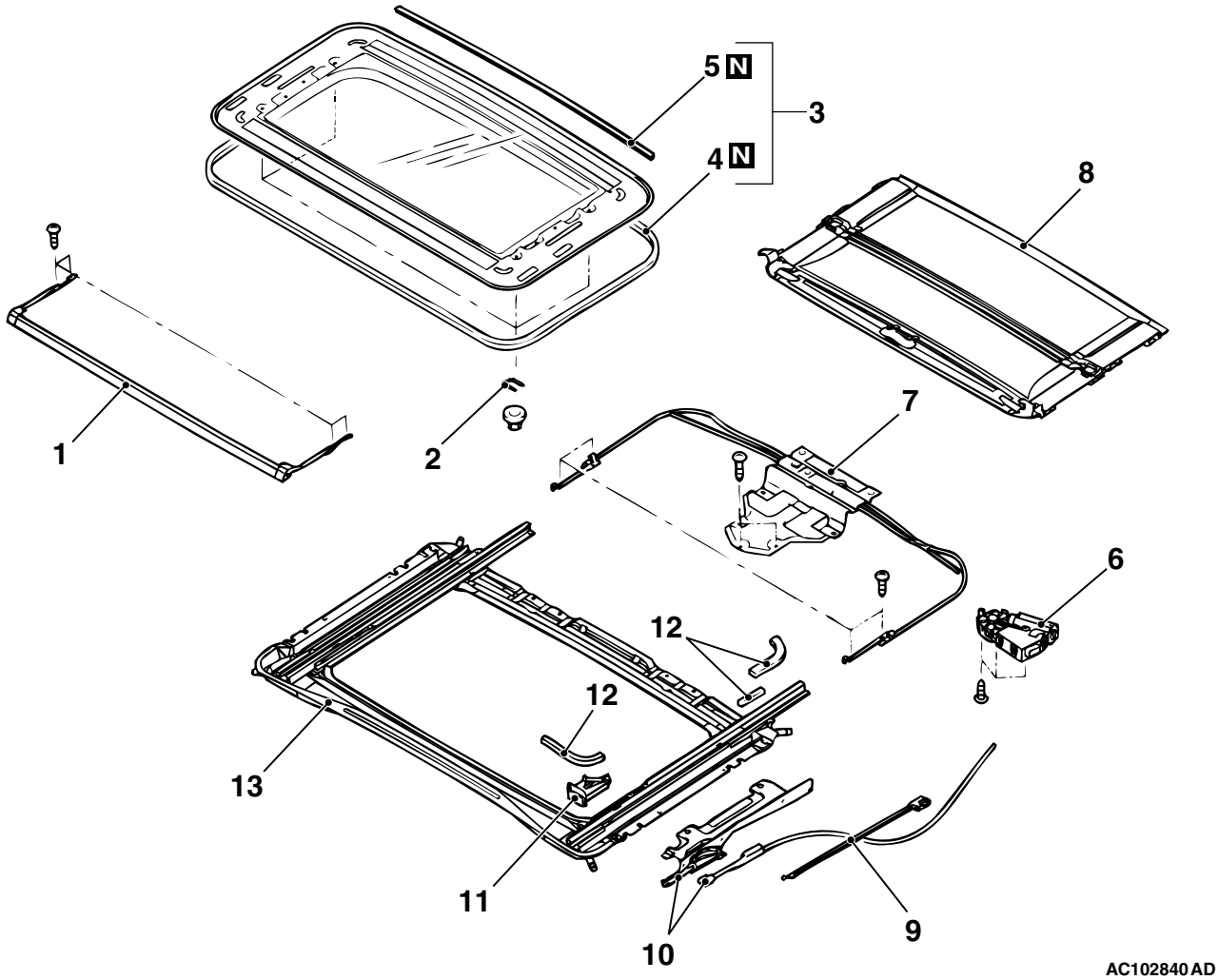
SWITCH POSITION	TESTER CONNECTION	SPECIFIED CONDITION
Open	4 – 5	Less than 2 ohms
OFF	3 – 4, 3 – 5, 3 – 6, 4 – 5, 4 – 6, 5 – 6	Open circuit
Up	3 – 4	Less than 2 ohms
Close/Down	4 – 6	Less than 2 ohms

DISASSEMBLY AND ASSEMBLY

M1426001400250







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Disassembly steps

1. Deflector assembly
- Decoration cover (Refer to P.42-63).
2. Adjusting plate
3. Roof lid glass assembly
4. Weatherstrip

>>A<< 5. Weatherstrip inner

6. Sunroof motor assembly

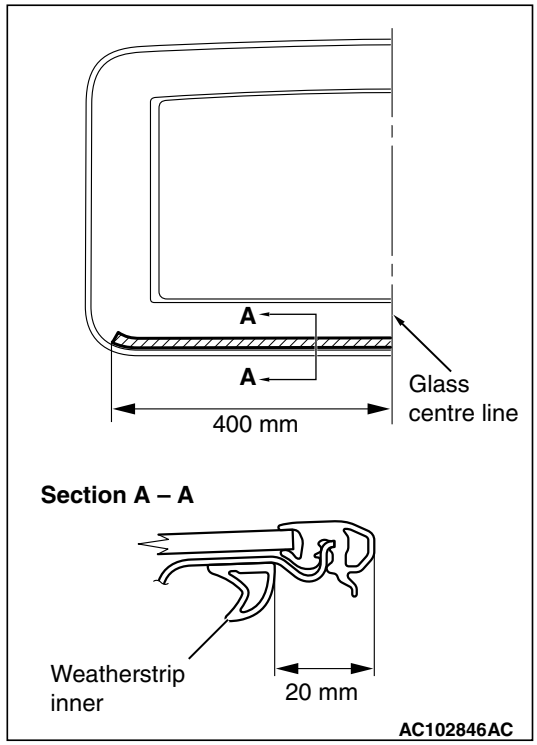
Disassembly steps (Continued)

7. Operating unit
8. Sun shade assembly
9. Lifter link
10. Guide assembly
11. Drip plate
12. Seal tape
13. Frame assembly

INSTALLATION SERVICE POINT

>>A<< WEATHERSTRIP INNER INSTALLATION

1. Degrease the weatherstrip inner assembling surface of the roof lid glass side with unleaded gasoline.



2. Assemble the weatherstrip inner in the location shown.

NOTES