GROUP 42A

BODY

CONTENTS

Continued on next page

Continued on next page

HOOD

HOOD DIAGNOSIS

INTRODUCTION

M1421005800448

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

TROUBLESHOOTING STRATEGY

M1421005900393

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

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

TROUBLE SYMPTOM CHART

M1421006000489

Symptom	Inspection procedure	Reference page
Difficult locking and unlocking	1	P.42A-4
Uneven body clearance	2	P.42A-5
Uneven height	3	P.42A-5

SYMPTOM PROCEDURES

INSPECTION PROCEDURE 1: Difficult Locking and Unlocking

DIAGNOSIS

STEP 1. Check that the release cable is routed correctly.

Q: Is the release cable routed correctly?
YES : Go to Step 2.
NO : Re-route the release cable. Then go to Step 4.

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

Q: Are the hood latch and hood striker engaged correctly?
YES : Go to Step 3.
NO : Adjust the hood latch (Refer to P.42A-6). Then go to Step 4.

STEP 3. Check for proper lubrication of release cable.

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

STEP 4. Retest the system.

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

INSPECTION PROCEDURE 2: Uneven Body Clearance

DIAGNOSIS

STEP 1. Check the clearance around the hood.

Q: Is the clearance around the hood even?
YES : Go to Step 2.
NO : Adjust the hood (Refer to P.42A-5 <GTS>, P.42A-5 <RALLIART>). Then go to Step 2.

STEP 2. Retest the system.

Q: Are the clearances between body panels even?
YES : The procedure is complete.
NO : Return to Step 1.

INSPECTION PROCEDURE 3: Uneven Height

DIAGNOSIS

STEP 1. Check the hood damper height.

Q: Is the hood damper height proper?
YES : Go to Step 2.
NO : Adjust the hood damper (Refer to P.42A-6). Then go to Step 2.

STEP 2. Retest the system.

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

ON-VEHICLE SERVICE

ADJUSTMENT OF CLEARANCE AROUND HOOD <GTS>

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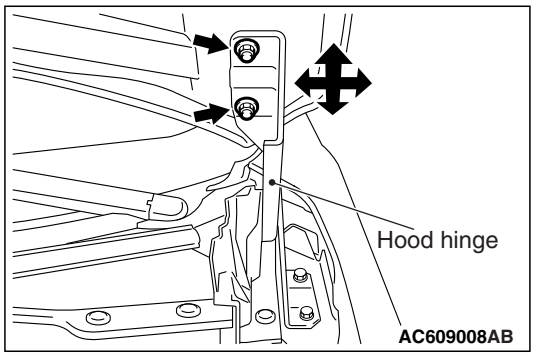

1. Loosen the hood hinge mounting nuts but do not remove them. Move the hood hinge back/forth and left/right to align the hood level.
2. After the adjustment, tighten the hood hinge mounting nuts to 9.5 ± 3.5 N· m (84 ± 31 in-lb).

ADJUSTMENT OF CLEARANCE AROUND HOOD <RALLIART>

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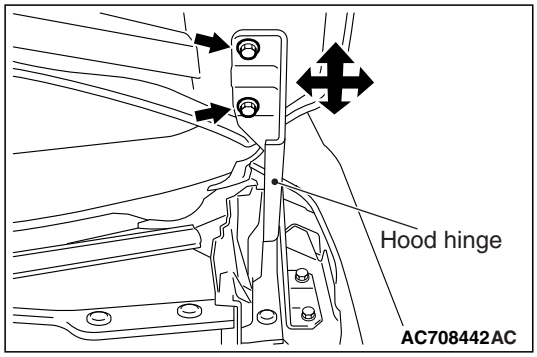

1. Loosen the hood hinge mounting bolts but do not remove them. Move the hood hinge back/forth and left/right to align the hood level.
2. After the adjustment, tighten the hood hinge mounting bolts to 12 ± 2 N· m (106 ± 17 in-lb).

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ALIGNMENT OF HOOD LATCH AND STRIKER

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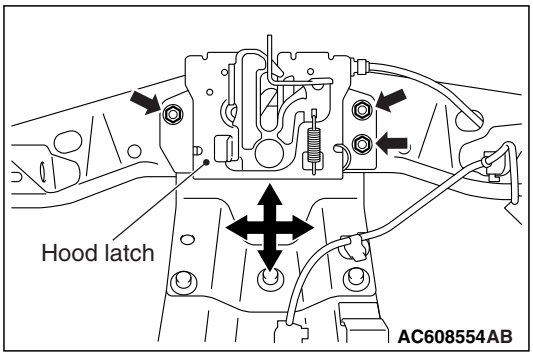

1. Remove the headlight support panel cover (Refer to GROUP 51, Front Bumper Assembly and Radiator Grille P.51-5).
2. Loosen the hood latch mounting bolts but do not remove them. Move the hood latch up/down and left/right to align the hood level and adjust the hood striker engagement.
3. After the adjustment, tighten the hood latch mounting bolts to 9.0 ± 1.0 N· m (80 ±9 in-lb).
4. Install the headlight support panel cover. (Refer to GROUP 51, Front Bumper Assembly and Radiator Grille P.51-5.)

ADJUSTMENT OF HOOD HEIGHT

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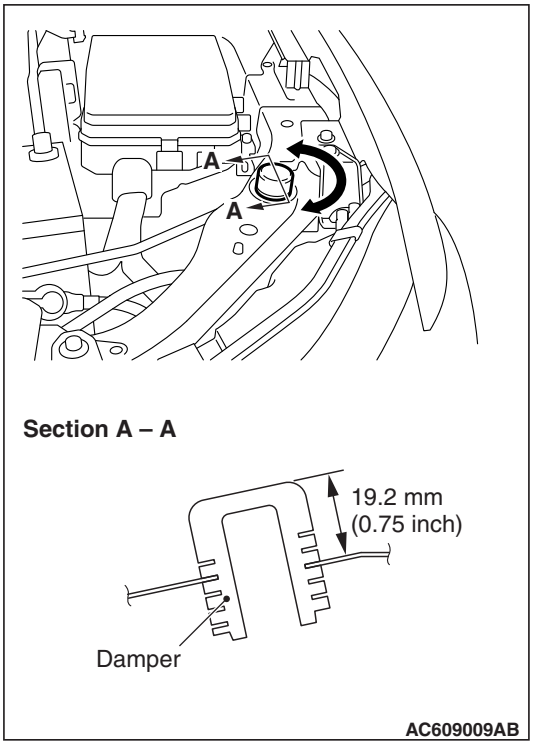


Turn the damper to the dimension shown in the figure to adjust the hood height. If the hood height is still not even, turn the damper again until the height is even. The damper height is altered by roughly 4 mm (0.16 inch) when the damper is rotated one full turn.

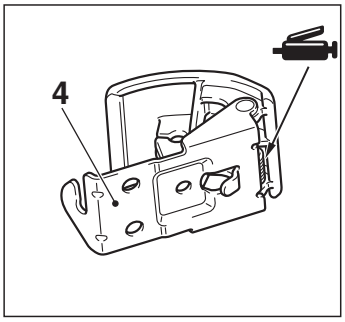
NOTE: If a rattling noise is heard due to the vibration of the hood when the vehicle is being driven, adjust the damper height until the damper is seated on the hood.

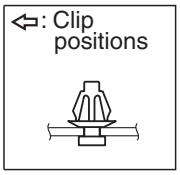
HOOD

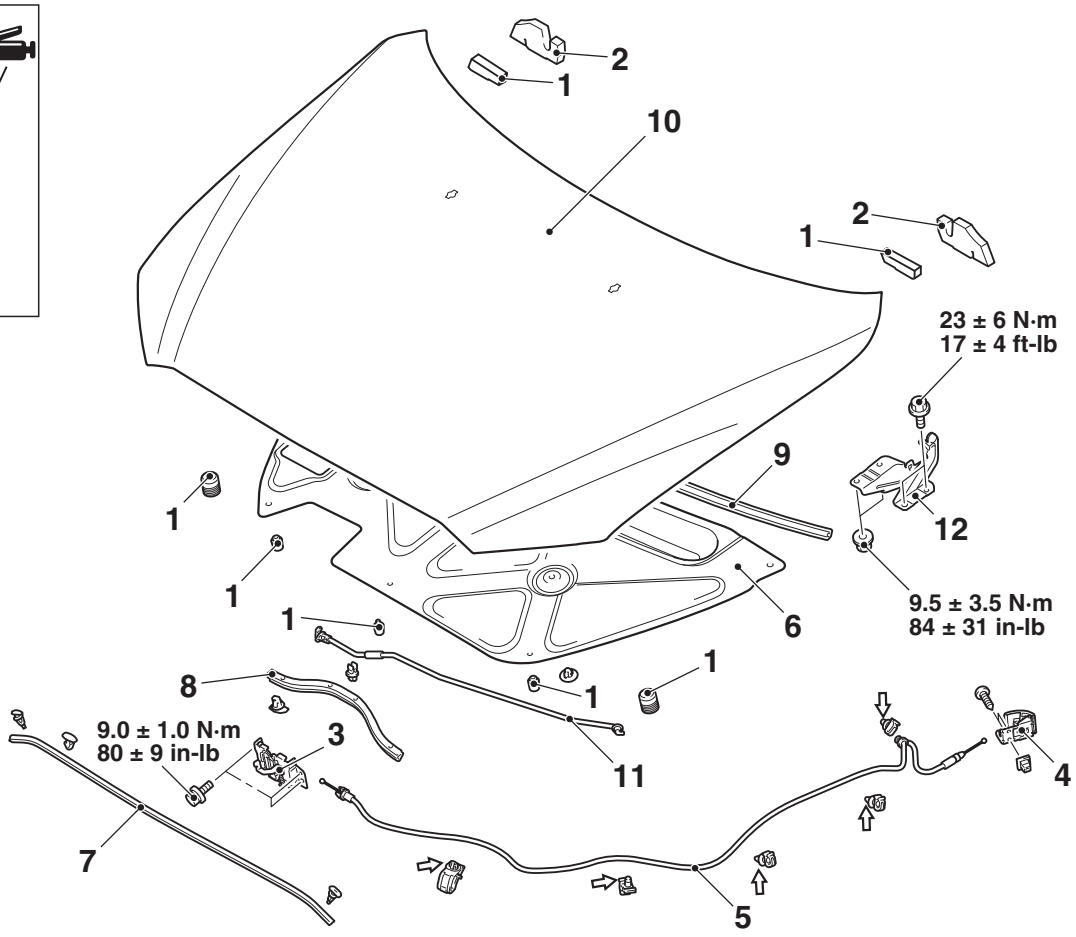
HOOD REMOVAL AND INSTALLATION <GTS>

M1421001602039

Post-installation operation
- Adjustment of clearance around hood <GTS> (Refer to P.42A-5).
- Adjustment of the hood level and hood striker engagement (Refer to P.42A-6).
- Adjustment of hood height (Refer to P.42A-6).







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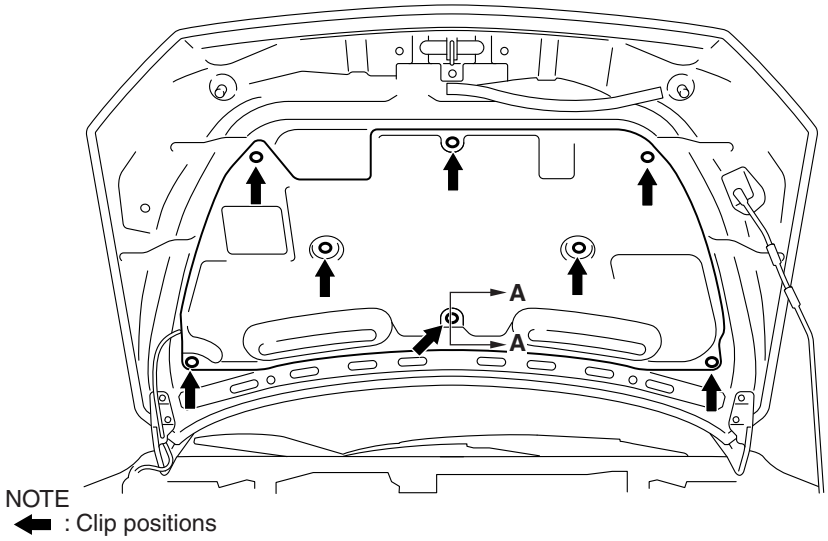

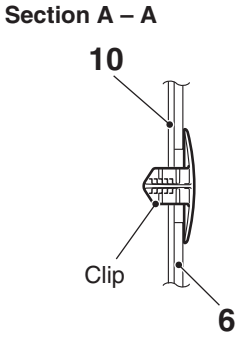

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Damper removal

1. Damper
2. Damper <Vehicles with silence grade up system>

Hood latch and hood lock release cable removal steps

- Headlight support panel cover (Refer to GROUP 51, Front Bumper assembly and Radiator Grille P.51-5.)

3. Hood latch

- Cowl side trim (Refer to GROUP 52A, Interior Trim P.52A-11.)
- Bottom cover assembly <driver's side> (Refer to GROUP 52A, Instrument Panel Assembly P.52A-3.)

4. Hood lock release handle

- Front splash shield (Refer to P.42A-13.)

Hood latch and hood lock release cable removal steps (Continued)

- Front bumper assembly (Refer to GROUP 51, Front Bumper assembly and Radiator Grille P.51-5.)

5. Hood lock release cable

Hood removal steps

6. Hood insulator <Vehicles with silence grade up system>
7. Hood weatherstrip front
8. Hood weatherstrip
9. Hood weatherstrip rear

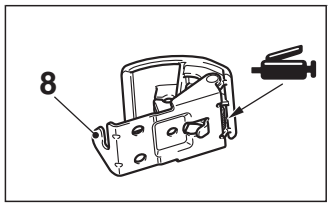
- Washer hose, washer nozzle (Refer to GROUP 51, Windshield Washer P.51-85.)

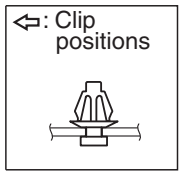
10. Hood
11. Hood support rod
12. Hood hinge

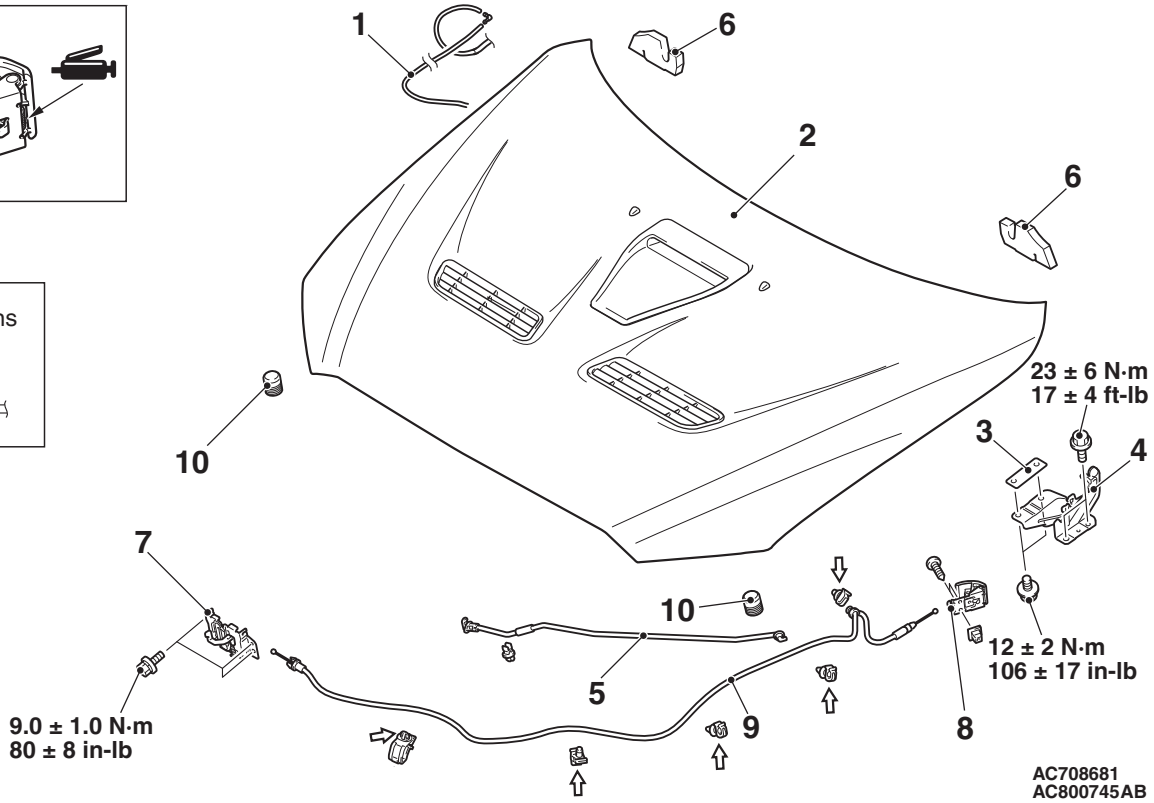
REMOVAL AND INSTALLATION <RALLIART>

M1421001601586

Post-installation operation
- Adjustment of clearance around hood <RALLIART> (Refer to P.42A-5.)
- Adjustment of the hood level and hood striker engagement (Refer to P.42A-6.)
- Adjustment of hood height (Refer to P.42A-6.)







Hood removal steps
1. Windshield washer hose connection
2. Hood assembly
3. Shim
4. Hood hinge
5. Hood support rod
6. Hood damper

Hood latch and hood lock release cable removal steps
- Headlight support panel cover (Refer to GROUP 51, Front Bumper Assembly and Radiator Grille P.51-5.)

7. Hood latch
- Cowl side trim (driver's side) (Refer to GROUP 52A, Interior Trim P.52A-11.)

Hood latch and hood lock release cable removal steps (Continued)
- Instrument panel lower (Refer to GROUP 52A –Instrument Lower Panel P.52A-8.)

8. Hood lock release handle
- Front splash shield (Refer to P.42A-13.)
- Headlight assembly (driver's side) (Refer to GROUP 54A –Headlight P.54A-213.)

9. Hood lock release cable

Damper removal

10. Damper

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DISASSEMBLY AND REASSEMBLY <RALLIART>

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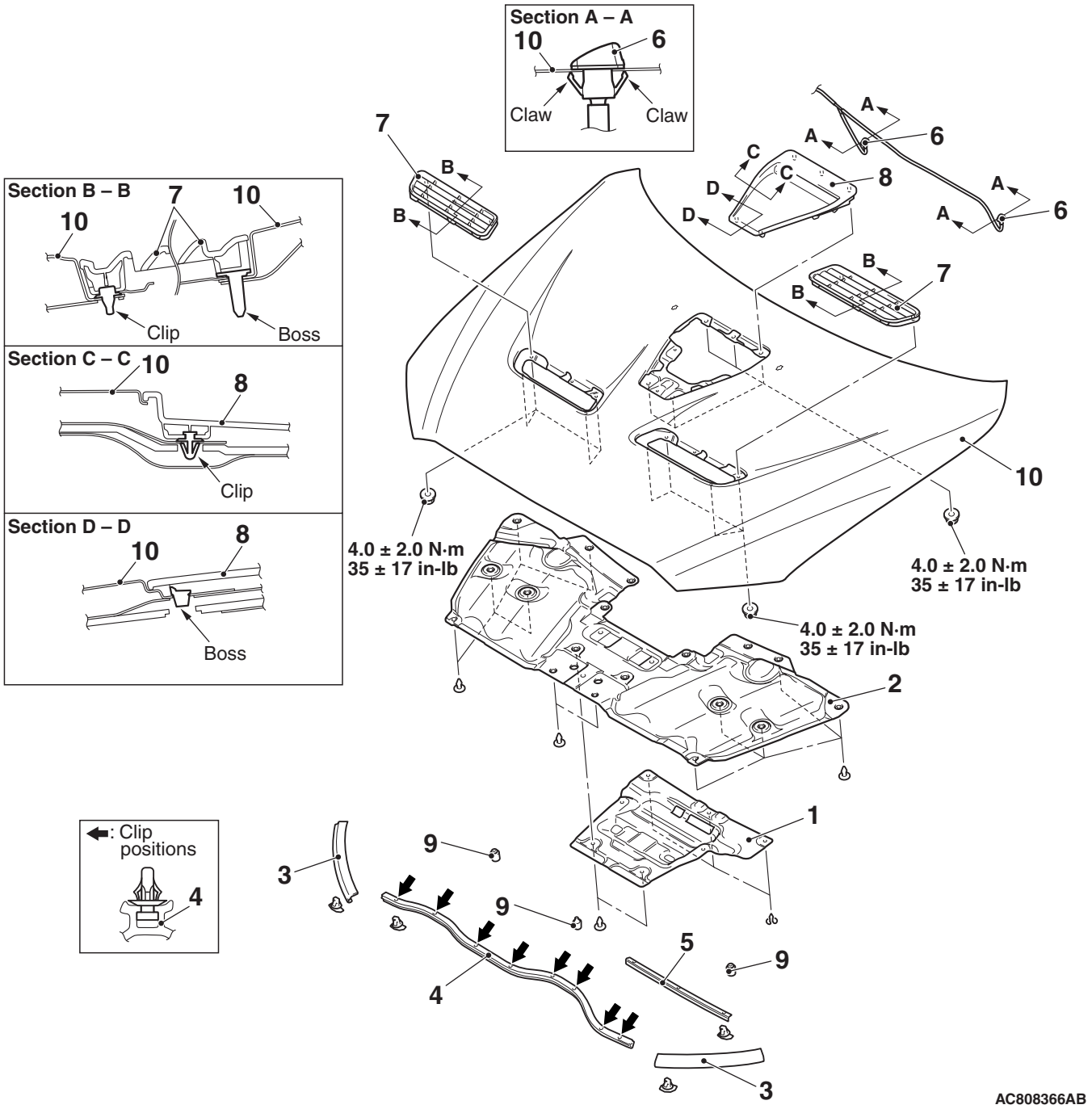

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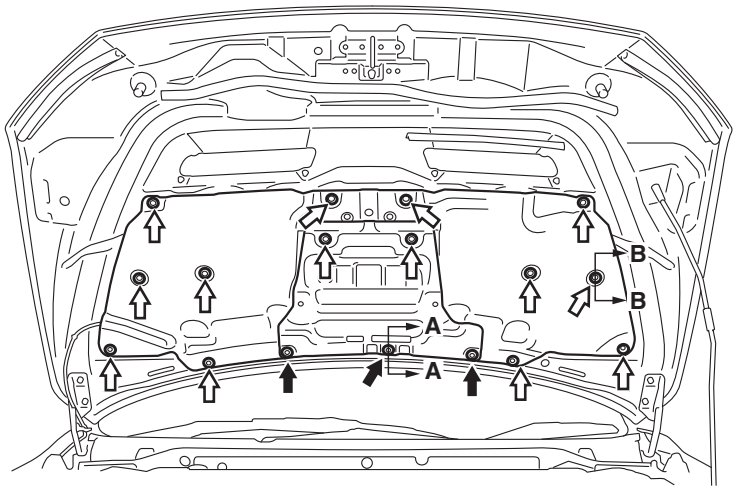
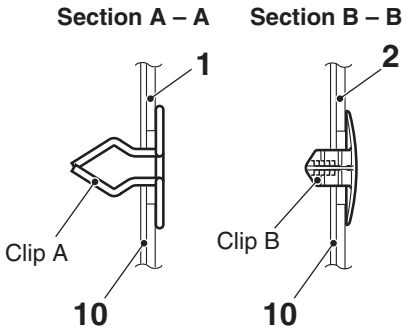


⬅: Clip A positions ⇦: Clip B positions



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Disassembly steps

1. Hood insulator A
2. Hood insulator B <<**A**>>
3. Hood weatherstrip side A <<**B**>>
4. Hood weatherstrip
5. Hood weatherstrip side B <LH>

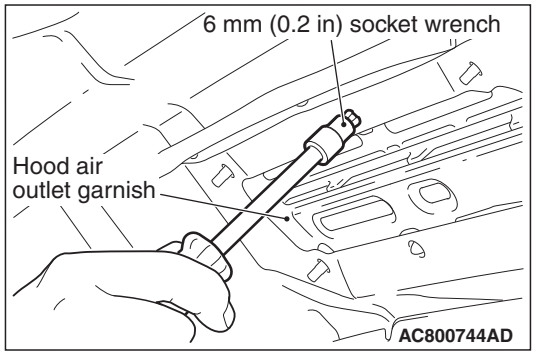
Disassembly steps (Continued)

6. Windshield washer nozzle assembly
7. Hood air outlet garnish
8. Hood air inlet garnish
9. Damper
10. Hood

REMOVAL SERVICE POINTS

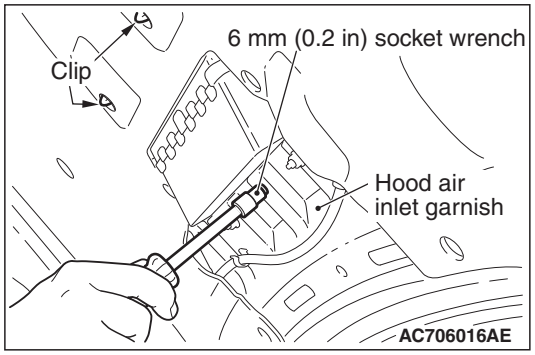
<<A>> HOOD AIR OUTLET GARNISH REMOVAL

Using 6 mm (0.2 in) socket wrench, push out the hood air outlet garnish assembling clips.



<<B>> HOOD AIR INLET GARNISH REMOVAL

Using 6 mm (0.2 in) socket wrench, push out the hood air inlet garnish assembling clips.



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FENDER

REMOVAL AND INSTALLATION

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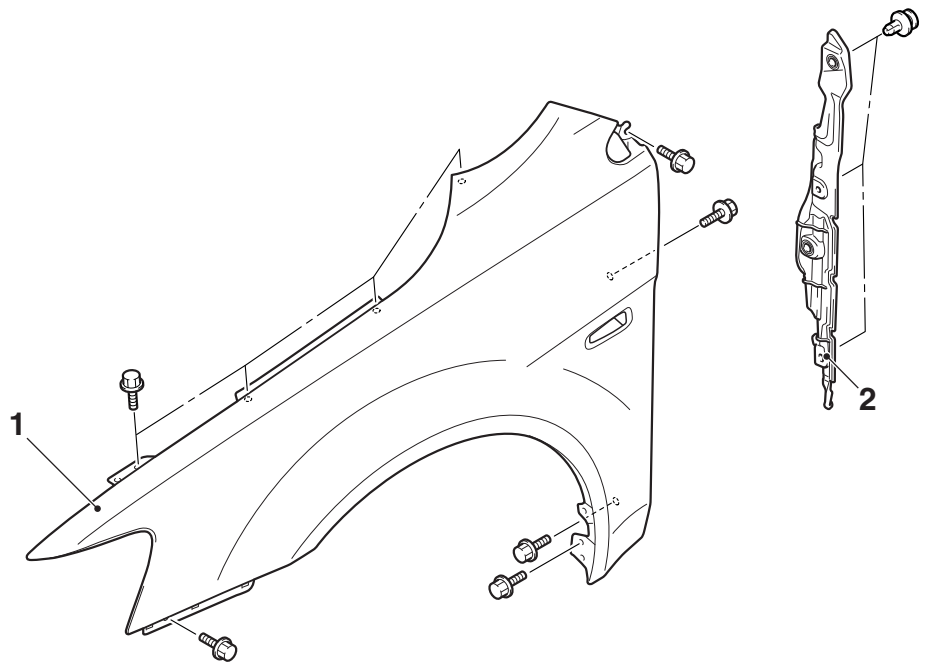
Pre-removal and post-installation operation
- Splash shield front removal and installation (Refer to P.42A-13).
- Front bumper side bracket removal and installation (Refer to GROUP 51, Front Bumper Assembly and Radiator Grille P.51-5).
- Front delta garnish removal and installation (Refer to GROUP 51, Garnishes and Moldings P.51-12).
- Front deck garnish removal and installation (Refer to GROUP 51, Windshield Wiper P.51-79).
- Headlight assembly removal and installation (Refer to GROUP 54A, Headlight P.54A-213).
- Side turn-signal light removal and installation (Refer to GROUP 54A, Side Turn-signal Light P.54A-275).



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AC807723AB

Removal steps

<<A>> >>A<<
1. Fender
2. Fender protector rear

REMOVAL SERVICE POINT

<<A>> FENDER REMOVAL

1. Remove the fender protector rear clips.

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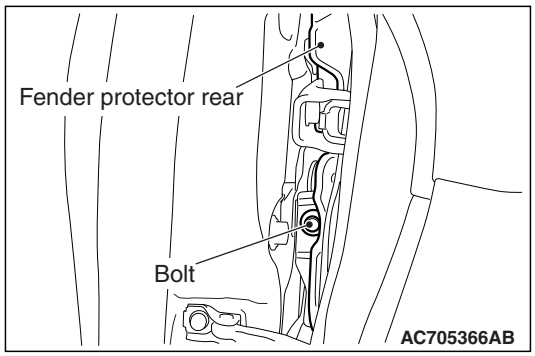
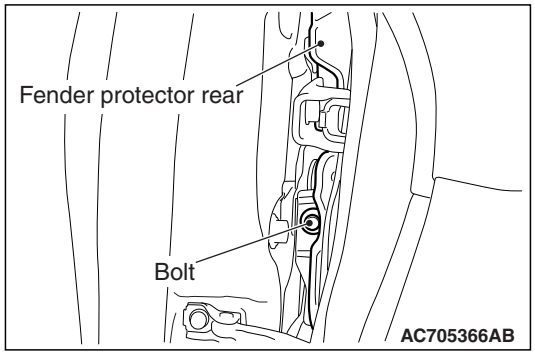


2. Slide the fender protector rear to access and remove the bolt as shown in the illustration.

INSTALLATION SERVICE POINT

>>A<< FENDER INSTALLATION

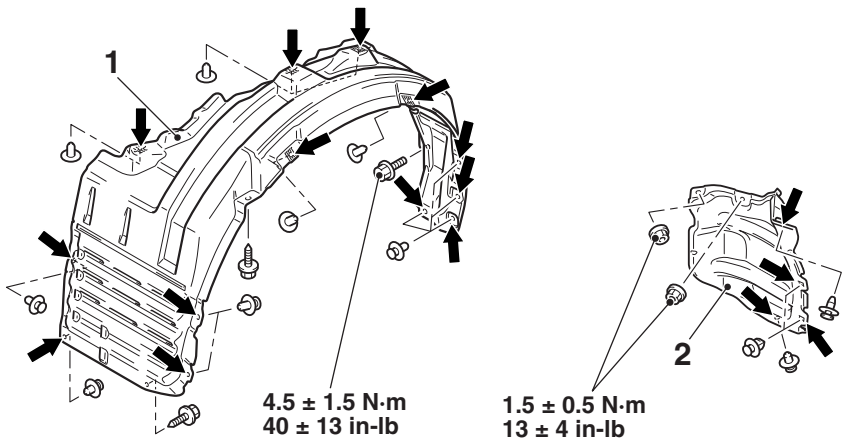
1. Temporarily install the fender protector rear to the fender.
2. Install the fender to the body with the bolt shown not installed.
3. Slide the temporarily-installed fender protector rear and tighten the bolt.



SPLASH SHIELD

REMOVAL AND INSTALLATION

M1421009700357



Note
⬅ : Clip positions

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AC807293AB

Front splash shield removal

1. Front splash shield

Rear wheelhouse splash shield removal

2. Rear wheelhouse splash shield

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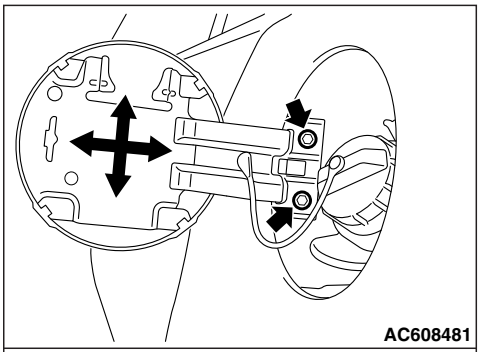
FUEL FILLER LID

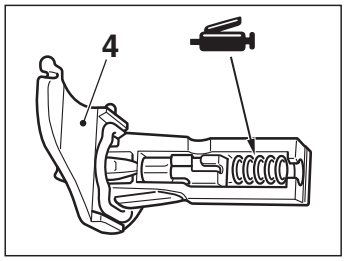
REMOVAL AND INSTALLATION

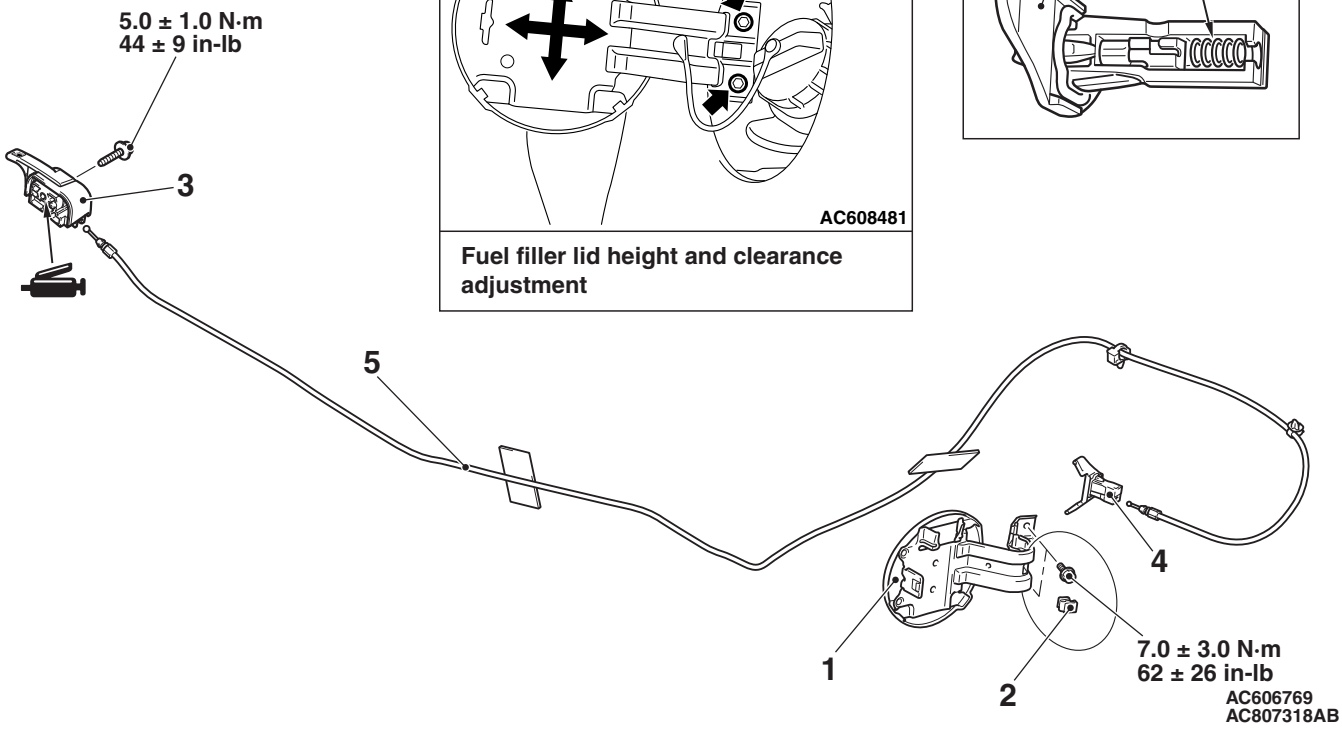
M1421002501054

Pre-removal and post-installation operation
- Center pillar trim lower cover, Quarter trim assembly <LH> removal and installation (Refer to GROUP 52A, Interior Trim P.52A-11).
- Front seat assembly removal and installation (Refer to GROUP 52A, Front Seat Assembly P.52A-20).
- Rear seat cushion assembly, Rear seatback assembly removal and installation (Refer to GROUP 52A, Rear Seat Assembly P.52A-28).
- Outer seat belt connection removal and installation (Refer to GROUP 52A, Front Seat Belt P.52A-20).
- Subwoofer <Vehicles with subwoofer> removal and installation (Refer to GROUP 54A, Speaker P.54A-626).



Fuel filler lid height and clearance adjustment





Removal steps
1. Fuel filler lid
2. Fuel filler lid damper spring
3. Fuel filler lid lock release handle

Removal steps (Continued)
4. Fuel filler lid hook
5. Fuel filler lid lock release cable

TSB Revision

STRUT TOWER BAR

REMOVAL AND INSTALLATION

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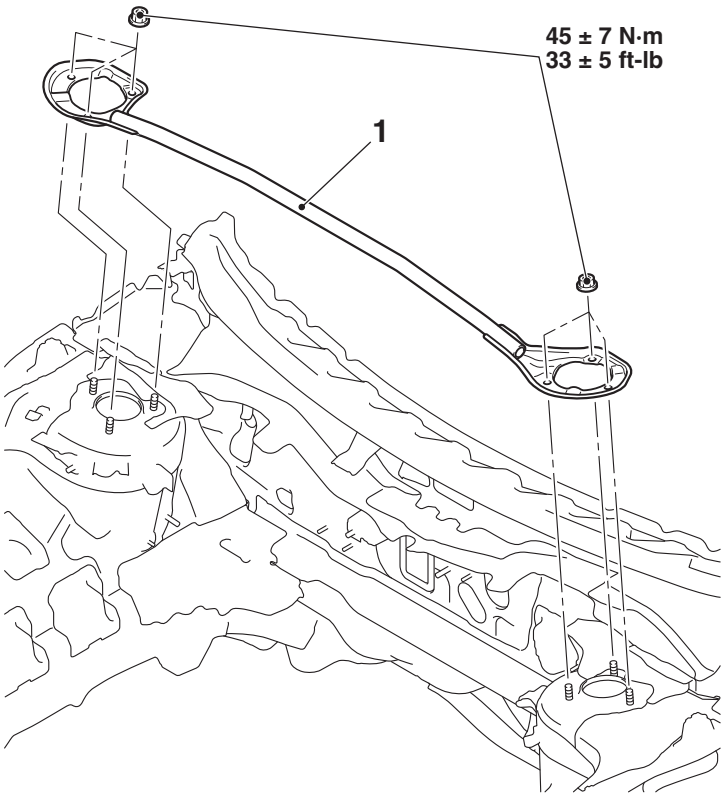

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Removal

1. Strut tower bar

WINDOW GLASS

SPECIFICATIONS

ADHESIVES

M1421000500453

Item	Specified adhesive
Windshield	3 M™ AAD part No. 8609 super fast urethane and 3 M™ AAD part No. 8608 super fast urethane primer or equivalent
Liftgate window glass	

Item	Specified adhesive
Windshield	Adhesive tape: Double-sided tape [a: 6.0 mm (0.24 in) width, 100 mm (3.9 in) length and 0.4 mm (0.02 in) thickness, b: 6.0 mm (0.24 in) width, 935 mm (36.8 in) length and 0.4 mm (0.02 in) thickness]

GENERAL INFORMATION

M1422000100919

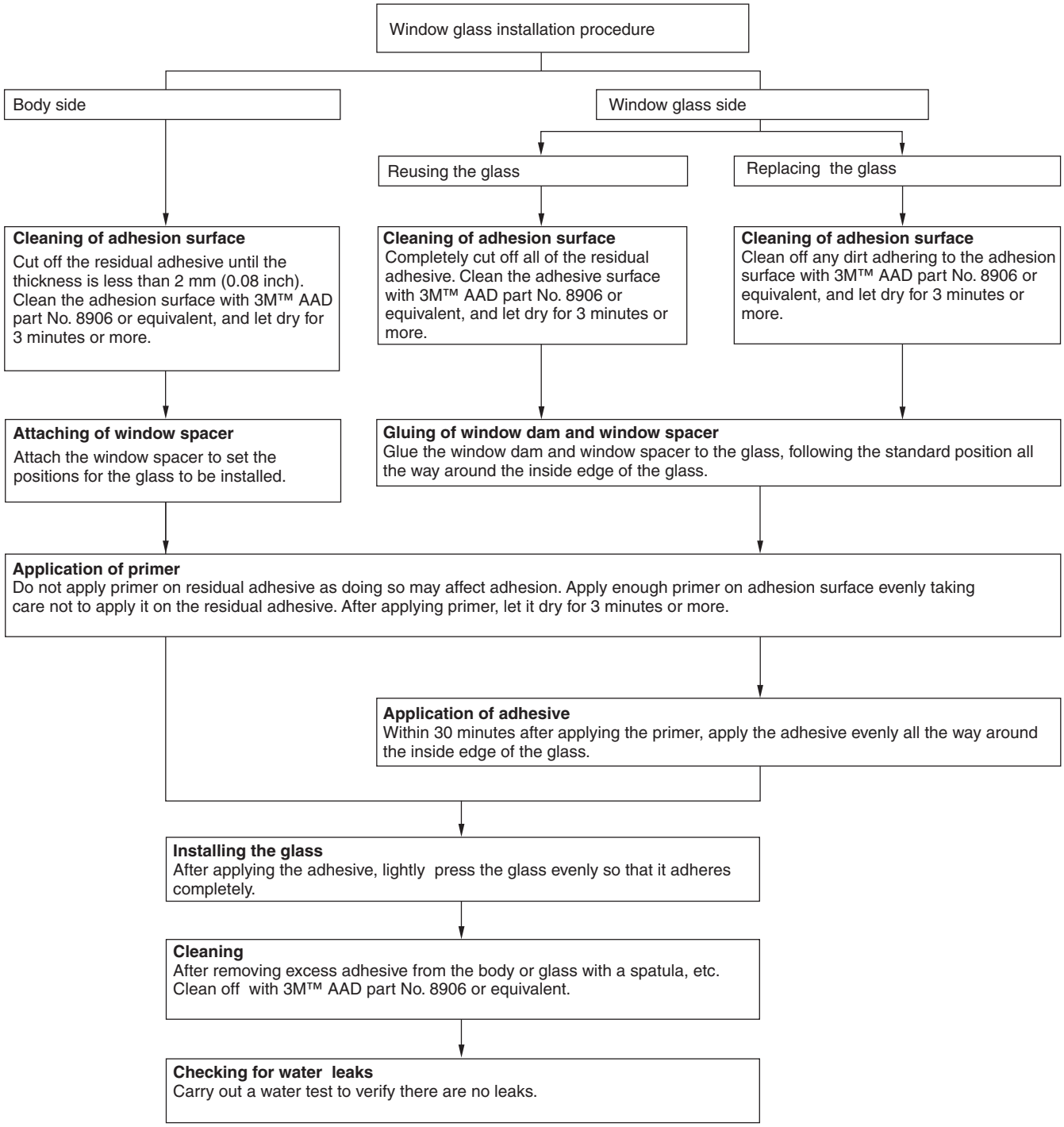
The windshield, liftgate window glass are attached by an urethane-base adhesive to the window frame. This adhesive provides improved glass holding and sealing, and also gives body openings a greater structural strength.

ITEMS

Item	Application	Quantity
Wire (diameter × length)	For cutting adhesive	Five pieces of wire 0.6 mm × 1 m (0.02 in × 3.3 ft)
Glass adhesive knife	For cutting adhesive	One
Sealant gun	For adhesive application	One
Wiping shop towels	-	As required
Sealer	For prevention of water and wind leaks after adhesive application	As required
3M™ AAD Part No. 8906 or equivalent	For cleaning	As required
Glass holder MB990480	For securing of window glass	Two

WINDOW GLASS INSTALLATION

⚠ CAUTION
Do not apply primer on the adhesion surface, as adhesion may be reduced.



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WINDOW GLASS DIAGNOSIS

INTRODUCTION TO WINDOW GLASS DIAGNOSIS

M1421005800437

If water emerges from the following points, there is a problem in the seal or body flange.

- Windshield
- Rear window glass

WINDOW GLASS DIAGNOSTIC TROUBLESHOOTING STRATEGY

M1422006800295

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

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

DIAGNOSTIC TROUBLE SYMPTOM CHART

M1422006900399

Symptom	Inspection procedure	Reference page
Water leak through windshield	1	P.42A-18
Water leak through liftgate window glass		

SYMPTOM PROCEDURES

INSPECTION PROCEDURE 1: Water Leak Through Windshield. Water Leak Through Liftgate Window Glass.

DIAGNOSIS

STEP 1. Check if the seal is faulty.

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

STEP 2. Check if the body flange is deformed.

Q: Is the body flange deformed?
YES : Replay the body flange, then go to Step 3.
NO : Go to Step 3.

STEP 3. Retest the system.

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

SPECIAL TOOL

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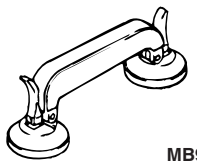
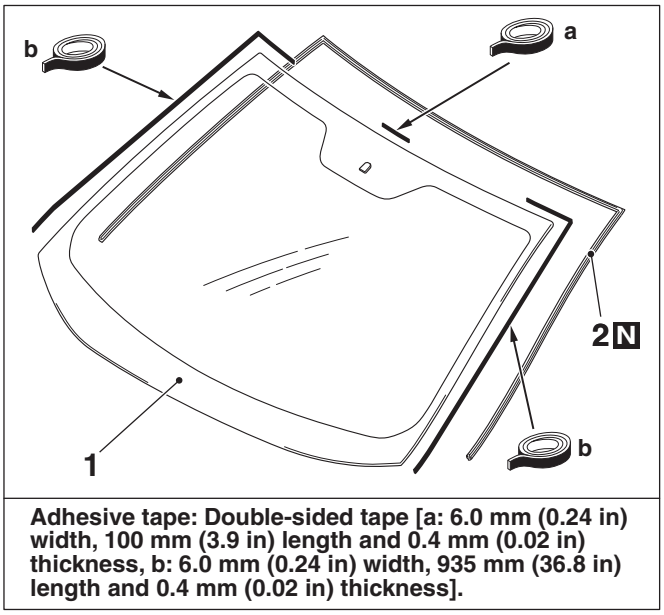
Tool	Tool number and name	Supersession	Application
 MB990480	MB990480 Glass holder	General service tool	Removal and installation of window glass

WINDSHIELD

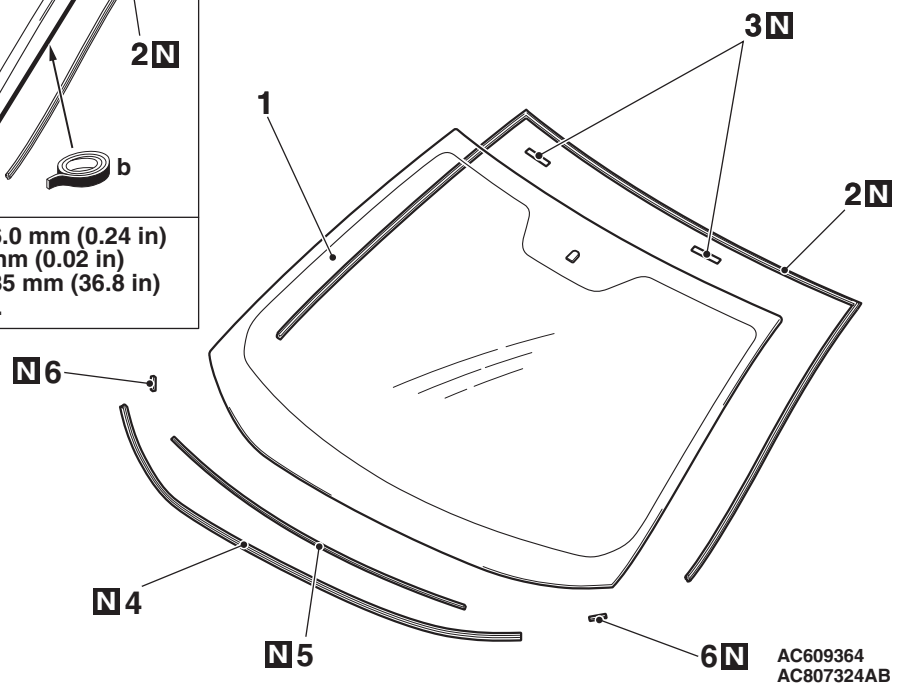
REMOVAL AND INSTALLATION

M1422001001253

Pre-removal and Post-installation Operation
- Front Deck Garnish Removal and Installation (Refer to GROUP 51, Windshield Wiper P.51-79).
- Front Pillar Trim Removal and Installation (Refer to GROUP 52A, Interior Trims P.52A-11).
- Inside Rear View Mirror Removal and Installation (Refer to GROUP 52A, Inside Rear View Mirror P.52A-19).
- Lighting control sensor removal and installation <Vehicles with lighting control sensor> (Refer to GROUP 54A, Headlight P.54A-217).



Adhesive tape: Double-sided tape [a: 6.0 mm (0.24 in) width, 100 mm (3.9 in) length and 0.4 mm (0.02 in) thickness, b: 6.0 mm (0.24 in) width, 935 mm (36.8 in) length and 0.4 mm (0.02 in) thickness].



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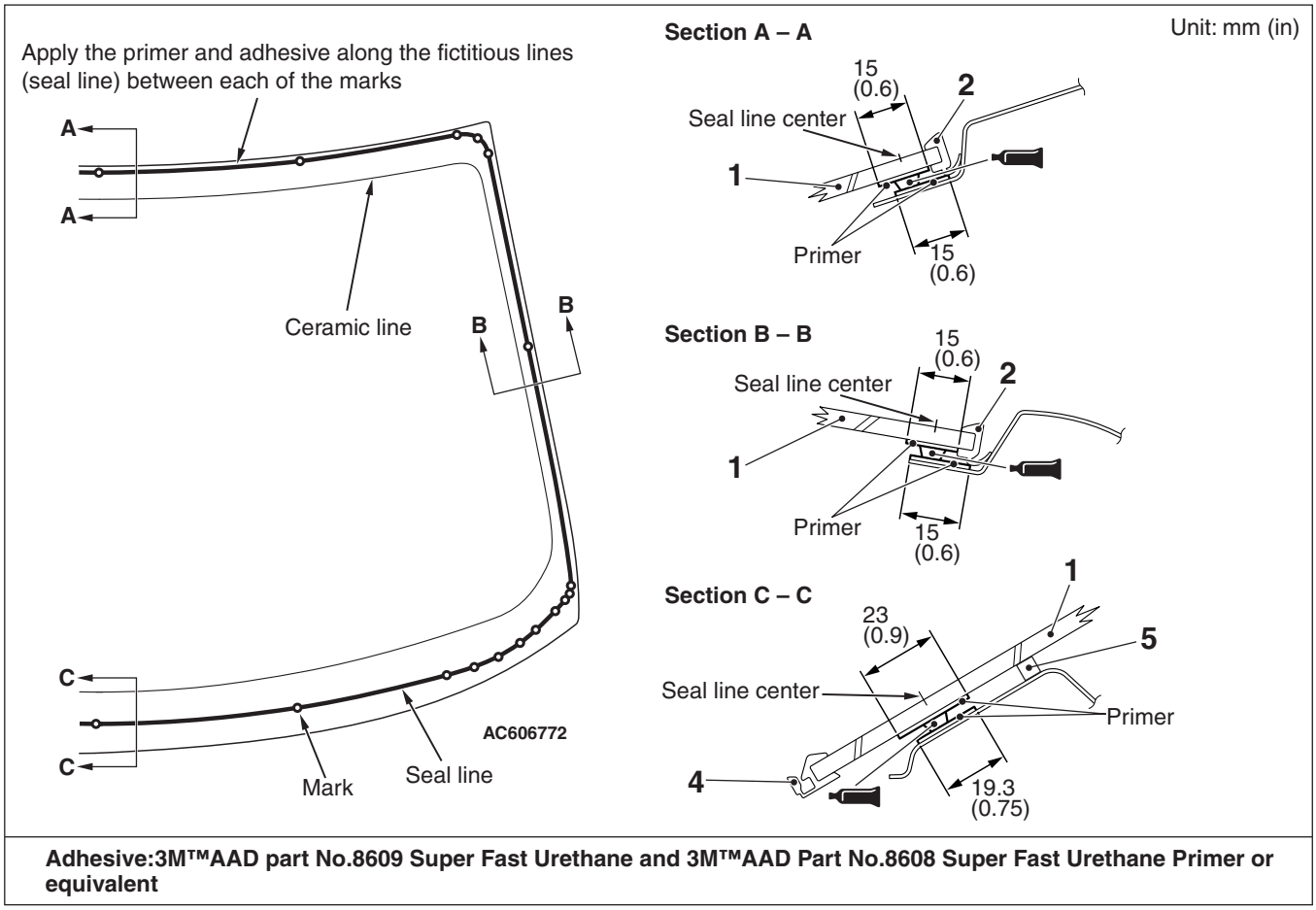

Adhesive:3M™AAD part No.8609 Super Fast Urethane and 3M™AAD Part No.8608 Super Fast Urethane Primer or equivalent

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REMOVAL STEPS

<<**A**>> >>**B**<< 1. Windshield
>>**A**<< 2. Windshield molding
>>**A**<< 3. Glass stopper
>>**A**<< 4. Front deck garnish retainer

REMOVAL STEPS (Continued)

>>**A**<< 5. Windshield spacer A
>>**A**<< 6. Windshield spacer B

Required Special Tool:

- MB990480: Glass Holder

REMOVAL SERVICE POINT

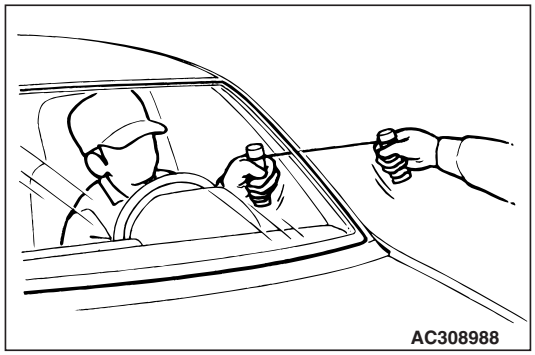
<<A>> WINDSHIELD REMOVAL

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.



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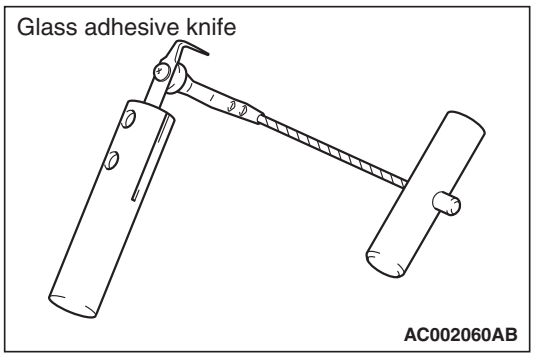
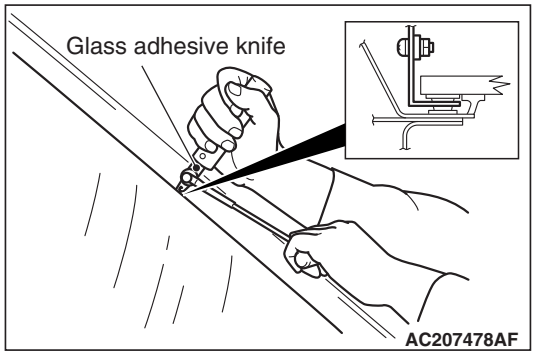
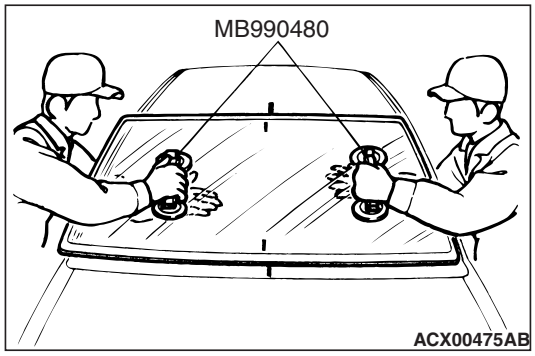
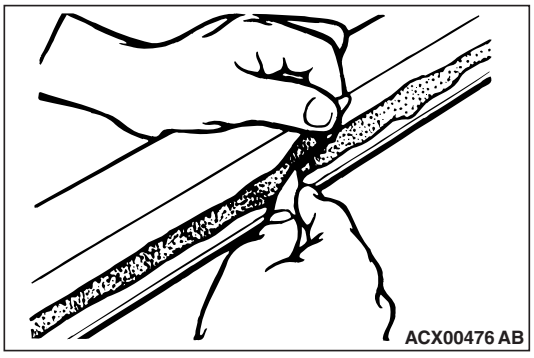








⚠ CAUTION

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 paint on the body surface with the knife. If the paint is damaged, repair the damaged area with touch-up paint.**

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

⚠ CAUTION

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

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

INSTALLATION SERVICE POINTS

>>A<< WINDSHIELD SPACER/GLASS STOPPER/WINDSHIELD UPPER MOLDING/WINDSHIELD SIDE MOLDING INSTALLATION

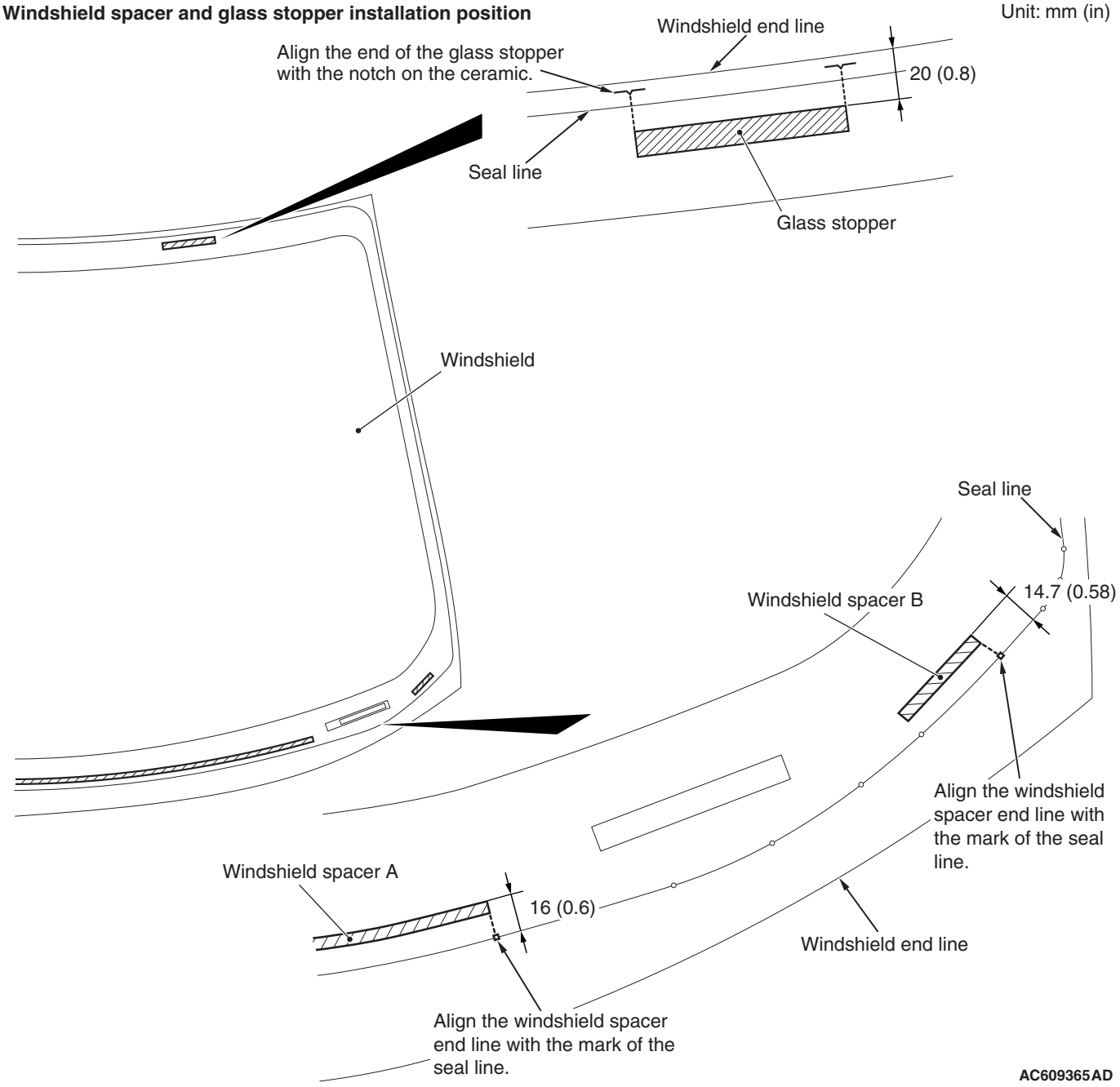
⚠ CAUTION

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 3M™ AAD Part number 8906 or equivalent to degrease the inside and outside of the windshield and the body flanges.

Windshield spacer and glass stopper installation position

Unit: mm (in)



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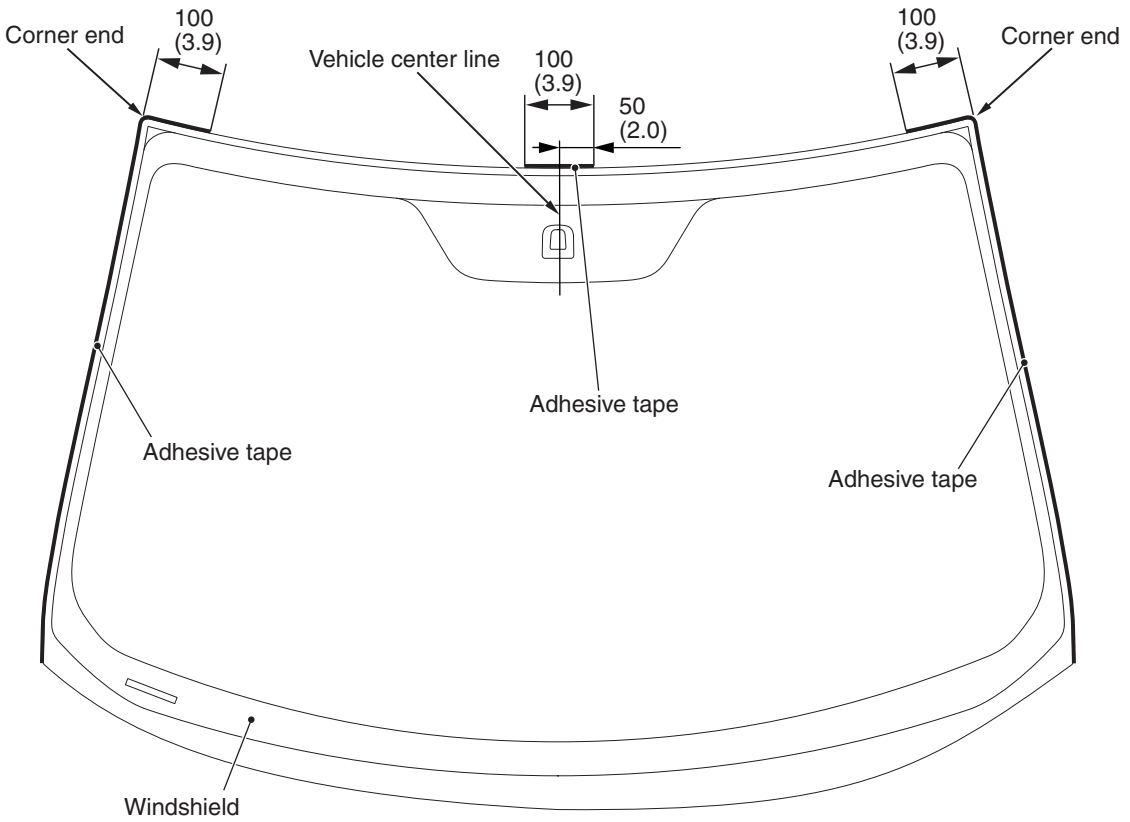
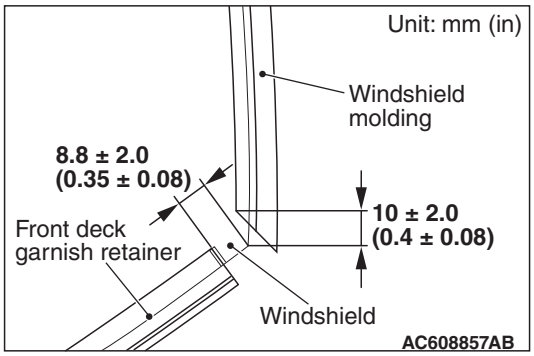
2. Install the windshield spacer and glass stoppers to the specified positions so that there are no adrift or warped surfaces inside the windshield.

Adhesive tape installation position

Unit: mm (in)



AC707520AC



AC608857AB

3. Install the adhesive tape to the windshield.
4. Install the windshield molding and front deck garnish retainer to the windshield.

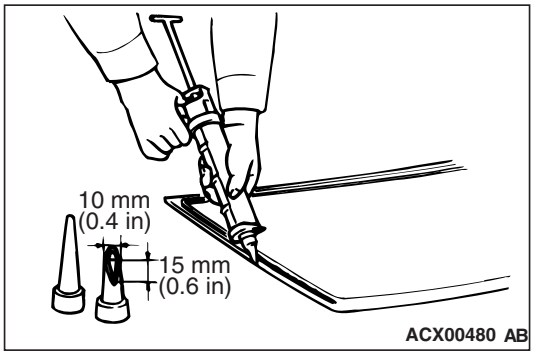
>>B<<WINDSHIELD INSTALLATION

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.**
- **Do not apply the primer on the remaining adhesive because of weakening the adhesive.**

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 3M™AAD Part number 8906 or equivalent. Avoid moving the vehicle until the adhesive sets.

⚠ CAUTION
- **Do not move the vehicle unless absolutely necessary.**
- **When testing for water leakage, do not apply strong water pressure.**

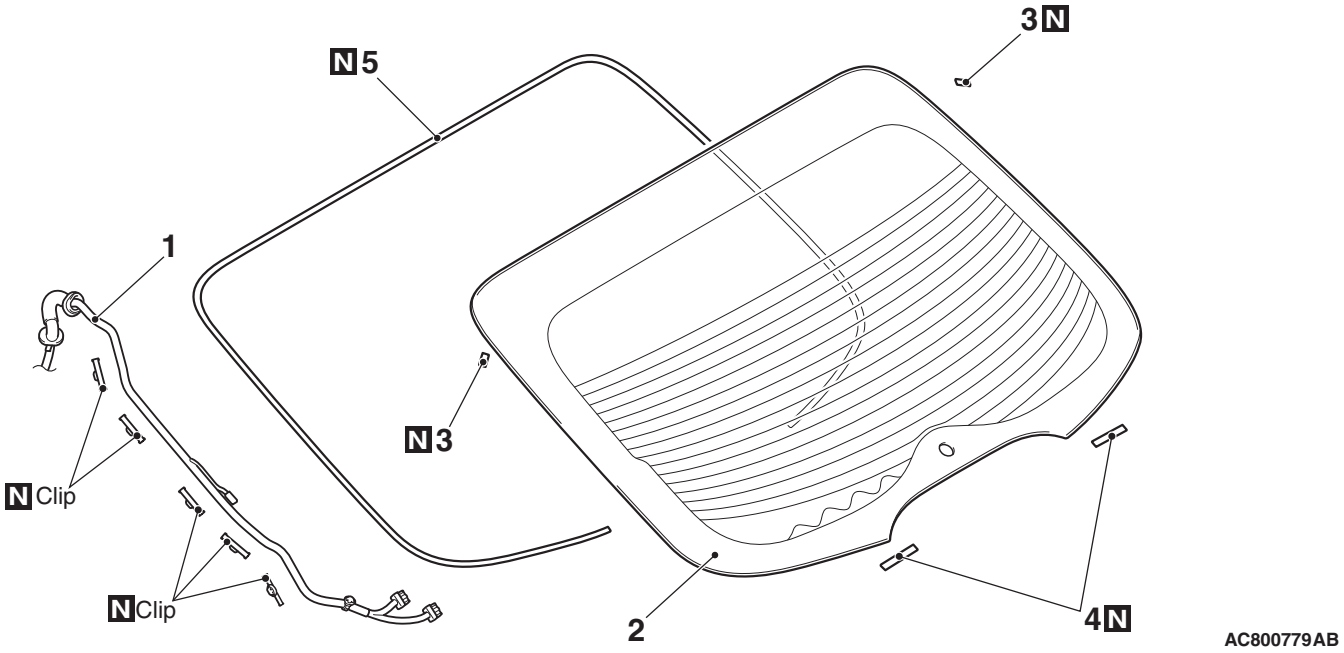
7. Wait 30 minutes or more, and then test for water leakage.

LIFTGATE WINDOW GLASS

REMOVAL AND INSTALLATION

M1422003700749

Pre-removal and post-installation operation
- Liftgate trim upper, liftgate trim side, liftgate trim lower removal and installation (Refer to GROUP 52A –Liftgate Trim P.52A-17.)
- Rear wiper motor assembly and rear washer hose (Liftgate side) removal and installation (Refer to GROUP 51 – Rear Wiper and Washer P.51-111.)
- High-mounted stoplight removal and installation (Refer to GROUP 54A –High-mounted Stoplight P.54A-301.)
- Liftgate spoiler assembly removal and installation <Vehicles with liftgate spoiler> (Refer to GROUP 51 –Liftgate Spoiler P.51-22.)



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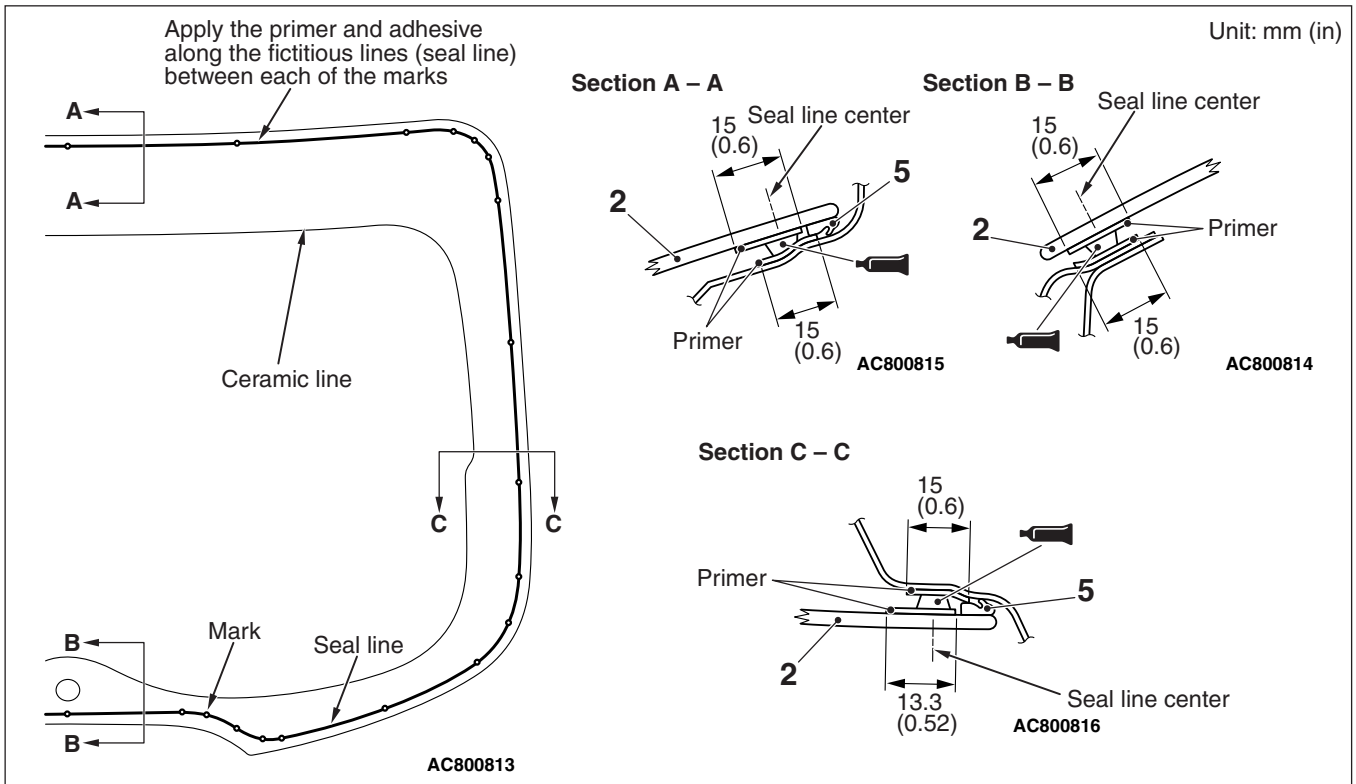

Adhesive:3M™AAD part No.8609 Super Fast Urethane and 3M™AAD Part No.8608 Super Fast Urethane Primer or equivalent

AC801632AB

Removal steps

- Harness connector

<<**A**>> 1. Rear floor wiring harness

<<**B**>> >>**B**<< 2. Liftgate window glass

Removal steps (Continued)

>>**A**<< 3. Fastener

>>**A**<< 4. Glass stopper

>>**A**<< 5. Liftgate dam

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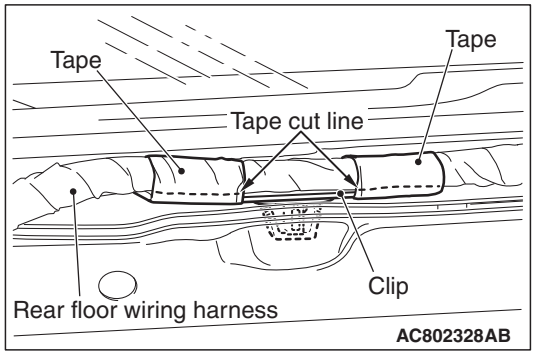
REMOVAL SERVICE POINTS

<<A>> REAR FLOOR WIRING HARNESS REMOVAL



1. Cut the tape that is wrapped around the rear floor wiring harness and clip with a knife or a similar tool. Then, remove the rear floor wiring harness.
2. Remove the rear floor wiring harness from the liftgate.

<<B>> LIFTGATE WINDOW GLASS REMOVAL

Remove the liftgate window glass by the same procedure as for the windshield (Refer to P.42A-19).

NOTE: Use a piano wire to remove the liftgate window glass.

INSTALLATION SERVICE POINTS

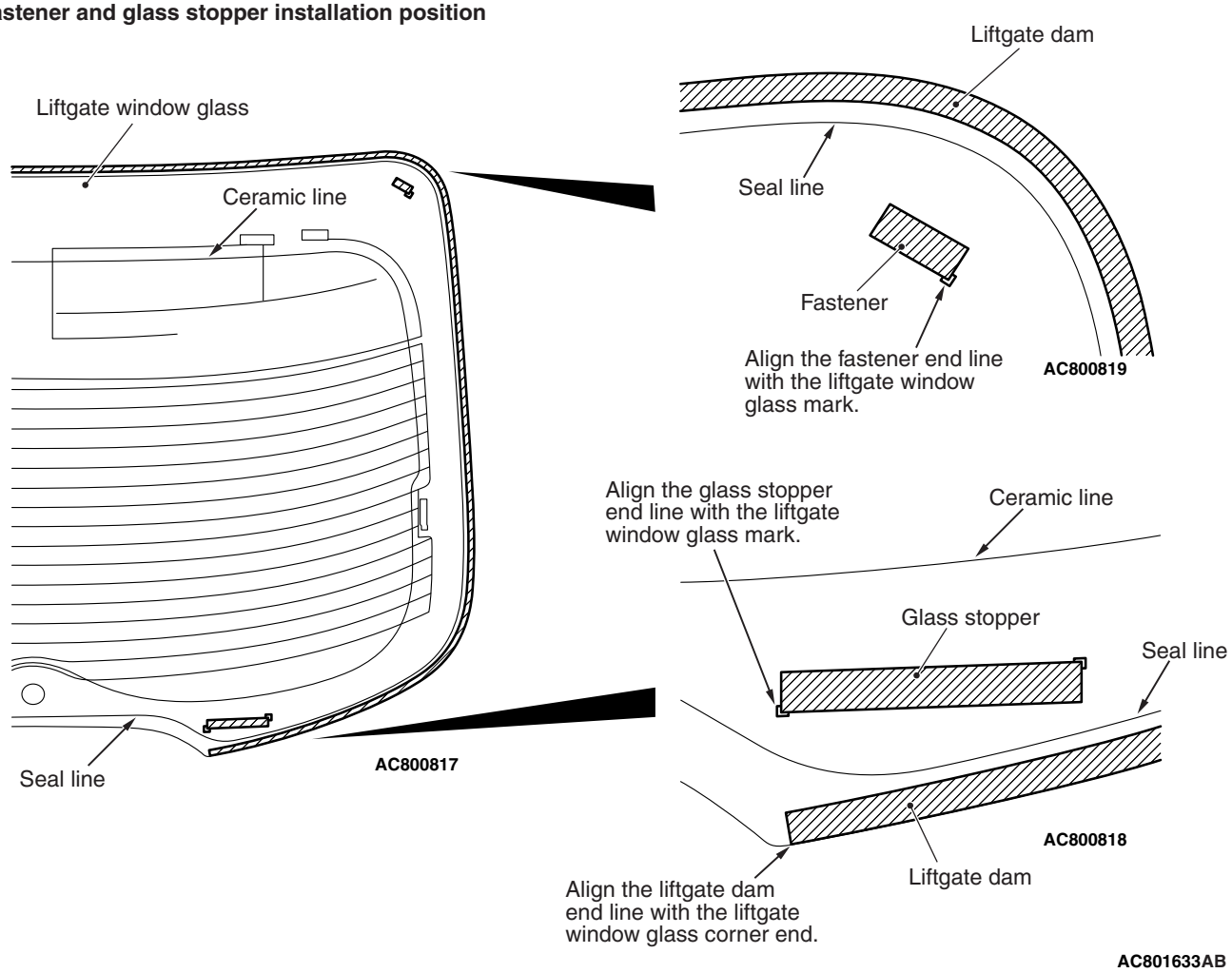
>>A<< LIFTGATE DAM/GLASS STOPPER/FASTENER INSTALLATION

⚠ CAUTION

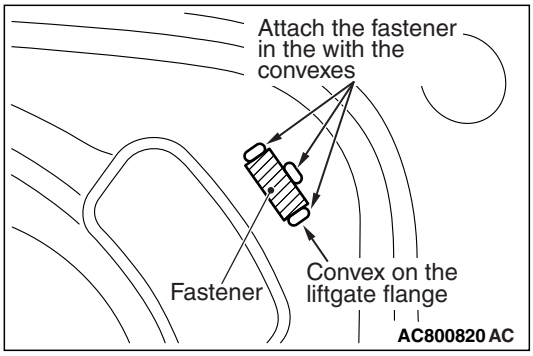
Before the next operation, leave the decreased parts for 3 minutes or more to dry. Do not touch the degreased parts.

1. Use 3M™ AAD Part number 8906 or equivalent to degrease the inside circumference of the liftgate window glass and the liftgate flanges.

Fastener and glass stopper installation position



2. Install the liftgate dam, glass stopper, and fastener to the specified position.
3. Install the fasteners to the specified positions on the liftgate flange.



>>B<< LIFTGATE WINDOW GLASS INSTALLATION

1. Apply the primer and adhesive.
2. Install the liftgate window glass by the same procedure as for the windshield (refer to P.42A-19).

DOOR

GENERAL INFORMATION

M1423000100462

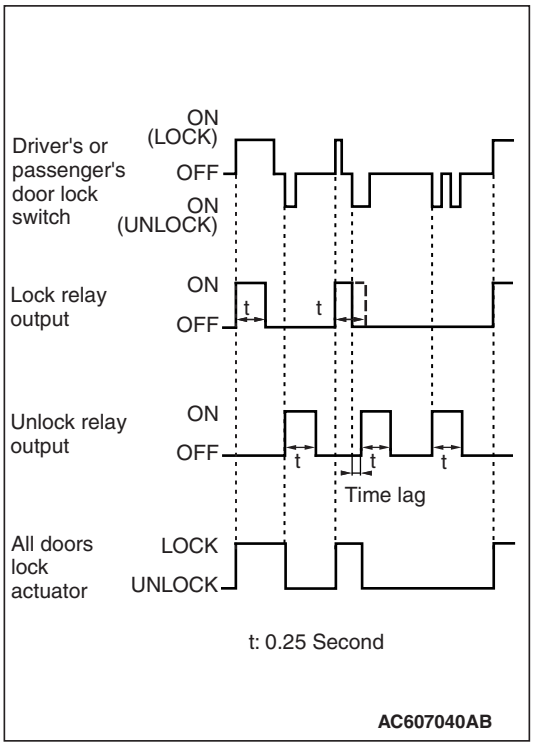
CENTRAL DOOR LOCKING SYSTEM

The central door locking system operates the door lock actuator to lock or unlock the doors and liftgate using the operation of the door lock switch built into the front power window (main or sub) switch. The system has the following operations and features.

- All doors and liftgate can be locked using the door lock switch built into the front power window (main or sub) switch.

CENTRAL DOOR LOCKING

- All the doors (including the liftgate) can be locked/unlocked, using the driver's side door lock switch or the passenger's side door lock switch.
- The function that allows the driver's door to be opened by pulling the driver's door inside handle even when the driver's door inside lock knob is in the lock position is called "override function".



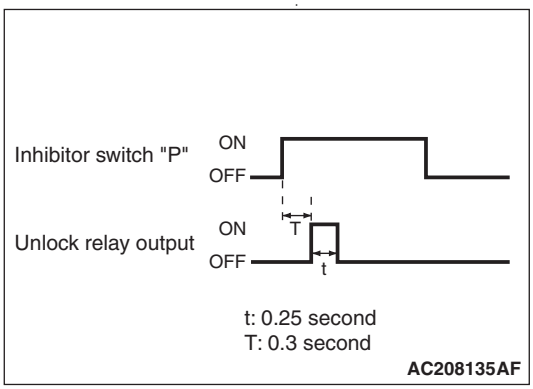
When the door is locked by the driver's or passenger's door lock switch, the ETACS-ECU operates its door lock relay and passes a current through the door lock actuators of all the doors for 0.25 second to lock all the doors (including the liftgate).

When the door is unlocked by the driver's or passenger's door lock switch, the ETACS-ECU operates its door unlock relay and passes a current through the door lock actuators of all the doors for 0.25 second to unlock all the doors (including the liftgate).

When the door is locked and unlocked by driver's or passenger's door lock switch consecutively, the ETACS-ECU operates its door lock relay and passes a current through the door lock actuators of all the doors for 0.25 second to lock all the doors (including the liftgate). Then, the ETACS-ECU operates its door unlock relay and passes a current through the door lock actuators of all the doors (including the liftgate) for 0.25 second to unlock all the doors (including the liftgate). Due to this, there may be a time lag between the driver's or passenger's door lock switch actuation and the time when all the doors (including the liftgate) are unlocked.

SELECTOR "P" POSITION-LINKED DOOR UNLOCKING FUNCTION <CVT, TC-SST>

- When the selector lever is shifted to the "P" (parking) position with the ignition switch turned ON, all the doors (including the liftgate) will be unlocked automatically, improving passengers' convenience for getting out. Using a customization feature, the selector "P" position-linked door unlocking function can be switched (Refer to P.42A-129).



When the selector lever is shifted to the P position with the ignition switch turned ON, the transmission range switch "P" turns ON, ETACS-ECU turns the unlock relay output ON for 0.25 seconds to unlock all the doors (including the liftgate).

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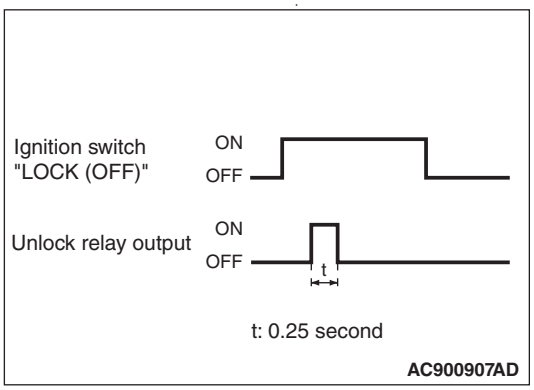
IGNITION SWITCH "LOCK (OFF)" POSITION-LINKED DOOR UNLOCKING FUNCTION <M/T, CVT, TC-SST>

- When the ignition switch is turned to the " LOCK (OFF)" position, all the doors will be unlocked automatically, improving passengers' convenience for getting out. Using a customise function, the ignition switch " LOCK (OFF)" position-linked door unlocking function can be changed (Refer to P.42A-129).



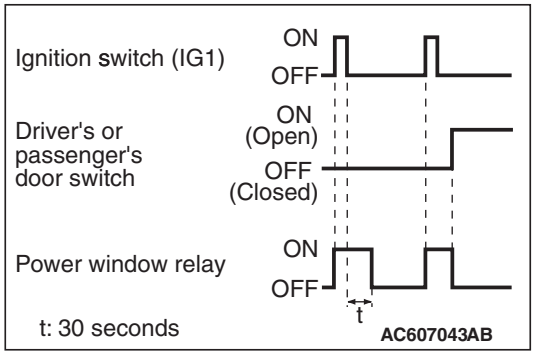
When the ignition switch is turned to the " LOCK (OFF)" position, ETACS-ECU turns the unlock relay output ON for 0.25 second to unlock all the doors.

POWER WINDOWS

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

- There is a power window lock switch featured on the power window main switch to prevent the door window glass from opening/closing with the front passenger's and rear power window sub switch.
- The power window of the door window glass can be opened/closed for 30 seconds with the timer function after the ignition switch is turned OFF (The timer expires if the front door <LH or RH> is opened when the timer is in operation).
- The power window main switch contains a one-touch down/up switch that will automatically open/close driver's side door window only.
- With the safety mechanism, the power window main switch detects the pinching of obstacle such as a hand or a head when the driver's door window glass is raised. Then, the mechanism lowers the driver's door window glass for approximately 150 mm (6.0 inches). The safety mechanism is activated when the power window main switch is operated by auto-closing operation (the status when the hand is released from the switch knob after auto-closing operation). The safety mechanism operates as follows.
  - At the manual-closing operation or the continuous auto-closing operation (keep pulling up the switch knob) of the power window switch, the door window glass can be forcibly closed without safety mechanism activation even when the obstacle is detected to be pinched.
  - To secure the safety when the power window switch manual-closing or auto-closing operation is performed accidentally during the safety mechanism activation, the power window switch manual-closing and auto-closing operations are prohibited for 3 seconds after the activation of safety mechanism due to the obstacle pinching detection.

POWER WINDOW TIMER FUNCTION



Even after the ignition is switched off, the ETACS-ECU keeps the power window relay activated for approximately 30 seconds, enabling raising or lowering of the power windows by using the power window switches. After approximately 30 seconds, the power window relay is deactivated.
During this timed operation, if the driver's or passenger's doors are opened, the power window relay is deactivated from that moment.

SPECIFICATIONS

SERVICE SPECIFICATIONS

M1421000300824

item		Standard value
Door inside handle lock knob stroke mm (in) [Target value: mm (in)]		13.7 –15.0 (0.54 –0.59) [14.7 (0.58)]
Door inside handle play mm (in) [Target value: mm (in)]	Driver's side	10.0 –23.7 (0.39 –0.93) [17.0 (0.67)]
	Except for driver's side	5.0 –18.7 (0.2 –0.74) [12.0 (0.47)]
Door outside handle play mm (in) [Target value: mm (in)]		0.3 –5.0 (0.01 –0.2) [2.4 (0.09)]
Power window operation current A [Power supply voltage 14.5 ± 0.5V at 25° C (77° F)]		7 or less

SEALANT

M1421000500419

Item	Specified sealant	Remark
Waterproof film	3 M™AAD Part No. 8625 or equivalent	Ribbon sealer

COMPONENT IDENTIFICATIONS

M1421005400354

<DOOR CHECK>

Applicable location		Identification mark
Front door	Left door	55L
	Right door	55R
Rear door	Left door	64L
	Right door	64R

<DOOR OPENING OUTER WEATHERSTRIP>

Applicable side	Identification clip color
Left door	Yellow
Right door	Purple

CENTRAL DOOR LOCKING SYSTEM DIAGNOSIS

TROUBLESHOOTING STRATEGY

M1427002100073

Refer to GROUP 00 –How to Use Troubleshooting/Inspection Service Points, Contents of Troubleshooting P.00-6.

TROUBLE SYMPTOM CHART

M1427001800820

⚠ CAUTION

During diagnosis, a diagnostic trouble code associated with other system may be set when the ignition switch is turned on with connector(s) disconnected. On completion, check all systems for diagnostic trouble code(s). If diagnostic trouble code(s) are set, erase them all.

Trouble symptom	Inspection procedure number	Reference page
Central door locking system does not work at all.	1	P.42A-32
Central door locking system does not operate even when door lock switch of power window main switch operated (door lock switch of front power window sub switch operate normally).	2	P.42A-37
Central door locking system does not operate even when door lock switch of front power window sub switch operated (door lock switch of power window main switch operate normally).	3	P.42A-41
A door or a liftgate cannot be locked or unlocked by the central door locking system.	4	P.42A-46
Selector "P" position-linked door unlock function does not operate normally. <CVT, TC-SST>	5	P.42A-60
Ignition "LOCK (OFF)" position-linked door unlock function does not operate. <M/T, CVT, TC-SST>	6	P.42A-60

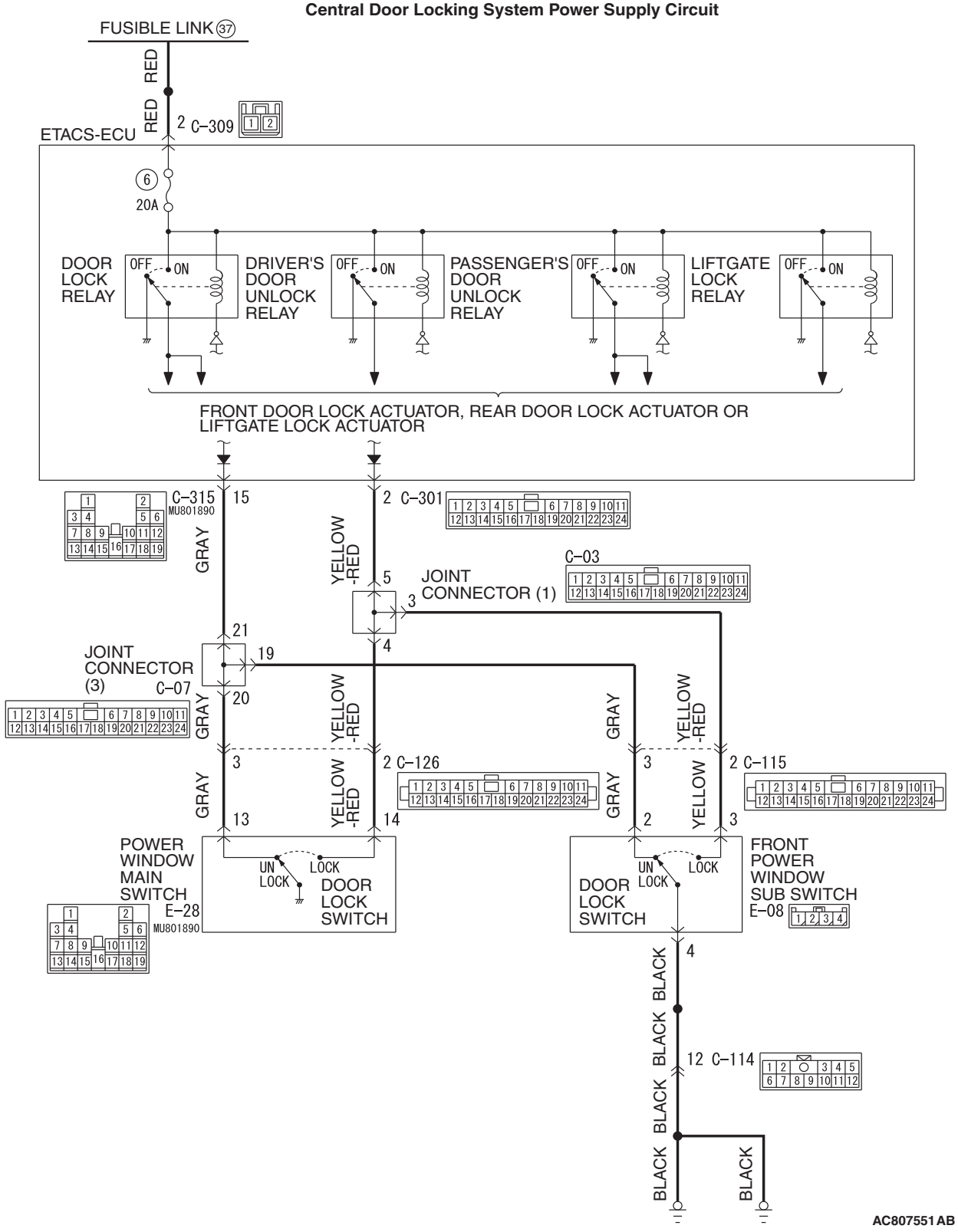
SYMPTOM PROCEDURES <CENTRAL DOOR LOCKING SYSTEM>

INSPECTION PROCEDURE 1: Central Door Locking System does not work at All.

⚠ CAUTION

Before replacing the ECU, ensure that the power supply circuit, the ground circuit and the communication circuit are normal.

Central Door Locking System Power Supply Circuit



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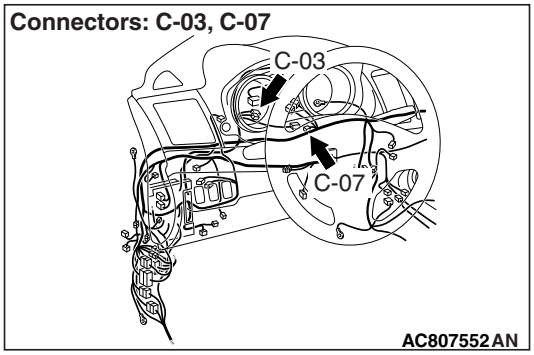
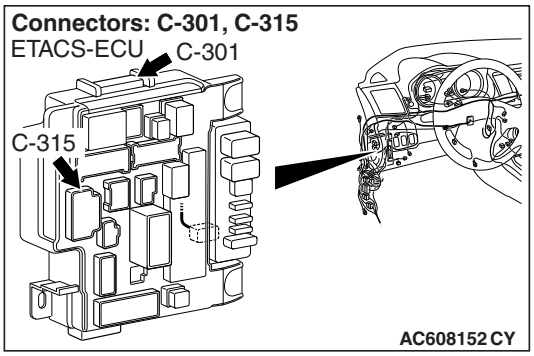




CIRCUIT OPERATION

- The ETACS-ECU controls the central door lock system, locking or unlocking all the doors by activating the central door lock relay (built into the ETACS-ECU). The ETACS-ECU uses inputs from the following components:
  - Door lock actuator
  - Door lock switch, which is incorporated in the power window main switch or power window sub switch

TROUBLESHOOTING HINTS

- The wiring harness or connectors may have loose, corroded, or damaged terminals, or terminals pushed back in the connector
- The ETACS-ECU may be defective

DIAGNOSTIC PROCEDURE

Required Special Tools:

- MB992006: Extra fine probe
- MB991223: Harness set
- MB991958 Scan Tool (M.U.T.-III Sub Assembly)
  - MB991824: Vehicles Communication Interface (V.C.I.)
  - MB991827 M.U.T.-III USB Cable
  - MB991910 M.U.T.-III Main Harness A

STEP 1. Checking keyless entry system operation

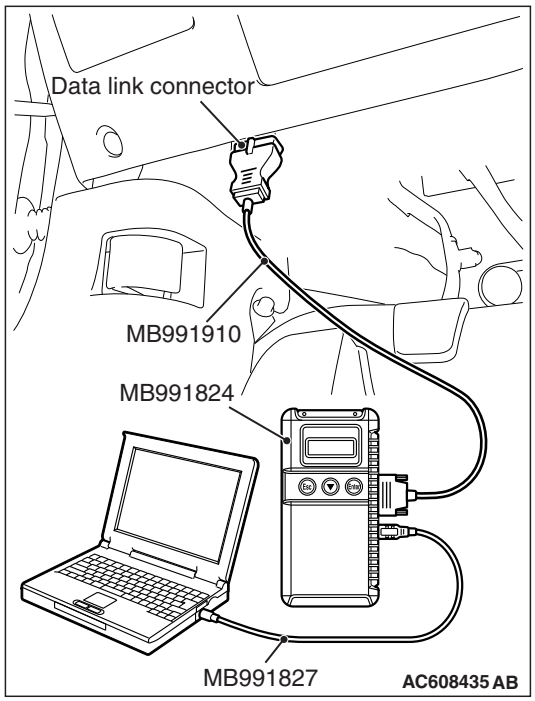
Check that the keyless entry system works normally.

Q: Is the check result normal?

YES : Go to Step 2.

NO <Vehicles with KOS> : Refer to GROUP 42B, Inspection procedure 15 "Keyless entry system does not work at all P.42B-181."

NO <Vehicles with WCM> : Refer to GROUP 42C, Inspection procedure 5 "Keyless entry system does not work at all P.42C-93."



STEP 2. Using scan tool MB991958, read the diagnostic trouble code.

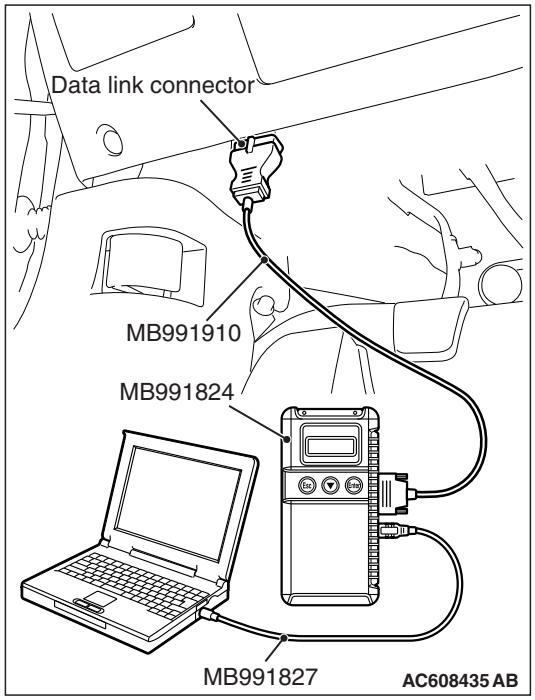
⚠ CAUTION

To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.

(1) Connect scan tool MB991958. Refer to "How to connect scan tool (M.U.T.-III) P.42B-9."
(2) Turn the ignition switch to the "ON" position.
(3) Check whether the ETACS-ECU related DTC is set.
(4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the DTC set?

YES : Diagnose the ETACS-ECU. Refer to GROUP 54A, Diagnostic trouble code chart P.54A-674.
NO : Go to Step 3.



STEP 3. Using scan tool MB991958, check data list.
Check the signals related to the central door locking system operation.

⚠ CAUTION
To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.

(1) Connect scan tool MB991958. Refer to "How to connect the Scan Tool (M.U.T.-III) P.42B-9."
(2) Turn the ignition switch to the "ON" position.
(3) Check the data list of the ETACS.
- Turn the door lock switch (power window main switch or front power window sub switch) to the lock direction.

Item No.	Item name	Normal condition
271	Dr door unlock switch	Not unlock
272	As door unlock switch	Not unlock
277	Power lock switch	ON
278	Power unlock switch	OFF

NOTE: Item No. 272: Vehicles with keyless operation system

- Turn the door lock switch (power window main switch or front power window sub switch) to the unlock direction.

Item No.	Item name	Normal condition
271	Dr door unlock switch	Unlock
272	As door unlock switch	Unlock
277	Power lock switch	OFF
278	Power unlock switch	ON

NOTE: Item No. 272: Vehicles with keyless operation system

(4) Turn the ignition switch to the "LOCK" (OFF) position.

OK: Normal conditions are displayed for all items.

Q: Are the check result normal?

YES <Normal conditions are displayed for all the items.> : . Go to Step 6.
NO <Normal condition are not displayed for item No. 271, 272.> : . Refer to GROUP 54A –Inspection procedure 4 "ETACS-ECU cannot receive the signal of front door lock actuator (LH) or front door lock actuator (RH) P.54A-740."
NO <Normal condition are not displayed for item No. 277, 278.> : . Go to Step 4.

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STEP 4. Check joint connector (1) connector C-03, joint connector (3) connector C-07, ETACS-ECU connector C-301 and C-315 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Are joint connector (1) connector C-03, joint connector (3) connector C-07, ETACS-ECU connector C-301 and C-315 in good condition?

YES : Go to Step 5.

NO : Repair or replace the damaged component(s). Refer to GROUP 00E, Harness Connector Inspection P.00E-2. Check that the central door locking system works normally.

STEP 5. Check the wiring harness between joint connector (1) connector C-03 (terminal No. 5) and ETACS-ECU connector C-301 (terminal No. 2), between joint connector (3) connector C-07 (terminal No. 21) and ETACS-ECU connector C-315 (terminal No. 15).

- Check the signal line for open circuit and short circuit.

Q: Are the wiring harness between joint connector (1) connector C-03 (terminal No. 5) and ETACS-ECU connector C-301 (terminal No. 2), between joint connector (3) connector C-07 (terminal No. 21) and ETACS-ECU connector C-315 (terminal No. 15) in good condition?

YES : Go to Step 6.

NO : The wiring harness may be damaged or the connector may have loose, corroded or damaged terminals, or terminals pushed back in the connector. Repair the wiring harness as necessary. Verify that the central door locking system works normally.

STEP 6. Retest the system.

Check that the central door locking system works normally.

Q: Is the check result normal?

YES : No action is necessary and testing is complete.

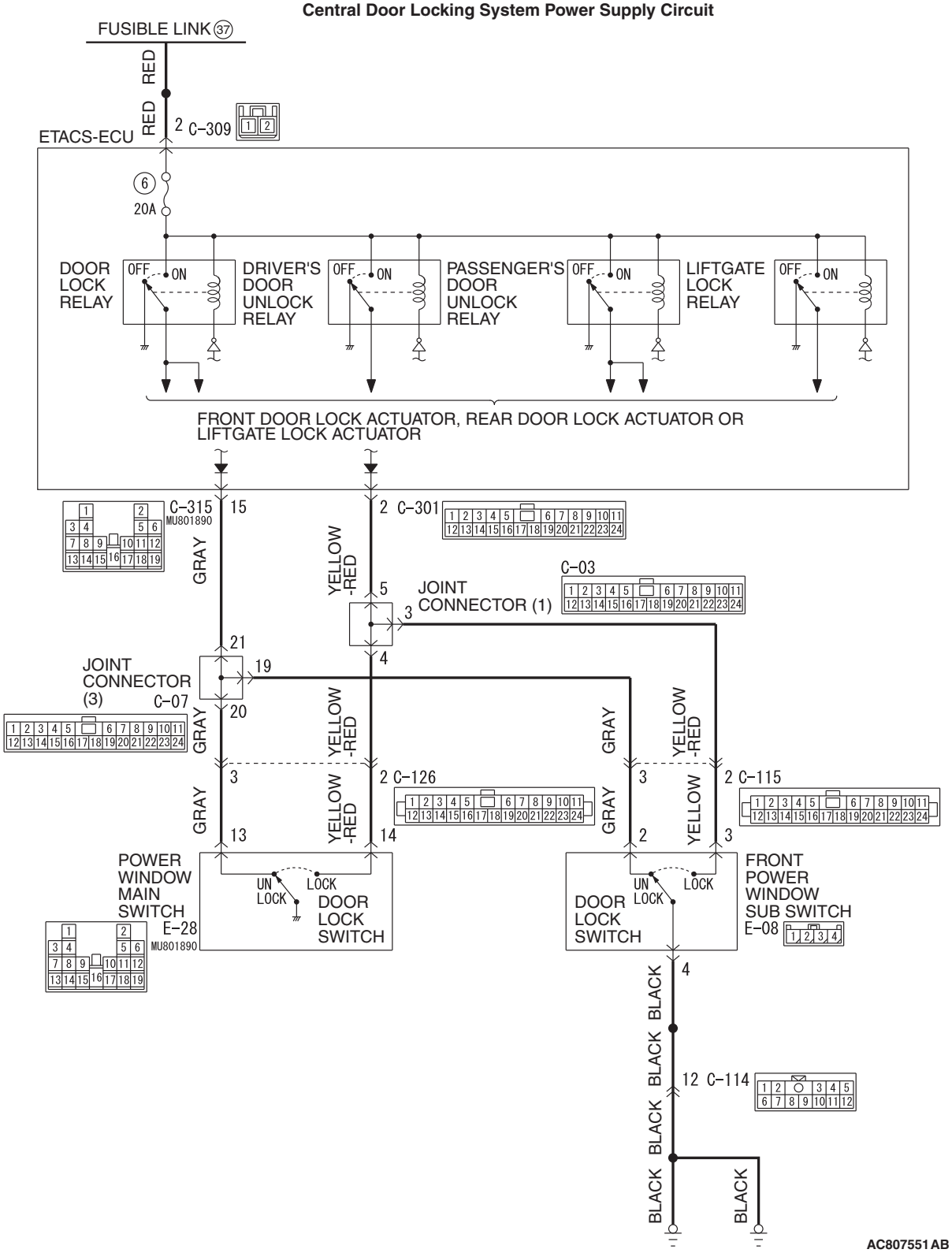
NO : Replace the ETACS-ECU. Check that the central door locking system normally.

INSPECTION PROCEDURE 2: Central Door Locking System does not Operate even when Door Lock Switch of Power Window Main Switch Operated (Door Lock Switch of Front Power Window Sub Switch Operate Normally).

⚠ CAUTION

Before replacing the ECU, ensure that the power supply circuit, the ground circuit and the communication circuit are normal.

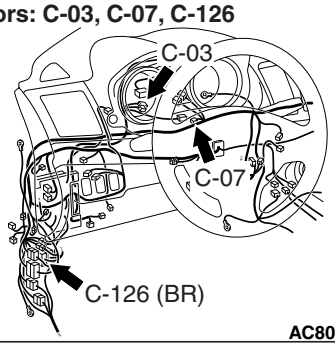
Central Door Locking System Power Supply Circuit



AC807551 AB

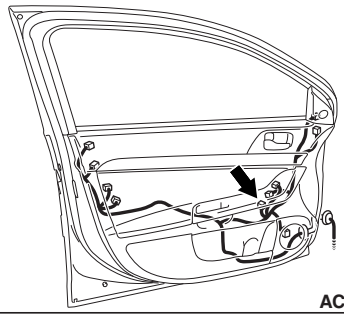
TSB Revision

Connectors: C-03, C-07, C-126



AC807552AO

Connector: E-28



AC608167AJ

CIRCUIT OPERATION

- The ETACS-ECU controls the central door lock system, locking or unlocking all the doors by activating the central door lock relay (built into the ETACS-ECU). The ETACS-ECU uses inputs from the following components:
  - Door lock actuator
  - Door lock switch, which is incorporated in the power window main switch

TROUBLESHOOTING HINTS

- The wiring harness or connectors may have loose, corroded, or damaged terminals, or terminals pushed back in the connector
- The power window main switch may be defective

DIAGNOSTIC PROCEDURE

STEP 1. Checking central door locking system operation
Check that the central door locking system works normally.

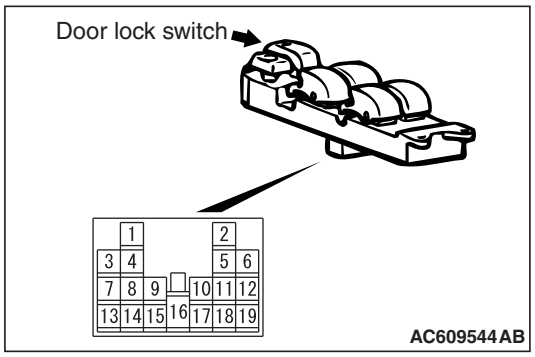
Q: Is the check result normal?

YES : Go to Step 2.
NO : Refer to Inspection procedure 1 "Central door locking system does not work at all P.42A-32."

STEP 2. Check power window main switch connector E-28 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is power window main switch connector E-28 in good condition?

YES : Go to Step 3.
NO : Repair or check the connector. Refer to GROUP 00E, Harness Connector Inspection P.00E-2. Verify that all the doors can be locked and unlocked normally.



STEP 3. Check the power window main switch (door lock switch).

Remove the power window main switch. Refer to P.42A-133.

Switch position	Tester connection	Specified condition
LOCK	14 –Ground	Continuity exists (2 Ω or less)
UNLOCK	13 –Ground	Continuity exists (2 Ω or less)

Q: Does the power window main switch work normally?

YES : Go to Step 4.

NO : Replace the power window main switch. Verify that all the doors can be locked and unlocked normally.

STEP 4. Check joint connector (1) connector C-03, joint connector (3) connector C-07 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Are joint connector (1) connector C-03, joint connector (3) connector C-07 in good condition?

YES : Go to Step 5.

NO : Repair or replace the damaged component(s). Refer to GROUP 00E, Harness Connector Inspection P.00E-2. Check that the central door locking system works normally.

STEP 5. Check the wiring harness between power window main switch connector E-28 (terminals Nos. 13, 14) and joint connector (3) connector C-07 (terminal No. 20), joint connector (1) connector C-03 (terminal No. 4).

- Check the signal line for open circuit and short circuit.

NOTE: Also check intermediate connector C-126 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connector C-126 is damaged, repair or replace the damaged component(s) as described in GROUP 00E, Harness Connector Inspection P.00E-2.

Q: Are the wiring harness between power window main switch connector E-28 (terminals Nos. 13, 14) between joint connector (3) connector C-07 (terminal No. 20), joint connector (1) connector C-03 (terminal No. 4) in good condition?

YES : Go to Step 6.

NO : The wiring harness may be damaged or the connector may have loose, corroded or damaged terminals, or terminals pushed back in the connector. Repair the wiring harness as necessary. Verify that the central door locking system works normally.

STEP 6. Retest the system.

Check that the central door locking system works normally.

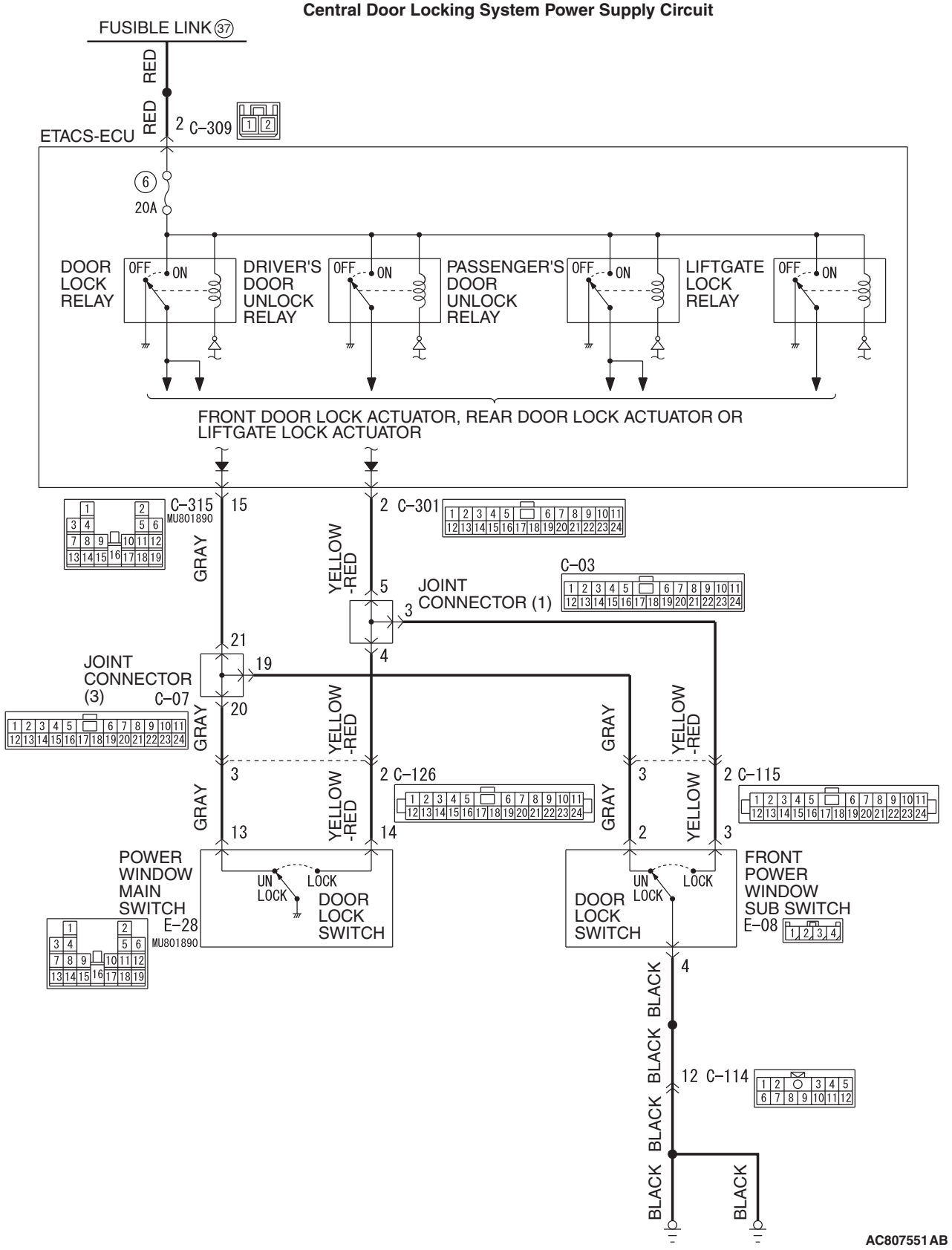
Q: Is the check result normal?

YES : No action is necessary and testing is complete.

NO : Replace the power window main switch. Check that the central door locking system normally.

INSPECTION PROCEDURE 3: Central Door Locking System does not Operate even when Door Lock Switch of Front Power Window Sub Switch Operated (Door Lock Switch of Power Window Main Switch Operate Normally).

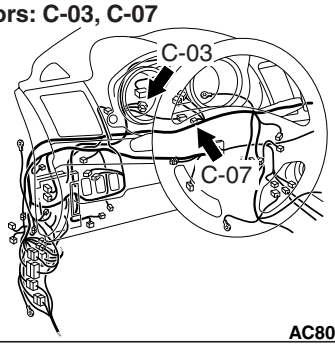
Central Door Locking System Power Supply Circuit



AC807551AB

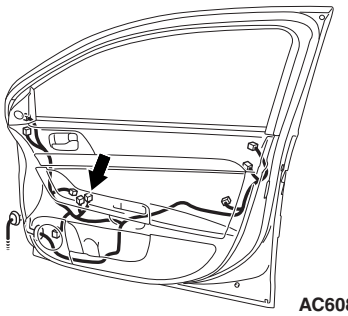
TSB Revision

Connectors: C-03, C-07



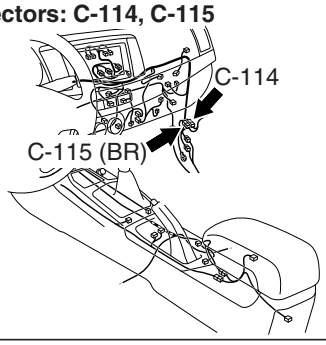
AC807552AN

Connector: E-08



AC608168AI

Connectors: C-114, C-115



AC807553AG

CIRCUIT OPERATION

- The ETACS-ECU controls the central door lock system, locking or unlocking all the doors by activating the central door lock relay (built into the ETACS-ECU). The ETACS-ECU uses inputs from the following components:
  - Door lock actuator
  - Door lock switch, which is incorporated in the power window main switch or power window sub switch

TROUBLESHOOTING HINTS

- The wiring harness or connectors may have loose, corroded, or damaged terminals, or terminals pushed back in the connector
- The front power window sub switch may be defective

DIAGNOSTIC PROCEDURE

STEP 1. Checking central door locking system operation
Check that the central door locking system works normally.

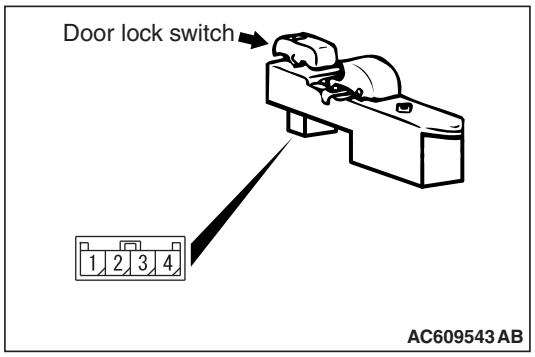
Q: Is the check result normal?

YES : Go to Step 2.
NO : Refer to Inspection procedure 1 "Central door locking system does not work at all P.42A-32."

STEP 2. Check front power window sub switch connector E-08 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is front power window sub switch connector E-08 in good condition?

YES : Go to Step 3.
NO : Repair or check the connector. Refer to GROUP 00E, Harness Connector Inspection P.00E-2. Verify that all the doors can be locked and unlocked normally.



STEP 3. Check the front power window sub switch (door lock switch).

Remove the front power window sub switch. Refer to P.42A-133.

Switch position	Tester connection	Specified condition
LOCK	3 –4	Continuity exists (2 Ω or less)
UNLOCK	2 –4	Continuity exists (2 Ω or less)

Q: Does the front power window sub switch work normally?

YES : Go to Step 4.

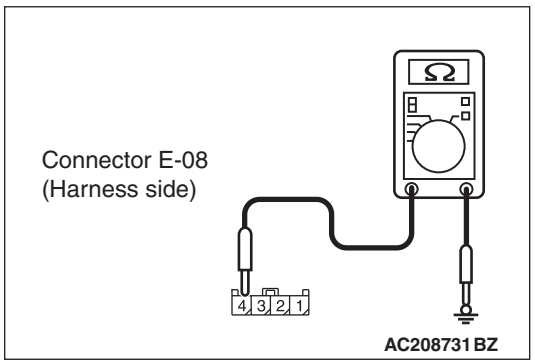
NO : Replace the front power window sub switch. Verify that all the doors can be locked and unlocked normally.

STEP 4. Check the ground circuit to the front power window sub switch. Measure the resistance at front power window sub switch connector E-08.

(1) Disconnect front power window sub switch connector E-08 and measure the resistance available at the wiring harness side of the connector.

(2) Measure the resistance value between terminal 4 and ground.

- The resistance should be 2 ohms or less.



Q: Is the measured resistance 2 ohms or less?

YES : Go to Step 5.

NO : Go to Step 6.

STEP 5. Check the wiring harness between front power window sub switch connector E-08 (terminal No. 4) and ground.

- Check the ground line for open circuit and short circuit.

NOTE: Also check intermediate connector C-114 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connector C-114 is damaged, repair or replace the damaged component(s) as described in GROUP 00E, Harness Connector Inspection P.00E-2.

Q: Is the wiring harness between front power window sub switch connector E-08 (terminal No. 4) and ground in good condition?

YES : No action is necessary and testing is complete.

NO : The wiring harness may be damaged or the connector(s) may have loose, corroded or damaged terminals, or terminals pushed back in the connector. Repair the wiring harness as necessary. Check that the central door locking system works normally.

STEP 6. Check joint connector (1) connector C-03, joint connector (3) connector C-07 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Are joint connector (1) connector C-03, joint connector (3) connector C-07 in good condition?

YES : Go to Step 7.

NO : Repair or replace the damaged component(s). Refer to GROUP 00E, Harness Connector Inspection P.00E-2. Check that the central door locking system works normally.

STEP 7. Check the wiring harness between front power window sub switch connector E-08 (terminals Nos. 2, 3) and joint connector (3) connector C-07 (terminal No. 19), joint connector (1) connector C-03 (terminal No. 3).

- Check the signal line for open circuit and short circuit.

NOTE: Also check intermediate connector C-115 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connector C-115 is damaged, repair or replace the damaged component(s) as described in GROUP 00E, Harness Connector Inspection P.00E-2.

Q: Are the wiring harness between front power window sub switch connector E-08 (terminals Nos. 2, 3) and joint connector (3) connector C-07 (terminal No. 19), joint connector (1) connector C-03 (terminal No. 3) in good condition?

YES : Go to Step 8.

NO : The wiring harness may be damaged or the connector may have loose, corroded or damaged terminals, or terminals pushed back in the connector. Repair the wiring harness as necessary. Verify that the central door locking system works normally.

STEP 8. Retest the system.

Check that the central door locking system works normally.

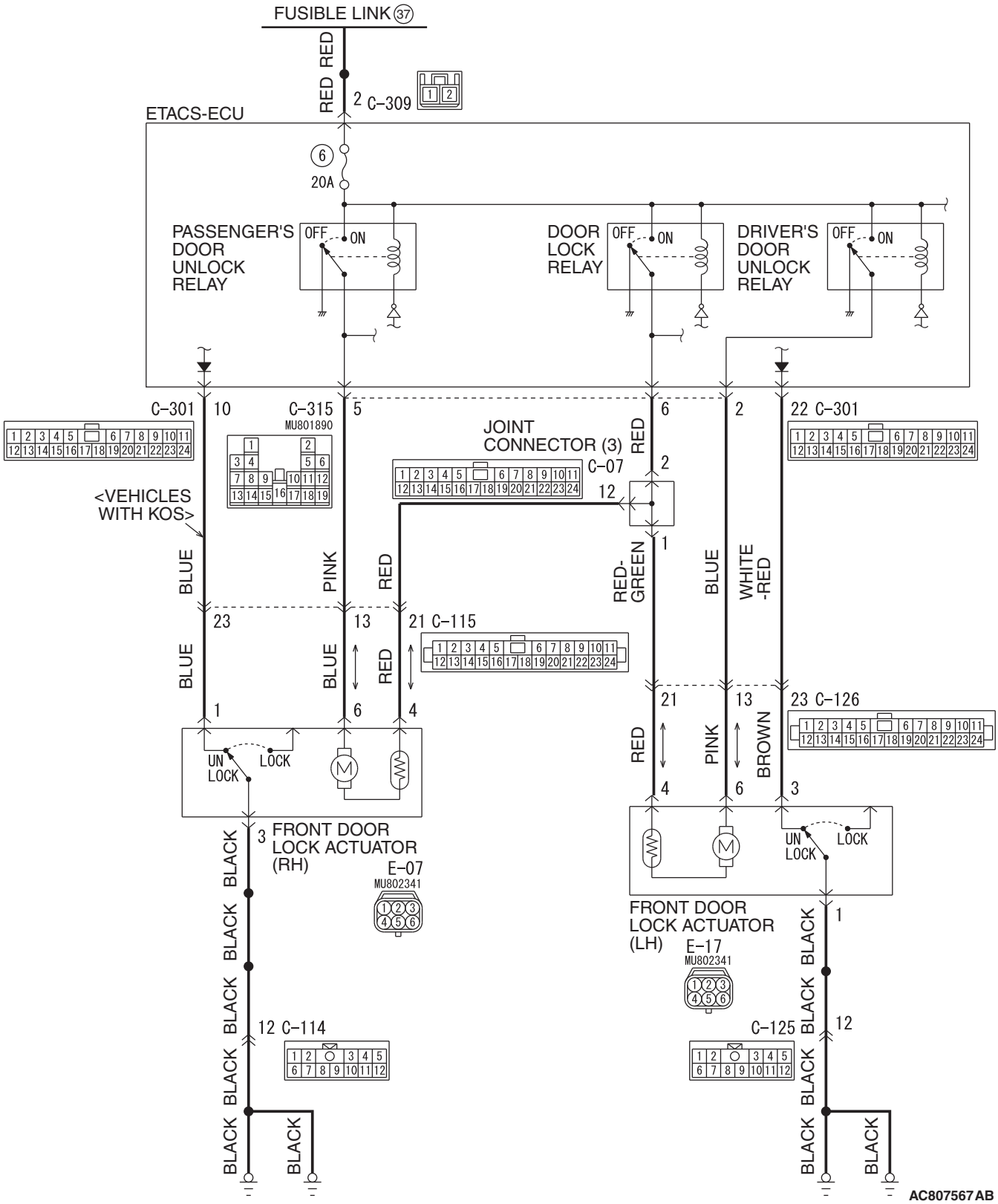
Q: Is the check result normal?

YES : No action is necessary and testing is complete.

NO : Replace the front power window sub switch. Check that the central door locking system normally.

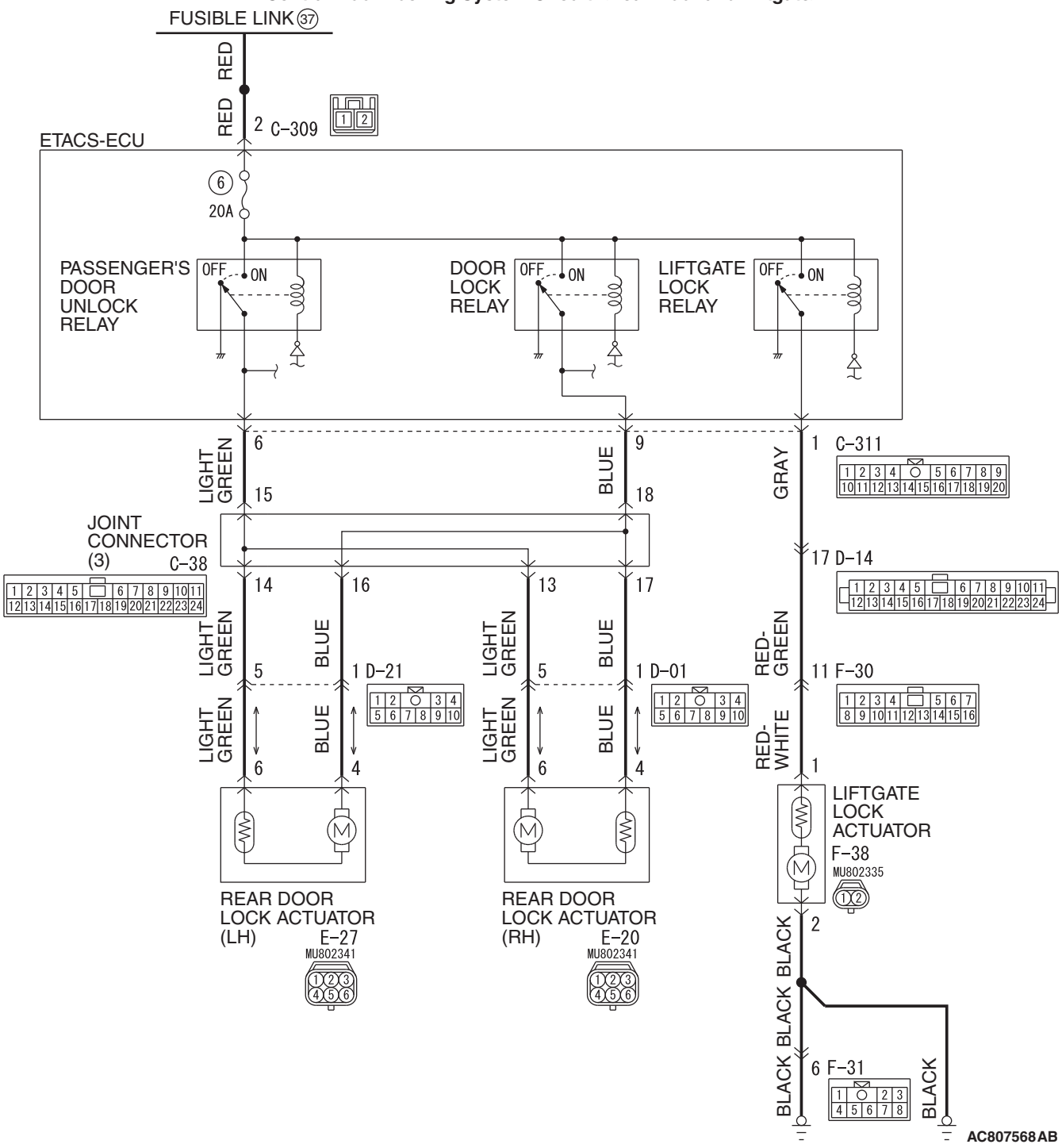
INSPECTION PROCEDURE 4: A Door or a Liftgate cannot be Locked or Unlocked by The Central Door Locking System.

Central Door Locking System Circuit <Front Door>

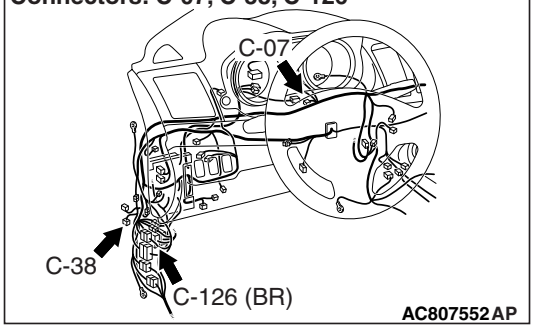


TSB Revision

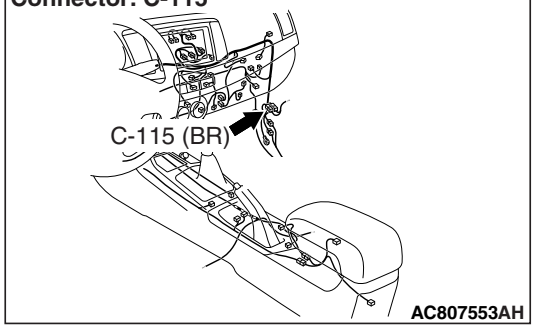
Central Door Locking System Circuit <Rear Door and Liftgate>



Connectors: C-07, C-38, C-126

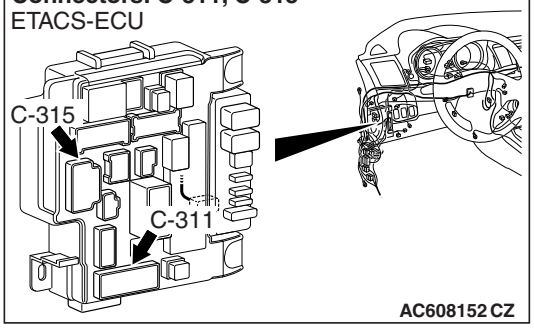


Connector: C-115

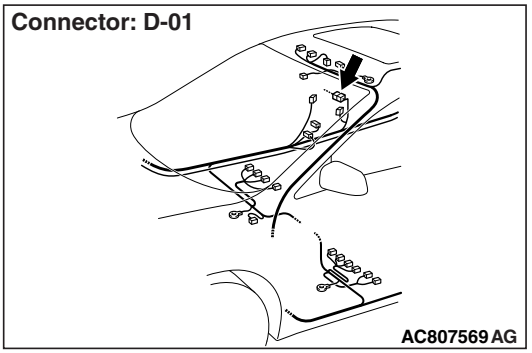


TSB Revision

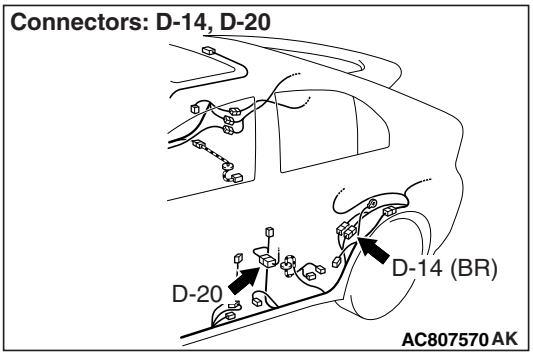
Connectors: C-311, C-315
ETACS-ECU



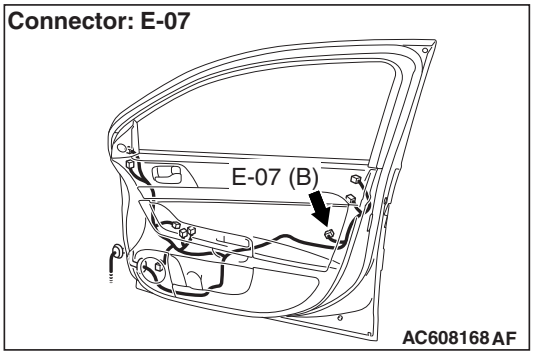
Connector: D-01



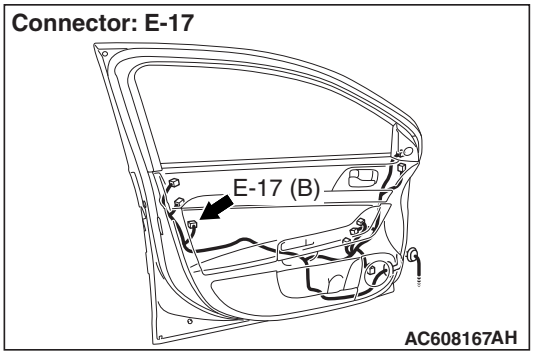
Connectors: D-14, D-20



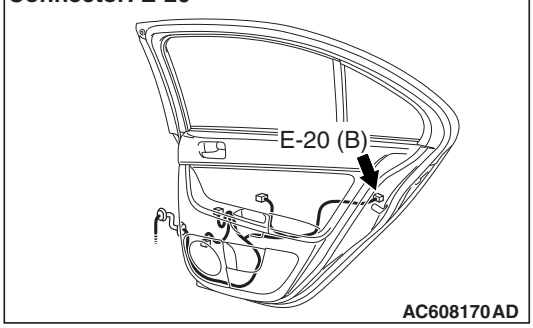
Connector: E-07



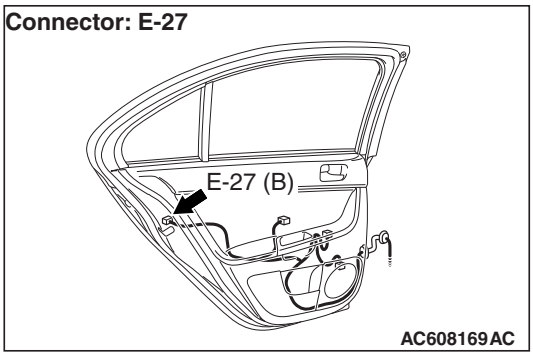
Connector: E-17



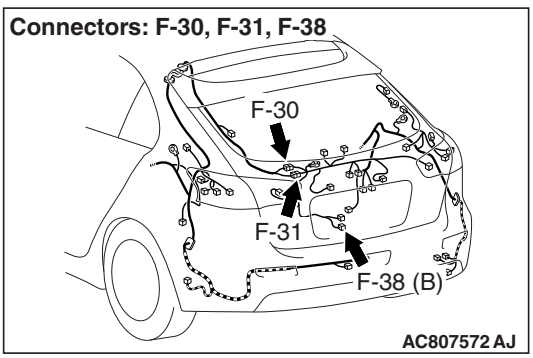
Connector: E-20



Connector: E-27



Connectors: F-30, F-31, F-38



CIRCUIT OPERATION

- The ETACS-ECU operates the central door lock system according to the following signals:
  - Door lock actuator switch
  - Door lock switch, which is incorporated in the power window main switch or power window sub switch
- The ETACS-ECU locks or unlocks all the doors by operating the central door lock relay (incorporated in the ECU) in response to input signals.

TECHNICAL DESCRIPTION (COMMENT)

The wiring harness between the ETACS-ECU, the door lock actuator and the liftgate lock actuator may be defective.

TSB Revision

TROUBLESHOOTING HINTS

- The door lock actuator may be defective
- The liftgate lock actuator may be defective
- The wiring harness or connectors may have loose, corroded, or damaged terminals, or terminals pushed back in the connector
- The ETACS-ECU may be defective

DIAGNOSTIC PROCEDURE

STEP 1. Confirmation of the defective door lock actuator.

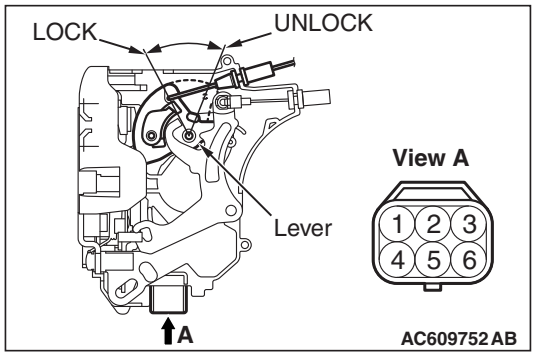
Q: Which door is not locked normally?

Driver's door : Go to Step 2.
Front passenger's door : Go to Step 6.
Rear right door : Go to Step 10.
Rear left door : Go to Step 14.
liftgate : Go to Step 18.

STEP 2. Check front door lock actuator (LH) connector E-17 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is front door lock actuator (LH) connector E-17 in good condition?

YES : Go to Step 3.
NO : Repair or check the connector. Refer to GROUP 00E, Harness Connector Inspection P.00E-2. Verify that all the doors and the liftgate can be locked and unlocked normally.



STEP 3. Check the front door lock actuator (LH).

Remove the front door lock actuator (LH). The illustration shows when the door lock actuator is viewed from inside the door. Refer to Door Handle and Latch P.42A-138.

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.

Q: Does the front door lock actuator (LH) work normally?

YES : Go to Step 4.

NO : Replace the front door lock actuator (LH). Verify that all the doors and the liftgate can be locked and unlocked normally.

STEP 4. Check ETACS-ECU connector C-315 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is ETACS-ECU connector C-315 in good condition?

YES : Go to Step 5.

NO : Repair or check the connector. Refer to GROUP 00E, Harness Connector Inspection P.00E-2. Verify that all the doors and the liftgate can be locked and unlocked normally.

STEP 5. Check the wiring harness between ETACS-ECU connector C-315 (terminals Nos. 2, 6) and front door lock actuator (LH) connector E-17 (terminals Nos. 6, 4).

- Check the signal line for open circuit and short circuit.

NOTE: Also check joint connector (3) C-07, intermediate connector C-126 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If joint connector (3) C-07, intermediate connector C-126 is damaged, repair or replace the damaged component(s) as described in GROUP 00E, Harness Connector Inspection P.00E-2.

Q: Is the wiring harness between ETACS-ECU connector C-315 (terminals Nos. 2, 6) and front door lock actuator (LH) connector E-17 (terminals Nos. 6, 4) in good condition?

YES : Go to Step 24.

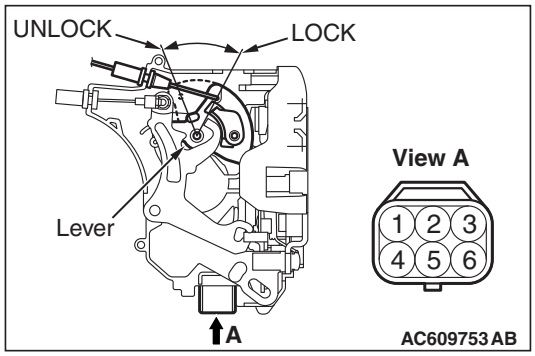
NO : The wiring harness may be damaged or the connector(s) may have loose, corroded or damaged terminals, or terminals pushed back in the connector. Repair or replace the damaged component(s). Verify that all the doors and the liftgate can be locked and unlocked normally.

STEP 6. Check front door lock actuator (RH) connector E-07 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is front door lock actuator (RH) connector E-07 in good condition?

YES : Go to Step 7.

NO : Repair or replace the damaged component(s). Refer to GROUP 00E, Harness Connector Inspection P.00E-2. Verify that all the doors and the liftgate can be locked and unlocked normally.



STEP 7. Check the front door lock actuator (RH).

Remove the front door lock actuator (RH). The illustration shows when the door lock actuator is viewed from inside the door. Refer to Door Handle and Latch P.42A-138.

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.

Q: Is the front door lock actuator (RH) normal?

YES : Go to Step 8.

NO : Replace the front door lock actuator (RH). Verify that all the doors and the liftgate can be locked and unlocked normally.

STEP 8. Check ETACS-ECU connector C-315 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is ETACS-ECU connector C-315 in good condition?

YES : Go to Step 9.

NO : Repair or replace the damaged component(s). Refer to GROUP 00E, Harness Connector Inspection P.00E-2. Verify that all the doors and the liftgate can be locked and unlocked normally.

STEP 9. Check the wiring harness between ETACS-ECU connector C-315 (terminals Nos. 5, 6) and front door lock actuator (RH) connector E-07 (terminals Nos. 6, 4).

- Check the signal line for open circuit and short circuit.

NOTE: Also check joint connector (3) C-07, intermediate connector C-115 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If joint connector (3) C-07, intermediate connector C-115 is damaged, repair or replace the damaged component(s) as described in GROUP 00E, Harness Connector Inspection P.00E-2.

Q: Is the wiring harness between ETACS-ECU connector C-315 (terminals Nos. 5, 6) and front door lock actuator (RH) connector E-07 (terminals Nos. 6, 4) in good condition?

YES : Go to Step 24.

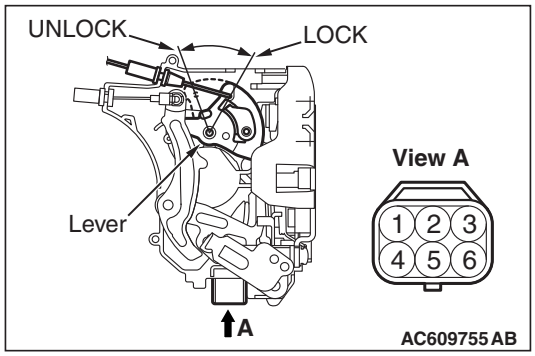
NO : The wiring harness may be damaged or the connector(s) may have loose, corroded or damaged terminals, or terminals pushed back in the connector. Repair the wiring harness as necessary. Verify that all the doors and the liftgate can be locked and unlocked normally.

STEP 10. Check rear door lock actuator (RH) connector E-20 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is rear door lock actuator (RH) connector E-20 in good condition?

YES : Go to Step 11.

NO : Repair or check the connector. Refer to GROUP 00E, Harness Connector Inspection P.00E-2. Verify that all the doors and the liftgate can be locked and unlocked normally.



STEP 11. Check the rear door lock actuator (RH).

Remove the rear door lock actuator (RH). The illustration shows when the door lock actuator is viewed from inside the door. Refer to Door Handle and Latch P.42A-138.

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.

Q: Is the rear door lock actuator (RH) normal?

YES : Go to Step 12.

NO : Replace the rear door lock actuator (RH). Verify that all the doors and the liftgate can be locked and unlocked normally.

STEP 12. Check ETACS-ECU connector C-311 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is ETACS-ECU connector C-311 in good condition?

YES : Go to Step 13.

NO : Repair or replace the damaged component(s). Refer to GROUP 00E, Harness Connector Inspection P.00E-2. Verify that all the doors and the liftgate can be locked and unlocked normally.

STEP 13. Check the wiring harness between ETACS-ECU connector C-311 (terminals Nos. 6, 9) and rear door lock actuator (RH) connector E-20 (terminals Nos. 6, 4).

- Check the signal line for open circuit and short circuit.

NOTE: Also check joint connector (4) C-38, intermediate connector D-01 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If joint connector (4) C-38, intermediate connector D-01 is damaged, repair or replace the damaged component(s) as described in GROUP 00E, Harness Connector Inspection P.00E-2.

Q: Is the wiring harness between ETACS-ECU connector C-311 (terminals No. 6, 9) and rear door lock actuator (RH) connector E-20 (terminals No. 6, 4) in good condition?

YES : Go to Step 24.

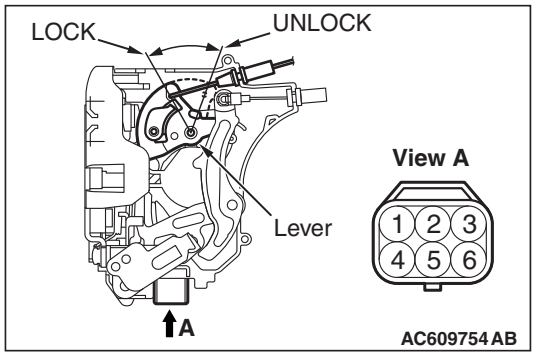
NO : The wiring harness may be damaged or the connector(s) may have loose, corroded or damaged terminals, or terminals pushed back in the connector. Repair the wiring harness as necessary. Verify that all the doors and the liftgate can be locked and unlocked normally.

STEP 14. Check rear door lock actuator (LH) connector E-27 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is rear door lock actuator (LH) connector E-27 in good condition?

YES : Go to Step 15.

NO : Repair or check the connector. Refer to GROUP 00E, Harness Connector Inspection P.00E-2. Verify that all the doors and the liftgate can be locked and unlocked normally.



STEP 15. Check the rear door lock actuator (LH).

Remove the rear door lock actuator (LH). The illustration shows when the door lock actuator is viewed from inside the door. Refer to Door Handle and Latch P.42A-138.

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.

Q: Is the rear door lock actuator (LH) normal?

YES : Go to Step 16.

NO : Replace the rear door lock actuator (LH). Verify that all the doors and the liftgate can be locked and unlocked normally.

STEP 16. Check ETACS-ECU connector C-311 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is ETACS-ECU connector C-311 in good condition?

YES : Go to Step 17.

NO : Repair or replace the damaged component(s). Refer to GROUP 00E, Harness Connector Inspection P.00E-2. Verify that all the doors and the liftgate can be locked and unlocked normally.

STEP 17. Check the wiring harness between ETACS-ECU connector C-311 (terminals Nos. 6, 9) and rear door lock actuator (LH) connector E-27 (terminals Nos. 6, 4).

- Check the signal line for open circuit and short circuit.

NOTE: Also check joint connector (4) C-38, intermediate connector D-20 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If joint connector (4) C-38, intermediate connector D-20 is damaged, repair or replace the damaged component(s) as described in GROUP 00E, Harness Connector Inspection P.00E-2.

Q: Is the wiring harness between ETACS-ECU connector C-311 (terminals Nos. 6, 9) and rear door lock actuator (LH) connector E-27 (terminals Nos. 6, 4) in good condition?

YES : Go to Step 24.

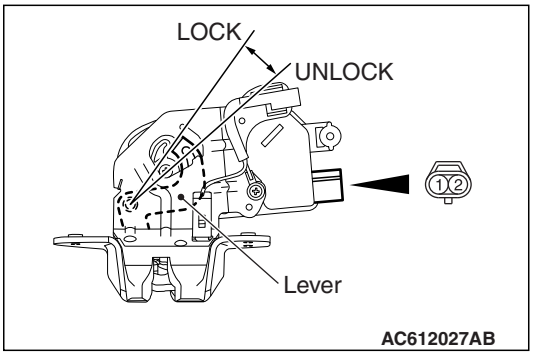
NO : The wiring harness may be damaged or the connector(s) may have loose, corroded or damaged terminals, or terminals pushed back in the connector. Repair the wiring harness as necessary. Verify that all the doors and the liftgate can be locked and unlocked normally.

STEP 18. Check liftgate lock actuator connector F-38 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is liftgate lock actuator connector F-38 in good condition?

YES : Go to Step 19.

NO : Repair or check the connector. Refer to GROUP 00E, Harness Connector Inspection P.00E-2. Verify that all the doors and the liftgate can be locked and unlocked normally.



STEP 19. Check the liftgate lock actuator.

Remove the liftgate lock actuator. The illustration shows when the liftgate lock actuator is viewed from inside the liftgate. Refer to Liftgate Handle and Latch P.42A-173.

Lever position	Battery connection	Lever operation
At the "LOCK" position	• Connect terminal No. 2 to the negative battery terminal. • Connect terminal No. 1 to the positive battery terminal.	The lever moves from the "LOCK" position to the "UNLOCK" position.

Q: Is the liftgate lock actuator normal?

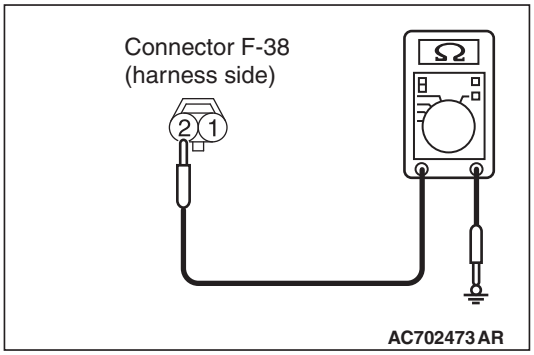
YES : Go to Step 20.

NO : Replace the liftgate lock actuator. Verify that all the doors and the liftgate can be locked and unlocked normally.

STEP 20. Check the ground circuit to the liftgate lock actuator. Measure the resistance at liftgate lock actuator connector F-38.

(1) Disconnect liftgate lock actuator connector F-38 and measure the resistance on the wiring harness side of the connector.

(2) Measure the resistance value between terminal 2 and ground.
- The resistance should be 2 ohms or less.



Q: Is the measured resistance 2 ohms or less?

YES : Go to Step 21.

NO : Go to Step 22.

STEP 21. Check the wiring harness between liftgate lock actuator connector F-38 (terminal No. 2) and ground.

- Check the ground line for open circuit and short circuit.

NOTE: Also check intermediate connector F-31 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connector F-31 is damaged, repair or replace the damaged component(s) as described in GROUP 00E, Harness Connector Inspection P.00E-2.

Q: Is the wiring harness between liftgate lock actuator connector F-38 (terminal No. 2) and ground in good condition?

YES : No action is necessary and testing is complete.

NO : The wiring harness may be damaged or the connector(s) may have loose, corroded or damaged terminals, or terminals pushed back in the connector. Repair the wiring harness as necessary. Verify that all the doors and the liftgate can be locked and unlocked normally.

STEP 22. Check ETACS-ECU connector C-311 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is ETACS-ECU connector C-311 in good condition?

YES : Go to Step 23.

NO : Repair or replace the damaged component(s). Refer to GROUP 00E, Harness Connector Inspection P.00E-2. Verify that all the doors and the liftgate can be locked and unlocked normally.

STEP 23. Check the wiring harness between ETACS-ECU connector C-311 (terminal No. 1) and liftgate lock actuator connector F-38 (terminal No. 1).

- Check the signal line for open circuit and short circuit.

NOTE: Also check intermediate connectors D-14, F-30 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connectors D-14, F-30 is damaged, repair or replace the damaged component(s) as described in GROUP 00E, Harness Connector Inspection P.00E-2.

Q: Is the wiring harness between ETACS-ECU connector C-311 (terminal No. 1) and liftgate lock actuator connector F-38 (terminal No. 1) in good condition?

YES : Go to Step 24.

NO : The wiring harness may be damaged or the connector(s) may have loose, corroded or damaged terminals, or terminals pushed back in the connector. Repair the wiring harness as necessary. Verify that all the doors and the liftgate can be locked and unlocked normally.

STEP 24. Retest the system.
Check that the central door locking system works normally.

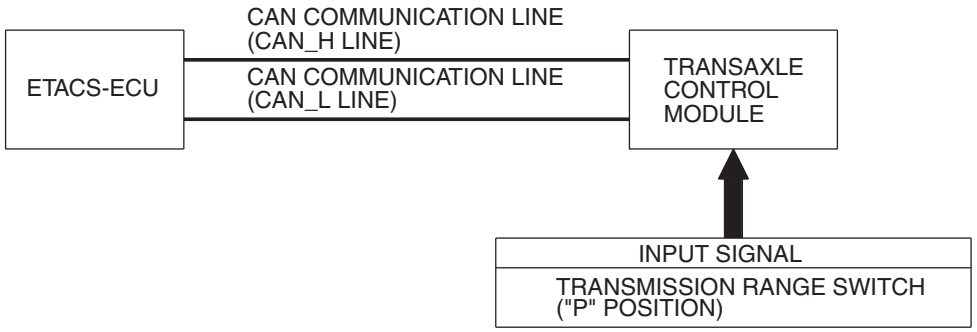
Q: Is the check result normal?

YES : No action is necessary and testing is complete.
NO : Replace the ETACS-ECU. Check that the central door locking system normally.

INSPECTION PROCEDURE 5: Selector "P" Position-linked Door Unlock Function does not Operate Normally <CVT, TC-SST>.

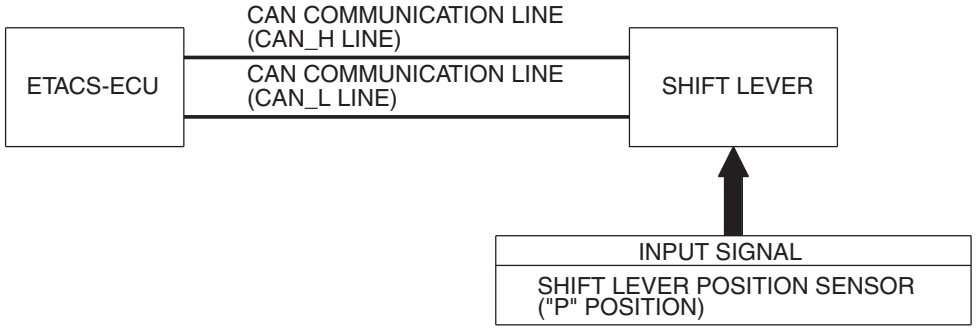
⚠ CAUTION
Whenever the ECU is replaced, ensure that the input and output signal circuits are normal.

Selector "P" Position-linked Door Unlock Function <CVT>



AC503706AJ

Selector "P" Position-linked Door Unlock Function <TC-SST>



AC503706AK

OPERATION
ETACS-ECU determines whether the shift position is at "P" or not according to the shift position signal which is sent by transaxle control module <CVT> or shift lever <TC-SST>.

TECHNICAL DESCRIPTION (COMMENT)
If the doors are not unlocked when the selector lever is shifted to the P position, a malfunction of the shift position signal input circuit(s) or ETACS-ECU is suspected. Also, the selector "P" position-linked door unlock function may have been "disabled" with the customization function.

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TROUBLESHOOTING HINTS

- Malfunction of ETACS-ECU
- Damaged wiring harness and connectors

DIAGNOSTIC PROCEDURE

Required Special Tools:

- MB992006: Extra fine probe
- MB991223: Harness set
- MB991958: Scan Tool (M.U.T.-III Sub Assembly)
  - MB991824: Vehicles Communication Interface (V.C.I.)
  - MB991827: M.U.T.-III USB Cable
  - MB991910: M.U.T.-III Main Harness A

STEP 1. Checking central door locking system operation

Check that the central door locking system works normally.

Q: Is the check result normal?

YES : Go to Step 2.

NO : Refer to Inspection procedure 1 "Central door locking system does not work at all P.42A-32."

STEP 2. Check the customize function.

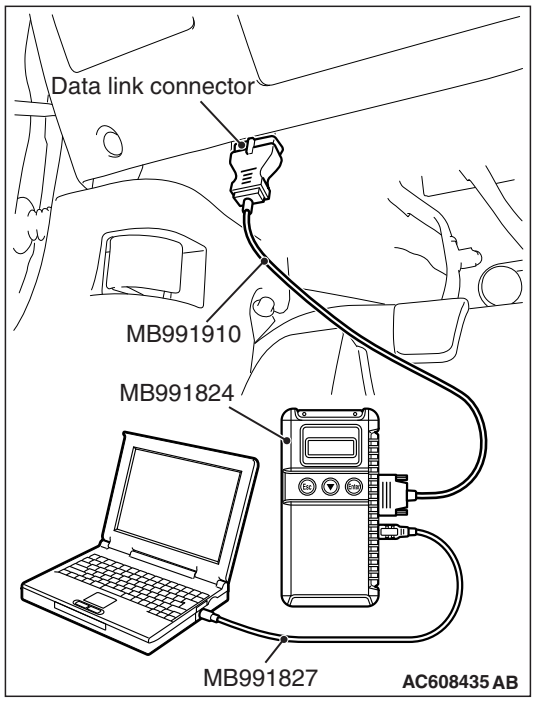
Check that either of the followings other than "Disable" is set for "Auto door unlock by P position" with the customization function.

- Always enabled

Q: Is the check result normal?

YES : Go to Step 3.

NO : Set either of the followings other than "Disable" for "Auto door unlock by P position" with the customization function (Refer to P.42A-129).



STEP 3. Using scan tool MB991958, read CAN bus the diagnostic trouble code.

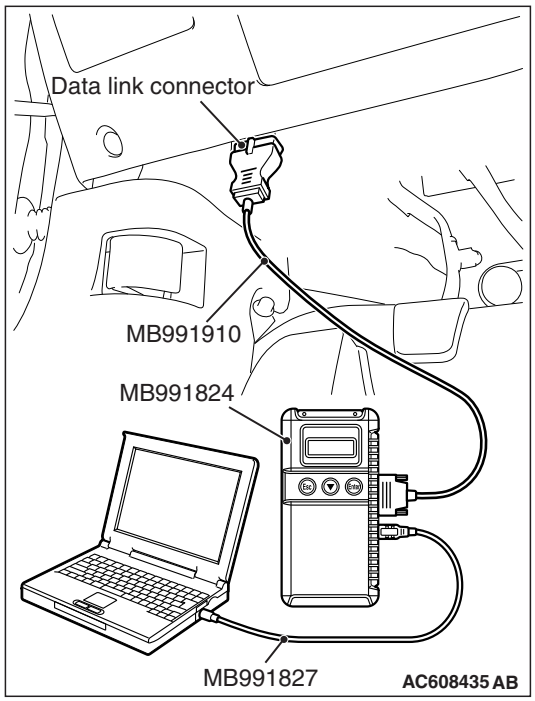
⚠ CAUTION

To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.

(1) Connect scan tool MB991958. Refer to "How to connect scan tool (M.U.T.-III) P.42B-9."
(2) Turn the ignition switch to the "ON" position.
(3) Check whether the CAN bus lines related DTC is set.
(4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the DTC set?

YES : Repair the CAN bus line (Refer to GROUP 54C, CAN bus diagnostics table P.54C-14).
NO : Go to Step 4.



STEP 4. Using scan tool MB991958, read the diagnostic trouble code.

⚠ CAUTION
To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.

(1) Connect scan tool MB991958. Refer to "How to connect scan tool (M.U.T.-III) P.42B-9."
(2) Turn the ignition switch to the "ON" position.
(3) Check whether the transaxle control module <CVT> or the shift lever <TC-SST> related DTC is set.
(4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the DTC set?

YES <CVT> : Diagnose the transaxle control module. Refer to GROUP 23A, Diagnostic Trouble Code Chart P.23A-26.
YES <TC-SST> : Diagnose the shift lever. Refer to GROUP 22C, Diagnostic Trouble Code Chart P.22C-366.
NO : Go to Step 5.

STEP 5. Retest the system.

Check that shifting the selector lever to the P position unlocks the doors.

Q: Is the check result normal?

YES : No action is necessary and testing is complete.
NO : Replace the ETACS-ECU. Check that the selector lever to the P position unlocks the doors normally.

INSPECTION PROCEDURE 6: Ignition "LOCK (OFF)" position-linked door unlock function does not operate <M/T, CVT, TC-SST>.

⚠ CAUTION
Before replacing the ECU, ensure that the input and output signal circuits are normal.

COMMENTS ON TROUBLE SYMPTOM

If a door is not unlocked when the ignition switch is turned to the LOCK position, a malfunction of the CAN bus line, ignition switch or ETACS-ECU is suspected. Also, the ignition "LOCK" position-linked door unlock function may have been "Disabled" with the customise function.

PROBABLE CAUSES

- Malfunction of CAN bus line
- Malfunction of ETACS-ECU
- Malfunction of ignition switch
- Damaged wiring harness and connectors

TSB Revision

DIAGNOSIS PROCEDURE

STEP 1. Checking central door unlocking operation
Check that the central door locking system works normally.

Q: Is the check result normal?

YES : Go to Step 2.
NO : Refer to trouble symptom chart P.42A-31.

STEP 2. Check the customize function.
Check that the following other than "Disabled" is set for "Auto door unlock by ignition LOCK position" with the customize function.

- Always (LOCK pos)

Q: Is the check result normal?

YES : Go to Step 3.
NO : Set the function as mentioned above other than "Disabled" for "Auto door unlock by ignition LOCK position" with the customize function (Refer to P.42A-129).

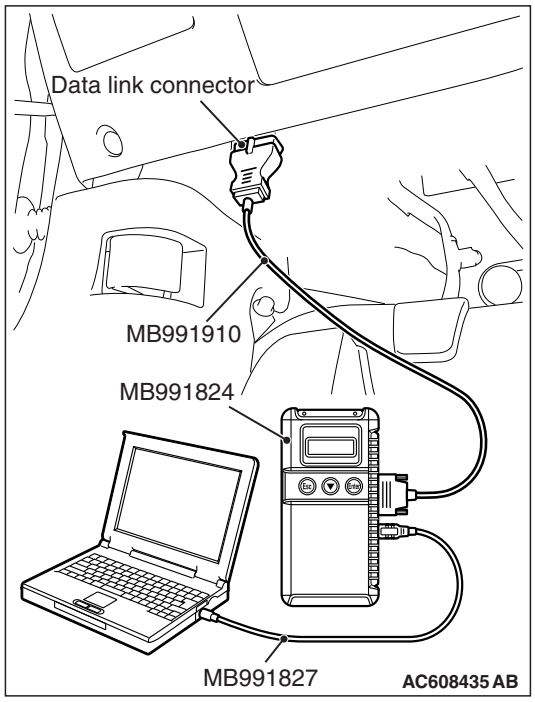
STEP 3. Using scan tool MB991958, read CAN bus the diagnostic trouble code.

⚠ CAUTION
To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.

(1) Connect scan tool MB991958. Refer to "How to connect scan tool (M.U.T.-III) P.42B-9."
(2) Turn the ignition switch to the "ON" position.
(3) Check whether the CAN bus lines related DTC is set.
(4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the DTC set?

YES : Repair the CAN bus line (Refer to GROUP 54C, CAN bus diagnostics table P.54C-14).
NO : Go to Step 4.



STEP 4. Check the ignition switch.
Check that the ignition switch works normally.

Q: Is the check result normal?

YES : Go to Step 5.
NO : Repair the ignition switch (Refer to GROUP 54A – Ignition Switch Troubleshooting/Inspection Procedure 2 - Malfunction of the Ignition Switch Power Supply System P.54A-20).

STEP 5. Retest the system.
Check that turning the ignition switch to the LOCK position unlocks the all doors.

Q: Is the check result normal?

YES : Intermittent malfunction (Refer to GROUP 00 –How to Use Troubleshooting/Inspection Service Points - How to Cope with Intermittent Malfunction P.00-13).
NO : Replace the ETACS-ECU.

POWER WINDOW DIAGNOSIS

TROUBLESHOOTING STRATEGY

M1429002700220

Refer to GROUP 00 –How to Use Troubleshooting/Inspection Service Points, Contents of Troubleshooting P.00-6.

DIAGNOSTIC TROUBLE CODE CHART

M1429006000096

⚠ CAUTION
On troubleshooting, if the ignition switch is turned ON while disconnecting connector(s), diagnostic trouble code(s) associated with other system may be set. On completion, check all systems for diagnostic trouble code(s). If diagnostic trouble code(s) are set, erase them all.

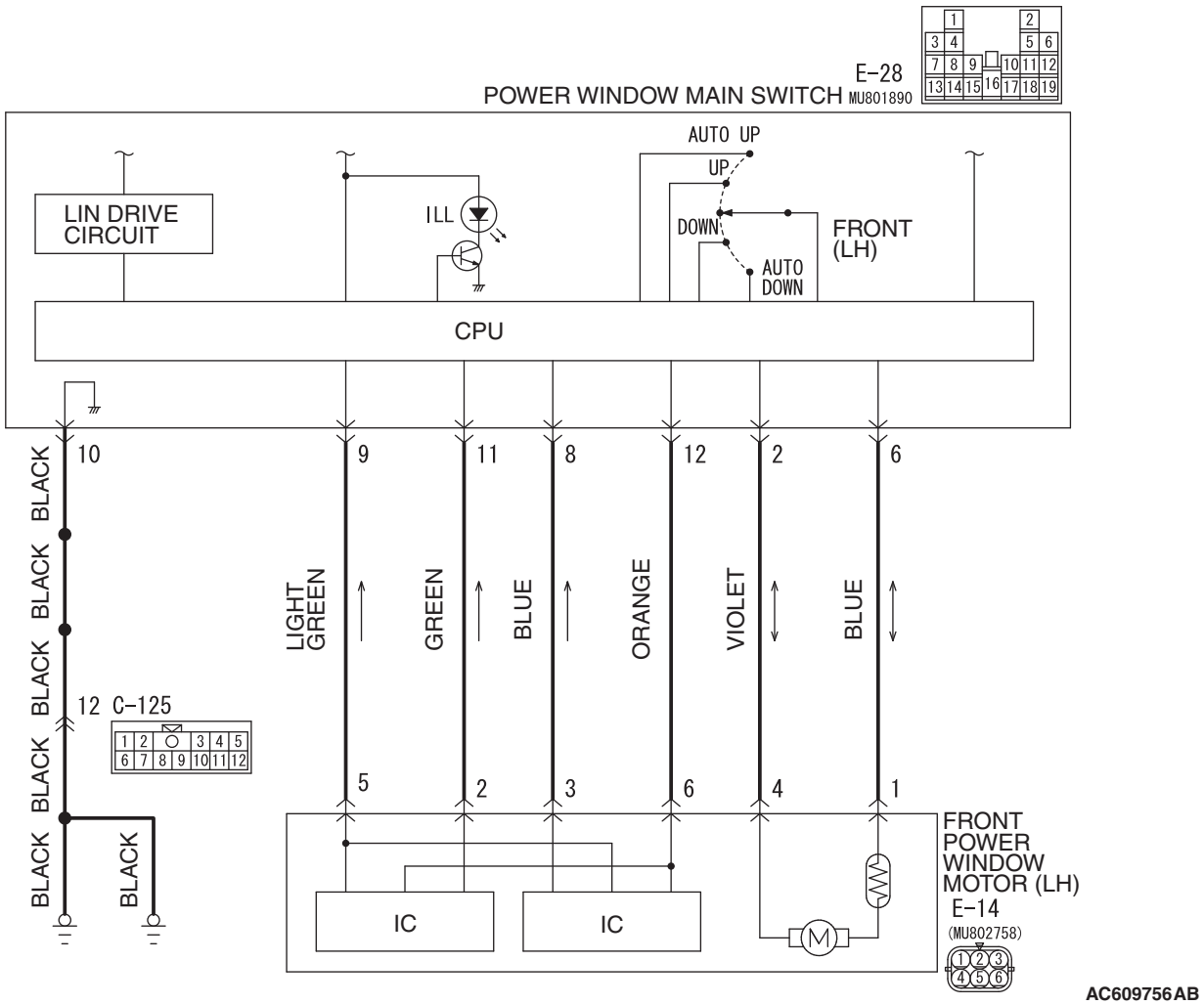
Diagnostic trouble code No.	Diagnostic item	Reference page
L0730	P/W (DR) SW pulse1 disconnection	P.42A-66
L0732	P/W (DR) SW pulse2 disconnection	P.42A-68
L0734	P/W (DR) Above window position	P.42A-70
L0736	P/W (DR) Sensor fail (ground)	P.42A-71
L0740	P/W (DR) 3 times jam - protection	P.42A-73
L0746	P/W (DR) Parameter read fail	P.42A-73
L0750	P/W (DR) Position read fail	

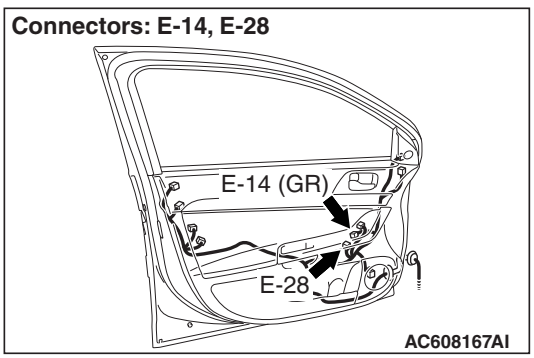
DIAGNOSTIC TROUBLE CODE PROCEDURES <POWER WINDOW>

CODE NO. L0730 P/W (DR) SW pulse 1 disconnection

⚠ CAUTION
Before replacing the ECU, ensure that the input and output signal circuits are normal.

Driver's Side Power Window Circuit





COMMENTS ON TROUBLE SYMPTOM

If the pulse 1 signal from the front power window motor (LH) cannot be received, the power window main switch sets the diagnostic trouble code No. L0730.

PROBABLE CAUSES

- Malfunction of the front power window motor (LH)
- Malfunction of the power window main switch
- Damaged wiring harness and connectors

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DIAGNOSTIC PROCEDURE

STEP 1. Check power window main switch connector E-28, front power window motor (LH) connector E-14 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Are power window main switch connector E-28, front power window motor (LH) connector E-14 in good condition?

YES : Go to Step 2.

NO : Repair or replace the damaged component(s). Refer to GROUP 00E, Harness Connector Inspection P.00E-2. Verify that the power window works normally.

STEP 2. Check the wiring harness between power window main switch connector E-28 (terminals 8, 9 and 12) and front power window motor (LH) connector E-14 (terminals 3, 5 and 6).

- Check the signal line for open circuit and short circuit.

Q: Is the wiring harness between power window main switch connector E-28 (terminals 8, 9 and 12) and front power window motor (LH) connector E-14 (terminals 3, 5 and 6) in good condition?

YES : Go to Step 3.

NO : The wiring harness may be damaged or the connector(s) may have loose, corroded or damaged terminals, or terminals pushed back in the connector. Repair the wiring harness as necessary. Verify that the power window works normally.

STEP 3. Diagnostic trouble code recheck

Replace the front power window motor (LH). Recheck if the diagnostic trouble code is set.

(1) Erase the diagnostic trouble code.
(2) Operate the driver's door window switch on the power window main switch.
(3) Check if the diagnostic trouble code is set.

Q: Is the diagnostic trouble code set?

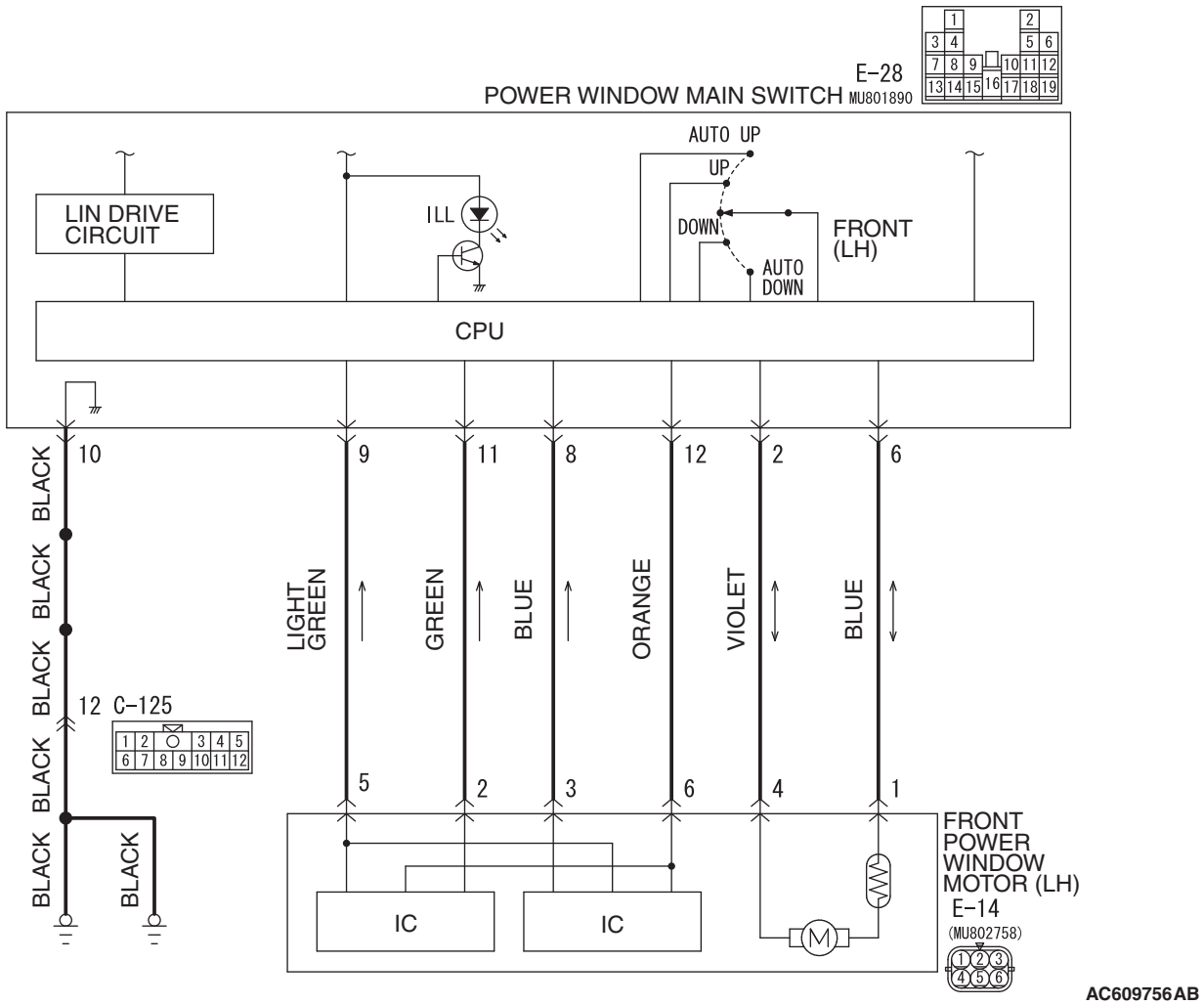
YES : Replace the power window main switch.

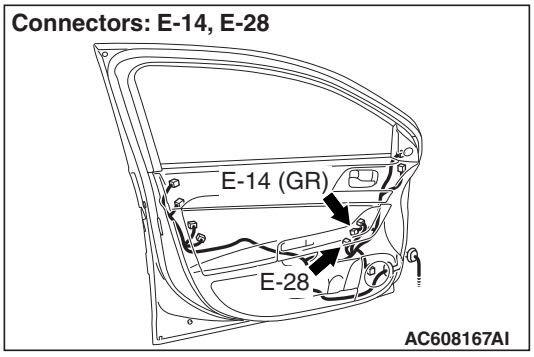
NO : The procedure is complete. Verify that the power window works normally.

CODE NO. L0732 P/W (DR) SW pulse 2 disconnection

⚠ CAUTION
Before replacing the ECU, ensure that the input and output signal circuits are normal.

Driver's Side Power Window Circuit





COMMENTS ON TROUBLE SYMPTOM

If the pulse 2 signal from the front power window motor (LH) cannot be received, the power window main switch sets the diagnostic trouble code No. L0732.

PROBABLE CAUSES

- Malfunction of the front power window motor (LH)
- Malfunction of the power window main switch
- Damaged wiring harness and connectors

TSB Revision

DIAGNOSTIC PROCEDURE

STEP 1. Check power window main switch connector E-28, front power window motor (LH) connector E-14 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Are power window main switch connector E-28, front power window motor (LH) connector E-14 in good condition?

YES : Go to Step 2.

NO : Repair or replace the damaged component(s). Refer to GROUP 00E, Harness Connector Inspection P.00E-2. Verify that the power window works normally.

STEP 2. Check the wiring harness between power window main switch connector E-28 (terminals 9, 11 and 12) and front power window motor (LH) connector E-14 (terminals 5, 2 and 6).

- Check the signal line for open circuit and short circuit.

Q: Is the wiring harness between power window main switch connector E-28 (terminals 9, 11 and 12) and front power window motor (LH) connector E-14 (terminals 5, 2 and 6) in good condition?

YES : Go to Step 3.

NO : The wiring harness may be damaged or the connector(s) may have loose, corroded or damaged terminals, or terminals pushed back in the connector. Repair the wiring harness as necessary. Verify that the power window works normally.

STEP 3. Diagnostic trouble code recheck

Replace the front power window motor (LH). Recheck if the diagnostic trouble code is set.

(1) Erase the diagnostic trouble code.
(2) Operate the driver's door window switch on the power window main switch.
(3) Check if the diagnostic trouble code is set.

Q: Is the diagnostic trouble code set?

YES : Replace the power window main switch.

NO : The procedure is complete. Verify that the power window works normally.

CODE NO. L0734 P/W (DR) Above window position

⚠ CAUTION
Before replacing the ECU, ensure that the input and output signal circuits are normal.

COMMENTS ON TROUBLE SYMPTOM

If the driver's door window glass exceeds the fully closed position, power window main switch sets the diagnosis code No. L0734.

PROBABLE CAUSES

- Malfunction of the front power window motor (LH)
- Malfunction of the power window main switch

DIAGNOSTIC PROCEDURE

STEP 1. Check the power window fully closed position

(1) Carry out the learning procedures of the power window fully closed position. Refer to P.42A-125.
(2) Recheck if the diagnostic trouble code is set.
  a. Erase the diagnostic trouble code.
  b. Press the driver's door window switch (on the power window main switch) down to open the window, and pull up the driver's door window switch to fully close the window.
  c. Check if the diagnostic trouble code is set.

Q: Is the check result normal?

YES : The procedure is complete.
NO : Go to Step 2.

STEP 2. Diagnostic trouble code recheck

Replace the front power window motor (LH). Recheck if the diagnostic trouble code is set.
(1) Erase the diagnostic trouble code.
(2) Press the driver's door window switch (on the power window main switch) down to open the window, and pull up the driver's door window switch to fully close the window.
(3) Check if the diagnostic trouble code is set.

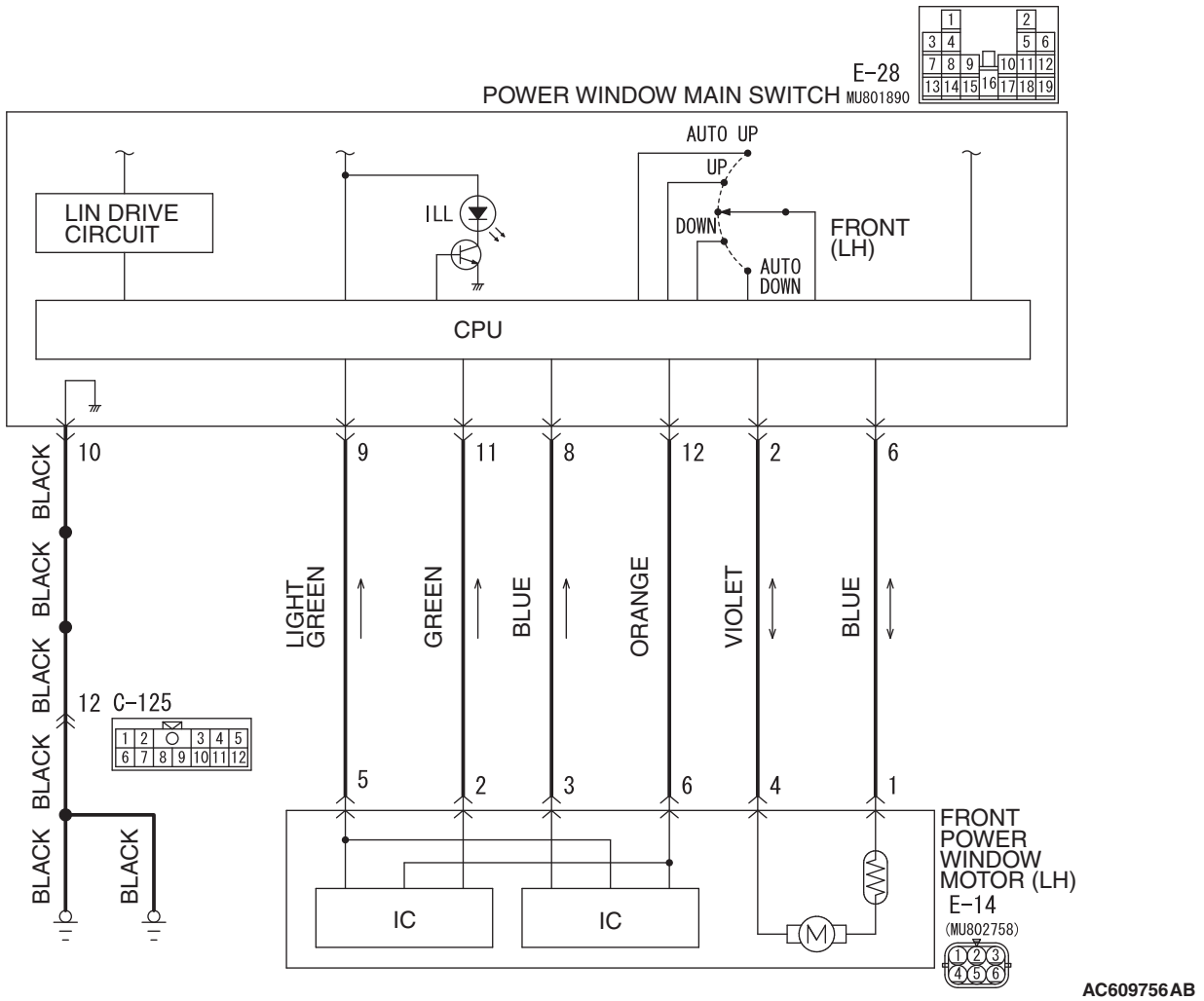
Q: Is the diagnostic trouble code set?

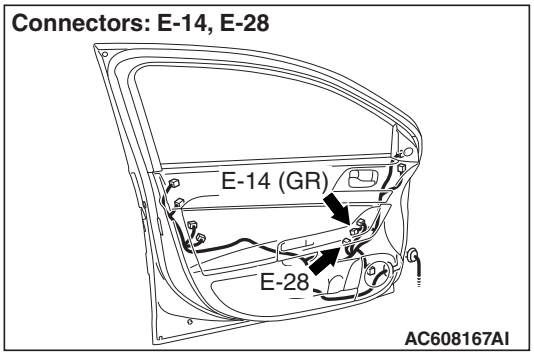
YES : Replace the power window main switch.
NO : The procedure is complete. Verify that the power window works normally.

CODE NO. L0736 P/W (DR) Sensor fail (ground)

⚠ CAUTION
Before replacing the ECU, ensure that the input and output signal circuits are normal.

Driver's Side Power Window Circuit





COMMENTS ON TROUBLE SYMPTOM

If the ground fault of the front power window motor (LH) sensor power supply is detected, power window main switch sets the diagnostic trouble code No. L0736

PROBABLE CAUSES

- Malfunction of the front power window motor (LH)
- Malfunction of the power window main switch
- Damaged wiring harness and connectors

TSB Revision

DIAGNOSTIC PROCEDURE

STEP 1. Check power window main switch connector E-28, front power window motor (LH) connector E-14 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Are power window main switch connector E-28, front power window motor (LH) connector E-14 in good condition?

YES : Go to Step 2.

NO : Repair or replace the damaged component(s). Refer to GROUP 00E, Harness Connector Inspection P.00E-2. Verify that the power window works normally.

STEP 2. Check the wiring harness between power window main switch connector E-28 (terminal 12) and front power window motor (LH) connector E-14 (terminal 6).

- Check the signal line for open circuit and short circuit.

Q: Is the wiring harness between power window main switch connector E-28 (terminal 12) and front power window motor (LH) connector E-14 (terminal 6) in good condition?

YES : Go to Step 3.

NO : The wiring harness may be damaged or the connector(s) may have loose, corroded or damaged terminals, or terminals pushed back in the connector. Repair the wiring harness as necessary. Verify that the power window works normally.

STEP 3. Diagnostic trouble code recheck

Replace the front power window motor (LH). Recheck if the diagnostic trouble code is set.

(1) Erase the diagnostic trouble code.
(2) Turn the ignition switch from the LOCK (OFF) position to the ON position.
(3) Check if the diagnostic trouble code is set.

Q: Is the diagnostic trouble code set?

YES : Replace the power window main switch.

NO : The procedure is complete. Verify that the power window works normally.

CODE NO. L0740 P/W (DR) 3 times jam - protection

⚠ CAUTION
Before replacing the ECU, ensure that the input and output signal circuits are normal.

COMMENTS ON TROUBLE SYMPTOM
If the anti-trap function is activated consecutively three times or more, power window main switch sets the diagnostic trouble code No. L0740.

PROBABLE CAUSES
- Malfunction of the front power window motor (LH)
- Malfunction of the power window main switch

DIAGNOSTIC PROCEDURE

STEP 1. Check the power window fully closed position
(1) Carry out the learning procedures of the power window fully closed position. Refer to P.42A-125.
(2) Recheck if the diagnostic trouble code is set.
  a. Erase the diagnostic trouble code.
  b. Turn the ignition switch from the LOCK (OFF) position to the ON position.
  c. Check if the diagnostic trouble code is set.

Q: Is the check result normal?
YES : The procedure is complete.
NO : Go to Step 2.

STEP 2. Diagnostic trouble code recheck
Replace the front power window motor (LH). Recheck if the diagnostic trouble code is set.
(1) Erase the diagnostic trouble code.
(2) Turn the ignition switch from the LOCK (OFF) position to the ON position.
(3) Check if the diagnostic trouble code is set.

Q: Is the diagnostic trouble code set?
YES : Replace the power window main switch.
NO : The procedure is complete. Verify that the power window works normally.

CODE NO. L0746 P/W (DR) Parameter read fail
CODE NO. L0750 P/W (DR) Position read fail

⚠ CAUTION
Before replacing the ECU, ensure that the input and output signal circuits are normal.

COMMENTS ON TROUBLE SYMPTOM
- If the power window main switch information signals cannot be read, power window main switch sets the diagnostic trouble code No. L0746.
- If the driver's door window glass position cannot be read, power window main switch sets the diagnostic trouble code No. L0750.

PROBABLE CAUSES
- Malfunction of the power window main switch

DIAGNOSTIC PROCEDURE

Diagnostic trouble code recheck

Recheck if the diagnostic trouble code is set.

(1) Erase the diagnostic trouble code.
(2) Turn the ignition switch from the LOCK (OFF) position to the ON position.
(3) Check if the diagnostic trouble code is set.

Q: Is the diagnostic trouble code set?

YES : Replace the power window main switch.
NO : The procedure is complete. Verify that the power window works normally.

TROUBLE SYMPTOM CHART

M1429002800829

⚠ CAUTION

During diagnosis, a diagnostic trouble code associated with other system may be set when the ignition switch is turned on with connector(s) disconnected. On completion, check all systems for diagnostic trouble code(s). If diagnostic trouble code(s) are set, erase them all.

Trouble symptom	Inspection procedure number	Reference page
Power windows do not work at all.	1	P.42A-75
Driver's power window does not work by means of the power window main switch.	2	P.42A-83
Relevant power window(s) does not work by means of the front and rear passenger's power window sub switches.	3	P.42A-88
Front and/or rear passenger's power window(s) do not work by means of the power window main switch.	4	P.42A-104
The power window timer function does not work normally.	5	P.42A-106
Power window anti-trap function does not work normally <Driver’s side seat>.	6	P.42A-108
The window glass lowers automatically while it is rising.	7	P.42A-110

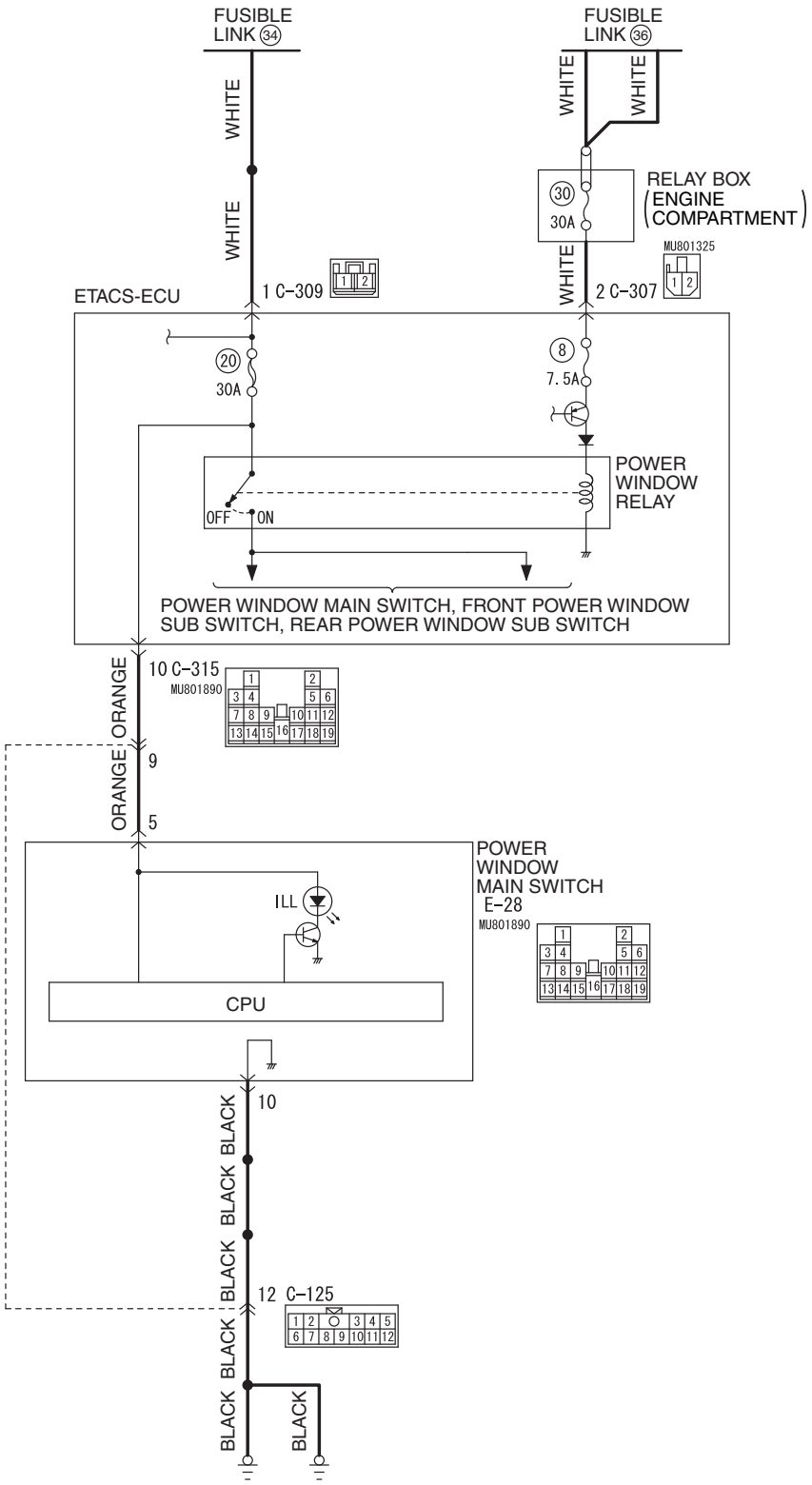
SYMPTOM PROCEDURES <POWER WINDOW>

INSPECTION PROCEDURE 1: Power Windows do not work at All.

⚠ CAUTION

Before replacing the ECU, ensure that the power supply circuit, the ground circuit and the communication circuit are normal.

Power Window Power Supply Circuit



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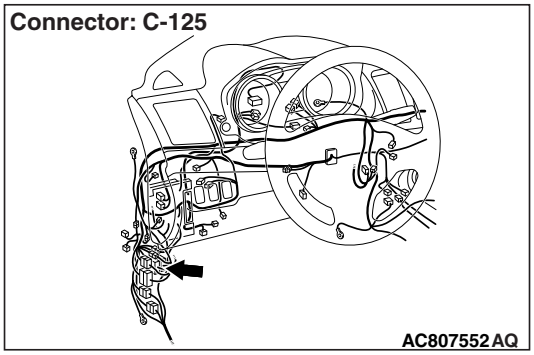
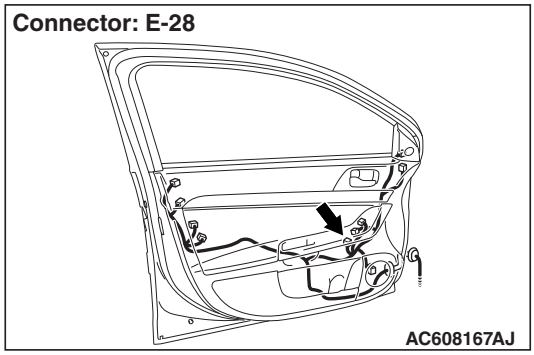
TSB Revision

Connector: C-125



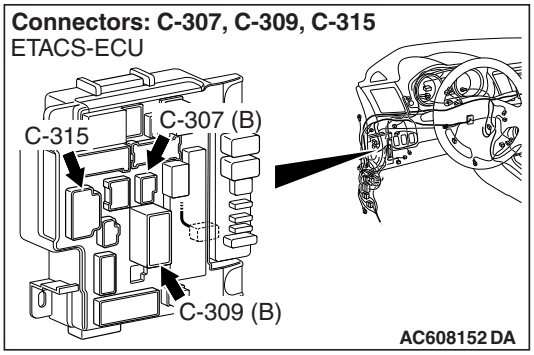
AC807552AQ

Connector: E-28



AC608167AJ

Connectors: C-307, C-309, C-315
ETACS-ECU



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CIRCUIT OPERATION

The ETACS-ECU turns on the power window relay to activate the power windows when the ignition switch (IG1) is turned to the "ON" position.

TROUBLESHOOTING HINTS

- The wiring harness or connectors may have loose, corroded, or damaged terminals, or terminals pushed back in the connector
- The power window main switch may be defective
- The ETACS-ECU may be defective

DIAGNOSTIC PROCEDURE

Required Special Tools:

- MB992006: Extra fine probe
- MB991223: Harness set
- MB991958: Scan Tool (M.U.T.-III Sub Assembly)
  - MB991824: Vehicles Communication Interface (V.C.I.)
  - MB991827: M.U.T.-III USB Cable
  - MB991910: M.U.T.-III Main Harness A

STEP 1. Check the power supply system.

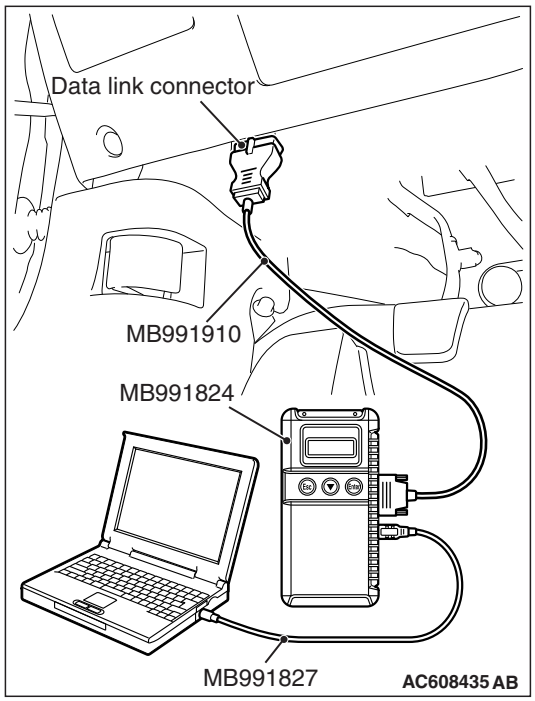
With the ignition switch in the LOCK (OFF) position, check if the following function operates normally:

- Hazard warning light

Q: Is the check result normal?

YES : Go to Step 2.

NO : Refer to GROUP 54A –malfunction of ETACS-ECU power supply circuit P.54A-727.



STEP 2. Using scan tool MB991958, read the diagnostic trouble code.

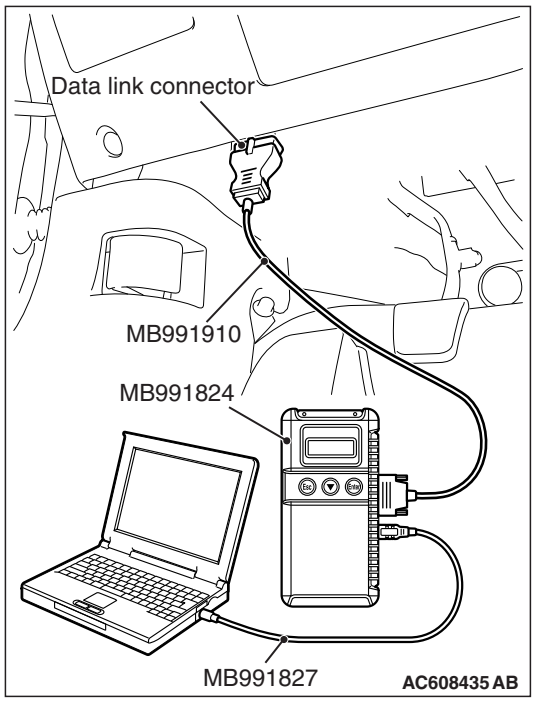
⚠ CAUTION

To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.

(1) Connect scan tool MB991958. Refer to "How to connect scan tool (M.U.T.-III) P.42B-9."
(2) Turn the ignition switch to the "ON" position.
(3) Check whether the ETACS-ECU related DTC is set.
(4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the DTC set?

YES : Diagnose the ETACS-ECU. Refer to GROUP 54B, Diagnostic Trouble Code Chart P.54B-6.
NO : Go to Step 3.



STEP 3. Using scan tool MB991958, check data list.

Check the signals related to the power window operation.

⚠ CAUTION

To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.

(1) Connect scan tool MB991958. Refer to "How to connect the Scan Tool (M.U.T.-III) P.42B-9."

(2) Turn the ignition switch to the "ON" position.

(3) Check the data list of the ETACS.

- Turn the ignition switch to the LOCK (OFF) position.

Item No.	Item name	Normal condition
254	IG voltage	Battery positive voltage

(4) Turn the ignition switch to the "LOCK" (OFF) position.

OK: Normal condition is displayed.

Q: Is the check result normal?

YES : Go to Step 4.

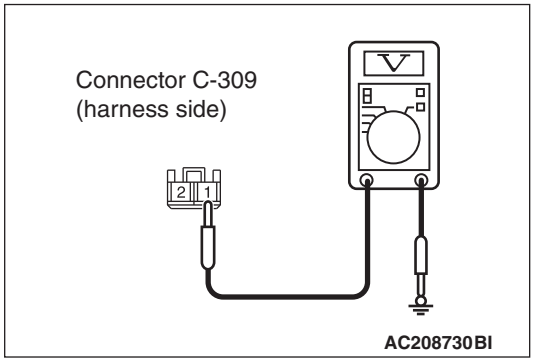
NO : Refer to GROUP 54A, Inspection Procedure 2: ETACS-ECU does not receive any signal from the ignition switch (IG1) P.54A-734.

STEP 4. Check ETACS-ECU connector C-309 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is ETACS-ECU connector C-309 in good condition?

YES : Go to Step 5.

NO : Repair or replace the damaged component(s). Refer to GROUP 00E, Harness Connector Inspection P.00E-2. Verify that the power window works normally.



STEP 5. Check the fusible link (34) line of power supply circuit to the ETACS-ECU. Measure the voltage at ETACS-ECU connector C-309.

(1) Disconnect ETACS-ECU connector C-309 and measure the voltage available at the wiring harness side of the connector.

(2) Measure the voltage between terminal 1 and ground.

- The voltage should measure approximately 12 volts (battery positive voltage).

Q: Is the measured voltage approximately 12 volts (battery positive voltage)?

YES : Go to Step 7.

NO : Go to Step 6.

STEP 6. Check the wiring harness between ETACS-ECU connector C-309 (terminal 1) and fusible link (34).

- Check the power supply line for open circuit and short circuit.

Q: Is the wiring harness between ETACS-ECU connector C-309 (terminal 1) and fusible link (34) in good condition?

YES : No action is necessary and testing is complete.

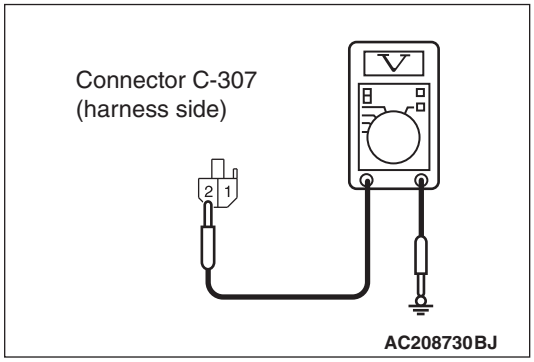
NO : The wiring harness may be damaged or the connector(s) may have loose, corroded or damaged terminals, or terminals pushed back in the connector. Repair the wiring harness as necessary. Check that the power window works normally.

STEP 7. Check ETACS-ECU connector C-307 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is ETACS-ECU connector C-307 in good condition?

YES : Go to Step 8.

NO : Repair or replace the damaged component(s). Refer to GROUP 00E, Harness Connector Inspection P.00E-2. Verify that the power window works normally.



STEP 8. Check the fusible link (36) line of power supply circuit to the ETACS-ECU. Measure the voltage at ETACS-ECU connector C-307.

(1) Disconnect ETACS-ECU connector C-307 and measure the voltage available at the wiring harness side of the connector.

(2) Measure the voltage between terminal 2 and ground.

- The voltage should measure approximately 12 volts (battery positive voltage).

Q: Is the measured voltage approximately 12 volts (battery positive voltage)?

YES : Go to Step 10.

NO : Go to Step 9.

STEP 9. Check the wiring harness between ETACS-ECU connector C-307 (terminal 2) and fusible link (36).

- Check the power supply line for open circuit and short circuit.

Q: Is the wiring harness between ETACS-ECU connector C-307 (terminal 2) and fusible link (36) in good condition?

YES : No action is necessary and testing is complete.

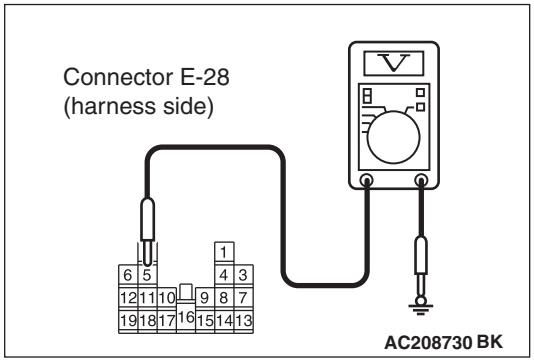
NO : The wiring harness may be damaged or the connector(s) may have loose, corroded or damaged terminals, or terminals pushed back in the connector. Repair the wiring harness as necessary. Check that the power window works normally.

STEP 10. Check power window main switch connector E-28 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is power window main switch connector E-28 in good condition?

YES : Go to Step 11.

NO : Repair or replace the damaged component(s). Refer to GROUP 00E, Harness Connector Inspection P.00E-2. Verify that the power window works normally.



STEP 11. Check the ETACS-ECU connector C-315 line circuit to the power window main switch. Measure the voltage at power window main switch connector E-28.

(1) Disconnect power window main switch connector E-28 and measure the voltage available at the wiring harness side of the connector.

(2) Measure the voltage between terminal 5 and ground.

- The voltage should measure approximately 12 volts (battery positive voltage).

Q: Is the measured voltage approximately 12 volts (battery positive voltage)?

YES : Go to Step 14.

NO : Go to Step 12.

STEP 12. Check ETACS-ECU connector C-315 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is ETACS-ECU connector C-315 in good condition?

YES : Go to Step 13.

NO : Repair or replace the damaged component(s). Refer to GROUP 00E, Harness Connector Inspection P.00E-2. Verify that the power window works normally.

STEP 13. Check the wiring harness between ETACS-ECU connector C-315 (terminal 10) and power window main switch connector E-28 (terminal 5).

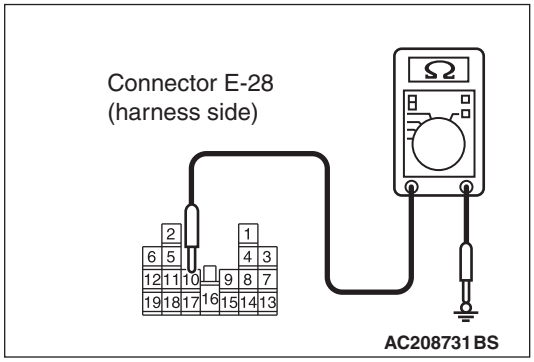
- Check the power supply line for open circuit and short circuit.

NOTE: Also check intermediate connector C-125 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connector C-125 is damaged, repair or replace the damaged component(s) as described in GROUP 00E, Harness Connector Inspection P.00E-2.

Q: Is the wiring harness between ETACS-ECU connector C-315 (terminal 10) and power window main switch connector E-28 (terminal 5) in good condition?

YES : No action is necessary and testing is complete.

NO : The wiring harness may be damaged or the connector(s) may have loose, corroded or damaged terminals, or terminals pushed back in the connector. Repair the wiring harness as necessary. Check that the power window works normally.



STEP 14. Check the ground circuit to the power window main switch. Measure the resistance at power window main switch connector E-28.

(1) Disconnect power window main switch connector E-28 and measure the resistance available at the wiring harness side of the connector.
(2) Measure the resistance value between terminal 10 and ground.
- The resistance should be 2 ohms or less.

Q: Is the measured resistance 2 ohms or less?

YES : Go to Step 16.
NO : Go to Step 15.

STEP 15. Check the wiring harness between power window main switch connector E-28 (terminal 10) and ground.

- Check the ground line for open circuit and short circuit.

NOTE: Also check intermediate connector C-125 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connector C-125 is damaged, repair or replace the damaged component(s) as described in GROUP 00E, Harness Connector Inspection P.00E-2.

Q: Is the wiring harness between power window main switch connector E-28 (terminal 10) and ground in good condition?

YES : No action is necessary and testing is complete.
NO : The wiring harness may be damaged or the connector(s) may have loose, corroded or damaged terminals, or terminals pushed back in the connector. Repair the wiring harness as necessary. Check that the power window works normally.

STEP 16. Retest the system.

Check that the all power windows work.

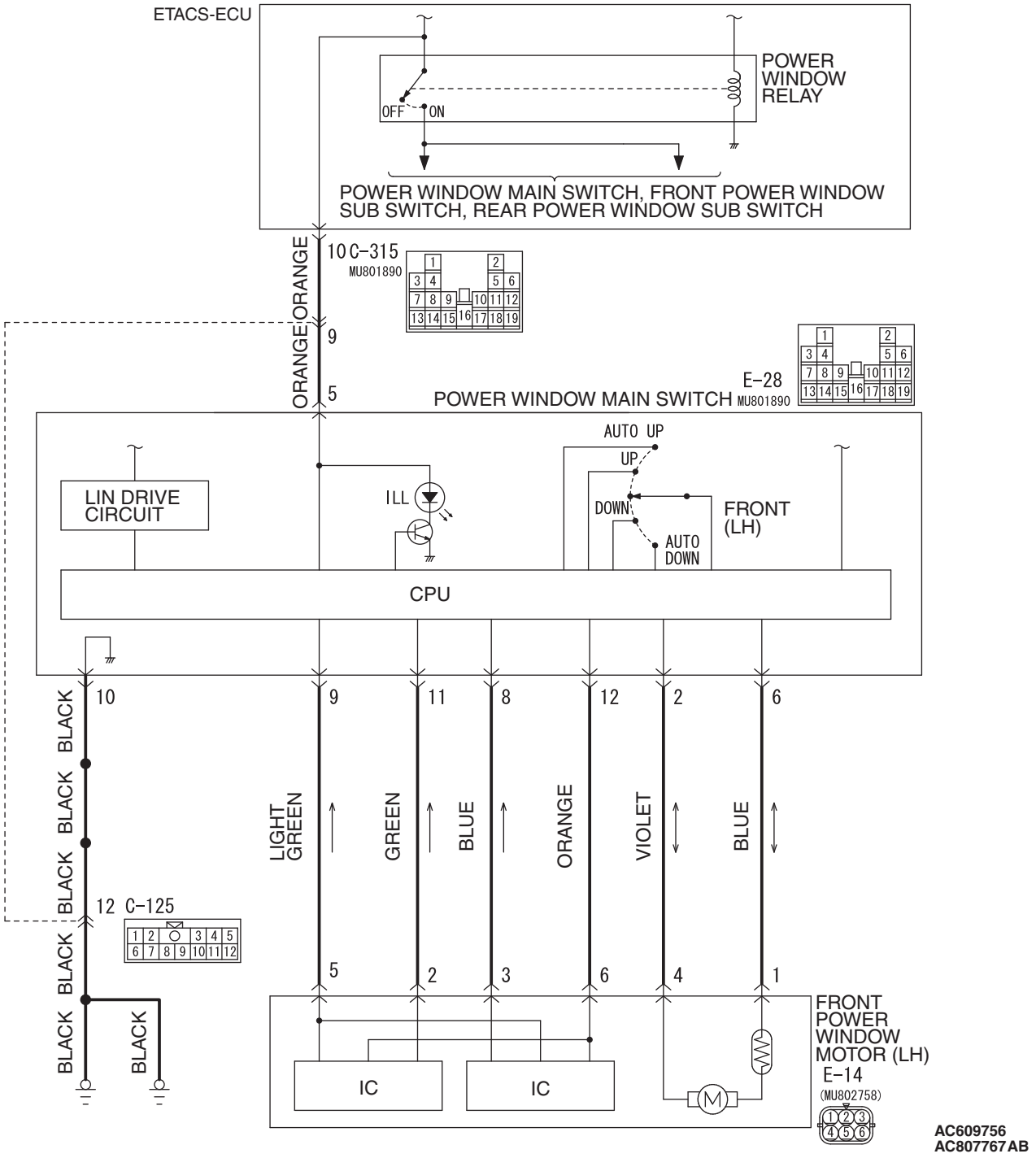
Q: Is the check result normal?

YES : No action is necessary and testing is complete.
NO : Replace ETACS-ECU. Check that the power window works normally.

INSPECTION PROCEDURE 2: Driver's Power Window does not work by means of The Power Window Main Switch.

⚠ CAUTION
Before replacing the ECU, ensure that the power supply circuit, the ground circuit and the communication circuit are normal.

Driver's Side Power Window Circuit



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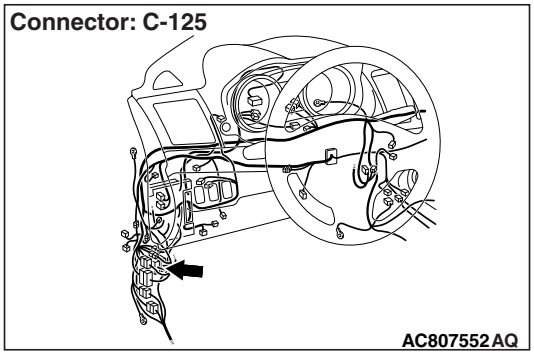
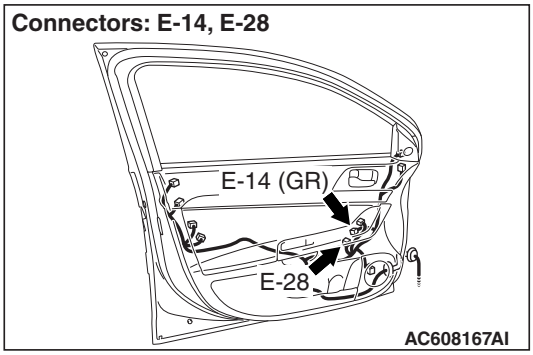
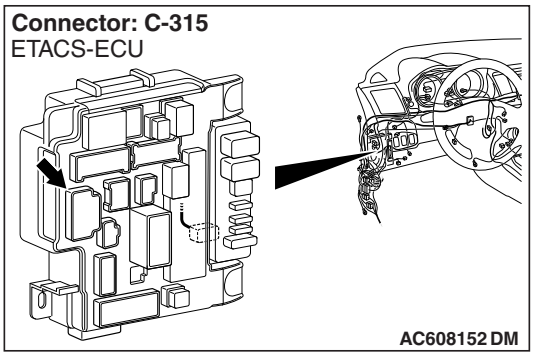
AC807767AB

TSB Revision







CIRCUIT OPERATION

The front power window motor (LH) receives a signal ("UP", "DOWN", "AUTO UP" or "AUTO DOWN") from the front power window main switch and controls the driver's power window.

TECHNICAL DESCRIPTION (COMMENT)

The power window main switch or the front power window motor (LH) may be defective.

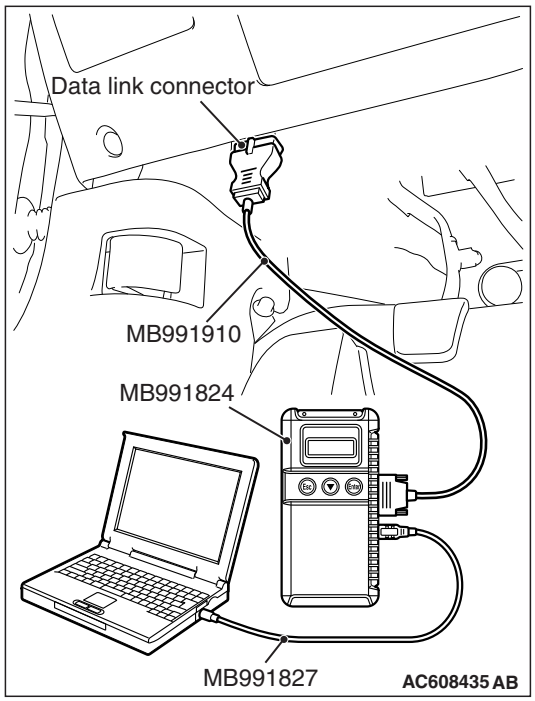
TROUBLESHOOTING HINTS

- The power window main switch may be defective
- The front power window motor (LH) may be defective
- The wiring harness or connectors may have loose, corroded, or damaged terminals, or terminals pushed back in the connector

DIAGNOSTIC PROCEDURE

Required Special Tools:

- MB992006: Extra fine probe
- MB991223: Harness set
- MB991958: Scan Tool (M.U.T.-III Sub Assembly)
  - MB991824: Vehicles Communication Interface (V.C.I.)
  - MB991827: M.U.T.-III USB Cable
  - MB991910: M.U.T.-III Main Harness A



STEP 1. Using scan tool MB991958, read the diagnostic trouble code.

⚠ CAUTION

To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.

(1) Connect scan tool MB991958. Refer to "How to connect scan tool (M.U.T.-III) P.42B-9."
(2) Turn the ignition switch to the "ON" position.
(3) Check whether the power window main switch related DTC is set.
(4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the DTC set?

YES : Diagnose the power window main switch. Refer to Diagnostic Trouble Code Chart P.42A-65.
NO : Go to Step 2.

STEP 2. Check the power window main switch.

Check that the passenger's or rear power window works by means of the power window main switch.

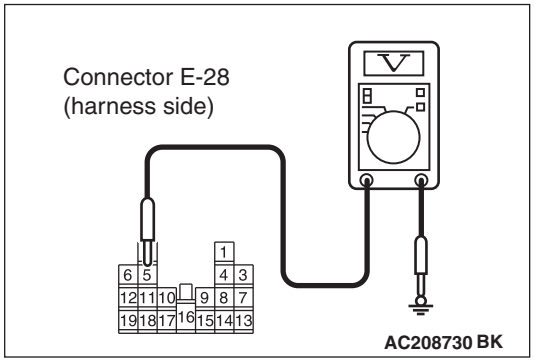
Q: Is the check result normal?

YES : Go to Step 3.
NO : Refer to inspection procedure 1 "Power windows do not work at all P.42A-74."

STEP 3. Check power window main switch connector E-28 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is power window main switch connector E-28 in good condition?

YES : Go to Step 4.
NO : Repair or replace the damaged component(s). Refer to GROUP 00E, Harness Connector Inspection P.00E-2. Verify that the power window works normally.



STEP 4. Check the ETACS-ECU connector C-315 line circuit to the power window main switch. Measure the voltage at power window main switch connector E-28.

(1) Disconnect power window main switch connector E-28 and measure the voltage available at the wiring harness side of the connector.

(2) Measure the voltage between terminal 5 and ground.

- The voltage should measure approximately 12 volts (battery positive voltage).

Q: Is the measured voltage approximately 12 volts (battery positive voltage)?

YES : Go to Step 7.

NO : Go to Step 5.

STEP 5. Check ETACS-ECU connector C-315 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is ETACS-ECU connector C-315 in good condition?

YES : Go to Step 6.

NO : Repair or replace the damaged component(s). Refer to GROUP 00E, Harness Connector Inspection P.00E-2. Verify that the power window works normally.

STEP 6. Check the wiring harness between ETACS-ECU connector C-315 (terminal 10) and power window main switch connector E-28 (terminal 5).

- Check the power supply line for open circuit and short circuit.

NOTE: Also check intermediate connector C-125 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connector C-125 is damaged, repair or replace the damaged component(s) as described in GROUP 00E, Harness Connector Inspection P.00E-2.

Q: Is the wiring harness between ETACS-ECU connector C-315 (terminal 10) and power window main switch connector E-28 (terminal 5) in good condition?

YES : No action is necessary and testing is complete.

NO : The wiring harness may be damaged or the connector(s) may have loose, corroded or damaged terminals, or terminals pushed back in the connector. Repair the wiring harness as necessary. Check that the power window works normally.

STEP 7. Check front power window motor (LH) connector E-14 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is front power window motor (LH) connector E-14 in good condition?

YES : Go to Step 8.

NO : Repair or replace the damaged component(s). Refer to GROUP 00E, Harness Connector Inspection P.00E-2. Verify that the power window works normally.

STEP 8. Check the wiring harness between power window main switch connector E-28 (terminals 2 and 6) and front power window motor (LH) connector E-14 (terminals 4 and 1).

- Check the signal line for open circuit and short circuit.

Q: Is the wiring harness between power window main switch connector E-28 (terminals 2 and 6) and front power window motor (LH) connector E-14 (terminals 4 and 1) in good condition?

YES : Go to Step 9.

NO : The wiring harness may be damaged or the connector(s) may have loose, corroded or damaged terminals, or terminals pushed back in the connector. Repair the wiring harness as necessary. Check that the power window works normally.

STEP 9. Retest the system.

Check that the driver's power window works by means of the power window main switch.

Q: Is the check result normal?

YES : No action is necessary and testing is complete.

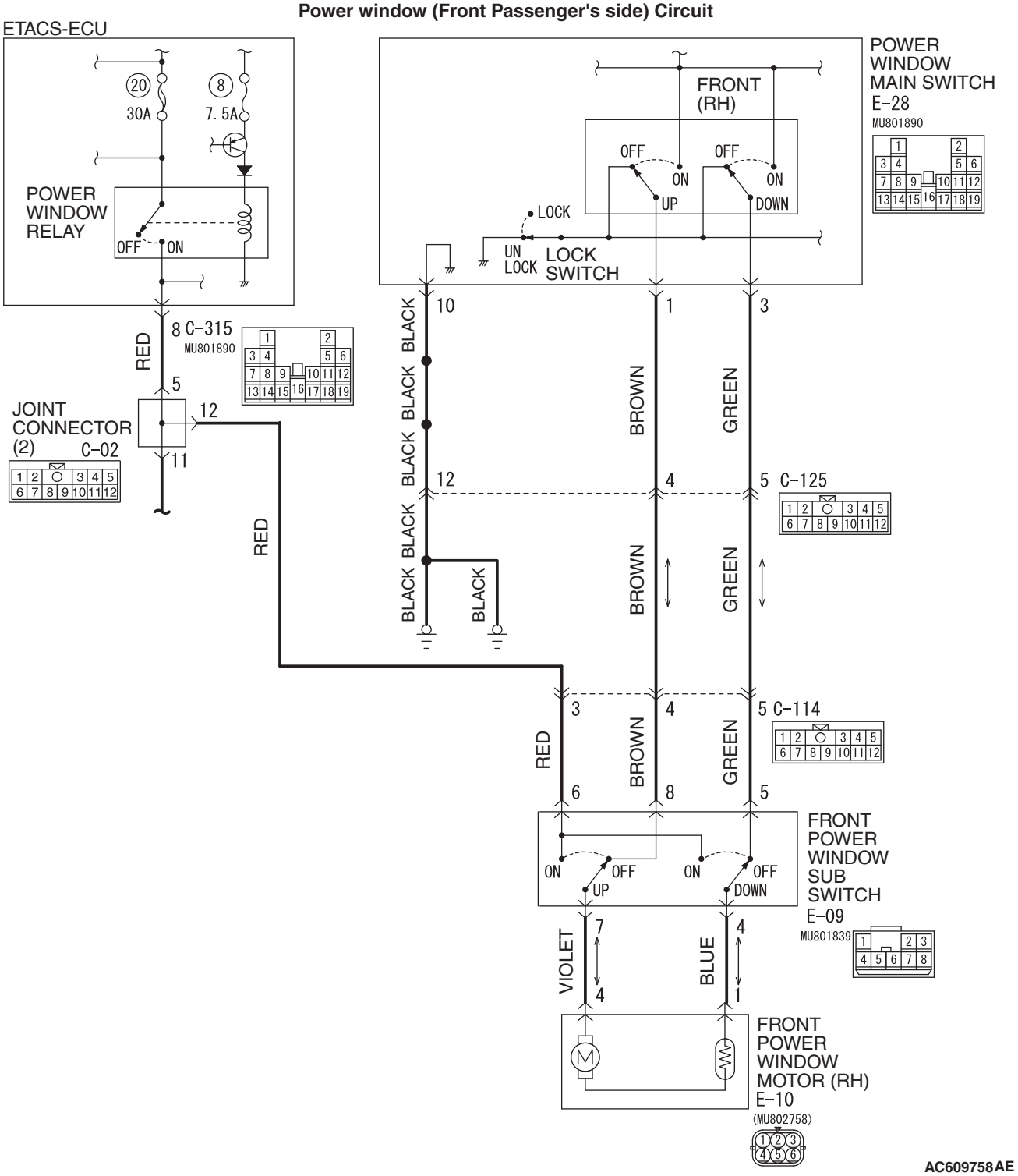
NO : Replace the front power window motor (LH). Check that the power window works normally.

INSPECTION PROCEDURE 3: Relevant Power Window(s) does not work by means of The Front and Rear Passenger's Power Window Sub Switches.

⚠ CAUTION

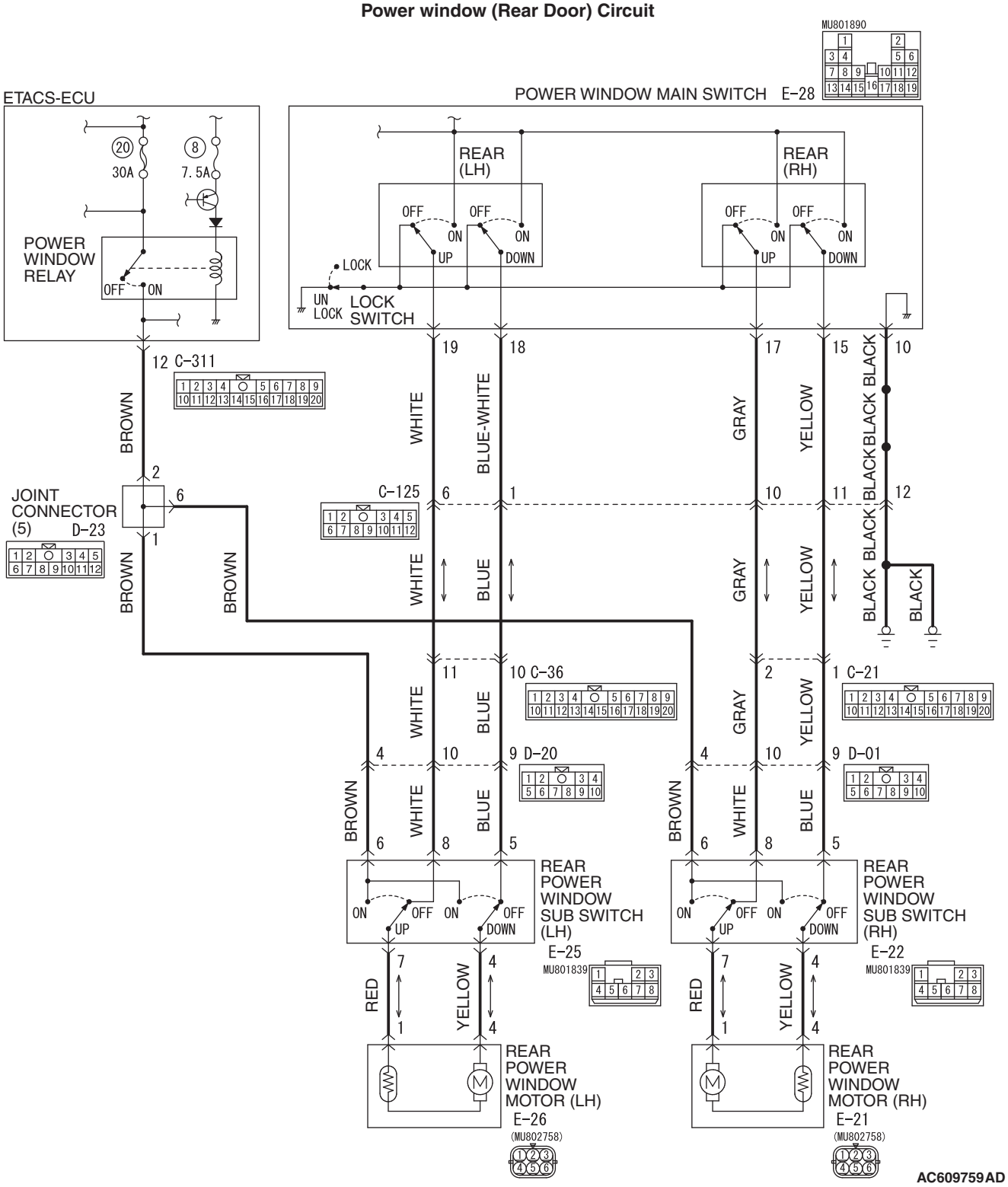
Before replacing the ECU, ensure that the power supply circuit, the ground circuit and the communication circuit are normal.

Power window (Front Passenger's side) Circuit



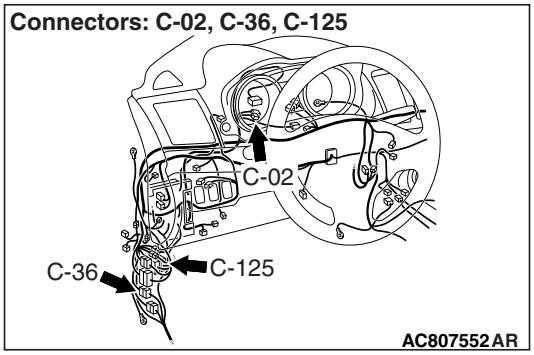
TSB Revision

Power window (Rear Door) Circuit



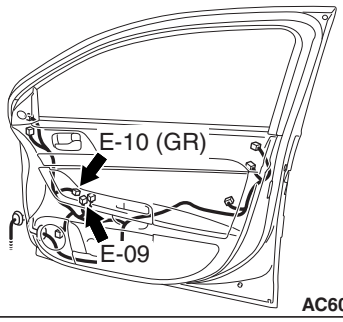
TSB Revision

Connectors: C-02, C-36, C-125



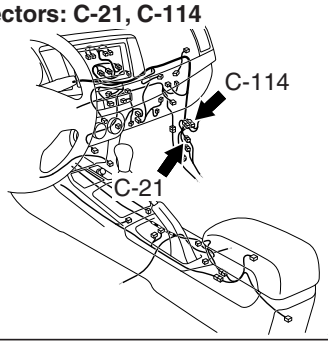
AC807552AR

Connectors: E-09, E-10



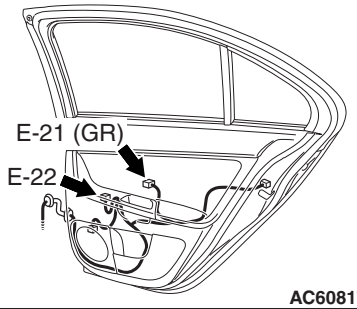
AC608168AG

Connectors: C-21, C-114



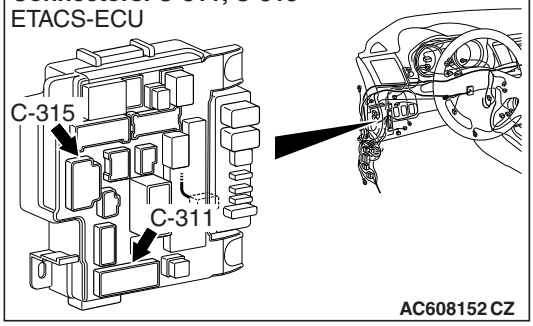
AC807553AI

Connectors: E-21, E-22



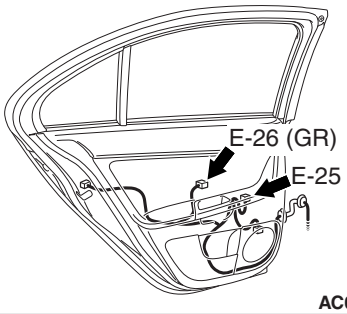
AC608170AE

Connectors: C-311, C-315
ETACS-ECU



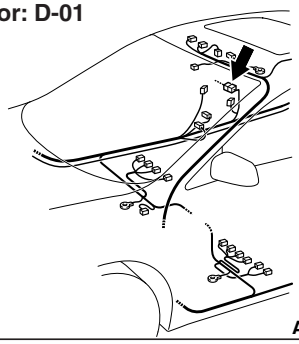
AC608152CZ

Connectors: E-25, E-26



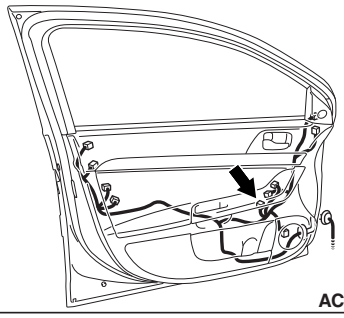
AC608169AD

Connector: D-01



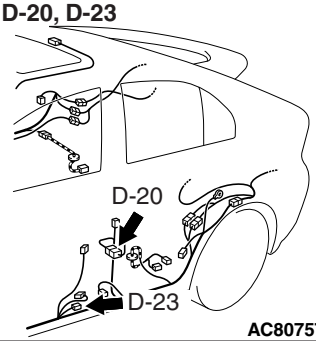
AC807569AG

Connector: E-28



AC608167AJ

Connectors: D-20, D-23



AC807570AL

CIRCUIT OPERATION

power window motors raise and lower the door windows when the front passenger's or rear passenger's sub switch is moved to "UP" or "DOWN" position.

TSB Revision

TECHNICAL DESCRIPTION (COMMENT)

A power window sub switch or power window motor may be defective. Or, the power window lock switch (incorporated in the power window main switch in the driver's door) may remain pressed in the "LOCK" position.

TROUBLESHOOTING HINTS

- The power window main switch may be defective
- The front power window sub switch may be defective
- The rear power window sub switches may be defective
- The front power window motor (RH) may be defective
- The rear power window motors may be defective
- The wiring harness or connectors may have loose, corroded, or damaged terminals, or terminals pushed back in the connector

DIAGNOSTIC PROCEDURE

STEP 1. Check the power window lock switch.

Q: Is the power window lock switch in the "UNLOCK" position?

YES : Go to Step 2.
NO : Operate the power window lock switch to the "UNLOCK" position. When the power window sub switch is operated, the power windows should raise and lower normally.

STEP 2. Check power window main switch connector E-28 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is power window main switch connector E-28 in good condition?

YES : Go to Step 3.
NO : Repair or replace the damaged component(s). Refer to GROUP 00E, Harness Connector Inspection P.00E-2. When the power window sub switch is operated, the power windows should raise and lower normally.

STEP 3. Determine a trouble spot.

Q: Which power window does not work?

Front passenger's door : Go to Step 4.
Rear left door : Go to Step 13.
Rear right door : Go to Step 22.

STEP 4. Check front power window sub switch connector E-09 and front power window motor (RH) connector E-10 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Are front power window sub switch connector E-09 and front power window motor (RH) connector E-10 in good condition?

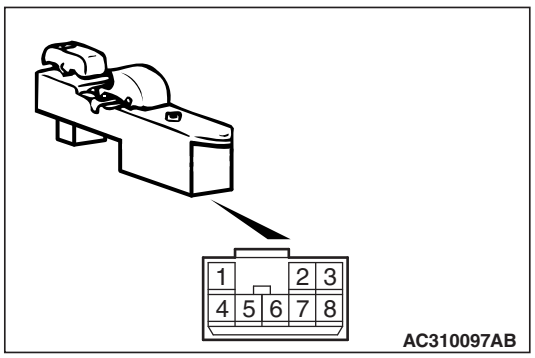
YES : Go to Step 5.

NO : Repair or replace the damaged component(s). Refer to GROUP 00E, Harness Connector Inspection P.00E-2. When the front power window sub switch (RH) is operated, the front power window (RH) should raise and lower normally.

STEP 5. Check the front power window sub switch for continuity.

(1) Remove the front power window sub switch. Refer to Door Glass and Regulator P.42A-133.

(2) Check continuity when the front power window sub switch is operated to "UP" or "DOWN" position.

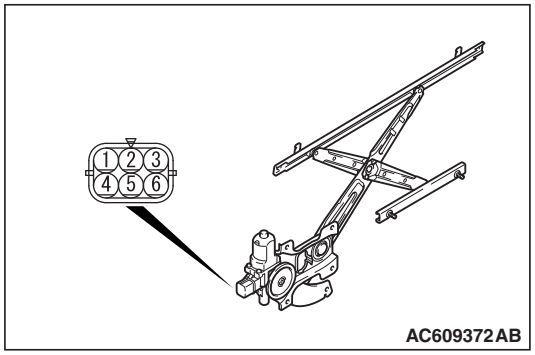


Switch position	Tester connection	Specified condition
UP	4 –5, 6 –7	Continuity exists (2 Ω or less)
OFF	4 –5, 7 –8	Continuity exists (2 Ω or less)
DOWN	4 –6, 7 –8	Continuity exists (2 Ω or less)

Q: Is the front power window sub switch normal?

YES : Go to Step 6.

NO : Replace the front power window sub switch. When the front power window sub switch is operated, the front power window should raise and lower normally.



STEP 6. Check the front power window motor (RH).

(1) Remove the front power regulator assembly (RH). Refer to Door Glass and Regulator P.42A-133.

(2) Connect a battery to the motor terminal, and check that the motor runs freely.

Battery connection	Slider position
• Connect terminal 1 to the negative battery terminal • Connect terminal 4 to the positive battery terminal	UP
• Connect terminal 4 to the negative battery terminal • Connect terminal 1 to the positive battery terminal	DOWN

Q: Is the front power window motor (RH) normal?

YES : Go to Step 7.

NO : Replace the front power regulator assembly (RH). When the front power window sub switch (RH) is operated, the front power window (RH) should raise and lower normally.

STEP 7. Check the battery power supply circuit to the front power window sub switch. Measure the voltage at front power window sub switch connector E-09.

(1) Disconnect front power window sub switch connector E-09 and measure the voltage available at the wiring harness side of the connector.

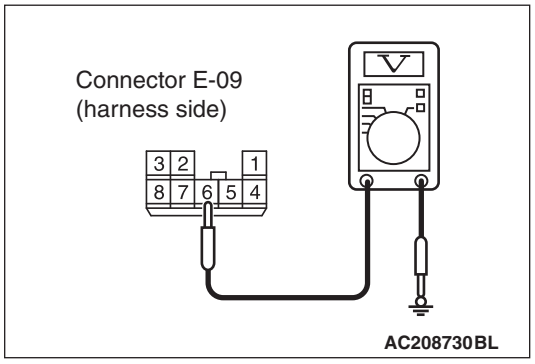
(2) Measure the voltage between terminal 6 and ground.

- The voltage should measure approximately 12 volts (battery positive voltage).

Q: Is the measured voltage approximately 12 volts (battery positive voltage)?

YES : Go to Step 10.

NO : Go to Step 8.



STEP 8. Check ETACS-ECU connector C-315 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is ETACS-ECU connector C-315 in good condition?

YES : Go to Step 9.

NO : Repair or replace the damaged component(s). Refer to GROUP 00E, Harness Connector Inspection P.00E-2. When the front power window sub switch (RH) is operated, the front power window (RH) should raise and lower normally.

STEP 9. Check the wiring harness between ETACS-ECU connector C-315 (terminal 8) and front power window sub switch connector E-09 (terminal 6).

- Check the power supply line for open circuit and short circuit.

NOTE: Also check joint connector (2) C-02, intermediate connector C-114. If joint connector (2) C-02, intermediate connector C-114 is damaged, repair or replace the damaged component(s) as described in GROUP 00E, Harness Connector Inspection P.00E-2.

Q: Is the wiring harness between ETACS-ECU connector C-315 (terminal 8) and front power window sub switch connector E-09 (terminal 6) in good condition?

YES : No action is necessary and testing is complete.

NO : The wiring harness may be damaged or the connector(s) may have loose, corroded or damaged terminals, or terminals pushed back in the connector. Repair the wiring harness as necessary. When the front power window sub switch is operated, the front power window (RH) should raise and lower normally.

STEP 10. Check the ground circuit to the front power window sub switch. Measure the resistance at front power window sub switch connector E-09.

(1) Disconnect front power window sub switch connector E-28 and measure the resistance available at the wiring harness side of the connector.

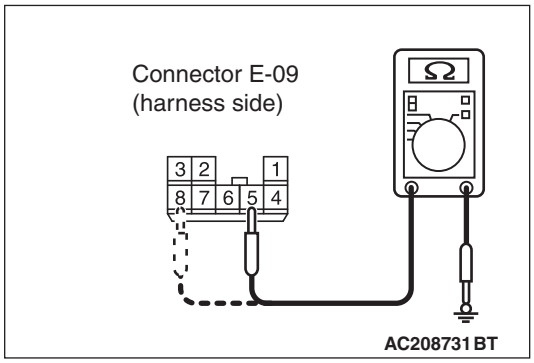
(2) Measure the resistance value between terminal 5 and ground, and also between terminal 8 and ground.

- The resistance should be 2 ohms or less.

Q: Is the measured resistance 2 ohms or less?

YES : Go to Step 12.

NO : Go to Step 11.



STEP 11. Check the wiring harness between power window main switch connector E-28 (terminals 1 and 3) and front power window sub switch connector E-09 (terminals 8 and 5).

- Check the signal line for open circuit and short circuit.

NOTE: Also check intermediate connectors C-114 and C-125. If intermediate connector C-114 or C-125 is damaged, repair or replace the damaged component(s) as described in GROUP 00E, Harness Connector Inspection P.00E-2.

Q: Is the wiring harness between power window main switch connector E-28 (terminals 1 and 3) and front power window sub switch connector E-09 (terminals 8 and 5) in good condition?

YES : Replace the power window main switch. When the front power window sub switch (RH) is operated, the front power window (RH) should raise and lower normally.

NO : The wiring harness may be damaged or the connector(s) may have loose, corroded or damaged terminals, or terminals pushed back in the connector. Repair the wiring harness as necessary. When the front power window sub switch (RH) is operated, the front power window (RH) should raise and lower normally.

STEP 12. Check the wiring harness between front power window sub switch connector E-09 (terminals 4 and 7) and front power window motor (RH) connector E-10 (terminals 1 and 4).

- Check the signal line for open circuit and short circuit.

Q: Is the wiring harness between front power window sub switch connector E-09 (terminals 4 and 7) and front power window motor (RH) connector E-10 (terminals 1 and 4) in good condition?

YES : No action is necessary and testing is complete.

NO : The wiring harness may be damaged or the connector(s) may have loose, corroded or damaged terminals, or terminals pushed back in the connector. Repair the wiring harness as necessary. When the front power window sub switch (RH) is operated, the front power window (RH) should raise and lower normally.

STEP 13. Check rear power window sub switch (LH) connector E-25 and rear power window motor (LH) connector E-26 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Are rear power window sub switch (LH) connector E-25 and rear power window motor (LH) connector E-26 in good condition?

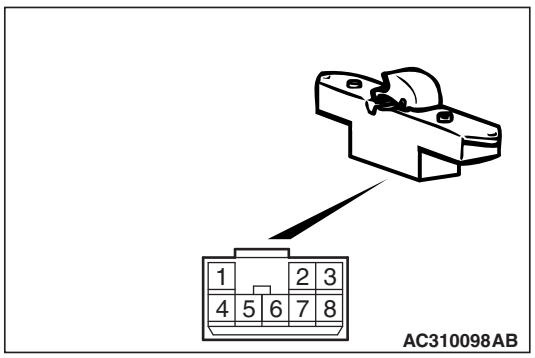
YES : Go to Step 14.

NO : Repair or replace the damaged component(s). Refer to GROUP 00E, Harness Connector Inspection P.00E-2. When the rear power window sub switch (LH) is operated, the rear power window (LH) should raise and lower normally.

STEP 14. Check the rear power window sub switch (LH) for continuity.

(1) Remove the rear power window sub switch (LH). Refer to Door Glass and Regulator P.42A-133.

(2) Check continuity when the rear power window sub switch (LH) is operated to "UP" or "DOWN" position.

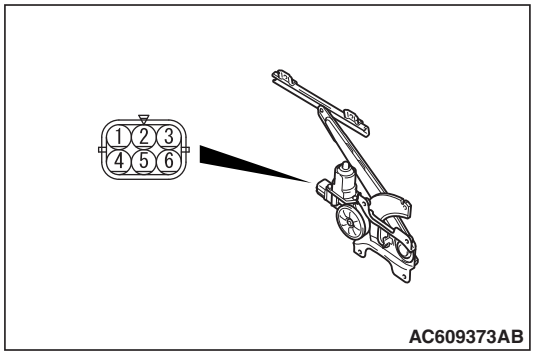


Switch position	Tester connection	Specified condition
UP	4 –5, 6 –7	Continuity exists (2 Ω or less)
OFF	4 –5, 7 –8	Continuity exists (2 Ω or less)
DOWN	4 –6, 7 –8	Continuity exists (2 Ω or less)

Q: Is the rear power window sub switch (LH) normal?

YES : Go to Step 15.

NO : Replace the rear power window sub switch (LH). When the rear power window sub switch (LH) is operated, the rear power window (LH) should raise and lower normally.



STEP 15. Check the rear power window motor (LH).

(1) Remove the rear power window regulator assembly (LH). Refer to Door Glass and Regulator P.42A-133.

(2) Connect a battery to the motor terminal, and check that the motor runs freely.

Battery connection	Slider position
• Connect terminal 4 to the negative battery terminal • Connect terminal 1 to the positive battery terminal	UP
• Connect terminal 1 to the negative battery terminal • Connect terminal 4 to the positive battery terminal	DOWN

Q: Is the rear power window motor (LH) normal?

YES : Go to Step 16.

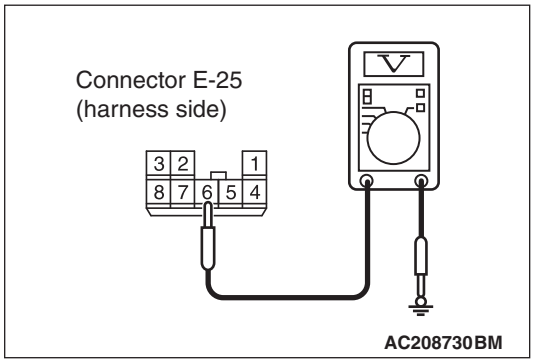
NO : Replace the rear power window regulator assembly (LH). When the rear power window sub switch (LH) is operated, the rear power window (LH) should raise and lower normally.

STEP 16. Check the battery power supply circuit to the rear power window sub switch (LH). Measure the voltage at rear power window sub switch (LH) connector E-25.

(1) Disconnect rear power window sub switch (LH) connector E-25 and measure the voltage available at the wiring harness side of the connector.

(2) Measure the voltage between terminal 6 and ground.

- The voltage should measure approximately 12 volts (battery positive voltage).



Q: Is the measured voltage approximately 12 volts (battery positive voltage)?

YES : Go to Step 19.

NO : Go to Step 17.

STEP 17. Check ETACS-ECU connector C-311 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is ETACS-ECU connector C-311 in good condition?

YES : Go to Step 18.

NO : Repair or replace the damaged component(s). Refer to GROUP 00E, Harness Connector Inspection P.00E-2. When the rear power window sub switch (LH) is operated, the rear power window (LH) should raise and lower normally.

STEP 18. Check the wiring harness between ETACS-ECU connector C-311 (terminal 12) and rear power window sub switch (LH) connector E-25 (terminal 6).

- Check the power supply line for open circuit and short circuit.

NOTE: Also check joint connector (5) D-23, intermediate connector D-20. If joint connector (5) D-23, intermediate connector D-20 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection P.00E-2.

Q: Is the wiring harness between ETACS-ECU connector C-311 (terminal 12) and rear power window sub switch (LH) connector E-25 (terminal 6) in good condition?

YES : No action is necessary and testing is complete.

NO : The wiring harness may be damaged or the connector(s) may have loose, corroded or damaged terminals, or terminals pushed back in the connector. Repair the wiring harness as necessary. When the rear power window sub switch (LH) is operated, the rear power window (LH) should raise and lower normally.

STEP 19. Check the ground circuit to the rear power window sub switch (LH). Measure the resistance at rear power window sub switch (LH) connector E-25.

(1) Disconnect rear power window sub switch (LH) connector E-25 and measure the resistance available at the wiring harness side of the connector.

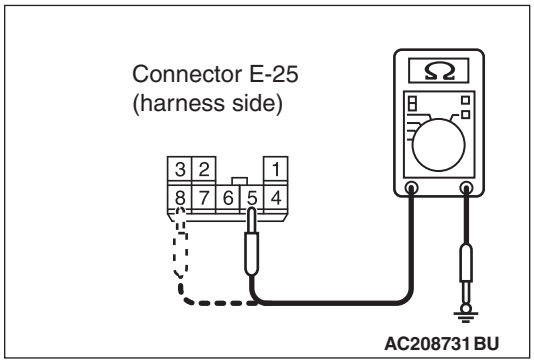
(2) Measure the resistance value between terminal 5 and ground, and also between terminal 8 and ground.

- The resistance should be 2 ohms or less.

Q: Is the measured resistance 2 ohms or less?

YES : Go to Step 21.

NO : Go to Step 20.



STEP 20. Check the wiring harness between power window main switch connector E-28 (terminals 18 and 19) and rear power window sub switch (LH) connector E-25 (terminals 5 and 8).

- Check the signal line for open circuit and short circuit.

NOTE: Also check intermediate connectors C-36, C-125 and D-20. If intermediate connectors C-36, C-125 or D-20 is damaged, repair or replace the damaged component(s) as described in GROUP 00E, Harness Connector Inspection *P.00E-2**.*

Q: Is the wiring harness between power window main switch connector E-28 (terminals 18 and 19) and rear power window sub switch (LH) connector E-25 (terminals 5 and 8) in good condition?

YES : Replace the power window main switch. When the rear power window sub switch (LH) is operated, the rear power window (LH) should raise and lower normally.

NO : The wiring harness may be damaged or the connector(s) may have loose, corroded or damaged terminals, or terminals pushed back in the connector. Repair the wiring harness as necessary. When the rear power window sub switch (LH) is operated, the rear power window (LH) should raise and lower normally.

STEP 21. Check the wiring harness between rear power window sub switch (LH) connector E-25 (terminals 4 and 7) and rear power window motor (LH) connector E-26 (terminals 4 and 1).

- Check the signal line for open circuit and short circuit.

Q: Is the wiring harness between rear power window sub switch (LH) connector E-25 (terminals 4 and 7) and rear power window motor (LH) connector E-26 (terminals 4 and 1) in good condition?

YES : Replace the power window main switch. When the rear power window sub switch (LH) is operated, the rear power window (LH) should raise and lower normally.

NO : The wiring harness may be damaged or the connector(s) may have loose, corroded or damaged terminals, or terminals pushed back in the connector. Repair the wiring harness as necessary. When the rear power window sub switch (LH) is operated, the rear power window (LH) should raise and lower normally.

STEP 22. Check rear power window sub switch (RH) connector E-22 and rear power window motor (RH) connector E-21 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Are rear power window sub switch (RH) connector E-22 and rear power window motor (RH) connector E-21 in good condition?

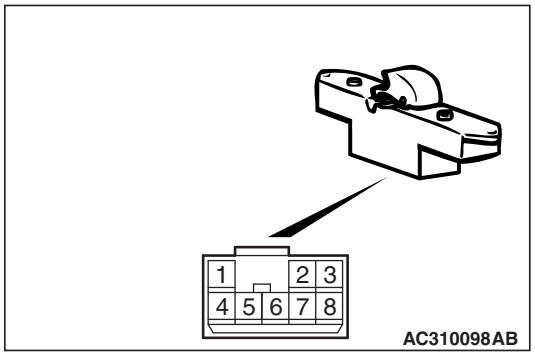
YES : Go to Step 23.

NO : Repair or replace the damaged component(s). Refer to GROUP 00E, Harness Connector Inspection P.00E-2. When the rear power window sub switch (RH) is operated, the rear power window (RH) should raise and lower normally.

STEP 23. Check the rear power window sub switch (RH) for continuity.

(1) Remove the rear power window sub switch (RH). Refer to Door Glass and Regulator P.42A-133.

(2) Check continuity when the rear power window sub switch (RH) is operated to "UP" or "DOWN" position.

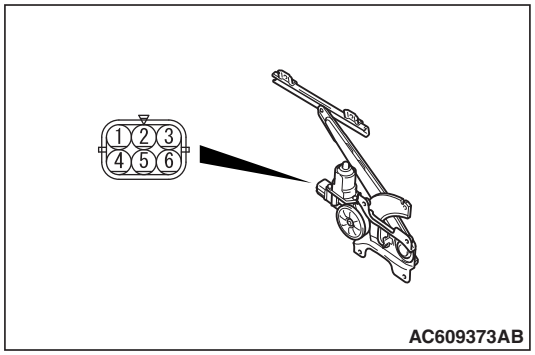


Switch position	Tester connection	Specified condition
UP	4 –5, 6 –7	Continuity exists (2 Ω or less)
OFF	4 –5, 7 –8	Continuity exists (2 Ω or less)
DOWN	4 –6, 7 –8	Continuity exists (2 Ω or less)

Q: Is the rear power window sub switch (RH) normal?

YES : Go to Step 24.

NO : Replace the rear power window sub switch (RH). When the rear power window sub switch (RH) is operated, the rear power window (RH) should raise and lower normally.



STEP 24. Check the rear power window motor (RH).

(1) Remove the rear power window regulator assembly (RH). Refer to Door Glass and Regulator P.42A-133.

(2) Connect a battery to the motor terminal, and check that the motor runs freely.

Battery connection	Slider position
• Connect terminal 4 to the negative battery terminal • Connect terminal 1 to the positive battery terminal	UP
• Connect terminal 1 to the negative battery terminal • Connect terminal 4 to the positive battery terminal	DOWN

Q: Is the rear power window motor (RH) normal?

YES : Go to Step 25.

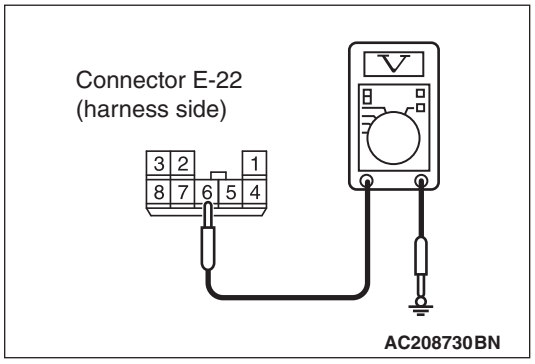
NO : Replace the rear power window regulator assembly (RH). When the rear power window sub switch (RH) is operated, the rear power window (RH) should raise and lower normally.

STEP 25. Check the battery power supply circuit to the rear power window sub switch (RH). Measure the voltage at rear power window sub switch (RH) connector E-22.

(1) Disconnect rear power window sub switch (RH) connector E-22 and measure the voltage available at the wiring harness side of the connector.

(2) Measure the voltage between terminal 6 and ground.

- The voltage should measure approximately 12 volts (battery positive voltage).



Q: Is the measured voltage approximately 12 volts (battery positive voltage)?

YES : Go to Step 28.

NO : Go to Step 26.

STEP 26. Check ETACS-ECU connector C-311 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is ETACS-ECU connector C-311 in good condition?

YES : Go to Step 27.

NO : Repair or replace the damaged component(s). Refer to GROUP 00E, Harness Connector Inspection P.00E-2. When the rear power window sub switch (RH) is operated, the rear power window (RH) should raise and lower normally.

STEP 27. Check the wiring harness between ETACS-ECU connector C-311 (terminal 12) and rear power window sub switch (RH) connector E-22 (terminal 6).

- Check the power supply line for open circuit and short circuit.

NOTE: Also check joint connector (5) D-23, intermediate connector D-01. If joint connector (5) D-23, intermediate connector D-01 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection P.00E-2.

Q: Is the wiring harness between ETACS-ECU connector C-311 (terminal 12) and rear power window sub switch (RH) connector E-22 (terminal 6) in good condition?

YES : No action is necessary and testing is complete.

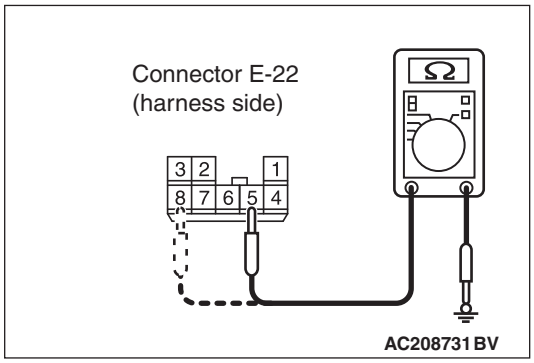
NO : The wiring harness may be damaged or the connector(s) may have loose, corroded or damaged terminals, or terminals pushed back in the connector. Repair the wiring harness as necessary. When the rear power window sub switch (RH) is operated, the rear power window (RH) should raise and lower normally.

STEP 28. Check the ground circuit to the rear power window sub switch (RH). Measure the resistance at rear power window sub switch (RH) connector E-22.

(1) Disconnect rear power window sub switch (RH) connector E-22 and measure the resistance available at the wiring harness side of the connector.

(2) Measure the resistance value between terminal 5 and ground, and also between terminal 8 and ground.

- The resistance should be 2 ohms or less.



Q: Is the measured resistance 2 ohms or less?

YES : Go to Step 30.

NO : Go to Step 29.

STEP 29. Check the wiring harness between power window main switch connector E-28 (terminals 15 and 17) and rear power window sub switch (RH) connector E-22 (terminals 5 and 8).

- Check the signal line for open circuit and short circuit.

NOTE: Also check intermediate connectors C-21, C-125 and D-01. If intermediate connectors C-21, C-125 or D-01 is damaged, repair or replace the damaged component(s) as described in GROUP 00E, Harness Connector Inspection *P.00E-2**.*

Q: Is the wiring harness between power window main switch connector E-28 (terminals 15 and 17) and rear power window sub switch (RH) connector E-22 (terminals 5 and 8) in good condition?

YES : Replace the power window main switch. When the rear power window sub switch (RH) is operated, the rear power window (RH) should raise and lower normally.

NO : The wiring harness may be damaged or the connector(s) may have loose, corroded or damaged terminals, or terminals pushed back in the connector. Repair the wiring harness as necessary. When the rear power window sub switch (RH) is operated, the rear power window (RH) should raise and lower normally.

STEP 30. Check the wiring harness between rear power window sub switch (RH) connector E-22 (terminals 4 and 7) and rear power window motor (RH) connector E-21 (terminals 4 and 1).

- Check the signal line for open circuit and short circuit.

Q: Is the wiring harness between rear power window sub switch (RH) connector E-22 (terminals 4 and 7) and rear power window motor (RH) connector E-21 (terminals 4 and 1) in good condition?

YES : No action is necessary and testing is complete.

NO : The wiring harness may be damaged or the connector(s) may have loose, corroded or damaged terminals, or terminals pushed back in the connector. Repair the wiring harness as necessary. When the rear power window sub switch (RH) is operated, the rear power window (RH) should raise and lower normally.

INSPECTION PROCEDURE 4: Front and/or Rear Passenger's Power Window(s) do not work by means of The Power Window Main Switch.

⚠ CAUTION
Before replacing the ECU, ensure that the power supply circuit, the ground circuit and the communication circuit are normal.

CIRCUIT OPERATION

When you operate each power window switch for front or rear passengers (incorporated in the power window main switch), the corresponding power window motor operates, opening or closing each power window.

TECHNICAL DESCRIPTION (COMMENT)

If the corresponding power window opens and closes normally when each power window sub-switch is operated, the power window main switch may be defective.

TROUBLESHOOTING HINT

- The power window main switch may be defective
- The front power window sub switch may be defective
- The rear power window sub switches may be defective
- The ETACS-ECU may be defective
- The wiring harness or connectors may have loose, corroded, or damaged terminals, or terminals pushed back in the connector

DIAGNOSTIC PROCEDURE

Required Special Tools:

- MB992006: Extra fine probe
- MB991223: Harness set
- MB991958: Scan Tool (M.U.T.-III Sub Assembly)
  - MB991824: Vehicles Communication Interface (V.C.I.)
  - MB991827: M.U.T.-III USB Cable
  - MB991910: M.U.T.-III Main Harness A (Vehicles with CAN communication system)

STEP 1. Check the power window main switch.
Check that the driver's power window works by means of the power window main switch.

Q: Is the check result normal?

YES : Go to Step 2.
NO : Refer to inspection procedure 2 "Driver's power window does not work by means of the power window main switch P.42A-83."

STEP 2. Check the power window sub switch.
Check that each power window works by means of the respective power window sub switch when the power window lock switch is turned off.

Q: Is the check result normal?

YES : Go to Step 3.
NO : Refer to inspection procedure 3 "Relevant power window(s) does not work by means of the front and rear passenger's power window sub switches P.42A-88."

STEP 3. Check the power supply system.

With the ignition switch in the LOCK (OFF) position, check if the following function operates normally:

- Hazard warning light

Q: Is the check result normal?

YES : Go to Step 4.

NO : Refer to GROUP 54A –Malfunction of ETACS-ECU power supply circuit P.54A-727.

STEP 4. Using scan tool MB991958, read the diagnostic trouble code.

⚠ CAUTION

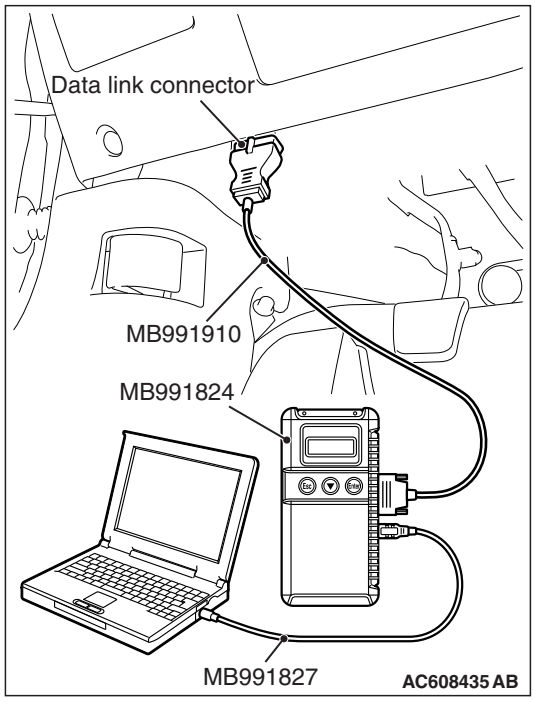
To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.

(1) Connect scan tool MB991958. Refer to "How to connect scan tool (M.U.T.-III) P.42B-9."

(2) Turn the ignition switch to the "ON" position.

(3) Check whether the ETACS-ECU related DTC is set.

(4) Turn the ignition switch to the "LOCK" (OFF) position.



Q: Is the DTC set?

YES : Diagnose the ETACS-ECU. Refer to GROUP 54B, Diagnostic Trouble Code Chart P.54B-6.

NO : Go to Step 5.

STEP 5. Retest the system.

Check that the front and/or rear passenger's power windows work by means of the power window main switch.

Q: Is the check result normal?

YES : No action is necessary and testing is complete.

NO : Replace ETACS-ECU. Check that the power window works normally.

INSPECTION PROCEDURE 5: The Power Window Timer Function does not work Normally.

⚠ CAUTION
Before replacing the ECU, ensure that the power supply circuit, the ground circuit and the communication circuit are normal.

COMMENTS ON TROUBLE SYMPTOM

If the power window timer does not work normally, a malfunction of the power window main switch or ETACS-ECU is suspected.

PROBABLE CAUSES

- Malfunction of the front door switch (LH)
- Malfunction of the front door switch (RH)
- Malfunction of the power window main switch
- Malfunction of ETACS-ECU
- Damaged wiring harness and connectors

DIAGNOSTIC PROCEDURE

Required Special Tools:

- MB992006: Extra fine probe
- MB991223: Harness set
- MB991958: Scan Tool (M.U.T.-III Sub Assembly)
  - MB991824: Vehicles Communication Interface (V.C.I.)
  - MB991827: M.U.T.-III USB Cable
  - MB991910: M.U.T.-III Main Harness A

STEP 1. Check the power supply system.

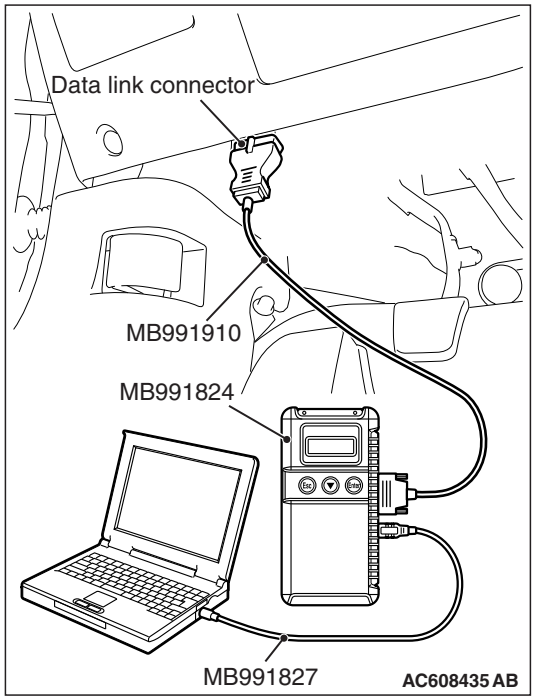
With the ignition switch in the LOCK (OFF) position, check if the following function operates normally:

- Hazard warning light

Q: Is the check result normal?

YES : Go to Step 2.

NO : Refer to GROUP 54A –Malfunction of ETACS-ECU power supply circuit P.54A-727.



STEP 2. Using scan tool MB991958, check data list.
Check the signals related to the power window timer function operation.

⚠ CAUTION
To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.

(1) Connect scan tool MB991958. Refer to "How to connect scan tool (M.U.T.-III) P.42B-9."
(2) Turn the ignition switch to the "ON" position.
(3) Check the data list of the ETACS.
- Turn the ignition switch to the LOCK (OFF) position.
- Close the driver's door.
- Close the passenger's door.

Item No.	Item name	Normal condition
254	IG voltage	Battery positive voltage
256	Dr door ajar switch	Close
257	As door ajar switch	Close

(4) Turn the ignition switch to the "LOCK" (OFF) position.

OK: Normal condition is displayed.

Q: Is the check result normal?

YES <Normal conditions are displayed for all the items.> : Go to Step 3.
NO <Normal condition is not displayed for item No. 254.> : Refer to GROUP 54A –inspection procedure 2: "The ignition switch (IG1) signal is not received P.54A-734."
NO <Normal condition is not displayed for item No. 256.> : Refer to GROUP 54A –inspection procedure 5: "The front door switch (driver's side) signal is not received P.54A-749."
NO <Normal condition is not displayed for item No. 257.> : Refer to GROUP 54A –inspection procedure 6: the front door switch (passenger's side) signal is not received. P.54A-747.

STEP 3. Retest the system.
Check that the power window timer function works normally.

Q: Is the check result normal?

YES : No action is necessary and testing is complete.
NO : Replace the power window main switch. Check that the power window timer function works normally.

INSPECTION PROCEDURE 6: Power Window Anti-trap Function does not work Normally. <Driver's side seat>

COMMENTS ON TROUBLE SYMPTOM

Malfunction of the power window motor revolution detection sensor is suspected.

PROBABLE CAUSES

- Malfunction of the power window motor
- Damaged wiring harness and connectors

DIAGNOSTIC PROCEDURE

Required Special Tools:

- MB992006: Extra fine probe
- MB991223: Harness set
- MB991958: Scan Tool (M.U.T.-III Sub Assembly)
  - MB991824: Vehicles Communication Interface (V.C.I.)
  - MB991827: M.U.T.-III USB Cable
  - MB991910: M.U.T.-III Main Harness A

STEP 1. Using scan tool MB991958, read the diagnostic trouble code.

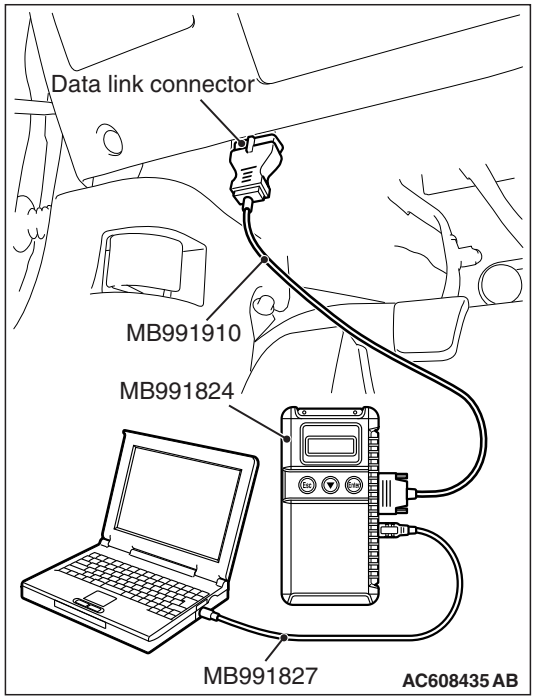
⚠ CAUTION

To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.

(1) Connect scan tool MB991958. Refer to "How to connect scan tool (M.U.T.-III) P.42B-9."
(2) Turn the ignition switch to the "ON" position.
(3) Check whether the power window main switch related DTC is set.
(4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the DTC set?

YES : Diagnose the power window main switch. Refer to Diagnostic Trouble Code Chart P.42A-65.
NO : Go to Step 2.



STEP 2. Check the power window operating current.
Check that the power window operating current is normal (Refer to P.42A-124).

Q: Is the check result normal?

YES : Door window glass adjustment (Refer to P.42A-122). Then go to Step 3.

NO : Replace the power window motor. Verify that the power window anti-trap function works normally.

STEP 3. Confirm the power window learning function.
Check that the power window switch has learned the fully closed position of the windows.

Q: Is the check result normal?

YES : Go to Step 4.

NO : Make the power window switch learn the fully closed position of the windows (Refer to P.42A-125). Verify that the power window anti-trap function works normally.

STEP 4. Retest the system.
Check that the power window anti-trap function works.

Q: Is the check result normal?

YES : No action is necessary and testing is complete.

NO : Replace the front power window motor (LH). Verify that the power window anti-trap function works normally.

INSPECTION PROCEDURE 7: The Window Glass Lowers Automatically while it is Rising.

COMMENTS ON TROUBLE SYMPTOM

If the sliding resistance is too great when the window is being raised or the window glass encounters an object, the window glass will lower by approximately 150 mm (5.9 inches).

PROBABLE CAUSES

- Improper adjusted door window glass
- Incorrectly installed or warped glass slider
- Malfunction of the power window motor
- Malfunction of the window regulator

DIAGNOSTIC PROCEDURE

STEP 1. Determine a trouble spot.

Q: Which type of the power window is installed on vehicle?

Driver's side seat : Go to Step 2.
Except driver's side seat : Go to Step 3..

STEP 2. Check the power window anti-trap function.

Check that the power window anti-trap function works. Refer to P.42A-124.

Q: Is the check result normal?

YES : Go to Step 3.
NO : Refer to inspection procedure 6 "Power window anti-trap function does not work normally P.42A-108."

STEP 3. Check that the door window glasses are installed correctly.

Check that the door window glasses are installed correctly. Refer to P.42A-122.

Q: Is the check result normal?

YES : Go to Step 4.
NO : Adjust the door window glass (Refer to P.42A-122).

STEP 4. Retest the system.

Check that the power window does not lower while it is being raised.

Q: Is the check result normal?

YES : No action is necessary and testing is complete.
NO : Replace the power window motor of the defective window.

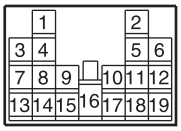
CHECK AT ECU TERMINAL

M1429013600432

POWER WINDOW SWITCH TERMINAL CHECK

POWER WINDOW MAIN SWITCH

E-28



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Terminal No.	Check items	Check conditions	Normal conditions
1	Output to power window motor (Passenger's side)	–	–
2	Output to power window motor (Driver's side)	–	–
3	Output to power window motor (Passenger'side)	–	–
4	Power supply	Power window relay: ON	Battery positive voltage
5	Power supply	Always	Battery positive voltage
6	Output to power window motor (Driver's side)	–	–
7	LIN communication line (between ETACS-ECUs)	Always	0 to 12 V (pulse signal)
8	Input from power window motor (pulse sensor signal)	When the power windows are operating	0 to 5 V (pulse signal)
9	Input from power window motor (pulse sensor ground)	–	1 V or less
10	Ground	Always	1 V or less
11	Input from power window motor (pulse sensor signal)	When the power windows are operating	0 to 5 V (pulse signal)
12	Input from power window motor (power supply to pulse sensor)	When the power windows are operating	5 V
13	–	–	–
14	–	–	–
15	Output to power window motor (Rear right side)	–	–
16	–	–	–
17	Output to power window motor (Rear right side)	–	–
18	Output to power window motor (Rear left side)	–	–
19	Output to power window motor (Rear left side)	–	–

DOOR DIAGNOSIS

INTRODUCTION TO GLASS AND DOOR DIAGNOSIS

M1423007300285

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

GLASS AND DOOR DIAGNOSTIC TROUBLESHOOTING STRATEGY

M1423006700343

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

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

SYMPTOM CHART

M1423007000411

Symptom	Inspection procedure	Reference page
Water leak through door window glass	1	P.42A-112
Door window glass malfunction	2	P.42A-113
Water leak through door edge	3	P.42A-113
Water leak from door center	4	P.42A-113
Door hard to open	5	P.42A-114
Door does not open or close completely	6	P.42A-114
Uneven gap between body	7	P.42A-114
Wind noise around door	8	P.42A-115

SYMPTOM PROCEDURES

INSPECTION PROCEDURE 1: Water Leak Through Door Window Glass

DIAGNOSIS

STEP 1. Check the door window glass installation.

Q: Is the door window glass installed correctly?
YES : Go to Step 2.
NO : Assemble the door window glass again. Refer to P.42A-130. Then go to Step 3.

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

Q: Is the clearance at the top of the door window glass correct?
YES : Go to Step 3.
NO : Adjust the door window glass. Refer to P.42A-122. Then go to Step 3.

STEP 3. Retest the system.

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

INSPECTION PROCEDURE 2: Door Window Glass Malfunction

DIAGNOSIS

STEP 1. Check the door window glass installation condition.

Q: Is the door window glass installed correctly?
YES : Go to Step 2.
NO : Assemble the door window glass again. (Refer to P.42A-133.) Then go to Step 4.

STEP 2. Check the door sash.

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

STEP 3. Inspect the window regulator assembly.

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

STEP 4. Retest the system.

Q: Does the door window glass operate correctly?
YES : The procedure is complete.
NO : Return to Step 1.

INSPECTION PROCEDURE 3: Water Leak Through Door Edge

DIAGNOSIS

STEP 1. Check the weatherstrip.

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

STEP 2. Check the door fit (alignment).

Q: Is the door fit (alignment) correct?
YES : Go to Step 3.
NO : Adjust the door fit. Refer to P.42A-120. Then go to Step 3.

STEP 3. Retest the system.

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

INSPECTION PROCEDURE 4: Water Leak from Door Center

DIAGNOSIS

STEP 1. Check the drain hole.

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

STEP 2. Check the weatherstrip.

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

STEP 3. Retest the system.

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

INSPECTION PROCEDURE 5: Door Hard to Open

DIAGNOSIS

STEP 1. Adjust the latch and striker engagement.
Refer to P.42A-120.

Q: Is the latch and striker engagement adjusted?
YES : Go to Step 2.
NO : Adjust the latch and striker. Refer to P.42A-120. Then go to Step 4.

STEP 2. Check for lock rod damage.

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

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

Q: Is the door handle flexibility good?
YES : Go to Step 4.
NO : Adjust the door handle. Refer to P.42A-127 and P.42A-127. Then go to Step 4.

STEP 4. Retest the system.

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

INSPECTION PROCEDURE 6: Door does not Open or Close Completely

DIAGNOSIS

STEP 1. Check the door hinge position.

Q: Is the door hinge correct?
YES : Go to Step 2.
NO : Adjust the door hinge. Refer to P.42A-120. Then go to Step 4.

STEP 2. Check the door.

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

STEP 3. Check the grease.

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

STEP 4. Retest the system.

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

INSPECTION PROCEDURE 7: Uneven Gap Between Body

DIAGNOSIS

Adjust the door fit. Refer to P.42A-120. Then check that the gap has been improved.

INSPECTION PROCEDURE 8: Wind Noise Around Door

DIAGNOSIS

STEP 1. Check the weatherstrip for holding condition.

Q: Is the weatherstrip holding firmly?
YES : Go to Step 2.
NO : Adjust fit of door. Refer to P.42A-123.Then go to Step 5.

STEP 2. Check the weatherstrip for installation condition.

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

STEP 3. Check the clearance.

Q: Are the door glass and the door weatherstrip holder assembled correctly?
YES : Go to Step 4.
NO : Adjust the door glass and the door weatherstrip. Refer to P.42A-123. Then go to Step 5.

STEP 4. Check the door.

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

STEP 5. Retest the system.

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

HOW TO LOCATE WIND NOISE

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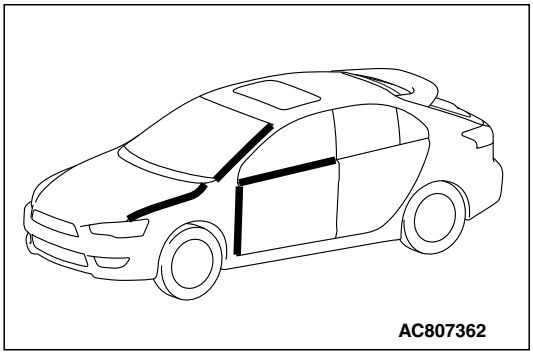
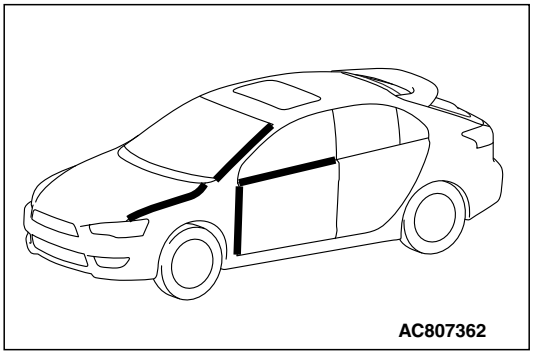
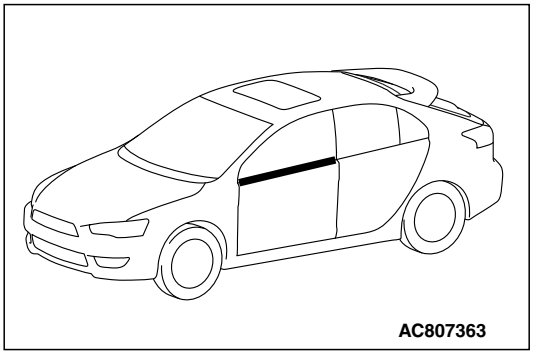

AC807362

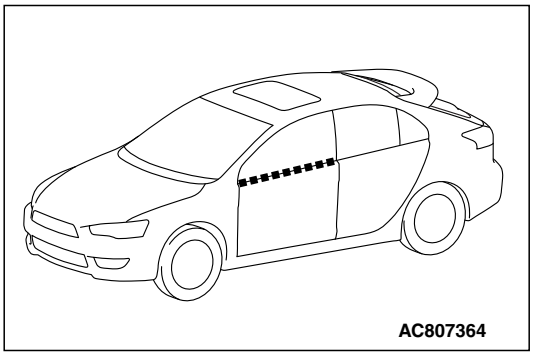
1. Attach cloth tape to every place, such as panel seams, projections, molding seams, glass and body seams, etc. which might conceivably be the source of wind noise.
2. Then make a road test to check that the places not covered by tape are not sources of wind noise.


AC807362

3. Remove the strips of tape one by one, making a road test after each is removed, until a wind noise source is discovered.


AC807363

4. When such a place is found, cover it again and repeat the procedure to check if there are any other noise source.
5. If no others are found, the last remaining tape is the only source.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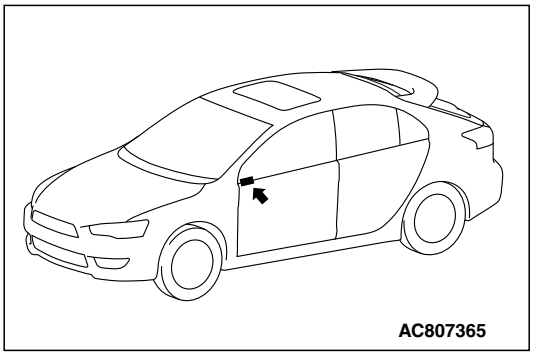
6. Cut the remaining piece of tape into smaller pieces, attach it again as it was before, and then remove the pieces one by one to narrow down the source.

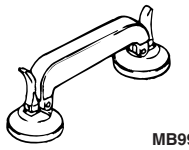
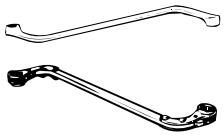
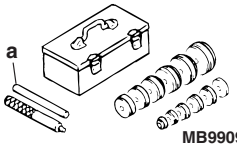
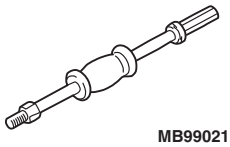
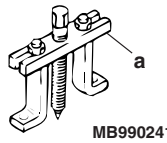

AC807365

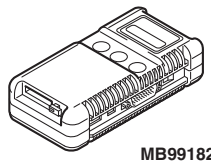
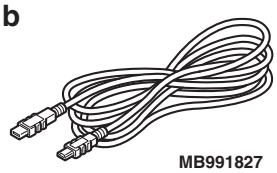
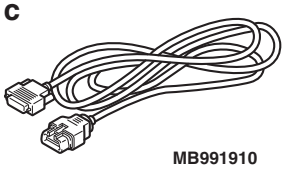
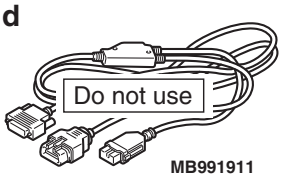
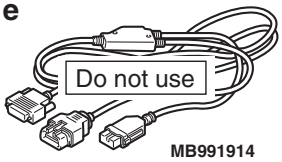
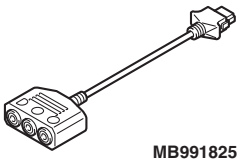
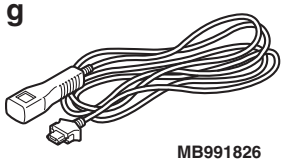
7. Check that wind noise occurs when the last remaining tape is removed, and that noise does not occur when it is re-attached.
8. When the source(s) of the wind noise is finally located, attach butyl tape, body sealer or similar material to obstruct this source as much as possible.

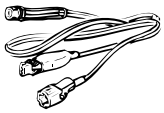
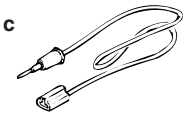
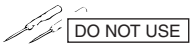
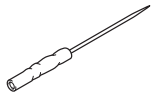
TSB Revision

SPECIAL TOOLS

M1423000601181

Tool	Tool number and name	Supersession	Application
 MB990480	MB990480 Glass holder	General service tool	Removal of power window regulator assembly
 MB990900	MB990900 or MB991164 Door adjusting wrench	MB990900-01	Adjustment of door fit
 MB990925AI	MB990925 Bearing and oil seal installer set a: MB990939 Remover bar	MB990925-01 or General service tool	Adjustment of door striker
 MB990211	MB990211 Slider hammer	MB990211-01	
 MB990241AI	MB990241 Axle shaft puller a: MB990243 Body puller	MB990241-01 or General service tool	

Tool	Tool number and name	Supersession	Application
a  MB991824 b  MB991827 c  MB991910 d  MB991911 e  MB991914 f  MB991825 g  MB991826 MB991958	MB991958 a: MB991824 b: MB991827 c: MB991910 d: MB991911 e: MB991914 f: MB991825 g: MB991826 Scan tool (M.U.T.-III sub assembly) a: Vehicle communication interface (V.C.I.) b: M.U.T.-III USB cable c: M.U.T.-III main harness A (Vehicles with CAN communication system) d: M.U.T.-III main harness B (Vehicles without CAN communication system) e: M.U.T.-III main harness C (for Chrysler models only) f: M.U.T.-III measurement adapter g: M.U.T.-III trigger harness	MB991824-KIT *NOTE: G: MB991826 M.U.T.-III Trigger Harness is not necessary when pushing V.C.I. ENTER key.*	**⚠ CAUTION** **For vehicles with CAN communication, use M.U.T.-III main harness A to send simulated vehicle speed. If you connect M.U.T.-III main harness B instead, the CAN communication does not function correctly.** Communication line check (ECU check and service data)

Tool	Tool number and name	Supersession	Application
a  b  c  d  MB991223	MB991223 Harness set a: MB991219 Test harness b: MB991220 LED harness c: MB991221 LED harness adapter d: MB991222 Probe	General service tools	Making voltage and resistance measurement during troubleshooting a: Connector pin contact pressure inspection b: Power circuit inspection c: Power circuit inspection d: Commercial tester connection
 MB992006	MB992006 Extra fine probe	–	Making voltage and resistance measurement during troubleshooting

ON-VEHICLE SERVICE

DOOR FIT ADJUSTMENT

M1423001100476

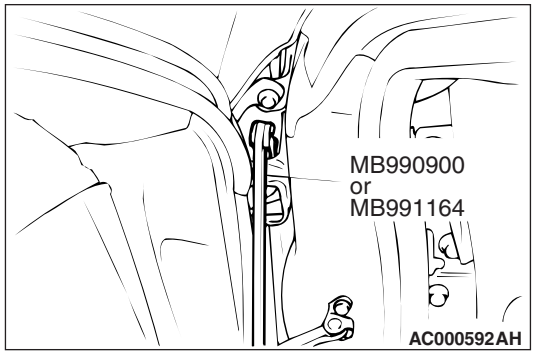
Required Special Tools:

- MB990211: Slide Hammer
- MB990243: Body Puller
- MB990900 or MB991164: Door Adjusting Wrench
- MB990939: Brass Bar

⚠ CAUTION

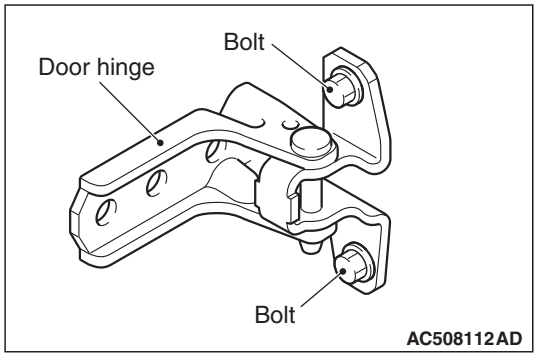
- **Do not rotate special tool MB991164 with a torque of over 98 N· m (72 ft-lb).**

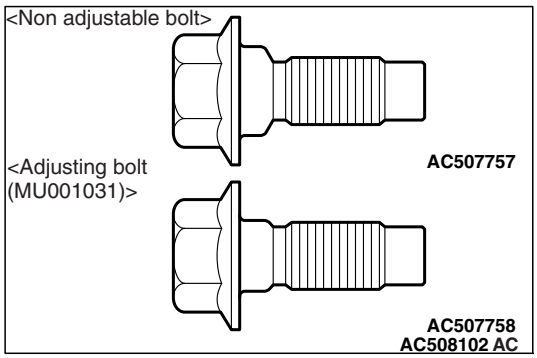
1. When the clearance between the door and the body is uneven
   (1) Apply protective tape to the fender around the hinge installation position and door edge.
   (2) Remove the splash shield front <Front door only> (Refer to GROUP 42A, Splash Shield P.42A-13).
   (3) Remove the center pillar trim, lower <Rear door only> (Refer to GROUP 52A, Interior Trim P.52A-11).
   (4) 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.
   (5) Move the door to adjust until the clearance around the door is even.



2. When the door is not flush with the vehicle body surface.
   (1) Loosen the door-side hinge mounting bolts.

   NOTE: The non-adjusting bolts have been installed as a factory setting. To adjust the levelling of the door, replace them with the adjusting bolts (MU001031).

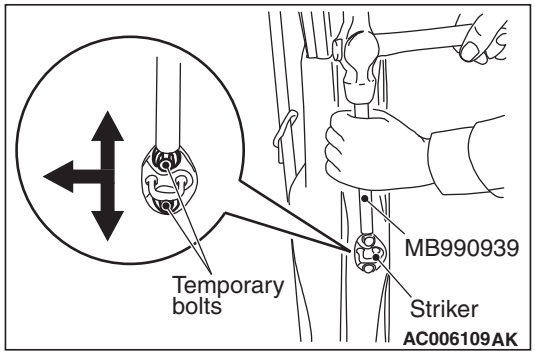




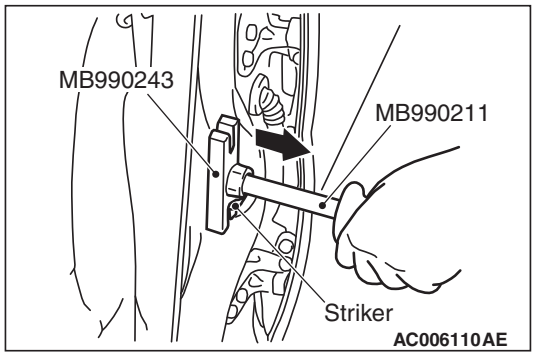
(2) Move the door to adjust so that the door is flush with the vehicle body.
(3) Tighten the door-side door hinge mounting bolt to the specified torque.

Tightening torque: 26 ± 6 N· m (19 ± 5 ft-lb)

3. If the door is stiff to lock and unlock:
(1) Adjustment using the striker (toward the inside of the vehicle and vertical direction)
Install a temporary bolt instead of the striker mounting bolt, and use special tool MB990939 and a hammer to tap the bolt in 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.

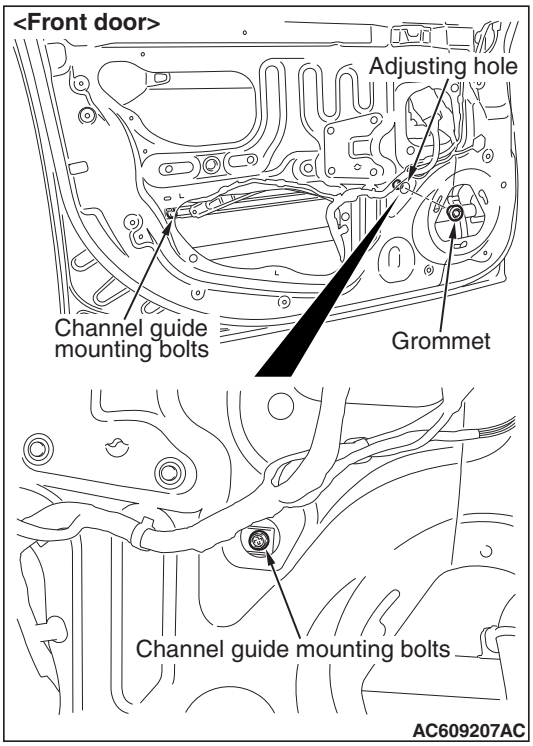


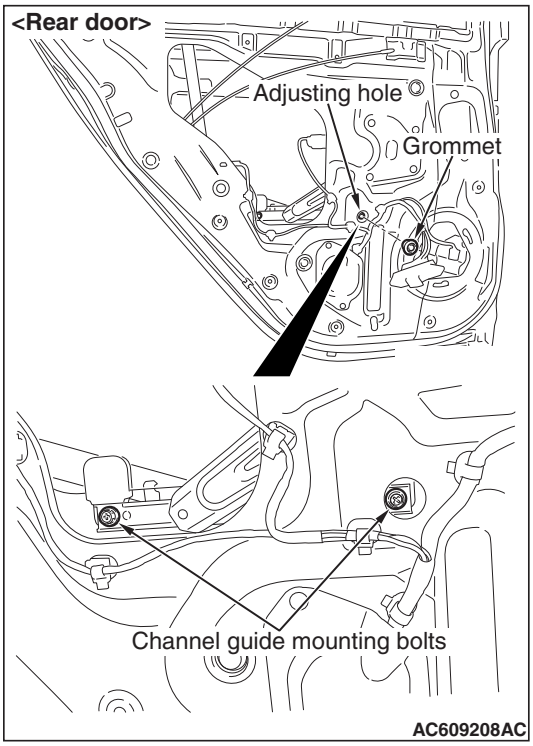
DOOR WINDOW GLASS ADJUSTMENT

M1423001000714

Check that the door glass operates smoothly and moves along the door glass run channel when the door window glass is fully raised and fully lowered. If there is a problem, adjust by the following procedure.

1. Remove the door trim assembly (Refer to GROUP 52A – Door Trim P.52A-15).
2. Remove the waterproof film (Refer to P.42A-145).
3. Remove the grommet from the adjusting hole <Vehicles with 9 speakers (Rockford Fosgate ® premium sound system)>.
4. Remove the power window switch from the removed door trim, and connect it to the connector, then set the channel guide mounting bolt to the adjusting hole. (Refer to P.42A-133).
5. Raise the door window glass and loosen the channel guide mounting bolts to adjust tilting up/down of the glass.





POWER WINDOW CHECK

M1429004400656

Check the power window as described below. If it does not work, perform troubleshooting (Refer to P.42A-65).

- Turn off the power window lock switch of the power window main switch, and operate each of the power window switches to check that each power window operates.
- Turn on the power window lock switch of the power window main switch, and operate the front and rear passenger's 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.

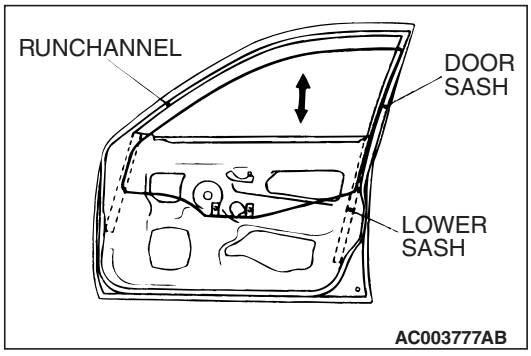
  NOTE: The power window lock switch function can be adjusted with the customization feature, confirm it before check (Refer to P.42A-129).

GLASS SLIDING MECHANISM CHECK AND ADJUSTMENT

M1429000900392

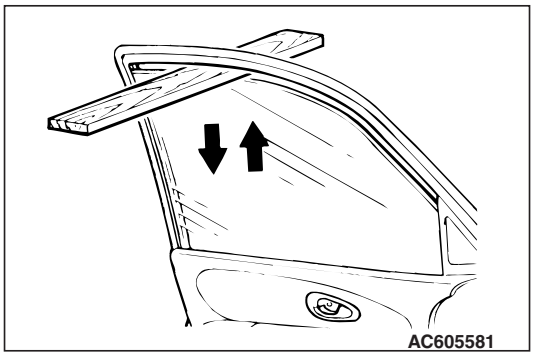
If the door window glass wrongly, automatically lowers while being raised, adjust or replace as follows:

1. Remove the door trim assembly (Refer to GROUP 52A, Door Trim P.52A-15).
2. Remove waterproof film (Refer to P.42A-145).
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.
4. If the door window glass does not move up and down smoothly, check and repair as follows:
   - Check the installation condition of the runchannel.
   - Straighten twist in the door sash.
   - Check the installation condition of the lower sash.
5. If repair or adjustment is impossible, replace the door assembly.



POWER WINDOW SAFETY MECHANISM CHECK <Driver's side>

M1429013700097



1. Place an approximately 10 mm (0.39 inch) thick wood chip as shown. Then, raise the window glass.
2. Check that the window lowers by about 150 mm (5.9 inches) when the window clamps the board. If this doesn't happen, do troubleshooting. Refer to P.42A-74.

   NOTE: If the anti-trap function (safety mechanism) is activated consecutively three times or more, carry out the learning procedures of the power window fully closed position (Refer to P.42A-125).

POWER WINDOW TIMER FUNCTION CHECK

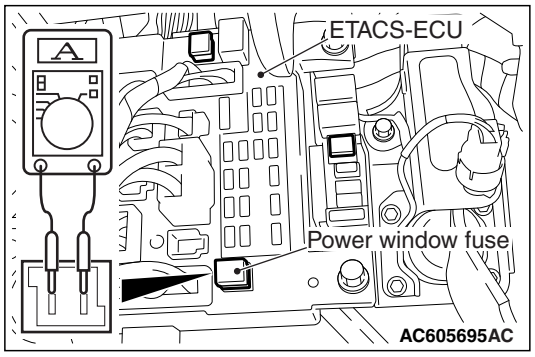
M1429004300585

Check the power window timer as described below. If it does not work, perform troubleshooting (Refer to P.42A-65).

- Close the door and turn the ignition switch to the LOCK (OFF) position, and then check that the power windows operate for 30 seconds.
- Close the door and turn the ignition switch to the LOCK (OFF) position. While the timer is on, open the driver's door or front passenger's door, and check that the timer is cancelled.

POWER WINDOW OPERATING CURRENT CHECK

M1429001100601



1. Remove the power window fuse, and connect a multimeter as shown in the illustration.
2. Raise the power window to measure the current during operation.

   Standard value (A): 7 A or less [Power supply voltage 14.5 ± 0.5V, 25° C (77° F)]

   NOTE: If the power supply voltage does not meet the standard value, check and repair the generator and the battery. Then carry out this check again.
3. If the operation current is outside the standard value, refer to P.42A-65.

LEARNING PROCEDURES OF THE POWER WINDOW FULLY CLOSED POSITION <Driver's side>

M1429004600360

LEARNING PROCEDURES OF 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 will not activated until the learning procedures of the fully closed position have been completed (because the anti-trap function was reset).

3. Operate the power window switch and fully close the door window glass. The power window activates for 0.7 second 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, the learning will be cancelled. If this happens, return to step 2.

LEARNING PROCEDURES WHEN THE POWER WINDOW SWITCH IS REPLACED WITH A NEW ONE

⚠ CAUTION

The anti-trap function will not activated until the learning procedures of the fully closed position have been completed (because the anti-trap function was reset).

Operate the power window switch to fully close the door window glass by one-shot up action so that the power window switch will complete learning (no initialization is required).

CENTRAL DOOR LOCKING SYSTEM CHECK

M1427001100553

- Check that the central door locking system works by operating the door lock switch. If it does not operate, perform troubleshooting. Refer to P.42A-31.

  NOTE: When the inside lock knob is operated with the driver's door opened, the driver's door is not locked.
- Check whether the driver's door is opened when the driver's door inside handle is pulled with all the doors locked. If it does not operate, replace the driver's door latch assembly. Refer to P.42A-138.

CHECK OF KEY LOCK PREVENTION FUNCTION

M1427003300285

Check that the driver's door is not locked when the driver's door inside lock knob is operated with the driver's door opened. If it is locked, replace the door latch. Refer to P.42A-138.

SHIFT "P" INTERLINK DOOR UNLOCK FUNCTION CHECK <CVT, TC-SST>

M1427003400293

When the selector is moved to the P (parking) position with the ignition switch on, all the doors will be unlocked. Carry out troubleshooting if the door is unlocked. Refer to P.42A-31.

NOTE: The selector "P" position-linked door unlocking function can be switched with the customization function. Confirm it before check. Refer to P.42A-129.

IGNITION "LOCK (OFF)" POSITION-LINKED DOOR UNLOCKING FUNCTION CHECK <M/T, CVT, TC-SST>

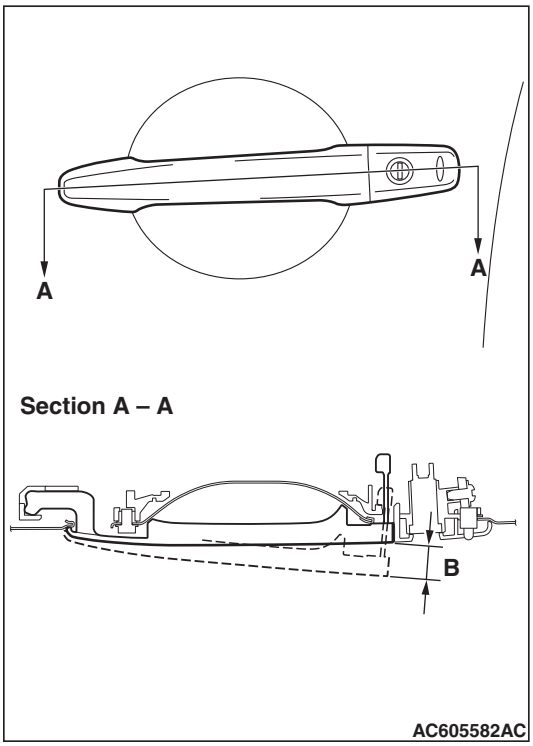
M1427006200027

When the ignition switch is moved to the LOCK (OFF) position, all the doors will be unlocked. Carry out the troubleshooting if a door does not operate. Refer to P.42A-31.

NOTE: The ignition "LOCK" position-linked door unlocking function can be switched with the customise function. Confirm it before check. Refer to P.42A-129.

DOOR OUTSIDE HANDLE PLAY CHECK

M1423001600590



1. Check that the door outside handle assembly play meets the standard value.

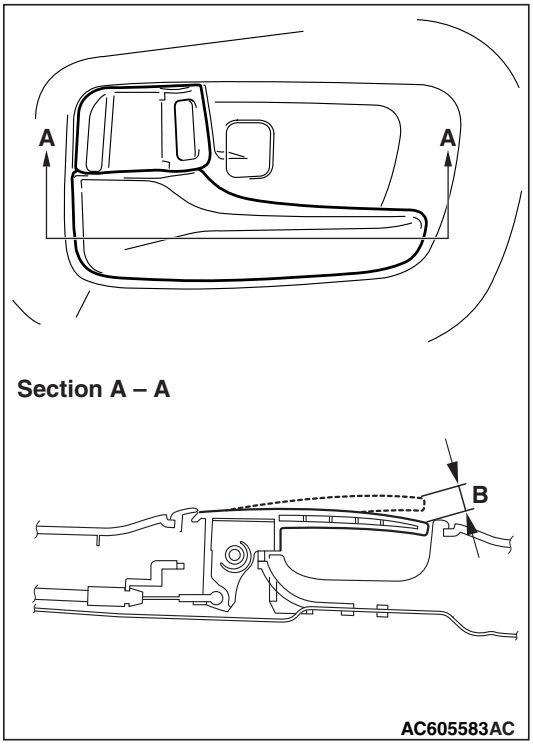
   Standard value (B): 0.3 –5.0 mm (0.01 –0.2 inch) [Target value: 2.4 mm (0.09 inch)]

2. Check the door outside handle assembly and door latch assembly, and replace them if they are out of the standard value.

DOOR INSIDE HANDLE CHECK

M1423001500667

DOOR INSIDE HANDLE KNOB PLAY CHECK



1. Check that the door inside handle knob play meets the standard value.

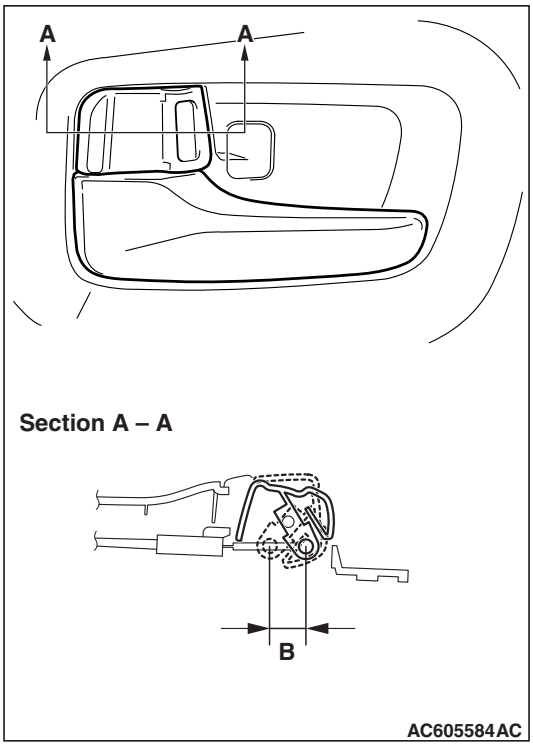
   Standard value (B):
   Front driver's side: 10.0 –23.7 mm (0.39 –0.93 inch) [Target value: 17.0 mm (0.67 inch)]
   Except Front driver's side: 5.0 –18.7 mm (0.2 –0.74 inch) [Target value: 12.0 mm (0.47 inch)]

2. Check the door inside handle and door latch assembly, and replace them if they are out of the standard value.

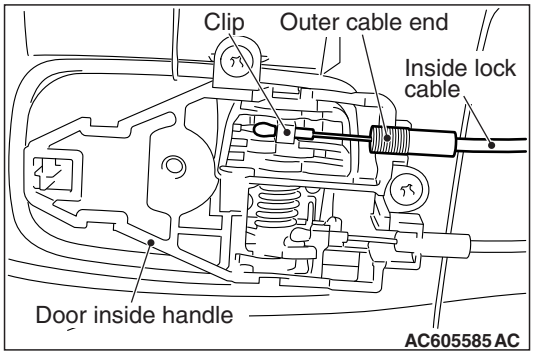
DOOR INSIDE HANDLE LOCK KNOB STROKE CHECK

1. Remove the door trim assembly (Refer to GROUP 52A – Door Trim P.52A-15).
2. Check that the stroke of the door inside handle lock knob meets the standard value.

   Standard value (B): 13.7 –15.0 mm (0.54 –0.59 inch) [Target value: 14.7 mm (0.58 inch)]



3. If it is outside the standard value, adjust the stroke of the inside handle lock knob by using the outer cable end, which connects the inside handle lock knob to the inside lock cable.



CUSTOMIZATION FUNCTION

M1429007800512

By operating the ETACS system or MMCS of scan tool MB991958, the following functions can be programmed. The programmed information is held even when the battery is disconnected.

Adjustment item (M.U.T.-III display)	Adjustment item	Adjusting contents (M.U.T.-III display)	Adjusting contents
Door unlock mode	Adjustment of power door locks with selective unlocking	All doors unlock	Without function: The first operation of keyless entry system or unlock operation by KOS unlocks all doors.
		Dr door unlock	With function: The first operation of keyless entry system or unlock operation by KOS unlocks the driver's door only, and the second unlock operation within 2 seconds after that unlocks all doors. (initial condition)
Auto door unlock	Adjustment of the auto door unlock function	Disabled	Without function (initial condition) <M/T, CVT, TC-SST>
		Always (P pos)	With function: Operates when the shift lever or the selector lever is moved to the P position. <CVT, TC-SST>
		P/W unlock (P)	With function: Operates when the shift lever or the selector lever is moved to the P position with the power window lock switch in the OFF position. <CVT, TC-SST>
		Always(Lock pos)	With function: Operates when the ignition switch is moved to the LOCK (OFF) position. <M/T, CVT, TC-SST>
		P/W unlock(Lock)	With function: Operates when the ignition switch is turned to the LOCK (OFF) position with the power window lock switch in the OFF position. <M/T, CVT, TC-SST>

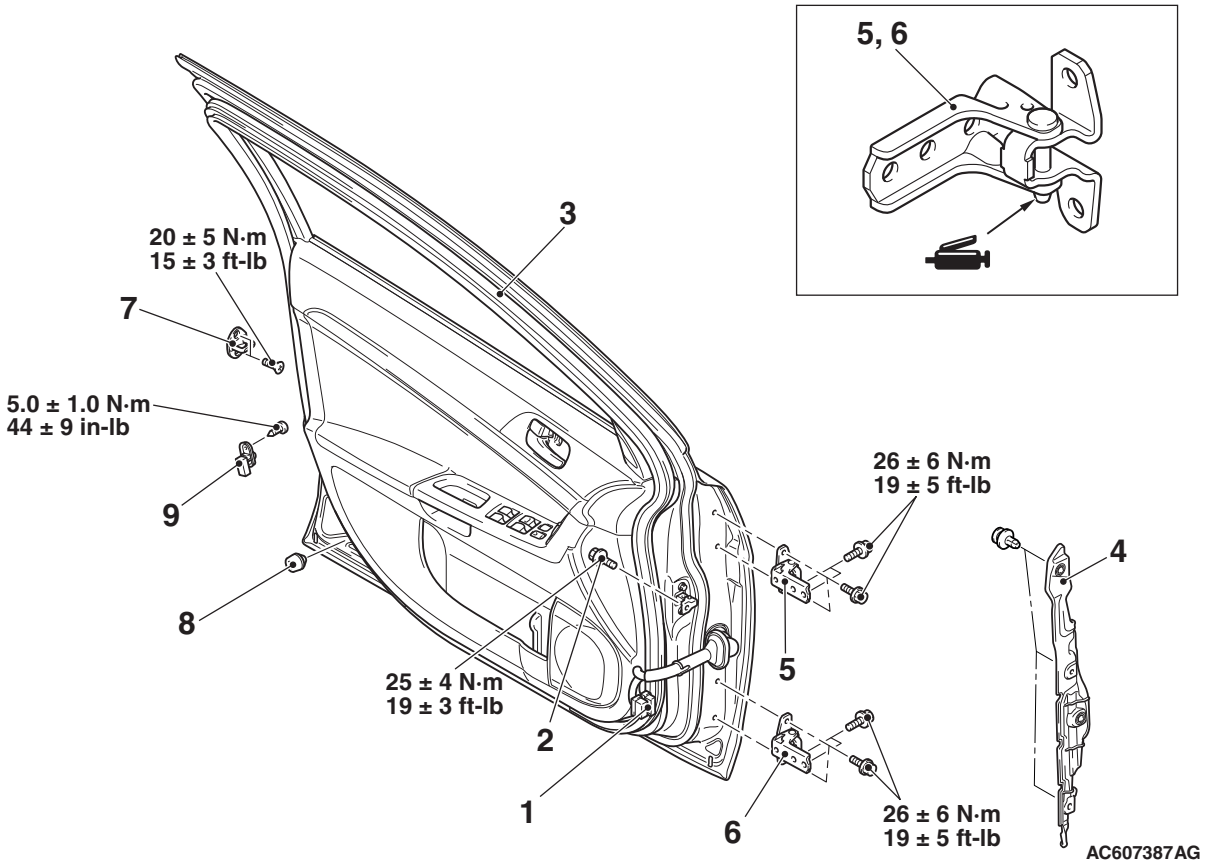
DOOR ASSEMBLY

REMOVAL AND INSTALLATION

M1423002200971

Post-installation Operation
- Door Fit Adjustment (Refer to P.42A-120).

<Front door>



Front door assembly removal steps
- Cowl side trim (Refer to GROUP 52A - Interior Trim P.52A-11.)
- Bottom cover assembly <Passenger's side> (Refer to GROUP 52A –Glove Box P.52A-6.)

1. Wiring harness connector connection
2. Door check connecting bolt
3. Front door assembly

Front door hinge removal steps

3. Front door assembly
4. Fender protector rear
5. Front door upper hinge
6. Front door lower hinge

Striker removal

>>A<< 7. Striker

Damper removal

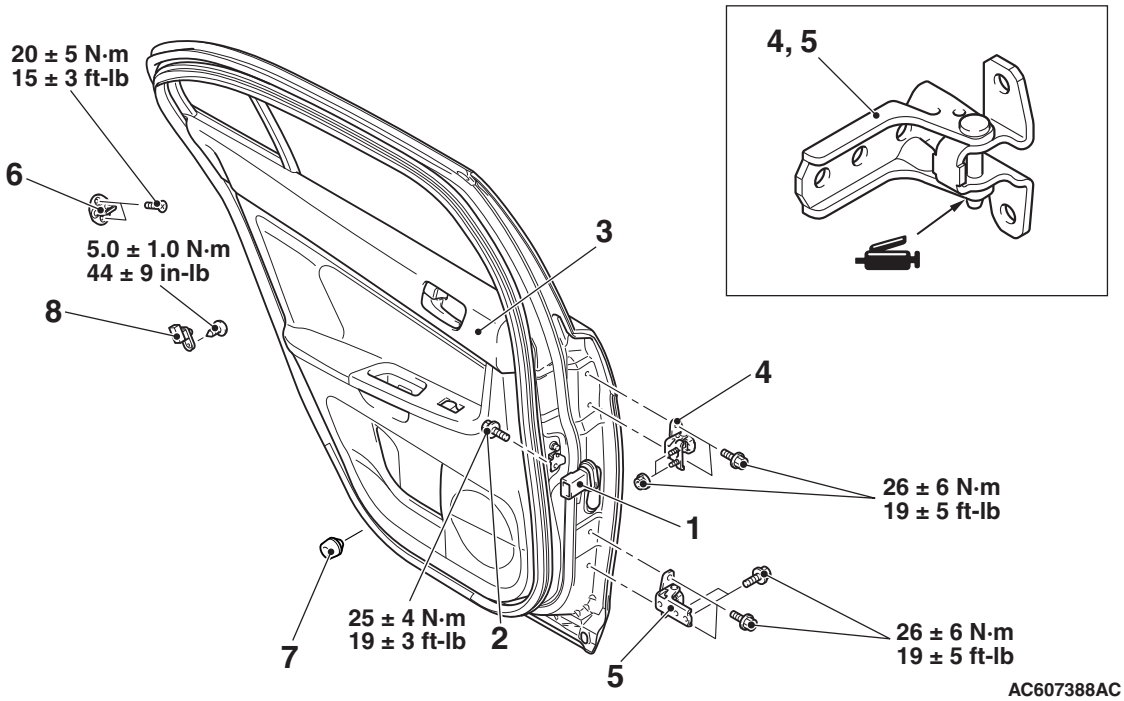
8. Damper

Door switch removal steps
- Lower center pillar trim (Refer to GROUP 52A –Interior Trim P.52A-11.)

9. Door switch

TSB Revision

<Rear door>



Rear door assembly removal steps

1. Wiring harness connector connection
2. Door check connecting bolt
3. Rear door assembly

Rear door hinge removal steps

- Lower center pillar trim (Refer to GROUP 52A –Trim P.52A-11.)

3. Rear door assembly

Rear door hinge removal steps

4. Rear door upper hinge
5. Rear door lower hinge

Striker removal

>>A<< 6. Striker

Damper removal

7. Damper

Door switch removal

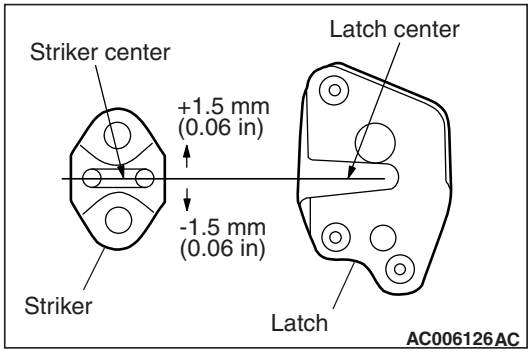
8. Door switch

TSB Revision

INSTALLATION SERVICE POINT

>>A<< STRIKER INSTALLATION

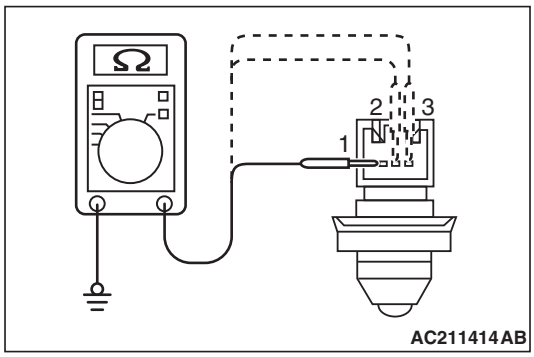
Align the center of the striker and latch within ±1.5 mm (0.06 inch), and install.



INSPECTION

M1423006000731

DOOR SWITCH CHECK



Switch position	Terminal number	Normal value
Release (ON)	1 –Ground, 2 – Ground, 3 – Ground	Continuity exists (2 Ω or less)
Depressed (OFF)	1 –Ground, 2 – Ground, 3 – Ground	Open circuit

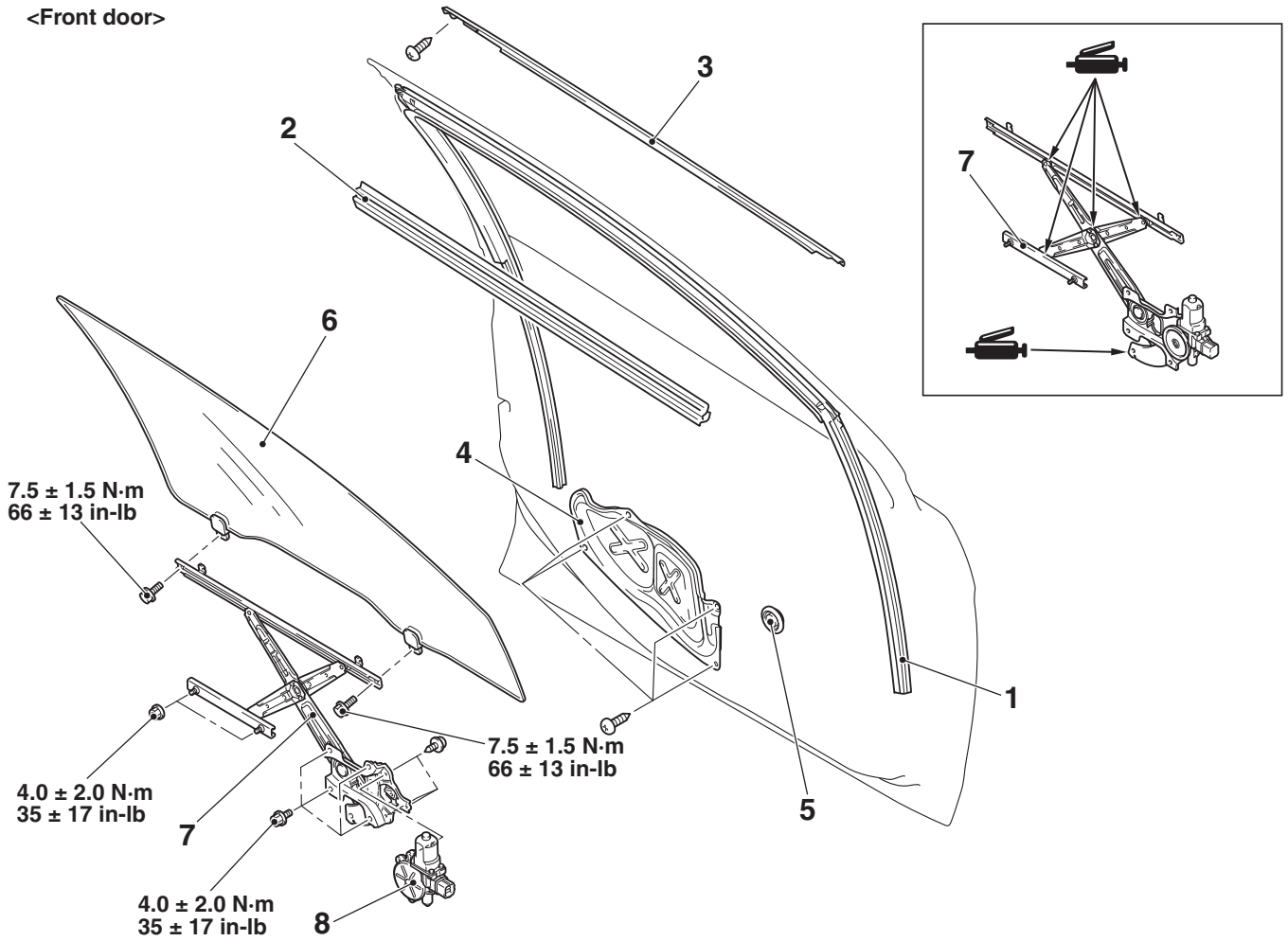
DOOR GLASS AND REGULATOR

REMOVAL AND INSTALLATION

M1429001301426

Pre-removal operation	Post-installation operation
• Door trim assembly removal (Refer to GROUP 52A, Door Trim P.52A-15). • Waterproof film removal (Refer to P.42A-145).	• Door window glass adjustment (Refer to P.42A-122.) • Waterproof film installation (Refer to P.42A-145). • Door trim assembly installation (Refer to GROUP 52A, Door Trim P.52A-15). • Learning procedures of the power window fully closed position <Driver's side only> (Refer to P.42A-125.)

<Front door>



AC609369AI

Door window glass assembly removal steps

1. Door window glass runchannel
   - Door mirror assembly (Refer to GROUP 51, Door Mirror P.51-129.)
2. Door beltline weatherstrip inner
3. Door beltline molding
4. Door speaker bracket
5. Grommet
6. Door window glass assembly

Power window regulator assembly removal steps

<<A>>

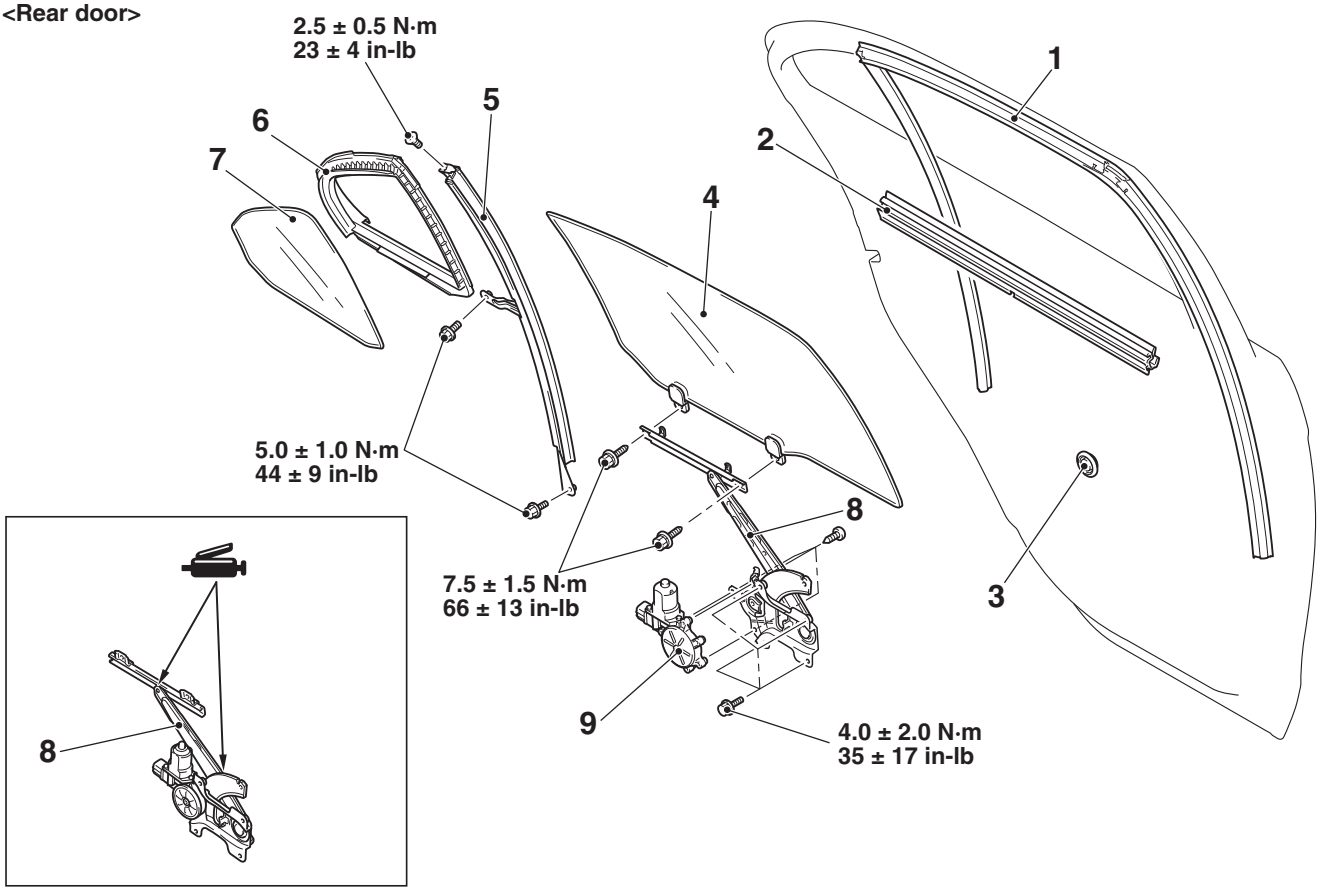
4. Door speaker bracket
5. Grommet
7. Power window regulator assembly
8. Power window motor

Required Special Tool:

- MB990480: Window Glass Holder

TSB Revision

<Rear door>



AC609370AJ

Door window glass assembly and stationary window glass removal steps

1. Door window glass runchannel
2. Door beltline weatherstrip inner
3. Grommet
4. Door window glass assembly

<<B>>

5. Door center sash
6. Stationary window weatherstrip
7. Stationary window glass

Power window regulator assembly removal steps

3. Grommet

<<A>>

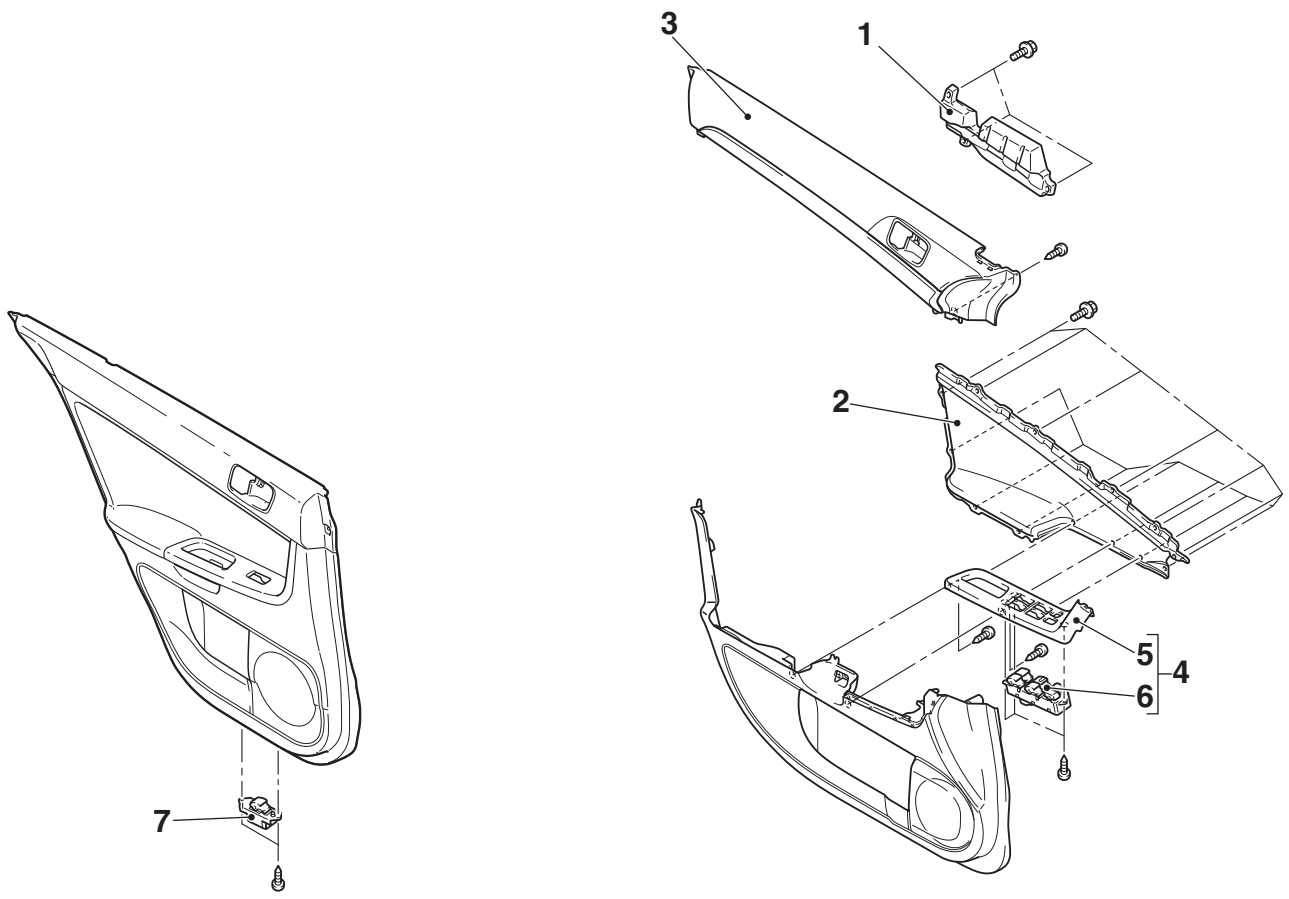
8. Power window regulator assembly
9. Power window motor

Required Special Tool:

- MB990480: Window Glass Holder

<Rear door>

<Front door>



AC607392AC

Power window switch <Front door> removal step

1. Front upper pad energy absorption
2. Front door ornament
3. Front door trim upper
4. Power window switch panel assembly

Power window switch <Front door> removal step (Continued)

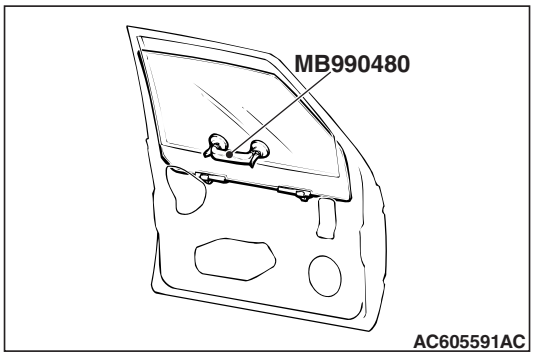
5. Power window switch panel
6. Power window main switch <Driver's side>, power window sub switch <Front passenger's side>

Power window sub switch <Rear door> removal step

7. Power window sub switch

REMOVAL SERVICE POINTS

<<A>> POWER WINDOW REGULATOR REMOVAL

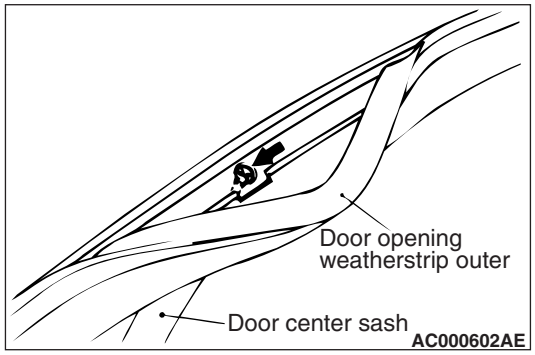


1. Remove the door window glass installation bolts.

⚠ 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 power window regulator.

<<B>> DOOR CENTER SASH REMOVAL



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

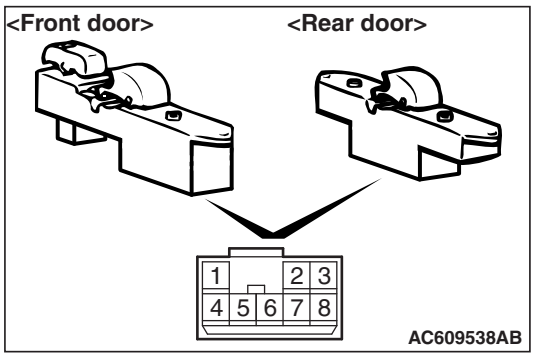
INSPECTION

M1429001401100

POWER WINDOW SWITCH CONTINUITY CHECK

Remove the power window switch. Refer to P.42A-133.

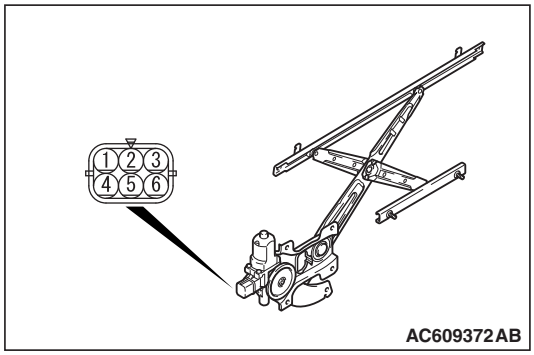
Sub switch



Switch position	Tester connection	Specified condition
UP	4 –5, 6 –7	Continuity exists (2 Ω or less)
OFF	4 –5, 7 –8	Continuity exists (2 Ω or less)
DOWN	4 –6, 7 –8	Continuity exists (2 Ω or less)

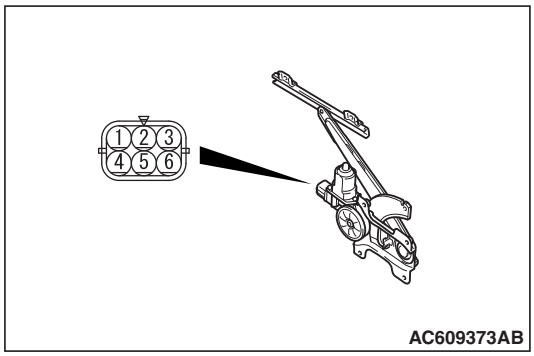
DOOR WINDOW REGULATOR CHECK

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



Front door (passenger's side)

Battery connection	Slider position
• Connect terminal No. 1 to the negative battery terminal. • Connect terminal No. 4 to the positive battery terminal.	UP
• Connect terminal No. 4 to the negative battery terminal. • Connect terminal No. 1 to the positive battery terminal.	DOWN



Rear door

Battery connection	Slider position
• Connect terminal No. 4 to the negative battery terminal. • Connect terminal No. 1 to the positive battery terminal.	UP
• Connect terminal No. 1 to the negative battery terminal. • Connect terminal No. 4 to the positive battery terminal.	DOWN

DOOR HANDLE AND LATCH

REMOVAL AND INSTALLATION

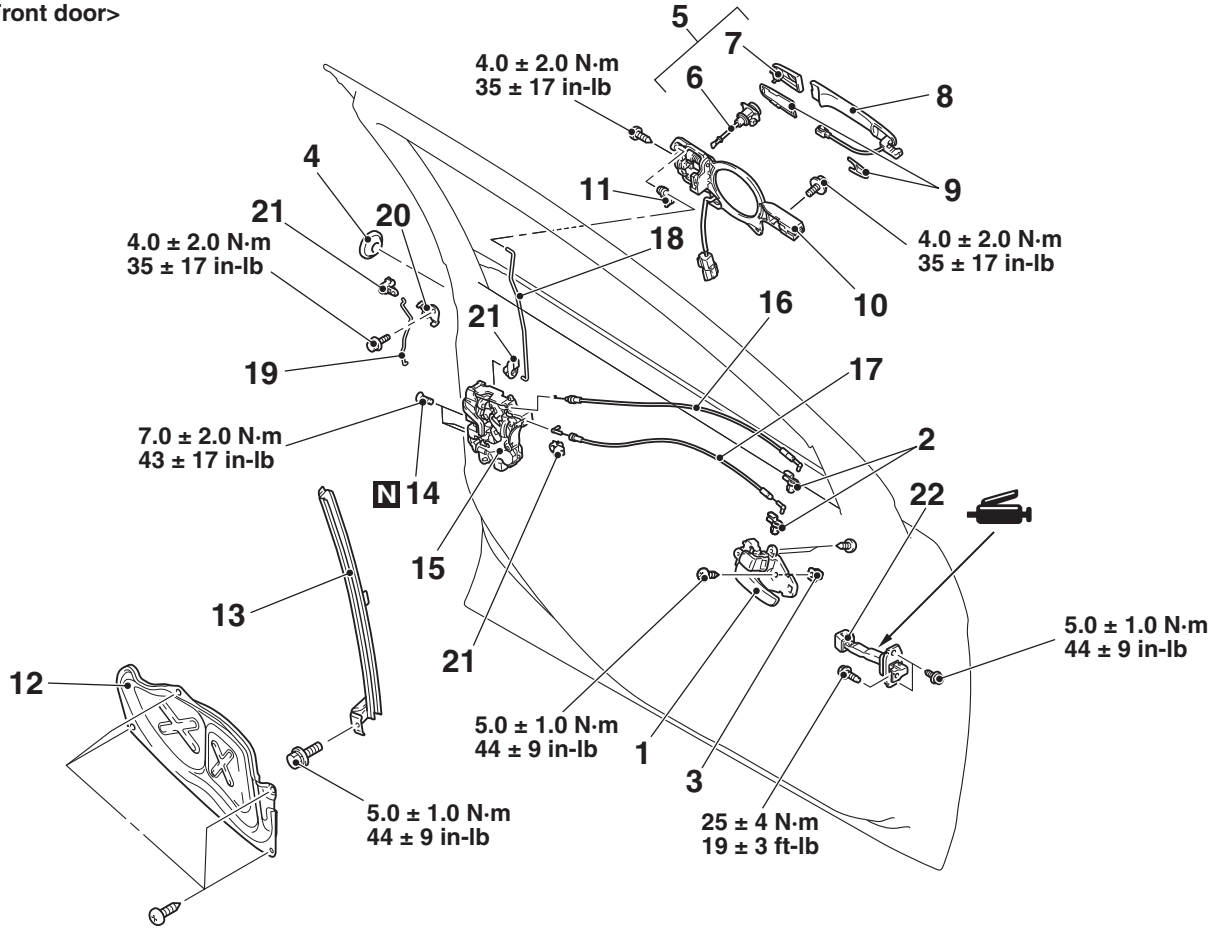
M1423004601503

⚠ CAUTION

When the door lock cylinder of the vehicle with WCM is replaced as a full service key set, the key must be registered with the barcode No. attached to the ignition key. (Refer to GROUP 42C, ID Code Registration Criteria Table P.42C-10.)

Pre-removal operation	Post-installation operation
• Door trim assembly removal (Refer to GROUP 52A, Door Trim P.52A-15). • Waterproof film removal (Refer to P.42A-145).	• Door inside handle play check (Refer to P.42A-127). • Door outside handle play check (Refer to P.42A-127). • Waterproof film installation (Refer to P.42A-145). • Door trim assembly installation (Refer to GROUP 52A, Door Trim P.52A-15).

<Front door>



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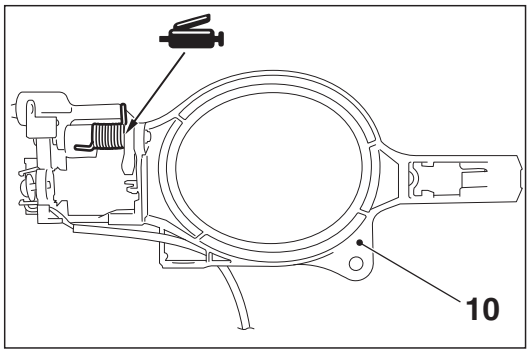
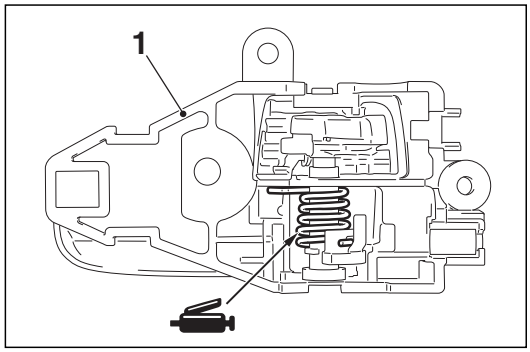
TSB Revision





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Door inside handle removal steps

>>B<< 1. Door inside handle
2. Clip
3. Grommet

Door outside handle removal steps

4. Plug

<<A>> >>C<< 5. Door outside handle cover assembly <Driver's side>
6. Door lock key cylinder <Driver's side>
7. Door outside handle cover
8. Door outside handle
9. Door outside handle gasket
10. Door outside handle base
11. Clip

Door latch assembly removal steps

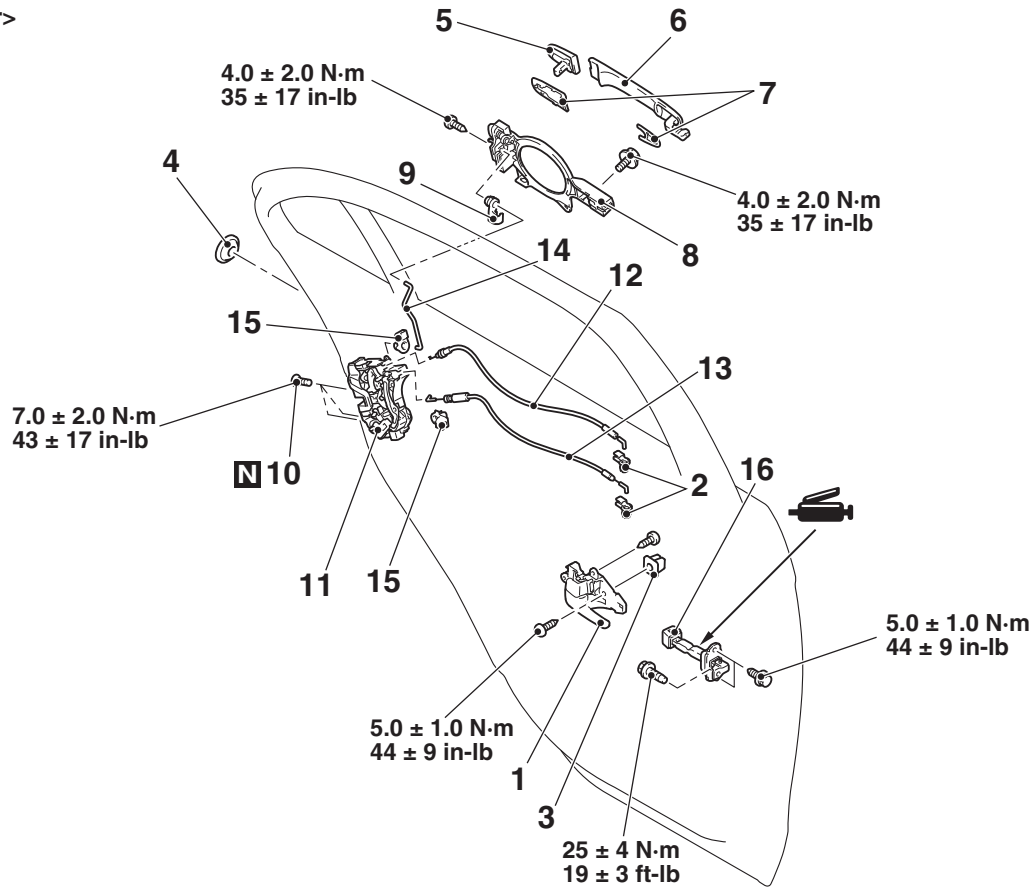
>>B<< 1. Door inside handle
12. Door speaker bracket
13. Rear lower sash
14. Screw
15. Door latch assembly
16. Door inside lock cable
17. Door inside handle cable
18. Door outside handle rod
19. Door outside lock rod <Driver's side>
20. Door panel bracket <Driver's side>
21. Clip

Door check removal steps

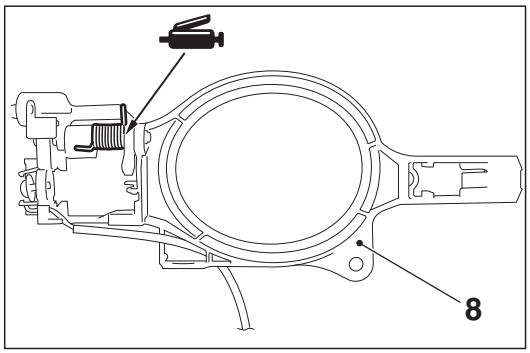
- Front door speaker (Refer to GROUP 54A, Speaker P.54A-626.)

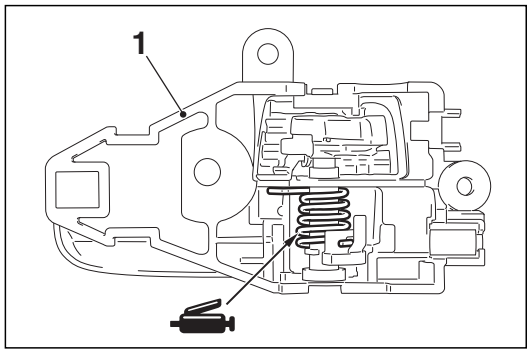
>>A<< 22. Door check

<Rear door>



AC711190AB





AC605594AF

Door inside handle removal steps

>>B<< 1. Door inside handle
2. Clip
3. Grommet

Door outside handle removal steps

4. Plug

<<A>> >>C<< 5. Door outside handle cover
6. Door outside handle
7. Door outside handle gasket
8. Door outside handle base
9. Clip

Door latch assembly removal steps

>>B<< 1. Door inside handle
10. Screw
11. Door latch assembly
12. Door inside lock cable
13. Door inside handle cable
14. Door outside handle rod
15. Clip

Door check removal steps

- Rear door speaker (Refer to GROUP 54A, Speaker P.54A-626.)

>>A<< 16. Door check

Required Special Tool:

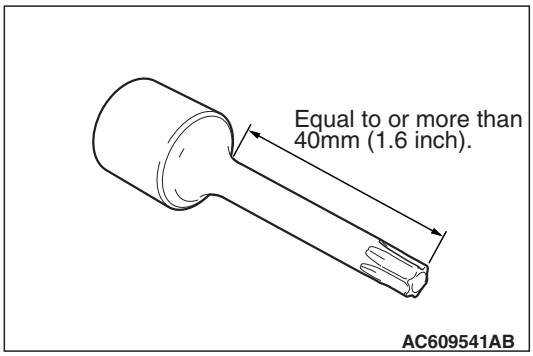
- T-type Long Torx Wrench (T30)

TSB Revision

REMOVAL SERVICE POINT

<<A>> DOOR OUTSIDE HANDLE COVER REMOVAL

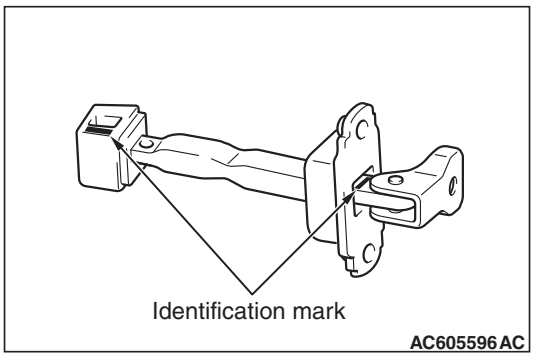
Prepare a tool as shown to remove the door outside handle cover.



INSTALLATION SERVICE POINTS

>>A<< DOOR CHECK INSTALLATION

Install the door check with the following identification marks facing upward.



Applicable location		Identification mark
Front door	Left door	55L
	Right door	55R
Rear door	Left door	64L
	Right door	64R

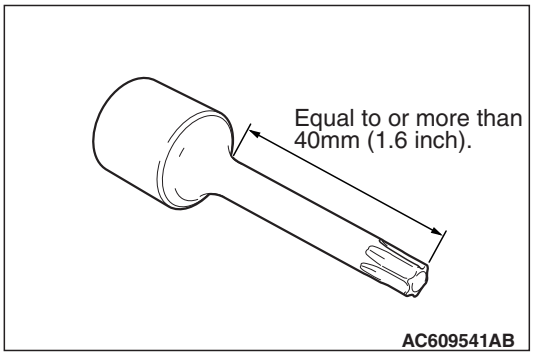
>>B<< DOOR INSIDE HANDLE INSTALLATION

When connecting the inside cable to the door inside handle, ensure that the door latch and the inside handle are locked.

>>C<< DOOR OUTSIDE HANDLE BASE INSTALLATION

Prepare a tool as shown, and tighten it to the specified torque.

Tightening torque: 4.0 ± 2.0 N· m (35 ± 17 in-lb)



INSPECTION

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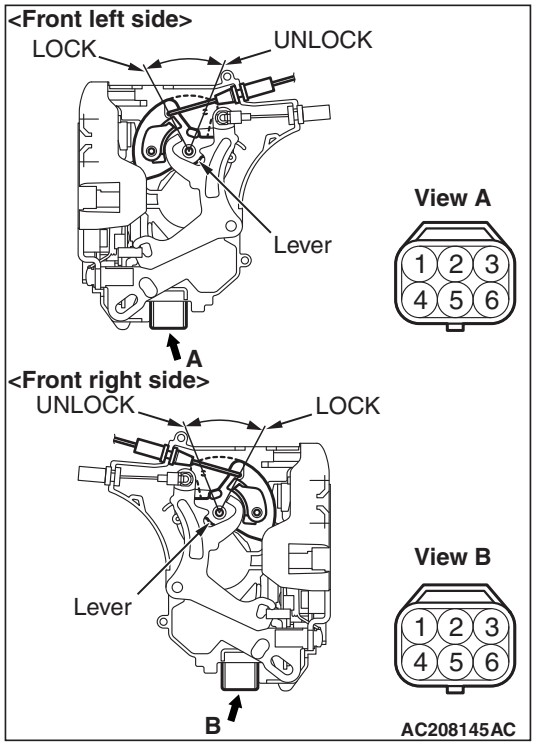
FRONT DOOR LOCK ACTUATOR CHECK



ACTUATOR OPERATION CHECK

Lever position	Battery connection	Lever operation
At the "LOCK" position	• Connect terminal No.4 to the negative battery terminal. • Connect terminal No.6 to the positive battery terminal.	The lever moves from the "LOCK" position to the "UNLOCK" position.
At the "UNLOCK" position	• Connect terminal No.6 to the negative battery terminal. • Connect terminal No.4 to the positive battery terminal.	The lever moves from the "UNLOCK" position to the "LOCK" position.

ACTUATOR SWITCH CHECK <DRIVER'S SIDE>

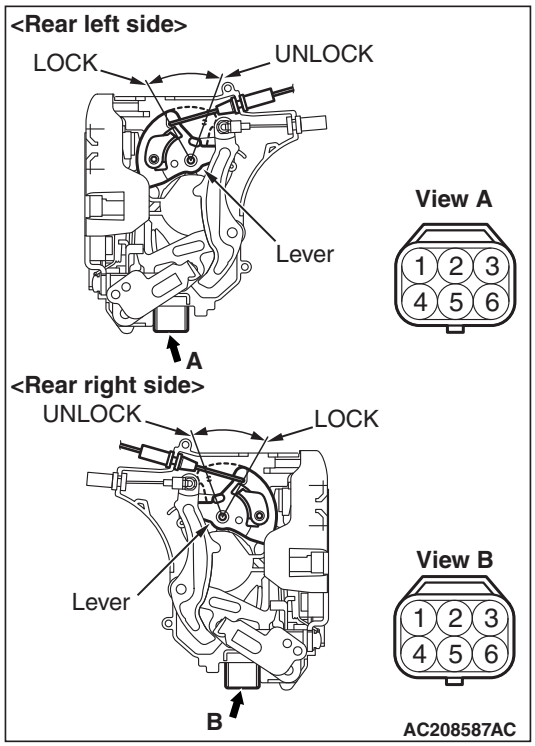
Lever position	Terminal number	Normal value
UNLOCK	1 –3	Continuity exists (2 Ω or less)

ACTUATOR SWITCH CHECK <PASSENGER'S SIDE (VEHICLES WITH KOS)>

Lever position	Terminal number	Normal value
UNLOCK	1 –3	Continuity exists (2 Ω or less)

REAR DOOR LOCK ACTUATOR CHECK

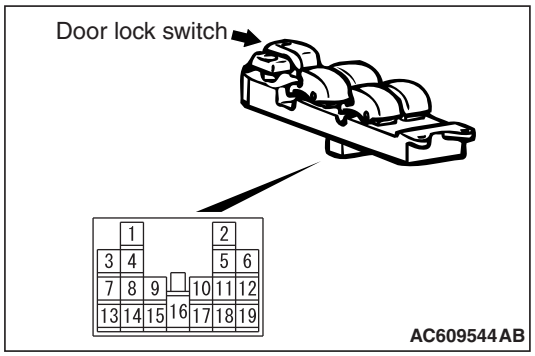
ACTUATOR OPERATION CHECK



Lever position	Battery connection	Lever operation
At the "LOCK" position	• Connect terminal No.4 to the negative battery terminal. • Connect terminal No.6 to the positive battery terminal.	The lever moves from the "LOCK" position to the "UNLOCK" position.
At the "UNLOCK" position	• Connect terminal No.6 to the negative battery terminal. • Connect terminal No.4 to the positive battery terminal.	The lever moves from the "UNLOCK" position to the "LOCK" position.

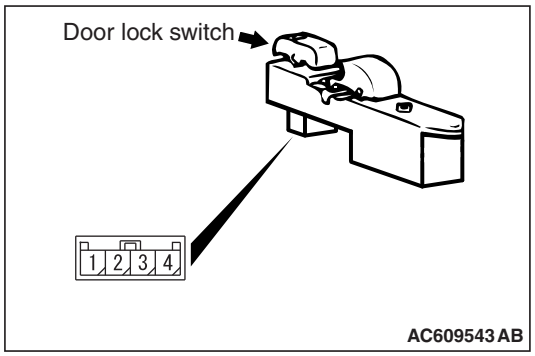
CENTRAL DOOR LOCK SWITCH CONTINUITY CHECK

Remove the power window switch (Refer to P.42A-126).



<DRIVER'S SIDE>

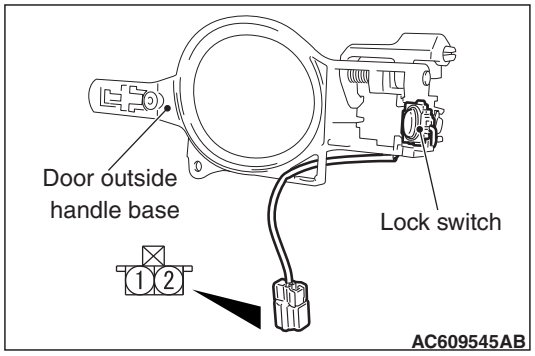
Switch position	Tester connection	Specified condition
LOCK	10 –14	Continuity exists (2 Ω or less)
UNLOCK	10 –13	Continuity exists (2 Ω or less)



<PASSENGER'S SIDE>

Switch position	Tester connection	Specified condition
LOCK	3 –4	Continuity exists (2 Ω or less)
UNLOCK	2 –4	Continuity exists (2 Ω or less)

LOCK SWITCH CHECK <Vehicle with keyless operation system (KOS)>



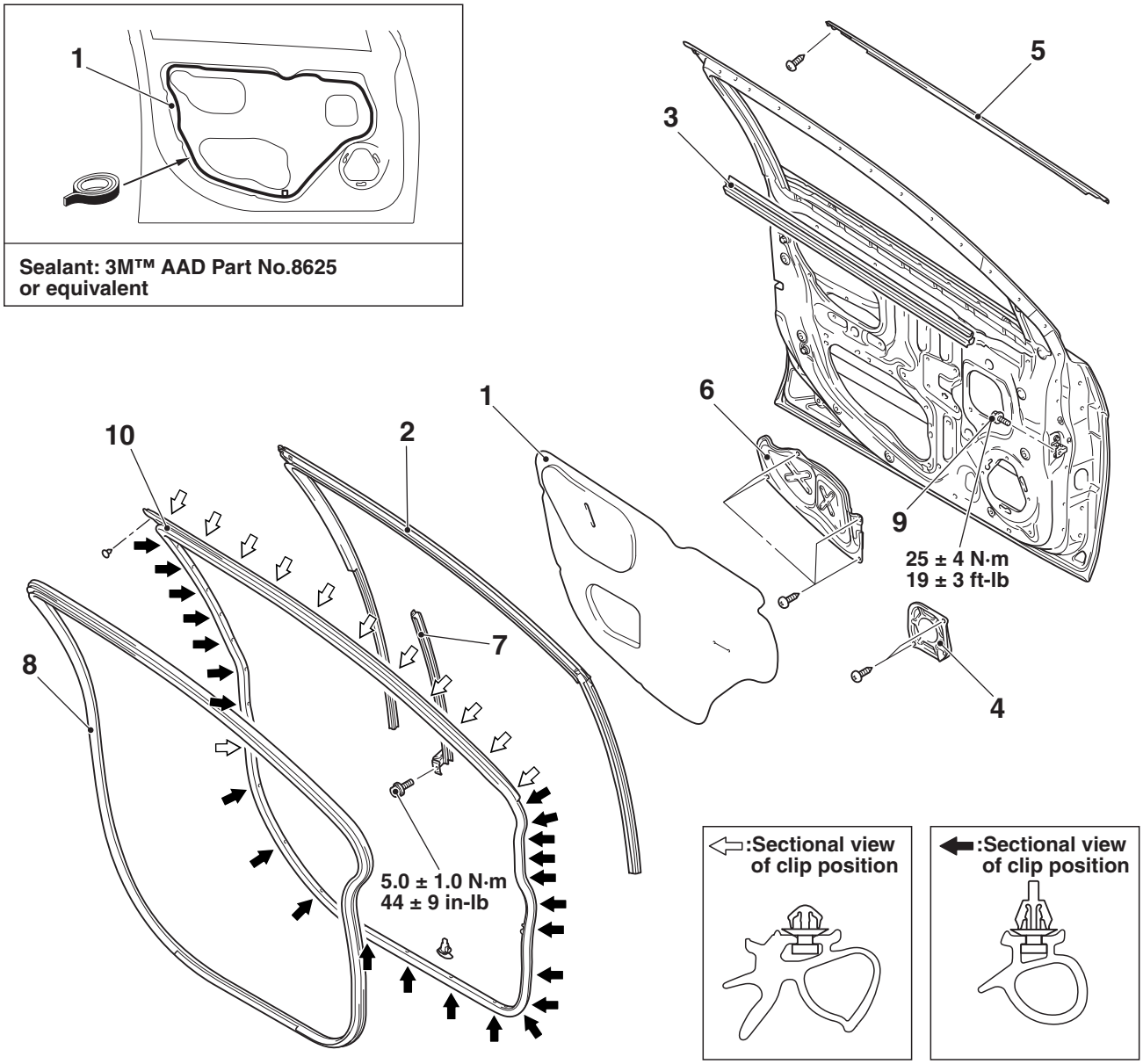
Switch position	Tester connection	Specified condition
ON	1 –2	Continuity exists (2 Ω or less)
OFF	1 –2	Open circuit

WINDOW GLASS RUNCHANNEL AND DOOR OPENING WEATHERSTRIP

REMOVAL AND INSTALLATION

M1423003101538

<Front door>



AC609546AI

Waterproof film removal steps
- Door trim assembly (Refer to GROUP 52A, Door Trim P.52A-15.)

>>B<< 1. Waterproof film

Door window glass runchannel removal

>>C<< 2. Door window glass runchannel

Door beltline weatherstrip inner removal steps
- Door trim assembly (Refer to GROUP 52A, Door Trim P.52A-15.)

3. Door beltline weatherstrip inner

Door speaker cover removal steps <Vehicles with Rockford Fosgate premium sound system>
- Door trim assembly (Refer to GROUP 52A, Door Trim P.52A-15.)

>>B<< 1. Waterproof film

4. Door speaker cover

Door beltline molding removal steps <Standard>
- Door mirror assembly (Refer to GROUP 51, Door Mirror P.51-129.)

5. Door beltline molding

TSB Revision

Door beltline molding removal steps <Bright>
- Door mirror assembly (Refer to GROUP 51, Door Mirror P.51-129.)
- Door trim assembly (Refer to GROUP 52A, Door Trim P.52A-15.)

>>**B**<< 1. Waterproof film
3. Door beltline weatherstrip inner
4. Door speaker cover <Vehicles with Rockford Fosgate premium sound system>
<<**A**>> 5. Door beltline molding

Speaker bracket removal steps <Vehicles with Rockford Fosgate premium sound system>
- Door trim assembly (Refer to GROUP 52A, Door Trim P.52A-15.)

>>**B**<< 1. Waterproof film
6. Door speaker bracket

Rear lower sash removal steps
- Door trim assembly (Refer to GROUP 52A, Door Trim P.52A-15.)

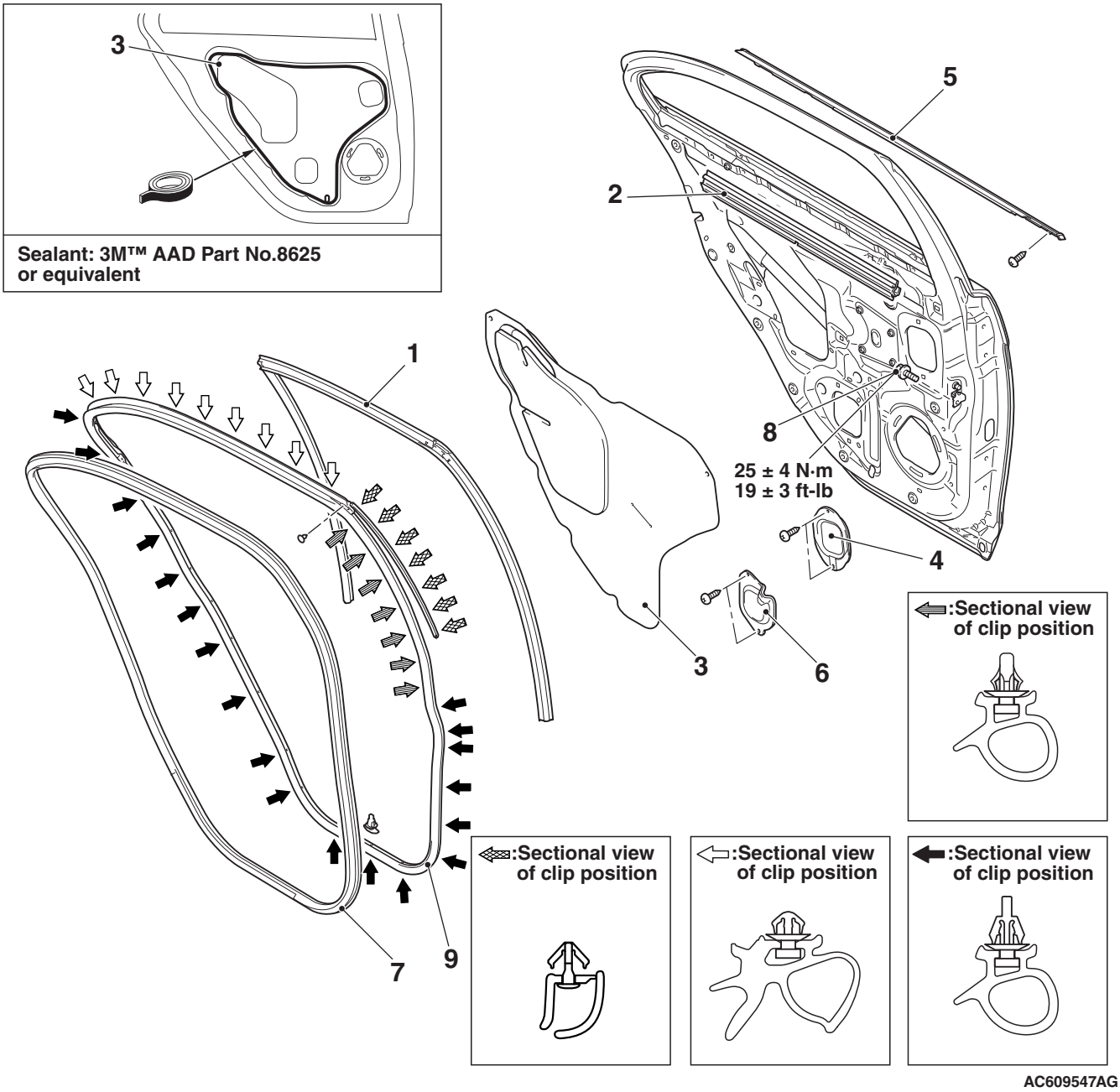
>>**B**<< 1. Waterproof film
6. Door speaker bracket <Vehicles with Rockford Fosgate premium sound system>
7. Rear lower sash

Door opening weatherstrip inner removal steps
- Cowl side trim and front scuff plate (Refer to GROUP 52A, Trim P.52A-11.)

8. Door opening weatherstrip inner

Door opening weatherstrip outer removal steps
9. Door check connecting bolt (Refer to P.42A-130.)
<<**C**>> >>**A**<< 10. Door opening weatherstrip outer

<Rear door>



AC609547AG

Door window glass runchannel removal

>>C<< 1. Door window glass runchannel

Door beltline weatherstrip inner removal steps

- Door trim assembly (Refer to GROUP 52A, Door Trim P.52A-15.)

2. Door beltline weatherstrip inner

Waterproof film removal steps

- Door trim assembly (Refer to GROUP 52A, Door Trim P.52A-15.)

>>B<< 3. Waterproof film

Door speaker cover removal steps <Vehicles with Rockford Fosgate premium sound system>

- Door trim assembly (Refer to GROUP 52A, Door Trim P.52A-15.)

>>B<< 3. Waterproof film

4. Door speaker cover

Door beltline molding removal <Standard>

5. Door beltline molding

Door beltline molding removal steps <Bright>

- Door trim assembly (Refer to GROUP 52A, Door Trim P.52A-15.)

2. Door beltline weatherstrip inner

TSB Revision

Door beltline molding removal steps <Bright> (Continued)

>>B<< 3. Waterproof film
4. Door speaker cover <Vehicles with Rockford Fosgate premium sound system>

<<B>> 5. Door beltline molding

Door speaker bracket removal steps <Vehicles with Rockford Fosgate premium sound system>

- Door trim assembly (Refer to GROUP 52A, Door Trim P.52A-15.)

>>B<< 3. Waterproof film
6. Door speaker bracket

Door opening weatherstrip inner removal steps

- Rear scuff plate (Refer to GROUP 52A, Trim P.52A-11.)

7. Door opening weatherstrip inner

Door opening weatherstrip outer removal

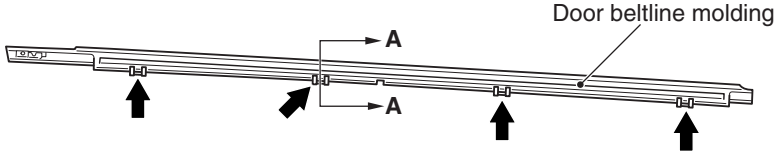
8. Door check connecting bolt (Refer to P.42A-130.)

<<C>> >>A<< 9. Door opening weatherstrip outer

REMOVAL SERVICE POINTS

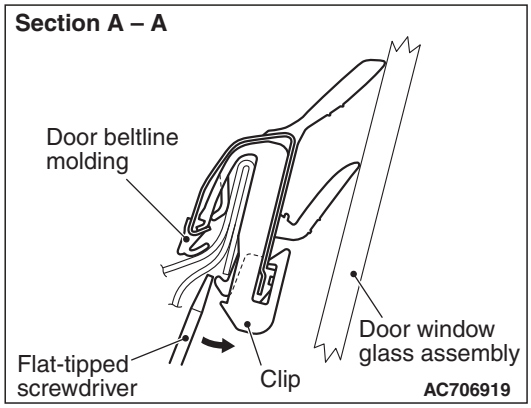
<<A>> DOOR BELTLINE MOLDING <FRONT DOOR> REMOVAL

<Front door>



AC706920

NOTE
: Clip positions



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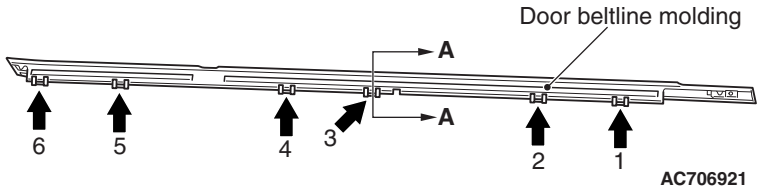
AC802331AE

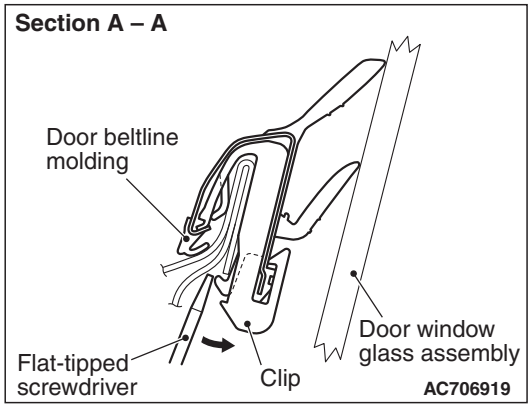
Pry the door beltline molding clip positions with the flat-tipped screwdriver and remove the door beltline molding.

<<B>> DOOR BELTLINE MOLDING <REAR DOOR> REMOVAL

<Rear door>



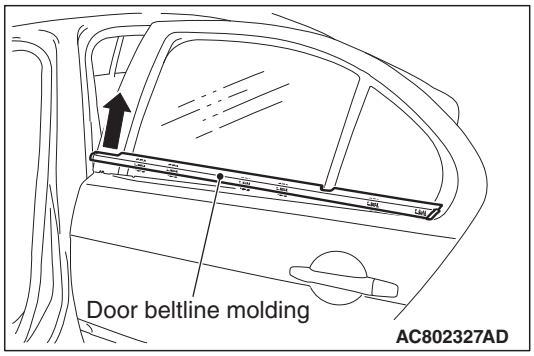
NOTE
: Clip positions
: Front of vehicle



AC802332AD

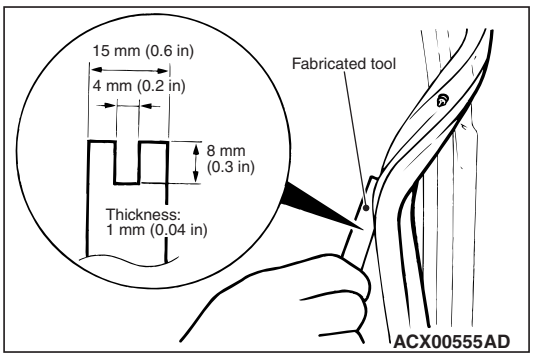
1. Prize the clip of the door beltline molding using a flat-tipped screwdriver in the order of the numbers (from 1 to 4) shown in the figure. Lift the vehicle front side of the door beltline molding.

   NOTE: The flat-tipped screwdriver cannot be used at clips 5 and 6 of the door beltline molding shown in the figure.
2. Lift the door beltline molding in the direction of the arrow in the figure, then remove the door beltline molding.



<<C>> DOOR OPENING WEATHERSTRIP OUTER REMOVAL

Make the tool as shown in the figure, and remove the weather-strip from the door panel.



INSTALLATION SERVICE POINTS

>>A<< DOOR OPENING WEATHERSTRIP OUTER INSTALLATION

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

Applicable side	Identification color
Left door	Yellow
Right door	Purple

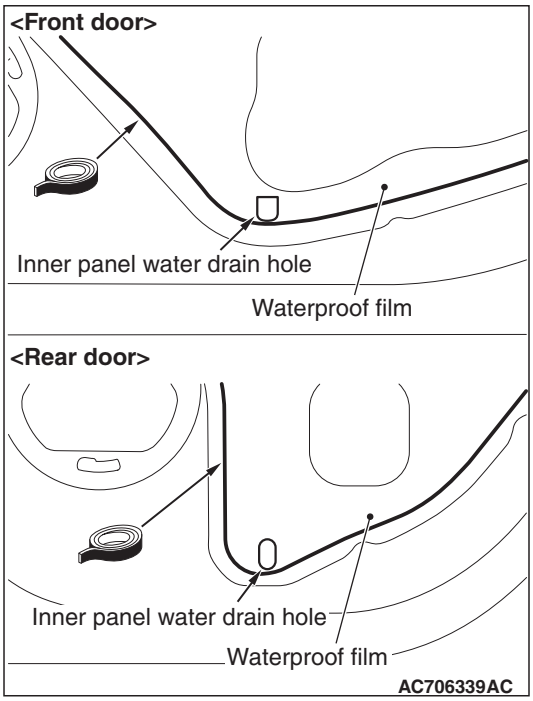
>>B<< WATERPROOF FILM INSTALLATION

⚠ CAUTION

When a waterproof film is applied, guide the butyl rubber tape under the inner panel drain hole.

Apply the specified adhesive to the waterproof film as shown in the figure and stick the film.

Butyl rubber tape: 3M™ AAD Part number 8625 or equivalent



>>C<< DOOR WINDOW GLASS RUNCHANNEL INSTALLATION

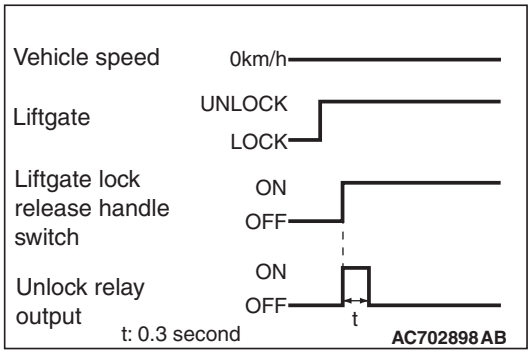
Apply soapy water to the tip of the door window glass runchannel, and then install it to the door.

LIFTGATE

GENERAL INFORMATION

M1424000100023

LIFTGATE OPENER CONTROL FUNCTION



When the liftgate lock release handle is operated to open the liftgate (the liftgate lock release handle switch turns ON) while the vehicle is parked and the liftgate is unlocked, ETACS-ECU turns the unlock relay output ON for 0.3 second, thus the liftgate can be opened by the liftgate lock release handle.

SPECIFICATIONS

SEALANT

M1424000500203

Item	Specified sealant	Remark
Liftgate hinge	3M™ AAD Part No. 8531 Heavy drip check sealer, 3M™ AAD Part No. 8646 Automotive joint and seam sealer or equivalent	Body sealer

LIFTGATE DIAGNOSIS

STANDARD FLOW OF DIAGNOSTIC TROUBLESHOOTING

M1424002600206

Refer to GROUP 00 –How to Use Troubleshooting/Inspection Service Points, Contents of Troubleshooting P.00-6.

TROUBLE SYMPTOM CHART

M1427001800507

⚠ CAUTION

During diagnosis, a diagnostic trouble code associated with other system may be set when the ignition switch is turned on with connector(s) disconnected. On completion, confirm all systems for diagnostic trouble code(s). If diagnostic trouble code(s) are set, erase them all.

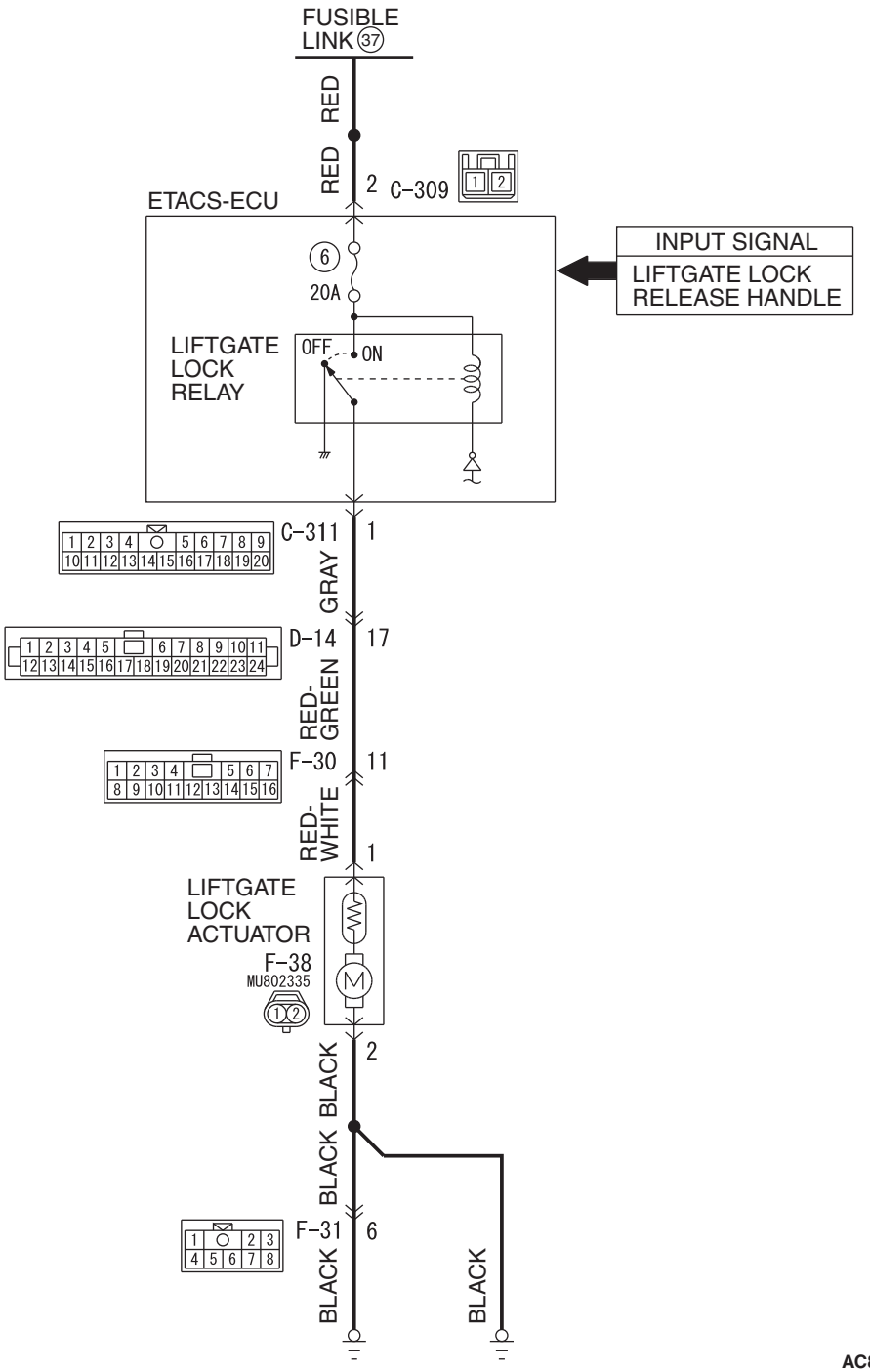
Trouble symptom	Reference page
The liftgate does not open.	P.42A-152

SYMPTOM PROCEDURES

INSPECTION PROCEDURE: The Liftgate does not Open.

⚠ CAUTION
Before replacing the ECU, ensure that the input and output signal circuits are normal.

Liftgate Open Circuit



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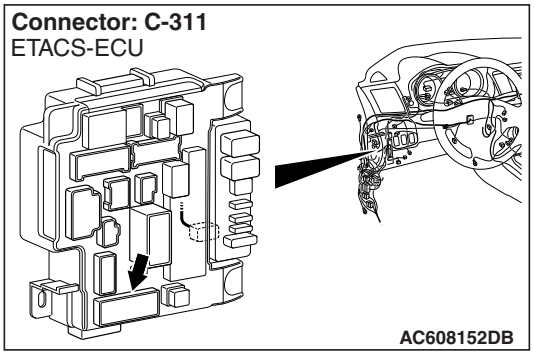
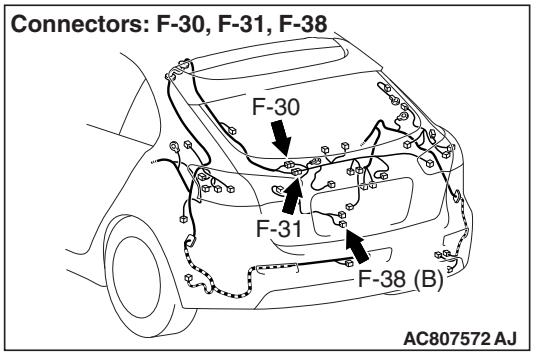
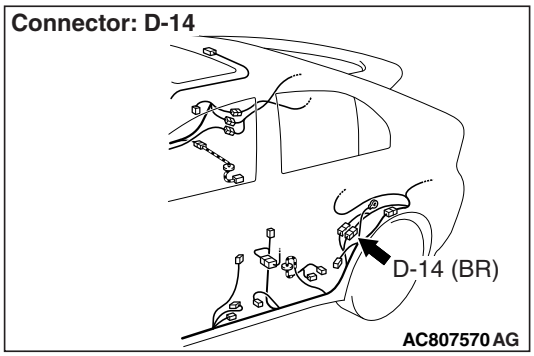
TSB Revision







OPERATION

The ETACS-ECU operates this function in accordance with the input signals below.

- Vehicle speed signal (ASC-ECU)
- Liftgate lock release handle
- Liftgate lock actuator

COMMENTS ON TROUBLE SYMPTOM

If this function does not work normally, a malfunction of the input signal circuit(s) mentioned above or ETACS-ECU is suspected.

PROBABLE CAUSES

- Vehicle speed signal (ASC-ECU) error
- Malfunction of the liftgate lock release handle
- Malfunction of the liftgate lock actuator
- Malfunction of ETACS-ECU
- Damaged wiring harness and connectors

DIAGNOSTIC PROCEDURE

Required Special Tools:

- MB991223: Harness Set
- MB992006: Extra Fine Probe
- MB991958: Scan Tool (M.U.T.-III Sub Assembly)
  - MB991824: Vehicles Communication Interface (V.C.I.)
  - MB991827: M.U.T.-III USB Cable
  - MB991910: M.U.T.-III Main Harness A

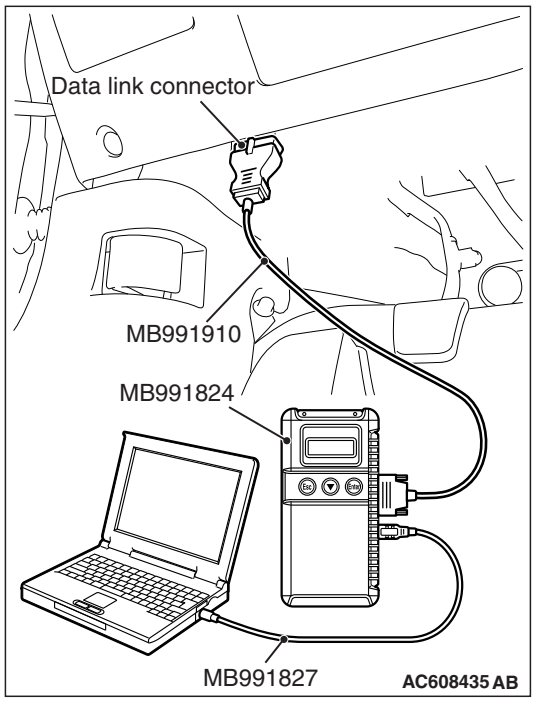
STEP 1. Checking central door unlocking operation

Check that the central door locking system works normally.

Q: Is the check result normal?

YES : Go to Step 2.

NO : Refer to inspection procedure 1 "Central door locking system does not work at all P.42A-32."



STEP 2. Using scan tool MB991958, read the diagnostic trouble code.

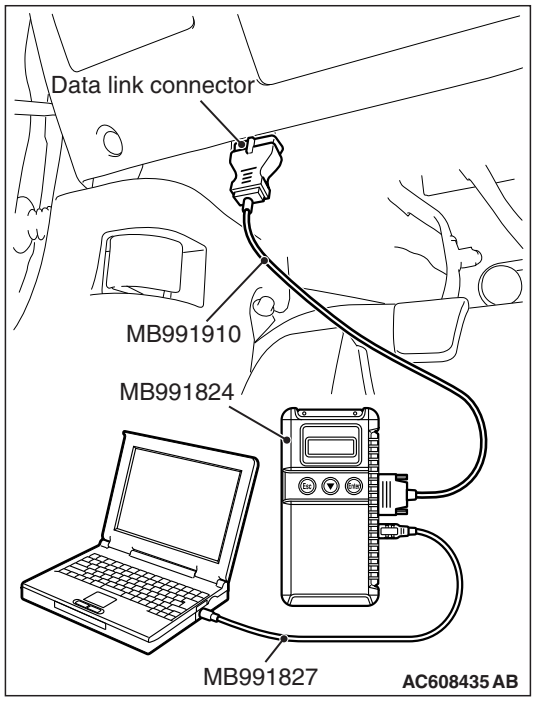
⚠ CAUTION

To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.

(1) Connect scan tool MB991958. Refer to GROUP 42B, "How to connect scan tool (M.U.T.-III) P.42B-9."
(2) Turn the ignition switch to the "ON" position.
(3) Check that the ASC-ECU sets a diagnostic trouble code.
(4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the DTC set?

YES : Diagnose ASC-ECU (Refer to GROUP 35C, Diagnostic Trouble Code Chart P.35C-27).
NO : Go to Step 3.



STEP 3. Using scan tool MB991958, check data list.

Check the input signals from the liftgate lock release handle.

⚠ CAUTION

To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.

(1) Connect scan tool MB991958. Refer to GROUP 42B, "How to connect scan tool (M.U.T.-III) P.42B-9."
(2) Turn the ignition switch to the "ON" position.
(3) Check the data list of the ETACS.
- Liftgate lock release handle: from OFF to ON

Item No.	Item name	Normal condition
Item 230	Trunk / gate opener	from OFF to ON

(4) Turn the ignition switch to the "LOCK" (OFF) position.

OK: Normal condition is displayed.

Q: Is the check result normal?

YES : Go to Step 4.
NO : Refer to inspection procedure: "The liftgate lock release handle signal is not received P.42A-158."

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STEP 4. Check liftgate lock actuator connector F-38 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

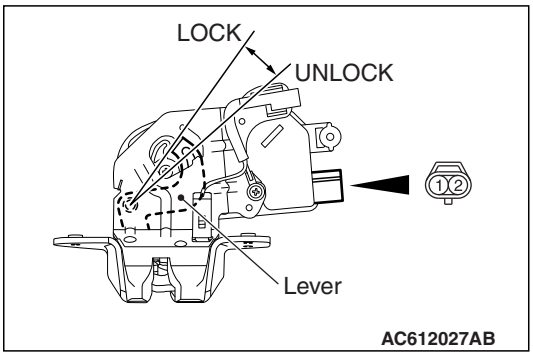
Q: Is liftgate lock actuator connector F-38 in good condition?

YES : Go to Step 5.

NO : Repair or replace the damaged component(s). Refer to GROUP 00E, Harness Connector Inspection P.00E-2. Verify that the liftgate can be locked and unlocked normally.

STEP 5. Check the liftgate lock actuator.

Remove the liftgate lock actuator. The illustration shows when the liftgate lock actuator is viewed from inside the liftgate. Refer to Liftgate Handle and Latch P.42A-173.



Lever position	Battery connection	Lever operation
At the "LOCK" position	• Connect terminal No.2 to the negative battery terminal. • Connect terminal No.1to the positive battery terminal.	The lever moves from the "LOCK" position to the "UNLOCK" position.

Q: Is the liftgate lock actuator normal?

YES : Go to Step 6.

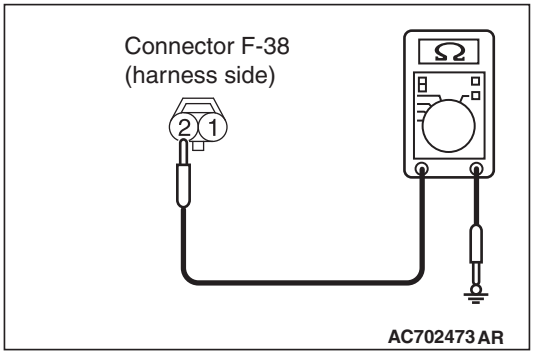
NO : Replace the liftgate lock actuator. Verify that the liftgate can be locked and unlocked normally.

STEP 6. Check the ground circuit to the liftgate lock actuator. Measure the resistance at liftgate lock actuator connector F-38.

(1) Disconnect liftgate lock actuator connector F-38 and measure the resistance on the wiring harness side of the connector.

(2) Measure the resistance value between terminal 2 and ground.

- The resistance should be 2 ohms or less.



Q: Is the measured resistance 2 ohms or less?

YES : Go to Step 8.

NO : Go to Step 7.

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STEP 7. Check the wiring harness between liftgate lock actuator connector F-38 (terminal 2) and ground.

- Check the ground line for open circuit and short circuit.

NOTE: Also check intermediate connector F-31 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connector F-31 is damaged, repair or replace the damaged component(s) as described in GROUP 00E, Harness Connector Inspection P.00E-2.

Q: Is the wiring harness between liftgate lock actuator connector F-38 (terminal 2) and ground in good condition?

YES : No action is necessary and testing is complete.

NO : The wiring harness may be damaged or the connector(s) may have loose, corroded or damaged terminals, or terminals pushed back in the connector. Repair the wiring harness as necessary. Verify that the liftgate can be locked and unlocked normally.

STEP 8. Check ETACS-ECU connector C-311 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is ETACS-ECU connector C-311 in good condition?

YES : Go to Step 9.

NO : Repair or replace the damaged component(s). Refer to GROUP 00E, Harness Connector Inspection P.00E-2. Verify that the liftgate can be locked and unlocked normally.

STEP 9. Check the wiring harness between ETACS-ECU connector C-311 (terminal 1) and liftgate lock actuator connector F-38 (terminal 1).

- Check the power supply line for open circuit and short circuit.

NOTE: Also check intermediate connectors D-14, F-30 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connectors D-14, F-30 is damaged, repair or replace the damaged component(s) as described in GROUP 00E, Harness Connector Inspection P.00E-2.

Q: Is the wiring harness between ETACS-ECU connector C-311 (terminal 1) and liftgate lock actuator connector F-38 (terminal 1) in good condition?

YES : Go to Step 10.

NO : The wiring harness may be damaged or the connector(s) may have loose, corroded or damaged terminals, or terminals pushed back in the connector. Repair the wiring harness as necessary. Verify that the liftgate can be locked and unlocked normally.

STEP 10. Retest the system.
Check that the liftgate can be locked and unlocked normally.

Q: Is the check result normal?

YES : No action is necessary and testing is complete.
NO : Replace the ETACS-ECU. Check that the liftgate can be locked and unlocked normally.

INPUT SIGNAL CHART

M1427005100113

⚠ CAUTION
During diagnosis, a diagnostic trouble code associated with other system may be set when the ignition switch is turned on with connector(s) disconnected. On completion, confirm all systems for diagnostic trouble code(s). If diagnostic trouble code(s) are set, erase them all.

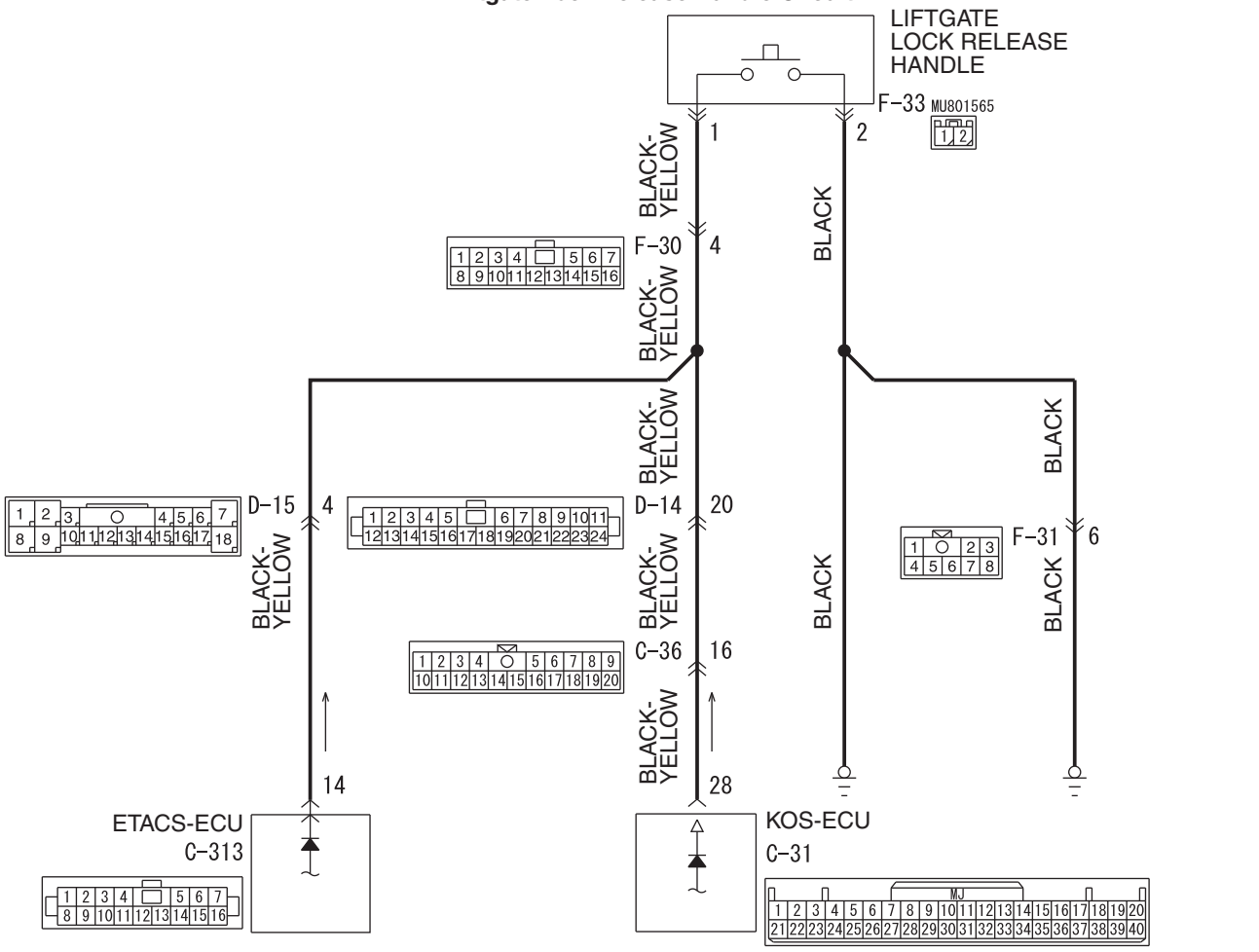
Trouble symptom	Reference page
The liftgate lock release handle signal is not received.	P.42A-158

INPUT SIGNAL PROCEDURES

INSPECTION PROCEDURE: The liftgate lock release handle signal is not received.

⚠ CAUTION
Before replacing the ECU, ensure that the power supply circuit, the ground circuit and the communication circuit are normal.

Liftgate Lock Release Handle Circuit



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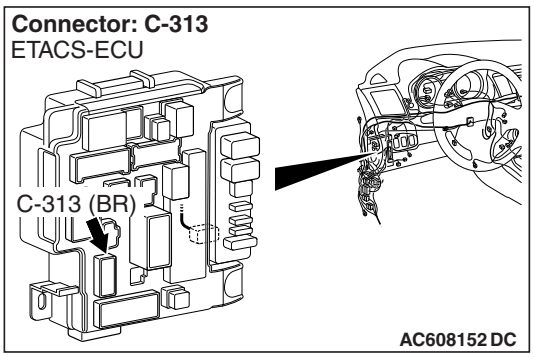
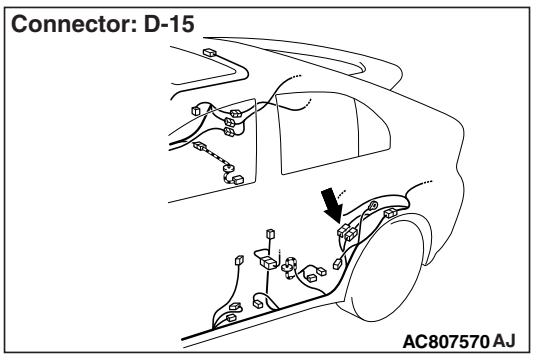
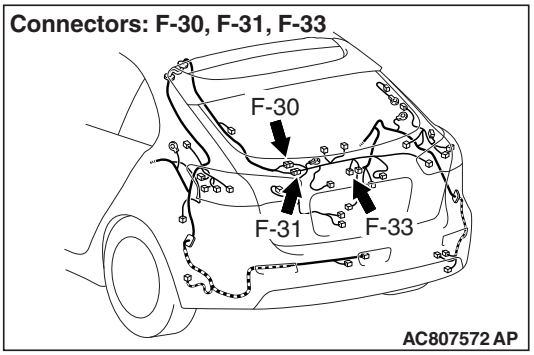


AC608152 DC



AC807570 AJ

TSB Revision



COMMENTS ON TROUBLE SYMPTOM

Input signal from the liftgate lock release handle is used to operate the central door locking function. If the signal is abnormal, the central door locking function will not work normally.

PROBABLE CAUSES

- Malfunction of the liftgate lock release handle
- Malfunction of ETACS-ECU
- Damaged wiring harness and connectors

DIAGNOSTIC PROCEDURE

Required Special Tools:

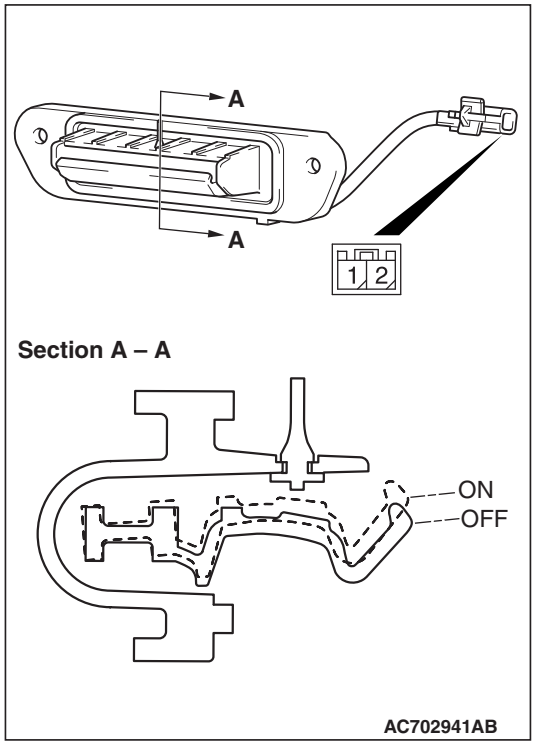
- MB991223: Harness Set
- MB992006: Extra Fine Probe
- MB991958: Scan Tool (M.U.T.-III Sub Assembly)
  - MB991824: Vehicles Communication Interface (V.C.I.)
  - MB991827: M.U.T.-III USB Cable
  - MB991910: M.U.T.-III Main Harness A

STEP 1. Check liftgate lock release handle connector F-33 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is liftgate lock release handle connector F-33 in good condition?

YES : Go to Step 2.

NO : Repair or replace the damaged component(s). Refer to GROUP 00E, Harness Connector Inspection P.00E-2. Repair the liftgate lock release handle. If the liftgate lock release handle operates normally, a correct signal is sent from the liftgate lock release handle.

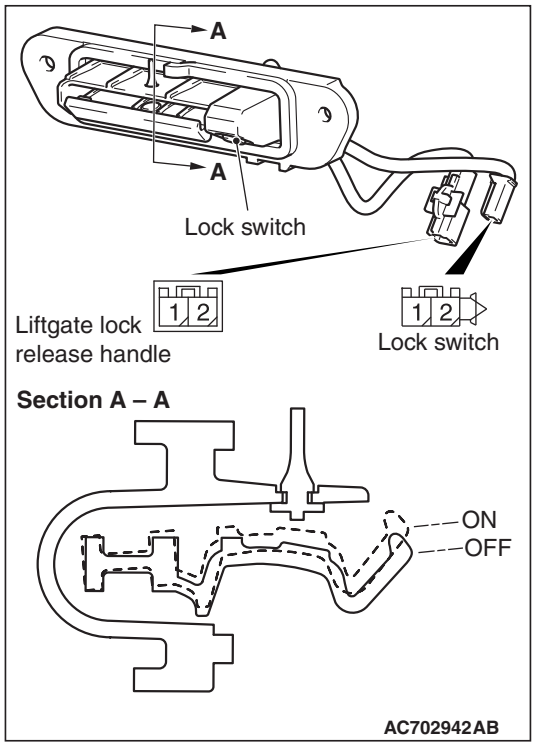


STEP 2. Check the liftgate lock release handle.

Remove the liftgate lock release handle. Refer to Liftgate Handle and Latch P.42A-173. Then check continuity between the switch terminals.

<Vehicles without Keyless Operation System (KOS)>

Handle position	Terminal number	Normal value
ON	1 –2	Continuity exists (2 Ω or less)
OFF	1 –2	Open circuit



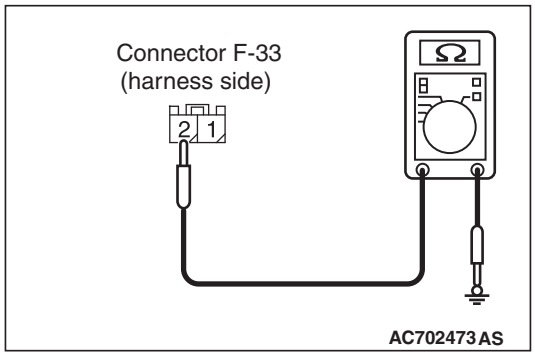
<Vehicles with Keyless Operation System (KOS)>

Handle position	Terminal number	Normal value
ON	1 –2	Continuity exists (2 Ω or less)
OFF	1 –2	Open circuit

Q: Is the liftgate lock release handle in good condition?

YES : Go to Step 3.

NO : Repair the liftgate lock release handle. If the liftgate lock release handle operates normally, a correct signal is sent from the liftgate lock release handle.



STEP 3. Check the ground circuit to the liftgate lock release handle. Measure the resistance at liftgate lock release handle connector F-33.

(1) Disconnect liftgate lock release handle connector F-33 and measure the resistance on the wiring harness side of the connector.

(2) Measure the resistance value between terminal 2 and ground.

- The resistance should be 2 ohms or less.

Q: Is the measured resistance 2 ohms or less?

YES : Go to Step 5.

NO : Go to Step 4.

STEP 4. Check the wiring harness between liftgate lock release handle connector F-33 (terminal 2) and ground.

- Check the ground line for open circuit and short circuit.

NOTE: Also check intermediate connector F-31 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connector F-31 is damaged, repair or replace the damaged component(s) as described in GROUP 00E, Harness Connector Inspection P.00E-2.

Q: Is the wiring harness between liftgate lock release handle connector F-33 (terminal 2) and ground in good condition?

YES : No action is necessary and testing is complete.

NO : The wiring harness may be damaged or the connector(s) may have loose, corroded or damaged terminals, or terminals pushed back in the connector. Repair the wiring harness as necessary. If the liftgate lock release handle operates normally, a correct signal is sent from the liftgate lock release handle.

STEP 5. Check ETACS-ECU connector C-313 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is ETACS-ECU connector C-313 in good condition?

YES : Go to Step 6.

NO : Repair or replace the damaged component(s). Refer to GROUP 00E, Harness Connector Inspection P.00E-2. If the liftgate lock release handle operates normally, a correct signal is sent from the liftgate lock release handle.

STEP 6. Check the wiring harness between liftgate lock release handle connector F-33 (terminal 1) and ETACS-ECU connector C-313 (terminal 14).

- Check the power supply line for open circuit and short circuit.

NOTE: Also check intermediate connector D-15, F-30 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connector D-15, F-30 is damaged, repair or replace the damaged component(s) as described in GROUP 00E, Harness Connector Inspection P.00E-2.

Q: Is the wiring harness between liftgate lock release handle connector F-33 (terminal 1) and ETACS-ECU connector C-313 (terminal 14) in good condition?

YES : Go to Step 7.

NO : The wiring harness may be damaged or the connector(s) may have loose, corroded or damaged terminals, or terminals pushed back in the connector. Repair the wiring harness as necessary. If the liftgate lock release handle operates normally, a correct signal is sent from the liftgate lock release handle.

STEP 7. Using scan tool MB991958, check data list.

Check the signals related to the liftgate lock release handle operation.

⚠ CAUTION

To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.

(1) Connect scan tool MB991958. Refer to GROUP 42B, "How to connect scan tool (M.U.T.-III) P.42B-9."

(2) Turn the ignition switch to the "ON" position.

(3) Check the data list of the ETACS.

- Liftgate lock release handle: from OFF to ON

Item No.	Item name	Normal condition
230	Trunk / gate opener	from OFF to ON

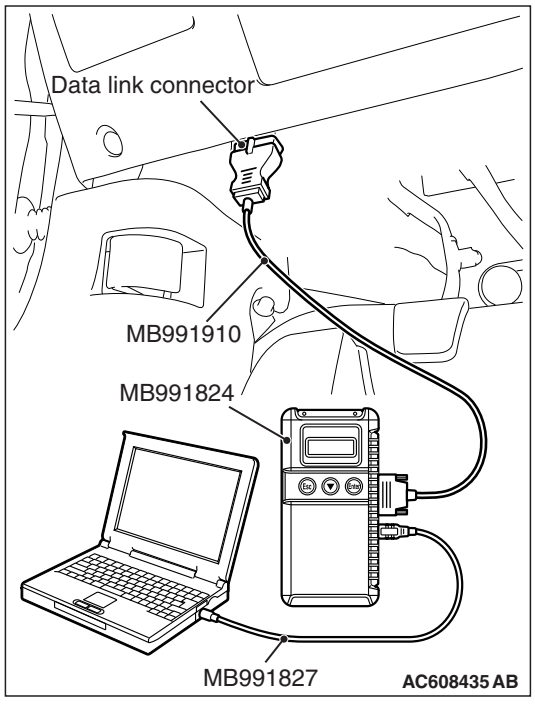
(4) Turn the ignition switch to the "LOCK" (OFF) position.

OK: Normal condition is displayed.

Q: Is the check result normal?

YES : No action is necessary and testing is complete.

NO : Replace the ETACS-ECU. If the liftgate lock release handle operates normally, a correct signal is sent from the liftgate lock release handle.



LIFTGATE DIAGNOSIS

INTRODUCTION TO LIFTGATE DIAGNOSIS

M1424002500146

Difficult locking/unlocking, uneven clearance, and wind noise from the liftgate may be due to improper adjustment of the liftgate.

LIFTGATE DIAGNOSTIC TROUBLESHOOTING STRATEGY

M1424002600198

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

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

SYMPTOM CHART

M1424002700162

Symptom	Inspection procedure	Reference page
Difficult locking and unlocking	1	P.42A-163
Uneven body clearance	2	P.42A-164
Uneven height	3	P.42A-164

SYMPTOM PROCEDURES

INSPECTION PROCEDURE 1: Difficult Locking and Unlocking

DIAGNOSIS

STEP 1. Check the release cable routing condition.

Q: Is the release cable routed correctly?
YES : Go to Step 3.
NO : Repair the release cable. Then go to Step 2.

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

Q: Are the liftgate latch and liftgate striker engaged correctly?
YES : Then go to Step 3.
NO : Align the liftgate latch and liftgate striker (Refer to P.42A-166).

STEP 3. Retest the system.

Q: Does the liftgate lock operate easily?
YES : The procedure is complete.
NO : Return to Step 1.

INSPECTION PROCEDURE 2: Uneven Body Clearance

DIAGNOSIS

STEP 1. Check the clearance around the liftgate.

Q: Is the liftgate installed correctly?
YES : Go to Step 2.
NO : Adjust clearance around liftgate (Refer to P.42A-166).

STEP 2. Retest the system.

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

INSPECTION PROCEDURE 3: Uneven Height

DIAGNOSIS

STEP 1. Check the liftgate damper height.

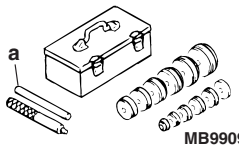
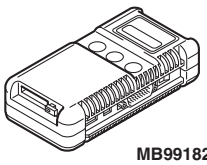
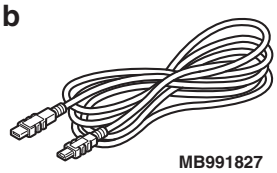
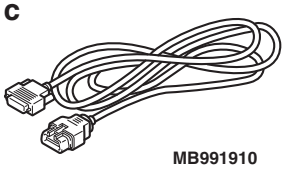
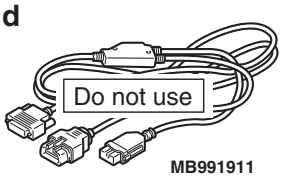
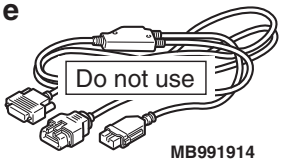
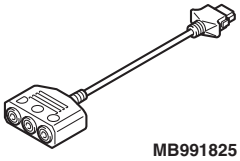
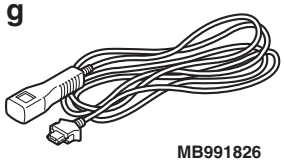
Q: Is the liftgate damper height proper?
YES : Go to Step 2.
NO : Adjust the liftgate damper (Refer to P.42A-167). Then go to Step2.

STEP 2. Retest the system.

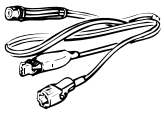
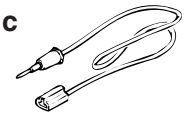
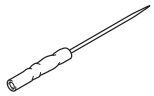
Q: Are the liftgate and body height even?
YES : The procedure is complete.
NO : Return to Step 1.

SPECIAL TOOL

M1424000600620

Tool	Tool number and name	Supersession	Application
 MB990925AI	MB990925 Bearing and oil seal installer set a. MB990939 Remover bar	MB990925-01 or General service tool	Adjustment of door striker
a  MB991824 b  MB991827 c  MB991910 d  MB991911 e  MB991914 f  MB991825 g  MB991826 MB991958	MB991958 a. MB991824 b. MB991827 c. MB991910 d. MB991911 e. MB991914 f. MB991825 g. MB991826 Scan tool (M.U.T.-III sub assembly) a. Vehicle communication interface (V.C.I.) b. M.U.T.-III USB cable c. M.U.T.-III main harness A (Vehicles with CAN communication system) d. M.U.T.-III main harness B (Vehicles without CAN communication system) e. M.U.T.-III main harness C (for Chrysler models only) f. M.U.T.-III measurement adapter g. M.U.T.-III trigger harness	MB991824-KIT *NOTE: G: MB991826 M.U.T.-III Trigger Harness is not necessary when pushing V.C.I. ENTER key.*	**⚠ CAUTION** **For vehicles with CAN communication, use M.U.T.-III main harness A to send simulated vehicle speed. If you connect M.U.T.-III main harness B instead, the CAN communication does not function correctly.** Communication line check (ECU check and service data)

TSB Revision

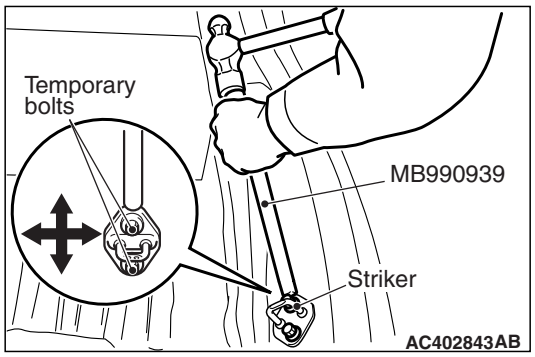
Tool	Tool number and name	Supersession	Application
a  b  c  d  Do not use MB991223	MB991223 Harness set a. MB991219 Test harness b. MB991220 LED harness c. MB991221 LED harness adapter d. MB991222 Probe	General service tools	Measurement of terminal voltage and resistance a. Connector pin contact pressure inspection b. Power circuit inspection c. Power circuit inspection d. Commercial tester connection
 MB992006	MB992006 Extra fine probe	–	Measurement of terminal voltage and resistance

ON-VEHICLE SERVICE

LIFTGATE ALIGNMENT

M1424000900513

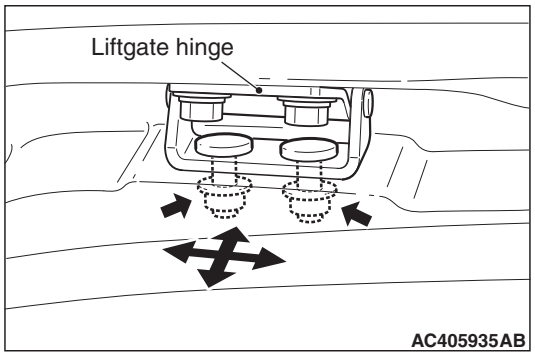
ADJUSTMENT OF ENGAGEMENT BETWEEN STRIKER AND LATCH



1. Replace the striker mounting screws with temporary bolts, and use the remover bar (Special tool: MB990939) and a hammer to tap the temporary bolt to the desired direction.
2. Tighten the striker mounting screws.

   Tightening torque: 20 ± 5 N· m (15 ± 3 ft-lb)

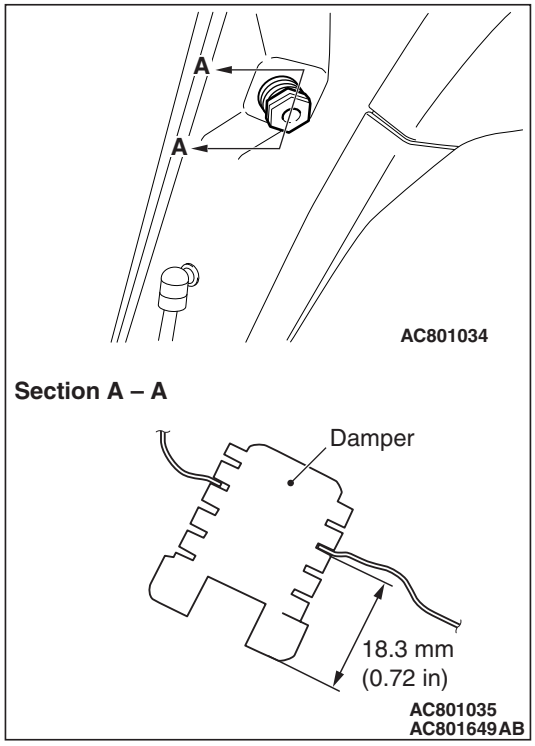
ADJUSTMENT OF CLEARANCE BETWEEN LIFTGATE AND BODY



1. Remove the headlining (Refer to GROUP 52A –Headlining P.52A-18).
2. Loosen the liftgate hinge-to-vehicle body mounting nuts to adjust the liftgate.
3. Tighten the body side mounting nuts of liftgate hinge.
   Tightening torque: 12 ± 1 N· m (106 ± 8 in-lb)
4. Install the headlining (Refer to GROUP 52A –Headlining P.52A-18).

ADJUSTMENT OF LIFTGATE HEIGHT

M1424003500398



Rotate the damper by using the arrow mark on the damper as a guide to adjust the liftgate height. The damper height is altered by roughly 3.0 mm (0.12 inch) when the damper is rotated once.

NOTE: If a rattling noise is heard due to the vibration of the liftgate when the vehicle is being driven, adjust the damper height until the damper is seated on the vehicle body. The damper should be seated on the vehicle body regardless of a rattling noise.

LIFTGATE

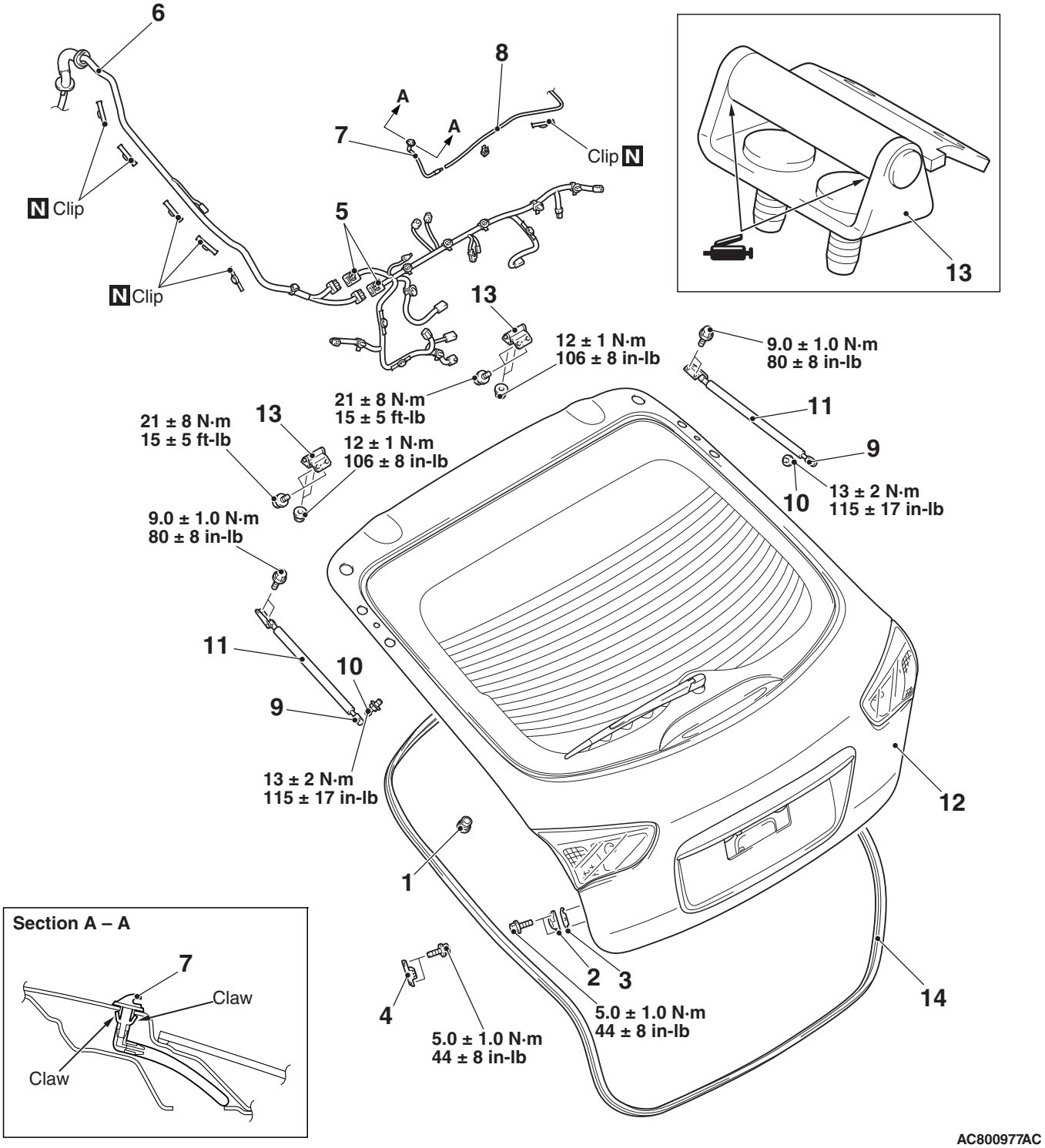
REMOVAL AND INSTALLATION

M1424001100833

⚠ CAUTION

- **Do not disassemble or throw the liftgate gas spring into the fire.**
- **Before disposal, make a hole to remove the gas.**
- **Make sure that the piston rod should not collect any foreign particles.**

Pre-removal operation	Post-installation operation
• Liftgate spoiler assembly removal <Vehicles with liftgate spoiler> (Refer to GROUP 51 –Liftgate Spoiler P.51-22.) • Liftgate trim upper, liftgate trim side, liftgate trim lower removal (Refer to GROUP 52A –Liftgate Trim P.52A-17.) • Rear wiper motor and rear washer hose removal (Refer to GROUP 51 –Rear Wiper and Washer P.51-111.)	• Liftgate alignment (Refer to P.42A-166.) • Adjustment of liftgate height (Refer to P.42A-167.) • Rear wiper motor and rear washer hose installation (Refer to GROUP 51 –Rear Wiper and Washer P.51-111.) • Liftgate trim upper, liftgate trim side, liftgate trim lower installation (Refer to GROUP 52A –Liftgate Trim P.52A-17.) • Liftgate spoiler assembly installation <Vehicles with liftgate spoiler> (Refer to GROUP 51 –Liftgate Spoiler P.51-22.)



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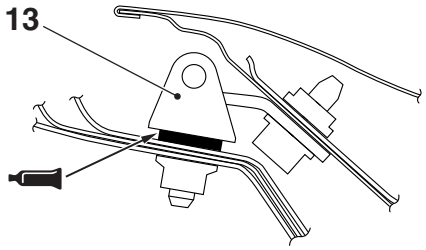


AC801036

Adhesive: 3M™ AAD Part No.8531 Heavy Drip Check Sealer, 3M™ AAD Part No.8646 Automotive Joint and Seam Sealer or equivalent

AC801702AB

Liftgate assembly removal steps

1. Damper
>>**D**<< 2. Liftgate male damper
3. Shim <Vehicles with shim>
>>**C**<< 4. Liftgate damper
5. Liftgate harness connector connection
<<**A**>> 6. Rear floor wiring harness
7. Rear washer nozzle assembly
<<**A**>> 8. Rear washer hose
<<**B**>> 9. Liftgate gas spring connection

Liftgate assembly removal steps

10. Ball joint
>>**B**<< 11. Liftgate gas spring assembly
12. Liftgate assembly

Liftgate hinge removal steps

- Headlining (Refer to GROUP 52A – Headlining P.52A-18.)

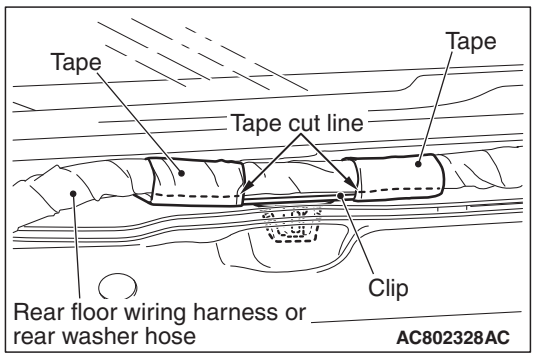
13. Liftgate hinge

Liftgate opening weatherstrip removal

>>**A**<< 14. Liftgate opening weatherstrip

REMOVAL SERVICE POINTS

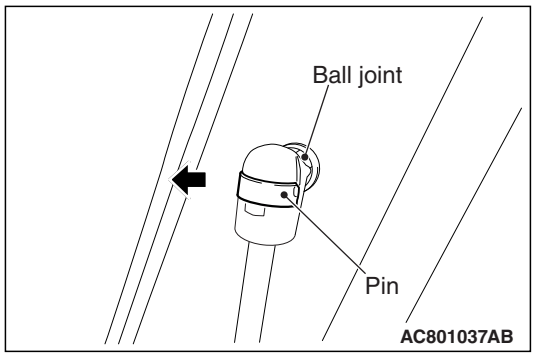
<<A>> REAR FLOOR WIRING HARNESS AND REAR WASHER HOSE REMOVAL



AC802328AC

1. Cut the tape that is wrapped around the rear floor wiring harness, rear washer hose and clip with a knife or a similar tool. Then, remove the rear floor wiring harness and rear washer hose.
2. Remove the rear floor wiring harness and rear washer hose from the liftgate.

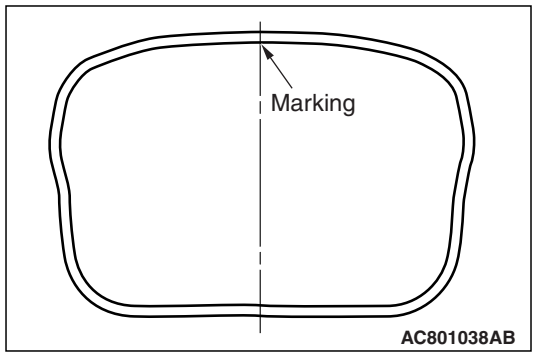
<<B>> LIFTGATE GAS SPRING CONNECTION REMOVAL



As shown in the figure, slide the pin and remove the liftgate gas spring assembly from the ball joint in the direction of the arrow.

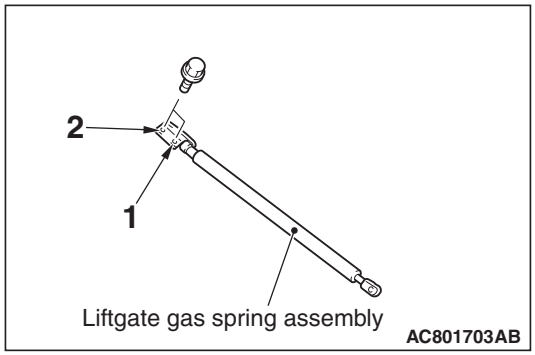
INSTALLATION SERVICE POINTS

>>A<< LIFTGATE OPENING WEATHERSTRIP INSTALLATION



The marking on the liftgate opening weatherstrip should be positioned at the center of the body.

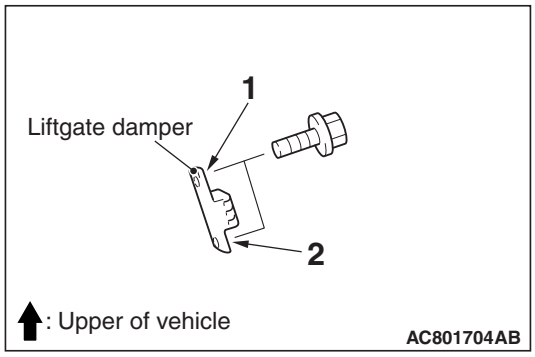
>>B<< LIFTGATE GAS SPRING ASSEMBLY INSTALLATION



Install the mounting bolts of liftgate gas spring assembly in the order shown in the illustration.

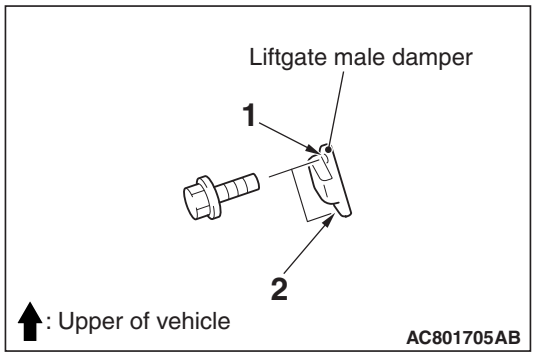
>>C<< LIFTGATE DAMPER INSTALLATION

Install the mounting bolts of liftgate damper in the order shown in the illustration.



>>D<< LIFTGATE MALE DAMPER INSTALLATION

Install the mounting bolts of liftgate male damper in the order shown in the illustration.

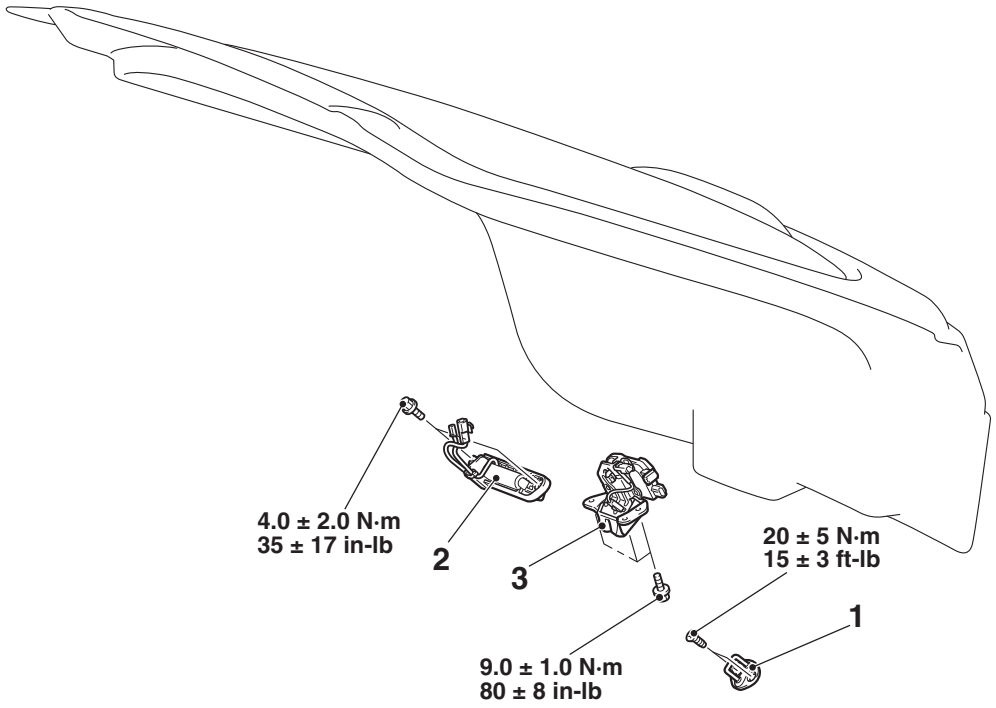


LIFTGATE HANDLE AND LATCH

REMOVAL AND INSTALLATION

M1424001700868

Post-installation operation
- Liftgate alignment (Refer to P.42A-166.)



AC805853AB

Striker removal

>>C<< 1. Striker

Liftgate lock release handle removal steps

- Liftgate trim lower (Refer to GROUP 52A –Liftgate Trim P.52A-17.)

>>B<< 2. Liftgate lock release handle

Liftgate latch removal steps

- Liftgate trim lower (Refer to GROUP 52A –Liftgate Trim P.52A-17.)

>>A<< 3. Liftgate latch assembly

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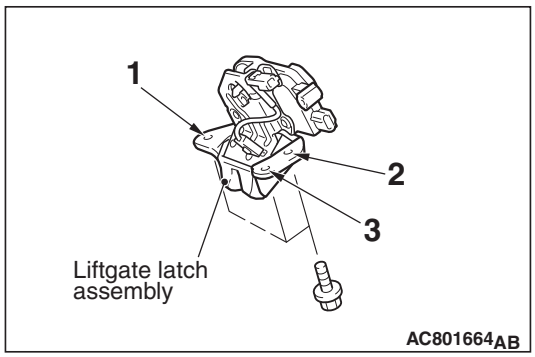
INSTALLATION SERVICE POINTS

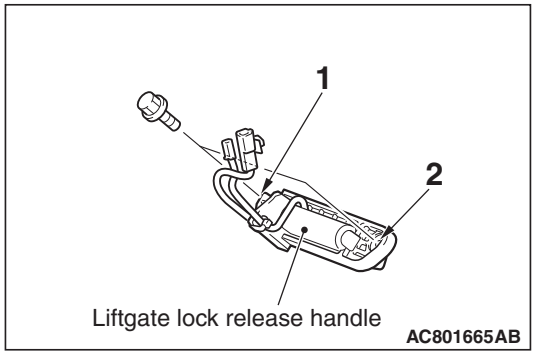
>>A<< LIFTGATE LATCH ASSEMBLY INSTALLATION

Install the mounting bolts of liftgate latch assembly in the order shown in the illustration.



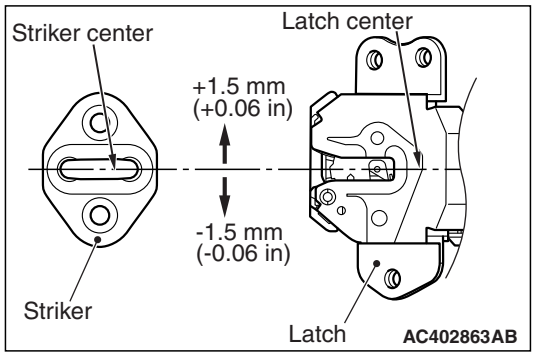
>>B<< LIFTGATE LOCK RELEASE HANDLE INSTALLATION

Install the mounting bolts of liftgate lock release handle in the order shown in the illustration.



>>C<< STRIKER INSTALLATION

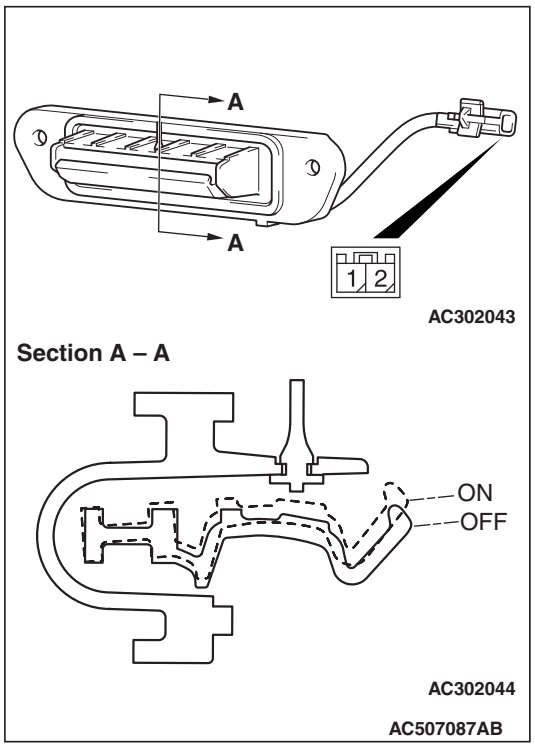
Install the striker so that the striker center does not deviate more than ±1.5 mm (0.06 inch) from the latch center.



INSPECTION

M1424001800207

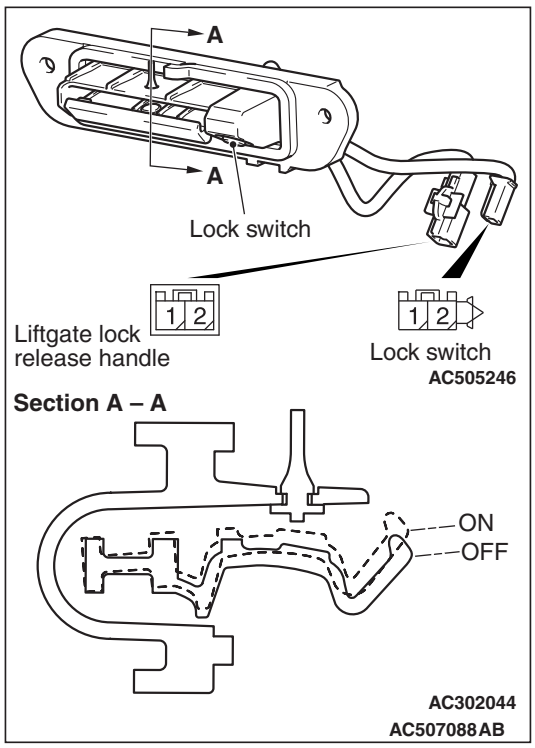
LIFTGATE LOCK RELEASE HANDLE CHECK <VEHICLES WITHOUT KEYLESS OPERATION SYSTEM (KOS)>



Handle position	Terminal number	Normal value
ON	1 –2	Continuity exists (2 Ω or less)
OFF	1 –2	Open circuit

LIFTGATE LOCK RELEASE HANDLE CHECK <VEHICLES WITH KEYLESS OPERATION SYSTEM (KOS)>

<LIFTGATE LOCK RELEASE HANDLE>



Handle position	Terminal number	Normal value
ON	1 –2	Continuity exists (2 Ω or less)
OFF	1 –2	Open circuit

<LOCK SWITCH>

Switch position	Terminal number	Normal value
ON	1 –2	Continuity exists (2 Ω or less)
OFF	1 –2	Open circuit

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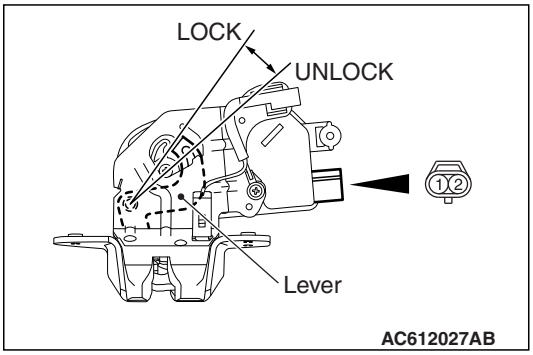
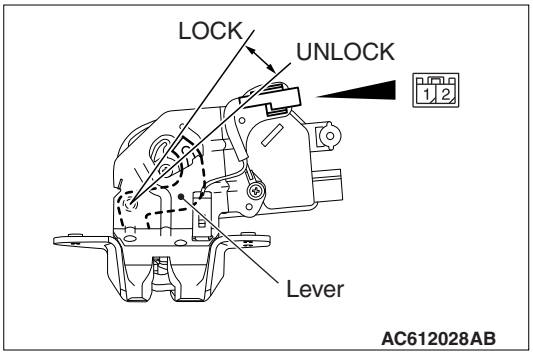
LIFTGATE LATCH CHECK

CHECK THE LIFTGATE LOCK ACTUATOR.



Lever position	Battery connection	Lever operation
At the "LOCK" position	• Connect terminal No.2 to the negative battery terminal. • Connect terminal No.1to the positive battery terminal.	The lever moves from the "LOCK" position to the "UNLOCK" position.

LIFTGATE LATCH SWITCH CHECK



Lever position	Terminal number	Normal value
Unlock	1 –2	Continuity exists (2 Ω or less).
Lock	1 –2	Open circuit

SUNROOF

GENERAL INFORMATION

M1426000100342

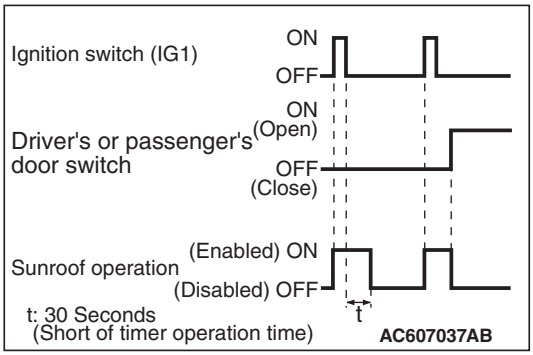
SUNROOF FUNCTION

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

SAFETY MECHANISM

- If any obstacle such as a hand or a head is detected to be pinched during a sunroof lid glass closing operation, the sunroof lid glass is opened by approximately 200 mm (7.9 inches) or more.
- During the sunroof lid glass closing operation, by continuing the sunroof close switch operation, the sunroof can be forcibly closed without activating the safety mechanism even when the obstacle is detected to be pinched.
- During the safety mechanism activation, when the sunroof close switch is operated, the sunroof lid glass stops. By continuing the close switch operation, the sunroof lid glass can be forcibly closed without activating the safety mechanism even when the obstacle is detected to be pinched.

SUNROOF TIMER FUNCTION



The sunroof ECU (integrated into the sunroof motor assembly) receives the ignition switch (IG1) signal transmitted by ETACS-ECU. If the ignition switch (IG1) signal turns OFF, the sunroof ECU allows the sunroof switch to open/close (timer activation) the sunroof for approximately 30 seconds. During the timer operation, if the driver's or passenger's door open is detected from the door switch signal transmitted by ETACS-ECU, the sunroof timer function stops at this time.

SPECIFICATIONS

SERVICE SPECIFICATION

M1421000300794

Item	Standard value
Sunroof lid glass operation current A	7 or less [at 20° C(68° F)]

SEALANT

M1421000500431

Item	Specified sealant
Sunroof assembly	Grease: Use resin –proof silicone grease

SUNROOF DIAGNOSIS

TROUBLESHOOTING STRATEGY

M1426001700239

Refer to GROUP 00, How to Use Troubleshooting/Inspection Service Points, Troubleshooting Contents P.00-6.

DIAGNOSTIC TROUBLE CODE CHART

M1426001900147

⚠ CAUTION

On troubleshooting, if the ignition switch is turned ON while disconnecting connector(s), diagnosis code(s) associated with other system may be set. On completion, check all systems for diagnosis code(s). If diagnosis code(s) are set, erase them all.

Diagnosis code No.	Diagnostic item	Reference page
L0630	S/R Power supply	P.42A-179
L0632	S/R Switch fail	P.42A-181
L0634	S/R Sensor signal	P.42A-183
L0637	S/R Position	P.42A-183
L0640	S/R Over load	P.42A-184

NOTE: S/R: Abbreviation of sunroof

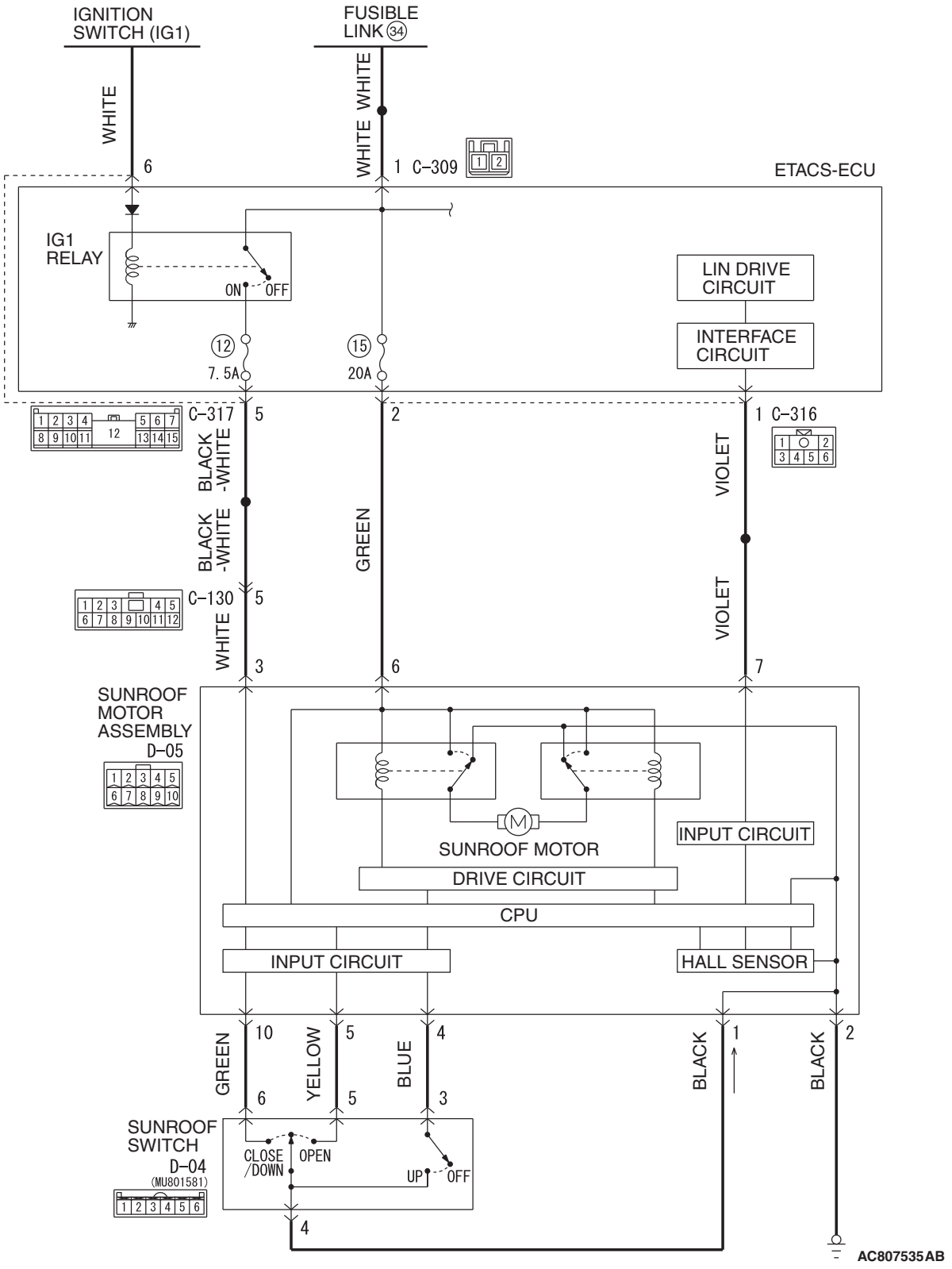
DIAGNOSTIC TROUBLE CODE PROCEDURES

CODE NO. L0630 S/R Power supply

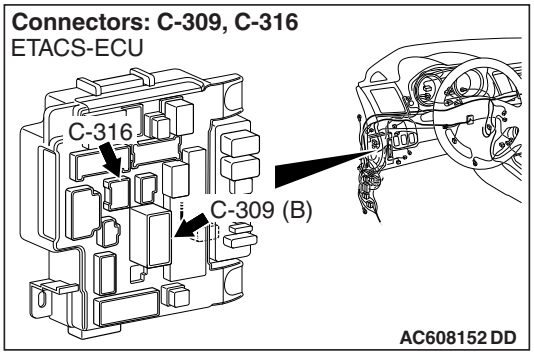
⚠ CAUTION

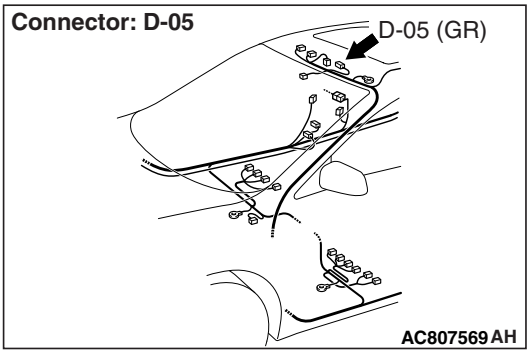
Before replacing the ECU, ensure that the input and output signal circuits are normal.

Sunroof Motor Assembly Power Supply Circuit



TSB Revision





COMMENTS ON TROUBLE SYMPTOM

When the terminal voltage of the sunroof motor assembly is 8 V or less, or 18 V or more, and if it continues for 60 seconds, the sunroof motor assembly will set the diagnostic trouble code No. L0630.

PROBABLE CAUSES

- Malfunction of the sunroof motor assembly
- Damaged wiring harness and connectors

DIAGNOSTIC PROCEDURE

STEP 1. Check sunroof motor assembly connector D-05 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is sunroof switch connector D-05 in good condition?

YES : Go to Step 2.

NO : Repair or replace the damaged component(s). Refer to GROUP 00E, Harness Connector Inspection P.00E-2. Check that the sunroof works normally.

STEP 2. Check the wiring harness between sunroof motor assembly connector D-05 (terminal 6) and fusible link (34).

- Check the power supply line for open circuit and short circuit.

NOTE: Also check ETACS-ECU connectors C-309 and C-316 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If ETACS-ECU connectors C-309 and C-316 is damaged, repair or replace the damaged component(s) as described in GROUP 00E, Harness Connector Inspection P.00E-2.

Q: Is the wiring harness between sunroof motor assembly connector D-05 (terminal 6) and fusible link (34) in good condition?

YES : Go to Step 3.

NO : The wiring harness may be damaged or the connector(s) may have loose, corroded or damaged terminals, or terminals pushed back in the connector. Repair the wiring harness as necessary. Check that the sunroof works normally.

TSB Revision

STEP 3. Diagnostic trouble code recheck

Recheck if the diagnostic trouble code is set.
(1) Erase the diagnostic trouble code.
(2) Turn the ignition switch from the LOCK (OFF) position to the ON position.
(3) Check if the diagnostic trouble code is set.

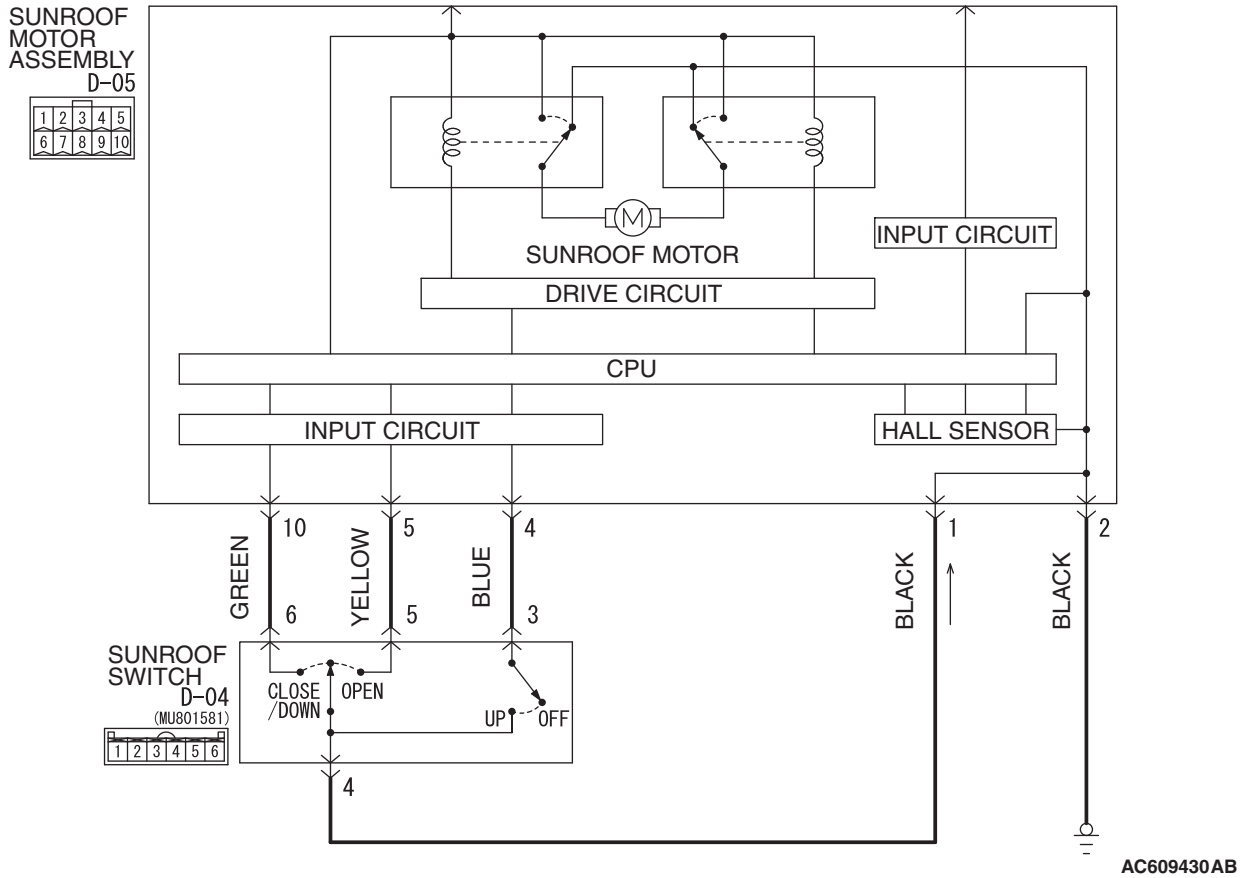
Q: Is the diagnostic trouble code set?

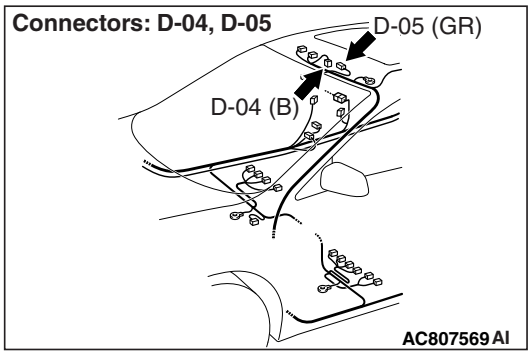
YES : Replace the sunroof motor assembly.
NO : The procedure is complete.

CODE NO. L0632 S/R Switch fail

⚠ CAUTION
Before replacing the ECU, ensure that the input and output signal circuits are normal.

Sunroof Switch Circuit





COMMENTS ON TROUBLE SYMPTOM

If each switch (UP, OPEN, CLOSE/DOWN) of the sunroof switch is in the ON status for 60 seconds, the sunroof motor assembly will set the diagnostic trouble code No. L0632.

PROBABLE CAUSES

- Malfunction of the sunroof motor assembly
- Malfunction of the sunroof switch
- Damaged wiring harness and connectors

DIAGNOSTIC PROCEDURE

STEP 1. Check sunroof switch connector D-04 and sunroof motor assembly D-05 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Are sunroof switch connector D-04 and sunroof motor assembly D-05 in good condition?

YES : Go to Step 2.

NO : Repair or replace the damaged component(s). Refer to GROUP 00E, Harness Connector Inspection P.00E-2. Check that the sunroof works normally.

STEP 2. Check the wiring harness between sunroof switch connector D-04 (terminals No. 3, 5, 6) and sunroof motor assembly connector D-05 (terminals No. 4, 5, 10).

- Check the signal line for open circuit and short circuit.

Q: Is the wiring harness between sunroof switch connector D-04 (terminal 3, 5, 6) and sunroof motor assembly connector D-05 (terminal No. 4, 5, 10) in good condition?

YES : Go to Step 3.

NO : The wiring harness may be damaged or the connector(s) may have loose, corroded or damaged terminals, or terminals pushed back in the connector. Repair the wiring harness as necessary. Check that the sunroof works normally.

STEP 3. Diagnostic trouble code recheck

Replace the sunroof switch. Recheck if the diagnostic trouble code is set.

(1) Erase the diagnostic trouble code.
(2) Turn the ignition switch from the LOCK (OFF) position to the ON position.
(3) Check if the diagnostic trouble code is set.

Q: Is the diagnostic trouble code set?

YES : Replace the sunroof motor assembly.

NO : The procedure is complete.

TSB Revision

CODE NO. L0634 S/R Sensor signal

⚠ CAUTION
Before replacing the ECU, ensure that the input and output signal circuits are normal.

COMMENTS ON TROUBLE SYMPTOM
If one of two signals from the sunroof lid glass position detection sensor cannot be detected, the sunroof motor assembly will set the diagnostic trouble code No. L0634.

PROBABLE CAUSES
- Malfunction of the sunroof motor assembly

DIAGNOSTIC PROCEDURE

Diagnostic trouble code recheck
Recheck if the diagnostic trouble code is set.
(1) Erase the diagnostic trouble code.
(2) Turn the ignition switch from the LOCK (OFF) position to the ON position.
(3) Check if the diagnostic trouble code is set.

Q: Is the diagnostic trouble code set?
YES : Replace the sunroof motor assembly.
NO : The procedure is complete.

CODE NO. L0637 S/R Position

⚠ CAUTION
Before replacing the ECU, ensure that the input and output signal circuits are normal.

COMMENTS ON TROUBLE SYMPTOM
If the roof lid glass position is out of the specified range, ETACS-ECU will set the diagnostic trouble code No. L0637.

PROBABLE CAUSES
- Malfunction of the sunroof motor assembly

DIAGNOSTIC PROCEDURE

STEP 1. Check the sunroof fully closed position
(1) Carry out the learning procedures of the sunroof fully closed position. Refer to P.42A-212.
(2) Recheck if the diagnostic trouble code is set.
  a. Erase the diagnostic trouble code.
  b. Turn the ignition switch from the LOCK (OFF) position to the ON position.
  c. Check if the diagnostic trouble code is set.

Q: Is the check result normal?
YES : The procedure is complete.
NO : Go to Step 2.

STEP 2. Diagnostic trouble code recheck
Recheck if the diagnostic trouble code is set.
(1) Erase the diagnostic trouble code.
(2) Turn the ignition switch from the LOCK (OFF) position to the ON position.
(3) Check if the diagnostic trouble code is set.

Q: Is the diagnostic trouble code set?
YES : Replace the sunroof motor assembly.
NO : The procedure is complete.

CODE NO. L0640 S/R Over load

⚠ CAUTION
Before replacing the ECU, ensure that the input and output signal circuits are normal.

COMMENTS ON TROUBLE SYMPTOM
If the over load (foreign material pinched) is detected consecutively five times during a sunroof operation, ETACS-ECU will set the diagnostic trouble code No. L0640.

PROBABLE CAUSES
- Malfunction of the sunroof motor assembly

DIAGNOSTIC PROCEDURE

STEP 1. Check the sunroof fully closed position
(1) Carry out the learning procedures of the sunroof fully closed position. Refer to P.42A-212.
(2) Recheck if the diagnostic trouble code is set.
  a. Erase the diagnostic trouble code.
  b. Turn the ignition switch from the LOCK (OFF) position to the ON position.
  c. Check if the diagnostic trouble code is set.

Q: Is the check result normal?
YES : The procedure is complete.
NO : Go to Step 2.

STEP 2. Diagnostic trouble code recheck
Recheck if the diagnostic trouble code is set.
(1) Erase the diagnostic trouble code.
(2) Turn the ignition switch from the LOCK (OFF) position to the ON position.
(3) Check if the diagnostic trouble code is set.

Q: Is the diagnostic trouble code set?
YES : Replace the sunroof motor assembly.
NO : The procedure is complete.

TROUBLE SYMPTOM CHART

M1426002000437

⚠ CAUTION

During diagnosis, a diagnosis code associated with other system may be set when the ignition switch is turned on with connector(s) disconnected. On completion, check all systems for diagnosis code(s). If diagnosis code(s) are set, erase them all.

Trouble symptom	Inspection procedure number	Reference page
Sunroof does not work at all.	1	P.42A-186
The sunroof lid glass does not tilt-up (tilt-down, open, and close normally).	2	P.42A-194
The sunroof lid glass does not open (tilt-up, tilt-down, and close normally).	3	P.42A-197
The sunroof lid glass does not tilt-down or close (tilt-up and open normally).	4	P.42A-200
Sunroof safety function does not work.	5	P.42A-203
The sunroof timer function does not work.	6	P.42A-204

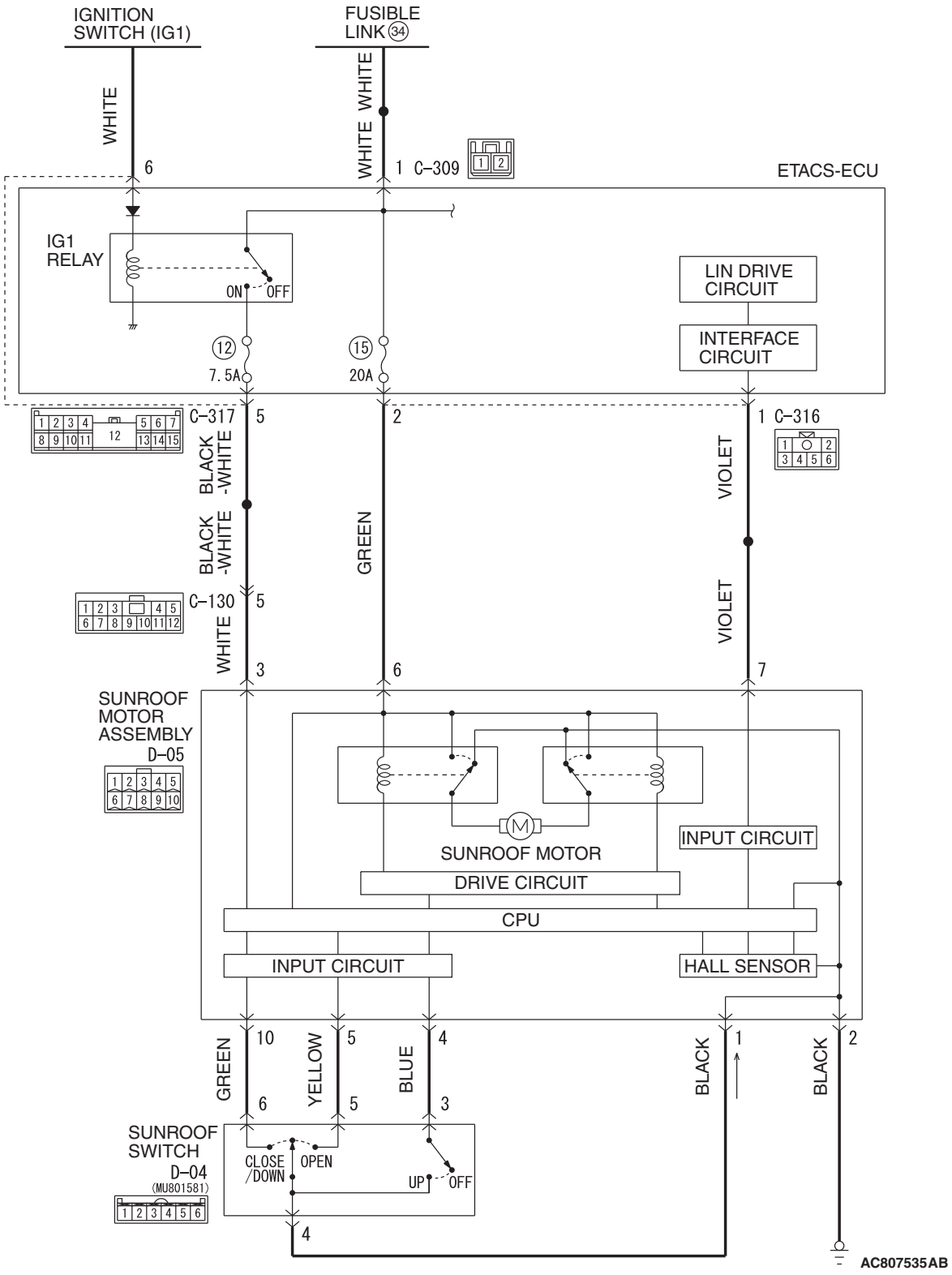
SYMPTOM PROCEDURES

INSPECTION PROCEDURE 1: Sunroof does not work at All.

⚠ CAUTION

Before replacing the ECU, ensure that the power supply circuit, the ground circuit and the communication circuit are normal.

Sunroof Motor Assembly Power Supply Circuit



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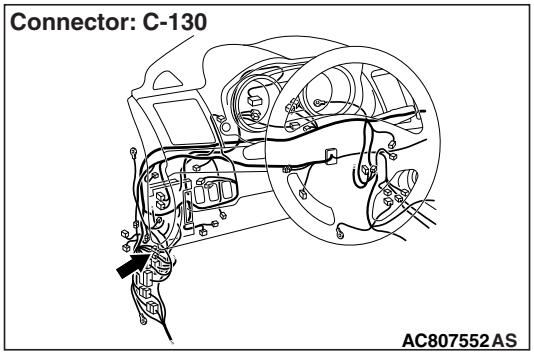
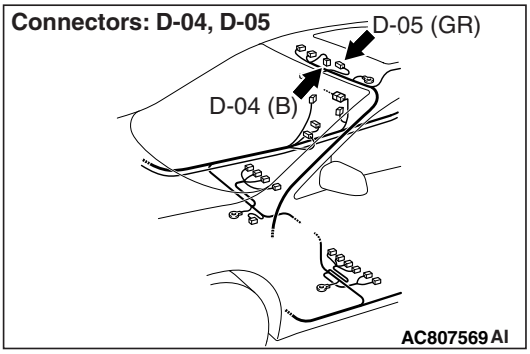
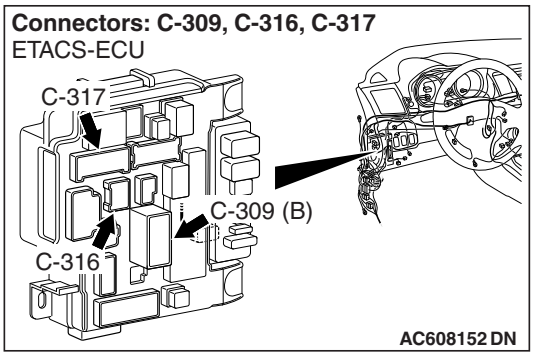






CIRCUIT OPERATION

Malfunctions of the sunroof motor assembly power supply/ground system, sunroof motor assembly, or sunroof switch are suspected.

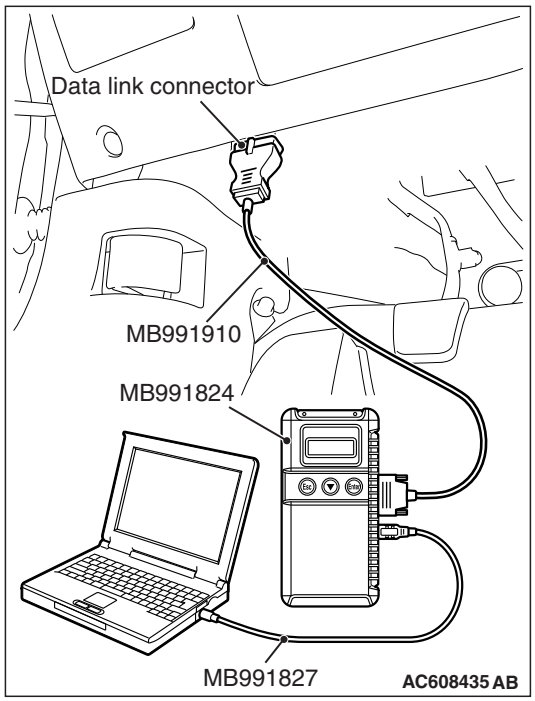
TROUBLESHOOTING HINTS

- The sunroof switch may be defective
- The sunroof motor assembly may be defective
- The wiring harness or connectors may have loose, corroded, or damaged terminals, or terminals pushed back in the connector

DIAGNOSTIC PROCEDURE

Required Special Tools:

- MB992006: Extra fine probe
- MB991223: Harness set
- MB991958: Scan Tool (M.U.T.-III Sub Assembly)
  - MB991824: Vehicles Communication Interface (V.C.I.)
  - MB991827: M.U.T.-III USB Cable
  - MB991910: M.U.T.-III Main Harness A



STEP 1. Using scan tool MB991958, read the diagnostic trouble code.

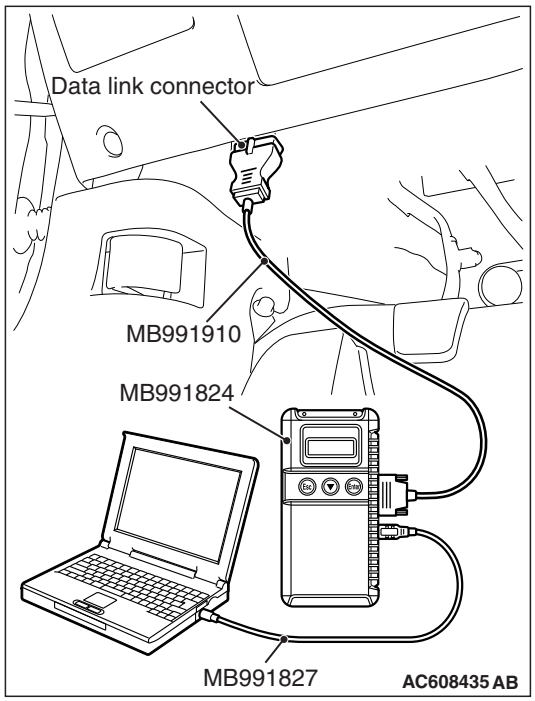
⚠ CAUTION

To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.

(1) Connect scan tool MB991958. Refer to "How to connect scan tool (M.U.T.-III) P.42B-9."
(2) Turn the ignition switch to the "ON" position.
(3) Check whether the ETACS-ECU related DTC is set.
(4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the DTC set?

YES : Diagnose the ETACS-ECU (Refer to GROUP 54B, Diagnostic Trouble Code Chart P.54B-6).
NO : Go to Step 2.



STEP 2. Using scan tool MB991958, read the diagnostic trouble code.

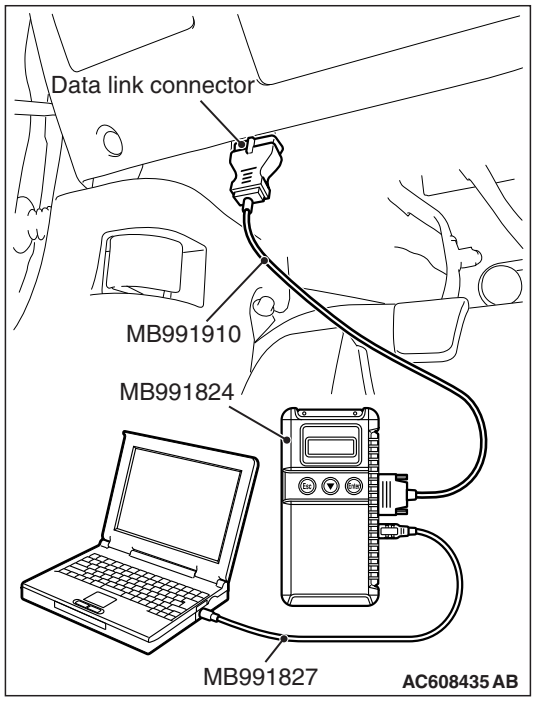
⚠ CAUTION

To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.

(1) Connect scan tool MB991958. Refer to "How to connect scan tool (M.U.T.-III) P.42B-9."
(2) Turn the ignition switch to the "ON" position.
(3) Check whether the sunroof motor assembly related DTC is set.
(4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the DTC set?

YES : Diagnose the sunroof motor assembly. Refer to P.42A-178.
NO : Go to Step 3.



STEP 3. Using scan tool MB991958, check data list.

Check the signals related to the power window operation.

⚠ CAUTION

To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.

(1) Connect scan tool MB991958. Refer to "How to connect the Scan Tool (M.U.T.-III) P.42B-9."
(2) Turn the ignition switch to the "ON" position.
(3) Check the data list of the ETACS.
- Turn the ignition switch to the LOCK (OFF) position.

Item No.	Item name	Normal condition
254	IG voltage	Battery positive voltage

(4) Turn the ignition switch to the "LOCK" (OFF) position.

OK: Normal condition is displayed.

Q: Is the check result normal?

YES : Go to Step 4.
NO : Refer to GROUP 54A, Inspection Procedure 2: ETACS-ECU does not receive any signal from the ignition switch (IG1) P.54A-734.

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STEP 4. Check sunroof switch connector D-04 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is sunroof switch connector D-04 in good condition?

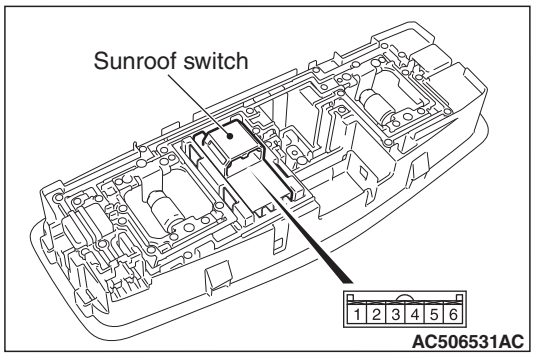
YES : Go to Step 5.

NO : Repair or replace the damaged component(s). Refer to GROUP 00E, Harness Connector Inspection P.00E-2. Check that the sunroof works normally.

STEP 5. Sunroof switch check

(1) Remove the sunroof switch. Refer to P.42A-216.

(2) Check continuity when the sunroof switch is operated to "OPEN", "TILT-UP" or "CLOSE/TILT-DOWN" position.



Switch position	Terminal No.	Normal value
Tilt-up	3 –4	Continuity exists (2 Ω or less)
OFF	3 –4, 4 –5, 4 –6	Open circuit
Open	4 –5	Continuity exists (2 Ω or less)
Close/tilt-down	4 –6	Continuity exists (2 Ω or less)

Q: Is the sunroof switch normal?

YES : Go to Step 6.

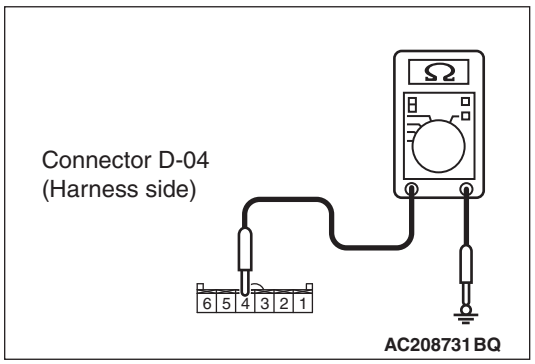
NO : Replace the sunroof switch. Check that the sunroof works normally.

STEP 6. Check the ground circuit to the sunroof motor assembly. Measure the resistance at sunroof switch connector D-04.

(1) Disconnect sunroof switch connector D-04 and measure the resistance available at the wiring harness side of the connector.

(2) Measure the resistance value between terminal 4 and ground.

- The resistance should be 2 ohms or less.



Q: Is the measured resistance 2 ohms or less?

YES : Go to Step 9.

NO : Go to Step 7.

STEP 7. Check sunroof motor assembly connector D-05 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is sunroof motor assembly connector D-05 in good condition?

YES : Go to Step 8.

NO : Repair or replace the damaged component(s). Refer to GROUP 00E, Harness Connector Inspection P.00E-2. Check that the sunroof works normally.

STEP 8. Check the wiring harness between sunroof switch connector D-04 (terminal 4) and sunroof motor assembly connector D-05 (terminal 1).

- Check the ground line for open circuit and short circuit.

Q: Is the wiring harness between sunroof switch connector D-04 (terminal 4) and sunroof motor assembly connector D-05 (terminal No. 1) in good condition?

YES : No action is necessary and testing is complete.

NO : The wiring harness may be damaged or the connector(s) may have loose, corroded or damaged terminals, or terminals pushed back in the connector. Repair the wiring harness as necessary. Check that the sunroof works normally.

STEP 9. Check sunroof motor assembly connector D-05 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is sunroof motor assembly connector D-05 in good condition?

YES : Go to Step 10.

NO : Repair or replace the damaged component(s). Refer to GROUP 00E, Harness Connector Inspection P.00E-2. Check that the sunroof works normally.

STEP 10. Check the ground circuit to the sunroof motor assembly. Measure the resistance at sunroof motor assembly connector D-05.

(1) Disconnect sunroof motor assembly connector D-05 and measure the resistance available at the wiring harness side of the connector.

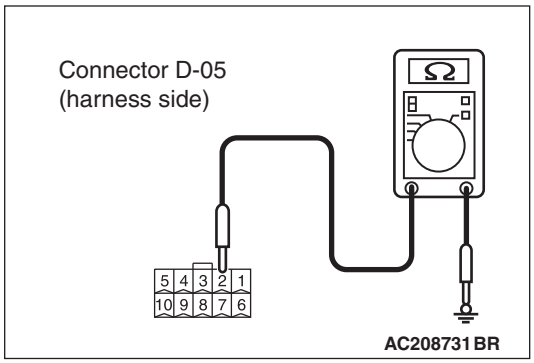
(2) Measure the resistance value between terminal 2 and ground.

- The resistance should be 2 ohms or less.

Q: Is the measured resistance 2 ohms or less?

YES : Go to Step 12.

NO : Go to Step 11.



STEP 11. Check the wiring harness between sunroof motor assembly connector D-05 (terminal 2) and ground.

- Check the ground line for open circuit and short circuit.

Q: Is the wiring harness between sunroof motor assembly connector D-05 (terminal 2) and ground in good condition?

YES : No action is necessary and testing is complete.

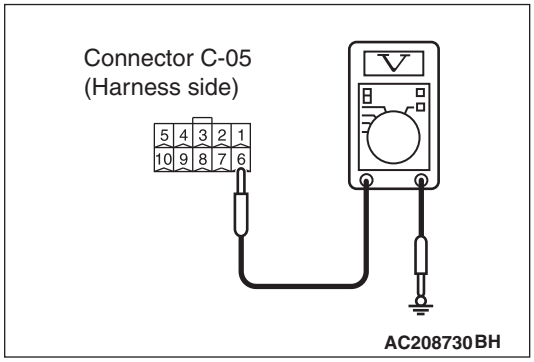
NO : The wiring harness may be damaged or the connector(s) may have loose, corroded or damaged terminals, or terminals pushed back in the connector. Repair the wiring harness as necessary. Check that the sunroof works normally.

STEP 12. Check the fusible link (34) line of power supply circuit to the sunroof motor assembly. Measure the voltage at sunroof motor assembly connector D-05.

(1) Disconnect sunroof motor assembly connector D-05 and measure the voltage available at the wiring harness side of the connector.

(2) Measure the voltage between terminal 6 and ground.

- The voltage should measure approximately 12 volts (battery positive voltage).



Q: Is the measured voltage approximately 12 volts (battery positive voltage)?

YES : Go to Step 14.

NO : Go to Step 13.

STEP 13. Check the wiring harness between sunroof motor assembly connector D-05 (terminal 6) and fusible link (34).

- Check the power supply line for open circuit and short circuit.

NOTE: Also check ETACS-ECU connectors C-309 and C-316 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If ETACS-ECU connectors C-309 and C-316 is damaged, repair or replace the damaged component(s) as described in GROUP 00E, Harness Connector Inspection P.00E-2.

Q: Is the wiring harness between sunroof motor assembly connector D-05 (terminal 6) and fusible link (34) in good condition?

YES : No action is necessary and testing is complete.

NO : The wiring harness may be damaged or the connector(s) may have loose, corroded or damaged terminals, or terminals pushed back in the connector. Repair the wiring harness as necessary. Check that the sunroof works normally.

STEP 14. Check ETACS-ECU connector C-317 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is ETACS-ECU connector C-317 in good condition?

YES : Go to Step 15.

NO : Repair or replace the damaged component(s). Refer to GROUP 00E, Harness Connector Inspection P.00E-2. Check that the sunroof works normally.

STEP 15. Check the wiring harness between ETACS-ECU connector C-317 (terminal 5) and sunroof motor assembly connector D-05 (terminal 3).

- Check the power supply line for open circuit and short circuit.

NOTE: Also check intermediate connector C-130 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connector C-130 is damaged, repair or replace the damaged component(s) as described in GROUP 00E, Harness Connector Inspection P.00E-2.

Q: Is the wiring harness between ETACS-ECU connector C-317 (terminal 5) and sunroof motor assembly connector D-05 (terminal 3) in good condition?

YES : Go to Step 16.

NO : The wiring harness may be damaged or the connector(s) may have loose, corroded or damaged terminals, or terminals pushed back in the connector. Repair the wiring harness as necessary. Check that the sunroof works normally.

STEP 16. Retest the system.

Check that the sunroof works normally.

Q: Is the check result normal?

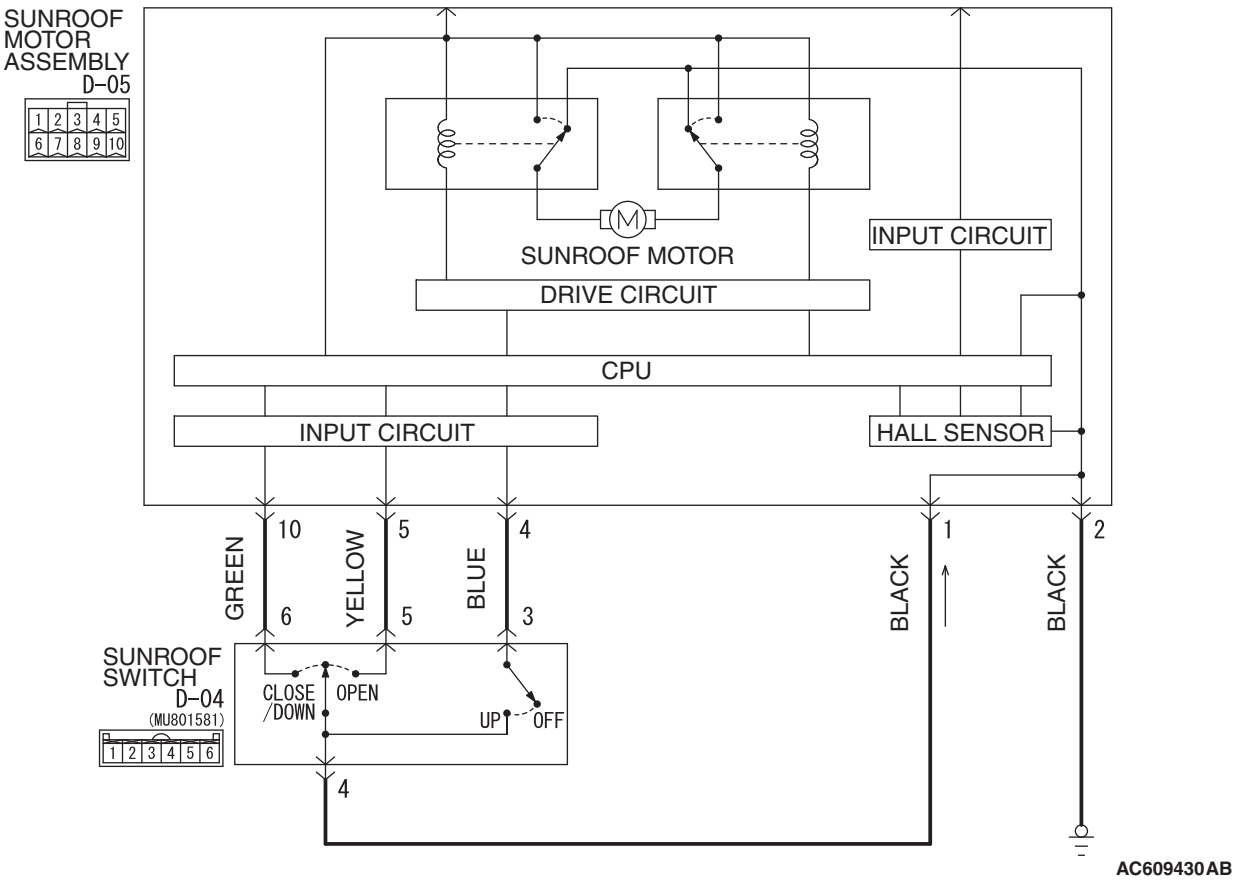
YES : No action is necessary and testing is complete.

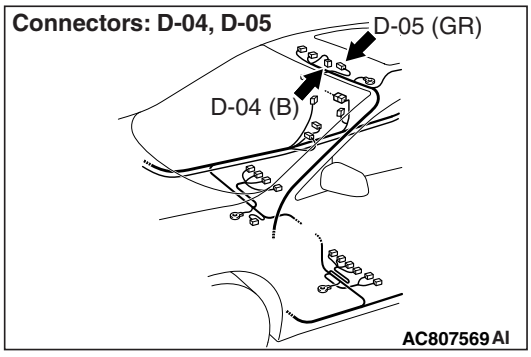
NO : Replace the sunroof motor assembly. Check that the sunroof works normally.

INSPECTION PROCEDURE 2: The Sunroof Lid Glass does not Tilt-up (Tilt-down, Open, and Close Normally).

⚠ CAUTION
Before replacing the ECU, ensure that the power supply circuit, the ground circuit and the communication circuit are normal.

Sunroof Switch Circuit





TECHNICAL DESCRIPTION (COMMENT)

The sunroof switch or the sunroof motor assembly may be defective.

TROUBLESHOOTING HINTS

- The sunroof switch may be defective
- The sunroof motor assembly may be defective
- The wiring harness or connectors may have loose, corroded, or damaged terminals, or terminals pushed back in the connector

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DIAGNOSTIC PROCEDURE

Required Special Tools:

- MB992006: Extra fine probe
- MB991223: Harness set
- MB991958: Scan Tool (M.U.T.-III Sub Assembly)
  - MB991824: Vehicles Communication Interface (V.C.I.)
  - MB991827: M.U.T.-III USB Cable
  - MB991910: M.U.T.-III Main Harness A

STEP 1. Using scan tool MB991958, read the diagnostic trouble code.

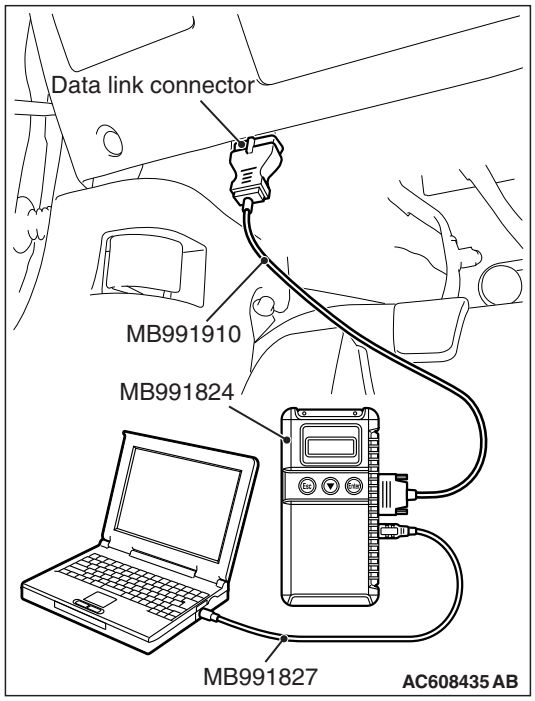
⚠ CAUTION

To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.

(1) Connect scan tool MB991958. Refer to "How to connect scan tool (M.U.T.-III) P.42B-9."
(2) Turn the ignition switch to the "ON" position.
(3) Check whether the sunroof motor assembly related DTC is set.
(4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the DTC set?

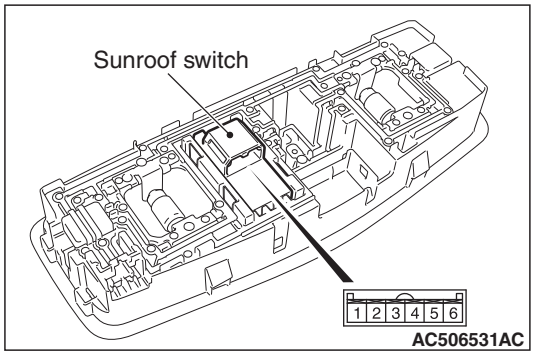
YES : Diagnose the sunroof motor assembly. Refer to P.42A-178.
NO : Go to Step 2.



STEP 2. Check sunroof switch connector D-04 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is sunroof switch connector D-04 in good condition?

YES : Go to Step 3.
NO : Repair or replace the damaged component(s). Refer to GROUP 00E, Harness Connector Inspection P.00E-2. Check that the sunroof works normally.



STEP 3. Sunroof switch check

(1) Remove the sunroof switch. Refer to P.42A-216.

(2) Check continuity when the sunroof switch is operated to "TILT-UP" position.

Switch position	Terminal No.	Normal value
Tilt-up	3 –4	Continuity exists (2 Ω or less)
OFF	3 –4, 4 –5, 4 –6	Open circuit

Q: Is the sunroof switch normal?

YES : Go to Step 4.

NO : Replace the sunroof switch. Check that the sunroof works normally.

STEP 4. Check sunroof motor assembly connector D-05 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is sunroof motor assembly connector D-05 in good condition?

YES : Go to Step 5.

NO : Repair or replace the damaged component(s). Refer to GROUP 00E, Harness Connector Inspection P.00E-2. Check that the sunroof works normally.

STEP 5. Check the wiring harness between sunroof switch connector D-04 (terminal 3) and sunroof motor assembly connector D-05 (terminal 4).

- Check the signal line for open circuit and short circuit.

Q: Is the wiring harness between sunroof switch connector D-04 (terminal 3) and sunroof motor assembly connector D-05 (terminal No. 4) in good condition?

YES : Go to Step 6.

NO : The wiring harness may be damaged or the connector(s) may have loose, corroded or damaged terminals, or terminals pushed back in the connector. Repair the wiring harness as necessary. Check that the sunroof works normally.

STEP 6. Retest the system.

Check that the sunroof lid glass tilts up.

Q: Is the check result normal?

YES : No action is necessary and testing is complete.

NO : Replace the sunroof motor assembly. Check that the sunroof works normally.

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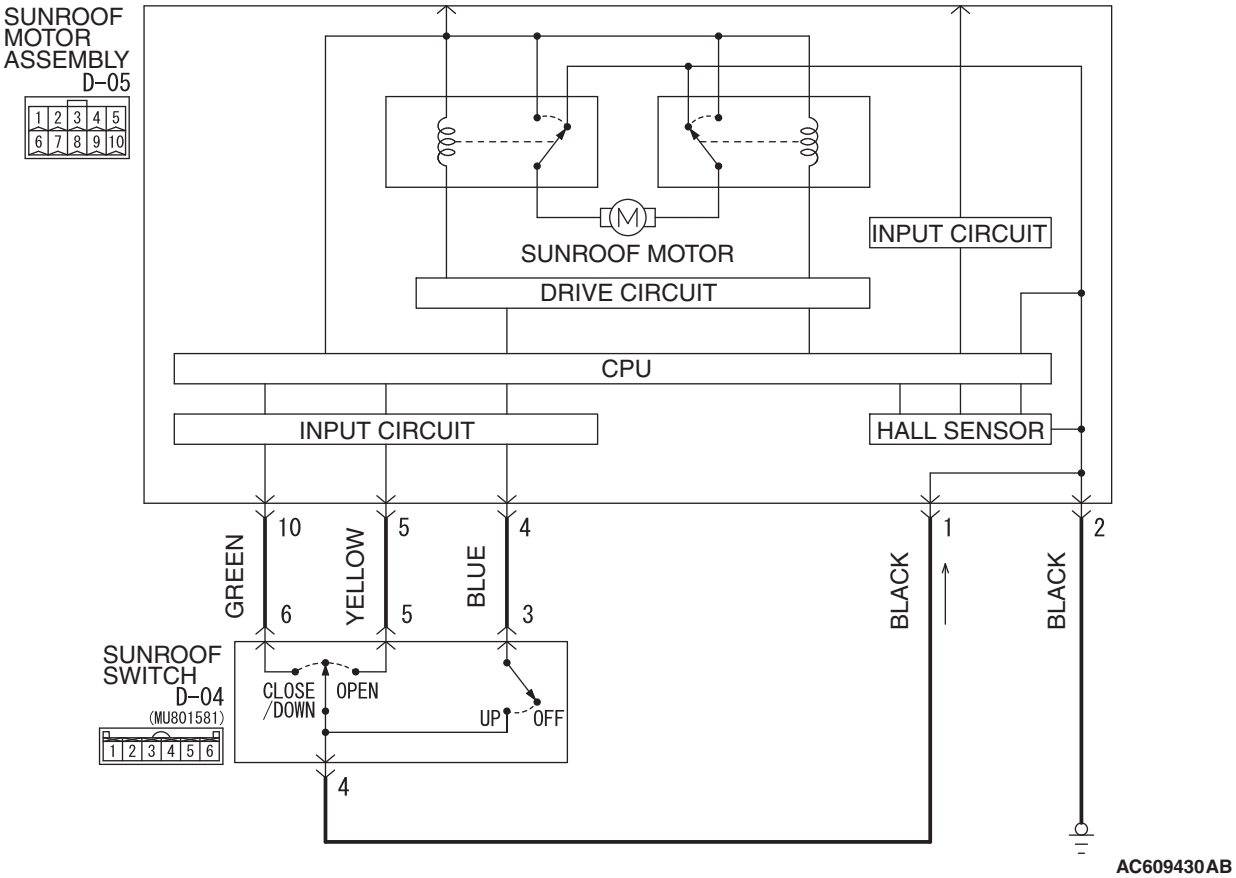
INSPECTION PROCEDURE 3: The Sunroof Lid Glass does not Open (Tilt-up, Tilt-down, And Close Normally).

⚠ CAUTION
Before replacing the ECU, ensure that the power supply circuit, the ground circuit and the communication circuit are normal.

Sunroof Switch Circuit



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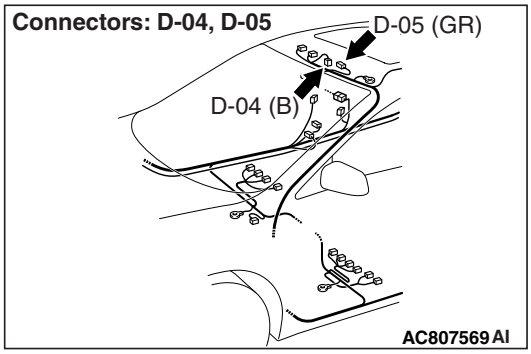

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TECHNICAL DESCRIPTION (COMMENT)

The sunroof switch or the sunroof motor assembly may be defective.

TROUBLESHOOTING HINTS

- The sunroof switch may be defective
- The sunroof motor assembly may be defective
- The wiring harness or connectors may have loose, corroded, or damaged terminals, or terminals pushed back in the connector

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DIAGNOSTIC PROCEDURE

Required Special Tools:

- MB992006: Extra fine probe
- MB991223: Harness set
- MB991958: Scan Tool (M.U.T.-III Sub Assembly)
  - MB991824: Vehicles Communication Interface (V.C.I.)
  - MB991827: M.U.T.-III USB Cable
  - MB991910: M.U.T.-III Main Harness A

STEP 1. Using scan tool MB991958, read the diagnostic trouble code.

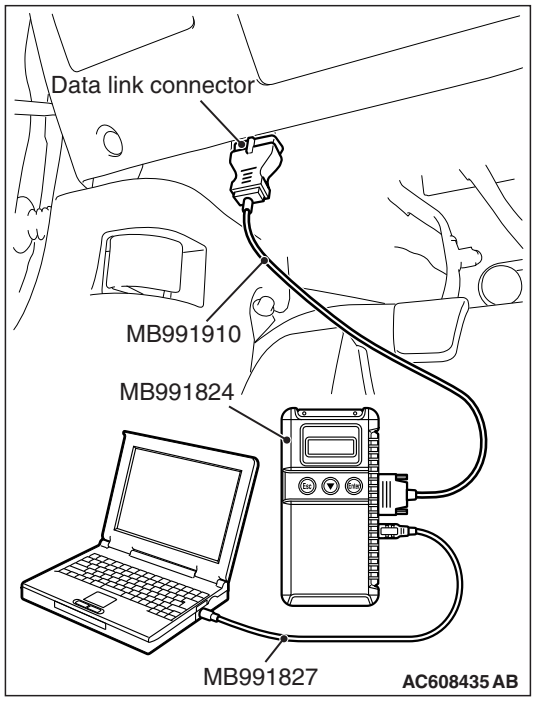
⚠ CAUTION

To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.

(1) Connect scan tool MB991958. Refer to "How to connect scan tool (M.U.T.-III) P.42B-9."
(2) Turn the ignition switch to the "ON" position.
(3) Check whether the sunroof motor assembly related DTC is set.
(4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the DTC set?

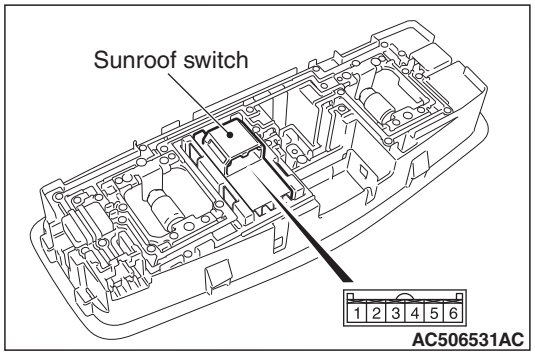
YES : Diagnose the sunroof motor assembly. Refer to P.42A-178.
NO : Go to Step 2.



STEP 2. Check sunroof switch connector D-04 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is sunroof switch connector D-04 in good condition?

YES : Go to Step 3.
NO : Repair or replace the damaged component(s). Refer to GROUP 00E, Harness Connector Inspection P.00E-2. Check that the sunroof works normally.



STEP 3. Sunroof switch check

(1) Remove the sunroof switch. Refer to P.42A-216.

(2) Check continuity when the sunroof switch is operated to "OPEN" position.

Switch position	Terminal No.	Normal value
Open	4 –5	Continuity exists (2 Ω or less)
OFF	3 –4, 4 –5, 4 –6	Open circuit

Q: Is the sunroof switch normal?

YES : Go to Step 4.

NO : Replace the sunroof switch. Check that the sunroof works normally.

STEP 4. Check sunroof motor assembly connector D-05 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is sunroof motor assembly connector D-05 in good condition?

YES : Go to Step 5.

NO : Repair or replace the damaged component(s). Refer to GROUP 00E, Harness Connector Inspection P.00E-2. Check that the sunroof works normally.

STEP 5. Check the wiring harness between sunroof switch connector D-04 (terminal 5) and sunroof motor assembly connector D-05 (terminal 5).

- Check the signal line for open circuit and short circuit.

Q: Is the wiring harness between sunroof switch connector D-04 (terminal 5) and sunroof motor assembly connector D-05 (terminal No. 5) in good condition?

YES : Go to Step 6.

NO : The wiring harness may be damaged or the connector(s) may have loose, corroded or damaged terminals, or terminals pushed back in the connector. Repair the wiring harness as necessary. Check that the sunroof works normally.

STEP 6. Retest the system.

Check that the sunroof lid glass tilts up.

Q: Is the check result normal?

YES : No action is necessary and testing is complete.

NO : Replace the sunroof motor assembly. Check that the sunroof works normally.

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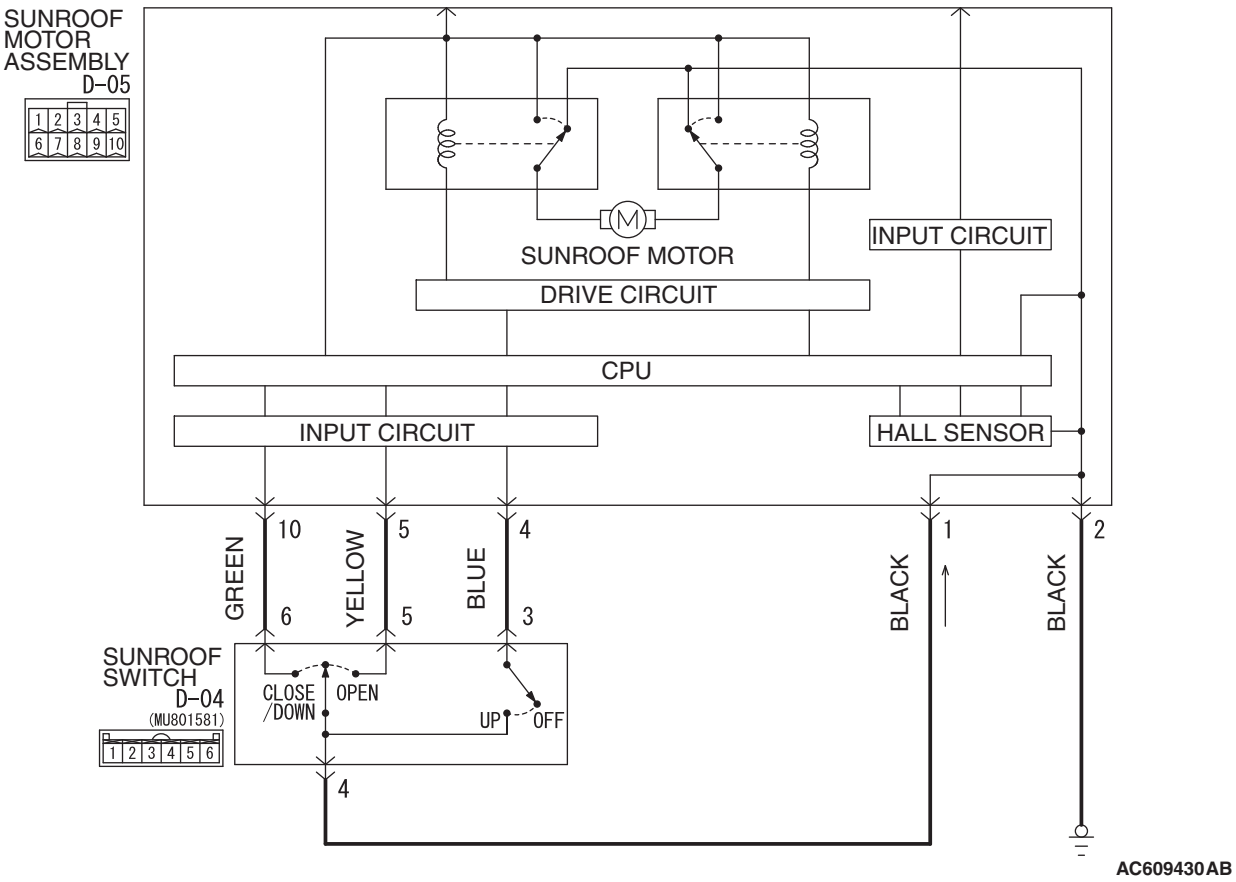
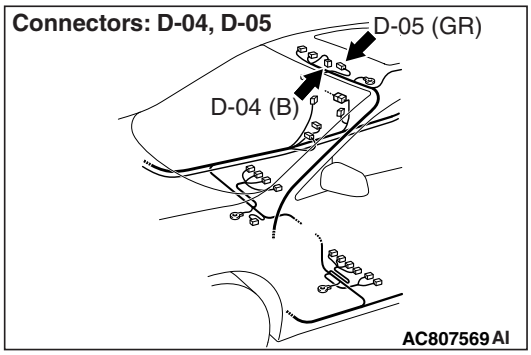
INSPECTION PROCEDURE 4: The Sunroof Lid Glass does not Tilt-down or Close (Tilt-up and Open Normally).

⚠ CAUTION
Before replacing the ECU, ensure that the power supply circuit, the ground circuit and the communication circuit are normal.

Sunroof Switch Circuit





TECHNICAL DESCRIPTION (COMMENT)

The sunroof switch or the sunroof motor assembly may be defective.

TROUBLESHOOTING HINTS

- The sunroof switch may be defective
- The sunroof motor assembly may be defective
- The wiring harness or connectors may have loose, corroded, or damaged terminals, or terminals pushed back in the connector

TSB Revision

DIAGNOSTIC PROCEDURE

Required Special Tools:

- MB992006: Extra fine probe
- MB991223: Harness set
- MB991958: Scan Tool (M.U.T.-III Sub Assembly)
  - MB991824: Vehicles Communication Interface (V.C.I.)
  - MB991827: M.U.T.-III USB Cable
  - MB991910: M.U.T.-III Main Harness A

STEP 1. Using scan tool MB991958, read the diagnostic trouble code.

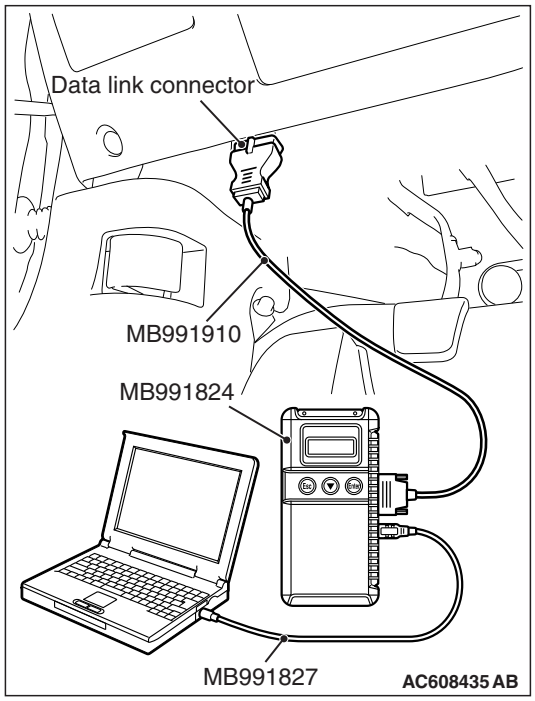
⚠ CAUTION

To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.

(1) Connect scan tool MB991958. Refer to "How to connect scan tool (M.U.T.-III) P.42B-9."
(2) Turn the ignition switch to the "ON" position.
(3) Check whether the sunroof motor assembly related DTC is set.
(4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the DTC set?

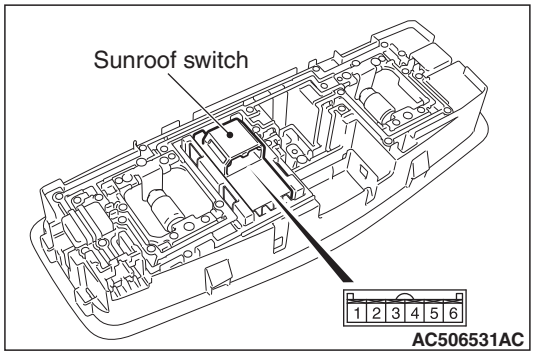
YES : Diagnose the sunroof motor assembly. Refer to P.42A-178.
NO : Go to Step 2.



STEP 2. Check sunroof switch connector D-04 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is sunroof switch connector D-04 in good condition?

YES : Go to Step 3.
NO : Repair or replace the damaged component(s). Refer to GROUP 00E, Harness Connector Inspection P.00E-2. Check that the sunroof works normally.



STEP 3. Sunroof switch check

(1) Remove the sunroof switch. Refer to P.42A-216.

(2) Check continuity when the sunroof switch is operated to "CLOSE/TILT-DOWN" position.

Switch position	Terminal No.	Normal value
Close/tilt-down	4 –6	Continuity exists (2 Ω or less)
OFF	3 –4, 4 –5, 4 –6	Open circuit

Q: Is the sunroof switch normal?

YES : Go to Step 4.

NO : Replace the sunroof switch. Check that the sunroof works normally.

STEP 4. Check sunroof motor assembly connector D-05 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is sunroof motor assembly connector D-05 in good condition?

YES : Go to Step 5.

NO : Repair or replace the damaged component(s). Refer to GROUP 00E, Harness Connector Inspection P.00E-2. Check that the sunroof works normally.

STEP 5. Check the wiring harness between sunroof switch connector D-04 (terminal 6) and sunroof motor assembly connector D-05 (terminal 10).

- Check the signal line for open circuit and short circuit.

Q: Is the wiring harness between sunroof switch connector D-04 (terminal 6) and sunroof motor assembly connector D-05 (terminal No. 10) in good condition?

YES : Go to Step 6.

NO : The wiring harness may be damaged or the connector(s) may have loose, corroded or damaged terminals, or terminals pushed back in the connector. Repair the wiring harness as necessary. Check that the sunroof works normally.

STEP 6. Retest the system.

Check that the sunroof lid glass tilts up.

Q: Is the check result normal?

YES : No action is necessary and testing is complete.

NO : Replace the sunroof motor assembly. Check that the sunroof works normally.

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INSPECTION PROCEDURE 5: Sunroof Safety Function does not work Normally.

⚠ CAUTION
Before replacing the ECU, ensure that the power supply circuit, the ground circuit and the communication circuit are normal.

CIRCUIT OPERATION

Malfunction of the sunroof motor assembly or incorrect learning of the sunroof fully closed position is suspected.

TROUBLESHOOTING HINTS

- The sunroof motor assembly may be defective
- Incorrect learning of the sunroof fully closed position

DIAGNOSTIC PROCEDURE

Required Special Tools:

- MB992006: Extra fine probe
- MB991223: Harness set
- MB991958: Scan Tool (M.U.T.-III Sub Assembly)
  - MB991824: Vehicles Communication Interface (V.C.I.)
  - MB991827: M.U.T.-III USB Cable
  - MB991910: M.U.T.-III Main Harness A

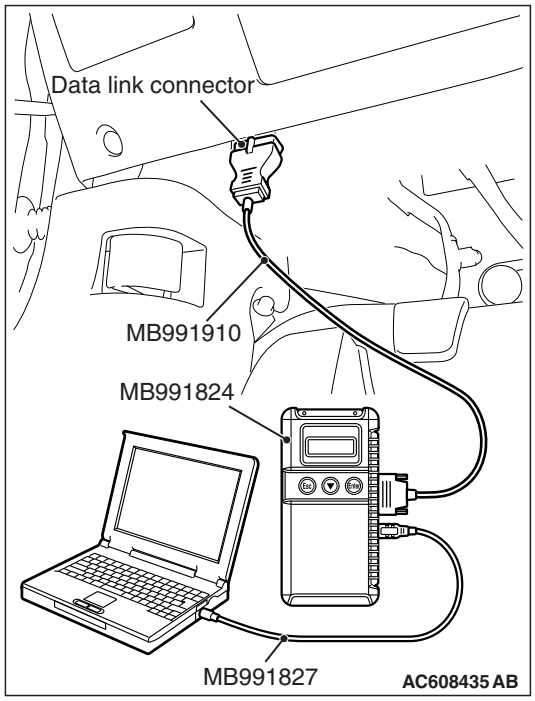
STEP 1. Using scan tool MB991958, read the diagnostic trouble code.

⚠ CAUTION
To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.

(1) Connect scan tool MB991958. Refer to "How to connect scan tool (M.U.T.-III) P.42B-9."
(2) Turn the ignition switch to the "ON" position.
(3) Check whether the sunroof motor assembly related DTC is set.
(4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the DTC set?

YES : Diagnose the sunroof motor assembly. Refer to P.42A-178.
NO : Go to Step 2.



STEP 2. Check the trouble symptom.
Check the sunroof trouble symptom according to the following procedures.
(1) Carry out the learning procedures of the sunroof fully closed position (Refer to P.42A-212).
(2) Check the trouble symptom.

Q: Is the check result normal?

YES : No action is necessary and testing is complete.
NO : Replace the sunroof motor assembly. Check that the sunroof works normally.

INSPECTION PROCEDURE 6: The Sunroof Timer Function does not work.

⚠ CAUTION
Before replacing the ECU, ensure that the power supply circuit, the ground circuit and the communication circuit are normal.

CIRCUIT OPERATION

- The sunroof timer function works according to the signals from the following switches:
  - Ignition switch (IG1): OFF
  - Front door switch (LH): OFF
  - Front door switch (RH): OFF
- Vehicle condition
  - Ignition switch: LOCK (OFF) position
  - Front door (LH): Closed
  - Front door (RH): Closed
  - When the driver's door or the passenger's door are opened and closed while the sunroof timer function is on, the sunroof operative duration will be changed.

TECHNICAL DESCRIPTION (COMMENT)

Is the sunroof timer function does not work normally, the input circuits from the switches described in "CIRCUIT OPERATION", the sunroof motor assembly, the ETACS-ECU or the LIN communication line may be defective.

TROUBLESHOOTING HINTS

- The front door switch may be defective
- The sunroof motor assembly may be defective
- The wiring harness or connectors may have loose, corroded, or damaged terminals, or terminals pushed back in the connector

DIAGNOSTIC PROCEDURE

Required Special Tools:
- MB992006: Extra fine probe
- MB991223: Harness set
- MB991958: Scan Tool (M.U.T.-III Sub Assembly)
  - MB991824: Vehicles Communication Interface (V.C.I.)
  - MB991827: M.U.T.-III USB Cable
  - MB991910: M.U.T.-III Main Harness A

STEP 1. Check the power supply system.

With the ignition switch in the LOCK (OFF) position, check if the following function operates normally:
- Hazard warning light
- Central door locking system

Q: Is the check result normal?

YES : Go to Step 2.

NO : Refer to GROUP 54A –Malfunction of ETACS-ECU power supply circuit P.54A-727.

STEP 2. Using scan tool MB991958, read CAN bus the diagnostic trouble code.

⚠ CAUTION

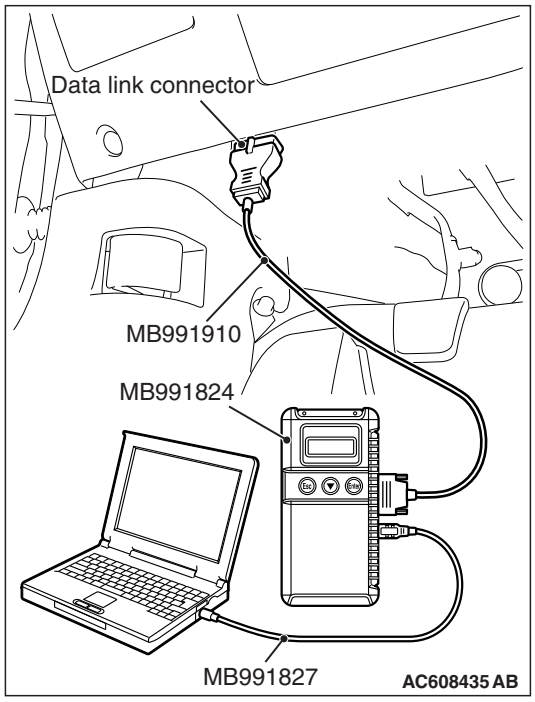
To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.

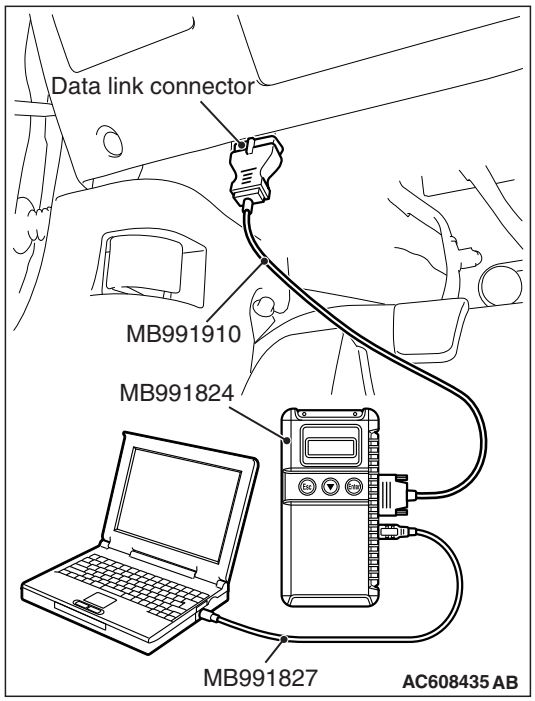
(1) Connect scan tool MB991958. Refer to "How to connect scan tool (M.U.T.-III) P.42B-9."
(2) Turn the ignition switch to the "ON" position.
(3) Check whether the CAN bus lines related DTC is set.
(4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the DTC set?

YES : Repair the CAN bus line (Refer to GROUP 54C, CAN bus diagnostics table P.54C-14).

NO : Go to Step 3.





STEP 3. Using scan tool MB991958, read the diagnostic trouble code.

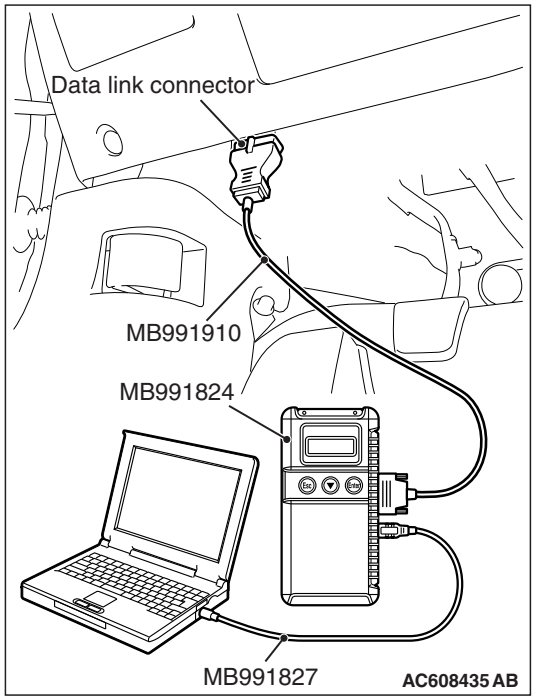
⚠ CAUTION

To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.

(1) Connect scan tool MB991958. Refer to "How to connect scan tool (M.U.T.-III) P.42B-9."
(2) Turn the ignition switch to the "ON" position.
(3) Check whether the ETACS-ECU related DTC is set.
(4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the DTC set?

YES : Diagnose the ETACS-ECU. Refer to GROUP 54B, Diagnosis code chart P.54B-6.
NO : Go to Step 4.



STEP 4. Using scan tool MB991958, check data list.

Check the signals related to the sunroof timer function operation.

⚠ CAUTION

To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.

(1) Connect scan tool MB991958. Refer to "How to connect the Scan Tool (M.U.T.-III) P.42B-9."

(2) Turn the ignition switch to the "ON" position.

(3) Check the data list of the ETACS.

- Turn the ignition switch to the LOCK (OFF) position.
- Close the driver's door.
- Close the passenger's door.

Item No.	Item name	Normal condition
254	IG voltage	Battery positive voltage
256	Dr door ajar switch	Close
257	As door ajar switch	Close

(4) Turn the ignition switch to the "LOCK" (OFF) position.

OK: Normal conditions are displayed for all the items.

Q: Are the check result normal?

YES <Normal conditions are displayed for all the items.> : Go to Step 5.

NO <Normal condition is not displayed for item No. 254.> : Refer to GROUP 54A –inspection procedure 2: the ignition switch (IG1) signal is not received P.54A-734.

NO <Normal condition is not displayed for item No. 256.> : Refer to GROUP 54A –inspection procedure 5: the front door switch (driver's side) signal is not received. P.54A-749.

NO <Normal condition is not displayed for item No. 257.> : Refer to GROUP 54A –inspection procedure 6: the front door switch (passenger's side) signal is not received. P.54A-747.

STEP 5. Retest the system.

Check that the sunroof timer function works normally.

Q: Is the check result normal?

YES : No action is necessary and testing is complete.

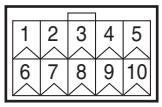
NO : Replace the ETACS-ECU. Check that the sunroof timer function works normally.

CHECK AT ECU TERMINAL

M1426002400286

SUNROOF MOTOR ASSEMBLY TERMINAL CHECK

D-05

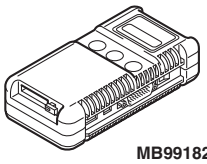
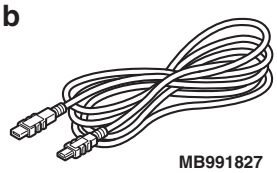
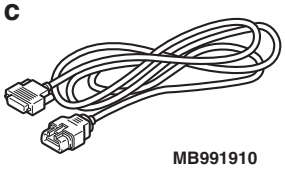
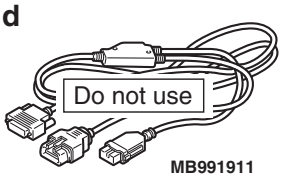
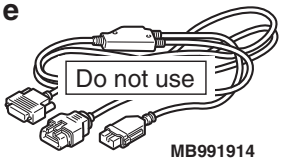
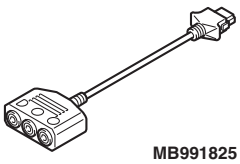
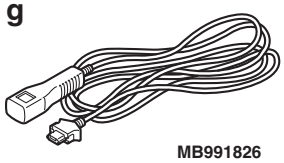


AC312987AF

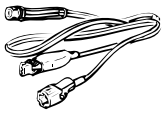
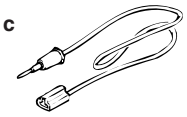
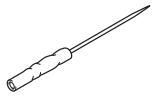
Terminal number	Check items	Check conditions	Normal conditions
1	Ground	Sunroof in operation	1 V or less
2	Ground	Always	1 V or less
3	–	–	–
4	Input from sunroof switch (tilt-up)	Sunroof switch: Up	1 V or less
5	Input from sunroof switch (open)	Sunroof switch: Open	1 V or less
6	Battery power supply	Always	Battery positive voltage
7	LIN communication line (between ETACS-ECU)	Always	0 to 12 V (pulse signal)
8	–	–	–
9	–	–	–
10	Input from sunroof switch (close or down)	Sunroof switch: Close or down	1 V or less

SPECIAL TOOLS

M1426000600400

Tool	Tool number and name	Supersession	Application
a  MB991824 b  MB991827 c  MB991910 d  MB991911 e  MB991914 f  MB991825 g  MB991826 MB991958	MB991958 a: MB991824 b: MB991827 c: MB991910 d: MB991911 e: MB991914 f: MB991825 g: MB991826 Scan tool (M.U.T.-III sub assembly) a: Vehicle communication interface (V.C.I.) b: M.U.T.-III USB cable c: M.U.T.-III main harness A (Vehicles with CAN communication system) d: M.U.T.-III main harness B (Vehicles without CAN communication system) e: M.U.T.-III main harness C (for Chrysler models only) f: M.U.T.-III measurement adapter g: M.U.T.-III trigger harness	MB991824-KIT *NOTE: G: MB991826 M.U.T.-III Trigger Harness is not necessary when pushing V.C.I. ENTER key.*	**⚠ CAUTION** **For vehicles with CAN communication, use M.U.T.-III main harness A to send simulated vehicle speed. If you connect M.U.T.-III main harness B instead, the CAN communication does not function correctly.** Communication line check (ECU check and service data)

TSB Revision

Tool	Tool number and name	Supersession	Application
a  b  c  d  MB991223	MB991223 Harness set a: MB991219 Test harness b: MB991220 LED harness c: MB991221 LED harness adapter d: MB991222 Probe	General service tools	Making voltage and resistance measurement during troubleshooting a: Connector pin contact pressure inspection b: Power circuit inspection c: Power circuit inspection d: Commercial tester connection
 MB992006	MB992006 Extra fine probe	–	Making voltage and resistance measurement during troubleshooting

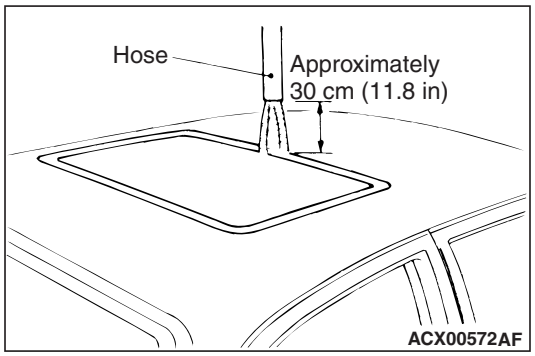
ON-VEHICLE SERVICE

WATER TEST

M1426000900490

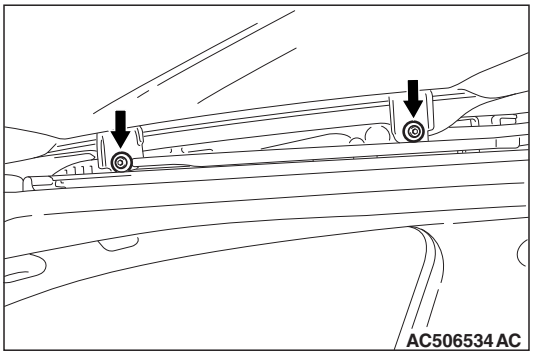
Check if there are any leaks in the sunroof by the following procedure.

1. Fully close the sunroof lid glass.
2. Adjust the water pressure so that water comes out of the hose to a height of approximately 50 cm (19.7 inches) when the hose is held vertically facing upwards.
3. Hold the end of the hose approximately 30 cm (11.8 inches) 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 sunroof lid glass, it can be acceptable as long as water is caught in the drip area.



SUNROOF FIT ADJUSTMENT

M1426001000490



1. Fully close the sunroof lid glass.
2. Fully open the sunshade.
3. Loosen the sunroof lid glass assembly mounting screws. Adjust the sunroof lid glass height by moving the sunroof lid glass assembly along the sunroof lid guide oblong hole so that the clearance between the sunroof lid glass and the vehicle body is even throughout the circumference.
4. After adjustment, check that the sunroof operates smoothly.

SUNROOF CHECK

M1426004700432

Check to see that the sunroof operates by pressing the sunroof switch. If it does not operate, perform troubleshooting. Refer to P.42A-185.

SUNROOF SAFETY FUNCTION CHECK

M1426004400390

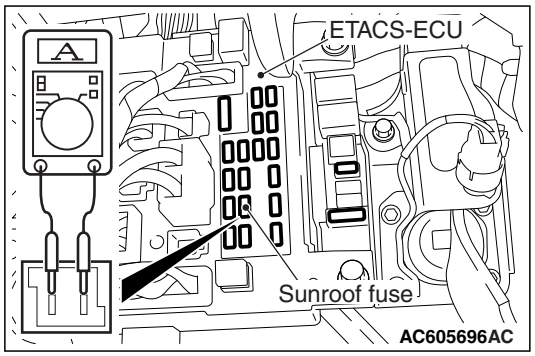
1. Close the sunroof lid glass while placing an approximately 10 mm (0.39 inch) thickness wood chip at right angles with the roof lid glass.
2. Check to see if the sunroof motor assembly turns in the opposite direction and the sunroof lid glass opens when the sunroof lid glass touches the wood chip. If any problem occurs, perform troubleshooting (Refer to P.42A-185).

SUNROOF TIMER FUNCTION CHECK

M1426004300285

Check the system as described below. If the system does not work, carry out troubleshooting. Refer to P.42A-185.

- Close the door and turn the ignition switch to the LOCK (OFF) position, and then check that the sunroof operates for 30 seconds.
- Close the door and turn the ignition switch to the LOCK (OFF) position. While the timer is on, open the driver's door and front passenger's door, and check that the sunroof stays during the operation. (When the driver's door or front passenger's door is opened while the timer is on, the timer will be turned off.)



SUNROOF LID GLASS OPERATION CURRENT CHECK

M1426003200520

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 when the sunroof lid glass is halfway opened.

   Standard value: 7 A or less [at 20 °C (68 °F)]
3. Check the following areas if the operating current exceeds the standard value:
   - Sunroof installation, deformation and presence of any foreign substances.
   - Drive cable installation.
   - Tilting of sunroof lid glass.

LEARNING PROCEDURES OF THE SUNROOF FULLY CLOSED POSITION

M1426004600350

SHIFTING CONDITIONS FOR THE FULLY CLOSED POSITION ADJUSTMENT MODE

- When shifting to the forced fully closed position adjustment mode
  How to shift to the forced fully closed position adjustment mode
  1. Turn the ignition switch to the "ON" position.
  2. With the sunroof lid glass stopped (the position of the sunroof lid glass can be any position between fully opened and fully closed), press and hold the up switch for 10 seconds.
- When the anti-trap function (safety mechanism) is activated consecutively five times
- When the position information may be incorrect due to abnormal power supply during the sunroof operation

NOTE: When installing the sunroof assembly, or installing/replacing the sunroof motor assembly, operate the forced fully closed position adjustment mode to adjust the fully closed position.

HOW TO ADJUST THE FULLY CLOSED POSITION <FORCED FULLY CLOSED POSITION ADJUSTMENT MODE>

1. With the sunroof lid glass stopped (the position of the sunroof lid glass can be any position between fully opened and fully closed), press and hold the up switch.

   NOTE: If operating the up switch moves the sunroof normally, use the open switch to fully open the sunroof lid glass. After the sunroof lid glass stops, press and hold the up switch.

2. Use the up switch to set the sunroof lid glass to the tilt-up position. The sunroof lid glass activates for approximately 30 mm and stops automatically when the switch is pressed once. Repeat this operation until the tilt-up position is reached and hold there for 3 seconds so that the fully closed position learning is completed.

HOW TO ADJUST THE FULLY CLOSED POSITION <SUCH AS WHEN THE SAFETY FUNCTION IS ACTIVATED CONSECUTIVELY FIVE TIMES>

Use the up switch to set the sunroof lid glass to the tilt-up position. The sunroof lid glass activates for approximately 30 mm and stops automatically when the switch is pressed once. Repeat this operation until the tilt-up position is reached and hold there for 3 seconds so that the fully closed position learning is completed.

SUNROOF OPERATION CHECK

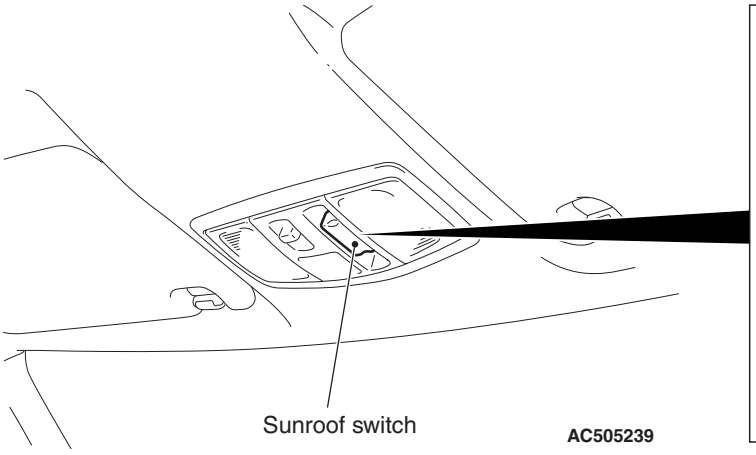
M1426002600592

⚠ CAUTION

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

- **Installation condition of the sunroof assembly**
- **Installation condition, deformation and contamination of the sunroof drive cable**
- **Installation of sunroof lid glass**
- **Sunroof switch and sunroof motor assembly**

Check that the following items. If faulty, replace the sunroof motor assembly.



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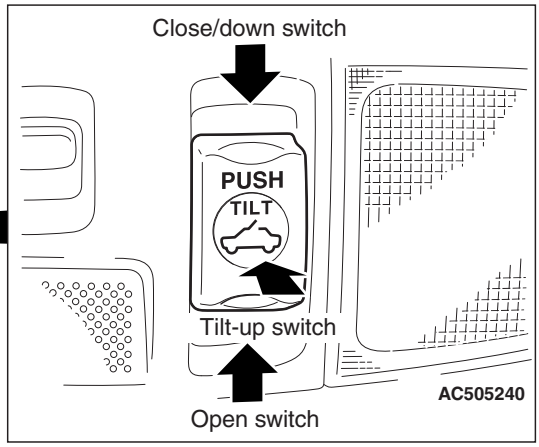

AC505240

AC506511AC

BASIC OPERATION

No.	Sunroof function	Requirements for the sunroof to function		Normal operation
01	OPEN	1. Ignition switch: ON 2. Sunroof switch: OPEN		When the open switch is operated, the sunroof lid glass stops approximately 30 mm (1.2 inches) before the fully-open position. This position is called comfort position. The sunroof lid glass can be fully opened by operating the open switch again.
02	CLOSE	1. Ignition switch: ON 2. Sunroof switch: CLOSE/TILT-DOWN		Automatically the sunroof fully closes.
03	TILT-UP	1. Ignition switch: ON 2. Sunroof switch: TILT-UP		The sunroof tilts up fully and automatically.
04	TILT-DOWN	1. Ignition switch: ON 2. Sunroof switch: CLOSE/TILT-DOWN		The sunroof tilts down fully and automatically.
05	AUTOMATIC OPERATION INTERRUPTION (OPEN OR TILT-UP)	A	1. Ignition switch: ON 2. Sunroof switch: OPEN or TILT-UP	The sunroof stops the automatic opening operation.
		B	1. Ignition switch: ON 2. Sunroof switch: CLOSE/TILT-DOWN (Push the sunroof switch to the CLOSE/TILT-DOWN position while the sunroof is automatically opening and release the switch within two seconds)	The sunroof stops the automatic opening operation.
		C	1. Ignition switch: ON 2. Sunroof switch: CLOSE/TILT-DOWN (Push the sunroof switch to the CLOSE/TILT-DOWN position more than two seconds while the sunroof is automatically opening)	The sunroof stops the automatic opening operation, and the sunroof closes while the sunroof switch is pushed to the CLOSE/TILT-DOWN position.
06	AUTOMATIC OPERATION INTERRUPTION (CLOSE OR TILT-DOWN)	A	1. Ignition switch: ON 2. Sunroof switch: CLOSE/TILT-DOWN	The sunroof stops the automatic closing operation.
		B	1. Ignition switch: ON 2. Sunroof switch: OPEN or TILT-UP (Push the sunroof switch to the OPEN or TILT-UP position while the sunroof is automatically opening and release the switch within two seconds)	The sunroof stops the automatic closing operation.
		C	1. Ignition switch: ON 2. Sunroof switch: OPEN or TILT-UP (Push the sunroof switch to the OPEN or TILT-UP position more than two seconds while the sunroof is automatically opening)	The sunroof stops the automatic closing operation, and the sunroof opens while the sunroof switch is pushed to the OPEN or TILT-UP position.

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SUNROOF TIMER MECHANISM

In cases except the following, the basic operation and jam preventing mechanism will be maintained for 30 seconds after the ignition switch is turned to the "LOCK" (OFF) position (Sunroof timer function).

- If you open a door within that period (i.e. a door switch is on), the sunroof timer function will be cancelled immediately.
- If you turn the ignition switch to the "LOCK" (OFF) position while the timer is working, the sunroof will continue moving until it closes fully, regardless of the time-out period.

SAFETY MECHANISM

- If any obstacle such as a hand or a head is detected to be pinched during a sunroof lid glass closing operation, the sunroof lid glass is opened by approximately 200 mm (7.9 inches) or more. (Safety mechanism)
- During the sunroof lid glass closing operation, by continuing the sunroof close switch operation, the sunroof can be forcibly closed without activating the safety mechanism even when the obstacle is detected to be pinched.
- During the safety mechanism activation, when the sunroof close switch is operated, the sunroof lid glass stops. By continuing the close switch operation, the sunroof lid glass can be forcibly closed without activating the safety mechanism even when the obstacle is detected to be pinched.

SUNROOF

REMOVAL AND INSTALLATION

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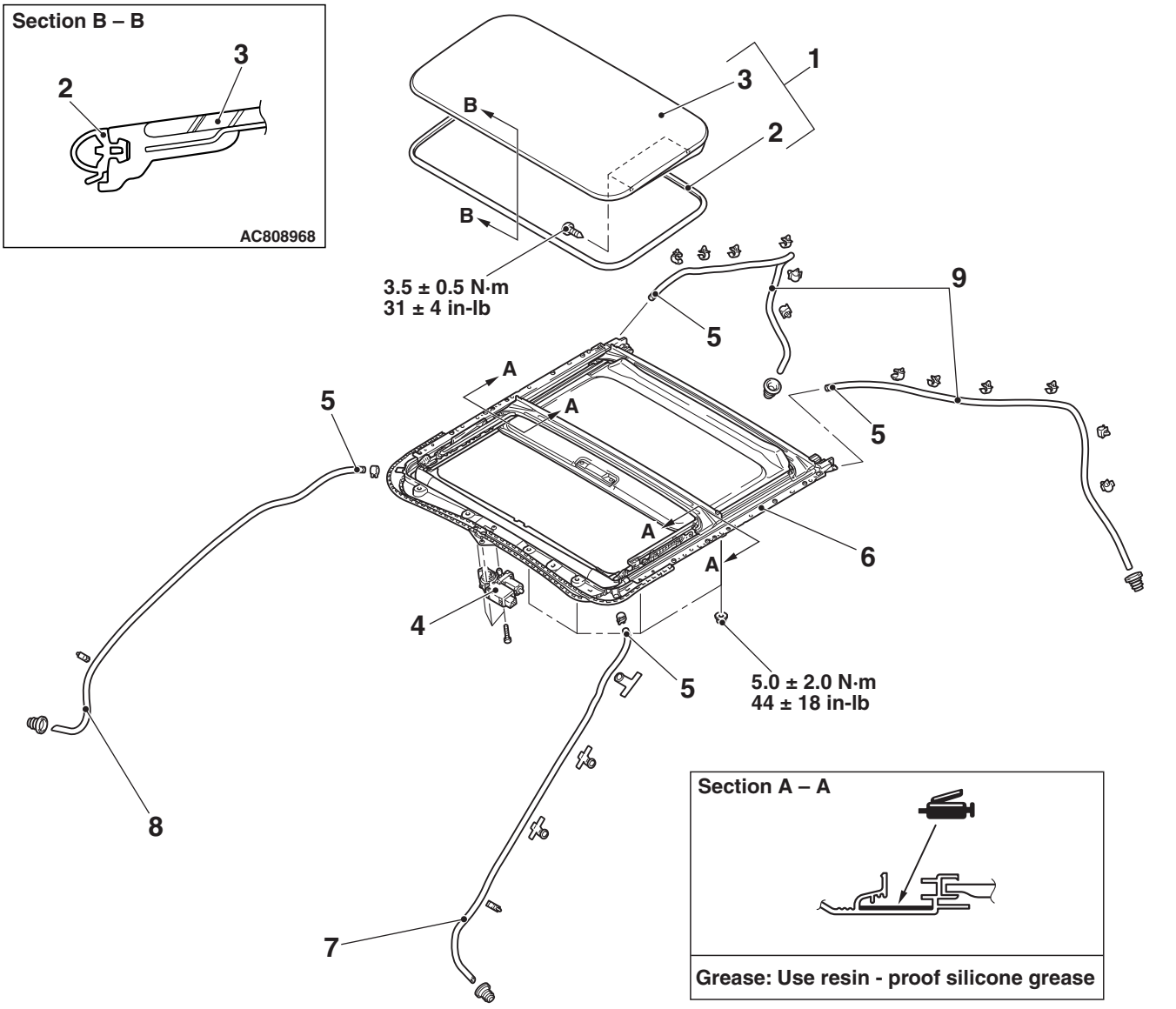
Post-installation operation
Roof lid glass assembly and sunroof assembly
- Sunroof leakage check (Refer to P.42A-210.)
- Sunroof alignment (Refer to P.42A-211.)
- Learning procedures for sunroof fully closed position (Refer to P.42A-212.)



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Sunroof switch removal
- Sunroof switch (Refer to GROUP 54A, Doom Light P.54A-298.)

Sunroof lid glass assembly removal
1. Sunroof lid glass assembly
2. Sunroof lid weatherstrip
3. Sunroof lid glass

Sunroof motor assembly removal steps
- Headlining (Refer to GROUP 52A, Headlining P.52A-18.)

4. Sunroof motor assembly

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Sunroof assembly removal steps

- Headlining (Refer to GROUP 52A, Headlining P.52A-18.)

5. Drain pipe connection

<<A>> 6. Sunroof assembly

Front drain pipe <Driver's side> removal steps

- Headlining (Refer to GROUP 52A, Headlining P.52A-18.)
- Instrument panel cover lower (Refer to GROUP 52A, Instrument lower panel P.52A-8.)

>>A<< 7. Front drain pipe <Driver's side>

Front drain pipe <Passenger's side> removal steps

- Headlining (Refer to GROUP 52A, Headlining P.52A-18.)
- Satellite radio tuner assembly (Refer to GROUP 54A, Satellite radio tuner P.54A-668.)

>>A<< 8. Front drain pipe <Passenger's side>

Rear drain pipe removal steps

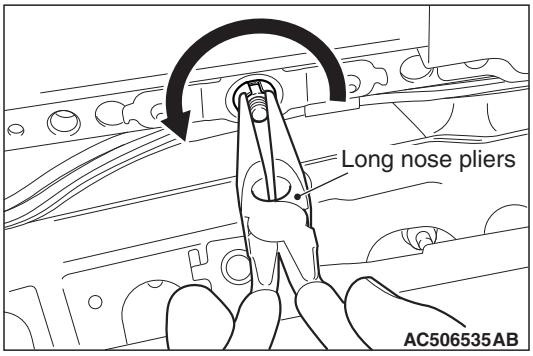
- Headlining (Refer to GROUP 52A, Headlining P.52A-18.)
- Rear speaker box assembly <Vehicle with audio amplifier> (Refer to GROUP 54A, Speaker P.54A-626.)
- Rear wheelhouse splash shield (Refer to P.42A-13.)

>>A<< 9. Rear drain pipe

REMOVAL SERVICE POINT

<<A>> SUNROOF ASSEMBLY REMOVAL

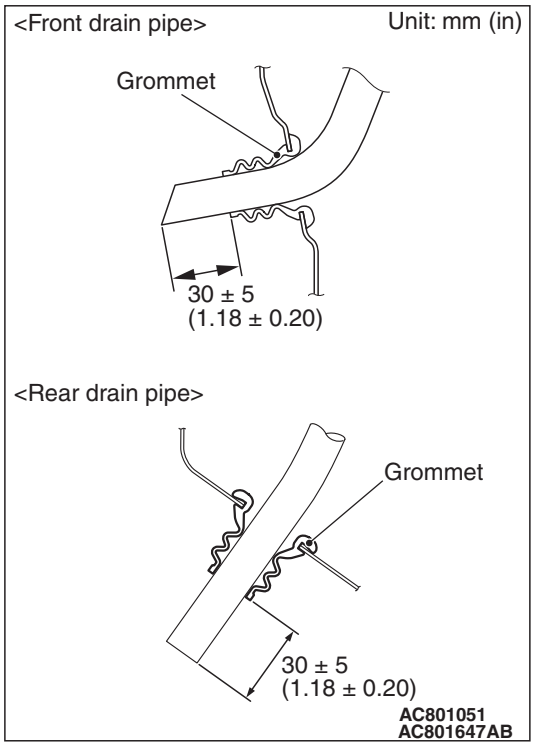
Use a pair of long nose pliers or the like to remove the sunroof assembly while turning it in the direction shown in the figure.



INSTALLATION SERVICE POINT

>>A<< FRONT DRAIN PIPE/REAR DRAIN PIPE INSTALLATION

Install the grommet, and adjust the drain pipe projection as shown in the figure.



INSPECTION

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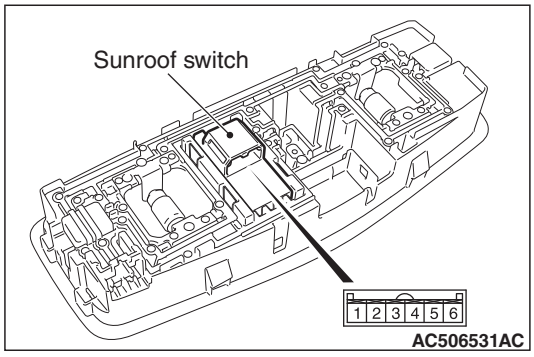
SUNROOF SWITCH CONTINUITY CHECK



Switch position	Terminal number	Normal value
Tilt up	3 –4	Continuity exists (2 Ω or less)
OFF	3 –4, 4 –5, 4 –6	Open circuit
Open	4 –5	Continuity exists (2 Ω or less)
Close/down	4 –6	Continuity exists (2 Ω or less)

DISASSEMBLY AND ASSEMBLY

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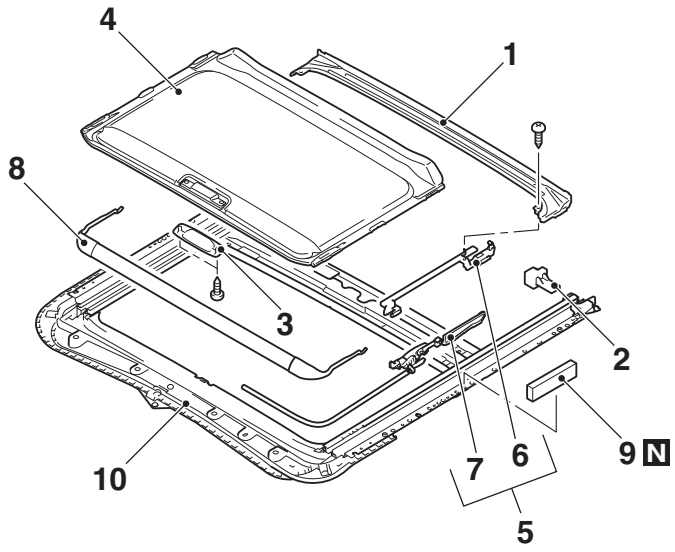

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Disassembly steps

1. Sunroof drip rail
2. Sunroof sunshade stopper
3. Sunroof sunshade knob

<<**A**>> 4. Sunroof sunshade

<<**B**>> >>**B**<< 5. Sunroof drip plate and sunroof lid slide guide

Disassembly steps (Continued)

6. Sunroof drip plate
7. Sunroof lid slide guide
8. Sunroof deflector

>>**A**<< 9. Sunroof pad

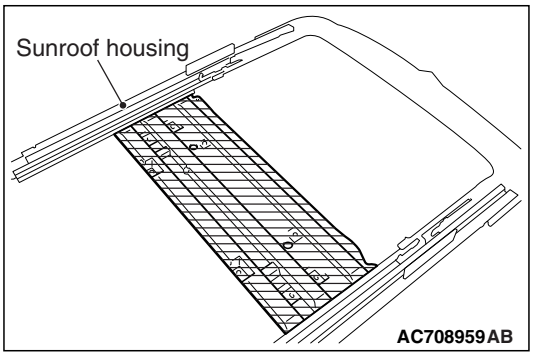
10. Sunroof housing

REMOVAL SERVICE POINTS

<<A>> SUNROOF SUNSHADE REMOVAL

⚠ CAUTION

Before removing the sunroof sunshade, clean the shaded area of the sunroof housing shown in the illustration. Otherwise, the sunroof sunshade may get dirty when it is removed.



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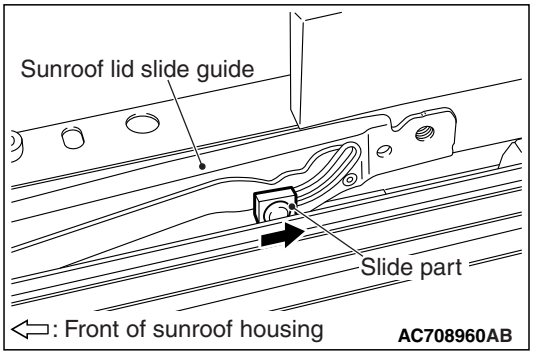
<<B>> SUNROOF DRIP PLATE AND SUNROOF LID SLIDE GUIDE REMOVAL



Slide the slide part of the sunroof lid slide guide to the rear of the sunroof housing, and then pull out the sunroof drip plate and sunroof lid slide guide.

INSTALLATION SERVICE POINTS

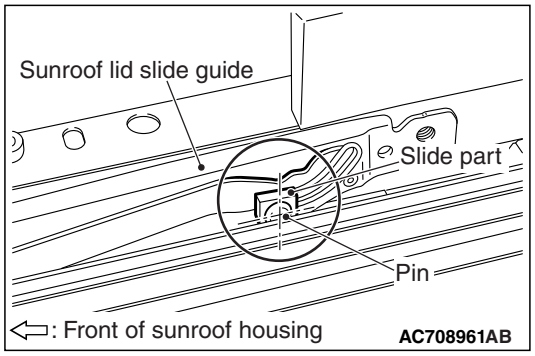
>>A<< SUNROOF DRIP PLATE AND SUNROOF LID SLIDE GUIDE INSTALLATION

1. Install the sunroof drip plate and sunroof lid slide guide to the sunroof housing.
2. Push the sunroof drip plate and sunroof lid slide guide toward the front of sunroof housing until they stop.

⚠ CAUTION

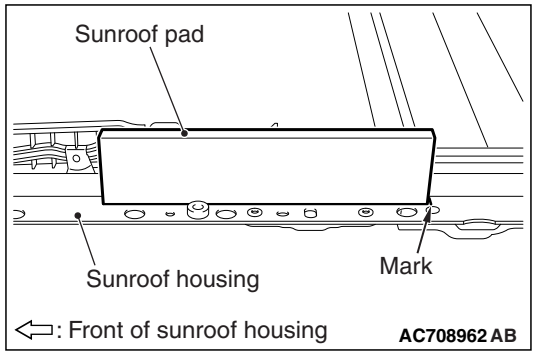
If the slide part of the sunroof lid slide guide is positioned incorrectly, the sunroof may not work normally.

3. Push the slide part of the sunroof lid slide guide forward. Align the pin center of the slide part with the location shown in the illustration.



>>B<< SUNROOF PAD INSTALLATION

Align the sunroof pad with the mark on the sunroof housing, and then install it.



LOOSE PANEL

REMOVAL AND INSTALLATION

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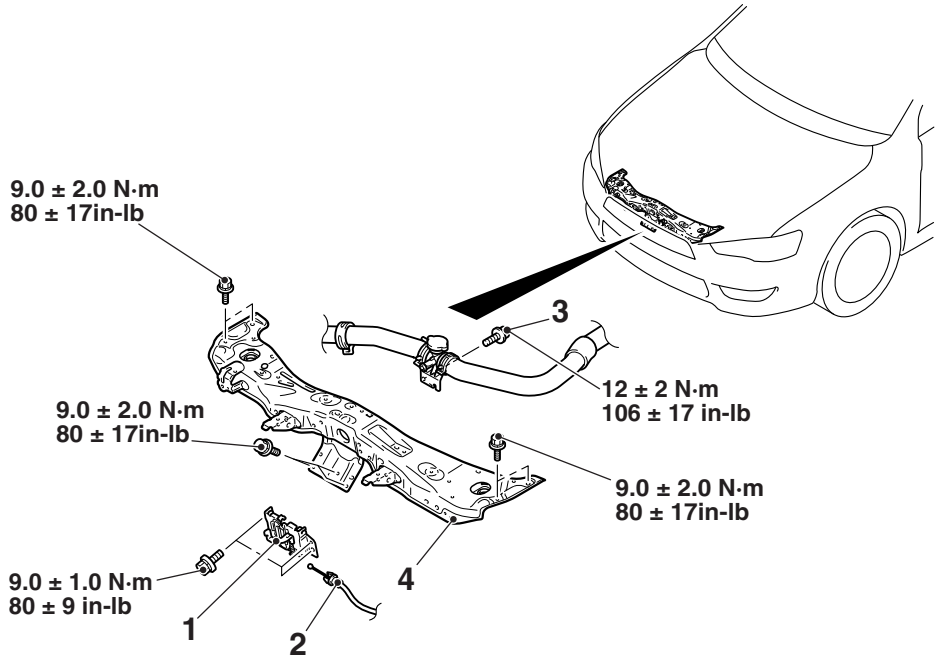
⚠ CAUTION

- **Disconnect the battery (–) terminal and wait for 60 seconds or more before starting work. Insulate the disconnected (–) terminal by wrapping a tape.(Refer to GROUP 52B –Service precautions P.52B-26)**
- **Handle the front impact sensor with sufficient caution, and do not drop the sensor or allow contact with water, oil, or others. If a dent, crack, deformation and others are discovered, replace it with a new one.**

<GTS>

<Headlight support upper panel>



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Headlight support upper panel removal steps

- Headlight support panel cover (Refer to GROUP 51–Front bumper assembly and radiator grille P.51-5.)

1. Hood latch
2. Hood lock release cable

<<A>> >>A<<

Headlight support upper panel removal steps (Continued)

3. Radiator cap assembly mounting bolt
   - Front impact sensor (Refer to GROUP 52B –Front impact sensor P.52B-408.)
4. Headlight support upper panel

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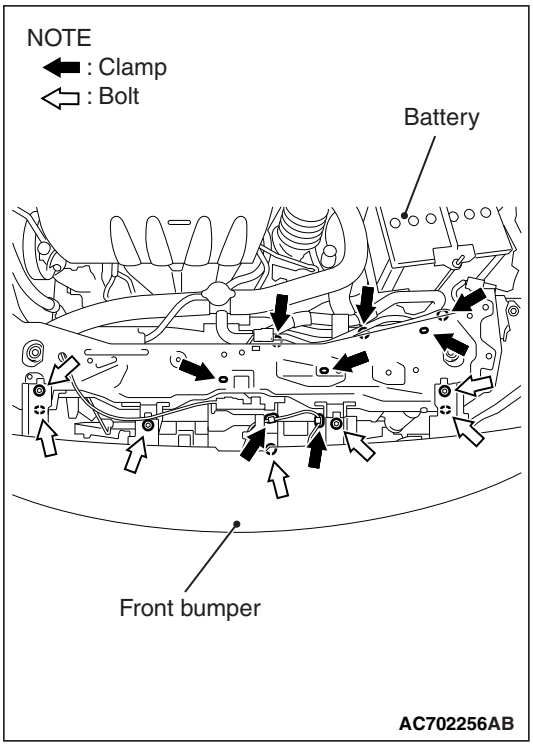
REMOVAL SERVICE POINT

<<A>> HEADLIGHT SUPPORT UPPER PANEL REMOVAL

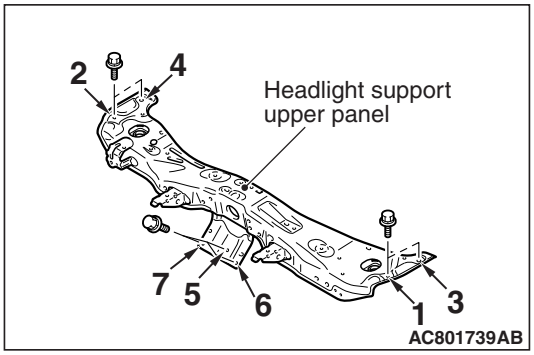
Remove the harness clamps and bolts shown in the illustration, and remove the headlight support upper panel.

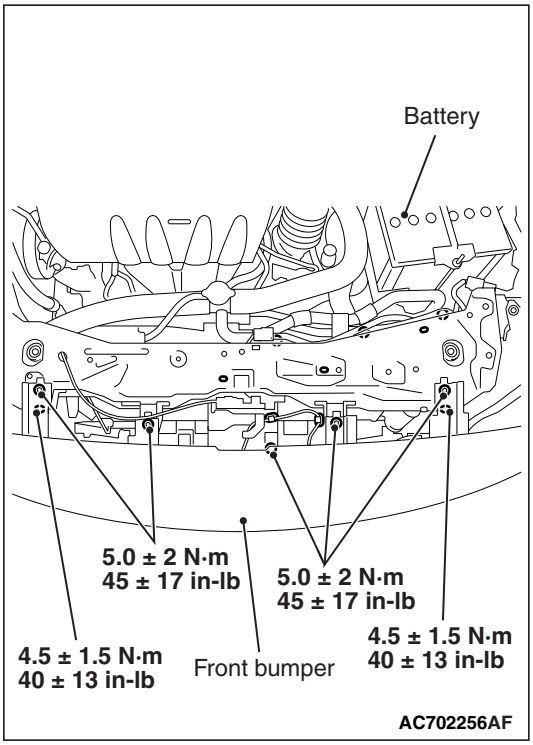


INSTALLATION SERVICE POINT

>>A<< HEADLIGHT SUPPORT UPPER PANEL INSTALLATION

1. Install the mounting bolts of headlight support upper panel in the order shown in the illustration.





2. After installing the headlight support upper panel, tighten the bolts shown in the illustration to the specified torques.

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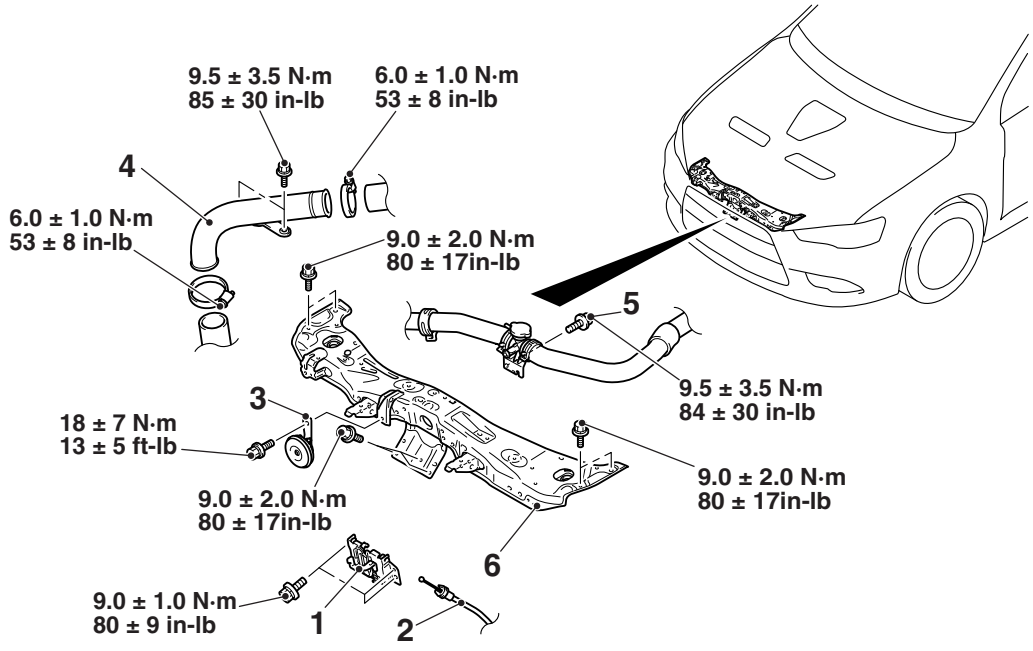
<Headlight support upper panel>



Headlight support upper panel removal steps

- Headlight support panel cover (Refer to GROUP 51 –Front bumper assembly and radiator grille P.51-5.)

1. Hood latch
2. Hood lock release cable
3. Horn (LO)

Headlight support upper panel removal steps (Continued)

4. Charge air cooler inlet pipe B
5. Radiator cap assembly mounting bolt

- Front impact sensor (Refer to GROUP 52B –Front impact sensor P.52B-408.)

<<A>> >>A<< 6. Headlight support upper panel

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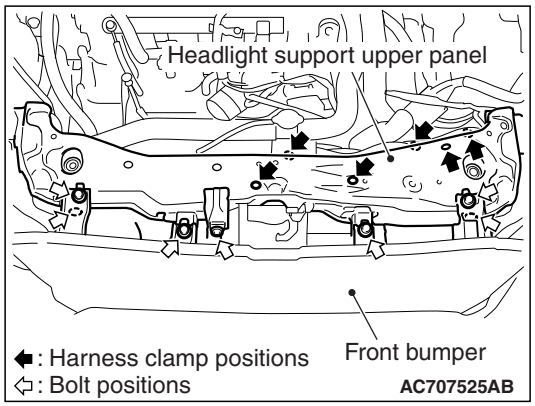
REMOVAL SERVICE POINT

<<A>> HEADLIGHT SUPPORT UPPER PANEL REMOVAL

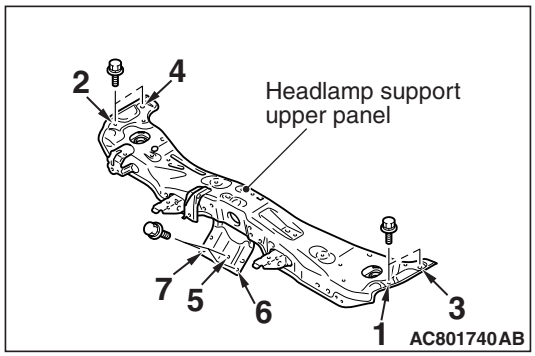
Remove the harness clamps and bolts shown in the illustration, and remove the headlight support upper panel.



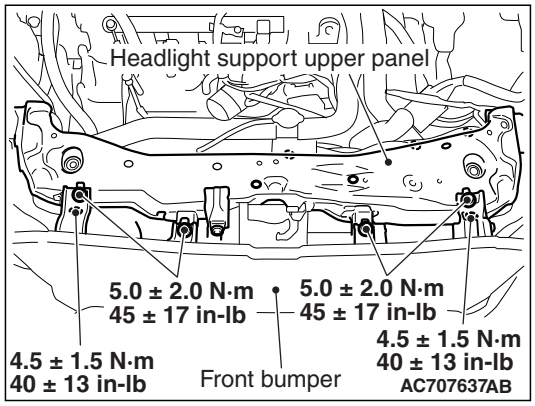
INSTALLATION SERVICE POINT

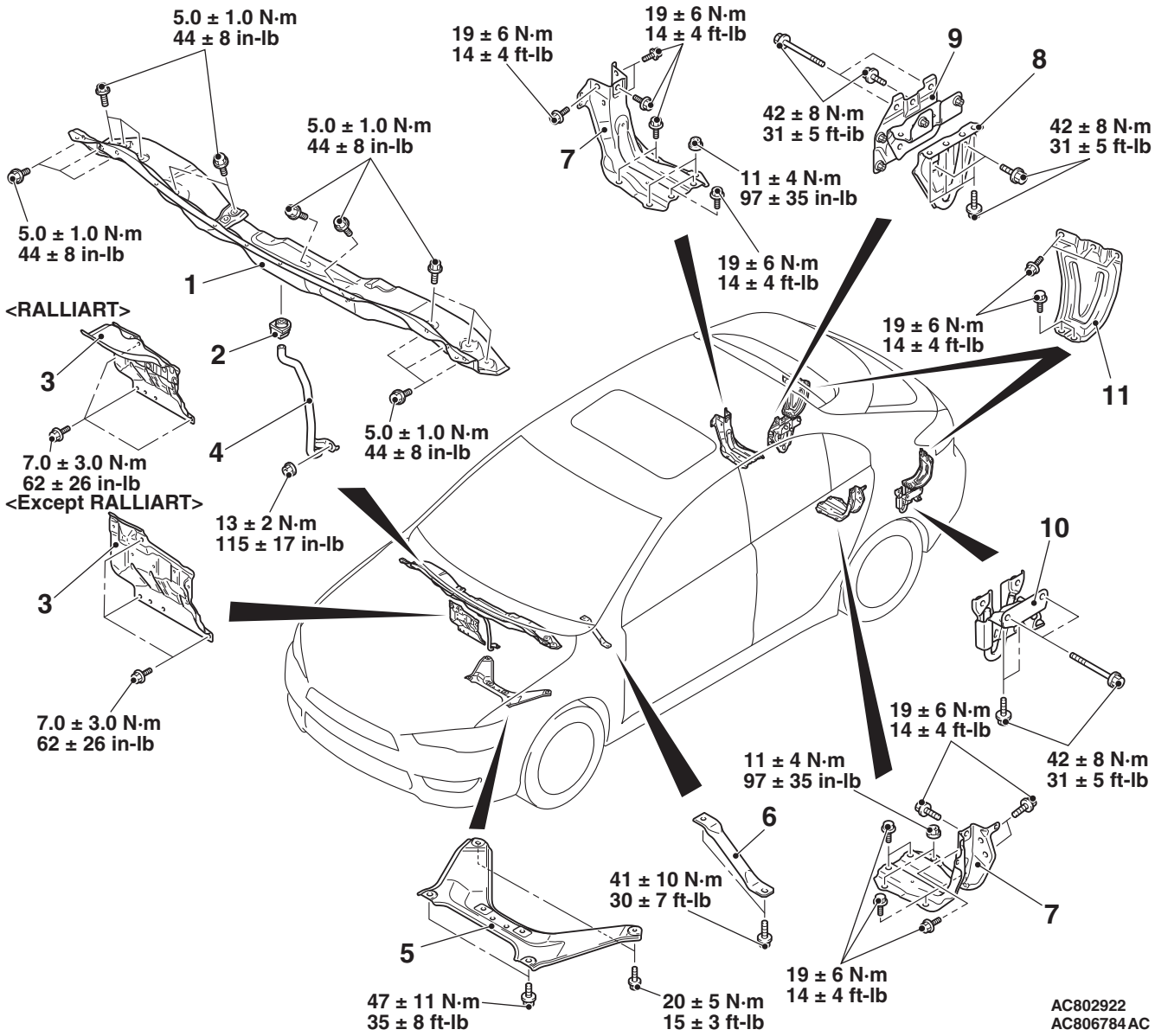
>>A<< HEADLIGHT SUPPORT UPPER PANEL INSTALLATION

1. Install the mounting bolts of headlight support upper panel in the order shown in the illustration.



2. After installing the headlight support upper panel, tighten the bolts shown in the illustration to the specified torques.





Cowl top panel removal steps

- Windshield wiper motor and link assembly (Refer to GROUP 51 – Windshield Wiper and Washer P.51-79.)

1. Cowl top panel
2. Body loose panel grommet
3. Dash panel heat protector
4. Dash panel drain hose

Front floor backbone brace A removal

5. Front floor backbone brace A

Front floor backbone brace B removal <FWD>

6. Front floor backbone brace B

Rear wheel house brace removal steps

- Quarter trim lower, rear partition board opening trim (Refer to GROUP 52A –Interior Trim P.52A-11.)

7. Rear wheel house brace

Rear tie down and rear traction hook removal steps <RALLIART>

8. Rear tie down hook

- Hydraulic unit bracket A (Refer to GROUP 22C –Hydraulic Unit P.22C-521.)

9. Rear tie down bracket
10. Rear traction hook

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Rear end brace removal steps

- Quarter trim lower, rear end trim (Refer to GROUP 52A –Interior Trim P.52A-11.)
- Rear speaker box assembly <Vehicles with audio amplifier> (Refer to GROUP 54A –Speaker P.54A-626.)

11. Rear end brace