GROUP 42A

BODY

CONTENTS

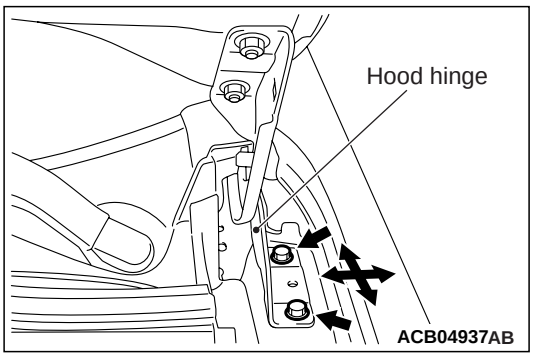
HOOD

ON-VEHICLE SERVICE

ADJUSTMENT OF CLEARANCE AROUND HOOD

M1421007200624

1. Remove the front deck garnish (Refer to GROUP 51 – Windshield Wiper).

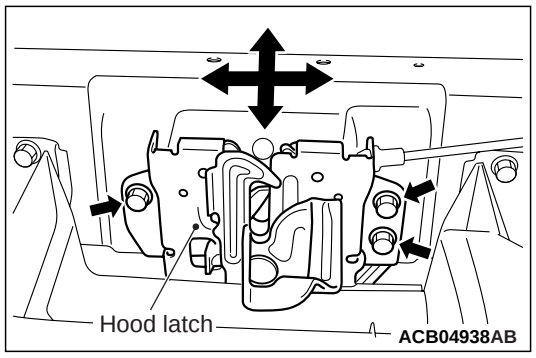


2. Loosen the hood hinge mounting bolts but do not remove them. Move the hood hinge back/forth and left/right to align the clearance between the hood and body.
3. After the adjustment, tighten the hood hinge mounting bolts to 23 ± 6 N·m.
4. Install the front deck garnish (Refer to GROUP 51 – Windshield Wiper).

ADJUSTMENT OF HOOD LEVEL AND HOOD STRIKER ENGAGEMENT

M1421007300740

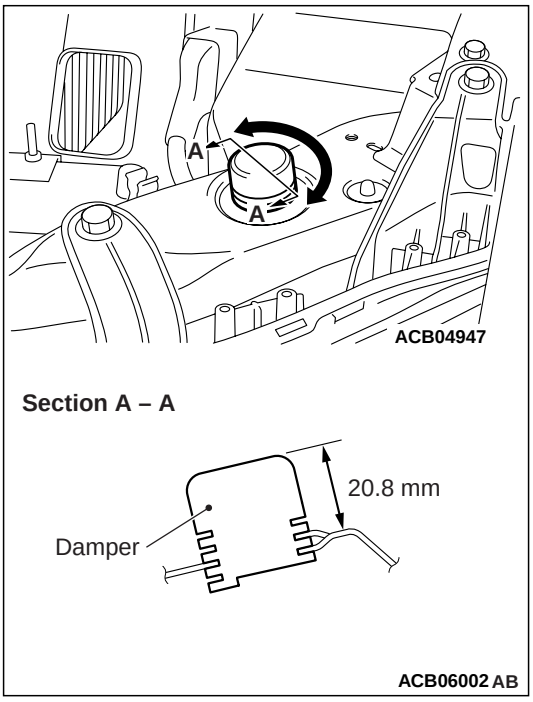
1. Remove the headlamp support upper panel cover (Refer to GROUP 51 – Radiator Grille).



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.
4. Install the headlamp support upper panel cover (Refer to GROUP 51 – Radiator Grille .)

ADJUSTMENT OF HOOD HEIGHT

M1421007400684



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 when the damper is rotated once.

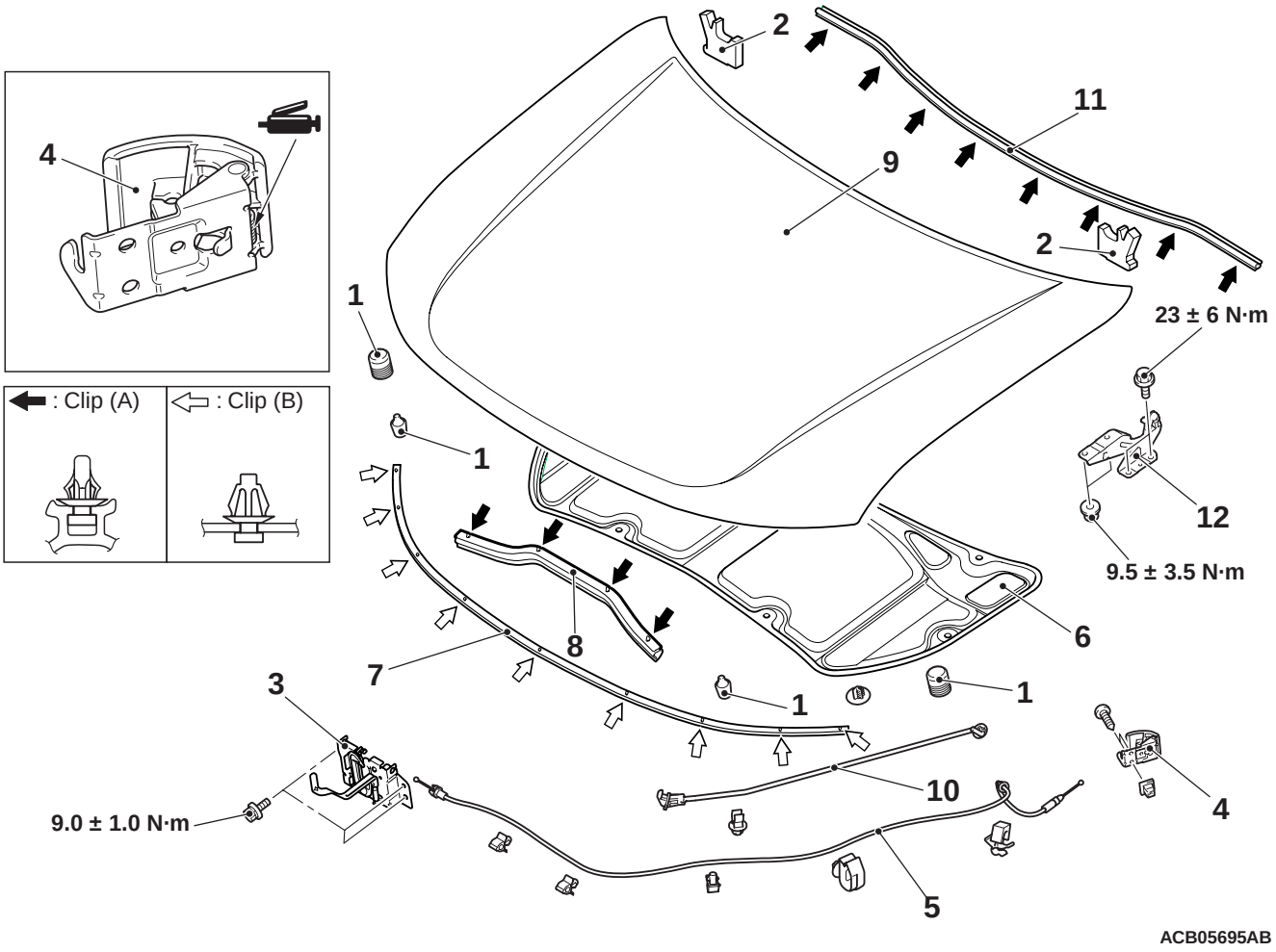
NOTE: If a rattling noise is heard due to the vibration of the hood when the vehicle is being driven, adjust the damper height until the damper is seated on the hood.

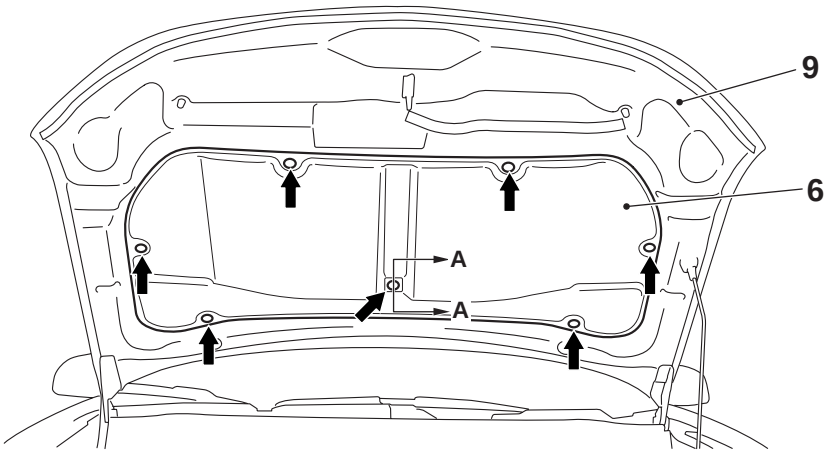
HOOD

REMOVAL AND INSTALLATION

M1421001602341

Post-installation operation
- Clearance check around the hood (Refer to P.42A-5.)
- Adjustment of the hood level and hood striker engagement (Refer to P.42A-5.)
- Adjustment of hood height (Refer to P.42A-5.)





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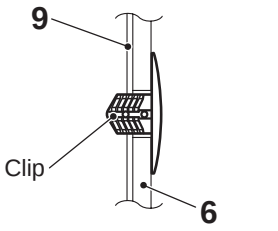
: Clip positions

Section A – A



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Damper removal

1. Damper A
2. Damper B <Optional>

Removal steps for hood latch and hood lock release cable

- Headlamp support upper panel cover (Refer to GROUP 51 – Radiator Grille .)

3. Hood latch
4. Hood lock release handle

- Front splash shield (Refer to P.42A-9.)
- Front bumper assembly (Refer to GROUP 51 – Front Bumper .)
- 4WD-ECU <4WD> (Refer to GROUP 27C– 4WD-ECU .)

Removal steps for hood latch and hood lock release cable

- Headlamp assembly (Refer to GROUP 54A – Headlamp .)

5. Hood lock release cable

Hood removal steps

6. Hood insulator
7. Hood weatherstrip
8. Hood weatherstrip front

- Windshield washer hose and washer nozzles (Refer to GROUP 51 – Windshield Washer .)

9. Hood
10. Hood support rod
11. Hood weatherstrip rear

- Front deck garnish (Refer to GROUP 51 – Windshield wiper .)

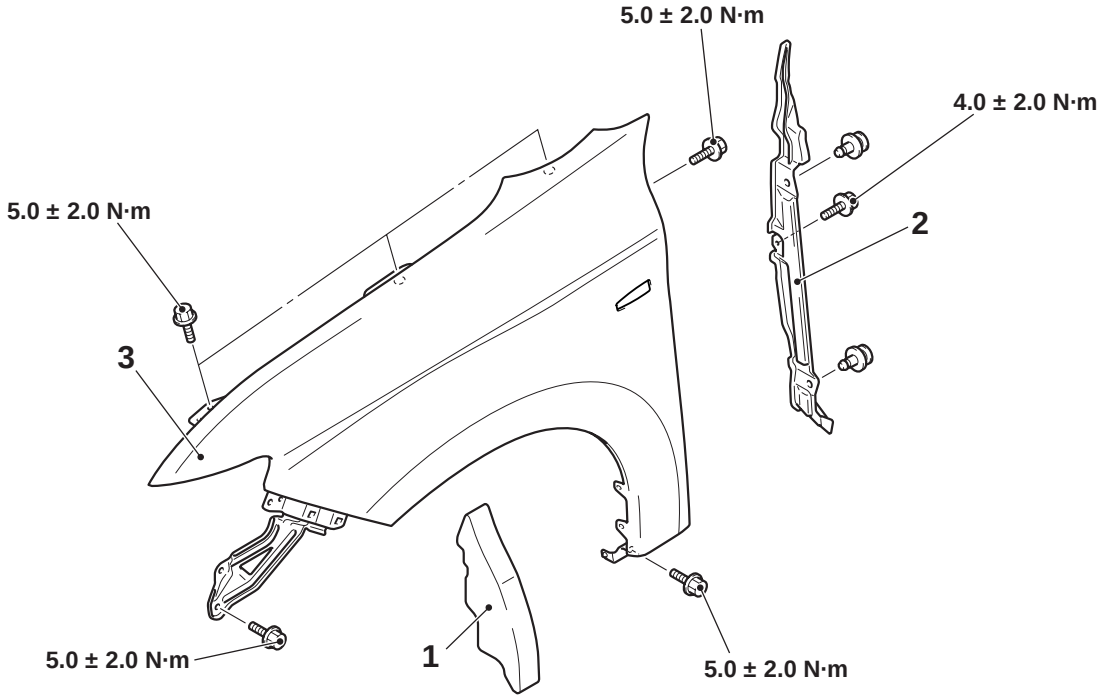
12. Hood hinge

FENDER

REMOVAL AND INSTALLATION

M1421001901606

Pre-removal and post-installation operation
- Splash shield front removal and installation (Refer to P.42A-9.)
- Headlamp assembly removal and installation (Refer to GROUP 54A – Headlamp .)
- Side turn-signal lamp removal and installation (Refer to GROUP 54A – Side turn-signal lamp .) <Fender panel type>
- Front deck garnish removal and installation (Refer to GROUP 51 – Windshield Wiper .)
- Side air dam removal and installation (Refer to GROUP 51 – Side Air Dams .)



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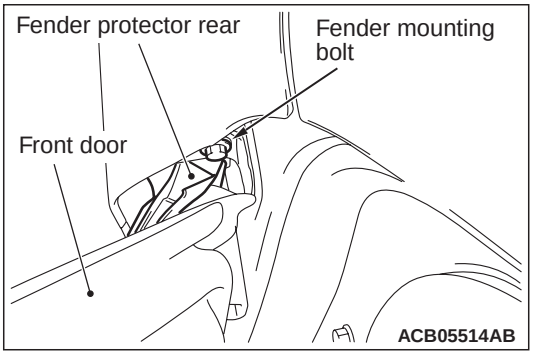
Removal steps
1. Pad <Optional>
2. Fender protector rear

>>A<< 3. Fender

INSTALLATION SERVICE POINT

>>A<< FENDER INSTALLATION

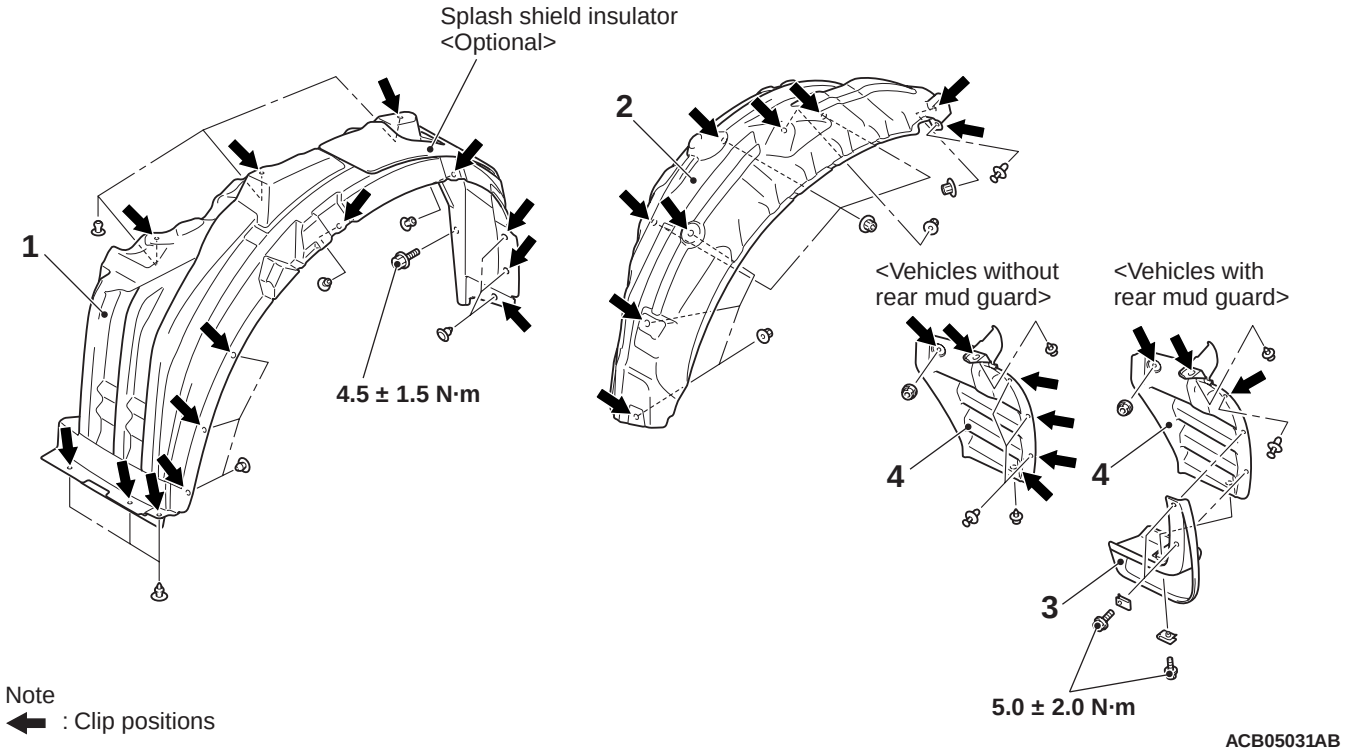


While being careful not to touch the fender protector rear as shown, tighten the fender mounting bolts to 5.0 ± 2.0N·m.

SPLASH SHIELD

REMOVAL AND INSTALLATION

M1421009700636



Note
◀ : Clip positions

Removal

1. Front splash shield
2. Rear splash shield (rear body side) <Optional>

Removal (Continued)

3. Rear mud guard <Vehicles with rear mud guard>
4. Rear splash shield (rear bumper side)

FUEL FILLER LID

REMOVAL AND INSTALLATION

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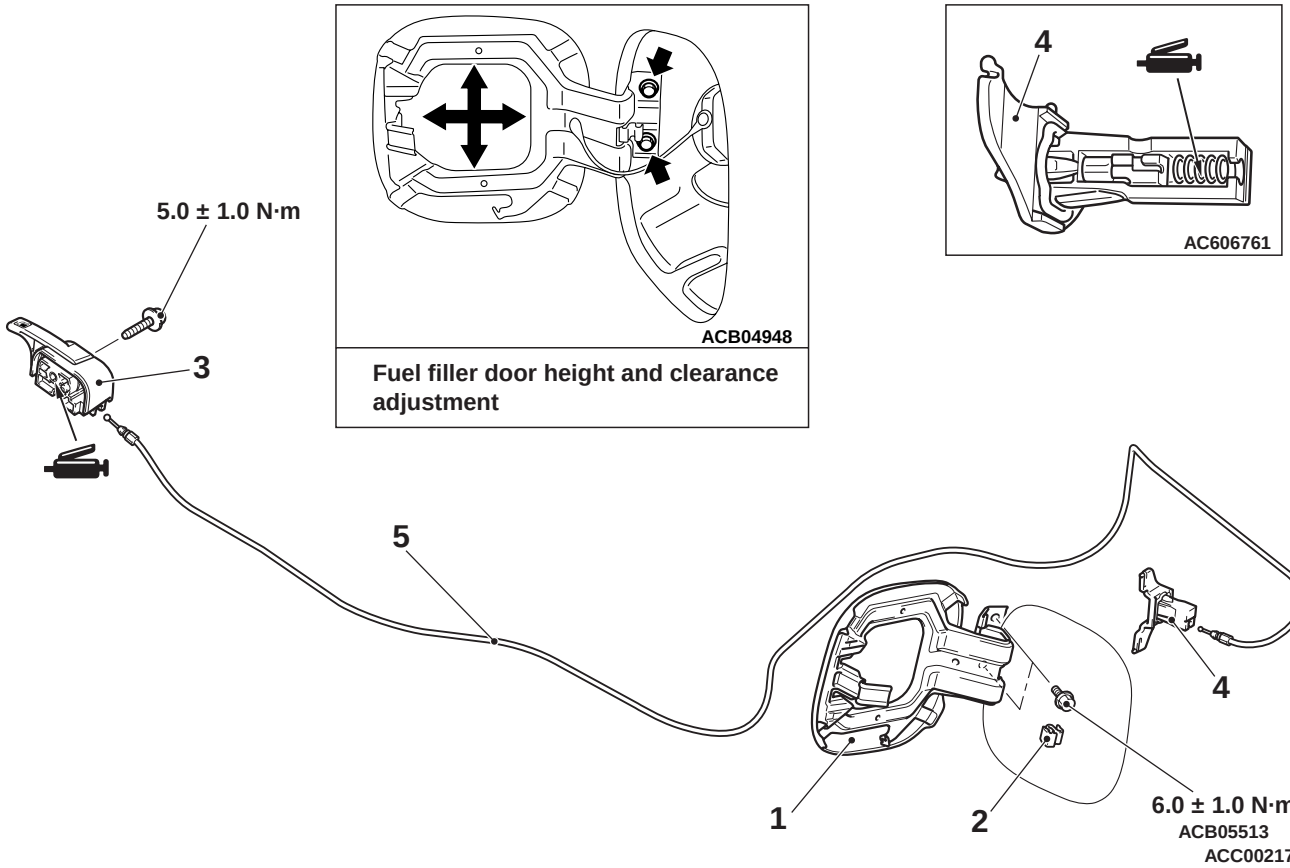


Fuel filler door height and clearance adjustment

Removal steps

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

Removal steps (Continued)

- Front scuff plate, rear scuff plate, and centre pillar trim lower, quarter trim lower (Refer to GROUP 52A – Interior Trim .)

4. Fuel filler lid hook
5. Fuel filler lid lock release cable

WINDOW GLASS

ADHESIVE

M1422000500683

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

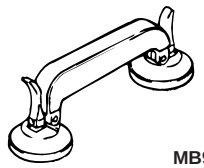
LUBRICANT

M1421000400092

Item		Specified lubricant	Quantity
Degrease agent	Grease and dirt removal from parts surface	Parts cleaner (MZ100387 or equivalent)	As required

SPECIAL TOOL

M1422000600431

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

GENERAL INFORMATION

M1422000101031

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

ITEMS

Name	Remark
Adhesive	3M ATD Part No.8609 Super Fast Urethane Auto Glass Sealant or equivalent
Primer	3M ATD Part No.8608 Super Fast Urethane Primer or equivalent
Spacers	Available as service part
Dam	Available as service part
Anti-rust solvent (or Tectyl 506T.Valvoline Oil Company)	For rust prevention
Degrease agent	Parts cleaner (MZ100387 or equivalent) (For grease and dirt removal from bonded surface)
Steel piano wire	Dia. × length. 0.6mm × 1m (For cutting adhesive)
Glass adhesive knife	For cutting adhesive
Adhesive gun	For pressing-out adhesive

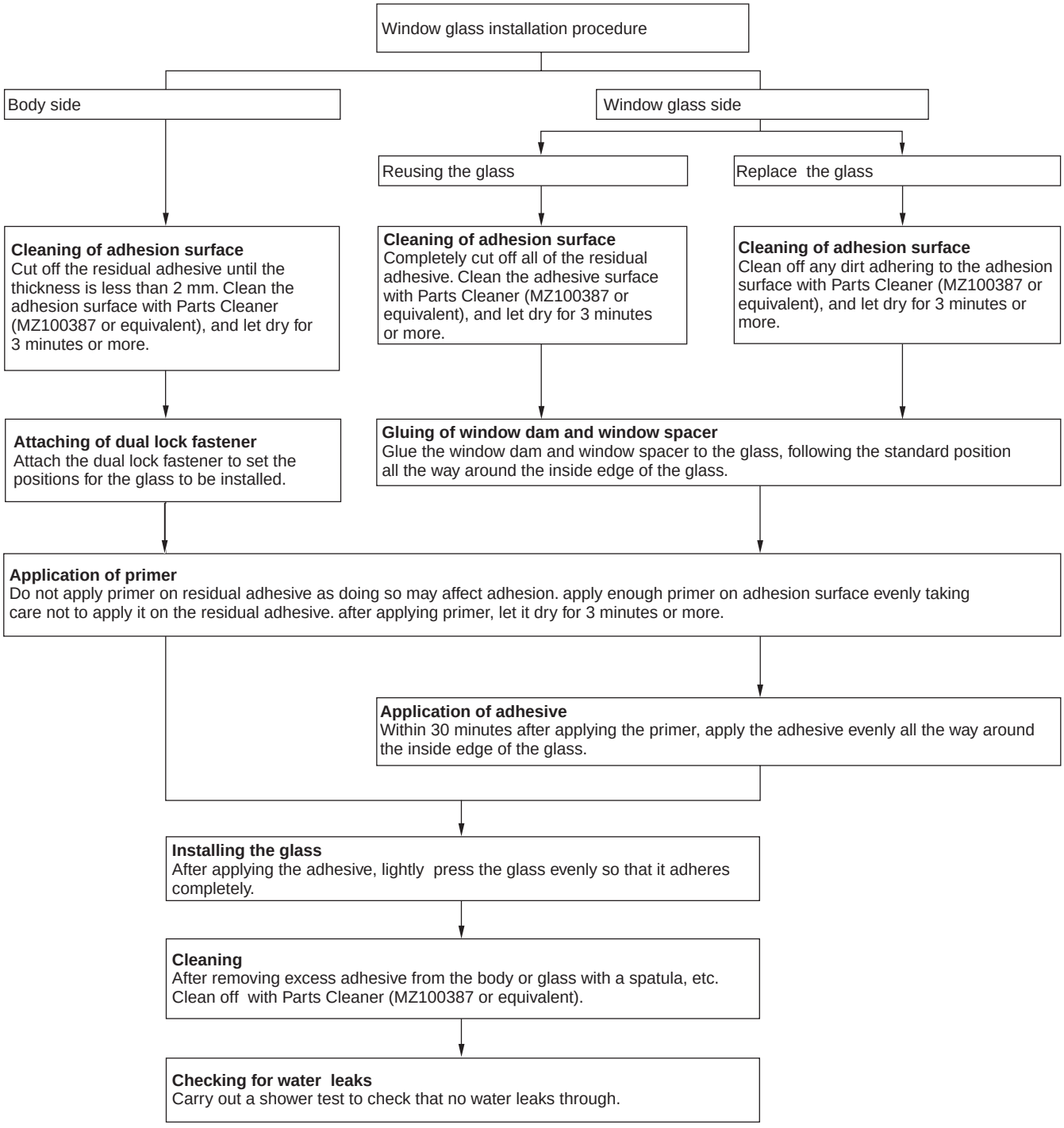
HANDLING OF AUTO WINDOW SEALER

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

BODY PINCH-WELD FLANGE SERVICING

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

WINDOW GLASS INSTALLATION



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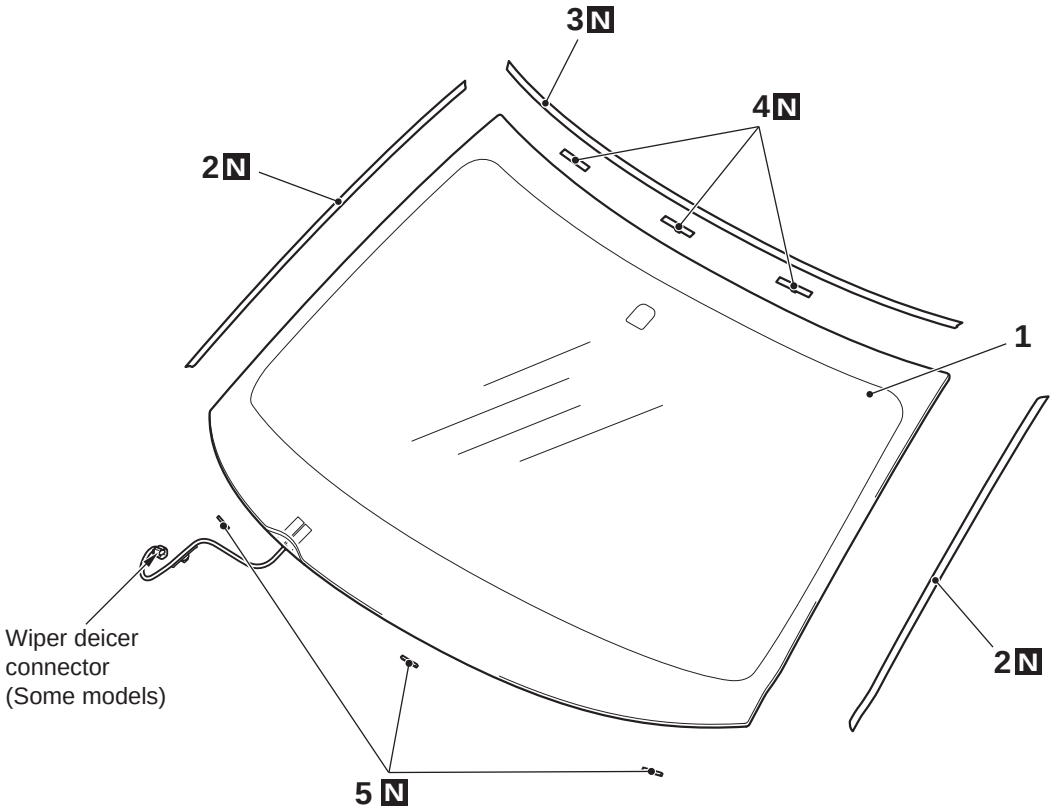
WINDSHIELD

REMOVAL AND INSTALLATION

M1422001001844

Pre-removal and post-installation operation
- Front deck garnish removal and installation (Refer to GROUP 51 – Windshield Wiper .)
- Roof drip moulding removal and installation (Refer to GROUP 51 – Moulding .)
- Front pillar trim removal and installation (Refer to GROUP 52A – Interior Trim .)
- Inside rear view mirror assembly removal and installation (Refer to GROUP 52A – Inside Rear View Mirror .)
- Lighting control sensor removal and installation <Vehicles with lighting control sensor> (Refer to GROUP 54A – Lighting Control Sensor .)



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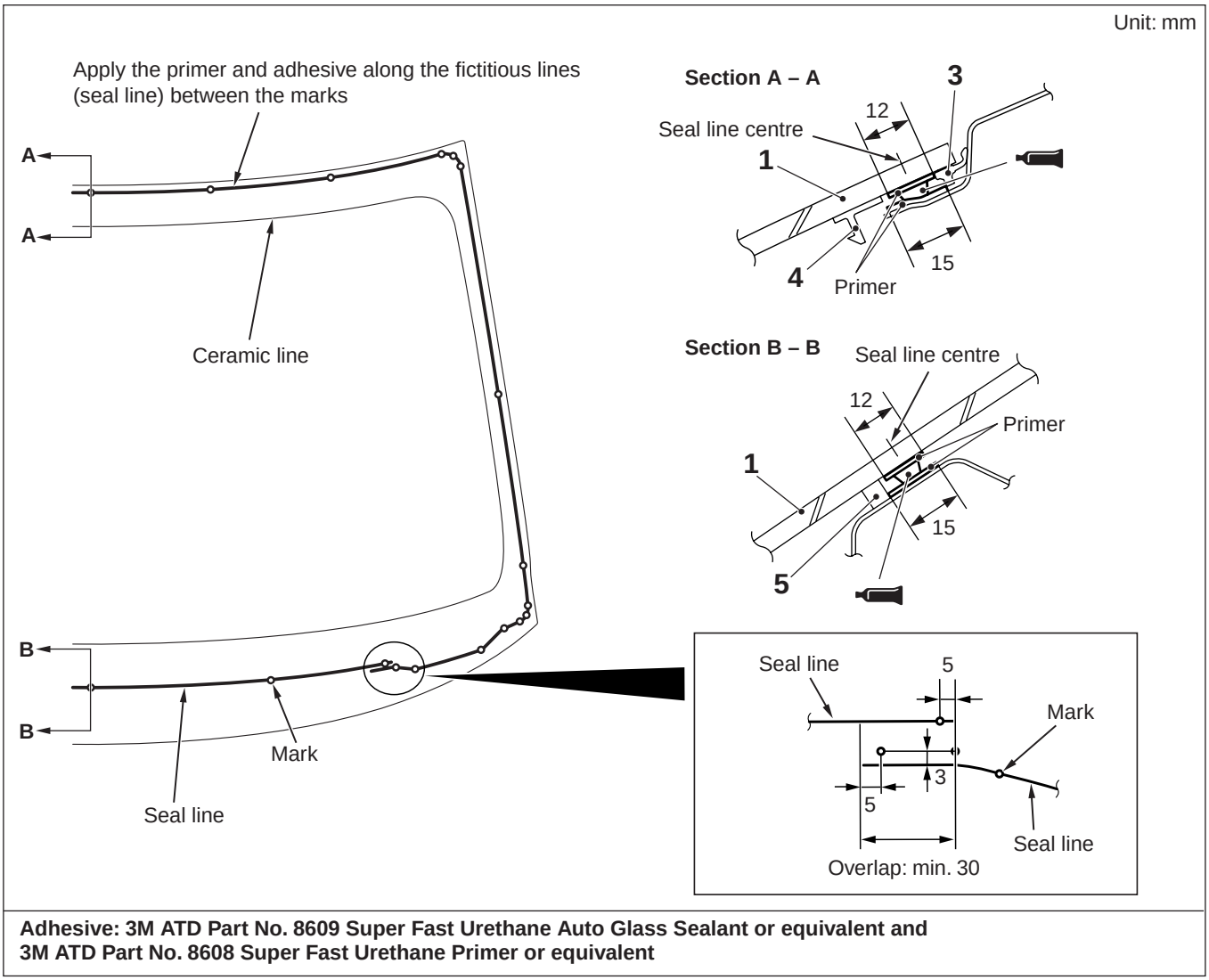

Adhesive: 3M ATD Part No. 8609 Super Fast Urethane Auto Glass Sealant or equivalent and 3M ATD Part No. 8608 Super Fast Urethane Primer or equivalent

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Removal steps

<<**A**>> >>**B**<< 1. Windshield glass
2. Windshield side moulding
3. Windshield upper moulding
>>**A**<< 4. Glass stopper
>>**A**<< 5. Windshield spacer

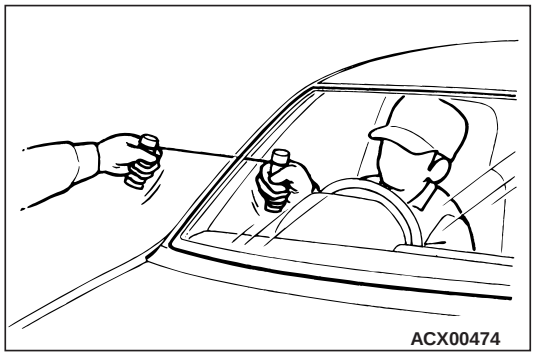
REMOVAL SERVICE POINTS

<<A>> WINDSHIELD GLASS REMOVAL

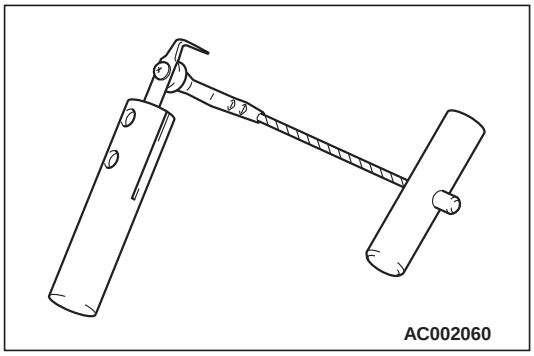
1. In order to protect the body (paint surface), apply a cloth tape to the body area along the windshield glass opening.
2. When separating adhesive using a piano wire
   (1) Use a knife to cut away the moulding.
   (2) Use a sharp-point drill to make a hole in the windshield adhesive.
   (3) Pass the piano wire from the inside of the vehicle through the hole.

⚠ CAUTION

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



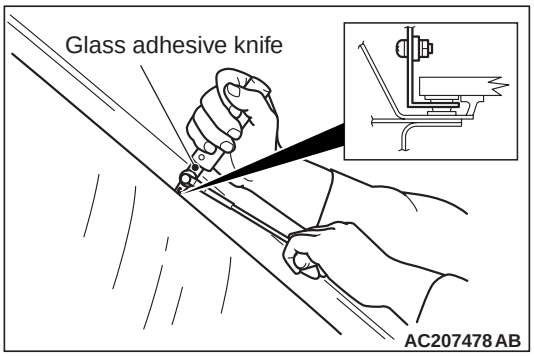
   (4) Pull the piano wire alternately from the inside and outside along the windshield glass to cut away the adhesive.
3. When cutting away adhesive using a windshield knife



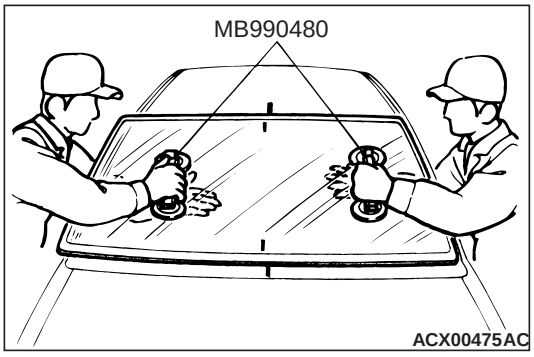
(1) Using glass adhesive knife

⚠ CAUTION

If you lever the glass adhesive knife, the windshield glass may be damaged.

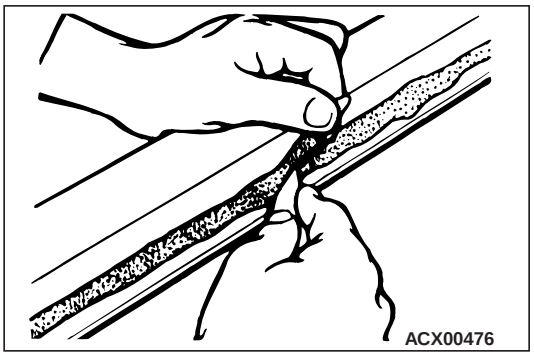


(2) Holding the tip of the glass adhesive knife and the windshield glass edge at right angles, align the blade of the glass adhesive knife with the windshield glass surface and edge, and pull the blade parallel to the edge to cut away the adhesive.



4. Make mating marks on the windshield glass and body, and use the special tool window glass holder (MB990480) to remove the windshield glass.

⚠ CAUTION



- **Be careful not to cut away more adhesive than is necessary.**
- **Be careful also not to damage the paintwork on the body surface with the knife. If the paintwork is damaged, repair the damaged area with repair paint or anti-rust agent.**

5. Use a knife to cut away the remaining adhesive so that the thickness is within 2 mm around the entire circumference of the body flange.
6. Finish the flange surfaces so that they are smooth.
7. If the windshield glass is reused, scrape away all traces of old adhesive, the glass stopper, and the windshield spacer.

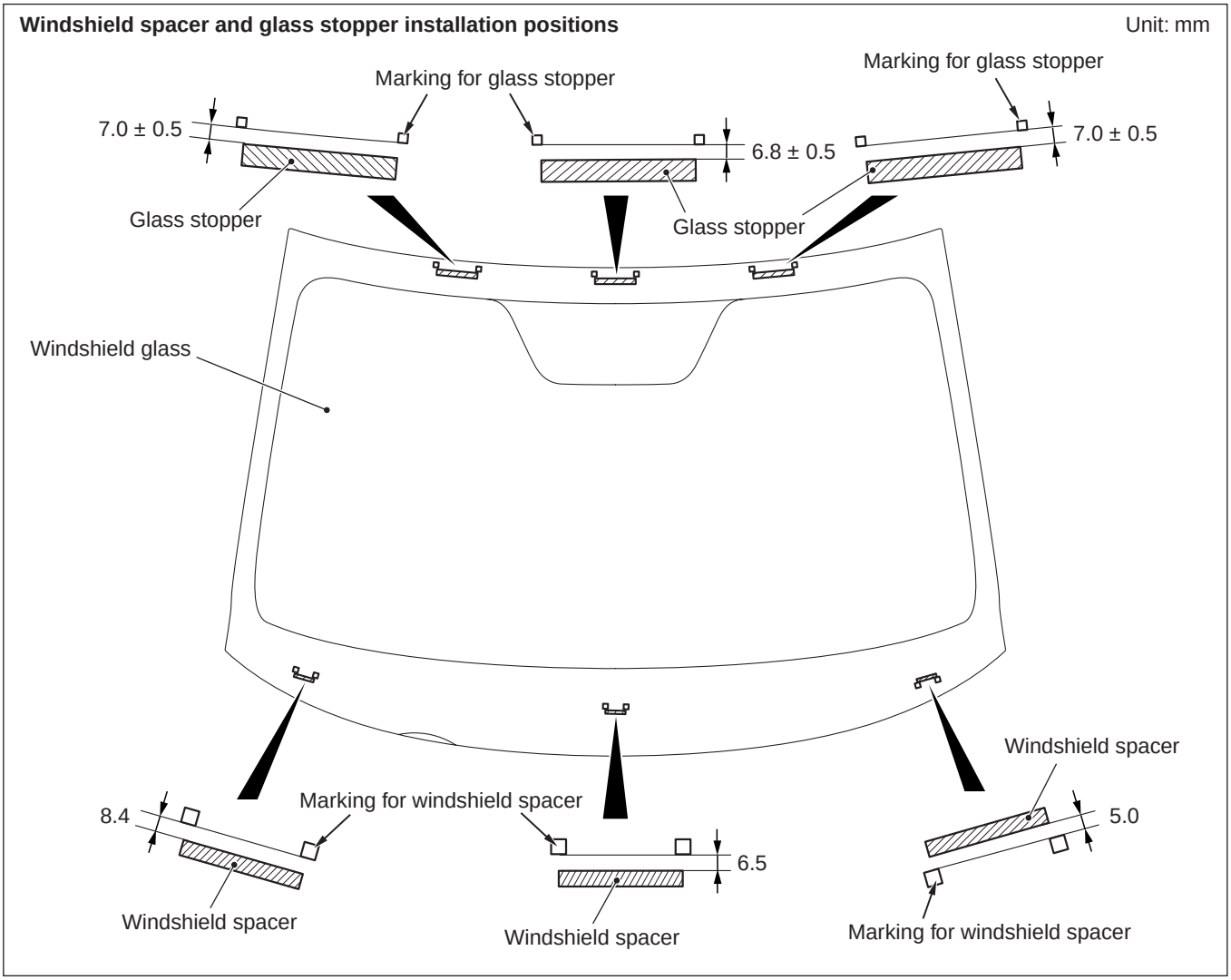
INSTALLATION SERVICE POINTS

>>A<< WINDSHIELD SPACER/GLASS STOPPER INSTALLATION

⚠ CAUTION

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

1. Use parts cleaner (MZ100387 or equivalent) to degrease the inside circumference of the windshield glass and the body flanges.



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2. Position the windshield spacer, ensuring that there are no bends or looseness inside the windshield glass.
3. Secure the glass stoppers to the specified positions on the windshield glass.

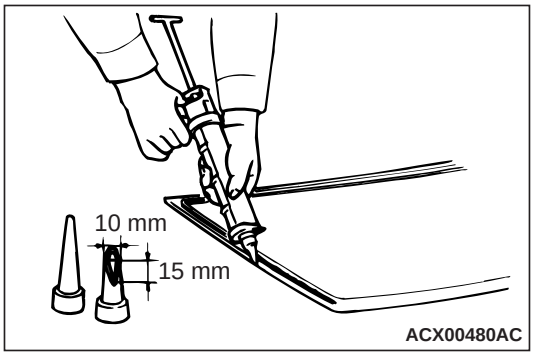
>>B<<WINDSHIELD GLASS INSTALLATION

1. Install the windshield moulding to the windshield glass.
2. To replace the windshield glass, temporarily set the windshield glass against the body, and place mating marks on the body and windshield glass.

⚠ CAUTION

- **The primer strengthens the adhesive, so be sure to apply it. However, too thick application will weaken the adhesive.**
- **Do not touch the coated surface.**
- **Do not apply the primer on the remaining adhesive. The adhesive strength may be weakened.**

3. Soak a sponge in the primer, and apply evenly to the windshield glass and the body in the specified places.
4. After applying the primer, let it dry for 3 minutes or more.



5. Fill a sealant gun with adhesive. Then apply the adhesive evenly around the windshield glass within 30 minutes after the primer application.

   NOTE: Cut the tip of the sealant gun nozzle into a V-shape to simplify adhesive application.
6. After applying the adhesive, align the mating marks on the windshield glass and the body, and then press the windshield glass gently to seat it.
7. Use spatula or the like to remove any excessive adhesive. Then clean the surface with parts cleaner (MZ100387 or equivalent). Leave the vehicle stationary until the adhesive sets (Refer to Window Glass Installation P.42A-11).

⚠ CAUTION
- **Move the vehicle carefully.**
- **When testing for water leakage, do not pinch the end of the hose to spray the water.**

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

INSPECTION EMBLEM REMOVAL AND INSTALLATION

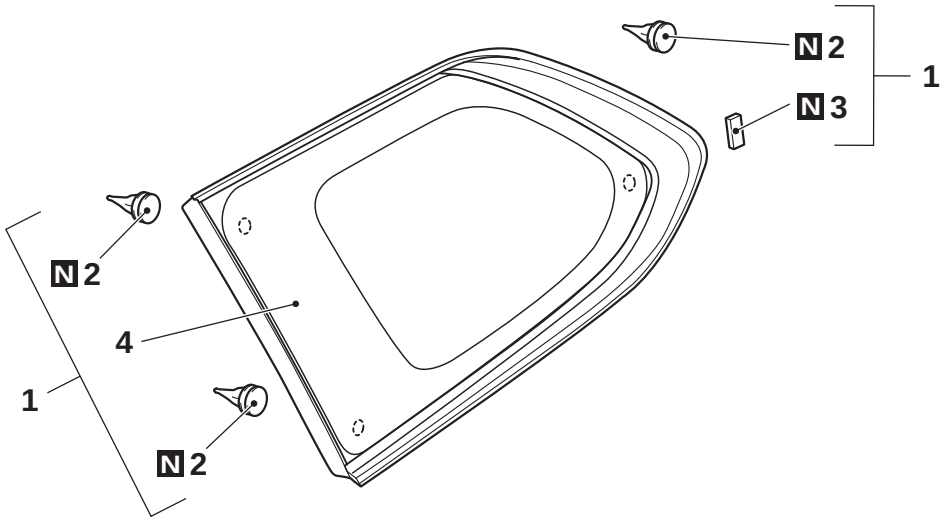
1. Use your hands or a plastic spatula to remove the inspection emblem.
2. Remove the remaining adhesive using diluted mild detergent for home use or inorganic solution (alcohol).
3. Attach the new inspection emblem to the specified position.

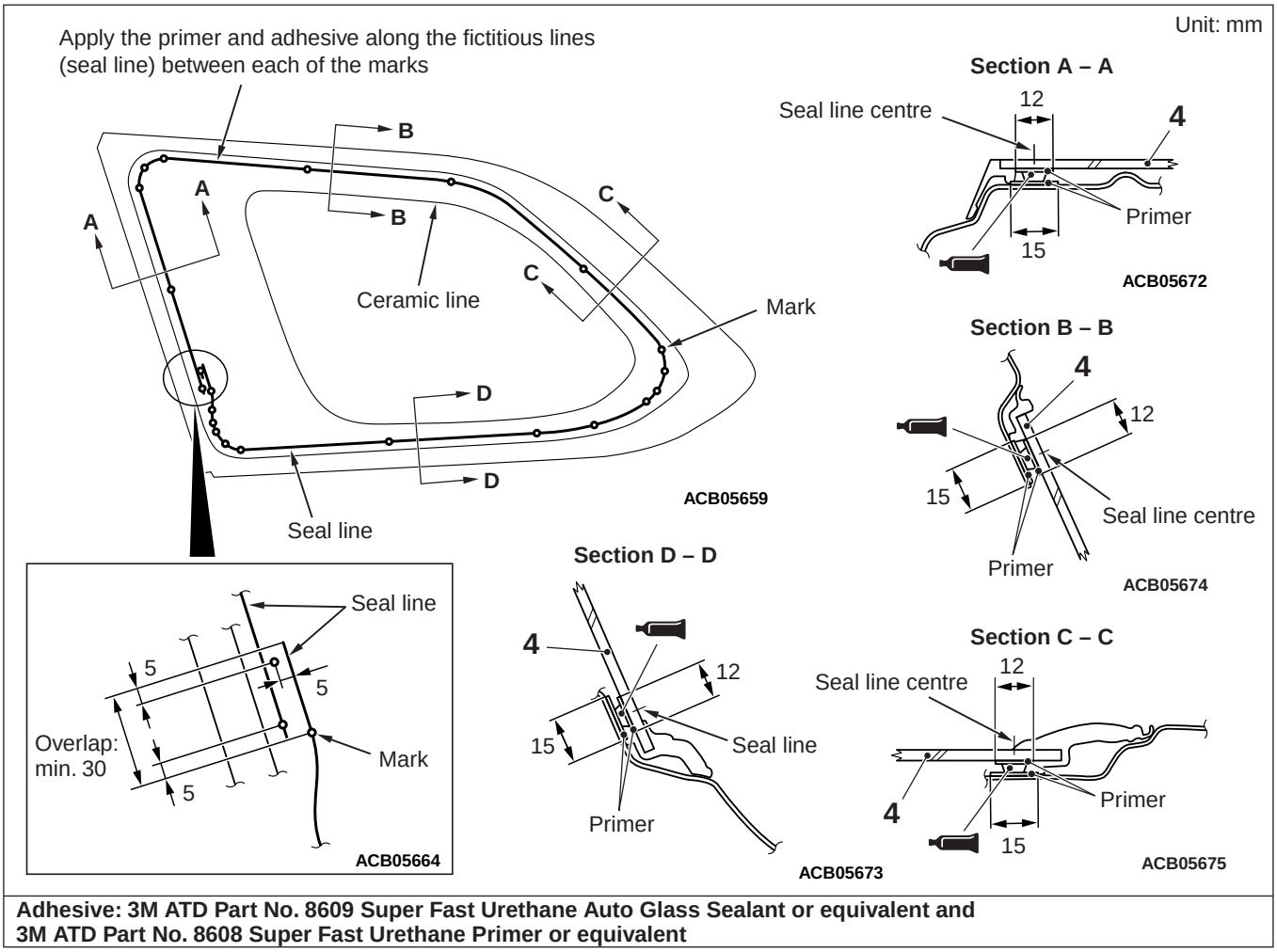
QUARTER WINDOW GLASS

REMOVAL AND INSTALLATION

M1422002501024

Pre-removal and post-installation operation
- Quarter trim upper removal and installation (Refer to GROUP 52A – Interior Trim .)





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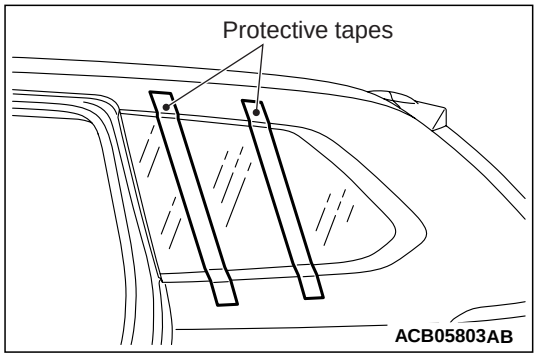
Removal steps

<<**A**>>	>>**B**<<	1.	Quarter window glass assembly
	>>**A**<<	2.	Clip
	>>**A**<<	3.	Fastener
		4.	Quarter window glass

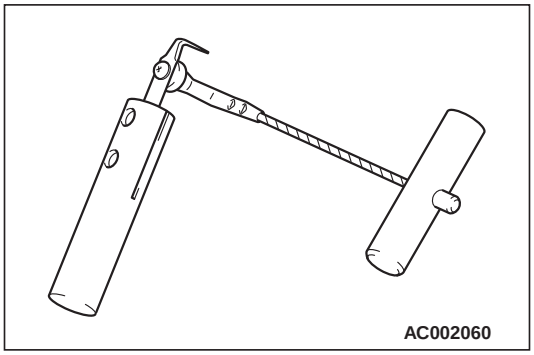
REMOVAL SERVICE POINTS

<<A>> QUARTER WINDOW GLASS ASSEMBLY REMOVAL

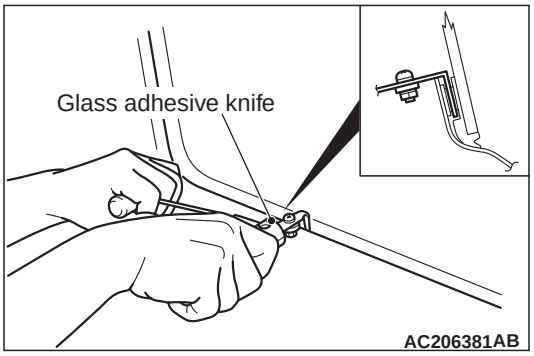
1. In order to protect the body (paint surface), apply the protective tapes to body area around the installed quarter window glass assembly.



2. Stick the protective tapes to avoid the quarter window glass assembly from dropping.



3. Using glass adhesive knife

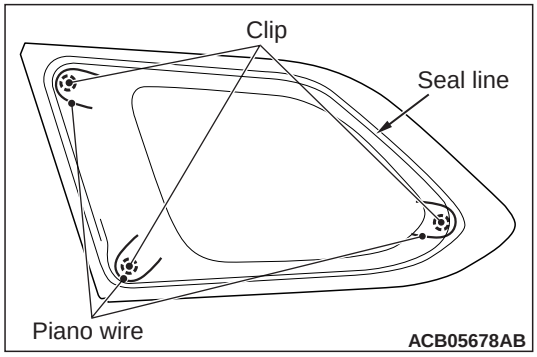


4. Working inside the vehicle, insert the tip of a windshield knife into the sealed part of the quarter window glass assembly.

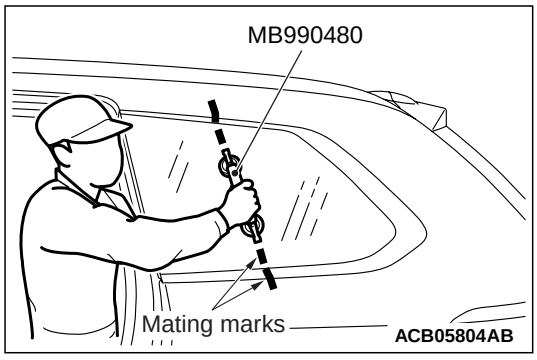
⚠ CAUTION

If you lever the windshield knife, the quarter window glass assembly may be damaged.

5. Holding the tip of the glass adhesive knife and the body flange at right angles, align the blade of the windshield knife with the body flange, and pull the blade parallel to the body flange to separate the adhesive.

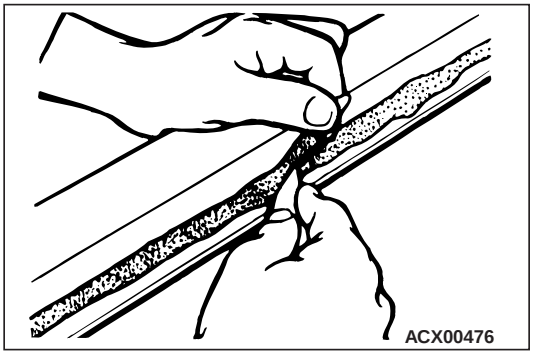


6. Use a piano wire to separate the clips.



7. Make mating marks on the quarter window glass assembly and body, and use special tool window glass holder (MB990480) to remove the quarter window glass assembly.

⚠ CAUTION



Be careful not to cut away more adhesive than is necessary.

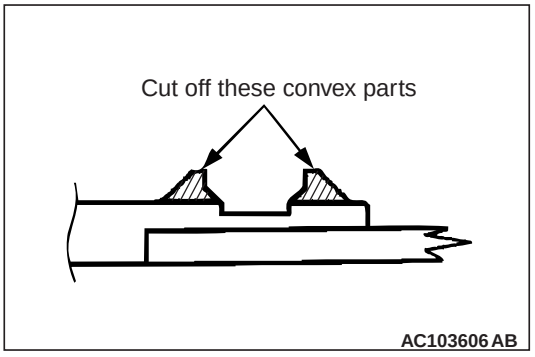
- **Be careful also not to damage the paintwork on the body surface with the knife. If the paintwork is damaged, repair the damaged area with touch-up paint or anti-rust agent.**

8. Use a knife to cut away the remaining adhesive so that the thickness is within 2 mm around the entire circumference of the body flange.
9. Finish the flange surfaces so that they are smooth.
10. If the quarter window glass assembly is reused, scrape away all traces of old adhesive from the quarter window glass assembly.

INSTALLATION SERVICE POINTS

>>A<< FASTENER/CLIP INSTALLATION

1. If the quarter window glass assembly is reused, follow the procedures below:
   (1) Engage the clip with the body.



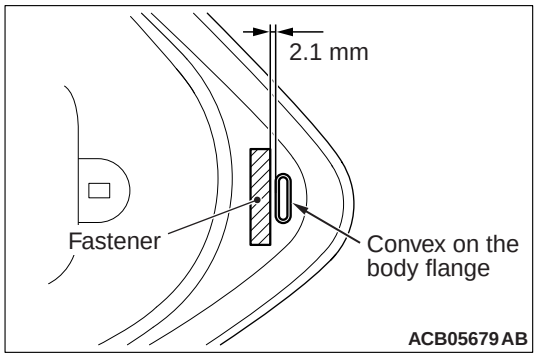
   (2) Cut off the convex portion of the quarter window glass assembly clip installation position.

   NOTE: If the quarter window glass assembly is installed without cutting off the convex portion of the quarter window glass assembly clip installation position, improper installation may result.

⚠ CAUTION

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

2. Use parts cleaner (MZ100387 or equivalent) to degrease the inside circumference of the quarter window glass assembly and the body flanges.



3. Install the fasteners to the specified positions on the body flange.
4. Install the fasteners to the quarter window glass assembly at the positions which correspond to the fasteners on the body flange.

>>B<< QUARTER WINDOW GLASS ASSEMBLY INSTALLATION

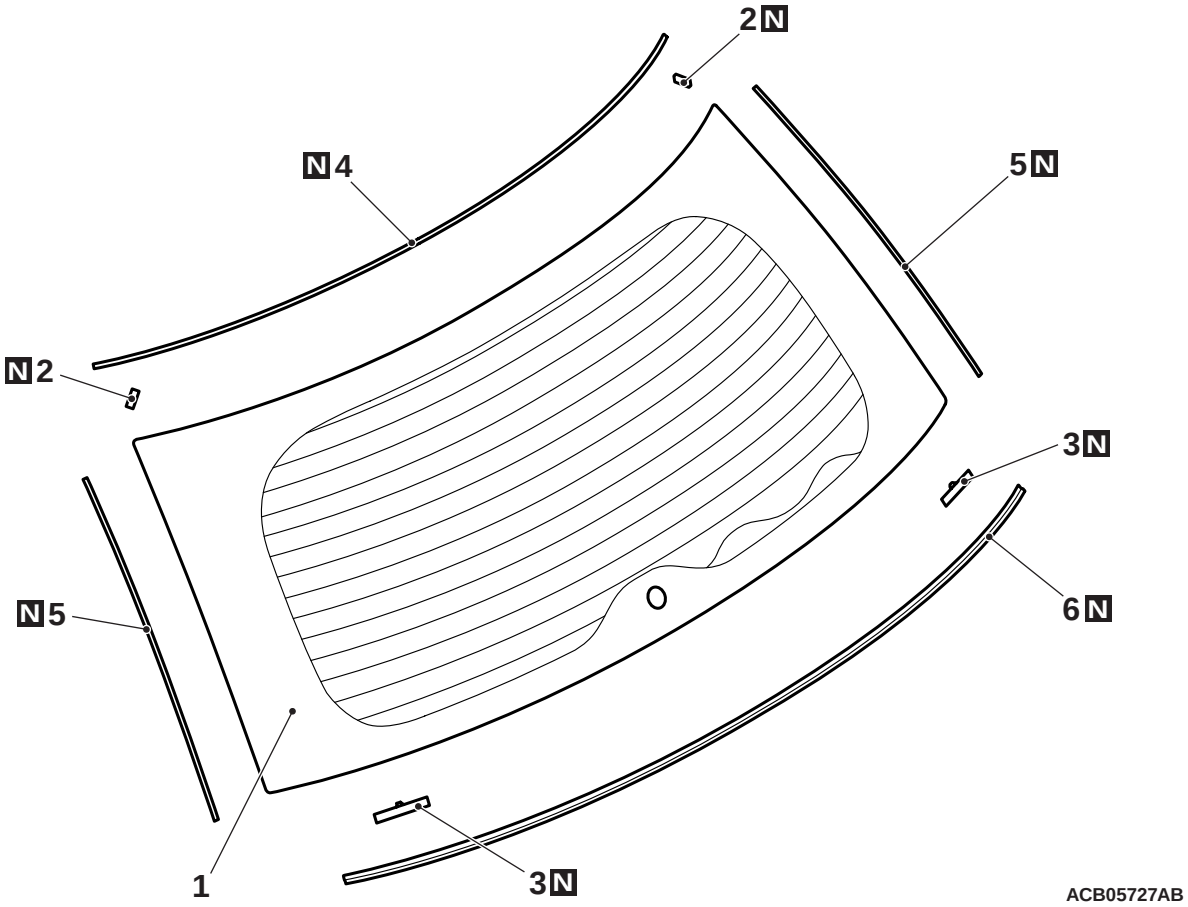
1. Apply the primer and adhesive.
2. Install the quarter window glass assembly by the same procedures as for the windshield glass (Refer to P.42A-13).

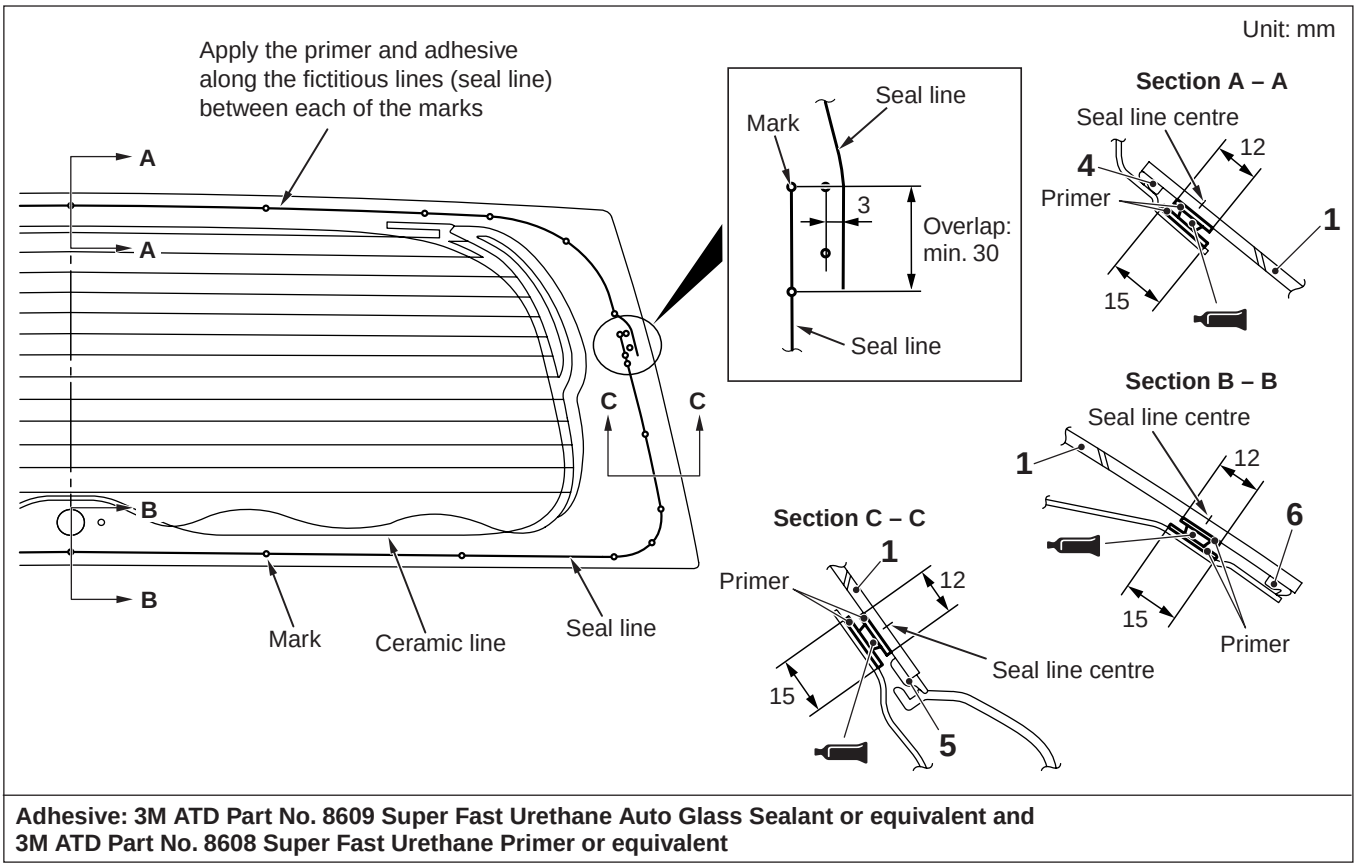
TAILGATE WINDOW GLASS

REMOVAL AND INSTALLATION

M1422003701087

Pre-removal and post-installation operation
- Rear wiper blade and arm assembly removal and installation (Refer to GROUP 51 – Rear Wiper and Washer .)
- Tailgate trim removal and installation (Refer to GROUP 52A – Tailgate Trim .)





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

ACC00162AB

Removal steps

- Harness connector

<<**A**>> >>**B**<< 1. Tailgate window glass
>>**A**<< 2. Fastener
>>**A**<< 3. Glass stopper
>>**A**<< 4. Tailgate dam upper
>>**A**<< 5. Tailgate dam side
>>**A**<< 6. Tailgate dam lower

REMOVAL SERVICE POINT

<<A>> TAILGATE WINDOW GLASS REMOVAL

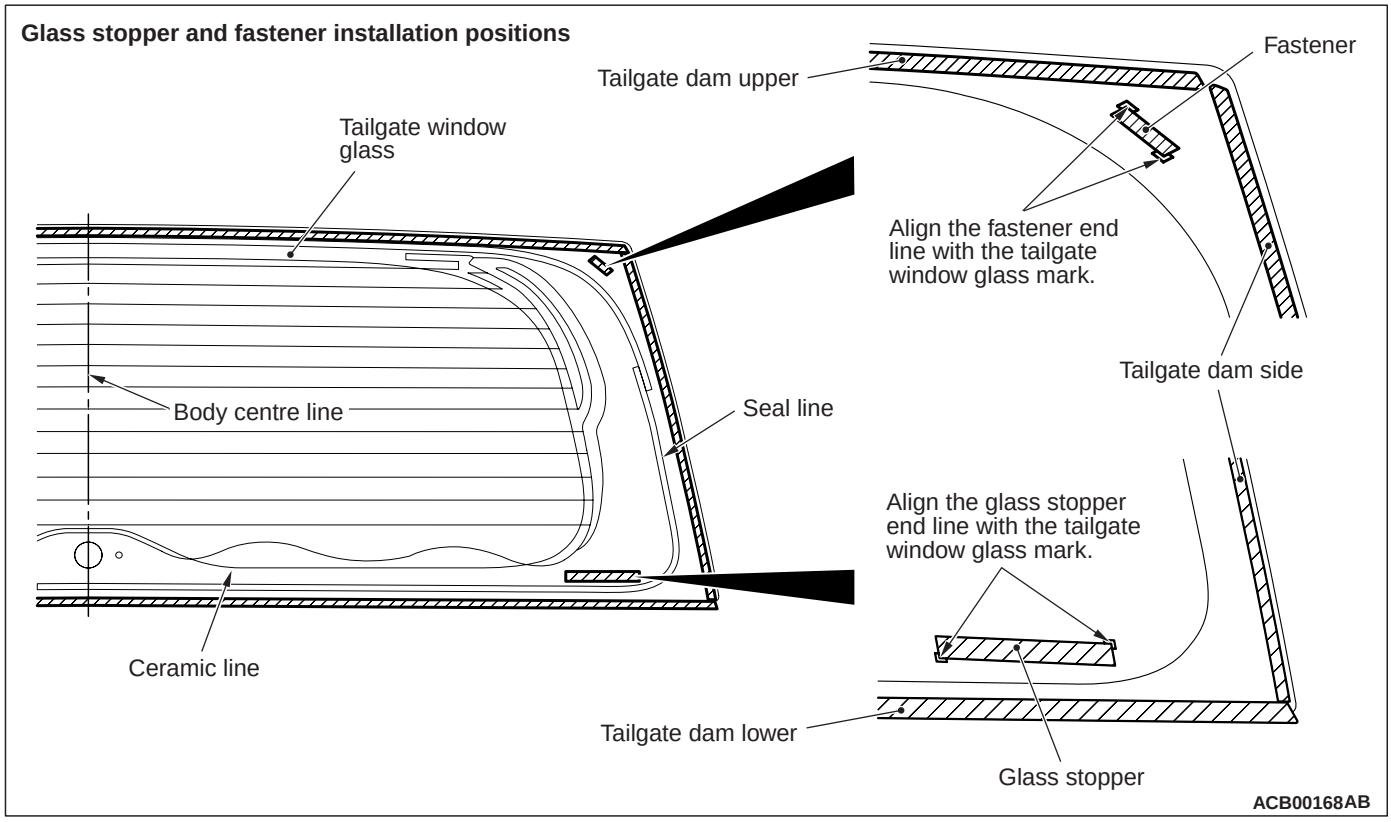
Remove the tailgate window glass by the same procedures as for the windshield glass (Refer to P.42A-13).

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

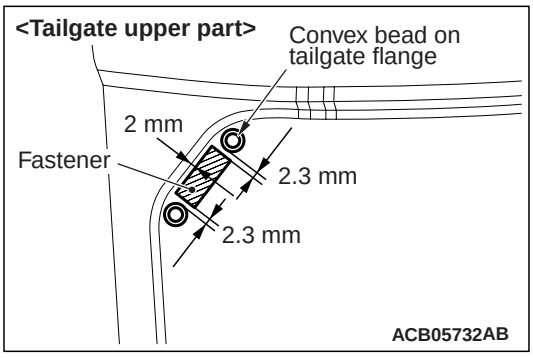
INSTALLATION SERVICE POINTS

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

1. Use the parts cleaner (MZ100387 or equivalent) to degrease the inside circumference of the tailgate window glass and tailgate flanges.



2. Peel off the protection sheet on the back of the tailgate dam and paste it to the specified position on the tailgate window glass.
3. Install the glass stopper and fastener to the specified position on the tailgate window glass



4. Install the fasteners to the specified positions on the tailgate flange.

>>B<< TAILGATE WINDOW GLASS INSTALLATION

1. Apply the primer and adhesive.
2. Install the tailgate window glass by the same procedure as for the windshield glass (refer to P.42A-13).

DOOR

GENERAL INFORMATION

M1423000100581

POWER WINDOW

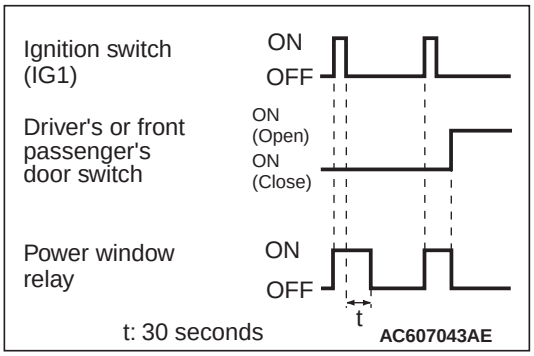
SAFETY MECHANISM <DRIVER'S SIDE DOOR>

The power window with the safety mechanism (anti-trap function) has been adopted. To enhance safety, if any obstacle such as a hand or a head is detected to be pinched during a window glass closing operation, driver's side door window glass is opened by approximately 150 mm.

ONE-TOUCH OPENING/ CLOSING MECHANISM <DRIVER'S SIDE DOOR>

The one-touch opening/closing mechanism has been adopted to the driver's power window switch to fully open or close any door window glass in a single operation.

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 (timer function). After approximately 30 seconds, the power window relay is deactivated.
During this timer operation, if the driver's or front passenger's door is opened, the power window relay is deactivated from that moment.

SERVICE SPECIFICATIONS

M1423000300637

Item	Standard value
Power window operating current (with power supply of 14.5 ± 0.5 V at 25°C) A	7 or less
Door outside handle play mm	0.2 – 5.2 (Target value: 2.7)
Door inside handle knob play mm	13.6 – 27.2 (Target value: 20.4)
Stroke of the door inside handle lock knob mm	13.5 – 15.5 (Target value: 14.5)

SEALANT

M1423000500631

Item	Specification
Door waterproof film	3M ATD Part No.8625 or equivalent

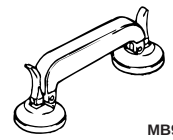
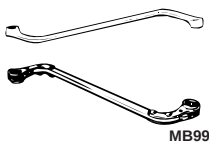
LUBRICANT

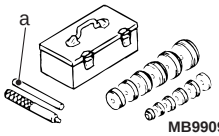
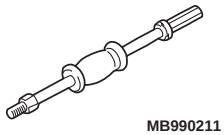
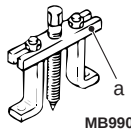
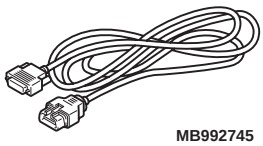
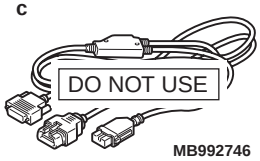
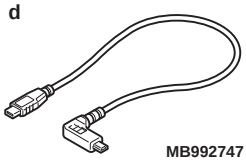
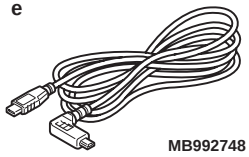
M1421000400081

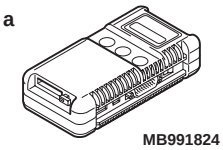
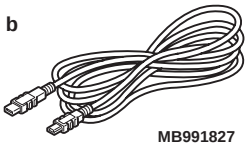
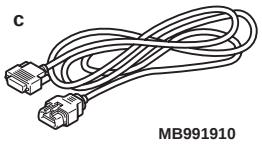
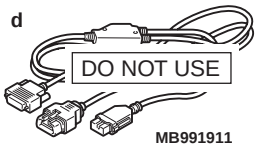
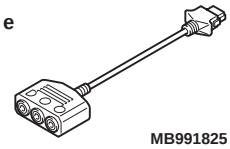
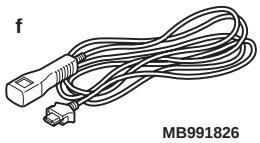
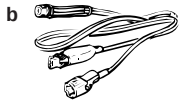
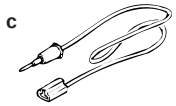
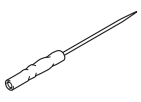
Item		Specified lubricant	Quantity
Degrease agent	Grease and dirt removal from parts surface	Parts cleaner (MZ100387 or equivalent)	As required

SPECIAL TOOLS

M1423000601255

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

Tool	Number	Name	Use
 MB990925AH	MB990925 a. MB990939	Bearing and oil seal installer set a. Remover bar	Door striker adjustment
 MB990211	MB990211	Sliding hammer	
 MB990241AH	MB990241 a. MB990243	Axle shaft puller a. Body puller	
a  MB992744 b  MB992745 c  MB992746 d  MB992747 e  MB992748 ACB05421AB	a. MB992744 b. MB992745 c. MB992746 d. MB992747 e. MB992748	a. Vehicle communication interface-Lite (V.C.I.-Lite) b. V.C.I.-Lite main harness A (for vehicles with CAN communication) c. V.C.I.-Lite main harness B (for vehicles without CAN communication) d. V.C.I.-Lite USB cable short e. V.C.I.-Lite USB cable long	ECU check (service data display)

Tool	Number	Name	Use
a  MB991824 b  MB991827 c  MB991910 d  MB991911 e  MB991825 f  MB991826 MB991955	MB991955 a. MB991824 b. MB991827 c. MB991910 d. MB991911 e. MB991825 f. MB991826	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 (for vehicles with CAN communication) d. M.U.T.-III main harness B (for vehicles without CAN communication) e. Measuring adapter harness f. M.U.T.-III trigger harness	⚠ CAUTION **For vehicles with CAN communication, use M.U.T.-III main harness A to send the simulated vehicle speed. If you connect M.U.T.-III main harness B instead, CAN communication does not function correctly.** ECU check (service data display)
a  b  c  d  MB991223	MB991223 a. MB991219 b. MB991220 c. MB991221 d. MB991222	Harness set a. Test harness b. LED harness c. LED harness adapter d. Probe	Terminal voltage measurement a. For checking connector pin contact pressure b. For checking power supply circuit c. For checking power supply circuit d. For connecting a locally sourced tester
 MB992006	MB992006	Extra fine probe	Continuity check and voltage measurement at harness wire or connector

TROUBLESHOOTING

STANDARD FLOW OF DIAGNOSTIC TROUBLESHOOTING

M1423009600174

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

TROUBLE SYMPTOM CHART <CENTRAL DOOR LOCKING SYSTEM>

M1427001801221

⚠ 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, confirm all systems for diagnosis code(s). If diagnosis code(s) are set, erase them all.

Trouble symptom	Inspection procedure number	Reference page
Central door locking system does not work at all.	A-1	P.42A-26
Central door locking system does not operate even when door lock switch of power window main switch operated.	A-2	P.42A-28
Door(s) or a tailgate cannot be locked or unlocked by central door locking system.	A-3	P.42A-28
Selector "P" position-linked door unlock function does not operate.	A-4	P.42A-30
Ignition "LOCK (OFF)" position-linked door unlock function does not operate.	A-5	P.42A-31

SYMPTOM PROCEDURES <CENTRAL DOOR LOCKING SYSTEM>

INSPECTION PROCEDURE A-1: Central door locking system does not work at all.

⚠ CAUTION

- **Before replacing the ECU, ensure that the power supply circuit, the earth circuit and the communication circuit are normal.**
- **When the ETACS-ECU of vehicles without KOS is replaced, the encrypted code of the ignition key needs to be registered to the ETACS-ECU. (If the encrypted code is not registered, the engine cannot be started. Register the encrypted code as described in Immobilizer System – How to Register Key ID .)**

OPERATION

The ETACS-ECU controls the central door locking system, locking or unlocking all the doors by activating the central door lock relay (built in the ETACS-ECU). The ETACS-ECU uses input signals from the door lock switch, which is incorporated in the power window main switch.

COMMENTS ON TROUBLE SYMPTOM

If the central door locking system does not work at all, a malfunction of the door lock switch (built in the power window main switch), front door lock actuator (driver's side) or ETACS-ECU is suspected.

PROBABLE CAUSES

- Malfunction of the door lock switch (built in the power window main switch)
- Malfunction of the front door lock actuator (driver's side)
- Malfunction of ETACS-ECU
- Damaged wiring harness and connectors

DIAGNOSTIC PROCEDURE

STEP 1. M.U.T.-III diagnosis code
Check that ETACS-ECU sets a diagnosis code.

Q: Is the diagnosis code set?
YES : Refer to GROUP 54A – Diagnosis Code Chart .
NO : Go to Step 2.

STEP 2. M.U.T.-III data list
Check the ETACS-ECU service items related to the central door locking system operation.

- Door lock switch: Unlock → Lock.

Item No.	Item name	Normal condition
270	Dr door lock switch	Not lock→Lock
271	Dr door unlock switch	Unlock→Not unlock

- Door lock switch: Lock → Unlock.

Item No.	Item name	Normal condition
270	Dr door lock switch	Lock→Not lock
271	Dr door unlock switch	Not unlock→ Unlock

OK: Normal conditions are displayed for all the items.

Q: Is the check result normal?
YES : Go to Step 3.
NO : Refer to GROUP 54A – Trouble Symptom Chart for Input Signal .

STEP 3. Check of short to power supply, short to earth, and open circuit in +B2 line between ETACS-ECU connector and fusible link.

Q: Is the check result normal?
YES : Go to Step 4.
NO : Repair the connector(s) or wiring harness.

STEP 4. Central door lock switch check.
Check that the central door lock switch is in good condition. Refer to Central Door Lock Switch Check P.42A-61.

Q: Is the check result normal?
YES : Go to Step 5.
NO : Replace the power window main switch.

STEP 5. Check of open circuit in earth line between power window main switch connector and body earth.

Q: Is the check result normal?
YES : Go to Step 6.
NO : Repair the connector(s) or wiring harness.

STEP 6. Check of short to power supply, short to earth, and open circuit in D-LS, D-US line between ETACS-ECU connector and power window main switch connector.

Q: Is the check result normal?
YES : Go to Step 7.
NO : Repair the connector(s) or wiring harness.

STEP 7. 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 ETACS-ECU.

INSPECTION PROCEDURE A-2: Central door locking system does not operate even when door lock switch of power window main switch operated.

⚠ CAUTION

- **Before replacing the ECU, ensure that the power supply circuit, the earth circuit and the communication circuit are normal.**
- **When the ETACS-ECU of vehicles without KOS is replaced, the encrypted code of the ignition key needs to be registered to the ETACS-ECU. (If the encrypted code is not registered, the engine cannot be started. Register the encrypted code as described in Immobilizer System – How to Register Key ID .)**

OPERATION

The ETACS-ECU controls the central door locking system, locking or unlocking all the doors by activating the central door lock relay (built in the ETACS-ECU). The ETACS-ECU uses input signals from the door lock switch, which is incorporated in the power window main switch.

COMMENTS ON TROUBLE SYMPTOM

If the central door locking system does not work at all, a malfunction of the door lock switch (built in the power window main switch) or ETACS-ECU is suspected.

PROBABLE CAUSES

- Malfunction of the door lock switch (built in the power window main switch)
- Malfunction of ETACS-ECU
- Damaged wiring harness and connectors

DIAGNOSTIC PROCEDURE

STEP 1. Central door locking system operation check.

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-26."

STEP 2. Central door lock switch check (built in the power window main switch).

Check that the central door lock switch works normally (Refer to Central Door Lock Switch Check P.42A-61).

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

STEP 3. Check of short to power supply, short to earth, and open circuit in D-LS, D-US line between ETACS-ECU connector and power window main switch connector.

Q: Is the check result normal?
YES : Go to Step 4.
NO : Repair the connector(s) or wiring harness.

STEP 4. 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 ETACS-ECU.

INSPECTION PROCEDURE A-3: Door(s) or a tailgate cannot be locked or unlocked by central door locking system.

COMMENTS ON TROUBLE SYMPTOM

No operation of the door lock actuator or a malfunction of the tailgate lock actuator is suspected.

PROBABLE CAUSES

- Malfunction of the door lock actuator
- Malfunction of the tailgate lock actuator
- Damaged wiring harness and connectors

DIAGNOSIS PROCEDURE

STEP 1. Confirmation of the defective door lock actuator or tailgate lock actuator.

Q: Which doors or tailgate is not locked normally?
Front left door : Go to Step 2.
Front right door : Go to Step 4.
Rear left door : Go to Step 6.
Rear right door : Go to Step 8.
Tailgate <Vehicles without electric tailgate> : Go to Step 10.
Tailgate <Vehicles with electric tailgate> : Diagnose the tailgate. Refer to GROUP 42A – Tailgate P.42A-93.

STEP 2. Front door lock actuator (LH) check
Check that the front door lock actuator (LH) works normally. Refer to Door Latch Assembly Inspection P.42A-47.

Q: Is the check result normal?
YES : Go to Step 3.
NO : Replace the front door lock actuator (LH).

STEP 3. Check of short to power supply, short to earth, and open circuit in DUN, DLK1&DLK2 line between ETACS-ECU connector and front door lock actuator (LH) connector.

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).
NO : Repair the connector(s) or wiring harness.

STEP 4. Front door lock actuator (RH) check
Check that the front door lock actuator (RH) works normally. Refer to Door Latch Assembly Inspection P.42A-47.

Q: Is the check result normal?
YES : Go to Step 5.
NO : Replace the front door lock actuator (RH).

STEP 5. Check of short to power supply, short to earth, and open circuit in DUL2, DLK1&DLK2 line between ETACS-ECU connector and front door lock actuator (RH) connector.

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).
NO : Repair the connector(s) or wiring harness.

STEP 6. Rear door lock actuator (LH) check
Check that the rear door lock actuator works normally. Refer to Door Latch Assembly Inspection P.42A-47.

Q: Is the check result normal?
YES : Go to Step 7.
NO : Replace the rear door lock actuator (LH).

STEP 7. Check of short to power supply, short to earth, and open circuit in DUL3&DUL4, DLK3&DLK4 line between ETACS-ECU connector and rear door lock actuator (LH) connector.

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).
NO : Repair the connector(s) or wiring harness.

STEP 8. Rear door lock actuator (RH) check
Check that the rear door lock actuator (RH) is in good condition. Refer to Door Latch Assembly Inspection P.42A-47.

Q: Is the check result normal?
YES : Go to Step 9.
NO : Replace the rear door lock actuator (RH).

STEP 9. Check of short to power supply, short to earth, and open circuit in DUL3&DUL4, DLK3&DLK4 line between ETACS-ECU connector and rear door lock actuator (RH) connector.

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).
NO : Repair the connector(s) or wiring harness.

STEP 10. Tailgate lock actuator check.
Check that the tailgate lock actuator is in good condition. Refer to P.42A-73.

Q: Is the check result normal?
YES : Go to Step 11.
NO : Replace the tailgate lock actuator.

STEP 11. Resistance measurement at tailgate lock actuator connector (earth line terminal).

(1) Disconnect the connector, and measure at the wiring harness side.
(2) Measure the resistance between the tailgate lock actuator connector (earth line terminal) and body earth.

OK: Continuity exists (2 Ω or less)

Q: Is the check result normal?
YES : Go to Step 13.
NO : Go to Step 12.

STEP 12. Check of open circuit in earth line between tailgate lock actuator connector and body earth.

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).
NO : Repair the connector(s) or wiring harness.

STEP 13. Check of open circuit in GLK line between ETACS-ECU connector and tailgate lock actuator connector.

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).
NO : Repair the connector(s) or wiring harness.

INSPECTION PROCEDURE A-4: Selector "P" position-linked door unlock function does not operate.

⚠ CAUTION
- **Before replacing the ECU, ensure that the power supply circuit, the earth circuit and the communication circuit are normal.**
- **When the ETACS-ECU of vehicles without KOS is replaced, the encrypted code of the ignition key needs to be registered to the ETACS-ECU. (If the encrypted code is not registered, the engine cannot be started. Register the encrypted code as described in Immobilizer System – How to Register Key ID .)**

OPERATION
ETACS-ECU determines whether the shift position is at "P" or not according to the shift position signal which is sent by CVT-ECU.

COMMENTS ON TROUBLE SYMPTOM
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 customisation function.

PROBABLE CAUSES
- Malfunction of CAN bus line
- Malfunction of ETACS-ECU
- Damaged wiring harness and connectors

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 Central Door Locking System Symptom Chart P.42A-26.

STEP 2. Check the customisation function.
Check that "Always (P pos)" is set for "Auto door unlock by P position" with the customisation function.

Q: Is the check result normal?
YES : Go to Step 3.
NO : Set "Always (P pos)" for "Auto door unlock by P position" with the customisation function (Refer to Customisation Function P.42A-50).

STEP 3. M.U.T.-III CAN bus diagnostics
Use M.U.T.-III to diagnose the CAN bus lines.

Q: Is the CAN bus normal?
YES : Go to Step 4.
NO : Repair the CAN bus line (Refer to GROUP 54C – Troubleshooting).

STEP 4. Check the M.U.T.-III Diagnosis code of other systems
Check that CVT sets a diagnosis code.

Q: Is the diagnosis code set?
YES : Diagnose CVT (Refer to GROUP 23A – Troubleshooting).
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 : Intermittent malfunction (Refer to GROUP 00 – How to Use Troubleshooting/Inspection Service Points - How to Cope with Intermittent Malfunction).
NO : Replace ETACS-ECU.

INSPECTION PROCEDURE A-5: Ignition "LOCK (OFF)" position-linked door unlock function does not operate.

⚠ CAUTION
- **Before replacing the ECU, ensure that the power supply circuit, the earth circuit and the communication circuit are normal.**
- **When the ETACS-ECU of vehicles without KOS is replaced, the encrypted code of the ignition key needs to be registered to the ETACS-ECU. (If the encrypted code is not registered, the engine cannot be started. Register the encrypted code as described in Immobilizer System – How to Register Key ID .)**

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 customisation function.

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

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 Central Door Locking System Symptom Chart P.42A-26.

STEP 2. Check the customisation function.
Check that "Always (Lock pos)" is set for "Auto door unlock by ignition LOCK position" with the customisation function.

Q: Is the check result normal?
YES : Go to Step 3.
NO : Set "Always (Lock pos)" for "Auto door unlock by ignition LOCK position" with the customisation function (Refer to Customisation Function P.42A-50).

STEP 3. M.U.T.-III CAN bus diagnostics
Use M.U.T.-III to diagnose the CAN bus lines.

Q: Is the CAN bus normal?
YES : Go to Step 4.
NO : Repair the CAN bus line (Refer to GROUP 54C – Troubleshooting).

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 Continuity Check).

STEP 5. Retest the system.
Check that turning the ignition switch to the LOCK position unlocks tall 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).
NO : Replace the ETACS-ECU.

INPUT SIGNAL CHART <CENTRAL DOOR LOCKING SYSTEM>

M1427005100221

Trouble symptom	Inspection procedure number	Reference page
The tailgate lock release handle signal is not received.	B-1	P.42A-32

INPUT SIGNAL PROCEDURES <CENTRAL DOOR LOCKING SYSTEM>

INSPECTION PROCEDURE B-1: The tailgate lock release handle signal is not received.

⚠ CAUTION

- **Before replacing the ECU, ensure that the power supply circuit, the earth circuit and the communication circuit are normal.**
- **When the ETACS-ECU of vehicles without KOS is replaced, the encrypted code of the ignition key needs to be registered to the ETACS-ECU. (If the encrypted code is not registered, the engine cannot be started. Register the encrypted code as described in Immobilizer System – How to Register Key ID .)**

COMMENTS ON TROUBLE SYMPTOM

Input signal from the tailgate 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 tailgate lock release handle
- Malfunction of ETACS-ECU
- Damaged wiring harness and connectors

DIAGNOSTIC PROCEDURE

STEP 1. Tailgate lock release handle check.

Check that the tailgate lock release handle is normal (Refer to P.42A-73 <Vehicles without electric tailgate>, P.42A-119 <Vehicles with electric tailgate>).

Q: Is the check result normal?

YES : Go to Step 2.
NO : Replace the tailgate lock release handle.

STEP 2. Resistance measurement at tailgate lock release handle connector (earth line terminal).

(1) Disconnect the connector, and measure at the wiring harness side.
(2) Measure the resistance between the tailgate lock release handle connector (earth line terminal) and body earth.

OK: Continuity exists (2 or less)

Q: Is the check result normal?

YES : Go to Step 4.
NO : Go to Step 3.

STEP 3. Check of open circuit in earth line between tailgate lock release handle connector and body earth.

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).
NO : Repair the connector(s) or wiring harness.

STEP 4. Check of open circuit in GTOP line between ETACS-ECU connector and tailgate lock release handle connector.

Q: Is the check result normal?

YES : Go to Step 5.
NO : Repair the connector(s) or wiring harness.

STEP 5. M.U.T.-III data list

Check the ETACS-ECU signals related to the tail-gate.

- Tailgate lock release handle: from OFF to ON

Item No.	Item name	Normal condition
230	Gate opener	from OFF to ON

OK: Normal condition is displayed.

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).

NO : Replace ETACS-ECU.

TROUBLE SYMPTOM CHART <POWER WINDOW>

M1429002801134

⚠ 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, confirm all systems for diagnosis code(s). If diagnosis code(s) are set, erase them all.

Trouble symptom	Inspection procedure number	Reference page
Power windows do not work at all.	C-1	P.42A-33
Driver's power window does not work by means of the power window main switch.	C-2	P.42A-35
Relevant power window(s) does not work by means of the front and rear passenger's power window sub switches.	C-3	P.42A-36
Front and/or rear passenger's power window(s) do not work by means of the power window main switch.	C-4	P.42A-38
The power window timer function does not work normally.	C-5	P.42A-39
Power window anti-trap function does not work normally <Driver’s side door>.	C-6	P.42A-40
The window glass lowers automatically while it is rising <Driver’s side door>..	C-7	P.42A-41
The driver's power window inches only.	C-8	P.42A-41

SYMPTOM PROCEDURES <POWER WINDOW>

INSPECTION PROCEDURE C-1: Power windows do not work at all.

⚠ CAUTION

- **Before replacing the ECU, ensure that the power supply circuit, the earth circuit and the communication circuit are normal.**
- **When the ETACS-ECU of vehicles without KOS is replaced, the encrypted code of the ignition key needs to be registered to the ETACS-ECU. (If the encrypted code is not registered, the engine cannot be started. Register the encrypted code as described in Immobilizer System – How to Register Key ID .)**

COMMENTS ON TROUBLE SYMPTOM

If the power windows do not work at all, a malfunction of the power supply or ETACS-ECU is suspected.

PROBABLE CAUSES

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

DIAGNOSTIC PROCEDURE

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 lamp

Q: Is the check result normal?
YES : Go to Step 2
NO : Refer to GROUP 54A – Malfunction of ETACS-ECU Power Supply Circuit .

STEP 2. M.U.T.-III diagnosis code
Check that ETACS-ECU sets a diagnosis code.

Q: Is the diagnosis code set?
YES : Refer to GROUP 54A – Diagnosis Code Chart .
NO : Go to Step 3

STEP 3. M.U.T.-III data list
Check the ETACS-ECU service item related to the power window.

Item No.	Item name	Normal condition
254	IG Voltage	System voltage

OK: Normal condition is displayed.

Q: Is the check result normal?
YES : Go to Step 4
NO : Refer to GROUP 54A – Inspection Procedure 2: The ignition switch (IG1) signal is not received .

STEP 4. Voltage measurement at the ETACS-ECU connector (+B1 terminal).
(1) Disconnect the connector, and measure at the wiring harness side.
(2) Measure the voltage between the ETACS-ECU connector (+B1 terminal) and body earth.

OK: System voltage

Q: Is the check result normal?
YES : Go to Step 6
NO : Go to Step 5

STEP 5. Check of short to power supply, short to earth, and open circuit in +B1 line between ETACS-ECU connector and fusible link.

Q: Is the check result normal?
YES : No action is necessary and testing is complete.
NO : Repair the connector(s) or wiring harness.

STEP 6. Voltage measurement at the ETACS-ECU connector (IOD1 terminal).
(1) Disconnect the connector, and measure at the wiring harness side.
(2) Measure the voltage between the ETACS-ECU connector (IOD1 terminal) and body earth.

OK: System voltage

Q: Is the check result normal?
YES : Go to Step 8
NO : Go to Step 7

STEP 7. Check of short to power supply, short to earth, and open circuit in IOD1 line between ETACS-ECU connector and fusible link.

Q: Is the check result normal?
YES : No action is necessary and testing is complete.
NO : Repair the connector(s) or wiring harness.

STEP 8. Voltage measurement at the power window main switch connector (+BP terminal).
(1) Disconnect the connector, and measure at the wiring harness side.
(2) Measure the voltage between the power window main switch connector (+BP terminal) and body earth.

OK: System voltage

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

STEP 9. Check of short to power supply, short to earth, and open circuit in +BP line between ETACS-ECU connector and power window main switch connector.

Q: Is the check result normal?
YES : No action is necessary and testing is complete.
NO : Repair the connector(s) or wiring harness.

STEP 10. Resistance measurement at the power window main switch connector (E, DL terminal).

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

(2) Measure the resistance between the power window main switch connector (E, DL terminal) and body earth.

OK: Continuity exists (2 Ω or less)

Q: Is the check result normal?
YES : Go to Step 12
NO : Go to Step 11

STEP 11. Check of open circuit in E, DL line between power window main switch connector and body earth.

Q: Is the check result normal?
YES : No action is necessary and testing is complete.
NO : Repair the connector(s) or wiring harness.

STEP 12. Retest the system.
(1) Make the power widows learn their fully closed position.(P.42A-47)
(2) Check that the all power windows work normally.

Q: Is the check result normal?
YES : No action is necessary and testing is complete.
NO : Replace ETACS-ECU.

INSPECTION PROCEDURE C-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 earth circuit and the communication circuit are normal.

COMMENTS ON TROUBLE SYMPTOM

If the driver's power window does not work by means of the power window main switch, a malfunction of the power window main switch or the front power window motor (driver's side) is suspected.

PROBABLE CAUSES

- Malfunction of the power window main switch
- Malfunction of the front power window motor (driver's side)
- Damaged wiring harness and connectors

DIAGNOSTIC PROCEDURE

STEP 1. 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 2
NO : Replace the power window main switch.

STEP 2. Voltage measurement at power window main switch connector (+BP terminal).
(1) Disconnect the connector, and measure at the wiring harness side.
(2) Measure the voltage between the power window main switch connector (+BP terminal) and body earth.

OK: System voltage

Q: Is the check result normal?
YES : Go to Step 4
NO : Go to Step 3

STEP 3. Check of short to power supply, short to earth, and open circuit in +BP line between ETACS-ECU connector and power window main switch connector.

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 .)
NO : Repair the connector(s) or wiring harness.

STEP 4. Check of short to power supply, short to earth, and open circuit in MU, MD line between power window main switch connector and front power window motor (LH) connector.

Q: Is the check result normal?
YES : Go to Step 5
NO : Repair the connector(s) or wiring harness.

STEP 5. Retest the system.
(1) Make the power widows learn their fully closed position.(P.42A-47)
(2) Check that the driver's power window works normally by means of the power window main switch.

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 .)
NO : Replace the front power window motor (LH).

INSPECTION PROCEDURE C-3: Relevant power window(s) does not work by means of the front and rear passenger's power window sub switches.

COMMENTS ON TROUBLE SYMPTOM

If the front passenger's or rear power window(s) do not work by means of the respective power window sub switch, a malfunction of the power window sub switch or the power window motor is suspected. Also, the power window lock switch ON signal may be sent from the power window main switch, because the power window lock switch of the power window main switch is ON, or the power window main switch has a malfunction.

PROBABLE CAUSES

- Malfunction of front passenger's or rear passenger's power window sub switch(es)
- Malfunction of front passenger's or rear passenger's power window motor(s)
- Damaged wiring harness and connectors

DIAGNOSTIC PROCEDURE

STEP 1. Check the power window main switch.
Check that the power window lock switch is turned off.

Q: Is the check result normal?
YES : Go to Step 2.
NO : Turn off the power window lock switch.

STEP 2. Determine a trouble spot.

Q: Which power window does not work?
Front passenger's door : Go to Step 3.
Rear right door : Go to Step 9.
Rear left door : Go to Step 15.

STEP 3. Check the front power window sub switch.
Check that the front power window sub switch works normally. Refer to Power Window Sub Switch Continuity Check P.42A-56.

Q: Is the check result normal?
YES : Go to Step 4.
NO : Replace the front power window sub switch.

STEP 4. Check the front power window motor (RH).
Check that the front power window motor (RH) works normally. Refer to Power Window Motor Continuity Check P.42A-56.

Q: Is the check result normal?
YES : Go to Step 5.
NO : Replace the front power window motor (passenger's side).

STEP 5. Voltage measurement at front power window sub switch connector (ON line terminal).
(1) Disconnect the connector, and measure at the wiring harness side.
(2) Turn the ignition switch to the ON position.
(3) Measure the voltage between the front power window sub switch connector (ON line terminal) and body earth.

OK: System voltage

Q: Is the check result normal?
YES : Go to Step 7.
NO : Go to Step 6.

STEP 6. Check of open circuit in +B, PWM line between ETACS-ECU connector and front power window sub switch connector.

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).
NO : Repair the connector(s) or wiring harness.

STEP 7. Check of short to power supply, short to earth, and open circuit in input/output line between front power window sub switch connector and front power window motor (RH) connector.

Q: Is the check result normal?
YES : Go to Step 8.
NO : Repair the connector(s) or wiring harness.

STEP 8. Retest the system.
(1) Replace the front power window sub switch.
(2) Check that the front passenger's door power window can be operated by the front power window sub switch (RH).

Q: Is the check result normal?
YES : The trouble can be an intermittent malfunction (Refer to GROUP 00, How to use Troubleshooting/inspection Service Points – How to Cope with Intermittent Malfunction).
NO : Replace the front power window motor (RH).

STEP 9. Check the rear power window sub switch (RH).
Check that the rear power window sub switch (RH) works normally. Refer to Power Window Sub Switch Continuity Check P.42A-56.

Q: Is the check result normal?
YES : Go to Step 10.
NO : Replace the rear power window sub switch (RH).

STEP 10. Check the rear power window motor (RH).
Check that the rear power window motor (RH) works normally. Refer to Power Window Motor Continuity Check P.42A-56.

Q: Is the check result normal?
YES : Go to Step 11.
NO : Replace the rear power window motor (RH).

STEP 11. Voltage measurement at rear power window sub switch (RH) connector (ON line terminal).
(1) Disconnect the connector, and measure at the wiring harness side.
(2) Turn the ignition switch to the ON position.
(3) Measure the voltage between the rear power window sub switch (RH) connector (ON line terminal) and body earth.

OK: System voltage

Q: Is the check result normal?
YES : Go to Step 13.
NO : Go to Step 12.

STEP 12. Check of open circuit in PWS line between ETACS-ECU connector and rear power window sub switch (RH) connector.

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).
NO : Repair the connector(s) or wiring harness.

STEP 13. Check of short to power supply, short to earth, and open circuit in input/output line between rear power window sub switch (RH) connector and rear power window motor (RH) connector.

Q: Is the check result normal?
YES : Go to Step 14.
NO : Repair the connector(s) or wiring harness.

STEP 14. Retest the system.
(1) Replace the rear power window sub switch (RH).
(2) Check that the rear right door power window can be operated by the rear power window sub switch (RH).

Q: Is the check result normal?
YES : The trouble can be an intermittent malfunction (Refer to GROUP 00, How to use Troubleshooting/inspection Service Points – How to Cope with Intermittent Malfunction).
NO : Replace the rear power window motor (RH).

STEP 15. Check the rear power window sub switch (LH).
Check that the rear power window sub switch (LH) works normally. Refer to Power Window Sub Switch Continuity Check P.42A-56.

Q: Is the check result normal?
YES : Go to Step 16.
NO : Replace the rear power window sub switch (LH).

STEP 16. Check the rear power window motor (LH).
Check that the rear power window motor (LH) works normally. Refer to Power Window Motor Continuity Check P.42A-56.

Q: Is the check result normal?
YES : Go to Step 17.
NO : Replace the rear power window motor (LH).

STEP 17. Voltage measurement at rear power window sub switch (LH) connector (ON line terminal).

(1) Disconnect the connector, and measure at the wiring harness side.
(2) Turn the ignition switch to the ON position.
(3) Measure the voltage between the rear power window sub switch (LH) connector (ON line terminal) and body earth.

OK: System voltage

Q: Is the check result normal?
YES : Go to Step 19.
NO : Go to Step 18.

STEP 18. Check of open circuit in PWS line between ETACS-ECU connector and rear power window sub switch (LH) connector.

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).
NO : Repair the connector(s) or wiring harness.

STEP 19. Check of short to power supply, short to earth, and open circuit in input/output line between rear power window sub switch (LH) connector and rear power window motor (LH) connector.

Q: Is the check result normal?
YES : Go to Step 20.
NO : Repair the connector(s) or wiring harness.

STEP 20. Retest the system.

(1) Replace the rear power window sub switch (LH).
(2) Check that the rear left door power window can be operated by the rear power window sub switch (LH).

Q: Is the check result normal?
YES : The trouble can be an intermittent malfunction (Refer to GROUP 00, How to use Troubleshooting/inspection Service Points – How to Cope with Intermittent Malfunction).
NO : Replace the rear power window motor (LH).

INSPECTION PROCEDURE C-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 earth circuit and the communication circuit are normal.

COMMENTS ON TROUBLE SYMPTOM

If the passenger's and/or rear power window does not work by means of the power window main switch, the power window main switch or the respective power window sub switch(es) may be defective.

PROBABLE CAUSES

- Malfunction of the power window main switch
- Malfunction of the front power window sub switch, rear power window sub switch (RH) or rear power window sub switch (LH)
- Damaged harness wires and connectors

DIAGNOSTIC PROCEDURE

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-35."

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-36."

STEP 3. Determine a trouble spot.

Q: Which power window does not work?
Front passenger's door : Go to Step 4
Rear right door : Go to Step 6
Rear left door : Go to Step 8

STEP 4. Check of short to power supply, short to earth, and open circuit in U.AS, D.AS line between power window main switch connector and front power window sub switch connector.

Q: Is the check result normal?
YES : Go to Step 5
NO : Repair the connector(s) or wiring harness.

STEP 5. Retest the system.
(1) Replace the front power window sub switch.
(2) Make the power widows learn their fully closed position.(P.42A-47)
(3) Check that the front passenger's power window works by means of the power window main switch.

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).
NO : Replace the power window main switch (Refer to GROUP 52A, Trims - Door trim).

STEP 6. Check of short to power supply, short to earth, and open circuit in U.RR, D.RR line between power window main switch connector and front power window sub switch connector.

Q: Is the check result normal?
YES : Go to Step 7
NO : Repair the connector(s) or wiring harness.

STEP 7. Retest the system.
(1) Replace the rear power window sub switch (RH).
(2) Make the power widows learn their fully closed position.(P.42A-47)
(3) Check that the rear right power window works by means of the power window main switch.

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).
NO : Replace the power window main switch (Refer to GROUP 52A, Trims - Door trim).

STEP 8. Check of short to power supply, short to earth, and open circuit in U.RL, D.RL line between power window main switch connector and front power window sub switch connector.

Q: Is the check result normal?
YES : Go to Step 9
NO : Repair the connector(s) or wiring harness.

STEP 9. Retest the system.
(1) Replace the rear power window sub switch (LH).
(2) Make the power widows learn their fully closed position.(P.42A-47)
(3) Check that the rear left power window works by means of the power window main switch.

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).
NO : Replace the power window main switch (Refer to GROUP 52A, Trims - Door trim).

INSPECTION PROCEDURE C-5: The power window timer function does not work normally.

⚠ CAUTION
Before replacing the ECU, ensure that the power supply circuit, the earth 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 driver's door switch
- Malfunction of the front passenger's door switch
- Malfunction of the power window main switch
- Malfunction of ETACS-ECU
- Damaged wiring harness and connectors

DIAGNOSTIC PROCEDURE

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 lamp

Q: Is the check result normal?
YES : Go to Step 2.
NO : Refer to GROUP 54A – Malfunction of ETACS-ECU Power Supply Circuit .

STEP 2. M.U.T.-III data list
Check the signals related to the power window operation.
- Turn the ignition switch to the ON position.
- Close the driver's door.
- Close the front passenger's door.

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

OK: Normal conditions are displayed for all the items.

Q: Is the check result normal?
Normal conditions are displayed for all the items. : Go to Step 3.
Normal condition is not displayed for item No. 254. : Refer to GROUP 54A – Inspection Procedure 2: The ignition switch (IG1) signal is not received .
Normal condition is not displayed for item No. 256. : Refer to GROUP 54A – Inspection Procedure 5: Front door switch (driver's side) signal is not received .
Normal condition is not displayed for item No. 257. : Refer to GROUP 54A – Inspection Procedure 6: Front door switch (passenger's side) signal is not received .

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

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 .)
NO : Replace the power window main switch (Refer to GROUP 52A, Trims - Door trim).

INSPECTION PROCEDURE C-6: Power window anti-trap function does not work normally <Driver's side door>.

COMMENTS ON TROUBLE SYMPTOM
Malfunction of the power window motor revolution detection sensor or incorrectness of glass slider installation is suspected.

PROBABLE CAUSES
- Malfunction of the power window motor
- Incorrectly installed or warped glass slider

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-47.
(2) Fully open the door window glass. Operate the power window switch to fully close the door window glass, and check if the door window glass raise without lowering automatically.

Q: Is the check result normal?
YES : Go to Step 2
NO : Refer to adjustment of faulty power window P.42A-45.

STEP 2. Check of short to power supply, short to earth, and open circuit in SEN1, SEN2, VCC, SGND line between power window main switch connector and front power window motor (LH).

Q: Is the diagnosis code set?
YES : Go to Step 3
NO : Repair the connector(s) or wiring harness.

STEP 3. Retest the system.
(1) Make the power widows learn their fully closed position.(P.42A-47)
(2) Check that the power window anti-trap function

works.

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).
NO : Replace the power window motor.

INSPECTION PROCEDURE C-7: The window glass lowers automatically while it is rising <Driver's side door>.

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.

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. Check the power window anti-trap function.

Check that the power window anti-trap function works. Refer to P.42A-46.

Q: Is the check result normal?
YES : Go to Step 2.
NO : Refer to P.42A-40.

STEP 2. Check that the door window glasses are installed correctly.

Check that the door window glasses are installed correctly. Refer to P.42A-45.

Q: Is the check result normal?
YES : Go to Step 3.
NO : Adjust the door window glass. (Refer to P.42A-45.)

STEP 3. Retest the system.

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

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 .)
NO : Replace the power window motor of the defective window.

INSPECTION PROCEDURE C-8: The driver's power window inches only.

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

COMMENTS ON TROUBLE SYMPTOM

Malfunction of the power window motor revolution detection sensor or incorrectness of glass slider installation is suspected.

PROBABLE CAUSES

- Malfunction of the power window motor
- Incorrectly installed or warped glass slider
- Damaged harness wires and connectors
- Malfunction of the power window main switch

DIAGNOSTIC PROCEDURE

STEP 1. How to make the power windows learn heir fully closed position

Make the power widows learn their fully closed position.(P.42A-47)

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

STEP 2. Check whether the window inches.

Q: Does the window inch up ONLY, or up and down (both directions)?
Inches up ONLY : Go to Step 3
Inches up and down. : Go to Step 5

STEP 3. Check of short to power supply, short to earth, and open circuit in SEN1, SEN2 line between power window main switch connector and front power window motor (LH) connector.

Q: Is the check result normal?
YES : Go to Step 4
NO : Repair the connector(s) or wiring harness. Then go to Step 4.

STEP 4. Retest the system.
(1) Make the power widows learn their fully closed position.(P.42A-47)
(2) Check that the driver's power window works normally.

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 .)
NO : Replace the power window main switch (Refer to GROUP 52A, Trims - Door trim).

STEP 5. Check of short to power supply, short to earth, and open circuit in SEN1, SEN2, SGND, VCC line between power window main switch connector and front power window motor (LH) connector.

Q: Is the check result normal?
YES : Go to Step 6
NO : Repair the connector(s) or wiring harness. Then go to Step 7.

STEP 6. Voltage measurement at power window main switch connector (VCC terminal).
(1) Disconnect the connector, and measure at the wiring harness side.
(2) Measure the voltage between the power window main switch connector (VCC terminal) and body earth.

OK: 5V

Q: Is the check result normal?
YES : Go to Step 7..
NO : Replace the power window main switch (Refer to GROUP 52A, Trims - Door trim).

STEP 7. Retest the system.
(1) Make the power widows learn their fully closed position.(P.42A-47)
(2) Check that the driver's power window works normally.

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 .)
NO : Replace the front power window motor (LH).

CHECK AT ECU TERMINAL

M1429013600830

POWER WINDOW MAIN SWITCH TERMINAL CHECK

ACC00076

Terminal No.	Terminal code	Check items	Check conditions	Normal conditions
1	D.AS	Output to power window motor (Passenger's side)	The front passenger's window lowers	System voltage
			The front passenger's window rises	1 V or less
2	U.AS	Output to power window motor (Passenger's side)	The front passenger's window rises	System voltage
			The front passenger's window lowers	1 V or less
3	MU	Output to power window motor (Driver's side)	The driver's window lowers	1 V or less
			The driver's window rises	System voltage

Terminal No.	Terminal code	Check items	Check conditions	Normal conditions
4	MD	Output to power window motor (Driver’s side)	The driver's window rises	1 V or less
			The driver's window lowers	System voltage
5	+BP	Power supply	Always	System voltage
6	SEN1	Input from power window motor (pulse sensor signal)	When the power windows are operating	0 to 5 V (pulse signal)
7	SGND	Input from power window motor (pulse sensor earth)	–	1 V or less
8	E.DL	Earth	Always	1 V or less
9	VCC	Input from power window motor (power supply to pulse sensor)	When the power windows are operating	5 V
10	+B	Power supply	Ignition switch: ON	Battery positive voltage
11	D.RR	Output to power window motor (Rear right side)	The rear right window lowers	System voltage
			The rear right window rises	1 V or less
12	U.RR	Output to power window motor (Rear right side)	The rear right window rises	System voltage
			The rear right window lowers	1 V or less
13	SEN2	Input from power window motor (pulse sensor signal)	When the power windows are operating	0 to 5 V (pulse signal)
14	–	–	–	–
15	D.RL	Output to power window motor (Rear left side)	The rear left window lowers	System voltage
			The rear left window rises	1 V or less
16	U.RL	Output to power window motor (Rear left side)	The rear left window rises	System voltage
			The rear left window lowers	1 V or less
17	–	–	–	–
18	–	–	–	–
19	–	–	–	–
21	–	–	–	–
22	D.L	Output to door unlock signal	The central door lock switch is unlocked	1 V or less
			The central door lock switch is turned off	0V
23	D.UL	Output to door lock signal	The central door lock switch is locked	1 V or less
			The central door lock switch is turned off	0V
24	–	–	–	–

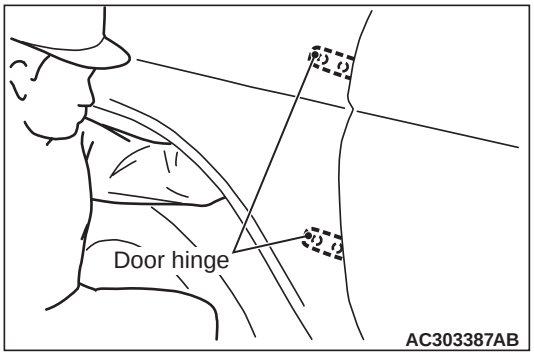
ON-VEHICLE SERVICE

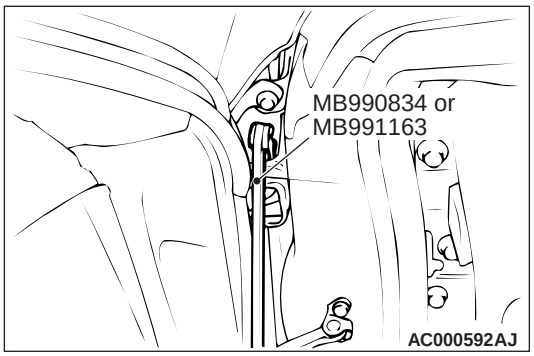
DOOR ADJUSTMENT

M1423000900554

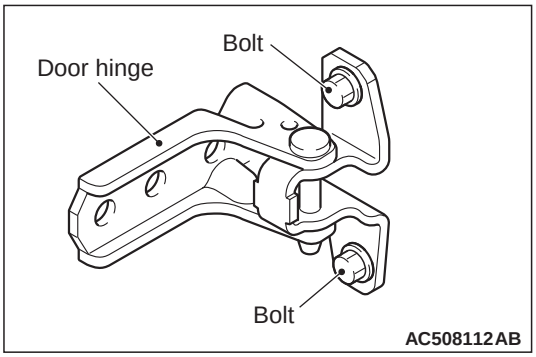
⚠ CAUTION

Do not apply 98 N·m or more to the door hinge adjusting wrench (Special tool: MB991163).

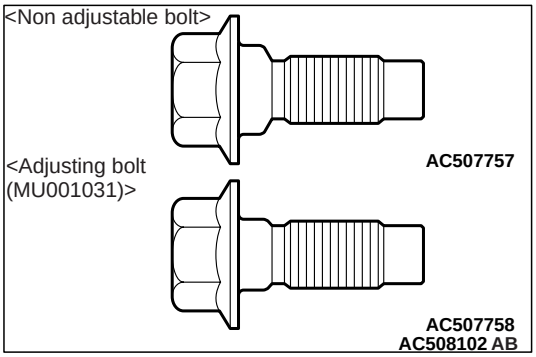




1. When the clearance between the door and the body is uneven:
   (1) Apply protective tape to the fender around the hinge installation position and door edge.
   (2) Remove the splash shield <Front door > (Refer to P.42A-9).
   (3) Remove the centre pillar trim <Rear door> (Refer to GROUP 52A – Interior Trim).
   (4) Use the door hinge adjusting wrench (Special tool: MB990834 or MB991163) to loosen the body-side door hinge mounting bolts (mounting nuts for the door upper hinge of the rear door).
   (5) Move the door to adjust the clearance between the door and the body is even.
2. When the door is not flush with the body surface:



(1) Loosen the door-side hinge mounting bolts.
(2) Move the door to adjust so that the door is flush with the body surface.



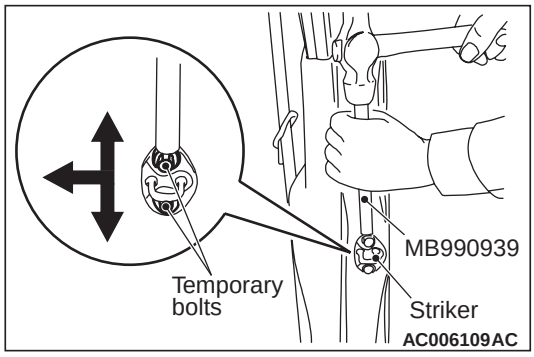
(3) If adjustment is not possible, replace the door-side door hinge mounting bolt with the adjustment bolt (MU001031).

NOTE: If the adjustment bolt has been already installed, reuse it.

(4) Move the door to adjust so that the door is flush with the body surface.
(5) Tighten the door-side door hinge mounting bolt to the specified torque.

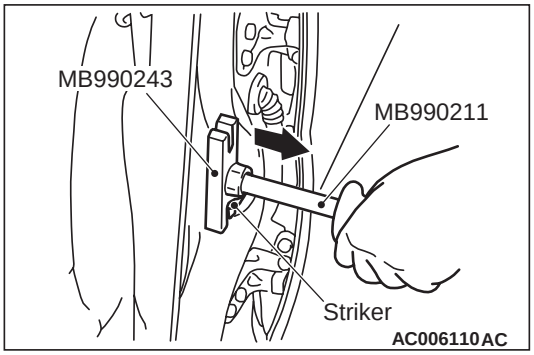
Tightening torque: 26 ± 6 N·m

3. When the door is stiff to close and open:



(1) Adjustment using the striker (toward the inside of the vehicle and vertical direction):

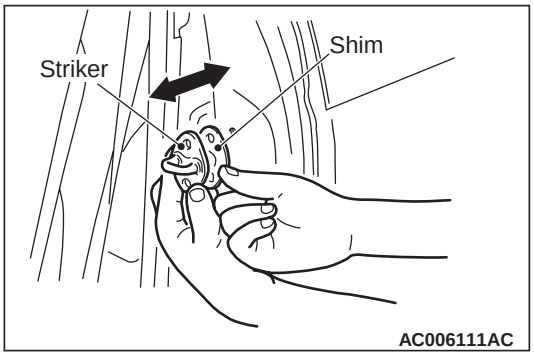
Install a temporary bolt instead of the striker mounting bolt, and use the remover bar (Special tool: MB990939) and a hammer to tap the temporary bolt to the desired direction.



(2) Adjustment by using the striker (toward the outside of the vehicle):

Using the following tools, pull the striker toward the outside of the vehicle to adjust.

- Slide hammer (MB990211)
- Body puller (MB990243)



(3) Adjustment using shims: (forward and rearward)

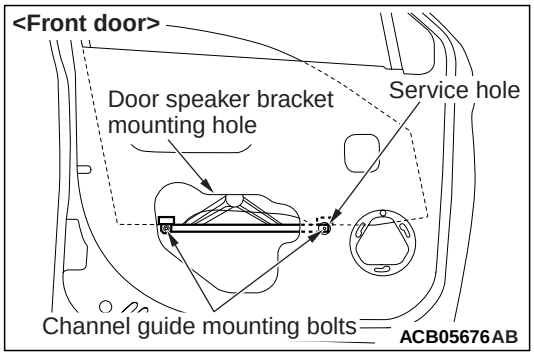
Increase or decrease the number of shims so that the striker engages with the door latch properly.

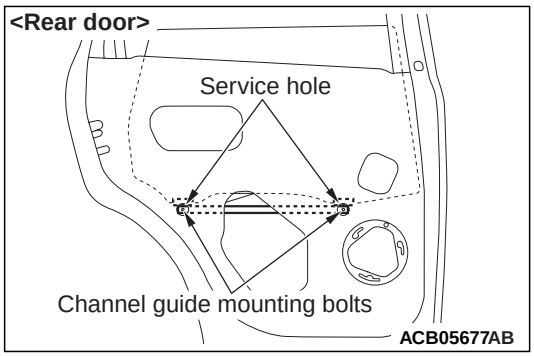
DOOR WINDOW GLASS ADJUSTMENT

M1423001000899

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

1. Remove a door trim assembly (Refer to GROUP 52A – Door Trim).
2. Remove a waterproof film (Refer to P.42A-62).
3. Remove the door speaker bracket (Front door) <Vehicles with audio amplifier> (Refer to).
4. Remove the door speaker cover (Rear door) <Vehicles with audio amplifier> (Refer to).
5. Remove the power window switch from the removed door trim assembly, and connect it to the door side connector.





6. Set the channel guide mounting bolts to the adjusting hole.
7. Raise the window glass with the power window switch to check that the window glass to door clearance is even. If there is a problem, loosen the channel guide mounting bolts to adjust tilting up/down of the glass.

POWER WINDOW CHECK

M1429004400894

Check the power window as described below. If it does not work, perform troubleshooting (Refer to P.42A-33).

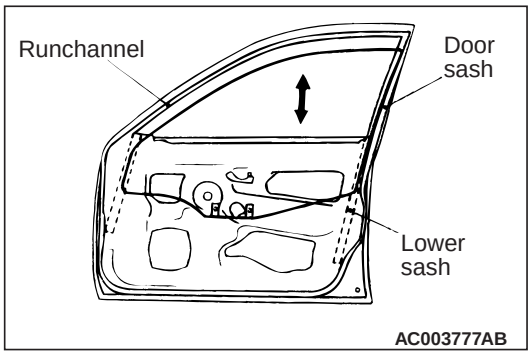
- Turn off the power window lock switch of the power window main switch. Operate the front and rear passenger's power window sub switches to check that the power windows work.
- Turn on the power window lock switch of the power window main switch. Operate the front and rear passenger's power window sub 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 main switch to check that the driver’s power window works but the front and rear passenger's power windows do not work.

ADJUSTMENT OF FAULTY POWER WINDOW

M1429002100284

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

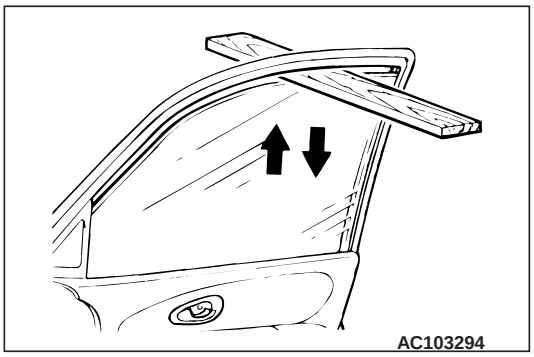
1. Remove a door trim assembly (Refer to GROUP 52A – Door Trim).
2. Remove a waterproof film (Refer to P.42A-62).
3. Remove a door speaker cover and door speaker bracket <Vehicles with audio amplifier> (Refer to).
4. Remove a window regulator assembly (Refer to P.42A-54).
5. Raise and lower the door window glass by hand to check the operation force.



6. If the door window glass does not move up and down smoothly, check and repair as follows:
   - Check the installation condition of a door window glass runchannel.
   - Check a door sash for twist and bend.
   - Check the installation condition of a lower sash.
7. If repair or adjustment is impossible, replace the door assembly (Refer to P.42A-51).

POWER WINDOW SAFETY MECHANISM CHECK <DRIVER'S SIDE DOOR>

M1429001000927



1. Place an approximately 10 mm-thick wood board as shown. Then, close the door window glass by one-shot up action of the power window switch.
2. Check that the window glass lowers by about 150 mm when it clamps the board. This is called anti-trap function (safety mechanism). If this does not happen, carry out troubleshooting (Refer to P.42A-33).
3. Check that the window glass continue raising up to the door upmost position without activating the anti-trap function while the switch is kept pulling up (this is called forced closing function).

   NOTE: If the battery terminals are disconnected or the fuse for power window is removed, carry out the learning procedures of the power window fully closed position (Refer to P.42A-47).

POWER WINDOW TIMER FUNCTION CHECK

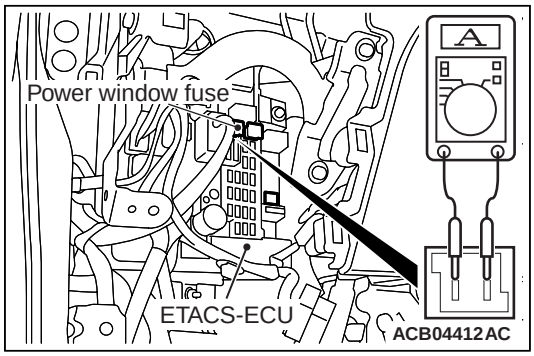
M1429004300983

Check that the power window timer works as described below. If it does not work, perform trouble-shooting (Refer to P.42A-33).

- Close the doors and turn the ignition switch to the LOCK (OFF) position. Check that the power window operates for 30 seconds.
- While the timer is on, check that it is cancelled when the driver's or front passenger's door is opened.

POWER WINDOW OPERATING CURRENT CHECK

M1429001100861



1. Remove the power window fuse to check that it is normal, and connect a multimeter as shown in the illustration.
2. Raise a door window glass with the power window switch to measure the current during operation.

   Standard value: 7 A or less [Power supply voltage 14.5 ± 0.5V at 25°C]

   NOTE: If the power supply voltage does not meet the standard value, check and repair the alternator and the battery. Then carry out this check again.
3. If the value is outside the standard value, adjust the door window glass (Refer to P.42A-45).

LEARNING PROCEDURES OF POWER WINDOW FULLY CLOSED POSITION <DRIVER'S SIDE DOOR>

M1429004600542

LEARNING PROCEDURES OF FULLY CLOSED POSITION WHEN POWER WINDOW SWITCH IS REMOVED, OR POWER WINDOW REGULATOR ASSEMBLY IS REMOVED OR REPLACED

1. If the battery terminals are disconnected or the fuse for power window is removed, the fully closed position that the power window switch has learned will be erased (initialised).
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 1 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 in learning procedure, the learning will be cancelled. If this happens, return to step 2.

LEARNING PROCEDURES WHEN 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 initialisation is required).

DOOR LATCH ASSEMBLY INSPECTION

M1423004701685

Check the door lock actuator operation in the following procedures:

CENTRAL DOOR LOCKING SYSTEM CHECK

M1427001100821

- Check that the central door locking system works by operating the door lock switch at the driver's side door. If it does not work, perform trouble-shooting (Refer to P.42A-26.)

NOTE: When the inside lock knob is operated with the driver's door opened, the driver's door cannot be locked.

- Check whether the driver's door is opened when the driver's door inside handle knob is pulled with all the doors locked. If it does not operate, replace the driver's door latch assembly (Refer to P.42A-58.)

KEY-IN PREVENTION FUNCTION CHECK

M1427003300423

Check that the driver's door is not locked when the key cylinder or inside lock knob is operated with the driver's door opened. If it is locked, replace the door latch (Refer to P.42A-58).

SELECTOR "P" POSITION-LINKED DOOR UNLOCKING FUNCTION CHECK <CVT>

M1427003400390

When the selector lever is moved to the P (parking) position with the ignition switch on, all the doors (including tailgate) will be unlocked. Carry out the troubleshooting if a door does not operate (Refer to P.42A-26).

NOTE: The selector "P" position-linked door unlocking function can be switched with the customise function. Confirm it before check (Refer to P.42A-50).

IGNITION "LOCK (OFF)" POSITION-LINKED DOOR UNLOCKING FUNCTION CHECK

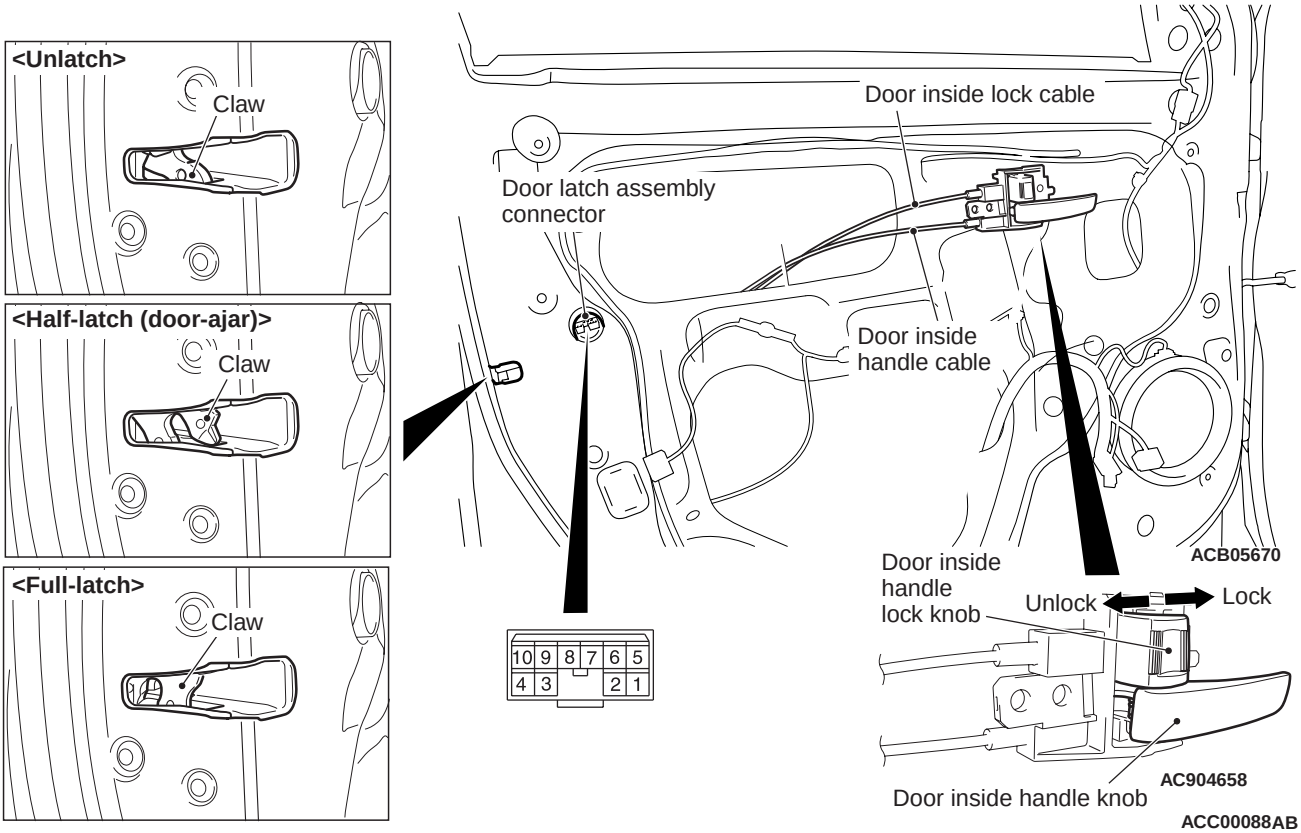
M1427006200221

When the ignition switch is moved to the LOCK (OFF) position, all the doors (including tailgate) will be unlocked. Carry out the troubleshooting if a door does not operate (Refer to P.42A-26).

NOTE: The ignition "LOCK" position-linked door unlocking function can be switched with the customise function. Confirm it before check (Refer to P.42A-50).

1. Open a door that is supposed to be checked.
2. Remove a door trim assembly (Refer to GROUP 52A – Door Trim).
3. Use a screwdriver or the like to slide the door latch claw from unlatch to full-latch position (Set the door latch from door-open to door-closed condition).

DOOR LOCK ACTUATOR



ACTUATOR OPERATION CHECK <FRONT LH AND REAR LH>

Claw position	Door inside handle lock knob position	Battery connection	Door inside handle lock knob operation
Full-latch	Lock	• Connect terminal 1 to negative battery terminal. • Connect terminal 2 to positive battery terminal.	Knob moves from "Lock" to "Unlock" position.

Claw position	Door inside handle lock knob position	Battery connection	Door inside handle lock knob operation
Full-latch	Unlock	• Connect terminal 1 to positive battery terminal. • Connect terminal 2 to negative battery terminal.	Knob moves from "Unlock" to "Lock" position.

ACTUATOR OPERATION CHECK <FRONT RH AND REAR RH>

Claw position	Door inside handle lock knob position	Battery connection	Door inside handle lock knob operation
Full-latch	Lock	• Connect terminal 4 to negative battery terminal. • Connect terminal 3 to positive battery terminal.	Knob moves from "Lock" to "Unlock" position.
Full-latch	Unlock	• Connect terminal 4 to positive battery terminal. • Connect terminal 3 to negative battery terminal.	Knob moves from "Unlock" to "Lock" position.

ACTUATOR SWITCH CHECK <FRONT LH>

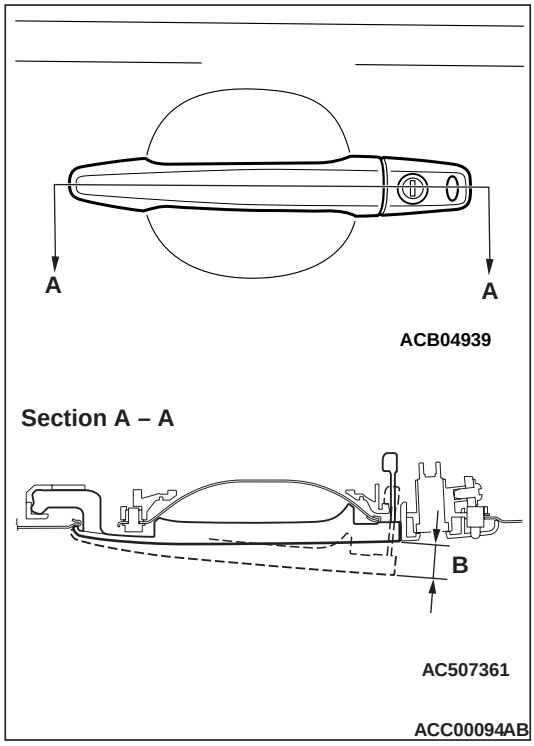
Claw position	Door inside handle lock knob position	Tester connection	Specified condition
Full-latch	Lock	6 – 8	No continuity
Full-latch	Unlock	6 – 8	Continuity exists (2 Ω or less)

ACTUATOR SWITCH CHECK <FRONT RH: VEHICLES WITH KOS>

Claw position	Door inside handle lock knob position	Tester connection	Specified condition
Full-latch	Lock	7 – 9	No continuity
Full-latch	Unlock	7 – 9	Continuity exists (2 Ω or less)

DOOR OUTSIDE HANDLE ASSEMBLY PLAY CHECK

M1423001600749



1. Check that the door outside handle assembly play (stroke until the door latch unlocks) meets the standard value.

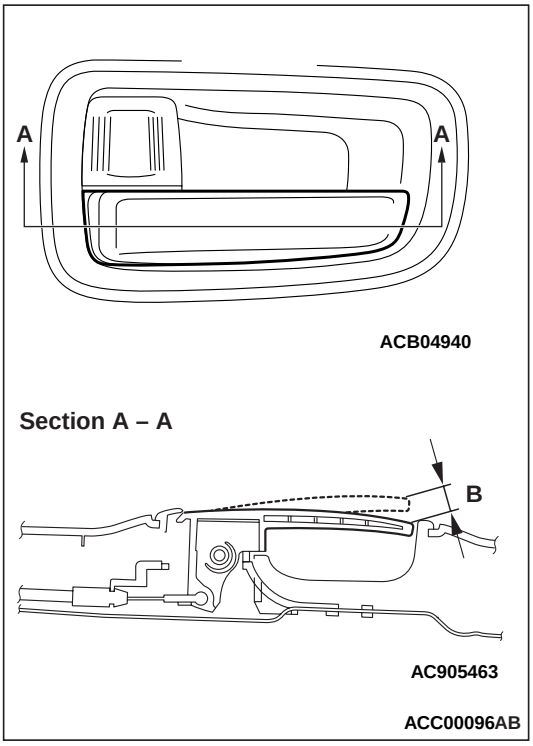
   Standard value (B): 0.2 – 5.2 mm [Target value: 2.7 mm]

2. Check the door outside handle assembly and door latch assembly. Replace them if the play is out of the standard value.

DOOR INSIDE HANDLE CHECK

M1423001500816

DOOR INSIDE HANDLE KNOB PLAY CHECK



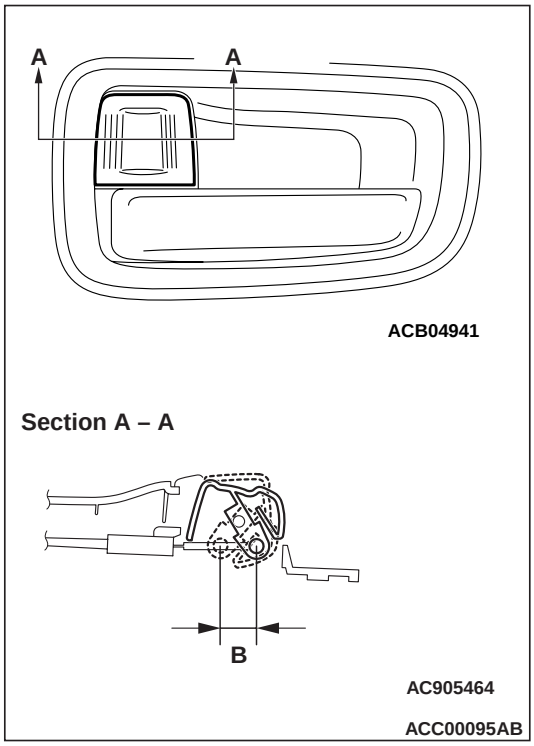
1. Check that the door inside handle knob play (stroke until the door latch unlocks) meets the standard value.

   Standard value (B): 13.6 – 27.2 mm [Target value: 20.4 mm]

2. Check the door inside handle knob and door latch assembly. Replace them if the play is out of the standard value.

DOOR INSIDE HANDLE LOCK KNOB STROKE CHECK

1. Remove the door trim assembly (Refer to GROUP 52A – Door Trim).



2. Check that the stroke of the door inside handle lock knob meets the standard value.

   Standard value (B): 13.5 – 15.5 mm [Target value: 14.5 mm]

3. Check the door inside handle lock knob and door latch assembly. Replace them if the stroke is out of the standard value.

CUSTOMISATION FUNCTION

M1429007801021

By operating the M.U.T.-III ETACS system, the following functions can be customised. The programmed information is held even when the battery is disconnected.

Adjustment item (M.U.T.-III display)	Adjustment item	Adjusting content (M.U.T.-III display)	Adjusting content
Auto door unlock	Adjustment of the auto door unlock function	Disable	Without function (initial condition)
		Always (P pos)	With function: Operates when the shift lever or the selector lever is moved to the P position.
		Always(Lock pos)	With function: Operates when the ignition switch is moved to the LOCK (OFF) position.

Adjustment item (M.U.T.-III display)	Adjustment item	Adjusting content (M.U.T.-III display)	Adjusting content
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 (initial condition).
		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.
Timer lock timer	Timer lock period adjustment	30 sec	30 seconds (initial condition)
		60 sec	60 seconds
		120 sec	120 seconds
		180 sec	180 seconds

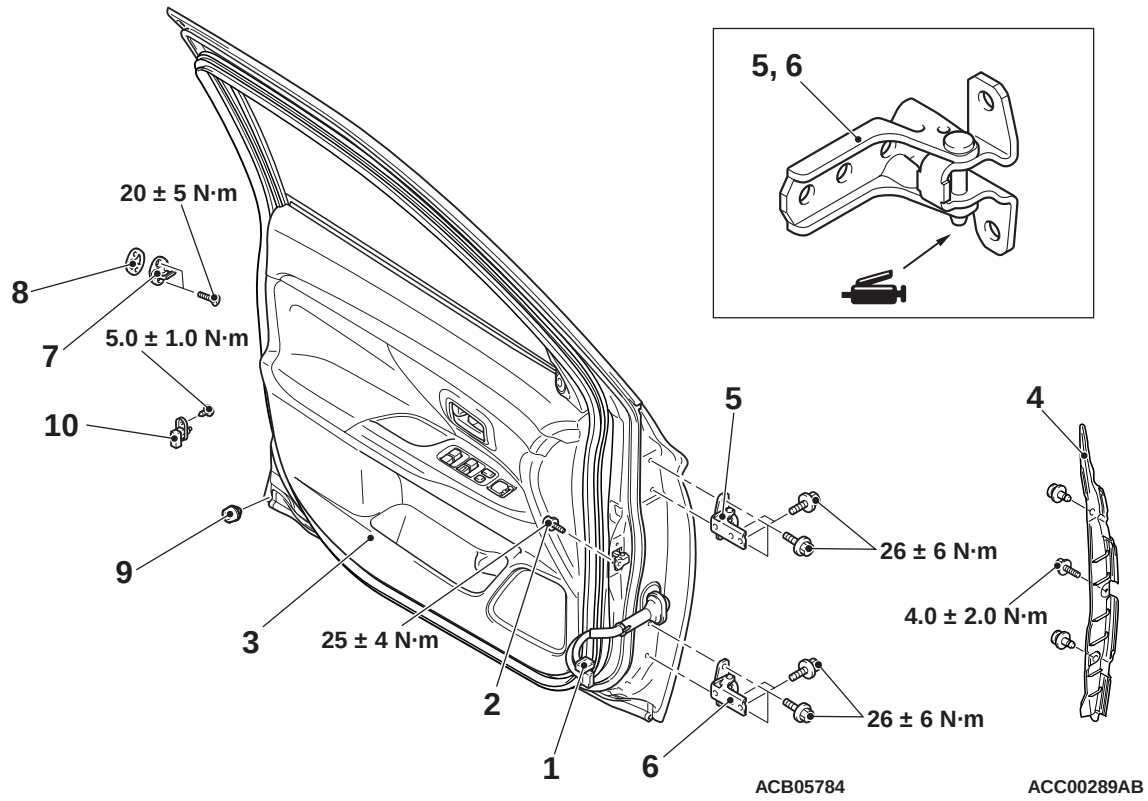
DOOR ASSEMBLY

REMOVAL AND INSTALLATION

M1423002201112

Post-installation operation
- Door adjustment (Refer to P.42A-44.)

<Front door>



Front door assembly removal steps
- Cowl side trim (Refer to GROUP 52A – Interior Trim .)

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

Front door hinge removal steps
- Side air dams (Refer to GROUP 51 – Side Air Dams .)

3. Front door assembly

Front door hinge removal steps

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

Striker removal steps

>>A<< 7. Striker
8. Shim

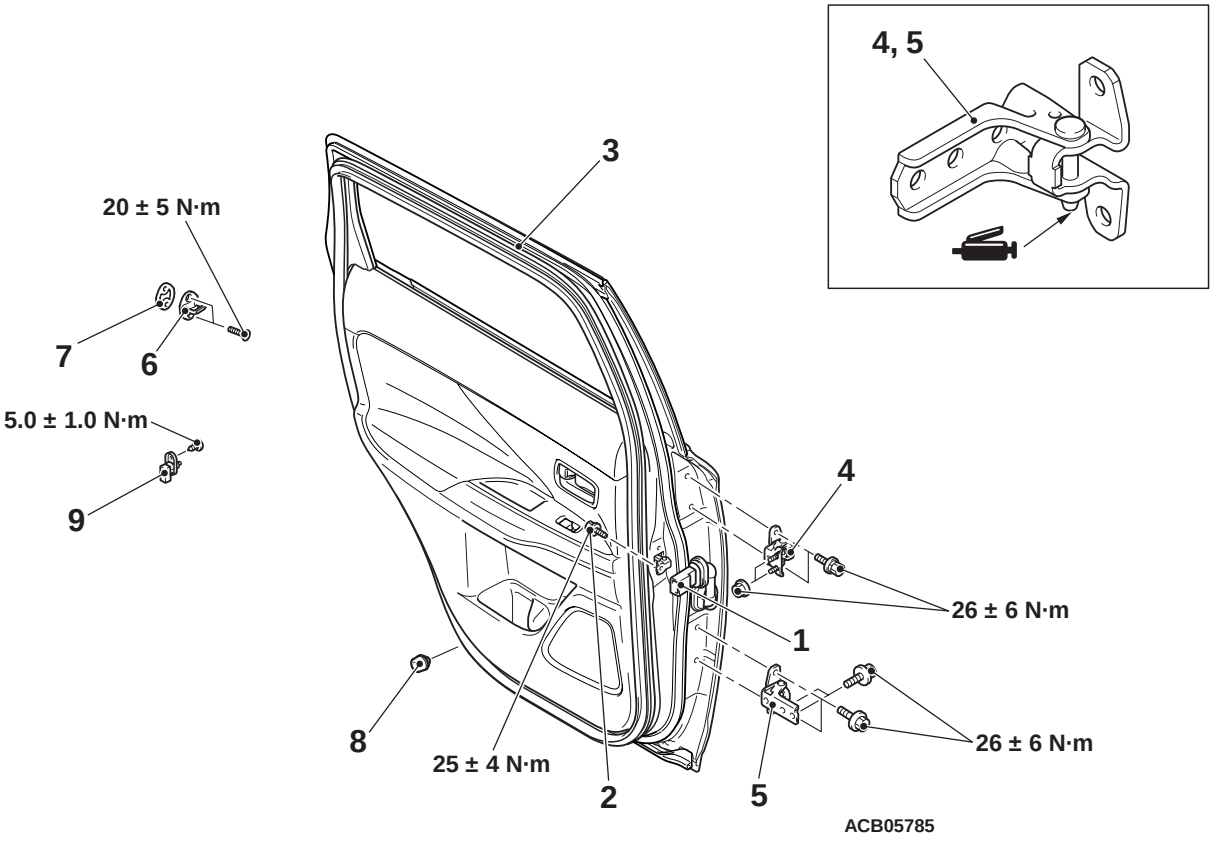
Damper removal

9. Damper

Door switch removal

10. Door switch

<Rear door>



ACB05785

ACC00341AB

Rear door assembly removal steps

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

Rear door hinge removal steps
- Centre pillar trim (Refer to GROUP 52A – Interior Trim .)

3. Rear door assembly

Rear door hinge removal steps

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

Striker removal steps

>>A<< 6. Striker
7. Shim

Damper removal

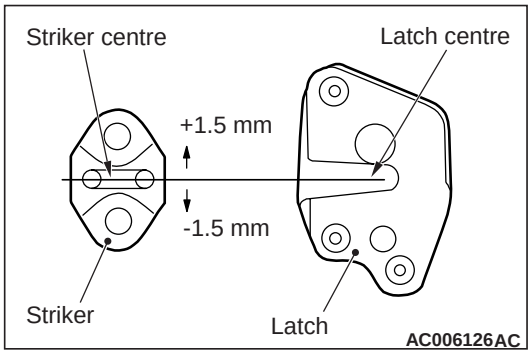
8. Damper

Door switch removal

9. Door switch

INSTALLATION SERVICE POINT

>>A<< STRIKER INSTALLATION

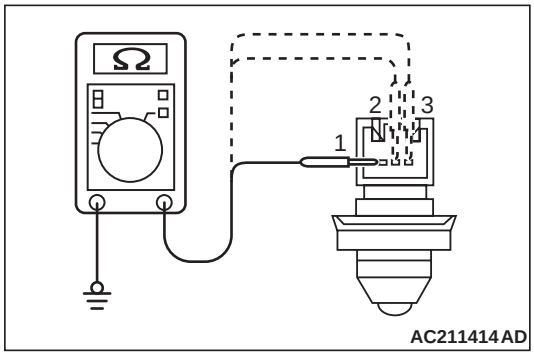


Install the striker so that the striker centre does not deviate more than ±1.5 mm from the latch centre.

INSPECTION

M1423006000537

DOOR SWITCH CHECK



Switch position	Terminal number	Normal value
Release (ON)	1 – Earth, 2 – Earth, 3 – Earth	Continuity exists (2 Ω or less)
Depressed (OFF)	1 – Earth, 2 – Earth, 3 – Earth	No continuity

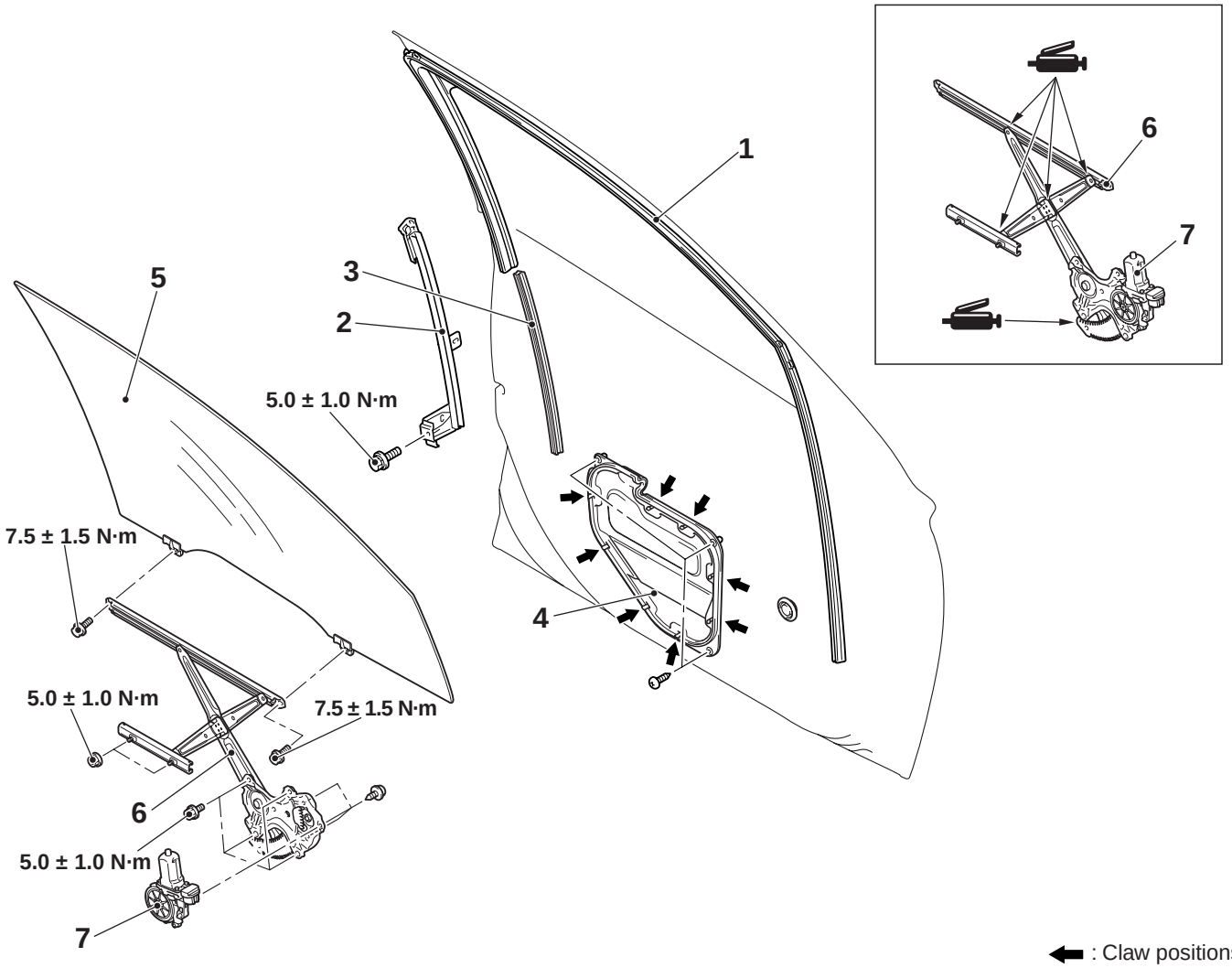
DOOR GLASS AND REGULATOR

REMOVAL AND INSTALLATION

M1429001301697

Pre-removal operation	Post-installation operation
• Door trim assembly removal (Refer to GROUP 52A – Door trim .) • Waterproof film removal (Refer to P.42A-62.)	• Door window glass adjustment (Refer to P.42A-45.) • Waterproof film installation (Refer to P.42A-62.) • Door trim assembly installation (Refer to GROUP 52A – Door trim .) • Learning procedures of the power window fully closed position (Refer to P.42A-47.)

<Front door>



ACB05778AB

Door window glass assembly removal steps

1. Door window glass runchannel
- Door mirror assembly (Refer to GROUP 51 – Door Mirror .)
2. Door window rear lower sash
3. Door window glass runchannel rear
4. Door speaker bracket <Vehicles with audio amplifier>

<<A>>

5. Door window glass assembly

Power window regulator removal steps

- Front door speaker (Refer to GROUP 54A – Speaker .)

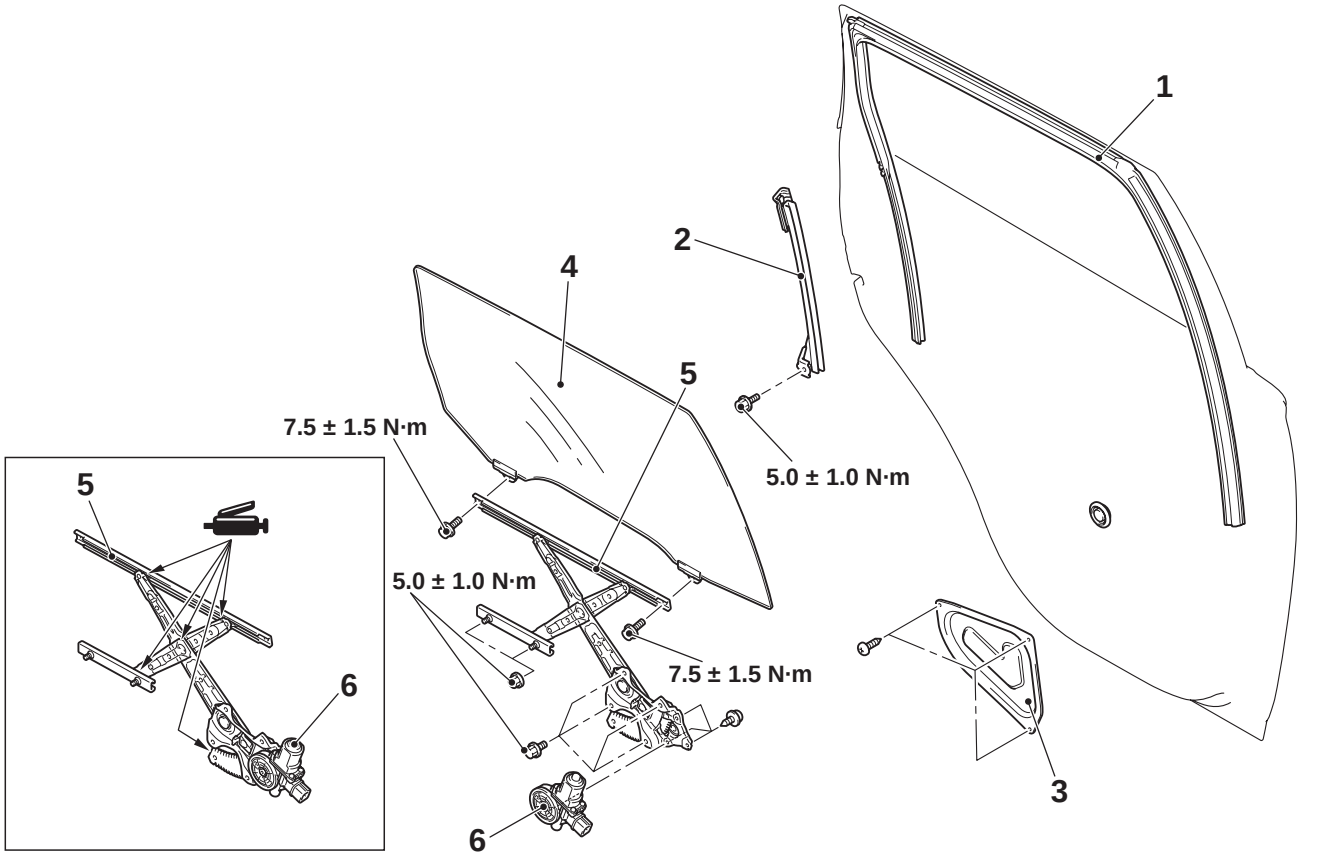
4. Door speaker bracket <Vehicles with audio amplifier>

<<A>>

6. Power window regulator assembly
7. Power window regulator motor

NOTE: For removal and installation of the power window switch, refer to GROUP 52A, Door trim .

<Rear door>



ACB05779AB

Door window glass assembly removal steps

1. Door window glass runchannel
2. Door window rear lower sash
3. Door speaker cover B <Vehicles with audio amplifier>

<<**A**>> 4. Door window glass assembly

Power window regulator removal steps

- Rear door speaker (Refer to GROUP 54A – Speaker .)

3. Door speaker cover B <Vehicles with audio amplifier>

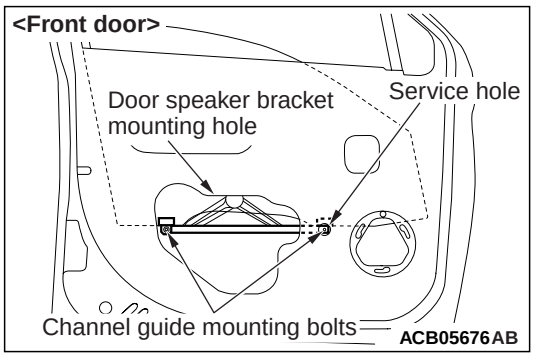
<<**A**>> 5. Power window regulator assembly

6. Power window regulator motor

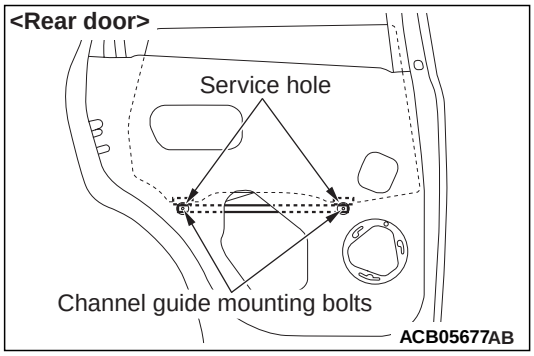
NOTE: For removal and installation of the power window switch, refer to GROUP 52A, Door trim .

REMOVAL SERVICE POINT

<<A>> DOOR WINDOW GLASS ASSEMBLY/ POWER WINDOW REGULATOR ASSEMBLY REMOVAL



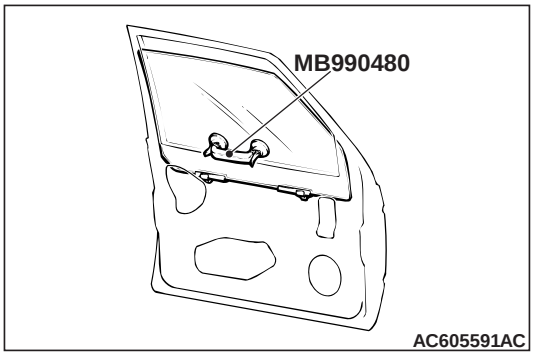
ACB05676AB



ACB05677AB

1. Align the channel guide mounting bolt on the door window glass with the adjusting hole to remove it.

⚠ CAUTION



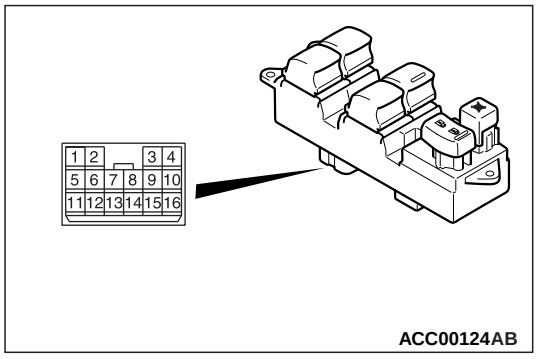
If any film or the like is applied to a door window glass, use the window glass holder (Special tool: MB990480) at the outside of the door glass to prevent the film from peeling off.

2. Lift the door window glass, and attach the special tool MB990480 to the glass as shown to prevent the glass from falling.
3. Slant the door window glass and remove it upward from the inside of the door <Rear door>.
4. Remove the power window regulator assembly.

INSPECTION

M1429001401423

POWER WINDOW MAIN SWITCH CONTINUITY CHECK



<DRIVER'S SWITCH>

Switch position	Tester connection	Specified condition
UP	4 – 5, 3 – 8	Continuity exists (2 Ω or less)
OFF	4 – 8, 3 – 8	
DOWN	3 – 5, 4 – 8	

<FRONT PASSENGER'S SWITCH>

Switch position	Tester connection	Specified condition
UP	2 – 10, 2 – 8*	Continuity exists (2 Ω or less)
OFF	2 – 8*, 1 – 8*	
DOWN	1 – 10, 1 – 8*	

*NOTE: *: Set the window lock switch to UNLOCK position.*

<REAR PASSENGER'S LEFT SWITCH>

Switch position	Tester connection	Specified condition
UP	10 – 16, 8* – 16	Continuity exists (2 Ω or less)
OFF	8* – 15, 8* – 16	
DOWN	10 – 15, 8* – 15	

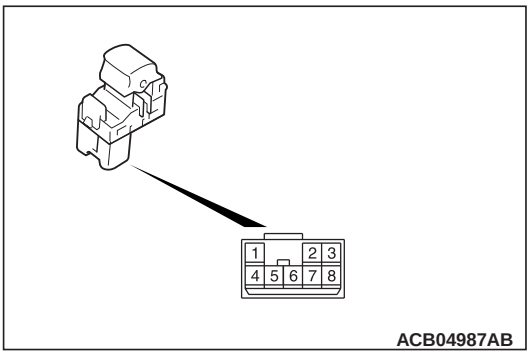
*NOTE: *: Set the window lock switch to UNLOCK position.*

<REAR PASSENGER'S RIGHT SWITCH>

Switch position	Tester connection	Specified condition
UP	10 – 12, 8* – 12	Continuity exists (2 Ω or less)
OFF	8* – 11, 8* – 12	
DOWN	10 – 11, 8* – 11	

*NOTE: *: Set the window lock switch to UNLOCK position.*

POWER WINDOW SUB SWITCH CONTINUITY CHECK

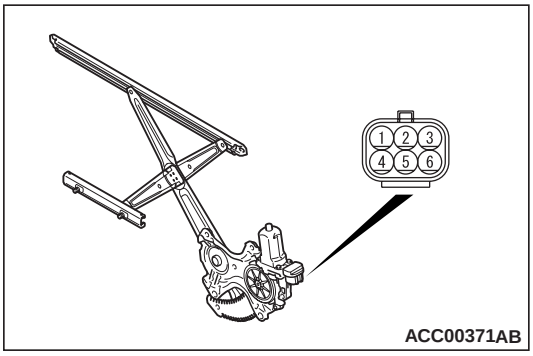


Switch position	Tester connection	Specified condition
UP	4 – 5, 6 – 7	Continuity exists (2 Ω or less)
OFF	4 – 5, 7 – 8	
DOWN	4 – 6, 7 – 8	

POWER WINDOW MOTOR CONTINUITY CHECK

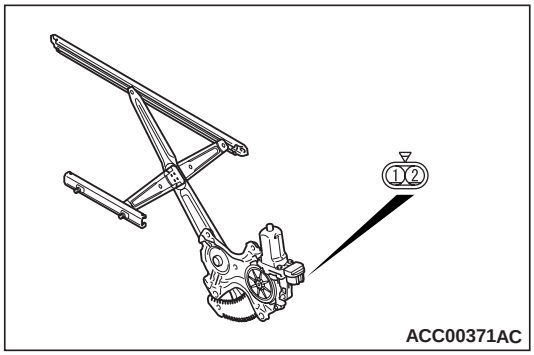
Connect a battery to the motor terminals and check that the motor runs smoothly.

1. Check that the motor runs in the opposite direction when the battery is connected with the polarity reversed.
2. If a defect is found, replace the power window motor assembly.



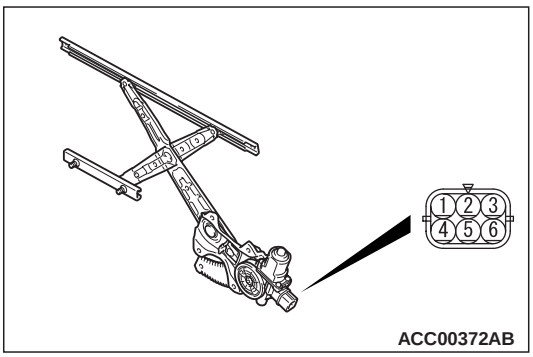
<FRONT DOOR (LH)>

Tester connection	Slider position
1(–) – 3(+)	UP
1(+) – 3(–)	DOWN



<FRONT DOOR (RH)>

Tester connection	Slider position
1(–) – 2(+)	UP
1(+) – 2(–)	DOWN



<REAR DOOR>

Tester connection	Slider position
1(–) – 4(+)	UP
1(+) – 4(–)	DOWN

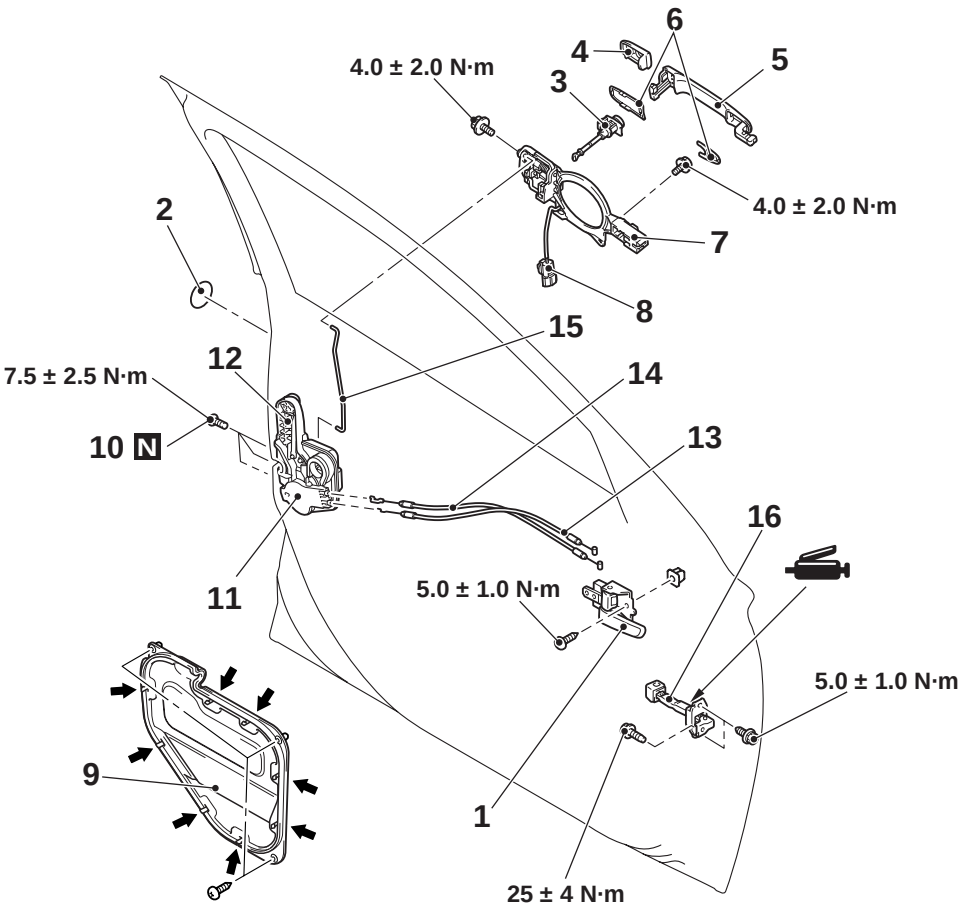
DOOR HANDLE AND LATCH

REMOVAL AND INSTALLATION

M1423004601882

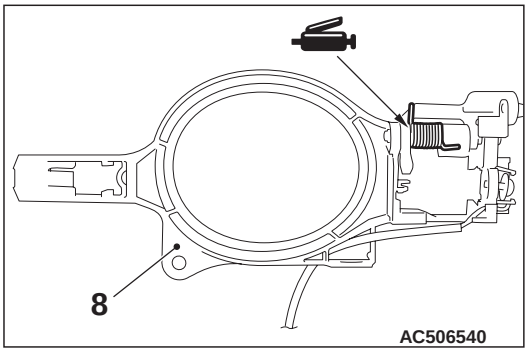
Pre-removal operation	Post-installation operation
• Door trim assembly removal (Refer to GROUP 52A – Door Trim .) • Waterproof film removal (Refer to P.42A-62.)	• Door inside handle play check (Refer to P.42A-50.) • Door outside handle play check (Refer to P.42A-49.) • Waterproof film installation (Refer to P.42A-62.) • Door trim assembly installation (Refer to GROUP 52A – Door Trim .)

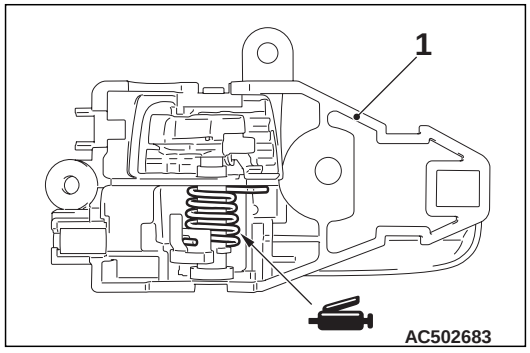
<Front door>



: Claw positions

ACB05780AB





AC507354AI

Door inside handle removal

1. Door inside handle

Door outside handle removal steps

2. Plug
3. Door lock key cylinder (Driver's side)

Door outside handle removal steps (Continued)

4. Door outside handle cover
5. Door outside handle
6. Door outside handle gasket
7. Door outside handle base
8. Keyless operation switch

Door latch assembly removal steps

1. Door inside handle
9. Door speaker bracket <Vehicles with audio amplifier>
10. Screw

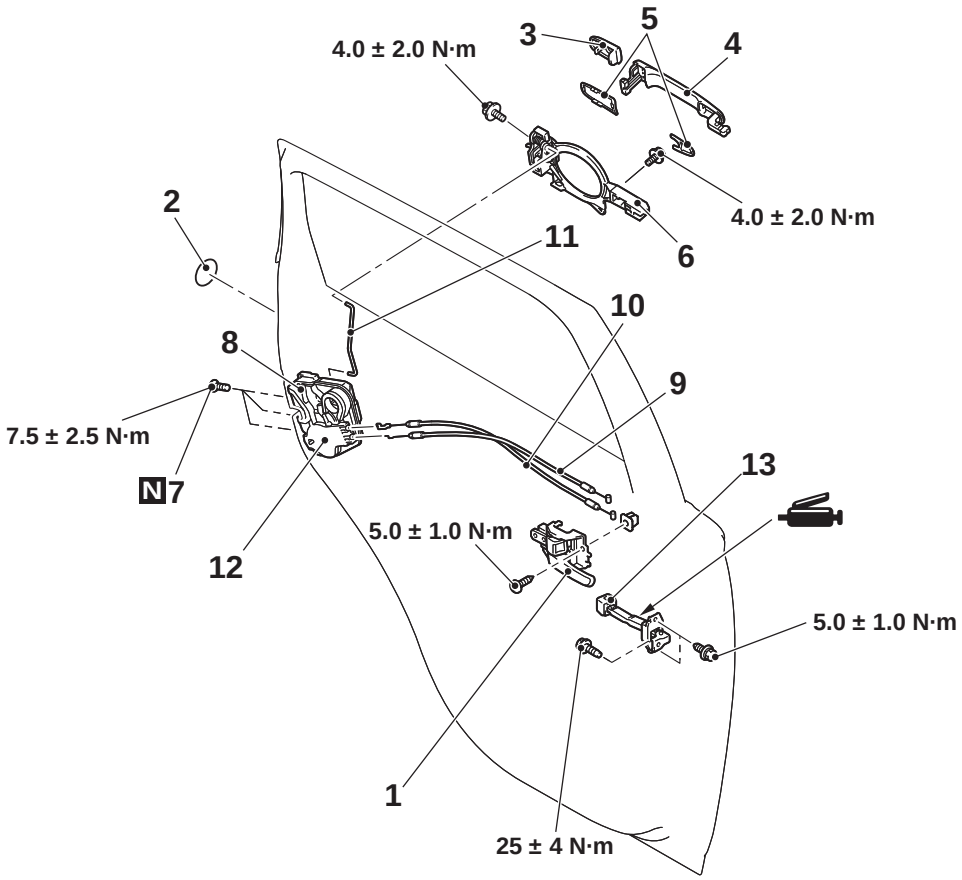
<<A>> 11. Door lock cover
<<A>> 12. Door latch assembly
>>B<< 13. Door inside lock cable
>>B<< 14. Door inside handle cable
15. Door outside handle rod

Door check removal steps

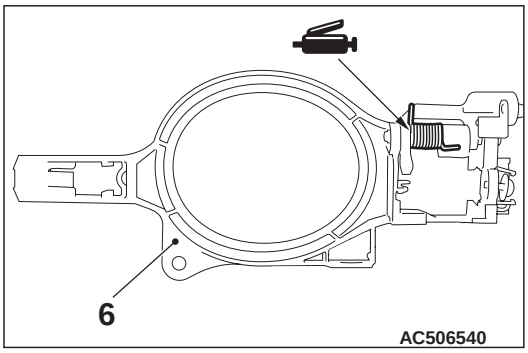
- Front door speaker (Refer to GROUP 54A – Speaker .)

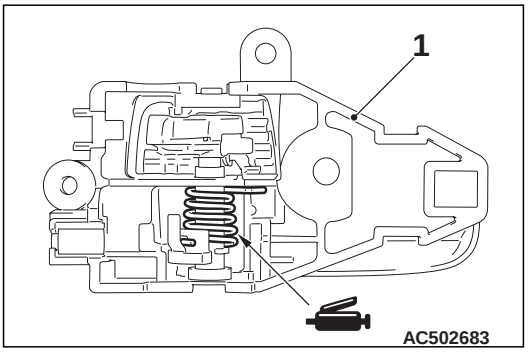
>>A<< 16. Door check

<Rear door>



ACB05781AB





AC507354AJ

Door inside handle removal steps

1. Door inside handle

Door outside handle removal steps

2. Plug
3. Door outside handle cover
4. Door outside handle
5. Door outside handle gasket
6. Door outside handle base

Door latch assembly removal steps

1. Door inside handle
7. Screw

<<A>> 8. Door lock cover

<<A>> 9. Door latch assembly

>>B<< 10. Door inside lock cable

>>B<< 11. Door inside handle cable

12. Door outside handle rod

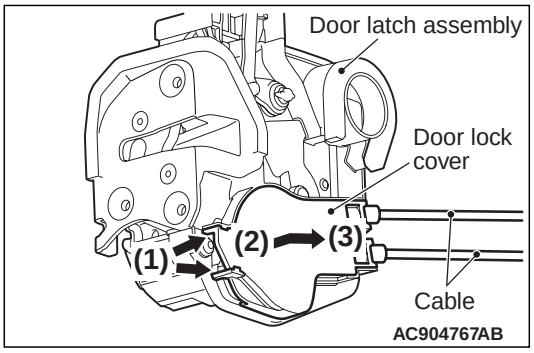
Door check removal steps

- Rear door speaker (Refer to GROUP 54A, Speaker .)

>>A<< 13. Door check

REMOVAL SERVICE POINT

<<A>> DOOR LOCK COVER/ DOOR LATCH ASSEMBLY REMOVAL

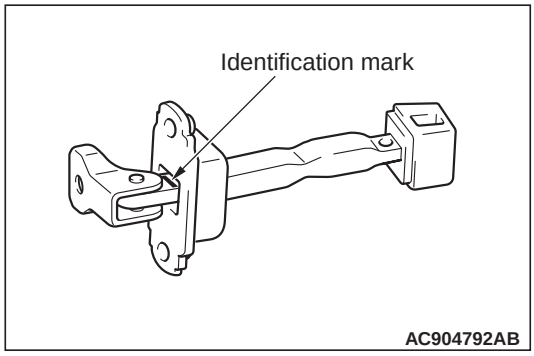


Remove the door lock cover in the following procedures:

1. Release the upper and lower claws of the door lock cover by using a flat-tipped screwdriver.
2. Pull the cover out a little.
3. With the cover pulled out state, slide it toward cabled side and remove it from the door latch assembly.

INSTALLATION SERVICE POINTS

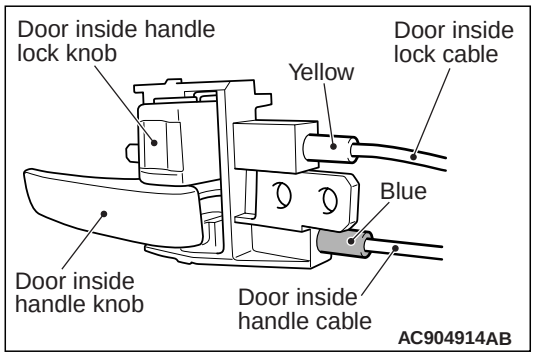
>>A<< DOOR CHECK INSTALLATION



Install the door check with the following identification mark facing upward.

Application		Identification mark
Front door	Left door	FL
	Right door	FR
Rear door	Left door	RL
	Right door	RR

>>B<< DOOR INSIDE LOCK CABLE/ DOOR INSIDE HANDLE CABLE INSTALLATION



Connect the door inside lock cable and door inside handle cable to the door inside handle according to the identification colour marked on the cables as shown in the illustration.

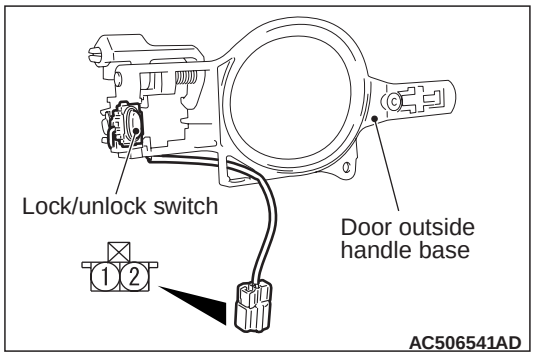
INSPECTION

M1421007600990

DOOR LOCK ACTUATOR CHECK

For the inspection of the door lock actuator, refer to Door Latch Assembly Inspection (P.42A-47).

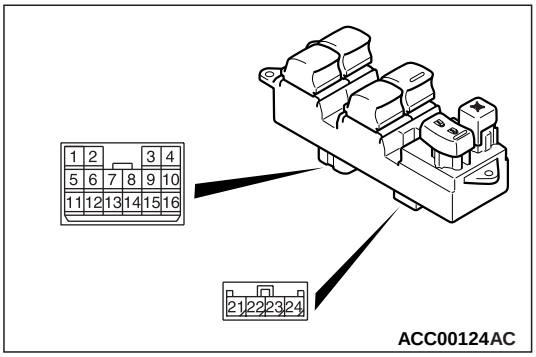
LOCK/UNLOCK SWITCH CHECK <VEHICLES WITH KOS>



Switch position	Terminal number	Normal value
ON	1 – 2	Continuity exists (2 Ω or less)
OFF	1 – 2	No continuity

CENTRAL DOOR LOCK SWITCH CHECK

Remove the power window switch (Refer to GROUP 52A – Door Trim).



Switch position	Tester connection	Specified condition
LOCK	8 – 22	Continuity exists (2 Ω or less)
OFF	8 – 22, 8 – 23	Open circuit
UNLOCK	8 – 23	Continuity exists (2 Ω or less)

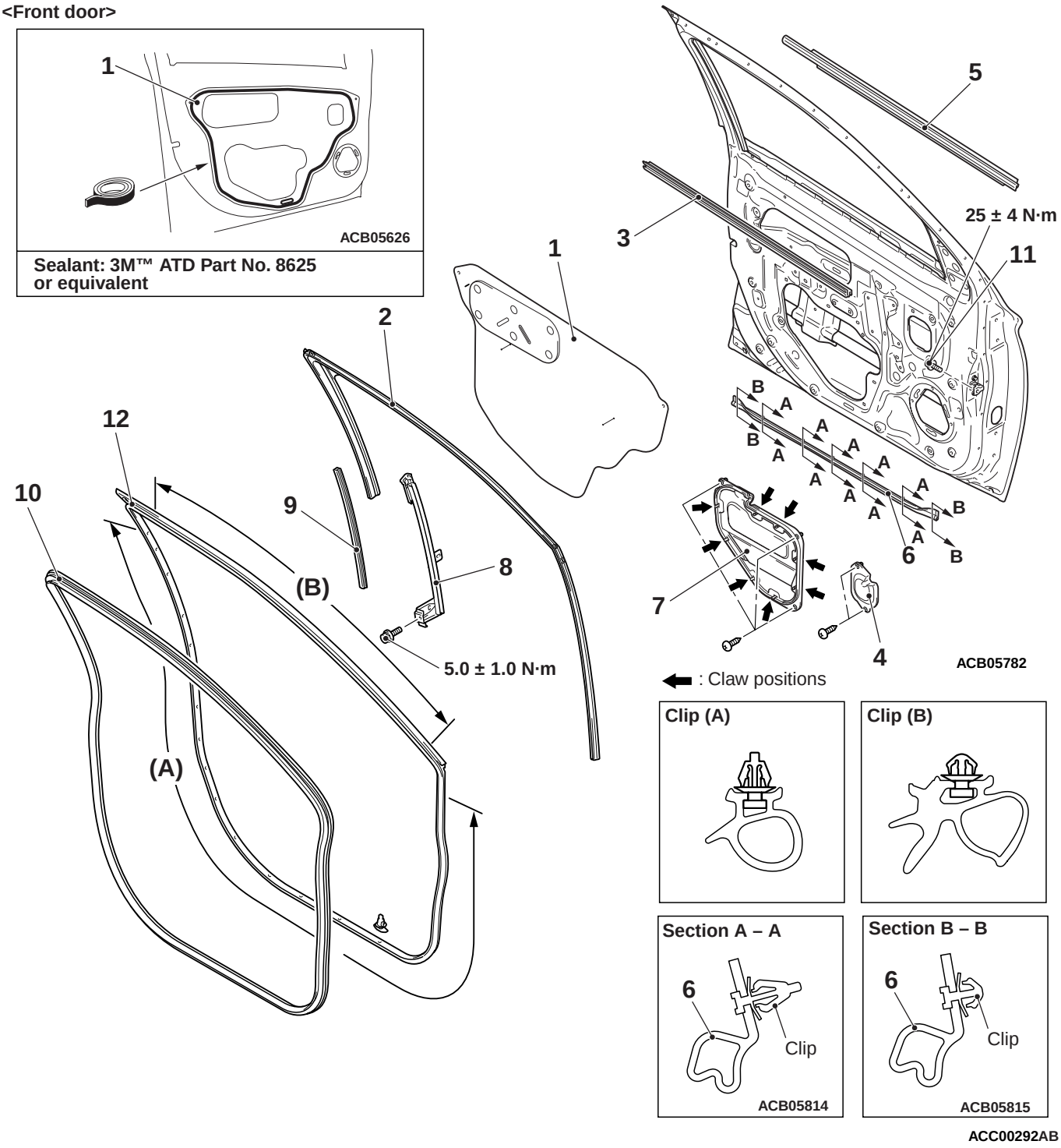
WINDOW GLASS RUNCHANNEL AND DOOR OPENING WEATHERSTRIP

REMOVAL AND INSTALLATION

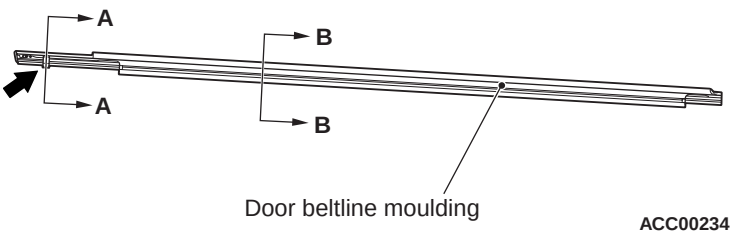
M1423003101914

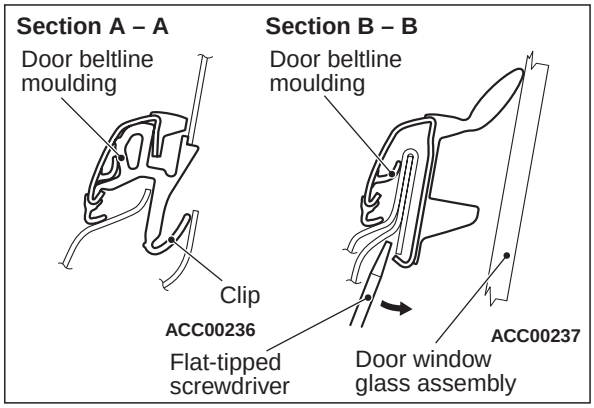
<Front door>

Sealant: 3M™ ATD Part No. 8625 or equivalent



ACC00292AB





NOTE
◀ : Clip positions

ACC00459AB

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

>>**A**<< 1. Waterproof film

Door window glass runchannel removal steps

2. Door window glass runchannel

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

3. Door beltline weatherstrip inner

Door speaker cover removal steps <Vehicles with audio amplifier>
- Door trim assembly (Refer to GROUP 52A – Door Trim .)

>>**A**<< 1. Waterproof film

4. Door speaker cover

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

5. Door beltline moulding

Door opening weatherstrip lower removal

6. Door opening weatherstrip lower

<<**A**>>

Door speaker bracket removal steps <Vehicles with audio amplifier>
- Door trim assembly (Refer to GROUP 52A – Door Trim .)

>>**A**<< 1. Waterproof film

7. Door speaker bracket

Front lower sash removal steps
- Door trim assembly (Refer to GROUP 52A – Door Trim .)

>>**A**<< 1. Waterproof film

7. Door speaker bracket <Vehicles with audio amplifier>
8. Front lower sash
9. Door window glass runchannel rear

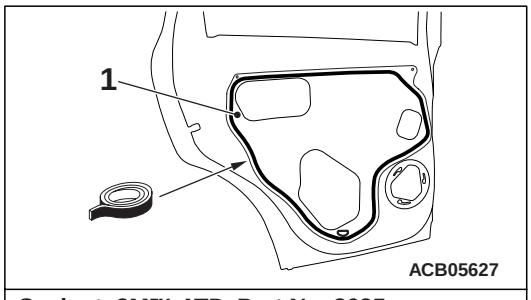
Door opening weatherstrip inner removal steps
- Cowl side trim and front scuff plate (Refer to GROUP 52A – Interior Trim .)

10. Door opening weatherstrip inner

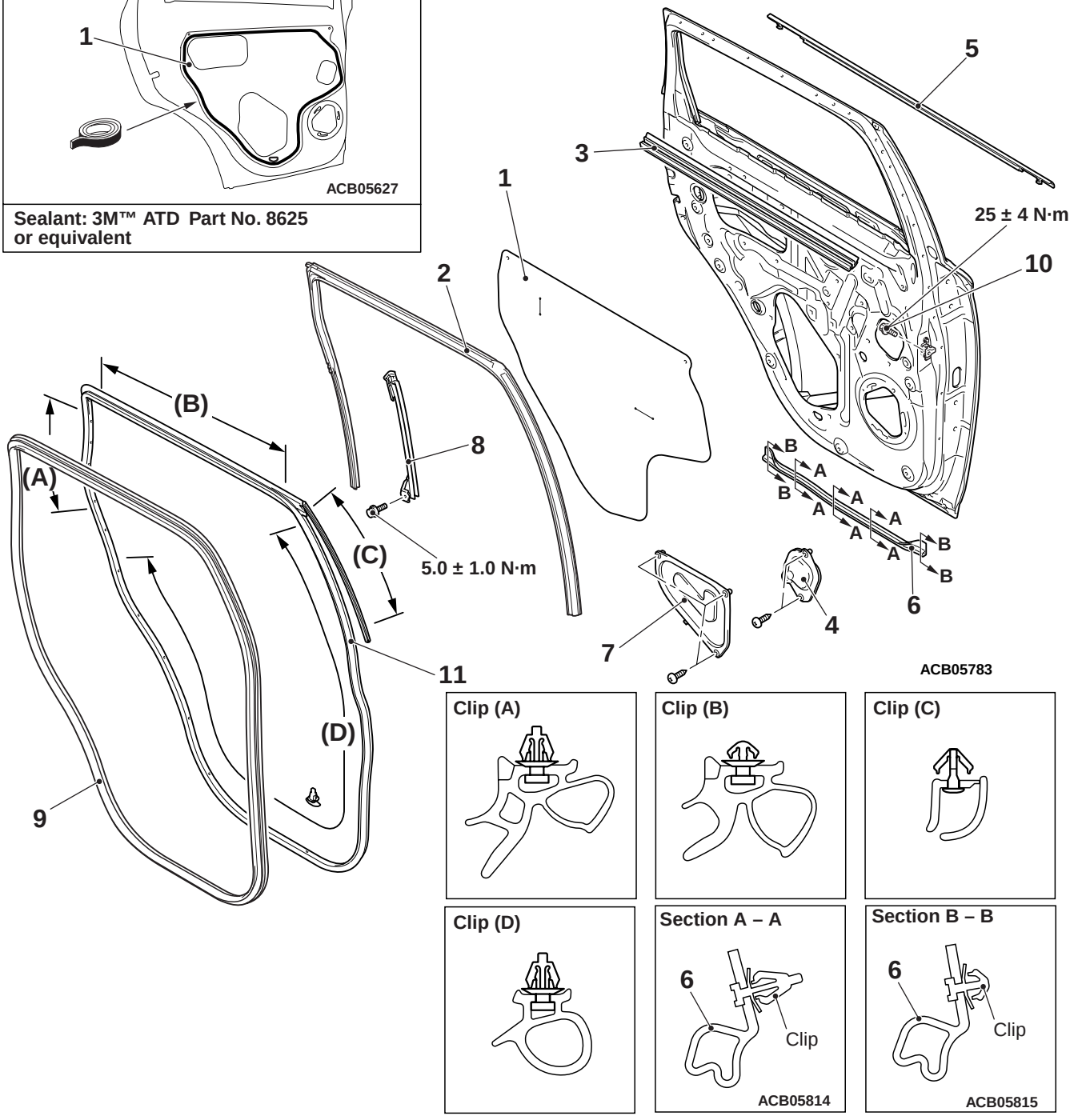
Door opening weatherstrip outer removal steps

11. Door check connecting bolt
12. Door opening weatherstrip outer

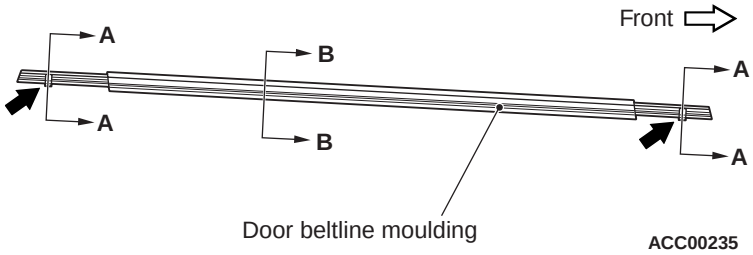
<Rear door>

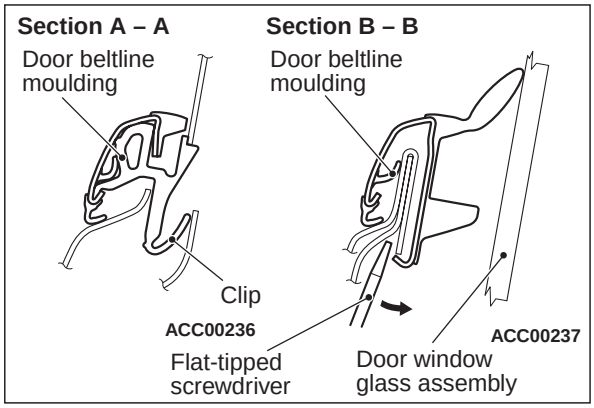


Sealant: 3M™ ATD Part No. 8625 or equivalent



ACC00293AB





NOTE
◀ : Clip positions

ACC00460AB

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

>>**B**<< 1. Waterproof film

Door window glass runchannel removal

2. Door window glass runchannel

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

3. Door beltline weatherstrip inner

Door speaker cover A removal steps <Vehicles with audio amplifier>
- Door trim assembly (Refer to GROUP 52A – Door Trim .)

>>**B**<< 1. Waterproof film

4. Door speaker cover A

Door beltline moulding removal

5. Door beltline moulding

Door opening weatherstrip lower removal

6. Door opening weatherstrip lower

Door speaker cover B removal steps <Vehicles with audio amplifier>
- Door trim assembly (Refer to GROUP 52A – Door Trim .)

>>**B**<< 1. Waterproof film

7. Door speaker cover B

Rear lower sash removal steps
- Door trim assembly (Refer to GROUP 52A – Door Trim .)

>>**B**<< 1. Waterproof film

7. Door speaker cover B <Vehicles with audio amplifier>
8. Rear lower sash

Door opening weatherstrip inner removal steps
- Rear scuff plate (Refer to GROUP 52A – Interior Trim .)

>>**A**<< 9. Door opening weatherstrip inner

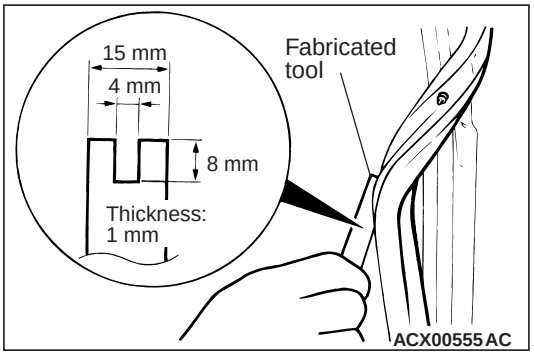
Door opening weatherstrip outer removal steps

10. Door check connecting bolt

<<**A**>> 11. Door opening weatherstrip outer

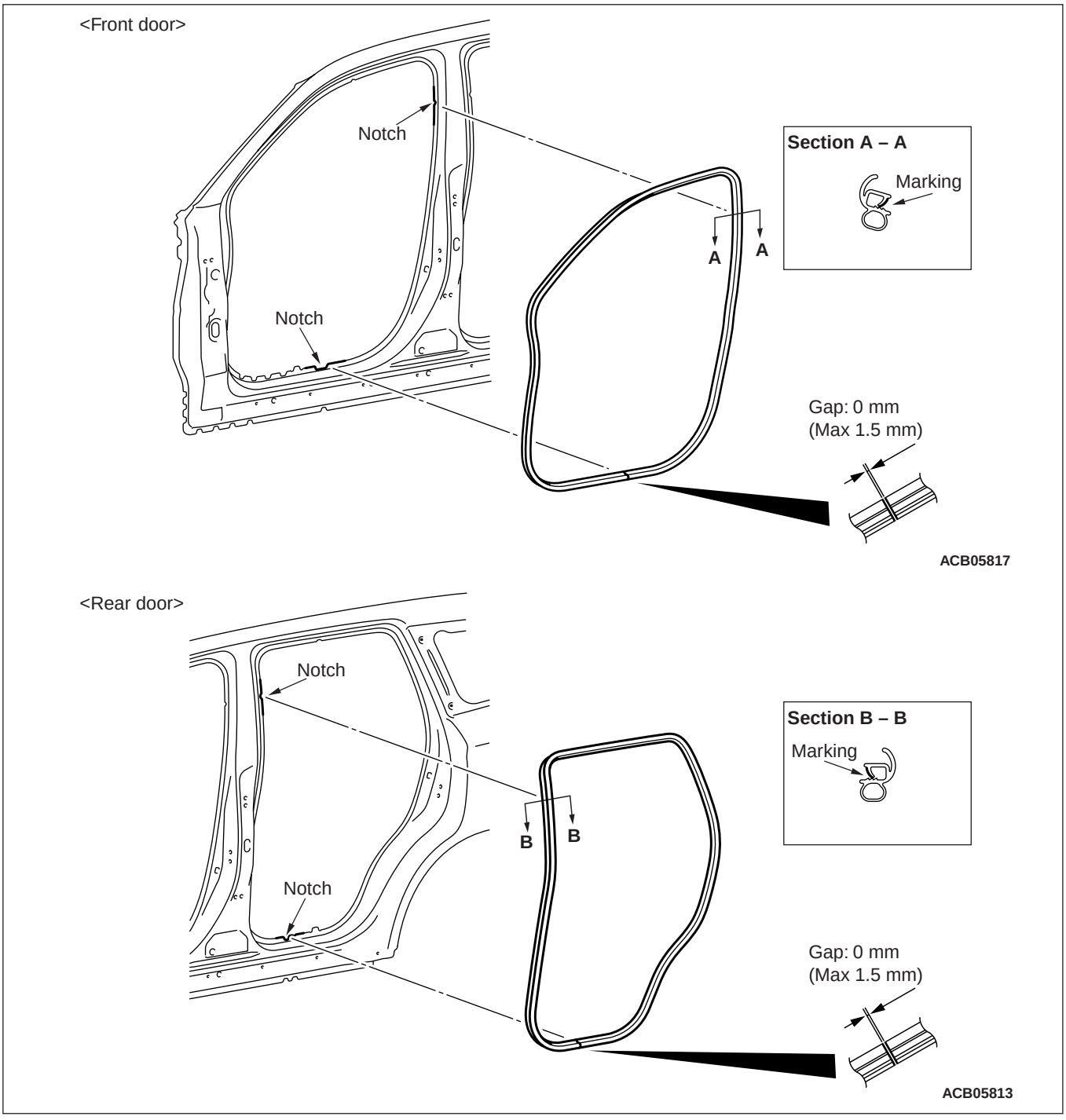
REMOVAL SERVICE POINT

<<A>>DOOR OPENING WEATHERSTRIP OUTER REMOVAL



Make the tool as shown in the figure, and remove the weatherstrip from the door panel.

INSTALLATION SERVICE POINTS
>>A<< DOOR OPENING WEATHERSTRIP INNER INSTALLATION

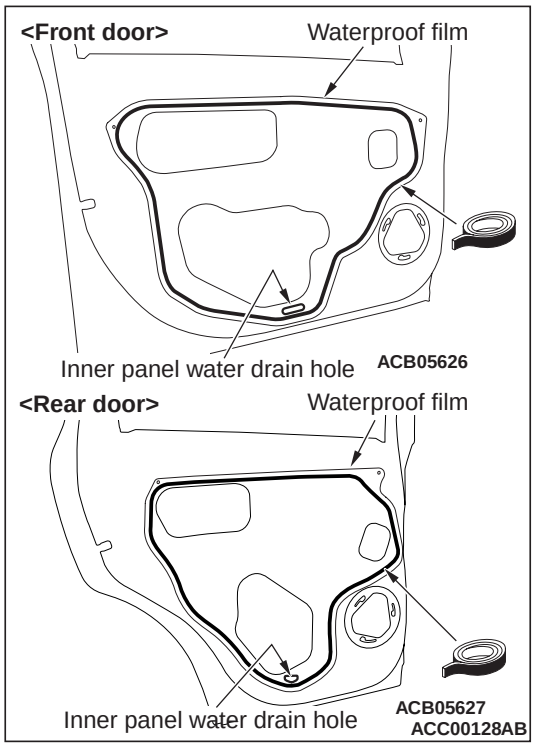


ACC00270AB

Align the mark on the door opening weatherstrip inner with the notch at the vehicle bode side as shown.

>>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 water-proof film as shown in the figure and stick the film.

Specified sealant: 3M ATD Part No. 8625 or equivalent

TAILGATE <VEHICLES WITHOUT ELECTRIC TAILGATE>

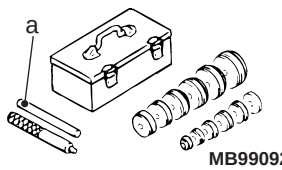
SEALANT

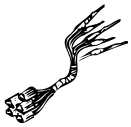
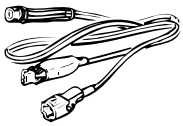
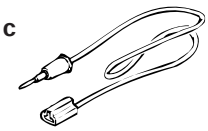
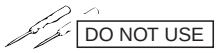
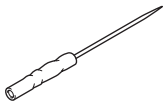
M1424000500311

Application	Brand name
Tailgate hinge	3M ATD Part No.8531 Heavy drip check sealer, 3M ATD Part No.8646 Automotive joint and seam sealer or equivalent

SPECIAL TOOLS

M1424000600415

Tool	Number	Name	Use
	MB990925 a. MB990939	Bearing and oil seal installer set a. Remover bar	Tailgate striker adjustment

Tool	Number	Name	Use
a  b  c  d  MB991223	MB991223 a. MB991219 b. MB991220 c. MB991221 d. MB991222	Harness set a. Test harness b. LED harness c. LED harness adapter d. Probe	Terminal voltage measurement a. For checking connector pin contact pressure b. For checking power supply circuit c. For checking power supply circuit d. For connecting a locally sourced tester
 MB992006	MB992006	Extra fine probe	Continuity check and voltage measurement at harness wire or connector

TROUBLESHOOTING

M1424000700445

Locking and unlocking of the tailgate is controlled by the central door locking system. For troubleshooting, refer to P.42A-26.

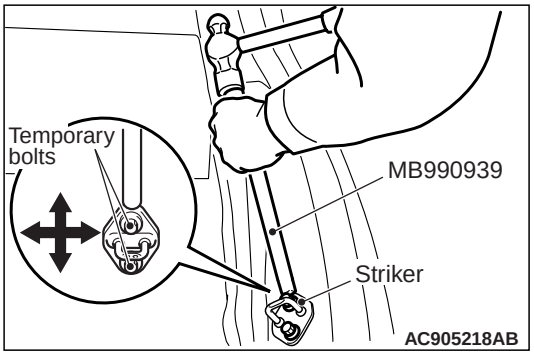
ON-VEHICLE SERVICE

TAILGATE ALIGNMENT

M1424000900580

ADJUSTMENT OF ENGAGEMENT BETWEEN STRIKER AND LATCH

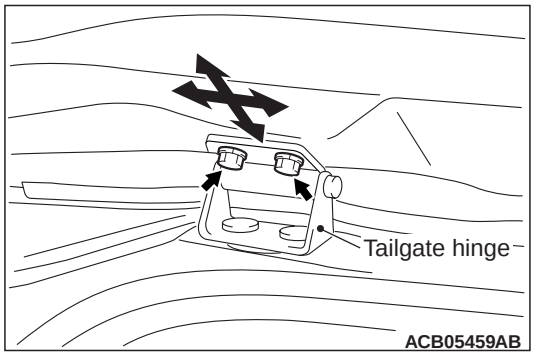
1. Remove the rear end trim (Refer to GROUP 52A – Interior Trims).



2. 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.
3. Tighten the striker mounting screws.

   Tightening torque: 22 ± 3 N·m
4. Install the rear end trim (Refer to GROUP 52A – Interior Trims).

ADJUSTMENT OF CLEARANCE BETWEEN TAILGATE AND BODY

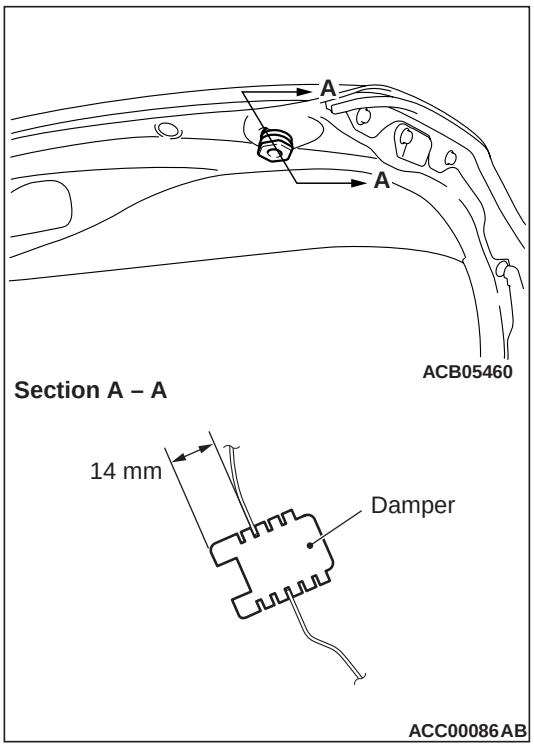


1. Loosen the tailgate hinge mounting bolts to adjust the clearance between the tailgate and body.
2. Tighten the tailgate hinge mounting bolts.

   Tightening torque: 12 ± 2 N·m

ADJUSTMENT OF TAILGATE HEIGHT

M1424003500462



Rotate the damper by using the arrow mark on the damper as a guide to adjust the tailgate height. The damper height is altered by roughly 4 mm when it is rotated once.

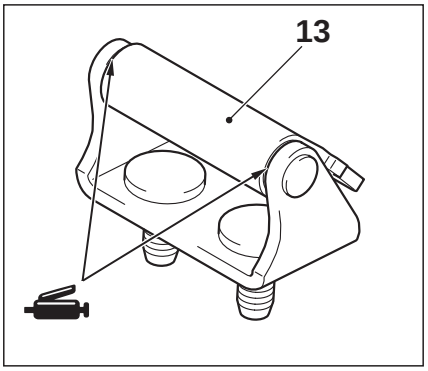
NOTE: If a rattling noise is heard due to the vibration of the tailgate when the vehicle is being driven, adjust the damper height until the damper is seated on the vehicle body. The damper should be seated on the vehicle body regardless of a rattling noise.

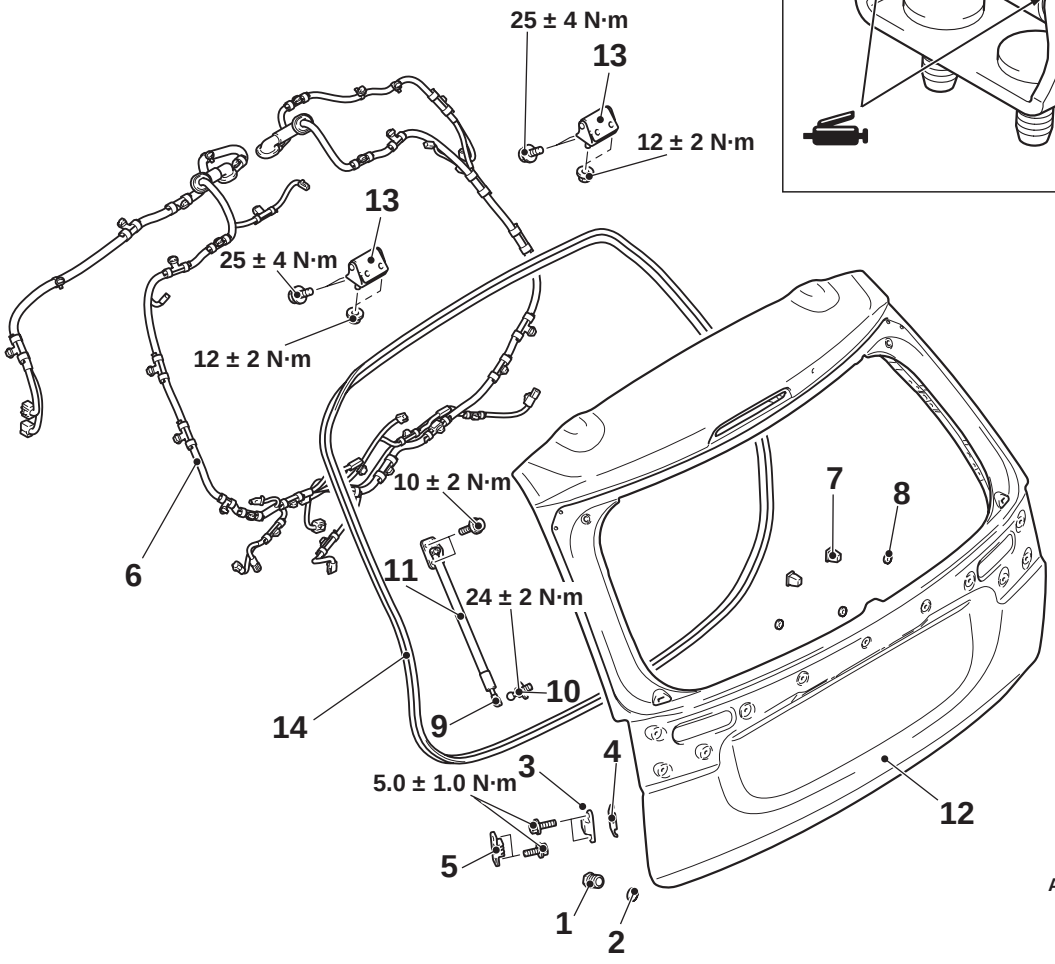
TAILGATE

REMOVAL AND INSTALLATION

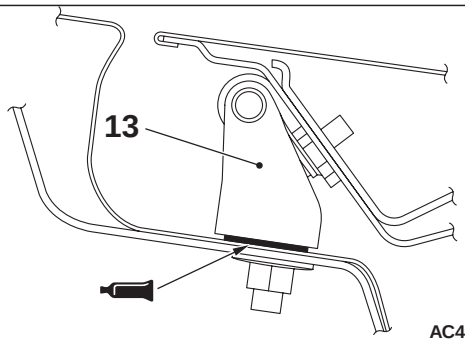
M1424001100963

Pre-removal operation	Post-installation operation
• Tailgate trim removal (Refer to GROUP 52A – Tailgate Trim .) • Rear wiper blade assembly, rear wiper motor and rear washer hose removal (Refer to GROUP 51 – Rear Wiper and Washer .) • High-mounted stop lamp assembly removal (Refer to GROUP 54A – High-mounted stop lamp .) • Rear combination lamp assembly removal (Refer to GROUP 54A – Rear Combination Lamp .) • Tailgate garnish removal (Refer to GROUP 51 – Tailgate Garnish .) • Tailgate window glass removal (Refer to P.42A-20.)	• Tailgate alignment (Refer to P.42A-68.) • Adjustment of tailgate height (Refer to P.42A-69.) • Tailgate window glass installation (Refer to P.42A-20.) • Tailgate garnish installation (Refer to GROUP 51 – Tailgate Garnish .) • Rear combination lamp assembly installation (Refer to GROUP 54A – Rear Combination Lamp .) • High-mounted stop lamp assembly installation (Refer to GROUP 54A – High-mounted stop lamp .) • Rear wiper blade assembly, rear wiper motor and rear washer hose installation (Refer to GROUP 51 – Rear wiper and washer .) • Tailgate trim installation (Refer to GROUP 52A – Tailgate Trim .)





ACC00284AB



Adhesive: 3M ATD Part No.8531 Heavy drip check sealer, 3M ATD Part No.8646 Automotive Joint and Seam Sealer or equivalent

ACC00264AB

Tailgate assembly removal steps

1. Damper
2. Plug
3. Tailgate damper upper
4. Shim <Vehicles with shim>
5. Tailgate damper lower
6. Tailgate harness
7. Screw grommet
8. Licence plate pad

<<A>> 9. Tailgate gas spring connection

10. Ball joint
11. Tailgate gas spring assembly
12. Tailgate assembly

Tailgate hinge removal steps

- Headlining (Refer to GROUP 52A – Headlining .)

>>B<< 13. Tailgate hinge

Tailgate opening weatherstrip removal

- Rear end trim (Refer to GROUP 52A – Interior trim .)

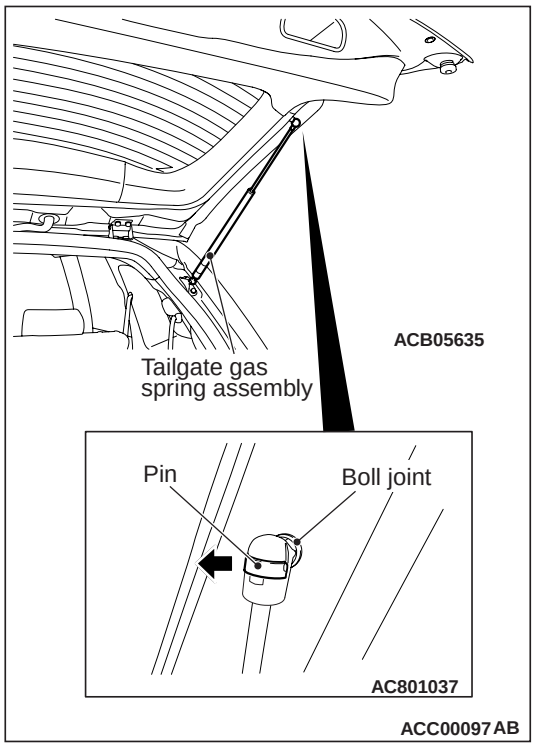
>>A<< 14. Tailgate opening weatherstrip

REMOVAL SERVICE POINT

<<A>> TAILGATE GAS SPRING CONNECTION REMOVAL

⚠ CAUTION

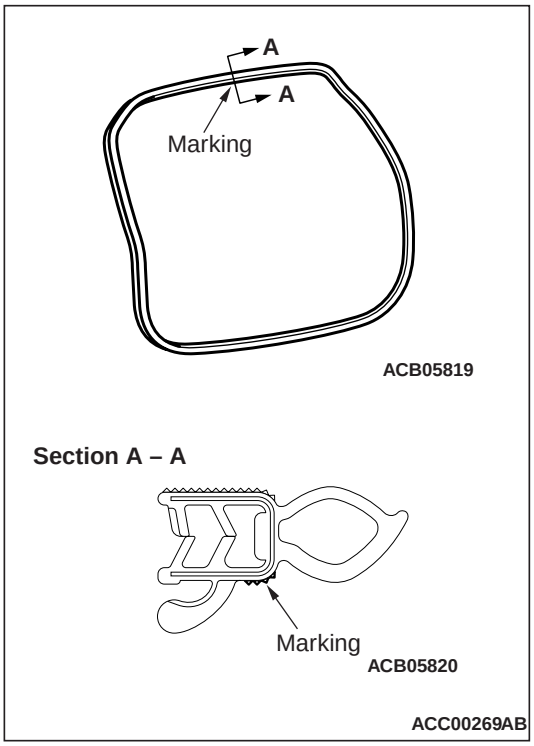
- **Do not disassemble or throw the tailgate gas spring assembly into the fire.**
- **Before disposal, make a hole to remove the gas.**
- **Make sure that the piston rod should not collect any foreign particles.**



Slide the pin and remove the tailgate gas spring assembly from the ball joint in the direction of the arrow.

INSTALLATION SERVICE POINTS

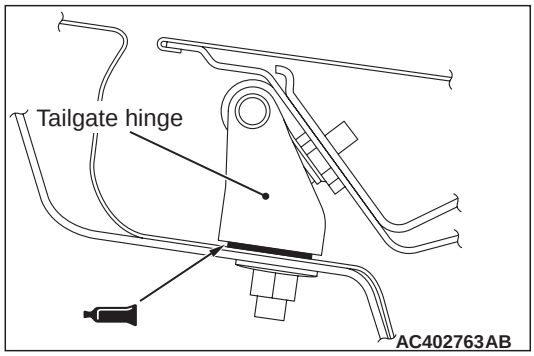
>>A<< TAILGATE OPENING WEATHERSTRIP INSTALLATION



The marking on the tailgate opening weatherstrip should be positioned at the centre of the body.

Post-installation operation
- Tailgate alignment (Refer to P.42A-68.)

>>B<< TAILGATE HINGE INSTALLATION



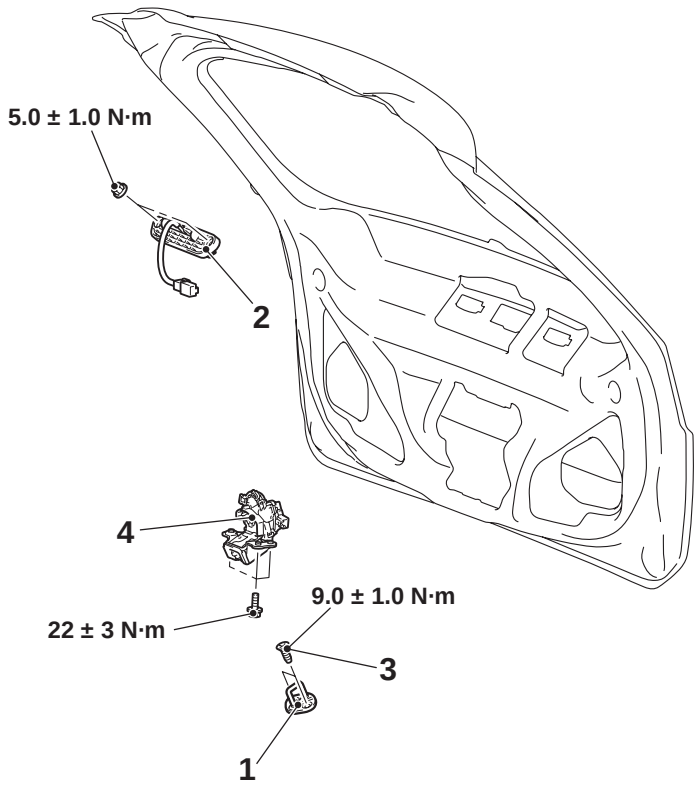
Apply the specified sealant to the tailgate hinge mounting surface, and install the tailgate hinge.

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

TAILGATE HANDLE AND LATCH

REMOVAL AND INSTALLATION

M1424001701076



Striker removal steps
- Rear end trim (Refer to GROUP 52A – Interior trims .)

>>B<< 1. Striker

Tailgate lock release handle removal steps
- Tailgate trim (Refer to GROUP 52A – Tailgate trims .)
- Rear wiper motor assembly (Refer to GROUP 51 -Rear Wiper and Washer .)

2. Tailgate lock release handle

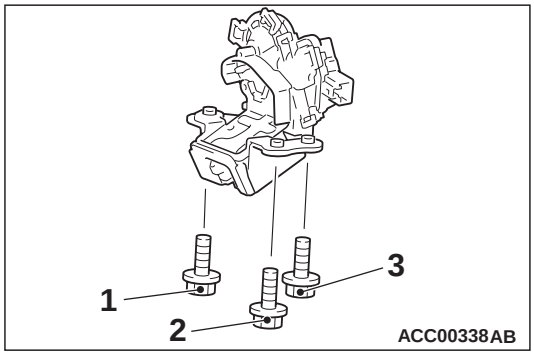
Tailgate latch removal steps
- Tailgate trim (Refer to GROUP 52A – Tailgate trims .)

3. Earth bolt

>>A<< 4. Tailgate latch assembly

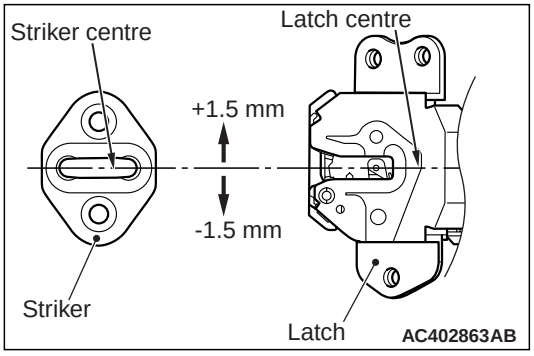
INSTALLATION SERVICE POINTS

>>A<< TAILGATE LATCH ASSEMBLY INSTALLATION



Install the tailgate latch assembly mounting bolts in the numerical order.

>>B<< STRIKER INSTALLATION

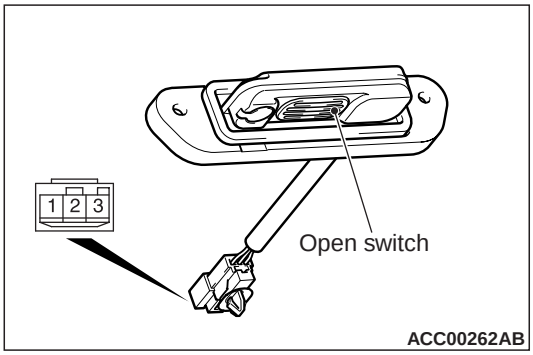


Install the striker so that the striker centre does not deviate more than ±1.5 mm from the latch centre.

INSPECTION

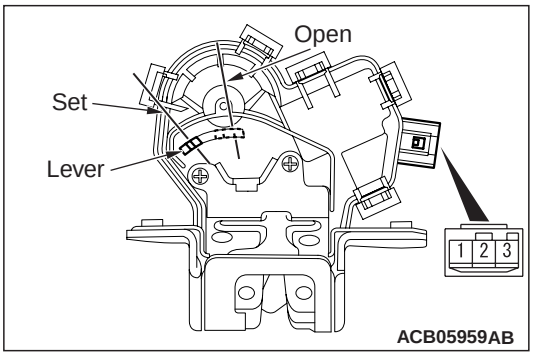
M1424001800304

TAILGATE LOCK RELEASE HANDLE (TAILGATE OPEN SWITCH) CHECK



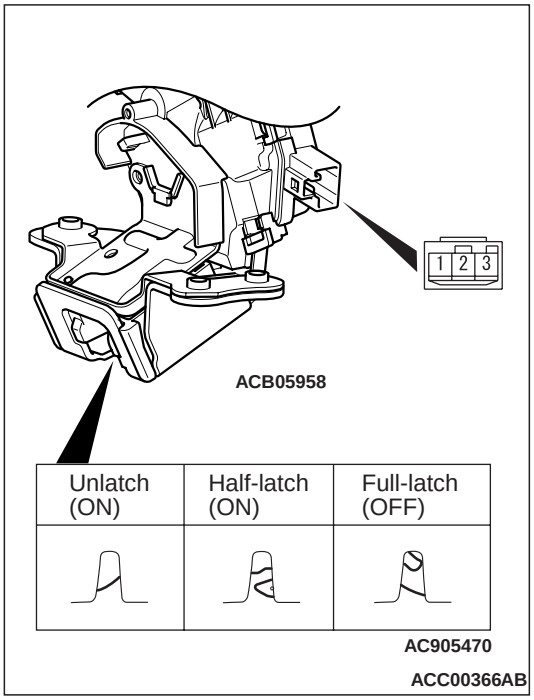
Switch position	Terminal number	Normal value
Push (open)	1 – 2	Continuity exists (2 Ω or less)
Release	1 – 2	No continuity

TAILGATE LOCK ACTUATOR CHECK



Lever position	Battery connection	Lever operation
At the "SET" position	• Connect terminal 2 to negative battery terminal. • Connect terminal 3 to positive battery terminal.	Lever moves from "SET" to "OPEN" position.

TAILGATE LATCH SWITCH CHECK



Claw position	Terminal number	Normal value
Unlatch (ON)/ Half-latch (ON)	1 – 2	Continuity exists (2 Ω or less)
Full-latch (OFF)	1 – 2	No continuity

TAILGATE <VEHICLES WITH ELECTRIC TAILGATE>

SERVICE SPECIFICATIONS

M1424000300072

Item	Standard value
Electric tailgate operating current (power supply 14.5 ± 0.5 V at 25°C) A	11 or less

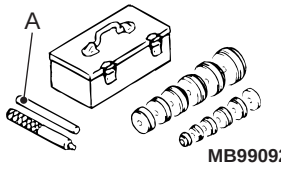
ADHESIVE

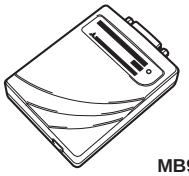
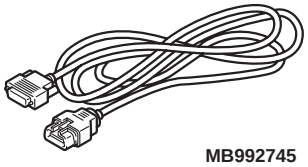
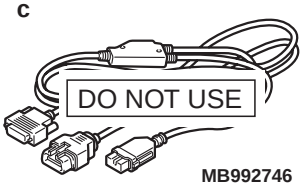
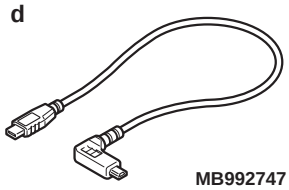
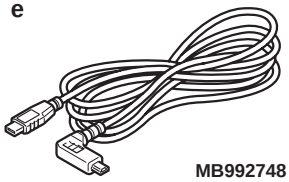
M1424000500322

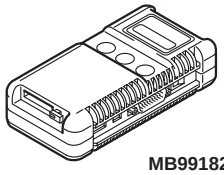
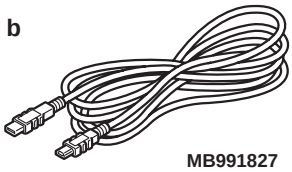
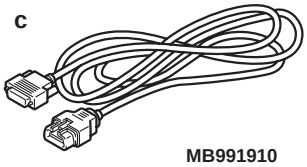
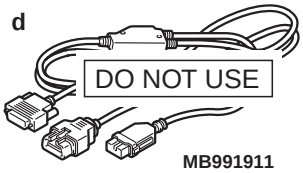
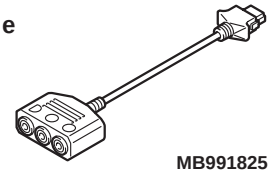
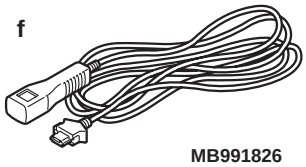
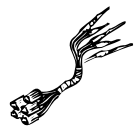
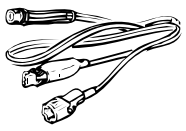
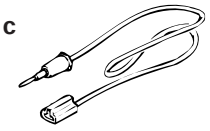
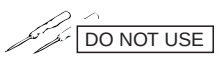
Application	Brand name
Tailgate hinge	3M ATD Part No.8531 Heavy drip check sealer, 3M ATD Part No.8646 Automotive joint and seam sealer or equivalent

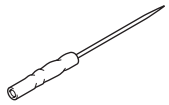
SPECIAL TOOLS

M1424000600664

Tool	Number	Name	Use
 MB990925AF	MB990925 A: MB990939	Bearing and oil seal installer set A: Remover bar	Tailgate striker adjustment

Tool	Number	Name	Use
a  MB992744 b  MB992745 c  MB992746 d  MB992747 e  MB992748 ACB05421AB	a. MB992744 b. MB992745 c. MB992746 d. MB992747 e. MB992748	a. Vehicle communication interface-Lite (V.C.I.-Lite) b. V.C.I.-Lite main harness A (for vehicles with CAN communication) c. V.C.I.-Lite main harness B (for vehicles without CAN communication) d. V.C.I.-Lite USB cable short e. V.C.I.-Lite USB cable long	ECU check (M.U.T.-III diagnosis code display and service data display)

Tool	Number	Name	Use
a  MB991824 b  MB991827 c  MB991910 d  MB991911 e  MB991825 f  MB991826 MB991955	MB991955 a. MB991824 b. MB991827 c. MB991910 d. MB991911 e. MB991825 f. MB991826	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 (for vehicles with CAN communication) d. M.U.T.-III main harness B (for vehicles without CAN communication) e. Measuring adapter harness f. M.U.T.-III trigger harness	⚠ CAUTION **For vehicles with CAN communication, use M.U.T.-III main harness A to send the simulated vehicle speed. If you connect M.U.T.-III main harness B instead, CAN communication does not function correctly.** ECU check (M.U.T.-III diagnosis code display and service data display)
a  b  c  d  MB991223	MB991223 a. MB991219 b. MB991220 c. MB991221 d. MB991222	Wiring harness set a. Check harness b. LED harness c. LED harness adapter d. Probe	Continuity check and voltage measurement at wiring harness or connector a. For checking connector pin contact pressure b. For checking power supply circuit c. For checking power supply circuit d. For connecting a locally sourced tester

Tool	Number	Name	Use
 MB992006	MB992006	Extra fine probe	Continuity check and voltage measurement at wiring harness or connector

ELECTRIC TAILGATE TROUBLESHOOTING

STANDARD FLOW OF DIAGNOSTIC TROUBLESHOOTING

M1424002600187

⚠ CAUTION

If the battery/fuse is removed or replaced while the electric tailgate is being opened, the electric tailgate cannot be closed by performing the automatic operation. In this case, fully open the electric tailgate manually.

Refer to GROUP 00 – Contents of Troubleshooting .

⚠ 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, confirm all systems for diagnosis code(s). If diagnosis code(s) are set, erase them all.

DIAGNOSIS CODE CHART

M1424005300077

Diagnosis code No.	Diagnostic item	Reference page
B2480	Electromagnetic clutch short	P.42A-78
B2481	Pulse sensor power supply short	P.42A-78
B2482	No detection of neutral SW	P.42A-78
B2483	No detection of full latch SW	P.42A-79
B2484	Right-side touch sensor open circuit	P.42A-80
B2485	Left-side touch sensor open circuit	P.42A-80
B2488	ECU internal error	P.42A-81
U0141	ETACS-ECU CAN time-out	P.42A-82
U0155	Meter CAN time-out	P.42A-83
U0164	A/C CAN time-out	P.42A-84
U0168	KOS CAN time-out	P.42A-85
U0184	AUDIO CAN time-out	P.42A-86
U0245	AND CAN time-out	P.42A-87
U1000	OSS CAN time-out*	P.42A-88
U1190	No receive fault defect signal	P.42A-89
U1195	Coding not completed	P.42A-89

*NOTE: *: OSS = One-touch start system*

DIAGNOSIS CODE PROCEDURES

Code No. B2480: Electromagnetic clutch short

DIAGNOSTIC FUNCTION
When the electromagnetic clutch of electric tailgate motor is short circuited, the electric tailgate control unit sets diagnosis code No. B2480.

JUDGMENT CRITERIA
When the electromagnetic clutch output current of electric tailgate motor is detected to be abnormal, the electric tailgate control unit sets diagnosis code No. B2480.

PROBABLE CAUSES
Malfunction of the electric tailgate control unit.

DIAGNOSIS PROCEDURE

Diagnosis code recheck
(1) Clear all the diagnosis codes stored in the electric tailgate control unit.
(2) Operate the electric tailgate.
(3) Check whether a diagnosis code is set in the electric tailgate control unit.

Q: Is the diagnosis code set?
YES : Replace the electric tailgate control unit.
NO : Intermittent malfunction (Refer to GROUP 00 – How to Use Troubleshooting/Inspection Service Points - How to Cope with Intermittent Malfunction .)

Code No. B2481: Pulse sensor power supply short

DIAGNOSTIC FUNCTION
When the pulse sensor power supply of electric tailgate motor is short circuited, the electric tailgate control unit sets diagnosis code No. B2481.

JUDGMENT CRITERIA
When the pulse sensor power supply output current of electric tailgate motor is detected to be abnormal, the electric tailgate control unit sets diagnosis code No. B2481.

PROBABLE CAUSES
Malfunction of the electric tailgate control unit.

DIAGNOSIS PROCEDURE

Diagnosis code recheck
(1) Clear all the diagnosis codes stored in the electric tailgate control unit.
(2) Operate the electric tailgate.
(3) Check whether a diagnosis code is set in the electric tailgate control unit.

Q: Is the diagnosis code set?
YES : Replace the electric tailgate control unit.
NO : Intermittent malfunction (Refer to GROUP 00 – How to Use Troubleshooting/Inspection Service Points - How to Cope with Intermittent Malfunction .)

Code No. B2482: No detection of neutral SW

DIAGNOSTIC FUNCTION
When the neutral switch signal of tailgate latch is not detected, the electric tailgate control unit sets diagnosis code No. B2482.

JUDGMENT CRITERIA
When the electric tailgate motor returns to the neutral position, if the neutral switch signal of tailgate latch is not detected, the electric tailgate control unit sets diagnosis code No. B2482.

PROBABLE CAUSES
- Damaged wiring harness and connectors
- Malfunction of the electric tailgate control unit

- Malfunction of tailgate latch

DIAGNOSIS PROCEDURE

STEP 1. Neutral switch inspection.
Check the tailgate latch (refer to P.42A-119).

Q: Is the check result normal?
YES : Go to Step 2.
NO : Replace the tailgate latch.

STEP 2. Resistance measurement at tailgate latch connector (neutral switch earth line terminal).
(1) Disconnect the connector, and measure at the wiring harness side.
(2) Measure the resistance between the tailgate latch connector (neutral switch earth line terminal) and body earth.

OK: Continuity exists (2 Ω or less)

Q: Is the check result normal?
YES : Go to Step 4.
NO : Go to Step 3.

STEP 3. Check of open circuit in earth line between tailgate latch connector (neutral switch terminal) and body earth.

Q: Is the check result normal?
YES : Go to Step 5.
NO : Repair the connector(s) or wiring harness.

STEP 4. Check of open circuit in NTL line between electric tailgate control unit connector and tailgate latch connector.

Q: Is the check result normal?
YES : Go to Step 5.
NO : Repair the connector(s) or wiring harness.

STEP 5. Diagnosis code recheck
(1) Clear all the diagnosis codes stored in the electric tailgate control unit.
(2) Operate the electric tailgate.
(3) Check whether a diagnosis code is set in the electric tailgate control unit.

Q: Is the diagnosis code set?
YES : Replace the electric tailgate control unit.
NO : The diagnosis is complete.

Code No. B2483: No detection of full latch SW

DIAGNOSTIC FUNCTION
When the full latch switch signal of tailgate latch is not detected, the electric tailgate control unit sets diagnosis code No. B2483.

JUDGMENT CRITERIA
During the electric tailgate close operation, if the signal of tailgate latch full latch switch is not detected consecutively for five times, the electric tailgate control unit sets diagnosis code No. B2483.

PROBABLE CAUSES
- Damaged wiring harness and connectors
- Malfunction of the electric tailgate control unit
- Malfunction of tailgate latch

DIAGNOSIS PROCEDURE

STEP 1. Full-latch switch check.
Check the tailgate latch (refer to P.42A-119).

Q: Is the check result normal?
YES : Go to Step 2.
NO : Replace the tailgate latch.

STEP 2. Resistance measurement at tailgate latch connector (full-latch switch earth line terminal).
(1) Disconnect the connector, and measure at the wiring harness side.
(2) Measure the resistance between the tailgate latch connector (full-latch switch earth line terminal) and body earth.

OK: Continuity exists (2 Ω or less)

Q: Is the check result normal?
YES : Go to Step 4.
NO : Go to Step 3.

STEP 3. Check of open circuit in earth line between tailgate latch connector (full-latch switch terminal) and body earth.

Q: Is the check result normal?
YES : Go to Step 5.
NO : Repair the connector(s) or wiring harness.

STEP 4. Check of open circuit in FULL line between electric tailgate control unit connector and tailgate latch connector.

Q: Is the check result normal?
YES : Go to Step 5.
NO : Repair the connector(s) or wiring harness.

STEP 5. Diagnosis code recheck
(1) Clear all the diagnosis codes stored in the electric tailgate control unit.
(2) Operate the electric tailgate.
(3) Check whether a diagnosis code is set in the electric tailgate control unit.

Q: Is the diagnosis code set?
YES : Replace the electric tailgate control unit.
NO : The diagnosis is complete.

Code No. B2484: Right side touch sensor open circuit

DIAGNOSTIC FUNCTION
When the tailgate sensor (RH) open circuit is detected, the electric tailgate control unit sets diagnosis code No. B2484.

JUDGMENT CRITERIA
When the tailgate sensor (RH) open circuit is detected, the electric tailgate control unit sets diagnosis code No. B2484.

PROBABLE CAUSES
- Damaged wiring harness and connectors
- Tailgate sensor (RH) malfunction
- Malfunction of the electric tailgate control unit

DIAGNOSIS PROCEDURE

STEP 1. Tailgate sensor (RH) check.
Check the tailgate sensor (RH) (refer to P.42A-119).

Q: Is the check result normal?
YES : Go to Step 2.
NO : Replace the tailgate sensor (RH).

STEP 2. Resistance measurement at tailgate sensor (RH) connector (earth line terminal).
(1) Disconnect the connector, and measure at the wiring harness side.
(2) Measure the resistance between the tailgate sensor (RH) connector (earth line terminal) and body earth.

OK: Continuity exists (2 Ω or less)

Q: Is the check result normal?
YES : Go to Step 4.
NO : Go to Step 3.

STEP 3. Check of open circuit in TSG line between electric tailgate control unit connector and tailgate sensor (RH) connector.

Q: Is the check result normal?
YES : Go to Step 5.
NO : Repair the connector(s) or wiring harness.

STEP 4. Check of open circuit in TSR line between electric tailgate control unit connector and tailgate sensor (RH) connector.

Q: Is the check result normal?
YES : Go to Step 5.
NO : Repair the connector(s) or wiring harness.

STEP 5. Diagnosis code recheck
(1) Clear all the diagnosis codes stored in the electric tailgate control unit.
(2) Operate the electric tailgate.
(3) Check whether a diagnosis code is set in the electric tailgate control unit.

Q: Is the diagnosis code set?
YES : Replace the electric tailgate control unit.
NO : The diagnosis is complete.

Code No. B2485: Left side touch sensor open circuit

DIAGNOSTIC FUNCTION
When the tailgate sensor (LH) open circuit is detected, the electric tailgate control unit sets diagnosis code No. B2485.

JUDGMENT CRITERIA

When the tailgate sensor (LH) open circuit is detected, the electric tailgate control unit sets diagnosis code No. B2485.

PROBABLE CAUSES

- Damaged wiring harness and connectors
- Tailgate sensor (LH) malfunction
- Malfunction of the electric tailgate control unit

DIAGNOSIS PROCEDURE

STEP 1. Tailgate sensor (LH) check.

Check the tailgate sensor (LH) (refer to P.42A-119).

Q: Is the check result normal?

YES : Go to Step 2.
NO : Replace the tailgate sensor (LH).

STEP 2. Resistance measurement at tailgate sensor (LH) connector (earth line terminal).

(1) Disconnect the connector, and measure at the wiring harness side.
(2) Measure the resistance between the tailgate sensor (LH) connector (earth line terminal) and body earth.

OK: Continuity exists (2 Ω or less)

Q: Is the check result normal?

YES : Go to Step 4.
NO : Go to Step 3.

STEP 3. Check of open circuit in TSG line between electric tailgate control unit connector and tailgate sensor (LH) connector.

Q: Is the check result normal?

YES : Go to Step 5.
NO : Repair the connector(s) or wiring harness.

STEP 4. Check of open circuit in TSL line between electric tailgate control unit connector and tailgate sensor (LH) connector.

Q: Is the check result normal?

YES : Go to Step 5.
NO : Repair the connector(s) or wiring harness.

STEP 5. Diagnosis code recheck.

(1) Clear all the diagnosis codes stored in the electric tailgate control unit.
(2) Operate the electric tailgate.
(3) Check whether a diagnosis code is set in the electric tailgate control unit.

Q: Is the diagnosis code set?

YES : Replace the electric tailgate control unit.
NO : The diagnosis is complete.

Code No. B2488: ECU internal error

DIAGNOSTIC FUNCTION

When a trouble is present to the electric tailgate control unit, diagnosis code No. B2488 is stored.

JUDGMENT CRITERIA

When an abnormality is present to the EEPROM inside the electric tailgate control unit, the electric tailgate control unit determines that a problem has occurred.

PROBABLE CAUSES

Malfunction of the electric tailgate control unit

DIAGNOSIS PROCEDURE

Diagnosis code recheck

(1) Clear all the diagnosis codes stored in the electric tailgate control unit.
(2) Operate the electric tailgate.
(3) Check whether a diagnosis code is set in the electric tailgate control unit.

Q: Is the diagnosis code set?

YES : Replace the electric tailgate control unit.
NO : Intermittent malfunction (Refer to GROUP 00 – How to Use Troubleshooting/Inspection Service Points - How to Cope with Intermittent Malfunction .)

Code No. U0141: ETACS-ECU CAN Time-out

⚠ CAUTION

- **If the diagnosis code No. U0141 is set, be sure to diagnose the CAN bus line.**
- **When replacing the ECU, always check that the communication circuit is normal.**
- **When the ETACS-ECU of vehicles without KOS is replaced, the encrypted code of the ignition key needs to be registered to the ETACS-ECU. (If the encrypted code is not registered, the engine cannot be started. Register the encrypted code as described in Immobilizer System – How to Register Key ID .)**

DIAGNOSTIC FUNCTION

If the signal from ETACS-ECU cannot be received, the electric tailgate control unit sets diagnosis code No. U0141.

JUDGMENT CRITERIA

With the statuses that the ignition switch is at ON position, system voltage is 10 to 16 V (data from ETACS-ECU), and there is no malfunction to the power supply fuse, or odometer value is 80.5 km or more, if the communication with ETACS-ECU cannot be established for 2,500 ms or more, the electric tailgate control unit determines that a problem has occurred.

PROBABLE CAUSES

- Malfunction of ETACS-ECU
- Malfunction of the electric tailgate control unit
- Malfunction of CAN bus line

DIAGNOSIS PROCEDURE

STEP 1. M.U.T.-III CAN bus diagnostics

Use M.U.T.-III to diagnose the CAN bus lines.

Q: Is the check result normal?

YES : Go to Step 2.

NO : Repair the CAN bus lines. (Refer to GROUP 54C – Troubleshooting .)

STEP 2. M.U.T.-III diagnosis code for other systems

Check if the ETACS-ECU-related diagnosis code is set.

Q: Is the diagnosis code set?

YES : Troubleshoot the ETACS-ECU. (Refer to GROUP 54A – ETACS-ECU – Troubleshooting .)

NO : Go to Step 3.

STEP 3. M.U.T.-III other system diagnosis code

Check if the diagnosis code No. U0141 is set to the KOS-ECU, OSS-ECU, combination meter, SRS-ECU, MMCS, radio and CD player or A/C-ECU.

Q: Is the diagnosis code set?

YES : Go to Step 4.

NO : Go to Step 5.

STEP 4. Check whether the diagnosis code is reset.

Check again if the electric tailgate control unit sets a diagnosis code.

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

Q: Is the diagnosis code set?

YES : Replace the ETACS-ECU.

NO : An intermittent malfunction may be present. (Refer to GROUP 00 – How to Use Troubleshooting/Inspection Service Points - How to Cope with Intermittent Malfunction .)

STEP 5. Check whether the diagnosis code is reset.

Check again if the electric tailgate control unit sets a diagnosis code.

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

Q: Is the diagnosis code set?

YES : Replace the electric tailgate control unit.

NO : An intermittent malfunction may be present. (Refer to GROUP 00 – How to Use Troubleshooting/Inspection Service Points - How to Cope with Intermittent Malfunction .)

Code No. U0155: Meter CAN Time-out

⚠ CAUTION

- **If diagnosis code No. U0155 is set, be sure to diagnose the CAN bus line.**
- **Before replacing the ECU, ensure that the communication circuit is normal.**

DIAGNOSTIC FUNCTION

If the signal from combination meter cannot be received, the electric tailgate control unit sets diagnosis code No. U0155.

JUDGMENT CRITERIA

With the statuses that the ignition switch is at ON position, system voltage is 10 to 16 V (data from ETACS-ECU), and there is no malfunction to the power supply fuse, or odometer value is 80.5 km or more, if the communication with combination meter cannot be established for 2,500 ms or more, the electric tailgate control unit determines that a problem has occurred.

PROBABLE CAUSES

- Malfunction of combination meter
- Malfunction of the electric tailgate control unit
- Malfunction of CAN bus line

DIAGNOSIS PROCEDURE

STEP 1. M.U.T.-III CAN bus diagnostics

Use M.U.T.-III to diagnose the CAN bus lines.

Q: Is the check result normal?

YES : Go to Step 2.

NO : Repair the CAN bus lines. (Refer to GROUP 54C – Troubleshooting .)

STEP 2. Check the M.U.T.-III Diagnosis code for other systems

Check whether a combination meter-related diagnosis code is set.

Q: Is the diagnosis code set?

YES : Troubleshoot the combination meter. (Refer to GROUP 54A – Troubleshooting)

NO : Go to Step 3.

STEP 3. M.U.T.-III other system diagnosis code

Check if the diagnosis code No. U0155 is set to the KOS-ECU, OSS-ECU, MMCS, radio and CD player, ETACS-ECU or A/C-ECU.

Q: Is the diagnosis code set?

YES : Go to Step 4.

NO : Go to Step 5.

STEP 4. Check whether the diagnosis code is reset.

Check again if the electric tailgate control unit sets a diagnosis code.

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

Q: Is the diagnosis code set?

YES : Replace the combination meter.

NO : An intermittent malfunction may be present. (Refer to GROUP 00 – How to Use Troubleshooting/Inspection Service Points - How to Cope with Intermittent Malfunction .)

STEP 5. Check whether the diagnosis code is reset.

Check again if the electric tailgate control unit sets a diagnosis code.

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

Q: Is the diagnosis code set?

YES : Replace the electric tailgate control unit.

NO : An intermittent malfunction may be present. (Refer to GROUP 00 – How to Use Troubleshooting/Inspection Service Points - How to Cope with Intermittent Malfunction .)

Code No. U0164: A/C CAN time-out

⚠ **CAUTION**
- **If diagnosis code No. U0164 is set, be sure to diagnose the CAN bus line.**
- **When replacing the ECU, always check that the communication circuit is normal.**

DIAGNOSTIC FUNCTION

If the signal from A/C-ECU cannot be received, the electric tailgate control unit sets diagnosis code No. U0164.

JUDGMENT CRITERIA

With the statuses that the ignition switch is at ON position, system voltage is 10 to 16 V (data from ETACS-ECU), and there is no malfunction to the power supply fuse, or odometer value is 80.5 km or more, if the communication with A/C-ECU cannot be established for 2,500 ms or more, the electric tailgate control unit determines that a problem has occurred.

PROBABLE CAUSES

- Malfunction of A/C-ECU
- Malfunction of the electric tailgate control unit
- Malfunction of CAN bus line

DIAGNOSIS PROCEDURE

STEP 1. M.U.T.-III CAN bus diagnostics

Use M.U.T.-III to diagnose the CAN bus lines.

Q: Is the check result normal?
YES : Go to Step 2.
NO : Repair the CAN bus lines. (Refer to GROUP 54C – Troubleshooting .)

STEP 2. M.U.T.-III diagnosis code for other systems

Check if the A/C-ECU-related diagnosis code is set.

Q: Is the diagnosis code set?
YES : Perform troubleshooting for A/C-ECU. (Refer to GROUP 55 – Troubleshooting .)
NO : Go to Step 3.

STEP 3. M.U.T.-III other system diagnosis code

Check if the diagnosis code No. U0164 is set to the KOS-ECU, OSS-ECU, combination meter, ETACS-ECU, MMCS or radio and CD player.

Q: Is the diagnosis code set?
YES : Go to Step 4.
NO : Go to Step 5.

STEP 4. Check whether the diagnosis code is reset.

Check again if the electric tailgate control unit sets a diagnosis code.
(1) Erase the diagnosis code.
(2) Turn the ignition switch from "LOCK" (OFF) position to "ON" position.
(3) Check if diagnosis code is set.

Q: Is the diagnosis code set?
YES : Replace the radio and CD player.
NO : An intermittent malfunction may be present. (Refer to GROUP 00 – How to Use Troubleshooting/Inspection Service Points - How to Cope with Intermittent Malfunction .)

STEP 5. Check whether the diagnosis code is reset.

Check again if the electric tailgate control unit sets a diagnosis code.
(1) Erase the diagnosis code.
(2) Turn the ignition switch from the LOCK (OFF) position to the ON position.
(3) Check if the diagnosis code is set.

Q: Is the diagnosis code set?
YES : Replace the electric tailgate control unit.
NO : An intermittent malfunction may be present. (Refer to GROUP 00 – How to Use Troubleshooting/Inspection Service Points - How to Cope with Intermittent Malfunction .)

Code No.U0168: KOS/WCM CAN Time-out

⚠ **CAUTION**

- **If diagnosis code No. U0168 is set, be sure to diagnose the CAN bus line.**
- **When replacing the ECU, always check that the communication circuit is normal.**

DIAGNOSTIC FUNCTION

If the signal from KOS-ECU cannot be received, the electric tailgate control unit sets diagnosis code No. U0168.

JUDGMENT CRITERIA

With the statuses that the ignition switch is at ON position, system voltage is 10 to 16 V (data from ETACS-ECU), and there is no malfunction to the power supply fuse, or odometer value is 80.5 km or more, if the communication with KOS-ECU cannot be established for 2,500 ms or more, the electric tailgate control unit determines that a problem has occurred.

PROBABLE CAUSES

- Malfunction of KOS-ECU
- Malfunction of the electric tailgate control unit
- Malfunction of CAN bus line

DIAGNOSIS PROCEDURE

STEP 1. M.U.T.-III CAN bus diagnostics

Use M.U.T.-III to diagnose the CAN bus lines.

Q: Is the check result normal?

YES : Go to Step 2.

NO : Repair the CAN bus lines. (Refer to GROUP 54C – Troubleshooting .)

STEP 2. M.U.T.-III diagnosis code for other systems

Check that KOS-ECU sets a diagnosis code.

Q: Is the diagnosis code set?

YES : Diagnose the KOS-ECU. (Refer to GROUP 42B – Diagnosis Code Chart .)

NO : Go to Step 3.

STEP 3. M.U.T.-III other system diagnosis code

Check if the diagnosis code No. U0168 is set to the OSS-ECU, SRS-ECU, combination meter, ETACS-ECU, MMCS, radio and CD player or A/C-ECU.

Q: Is the diagnosis code set?

YES : Go to Step 4.

NO : Go to Step 5.

STEP 4. Check whether the diagnosis code is reset.

Check again if the electric tailgate control unit sets a diagnosis code.

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

Q: Is the diagnosis code set?

YES : Replace the KOS-ECU.

NO : An intermittent malfunction may be present. (Refer to GROUP 00 – How to Use Troubleshooting/Inspection Service Points - How to Cope with Intermittent Malfunction .)

STEP 5. Check whether the diagnosis code is reset.

Check again if the electric tailgate control unit sets a diagnosis code.

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

Q: Is the diagnosis code set?

YES : Replace the electric tailgate control unit.

NO : An intermittent malfunction may be present. (Refer to GROUP 00 – How to Use Troubleshooting/Inspection Service Points - How to Cope with Intermittent Malfunction .)

Code No.U0184: AUDIO CAN Time-out

⚠ CAUTION

- **If diagnosis code No. U0184 is set, be sure to diagnose the CAN bus line.**
- **When replacing the ECU, always check that the communication circuit is normal.**

DIAGNOSTIC FUNCTION

If the signal from radio and CD player cannot be received, the electric tailgate control unit sets diagnosis code No. U0184.

JUDGMENT CRITERIA

With the statuses that the ignition switch is at ON position, system voltage is 10 to 16 V (data from ETACS-ECU), and there is no malfunction to the power supply fuse, or odometer value is 80.5 km or more, if the communication with radio and CD player cannot be established for 2,500 ms or more, the electric tailgate control unit determines that a problem has occurred.

PROBABLE CAUSES

- Malfunction of radio and CD player
- Malfunction of the electric tailgate control unit
- Malfunction of CAN bus line

DIAGNOSIS PROCEDURE

STEP 1. M.U.T.-III CAN bus diagnostics

Use M.U.T.-III to diagnose the CAN bus lines.

Q: Is the check result normal?

YES : Go to Step 2.

NO : Repair the CAN bus lines. (Refer to GROUP 54C – Troubleshooting .)

STEP 2. M.U.T.-III diagnosis code for other systems

Check that radio and CD player sets a diagnosis code.

Q: Is the diagnosis code set?

YES : Diagnose the radio and CD player. (Refer to GROUP 54A – Diagnosis Code Chart .)

NO : Go to Step 3.

STEP 3. M.U.T.-III other system diagnosis code

Check if the diagnosis code No. U0184 is set to the KOS-ECU, OSS-ECU, combination meter, ETACS-ECU or A/C-ECU.

Q: Is the diagnosis code set?

YES : Go to Step 4.

NO : Go to Step 5.

STEP 4. Check whether the diagnosis code is reset.

Check again if the electric tailgate control unit sets a diagnosis code.

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

Q: Is the diagnosis code set?

YES : Replace the radio and CD player.

NO : An intermittent malfunction may be present. (Refer to GROUP 00 – How to Use Troubleshooting/Inspection Service Points - How to Cope with Intermittent Malfunction .)

STEP 5. Check whether the diagnosis code is reset.

Check again if the electric tailgate control unit sets a diagnosis code.

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

Q: Is the diagnosis code set?

YES : Replace the electric tailgate control unit.

NO : An intermittent malfunction may be present. (Refer to GROUP 00 – How to Use Troubleshooting/Inspection Service Points - How to Cope with Intermittent Malfunction .)

Code No.U0245: AND CAN Time-out

⚠ **CAUTION**

- **If diagnosis code No. U0245 is set, be sure to diagnose the CAN bus line.**
- **When replacing the ECU, always check that the communication circuit is normal.**

DIAGNOSTIC FUNCTION

If the signal from MMCS cannot be received, the electric tailgate control unit sets diagnosis code No. U0184.

JUDGMENT CRITERIA

With the statuses that the ignition switch is at ON position, system voltage is 10 to 16 V (data from ETACS-ECU), and there is no malfunction to the power supply fuse, or odometer value is 80.5 km or more, if the communication with MMCS cannot be established for 2,500 ms or more, the electric tailgate control unit determines that a problem has occurred.

PROBABLE CAUSES

- Malfunction of MMCS
- Malfunction of the electric tailgate control unit
- Malfunction of CAN bus line

DIAGNOSIS PROCEDURE

STEP 1. M.U.T.-III CAN bus diagnostics

Use M.U.T.-III to diagnose the CAN bus lines.

Q: Is the check result normal?

YES : Go to Step 2.

NO : Repair the CAN bus lines. (Refer to GROUP 54C – Troubleshooting .)

STEP 2. M.U.T.-III diagnosis code for other systems

Check that MMCS sets a diagnosis code.

Q: Is the diagnosis code set?

YES : Diagnose the MMCS. (Refer to GROUP 54A – Diagnosis Code Chart .)

NO : Go to Step 3.

STEP 3. M.U.T.-III other system diagnosis code

Check if the diagnosis code No. U0245 is set to the KOS-ECU, OSS-ECU, combination meter, ETACS-ECU or A/C-ECU.

Q: Is the diagnosis code set?

YES : Go to Step 4.

NO : Go to Step 5.

STEP 4. Check whether the diagnosis code is reset.

Check again if the electric tailgate control unit sets a diagnosis code.

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

Q: Is the diagnosis code set?

YES : Replace the MMCS.

NO : An intermittent malfunction may be present. (Refer to GROUP 00 – How to Use Troubleshooting/Inspection Service Points - How to Cope with Intermittent Malfunction .)

STEP 5. Check whether the diagnosis code is reset.

Check again if the electric tailgate control unit sets a diagnosis code.

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

Q: Is the diagnosis code set?

YES : Replace the electric tailgate control unit.

NO : An intermittent malfunction may be present. (Refer to GROUP 00 – How to Use Troubleshooting/Inspection Service Points - How to Cope with Intermittent Malfunction .)

Code No.U1000: OSS CAN Time-out

⚠ **CAUTION**
- **If diagnosis code No. U1000 is set, be sure to diagnose the CAN bus line.**
- **When replacing the ECU, always check that the communication circuit is normal.**

DIAGNOSTIC FUNCTION
If the signal from OSS-ECU cannot be received, the electric tailgate control unit sets diagnosis code No. U1000.

JUDGMENT CRITERIA
With the statuses that the ignition switch is at ON position, system voltage is 10 to 16 V (data from ETACS-ECU), and there is no malfunction to the power supply fuse, or odometer value is 80.5 km or more, if the communication with OSS-ECU cannot be established for 2,500 ms or more, the electric tailgate control unit determines that a problem has occurred.

PROBABLE CAUSES
- Malfunction of OSS-ECU
- Malfunction of the electric tailgate control unit
- Malfunction of CAN bus line

DIAGNOSIS PROCEDURE

STEP 1. M.U.T.-III CAN bus diagnostics
Use M.U.T.-III to diagnose the CAN bus lines.

Q: Is the check result normal?
YES : Go to Step 2.
NO : Repair the CAN bus lines. (Refer to GROUP 54C – Troubleshooting .)

STEP 2. M.U.T.-III diagnosis code for other systems
Check that OSS-ECU sets a diagnosis code.

Q: Is the diagnosis code set?
YES : Diagnose the OSS-ECU. (Refer to GROUP 42B – Diagnosis Code Chart .)
NO : Go to Step 3.

STEP 3. M.U.T.-III other system diagnosis code
Check if the diagnosis code No. U1000 is set to the KOS-ECU, SRS-ECU, combination meter, ETACS-ECU, MMCS, radio and CD player or A/C-ECU.

Q: Is the diagnosis code set?
YES : Go to Step 4.
NO : Go to Step 5.

STEP 4. Check whether the diagnosis code is reset.
Check again if the electric tailgate control unit sets a diagnosis code.
(1) Erase the diagnosis code.
(2) Turn the ignition switch from "LOCK" (OFF) position to "ON" position.
(3) Check if diagnosis code is set.

Q: Is the diagnosis code set?
YES : Replace the OSS-ECU.
NO : An intermittent malfunction may be present. (Refer to GROUP 00 – How to Use Troubleshooting/Inspection Service Points - How to Cope with Intermittent Malfunction .)

STEP 5. Check whether the diagnosis code is reset.
Check again if the electric tailgate control unit sets a diagnosis code.
(1) Erase the diagnosis code.
(2) Turn the ignition switch from the LOCK (OFF) position to the ON position.
(3) Check if the diagnosis code is set.

Q: Is the diagnosis code set?
YES : Replace the electric tailgate control unit.
NO : An intermittent malfunction may be present. (Refer to GROUP 00 – How to Use Troubleshooting/Inspection Service Points - How to Cope with Intermittent Malfunction .)

Code No.U1190 No receive fault detect signal

⚠ CAUTION
- **Before replacing the ECU, ensure that the power supply circuit, the earth circuit and the communication circuit are normal.**
- **When the ETACS-ECU of vehicles without KOS is replaced, the encrypted code of the ignition key needs to be registered to the ETACS-ECU. (If the encrypted code is not registered, the engine cannot be started. Register the encrypted code as described in Immobilizer System – How to Register Key ID .)**

JUDGEMENT CRITERIA

ETACS-ECU sends the diagnosis code (U code) detection permission or prohibition signal to each ECU connected to the CAN bus line. If the electric tailgate control unit cannot receive the diagnosis code (U code) detection permission or prohibition signal for 5 seconds after turning the electric motor switch to ON position, diagnosis code U1190 will be set.

PROBABLE CAUSES

- Malfunction of the ETACS-ECU
- Malfunction of CAN bus line

DIAGNOSIS PROCEDURE

STEP 1. M.U.T.-III CAN bus diagnostics

Use the M.U.T.-III to diagnose the CAN bus lines.

Q: Is the check result normal?

YES : Go to Step 2

NO : Repair the CAN bus line (Refer to GROUP 54C – Troubleshooting). On completion, go to Step 3.

STEP 2. Check whether the diagnosis code is reset.

Check again if the diagnosis code is set to the electric tailgate control unit.

(1) Erase the diagnosis code.
(2) Turn the ignition motor switch from "LOCK" (OFF) position to "ON" position.
(3) On completion, check that the diagnosis code is reset.

Q: Is the diagnosis code set?

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

NO : The procedure is complete.

STEP 3. Check whether the diagnosis code is reset.

Recheck if the diagnosis code is set to the electric tailgate control unit.

(1) Erase the diagnosis code.
(2) Turn the ignition motor switch from "LOCK" (OFF) position to "ON" position.
(3) On completion, check that the diagnosis code is reset.

Q: Is the diagnosis code set?

YES : Return to Step 1.

NO : The procedure is complete.

Code No.U1195 Coding not completed

⚠ CAUTION
- **If the diagnosis code No. U1195 is set, diagnose the CAN bus lines.**
- **Before replacing the electric tailgate control unit, ensure that the power supply circuit, the earth circuit and the communication circuit are normal.**

DIAGNOSTIC FUNCTION

If the vehicle information data is not registered to the electric tailgate control unit, the electric tailgate control unit sets the diagnosis code No. U1195.

JUDGMENT CRITERIA

With the global coding counter value "0," if all the global coding data (vehicle information) are not stored, the electric tailgate control unit determines that a problem has occurred.

PROBABLE CAUSES

- Malfunction of CAN bus line
- Malfunction of electric tailgate control unit
- Malfunction of the ETACS-ECU

DIAGNOSIS PROCEDURE

STEP 1. M.U.T.-III CAN bus diagnostics
Use the M.U.T.-III to diagnose the CAN bus lines.

Q: Is the check result normal?
YES : Go to Step 2.
NO : Repair the CAN bus line (Refer to GROUP 54C – Troubleshooting).

STEP 2. M.U.T.-III other system diagnosis code
Check if diagnosis code is set to the ETACS-ECU.

Q: Is the diagnosis code set?
YES : Troubleshoot the ETACS-ECU. (Refer to GROUP 54A – Troubleshooting).
NO : Go to Step 3.

STEP 3. Check whether the diagnosis code is reset.
Check again if the diagnosis code is set to the electric tailgate control unit.
(1) Erase the diagnosis code.
(2) Turn the ignition switch from "LOCK" (OFF) position to "ON" position.
(3) Check if diagnosis code is set.

Q: Is the diagnosis code set?
YES : Replace the electric tailgate control unit.
NO : The trouble can be an intermittent malfunction (Refer to GROUP 00 – How to use Troubleshooting/inspection Service Points – How to Cope with Intermittent Malfunction).

DATA LIST REFERENCE TABLE

M1424007200054

Item No.	Check items	Display on M.U.T.-III	Check conditions	Normal conditions
1	Electric tailgate main switch	Main switch	Electric tailgate main switch: OFF	OFF
			Electric tailgate main switch: ON	ON
2	Electric tailgate switch	Remote SW at driver's seat	Electric tailgate switch: OFF	OFF
			Electric tailgate switch: ON	ON
3	Tailgate lock release handle	Gate handle switch	Tailgate lock release handle: OFF	OFF
			Tailgate lock release handle: ON	ON
4	Electric tailgate close switch	Close switch	Electric tailgate close switch: OFF	OFF
			Electric tailgate close switch: ON	ON
5	Tailgate latch	Half latch switch	Tailgate: Open	OFF
			Tailgate: Close	ON
6		Full latch switch	Tailgate: Other than overrun position	OFF
			Tailgate: Overrun position	ON
7		Half door switch	Tailgate: Open	OFF
			Tailgate: Fully close	ON
8		Neutral switch	Tailgate: During release operation	OFF
			Tailgate: During fully close operation	ON

Item No.	Check items	Display on M.U.T.-III	Check conditions	Normal conditions
9	Tailgate sensor left side	Touch sensor (Left)	Tailgate sensor left side: OFF	OFF
			Tailgate sensor left side: ON	ON
			Tailgate sensor left side: OFF	Open circuit
10	Tailgate sensor right side	Touch sensor (Right)	Tailgate sensor right side: OFF	OFF
			Tailgate sensor right side: ON	ON
			Tailgate sensor right side: OFF	Open circuit
11	Ignition switch	IG SW	Ignition switch: LOCK	OFF
			Ignition switch: Other than LOCK	ON
12	Electric tailgate control unit	ECU power supply voltage	–	System voltage
13	Ignition switch	IG SW (CAN input)	Ignition switch: LOCK	Lock
			Ignition switch: ACC	OFF/ACC
			Ignition switch: ON	ON
			Ignition switch: START	Start
14	Select lever position	A/T lever position (CAN input)	Select lever position: P (Parking)	P
			Select lever position: R (Reverse)	R
			Select lever position: N (Neutral)	N
			Select lever position: D (Drive)	D
15	Central door locking system	Central door lock (CAN input)	Central door locking system: Lock	Lock
			Central door locking system: Unlock	Unlock
17	Key reminder switch	Key in ignition state (CAN data)	Emergency key not inserted to ignition switch	Out
			Emergency key inserted to ignition switch	In
18	Engine start function of keyless operation system	KOS engine start (CAN input)	Keyless operation key not present inside vehicle	Disable
			Keyless operation key present inside vehicle	Enable
19	Combination meter	Vehicle speed (CAN data)	M.U.T.-III display and meter display are the same	0 to 200 km/h

Item No.	Check items	Display on M.U.T.-III	Check conditions	Normal conditions
20	Tailgate motor assembly	Drive motor	Tailgate: Fully open position or fully close position	Not active
			Tailgate: During automatic open operation	Open direction
			Tailgate: During automatic close operation	Close direction
21	Tailgate latch	Power latch motor	Tailgate: Fully close position	Not active
			Tailgate: Open position → Door-ajar position	Open direction
			Tailgate: Door-ajar position → Fully close position	Close direction
22	Tailgate control unit (built-in buzzer)	Alarm buzzer	Buzzer: Stop	OFF
			Buzzer: Sounding	ON
23	Tailgate motor assembly	Drive motor control duty	Tailgate: During automatic open/close operation	100%
24	Tailgate motor assembly	Drive motor revolution	Tailgate: During automatic open/close operation	0 – 655 rpm
25	Tailgate position	Gate position	Tailgate: During automatic open/close operation	0 – 65535 pulse edge
26	Tailgate motor assembly	Electromagnetic clutch duty	Tailgate: During open/close operation	100%
28	Tailgate motor assembly	Drive motor (CAN output)	Tailgate: Fully open position or fully close position	Not active
			Tailgate: During automatic open operation	Open direction
			Tailgate: During automatic close operation	Close direction
29	Tailgate latch	Power latch motor (CAN output)	Tailgate: Fully close position	Not active
			Tailgate: Fully close position → Door-ajar position	Open direction
			Tailgate: Door-ajar position → Fully close position	Close direction
30	Electric tailgate control unit	Brake pedal switch (CAN input)	Brake pedal switch: OFF	OFF
			Brake pedal switch: ON	ON
31	Electric tailgate control unit	Parking brake switch (CAN input)	Parking brake switch: OFF	OFF
			Parking brake switch: ON	ON
32	Electric tailgate control unit	System BATT. voltage (CAN input)	–	System voltage

ACTUATOR TEST TABLE

M1424007300039

Item No.	Check items	Driven component
1	Drive motor	Forcibly drive the electric tailgate motor assembly.
2	Electromagnetic clutch	Forcibly drive the electromagnetic clutch of electric tailgate motor assembly.
3	Power latch motor (latch open)	Forcibly drive the tailgate latch.
4	Alarm buzzer	Forcibly sound the buzzer.
5	Hazard answer back request	Forcibly illuminate the hazard answerback.

TROUBLE SYMPTOM CHART

M1424005600089

⚠ 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, confirm all systems for diagnosis code(s). If diagnosis code(s) are set, erase them all.

Trouble symptom	Inspection procedure number	Reference page
Power supply circuit system abnormality of electric tailgate control unit.	A-1	P.42A-94
Electric tailgate automatic operation and easy closer system do not work normally.	A-2	P.42A-95
The electric tailgate automatic operation does not work normally (both the open operation and close operation do not work).	A-3	P.42A-96
Electric tailgate automatic operation (close) does not work normally.	A-4	P.42A-97
Electric tailgate automatic operation (open) does not work normally.	A-5	P.42A-98
Electric tailgate automatic operation does not work normally by the operation of electric tailgate close switch (only the close of automatic operation).	A-6	P.42A-99
Electric tailgate automatic operation does not work normally by the operation of keyless operation key (for both open and close operations).	A-7	P.42A-100
Electric tailgate automatic operation does not work normally by the operation of tailgate lock release handle (only the open of automatic operation).	A-8	P.42A-100
Electric tailgate automatic operation does not work normally by the operation of electric tailgate switch (for both open and close operations).	A-9	P.42A-101
Easy closer system and electric tailgate automatic operation (open) work with the door locked.	A-10	P.42A-101
Alarm does not sound normally when electric tailgate works automatically.	A-11	P.42A-102
Electric tailgate becomes as door-ajar.	A-12	P.42A-103

SYMPTOM PROCEDURES

Inspection Procedure A-1: Power supply circuit system abnormality of electric tailgate control unit.

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

COMMENTS ON TROUBLE SYMPTOM

If the electric tailgate control unit functions do not work at all, the electric tailgate control unit power supply system, earth system, or electric tailgate control unit may have a problem.

PROBABLE CAUSES

- Damaged wiring harness and connectors
- Malfunction of the electric tailgate control unit

DIAGNOSIS PROCEDURE

STEP 1. Resistance measurement at electric tailgate control unit connector.

(1) Disconnect the connector, and measure at the wiring harness side.
(2) Measure the resistance between electric tailgate control unit connecter and body earth.

OK: Continuity exists (2 Ω or less)

Q: Is the check result normal?
YES : Go to Step 3.
NO : Go to Step 2.

STEP 2. Check of open circuit in GND1 line between electric tailgate control unit connector and body earth.

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 .)
NO : Repair the connector(s) or wiring harness.

STEP 3. Voltage measurement at electric tailgate control unit connector (BAT2 and IG12 terminal).

(1) Disconnect the connector, and measure at the wiring harness side.
(2) Measure the voltage between electric tailgate control unit connecter (BAT2 terminal) and body earth.

OK: System voltage

(3) Measure the voltage between electric tailgate control unit connecter (IG12 terminal) and body earth.

OK: System voltage (when ignition switch is ON)

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

STEP 4. Check of open circuit in BAT2 and IG12 line between electric tailgate control unit connector and fusible link and OSS-ECU (IG1).

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 .)
NO : Repair the connector(s) or wiring harness.

STEP 5. Voltage measurement at electric tailgate control unit connector (BAT1 terminal).

(1) Disconnect the connector, and measure at the wiring harness side.
(2) Measure the voltage between electric tailgate control unit connecter (BAT1 terminal) and body earth.

OK: System voltage

Q: Is the check result normal?
YES : Go to Step 7.
NO : Go to Step 6.

STEP 6. Check of open circuit in BAT1 line between electric tailgate control unit connector and fusible link.

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 .)
NO : Repair the connector(s) or wiring harness.

STEP 7. System retest

Check that the electric tailgate control unit function works normally.

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 .)
NO : Replace the electric tailgate control unit.

Inspection Procedure A-2: Electric tailgate automatic operation and easy closer system do not work normally.

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

COMMENTS ON TROUBLE SYMPTOM

The wiring harness or its connector(s) between the ETACS-ECU and the electric tailgate control unit, the ETACS-ECU itself or the electric tailgate control unit itself may be defective.

PROBABLE CAUSES

- Malfunction of ETACS-ECU
- Damaged electric tailgate control unit
- Damaged wiring harness and connectors

DIAGNOSIS PROCEDURE

STEP 1. Keyless entry system operation check.
Check that the door lock/unlock is performed when the keyless operation key is operated.

Q: Is the check result normal?
YES : Go to Step 2.
NO : Refer to GROUP 42B – Trouble Symptom Chart .

STEP 2. M.U.T.-III CAN bus diagnostics
Use M.U.T.-III to diagnose the CAN bus lines.

Q: Is the CAN bus normal?
YES : Go to Step 3.
NO : Repair the CAN bus line. (Refer to GROUP 54C – CAN Bus Line Trouble Symptom Chart .)

STEP 3. M.U.T.-III diagnosis code
Check that ETACS-ECU sets a diagnosis code.

Q: Is the diagnosis code set?
YES : Refer to GROUP 54A – Diagnosis Code Chart .
NO : Go to Step 4.

STEP 4. M.U.T.-III diagnosis code
(1) Operate the electric tailgate.
(2) Check whether a diagnosis code is set in the electric tailgate control unit.

Q: Is the diagnosis code set?
YES : Refer to diagnosis code chart P.42A-77.
NO : Go to Step 5.

STEP 5. M.U.T.-III data list
Check the signals related to the electric tailgate operation.
- Turn the ignition switch to the LOCK (OFF) position.

Item No.	Item name	Normal conditions
Item 12	ECU power supply voltage	System voltage

OK: Normal conditions are displayed for all the items.

Q: Is the check result normal?
YES : Go to Step 6.
NO : Refer to Inspection Procedure A-1 "Power supply voltage abnormality of electric tailgate control unit" P.42A-94.

STEP 6. System retest
Check that the electric tailgate and the easy closer system work normally.

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 .)
NO : Replace the electric tailgate control unit.

Inspection Procedure A-3: The electric tailgate automatic operation does not work normally (.both the open operation and close operation do not work).

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

COMMENTS ON TROUBLE SYMPTOM

Component other than Mitsubishi genuine parts or accessories is fitted on the tailgate. The quarter trim interferes with the electric tailgate motor arm. There may also be a malfunction in one of the followings; the tailgate gas spring, the door-ajar switch system, the electric tailgate main switch system, the tailgate sensor system, the wiring harness or its connector(s) between the battery and the electric tailgate control unit, the wiring harness or its connector(s) between the electric tailgate control unit and body earth, the electric tailgate motor itself or the electric tailgate control unit itself.

PROBABLE CAUSES

- A component other than Mitsubishi genuine parts or accessories is fitted on the tailgate.
- The quarter trim interferes with the electric tailgate motor arm.
- Door-ajar switch system failed
- Electric tailgate main switch system malfunction
- Tailgate sensor system malfunction
- Damaged tailgate gas spring
- Damaged electric tailgate motor
- Damaged electric tailgate control unit
- Damaged wiring harness and connectors

DIAGNOSIS PROCEDURE

STEP 1. Parts installation check of tailgate
Check whether a component other than Mitsubishi genuine parts or accessories is fitted on the tailgate.

Q: Is the check result normal?
YES : Go to Step 2.
NO : Remove the components other than Mitsubishi genuine parts or accessories.

STEP 2. Tailgate gas spring check
Visually check the tailgate gas spring for damage. Also, check the manual operation for any problems such as the operation is too light or too heavy.

Q: Is the check result normal?
YES : Go to Step 3.
NO : Replace the tailgate gas spring.

STEP 3. Interference inspection: quarter trim and electric tailgate motor arm
Check whether the quarter trim interferes with the electric tailgate motor arm.

Q: Is the check result normal?
YES : Go to Step 4.
NO : Install the electric tailgate control unit or the quarter trim securely.

STEP 4. M.U.T.-III data list
Check the signals related to the electric tailgate operation.

- Electric tailgate main switch: OFF → ON
- Door-ajar switch: OFF → ON
- Tailgate sensor LH: OFF → ON
- Tailgate sensor RH: OFF → ON

Item No.	Item name	Normal conditions
Item 1	Main switch	OFF → ON
Item 7	Half door switch	OFF → ON
Item 9	Touch sensor (left)	OFF → ON
Item 10	Touch sensor (right)	OFF → ON
Item 12	ECU power supply voltage	System voltage

OK: Normal conditions are displayed for all the items.

Q: Is the check result normal?
All are normal. : Go to Step 5.
Normal condition is not displayed for item No. 1. : Refer to Inspection Procedure B-1 "Electric tailgate main switch signal is not received" P.42A-104.
Normal condition is not displayed for item No. 7. : Refer to Inspection Procedure B-4 "Door-ajar switch signal is not received" P.42A-107.
Normal condition is not displayed for item 9 and 10. : Refer to Inspection Procedure B-7 "Tailgate sensor signal is not received" P.42A-110.
Normal condition is not displayed for item No. 12. : Refer to Inspection Procedure A-1 "Power supply voltage abnormality of electric tailgate control unit" P.42A-94.

STEP 5. System retest
Check whether the electric tailgate works normally.

Q: Is the check result normal?

YES : Intermittent malfunction (Refer to GROUP 00 – How to Cope with Intermittent Malfunction .)
NO : Replace the electric tailgate control unit.

Inspection Procedure A-4: Electric tailgate automatic operation (close) does not work normally.

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

COMMENTS ON TROUBLE SYMPTOM

Component other than Mitsubishi genuine parts or accessories is fitted on the tailgate. The quarter trim interferes with the electric tailgate motor arm. There may also be a malfunction in one of the followings; the improperly installed weatherstrip, the tailgate gas spring, the half latch switch system, the neutral switch system or the electric tailgate control unit itself.

PROBABLE CAUSES

- A component other than Mitsubishi genuine parts or accessories is fitted on the tailgate.
- The quarter trim interferes with the electric tailgate motor arm.
- Improperly installed weatherstrip
- Half latch switch system failed
- Neutral latch switch system failed
- Damaged tailgate gas spring
- Damaged electric tailgate control unit
- Damaged wiring harness and connectors

DIAGNOSIS PROCEDURE

STEP 1. Check of electric tailgate control unit learning
When the electric tailgate control unit is replaced, battery is replaced, or fuse is replaced with the tailgate open, the learning of electric tailgate control unit must be performed. With the electric tailgate control unit learning, manually fully close the tailgate that is open.

Q: Is a replacement of electric tailgate control unit, battery, or fuse with tailgate open performed?

YES : Manually fully close the tailgate that is open. Go to Step 7.
NO : Go to Step 2.

STEP 2. Parts installation check of tailgate
Check whether a component other than Mitsubishi genuine parts or accessories is fitted on the tailgate.

Q: Is the check result normal?
YES : Go to Step 3.
NO : Remove the components other than Mitsubishi genuine parts or accessories.

STEP 3. Tailgate gas spring check
Visually check the tailgate gas spring for damage. Also check whether its operation is too smooth or too heavy.

Q: Is the check result normal?
YES : Go to Step 4.
NO : Replace the tailgate gas spring.

STEP 4. Interference inspection: quarter trim and electric tailgate motor arm
Check whether the quarter trim interferes with the electric tailgate motor arm.

Q: Is the check result normal?
YES : Go to Step 5.
NO : Install the electric tailgate control unit or the quarter trim securely.

STEP 5. Weatherstrip installation check
Is the weatherstrip installed properly? Also check whether the weatherstrip is loose.

Q: Is the check result normal?
YES : Go to Step 6.
NO : Install the weatherstrip securely.

STEP 6. M.U.T.-III data list

Check the signals related to the electric tailgate operation.

- Half latch switch: OFF → ON
- Neutral switch: OFF → ON

Item No.	Item name	Normal conditions
Item 5	Half-latch SW	OFF → ON
Item 8	Neutral SW	OFF → ON

OK: Normal conditions are displayed for all the items.

Q: Is the check result normal?

All are normal. : Go to Step 7.

Normal condition is not displayed for item No. 5. : Refer to Inspection Procedure B-6 "Half latch switch signal is not received" P.42A-108.

Normal condition is not displayed for item No. 8. : Refer to Inspection Procedure B-5 "Neutral switch signal is not received" P.42A-108.

STEP 7. System retest

Check whether the electric tailgate works normally.

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 .)

NO : Replace the electric tailgate control unit.

Inspection Procedure A-5: Electric tailgate automatic operation (open) does not work normally.

⚠ CAUTION

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

COMMENTS ON TROUBLE SYMPTOM

Component other than Mitsubishi genuine parts or accessories is fitted on the tailgate. The quarter trim interferes with the electric tailgate motor arm. There may also be a malfunction in one of the followings; the tailgate gas spring, the door-ajar switch system, the electric tailgate main switch system, or the electric tailgate control unit itself.

PROBABLE CAUSES

- A component other than Mitsubishi genuine parts or accessories is fitted on the tailgate.
- The quarter trim interferes with the electric tailgate motor arm.
- Door-ajar switch system failed
- Electric tailgate main switch system malfunction
- Damaged tailgate gas spring
- Damaged electric tailgate control unit
- Damaged wiring harness and connectors

DIAGNOSIS PROCEDURE

STEP 1. Parts installation check of tailgate

Check whether a component other than Mitsubishi genuine parts or accessories is fitted on the tailgate.

Q: Is the check result normal?

YES : Go to Step 2.

NO : Remove the components other than Mitsubishi genuine parts or accessories.

STEP 2. Tailgate gas spring check

Visually check the tailgate gas spring for damage. Also check whether its operation is too smooth or too heavy.

Q: Is the check result normal?

YES : Go to Step 3.

NO : Replace the tailgate gas spring.

STEP 3. Interference inspection: quarter trim and electric tailgate motor arm

Check whether the quarter trim interferes with the electric tailgate motor arm.

Q: Is the check result normal?

YES : Go to Step 4.

NO : Install the electric tailgate control unit or the quarter trim securely.

STEP 4. M.U.T.-III data list

Check the signals related to the electric tailgate operation.

- Electric tailgate main switch: OFF → ON
- Door-ajar switch: OFF → ON

Item No.	Item name	Normal conditions
Item 1	Main switch	OFF → ON
Item 7	Half door switch	OFF → ON

OK: Normal conditions are displayed for all the items.

Q: Is the check result normal?

All are normal. : Go to Step 5.

Normal condition is not displayed for item No. 1. : Refer to Inspection Procedure B-1 "Electric tailgate main switch signal is not received" P.42A-104.

Normal condition is not displayed for item No. 7. : Refer to Inspection Procedure B-4 "Door-ajar switch signal is not received" P.42A-107.

STEP 5. System retest

Check whether the electric tailgate works normally.

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 .)

NO : Replace the electric tailgate control unit.

Inspection Procedure A-6: Electric tailgate automatic operation does not work normally by the operation of electric tailgate close switch (only the close of automatic operation).

⚠ CAUTION

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

COMMENTS ON TROUBLE SYMPTOM

The electric tailgate close switch system or the electric tailgate control unit may have a problem.

PROBABLE CAUSES

- Electric tailgate close switch system failed
- Damaged electric tailgate control unit
- Damaged wiring harness and connectors

DIAGNOSIS PROCEDURE

STEP 1. M.U.T.-III data list

Check the signals related to the electric tailgate operation.

- Electric tailgate close switch: OFF → ON

Item No.	Item name	Normal conditions
Item 4	Close SW	OFF → ON

OK: Normal conditions are displayed for all the items.

Q: Is the check result normal?

YES : Go to Step 2.

NO : Refer to Inspection Procedure B-2 "Electric tailgate close switch signal is not received" P.42A-105.

STEP 2. System retest

Check whether the electric tailgate works normally.

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 .)

NO : Replace the electric tailgate control unit.

Inspection Procedure A-7: Electric tailgate automatic operation does not work normally by the operation of keyless operation key (for both open and close operations).

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

COMMENTS ON TROUBLE SYMPTOM

The keyless operation key or the electric tailgate control unit may be defective.

PROBABLE CAUSES

- Malfunction of keyless operation key
- Damaged electric tailgate control unit

DIAGNOSIS PROCEDURE

STEP 1. Keyless entry system operation check
Check that the door lock/unlock is performed when the keyless operation key is operated.

Q: Is the check result normal?
YES : Go to Step 2.
NO : Refer to GROUP 42B – Trouble Symptom Chart .

STEP 2. M.U.T.-III CAN bus diagnostics
Use M.U.T.-III to diagnose the CAN bus lines.

Q: Is the CAN bus normal?
YES : Go to Step 3.
NO : Repair the CAN bus line. (Refer to GROUP 54C – CAN Bus Line Trouble Symptom Chart .)

STEP 3. M.U.T.-III diagnosis code
Check that ETACS-ECU sets a diagnosis code.

Q: Is the diagnosis code set?
YES : Refer to GROUP 54A – Diagnosis Code Chart .
NO : Go to Step 4.

STEP 4: System retest using the normal keyless operation key
(1) Register the keyless operation key which operates the electric tailgate normally.
(2) Check whether the electric tailgate works normally.

Q: Is the check result normal?
YES : Replace the keyless operation key.
NO : Go to Step 5.

STEP 5. System retest
Check whether the electric tailgate works normally.

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 .)
NO : Replace the electric tailgate control unit.

Inspection Procedure A-8: Electric tailgate automatic operation does not work normally by the operation of tailgate lock release handle (only the open of automatic operation).

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

COMMENTS ON TROUBLE SYMPTOM

The tailgate lock release handle or the electric tailgate control unit may be defective.

PROBABLE CAUSES

- Tailgate lock release handle system failed
- Damaged electric tailgate control unit

DIAGNOSIS PROCEDURE

STEP 1. M.U.T.-III data list
Check the signals related to the electric tailgate operation.
- Tailgate lock release handle: OFF → ON

Item No.	Item name	Normal conditions
Item 3	Gate handle SW	OFF → ON

OK: Normal conditions are displayed for all the items.

Q: Is the check result normal?

YES : Go to Step 2.
NO : Refer to Inspection Procedure B-3 "Tailgate lock release handle signal is not received" P.42A-106.

STEP 2. System retest
Check that the tailgate opens normally with the operation of tailgate lock release handle.

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 .)
NO : Replace the electric tailgate control unit.

Inspection Procedure A-9: Electric tailgate automatic operation does not work normally by the operation of electric tailgate switch. (Open/close operation is not performed.)

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

COMMENTS ON TROUBLE SYMPTOM
The electric tailgate switch system or the electric tailgate control unit may have a problem.

PROBABLE CAUSES
- Malfunction of electric tailgate switch system
- Damaged electric tailgate control unit
- Damaged wiring harness and connectors

DIAGNOSIS PROCEDURE

STEP 1. M.U.T.-III data list
Check the signals related to the electric tailgate operation.
- Electric tailgate switch: OFF → ON

Item No.	Item name	Normal conditions
Item 2	Driver's door remote control SW	OFF → ON

OK: Normal conditions are displayed for all the items.

Q: Is the check result normal?

YES : Go to Step 2.
NO : Refer to Inspection Procedure B-8 "Electric tailgate switch signal is not received" P.42A-111.

STEP 2. System retest
Check whether the electric tailgate works normally.

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 .)
NO : Replace the electric tailgate control unit.

Inspection Procedure A-10: Easy closer system and electric tailgate automatic operation (open) work with the door locked.

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

COMMENTS ON TROUBLE SYMPTOM
The central door locking or the electric tailgate control unit may have a problem.

PROBABLE CAUSES
- Malfunction of central door locking
- Damaged electric tailgate control unit

DIAGNOSIS PROCEDURE

STEP 1. Check the operation of the central door locking system.
Check that the doors can be locked and unlocked normally when the door lock key cylinder or the door lock inside knob is operated.

Q: Is the check result normal?
YES : Go to Step 2.
NO : Refer to Trouble Symptom Chart P.42A-26.

STEP 2. M.U.T.-III CAN bus diagnostics
Use M.U.T.-III to diagnose the CAN bus lines.

Q: Is the CAN bus normal?
YES : Go to Step 3.
NO : Repair the CAN bus line. (Refer to GROUP 54C – CAN Bus Line Trouble Symptom Chart .)

STEP 3. M.U.T.-III diagnosis code
Check that ETACS-ECU sets a diagnosis code.

Q: Is the diagnosis code set?
YES : Refer to GROUP 54A – Diagnosis Code Chart .
NO : Go to Step 4.

STEP 4. System retest
Check that the automatic operations of easy closer system and electric tailgate work normally.

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 .)
NO : Replace the electric tailgate control unit.

Inspection Procedure A-11: Alarm does not sound normally when electric tailgate works automatically.

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

COMMENTS ON TROUBLE SYMPTOM

The wiring harness or its connector(s) between the electric tailgate buzzer and the electric tailgate control unit, the electric tailgate buzzer itself or the electric tailgate control unit itself may be defective.

PROBABLE CAUSES

- Damaged electric tailgate buzzer
- Damaged electric tailgate control unit
- Damaged wiring harness and connectors

DIAGNOSIS PROCEDURE

STEP 1. M.U.T.-III actuator test
Perform the actuator test, and check that the electric tailgate buzzer sounds.
- Item 4: Warning buzzer

Q: Is the check result normal?
YES : Go to Step 6.
NO : Go to Step 2.

STEP 2. Electric tailgate buzzer inspection
Check the electric tailgate buzzer. Refer to P.42A-119.

Q: Is the check result normal?
YES : Go to Step 3.
NO : Replace the electric tailgate buzzer.

STEP 3. Resistance measurement at electric tailgate buzzer connector
(1) Disconnect the connector, and measure at the wiring harness side.
(2) Measure the resistance between buzzer connector and body earth.

OK: 10 Ω or less

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

STEP 4. Check of open circuit in earth line between electric tailgate buzzer connector and body earth.

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 .)
NO : Repair the connector(s) or wiring harness.

STEP 5. Check of short to power supply, short to earth, and open circuit in BZ+ line between electric tailgate control unit connector and electric tailgate buzzer connector.

Q: Is the check result normal?
YES : Go to Step 6.
NO : Repair the connector(s) or wiring harness.

STEP 6. System retest
Check whether the warning operates normally when the electric tailgate is operated.

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 .)
NO : Replace the electric tailgate control unit.

Inspection Procedure A-12: Electric tailgate becomes as door-ajar.

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

COMMENTS ON TROUBLE SYMPTOM
With the electric tailgate, when the door-ajar status is reached before the closing of tailgate, the easy closer system is activated, and the tailgate is fully closed automatically. If an abnormality is present to the easy closer system, check the switches. When no abnormality is present to the switches, check the use method of tailgate. (When the tailgate lock release handle is operated manually, and if the tailgate is left as is without being opened, a door-ajar status may occur. Therefore, be sure not to leave the tailgate in the middle of operation.)

PROBABLE CAUSES
- Malfunction of the tailgate lock release handle
- Door-ajar switch system failed
- Neutral latch switch system failed
- Half latch switch system failed
- Full latch switch system malfunction
- Tailgate sensor malfunction
- Incorrect operation of tailgate lock release handle

DIAGNOSIS PROCEDURE

STEP 1. M.U.T.-III diagnosis code
(1) Operate the electric tailgate.
(2) Check whether a diagnosis code is set in the electric tailgate control unit.

Q: Is the check result normal?
YES : Go to Step 2.
NO : Refer to diagnosis code chart P.42A-77.

STEP 2. M.U.T.-III data list
Check the signals related to the electric tailgate operation.
- Tailgate lock release handle: OFF → ON
- Half latch switch: OFF → ON
- Full latch switch: OFF → ON
- Door-ajar switch: OFF → ON
- Neutral switch: OFF → ON
- Tailgate sensor LH: OFF → ON
- Tailgate sensor RH: OFF → ON

Item No.	Item name	Normal conditions
Item 3	Gate handle SW	OFF → ON
Item 5	Half-latch SW	OFF → ON
Item 6	Full-latch SW	OFF → ON
Item 7	Half door switch	OFF → ON
Item 8	Neutral SW	OFF → ON
Item 9	Touch sensor (left)	OFF → ON
Item 10	Touch sensor (right)	OFF → ON

OK: Normal conditions are displayed for all the items.

Q: Is the check result normal?

All are normal. : When the tailgate lock release handle is operated manually, and if the tailgate is left as is without being opened, a door-ajar status may occur. Therefore, be sure not to leave the tailgate in the middle of operation. Go to Step 3.

Normal condition is not displayed for item No. 3. : Refer to Inspection Procedure B-3 "Tailgate lock release handle signal is not received" P.42A-106.

Normal condition is not displayed for item 5 and 6. : Refer to Inspection Procedure B-6 "Half latch switch and/or full latch switch signals are not received" P.42A-108.

Normal condition is not displayed for item No. 7. : Refer to Inspection Procedure B-4 "Door-ajar switch signal is not received" P.42A-107.

Normal condition is not displayed for item No. 8. : Refer to Inspection Procedure B-5 "Neutral switch signal is not received" P.42A-108.

Normal condition is not displayed for item 9 and 10. : Refer to Inspection Procedure B-7 "Tailgate sensor signal is not received" P.42A-110.

STEP 3. System retest

Check whether the electric tailgate works normally.

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 .)

NO : Replace the electric tailgate control unit.

INPUT SIGNAL CHART

M1424007400058

Trouble symptom	Inspection procedure number	Reference page
Electric tailgate main switch signal is not received.	B-1	P.42A-104
Electric tailgate close switch signal is not received.	B-2	P.42A-105
Tailgate lock release handle signal is not received.	B-3	P.42A-106
Door-ajar signal is not received.	B-4	P.42A-107
Neutral switch signal is not received.	B-5	P.42A-108
Half latch switch and/or full latch switch signals are not received.	B-6	P.42A-108
Tailgate sensor signal is not received.	B-7	P.42A-110
Electric tailgate switch signal is not received.	B-8	P.42A-111

INPUT SIGNAL PROCEDURES

Inspection Procedure B-1: Electric tailgate main switch signal is not received.

⚠ CAUTION

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

COMMENTS ON TROUBLE SYMPTOM

The wiring harness or its connector(s) between the electric tailgate control unit and the electric tailgate main switch, the electric tailgate main switch itself, or the electric tailgate control unit itself may have a problem.

PROBABLE CAUSES

- Electric tailgate main switch malfunction
- Damaged electric tailgate control unit
- Damaged wiring harness and connectors

DIAGNOSIS PROCEDURE

STEP 1. Electric tailgate main switch check
Check the electric tailgate main switch (refer to P.42A-119).

Q: Is the check result normal?
YES : Go to Step 2.
NO : Replace the electric tailgate main switch.

STEP 2. Resistance measurement at electric tailgate main switch connector (earth line terminal).
(1) Disconnect the connector, and measure at the wiring harness side.
(2) Measure the resistance between electric tailgate main switch connector (earth line terminal) and body earth.

OK: Continuity exists (2 Ω or less)

Q: Is the check result normal?
YES : Go to Step 4.
NO : Go to Step 3.

STEP 3. Check of open circuit in earth line between electric tailgate main switch connector and body earth.

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 .)
NO : Repair the connector(s) or wiring harness.

STEP 4. Check of open circuit in MASW line between electric tailgate control unit connector and electric tailgate main switch connector.

Q: Is the check result normal?
YES : Go to Step 5.
NO : Repair the connector(s) or wiring harness.

STEP 5. System retest
Check that the electric tailgate main switch signal is received normally.

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 .)
NO : Replace the electric tailgate control unit.

Inspection Procedure B-2: Electric tailgate close switch signal is not received.

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

COMMENTS ON TROUBLE SYMPTOM

The wiring harness or its connector(s) between the electric tailgate close switch and the electric tailgate control unit, the electric tailgate close switch itself or the electric tailgate control unit itself may be defective.

PROBABLE CAUSES

- Damaged electric tailgate close switch
- Damaged electric tailgate control unit
- Damaged wiring harness and connectors

DIAGNOSIS PROCEDURE

STEP 1. Electric tailgate close switch inspection
Check the electric tailgate close switch (refer to P.42A-119).

Q: Is the check result normal?
YES : Go to Step 2.
NO : Replace the electric tailgate close switch.

STEP 2. Resistance measurement at electric tailgate close switch connector (earth line terminal).
(1) Disconnect the connector, and measure at the wiring harness side.
(2) Measure the resistance between electric tailgate close switch connector (earth line terminal) and body earth.

OK: Continuity exists (2 Ω or less)

Q: Is the check result normal?

YES : Go to Step 4.
NO : Go to Step 3.

STEP 3. Check of open circuit in earth line between electric tailgate close switch connector and body earth.

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 .)
NO : Repair the connector(s) or wiring harness.

STEP 4. Check of open circuit in GCLS line between electric tailgate control unit connector and electric tailgate close switch connector.

Q: Is the check result normal?
YES : Go to Step 5.
NO : Repair the connector(s) or wiring harness.

STEP 5. System retest
Check whether the electric tailgate close switch signal is received normally.

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 .)
NO : Replace the electric tailgate control unit.

Inspection Procedure B-3: Tailgate lock release handle signal is not received.

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

COMMENTS ON TROUBLE SYMPTOM

The wiring harness or its connector(s) between the tailgate lock release handle and the electric tailgate control unit, the tailgate lock release handle itself or the electric tailgate control unit itself may be defective.

PROBABLE CAUSES

- Damaged tailgate lock release handle
- Damaged electric tailgate control unit
- Damaged wiring harness and connectors

DIAGNOSIS PROCEDURE

STEP 1. Tailgate lock release handle check.
Check the tailgate lock release handle (refer toP.42A-119).

Q: Is the check result normal?
YES : Go to Step 2.
NO : Replace the tailgate lock release handle.

STEP 2. Resistance measurement at tailgate lock release handle connector (earth line terminal).
(1) Disconnect the connector, and measure at the wiring harness side.
(2) Measure the resistance between tailgate lock release handle connector (earth line terminal) and body earth.

OK: Continuity exists (2 Ω or less).

Q: Is the check result normal?
YES : Go to Step 4.
NO : Go to Step 3.

STEP 3. Check of open circuit in earth line between tailgate lock release handle connector and body earth.

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 .)
NO : Repair the connector(s) or wiring harness.

STEP 4. Check of open circuit in GOPN line between electric tailgate control unit connector and tailgate lock release handle connector.

Q: Is the check result normal?
YES : Go to Step 5.
NO : Repair the connector(s) or wiring harness.

STEP 5. System retest
Check that the tailgate lock release handle signal is received normally.

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 .)
NO : Replace the electric tailgate control unit.

Inspection Procedure B-4: Door-ajar signal is not received.

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

COMMENTS ON TROUBLE SYMPTOM

The wiring harness or its connector(s) between the door-ajar switch and the electric tailgate control unit, the tailgate latch itself or the electric tailgate control unit itself may be defective.

PROBABLE CAUSES

- Damaged tailgate latch
- Damaged electric tailgate control unit
- Damaged wiring harness and connectors

DIAGNOSIS PROCEDURE

STEP 1. Door-ajar switch inspection
Check the tailgate latch (refer to P.42A-119).

Q: Is the check result normal?
YES : Go to Step 2.
NO : Replace the tailgate latch.

STEP 2. Resistance measurement at tailgate latch connector (door-ajar switch earth line terminal).
(1) Disconnect the connector, and measure at the wiring harness side.
(2) Measure the resistance between tailgate latch connector (door-ajar switch earth line terminal) and body earth.

OK: Continuity exists (2 Ω or less).

Q: Is the check result normal?
YES : Go to Step 4.
NO : Go to Step 3.

STEP 3. Check of open circuit in earth line between tailgate latch connector (door-ajar switch terminal) and body earth.

Q: Is the check result normal?
YES : Go to Step 6.
NO : Repair the connector(s) or wiring harness.

STEP 4. Check of open circuit in LTH line between electric tailgate control unit connector and tailgate latch connector.

Q: Is the check result normal?
YES : Go to Step 5.
NO : Repair the wiring harness.

STEP 5. System retest
Check that the door-ajar switch signal is received normally.

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 .)
NO : Go to Step 6.

STEP 6. After the replacement of tailgate latch, recheck the trouble symptom.
(1) Replace the tailgate latch.
(2) Check that the door-ajar switch signal is received normally.

Q: Is the check result normal?
YES : The procedure is complete.
NO : Replace the electric tailgate control unit.

Inspection Procedure B-5: Neutral switch signal is not received.

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

COMMENTS ON TROUBLE SYMPTOM

The wiring harness or its connector(s) between the neutral switch and the electric tailgate control unit, the tailgate latch itself or the electric tailgate control unit itself may be defective.

PROBABLE CAUSES

- Damaged tailgate latch
- Damaged electric tailgate control unit
- Damaged wiring harness and connectors

DIAGNOSIS PROCEDURE

STEP 1. Neutral switch inspection
Check the tailgate latch (refer to P.42A-119).

Q: Is the check result normal?
YES : Go to Step 2.
NO : Replace the tailgate latch.

STEP 2. Resistance measurement at tailgate latch connector (neutral switch earth line terminal).
(1) Disconnect the connector, and measure at the wiring harness side.
(2) Measure the resistance between tailgate latch connector (neutral switch earth line terminal) and body earth.

OK: Continuity exists (2 Ω or less).

Q: Is the check result normal?
YES : Go to Step 4.
NO : Go to Step 3.

STEP 3. Check of open circuit in earth line between tailgate latch connector (neutral switch terminal) and body earth.

Q: Is the check result normal?
YES : Go to Step 6.
NO : Repair the connector(s) or wiring harness.

STEP 4. Check of open circuit in NTL line between electric tailgate control unit connector and tailgate latch connector.

Q: Is the check result normal?
YES : Go to Step 5.
NO : Repair the connector(s) or wiring harness.

STEP 5. System retest
Check that the neutral switch signal is received normally.

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 .)
NO : Go to Step 6.

STEP 6. After the replacement of tailgate latch, recheck the trouble symptom.
(1) Replace the tailgate latch.
(2) Check that the neutral switch signal is received normally.

Q: Is the check result normal?
YES : The procedure is complete.
NO : Replace the electric tailgate control unit.

Inspection Procedure B-6: Half latch switch and/or full latch switch signals are not received.

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

COMMENTS ON TROUBLE SYMPTOM

There may be a malfunction in one of the followings; the wiring harness or its connector(s) between the electric tailgate control unit and the half latch switch, the wiring harness or its connector(s) between the electric tailgate control unit and the full latch switch, the tailgate latch switch itself or the electric tailgate control unit itself.

PROBABLE CAUSES

- Damaged tailgate latch
- Damaged electric tailgate control unit
- Damaged wiring harness and connectors

DIAGNOSIS PROCEDURE

STEP 1. M.U.T.-III data list

(1) Disconnect the negative battery terminal and wait for approximately 30 seconds.
(2) Check the signals related to the electric tailgate operation.
- Half latch switch: OFF → ON
- Full latch switch: OFF → ON

Item No.	Item name	Normal conditions
Item 5	Half-latch SW	OFF → ON
Item 6	Full-latch SW	OFF → ON

OK: Normal conditions are displayed for all the items.

Q: Is the check result normal?
All are normal. : Go to Step 9.
Normal condition is not displayed for items 5 and 6. : Go to Step 2.
Normal condition is not displayed for item No. 5. : Go to Step 5.
Normal condition is not displayed for item No. 6. : Go to Step 7.

STEP 2. Half-latch and full-latch switches check

Check the tailgate latch (refer to P.42A-119).

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

STEP 3. Resistance measurement at tailgate latch connector (half-latch switch/full latch switch earth line terminal).

(1) Disconnect the connector, and measure at the wiring harness side.
(2) Measure the resistance between tailgate latch connector (half-latch switch/full latch switch earth line terminal) and body earth.

OK: Continuity exists (2 Ω or less).

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 .)
NO : Go to Step 4.

STEP 4. Check of open circuit in earth line between tailgate latch connector (half-latch switch/full latch switch terminal) and body earth.

Q: Is the check result normal?
YES : Go to Step 9.
NO : Repair the connector(s) or wiring harness.

STEP 5. Half-latch switch check

Check the tailgate latch (refer to P.42A-119).

Q: Is the check result normal?
YES : Go to Step 6.
NO : Replace the tailgate latch.

STEP 6. Check of open circuit in HARF line between electric tailgate control unit connector and tailgate latch connector.

Q: Is the check result normal?
YES : Go to Step 9.
NO : Repair the connector(s) or wiring harness.

STEP 7. Full-latch switch check

Check the tailgate latch (refer to P.42A-119).

Q: Is the check result normal?
YES : Go to Step 8.
NO : Replace the tailgate latch.

STEP 8. Check of open circuit in FULL line between electric tailgate control unit connector and tailgate latch connector.

Q: Is the check result normal?
YES : Go to Step 9.
NO : Repair the connector(s) or wiring harness.

STEP 9. System retest

Check whether the half latch switch and/or the full latch switch signal are received normally.

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 .)
NO : Go to Step 10.

STEP 10. After the replacement of tailgate latch, recheck the trouble symptom.

(1) Replace the tailgate latch.
(2) Check whether the half latch switch and/or the full latch switch signal are received normally.

Q: Is the check result normal?
YES : The procedure is complete.
NO : Replace the electric tailgate control unit.

Inspection Procedure B-7: Tailgate sensor signal is not received.

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

COMMENTS ON TROUBLE SYMPTOM
The wiring harness or its connector(s) between the tailgate sensor and the electric tailgate control unit, the tailgate sensor itself, or the electric tailgate control unit itself may have a problem.

PROBABLE CAUSES
- Tailgate sensor malfunction
- Damaged electric tailgate control unit
- Damaged wiring harness and connectors

DIAGNOSIS PROCEDURE

STEP 1. M.U.T.-III data list
(1) Disconnect the negative battery terminal and wait for approximately 30 seconds.
(2) Check the signals related to the electric tailgate operation.
- Tailgate sensor (left): OFF → ON
- Tailgate sensor (right): OFF → ON

Item No.	Item name	Normal conditions
Item 9	Touch sensor (left)	OFF → ON
Item 10	Touch sensor (right)	OFF → ON

OK: Normal conditions are displayed for all the items.

Q: Is the check result normal?
All are normal. : Go to Step 7.
Normal condition is not displayed for items 9 and 10. : Go to Step 2.
Normal condition is not displayed for item No. 9. : Go to Step 3.
Normal condition is not displayed for item No. 10. : Go to Step 5.

STEP 2. Check of open circuit in TSG line between electric tailgate control unit connector and tailgate sensor (LH) and (RH) connector.

Q: Is the check result normal?
YES : Go to Step 7.
NO : Repair the connector(s) or wiring harness.

STEP 3. Tailgate sensor (LH) check.
Check the tailgate sensor (LH) (refer to P.42A-119).

Q: Is the check result normal?
YES : Go to Step 4.
NO : Replace the tailgate sensor (LH).

STEP 4. Check of short to power supply, short to earth, and open circuit in TSL line between electric tailgate control unit connector and tailgate sensor (LH) connector.

Q: Is the check result normal?
YES : Go to Step 7.
NO : Repair the connector(s) or wiring harness.

STEP 5. Tailgate sensor (RH) check.
Check the tailgate sensor (RH) (refer to P.42A-119).

Q: Is the check result normal?
YES : Go to Step 6.
NO : Replace the tailgate sensor (RH).

STEP 6. Check of short to power supply, short to earth, and open circuit in TSR line between electric tailgate control unit connector and tailgate sensor (RH) connector.

Q: Is the check result normal?
YES : Go to Step 7.
NO : Repair the connector(s) or wiring harness.

STEP 7. System retest
Check that the tailgate sensor signal is received normally.

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 .)
NO : Replace the electric tailgate control unit.

Inspection Procedure B-8: Electric tailgate switch signal is not received.

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

COMMENTS ON TROUBLE SYMPTOM

The wiring harness or its connector(s) between the electric tailgate switch and the electric tailgate control unit, the electric tailgate switch itself or the electric tailgate control unit itself may have a problem.

PROBABLE CAUSES

- Malfunction of electric tailgate switch
- Damaged electric tailgate control unit
- Damaged wiring harness and connectors

DIAGNOSIS PROCEDURE

STEP 1. Electric tailgate switch check
Check the electric tailgate switch (refer to P.42A-119).

Q: Is the check result normal?
YES : Go to Step 2.
NO : Replace the electric tailgate switch.

STEP 2. Resistance measurement at electric tailgate switch connector.
(1) Disconnect the connector, and measure at the wiring harness side.
(2) Measure the resistance between electric tailgate switch connecter and body earth.

OK: Continuity exists (10 Ω or less)

Q: Is the check result normal?
YES : Go to Step 4.
NO : Go to Step 3.

STEP 3. Check of open circuit in earth line between electric tailgate switch connector and body earth.

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 .)
NO : Repair the connector(s) or wiring harness.

STEP 4. Check of open circuit in (OPSW) line between electric tailgate control unit connector and electric tailgate switch connector.

Q: Is the check result normal?
YES : Go to Step 5.
NO : Repair the connector(s) or wiring harness.

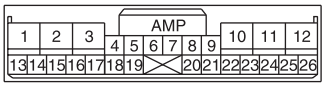
STEP 5. System retest
Check whether the electric tailgate switch signal is received normally.

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 .)
NO : Replace the electric tailgate control unit.

CHECK AT ECU TERMINAL

M1424008300043

ELECTRIC TAILGATE CONTROL UNIT TERMINAL INSPECTION



ACC00106

Terminal number	Terminal code	Check items	Check conditions	Normal conditions
1	BAT1	Battery power supply	Always	Battery voltage
2	GND1	Earth	Always	1 V or less
3	BAT2	Battery power supply	Always	System voltage
4	FULL	Tailgate latch (full latch switch) input	Electric tailgate: Overrun position	1 V or less
5	IG12	Ignition switch power supply	Ignition switch: ON	System voltage

Terminal number	Terminal code	Check items	Check conditions	Normal conditions
6	GOPN	Input from tailgate lock release handle	Tailgate lock release handle: ON	1 V or less
7	CANH	CAN H	–	–
8	CANL	CAN L	–	–
9	GCLS	Input from electric tailgate close switch	Electric tailgate close switch: ON	1 V or less
10	–	–	–	–
11	PLCL	Tailgate latch (engagement) output	During tailgate latch fully close operation	12 V
12	PLOP	Tailgate latch (release) output	During tailgate latch claw release operation	12 V
13	BZ+	Buzzer (+) output	Buzzer is sounding	0 to 12 V (pulse signal)
14	–	–	–	–
15	NTL	Tailgate latch (neutral switch) input	Tailgate latch: Open side (fully open normal status)	1 V or less
16	–	–	–	–
17	HARF	Tailgate latch (half latch switch) input	Electric tailgate: Open position	1 V or less
18	–	–	–	–
19	LTH	Tailgate latch (door-ajar switch) input	Electric tailgate: Open position	1 V or less
20	–	–	–	–
21	–	–	–	–
22	MASW	Electric tailgate main switch input	Electric tailgate main switch: ON	1 V or less
23	OPSW	Electric tailgate switch input	Electric tailgate switch: ON	1 V or less
24	TSL	Tailgate sensor left side input	Tailgate sensor left side: ON	1 V or less
25	TSG	Tailgate sensor earth	Always	1 V or less
26	TSR	Tailgate sensor right side input	Tailgate sensor right side: ON	1 V or less

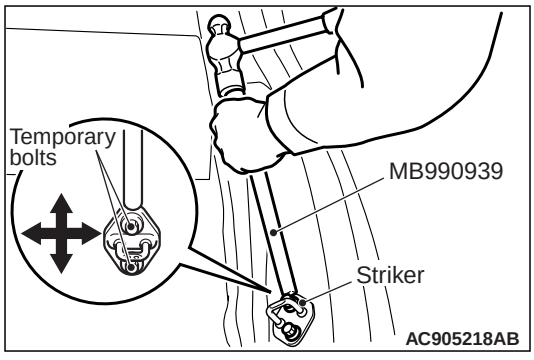
ON-VEHICLE SERVICE

TAILGATE ALIGNMENT

M1424000900580

ADJUSTMENT OF ENGAGEMENT BETWEEN STRIKER AND LATCH

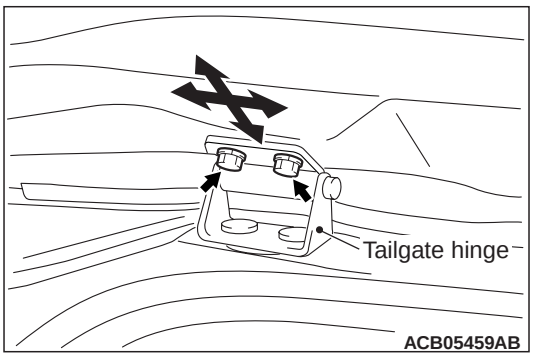
1. Remove the rear end trim (Refer to GROUP 52A – Interior Trims).



2. 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.

3. Tighten the striker mounting screws.
   Tightening torque: 22 ± 3 N·m
4. Install the rear end trim (Refer to GROUP 52A – Interior Trims).

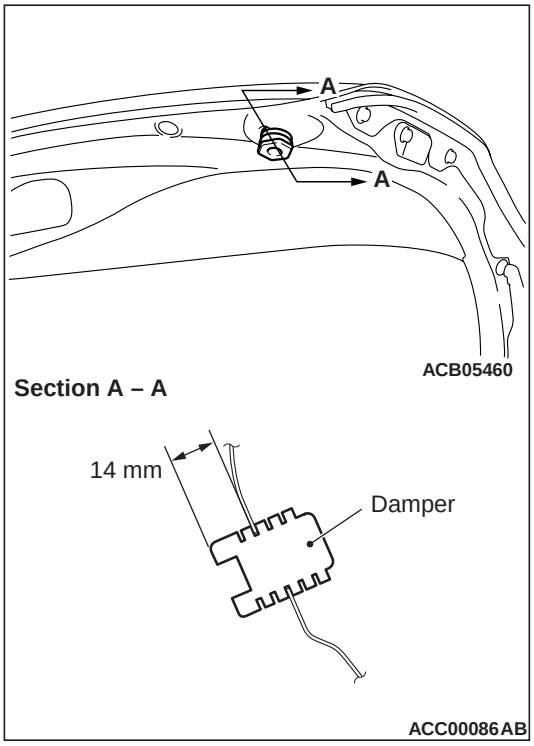
ADJUSTMENT OF CLEARANCE BETWEEN TAILGATE AND BODY



1. Loosen the tailgate hinge mounting bolts to adjust the clearance between the tailgate and body.
2. Tighten the tailgate hinge mounting bolts.
   Tightening torque: 12 ± 2 N·m

ADJUSTMENT OF TAILGATE HEIGHT

M1424003500462



Rotate the damper by using the arrow mark on the damper as a guide to adjust the tailgate height. The damper height is altered by roughly 4 mm when it is rotated once.

NOTE: If the power supply voltage does not meet the standard value, check and repair the alternator and the battery. Then carry out this check again.

NOTE: If a rattling noise is heard due to the vibration of the tailgate 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.

ELECTRIC TAILGATE CHECK

M1424008500036

Check whether the electric tailgate operates normally by operating the electric tailgate switch, the tailgate close switch or the tailgate lock release handle. If it does not operate, perform troubleshooting. Refer to P.42A-93.

CHECK OF ELECTRIC TAILGATE SAFETY FUNCTION

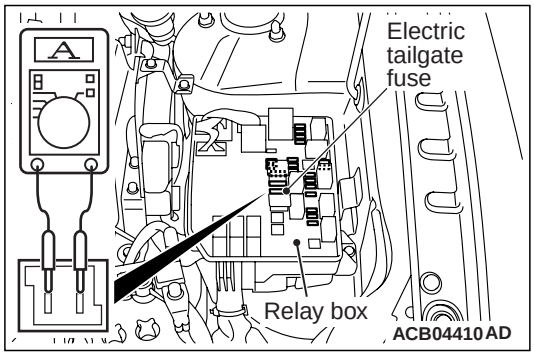
M1424009400021

1. Place a piece of wood which is approximately 10-mm thick at a right angle against the tailgate sensor. Then, by operating the electric tailgate switch, tailgate close switch, or keyless operation key electric tailgate switch, close the electric tailgate.
2. Check whether the electric tailgate opens when the electric tailgate clamps the wood chip. If any problem occurs, carry out troubleshooting. Refer to P.42A-93.

   NOTE: When the safety mechanism is activated successively for two times or more, manually fully close the electric tailgate.

ELECTRIC TAILGATE OPERATING CURRENT CHECK

M1424009500028



1. Remove the electric tailgate fuse, and connect the circuit tester as shown in the illustration.
2. Open and close the electric tailgate, and measure the current during operation.
   Standard value: 11 A or less (Power supply voltage 14.5 ± 0.5 V, at 25°C)

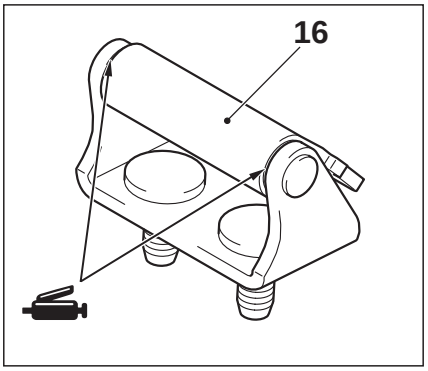
3. If the value is outside the standard value, adjust the electric tailgate (refer to P.42A-68).

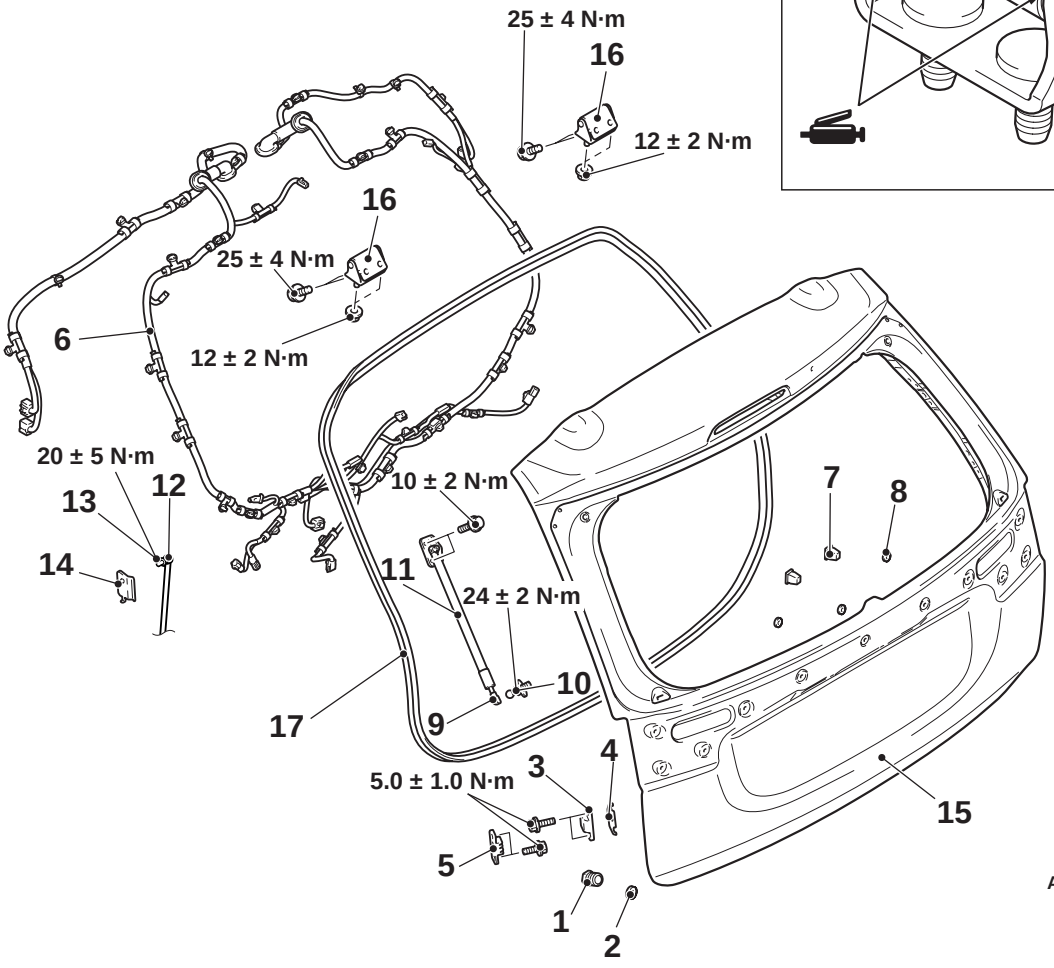
TAILGATE

REMOVAL AND INSTALLATION

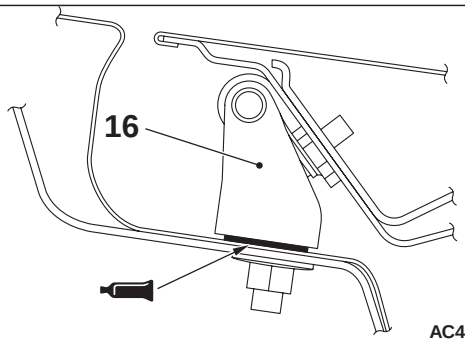
M1424001100974

Pre-removal operation	Post-installation operation
• Tailgate trim removal (Refer to GROUP 52A – Tailgate Trim .) • Rear wiper blade assembly, rear wiper motor and rear washer hose removal (Refer to GROUP 51 – Rear Wiper and Washer .) • High-mounted stop lamp assembly removal (Refer to GROUP 54A – High-mounted Stop Lamp .) • Rear combination lamp assembly removal (Refer to GROUP 54A – Rear Combination Lamp .) • Tailgate garnish removal (Refer to GROUP 51 – Tailgate Garnish .) • Tailgate window glass removal (Refer to P.42A-20.)	• Tailgate alignment (Refer to P.42A-68.) • Adjustment of tailgate height (Refer to P.42A-69.) • Tailgate window glass installation (Refer to P.42A-20.) • Tailgate garnish installation (Refer to GROUP 51 – Tailgate Garnish .) • Rear combination lamp assembly installation (Refer to GROUP 54A – Rear Combination Lamp .) • High-mounted stop lamp assembly installation (Refer to GROUP 54A – High-mounted Stop Lamp .) • Rear wiper blade assembly, rear wiper motor and rear washer hose installation (Refer to GROUP 51 – Rear Wiper and Washer .) • Tailgate trim installation (Refer to GROUP 52A – Tailgate Trim .)





ACC00283AB



Adhesive: 3M ATD Part No.8531 Heavy drip check sealer, 3M ATD Part No.8646 Automotive Joint and Seam Sealer or equivalent

ACC00264AC

Tailgate assembly removal steps

1. Damper
2. Plug
3. Tailgate damper upper
4. Shim <Vehicles with shim>
5. Tailgate damper lower
6. Tailgate harness
7. Screw grommet
8. Licence plate pad

<<**A**>> 9. Tailgate gas spring connection

10. Ball joint
11. Tailgate gas spring assembly
12. Rod connection
13. Ball joint
14. Plate
15. Tailgate assembly

Tailgate hinge removal steps

- Headlining (Refer to GROUP 52A – Headlining .)

>>**B**<< 16. Tailgate hinge

Tailgate opening weatherstrip removal

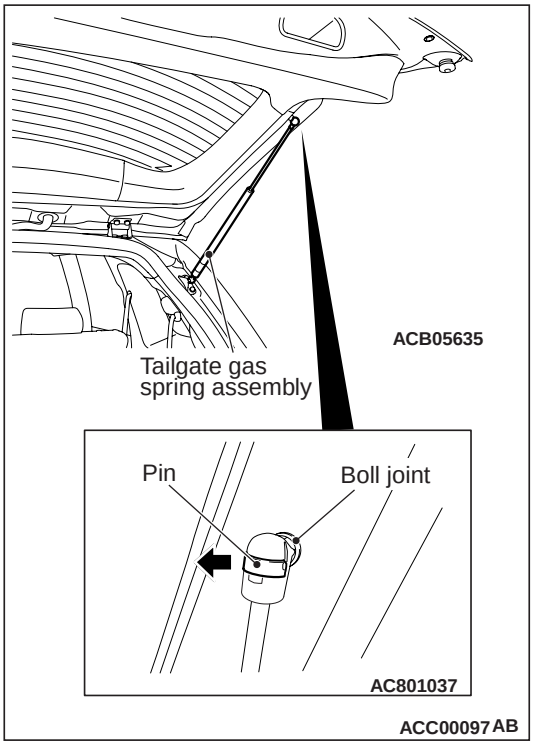
- Rear end trim (Refer to GROUP 52A – Interior Trim .)

>>**A**<< 17. Tailgate opening weatherstrip

REMOVAL SERVICE POINTS

⚠ CAUTION

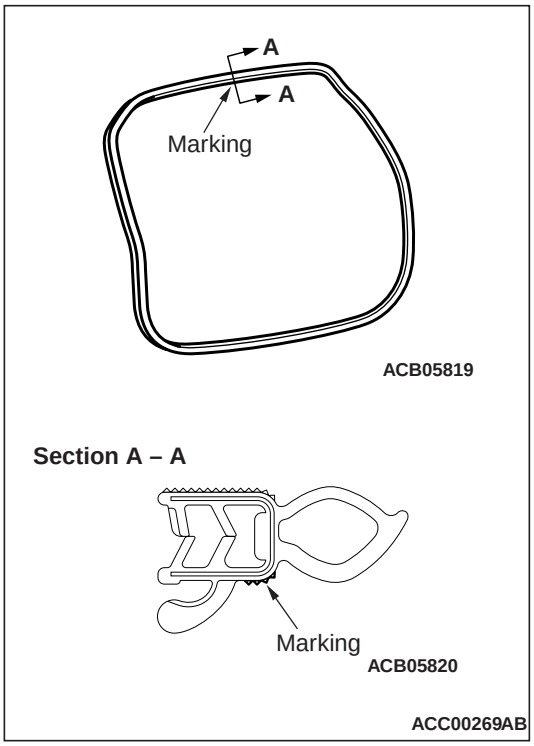
- **Do not disassemble or throw the tailgate gas spring assembly into the fire.**
- **Before disposal, make a hole to remove the gas.**
- **Make sure that the piston rod should not collect any foreign particles.**



Slide the pin and remove the tailgate gas spring assembly from the ball joint in the direction of the arrow.

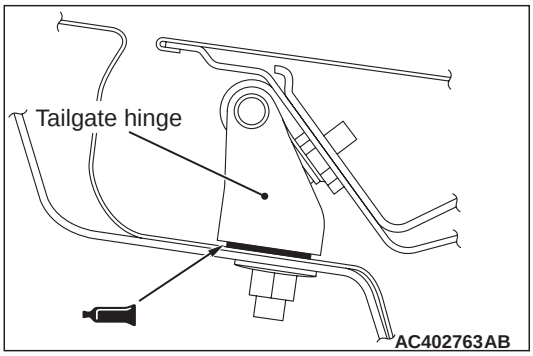
INSTALLATION SERVICE POINTS

>>A<< TAILGATE OPENING WEATHERSTRIP INSTALLATION



The marking on the tailgate opening weatherstrip should be positioned at the centre of the body.

>>B<< TAILGATE HINGE INSTALLATION



Apply the specified sealant to the tailgate hinge mounting surface, and install the tailgate hinge.

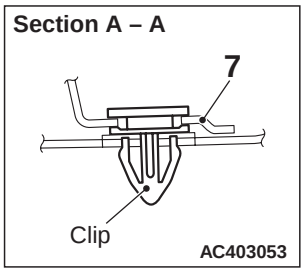
Specified Adhesive: 3M ATD Part No.8531 Heavy drip check sealer, 3M ATD Part No.8646 Automotive joint and seam sealer or equivalent

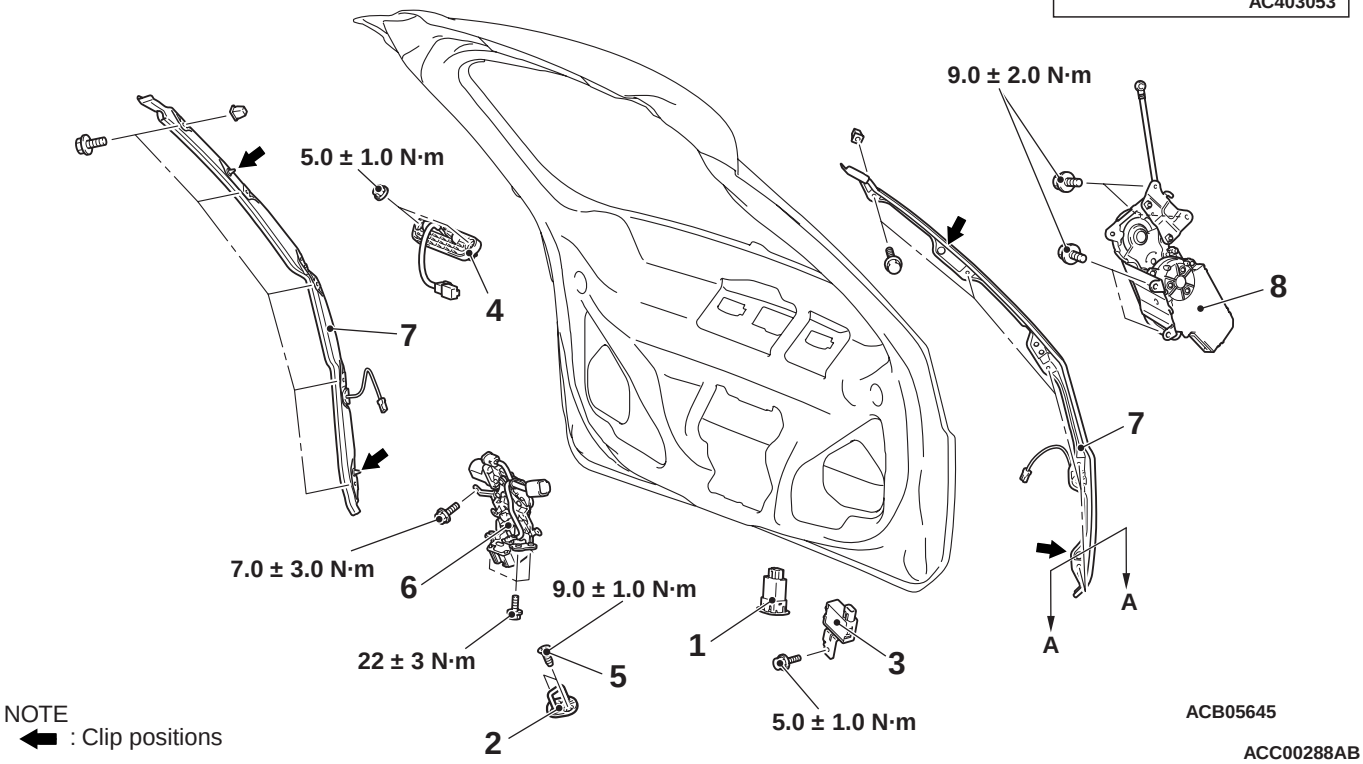
TAILGATE HANDLE AND LATCH

REMOVAL AND INSTALLATION

M1424001700965

Post-installation operation
- Tailgate alignment (Refer to P.42A-68.)





NOTE
⬅ : Clip positions

ACC00288AB

Tailgate close switch removal
1. Tailgate close switch

Striker removal steps

>>D<< 2. Striker

Electric tailgate buzzer removal steps
- Tailgate trim (Refer to GROUP 52A – Tailgate Trim .)

3. Electric tailgate buzzer

Tailgate lock release handle removal steps
- Tailgate trim (Refer to GROUP 52A – Tailgate Trim .)

4. Tailgate lock release handle

Tailgate latch removal steps
- Tailgate trim (Refer to GROUP 52A – Tailgate Trim .)

5. Earth bolt

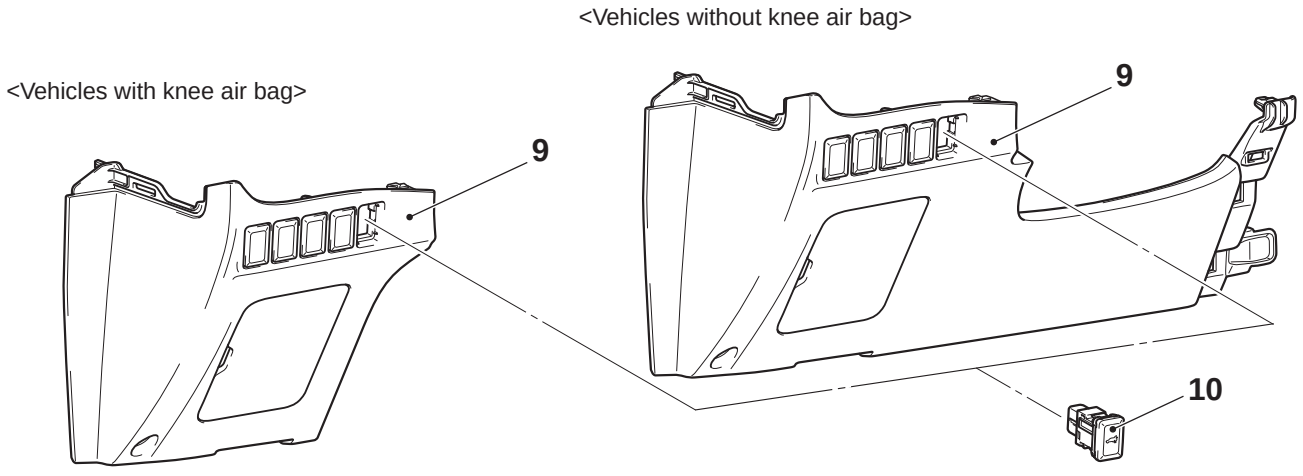
>>C<< 6. Tailgate latch assembly

Tailgate sensor removal steps

>>B<< 7. Tailgate sensor

Electric tailgate control unit removal steps
- Quarter trim cover (Refer to GROUP 52A – Interior Trim .)

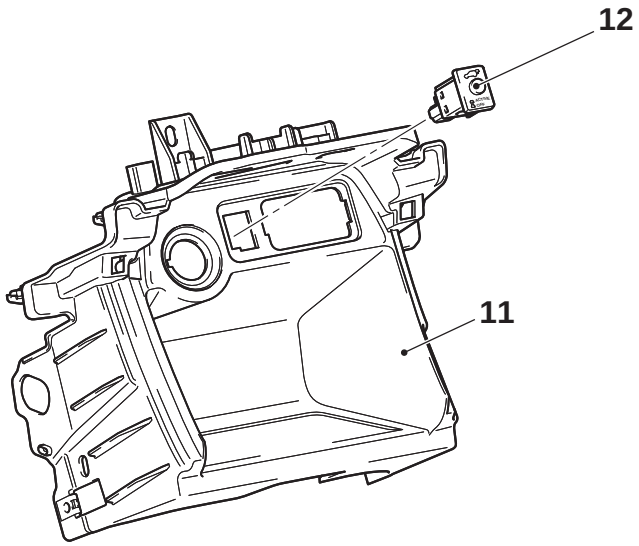
>>A<< 8. Electric tailgate control unit assembly



ACB05532 AB

Electric tailgate switch removal steps

9. Instrument panel lower LH <Vehicles with knee air bag> or Instrument panel lower <Vehicles without knee air bag> (Refer to GROUP 52A – Instrument Panel Assembly .)
10. Electric tailgate switch



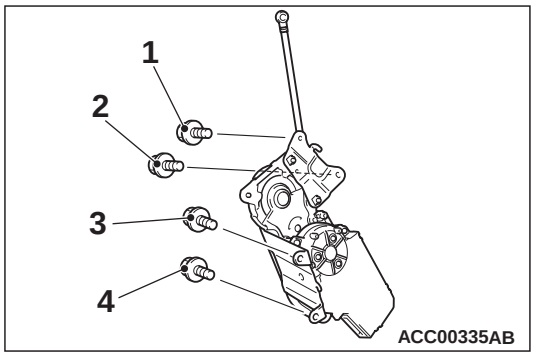
ACB05533AC

Electric tailgate main switch removal steps

11. Centre lower box assembly (Refer to GROUP 52A – Instrument Panel Assembly .)
12. Electric tailgate main switch

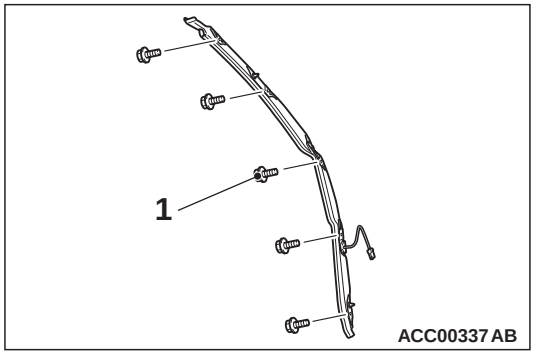
INSTALLATION SERVICE POINTS

>>A<< TAILGATE CONTROL UNIT ASSEMBLY INSTALLATION



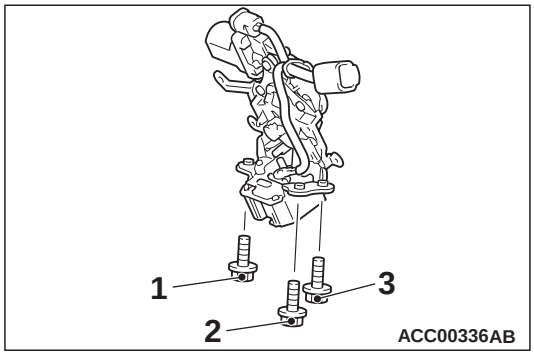
Install the tailgate control unit assembly mounting bolts in the numerical order.

>>B<< TAILGATE SENSOR INSTALLATION



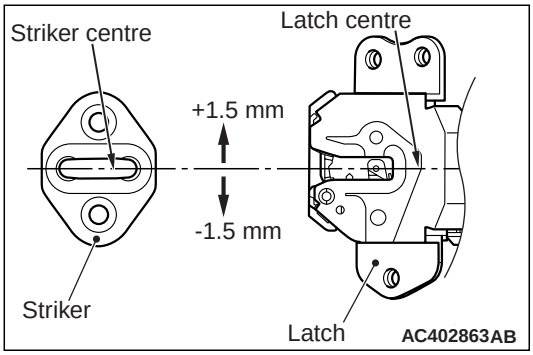
Install the tailgate sensor mounting screw in the numerical order.

>>C<< TAILGATE LATCH ASSEMBLY INSTALLATION



Install the tailgate latch assembly mounting bolts in the numerical order.

>>D<< STRIKER INSTALLATION



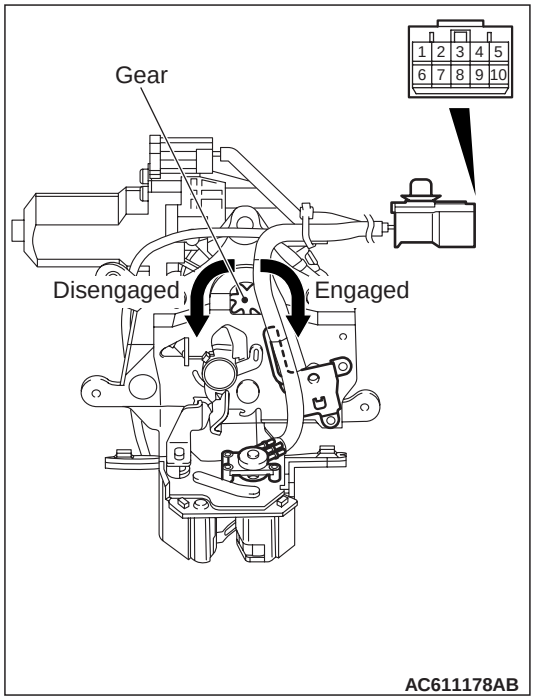
Install the striker so that the striker centre does not deviate more than ±1.5 mm from the latch centre.

INSPECTION

M1424001800315

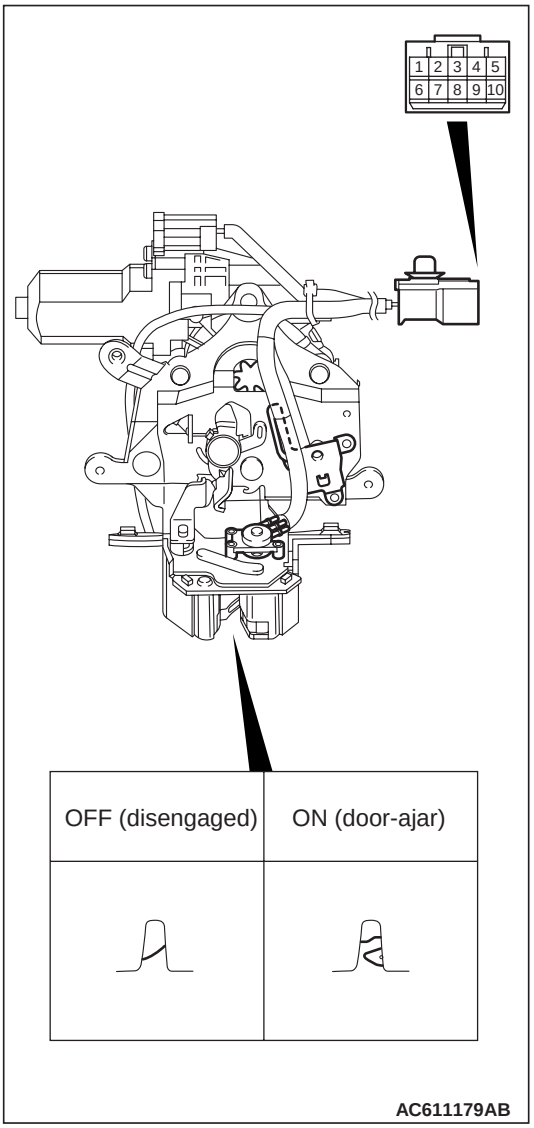
TAILGATE LATCH CHECK

LATCH MOTOR OPERATION CHECK



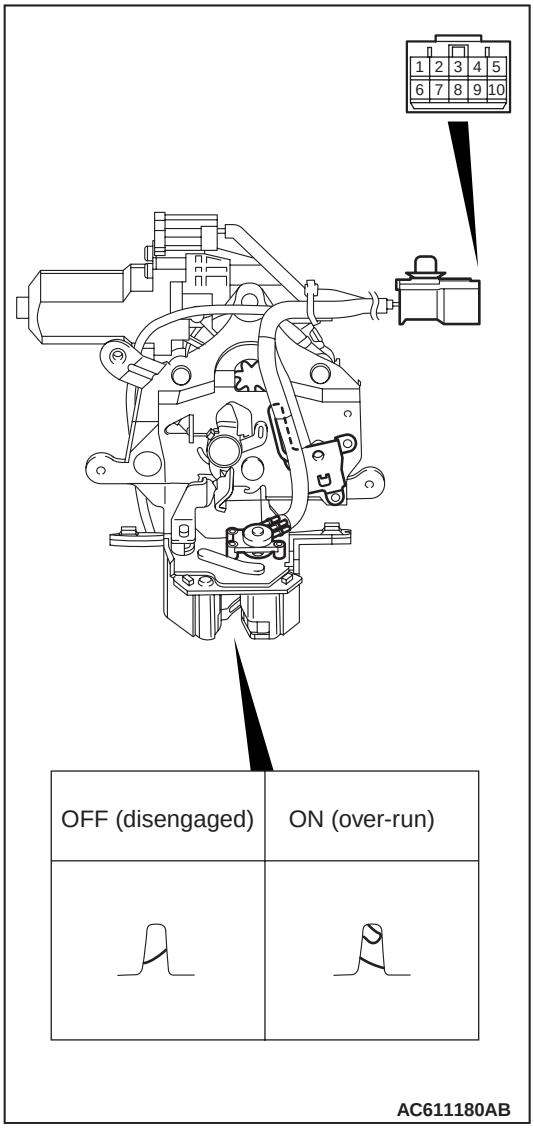
Battery connecting terminal number	Gear operation
1 (–) – 9 (+)	Engaged → Disengaged
1 (+) – 9 (–)	Disengaged → Engaged

HALF LATCH SWITCH CHECK



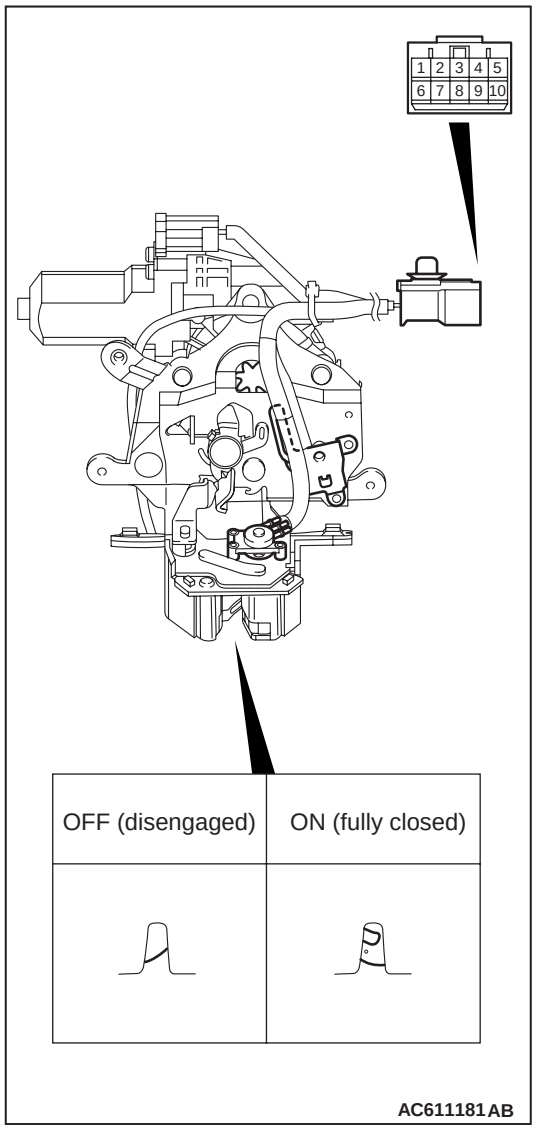
Claw position	Terminal number	Normal value
ON	2 – 3	Continuity exists (2 Ω or less).
OFF	2 – 3	No continuity

FULL LATCH SWITCH CHECK



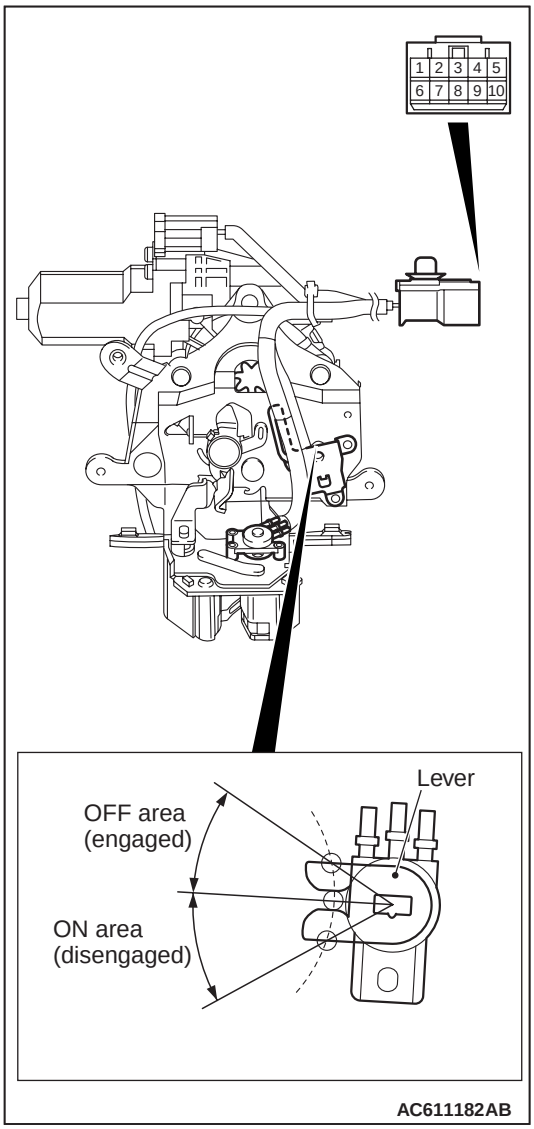
Claw position	Terminal number	Normal value
ON	2 – 4	Continuity exists (2 Ω or less).
OFF	2 – 4	No continuity

DOOR-AJAR SWITCH CHECK



Claw position	Terminal number	Normal value
ON	5 – 10	Continuity exists (2 Ω or less).
OFF	5 – 10	No continuity

NEUTRAL SWITCH CHECK



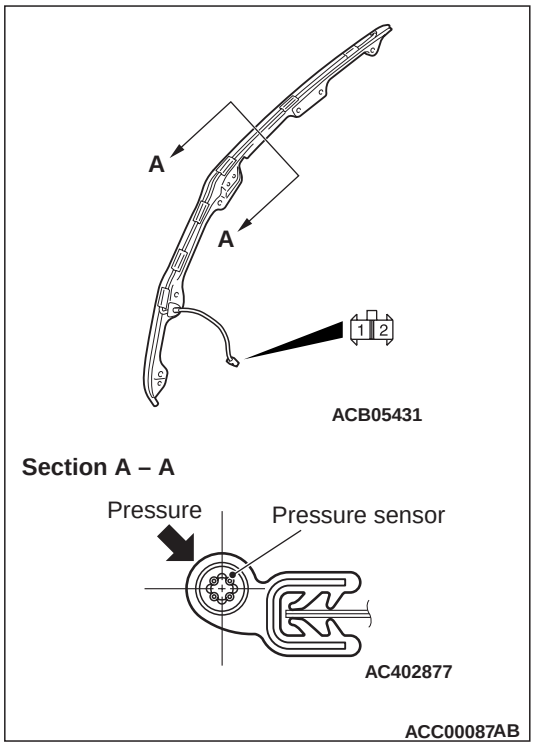
⚠ CAUTION

After checking the neutral switch, operate the tailgate latch as follows to install it. This avoids damage to the tailgate latch switch.

1. **Connect the positive battery terminal to the tailgate latch terminal No.1, and the negative battery terminal to the tailgate latch terminal No.9 for approximately one second.**
2. **Connect the positive battery terminal to the tailgate latch terminal No.9, and the negative battery terminal to the tailgate latch terminal No.1 for approximately one second.**

Lever position	Terminal number	Normal value
ON	7 – 8	Continuity exists (2 Ω or less).
OFF	7 – 8	No continuity

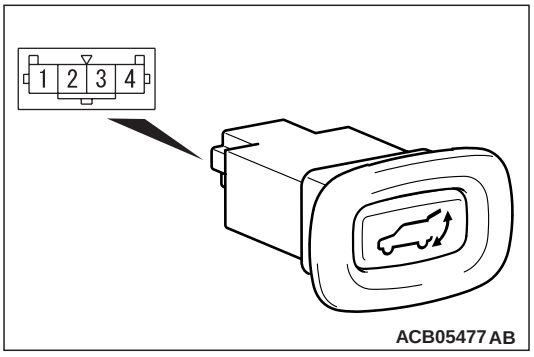
TAILGATE SENSOR CHECK



When the load is applied to the pressure detection sensor towards the direction shown in the figure, and when the sensor is pushed approximately 2.2 mm, the tailgate sensor turns ON.

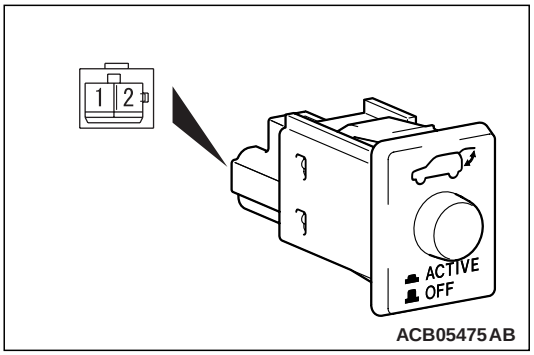
Sensor position	Terminal number	Normal value
ON	1 – 2	100 Ω or less
OFF	1 – 2	Approximately 1kΩ

ELECTRIC TAILGATE CLOSE SWITCH INSPECTION



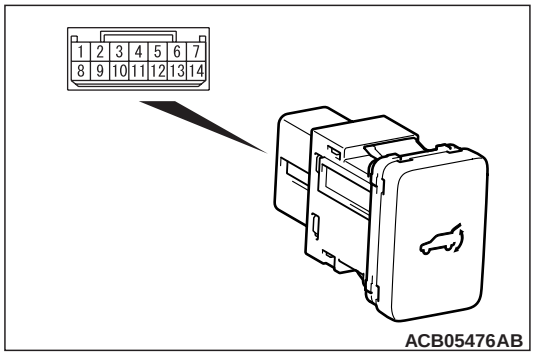
Switch position	Terminal number	Normal value
ON (Press)	1 – 2	Continuity exists (2 Ω or less)
OFF	1 – 2	No continuity

ELECTRIC TAILGATE MAIN SWITCH CHECK



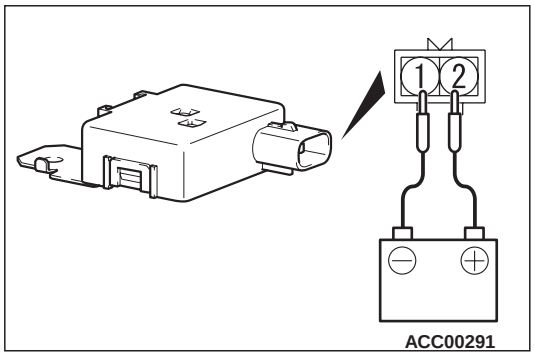
Switch position	Terminal number	Normal value
ON (Press)	1 – 2	Continuity exists (2 Ω or less)
OFF	1 – 2	No continuity

ELECTRIC TAILGATE SWITCH CHECK



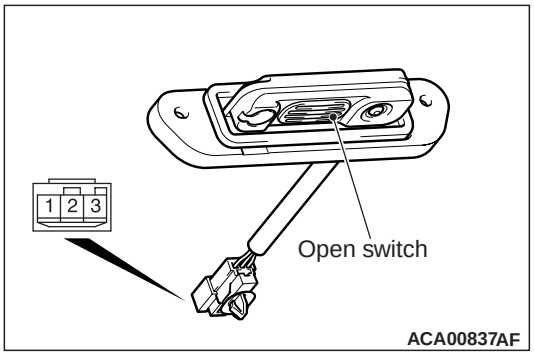
Switch position	Terminal number	Normal value
ON (Press)	10 – 13	Continuity exists (2 Ω or less)
OFF	10 – 13	No continuity

ELECTRIC TAILGATE BUZZER INSPECTION



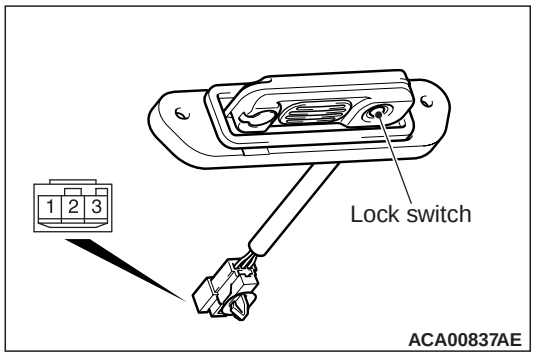
Check that the electric tailgate buzzer sounds once when the terminals are connected to the battery as shown.

TAILGATE LOCK RELEASE HANDLE (TAILGATE OPEN SWITCH) CHECK



Switch position	Terminal number	Normal value
Push (open)	1 – 2	Continuity exists (2 Ω or less)
Release	1 – 2	No continuity

TAILGATE LOCK RELEASE HANDLE (TAILGATE LOCK SWITCH) CHECK

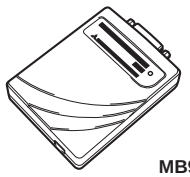
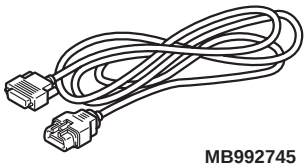
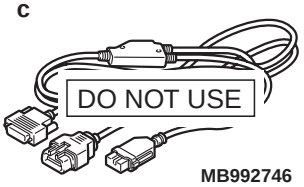
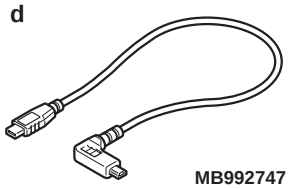
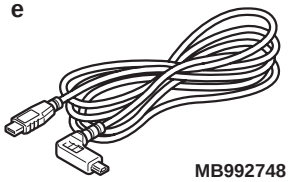


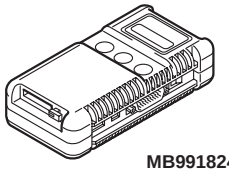
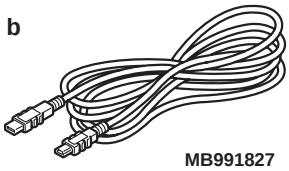
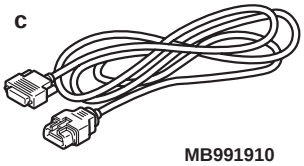
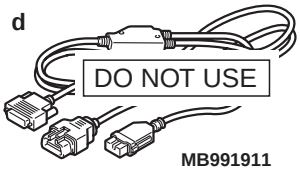
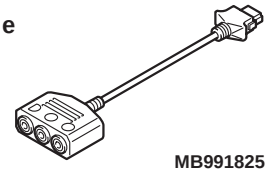
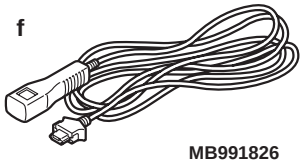
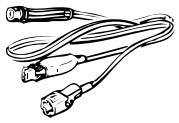
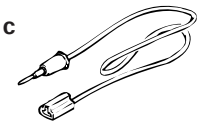
Switch position	Terminal number	Normal value
Push (lock)	2 – 3	Continuity exists (2 Ω or less)
Release	2 – 3	No continuity

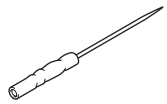
KEYLESS ENTRY SYSTEM <Vehicles without keyless operation system>

SPECIAL TOOL

M1428000600871

Tool	Number	Name	Use
a  MB992744 b  MB992745 c  MB992746 d  MB992747 e  MB992748 ACB05421AB	a. MB992744 b. MB992745 c. MB992746 d. MB992747 e. MB992748	a. Vehicle communication interface-Lite (V.C.I.-Lite) b. V.C.I.-Lite main harness A (for vehicles with CAN communication) c. V.C.I.-Lite main harness B (for vehicles without CAN communication) d. V.C.I.-Lite USB cable short e. V.C.I.-Lite USB cable long	Encrypted code registration

Tool	Number	Name	Use
a  MB991824 b  MB991827 c  MB991910 d  DO NOT USE MB991911 e  MB991825 f  MB991826 MB991955	MB991955 a: MB991824 b: MB991827 c: MB991910 d: MB991911 e: MB991825 f: MB991826	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 measurement adapter f: M.U.T.-III trigger harness	⚠ 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.** Encrypted code registration
a  b  c  d  DO NOT USE MB991223	MB991223 a. MB991219 b. MB991220 c. MB991221 d. MB991222	Wiring harness set a. Check harness b. LED harness c. LED harness adapter d. Probe	Continuity check and voltage measurement at wiring harness or connector a. For checking connector pin contact pressure b. For checking power supply circuit c. For checking power supply circuit d. For connecting a locally sourced tester

Tool	Number	Name	Use
 MB992006	MB992006	Extra fine probe	Continuity check and voltage measurement at wiring harness or connector

TROUBLESHOOTING

DIAGNOSIS CODE CHART

M1428001700064

DIAGNOSIS TROUBLESHOOTING FLOW

M1428001500093

Refer to GROUP 00, Contents of Troubleshooting .

⚠ 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, confirm all systems for diagnosis code(s). If diagnosis code(s) are set, erase them all.

Diagnosis code No.	Diagnostic item	Reference page
B1A08	Keyless/KOS key1 performance	P.42A-127
B1A09	Keyless/KOS key2 performance	
B1A0A	Keyless/KOS key3 performance	
B1A0B	Keyless/KOS key4 performance	
B1A0C	Keyless key 5 performance	
B1A0D	Keyless key 6 performance	
B1A0E	Keyless key 7 performance	
B1A0F	Keyless key 8 performance	
B1A10	Keyless/KOS key 1 low battery	P.42A-128
B1A11	Keyless/KOS key 2 low battery	
B1A12	Keyless/KOS key 3 low battery	
B1A13	Keyless/KOS key 4 low battery	
B1A14	Keyless key 5 low battery	
B1A15	Keyless key 6 low battery	
B1A16	Keyless key 7 low battery	
B1A17	Keyless key 8 low battery	

DIAGNOSIS CODE PROCEDURES

Code No.B1A08 Keyless/KOS key1 performance
Code No.B1A09 Keyless/KOS key2 performance
Code No.B1A0A Keyless/KOS key3 performance
Code No.B1A0B Keyless/KOS key4 performance
Code No.B1A0C Keyless key 5 performance
Code No.B1A0D Keyless key 6 performance
Code No.B1A0E Keyless key 7 performance
Code No.B1A0F Keyless key 8 performance

⚠ CAUTION
When replacing the ECU, always check that the communication circuit is normal.

DIAGNOSTIC FUNCTION

The door locking/unlocking code is automatically updated every time the doors are locked (rolling code). ETACS-ECU stores diagnosis code No. B1A08, B1A09, B1A0A, B1A0B, B1A0C, B1A0D, B1A0E, or B1A0F when it receives wrong signal (rolling code out of synchronisation) from the transmitter.

JUDGMENT CRITERIA

- B1A08: ETACS-ECU determines that the abnormality is present when the rolling code received from the transmitter 1 (the first transmitter registered in ETACS-ECU) greatly differs from the rolling code stored in ETACS-ECU.
- B1A09: ETACS-ECU determines that the abnormality is present when the rolling code received from the transmitter 2 (the second transmitter registered in ETACS-ECU) greatly differs from the rolling code stored in ETACS-ECU.
- B1A0A: ETACS-ECU determines that the abnormality is present when the rolling code received from the transmitter 3 (the third transmitter registered in ETACS-ECU) greatly differs from the rolling code stored in ETACS-ECU.
- B1A0B: ETACS-ECU determines that the abnormality is present when the rolling code received from the transmitter 4 (the fourth transmitter registered in ETACS-ECU) greatly differs from the rolling code stored in ETACS-ECU.
- B1A0C: ETACS-ECU determines that the abnormality is present when the rolling code received from the transmitter 5 (the fifth transmitter registered in ETACS-ECU) greatly differs from the rolling code stored in ETACS-ECU.
- B1A0D: ETACS-ECU determines that the abnormality is present when the rolling code received from the transmitter 6 (the sixth transmitter registered in ETACS-ECU) greatly differs from the rolling code stored in ETACS-ECU.
- B1A0E: ETACS-ECU determines that the abnormality is present when the rolling code received from the transmitter 7 (the seventh transmitter registered in ETACS-ECU) greatly differs from the rolling code stored in ETACS-ECU.
- B1A0F: ETACS-ECU determines that the abnormality is present when the rolling code received from the transmitter 8 (the eighth transmitter registered in ETACS-ECU) greatly differs from the rolling code stored in ETACS-ECU.

PROBABLE CAUSES

- Rolling code out of synchronisation
- Malfunction of the transmitter
- Malfunction of the ETACS-ECU

DIAGNOSTIC PROCEDURE

STEP 1. Synchronise the rolling code and recheck the diagnosis code.

(1) Synchronise the rolling code.
- Push the lock switch or unlock switch of transmitter twice or more.
- If the keyless entry system does not resume by the procedure above, register the key again (Refer to P.42A-134).

(2) Recheck if the diagnosis code is set.
a. Push the lock switch or unlock switch of transmitter.
b. Check if the diagnosis code is set.

Q: Is the diagnosis code set?
YES : Go to Step 2.
NO : The diagnosis is complete.

STEP 2. Check whether the diagnosis code is reset.

Replace the transmitter by which the diagnosis code is set with a new one, register the key (Refer to P.42A-134.), and recheck if the diagnosis code is set.

(1) Push the lock switch or unlock switch of transmitter.

(2) Check if the diagnosis code is set.

Q: Is the diagnosis code set?

YES : Replace ETACS-ECU and register the ID codes (Refer to P.42A-134).

NO : The diagnosis is complete.

Code No.B1A10 Keyless/KOS key 1 low battery
Code No.B1A11 Keyless/KOS key 2 low battery
Code No.B1A12 Keyless/KOS key 3 low battery
Code No.B1A13 Keyless/KOS key 4 low battery
Code No.B1A14 Keyless key 5 low battery
Code No.B1A15 Keyless key 6 low battery
Code No.B1A16 Keyless key 7 low battery
Code No.B1A17 Keyless key 8 low battery

⚠ CAUTION
When replacing the ECU, always check that the communication circuit is normal.

DIAGNOSTIC FUNCTION

ETACS-ECU sets the diagnosis code No. B1A10, B1A11, B1A12, B1A13, B1A14, B1A15, B1A16, or B1A17 when it receives low battery voltage signal from the transmitter.

JUDGMENT CRITERIA

- B1A10: ETACS-ECU determines that the abnormality is present when it receives low battery voltage signal from the transmitter 1 (the first transmitter registered in ETACS-ECU) five consecutive times.
- B1A11: ETACS-ECU determines that the abnormality is present when it receives low battery voltage signal from the transmitter 2 (the second transmitter registered in ETACS-ECU) five consecutive times.
- B1A12: ETACS-ECU determines that the abnormality is present when it receives low battery voltage signal from the transmitter 3 (the third transmitter registered in ETACS-ECU) five consecutive times.
- B1A13: ETACS-ECU determines that the abnormality is present when it receives low battery voltage signal from the transmitter 4 (the fourth transmitter registered in ETACS-ECU) five consecutive times.
- B1A14: ETACS-ECU determines that the abnormality is present when it receives low battery voltage signal from the transmitter 5 (the fifth transmitter registered in ETACS-ECU) five consecutive times.
- B1A15: ETACS-ECU determines that the abnormality is present when it receives low battery voltage signal from the transmitter 6 (the sixth transmitter registered in ETACS-ECU) five consecutive times.
- B1A16: ETACS-ECU determines that the abnormality is present when it receives low battery voltage signal from the transmitter 7 (the seventh transmitter registered in ETACS-ECU) five consecutive times.
- B1A17: ETACS-ECU determines that the abnormality is present when it receives low battery voltage signal from the transmitter 8 (the eighth transmitter registered in ETACS-ECU) five consecutive times.

PROBABLE CAUSES

- Battery failure in the transmitter
- Malfunction of the transmitter
- Malfunction of ETACS-ECU

TROUBLE SYMPTOM CHART

M1428001800306

Symptom	Inspection procedure number	Reference page
Keyless entry system does not work.	1	P.42A-129
Keyless entry hazard lamp answerback function or the room lamp answerback function does not work normally.	2	P.42A-131
The timer lock function does not work after the doors have been unlocked by the keyless entry system.	3	P.42A-131
Multimode keyless entry system function does not work at all <Vehicles with electric retractable remote controlled door mirrors>.	4	P.42A-132
Power door locks with selective unlocking does not work.	5	P.42A-132

SYMPTOM PROCEDURES

Inspection Procedure 1: Keyless entry system does not work.

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

OPERATION

The lock/unlock signals from the transmitter are received by receiver antenna, and then sent to ETACS-ECU from receiver antenna. When ETACS-ECU receives signals from the key reminder switch, all the door switches and the tailgate latch, ETACS-ECU actuates the keyless entry system.

PROBABLE CAUSES

- Malfunction of the key reminder switch
- Malfunction of the door switches
- Malfunction of the tailgate switch
- Malfunction of the transmitter
- Malfunction of the driver's door lock actuator
- Malfunction of the receiver antenna
- Malfunction of the ETACS-ECU
- Damaged harness wires and connectors

DIAGNOSTIC PROCEDURE

STEP 1. ETACS-ECU coding data check

(1) Use M.U.T.-III to read out the option coding information in ETACS-ECU (Refer to GROUP 00 – Precautions before Service - Coding Reference Table).
(2) Check if the "Keyless function" is "Enabled."

Q: Is the check result normal?
YES : Go to Step 2.
NO : Operate the M.U.T.-III to set the option coding "keyless" to "enabled," and check the trouble symptom.

STEP 2. M.U.T.-III CAN bus diagnostics

Use M.U.T.-III to diagnose the CAN bus lines.

Q: Is the CAN bus normal?
YES : Go to Step 3.
NO : Repair the CAN bus line. (Refer to GROUP 54C – Troubleshooting .)

STEP 3. M.U.T.-III diagnosis code

Check that ETACS-ECU sets a diagnosis code.

Q: Is the diagnosis code set?
YES : Refer to diagnosis code chart P.42A-126.
NO : Go to Step 4.

STEP 4. Check the power supply system

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

- Hazard warning lamp

Q: Is the check result normal?
YES : Go to Step 5.
NO : Refer to GROUP 54A – Malfunction of ETACS-ECU power supply circuit .

STEP 5. Check the operation of the central door locking system.

Check that the central door locking system works normally.

Q: Is the check result normal?

YES : Go to Step 6.

NO : Refer to GROUP 42A – Troubleshooting P.42A-26.

STEP 6. M.U.T.-III data list

Check for the signals related to the keyless entry system operation.

- Turn the ignition switch to the LOCK (OFF) position.
- Remove the ignition key from the ignition key cylinder.
- Close the driver's door.
- Close the front passenger's doors.
- Close the RH-side rear door.
- Close the LH-side rear door.
- Close the tailgate

Item No.	Item name	Normal condition
Item 256	Dr door ajar switch	Close
Item 257	As door ajar switch	Close
Item 258	RR door ajar switch	Close
Item 259	RL door ajar switch	Close
Item 260	Trunk/gate trunk ajar switch	Close
Item 264	Handle lock switch	Key in → Key out

OK: Normal conditions are displayed for all the items.

Q: Is the check result normal?

Normal conditions are displayed for all the items. : Go to Step 7.

Normal condition is not displayed for item No. 256. : Refer to GROUP 54A – Inspection Procedure 5: "Front door switch (driver's side) signal is not received ."

Normal condition is not displayed for item No. 257. : Refer to GROUP 54A – Inspection Procedure 6: "Front door switch (passenger's side) signal is not received ."

Normal condition is not displayed for item No. 258. : Refer to GROUP 54A – Inspection Procedure 7: "Rear door switch (RH) signal is not received ."

Normal condition is not displayed for item No. 259. : Refer to GROUP 54A – Inspection Procedure 8: Rear door switch (LH) signal is not received .

Normal condition is not displayed for item No. 260. : Refer to GROUP 54A – Inspection Procedure 9: The tailgate latch switch signal is not received .

Normal condition is not displayed for item No. 264. : Refer to GROUP 54A – Inspection Procedure 3: "Key reminder switch signal is not received ."

STEP 7. Check of short to power supply, short to earth, open circuit in SIGR, PWRC line between ETACS-ECU connector and receiver antenna connector.

Q: Is the check result normal?

YES : Go to Step 8.

NO : Repair the connector(s) wiring harness.

STEP 8. Retest the system.

Check if the keyless entry system works normally.

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).

NO : Replace receiver antenna (Refer to GROUP 54A – Receiver antenna) and turn ignition switch to ON and OFF. Then go to step 9.

STEP 9. Retest the system.

Check if the keyless entry system works normally.

Q: Is the check result normal?

YES : The diagnosis is complete.

NO : Replace ETACS-ECU and register the ID codes (Refer to P.42A-134).

Inspection Procedure 2: Keyless entry hazard lamp answerback function or the room lamp answerback function does not work normally.

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

COMMENTS ON TROUBLE SYMPTOM

If the hazard warning lamp and the room lamp work normally, the ETACS-ECU may be defective. Alternatively, it is possible that the keyless entry hazard lamp answerback function was disabled by the customise function.

PROBABLE CAUSES

- Defective hazard warning lamp
- Malfunction of the room lamp
- Malfunction of the ETACS-ECU
- Damaged harness wires and connectors

DIAGNOSIS PROCEDURE

STEP 1. Check the operation of the hazard warning lamp.
Check that the hazard warning lamp illuminates normally.

Q: Is the check result normal?
YES : Go to Step 2.
NO : Refer to GROUP 54A, Inspection Procedure 1 "The hazard warning lamp do not illuminate ".

STEP 2. Check the operation of the room lamp.
Check that the room lamp illuminates normally.

Q: Is the check result normal?
YES : Go to Step 3.
NO : Refer to GROUP 54A, Check Chart for Trouble Symptoms .

STEP 3. Check the operation of the keyless entry system.
If the keyless entry system is operated, check that the doors can be locked and unlocked normally.

Q: Is the check result normal?
YES : Go to Step 4.
NO : Refer to Trouble symptom chart P.42A-129.

STEP 4. Check the customisation function.
Using the customisation function, check that the number of flashings of hazard warning lamp is set to any of the followings other than "LOCK: 0/UNLOCK: 0."

- Lock 1 Unlock 2
- Lock 1 Unlock 0
- Lock 0 Unlock 2
- Lock 2 Unlock 1
- Lock 0 Unlock 1
- Lock 2 Unlock 0

Q: Is the check result normal?
YES : Go to Step 5.
NO : Enable the keyless entry hazard lamp answerback function by using the customisation function (Refer to P.42A-134).

STEP 5. Retest the system.
Check that the keyless entry hazard lamp answerback function or the room lamp answerback function works normally.

Q: Is the check result normal?
YES : The trouble can be an intermittent malfunction (Refer to GROUP 00, How to use Troubleshooting/inspection Service Points – How to Cope with Intermittent Malfunction).
NO : Replace the ETACS-ECU and register the ID codes (Refer to P.42A-134).

Inspection Procedure 3: The timer lock function does not work after the doors have been unlocked by the keyless entry system.

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

COMMENT ON TROUBLE SYMPTOM

If the keyless entry timer lock does not work normally, the input signal circuit(s) to the keyless entry transmitter or the ETACS-ECU may be defective.

PROBABLE CAUSES

- Malfunction of the keyless entry transmitter
- Malfunction of the ETACS-ECU
- Damaged harness wires and connectors

DIAGNOSIS PROCEDURE

1. Check the operation of the keyless entry system.
2. Check the customise function.
3. Retest the system.

Inspection Procedure 4: Multimode keyless entry system function does not work at all <Vehicles with electric retractable remote controlled door mirrors>.

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

COMMENTS ON TROUBLE SYMPTOM

If the electric-folding door mirrors work normally, ETACS-ECU may be faulty. Also, the door mirror operation setting is configured for other than the folding/unfolding interlocked with the keyless entry operation, using the customisation function.

PROBABLE CAUSES

- Malfunction of keyless entry transmitter
- Malfunction of ETACS-ECU
- Damaged wiring harness and connectors

DIAGNOSIS PROCEDURE

STEP 1. Confirm the transmitter.
Check that the keyless entry system works normally.

Q: Is the check result normal?
YES : Go to Step 2.
NO : Refer to trouble symptom chart P.42A-129.

STEP 2. Check the operation of the electric-folding door mirror.
Check that the electric folding door mirrors work normally.

Q: Is the check result normal?
YES : Go to Step 3.
NO : Refer to GROUP 51 – Troubleshooting .

STEP 3. M.U.T.-III diagnosis code
Check if any diagnosis code is set to the keyless entry system.

Q: Is the diagnosis code set?
YES : Refer to diagnosis code chart P.42A-126.
NO : Go to Step 4.

STEP 4. Check the customisation function.
Use the customisation function to check that the "Multi mode" has been set to one of the followings, not "Disabled."

- D/M: O&C.

Q: Is the check result normal?
YES : Go to Step 5.
NO : Use the customisation function to set the "Multi mode" to one of the above, not "Disabled" (Refer to P.42A-134).

STEP 5. Check of the troubles
Check that the multimode keyless entry system works normally.

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).
NO : Replace ETACS-ECU and register the ID codes (Refer to P.42A-134).

Inspection Procedure 5: Power door locks with selective unlocking does not work.

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

COMMENT ON TROUBLE SYMPTOM

If the keyless entry function works normally and only the power door locks with selective unlocking does not work normally, ETACS-ECU may be defective. In addition, it is possible that the function has been disabled by using the customisation function.

PROBABLE CAUSES

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

DIAGNOSIS PROCEDURE

STEP 1. Check the customisation

Q: Are the power door locks with selective unlocking enabled by the customization function?
YES : Go to Step 2.
NO : Set the power door locks with selective unlocking to "Enabled" by using the customisation function. Refer to P.42A-134.

STEP 2. Keyless entry system operation check
Press the unlock switch of the transmitter and check that only the driver's door is unlocked. Then, press the unlock switch once again within 2 seconds after that to check that the front passenger's door, the rear doors and the tailgate are unlocked.

Q: Does the keyless entry system work normally?
YES : Go to Step 3.
NO (Only the driver's door is not unlocked.) : Replace the ETACS-ECU and register the ID codes (Refer to P.42A-134).
NO (The driver's door, front passenger's door, rear doors and tailgate are not unlocked.) : Refer to Inspection Procedure 1: "Keyless entry system does not work P.42A-129."

STEP 3. Check of the troubles
Check that the power door locks with selective unlocking works normally.

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).
NO : Replace ETACS-ECU and register the ID codes (Refer to P.42A-134).

CHECK AT ECU TERMINAL

M1428006600017

Receiver antenna terminal check (Refer to GROUP 54A – Check at ECU terminal).

ON-VEHICLE SERVICE

KEYLESS ENTRY SYSTEM INSPECTION

M1428001400449

Check the system as described below. If the system does not work, carry out troubleshooting. Refer to P.42A-129.

- Operate the transmitter to check that the doors can be locked and unlocked.
- Operate the transmitter to check when the door locking or unlocking operation is performed that the hazard warning lamp [lock: flash once, unlock: flash twice (default setting)] and room lamp [lock: flash once, unlock: illuminates for 15 seconds (default setting)] answer back operates. Refer to P.42A-134.

NOTE:

- *The customisation function allows you to change the answerback setting as follows. Prior to that check, confirm which setting is activated.*
  - *The hazard warning lamp flash once when locked and twice when unlocked (default setting).*
  - *The hazard warning lamp flash once when locked and do not flash when unlocked.*
  - *The hazard warning lamp do not flash when locked and flash twice when unlocked.*
  - *The hazard warning lamp do not flash when both locked and unlocked.*
  - *The hazard warning lamp flash twice when locked and once when unlocked.*
  - *The hazard warning lamp flash twice when locked and do not flash when unlocked.*
  - *The hazard warning lamp do not flash when locked and flash once when unlocked.*

KEYLESS ENTRY SYSTEM TIMER LOCK FUNCTION INSPECTION

M1428004000547

Attempt to unlock the doors by using the transmitter. If the doors are not locked within 30 seconds, carry out troubleshooting. Note that the doors will not be locked if the ignition key is inserted within the 30-second period, one of the doors is opened, or the keyless entry function is triggered. Refer to P.42A-129.

NOTE: The customise function allows you to change the keyless entry system timer lock period from 30 seconds (initial setting) to 60, 120 or 180 seconds. Prior to the check, confirm which setting is activated. Refer to P.42A-134.

MULTIMODE KEYLESS ENTRY FUNCTION CHECK <Vehicles with electric retractable remote controlled door mirrors>

M1428004100254

Operate the transmitter to check that the electric-folding door mirrors work. If they do not work, carry out diagnosis. Refer to P.42A-129.

NOTE: The settings of the electric-folding door mirrors can be changed using the customisation function. Confirm which settings are activated before performing diagnosis. Refer to P.42A-134.

POWER DOOR LOCKS WITH SELECTIVE UNLOCKING INSPECTION

M1428006400068

Press the unlock switch on the transmitter once to unlock only the driver's door. Press the unlock switch of the transmitter once again within 2 seconds after the driver's door is unlocked, and check that the front passenger's door, the rear doors and tailgate are unlocked. If they are not unlocked, carry out trouble-shooting. Refer to P.42A-129.

NOTE: Press the unlock switch on the transmitter once to unlock only the driver's door. When the unlock switch of the transmitter is pressed once again more than 2 seconds after the driver's door is unlocked, only the driver's door is unlocked.

NOTE: The setting of the power door locks with selective unlocking can be changed using the customisation function. Confirm which setting is activated before performing these checks. Refer to P.42A-134.

HOW TO REGISTER ENCRYPTED CODE

M1428001001239

For the details of key registration procedure, refer to the ID registration procedure manual.

CUSTOMISATION FUNCTION

M1428005500255

By operating the M.U.T.-III ETACS system, the following functions can be customised. The programmed information is held even when the battery is disconnected.

Adjustment item (M.U.T.-III display)	Adjustment item	Adjusting content (M.U.T.-III display)	Adjusting content
Hazard answer back	Adjustment of the number of keyless hazard warning lamp answer back flashes	Lock:1, Unlock:2	LOCK: Flashes once, UNLOCK: Flashes twice (initial condition)
		Lock:1, Unlock:0	LOCK: Flashes once, UNLOCK: No flash
		Lock:0, Unlock:2	LOCK: No flash, UNLOCK: Flash twice
		Lock:2, Unlock:1	LOCK: Flash twice, UNLOCK: Flash once
		Lock:2, Unlock:0	LOCK: Flash twice, UNLOCK: No flash
		Lock:0, Unlock:1	LOCK: No flash, UNLOCK: Flash once
		Lock:0, Unlock:0	No function
Auto fold mirror	Electric folding door mirror automatic unfolding function <vehicles with electric retractable remote controlled door mirrors>	Not Auto	No synchronised operation
		Open Vehicle SPD	Vehicle speed-dependent operation
		Open/Close by IG	Ignition switch linked operation
		OPN/CLS Keyles	Keyless entry linked operation (initial condition)
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 (initial condition).
		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.

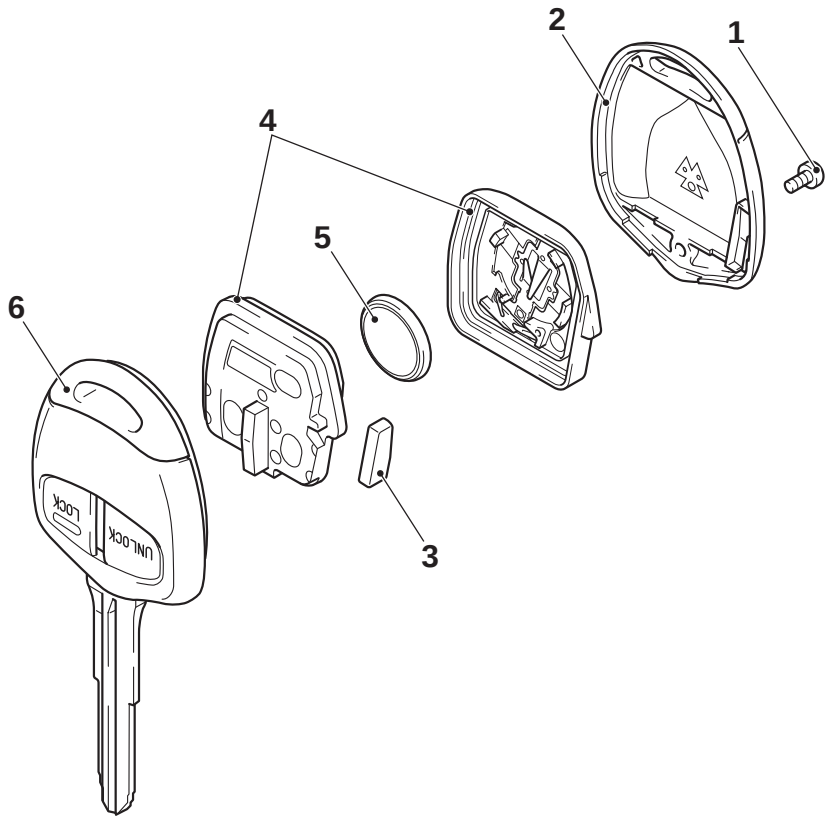
Adjustment item (M.U.T.-III display)	Adjustment item	Adjusting content (M.U.T.-III display)	Adjusting content
Timer lock timer	Timer lock period adjustment	30 sec	30 seconds (initial condition)
		60 sec	60 seconds
		120 sec	120 seconds
		180 sec	180 seconds
Multi mode	Multi-mode keyless entry function customisation <Vehicles with electric retractable remote controlled door mirrors>	Disable	No function
		D/M: O&C	Door mirror fold/unfold operation only (initial condition)

TRANSMITTER

DISASSEMBLY AND REASSEMBLY

M1428002800525

Post-installation operation
- Transmitter operation check



AC310838AI

Disassembly steps
1. Screw
2. Upper cover
3. Transponder

<<A>> >>A<<

Disassembly steps (Continued)
4. Transmitter assembly
5. Battery
6. Master key

DISASSEMBLY SERVICE POINT

<<A>> BATTERY REMOVAL

⚠ CAUTION

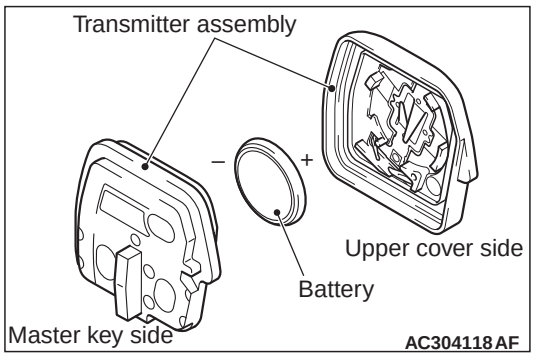
Do not allow water or dust to enter the inside of the transmitter assembly when it is open. Also, do not touch the precision electronic device.

REASSEMBLY SERVICE POINT

>>A<< BATTERY INSTALLATION

⚠ CAUTION

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



Install a battery to the transmitter assembly with its (+) side facing towards the upper cover side.

Battery required for replacement: Coin type battery CR1616

SUNROOF ASSEMBLY

SEALANT

M1426000500179

Item	Standard value
Sunroof assembly	Grease: Use resin – proof silicone grease

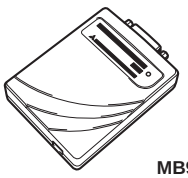
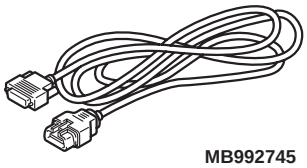
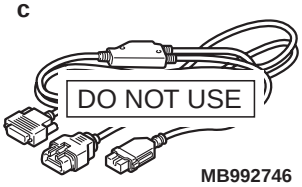
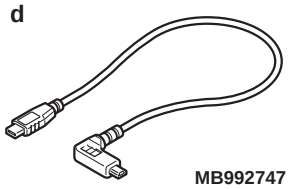
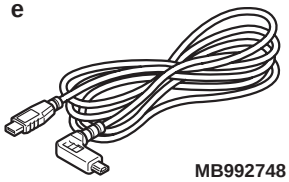
SERVICE SPECIFICATIONS

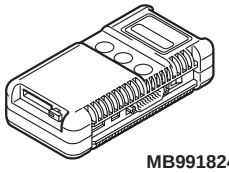
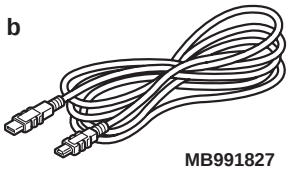
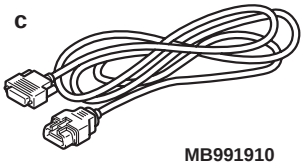
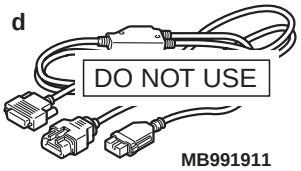
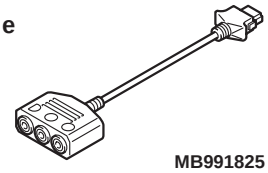
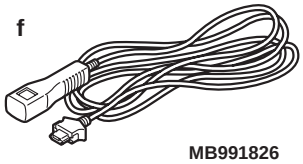
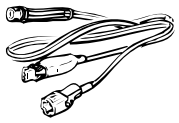
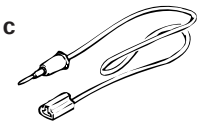
M1421000300857

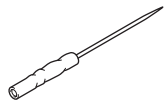
Item	Standard value
Roof lid glass operation current (at 20°C) A	7 or less

SPECIAL TOOLS

M1426000600411

Tool	Number	Name	Use
a  MB992744 b  MB992745 c  MB992746 d  MB992747 e  MB992748 ACB05421AB	a. MB992744 b. MB992745 c. MB992746 d. MB992747 e. MB992748	a. Vehicle communication interface-Lite (V.C.I.-Lite) b. V.C.I.-Lite main harness A (for vehicles with CAN communication) c. V.C.I.-Lite main harness B (for vehicles without CAN communication) d. V.C.I.-Lite USB cable short e. V.C.I.-Lite USB cable long	ECU check (M.U.T.-III diagnosis code display and service data display)

Tool	Number	Name	Use
a  MB991824 b  MB991827 c  MB991910 d  MB991911 e  MB991825 f  MB991826 MB991955	MB991955 a: MB991824 b: MB991827 c: MB991910 d: MB991911 e: MB991825 f: MB991826	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 measurement adapter f: M.U.T.-III trigger harness	⚠ 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.** ECU check (M.U.T.-III diagnosis code display and service data display)
a  b  c  d  MB991223	MB991223 a. MB991219 b. MB991220 c. MB991221 d. MB991222	Wiring harness set a. Check harness b. LED harness c. LED harness adapter d. Probe	Continuity check and voltage measurement at wiring harness or connector a. For checking connector pin contact pressure b. For checking power supply circuit c. For checking power supply circuit d. For connecting a locally sourced tester

Tool	Number	Name	Use
 MB992006	MB992006	Extra fine probe	Continuity check and voltage measurement at wiring harness or connector

TROUBLESHOOTING

STANDARD FLOW OF DIAGNOSTIC TROUBLESHOOTING

M1426001700251

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

⚠ 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, confirm all systems for diagnosis code(s). If diagnosis code(s) are set, erase them all.

DIAGNOSIS CODE CHART

M1426001900170

Diagnosis code No.	Diagnostic item	Reference page
L0630	S/R Power supply	P.42A-139
L0632	S/R Switch fail	P.42A-140
L0634	S/R Sensor signal	P.42A-140
L0637	S/R Position	P.42A-140
L0640	S/R Over load	P.42A-141

NOTE: S/R: Abbreviation of sunroof

DIAGNOSIS CODE PROCEDURES

CODE NO. L0630: S/R POWER SUPPLY

⚠ CAUTION

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

COMMENTS ON TROUBLE SYMPTOM

Current trouble

- If the terminal voltage at the sunroof ECU has been 8 V or lower, or 18V or higher for 60 seconds, ETACS-ECU sets the diagnosis code No. L0630.

PROBABLE CAUSES

- Malfunction of the sunroof motor assembly
- Damaged wiring harness and connectors

DIAGNOSTIC PROCEDURE

STEP 1. Check of short to power supply, short to earth, and open circuit in IG1 line between sunroof motor assembly connector and fusible link.

Q: Is the check result normal?
YES : Go to Step 2.
NO : Repair the connector(s) or wiring harness.

STEP 2. Diagnosis code recheck

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

Q: Is the diagnosis code set?
YES : Replace the sunroof motor assembly.
NO : The diagnosis is complete.

CODE NO. L0632: S/R Switch fall

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

COMMENTS ON TROUBLE SYMPTOM

Current trouble
- If each switch (up, open, close/down) of the sunroof switch has been ON for 60 seconds, ETACS-ECU sets the diagnosis 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 of open circuit in UP, OPEN, CLOS line between sunroof motor assembly connector and sunroof switch connector.

Q: Is the check result normal?
YES : Go to Step 2.
NO : Repair the connector(s) or wiring harness.

STEP 2. Diagnosis code recheck
Replace the sunroof switch. Recheck if the diagnosis code is set.
(1) Erase the diagnosis code.
(2) Turn the ignition switch from the LOCK (OFF) position to the ON position.
(3) Check if the diagnosis code is set.

Q: Is the diagnosis code set?
YES : Replace the sunroof motor assembly.
NO : The diagnosis is complete.

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

Current trouble
- If the signal from one of two lid position detection sensors cannot be detected, ETACS-ECU sets the diagnosis code No. L0634.

PROBABLE CAUSES
- Malfunction of the sunroof motor assembly

DIAGNOSTIC PROCEDURE

Diagnosis code recheck
Recheck if the diagnosis code is set.
(1) Erase the diagnosis code.
(2) Turn the ignition switch from the LOCK (OFF) position to the ON position.
(3) Check if the diagnosis code is set.

Q: Is the diagnosis code set?
YES : Replace the sunroof motor assembly.
NO : The diagnosis 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

Current trouble
- If the roof lid glass position is out of the specified area, ETACS-ECU sets the diagnosis 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-151.
(2) Recheck if the diagnosis code is set.
  a. Erase the diagnosis code.
  b. Turn the ignition switch from the LOCK (OFF) position to the ON position.
  c. Check if the diagnosis code is set.

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

STEP 2. Diagnosis code recheck

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

Q: Is the diagnosis code set?
YES : Replace the sunroof motor assembly.
NO : The diagnosis 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

Current trouble

- If the anti-trap function is activated consecutively five times or more, ETACS-ECU sets the diagnosis 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-151.
(2) Recheck if the diagnosis code is set.
  a. Erase the diagnosis code.
  b. Turn the ignition switch from the LOCK (OFF) position to the ON position.
  c. Check if the diagnosis code is set.

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

STEP 2. Diagnosis code recheck

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

Q: Is the diagnosis code set?
YES : Replace the sunroof motor assembly.
NO : The diagnosis is complete.

DATA LIST REFERENCE TABLE

M1426002100025

LIN (SUN ROOF)

Item No.	M.U.T.-III display	Check condition	Normal condition
6001	S/R Part number	–	5850A265
6002	S/R Serial number	–	–
6003	S/R SOFT Ver	–	–
6004	S/R Position	–	–
6005	S/R Position initialize state	Initialisation not completed	Not done
		Initialisation completed	OK
6006	S/R Overload(Motor lock)	Overload due to a motor lock not detected	OFF
		Overload due to a motor lock detected	ON

Item No.	M.U.T.-III display	Check condition	Normal condition
6007	S/R Overload(Pulse change)	Overload due to a pulse modulation not detected	OFF
		Overload due to a pulse modulation detected	ON
6010	S/R Power supply voltage	Always	System voltage
6011	S/R Open switch	The open switch is not being operated	Not actuated
		The open switch is being operated	Actuated
6012	S/R Close switch	The close switch is not being operated	Not actuated
		The close switch is being operated	Actuated
6013	S/R Tilt up switch	The tilt-up switch is not being operated	Not actuated
		The tilt-up switch is being operated	Actuated
6014	S/R Ignition switch	When the ignition switch is turned to the LOCK or ACC position.	OFF
		When the ignition switch is turned to the ON or START position.	ON
6015	S/R Ignition switch(LIN)	When the ignition switch is turned to the LOCK or ACC position.	OFF
		When the ignition switch is turned to the ON or START position.	ON
6018	S/R Operation	Communication is not normal	Disable
		Communication is normal	Enable
6019	S/R Multi close	The multi-close function not in progress	OFF
		The multi-close function in progress	ON
6020	S/R Operation mode	–	Type 2
6021	S/R Vehicle speed	Perform a test run of the vehicle.	The values displayed on the speedometer and M.U.T.-III are almost the same.
6022	S/R Position state	The sunroof position not confirmed	Undecided pos.
		The sunroof is at tilt-up position.	Tilt up
		The sunroof is slid to open.	Slide open
		The sunroof is fully closed.	Full close
6023	S/R Sleep condition	Communication sleep conditions not satisfied	OFF
		Communication sleep conditions satisfied	ON
6024	S/R Motor	The motor not running	Not actuated
		The motor running	Actuated
6026	S/R Log1(Trigger) Open	The open switch was not operated the last time.	OFF
		The open switch was operated the last time.	ON

Item No.	M.U.T.-III display	Check condition	Normal condition
6027	S/R Log1(Trigger) Close	The close switch was not operated the last time.	OFF
		The close switch was operated the last time.	ON
6028	S/R Log1(Trigger) Tilt Up	The close switch was not operated the last time.	OFF
		The close switch was operated the last time.	ON
6029	S/R Log1(Trigger) Multi Close	The multi-close function was not operated the last time.	OFF
		The multi-close function was operated the last time.	ON
6030	S/R Log1(Trigger) Overload	Overload was not detected the last time.	OFF
		Overload was detected the last time.	ON
6031	S/R Log1 IG-SW	The ignition switch was turned OFF the last time.	OFF
		The ignition switch was turned ON the last time.	ON
6032	S/R Log1 Motor actuate	The motor did not operate the last time.	OFF
		The motor operated the last time.	ON
6033	S/R Log1 Operation	Sunroof operation permission status was "not permitted" the last time.	OFF
		Sunroof operation permission status was "permitted" the last time.	ON
6034	S/R Log2(Trigger) Open	The open switch was not operated the last time but one.	OFF
		The open switch was operated the last time but one.	ON
6035	S/R Log2(Trigger) Close	The close switch was not operated the last time but one.	OFF
		The close switch was operated the last time but one.	ON
6036	S/R Log2(Trigger) Tilt Up	The close switch was not operated the last time but one.	OFF
		The close switch was operated the last time but one.	ON
6037	S/R Log2(Trigger) Multi Close	The multi-close function was not operated the last time but one.	OFF
		The multi-close function was operated the last time but one.	ON
6038	S/R Log2(Trigger) Overload	Overload was not detected the last time but one.	OFF
		Overload was detected the last time but one.	ON

Item No.	M.U.T.-III display	Check condition	Normal condition
6039	S/R Log2 IG-SW	The ignition switch was turned OFF the last time but one.	OFF
		The ignition switch was turned ON the last time but one.	ON
6040	S/R Log2 Motor actuate	The motor did not operate the last time but one.	OFF
		The motor operated the last time but one.	ON
6041	S/R Log2 Operation	Sunroof operation permission status was "not permitted" the last time but one.	OFF
		Sunroof operation permission status was "permitted" the last time but one.	ON
6042	S/R Log3(Trigger) Open	The open switch was not operated the last time but two.	OFF
		The open switch was operated the last time but two.	ON
6043	S/R Log3(Trigger) Close	The close switch was not operated the last time but two.	OFF
		The close switch was operated the last time but two.	ON
6044	S/R Log3(Trigger) Tilt Up	The close switch was not operated the last time but two.	OFF
		The close switch was operated the last time but two.	ON
6045	S/R Log3(Trigger) Multi Close	The multi-close function was not operated the last time but two.	OFF
		The multi-close function was operated the last time but two.	ON
6046	S/R Log3(Trigger) Overload	Overload was not detected the last time but two.	OFF
		Overload was detected the last time but two.	ON
6047	S/R Log3 IG-SW	The ignition switch was turned OFF the last time but two.	OFF
		The ignition switch was turned ON the last time but two.	ON
6048	S/R Log3 Motor actuate	The motor did not operate the last time but two.	OFF
		The motor operated the last time but two.	ON
6049	S/R Log3 Operation	Sunroof operation permission status was "not permitted" the last time but two.	OFF
		Sunroof operation permission status was "permitted" the last time but two.	ON

Item No.	M.U.T.-III display	Check condition	Normal condition
6050	S/R Log4(Trigger) Open	The open switch was not operated the last time but three.	OFF
		The open switch was operated the last time but three.	ON
6051	S/R Log4(Trigger) Close	The close switch was not operated the last time but three.	OFF
		The close switch was operated the last time but three.	ON
6052	S/R Log4(Trigger) Tilt Up	The close switch was not operated the last time but three.	OFF
		The close switch was operated the last time but three.	ON
6053	S/R Log4(Trigger) Multi Close	The multi-close function was not operated the last time but three.	OFF
		The multi-close function was operated the last time but three.	ON
6054	S/R Log4(Trigger) Overload	Overload was not detected the last time but three.	OFF
		Overload was detected the last time but three.	ON
6055	S/R Log4 IG-SW	The ignition switch was turned OFF the last time but three.	OFF
		The ignition switch was turned ON the last time but three.	ON
6056	S/R Log4 Motor actuate	The motor did not operate the last time but three.	OFF
		The motor operated the last time but three.	ON
6057	S/R Log4 Operation	Sunroof operation permission status was "not permitted" the last time but three.	OFF
		Sunroof operation permission status was "permitted" the last time but three.	ON

TROUBLE SYMPTOM CHART

M1426002000620

⚠ 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, confirm 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-146
The sunroof lid glass does not tilt-up (tilt-down, open, and close normally).	2	P.42A-147
The sunroof lid glass does not open (tilt-up, tilt-down, and close normally).	3	P.42A-148
The sunroof lid glass does not tilt-down or close (tilt-up and open normally).	4	P.42A-148

Trouble symptom	Inspection procedure number	Reference page
Sunroof anti-trap function (safety mechanism) does not work normally.	5	P.42A-149

SYMPTOM PROCEDURES

INSPECTION PROCEDURE 1: Sunroof does not work at All.

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

COMMENTS ON TROUBLE SYMPTOM
Malfunctions of the sunroof motor assembly power supply/earth system, sunroof motor assembly, or sunroof switch are suspected.

PROBABLE CAUSES
- Malfunction of the sunroof motor assembly
- Malfunction of the sunroof switch
- Damaged wiring harness and connectors

DIAGNOSTIC PROCEDURE

STEP 1. M.U.T.-III diagnosis code
Check that any sunroof operation-related diagnosis codes are set in ETACS-ECU.

Q: Is the diagnosis code set?
YES : Refer to diagnosis code chart P.42A-139.
NO : Go to Step 2.

STEP 2. Sunroof switch check
Refer to sunroof switch check P.42A-154.

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

STEP 3. Resistance measurement at sunroof switch connector (earth line terminal).
(1) Disconnect the connector, and measure the resistance at the wiring harness-side connector.
(2) Measure the resistance at the sunroof switch connector (earth line terminal) and body earth.

OK: Continuity exists (2 Ω or less)

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

STEP 4. Check of short to earth, and open circuit in SW– line between sunroof motor assembly connector and sunroof switch connector.

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).
NO : Repair the connector(s) or wiring harness.

STEP 5. Resistance measurement at sunroof motor assembly connector (E terminal).
(1) Disconnect the connector, and measure the resistance at the wiring harness-side connector.
(2) Measure the resistance at the sunroof motor assembly connector (E terminal) and body earth.

OK: Continuity exists (2 Ω or less)

Q: Is the check result normal?
YES : Go to Step 7.
NO : Go to Step 6.

STEP 6. Check of short to earth, and open circuit in E line between sunroof motor assembly connector and body earth.

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).
NO : Repair the connector(s) or wiring harness.

STEP 7. Voltage measurement at sunroof motor assembly connector (SR+ terminal).
(1) Disconnect the connector, and measure the voltage at the wiring harness-side connector.
(2) Measure the voltage at the sunroof motor assembly connector (SR+ terminal) and body

earth.

OK: System voltage

Q: Is the check result normal?
YES : Go to Step 9.
NO : Go to Step 8.

STEP 8. Check of short to power supply, short to earth, and open circuit in SR+ line between sunroof motor assembly connector and fusible link.

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).
NO : Repair the connector(s) or wiring harness.

STEP 9. Voltage measurement at sunroof motor assembly connector (IG1 terminal).
(1) Disconnect the connector, and measure the voltage at the wiring harness-side connector.
(2) Turn the ignition switch ON position.
(3) Measure the voltage at the sunroof motor assembly connector (IG1 terminal) and body earth.

OK: System voltage

Q: Is the check result normal?
YES : Go to Step 11.
NO : Go to Step 10.

STEP 10. Check of short to power supply, short to earth, and open circuit in IG1 line between sunroof motor assembly connector and fusible link.

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).
NO : Repair the connector(s) or wiring harness.

STEP 11. Retest the system.
Check that the sunroof works normally.

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).
NO : Replace the sunroof motor assembly.

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 earth circuit and the communication circuit are normal.

COMMENTS ON TROUBLE SYMPTOM

Malfunctions of the sunroof motor assembly or sunroof switch are suspected.

PROBABLE CAUSES

- Malfunction of the sunroof motor assembly
- Malfunction of the sunroof switch
- Damaged wiring harness and connectors

DIAGNOSTIC PROCEDURE

STEP 1. M.U.T.-III diagnosis code
Check that any sunroof operation-related diagnosis codes are set in ETACS-ECU.

Q: Is the diagnosis code set?
YES : Refer to diagnosis code chart P.42A-139.
NO : Go to Step 2.

STEP 2. Sunroof switch check
Refer to sunroof switch check P.42A-154.

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

STEP 3. Check of open circuit in UP line between sunroof motor assembly connector and sunroof switch connector.

Q: Is the check result normal?
YES : Go to Step 4.
NO : Repair the connector(s) or wiring harness.

STEP 4. Retest the system.

Q: Is the roof lid glass tilted-up.

YES : Intermittent malfunction (Refer to GROUP 00 – How to Use Troubleshooting/Inspection Service Points - How to Cope with Intermittent Malfunction).
NO : Replace the sunroof motor assembly.

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 earth circuit and the communication circuit are normal.

COMMENTS ON TROUBLE SYMPTOM
Malfunctions of the sunroof motor assembly or sunroof switch are suspected.

PROBABLE CAUSES
- Malfunction of the sunroof motor assembly
- Malfunction of the sunroof switch
- Damaged wiring harness and connectors

DIAGNOSTIC PROCEDURE

STEP 1. M.U.T.-III diagnosis code
Check that any sunroof operation-related diagnosis codes are set in ETACS-ECU.

Q: Is the diagnosis code set?
YES : Refer to diagnosis code chart P.42A-139.
NO : Go to Step 2.

STEP 2. Sunroof switch check
Refer to sunroof switch check P.42A-154.

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

STEP 3. Check of open circuit in OPEN line between sunroof motor assembly connector and sunroof switch connector.

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

STEP 4. Retest the system.
Check that the roof lid glass is open.

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).
NO : Replace the sunroof motor assembly.

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 earth circuit and the communication circuit are normal.

COMMENTS ON TROUBLE SYMPTOM
Malfunctions of the sunroof motor assembly and/or sunroof switch are suspected.

PROBABLE CAUSES
- Malfunction of the sunroof motor assembly
- Malfunction of the sunroof switch
- Damaged wiring harness and connectors

DIAGNOSTIC PROCEDURE

STEP 1. M.U.T.-III diagnosis code
Check that any sunroof operation-related diagnosis codes are set in ETACS-ECU.

Q: Is the diagnosis code set?
YES : Refer to diagnosis code chart P.42A-139.
NO : Go to Step 2.

STEP 2. Sunroof switch check
Refer to sunroof switch check P.42A-154.

Q: Is the sunroof switch normal?

YES : Go to Step 3.
NO : Replace the sunroof switch.

STEP 3. Check of open circuit in CLOS line between sunroof motor assembly and sunroof switch connector.

Q: Is the check result normal?
YES : Go to Step 4.
NO : Repair the connector(s) or wiring harness.

STEP 4. Retest the system.
Check that the roof lid glass tilts down or closes.

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).
NO : Replace the sunroof motor assembly.

INSPECTION PROCEDURE 5: Sunroof Anti-trap Function (Safety Mechanism) does not work Normally.

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

COMMENTS ON TROUBLE SYMPTOM
Malfunction of the sunroof motor assembly or incorrect learning of the sunroof fully closed position is suspected.

PROBABLE CAUSES
- Malfunction of the sunroof motor assembly
- Incorrect learning of the sunroof fully closed position

DIAGNOSTIC PROCEDURE

STEP 1. M.U.T.-III diagnosis code
Check that any sunroof operation-related diagnosis codes are set in ETACS-ECU.

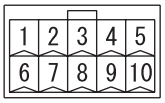
Q: Is the diagnosis code set?
YES : Refer to diagnosis code chart P.42A-139.
NO : Go to Step 2.

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-151).
(2) Check the trouble symptom.

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).
NO : Replace the sunroof motor assembly.

CHECK AT ECU TERMINAL
M1426002400424

SUNROOF MOTOR ASSEMBLY TERMINAL CHECK



ACC00145

Terminal number	Terminal code	Check items	Check conditions	Normal conditions
1	SW–	Earth	Always	1 V or less
2	E	Earth	Always	1 V or less
3	IG1	Battery power supply (for ECU)	Ignition switch: ON	System voltage
4	UP	Input from sunroof switch (tilt-up)	Sunroof switch: Up	1 V or less
5	OPEN	Input from sunroof switch (open)	Sunroof switch: Open	1 V or less
6	SR+	Battery power supply (for motor)	Always	System voltage

Terminal number	Terminal code	Check items	Check conditions	Normal conditions
7	LIN	LIN communication line (between ETACS-ECU)	Always	0 to 12 V (pulse signal)
8	-	–	–	–
9	-	–	–	–
10	CLOS	Input from sunroof switch (close or down)	Sunroof switch: Close or down	1 V or less

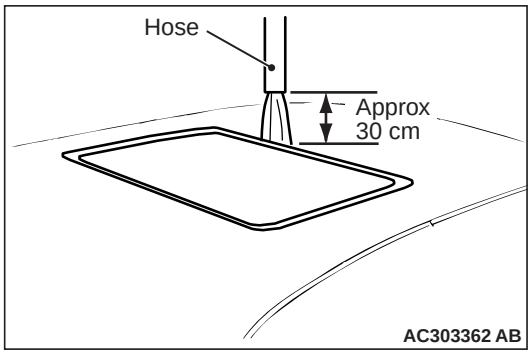
ON-VEHICLE SERVICE

SUNROOF LEAKAGE CHECK

M1426000900401

Check the sunroof for leakage as follows:

1. Close the roof lid glass fully.
2. Using tap water, adjust the water pressure so that the height of water spouted out from the end of a hose is approximately 50 cm with the end of the hose facing up.



3. Apply tap water to the weatherstrip from approximately 30 cm above the roof surface for 5 minutes or longer.
4. While applying water, check the vehicle interior for any trace of leakage. If any leakage from around the roof lid glass is collected by the drip section, there is no problem.

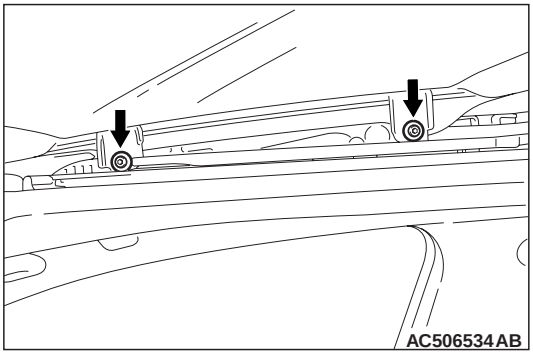
SUNROOF ALIGNMENT

M1426001000412

1. Close the roof lid glass fully.
2. Open the sun shade fully.

SUNROOF LID GLASS OPERATION CURRENT CHECK

M1426003200553



3. Loosen the roof lid glass assembly mounting screws. Adjust the roof lid glass height by moving the roof lid glass assembly along the sunroof lid guide oblong hole so that the clearance between the roof lid glass and the vehicle body is even throughout the circumference.
4. After adjustment, check that the sunroof operates smoothly.

SUNROOF SAFETY FUNCTION CHECK

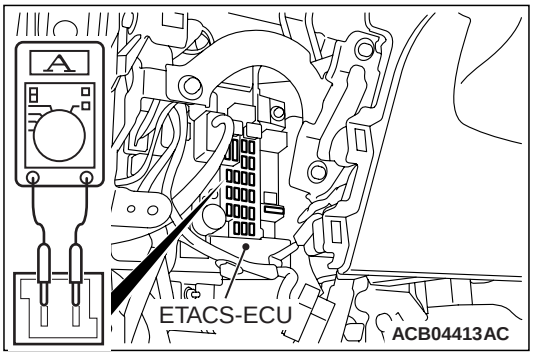
M1426004400550

1. Close the roof lid glass while placing an approximately 10 mm 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 roof lid glass opens when the roof lid glass touches the wood chip. If any problem occurs, perform troubleshooting (Refer to P.42A-145).

SUNROOF OPERATION CHECK

M1426002600600

Check to see that the sunroof operates by pressing the sunroof switch. If it does not operate, perform troubleshooting. Refer to P.42A-145.



1. Remove the sunroof fuse to check that it is normal, and then connect a circuit tester as shown.
2. Operate the sunroof switch to ON, and measure at the intermediate section other than the sunroof activated, fully opened, and fully opened positions.

   Standard value: 7 A or less (at 20°C)
3. Check the following areas if the operating current of the sunroof lid glass exceeds the standard value.
   - Sunroof assembly assembling state, deformation and biting of any foreign substances.
   - Drive cable fastening
   - Tilting of sunroof lid glass

LEARNING PROCEDURES OF THE SUNROOF FULLY CLOSED POSITION

M1426004600491

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 roof lid glass stopped (the position of the roof 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.

3. After the roof lid glass has reached the tilt-up position, press and hold the up switch for five

HOW TO ADJUST THE FULLY CLOSED POSITION

<FORCED FULLY CLOSED POSITION ADJUSTMENT MODE>

1. With the roof lid glass stopped (the position of the roof 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 roof lid glass. After the roof lid glass stops, press and hold the up switch.
2. Use the up switch to set the roof lid glass to the tilt-up position. The roof 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.

<SUCH AS WHEN THE SAFETY FUNCTION IS ACTIVATED CONSECUTIVELY FIVE TIMES>

Use the up switch to set the roof lid glass to the tilt-up position. The roof 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

<FORCED FULLY CLOSED POSITION ADJUSTMENT MODE>

1. With the roof lid glass stopped (the position of the roof 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 roof lid glass. After the roof lid glass stops, press and hold the up switch.
2. Use the up switch to set the roof lid glass to the tilt-up position. The roof 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. seconds.

4. Release the up switch once, and then press and hold it again.
5. The roof lid glass will be tilted down, fully opened and then fully closed while the up switch is held down. Press and hold the up switch until the roof lid glass is fully closed and then stopped. When the roof lid glass has been fully closed and then stopped, the fully closed position learning is completed.

<SUCH AS WHEN THE SAFETY FUNCTION IS ACTIVATED CONSECUTIVELY FIVE TIMES>

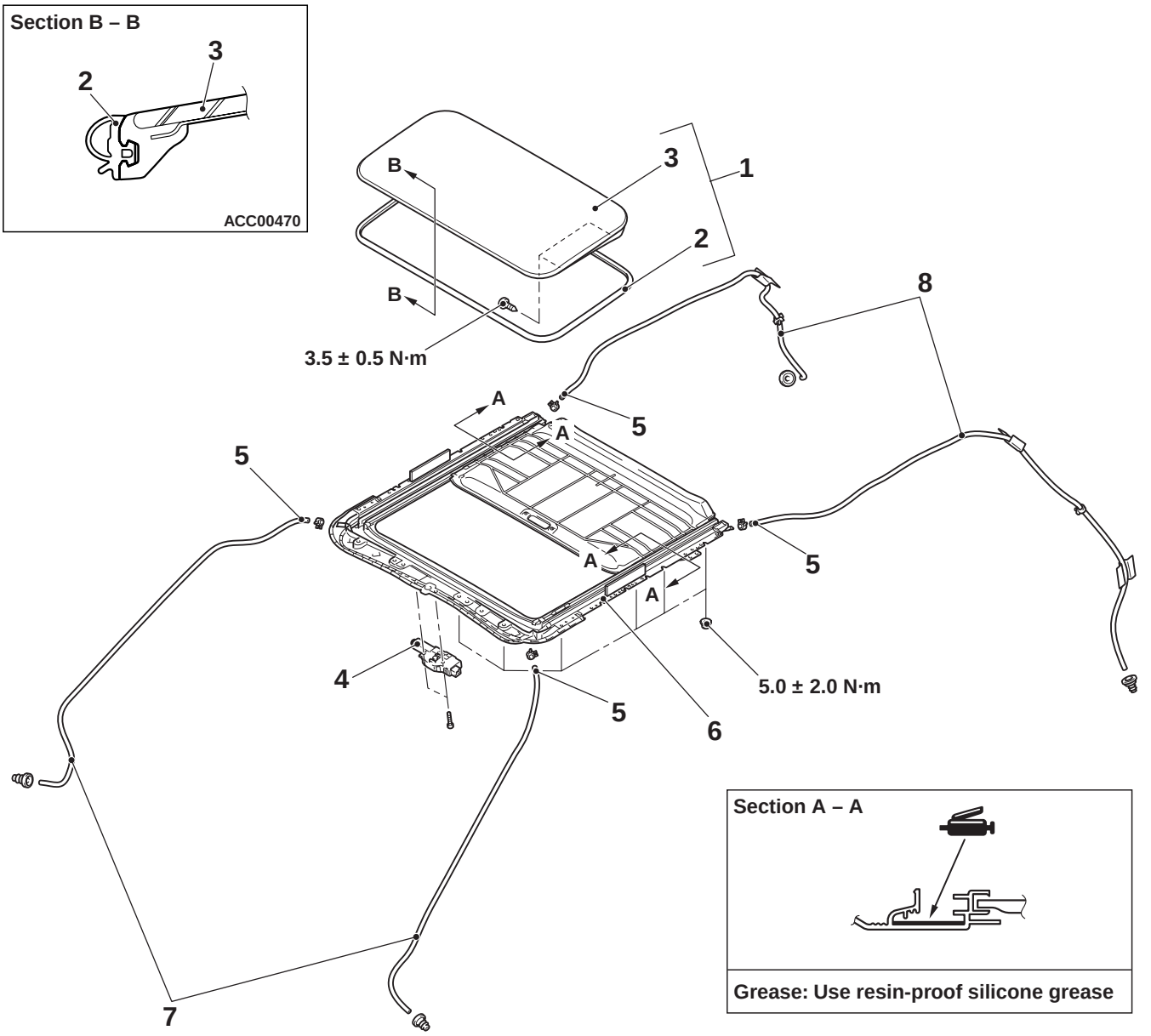
1. Use the up switch to set the roof lid glass to the tilt-up position. The roof lid glass activates for approximately 30 mm and stops automatically when the switch is pressed once. Repeat this operation until the tilt-up position is reached.
2. After the roof lid glass has reached the tilt-up position, press and hold the up switch for five seconds.
3. Release the up switch once, and then press and hold it again.
4. The roof lid glass will be tilted down, fully opened and then fully closed while the up switch is held down. Press and hold the up switch until the roof lid glass is fully closed and then stopped. When the roof lid glass has been fully closed and then stopped, the fully closed position learning is completed.

SUNROOF ASSEMBLY

REMOVAL AND INSTALLATION

M1426001201204

Post-installation operation
<Roof lid glass assembly and sunroof assembly>
- Sunroof leakage check (Refer to P.42A-150.)
- Sunroof alignment (Refer to P.42A-150.)
- Learning procedures for sunroof fully closed position (Refer to P.42A-151.)



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ACC00120AB

Sunroof switch removal
- Front room lamp (Refer to GROUP 54A – Front room lamp .)

Sunroof lid glass assembly removal
1. Sunroof lid glass assembly

Sunroof lid glass assembly removal (Continued)
2. Sunroof lid weatherstrip
3. Sunroof lid glass

Sunroof motor assembly removal steps
4. Sunroof motor assembly

Sunroof assembly removal steps

5. Drain pipe connection
<<A>> 6. Sunroof assembly

Drain pipe removal steps

- Headlining (Refer to GROUP 52A – Headlining .)
- Splash shield front (Refer to P.42A-9.)

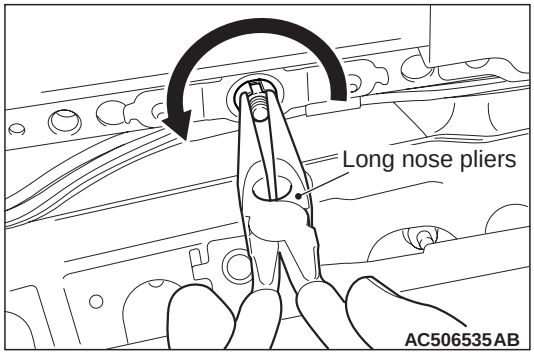
>>A<< 7. Front drain pipe

- Splash shield rear (rear bumper side) (Refer to P.42A-9.)

>>A<< 8. Rear drain pipe

REMOVAL SERVICE POINT

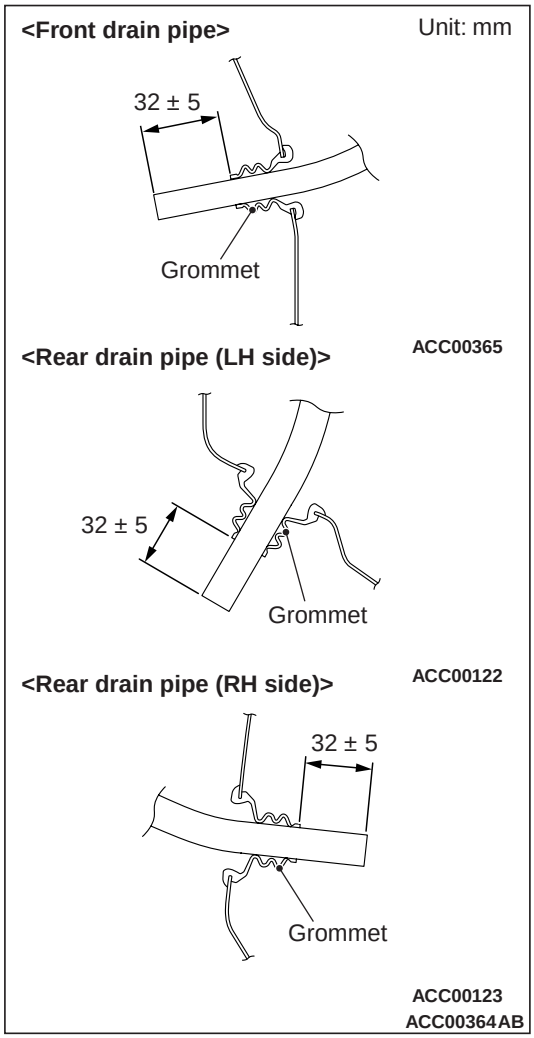
<<A>> SUNROOF ASSEMBLY REMOVAL



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

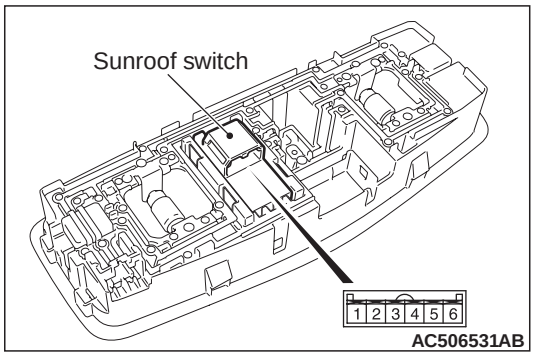


Install the grommet, and adjust the drain pipe projection as shown.

INSPECTION

M1426004700409

SUNROOF SWITCH CONTINUITY CHECK

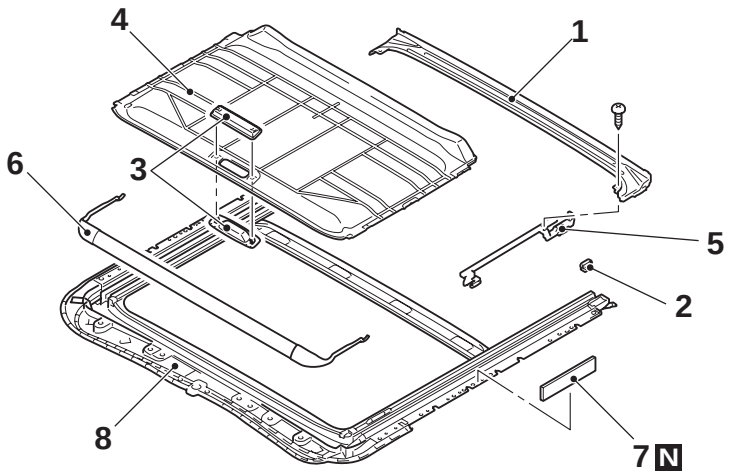


Switch position	Terminal number	Normal value
Tilt up	3 – 4	Continuity exists (2 Ω or less)
OFF	3 – 4, 4 – 5, 4 – 6	No continuity
Open	4 – 5	Continuity exists (2 Ω or less)

Switch position	Terminal number	Normal value
Close/down	4 – 6	Continuity exists (2 Ω or less)

DISASSEMBLY AND REASSEMBLY

M1426001400551



ACB05470AB

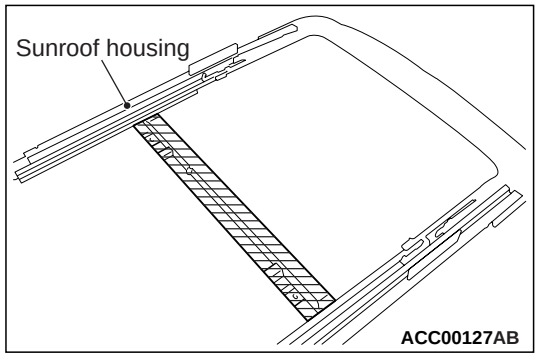
Disassembly steps

1. Sunroof drip rail
2. Sunroof sunshade stopper
3. Sunroof sunshade knob
<<**A**>> 4. Sunroof sunshade
5. Sunroof drip plate
6. Sunroof deflector
>>**A**<< 7. Sunroof pad
8. Sunroof housing

REMOVAL SERVICE POINTS

<<A>> SUNROOF SUNSHADE REMOVAL

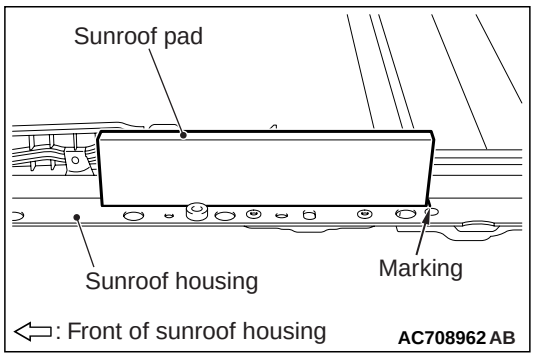
⚠ CAUTION



Before removing the sunroof sunshade, clean up the slash area of the sunroof housing as shown. If you fail to do so, it may get dirty when removing the sunroof sunshade.

INSTALLATION SERVICE POINTS

>>A<< SUNROOF PAD INSTALLATION



Align the sunroof pad with the marking on the sunroof housing and install it.

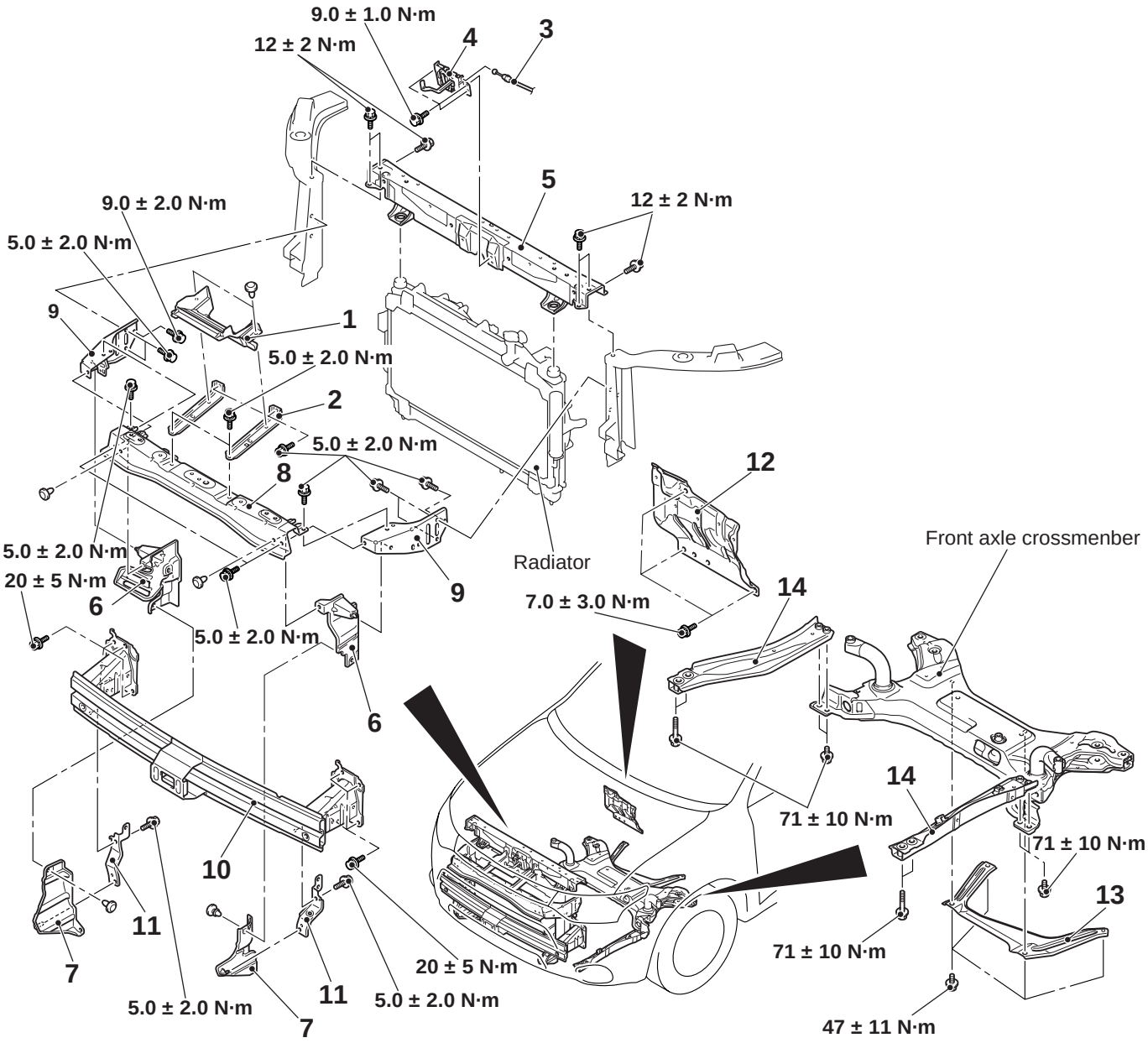
LOOSE PANEL

REMOVAL AND INSTALLATION

M1421003101402

⚠ CAUTION

- **Disconnect the battery (–) terminal and wait for 60 seconds or more before starting work. Insulate the disconnected (–) terminal by wrapping a tape.**
- **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.**



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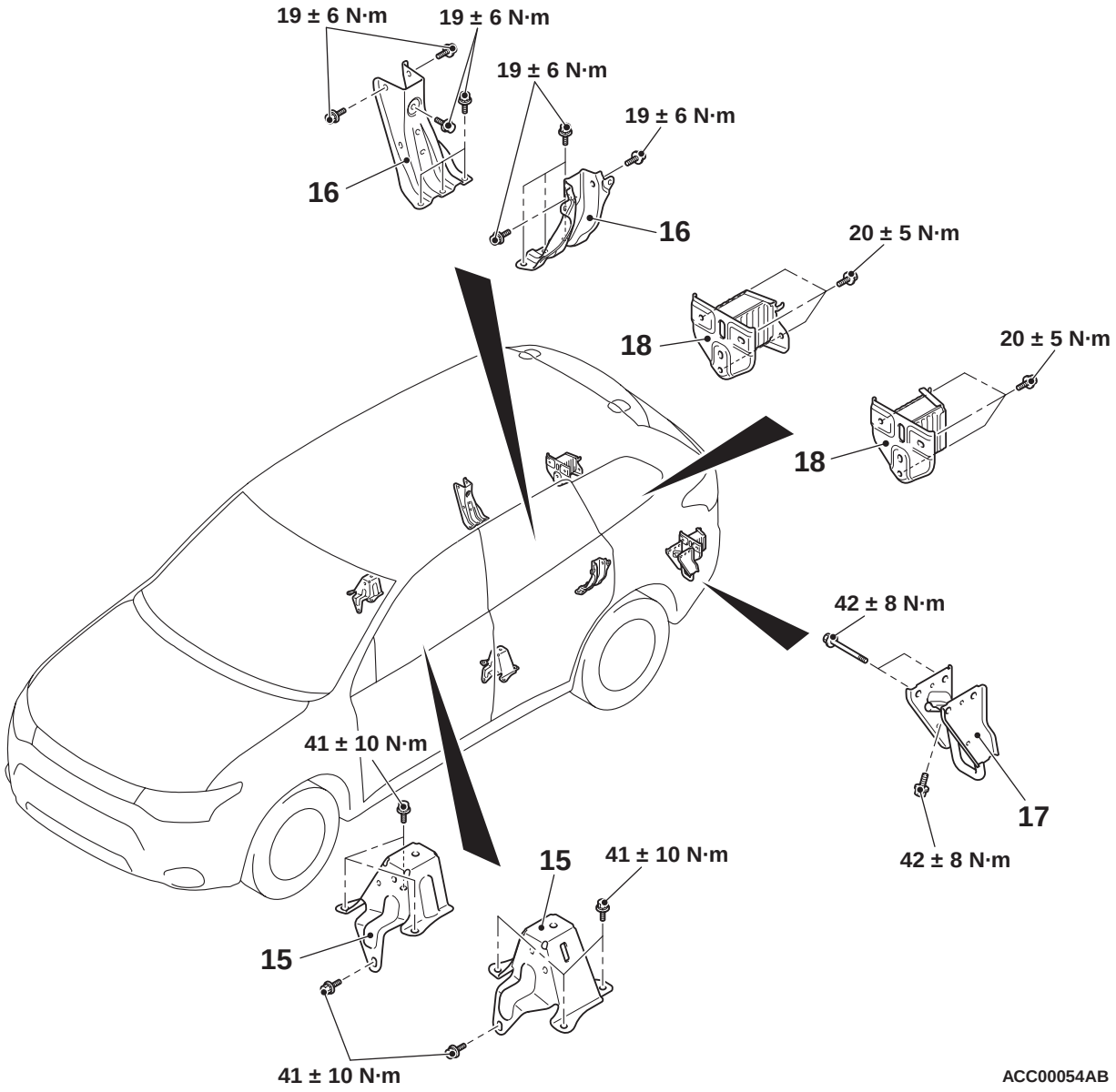


Front bumper reinforcement stay removal steps

- Radiator grille (Refer to GROUP 51 – Radiator Grille .)

1. Latch cover
2. Front bumper reinforcement stay

Headlamp support panel upper removal steps

- Radiator grille (Refer to GROUP 51 – Radiator Grille .)

1. Latch cover
2. Front bumper reinforcement stay
3. Hood lock release cable
4. Hood latch
   - Front impact sensor (Refer to GROUP 52B – Front Impact Sensor .)
   - Support upper insulator (Refer to GROUP 14 – Radiator .)

>>B<< 5. Headlamp support panel upper

Airguide removal steps

- Front bumper assembly (Refer to GROUP 51 – Front Bumper Assembly .)

6. Airguide upper
7. Airguide lower

Front bumper reinforcement A removal steps

- Radiator grille (Refer to GROUP 51 – Radiator Grille .)

1. Latch cover
2. Front bumper reinforcement stay
   - Front bumper assembly (Refer to GROUP 51 – Front Bumper Assembly .)
6. Airguide lower
7. Airguide upper
8. Front bumper reinforcement A

Front bumper side reinforcement removal steps

- Radiator grille (Refer to GROUP 51 – Radiator Grille .)

1. Latch cover
2. Front bumper reinforcement stay

- Front bumper assembly (Refer to GROUP 51 – Front Bumper Assembly .)

6. Airguide lower
7. Airguide upper
8. Front bumper reinforcement A
9. Front bumper side reinforcement

Front bumper reinforcement B removal

- Front bumper assembly (Refer to GROUP 51 – Front Bumper Assembly .)

>>A<< 10. Front bumper reinforcement B

Front bumper side reinforcement lower removal

- Engine room under cover front A (Refer to GROUP 51 – Under Cover .)

11. Front bumper side reinforcement lower

Dash panel heat protector removal

12. Dash panel heat protector

Front floor backbone brace removal

13. Front floor backbone brace

Front end side panel removal

14. Front end side panel

Body loose panel bracket removal

- Second seat assembly (Refer to GROUP 52A – Second Seat .)

15. Body loose panel bracket

Rear wheelhouse inner panel brace removal

- Quarter trim, lower (Refer to GROUP 52A – Interior Trim .)

16. Rear wheelhouse inner panel brace

Tie down hook rear removal

17. Tie down hook rear

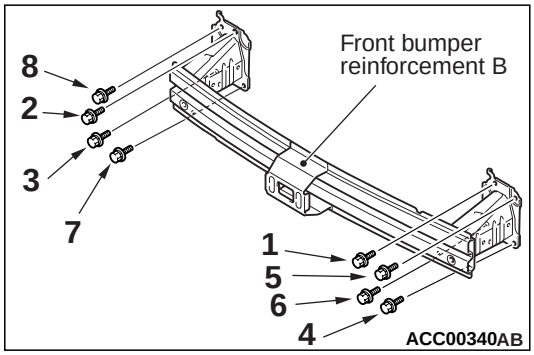
Rear bumper reinforcement removal

- Rear bumper assembly (Refer to GROUP 51 – Rear Bumper Assembly .)

18. Rear bumper reinforcement

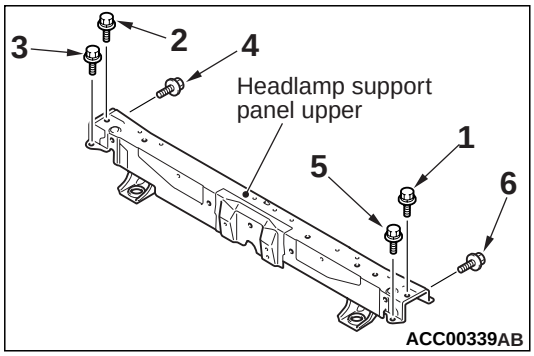
INSTALLATION SERVICE POINTS

>>A<< FRONT BUMPER REINFORCEMENT B INSTALLATION



Tighten the front bumper reinforcement B bolts in the numerical order to 20 ± 5 N·m.

>>B<< HEADLAMP SUPPORT PANEL UPPER INSTALLATION



Tighten the headlamp support panel upper bolts in the numerical order to 12 ± 2 N·m.