
BODY

BODY

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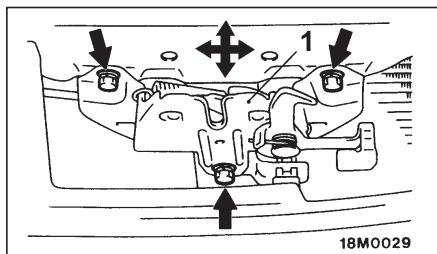
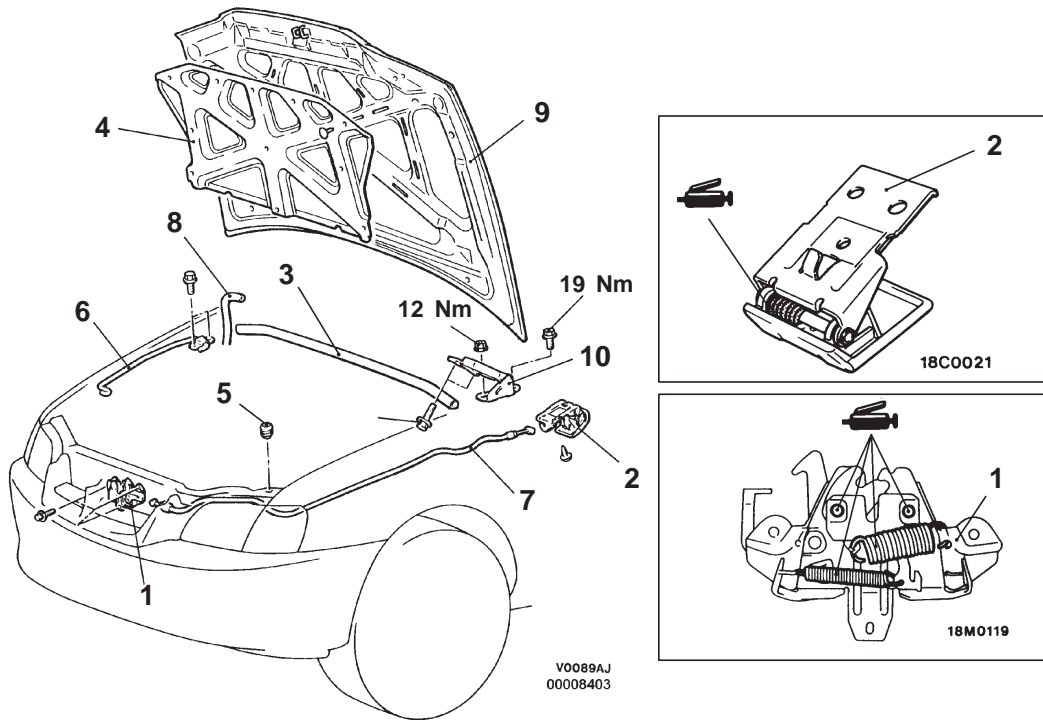
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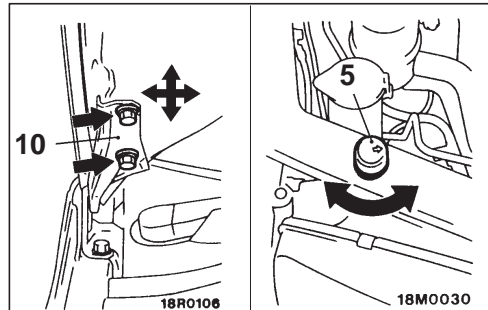
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HOOD

REMOVAL AND INSTALLATION



Adjustment of hood step and hood striker linkage



Adjustment of clearance around hood and height

● Front bumper (Refer to GROUP 51.)

- 1. Hood latch
- 2. Hood lock release handle
- 3. Hood weatherstrip
- 4. Hood insulator <4G9>
- 5. Bumper
- 6. Hood support rod

Hood lock release cable removal steps

- Front bumper (Refer to GROUP 51.)
- 1. Hood latch
- 2. Hood lock release handle
- Splash shield <Driver's side> (Refer to P.42-4.)
- 7. Hood lock release cable

Hood and hood hinge removal steps

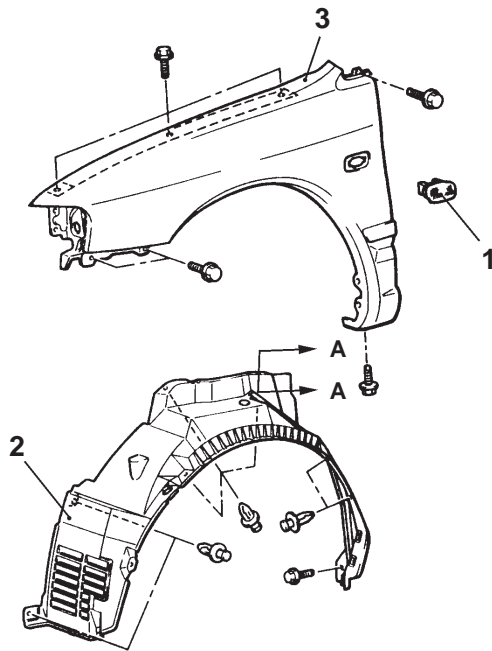
- 8. Washer hose connection
- 9. Hood
- 10. Hood hinge

FENDER

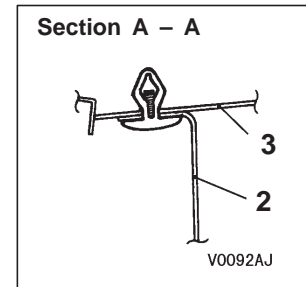
REMOVAL AND INSTALLATION

Pre-removal and Post-installation Operation

- Front Bumper Removal and Installation (Refer to GROUP 51.)
- Headlamp Removal and Installation (Refer to GROUP 54.)
- Delta Garnish Removal and Installation (Refer to GROUP 51.)



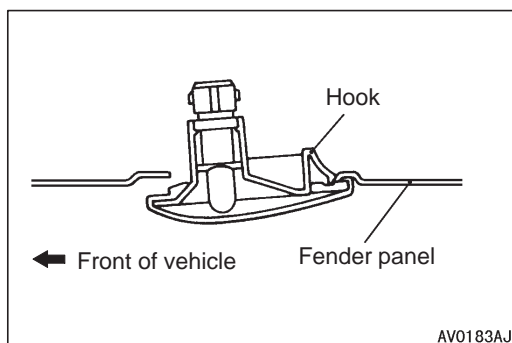
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Removal steps

- ▶A◀
1. Side turn signal lamp
 2. Splash shield

- Front fender protector moulding (Refer to GROUP 51.)
- 3. Fender



INSTALLATION SERVICE POINT

▶A◀ SIDE TURN SIGNAL LAMP INSTALLATION

Insert the hook into the fender panel, and then install the side turn signal lamp.

FUEL FILLER DOOR

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REMOVAL AND INSTALLATION

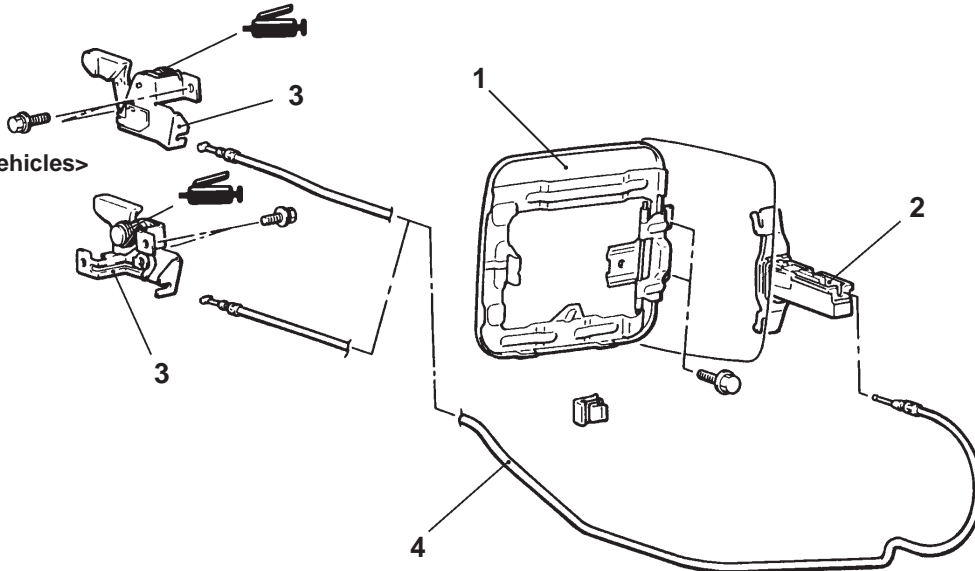
Pre-removal and Post-installation Operation

- Front Seat (driver's side), Rear Seat Removal and Installation (Refer to GROUP 52A.)
- Front Scuff Plate (driver's side), Rear Scuff Plate (driver's side), Cowl Side Trim (driver's side) Center

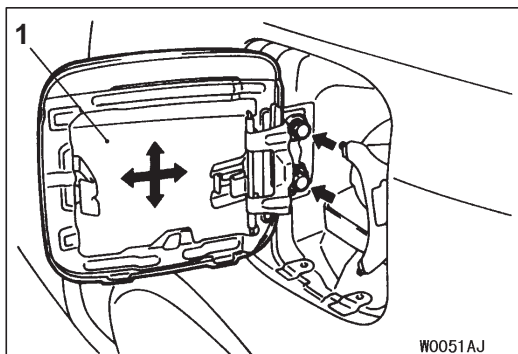
Pillar Lower Trim (driver's side), Quarter Trim (driver's side) Removal and Installation (Refer to GROUP 52A.)

<R.H. drive vehicles>

<L.H. drive vehicles>

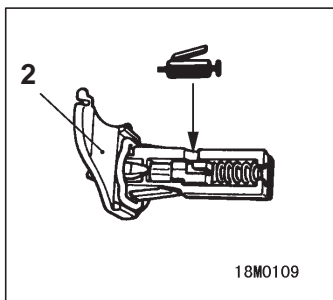


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Fuel filler door height and clearance adjustment



18M0109

Removal steps

1. Fuel filler door pannel assembly
2. Fuel filler door hook assembly
3. Lid lock release handle
4. Fuel filler door lock release cable

WINDOW GLASS

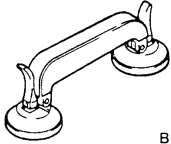
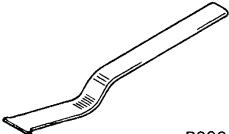
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ADHESIVES

Items	Specified adhesives
Windshield	3M ATD Part No. 8609 Super Fast Urethane Auto Glass Sealants or equivalent
Quarter window glass	
Tailgate window glass	

SPECIAL TOOLS

4220060065

Tool	Number	Name	Use
 B990480	MB990480	Glass holder	<ul style="list-style-type: none"> • Removal and installation of windshield • Removal and installation of tailgate window glass
 B990449	MB990449	Window moulding remover	Removal of roof drip moulding

WINDOW REPAIR

42200560046

The following glass sections are installed by means of a liquid urethane adhesive method.

- Windshield
- Quarter window glass
- Tailgate window glass

ITEMS NEEDED

Name	Remarks
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
Anti-rust solvent (or Tectyl 506T...Valvoline Oil Company)	For rust prevention
Isopropyl alcohol	For grease removal from bonded surface
Steel piano wire	Dia. × length...0.6mm × 1m For cutting adhesive
Adhesive gun	For pressing-out adhesive

NOTE

The TEROSON 127.37V auto window sealer kit can also be used. If using the TEROSON 127.37V auto window sealer kit, follow the instructions in the manual included with the kit.

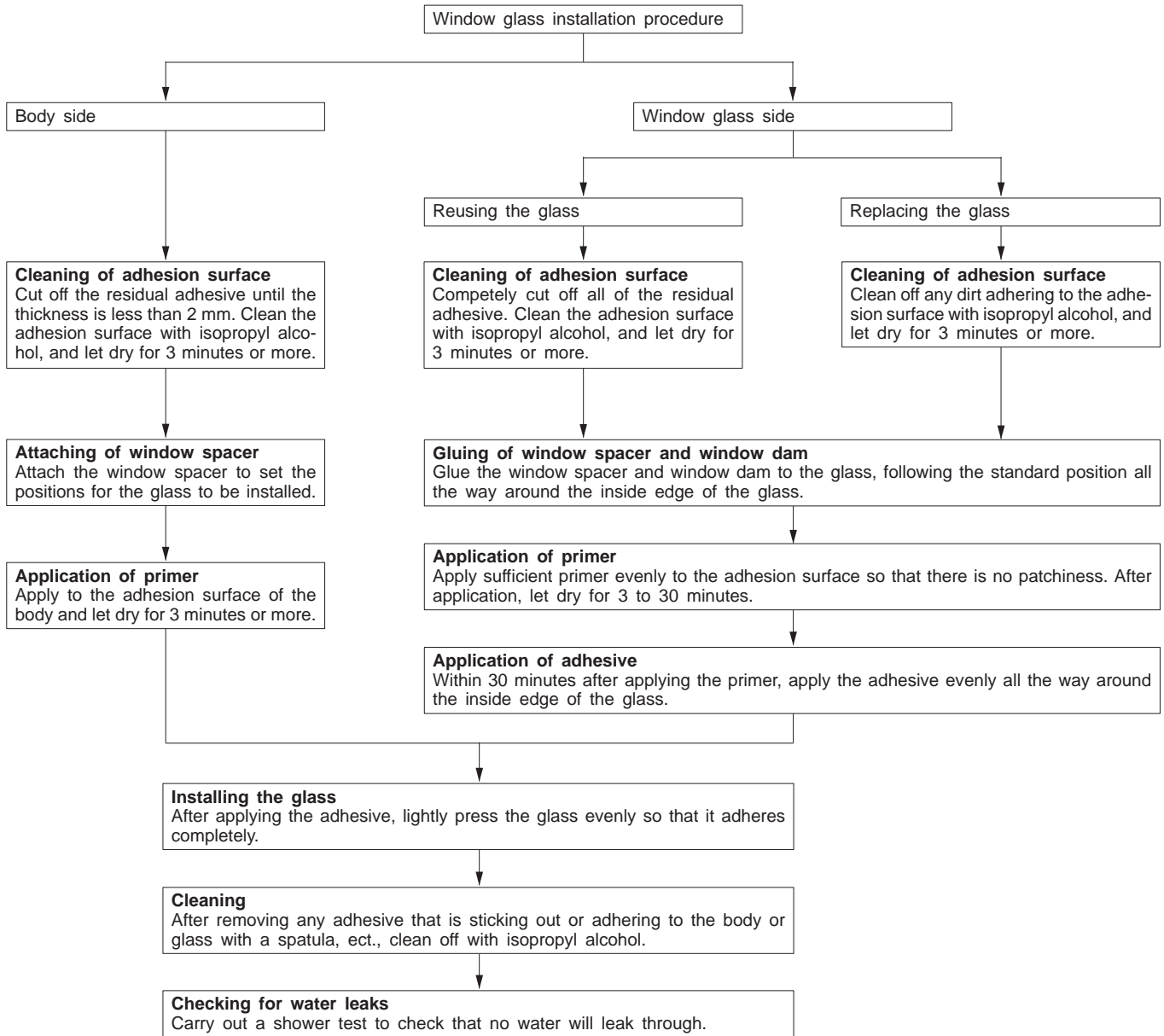
HANDLING OF AUTO WINDOW SEALER

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.

WORKING PROCESS

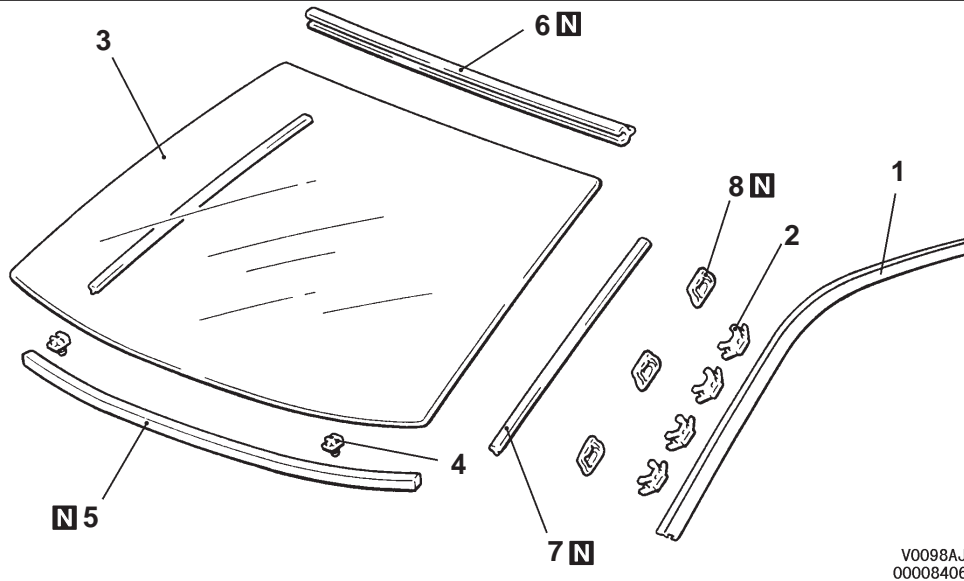
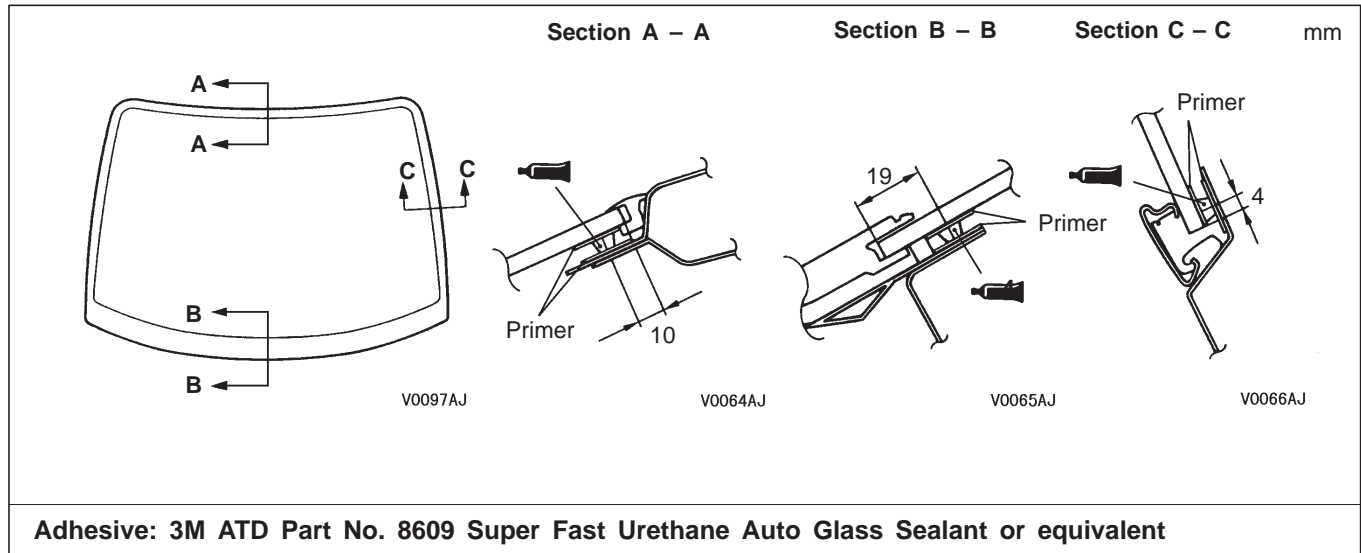


WINDSHIELD

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REMOVAL AND INSTALLATION

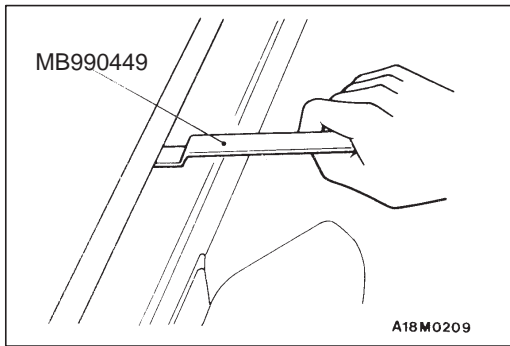
Pre-removal and Post-installation Operation
 Front Deck Garnish Removal and Installation (Refer to GROUP 51.)



Removal steps

- ◀A▶ 1. Roof drip moulding
- ◀B▶ ▶B◀ 2. Windshield clip
 - Front deck garnish (Refer to GROUP 51.)
- ▶B◀ 3. Windshield

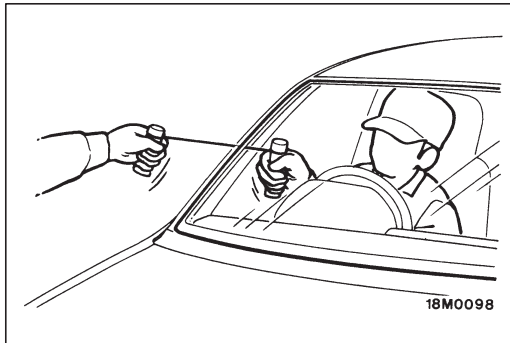
- ▶A◀ 4. Windshield spacer
- ▶A◀ 5. Window spacer
- ▶A◀ 6. Windshield upper moulding
- ▶A◀ 7. Window dam
- ▶A◀ 8. Clip

**REMOVAL SERVICE POINTS****◀A▶ ROOF DRIP MOULDING REMOVAL**

Use the special tool to lever out the moulding.

Caution

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

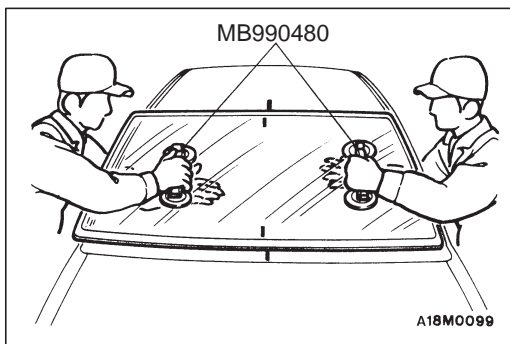
**◀B▶ WINDSHIELD REMOVAL**

1. In order to protect the body (paint surface), apply cloth tape to all body areas around the installed windshield.
2. Using a sharp-point drill, make hole in the windshield adhesive.
3. Pass the piano wire from the inside of the vehicle through the hole.
4. Pull the piano wire alternately from the inside and outside along the windshield to cut the adhesive.

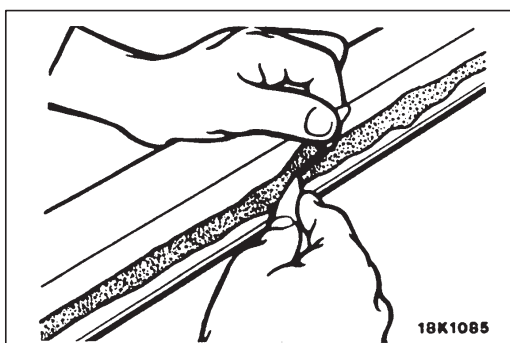
Caution

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

5. Make mating marks on the windshield and body.



6. Use the special tool to remove the windshield.



7. 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.

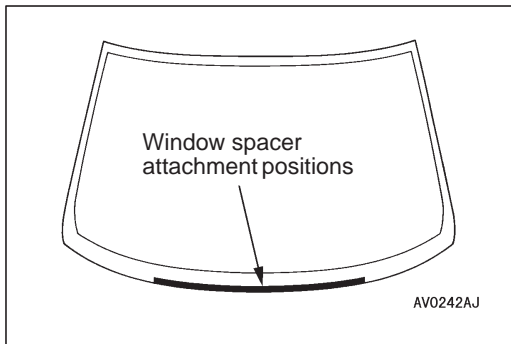
8. Finish the flange surfaces so that they are smooth.

Caution

- (1) Be careful not to remove more adhesive than is necessary.
 - (2) 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.
9. When reusing the windshield, remove the adhesive still adhering to the windshield, and clean with isopropyl alcohol.
 10. Clean the body side in the same way.

Caution

Let the cleaned places stand for 3 minutes or more, and carry out the next procedures after they have dried. Also, do not touch any surface that has been cleaned.



INSTALLATION SERVICE POINTS

►A◄ WINDOW SPACER INSTALLATION

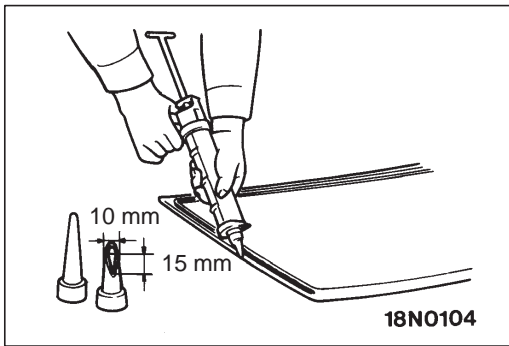
After wiping the window spacer adhesion surfaces of the windshield with isopropyl alcohol to remove any grease, attach the window spacers in the positions shown in the illustration.

►B◄ WINDSHIELD INSTALLATION

1. When replacing the glass, temporarily set the glass against the body, and place a mating mark on the glass and body.
2. Use isopropyl alcohol to degrease the inside and outside of the windshield glass and the body flanges.
3. Soak a sponge in the primer, and apply evenly to the glass and the body in the specified places.
4. Apply the primer, and then let it dry for 3 to 30 minutes.

Caution

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



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

NOTE

Cut the tip of the sealant gun nozzle into a V shape to simplify adhesive application.

6. Align the mating marks on the glass and the body, and lightly press the windshield glass evenly so that it adheres completely.
7. Use a spatula or the like to remove any excessive adhesive. Then clean the surface with isopropyl alcohol. Try not to move the vehicle until the adhesive sets.
8. Wait 30 minutes or more, and then test for water leakage.

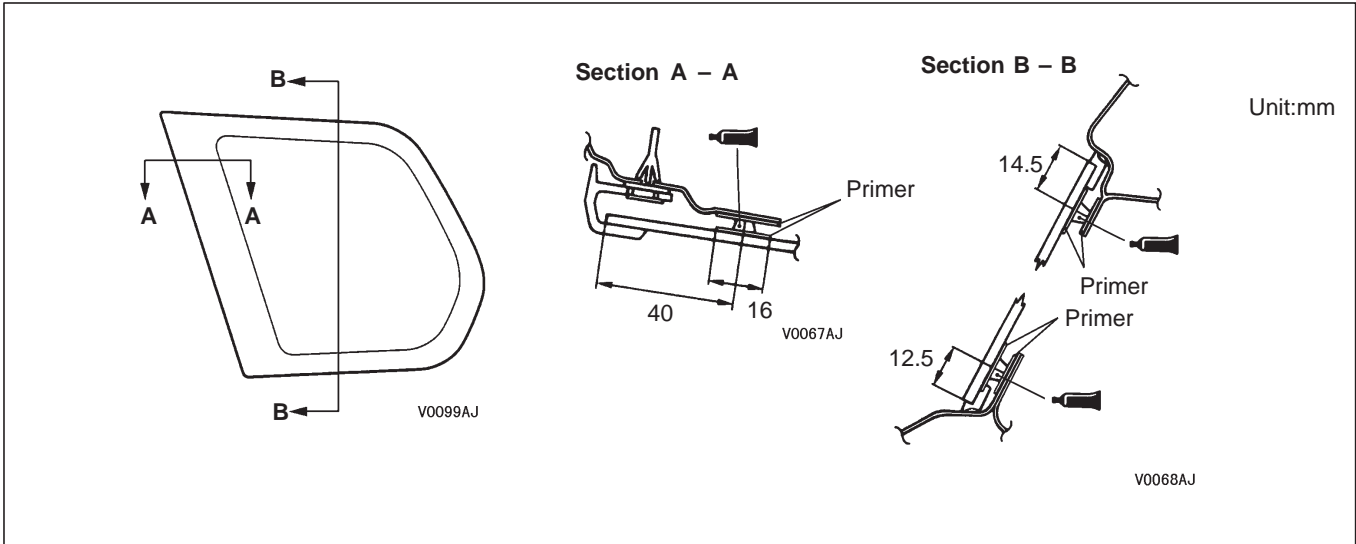
Caution

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

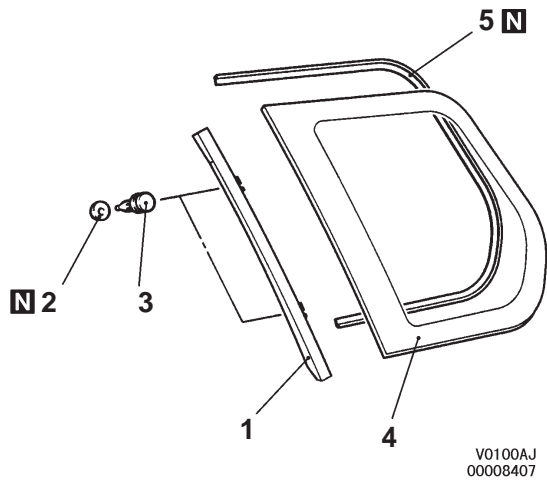
QUARTER WINDOW GLASS

42200250127

REMOVAL AND INSTALLATION



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



Removal steps

1. Quarter window garnish
2. Packing
3. Clip
4. Quarter window glass
5. Window dam



REMOVAL SERVICE POINT**◀A▶ QUARTER WINDOW GLASS REMOVAL**

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

INSTALLATION SERVICE POINT**▶A◀ WINDOW DAM/QUARTER WINDOW GLASS INSTALLATION**

1. Use isopropyl alcohol to degrease the window dam and dual lock fastener mounting surfaces on both the glass and the body.
2. Attach the window dam.
3. Apply primer and adhesive. (Refer to P.42-13.)
4. Install the glass in the same way as for the windshield. (Refer to P.42-11.)

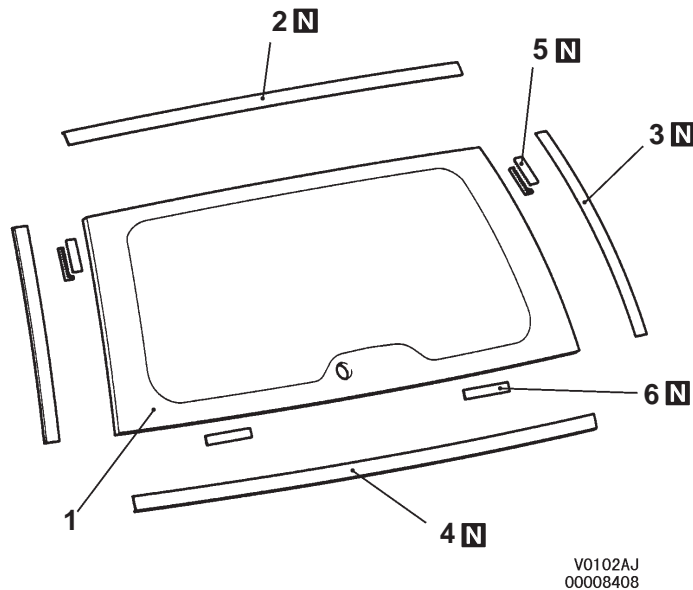
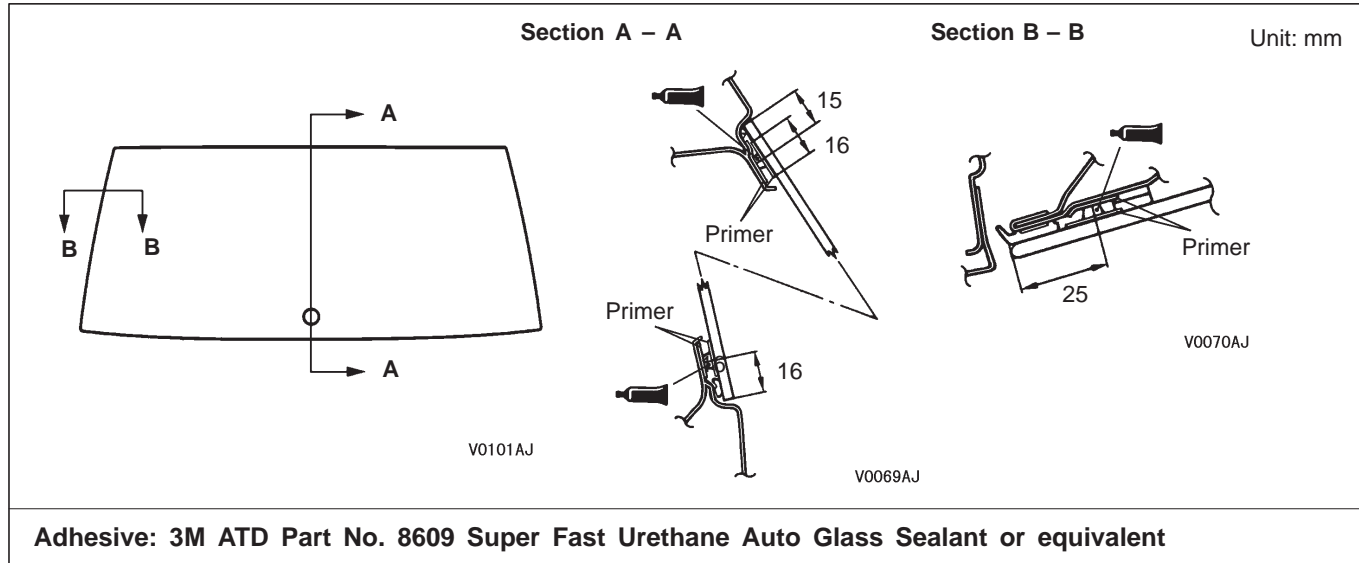
TAILGATE WINDOW GLASS

42200370069

REMOVAL AND INSTALLATION

Pre-removal and Post-installation Operation

- Tailgate Trim Removal and Installation (Refer to P.42-49.)
- High-mounted Stop Lamp Removal and Installation (Refer to GROUP 54.)
- Rear Wiper Removal and Installation (Refer to GROUP 51.)

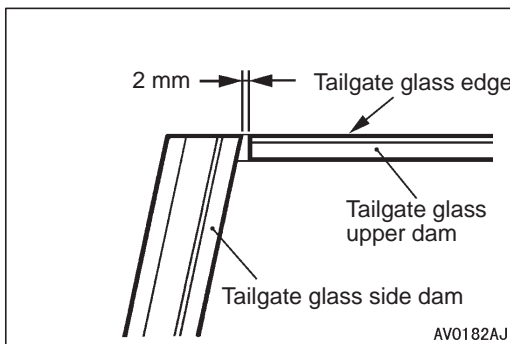
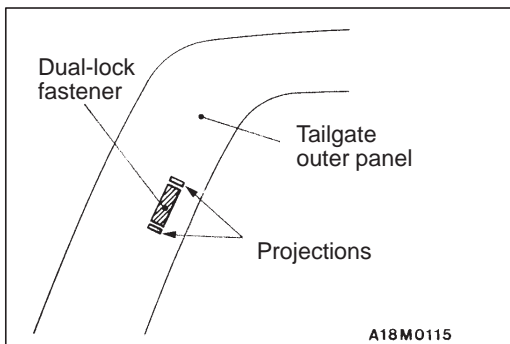
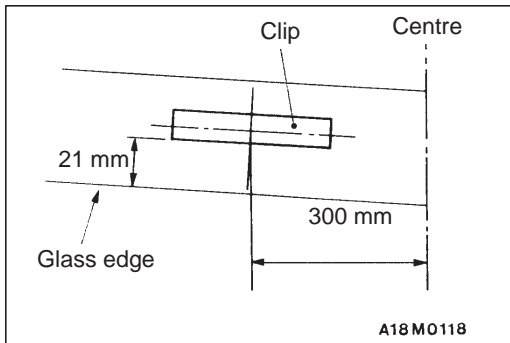


Removal steps

- ◀A▶
- ▶A◀ 1. Tailgate window glass
 - ▶A◀ 2. Tailgate glass upper dam
 - ▶A◀ 3. Tailgate glass side dam
 - ▶A◀ 4. Tailgate glass lower dam
 - ▶A◀ 5. Dual-lock fastener
 - ▶A◀ 6. Clip

REMOVAL SERVICE POINT**◀A▶ TAILGATE WINDOW GLASS REMOVAL**

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

**INSTALLATION SERVICE POINT****▶A◀ CLIP/DUAL-LOCK FASTENER/TAILGATE GLASS LOWER DAM/TAILGATE GLASS SIDE DAM/TAILGATE GLASS UPPER DAM/TAILGATE WINDOW GLASS INSTALLATION**

1. Use isopropyl alcohol to degrease the inside and outside edges of the tailgate window glass and the surface of the body flange.
2. Attach the clips to the inside of the tailgate glass in the positions shown in the illustration.
3. Install the dual lock fasteners between the projections on the tailgate outer panel, and then install them in matching positions on the glass.
4. Attach the tailgate glass dams to the edge of the tailgate glass.
5. Apply primer and adhesive. (Refer to P.42-15.)
6. Install the glass in the same way as for the windshield. (Refer to P.42-11.)

DOOR

42300030038

SERVICE SPECIFICATIONS

Items		Standard value
Door outside handle play mm	FRONT DOOR	3.6 – 5.4
	REAR DOOR	2.2 – 5.4
Door inside handle play mm	FRONT DOOR	18.4 – 26.8
	REAR DOOR	15.3 – 19.5

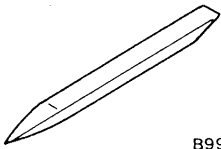
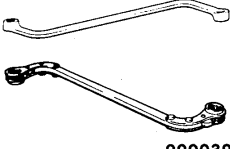
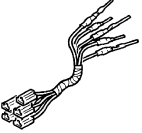
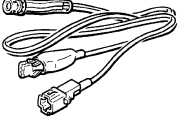


SEALANT

42300050034

Items	Specified sealant	Remark
Waterproof film	3M ATD Part No. 8625 or equivalent	Ribbon sealer

SPECIAL TOOLS

42300060037

Tool	Number	Name	Use
 <p>B990784</p>	MB990784	Ornament remover	Removal of front door trim
 <p>00003936</p>	MB990900 or MB991164	Door adjusting wrench	Adjustment of door fit
<p>A</p>  <p>B</p>  <p>C</p>  <p>D</p>  <p>C991223</p>	MB991223 A: MB991219 B: MB991220 C: MB991221 D: MB991222	Harness set A: Test harness B: LED harness C: LED harness adapter D: probe	Measurement of terminal voltage A: Connector pin contact pressure inspection B: Power circuit inspection C: Power circuit inspection D: Commercial tester connection

TROUBLESHOOTING

42300070030

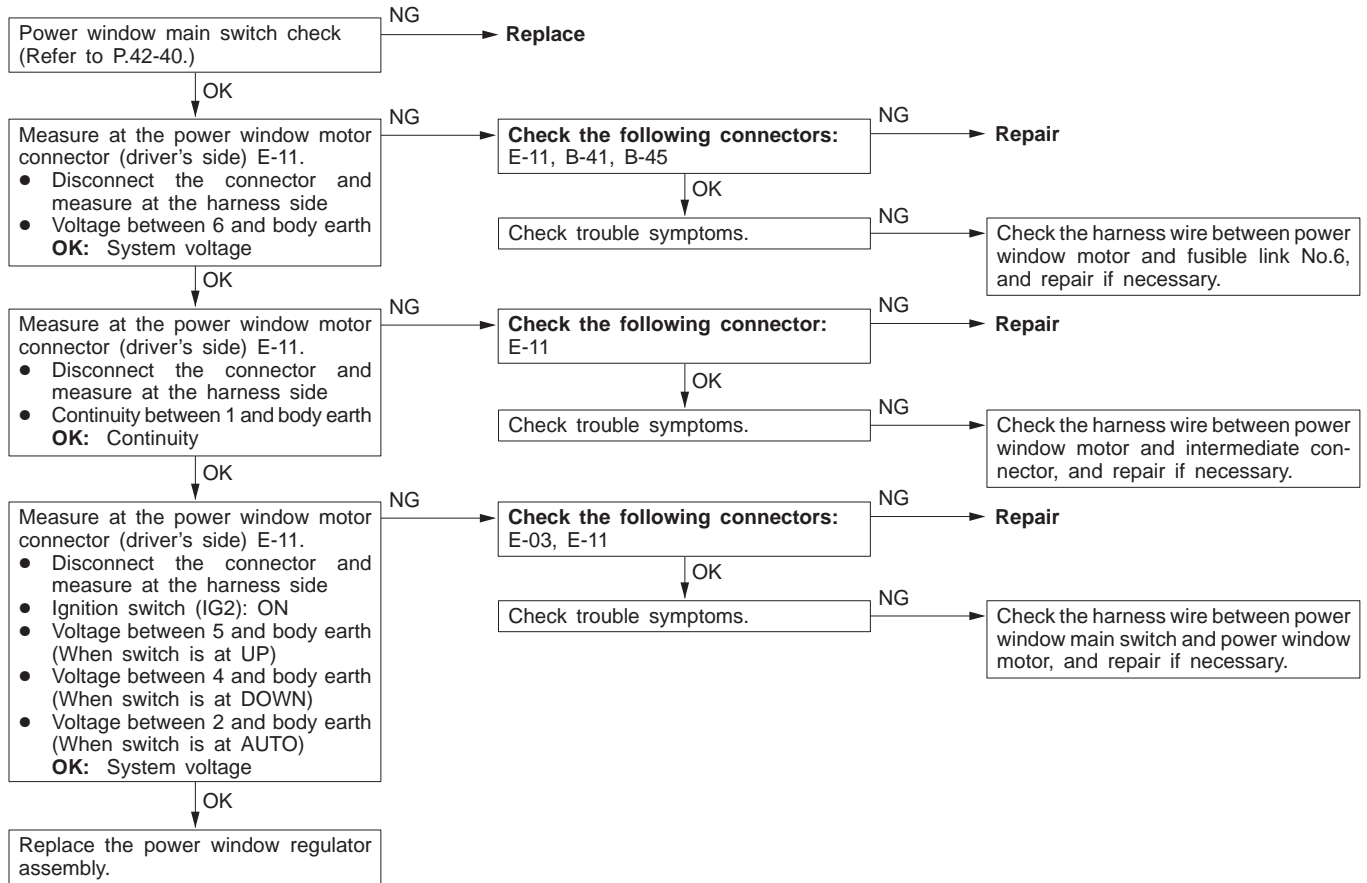
INSPECTION CHART FOR TROUBLE SYMPTOMS

Trouble symptom		Inspection procedure	Reference page
Power windows	Driver's power window cannot be operated by the power window main switch.	1	42-19
	No power window can be operated by the power window main switch (but they can be operated by the sub-switches).	2	42-20
	No power window can be operated by the power window sub-switches.	3	42-20
	No power window can be operated by the power window sub-switches (nor can they be operated by the main switch).	4	42-21
	Automatic operation is not possible.	5	42-23
	When the glass is raised, it then lowers automatically.	6	42-24
	The window does not lower if it clamps something, or it lowers automatically after closing fully.	7	42-25
	The key off timer does not operate.	8	42-25
	If the driver's side door is opened while the key off timer is operating, the power windows do not operate for a further 30 seconds after the door is opened.	9	42-25
Door locking mechanism	None of the door lock functions operate.	10	42-26
	Doors do not lock or unlock when the key cylinder (passenger's side) is operated.	11	42-27
	Doors do not lock or unlock when the key cylinder (driver's side) is operated.	12	42-28
	Doors do not lock or unlock when the tailgate key cylinder is operated.	13	42-29
	Doors do not lock or unlock when the driver's door lock switch is operated.	14	42-29

INSPECTION PROCEDURE FOR TROUBLE SYMPTOMS

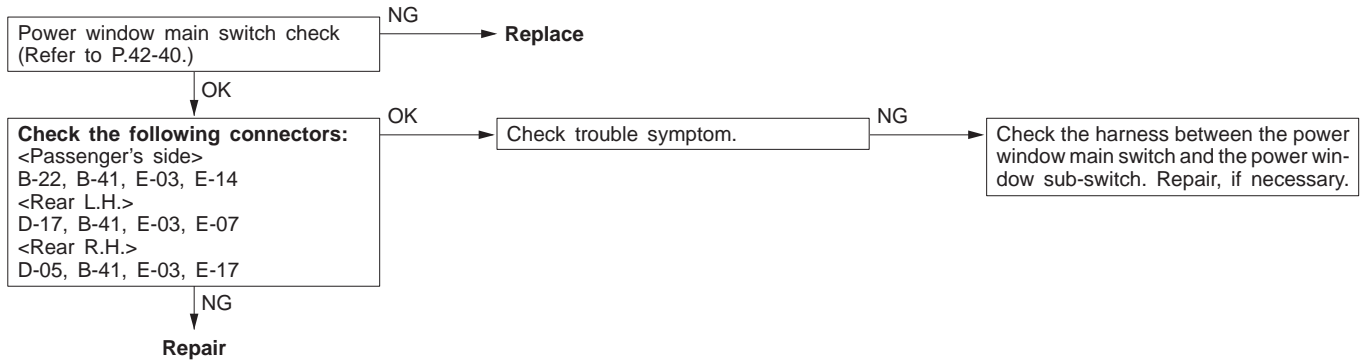
Inspection Procedure 1

Driver's power window cannot be operated by the power window main switch.	Probable cause
The power window main switch or power window regulator assembly may be defective.	<ul style="list-style-type: none"> ● Malfunction of power window regulator assembly ● Malfunction of power window main switch ● Malfunction of wiring harness or connector



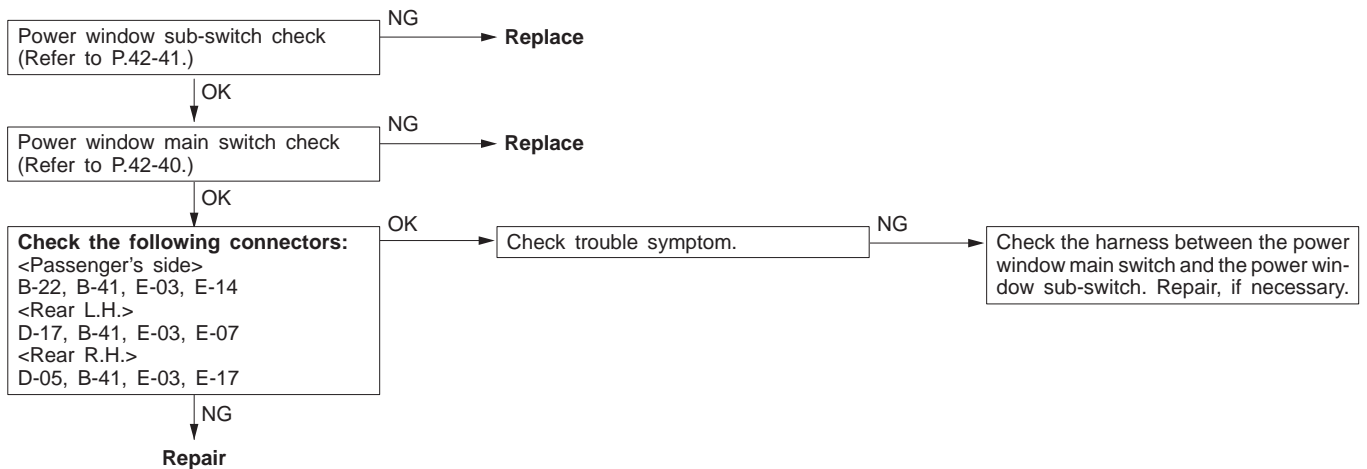
Inspection Procedure 2

<p>No power window can be operated by the power window main switch (but they can be operated by the sub-switches).</p>	<p>Probable cause</p>
<p>The power window main switch or the harness between power window main switch and power window sub-switch may be defective.</p>	<ul style="list-style-type: none"> ● Malfunction of power window main switch ● Malfunction of wiring harness or connector



Inspection Procedure 3

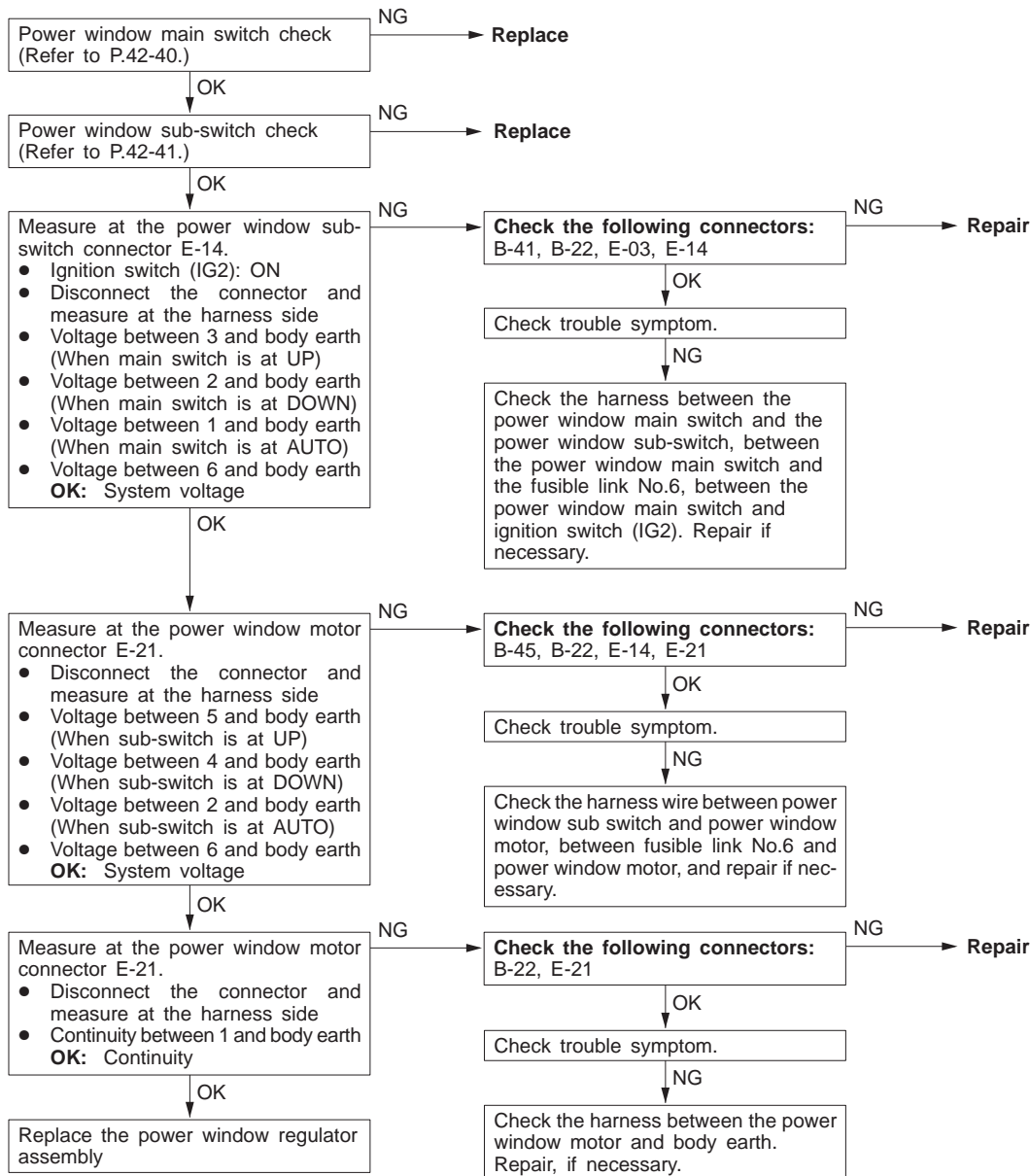
<p>No power window can be operated by the power window sub-switches.</p>	<p>Probable cause</p>
<p>The power window sub-switch or the power supply circuit of power window sub-switch may be defective.</p>	<ul style="list-style-type: none"> ● Malfunction of power window sub-switch ● Malfunction of wiring harness or connector



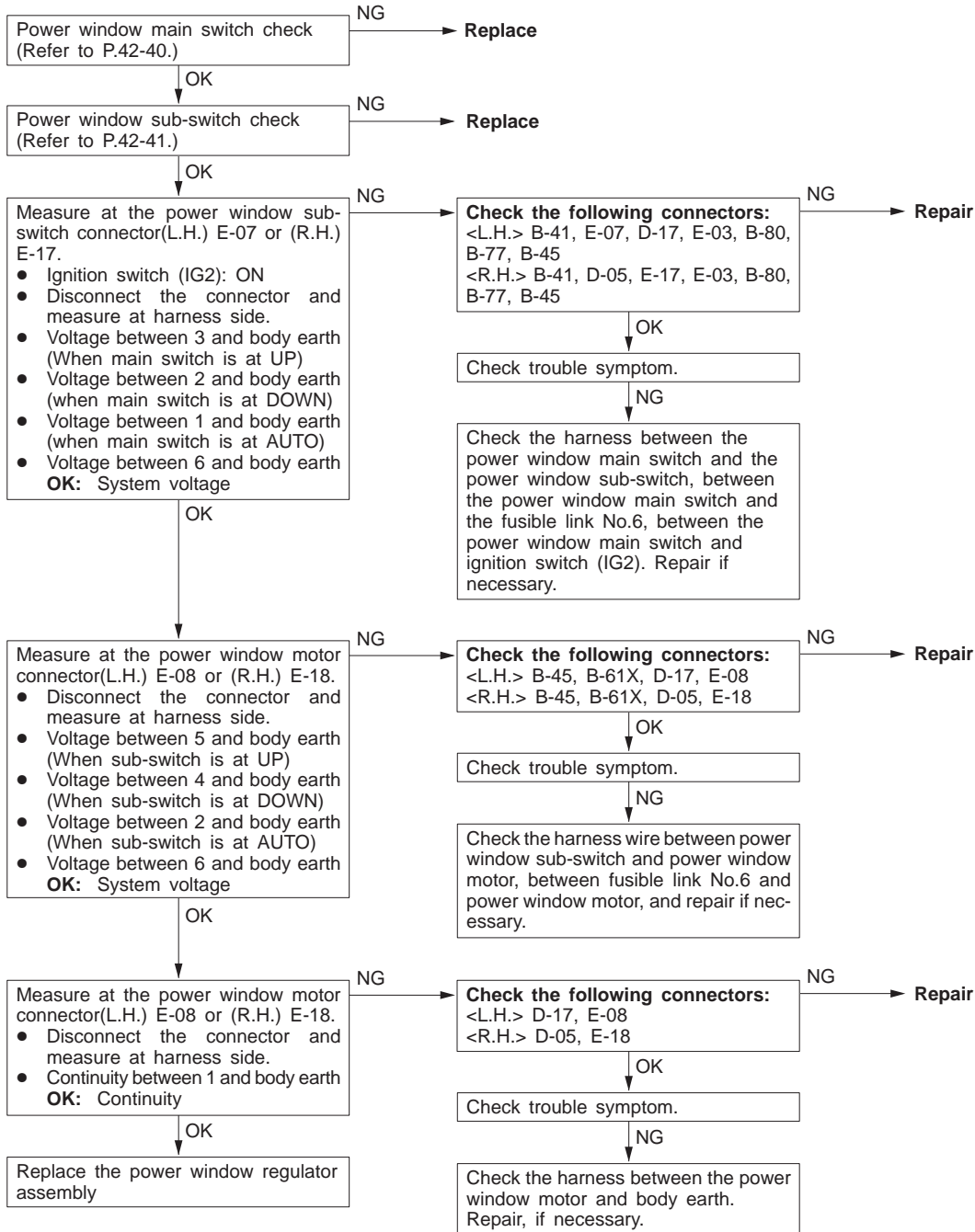
Inspection Procedure 4

No power window can be operated by the power window sub-switches (nor can they be operated by the main switch).	Probable cause
The power window main switch, the power window sub-switch or power window regulator assembly may be defective.	<ul style="list-style-type: none"> ● Malfunction of power window main switch ● Malfunction of power window sub-switch ● Malfunction of power window regulator assembly ● Malfunction of wiring harness or connector

<Passenger's side>



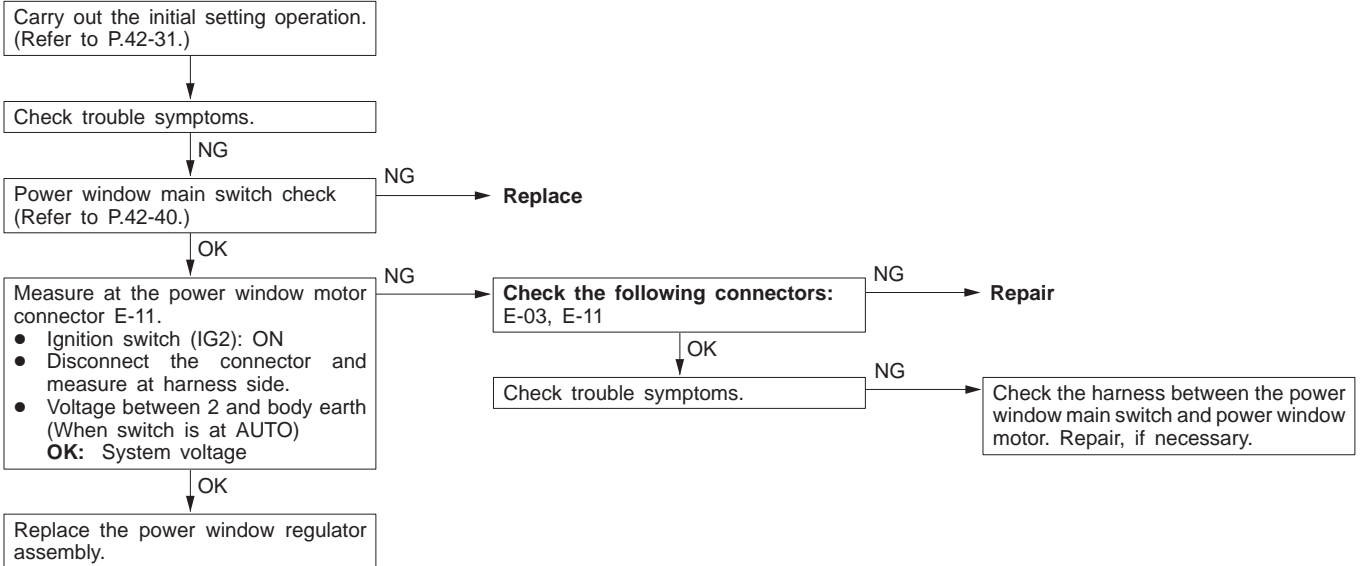
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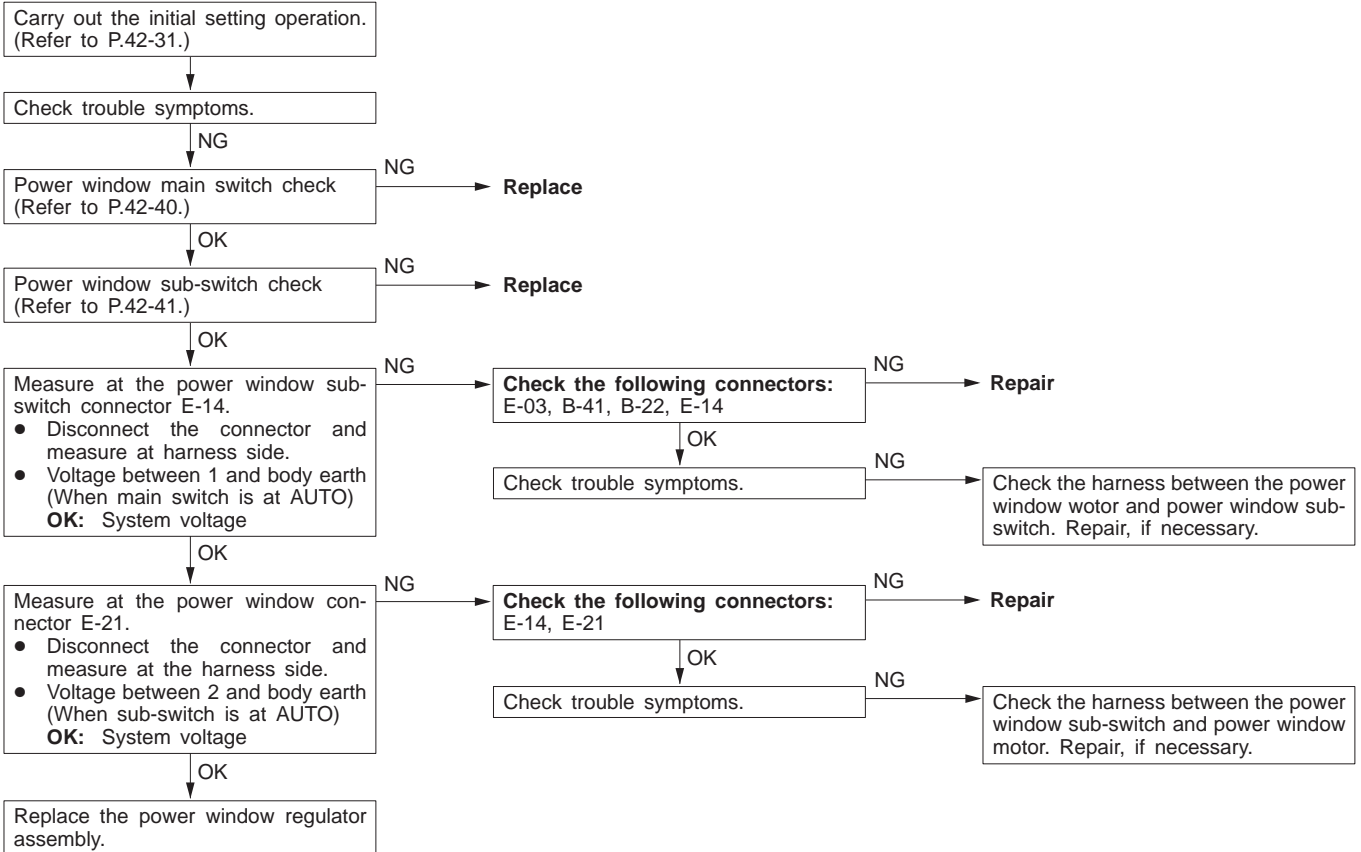
Inspection Procedure 5

Automatic operation is not possible.	Probable cause
Automatic operation is not possible before carrying out the initial setting operation when the battery terminals are disconnected or a fuse or power window regulator assembly is replaced. The cause may also be a malfunction of the power window switch or the power window regulator assembly.	<ul style="list-style-type: none"> ● Incorrect initial settings ● Malfunction of power window main switch ● Malfunction of power window sub-switch ● Malfunction of wiring harness or connector

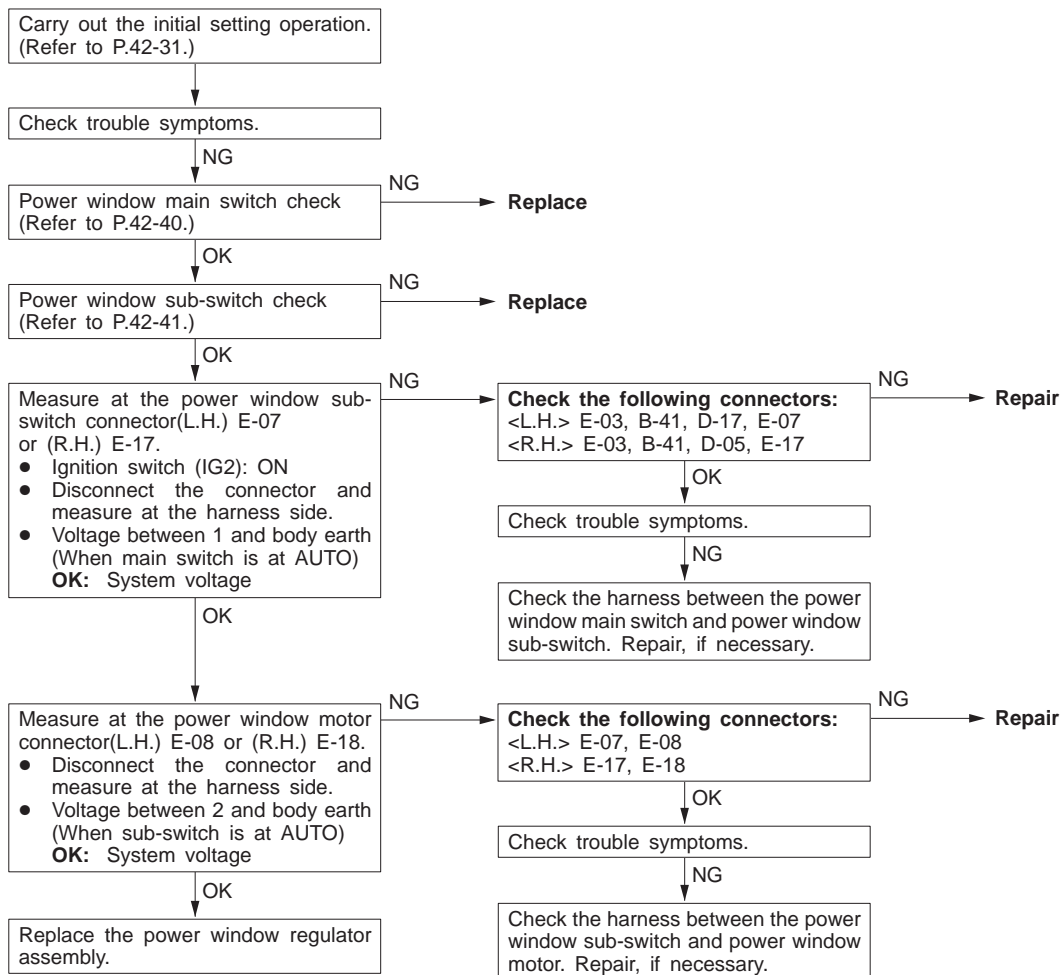
<Driver's side>



<Passenger's side>

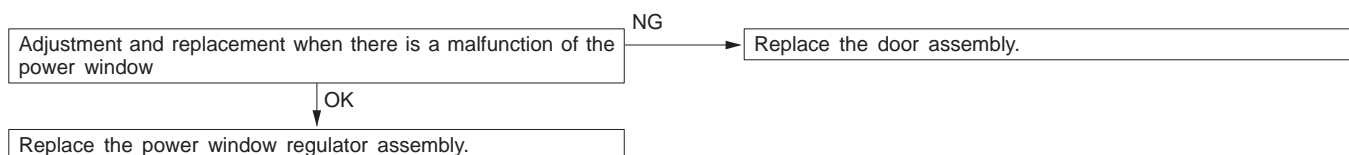


<Rear>



Inspection Procedure 6

When the glass is raised, it then lowers automatically.	Probable cause
The sliding resistance is too large when the glass rises. So it is misjudged that something is jammed in the window, and the window is lowered automatically.	<ul style="list-style-type: none"> • Incorrect installation or bending of the glass runners. • Malfunction of the power window regulator assembly



Inspection Procedure 7

<p>The window does not lower if it clamps something, or it lowers automatically after closing fully.</p>	<p>Probable cause</p>
<p>If the window is not lowered when it is obstructed by something while it is more than 15 mm from the fully-closed position, or if it lowers automatically after it is fully closed, the cause is probably a malfunction of the power window regulator assembly.</p>	<ul style="list-style-type: none"> • Malfunction of the power window regulator

Carry out the initial setting operation. (Refer to P.42-31.)

Check trouble symptoms.

NG

Replace the power window regulator assembly.

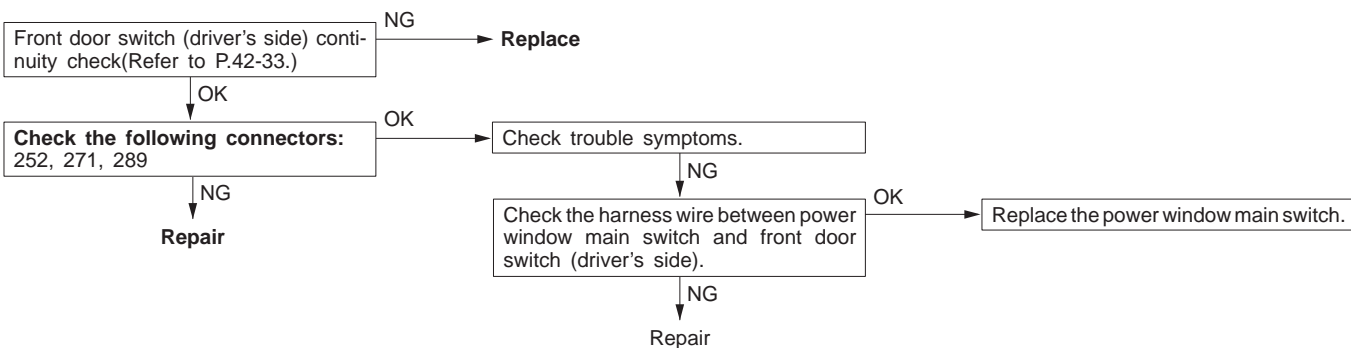
Inspection Procedure 8

<p>The key off timer does not operate.</p>	<p>Probable cause</p>
<p>The power windows can be operated for a further 30 seconds after the ignition switch is turned to OFF, but if they cannot be operated during this time, there is probably a malfunction of the power window main switch.</p>	<ul style="list-style-type: none"> • Malfunction of the power window main switch.

Replace the power window main switch

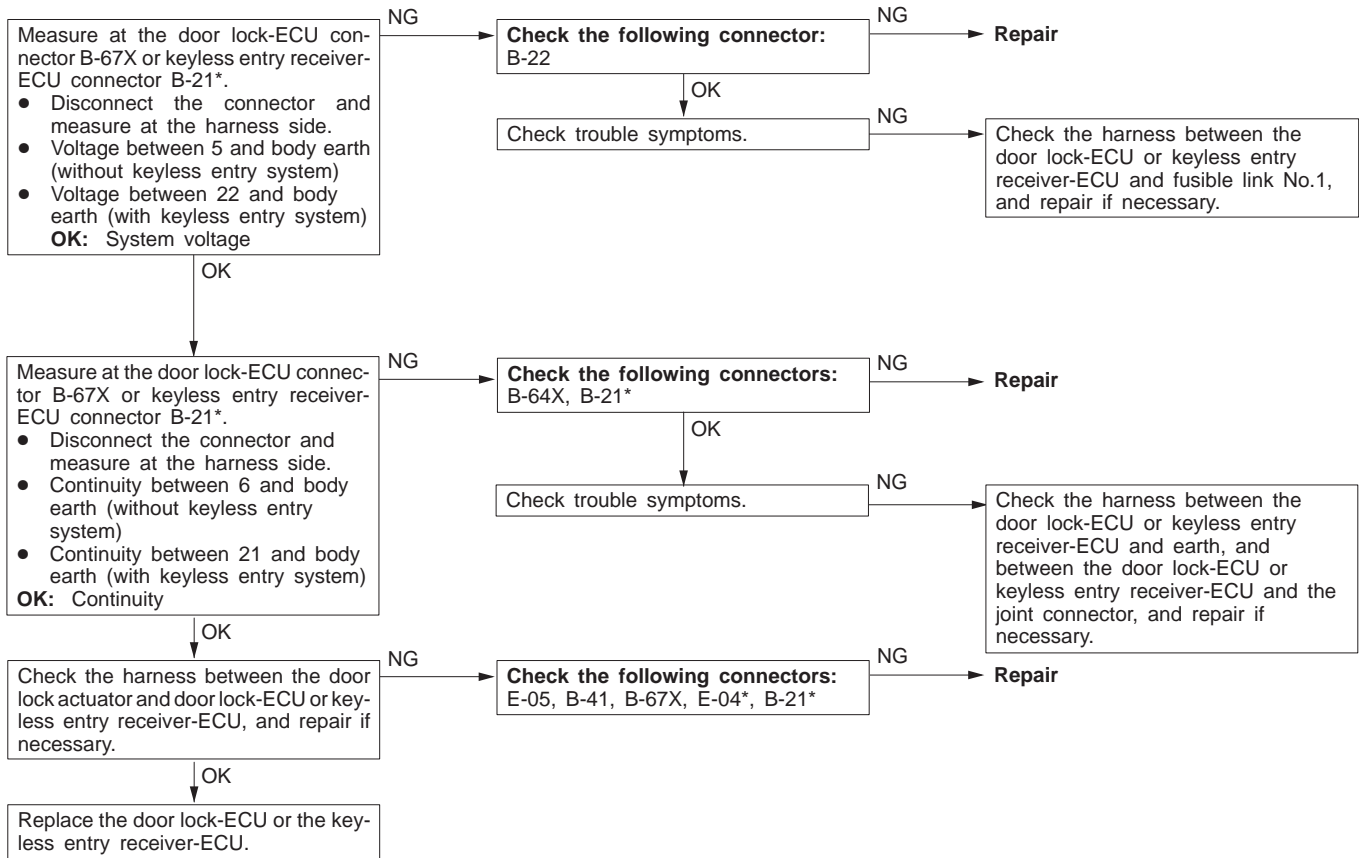
Inspection Procedure 9

<p>If the driver's side door is opened while the key off timer is operating, the power windows do not operate for a further 30 seconds after the door is opened.</p>	<p>Probable cause</p>
<p>If the driver's door is opened within 30 seconds after the ignition switch is turned to OFF, the power windows can still be operated for 30 seconds after that point. If they cannot be operated during this time, there is probably a malfunction of the driver's side door switch or power window main switch.</p>	<ul style="list-style-type: none"> • Malfunction of the front door switch(driver's side) • Malfunction of the power window main switch • Malfunction of harness or connector



Inspection Procedure 10

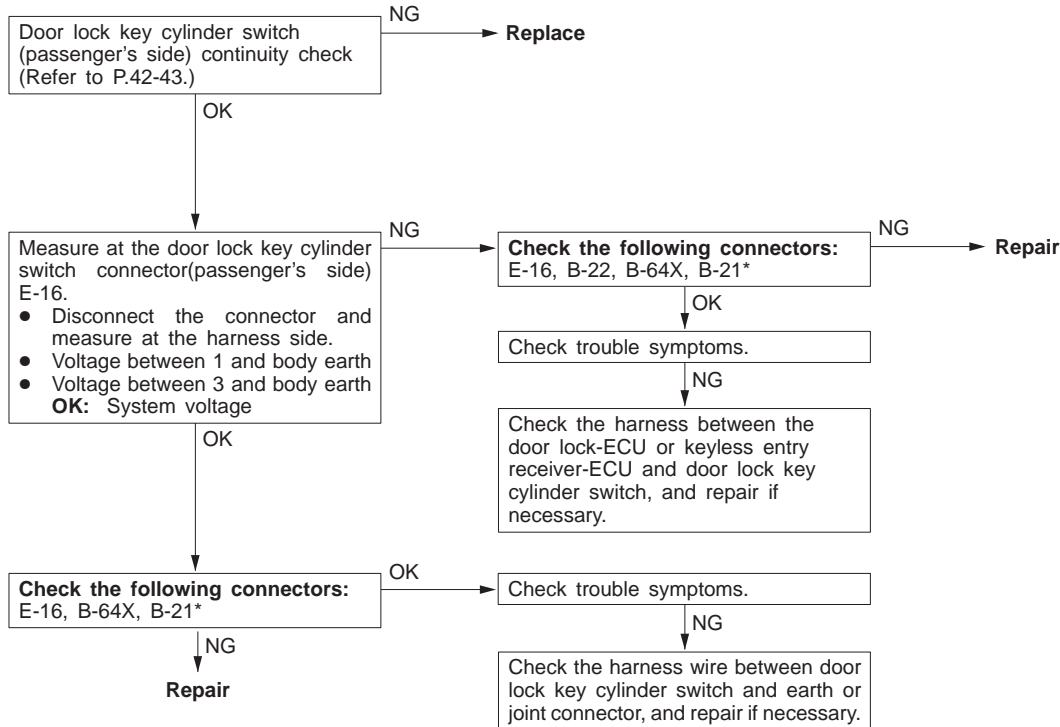
None of the door lock functions operate.	Probable cause
Power circuit system or earth circuit system of the door lock-ECU or the keyless entry receiver-ECU may be defective.	<ul style="list-style-type: none"> ● Malfunction of door lock-ECU ● Malfunction of keyless entry receiver-ECU ● Malfunction of wiring harness or connector



*: With keyless entry system

Inspection Procedure 11

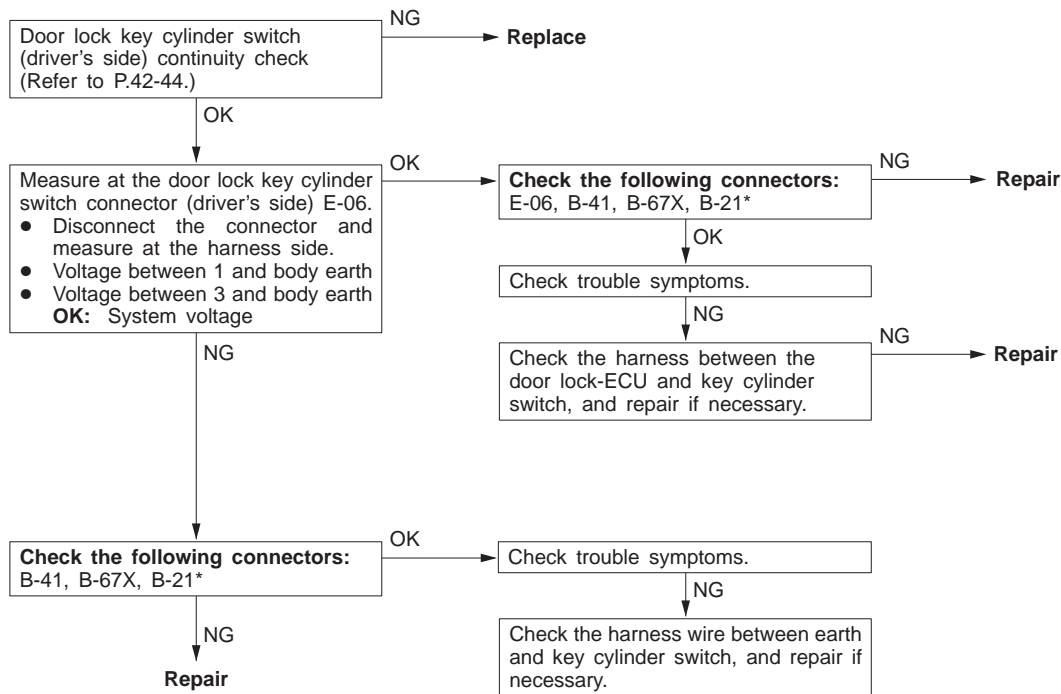
Doors do not lock or unlock when the key cylinder (passenger's side) is operated.	Probable cause
The door lock key cylinder switch (passenger's side) may be defective.	<ul style="list-style-type: none"> • Malfunction of the door lock key cylinder switch (passenger's side) • Malfunction of harness or connector



*: with keyless entry system

Inspection Procedure 12

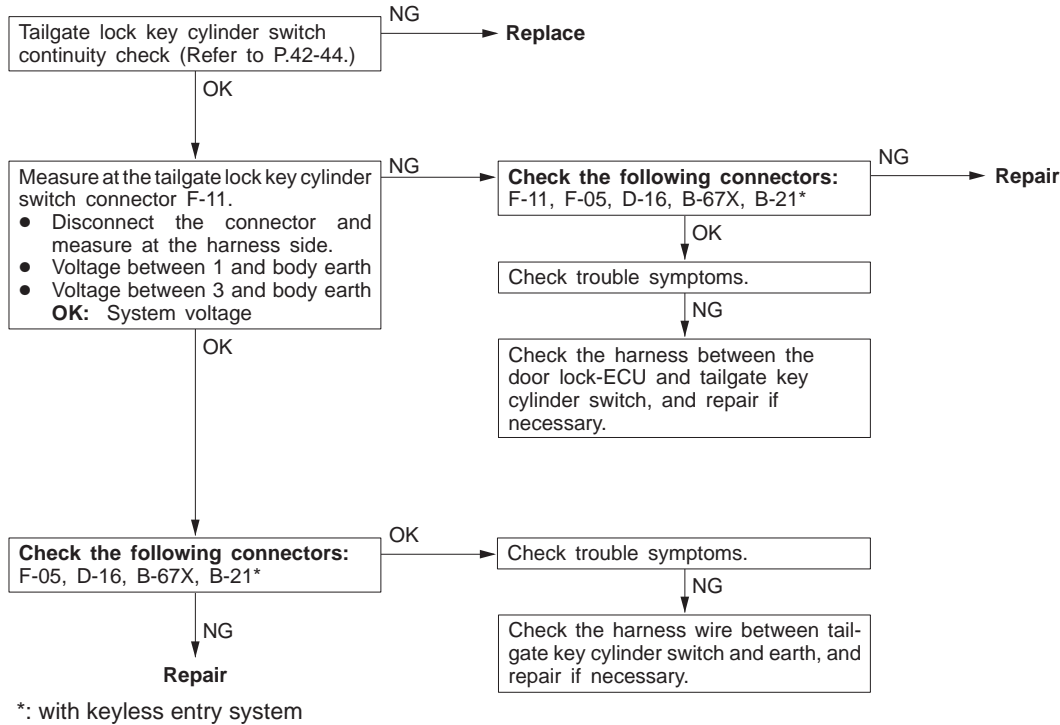
Doors do not lock or unlock when the key cylinder (driver's side) is operated.	Probable cause
The door lock key cylinder switch (driver's side) may be defective.	<ul style="list-style-type: none"> • Malfunction of the door lock key cylinder switch (driver's side) • Malfunction of harness or connector



*: with keyless entry system

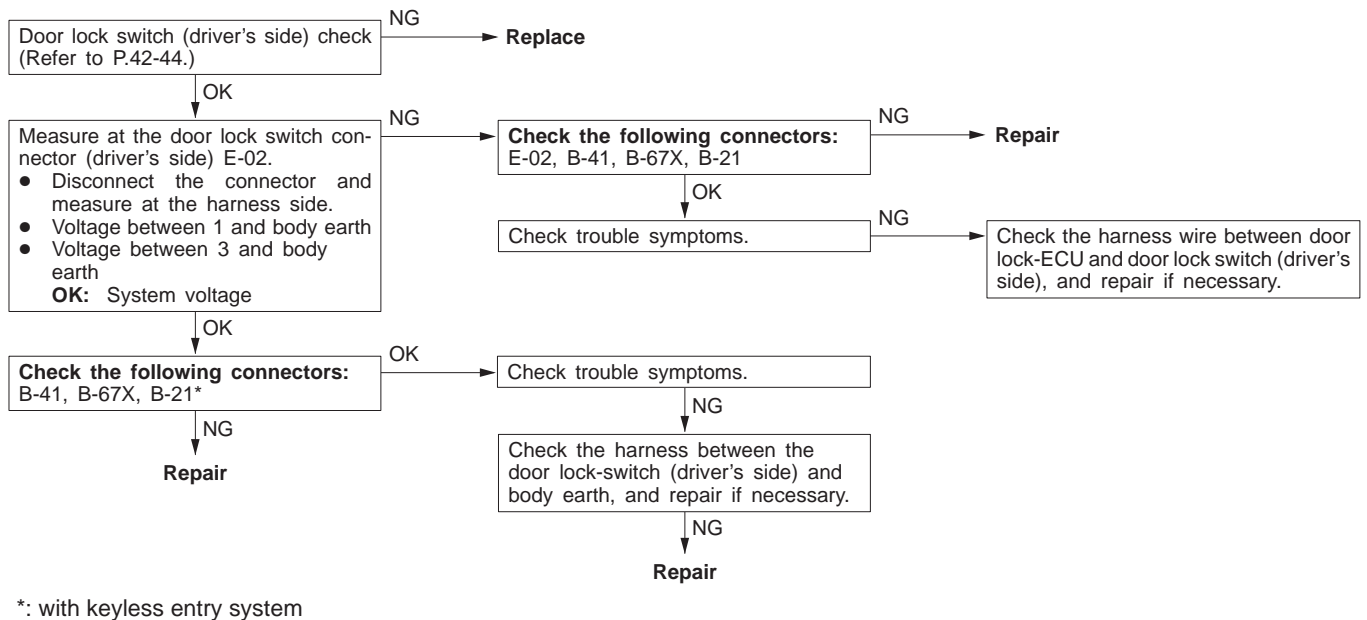
Inspection Procedure 13

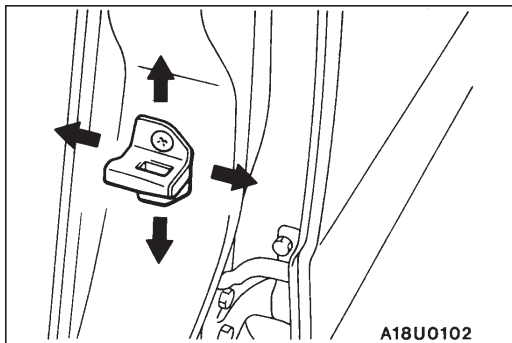
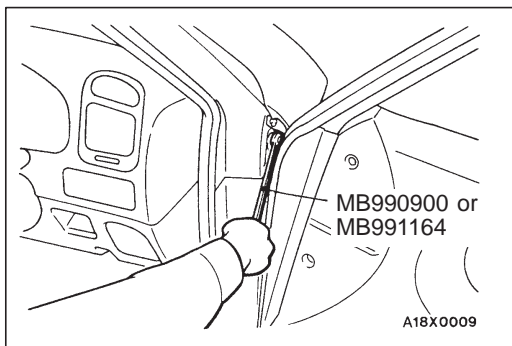
Doors do not lock or unlock when the tailgate key cylinder is operated.	Probable cause
The tailgate key cylinder switch may be defective.	<ul style="list-style-type: none"> ● Malfunction of the tailgate lock key cylinder switch ● Malfunction of harness or connector



Inspection Procedure 14

Doors do not lock or unlock when the driver's door lock switch is operated.	Probable cause
The door lock switch (driver's side) may be defective.	<ul style="list-style-type: none"> ● Malfunction of the door lock switch ● Malfunction of harness or connector





ON-VEHICLE SERVICE

42300090043

DOOR FIT ADJUSTMENT

1. If the clearance between the door and the vehicle body is uneven, affix protective tape to the fender around the hinge and to the edge of the door. Then use the special tool to loosen the door hinge mounting bolts on the body, and adjust the clearance around the door so that it becomes even.
2. If the door and the body are not flush with each other, use the special tool to loosen the door hinge mounting bolts. Then align the door.
3. If the striker and latch do not mesh properly, adjust the position of the striker.

ADJUSTMENT AND REPLACEMENT WHEN THERE IS A MALFUNCTION OF THE POWER WINDOW

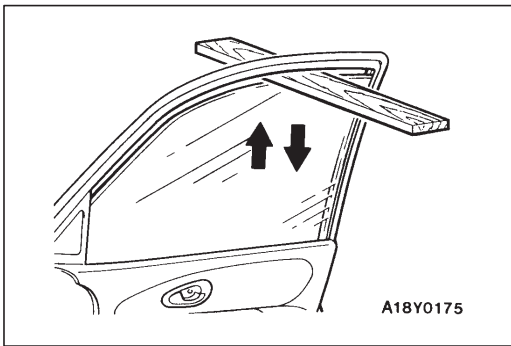
42900190017

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

1. Remove the door trim and waterproof film. (Refer to P.42-34.)
2. Remove the window regulator assembly from the door window glaze, and then raise and lower the door window glass by hand to check the operation force.
3. If the door window glaze does not move up and down smoothly, repair the twisting in the door sash, or adjust the sash span by loosening the lower sash or center sash mounting bolts and pushing apart the lower sash or center sash while tightening the bolts again. If repair or adjustment is not possible, replace the door assembly.

NOTE

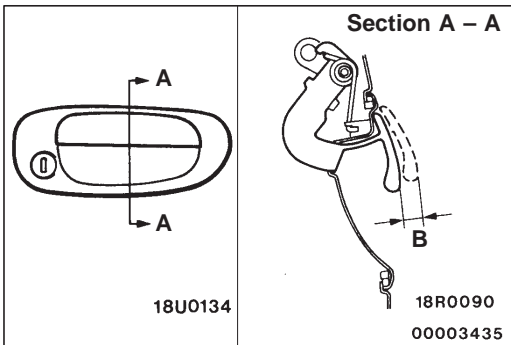
The lower sash cannot normally be adjusted, but it may be possible to adjust it slightly within the range by manufacturing tolerances.



POWER WINDOW SAFETY MECHANISM CHECK

42900100065

1. Place a wooden board with a thickness of approximately 10 mm as shown in the illustration and then close the window glass.
2. Check that the window glass lowers by a distance of approximately 150 mm when the window clamps the wooden board. If this doesn't happen, refer to "Troubleshooting" (P.42-18).



DOOR OUTSIDE HANDLE PLAY CHECK

42300160034

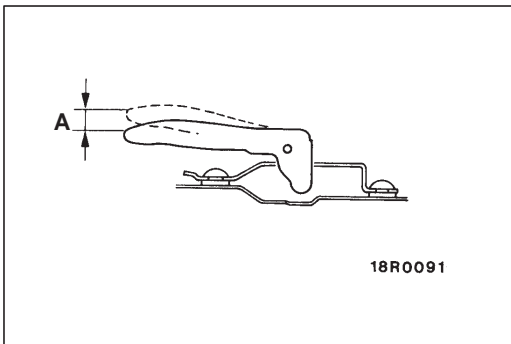
1. Check that the door outside handle play is within the standard value range.

Standard value (B):

FRONT DOOR 3.6 – 5.4 mm

REAR DOOR 2.2 – 5.4 mm

2. If the door outside handle play is not within the standard value range, check the door outside handle or the door latch assembly. Replace, if necessary.



DOOR INSIDE HANDLE PLAY CHECK

42300150031

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

Standard value (A):

FRONT DOOR 18.4 – 26.8 mm

REAR DOOR 15.3 – 19.5 mm

2. If the door inside handle play is not within the standard value range, check the door inside handle or the door latch assembly. Replace, if necessary.

POWER WINDOW INITIAL SETTING

42900200017

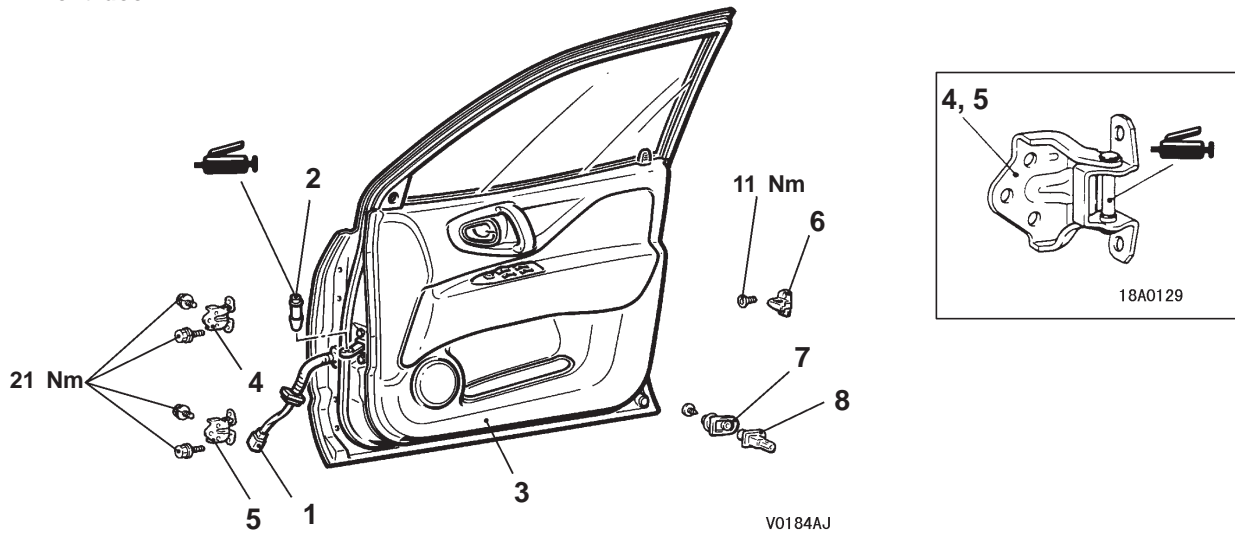
For all doors, after fully raising the window glass, continuously push the power window switch to the UP side for 0.5 second or more.

DOOR ASSEMBLY

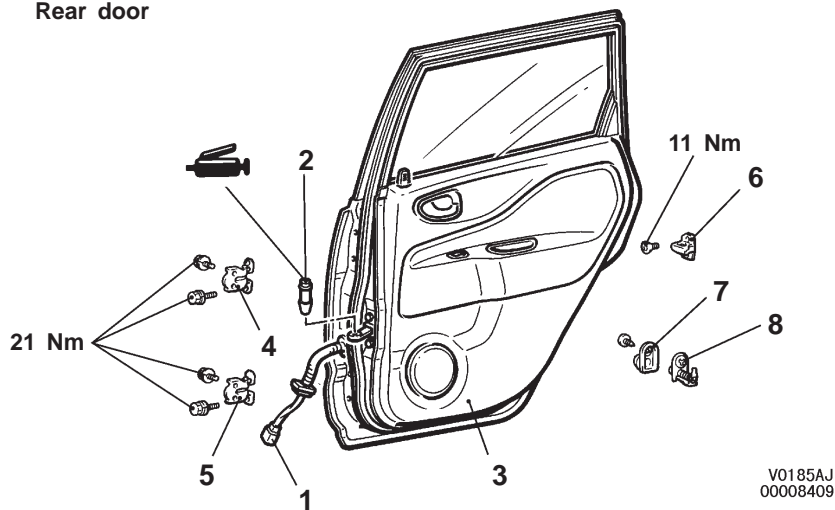
REMOVAL AND INSTALLATION

Post-installation Operation
 Door Adjustment (Refer to P.42-30.)

Front door



Rear door



Door assembly removal steps

- Front scuff plate
(Refer to GROUP 52A.)
- Cowl side trim
(Refer to GROUP 52A.)
- 1. Harness connector
- 2. Spring pin
- 3. Door assembly
- 4. Door upper hinge
- 5. Door lower hinge



Striker removal

- 6. Striker

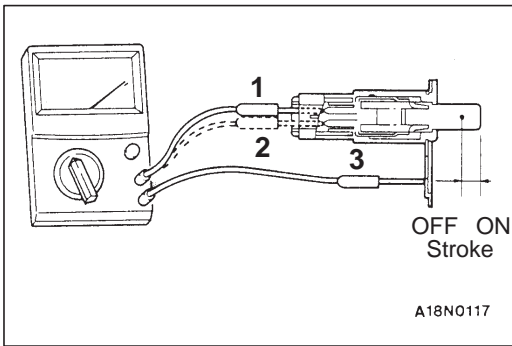
Door switch removal steps

- 7. Door switch cap
- 8. Door switch

42300600031

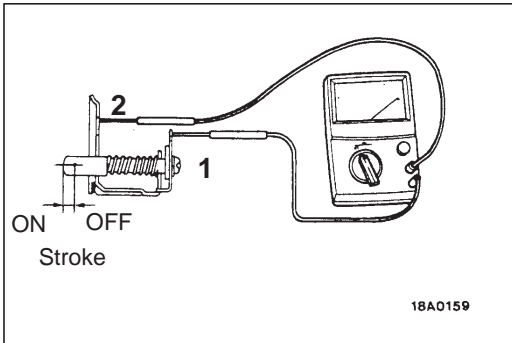
INSPECTION
DOOR SWITCH CONTINUITY CHECK

Driver's door switch



Switch position	Terminal No.		
	1	2	3
Open (ON)	○	○	○
Depressed (OFF)			

Passenger's door and rear door switch



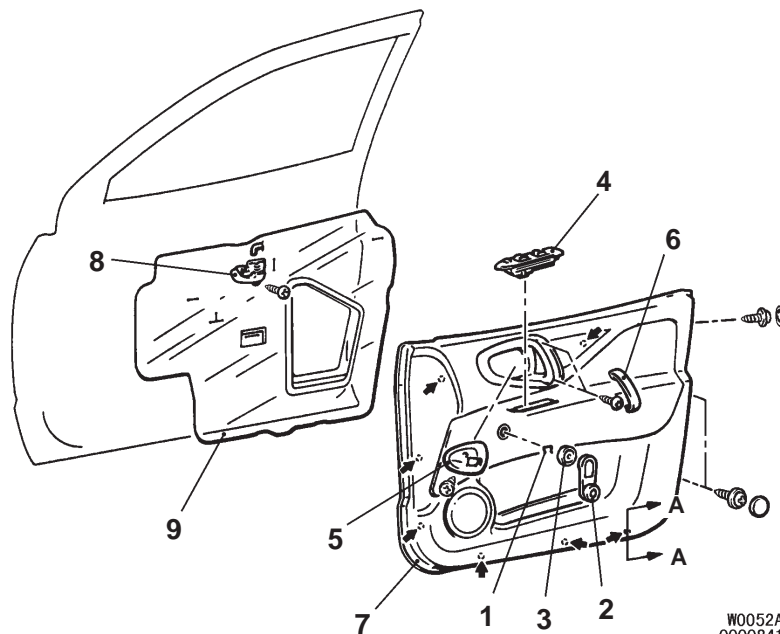
Switch position	Terminal No.	
	1	2
Open (ON)	○	○
Depressed (OFF)		

DOOR TRIM AND WATERPROOF FILM

42300430050

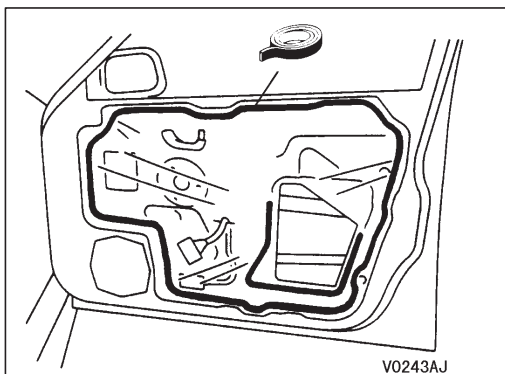
REMOVAL AND INSTALLATION

Front door

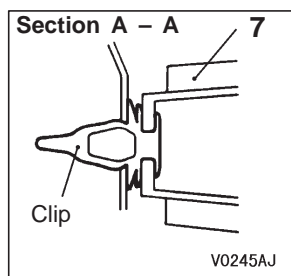


NOTE
 ←: Resin clip position

W0052AJ
 00008410



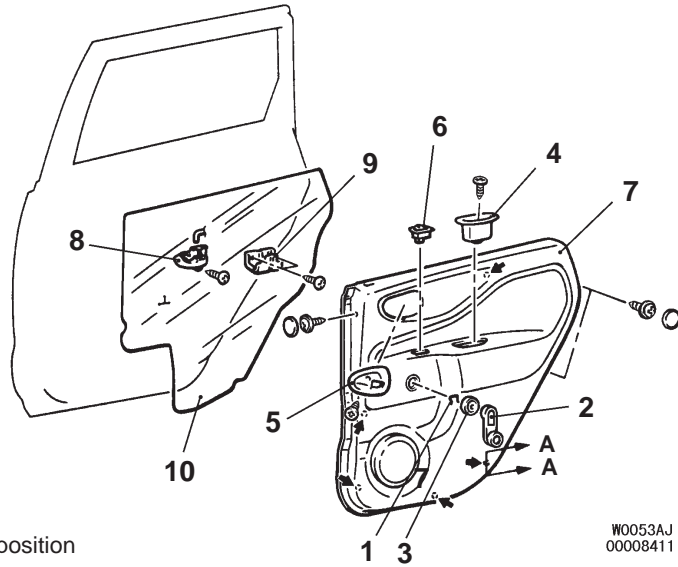
Sealant:
 3M ATD Part. No. 8625 or equivalent



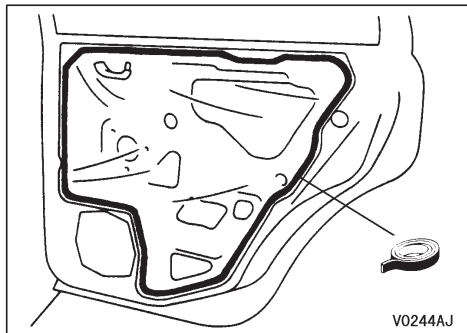
Removal steps

- | | | |
|--------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>◀A▶ ▶A◀</p> <p>▶A◀</p> <p>▶A◀</p> | <ol style="list-style-type: none"> 1. Clip <Vehicles without power window> 2. Regulator handle <Vehicles without power window> 3. Escutcheon <Vehicles without power window> 4. Power window switch <Vehicles with power window> | <ol style="list-style-type: none"> 5. Cover 6. Pull handle 7. Door trim 8. Door inside handle 9. Waterproof film |
|--------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|

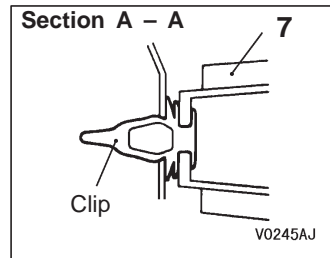
Rear door



NOTE
 ← Resin clip position

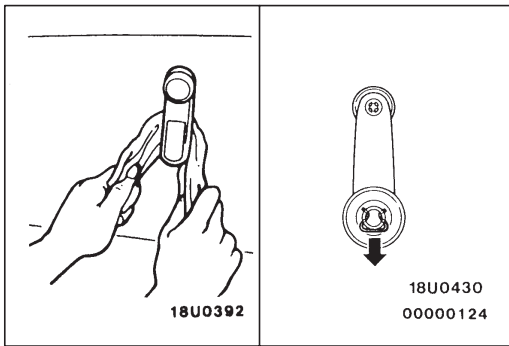


Sealant:
 3M ATD Part. No. 8625 or equivalent

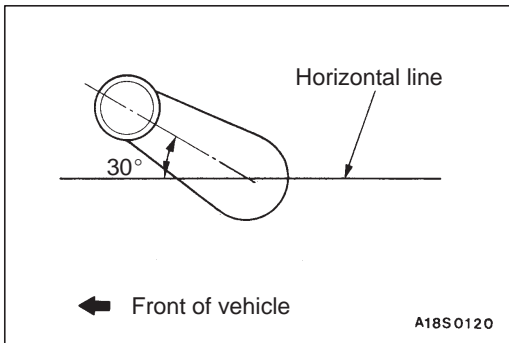


Removal steps

- | | | |
|--------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>◀A▶ ▶A▶</p> <p>▶A▶</p> <p>▶A▶</p> | <ol style="list-style-type: none"> 1. Clip <Vehicles without power windows> 2. Regulator handle <Vehicles without power windows> 3. Escutcheon <Vehicles without power windows> 4. Pull handle box <Vehicles without power windows> | <ol style="list-style-type: none"> 5. Cover 6. Power window switch <Vehicles with power windows> 7. Door trim 8. Door inside handle 9. Pull handle bracket 10. Waterproof film |
|--------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

**REMOVAL SERVICE POINT****◀▶ CLIP REMOVAL**

Remove the clip by using a rag, and then remove the regulator handle.

**INSTALLATION SERVICE POINT****▶◀ ESCUTCHEON/REGULATOR HANDLE/CLIP INSTALLATION**

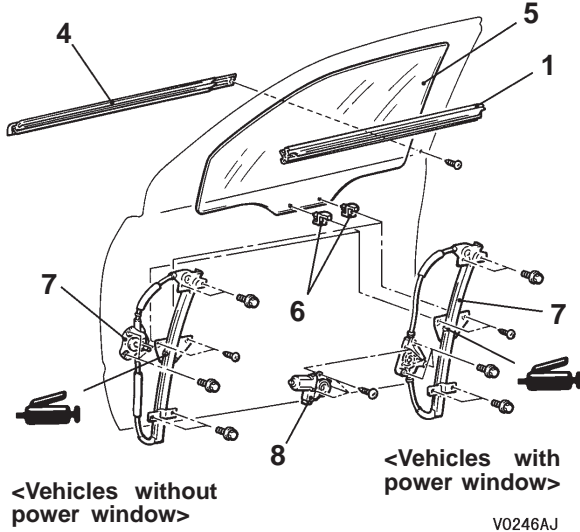
1. Install the escutcheon and the clip to the regulator handle.
2. Fully close the front door glass, and install the regulator handle so that it faces as shown in the illustration.

DOOR GLASS AND REGULATOR

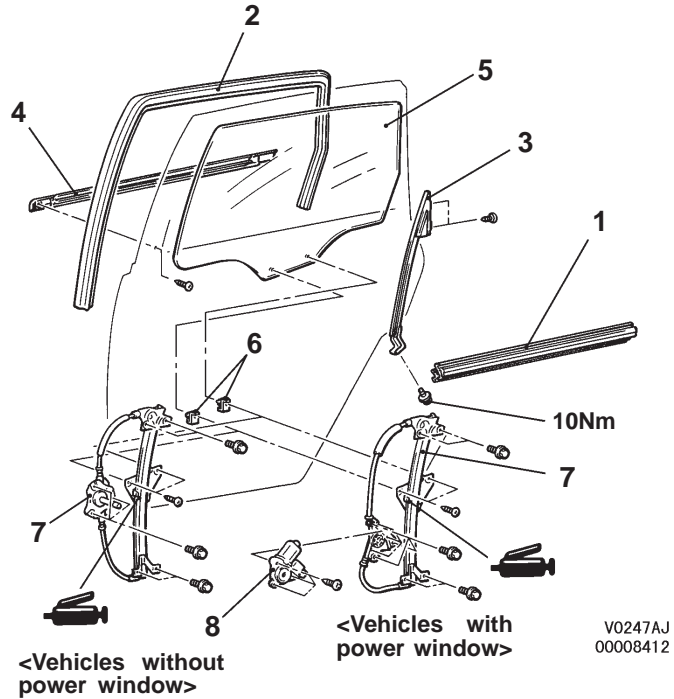
REMOVAL AND INSTALLATION

Pre-removal and Post-installation Operation
 Door Trim and Waterproof Film Removal and Installation
 (Refer to P.42-34,35.)

Front door



Rear door



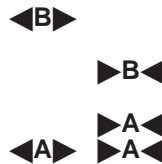
Front window regulator assembly removal steps

1. Door belt line inner weatherstrip
- Door mirror (Refer to GROUP 51.)
4. Belt line moulding
5. Door window glass
6. Door glass holder
7. Window regulator assembly
8. Power window motor assembly



Rear window regulator assembly removal steps

1. Door belt line inner weatherstrip
2. Door window glass runchannel
3. Door delta sash
4. Belt line moulding
5. Door window glass
6. Door window glass holder
7. Window regulator assembly
8. Power window motor assembly



REMOVAL SERVICE POINTS

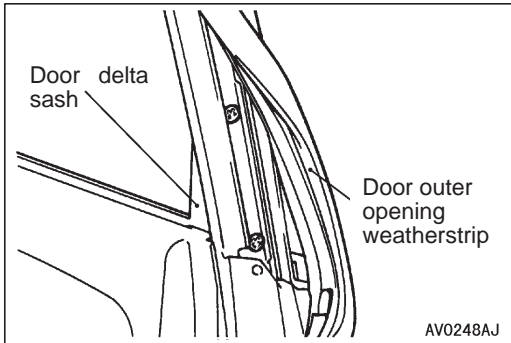
◀A▶ POWER WINDOW MOTOR ASSEMBLY

Caution

Be careful when handling the power window motor assembly, as the force of the spring may cause the wires to pull out of the drum.

◀B▶ DOOR DELTA SASH REMOVAL

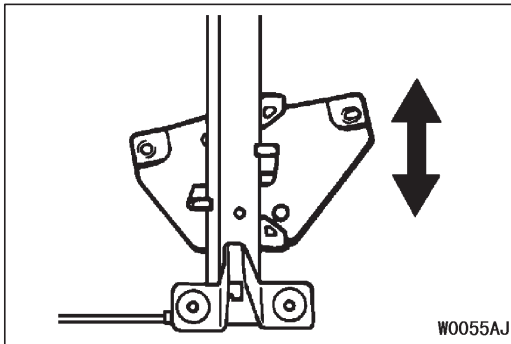
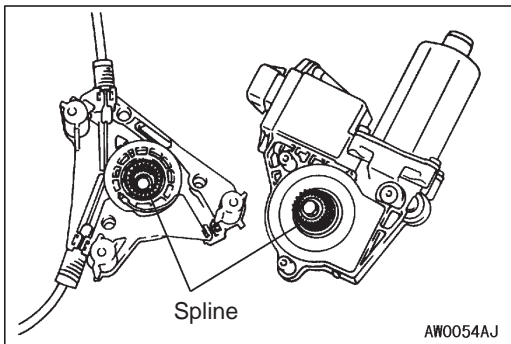
1. Remove the door outer opening weatherstrip from the door delta sash only.
2. Remove the door delta sash mounting screws, and then remove the door delta sash from the door panel.



INSTALLATION SERVICE POINTS

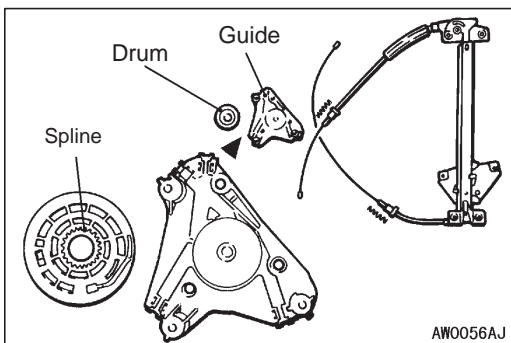
▶A◀ POWER WINDOW MOTOR ASSEMBLY/WINDOW REGULATOR ASSEMBLY

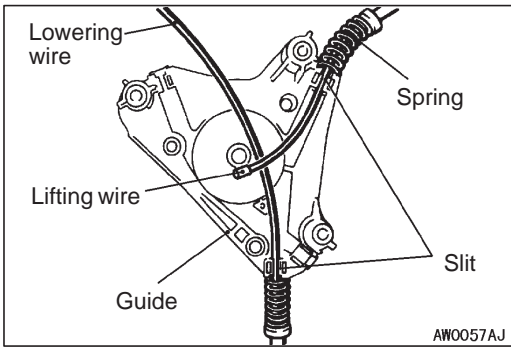
If the guide spline and the power window motor spline are not meshed when combining the guide and the power window motor, slide the glass bracket to turn the drum and mesh the drum and drive shaft spline.



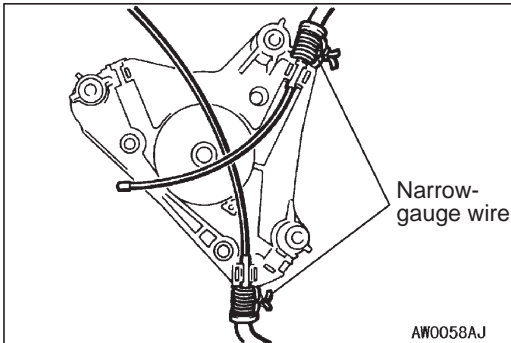
DRUM AND REGULATOR WIRE INSTALLATION PROCEDURE

1. Place the drum, guide and regulator on a work bench as shown in the illustration.
 - (1) Place the guide so that the slits are facing upward.
 - (2) Place the regulator so that the glass bracket is facing downward. Position the glass bracket so that glass is in the fully-open position.





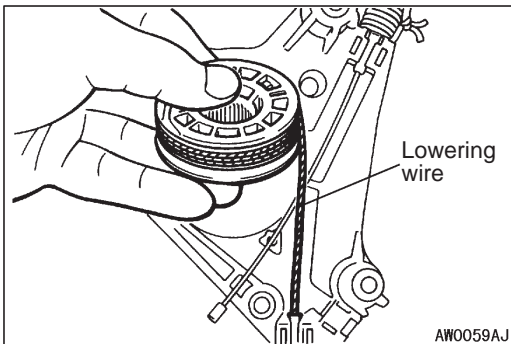
2. Pass the springs over the wires, and then install the lowering wire to the guide first, followed by the lifting wire. (The lifting wire should be on top of the lowering wire.)



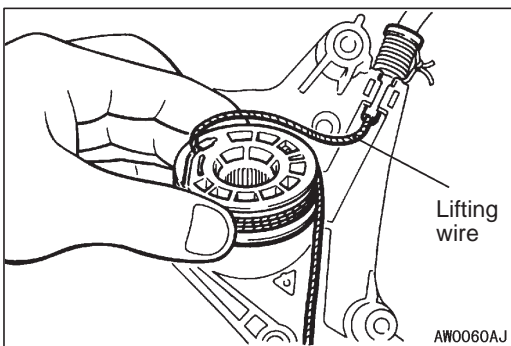
3. Use some narrow-gauge wire (approx. 0.5 mm diameter) to compress the springs.

NOTE

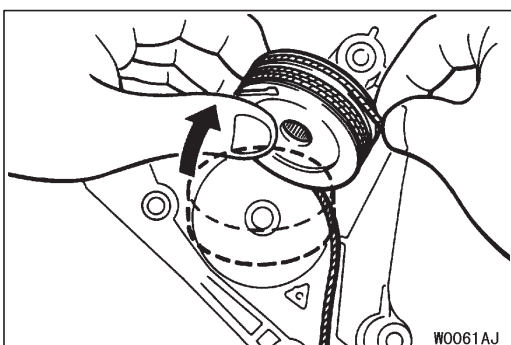
Tie the narrow-gauge wires to the slits in the guide.



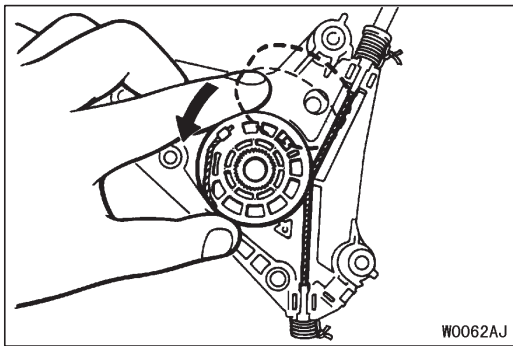
4. Insert the end of the lowering wire into the wire hole at the bottom of the drum, and then wrap the wire securely around the groove of the drum from the bottom so that there is no slackness in the wire.



5. Install the lifting wire to the drum as follows:
 - (1) Insert the end of the lifting wire into the wire hole at the top of the drum.



- (2) Raise the front of the drum until the drum is vertical, and then position the lifting wire in the groove of the drum.



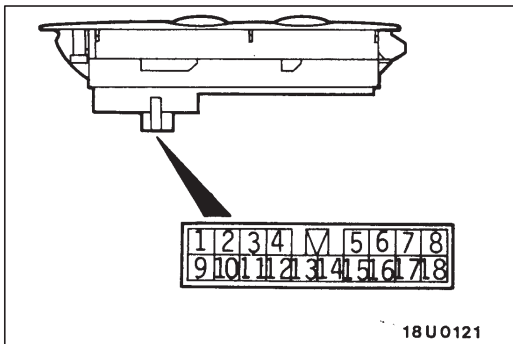
- (3) Return the drum to its original position while holding the wires to make sure that they do not pull out.
6. After installing the power window motor assembly to the window regulator assembly, cut and remove the wires which are compressing the springs.

▶B◀ DOOR WINDOW GRASS INSTALLATION

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

NOTE

Fully raising the door window glass will set the door limit switch to the correct position.



INSPECTION

42900160032

POWER WINDOW MAIN SWITCH CHECK

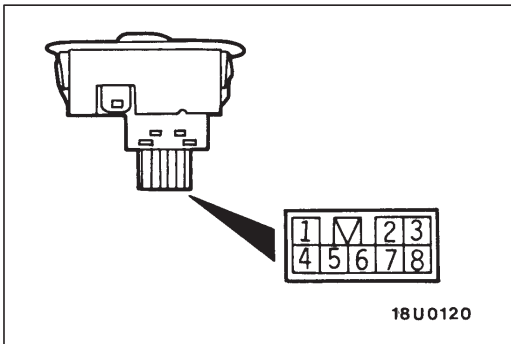
1. Operate the switch, and check the continuity between terminals.

Window lock switch	Switch position	Terminal No.															
		Front (L.H.)				Front (R.H.)				Rear (L.H.)				Rear (R.H.)			
		1	5	14	15	2	6	14	16	3	7	14	17	4	8	14	18
Normal	UP		○—○				○—○				○—○				○—○		
	AUTO UP	○—○	○—○	○—○		○—○	○—○	○—○		○—○	○—○	○—○		○—○	○—○	○—○	
	DOWN			○—○	○—○			○—○	○—○			○—○	○—○			○—○	○—○
	AUTO DOWN	○—○		○—○	○—○	○—○		○—○	○—○	○—○		○—○	○—○	○—○		○—○	○—○
LOCK	UP										○—○	○—○			○—○	○—○	
	AUTO UP	○—○	○—○			○—○	○—○			○—○	○—○	○—○		○—○	○—○	○—○	
	DOWN											○—○	○—○			○—○	○—○
	AUTO DOWN	○—○			○—○	○—○		○—○		○—○		○—○	○—○	○—○		○—○	○—○

2. Apply battery voltage to terminal 10, and connect terminal 12 to earth.

3. Move the window lock switch to the normal position, and then measure the voltage at terminal (14) under the measurement conditions given below.

Measurement condition	Voltage
Apply battery voltage to terminal 9	Battery voltage
Remove voltage from terminal (9).	Battery voltage (for 30 seconds after voltage is removed) → 0 V
Earth terminal (11) within 30 seconds after voltage is removed from terminal (9).	Battery voltage (for 30 seconds after earthing) → 0 V
Disconnect earth from terminal (11) within 30 seconds after earthing it.	0V



POWER WINDOW SUB-SWITCH CONTINUITY CHECK

Switch position	Terminal No.							
	1	2	3	4	6	7	8	
UP			○		○		○	
AUTO UP	○		○	○	○		○	
OFF	○			○				
		○				○		
			○				○	
DOWN		○			○	○		
AUTO DOWN	○	○		○	○	○		

DOOR HANDLE AND LATCH

42300460042

REMOVAL AND INSTALLATION

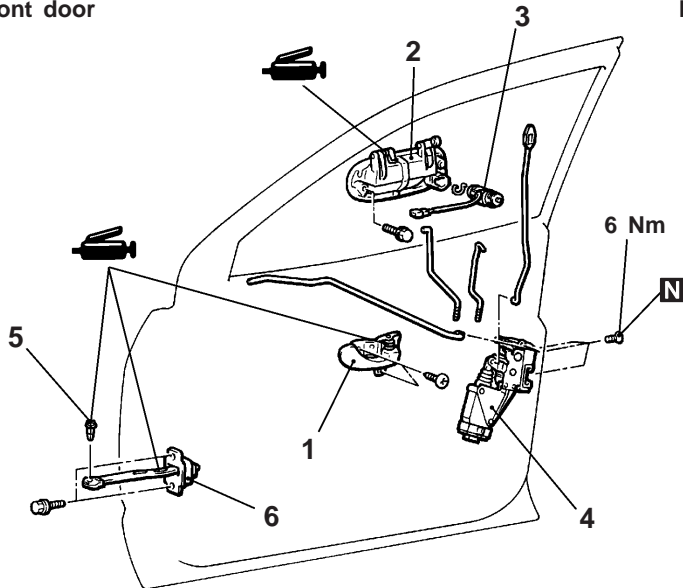
Pre-removal Operation

Door Trim Removal (Refer to P.42-34,35.)

Post-installation Operation

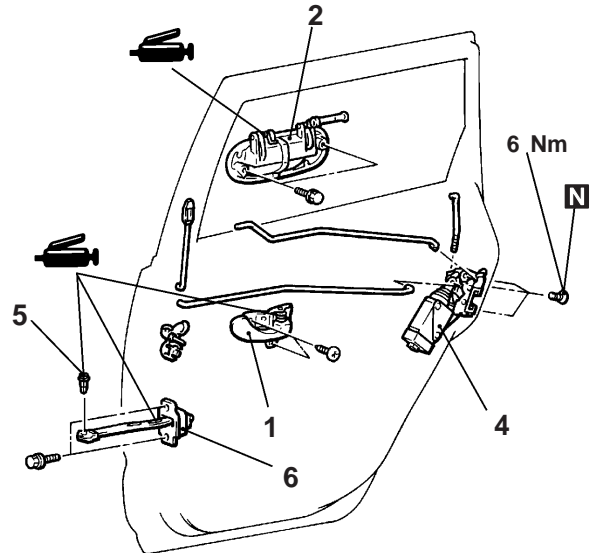
- Door Inside Handle Play Check (Refer to P.42-31.)
- Door Trim Installation (Refer to P.42-34,35.)
- Door Fit Adjustment (Refer to P.42-30.)

Front door

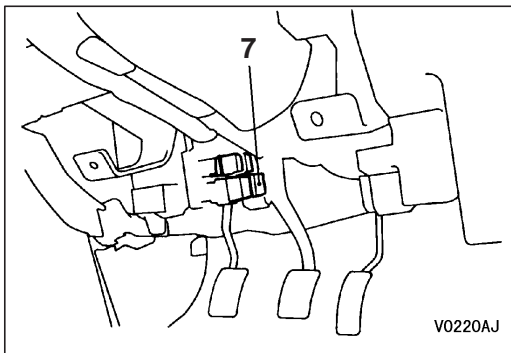


W0063AJ

Rear door



W0064AJ
00008413



V0220AJ

Front door handle and door latch assembly removal steps

1. Door inside handle
 - Waterproof film (Refer to P.42-34,35.)
2. Door outside handle
3. Door lock key cylinder
4. Door latch assembly

Rear door handle and door latch assembly removal steps

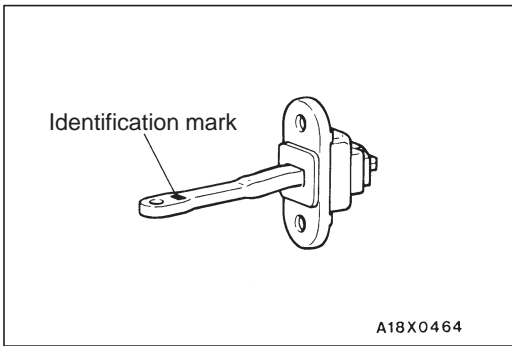
1. Door inside handle
 - Waterproof film (Refer to P.42-34,35.)
2. Door outside handle
4. Door latch assembly

Door check removal steps

1. Door inside handle
 - Waterproof film (Refer to P.42-34,35.)
5. Spring pin
6. Door check

Door lock-ECU removal

7. Door lock-ECU
<Vehicles with central door locking system (except vehicles keyless entry system)>

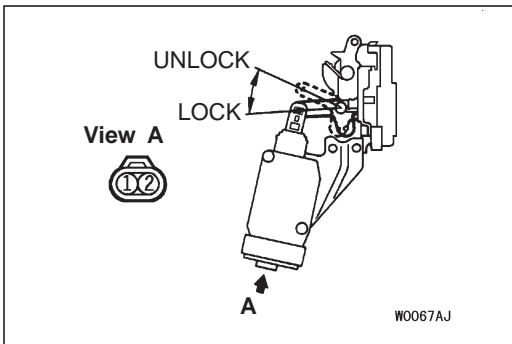


INSTALLATION SERVICE POINT

▶A◀ DOOR CHECK INSTALLATION

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

Applicable location		Identification mark
L.H.	Front door	FL
	Rear door	RL
R.H.	Front door	FR
	Rear door	RR

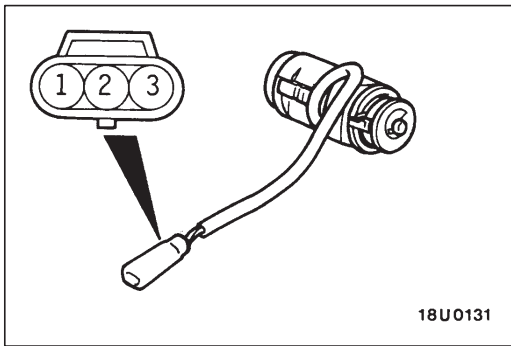


INSPECTION

42300610034

DOOR LOCK ACTUATOR CHECK

Rod position	Terminal No.		Rod operation
	1	2	
LOCK	⊕	⊖	LOCK position → UNLOCK position
UNLOCK	⊖	⊕	UNLOCK position → LOCK position



DOOR LOCK KEY CYLINDER SWITCH CONTINUITY CHECK

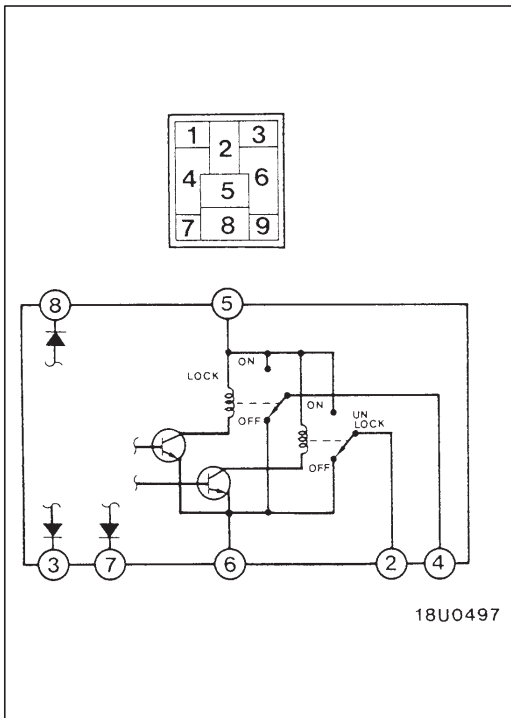
42300630030

<L.H.>

Switch position	Terminal No.		
	1	2	3
LOCK		○ — ○	○ — ○
Neutral (OFF)			
UNLOCK	○ — ○	○ — ○	

<R.H.>

Switch position	Terminal No.		
	1	2	3
LOCK	○ — ○	○ — ○	
Neutral (OFF)			
UNLOCK		○ — ○	○ — ○



DOOR LOCK ECU CHECK

42300650029

1. Apply battery voltage to terminal 5, and connect terminal 6 to earth.
2. Use a needle-type multimeter to measure the voltage under the measurement conditions given below.

Measurement condition	Terminal No.	
	2	4
Connect terminal (8) to earth.	Needle swings at the point when terminal is earthed.	0 V
Disconnect earth from terminal (8).	0 V	Needle swings at the point when earth is disconnected.
Connect terminal (3) to earth.	0 V	Needle swings at the point when terminal is earthed.
Connect terminal (7) to earth.	Needle swings at the point when terminal is earthed.	0 V

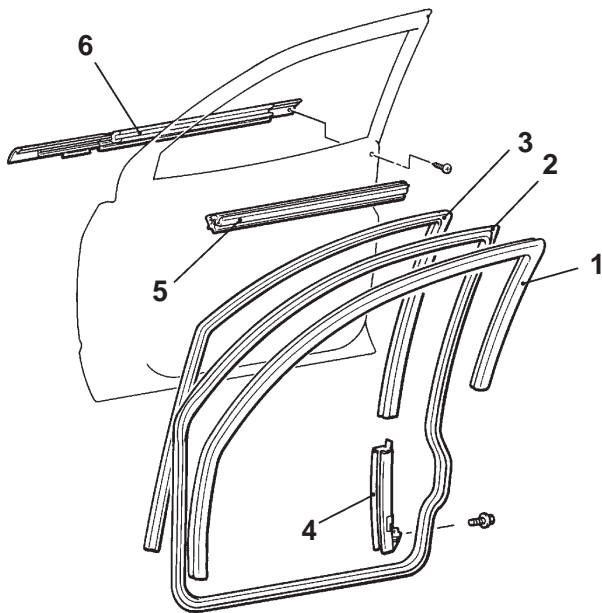
3. Check the continuity between terminals 2, 4, 6.

WINDOW GLASS RUNCHANNEL AND DOOR OPENING WEATHERSTRIP

42300310040

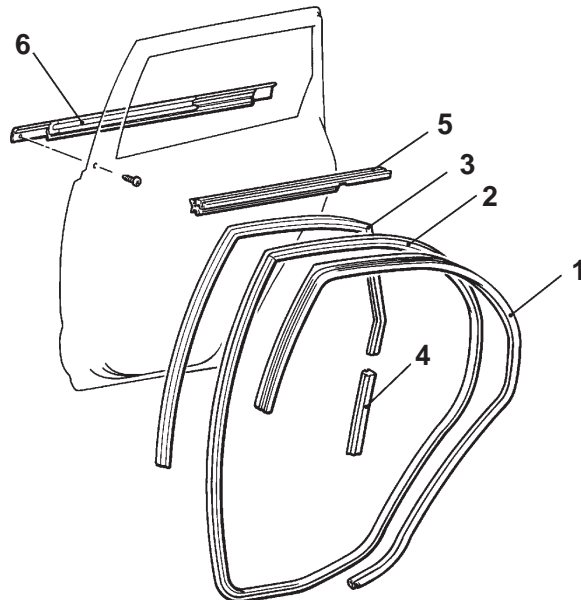
REMOVAL AND INSTALLATION

Front door



W0068AJ

Rear door



W0069AJ
00008414

Door inner opening weatherstrip removal steps

- Centre pillar lower trim (Refer to GROUP 52A.)
 - Front scuff plate (Refer to GROUP 52A – Trims.)
 - Rear scuff plate (Refer to GROUP 52A – Trims.)
 - Quarter lower trim (Refer to GROUP 52A – Trims.)
1. Door inner opening weatherstrip

Door outer opening weatherstrip removal

- ◀A▶ ▶A▶ 2. Door outer opening weatherstrip

Window glass runchannel removal

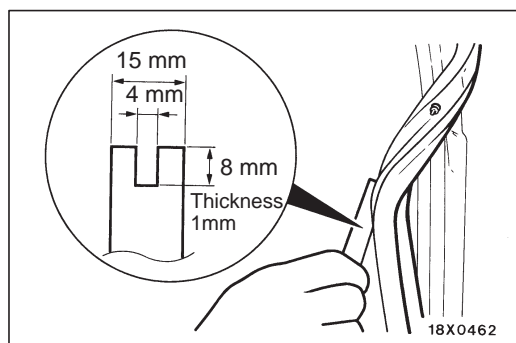
- Door trim and waterproof film (Refer to P.42-34,35.)
 - Door delta sash (Refer to P.42-37.)
3. Window glass runchannel
 4. Window glass lower runchannel

Door beltline inner weatherstrip removal steps

5. Door beltline inner weatherstrip

Door beltline outer weatherstrip removal steps

- Door mirror (Refer to GROUP 51.)
6. Door beltline outer weatherstrip



REMOVAL SERVICE POINT

◀A▶ DOOR OUTER OPENING WEATHERSTRIP REMOVAL

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

INSTALLATION SERVICE POINT**▶A◀ DOOR OUTER OPENING WEATHERSTRIP
INSTALLATION**

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

Item		Identification colour
Front door	Left	White
	Right	Brown
Rear door	Left	Yellow
	Right	Blue

TAILGATE

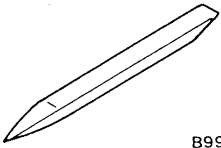
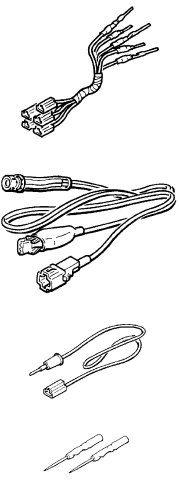
42400030017

SERVICE SPECIFICATION

Item	Standard value
Tailgate handle free play mm	1.1 – 5.1

SPECIAL TOOLS

42400060030

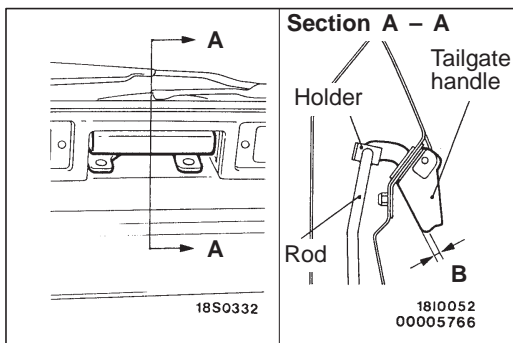
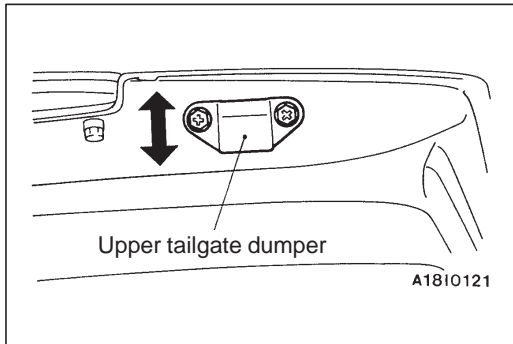
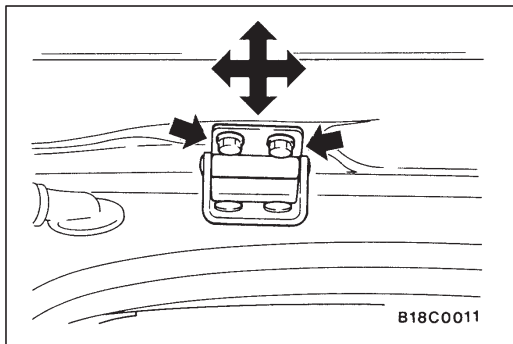
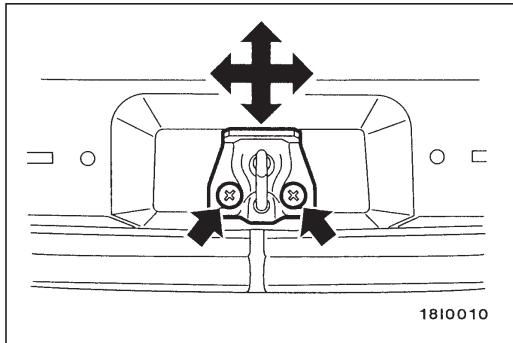
Tool	Number	Name	Use
 B990784	MB990784	Ornament remover	Removal of the tailgate trim
 A B C D C991223	MB991223 A: MB991219 B: MB991220 C: MB991221 D: MB991222	Harness set A: Test harness B: LED harness C: LED harness adapter D: probe	Measurement of terminal voltage A: Connector pin contact pressure inspection B: Power circuit inspection C: Power circuit inspection D: Commercial tester connection

TROUBLESHOOTING

42400070088

INSPECTION CHART FOR TROUBLE SYMPTOMS

Trouble symptom	Reference page
Door lock mechanism does operate.	42-18.



ON-VEHICLE SERVICE

42400090039

TAILGATE FIT ADJUSTMENT

1. If the striker and the latch do not mesh properly, move the striker forward or back or to the left or right to adjust.
2. If the clearance all the way around the tailgate is not uniform when the tailgate is closed, adjust by moving the tailgate hinges forward or back or to the left or right until the clearance is uniform.
3. Check the contact between the upper tailgate damper and the lower tailgate damper when the tailgate is closed. If they do not contact properly, adjust by moving the upper tailgate damper in the direction of the arrows.

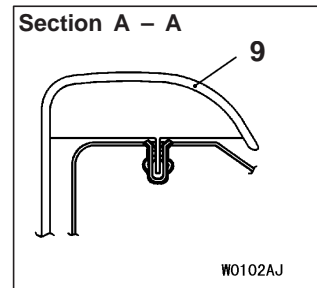
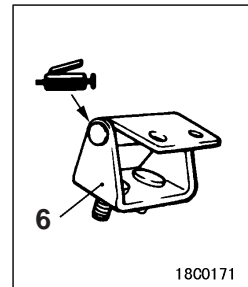
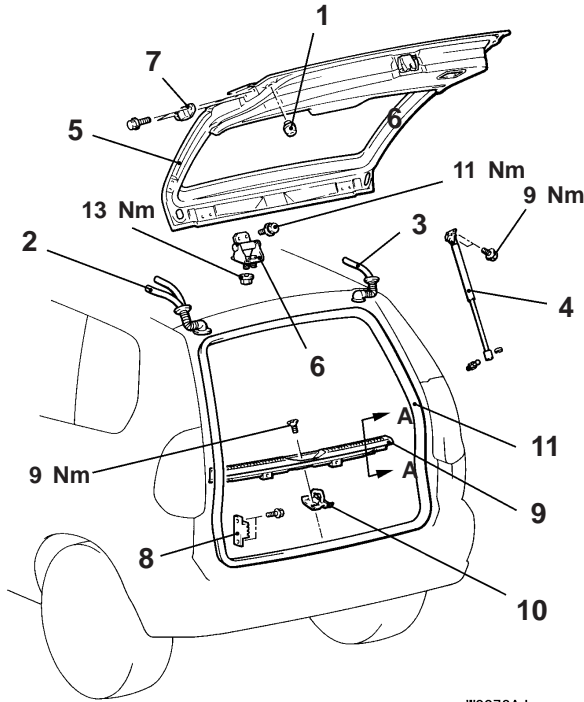
TAILGATE HANDLE PLAY CHECK

1. Check that the tailgate handle play is within the standard value range.
Standard value (B): 1.1 – 5.1 mm
2. If the play is outside the standard value range, open the tailgate handle holder and adjust the contact condition between the tailgate latch rod and the tailgate handle.

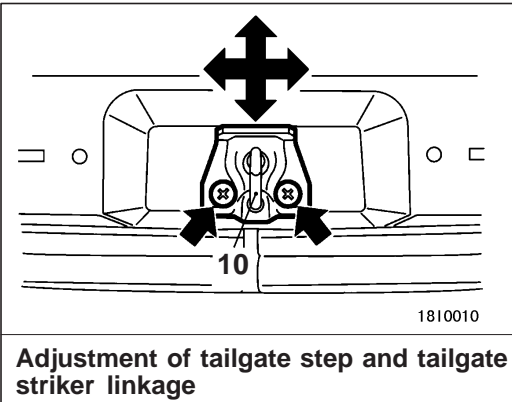
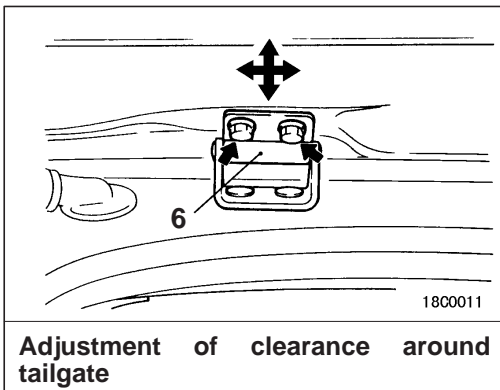
TAILGATE ASSEMBLY

REMOVAL AND INSTALLATION

Post-installation Operation
Tailgate fit adjustment (Refer to P.42-47.)



W0070AJ
00008415



Tailgate and tailgate hinge removal steps

1. Bumper
 - High-mounted stop lamp (Refer to GROUP 54.)
 - Tailgate trim (Refer to P.42-50.)
2. Harness connector
3. Washer hose
4. Tailgate gas spring
5. Tailgate assembly

6. Tailgate hinge
7. Upper tailgate dumper
8. Lower tailgate dumper

Tailgate striker removal steps

9. Rear end trim
10. Tailgate striker

Tailgate opening weatherstrip removal

11. Tailgate opening weatherstrip



REMOVAL SERVICE POINT

◀A▶ TAILGATE GAS SPRING REMOVAL

Caution

1. Never try to disassemble the tailgate gas spring or burn it.
2. Always bore a hole in the tailgate gas spring to release the interior gas before the gas spring is discarded.

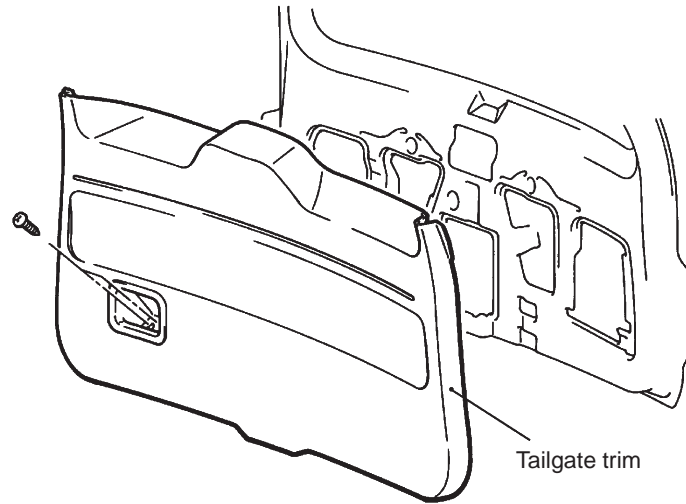
INSTALLATION SERVICE POINT

**▶A◀ TAILGATE OPENING WEATHERSTRIP
INSTALLATION**

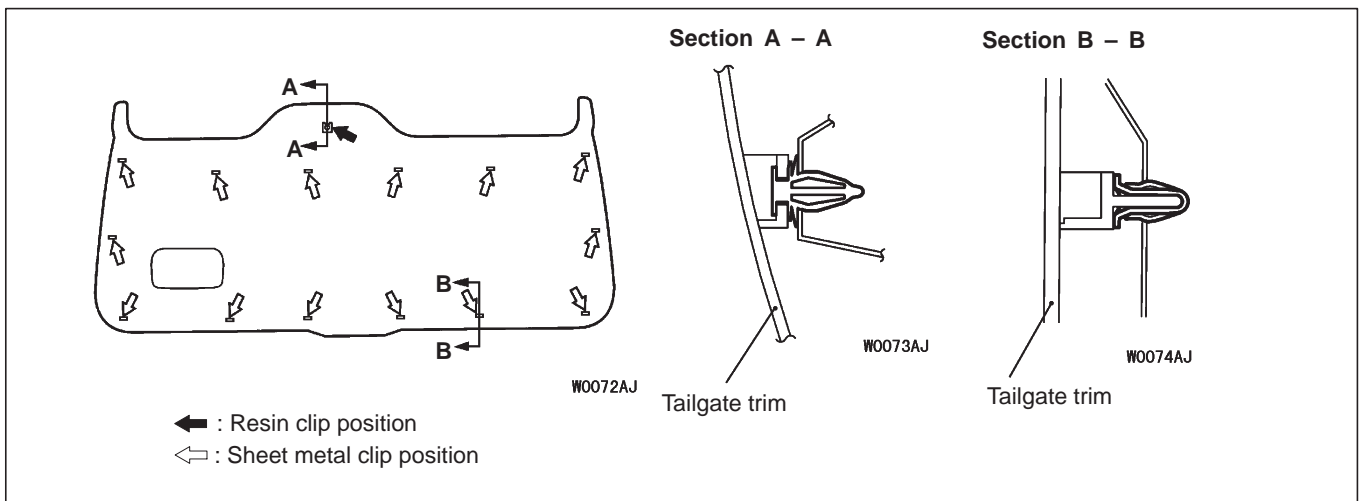
Install the tailgate opening weatherstrip so that the joint is at the centre of the body.

TAILGATE TRIM

REMOVAL AND INSTALLATION



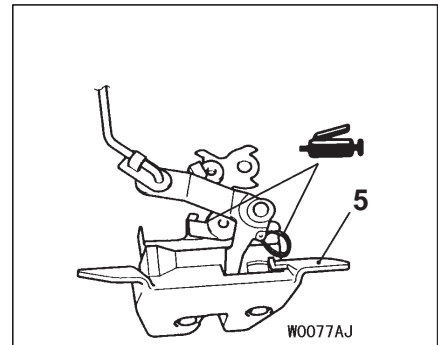
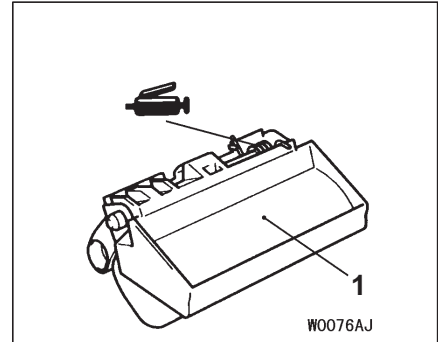
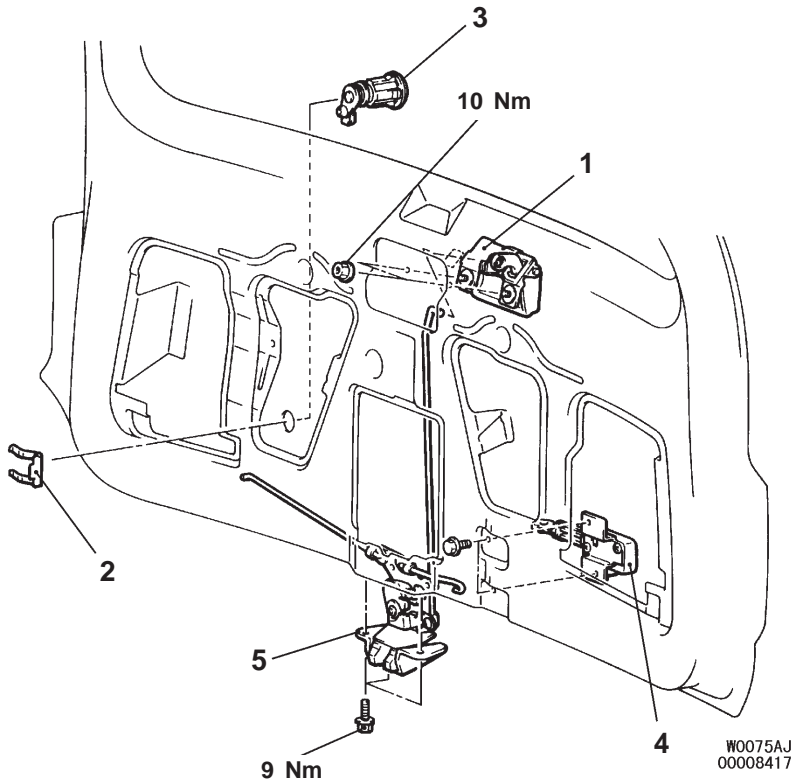
W0071AJ
00008416



TAILGATE HANDLE AND LATCH REMOVAL AND INSTALLATION

42400170054

Post-installation Operation
Tailgate Handle Free Play Check (Refer to P.42-47.)

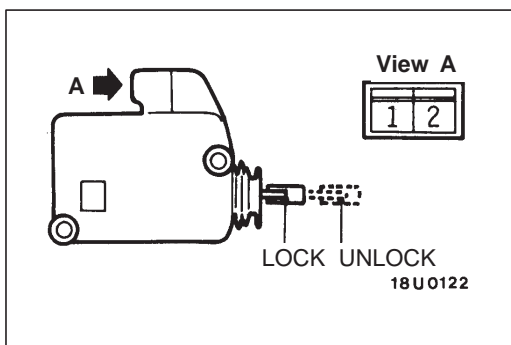


Tailgate handle and lock key cylinder removal steps

- Tailgate trim (Refer to P.42-50.)
- Licence plate lamp garnish (Refer to GROUP 51.)
- 1. Tailgate handle
- 2. Cylinder lock retainer
- 3. Tailgate lock key cylinder

Tailgate latch removal steps

- Tailgate trim (Refer to P.42-50.)
- 4. Tailgate lock actuator
- 5. Tailgate latch assembly



INSPECTION

42400180033

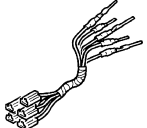
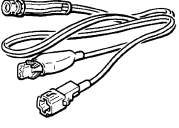
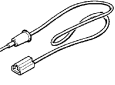

TAILGATE LOCK ACTUATOR CHECK

Rod position	Terminal No.		Rod operation
	1	2	
LOCK	⊕	⊖	LOCK position → UNLOCK position
UNLOCK	⊖	⊕	UNLOCK position

KEYLESS ENTRY SYSTEM

4280060018

SPECIAL TOOLS

Tool	Number	Name	Use
A 	MB991223 A: MB991219 B: MB991220 C: MB991221 D: MB991222	Harness set A: Test harness B: LED harness C: LED harness adapter D: probe	Measurement of terminal voltage A: Connector pin contact pressure inspection B: Power circuit inspection C: Power circuit inspection D: Commercial tester connection
B 			
C 			
D 			
C991223			

TROUBLESHOOTING

42800180011

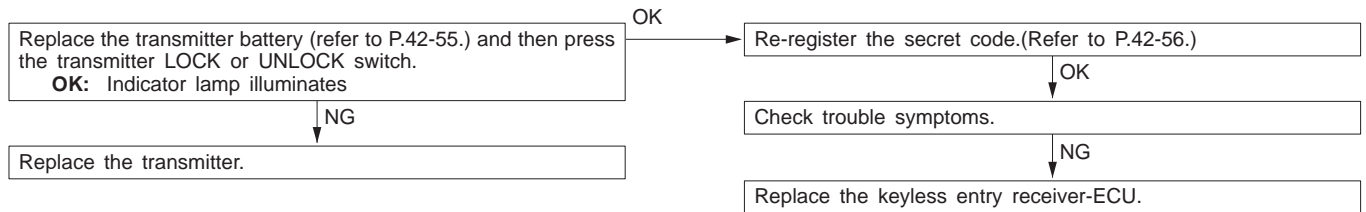
INSPECTION CHART FOR TROUBLE SYMPTOMS

Trouble symptoms		Inspection procedure	Reference page
Keyless entry system	None of the doors, including the tailgate, can be locked or unlocked. (However, the central door locking system is functioning normally.)	1	42-53
	All of the doors, including the tailgate, can be locked and unlocked, but the hazard lamp does not illuminate or does not flash. (However, the hazard lamp flashes normally when the hazard lamp switch is used.)	2	42-53
	Secret codes cannot be registered.	3	42-54

INSPECTION PROCEDURE FOR TROUBLE SYMPTOMS

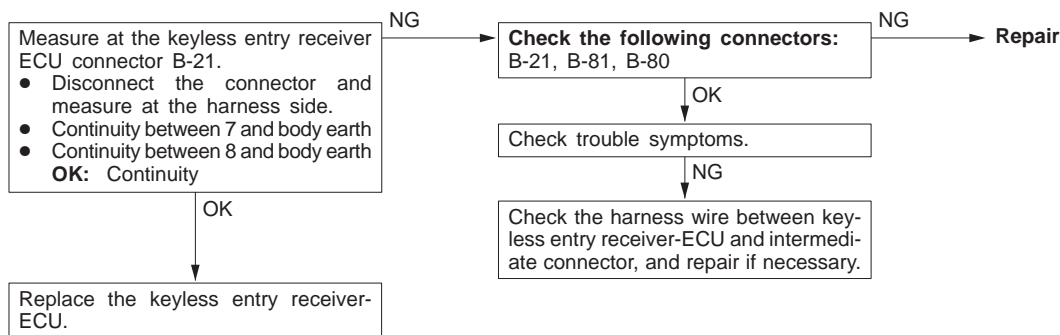
Inspection Procedure 1

<p>None of the doors, including the tailgate, can be locked or unlocked. (However, the central door locking system is functioning normally.)</p>	<p>Probable cause</p>
<p>The transmitter battery may be spent, the secret code may not have been registered correctly, or there may be a malfunction of the transmitter. If the transmitter is normal, the cause is probably a malfunction of the keyless entry receiver-ECU.</p>	<ul style="list-style-type: none"> ● Malfunction of the battery ● Malfunction of the transmitter ● Malfunction of the keyless entry receiver-ECU



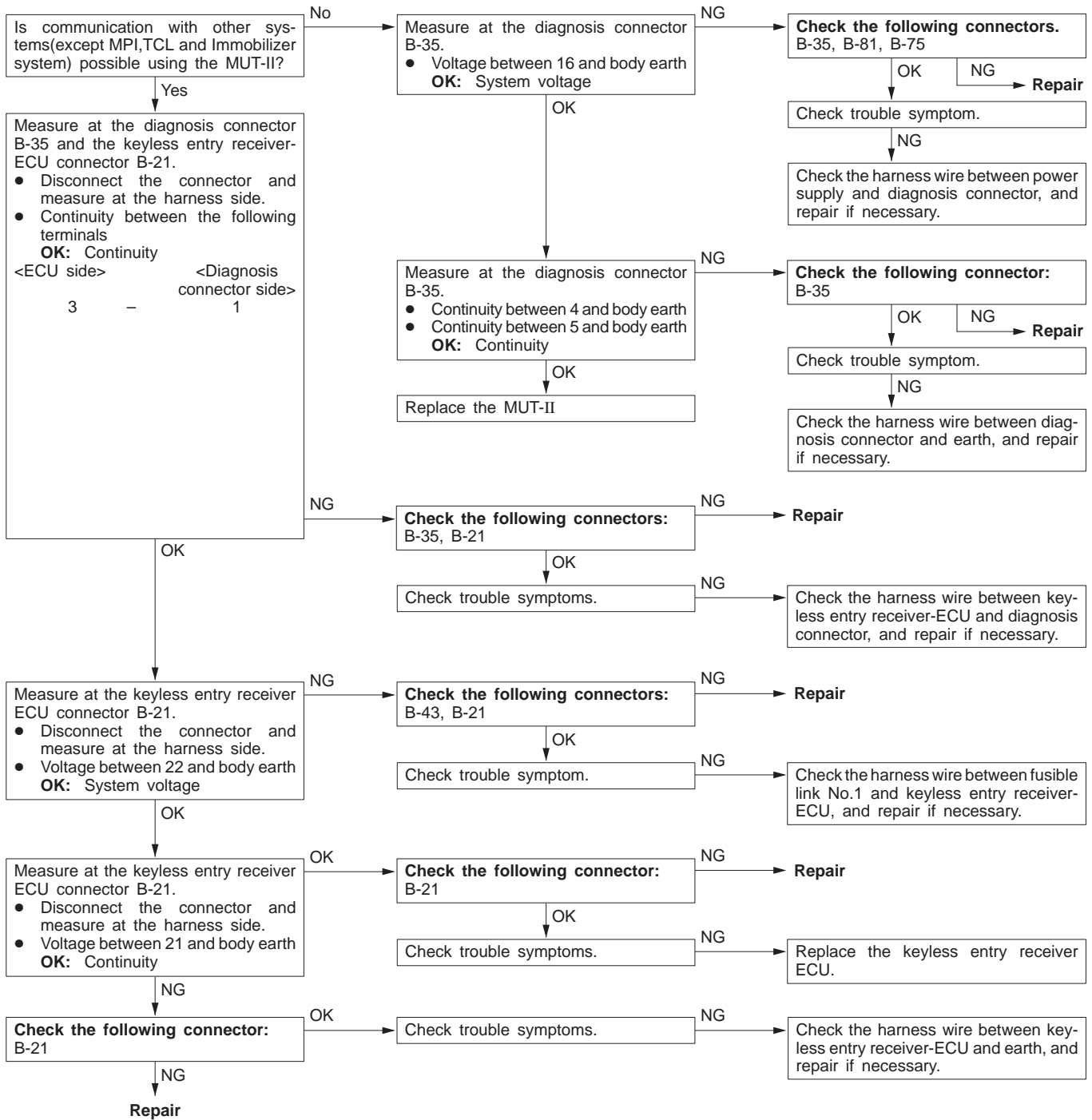
Inspection Procedure 2

<p>All of the doors, including the tailgate, can be locked and unlocked, but the hazard lamp does not illuminate or does not flash. (However, the hazard lamp flashes normally when the hazard lamp switch is used.)</p>	<p>Probable cause</p>
<p>The keyless entry receiver-ECU or the harness between hazard lamp and keyless entry receiver-ECU may be defective.</p>	<ul style="list-style-type: none"> ● Malfunction of the keyless entry receiver-ECU ● Malfunction of harness or connector



Inspection Procedure 3

Secret codes cannot be registered.	Probable cause
One of the following items may be defective. Diagnosis connector Keyless entry receiver-ECU power supply circuit Earth circuit Diagnosis output circuit	<ul style="list-style-type: none"> ● Malfunction of the keyless entry receiver-ECU ● Malfunction of the MUT-II ● Malfunction of harness or connector

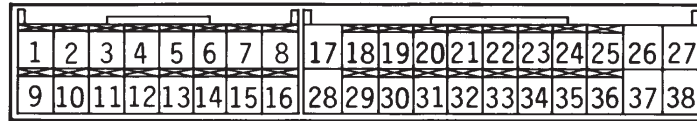


INSPECTION AT KEYLESS ENTRY RECEIVER-ECU TERMINALS

42800220010

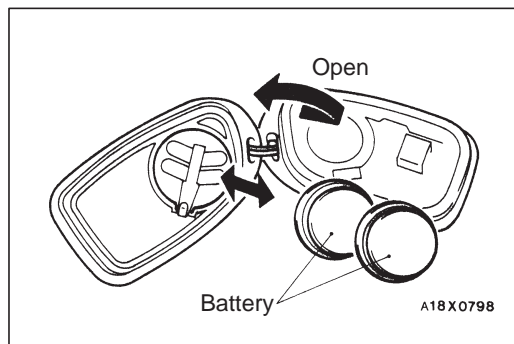
TERMINAL VOLTAGE CHART

1. Measure the voltages between terminal (37) (earth terminal) and each respective terminal.
2. The terminal arrangements are shown in the illustrations below.



W0107AJ

Connector Terminal No.	Signal	Checking Requirements	Normal Condition
17	Door lock output	When operating	System voltage
		When not operating	0V
18	Ignition switch	Ignition switch: ACC or ON	System voltage
		Ignition switch: OFF	0V
19	Diagnostic selection (Input)	MUT-II : Connected	0V
		MUT-II : Disconnected	Apporox. 4V
21, 38	Keyless entry receiver-ECU power supply	Always	System voltage
23, 24	Hazard warning lamp	When lamp is switched off	0V
		When lamp illuminates	System voltage



ON-VEHICLE SERVICE

42800090017

BATTERY REPLACEMENT

1. Insert a screwdriver in a slit in the transmitter case and pry it lightly to open the case. Then take the battery out of the transmitter.
2. Install a new battery with its positive side down.
Replacement battery: Lithium battery CR2016 × 2
3. Firmly close the transmitter case.
4. Check that the keyless entry system operates properly.

Caution

When the transmitter is opened, be careful not to allow water, dust, etc. to stick to the transmitter. In addition, do not touch the precision electronic device.

SECRET CODE REGISTRATION METHOD

42800100109

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

- When either the transmitter or receiver is replaced;
- If a second transmitter is to be used;
- If it appears that a problem is occurring because of faulty registration of a code.

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

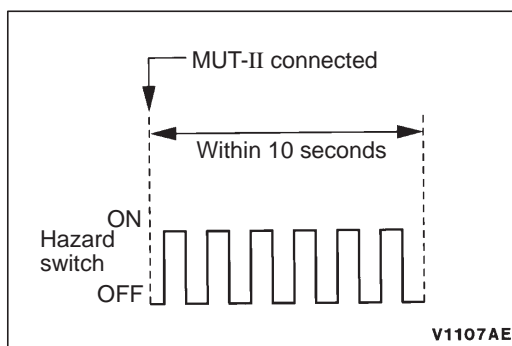
1. Check that the doors lock normally when the key is used.
2. Connect the MUT-II to the diagnosis connector.

NOTE

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

Caution

Always turn the ignition switch to OFF before connecting and disconnecting the MUT-II.



3. Within 10 seconds after connecting the MUT-II, turn the hazard switch to ON and then to OFF; repeat this procedure six times.

NOTE

The doors will lock and unlock once at this time and the system will switch to registration mode.

4. Press the transmitter switch, and then press it two times within 10 seconds of the first press. This will register the code.
5. After registration is completed, the doors will be automatically locked and unlocked once.
6. If you are using two transmitters or have added a second transmitter, the same registration procedure should be carried out for the second transmitter, and it should be carried out within one minute after registration of the code for the first transmitter has been completed. After the second registration is completed, the doors will be automatically locked and unlocked once.
7. Registration mode will be cancelled under the following conditions.
 - When the secret codes for two transmitters have been registered;

- When 1 minute has passed after registration mode started;
 - If the MUT-II is disconnected (the earth connection is broken);
 - If the ignition switch is turned to ON;
 - If any of the doors are opened;
8. After registration mode has been completed, carry out the followings to make sure that the keyless entry system operates.
- Pull the ignition key out.
 - Close the all windows.

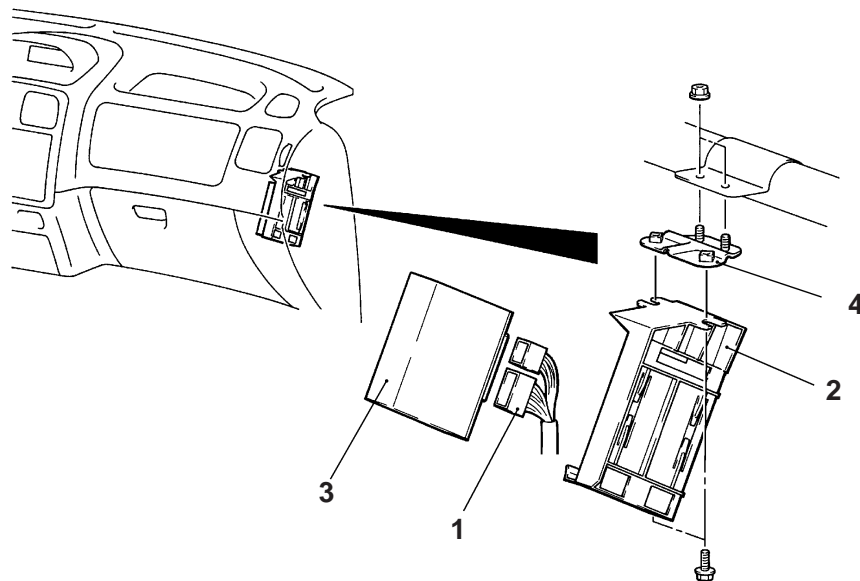
KEYLESS ENTRY RECEIVER-ECU

42800130016

REMOVAL AND INSTALLATION

Pre-removal and Post-installation Operation

- Lower Panel (Passenger's side) Removal and Installation (Refer to GROUP 52A.)



AW0078AJ

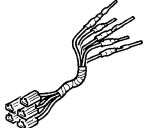
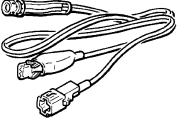
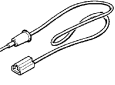

Removal steps

1. Harness connector
2. Keyless entry receiver bracket
3. Keyless entry receiver-ECU
4. ECU bracket

SUNROOF

4260060012

SPECIAL TOOLS

Tool	Number	Name	Use
A  B  C  D  C991223	MB991223 A: MB991219 B: MB991220 C: MB991221 D: MB991222	Harness set A: Test harness B: LED harness C: LED harness adapter D: probe	Measurement of terminal voltage A: Connector pin contact pressure inspection B: Power circuit inspection C: Power circuit inspection D: Commercial tester connection

TROUBLESHOOTING

42600200018

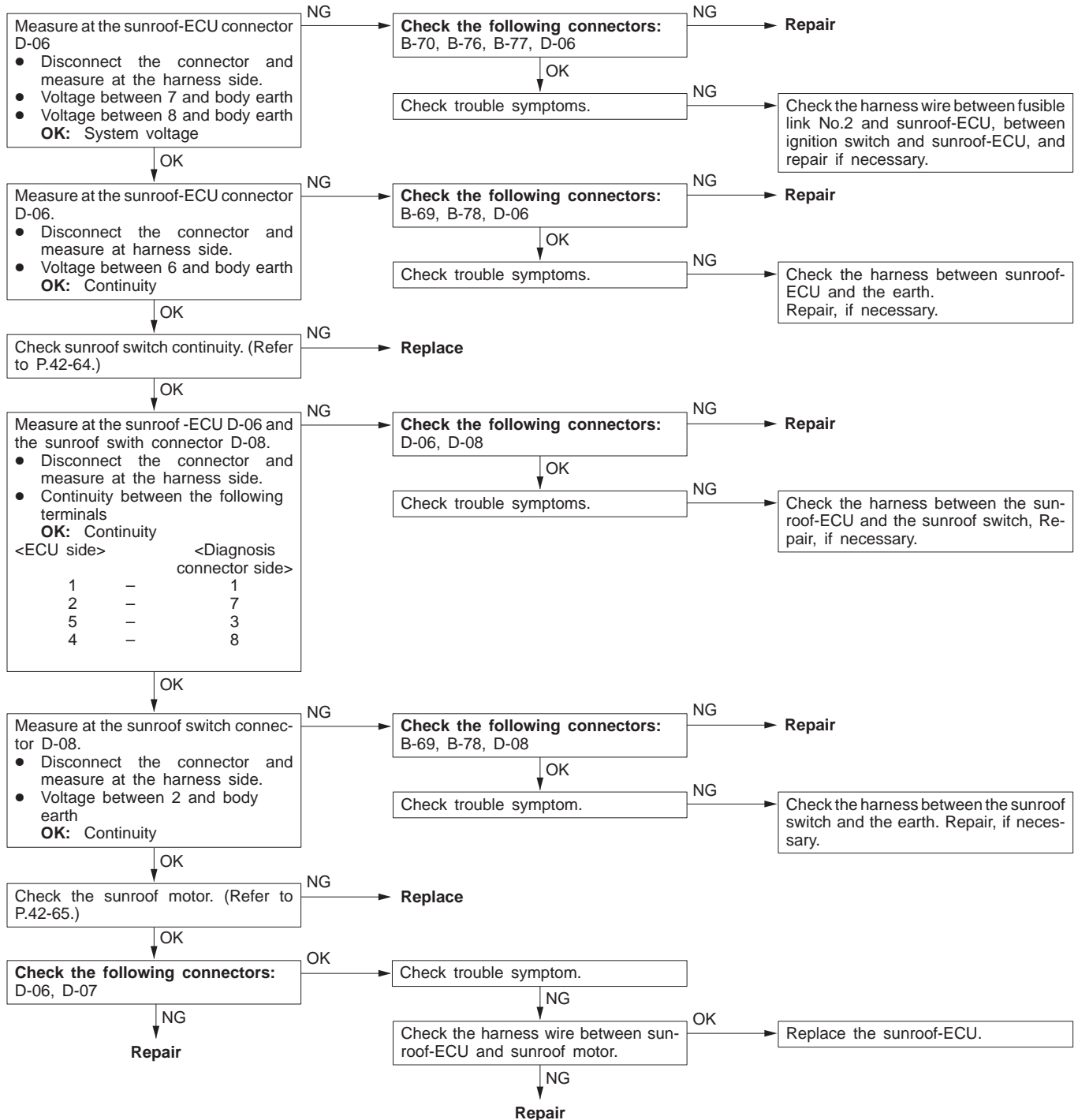
INSPECTION CHART FOR TROUBLE SYMPTOMS

Trouble symptom	Inspection procedure	Reference page
Sunroof does not operate at all.	1	42-59
Sunroof does not operate correctly or it does not re-open if it clamps something.	2	42-60
The key off timer does not operate.	3	42-60
If the driver's side door is opened while the key off timer is operating, the sunroof does not operate for a further 30 seconds after the door is opened.	4	42-60

INSPECTION PROCEDURE FOR TROUBLE SYMPTOMS

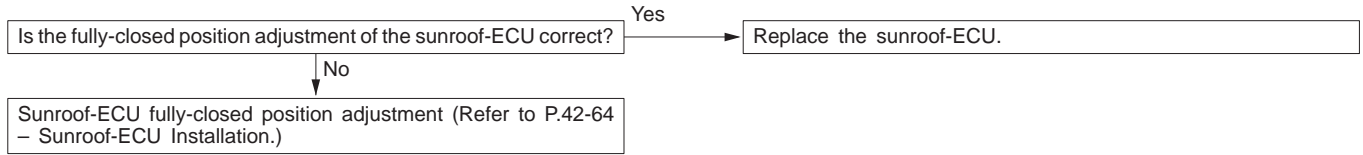
Inspection Procedure 1

Sunroof does not operate at all.	Probable cause
One of the following items may be defective. Sunroof switch Sunroof motor Sunroof-ECU Power supply circuit Earth circuit	<ul style="list-style-type: none"> ● Malfunction of sunroof switch ● Malfunction of front sunroof motor ● Malfunction of front sunroof-ECU ● Malfunction of wiring harness or connector



Inspection Procedure 2

Sunroof does not operate correctly or it does not re-open if it clamps something.	Probable cause
The fully-closed position for the sunroof-ECU may have been adjusted incorrectly, or there may be a malfunction of the sunroof-ECU.	<ul style="list-style-type: none"> • Incorrect adjustment of sunroof-ECU fully-closed position • Malfunction of the sunroof-ECU • Malfunction of the harness or connector



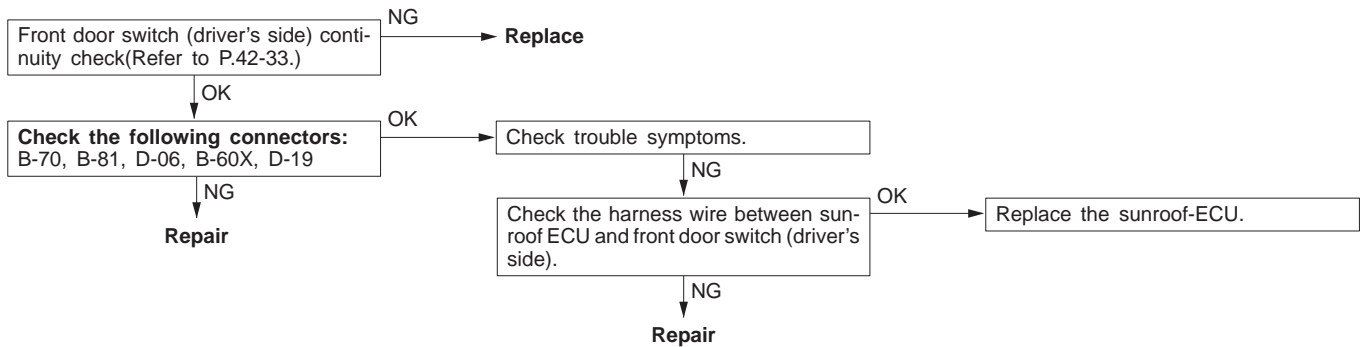
Inspection Procedure 3

The key off timer does not operate.	Probable cause
The sunroof can be operated for a further 30 seconds after the ignition switch is turned to OFF, but if it cannot be operated during this time, there is probably a malfunction of the sunroof-ECU.	<ul style="list-style-type: none"> • Malfunction of the sunroof-ECU

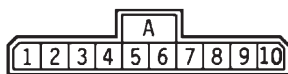
Replace the sunroof-ECU.

Inspection Procedure 4

If the driver’s side door is opened while the key off timer is operating, the sunroof does not operate for a further 30 seconds after the door is opened.	Probable cause
If the driver’s door is opened within 30 seconds after the ignition switch is turned to OFF, the sunroof can still be operated for 30 seconds after that point. If it cannot be operated during this time, there is probably a malfunction of the driver’s side door switch or of the sunroof-ECU.	<ul style="list-style-type: none"> • Malfunction of the front door switch (driver’s side) • Malfunction of the sunroof-ECU • Malfunction of harness or connector

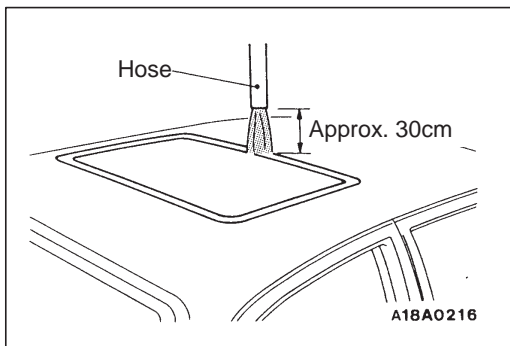


TERMINAL VOLTAGE CHART



W0108AJ

Terminal No.	Check Item	Check Condition	Normal Condition	
1	Sunroof switch (down input)	Sunroof switch (down position)	ON	0 V
			OFF	Battery voltage
2	Sunroof switch (up input)	Sunroof switch (up position)	ON	0 V
			OFF	Battery voltage
3	Door switch input	Driver's door switch	ON	0 V
			OFF	Battery voltage
4	Sunroof switch (open input)	Sunroof switch (open position)	ON	0 V
			OFF	Battery voltage
5	Sunroof switch (close input)	Sunroof switch (close position)	ON	0 V
			OFF	Battery voltage
6	Earth	Always	0 V	
7	ECU power supply	Always	Battery voltage	
8	Timer operation power supply	Ignition switch: ON	Battery voltage	
9	Motor output	While sunroof is opening or moving down	Battery voltage	
		Other than the above	0 V	
10	Motor output	While sunroof is closing or moving up	Battery voltage	
		Other than the above	0 V	



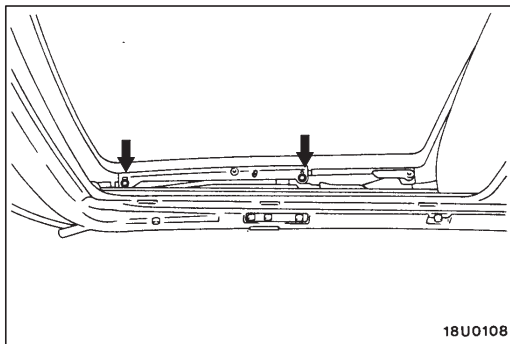
ON-VEHICLE SERVICE

42600090035

WATER TEST

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

1. Fully close the roof lid glass.
2. Adjust the water pressure so that water comes out of the hose to a height of approximately 50 cm when the hose is held vertically facing upwards.
3. Hold the end of the hose about 30 cm above the roof and let the water run onto the weatherstrip for 5 minutes or more.
4. While doing this, check if any water leaks through into the passenger compartment from around the roof lid glass.



SUNROOF FIT ADJUSTMENT

42600100035

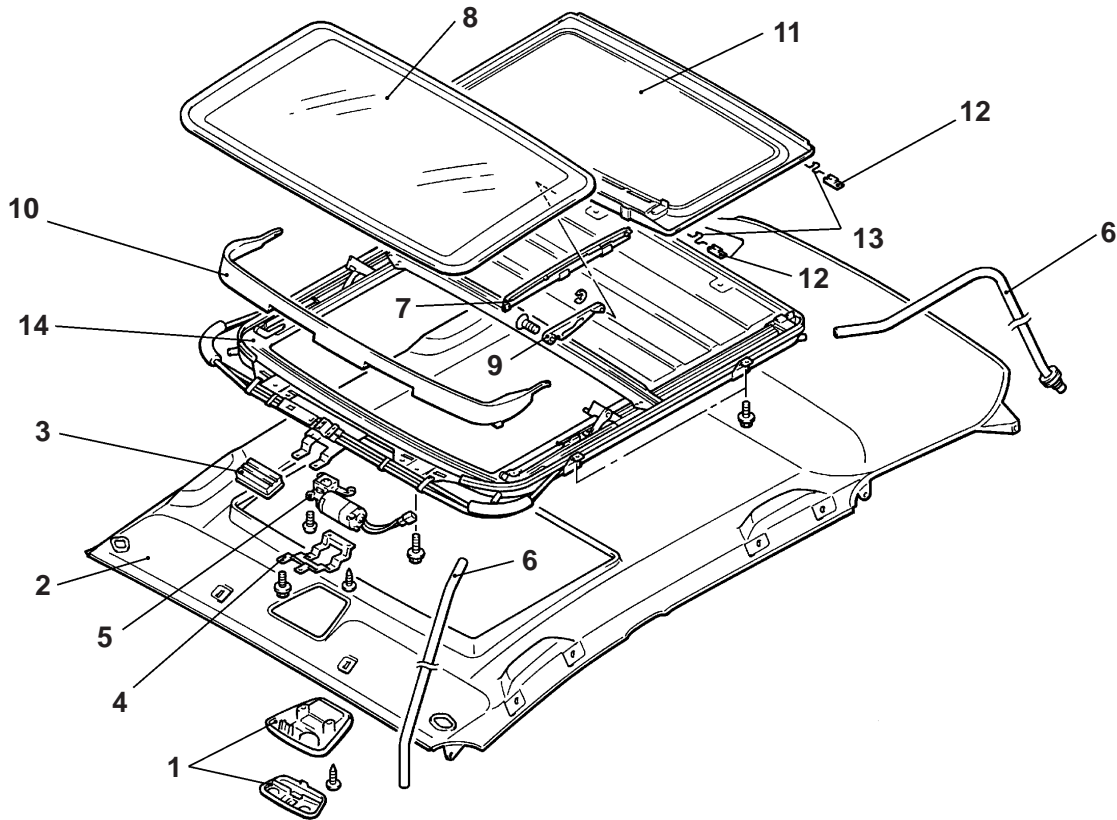
1. Fully close the roof lid glass.
2. Fully open the sunshade.
3. Remove the cover.
4. Loosen the screws and adjust the position of the roof lid glass so that it is flush with the surface of the roof.

SUNROOF

REMOVAL AND INSTALLATION

Post-installation Operation

- Sunroof Water Test (Refer to P.42-62.)
- Sunroof Fit Adjustment (Refer to P.42-62.)



AW0079AJ

Sunroof assembly removal steps

1. Sunroof switch and room lamp assembly
2. Headlining
3. Sunroof-ECU
4. Room lamp bracket
5. Sunroof motor
6. Drain hose connection
7. Cover
8. Roof lid glass
9. Curve on panel
10. Wind deflector assembly
11. Sunshade
12. Slide block
13. Spring
14. Sunroof assembly

Sunroof-ECU removal steps

1. Sunroof switch and room lamp assembly

2. Headlining
3. Sunroof-ECU

Sunroof motor removal steps

1. Sunroof switch and room lamp assembly
2. Headlining
4. Room lamp bracket
5. Sunroof motor

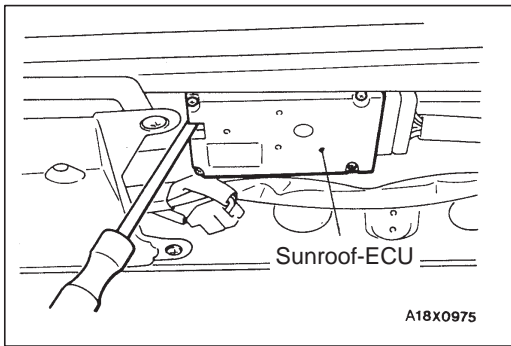
Drain hose removal steps

1. Sunroof switch and room lamp assembly
2. Headlining
- Lower cover (Refer to GROUP 52A.)
6. Drain hose

◀A▶ ▶B◀

◀A▶ ▶B◀

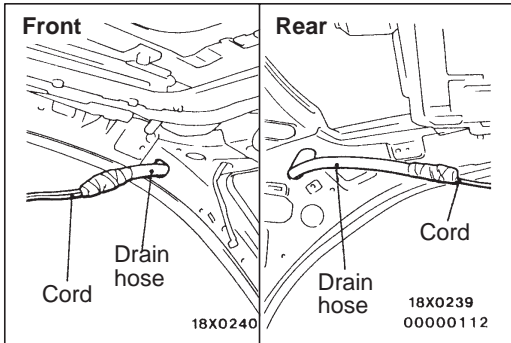
◀B▶ ▶A◀



REMOVAL SERVICE POINTS

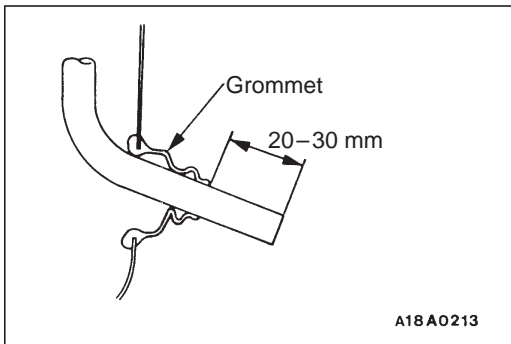
◀A▶ SUNROOF-ECU REMOVAL

1. Close the roof lid glass fully.
2. Insert a flat-tipped screwdriver, place it on the tab, and then press it to the right.
3. Lower sunroof-ECU and slide to left.



◀B▶ DRAIN HOSE REMOVAL

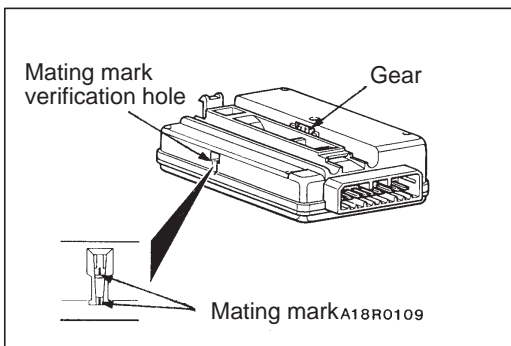
Remove the grommet. Tie a cord to the end of the drain hose, wind tape around it so that there is no unevenness, and pull the drain hose out into the wheel house.



INSTALLATION SERVICE POINTS

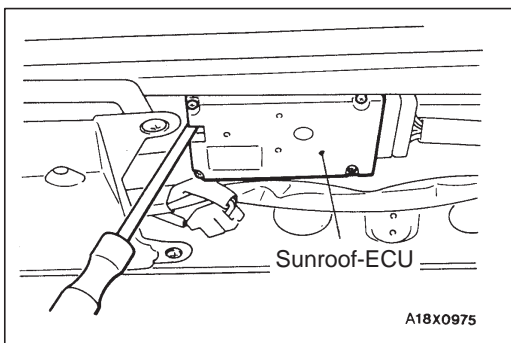
▶A◀ DRAIN HOSE INSTALLATION

1. Tie the cord that was used during removal to the end of the drain hose, and wind tape around it so that there is no unevenness.
2. Pull the cord to pull through the drain hose
3. Make the protrusion from the drain hose grommet as shown in the illustration.

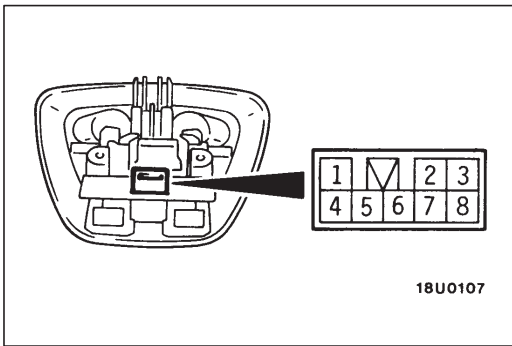


▶B◀ SUNROOF-ECU INSTALLATION

1. Fully close the roof lid glass.
2. Turn the gear of the sunroof-ECU until the two mating marks are aligned.



3. Insert a flat-tipped screwdriver, place it on the tab, and press it to the right, being careful not to pinch wiring.

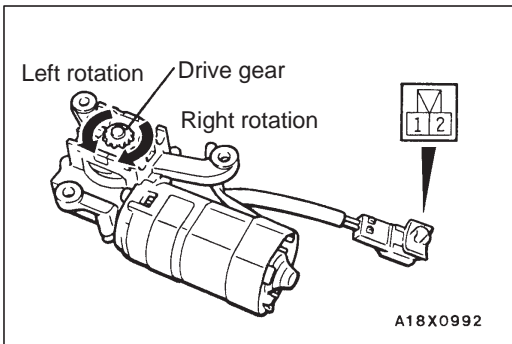


INSPECTION

42600160033

SUNROOF SWITCH CONTINUITY CHECK

Switch position		Terminal No.				
		1	2	3	7	8
Slide switch	OPEN		○			○
	CLOSE		○	○		
Tilt switch	UP		○		○	
	DOWN	○	○			



SUNROOF MOTOR CHECK

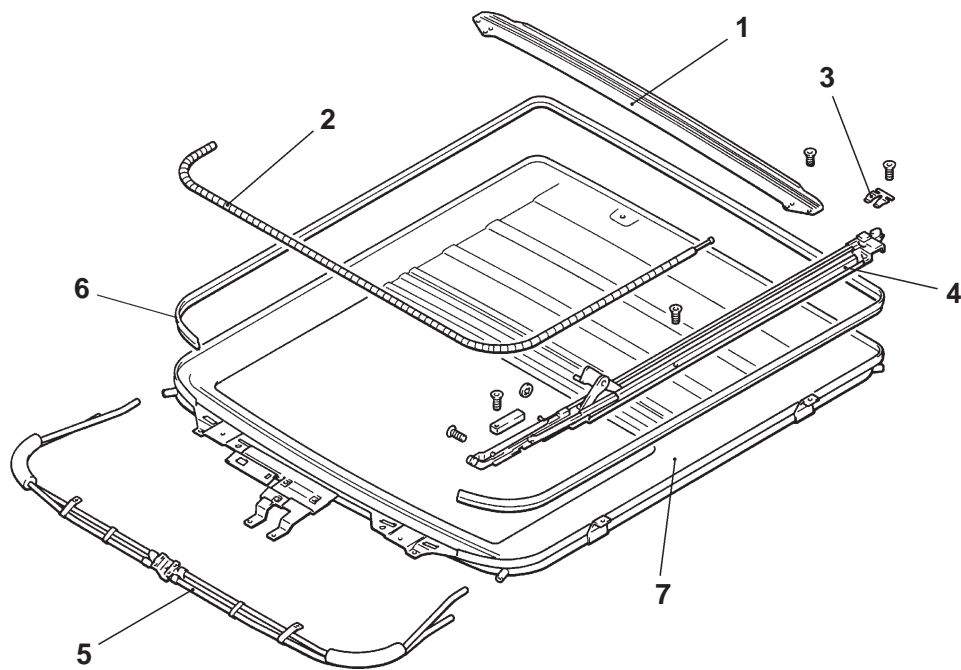
42600250013

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

Battery connection terminal		Drive gear rotation direction
1	2	
○	+	Right
+	○	Left

DISASSEMBLY AND REASSEMBLY

42600140037



AW0080AJ

Disassembly steps

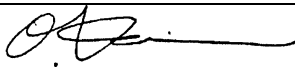
1. Drain channel assembly
2. Drive cable
3. Strong rear stop

4. Guide assembly
5. Pipe
6. Tray seal outer
7. Welded tray assembly



SERVICE BULLETIN

PUBLICATION GROUP, AFTER SALES SERVICE DEP.
MITSUBISHI MOTOR SALES EUROPE BV

SERVICE BULLETIN		No.: ESB-99E42-505	
		Date: 1999-12-15	<Model> <M/Y>
Subject:	CORRECTION TO KEYLESS ENTRY SYSTEM SECRET CODE REGISTRATION	(EC) SPACE STAR	99-10
Group:	BODY		
CORRECTION	 O. Kai - E.V.P. & G.M. After Sales Service Dept.		
1. Description:			
This Service Bulletin informs you that the incorrectness of a description of the keyless entry system secret code registration method has been rectified.			
2. Applicable Manuals:			
	Manual	Pub. No.	Language
	'99 SPACE STAR Workshop Manual Chassis	CMXE99E1	(English)
		CMXS99E1	(Spanish)
		CMXF99E1	(French)
		CMXG99E1	(German)
		CMXD99E1	(Dutch)
		CMXW99E1	(Swedish)
		CMXI99E1	(Italian)
3. Details:			

SECRET CODE REGISTRATION METHOD

42800100109

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

- When either the transmitter or receiver is replaced;
- If a second transmitter is to be used;
- If it appears that a problem is occurring because of faulty registration of a code.

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

1. Check that the doors lock normally when the key is used.
2. Connect the MUT-II to the diagnosis connector.

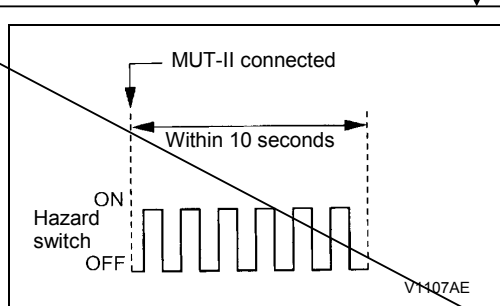
NOTE

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

Caution

Always turn the ignition switch to OFF before connecting and disconnecting the MUT-II.

Corrected to descriptions on the page after next.



3. Within 10 seconds after connecting the MUT-II, turn the hazard switch to ON and then to OFF; repeat this procedure six times.

NOTE

The doors will lock and unlock once at this time and the system will switch to registration mode.

4. Press the transmitter switch, and then press it two times within 10 seconds of the first press. This will register the code.
5. After registration is completed, the doors will be automatically locked and unlocked once.
6. If you are using two transmitters or have added a second transmitter, the same registration procedure should be carried out for the second transmitter, and it should be carried out within one minute after registration of the code for the first transmitter has been completed. After the second registration is completed, the doors will be automatically locked and unlocked once.
7. Registration mode will be cancelled under the following conditions
 - When the secret codes for two transmitters have been registered;

<Incorrect>

Corrected to descriptions on the following page.

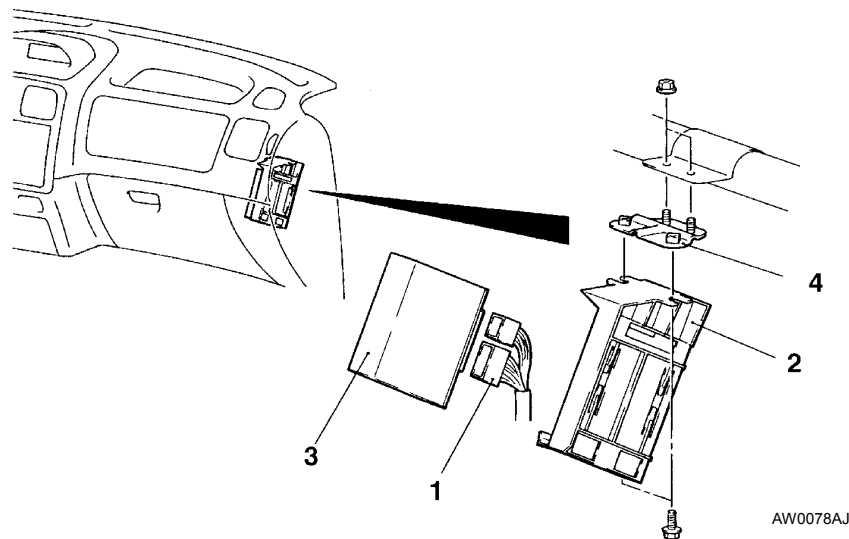
- When 1 minute has passed after registration mode started;
 - If the MUT-II is disconnected (the earth connection is broken);
 - If the ignition switch is turned to ON;
 - If any of the doors are opened;
8. After registration mode has been completed, carry out the following to make sure that the keyless entry system operates.
- Pull the ignition key out.
 - Close the all windows.

42800130016

KEYLESS ENTRY RECEIVER-ECU REMOVAL AND INSTALLATION

Pre-removal and Post-installation Operation

- Lower Panel (Passenger's side) Removal and Installation (Refer to GROUP 52A.)



Removal steps

1. Harness connector
2. Keyless entry receiver bracket
3. Keyless entry receiver-ECU
4. ECU bracket


-
3. Close all the doors.
 4. Place the ignition switch in ACC position, and then return to OFF position.
 5. Press a transmitter switch, and then press the switch a further two times within 10 seconds of the first press. This will register the code.
 6. After registration is completed, the doors will be automatically locked and unlocked once.
 7. If you are using two transmitters or have added a second transmitter, the same registration procedure should be carried out for the second transmitter. It should be carried out within one minute after registration of the code for the first transmitter has been completed, the doors will be automatically locked and unlocked once.
 8. Registration mode will be cancelled under one of the following conditions.
 - When the secret codes for two transmitters have been registered.
 - When one minute has elapsed after registration mode has started.
 - If the MUT-II is disconnected (ground connection is disconnected).
 - If the ignition switch is turned to ON.
 - If any of the doors are opened.
 9. After registration mode has been completed, perform the following operations to make sure that the keyless entry system operates properly.
 - Withdraw the ignition key.
 - Close all the doors.



SERVICE BULLETIN

QUALITY INFORMATION ANALYSIS

OVERSEAS SERVICE DEPT. MITSUBISHI MOTORS CORPORATION

SERVICE BULLETIN		No.: MSB-00E42-502																					
		Date: 2001-01-15	<table border="1"> <thead> <tr> <th><Model></th> <th><M/Y></th> </tr> </thead> <tbody> <tr> <td>(EC)L400 (PA0 TO PD0)</td> <td>95-10</td> </tr> <tr> <td>(EC)PAJERO SPORT/MONTERO SPORT (K80W, K90W)</td> <td>99-10</td> </tr> <tr> <td>(EC)GALANT(EA0A)</td> <td>97-10</td> </tr> <tr> <td>(EC)SPACE RUNNER/SPACE WAGON (N60, N80, N90)</td> <td>99-10</td> </tr> <tr> <td>(EC)PAJERO PININ/ MONTERO iO (H60, H70)</td> <td>00-10</td> </tr> <tr> <td>(EC)COLT LANCER (CK0A, CJ0A)</td> <td>96-10</td> </tr> <tr> <td>(EC)SPACE STAR(DG0A)</td> <td>99-10</td> </tr> <tr> <td>(EC)CARISMA(DA0)</td> <td>96-10</td> </tr> <tr> <td>(EC)ECLIPSE(D30)</td> <td>96-10</td> </tr> </tbody> </table>	<Model>	<M/Y>	(EC)L400 (PA0 TO PD0)	95-10	(EC)PAJERO SPORT/MONTERO SPORT (K80W, K90W)	99-10	(EC)GALANT(EA0A)	97-10	(EC)SPACE RUNNER/SPACE WAGON (N60, N80, N90)	99-10	(EC)PAJERO PININ/ MONTERO iO (H60, H70)	00-10	(EC)COLT LANCER (CK0A, CJ0A)	96-10	(EC)SPACE STAR(DG0A)	99-10	(EC)CARISMA(DA0)	96-10	(EC)ECLIPSE(D30)	96-10
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(EC)SPACE STAR(DG0A)	99-10																						
(EC)CARISMA(DA0)	96-10																						
(EC)ECLIPSE(D30)	96-10																						
Subject: CHANGE IN SUNROOF INSPECTION AND ADJUSTMENT PROCEDURES																							
Group: BODY	Draft No.: 00AL032214																						
CORRECTION	INTERNATIONAL CAR ADMINISTRATION OFFICE	 T.NITTA - PROJECT LEADER AFTER SALES SERVICE & CS PROMOTION																					
1. Description: The sunroof water test procedure and the sunroof fit adjustment procedure have been changed as detailed below.																							
2. Applicable Manuals:																							
Manual	Pub. No.	Language	Page(s)																				
'95 L400 Workshop Manual Chassis	PWWE9410	(English)	42-77																				
	PWWS9411	(Spanish)																					
	PWWF9412	(French)																					
	PWWG9413	(German)																					
	PWWD9414	(Dutch)																					
	PWWW9415	(Swedish)																					
'99 PAJERO SPORT Workshop Manual Chassis	PWJE9812	(English)	42-49																				
	PWJF9814	(French)																					
	PWJG9815	(German)																					
'99 MONTERO SPORT Workshop Manual Chassis	PWJS9813	(Spanish)																					
'97 GALANT Workshop Manual Chassis	PWDE9611	(English)	42-62																				
	PWDS9612	(Spanish)																					
	PWDF9613	(French)																					
	PWDG9614	(German)																					
	PWDD9615	(Dutch)																					
	PWDW9616	(Swedish)																					

Manual	Pub. No.	Language	Page(s)
'99 SPACE RUNNER/SPACE WAGON Workshop Manual Chassis	PWDE9803	(English)	42-81
	PWDS9804	(Spanish)	
	PWDF9805	(French)	
	PWDG9806	(German)	
	PWDD9807	(Dutch)	
	PWDW9808	(Swedish)	
'00 PAJERO PININ Workshop Manual Chassis	CKRE00E1	(English)	42-46
	CKRF00E1	(French)	
	CKRG00E1	(German)	
	CKRD00E1	(Dutch)	
	CKRI00E1	(Italian)	
'00 MONTERO iO Workshop Manual Chassis	CKRS00E1	(Spanish)	
'96 COLT/LANCER Workshop Manual Chassis	PWME9511	(English)	42-51
	PWMS9512	(Spanish)	
	PWMF9513	(French)	
	PWVG9514	(German)	
	PWMD9515	(Dutch)	
	PWMW9516	(Swedish)	
'99 SPACE STAR Workshop Manual Chassis	CMXE99E1	(English)	42-62
	CMXS99E1	(Spanish)	
	CMXF99E1	(French)	
	CMXG99E1	(German)	
	CMXD99E1	(Dutch)	
	CMXW99E1	(Swedish)	
	CMXI99E1	(Italian)	
'96 CARISMA Workshop Manual Chassis	PWDE9502	(English)	42-57
	PWDS9503	(Spanish)	
	PWDF9504	(French)	
	PWDG9505	(German)	
	PWDD9506	(Dutch)	
	PWDW9507	(Swedish)	
	PWDI96E1	(Italian)	
'96 ECLIPS Workshop Manual Chassis	PWUE95E1	(English)	42-40
	PWUS95E1	(Spanish)	
	PWUF95E1	(French)	
	PWUG95E1	(German)	
	PWUD95E1	(Dutch)	
	PWUIE95E1	(Italian)	

3. Details:

PAJERO SPORT, MONTERO SPORT L400, GALANT, SPACE RUNNER/
SPACEWAGON, PAJERO PININ, MONTERO iO, COLT/LANCER,
SPACE STAR, CARISMA

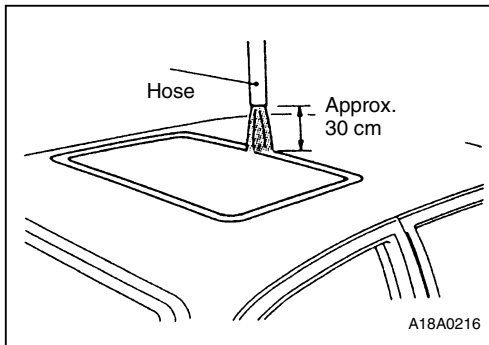
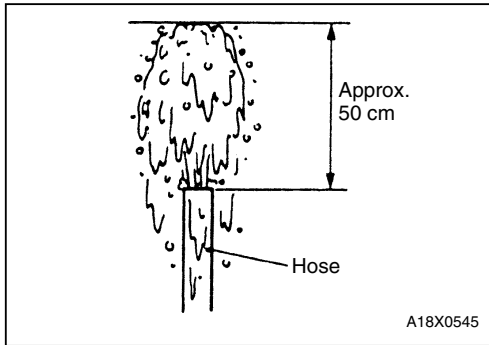
(Page 3)

L400, PAJERO SPORT, MONTERO SPORT, ECLIPSE, GALANT,
SPACE RUNNER/SPACE WAGON PAJERO PININ, MONTERO iO
COLT/LANCER, SPACE STAR, CARISMA

(Page 4)

(Page 5)

<PAJERO SPORT, MONTERO SPORT



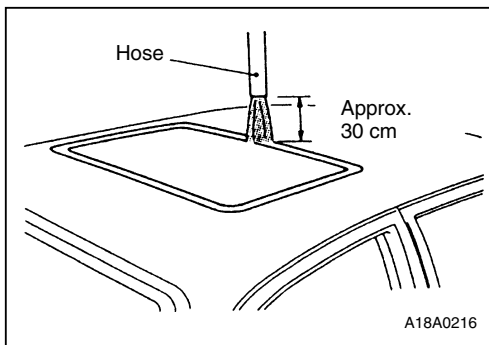
ON VEHICLE SERVICE

WATER TEST

1. Close the roof lid tightly.
2. Hold the hose upward and adjust water fountain to approx. 50 cm high.
3. Pour water over the roof from approx. 30 cm above roof for more than 5 minutes. **<Old>**
4. **While pouring water, check for leak around the roof lid.**
5. In the event of leakage, check the drain pipe, weatherstrip contact and others. **<New>**

After pouring water, check to see if there are no water leaks into the passenger compartment. Water leaks through around the roof lid glass are acceptable if they are caught by the drip receiving section.

<L400, GALANT, SPACE RUNNER/SPACE WAGON, PAJERO PININ, MONTERO iO, COLT/LANCER, SPACE STAR, CARISMA>



ON-VEHICLE SERVICE

WATER TEST

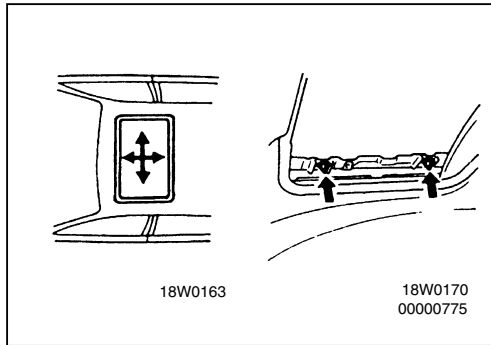
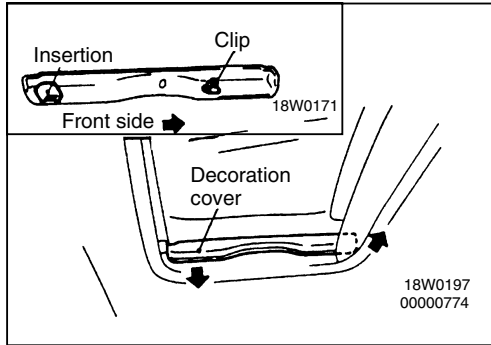
Check if there are any leaks in the sunroof by the following procedure.

1. Fully close the roof lid glass.
2. Adjust the water pressure so that water comes out of the hose to a height of approximately 50 cm when the hose is held vertically facing upwards.
3. Hold the end of the hose approximately 30 cm above the roof and let the water run onto the weatherstrip for 5 minutes or more.
4. **While doing this, check if any water leaks through into the passenger compartment from around the roof lid glass.**

<Old> ↑ **<New>**

After pouring water, check to see if there are no water leaks into the passenger compartment. Water leaks through around the roof lid glass are acceptable if they are caught by the drip receiving section.

<L400>



SUNROOF FIT ADJUSTMENT

1. Fully close the roof lid glass.
2. Fully open the sunshade.
3. Lower the front edge of the decoration cover and then pull the rear edge into the passenger compartment to remove the decoration cover.
4. Loosen the four roof lid glass assembly mounting nuts to adjust the roof lid glass assembly forward and back or to the left and right.

NOTE

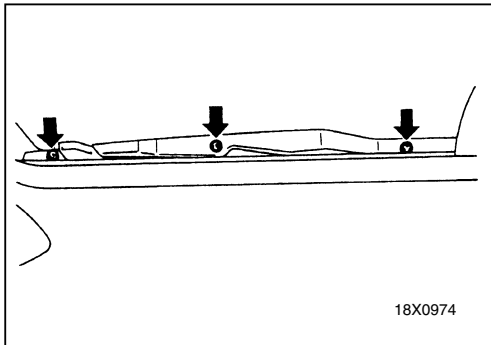
If impossible by the above step, adjust the sunroof motor by tilting up the sunroof fully. (Refer to P.42-70.)

<Old>

<New>

move the roof lid glass assembly forward or backward and to the left or right such that the clearance between the roof lid glass and the body may be uniform in the entire circumference

<PAJERO SPORT, MONTERO SPORT, ECLIPSE>



SUNROOF FIT ADJUSTMENT

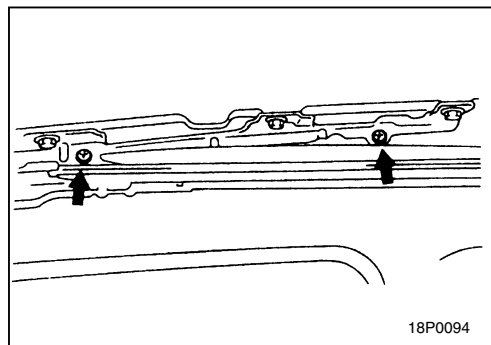
42600100165

With the sunroof in the closed position, adjust the sunroof glass to 1 mm below roof surface at front of the glass and 1 mm above roof surface at rear of the glass and tighten the sunroof glass attaching screws.

<Added>

Check to ensure that the clearance between the roof lid glass and the body is uniform in the entire circumference.

<GALANT, SPACE RUNNER/SPACE WAGON, PAJERO PININ, MONTERO iO>



SUNROOF FIT ADJUSTMENT

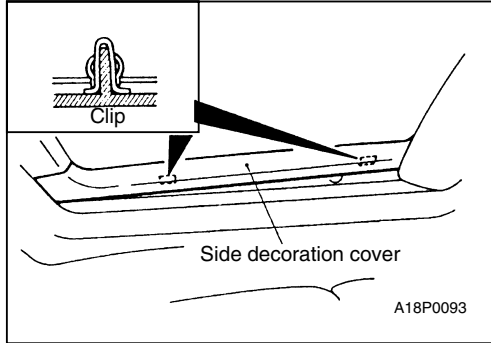
42600100110

1. Fully close the roof lid glass.
2. Fully open the sunshade.
3. Loosen the roof lid glass assembly mounting screws (four for sedans or six for wagons), and then slide the roof lid glass assembly along the slot in the drive cable assembly to adjust the height of the roof lid glass.
4. After adjustment, check to be sure that the sunroof operates smoothly.

<Added>

Check to ensure that the clearance between the roof lid glass and the body is uniform in the entire circumference.

<COLT/LANCER>



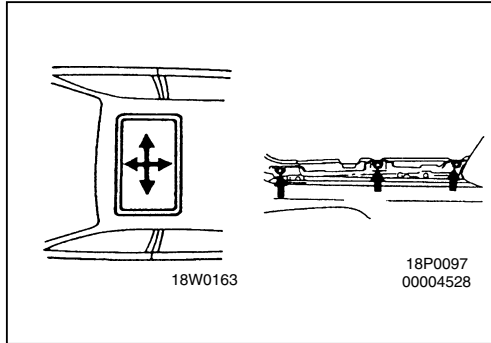
SUNROOF FIT ADJUSTMENT

42600100073

1. Fully close the roof lid glass.
2. Fully open the sunshade.
3. Remove the side decoration.

move the roof lid glass assembly forward or backward and to the left or right such that the clearance between the roof lid glass and the body may be uniform in the entire circumference.

<New>



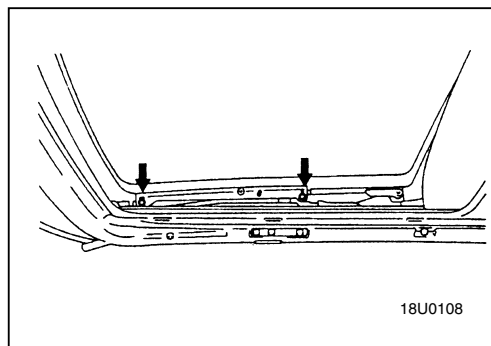
4. To adjust the forward, backward and sideways position of the roof lid glass, loosen the six roof lid glass assembly mounting nuts and then adjust the glass forward, backward or sideways.

<Old>

NOTE

If the adjustment cannot be made by loosening the adjustment nuts, the roof lid glass or the motor have not been fully closed, so they should be adjusted to the fully closed positions.

<SPACE STAR, CARISMA>



SUNROOF FIT ADJUSTMENT

42600100035

1. Fully close the roof lid glass.
2. Fully open the sunshade.
3. Remove the cover.
4. Loosen the screws and adjust the position of the roof lid glass so that it is flush with the surface of the roof.

<New>

Loosen the roof lid glass assembly mounting screws. Move the roof lid glass assembly along the slits for the drive cable assembly to adjust the roof lid glass height. Check to ensure that the clearance between the roof lid glass and the body is uniform in the entire circumference.

GROUP 42 BODY

GENERAL

OUTLINE OF CHANGES

The following service procedures have been established due to the following changes and the abolishment. The other service procedures are the same as before.

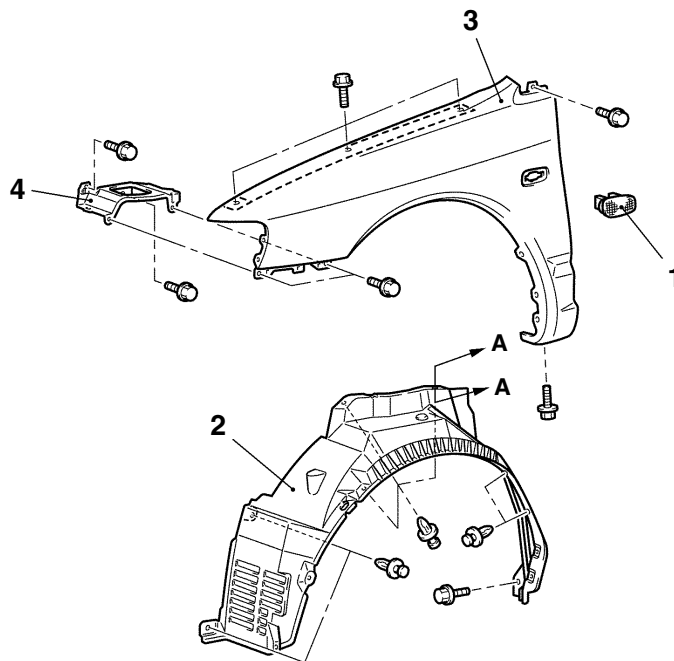
- The shape of the fender has been changed.
- The central door locking function has been discontinued for the key cylinder switches other than the driver's door main switch.
- The sunroof delay-off timer function has been discontinued.

FENDER

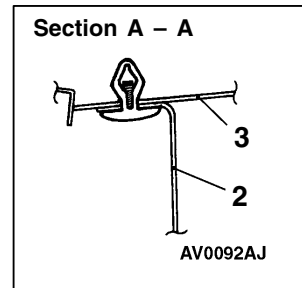
REMOVAL AND INSTALLATION

Pre-removal and Post-installation Operation

- | | |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none"> ● Front Bumper Removal and Installation (Refer to GROUP 51.) ● Headlamp Removal and Installation (Refer to GROUP 54.) | <ul style="list-style-type: none"> ● Delta Garnish Removal and Installation (Refer to Basic Manual Pub. No. CMXE99E1 GROUP 51 – Door Mirror.) |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------|



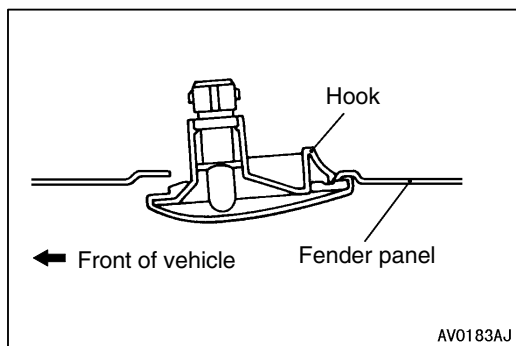
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Removal steps

- ▶◀
1. Side turn signal lamp
 2. Splash shield
 - Front fender protector moulding (Refer to Basic Manual Pub. No. CMXE99E1 GROUP 51 Moulding and Garnish.)

3. Fender
4. Fender bracket



INSTALLATION SERVICE POINT

▶◀SIDE TURN SIGNAL LAMP INSTALLATION

Insert the hook into the fender panel, and then install the side turn signal lamp.

DOOR

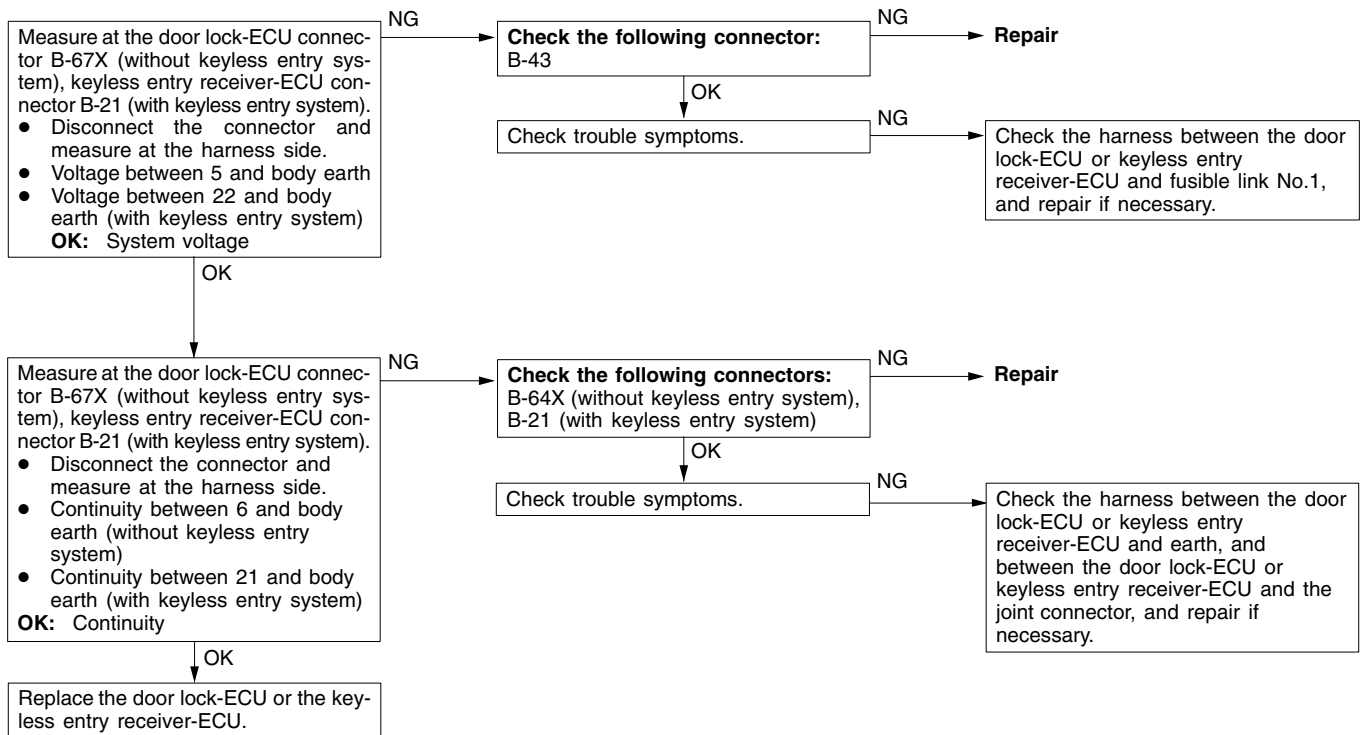
TROUBLESHOOTING

INSPECTION CHART FOR TROUBLE SYMPTOMS

Trouble symptom		Inspection procedure	Reference page
Door locking mechanism	None of the door lock functions operate.	1	42-3
	Doors do not lock or unlock when the key cylinder (driver's side) is operated.	2	42-4
	Doors do not lock or unlock when the driver's door lock switch is operated.	3	42-5

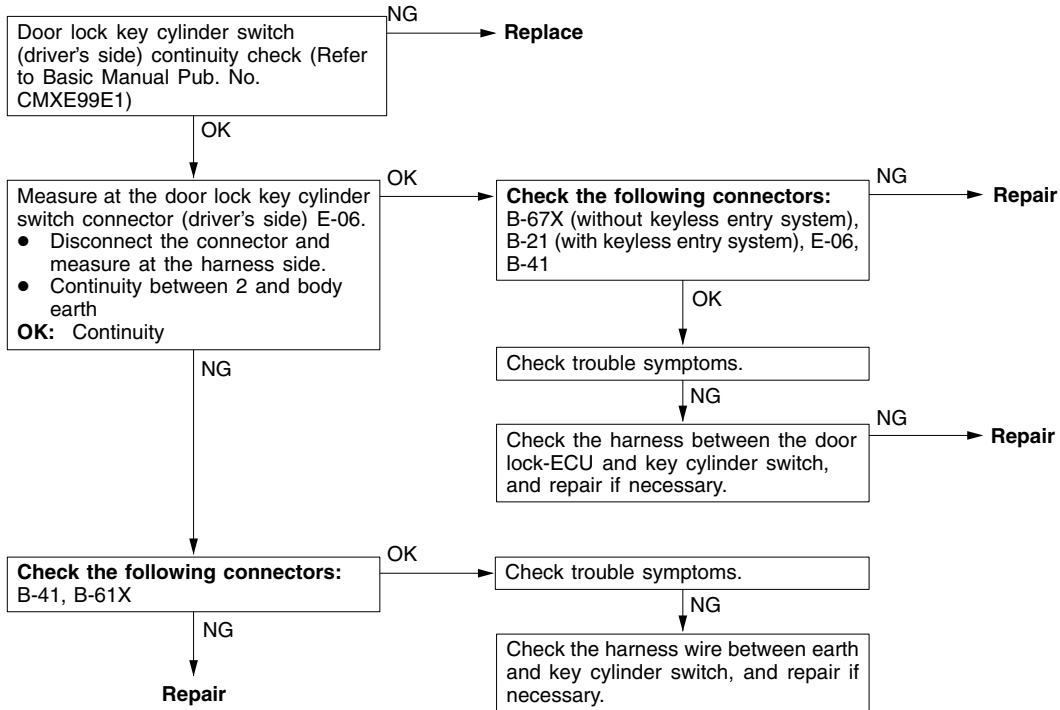
Inspection Procedure 1

None of the door lock functions operate.	Probable cause
Power circuit system or earth circuit system of the door lock-ECU or the keyless entry receiver-ECU may be defective.	<ul style="list-style-type: none"> ● Malfunction of door lock-ECU ● Malfunction of keyless entry receiver-ECU ● Malfunction of wiring harness or connector



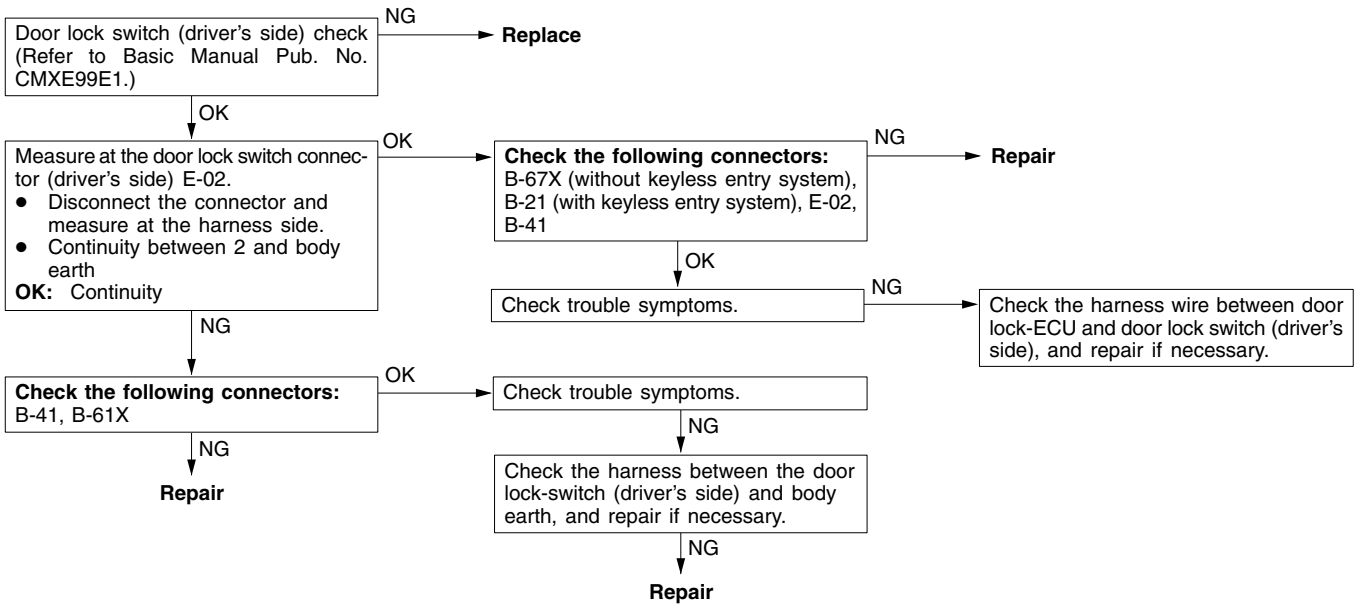
Inspection Procedure 2

Doors do not lock or unlock when the key cylinder (driver's side) is operated.	Probable cause
The door lock key cylinder switch (driver's side) may be defective.	<ul style="list-style-type: none"> ● Malfunction of the door lock key cylinder switch (driver's side) ● Malfunction of harness or connector



Inspection Procedure 3

Doors do not lock or unlock when the driver's door lock switch is operated.	Probable cause
The door lock switch (driver's side) may be defective.	<ul style="list-style-type: none"> • Malfunction of the door lock switch • Malfunction of harness or connector



SUNROOF

TROUBLESHOOTING

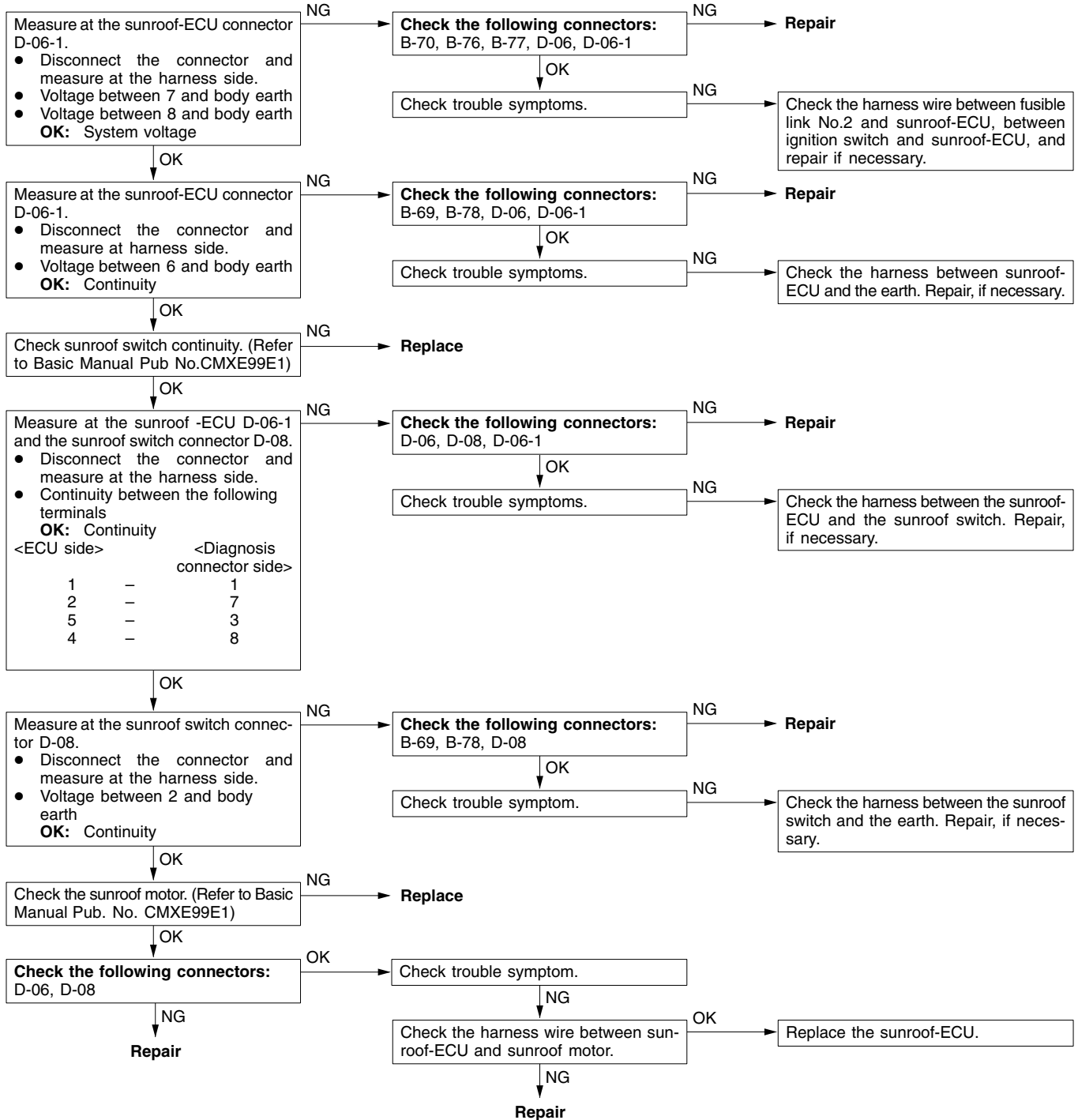
INSPECTION CHART FOR TROUBLE SYMPTOMS

Trouble symptom	Inspection procedure	Reference page
Sunroof does not operate at all.	1	42-6
Sunroof does not operate correctly or it does not re-open if it clamps something.	2	42-7

INSPECTION PROCEDURE FOR TROUBLE SYMPTOMS

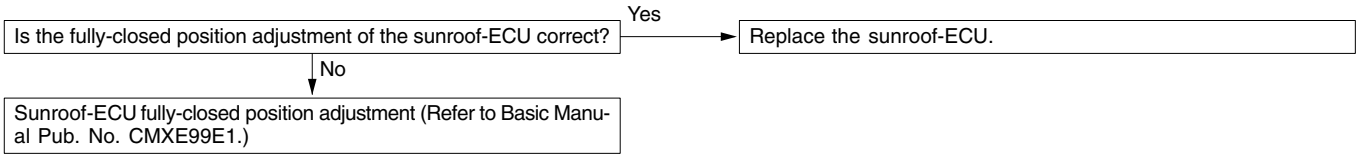
Inspection Procedure 1

Sunroof does not operate at all.	Probable cause
One of the following items may be defective. Sunroof switch Sunroof motor Sunroof-ECU Power supply circuit Earth circuit	<ul style="list-style-type: none"> ● Malfunction of sunroof switch ● Malfunction of front sunroof motor ● Malfunction of front sunroof-ECU ● Malfunction of wiring harness or connector

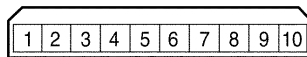


Inspection Procedure 2

Sunroof does not operate correctly or it does not re-open if it clamps something.	Probable cause
The fully-closed position for the sunroof-ECU may have been adjusted incorrectly, or there may be a malfunction of the sunroof-ECU.	<ul style="list-style-type: none"> ● Incorrect adjustment of sunroof-ECU fully-closed position ● Malfunction of the sunroof-ECU ● Malfunction of the harness or connector



TERMINAL VOLTAGE CHART



AC201865

Terminal No.	Check Item	Check Condition	Normal Condition	
1	Sunroof switch (down input)	Sunroof switch (down position)	ON	0 V
		OFF	Battery voltage	
2	Sunroof switch (up input)	Sunroof switch (up position)	ON	0 V
		OFF	Battery voltage	
3	–	–	–	
4	Sunroof switch (open input)	Sunroof switch (open position)	ON	0 V
		OFF	Battery voltage	
5	Sunroof switch (close input)	Sunroof switch (close position)	ON	0 V
		OFF	Battery voltage	
6	Earth	Always	0 V	
7	ECU power supply	Always	Battery voltage	
8	Timer operation power supply	Ignition switch: ON	Battery voltage	
9	Motor output	While sunroof is opening or moving down	Battery voltage	
		Other than the above		0 V
10	Motor output	While sunroof is closing or moving up	Battery voltage	
		Other than the above	0 V	



NOTES