

EXTERIOR

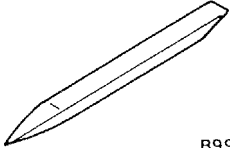
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FRONT BUMPER**SPECIAL TOOL**

51100060071

Tool	Number	Name	Use
 B990784	MB990784	Ornament remover	Removal of front bumper assembly

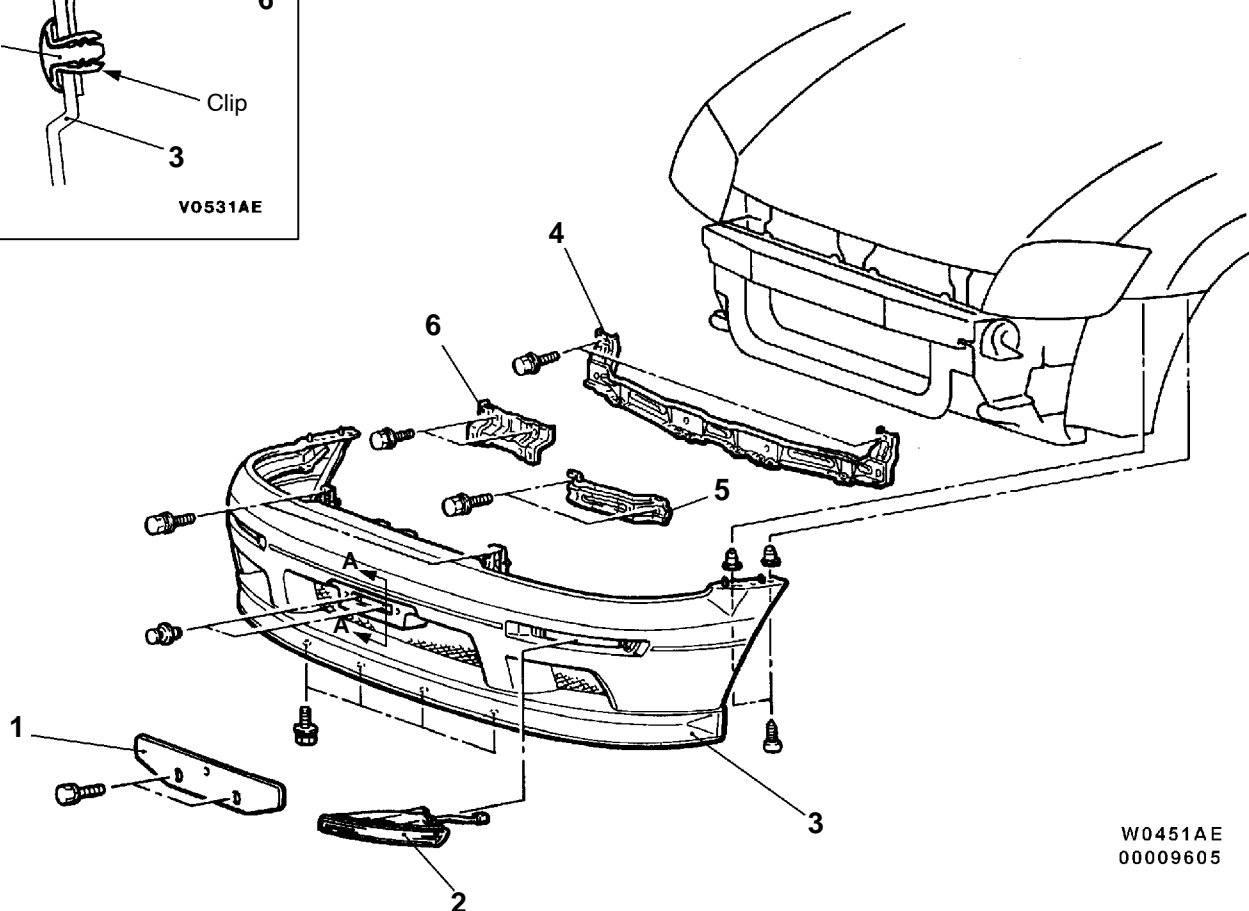
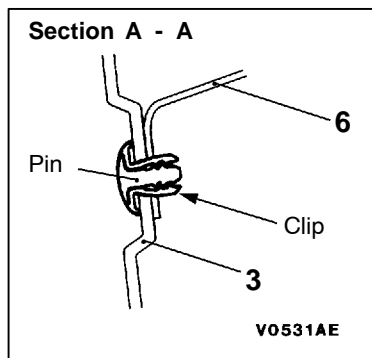
FRONT BUMPER

REMOVAL AND INSTALLATION

Pre-removal and Post-installation Operation

- Splash Shield Removal and Installation
(Refer to GROUP 42 - Fender.)
- Radiator Grille Removal and Installation
(Refer to P.51-12.)

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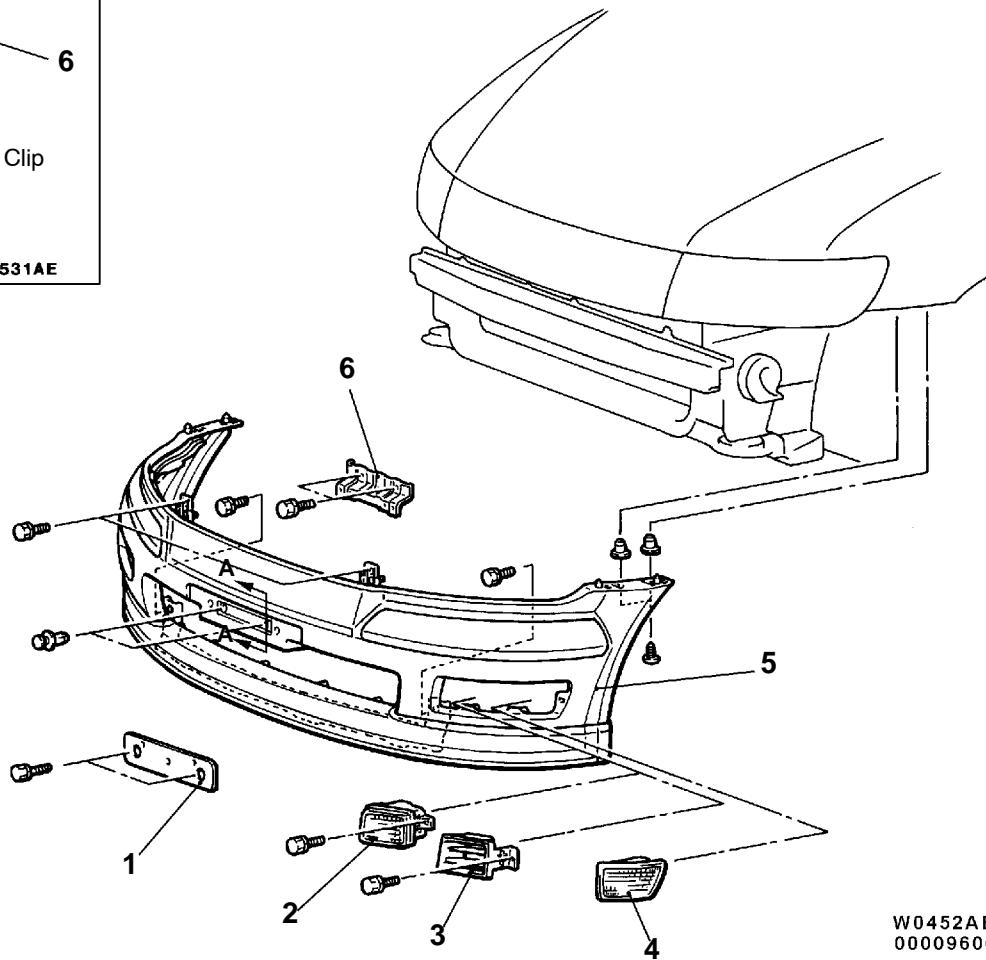
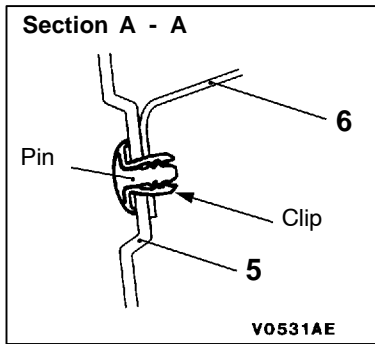
**Removal steps**

1. License plate bracket assembly
2. Front turn signal lamp assembly
3. Front bumper assembly
4. Front bumper lower bracket assembly

5. Bumper garnish bracket assembly
6. License plate bracket



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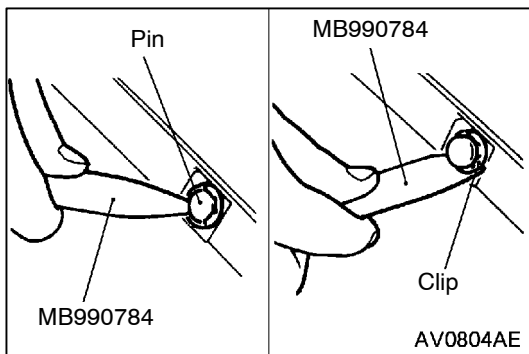
W0452AE
00009606

Removal steps

1. License plate bracket assembly
2. Fog lamp
3. Fog lamp bezel <Vehicles without fog lamp>



4. Front turn signal lamp assembly
5. Front bumper assembly
6. License plate bracket



REMOVAL SERVICE POINT

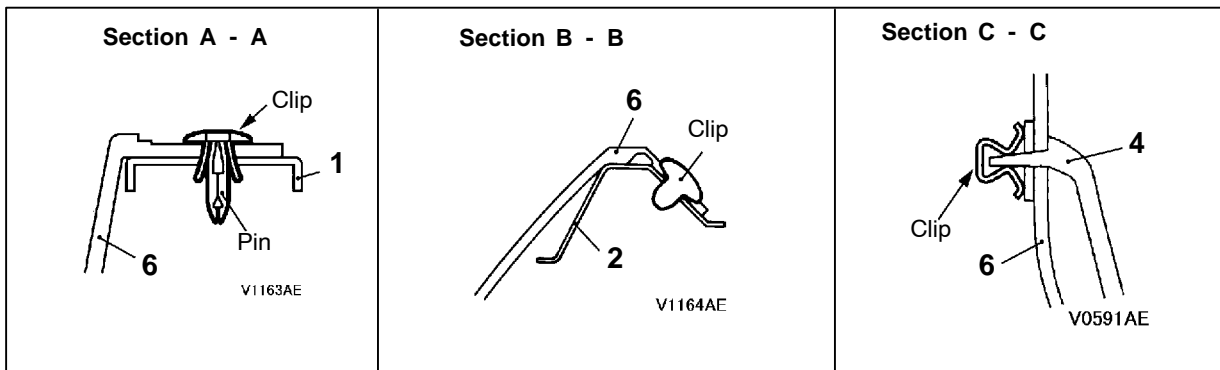
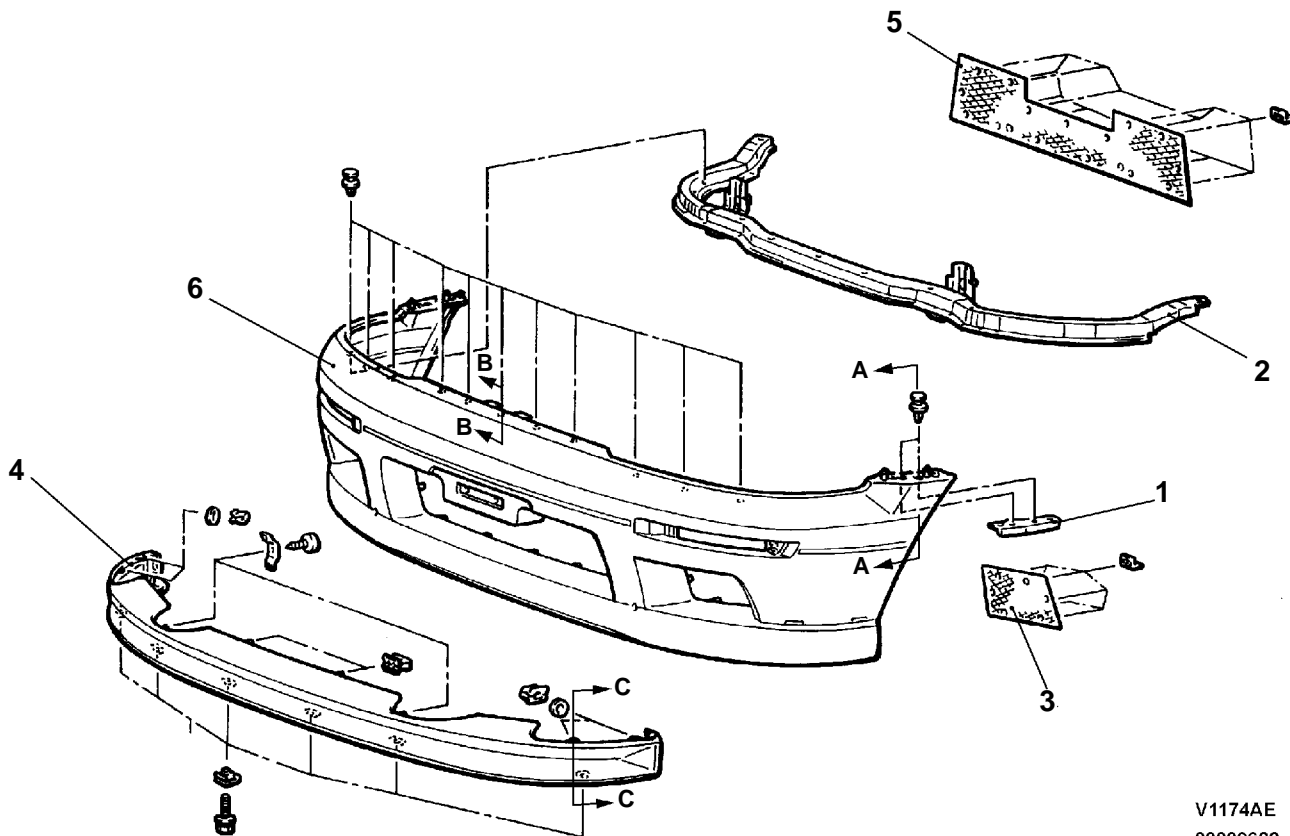
◀A▶ FRONT BUMPER ASSEMBLY REMOVAL

1. Use the special tool to pull up the centre pin in the clip.
2. Remove the clip.

DISASSEMBLY AND REASSEMBLY

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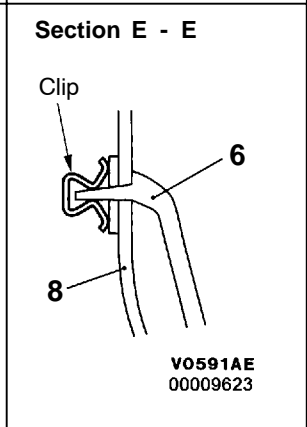
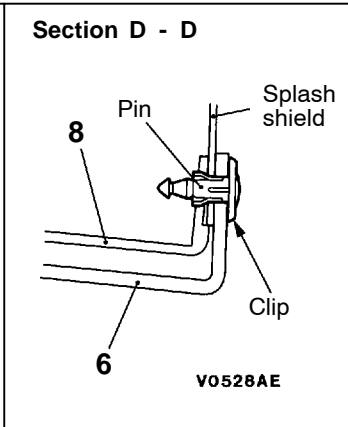
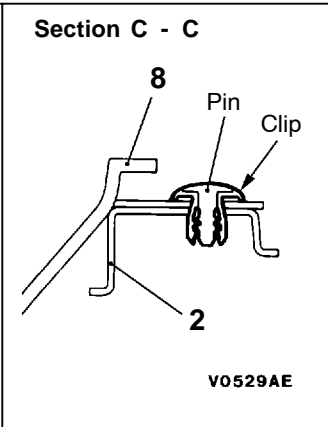
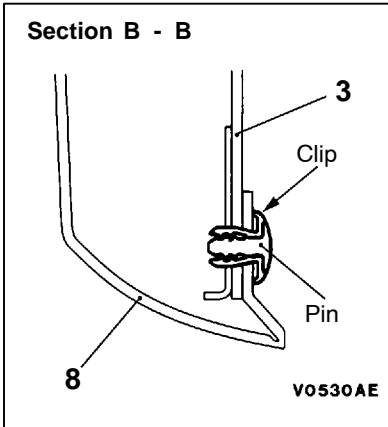
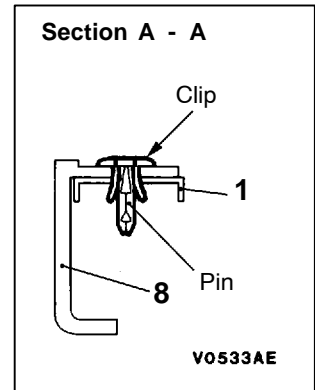
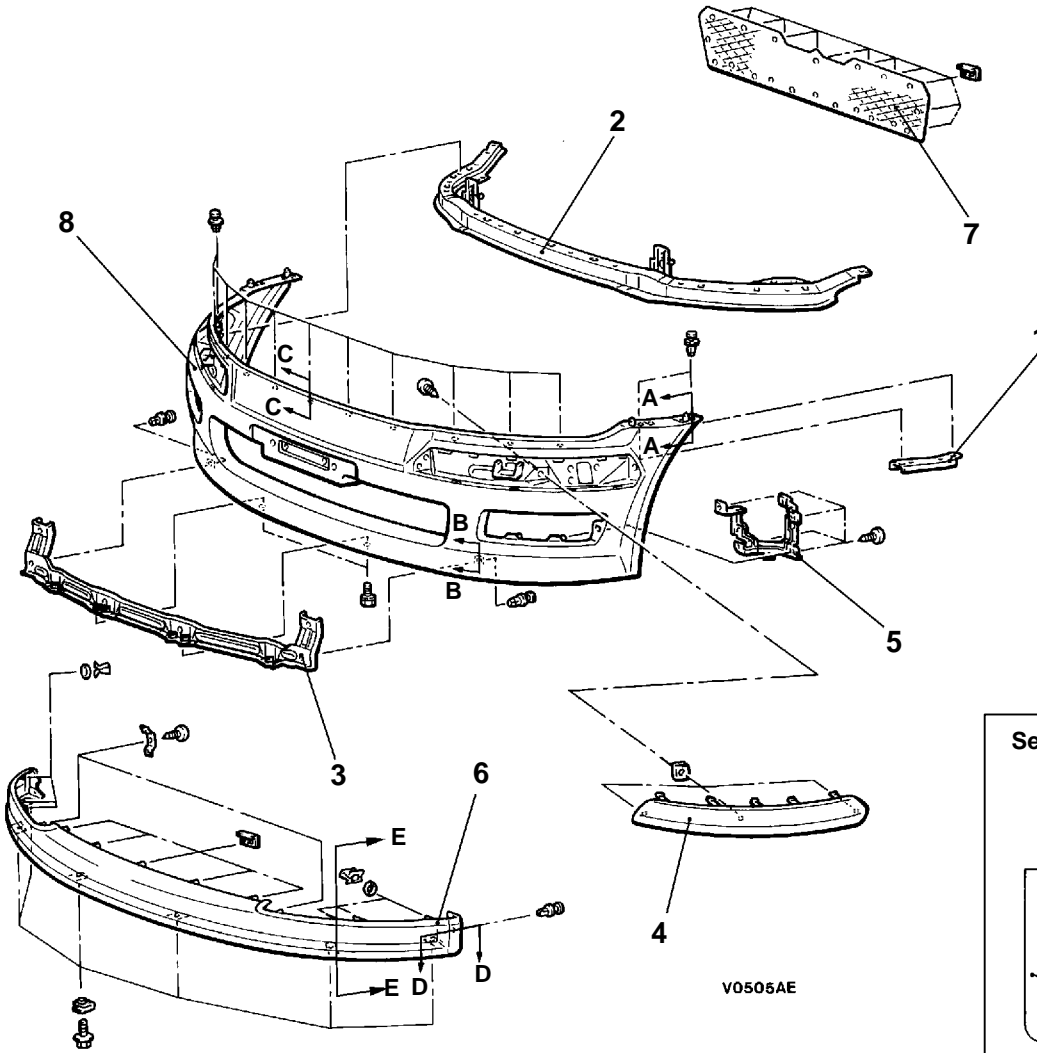
Disassembly steps

1. Front bumper side plate
2. Front bumper upper reinforcement
3. Front bumper side net



4. Front air dam
5. Bumper net
6. Front bumper face

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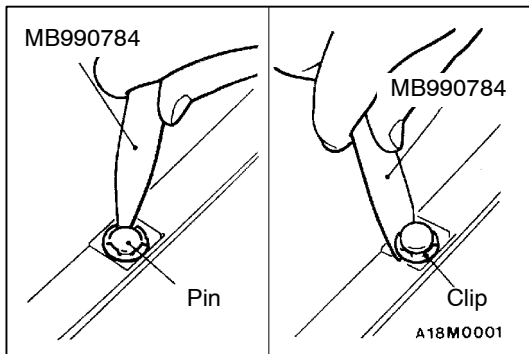


Disassembly steps

1. Front bumper side plate
2. Front bumper upper reinforcement
3. Front bumper lower bracket
4. Front bumper protection moulding



5. Fog lamp bracket
6. Front air dam
7. Bumper net
8. Front bumper face



DISASSEMBLY SERVICE POINT

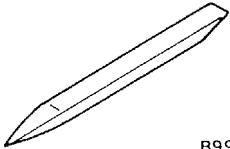
◀A▶ FRONT BUMPER FACE REMOVAL

1. Use the special tool to pull up the centre pin in the clip.
2. Remove the clip.

REAR BUMPER

SPECIAL TOOL

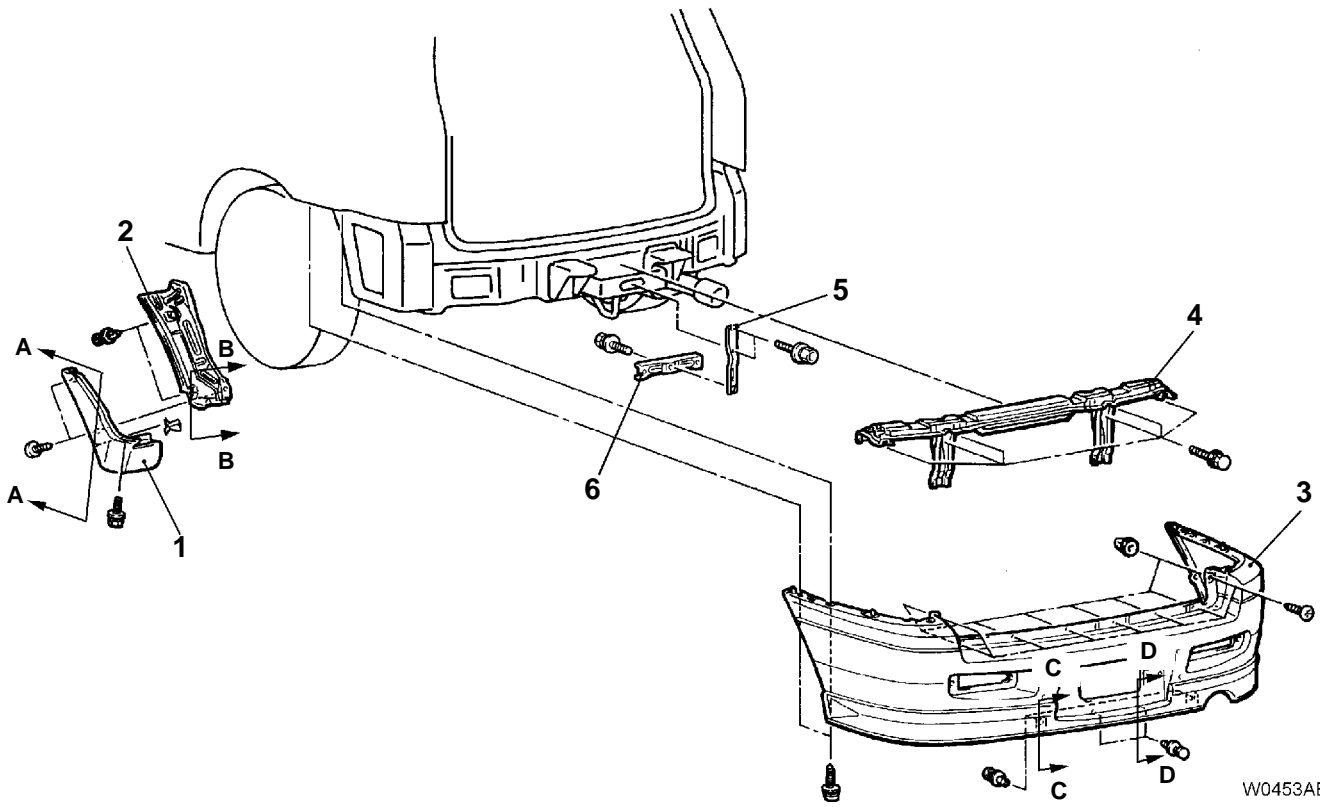
51100060071

Tool	Number	Name	Use
 <p>B990784</p>	<p>MB990784</p>	<p>Ornament remover</p>	<p>Removal of rear bumper assembly</p>

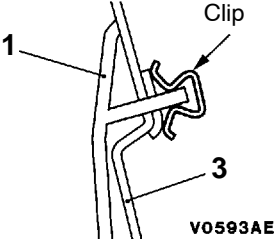
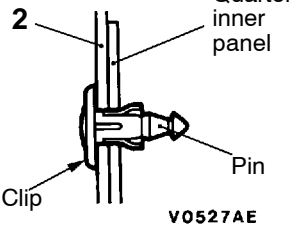
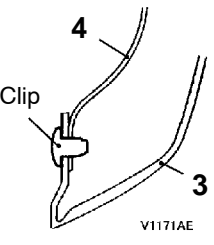
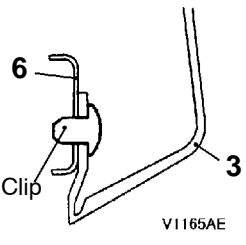
REAR BUMPER

REMOVAL AND INSTALLATION

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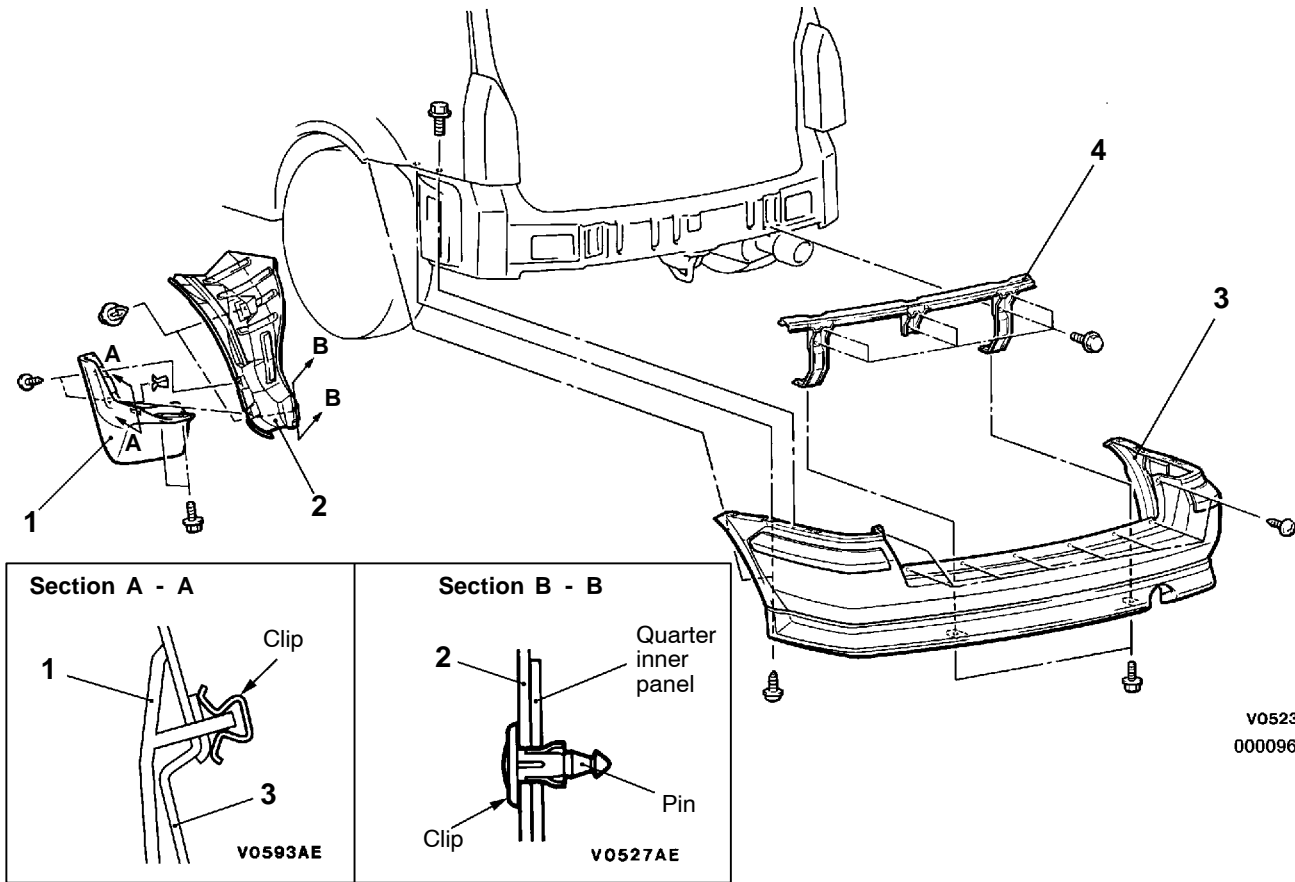
Section A - A	Section B - B	Section C - C	Section D - D
 <p>Clip 1 3 V0593AE</p>	 <p>Quarter inner panel 2 Pin Clip V0527AE</p>	 <p>4 Clip 3 V1171AE</p>	 <p>6 Clip 3 V1165AE</p>

Removal steps

1. Rear mud guard
2. Rear splash shield
3. Rear bumper assembly

4. Rear bumper reinforcement
5. Rear center bracket
6. Rear bumper lower bracket

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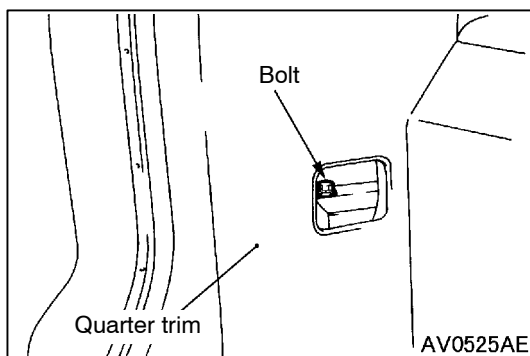


Removal steps

1. Rear mud guard
2. Rear splash shield



3. Rear bumper assembly
4. Rear bumper reinforcement



REMOVAL SERVICE POINT

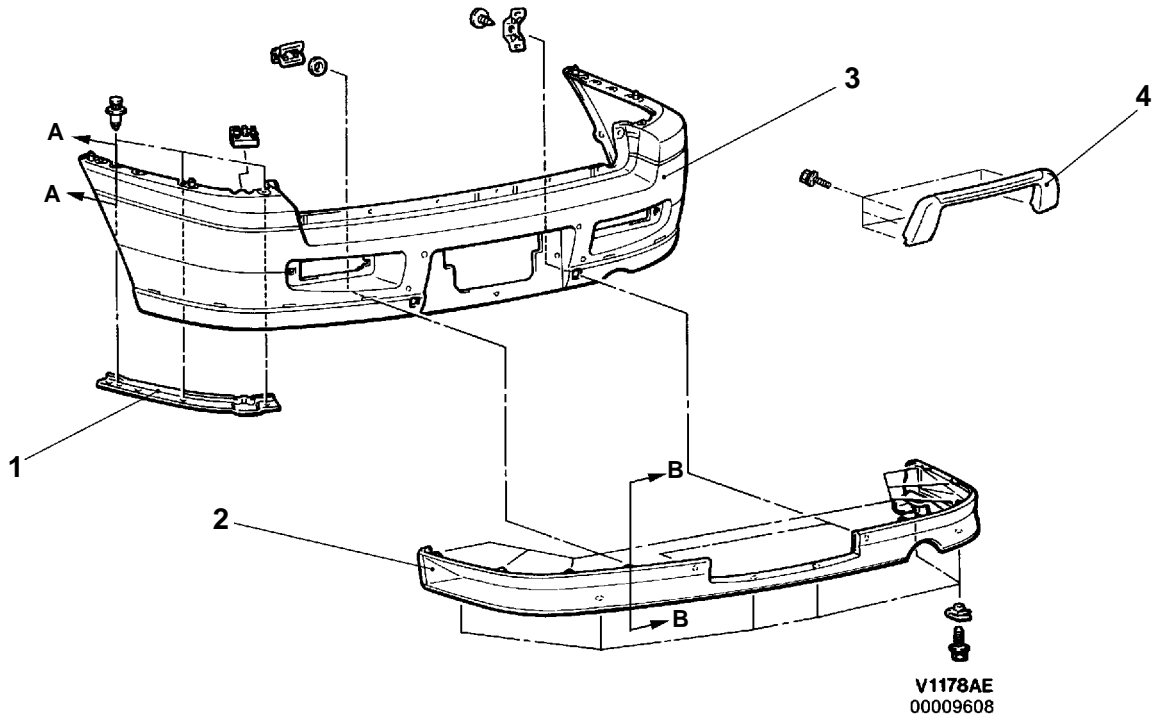
◀A▶ REAR BUMPER ASSEMBLY REMOVAL <SPACE WAGON>

Two bolts (one bolt at either side) of the rear bumper assembly installation bolts must be removed through the service hole in the quarter trim.

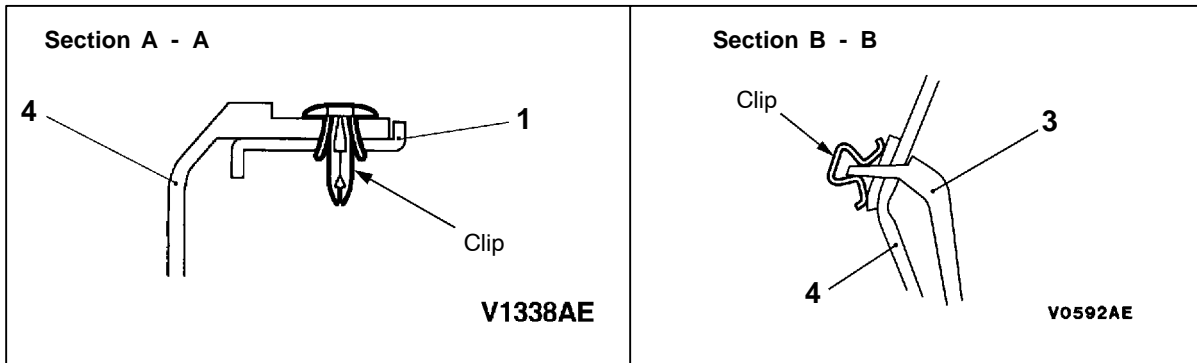
DISASSEMBLY AND REASSEMBLY

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V1178AE
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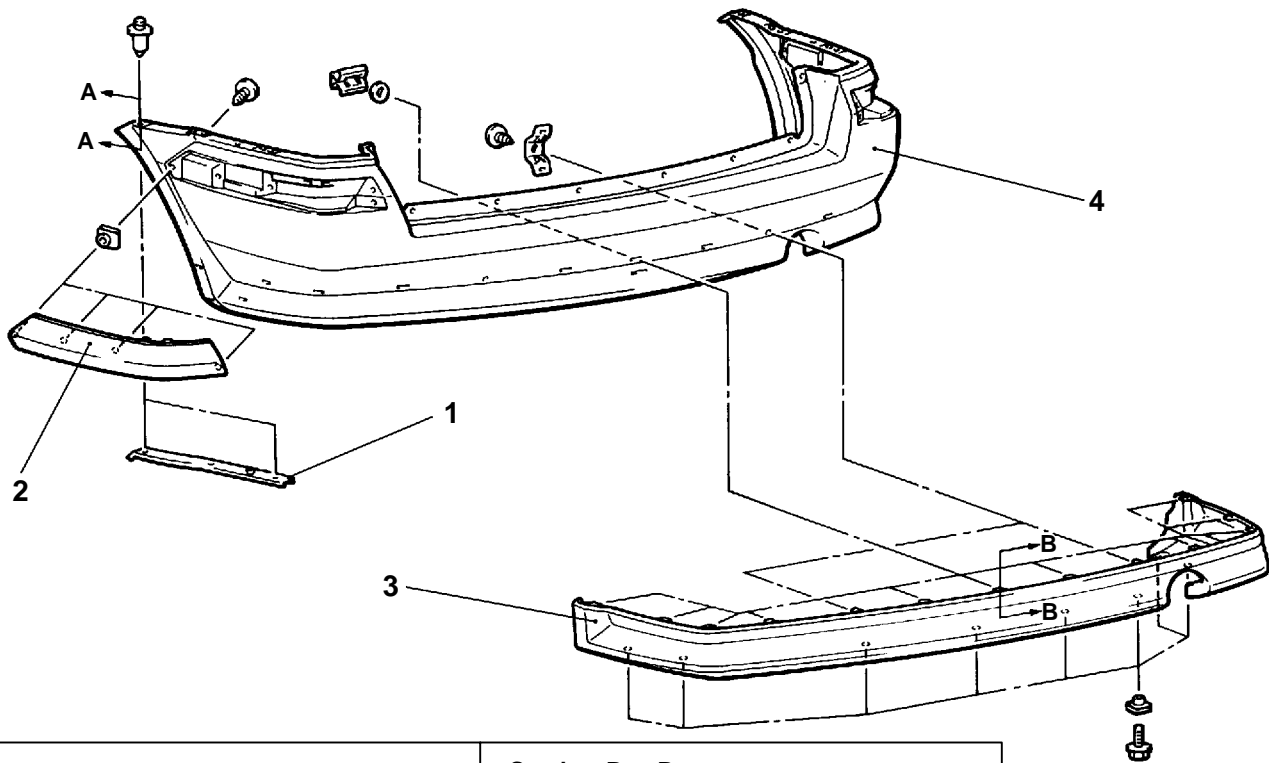
Disassembly steps

1. Rear bumper side plate
2. Rear air dam

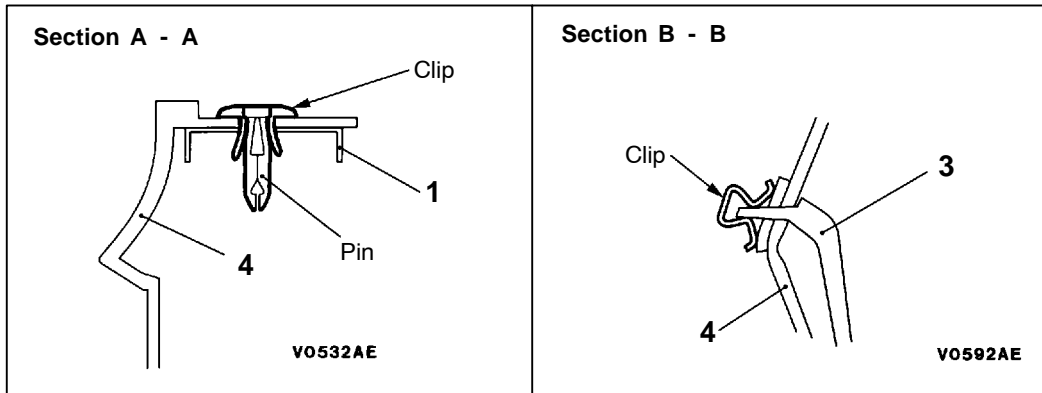


3. Rear bumper face
4. Rear bumper garnish

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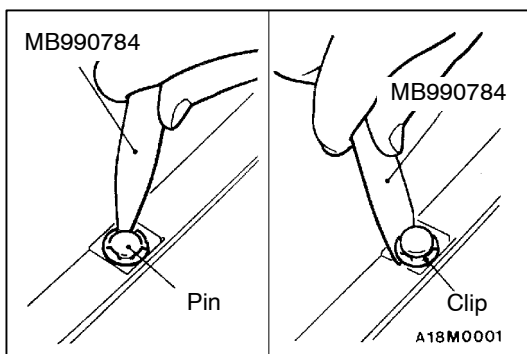


Disassembly steps

1. Rear bumper side plate
2. Corner protector



3. Rear air dam
4. Rear bumper face



DISASSEMBLY SERVICE POINT

◀A▶ **REAR BUMPER FACE REMOVAL**

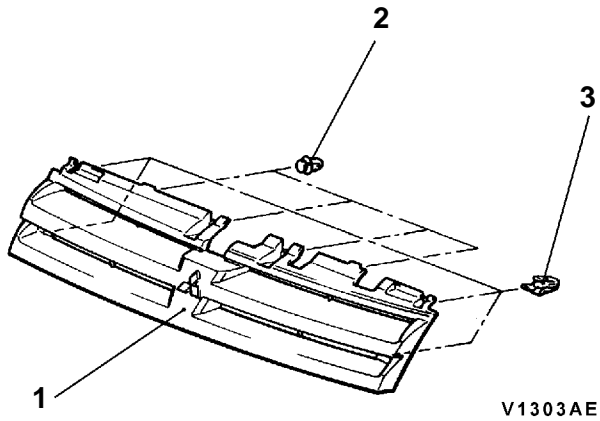
1. Use the special tool to pull up the centre pin in the clip.
2. Remove the clip.

RADIATOR GRILLE

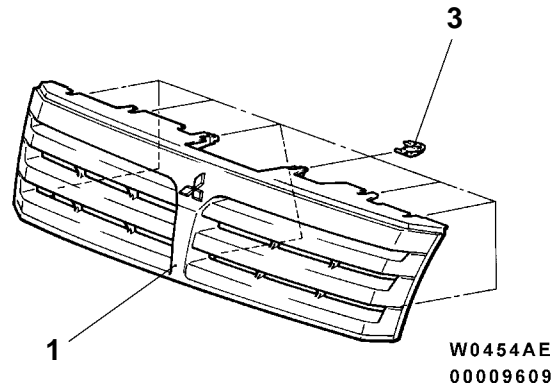
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REMOVAL AND INSTALLATION

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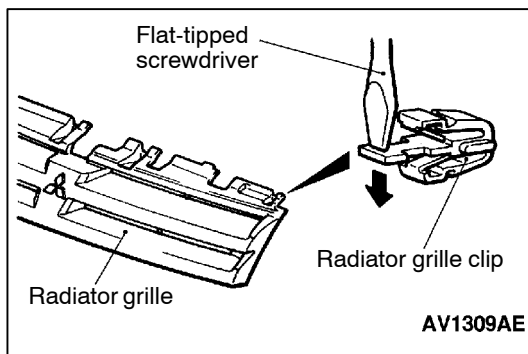


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Removal steps

1. Radiator grille
2. Trim clip
3. Radiator grille clip



REMOVAL SERVICE POINT

◀A▶ RADIATOR GRILLE REMOVAL

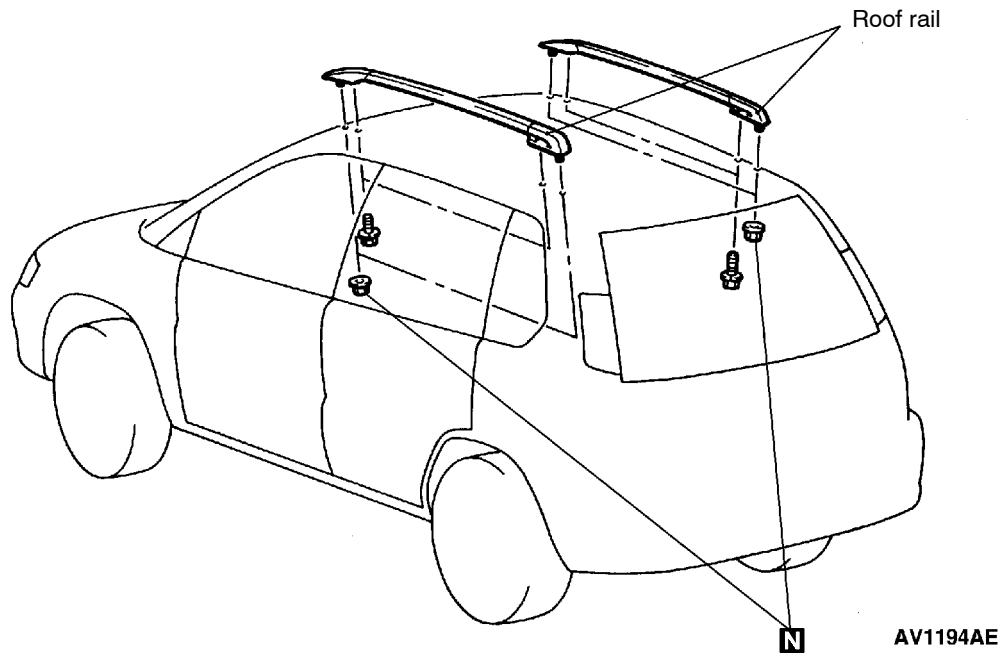
Remove the radiator grille by pushing the tab of the radiator grille clips in the direction of the arrows with a flat-tipped screwdriver, while lightly pulling the radiator grille towards you.

ROOF RAIL

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REMOVAL AND INSTALLATION

Pre-removal and Post-installation Operation
Headlining Removal and Installation



MOULDING AND GARNISH

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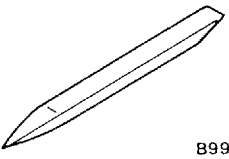
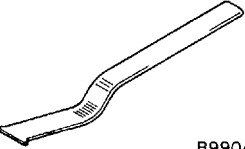
SEALANT AND ADHESIVE

51100050207

Items	Specified sealant and adhesive
Side protect moulding to body panel	Adhesive tape: 3M ATD part No.6382 or equivalent [7 mm width and 1.2 mm thickness]
	Primer: 3M ATD part No.8608 Super Fast Urethane Primer or equivalent and 3M ATD part No.8609 Super Fast Urethane Primer or equivalent

SPECIAL TOOLS

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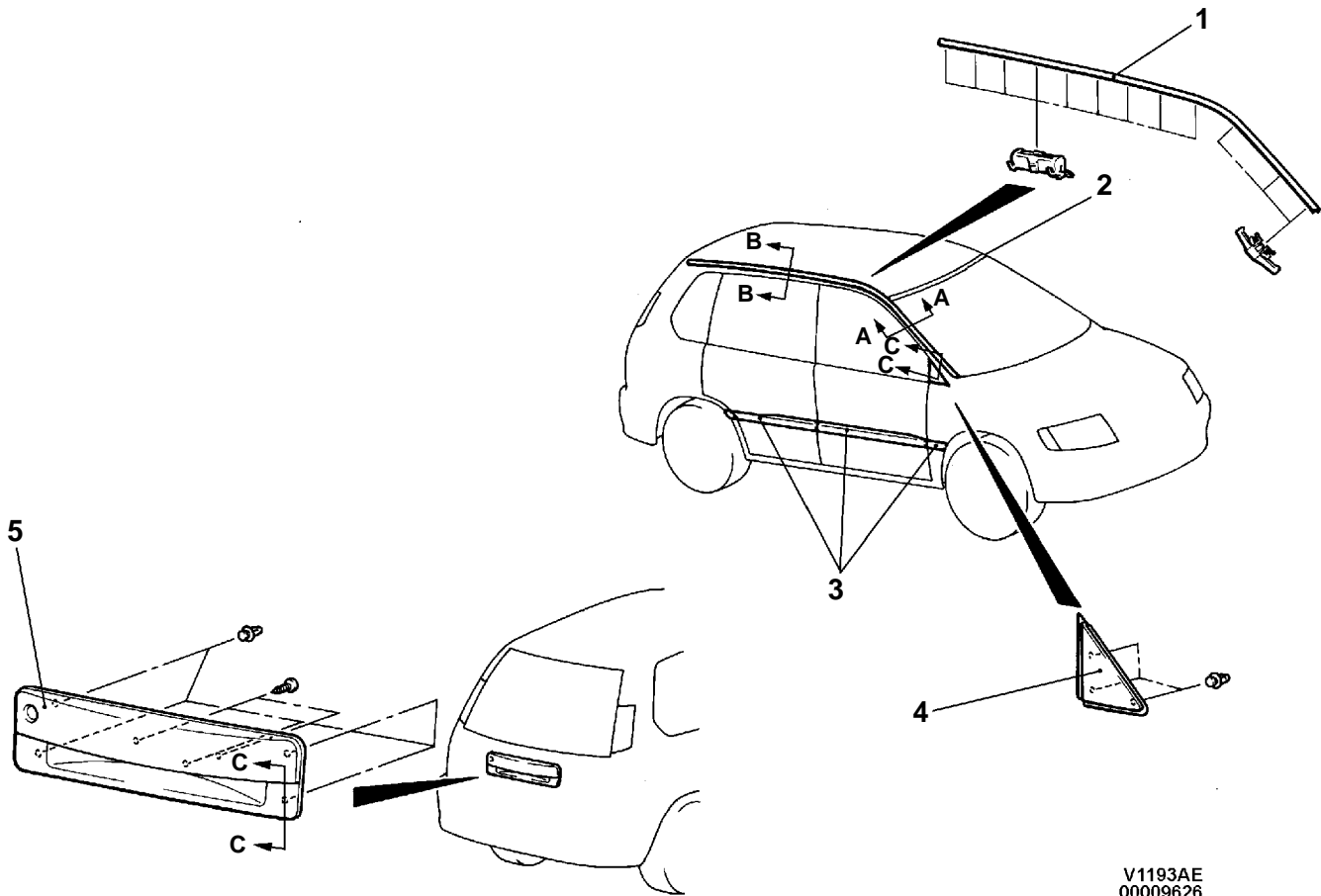
Tool	Number	Name	Use
 B990784	MB990784	Ornament remover	Removal of rear wiper and washer switch and door mirror control switch.
 B990449	MB990449	Window moulding remover	Removal of roof drip moulding, etc.

MOULDING AND GARNISH

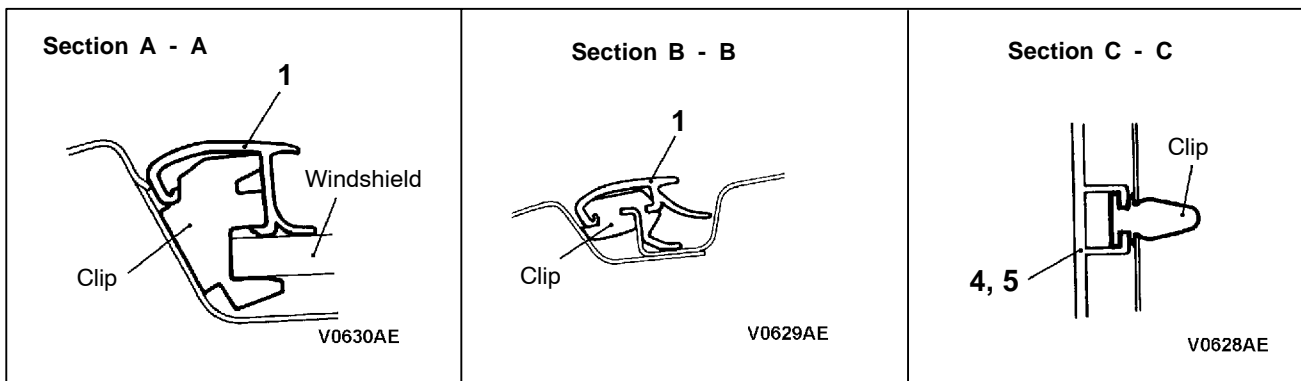
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REMOVAL AND INSTALLATION

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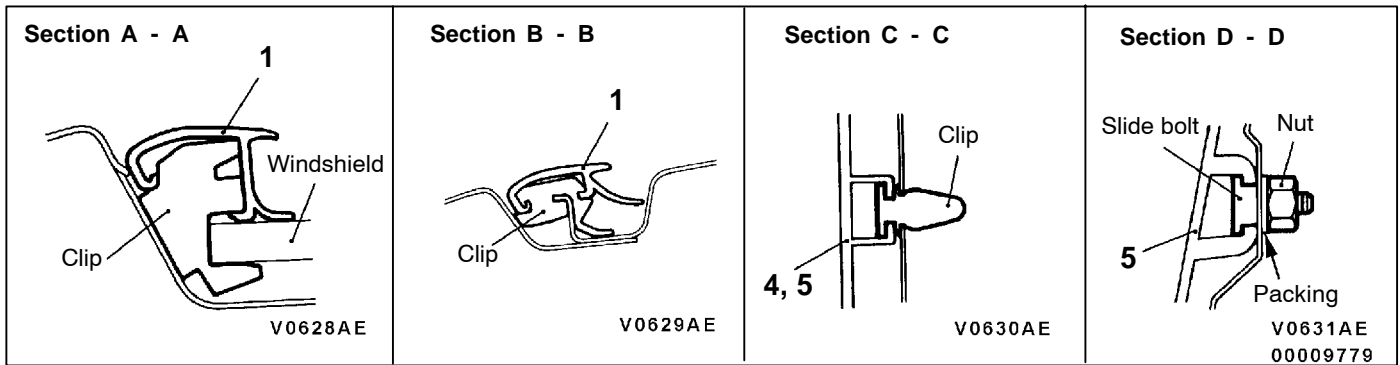
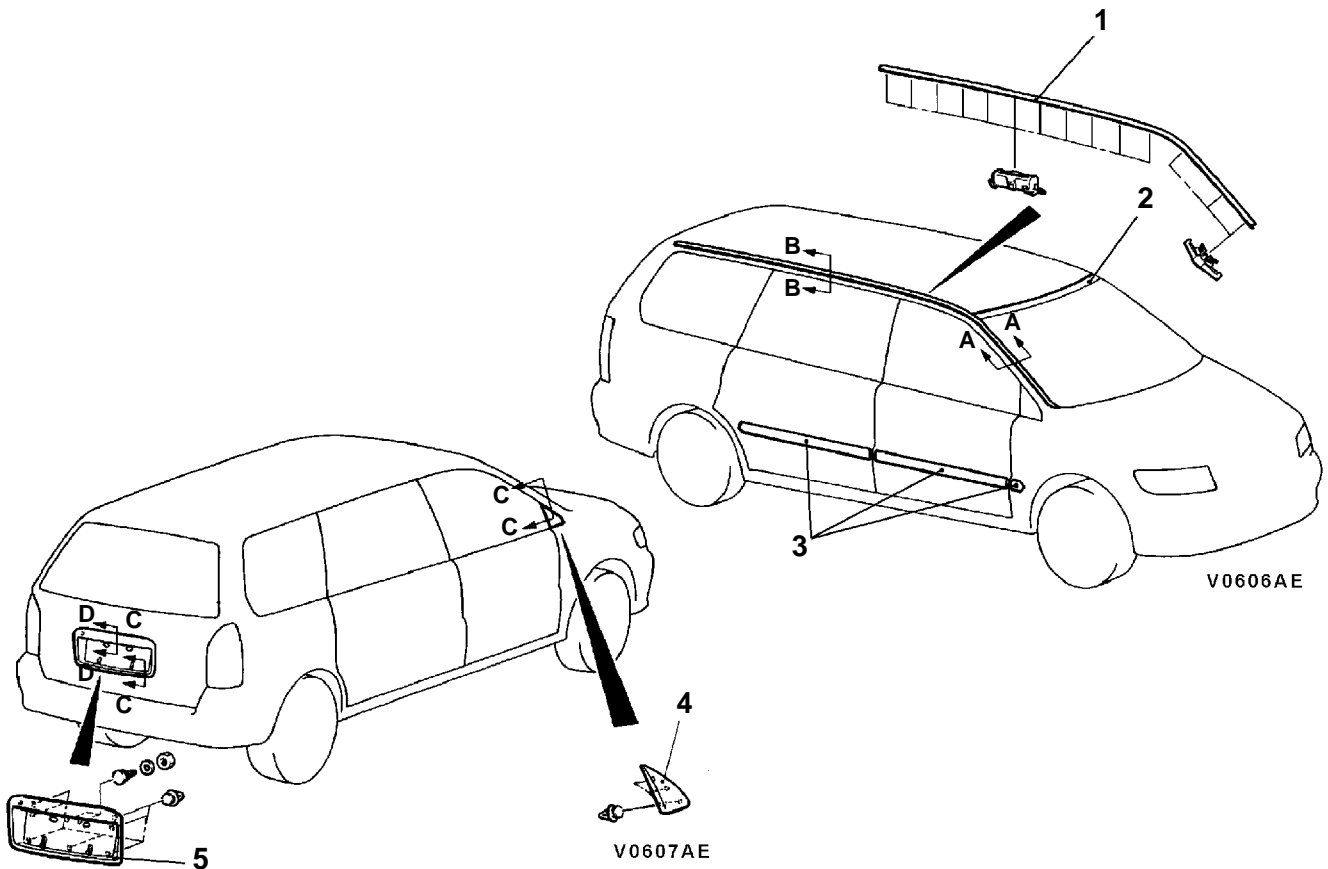
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- ◀A▶ ▶B▶ 1. Roof drip moulding
2. Windshield upper moulding
(Refer to GROUP 42 - Windshield.)

- ◀B▶ ▶A▶ 3. Side protect moulding
4. Delta outer garnish
5. Tailgate garnish

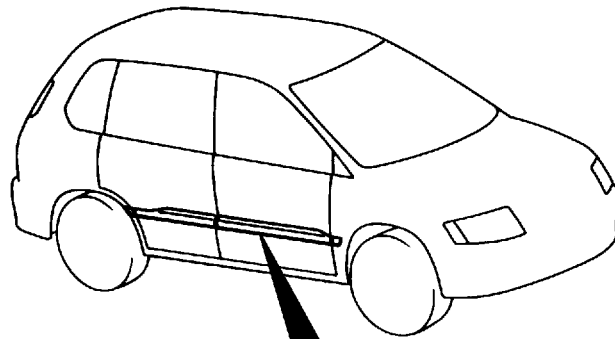
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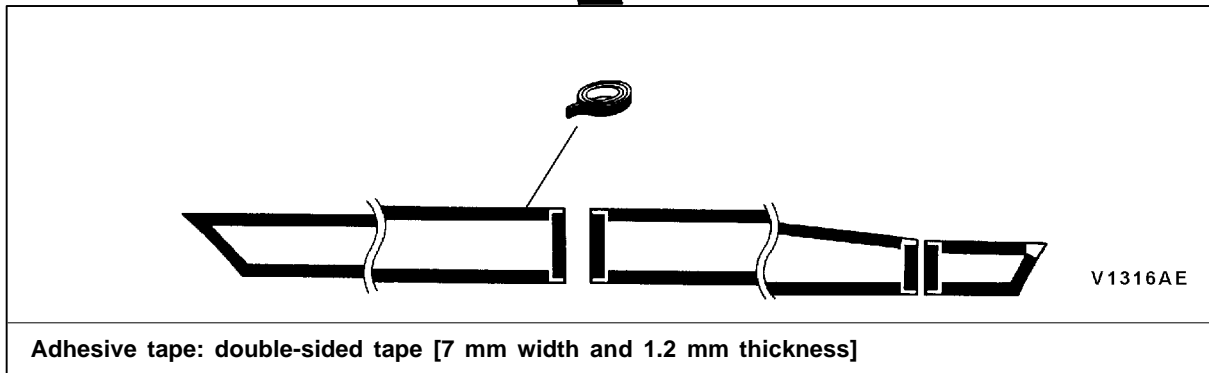
◀A▶ ▶B▶ 1. Roof drip moulding
 2. Windshield upper moulding
 (Refer to GROUP 42 - Windshield.)

◀B▶ ▶A▶ 3. Side protect moulding
 4. Delta outer garnish
 5. Tailgate garnish

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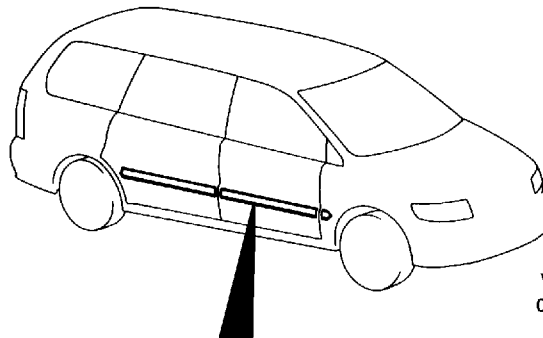
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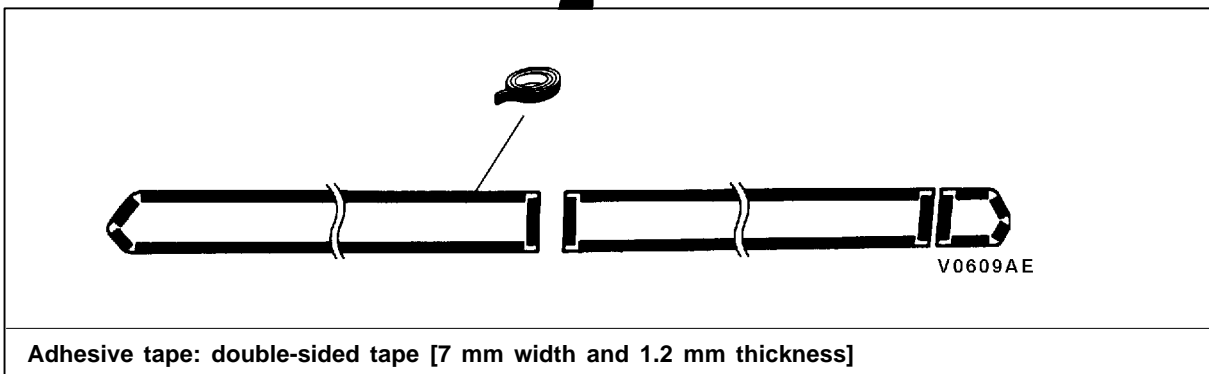
V1316AE

Adhesive tape: double-sided tape [7 mm width and 1.2 mm thickness]

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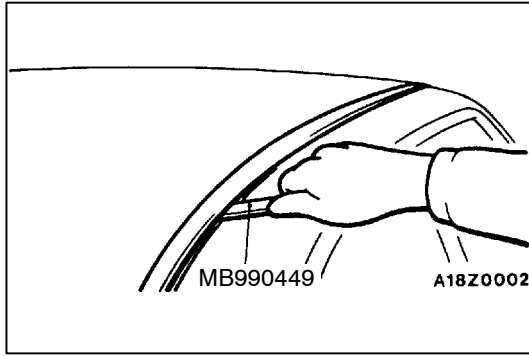


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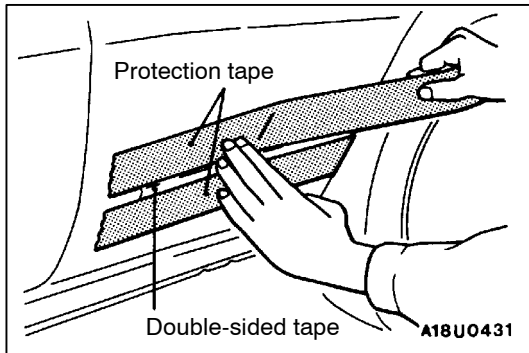
Adhesive tape: double-sided tape [7 mm width and 1.2 mm thickness]

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

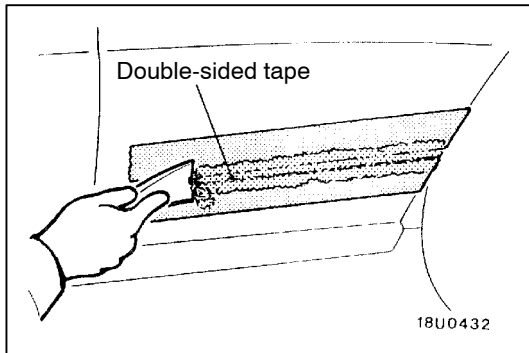
Use the special tool to lever out the moulding.

Caution

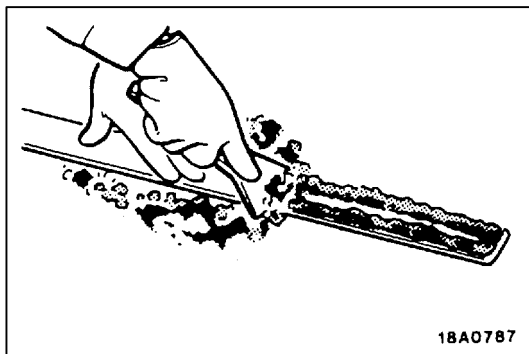
If the moulding has become warped, it should not be reused.

**◀B▶ SIDE PROTECT MOULDING REMOVAL**

1. Attach protection tape all the way along the edges of the double-sided tape which is still adhering to the body.



2. Use a resin spatula to scrape off the double-sided tape.
3. Peel off the protection tape.
4. Wipe the body surface and clean it with a rag moistened with isopropyl alcohol.

**INSTALLATION SERVICE POINTS****▶A◀ SIDE PROTECT MOULDING INSTALLATION**

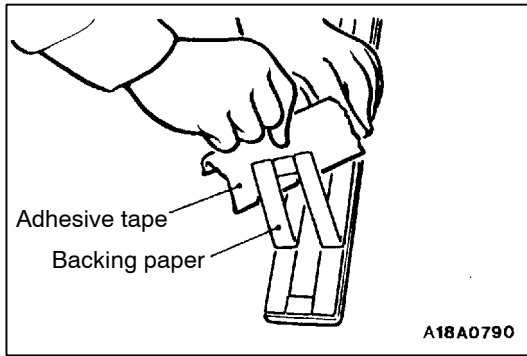
Double-sided tape affixing to the side protect moulding (when reusing)

1. Scrape off the double-sided tape with a resin spatula or gasket scraper.

2. Wipe off the side protect moulding adhesion surface and clean it with a shop towel moistened with isopropyl alcohol.
3. Affix the specified double sided tape to the side protect moulding. (Refer to P.51-17.)

Specified adhesive tape:

Double-sided tape: 7 mm width and 1.2 mm thickness



4. Remove strip paper from the pressure sensitive double-sided tape.

NOTE

Affix double-sided tape to the end of strip paper for ease of strip paper removal. (Refer to P.51-17.)

5. Install the side protect moulding.

NOTE

If it is hard to affix the double-sided tape in winter, heat the application surfaces at both the vehicle body and the side protect moulding.

Body 40 - 60°C

Side protect moulding 20 - 30 °C

Apply pressure fully to the side protect moulding.

►B◄ ROOF DRIP MOULDING INSTALLATION

1. Install the clips to the clip installation bosses on the roof.
2. Install the roof moulding with the clips.

AERO PARTS

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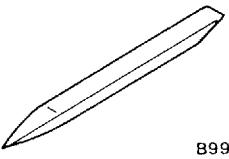
SEALANT AND ADHESIVE

51100050207

Items	Specified sealant and adhesive
Side air dam	Adhesive tape: 3M ATD part No.6382 or equivalent [5 mm width and 1.5 mm thickness]
	Primer: 3M ATD part No.8608 Super Fast Urethane Primer or equivalent and 3M ATD part No.8609 Super Fast Urethane Primer or equivalent

SPECIAL TOOL

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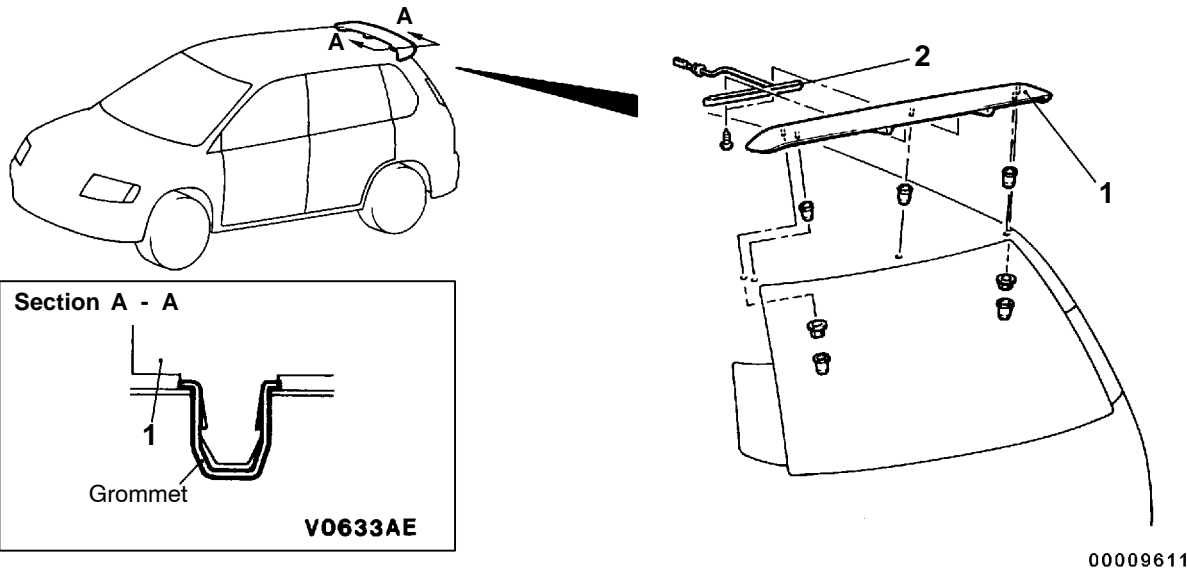
Tool	Number	Name	Use
 8990784	MB990784	Ornament remover	Removal of side air dam

AERO PARTS

51100060033

REMOVAL AND INSTALLATION

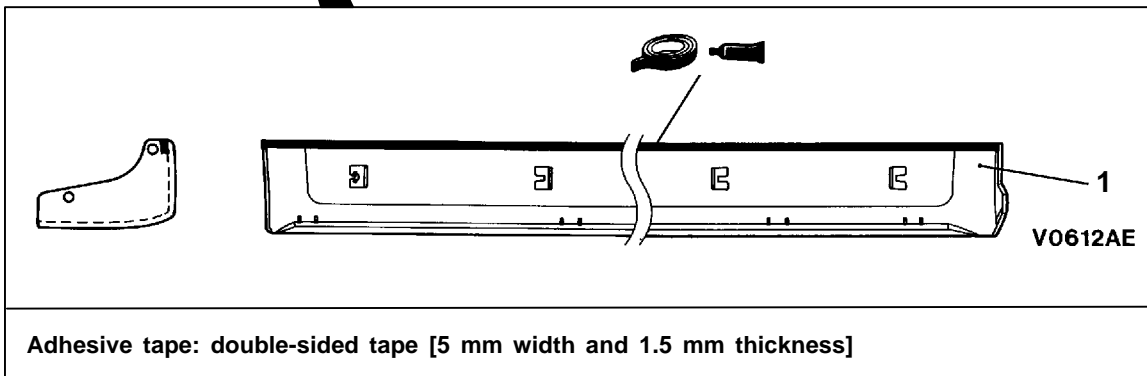
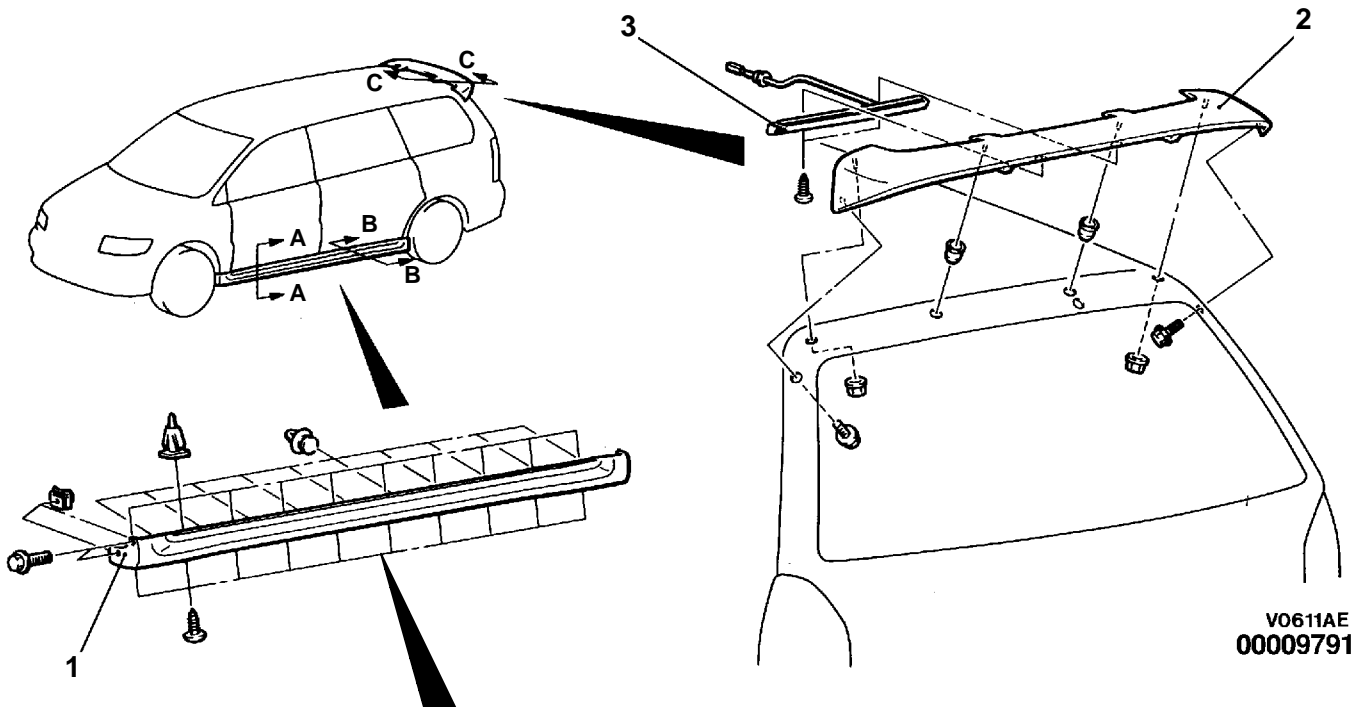
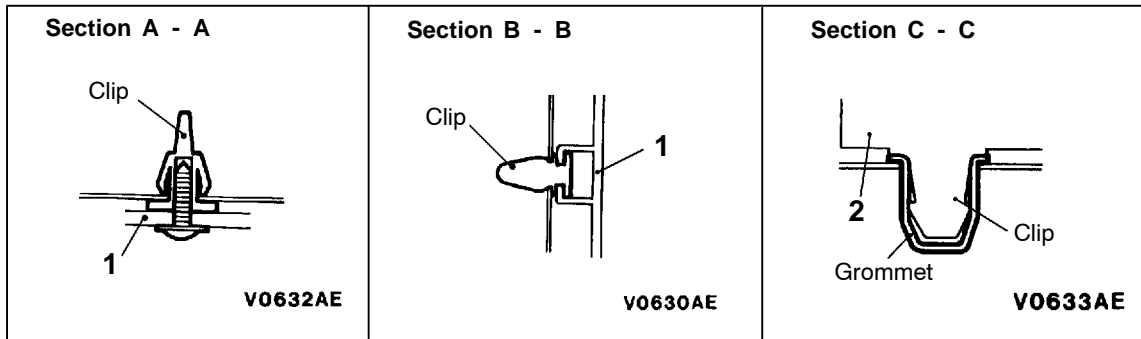
<SPACE RUNNER>



Tailgate spoiler removal steps

1. Tailgate spoiler
 - Tailgate upper trim (Refer to GROUP 42.)
2. High-mounted stop lamp

<SPACE WAGON>



Side air dam removal steps

- ◀A▶ ▶A◀ 1. Side air dam

Tailgate spoiler removal steps

2. Tailgate spoiler
 - Tailgate upper trim (Refer to GROUP 42.)
3. High-mounted stop lamp

REMOVAL SERVICE POINT**◀A▶ SIDE AIR DAM REMOVAL**

Remove the side air dam in the same manner as for the side protect moulding (Refer to P.51-18).

INSTALLATION SERVICE POINT**▶A◀ SIDE AIR DAM INSTALLATION**

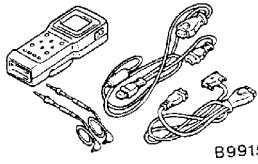
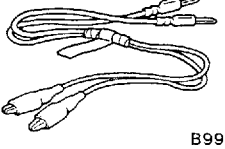
Install the side air dam in the same manner as for the side protect moulding (Refer to P.51-18).

WINDSHIELD WIPER AND WASHER

SERVICE SPECIFICATIONS

Items		Standard value
Park position of windshield wiper arm and blade assembly (Distance between wiper blade and front deck garnish end)	Driver's side	45 ± 5
	Passenger's side	52 ± 5

SPECIAL TOOLS

Tool	Number	Name	Use
 B991502	MB991502	MUT-II sub assembly	<ul style="list-style-type: none"> • Diagnosis code check • ETACS-ECU input signal check
 B991529	MB991529	Diagnosis code check harness	<ul style="list-style-type: none"> • Diagnosis code check • ETACS-ECU input signal check by using a voltmeter

TROUBLESHOOTING

DIAGNOSIS FUNCTION

INPUT SIGNAL INSPECTION PROCEDURE

1. Connect the MUT-II or a voltmeter to the diagnosis connector to check input signal. (Refer to GROUP 00 - How to Use Troubleshooting/Inspection Service Points.)
2. The following input signals can be checked:
 - Windshield wiper switch
 - LO
 - HI
 - INT
 - Variable intermittent switch
 - Mist
 - Windshield washer switch

NOTE

If all the input signals cannot be check by using the MUT-II, the diagnosis circuit may be defective.

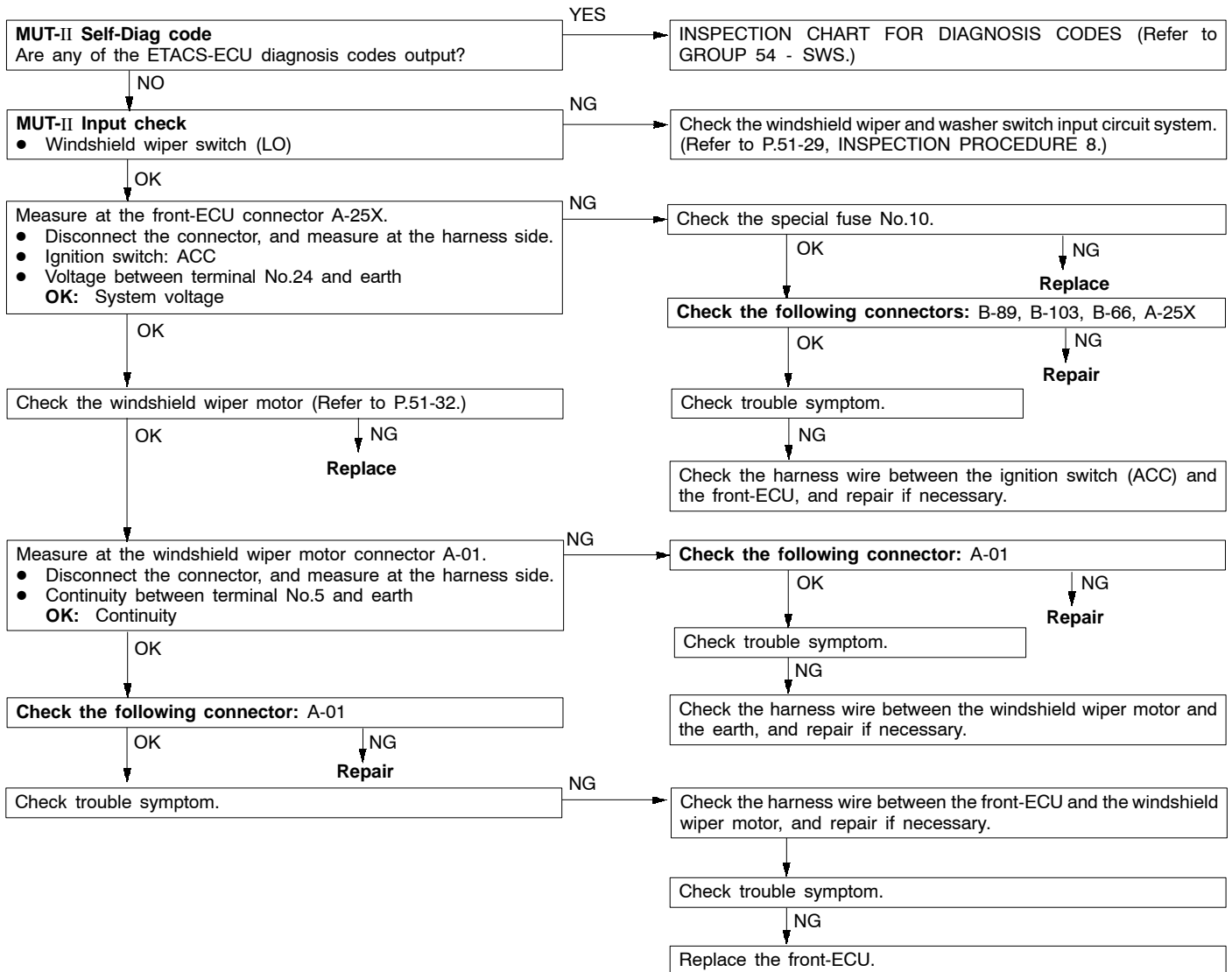
INSPECTION CHART FOR TROUBLE SYMPTOMS

Trouble symptom	Inspection procedure	Reference page
Communication with the MUT-II is impossible.	Refer to GROUP 54 - SWS.	
When the wiper switch is set to "LO" position, the wipers do not operates at "LO" mode.	1	51-25
When the wiper switch is set to "HI" position, the wipers do not operates at "LO" mode instead of "HI" mode.	2	51-26
When the wiper switch is set to "INT" position, the wipers do not operate intermittently. (However, the wipers operate normally when the switch is set to "LO" or "HI" position.)	3	51-26
The wipers do not stop when the wiper switch is turned off during the low wiper speed.	4	51-27
The operating interval of the wipers does not change when the variable intermittent wiper switch is operated during constant vehicle speed.	5	51-27
The washers do not operate when the washer switch is operated.	6	51-28
The wipers do not operate when the washer switch is operated (However, the washer operates normally.)	7	51-29

INSPECTION PROCEDURE FOR TROUBLE SYMPTOMS

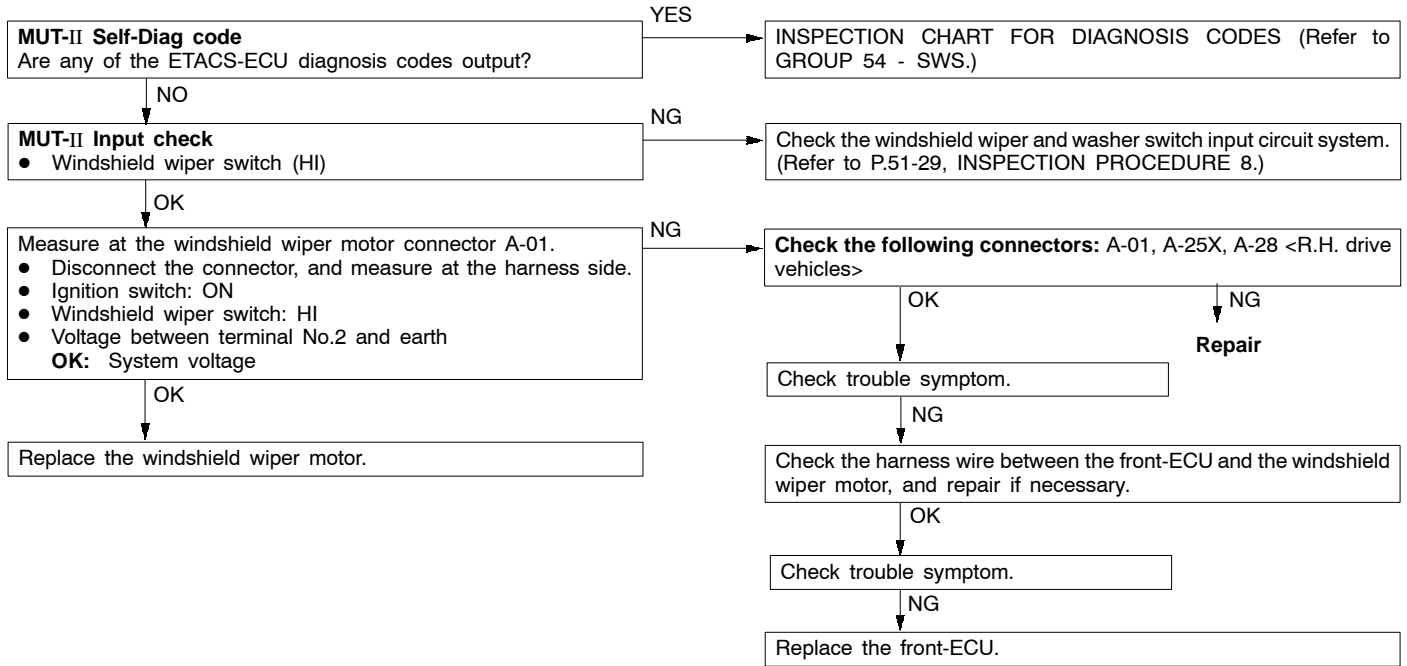
Inspection Procedure 1

When the wiper switch is set to "LO" position, the wipers do not operate at "LO" mode.	Probable cause
The cause may be a malfunction of the wiper switch input circuit, harness or connector, windshield wiper motor, back-up circuit or front-ECU.	<ul style="list-style-type: none"> ● Malfunction of column switch ● Malfunction of windshield wiper motor ● Malfunction of wiring harness or connector ● Malfunction of front-ECU



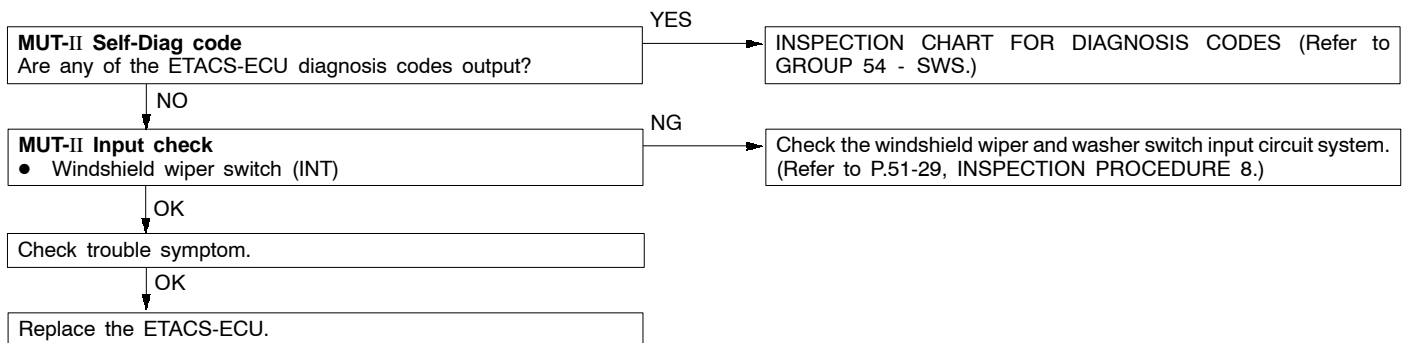
Inspection Procedure 2

When the wiper switch is set to "HI" position, the wipers do not operate at "LO" mode instead of "HI" mode.	Probable cause
The cause may be a malfunction of the wiper switch input circuit, harness or connector, windshield wiper motor, back-up circuit or front-ECU. Fail-safe function may be active in the back-up circuit as the wipers operate at the "LO" mode.	<ul style="list-style-type: none"> ● Malfunction of column switch ● Malfunction of windshield wiper motor ● Malfunction of wiring harness or connector ● Malfunction of front-ECU



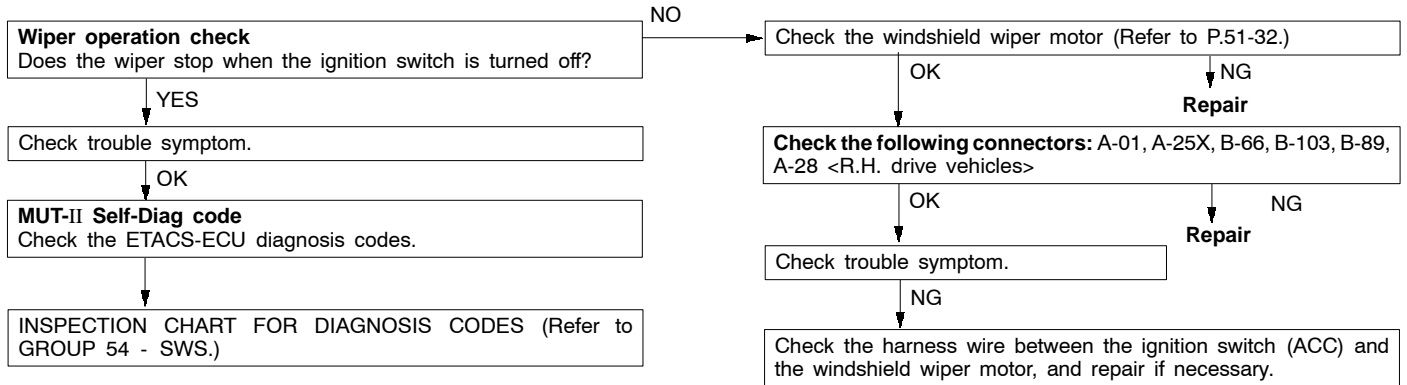
Inspection Procedure 3

When the wiper switch is set to "INT" position, the wipers do not operate intermittently. (However, the wipers operate normally when the switch is set to "LO" or "HI" position.)	Probable cause
The cause may be a malfunction of the wiper switch input circuit, harness or connector, windshield wiper motor, back-up circuit or front-ECU. The front-ECU can be normal as the wipers operate at the "LO" or "HI" mode.	<ul style="list-style-type: none"> ● Malfunction of column switch ● Malfunction of wiring harness or connector ● Malfunction of ETACS-ECU



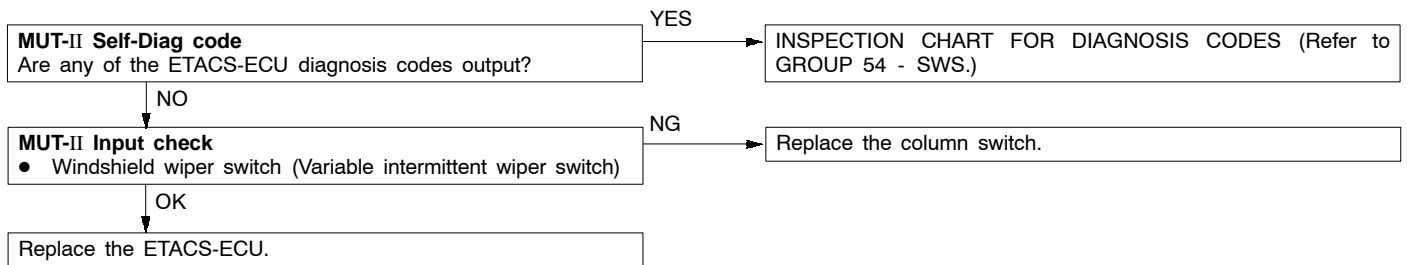
Inspection Procedure 4

The wipers do not stop when the wiper switch is turned off during the low wiper speed.	Probable cause
Probably the front-ECU has stored the conditions before defects take place by a fail-safe function as the windshield wiper motor was shorted or a malfunction occurred in the communication line during the wiper operation.	<ul style="list-style-type: none"> ● Malfunction of column switch ● Malfunction of windshield wiper motor ● Malfunction of wiring harness or connector ● Malfunction of front-ECU



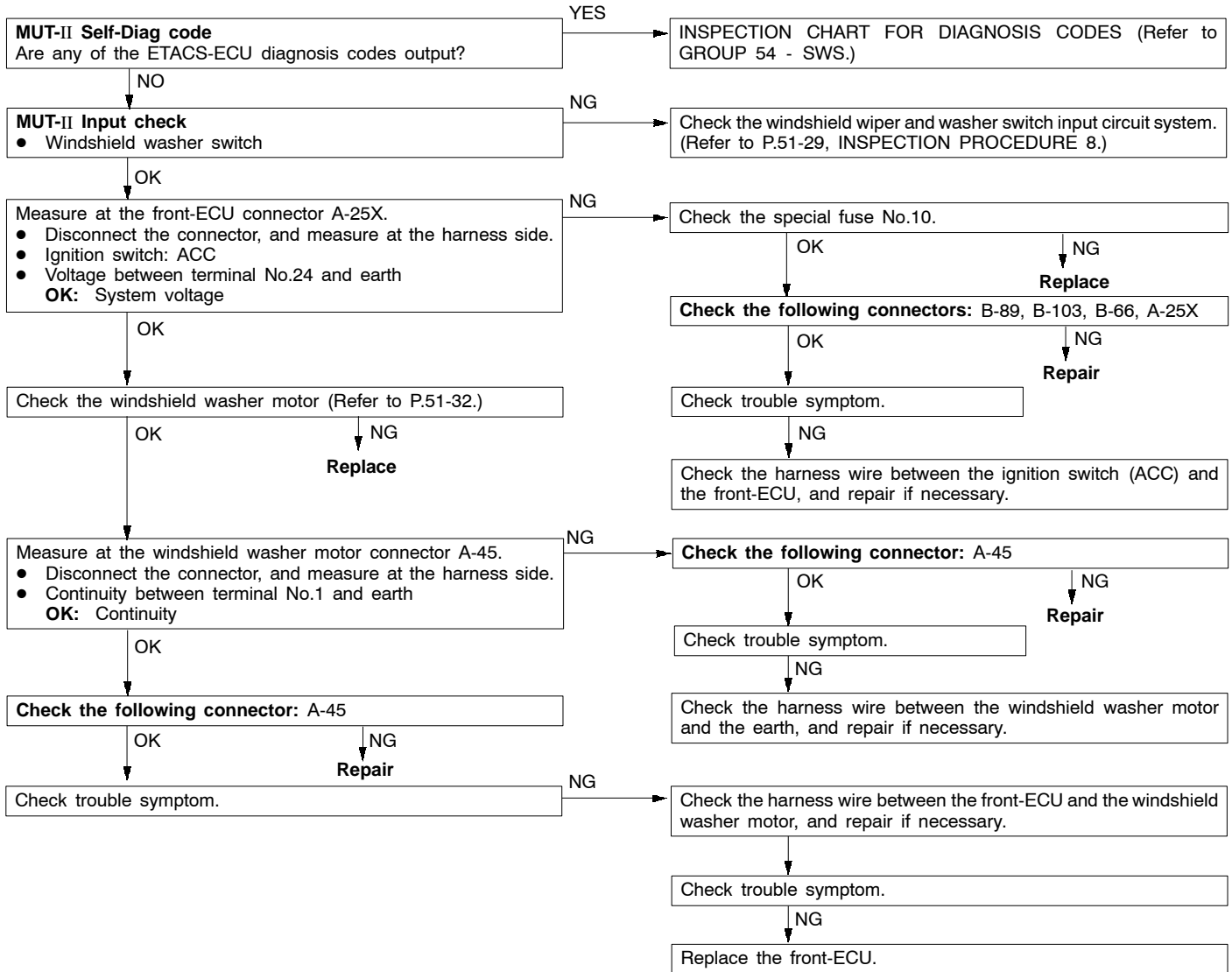
Inspection Procedure 5

The operating interval of the wipers does not change when the variable intermittent wiper switch is operated during constant vehicle speed.	Probable cause
The cause may be a malfunction of the vehicle speed sensor input circuit, harness or connector, column switch or ETACS-ECU. The front-ECU can be normal as the wipers operate at the "LO", "HI" and "INT" mode.	<ul style="list-style-type: none"> ● Malfunction of column switch ● Malfunction of wiring harness or connector ● Malfunction of ETACS-ECU



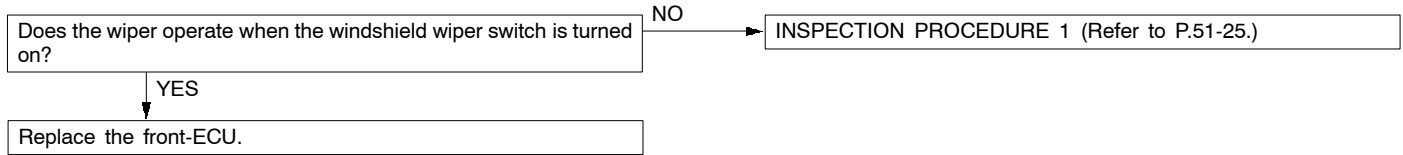
Inspection Procedure 6

The washers do not operate when the washer switch is operated.	Probable cause
The cause may be a malfunction of the vehicle speed sensor input circuit, harness or connector, windshield washer motor or front-ECU.	<ul style="list-style-type: none"> ● Malfunction of column switch ● Malfunction of windshield washer motor ● Malfunction of wiring harness or connector ● Malfunction of front-ECU



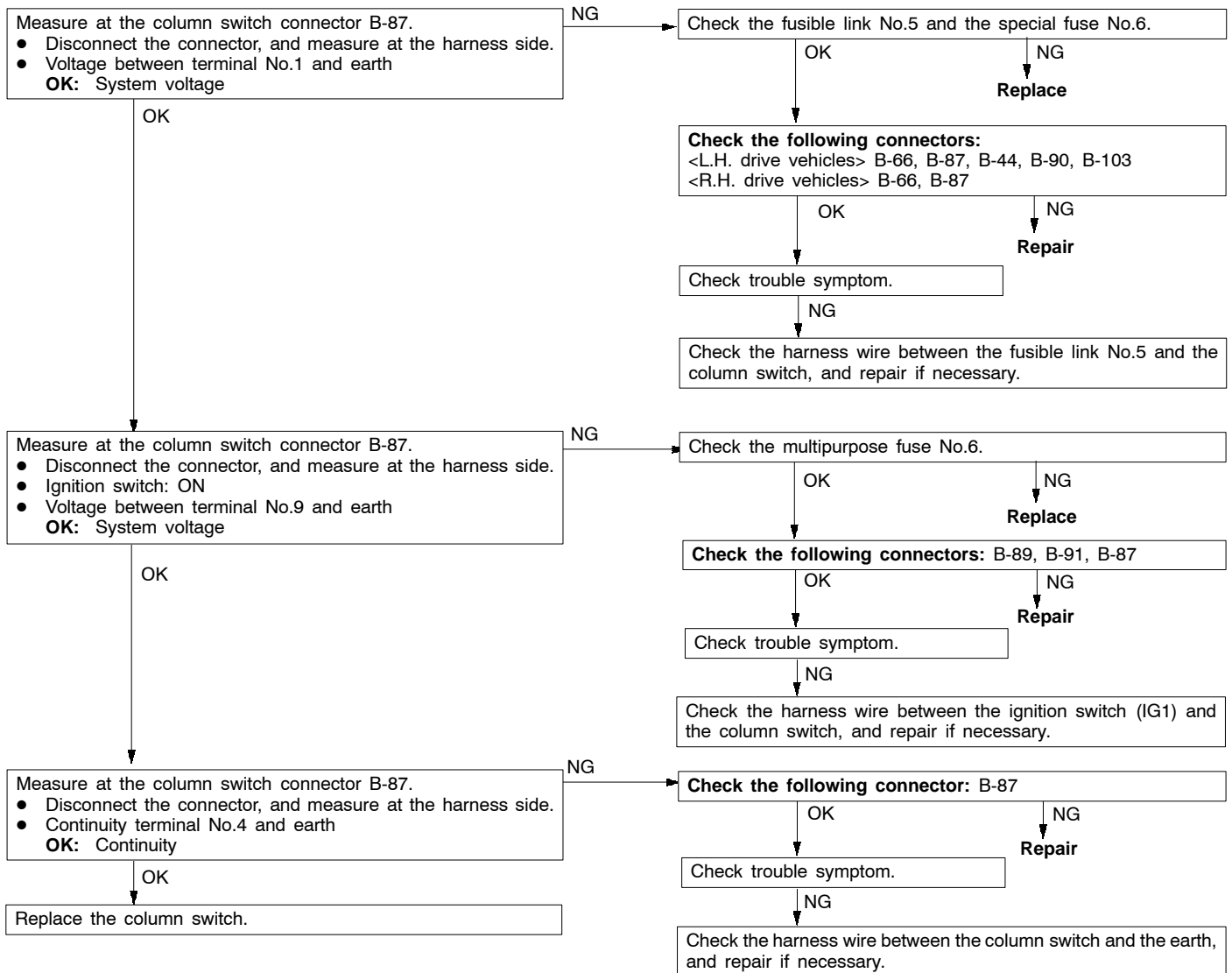
Inspection Procedure 7

The wipers do not operate when the washer switch is operated (However, the washer operates normally.)	Probable cause
The cause may be a malfunction of harness or connector, windshield wiper motor or front-ECU.	<ul style="list-style-type: none"> ● Malfunction of windshield wiper motor ● Malfunction of wiring harness or connector ● Malfunction of front-ECU



Inspection Procedure 8

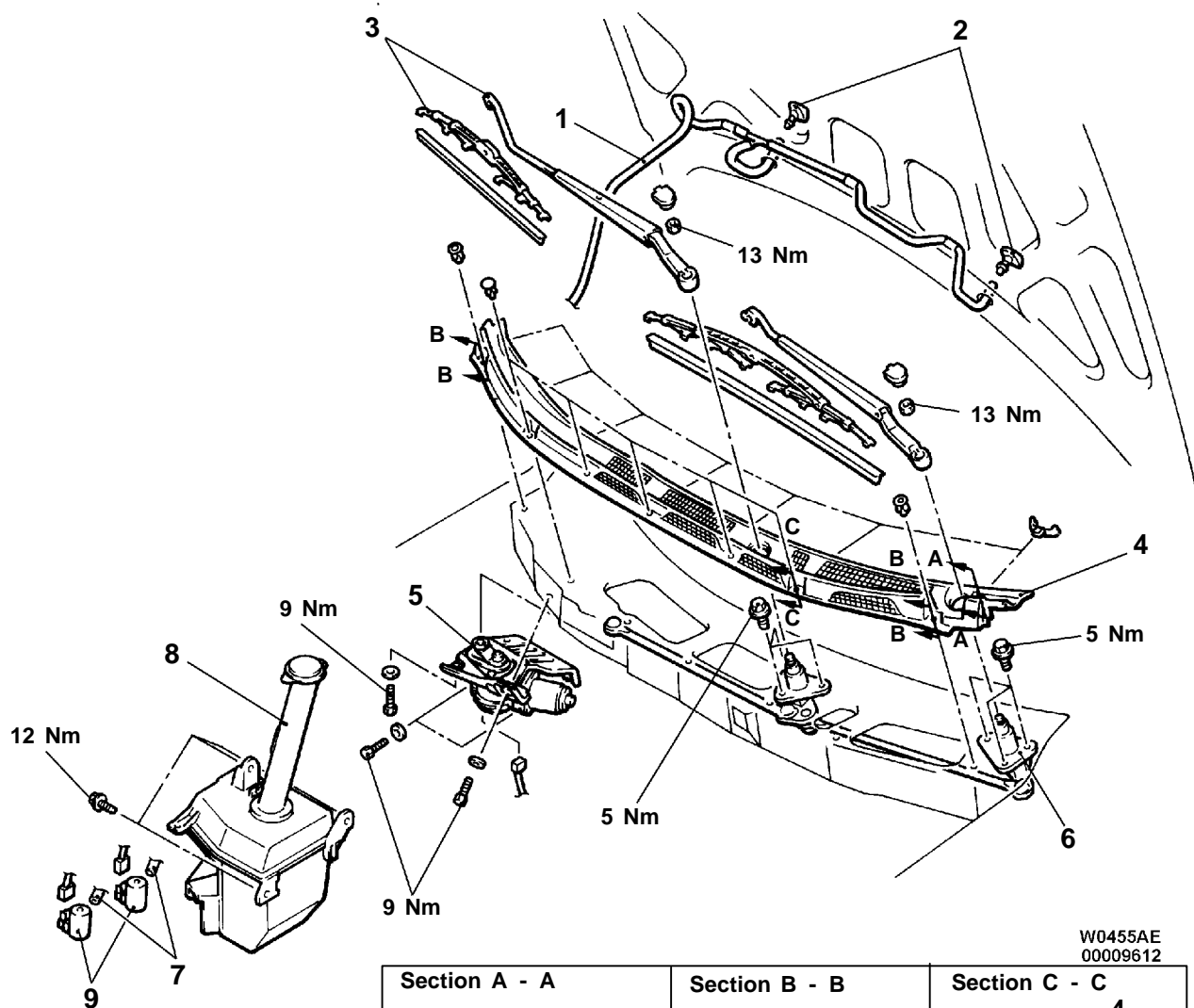
Windshield wiper and washer switch input circuit check



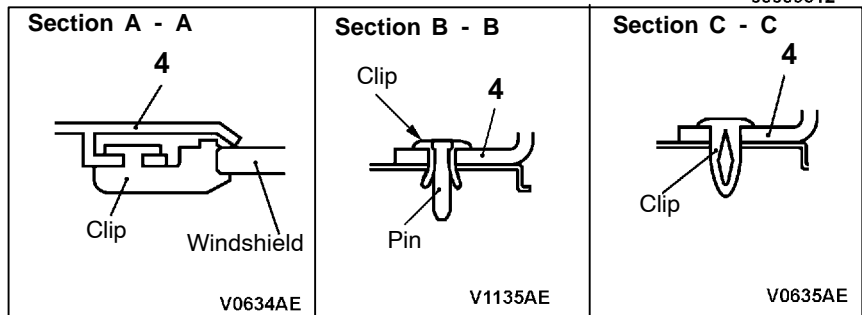
WINDSHIELD WIPER AND WASHER

51100760032

REMOVAL AND INSTALLATION



W0455AE
00009612



1. Washer hose
2. Washer nozzle

Wiper motor and linkage removal steps

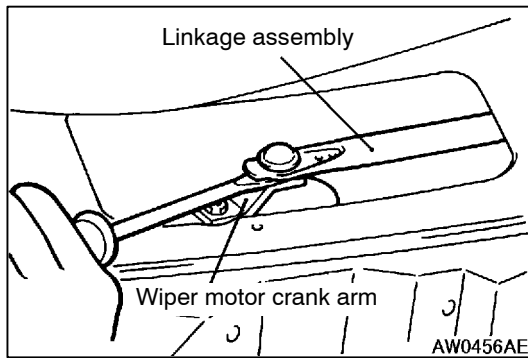
- ▶B◀
3. Wiper arm and blade assembly
 4. Front deck garnish
 - Air cleaner assembly
 5. Wiper motor
 6. Linkage assembly
- ◀A▶

Washer tank removal steps

- Front bumper (Refer to P.51-3.)
- 7. Washer hose
- 8. Washer tank assembly
- 9. Washer motor

NOTE

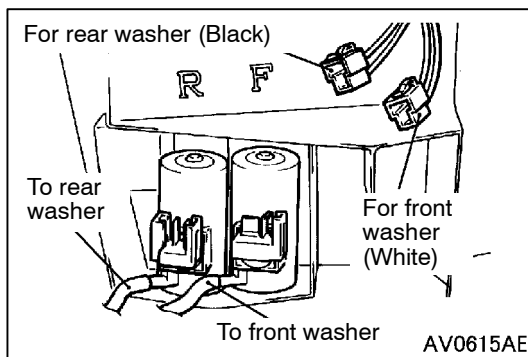
For removal and installation of the column switch assembly (wiper and washer switch), refer to GROUP 37A - Steering Wheel and Shaft.

**REMOVAL SERVICE POINT****◀A▶ WIPER MOTOR REMOVAL**

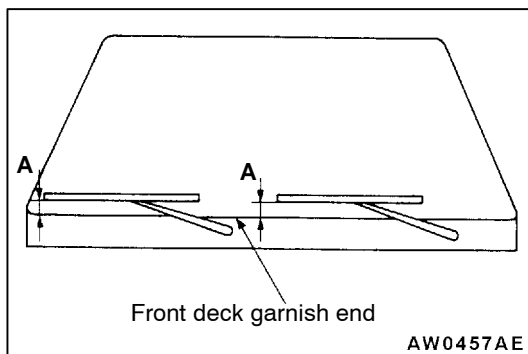
1. Remove the wiper motor mounting bolts.
2. Use a flat-tipped screwdriver to separate the wiper motor crank arm from the linkage assembly, and then remove the wiper motor.

Caution

Because the installation angle of the crank arm and the motor has been set, do not remove them unless it is necessary to do so. If they must be removed, remove them only after marking their mounting positions.

**INSTALLATION SERVICE POINTS****▶A◀ WASHER TANK ASSEMBLY INSTALLATION**

When the washer tank assembly is reinstalled, make sure that the washer hoses and the control harness connectors are connected to their original positions.

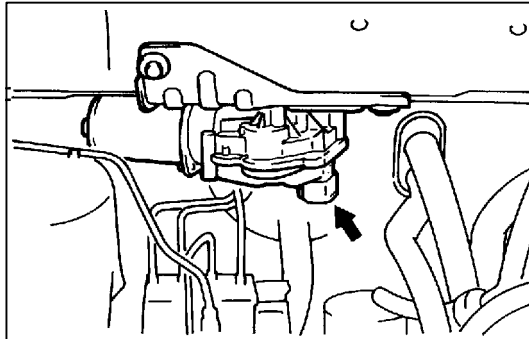
**▶B◀ WIPER ARM AND BLADE ASSEMBLY INSTALLATION**

Install the wiper blade so that the wipers stops at the specified stop position (standard value) as shown in the illustration.

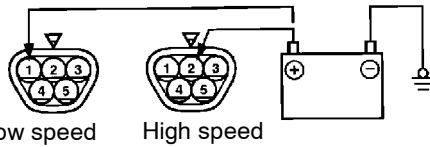
Standard value (A):

<Driver's side> 45 ± 5 mm

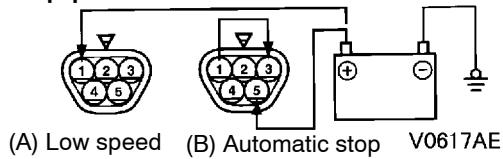
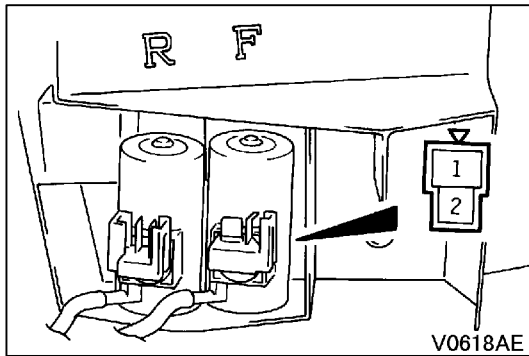
<Passenger's side> 52 ± 5 mm



Operation speed check



Stop position check

V0617AE
00009630

V0618AE

INSPECTION

51100770035

WIPER MOTOR CHECK

51101260135

Disconnect the wiring harness connector, and then check the wiper motor operation with the wiper motor remaining installed to the body.

Wiper Motor Operation Speed

Connect a battery to the wiper motor as shown in the illustration and check the operation speed.

Stop Position

1. Connect a battery to the wiper motor as shown in the (A) of the illustration. Then run the wiper motor at low speed, disconnect the battery, and stop the motor.
2. Connect the terminals via a jumper wire and a battery to the wiper motor as shown in the (B) of the illustration. After the motor starts turning at low speed, it should stop at the automatic stop position.

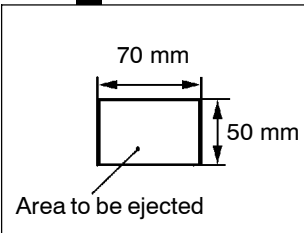
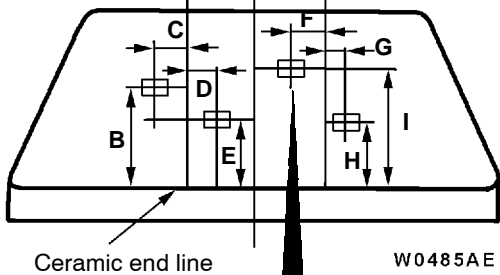
WASHER MOTOR CHECK

51101270015

1. With the washer motor installed to the washer tank, fill the washer tank with water.
2. Check that the water squirts out strongly when battery voltage is applied to terminal (2) and terminal (1) is earthed.

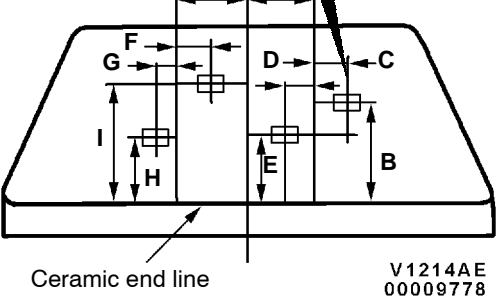
L.H. drive vehicles

<Passenger's side> A A <Driver's side>



R.H. drive vehicles

<Driver's side> A A <Passenger's side>



WASHER FLUID EJECTION POINT CHECK

51101270138

Adjust the ejection angle by moving the nozzle.

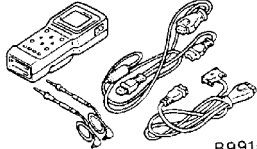
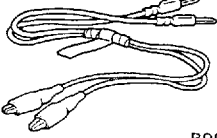
Item	Distance mm	Item	Distance mm
A	300	F	250
B	450	G	55
C	50	H	325
D	55	I	475
E	340	-	-

REAR WIPER AND WASHER

51100880028

SPECIAL TOOLS

42300060143

Tool	Number	Name	Use
 B991502	MB991502	MUT-II sub assembly	<ul style="list-style-type: none"> • Diagnosis code check • ETACS-ECU input signal check
 B991529	MB991529	Diagnosis code check harness	<ul style="list-style-type: none"> • Diagnosis code check • ETACS-ECU input signal check by using a voltmeter

TROUBLESHOOTING

42300070238

DIAGNOSIS FUNCTION**INPUT SIGNAL INSPECTION PROCEDURE**

1. Connect the MUT-II or a voltmeter to the diagnosis connector to check input signal. (Refer to GROUP 00 - How to Use Troubleshooting/Inspection Service Points.)
2. The following input signals can be checked:
 - Rear wiper switch
 - Rear washer switch

INSPECTION CHART FOR TROUBLE SYMPTOMS

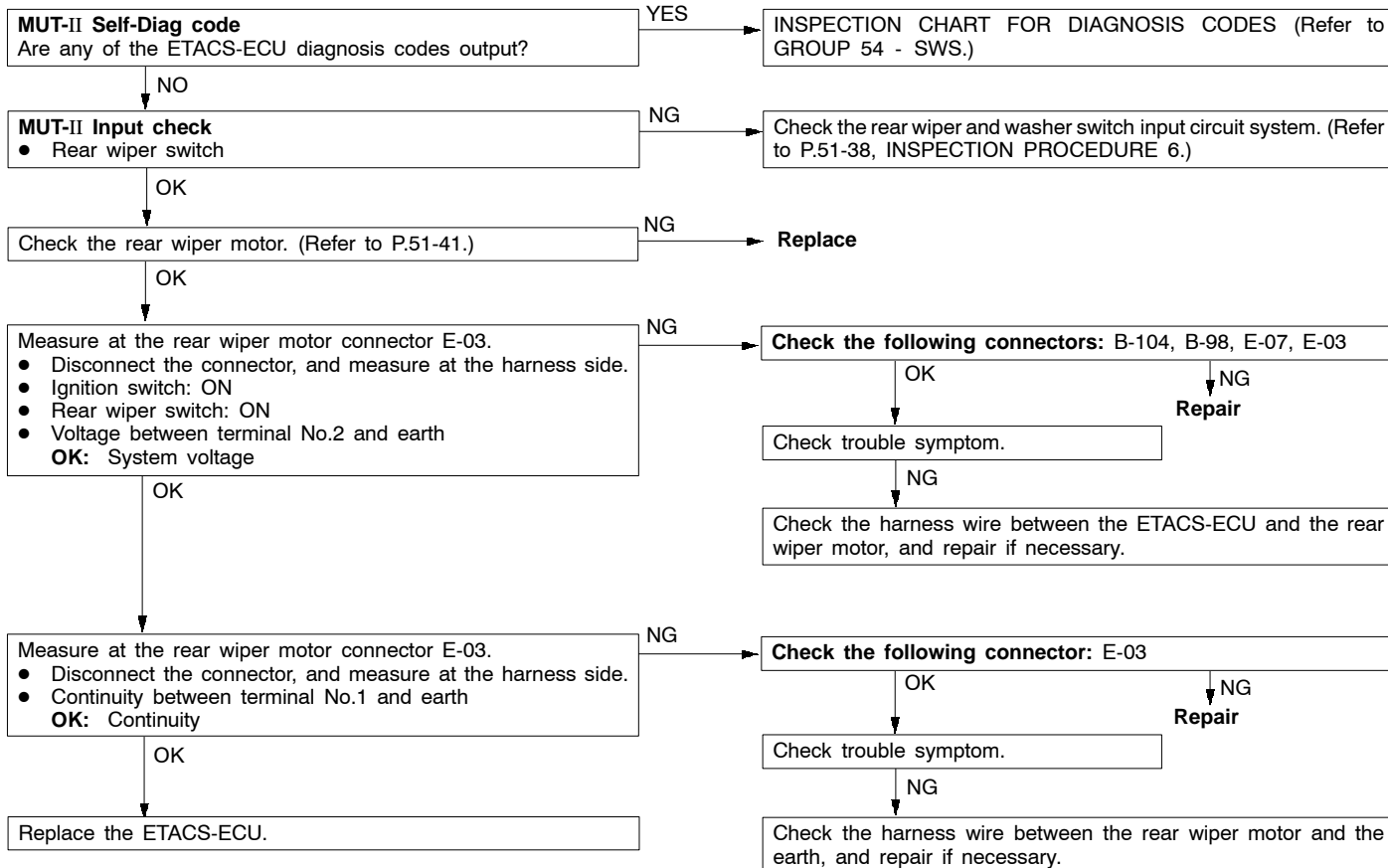
42300700083

Trouble symptom	Inspection procedure	Reference page
Communication with the MUT-II is impossible.	Refer to GROUP 54 - SWS.	
When the wiper switch is turned on, the wiper does not operate.	1	51-35
When the selector lever is moved to "R" position during the intermittent wiper operation, the wiper does not operate at the continuous mode.	2	51-36
When the wiper switch is turned off, the wiper does not stop.	3	51-37
When the wiper switch is turned on, the washer does not operate.	4	51-37
When the washer switch is turned on for 0.3 seconds or more, the wiper does not operate.	5	51-38

INSPECTION PROCEDURE FOR TROUBLE SYMPTOMS

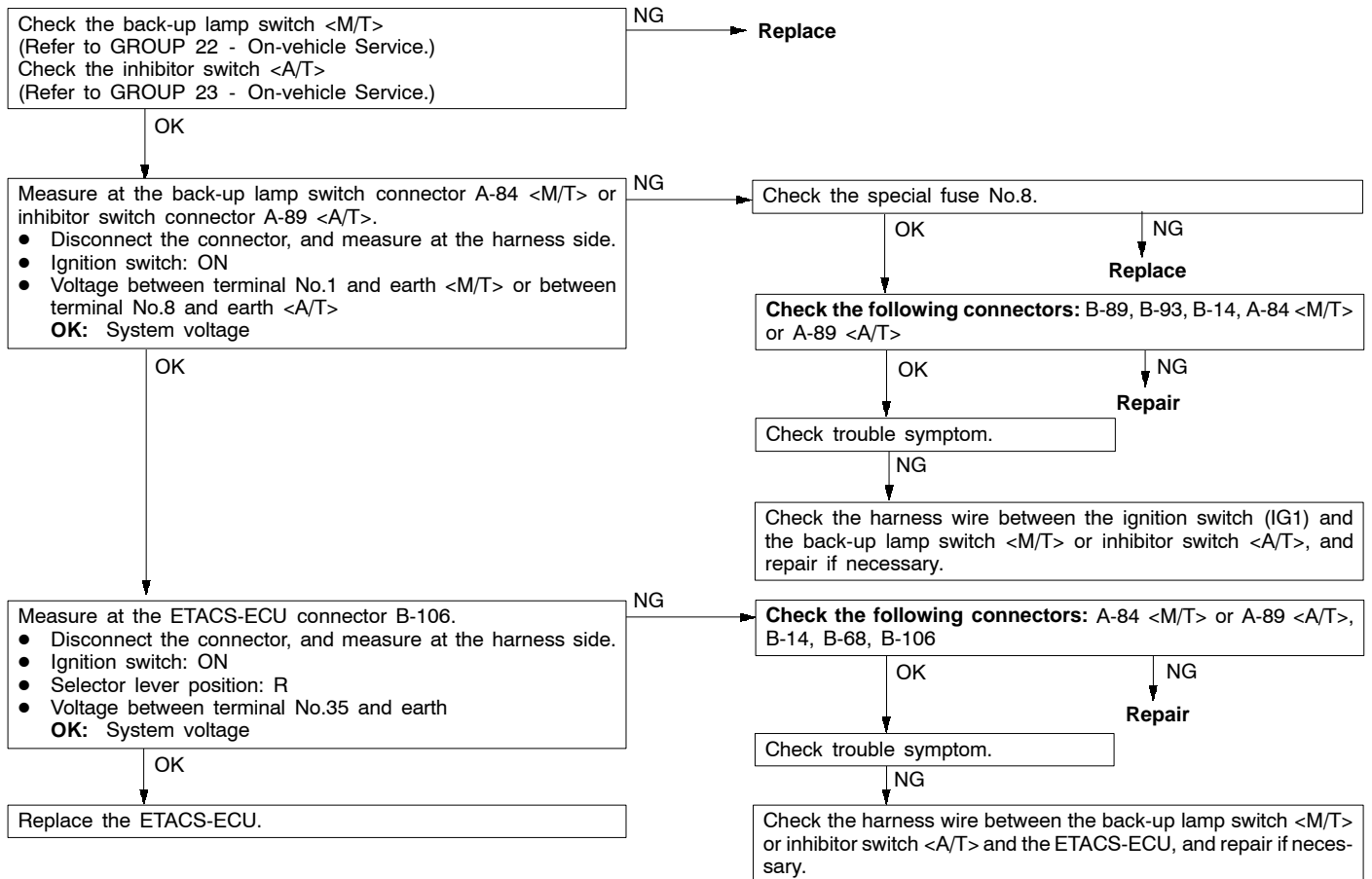
Inspection Procedure 1

When the wiper switch is turned on, the wiper does not operate.	Probable cause
The cause may be a malfunction of the wiper switch input circuit, harness or connector, rear wiper motor, or ETACS-ECU.	<ul style="list-style-type: none"> ● Malfunction of column switch ● Malfunction of rear wiper motor ● Malfunction of wiring harness or connector ● Malfunction of front-ECU



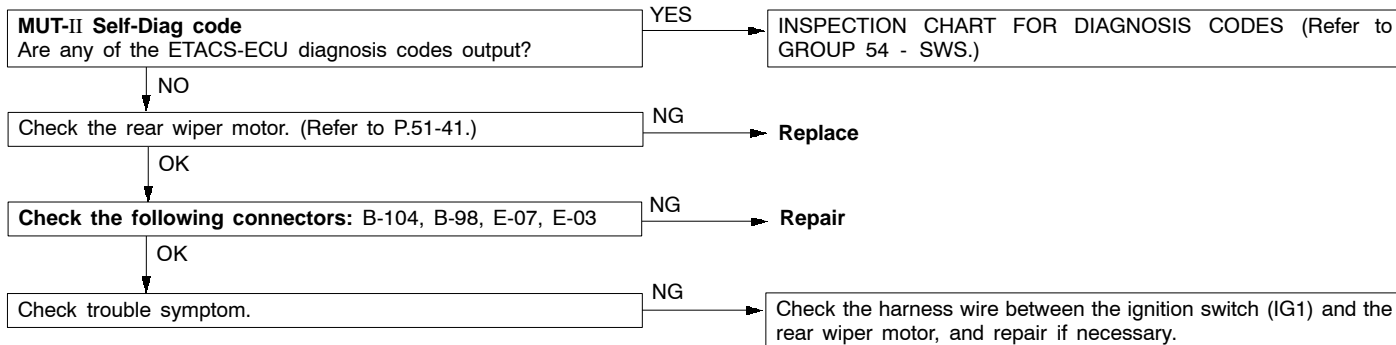
Inspection Procedure 2

When the selector lever is moved to "R" position during the intermittent wiper operation, the wiper does not operate at the continuous mode.	Probable cause
The cause may be a malfunction of the "R" position input circuit system or ETACS-ECU.	<ul style="list-style-type: none"> ● Malfunction of back-up lamp switch <M/T> ● Malfunction of inhibitor switch <A/T> ● Malfunction of wiring harness or connector ● Malfunction of ETACS-ECU



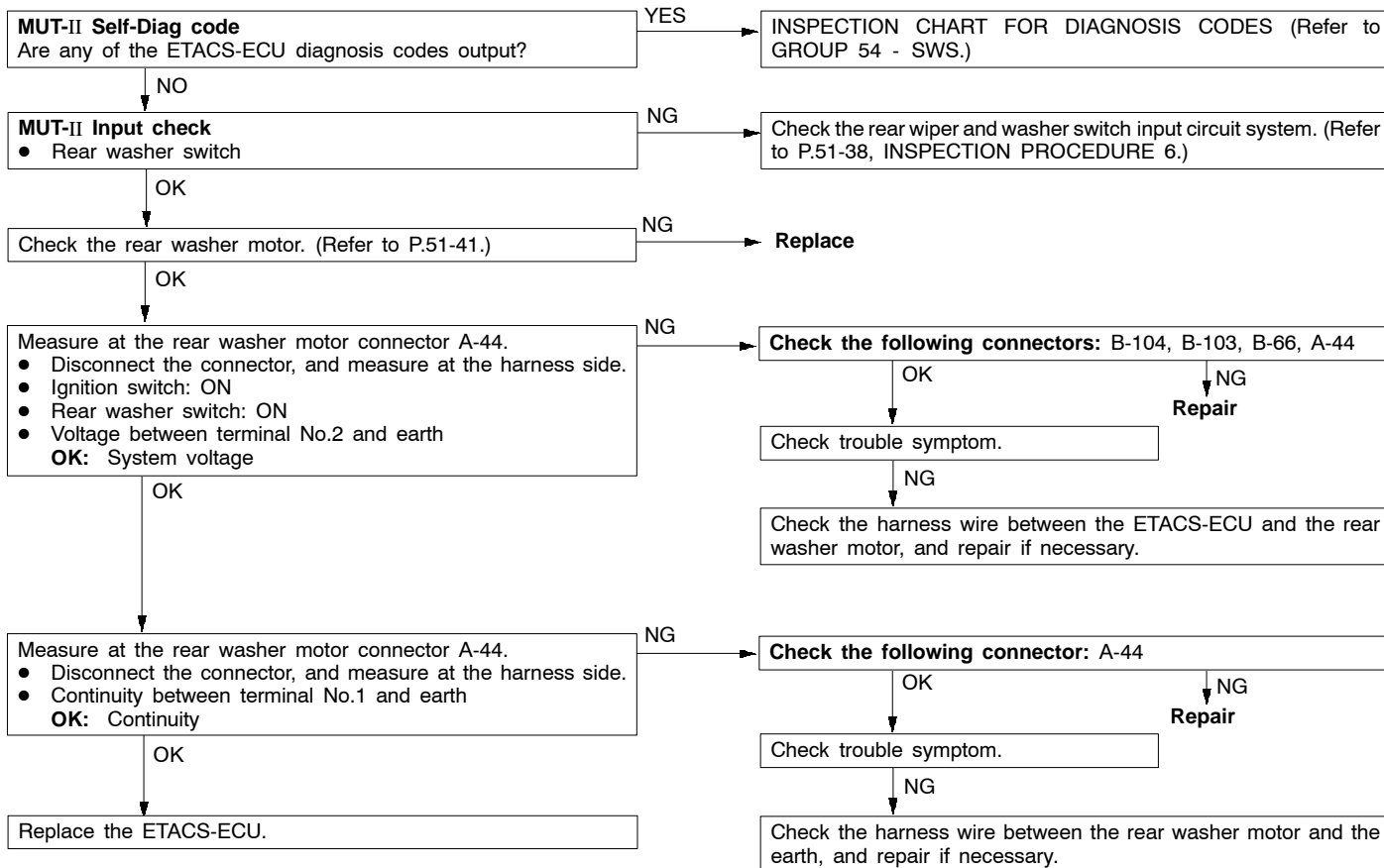
Inspection Procedure 3

When the wiper switch is turned off, the wiper does not stop.	Probable cause
There can be a short circuit in harness or the rear wiper motor, a malfunction of the column switch or the ETACS-ECU.	<ul style="list-style-type: none"> ● Malfunction of rear wiper motor ● Malfunction of wiring harness or connector ● Malfunction of column switch ● Malfunction of ETACS-ECU



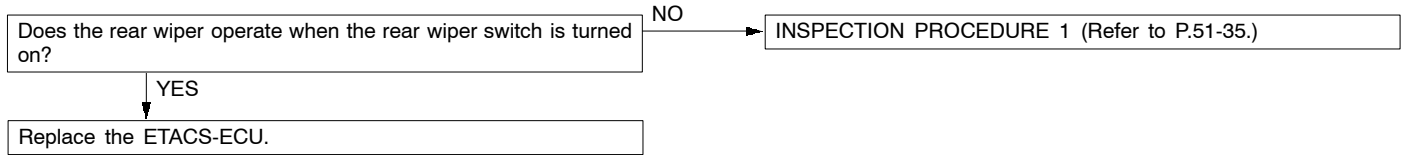
Inspection Procedure 4

When the wiper switch is turned on, the washer does not operate.	Probable cause
The cause may be a malfunction of the rear washer switch input circuit, harness or connector, rear washer motor, or ETACS-ECU.	<ul style="list-style-type: none"> ● Malfunction of column switch ● Malfunction of rear washer motor ● Malfunction of wiring harness or connector ● Malfunction of ETACS-ECU



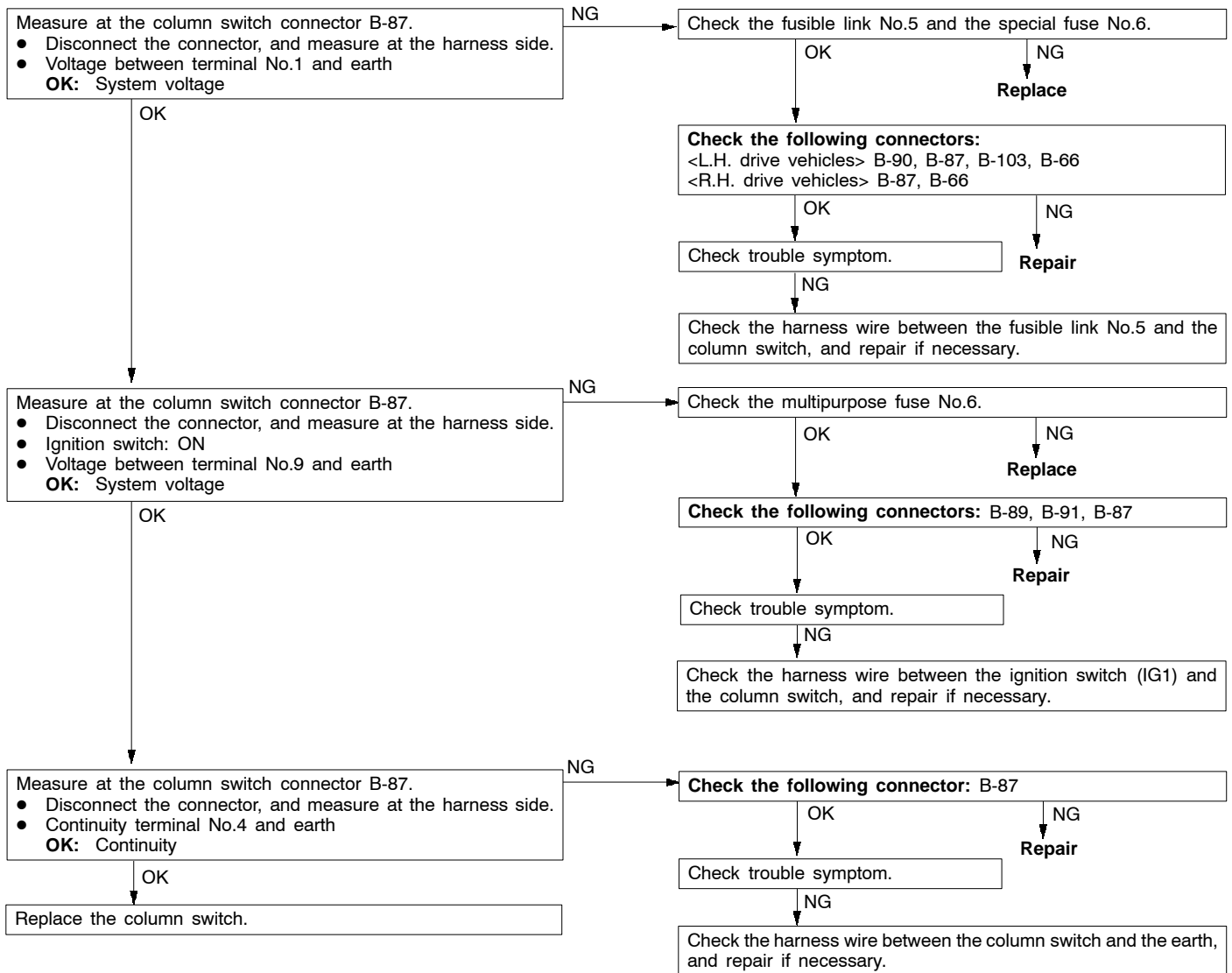
Inspection Procedure 5

When the washer switch is turned on for 0.3 seconds or more, the wiper does not operate.	Probable cause
The cause may be a malfunction of the rear wiper motor, harness or connector, or ETACS-ECU.	<ul style="list-style-type: none"> ● Malfunction of rear wiper motor ● Malfunction of wiring harness or connector ● Malfunction of ETACS-ECU



Inspection Procedure 6

Rear wiper and washer switch input circuit check

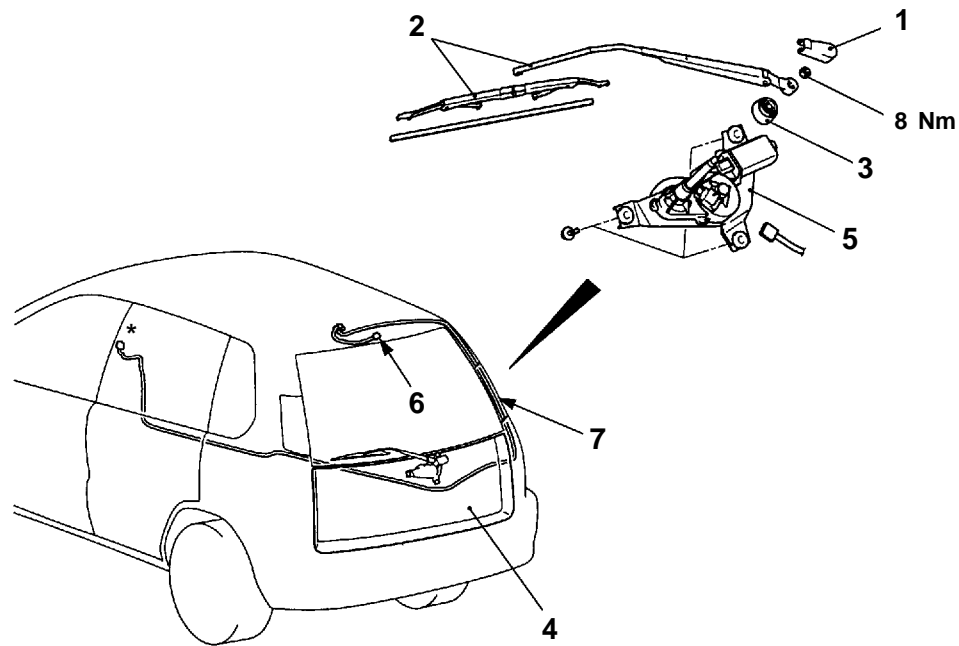


REAR WIPER AND WASHER

51100880028

REMOVAL AND INSTALLATION

<SPACE RUNNER>



AV1078AE

Wiper motor assembly removal steps

1. Cover
2. Wiper arm and blade
3. Grommet
4. Tailgate trim and waterproof film (Refer to GROUP 42.)
5. Wiper motor assembly

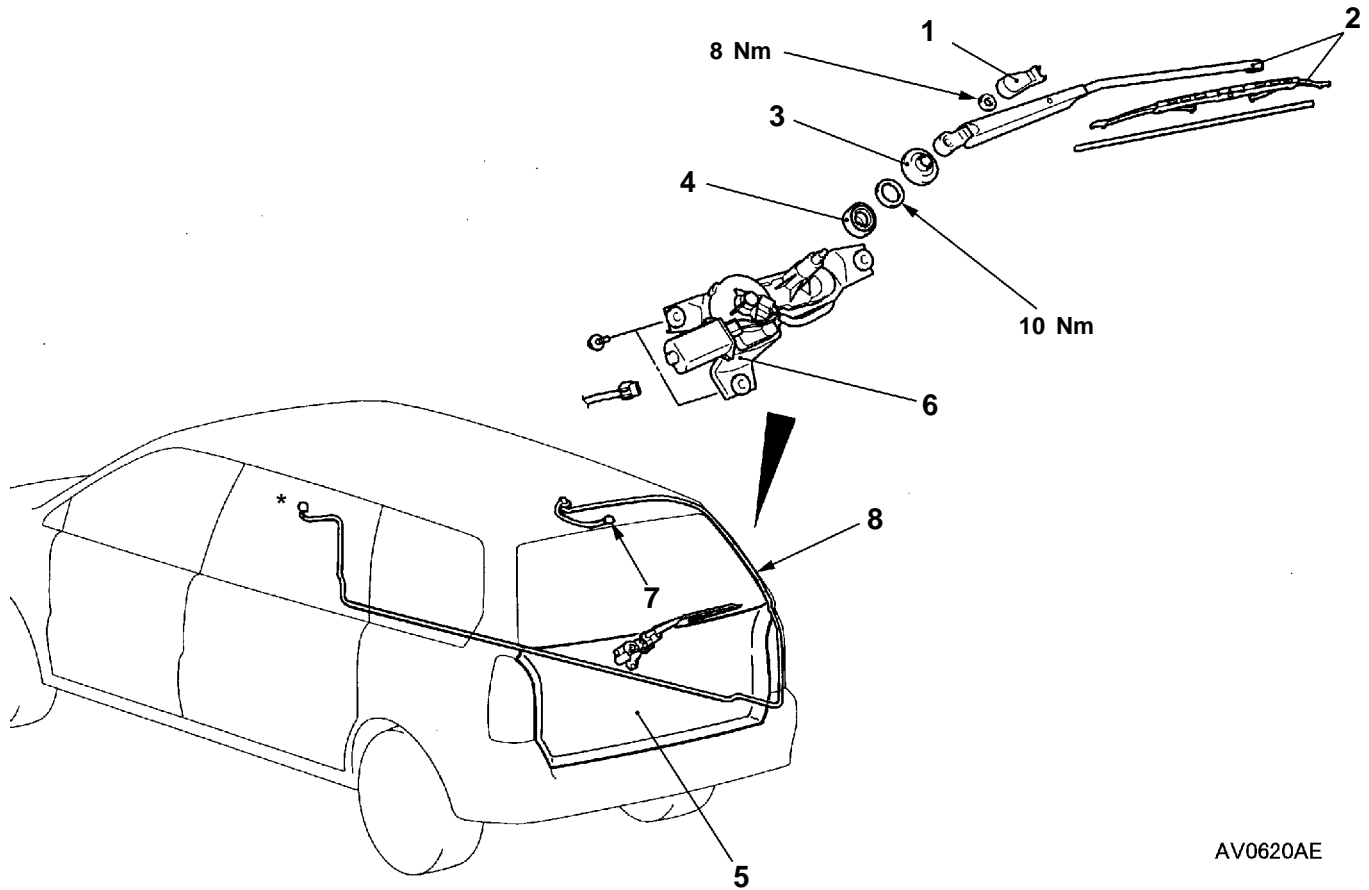
Rear washer hose removal steps

- Scuff plate, quarter trim (Refer to GROUP 52A.)
- Front seat and rear seat (Refer to GROUP 52A)
- 6. Washer nozzle
- 7. Washer hose

NOTE

1. *: To washer tank assembly (Refer to P.51-30.)
2. For removal and installation of the column switch assembly (wiper and washer switch), refer to GROUP 37A - Steering Wheel and Shaft.

<SPACE WAGON>



AV0620AE

Wiper motor assembly removal steps

1. Cover
2. Wiper arm and blade assembly
3. Cover
4. Packing and washer
5. Tailgate trim (Refer to GROUP 42.)
6. Wiper motor assembly

Rear washer hose removal steps

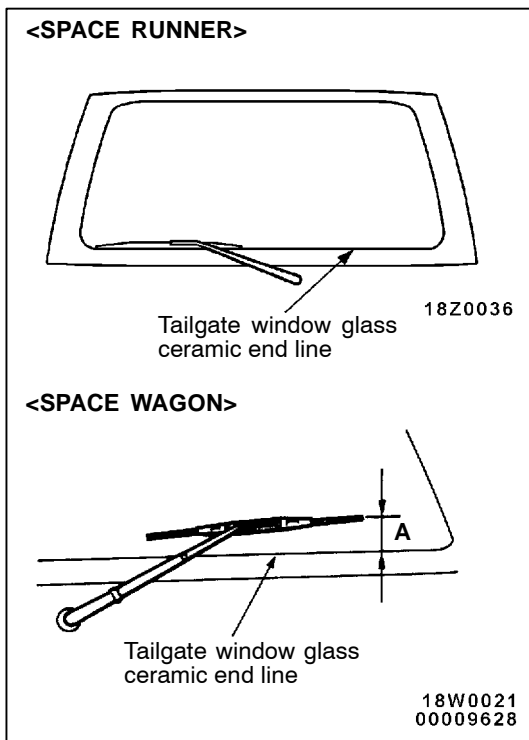
- Scuff plate and quarter trim (Refer to GROUP 52A.)
- Front seat and rear seat (Refer to GROUP 52A)
- 7. Washer nozzle
- 8. Washer hose

NOTE

1. *: To washer tank assembly (Refer to P.51-30.)
2. For removal and installation of the column switch assembly (wiper and washer switch), refer to GROUP 37A - Steering Wheel and Shaft.

REMOVAL SERVICE POINT**◀A▶ WIPER ARM AND BLADE ASSEMBLY REMOVAL**

Remove the wiper arm and blade from the shaft while the wiper arm is raised.



INSTALLATION SERVICE POINT

▶A◀ WIPER ARM AND BLADE ASSEMBLY INSTALLATION

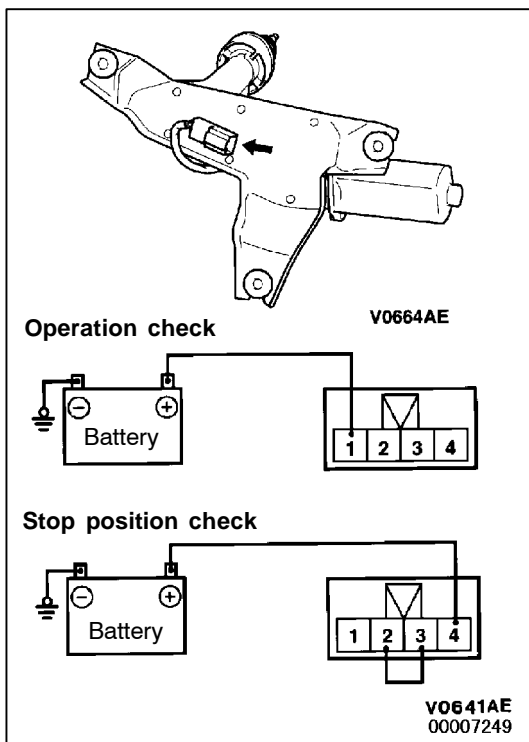
<SPACE RUNNER>

Install so that the wiper blade is positioned at the tailgate window glass ceramic end line when the wiper arm stops.

<SPACE WAGON>

Install so that the wiper blade is positioned at the shown position away from the tailgate window glass ceramic end line when the wiper arm stops.

Standard value (A): 43 ± 5 mm



INSPECTION

51100950026

WIPER MOTOR CHECK

51101290103

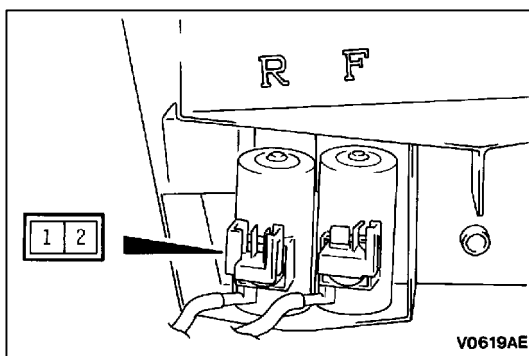
Disconnect the wiring harness connector, and check the wiper motor operation with the wiper motor remaining installed to the body.

Wiper Motor Operation

Connect a battery to the wiper motor as shown in the illustration and check the motor operation.

Wiper Motor Stop Position

1. Run the wiper motor, and then disconnect the battery to stop the motor.
2. Reconnect the battery as shown in the illustration, and confirm that after the motor starts turning, it stops at the automatic stop position.



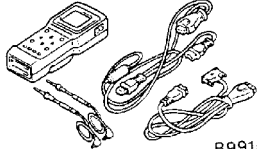
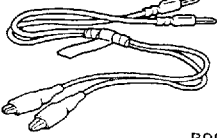
WASHER MOTOR CHECK

51101310014

1. With the washer motor installed to the washer tank, fill the washer tank with water.
2. Check that the water squirts out strongly when battery voltage is applied to terminal 2 and terminal 1 is earthed.

HEADLAMP WASHER

SPECIAL TOOLS

Tool	Number	Name	Use
 B991502	MB991502	MUT-II sub assembly	<ul style="list-style-type: none"> • Diagnosis code check • ETACS-ECU input signal check
 B991529	MB991529	Diagnosis code check harness	<ul style="list-style-type: none"> • Diagnosis code check • ETACS-ECU input signal check by using a voltmeter

TROUBLESHOOTING

DIAGNOSIS FUNCTION

INPUT SIGNAL INSPECTION PROCEDURE <VEHICLES WITH ETACS-ECU>

1. Connect the MUT-II or a voltmeter to the diagnosis connector to check input signal. (Refer to GROUP 00 - How to Use Troubleshooting/Inspection Service Points.)
2. The headlamp washer switch input signal can be checked:

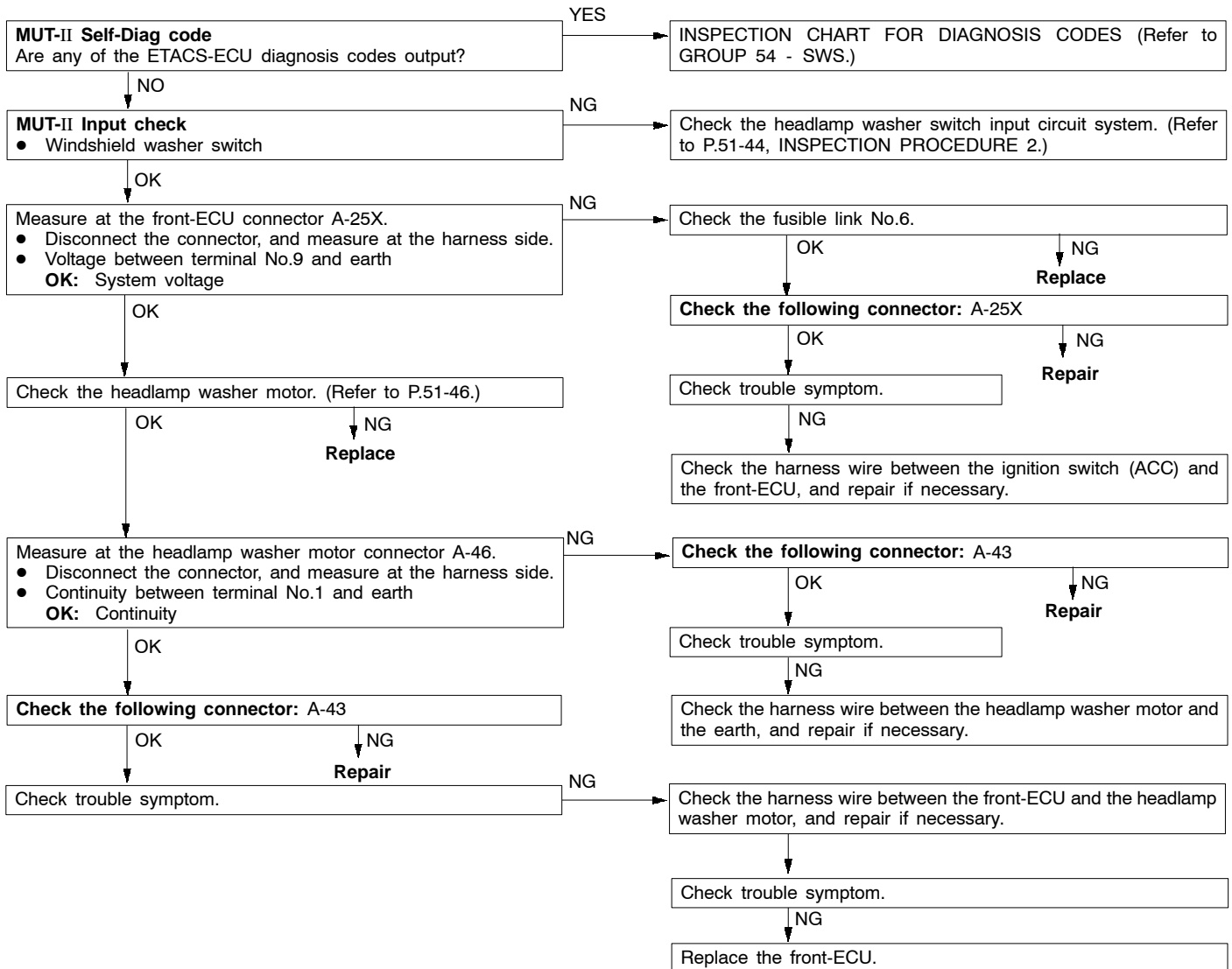
INSPECTION CHART FOR TROUBLE SYMPTOMS

Trouble symptom	Inspection procedure	Reference page
Communication with MUT-II is not possible.	Refer to GROUP 54 - SWS.	
Headlamp washer does not operate when the headlamp washer switch is turned on (when headlamp is illuminated).	1	51-43

INSPECTION PROCEDURE FOR TROUBLE SYMPTOMS

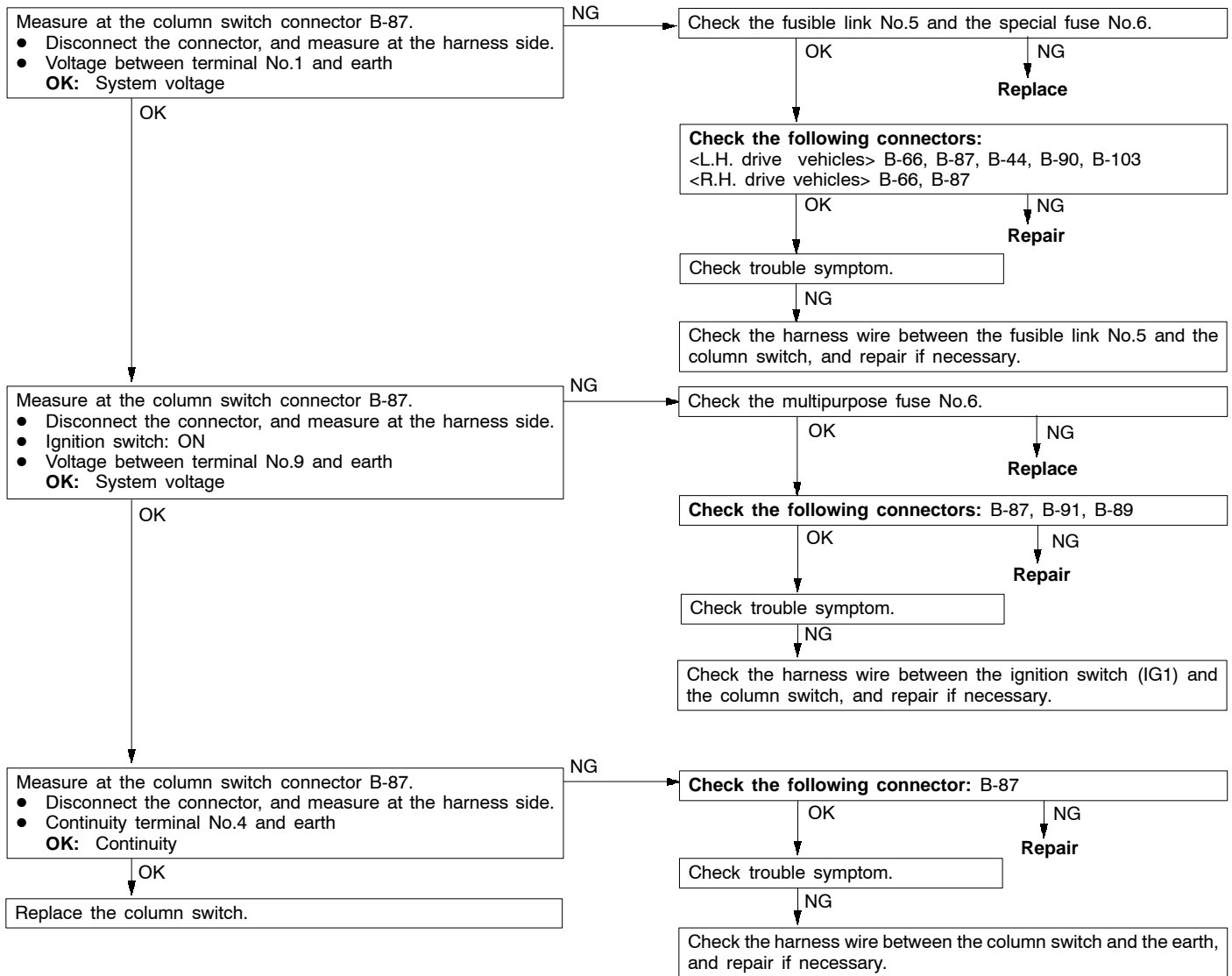
Inspection Procedure 1

<p>Headlamp washer does not operate when the headlamp washer switch is turned on (when headlamp is illuminated).</p>	<p>Probable cause</p>
<p>The cause may be a malfunction of the headlamp washer switch input circuit, wiring harness or connector, headlamp washer motor and of the front-ECU.</p>	<ul style="list-style-type: none"> ● Malfunction of column switch ● Malfunction of wiring harness or connector ● Malfunction of headlamp washer motor ● Malfunction of front-ECU



Inspection Procedure 2

Headlamp washer switch input circuit system check

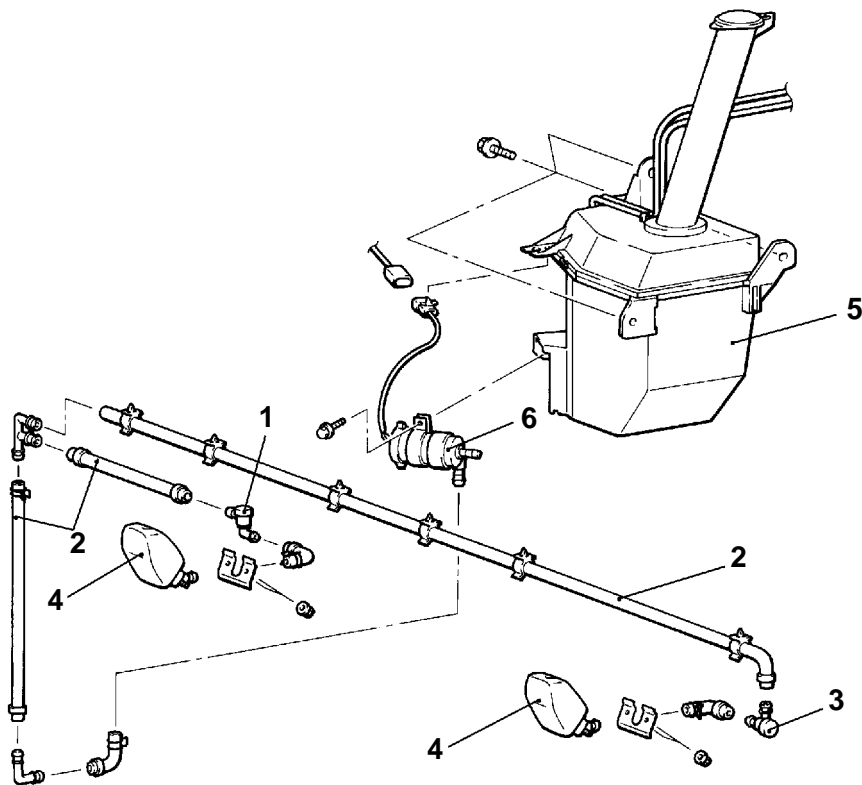


HEADLAMP WASHER

51100970107

REMOVAL AND INSTALLATION**Caution: SRS**

Before removal of air bag module and clock spring, refer to GROUP 52B - SRS Service Precautions and Air Bag Module and Clock Spring.



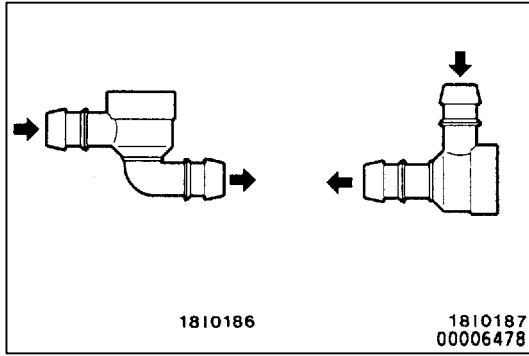
AW0511AE

Nozzle and check valve removal steps

- Draining of washer fluid
- Front bumper (Refer to P.51-3.)
- 1. Check valve
- 2. Washer hose assembly
- 3. Bracket
- 4. Nozzle

Washer tank removal steps

- Draining of washer fluid
- Front bumper (Refer to P.51-3.)
- 5. Washer tank assembly
- 6. Headlamp washer motor

**INSPECTION**

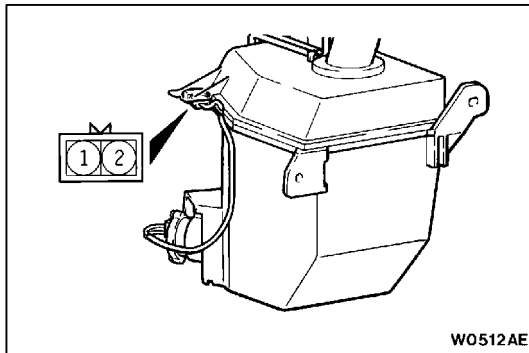
51101320055

CHECK VALVE CHECK

51101330058

Apply pressure to the inlet of the check valve to check its opening pressure.

Opening pressure: 78 kPa

**HEADLAMP WASHER MOTOR CHECK**

51101340051

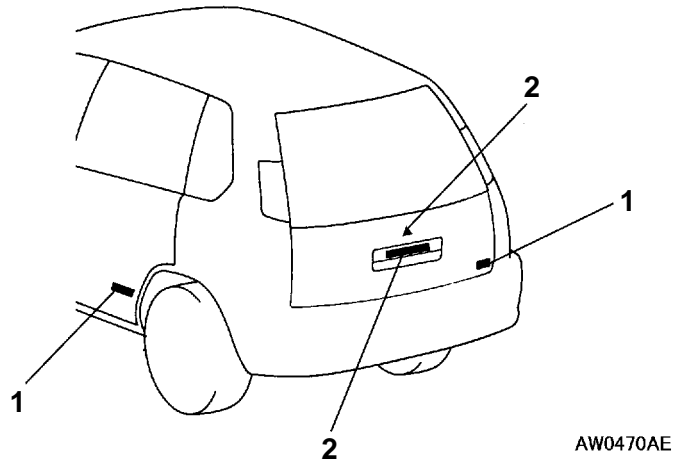
1. With the washer motor installed to the washer tank, fill the washer tank with water.
2. Connect battery (+) and (-) cables to terminals (2) and (1) respectively to see that the washer motor runs and water is injected.

MARKS

51101180110

<SPACE RUNNER>

REMOVAL AND INSTALLATION



AW0470AE

- ▶A◀ 1. "GDI" mark
 ▶A◀ 2. THREE DIAMOND and "SPACE RUNNER" mark

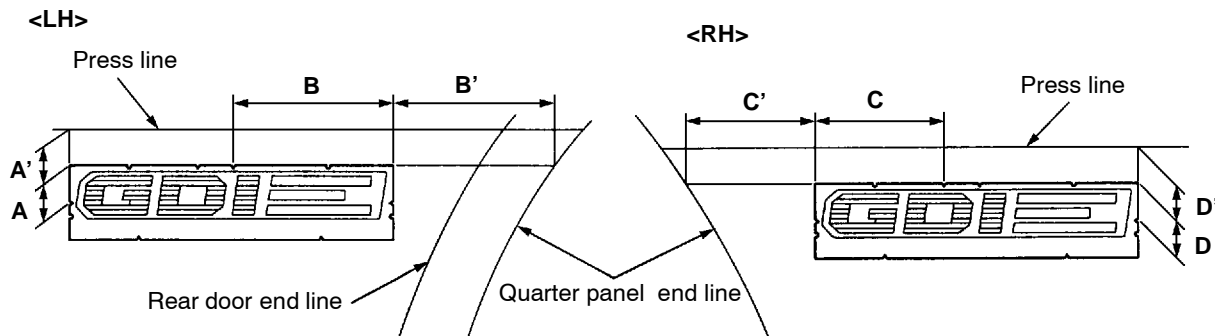
INSTALLATION SERVICE POINT

▶A◀ INSTALLATION OF MARKS

1. APPLICATION POSITION

Dimensions A, B, C and D (dimension from corner of mark to notch on mark) are equal to dimensions A', B', C' and D' (dimension from installation reference point to corner of mark) respectively. Install the mark so that the dimensions A, B, C and D are equal to the dimensions A', B', C' and D'.

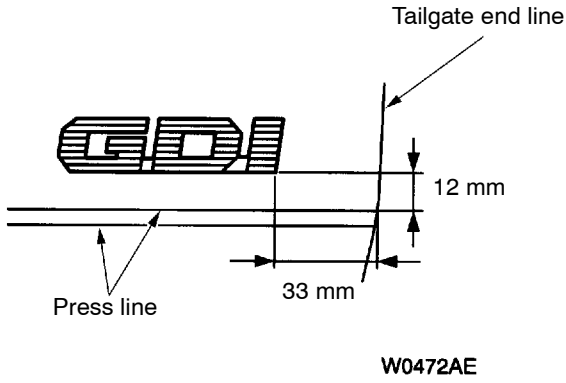
(1) "GDI" mark



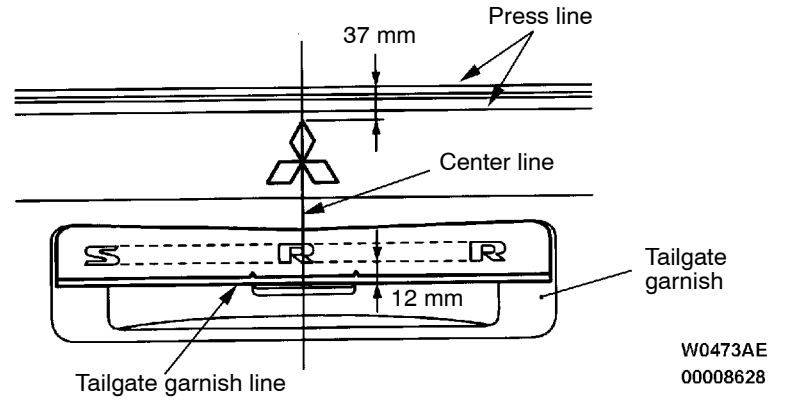
V1001AE

V1002AE
00007458

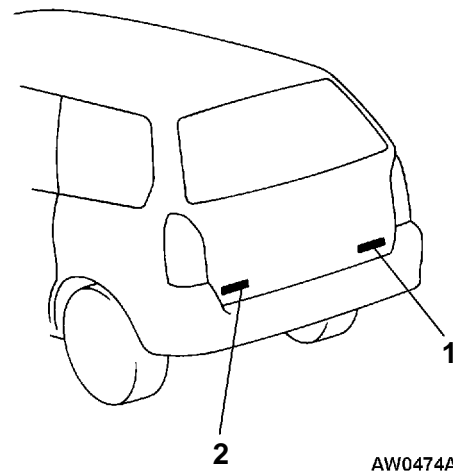
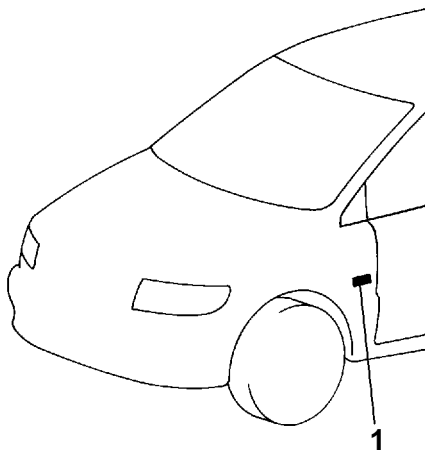
(1) "GDI" mark



(2) THREE DIAMOND and "SPACE RUNNER" mark



<SPACE WAGON>
REMOVAL AND INSTALLATION



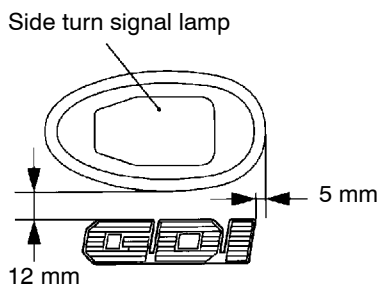
- ▶▶A 1. "GDI" mark
- ▶▶A 2. "MITSUBISHI" and "4 X 4" mark

INSTALLATION SERVICE POINT

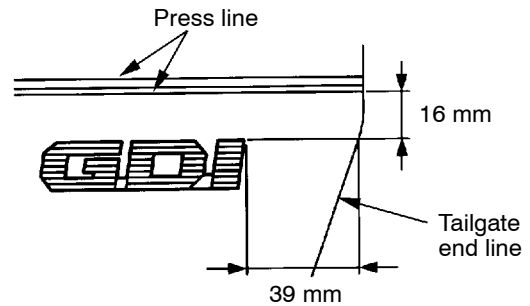
▶A◀ INSTALLATION OF MARKS

1. APPLICATION POSITION

(1) "GDI" mark

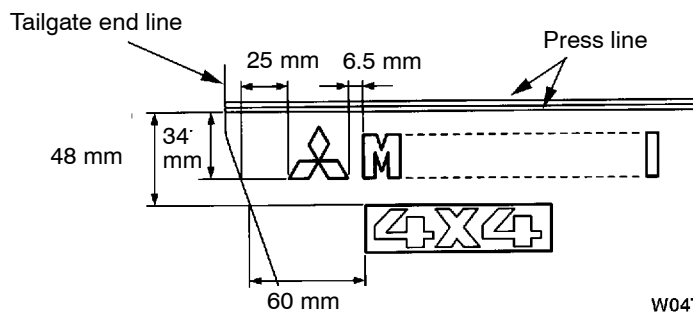


V0647AE



W0475AE

(2) "MITSUBISHI" and "4 X 4" mark

W0476AE
00008629

2. INSTALLATION PROCEDURE

- (1) Clean the mark installation surfaces on the body with unleaded petrol.
- (2) Peel off the backing paper from the reverse side of the marks, and then attach the marks to the vehicle body so that they fit properly into position.

Caution

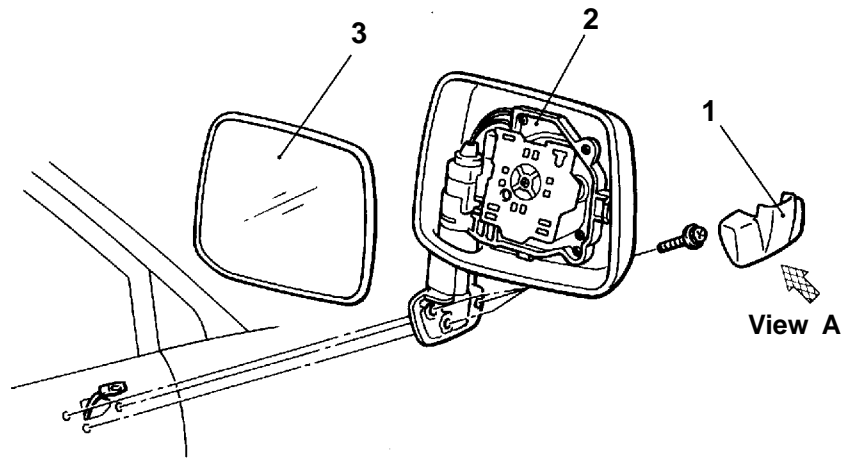
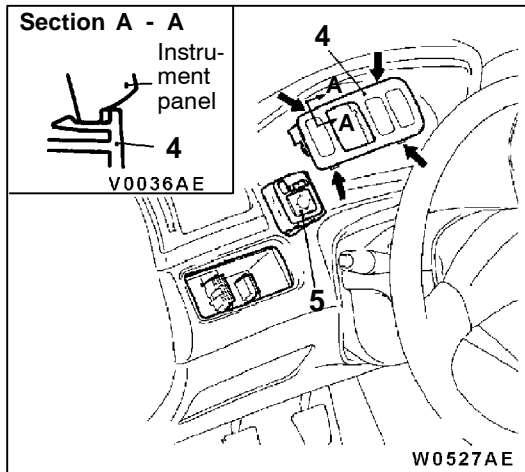
When attaching the marks, the surrounding temperature should be 20-38°C and the air should be completely free from dust.

If the surrounding temperature is lower than 20°C, the marks and the places on the body where the marks are to be attached should be heated to 20-38°C.

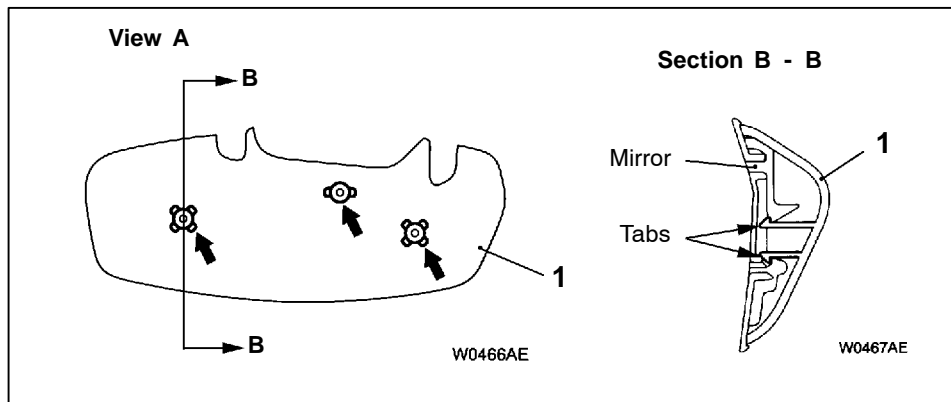
DOOR MIRROR

51100640121

REMOVAL AND INSTALLATION



V0654AE
00009625



NOTE
← : tab positions

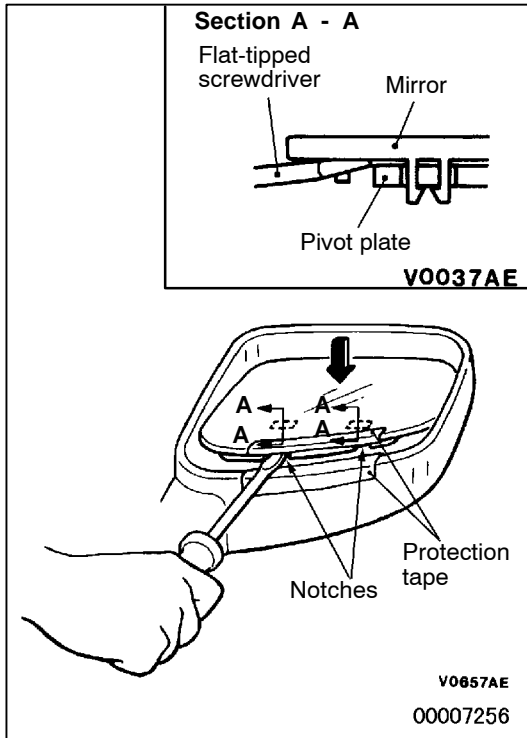
Door mirror removal steps

1. Base cover
2. Door mirror
3. Mirror



Electronically remote-controlled mirror switch removal steps

4. Switch panel
5. Electronically remote-controlled mirror switch

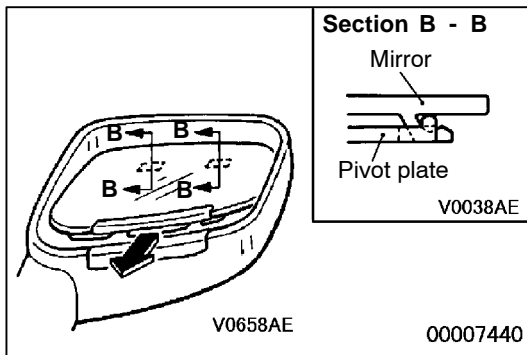


REMOVAL SERVICE POINT

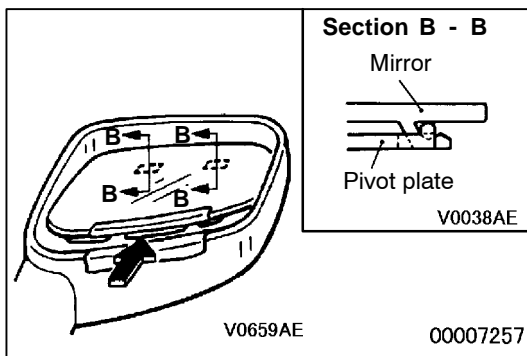
spot=RA ◀A▶

MIRROR REMOVAL

1. Using a hand, push the upper part of mirror to tilt it. Apply a protection tape as shown in the illustration. Insert a flat-tipped screwdriver between a notch behind the mirror and the pivot plate, and then pry off the lower part of mirror from the pivot plate.



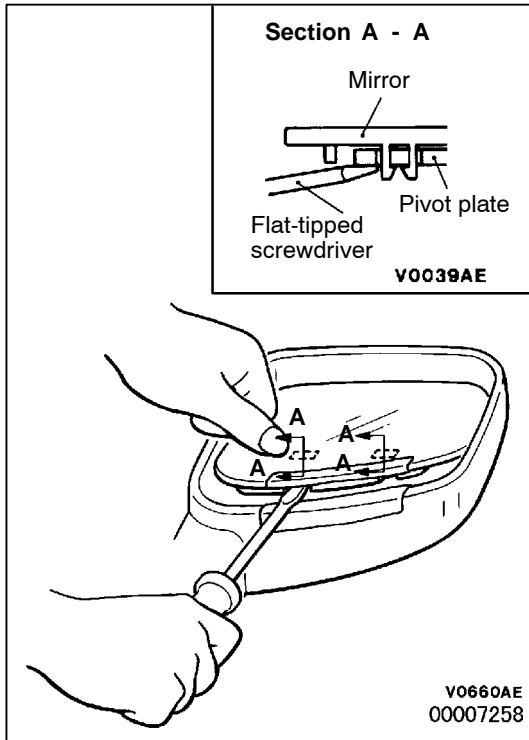
2. Pull the mirror toward you to remove it from the pivot plate.



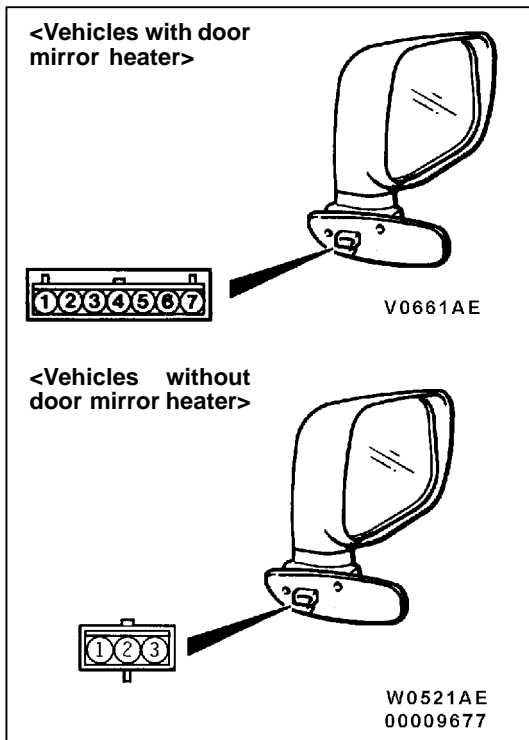
INSTALLATION SERVICE POINT

▶A◀ **MIRROR INSTALLATION**

1. Push the mirror to engage its upper part with the pivot plate.



2. While holding the pivot plate with a flat-tipped screwdriver, push the mirror to engage the clips at its lower part with the pivot plate.



INSPECTION

51100650100

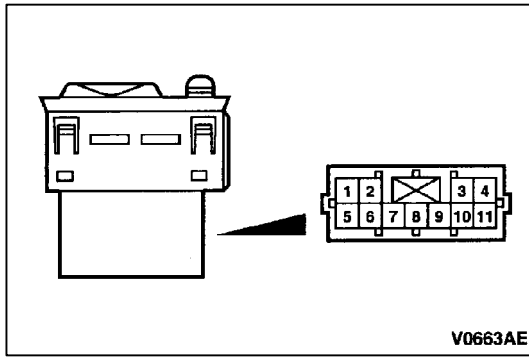
ELECTRONICALLY REMOTE-CONTROLLED MIRROR CHECK

<Vehicles with door mirror heater>

Battery connection terminal			Direction of operation
3	4	5	
⊖		⊕	UP
⊕		⊖	DOWN
⊕	⊖		LEFT
⊖	⊕		RIGHT

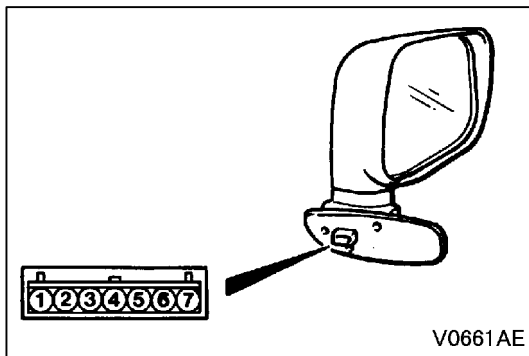
<Vehicles without door mirror heater>

Battery connection terminal			Direction of operation
1	2	3	
⊖		⊕	UP
⊕		⊖	DOWN
⊕	⊖		LEFT
⊖	⊕		RIGHT



ELECTRONICALLY REMOTE-CONTROLLED MIRROR SWITCH CONTINUITY CHECK

Switch	Switch position	Terminal No.										5	8
		Left mirror					Right mirror						
		1	6	9	10	11	1	2	3	6	9		
Adjustment switch	UP	○—○		○—○			○—○		○—○	○—○			
	DOWN	○—○		○—○			○—○		○—○	○—○			
	LEFT	○—○		○—○			○—○		○—○	○—○			
	RIGHT	○—○		○—○			○—○		○—○	○—○			
Illumination													○—○



DOOR MIRROR PRINTED HEATING WIRE CHECK

Check that there is continuity between the terminal No.1 and the terminal No.2.

NOTES