GROUP 51

EXTERIOR

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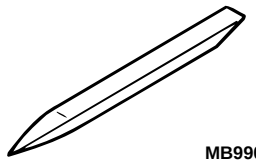
FRONT BUMPER ASSEMBLY

SPECIAL TOOL

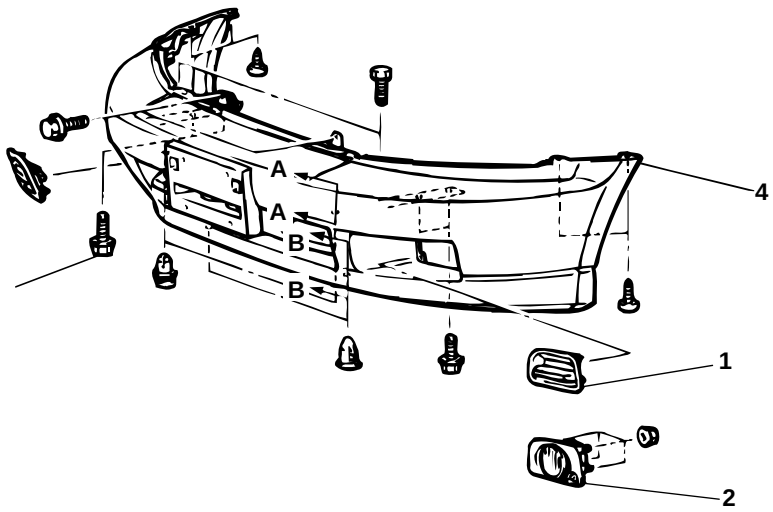
M1511000600337

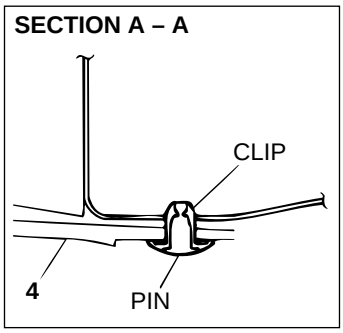
TOOL	TOOL NUMBER AND NAME	REPLACED BY MILLER TOOL NUMBER	APPLICATION
 MB990784	MB990784 Ornament remover	General service tool	Removal of clip

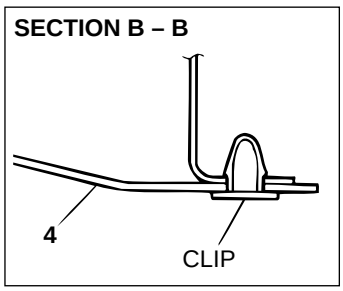
REMOVAL AND INSTALLATION

M1511001400109

Pre-removal and Post-installation Operation
- Splash Shield Removal and Installation (Refer to GROUP 42,Fender P.42-7.)
- Radiator Grille Removal and Installation (Refer to P.51-7.)







AC000651AB

REMOVAL STEPS
1. FOG LIGHT HOLE COVER
2. FRONT FOG LIGHT ASSEMBLY
3. BOLT
4. FRONT BUMPER ASSEMBLY

Required Special Tool:
- MB990784: Ornament Remover

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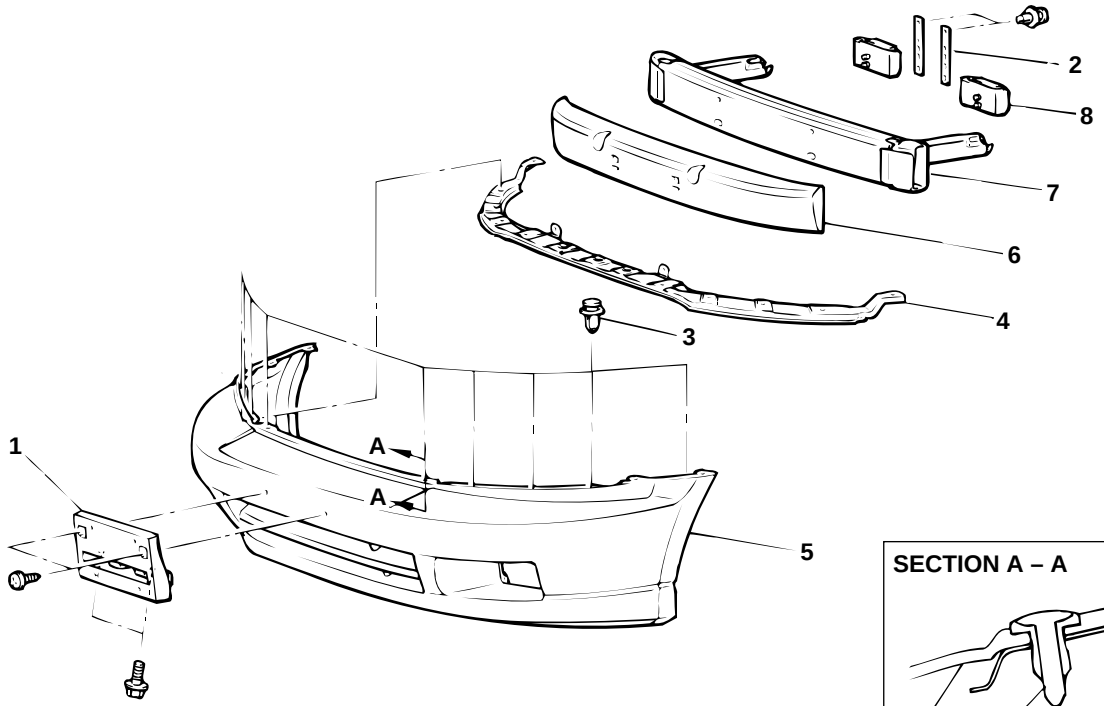
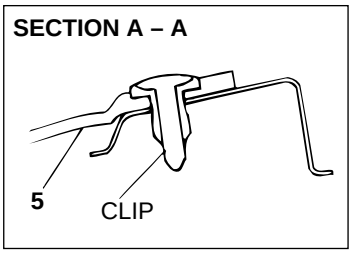
DISASSEMBLY AND ASSEMBLY

M1511001600103





AC000652AB

DISASSEMBLY STEPS

1. LICENSE PLATE GARNISH
2. REAR PLATE REINFORCEMENT ASSEMBLY

<<A>>

3. CLIP
4. FRONT BUMPER UPPER REINFORCEMENT
5. FRONT BUMPER FACE
6. FRONT BUMPER CORE

DISASSEMBLY STEPS (Continued)

7. FRONT BUMPER REINFORCEMENT
8. DYNAMIC DAMPER

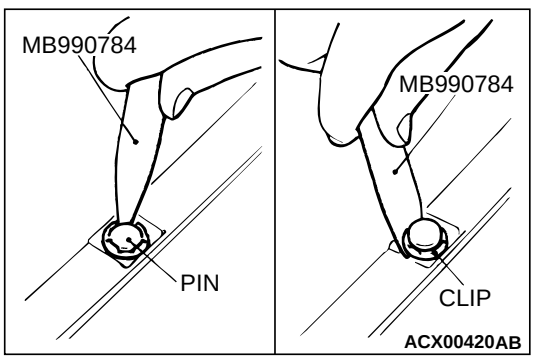
Required Special Tool:

- MB990784: Ornament Remover

DISASSEMBLY SERVICE POINT

<<A>> CLIP REMOVAL

1. Use special tool MB990784 to pull up the center pin in the clip.
2. Remove the clip.



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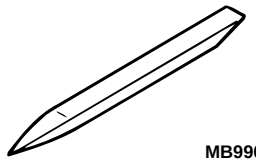
REAR BUMPER ASSEMBLY

SPECIAL TOOL

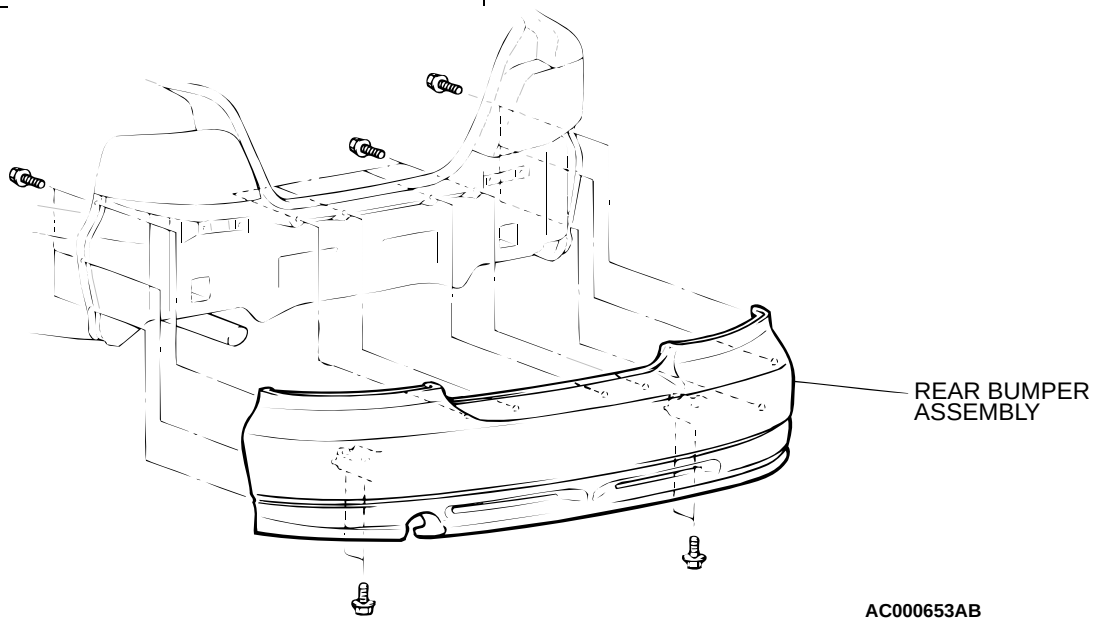
M1511000600359

TOOL	TOOL NUMBER AND NAME	REPLACED BY MILLER TOOL NUMBER	APPLICATION
 MB990784	MB990784 Ornament remover	General service tool	Removal of clip

REMOVAL AND INSTALLATION

M1511001900096

Pre-removal and Post-installation Operation
- Trunk Trim Assembly, Rear End Trim Cover Removal and Installation (Refer to GROUP 52A, Trims P.52A-12.)



Required Special Tool:
- MB990784: Ornament Remover

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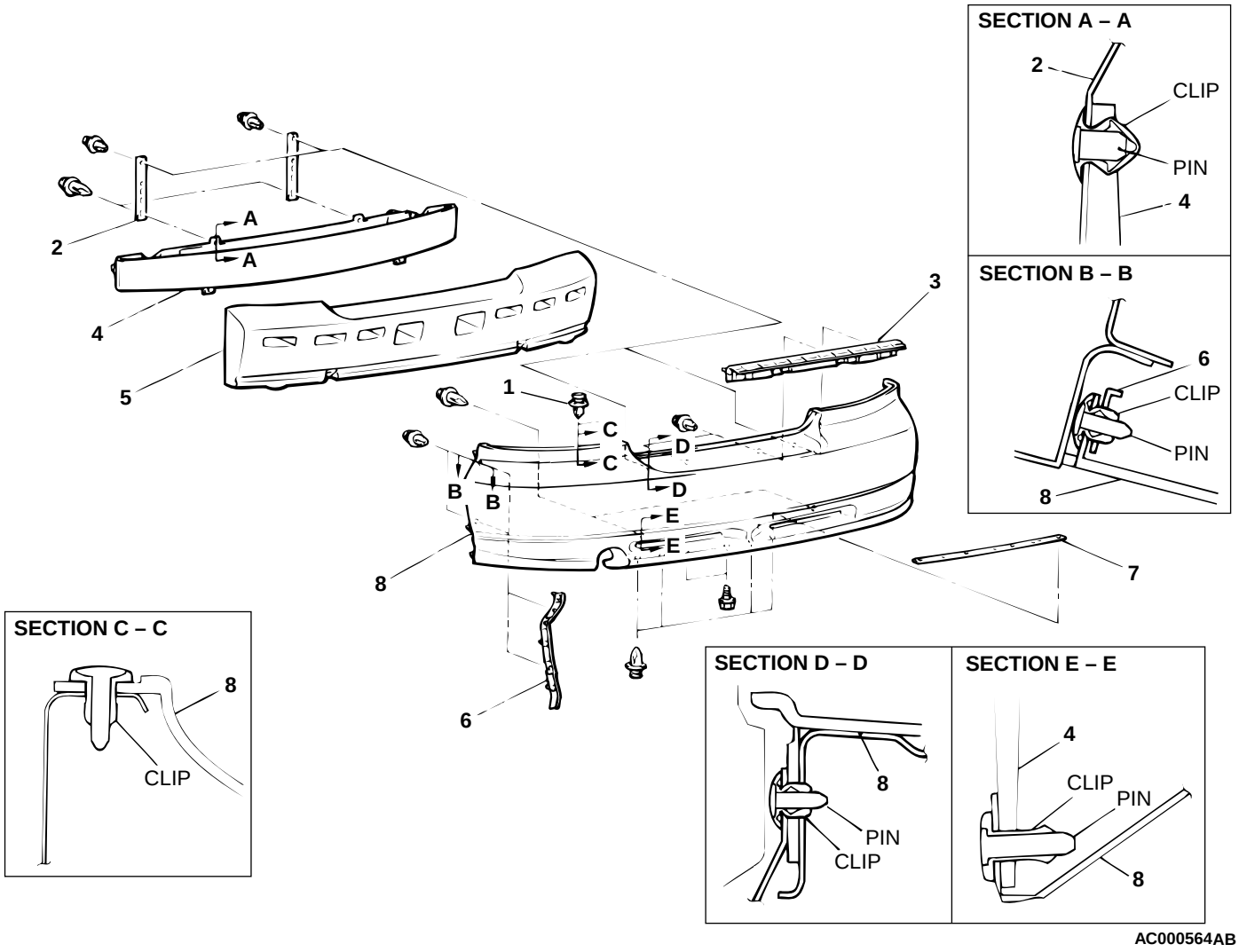
DISASSEMBLY AND ASSEMBLY

M1511002100093



AC000564AB

DISASSEMBLY STEPS

<<A>>
1. CLIP
2. REAR PLATE REINFORCEMENT ASSEMBLY
3. REAR BUMPER UPPER REINFORCEMENT
4. REAR BUMPER REINFORCEMENT
5. FRONT BUMPER CORE

DISASSEMBLY STEPS (Continued)

6. SIDE PLATE
7. REAR BUMPER LOWER PLATE
8. REAR BUMPER FACE

Required Special Tool:

- MB990784: Ornament Remover

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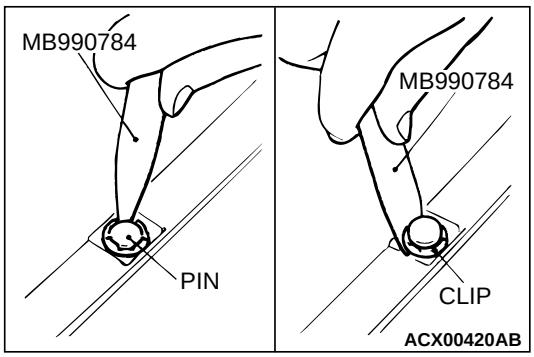


DISASSEMBLY SERVICE POINT

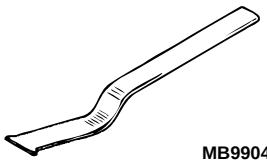
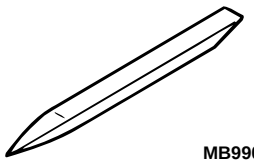
<<A>> CLIP REMOVAL

1. Use special tool MB990784 to pull up the center pin in the clip.
2. Remove the clip.

GRILLES AND GARNISHES

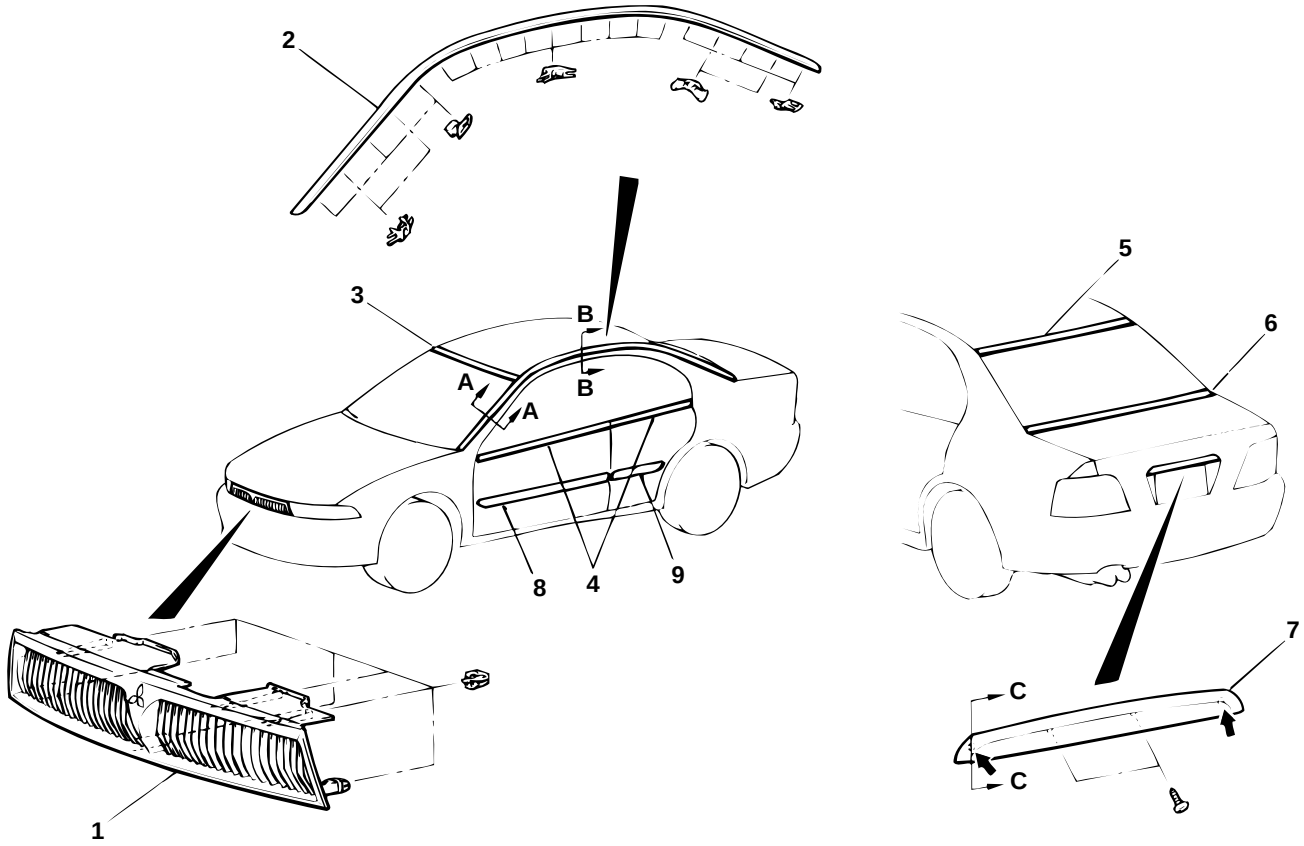
SPECIAL TOOLS

M1511000600360

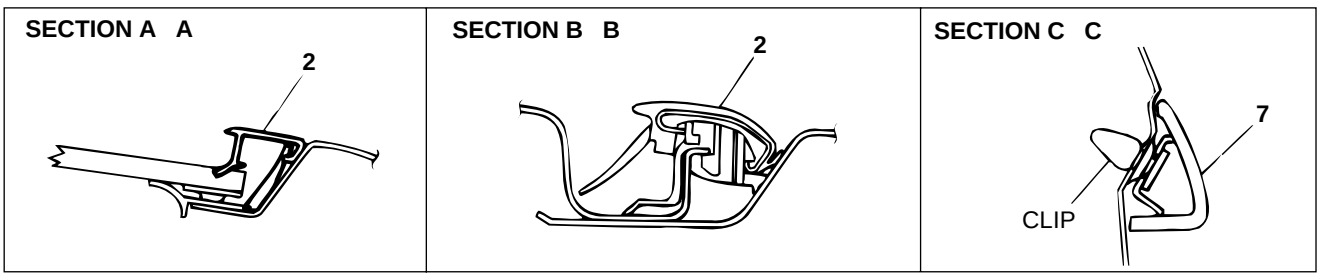
TOOL	TOOL NUMBER AND NAME	REPLACED BY MILLER TOOL NUMBER	APPLICATION
 MB990449	MB990449 Window molding remover	General service tool	Removal of roof drip molding
 MB990784	MB990784 Ornament remover	General service tool	Removal of clip

REMOVAL AND INSTALLATION

M1511003500038



NOTE
⬅ : CLIP POSITION



AC000655AB

REMOVAL STEPS

<<A>>
1. RADIATOR GRILLE

<<B>> >>B<<
2. ROOF DRIP MOLDING
3. WINDSHIELD UPPER MOLDING (REFER TO GROUP 42, WINDSHIELD P.42-10.)
4. BELT LINE MOLDING (REFER TO GROUP 42 P.42-61.)
5. REAR WINDOW MOLDING, UPPER (REFER TO GROUP 42, REAR WINDOW GLASS P.42-16.)

REMOVAL STEPS (Continued)

6. REAR WINDOW MOLDING, LOWER (REFER TO GROUP 42, REAR WINDOW GLASS P.42-16.)
7. LICENSE PLATE LIGHT GARNISH

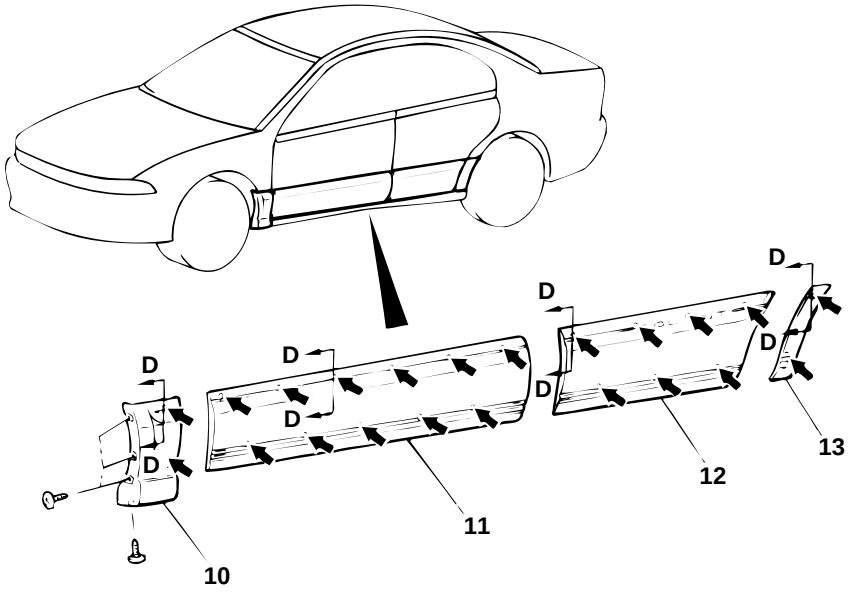
<<C>> >>A<<
8. FRONT DOOR MOLDING ASSEMBLY

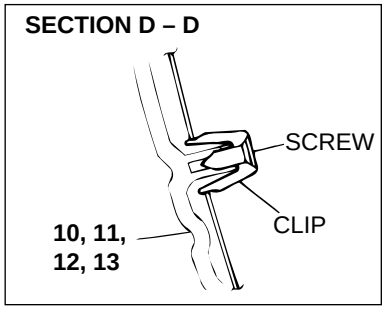
<<C>> >>A<<
9. REAR DOOR MOLDING ASSEMBLY

Required Special Tools:

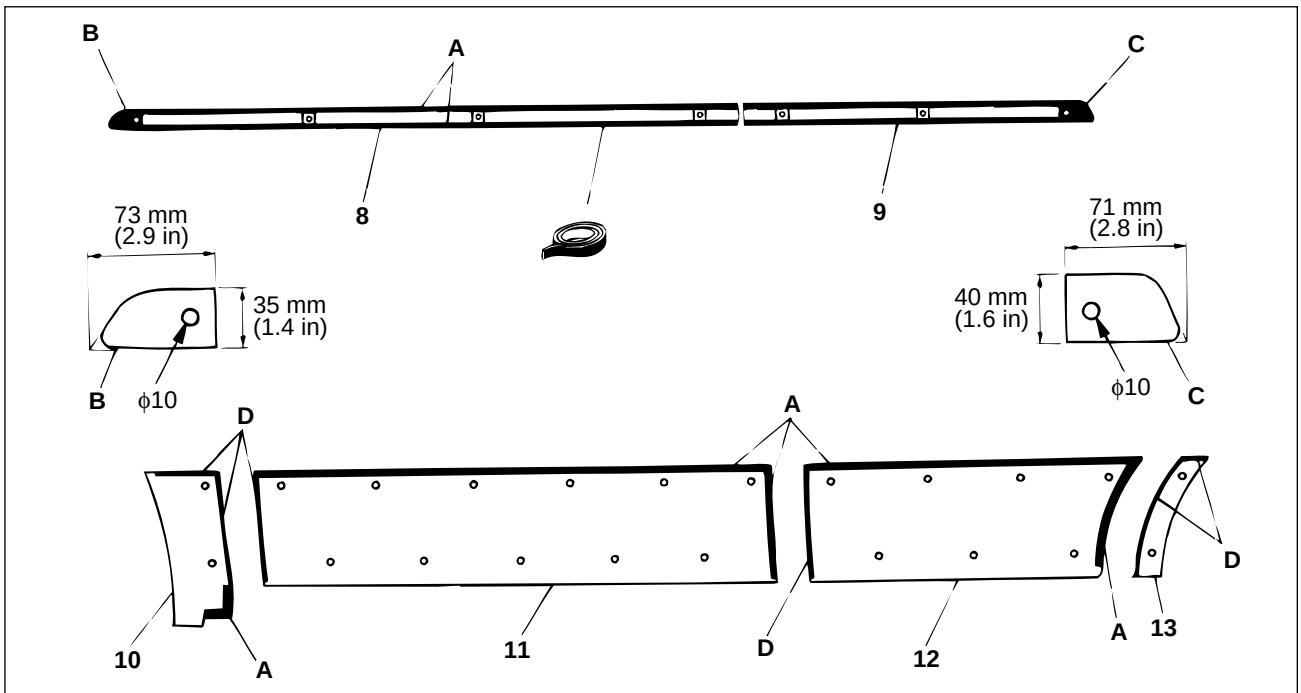
- MB990449: Window Molding Remover
- MB990784: Ornament Remover

TSB Revision





NOTE
◀: CLIP POSITION



Adhesive tape: Double-sided tape <A {10 mm (0.4 in) width and 0.8 mm (0.03 in) thickness} B,C {0.8 mm (0.03 in) thickness} D {5 mm (0.02 in) width and 0.8 mm (0.03 in) thicness}>

AC000656AB

REMOVAL STEPS

<<C>> >>A<< 10. FENDER GARNISH ASSEMBLY
<<C>> >>A<< 11. FRONT DOOR GARNISH ASSEMBLY
<<C>> >>A<< 12. REAR DOOR GARNISH ASSEMBLY
<<C>> >>A<< 13. QUARTER GARNISH ASSEMBLY

Required Special Tools:

- MB990449: Window Molding Remover
- MB990784: Ornament Remover

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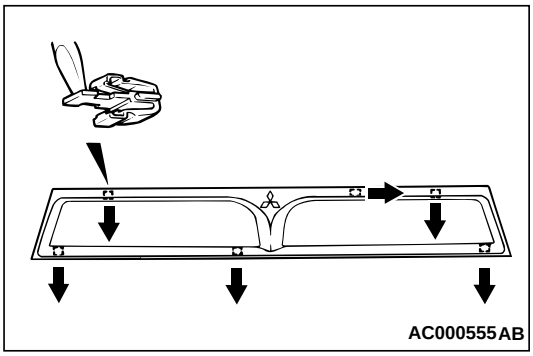
REMOVAL SERVICE POINT

<<A>> RADIATOR GRILLE REMOVAL



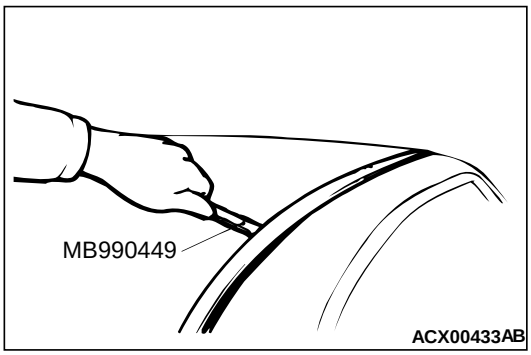
1. Remove the radiator grille by pushing its tab clips in the direction of the arrows with a flat-tipped screwdriver, while lightly pulling the radiator grille toward you.
2. Remove the clip used for mounting and still remaining on the body side. Mount it on the radiator grille

<<B>> ROOF DRIP MOLDING REMOVAL

⚠ CAUTION

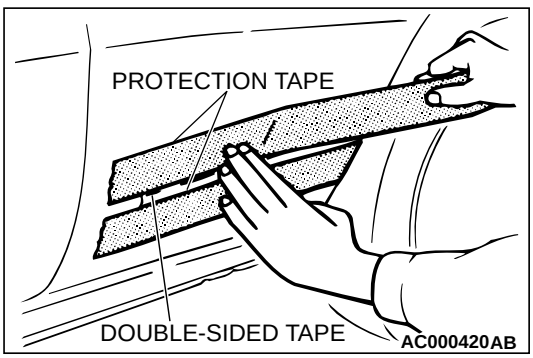
If the molding has become warped, it should not be re-used.

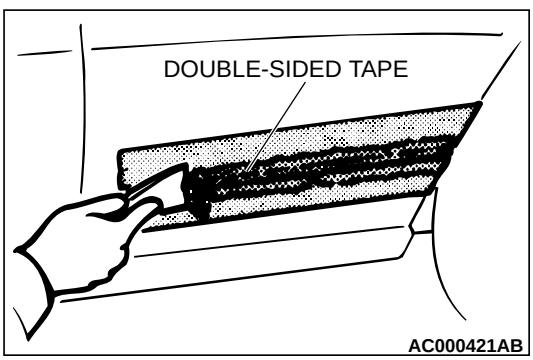
Use special tool MB990449 to lever out the molding.



<<C>> DOOR MOLDING/SIDE GARNISH 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.

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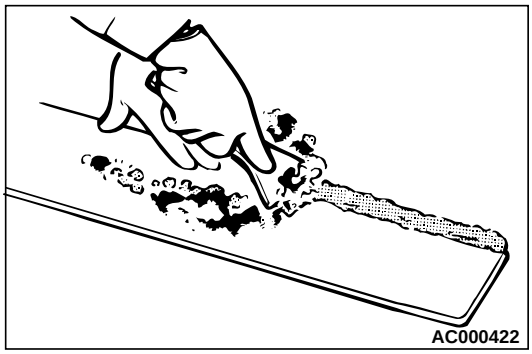
INSTALLATION SERVICE POINTS

>>A<< DOOR MOLDING/GARNISH INSTALLATION

Double-sided tape affixing to the door molding/garnish (When reusing)


AC000422

1. Scrape off the double-sided tape with a resin spatula or gasket scraper.
2. Use a shop towel moistened with 3M™ AAD Part number 8906 or equivalent to wipe the door molding/garnish surface.

⚠ CAUTION

Do not remove all of the residual adhesive.

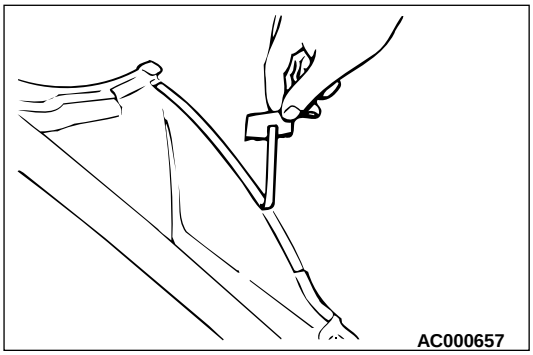
3. Remove only a small portion of the residual adhesive.

⚠ CAUTION

- **Always apply it evenly on the entire surface, because a lot or little will reduce its strength.**
- **Do not touch the painted surface.**

4. Affix the specified double-sided tape to the door molding/garnish. (Refer to P.51-8.)

DOOR MOULDING/GARNISH INSTALLATION


AC000657

1. Tear off the double-sided tape backing paper.

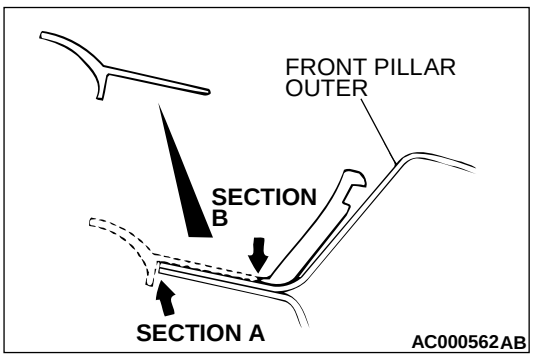
   NOTE: If you attach the adhesive tape to the edge of the backing paper, if will be easy to tear off.

2. Install the door molding/garnish.

   NOTE: If the double-sided tape is difficult to affix in cold temperature, etc., warm the bonding surfaces of the body and the door molding/garnish to about 40 - 60°C (104 - 140°F) before affixing the tape.

3. Firmly press in the door molding/garnish.

>>B<< ROOF DRIP MOLDING INSTALLATION

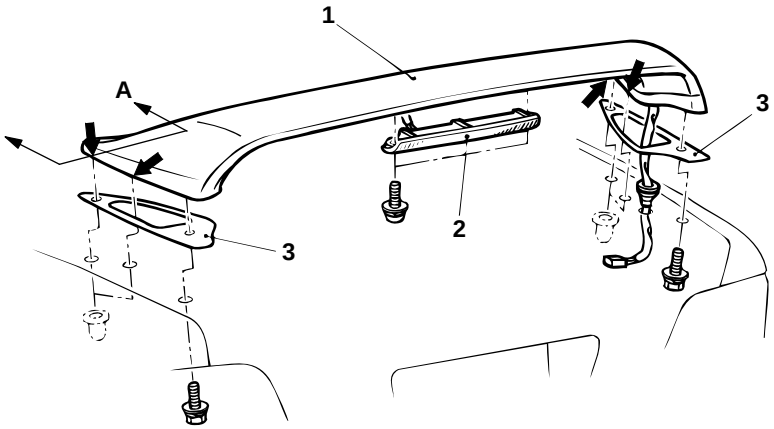


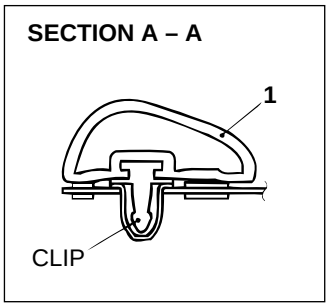
After installing the clip to the front pillar outer in alignment with its section A, cut from section B.

REAR SPOILER

REMOVAL AND INSTALLATION

M1511006100039





NOTE
⬅ : CLIP POSITION

AC000658AB

REMOVAL STEPS
1. REAR SPOILER ASSEMBLY

REMOVAL STEPS (Continued)
2. HIGH MOUNTED STOP LAMP ASSEMBLY (REFER TO GROUP 54AP.54A-79)
3. PACKING

WINDSHIELD WIPER AND WASHER

GENERAL DESCRIPTION

M1511000100149

OPERATION
WINDSHIELD WIPER AND WASHER

Low-speed (and high-speed) Wiper Operation
- If the wiper switch is turned to the "LO" position with the ignition switch at the "ACC" or "ON" position, the column switch sends a low-speed wiper ON and high-speed wiper OFF signals to the front-ECU. This turns the wiper signal on and the wiper speed switching relay off (low-speed), causing the wipers to operate at low-speed.
- If the wiper switch is turned to the "HI" position, the column switch sends a low-speed wiper OFF and high-speed wiper ON signals to the front-ECU. This turns both the wiper signal and the wiper speed switching relay on (high-speed), causing the wipers to operate at high-speed.

Intermittent wiper operation
- The ETACS-ECU calculates the wiper operation interval according to the voltage signal sent from the column switch. Then the ETACS-ECU sends a signal to the front-ECU. The front-ECU determines the wiper operation interval and turns on the wiper relay signal. This causes the wiper auto stop relay to turn on. Then the wiper auto stop relay will turn off after the wipers reach the park position. This causes the wiper signal relay and then the wipers to turn off. If the wiper signal relay remains off for the wiper operation interval, the relay turns on again, causing the wipers to operate in intermittent mode.

Mist wiper operation
- If the wiper switch is turned to the "MIST" position with the ignition switch at "ACC" or "ON" position, the mist wiper high-speed operation signal is sent to the front-ECU. This signal turns on the wiper speed switching relay, causing the wipers to work at high-speed while the mist switch is on.

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- While the mist wiper switch remains turned on when the intermittent mode is still working, the wipers work as the mist wiper. However, the wipers return to the intermittent mode again when the wiper auto stop signal turns on after the mist wiper switch is turned off.

Washer-wiper operation

- If the wiper switch is turned to the "WASHER" position with the ignition switch at "ACC" or "ON" position, the washer ON signal is sent to the front-ECU, causing the wiper signal to turn on after 0.6 seconds. After the washer switch signal turns off, the wiper signal turns off in 3 seconds. If the wiper switch is turned the "WASHER" position while the wiper is at intermittent mode, the washer works for that period when the washer switch remains on. Then the wipers return to the intermittent mode.

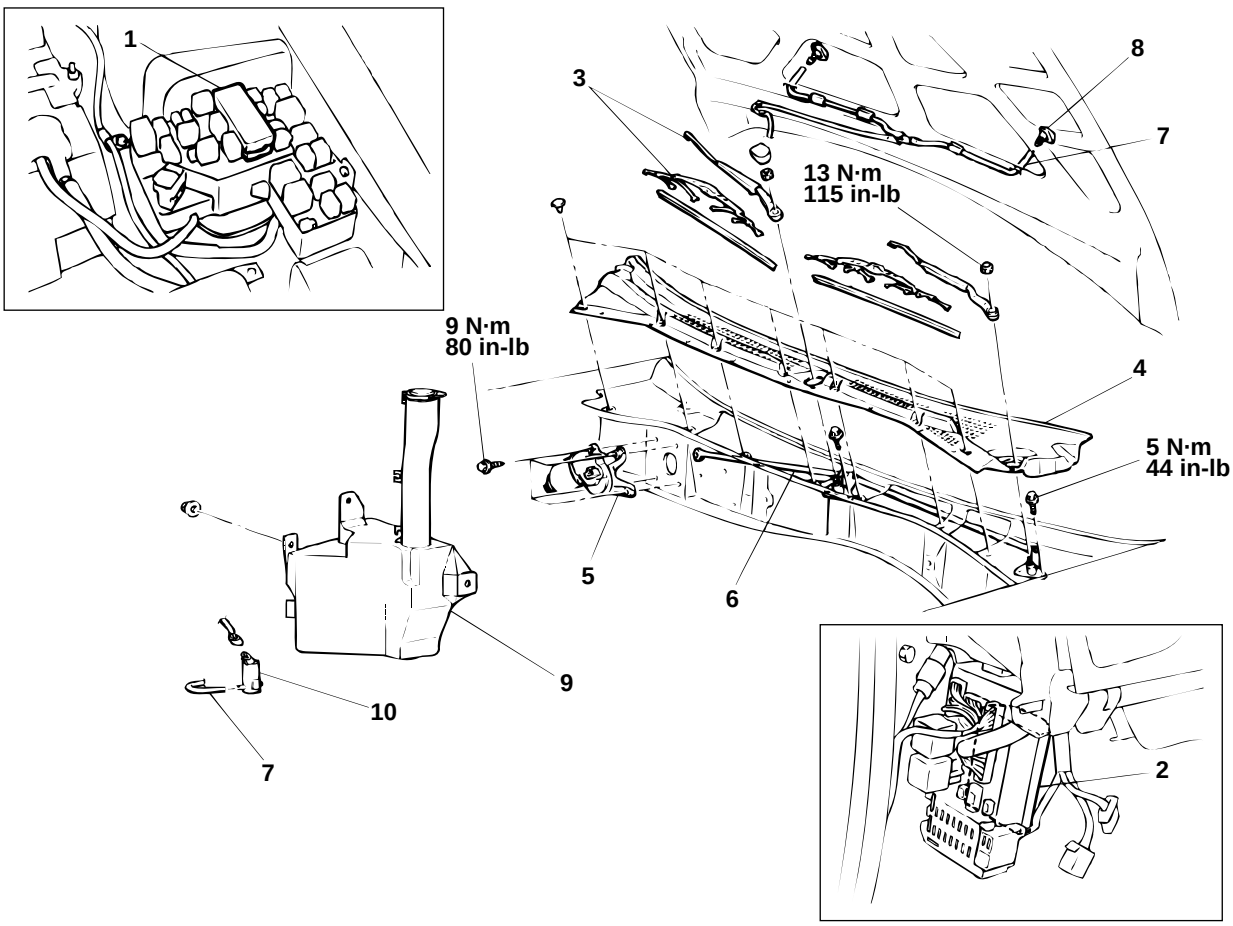
WINDSHIELD WIPER AND WASHER DIAGNOSIS

M1511000700107

The windshield wiper and washer are controlled by the Smart Wiring System (SWS). For troubleshooting, refer to GROUP 54B, SWS Diagnosis P.54B-5.

REMOVAL AND INSTALLATION

M1511007600060



AC000659AB

1. FRONT-ECU
2. ETACS-ECU

WIPER MOTOR AND LINK ASSEMBLY REMOVAL STEPS <<A>>

>>A<< 3. WIPER ARM AND BLADE ASSEMBLY
4. FRONT DECK GARNISH

WIPER MOTOR AND LINK ASSEMBLY REMOVAL STEPS (Continued)

5. WIPER MOTOR
6. WIPER LINK ASSEMBLY

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WASHER NOZZLE REMOVAL STEPS

7. WASHER HOSE
8. WASHER NOZZLE

WASHER TANK REMOVAL STEPS

- WASHER FLUID DRAINING AND APPLYING

7. WASHER HOSE

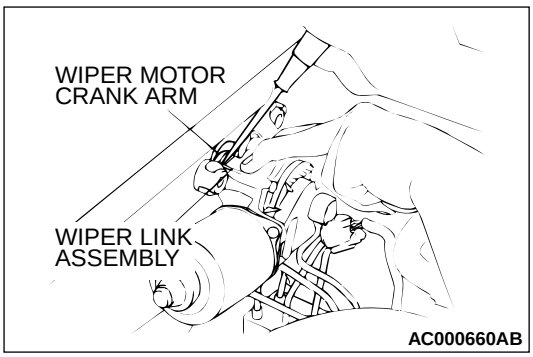
WASHER TANK REMOVAL STEPS

9. WASHER TANK ASSEMBLY
10. WASHER MOTOR

NOTE: For removal and installation of the clock spring and column switch assembly (windshield wiper and washer switch), refer to GROUP 54A, Steering Wheel and Shaft switch P.37A-20.

REMOVAL SERVICE POINT

<<A>> WIPER MOTOR REMOVAL



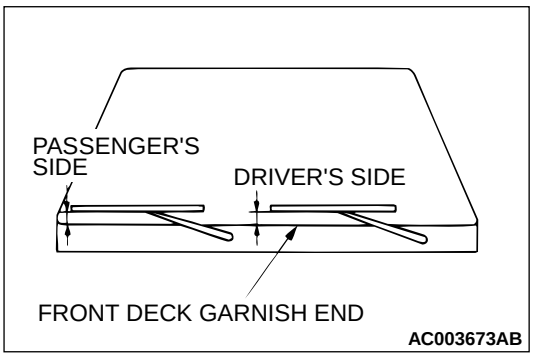
⚠ CAUTION

Auto-stop angle is preadjusted at the factory. Therefore do not remove the crank arm from the wiper motor unless necessary. Should it be removed, mark the crank arm and wiper motor.

Use a flat-tipped screwdriver to disconnect the wiper motor crank arm from the link assembly.

INSTALLATION SERVICE POINT

>>A<< WIPER ARM AND BLADE ASSEMBLY INSTALLATION



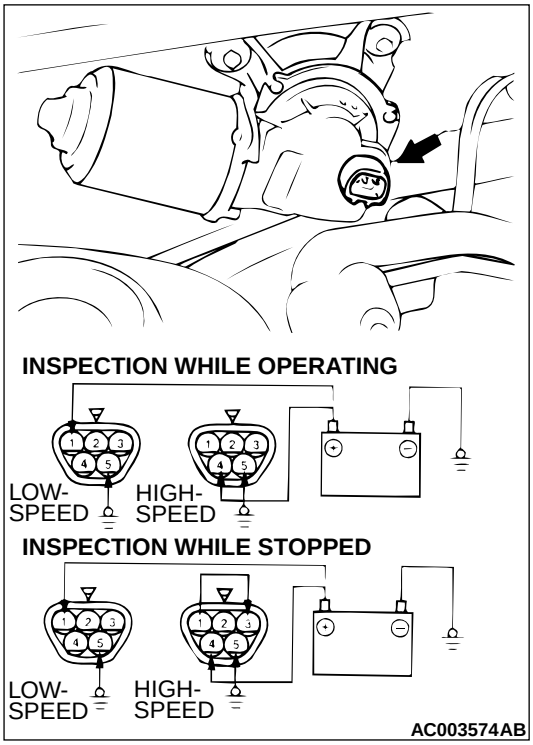
Install the wiper blade at the specified position (standard value).

Standard value:
Driver's side: 20 – 30 mm (0.8 – 1.2 inches)
Passenger's side: 30 – 45 mm (1.2 – 1.8 inches)

INSPECTION

M1511007700120

WIPER MOTOR CHECK



Check the wiper motor after disconnecting the wiring harness connector, and with the wiper motor remaining installed to the body.

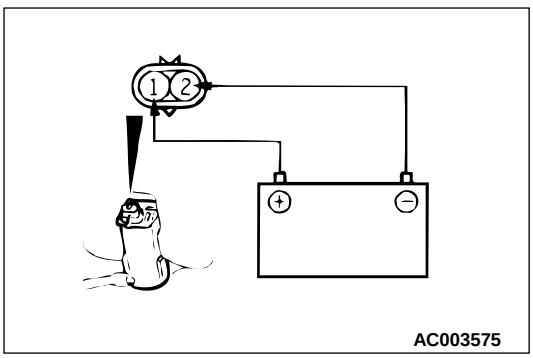
Wiper Motor at Low-Speed and High-Speed Operation

Connect a battery to the wiper motor as shown in the illustration, and check motor operation at low-speed and high-speed.

Wiper Motor at Stop Position Operation

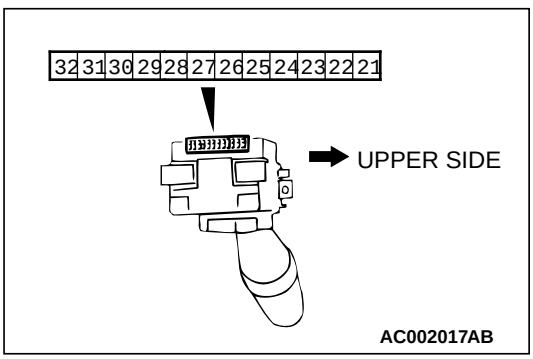
1. Run the wiper motor at low-speed, disconnect the battery, and stop the motor.
2. Reconnect the battery as shown in the illustration, and confirm that after the motor starts turning at low-speed, and stops at the automatic stop position.

WASHER MOTOR CHECK



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 terminals (1) and (2).

WINDSHIELD WIPER AND WASHER SWITCH CHECK



1. Windshield wiper and washer switch

SWITCH POSITION	TESTER CONNECTION	SPECIFIED CONDITION
OFF	–	No continuity
Windshield wiper mist switch ON	23 – 32	Continuity
Windshield intermittent wiper switch ON	23 – 31	Continuity

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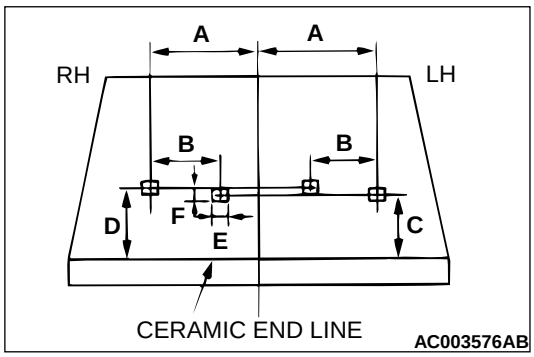
SWITCH POSITION	TESTER CONNECTION	SPECIFIED CONDITION
Windshield low-speed wiper switch ON	23 – 30	Continuity
Windshield high-speed wiper switch ON	21 – 23	Continuity
Windshield washer switch ON	22 – 23	Continuity

2. Windshield intermittent wiper interval adjusting knob
   Measure the resistance value at terminal numbers 27 and 28. The resistance value should rise smoothly from approximately 0 Ω ("FAST" position) to approximately 1 kΩ ("SLOW" position).

WASHER FLUID EJECTION POINT CHECK

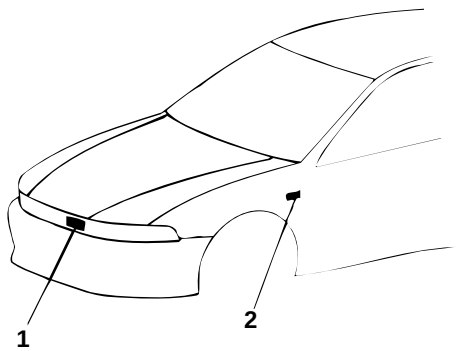


Adjust the ejection angle by moving a ball in the nozzle.
A: 430 mm (16.9 inches)
B: 260 mm (10.2 inches)
C: 325 mm (12.8 inches)
D: 350 mm (13.8 inches)
E: 70 mm (2.8 inches)
F: 50 mm (2.0 inches)

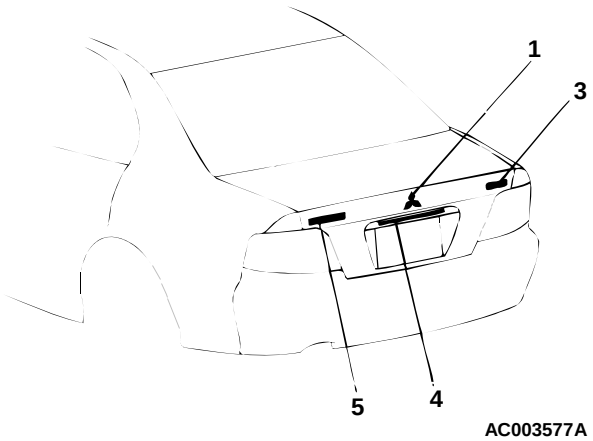
MARK

REMOVAL AND INSTALLATION

M1511011800078



1. TOP MARK
>>A<< 2. ENGINE SPECIFICATION MARK (V6)



>>A<< 3. GRADE MARK (DE, ES, LS, GTZ)
>>A<< 4. "GALANT" MARK
>>A<< 5. "MITSUBISHI" MARK

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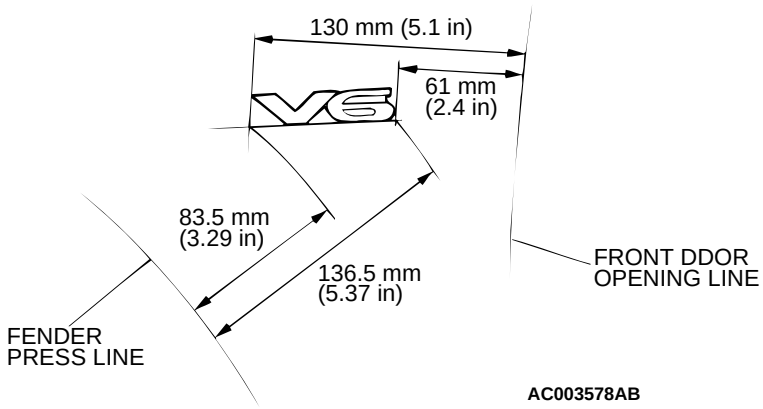
INSTALLATION SERVICE POINT

>>A<< MARK INSTALLATION

1. Installation position Attach to the position shown in the illustration.

ENGINE SPECIFICATION MARK

LH SIDE



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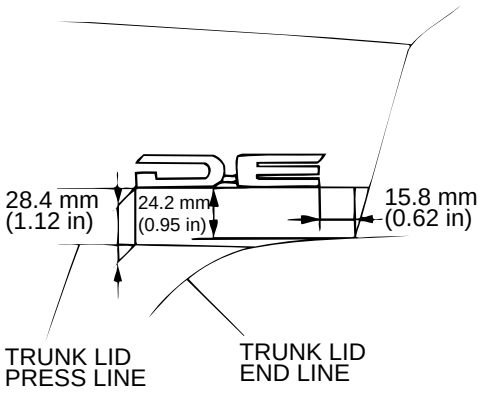
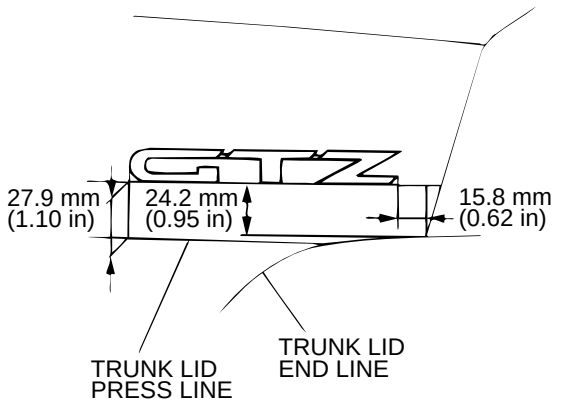
NOTE
RH side is symmetrical on LH side.

GRADE MARK

DE (also applicable ES, LS)



GTZ



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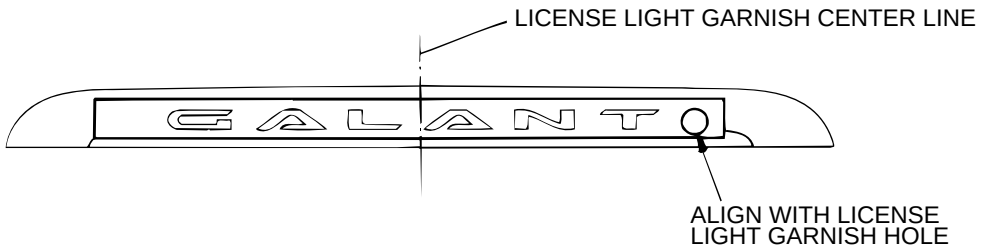
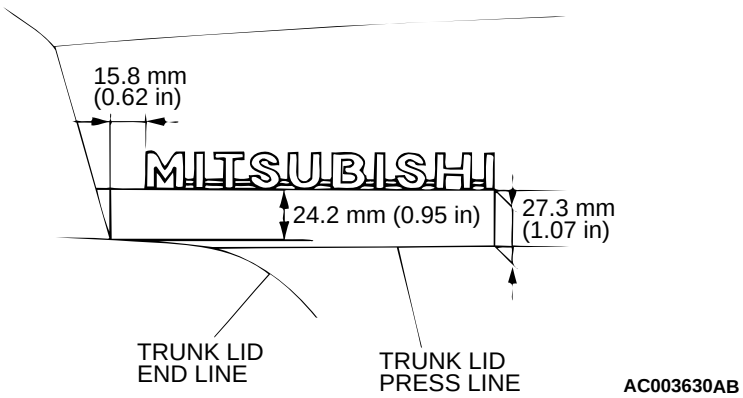
"GALANT" MARK



"MITSUBISHI" MARK



2. Installation procedure
   (1) Use 3M™ AAD Part number 8906 or equivalent to clean the mark installation surfaces on the body.

⚠ CAUTION

When attaching the marks, the surrounding temperature should be 20 – 38°C (60 – 100°F) and the air should be completely free from dust. If the surrounding temperature is low than 20°C (60°F), the marks and their application surface on the body should be heated to 20 – 38°C (60 – 100°F).

   (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.

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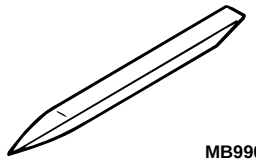
DOOR MIRROR

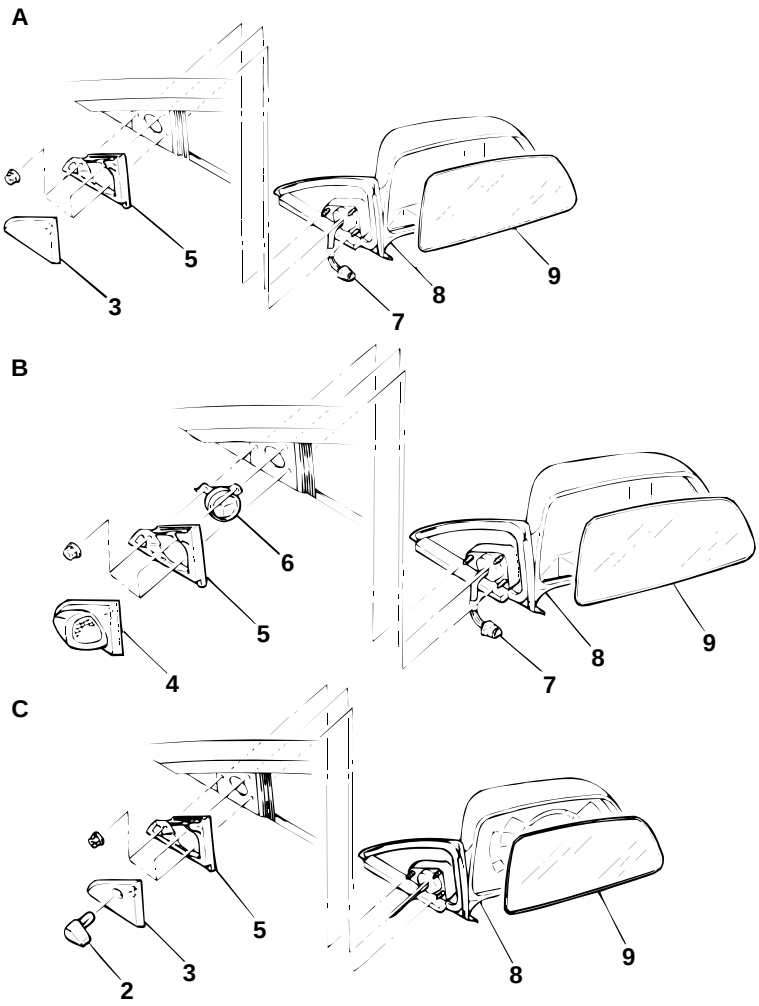
SPECIAL TOOL

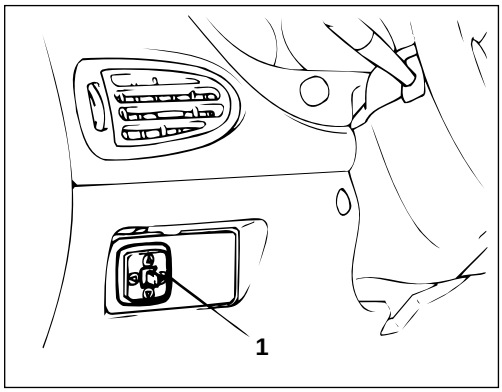
M1511000600348

TOOL	TOOL NUMBER AND NAME	REPLACED BY MILLER TOOL NUMBER	APPLICATION
 MB990784	MB990784 Ornament remover	General service tool	Removal of remote controlled mirror switch

REMOVAL AND INSTALLATION

M1511006400074





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1. REMOTE CONTROLLED MIRROR SWITCH

DOOR MIRROR REMOVAL STEPS

2. LEVER KNOB
3. DELTA COVER, INNER
4. TWEETER COVER
5. DELTA COVER BASE
6. TWEETER

DOOR MIRROR REMOVAL STEPS

7. HARNESS CONNECTOR <VEHICLES WITH REMOTE CONTROLLED MIRROR>
8. DOOR MIRROR ASSEMBLY
9. MIRROR

<<A>>

Required Special Tool:

- MB990784: Ornament Remover

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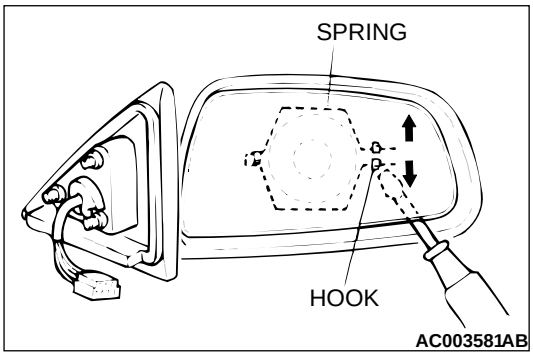
REMOVAL SERVICE POINT

<<A>> MIRROR REMOVAL



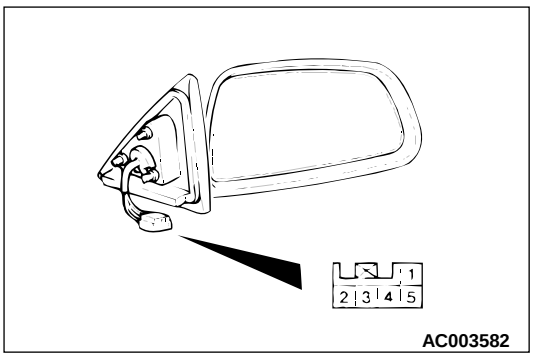
Let the mirror face up, insert a flat-tipped screwdriver wound with masking tape, and remove the mirror by releasing the spring from the hook.

INSPECTION

M1511006500071

REMOTE CONTROLLED MIRROR ASSEMBLY CHECK

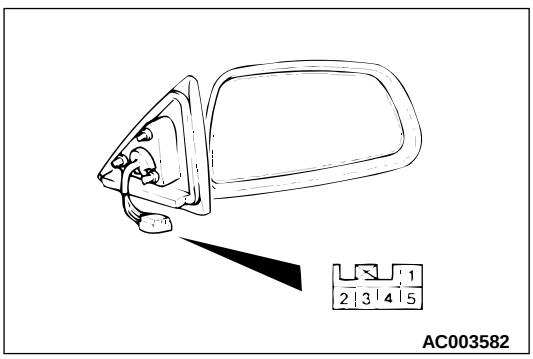
<Vehicles without heated mirror>



Check that the mirror moves as described in the table when each terminal is connected to the battery.

DIRECTION OPERATION	TESTER CONNECTION	SPECIFIED CONDITION
Up	1-Battery(+), 3-Battery(-)	Continuity
Down	1-Battery(-), 3-Battery(+)	Continuity
Left	2-Battery(-), 3-Battery(+)	Continuity
Right	2-Battery(+), 3-Battery(-)	Continuity

<Vehicles with heated mirror>



1. Check that the mirror moves as described in the table when each terminal is connected to the battery

DIRECTION OPERATION	TESTER CONNECTION	SPECIFIED CONDITION
Up	1-Battery(+), 3-Battery(-)	Continuity
Down	1-Battery(-), 3-Battery(+)	Continuity
Left	2-Battery(-), 3-Battery(+)	Continuity
Right	2-Battery(+), 3-Battery(-)	Continuity

2. Check if there is continuity between terminals (4) and (5).

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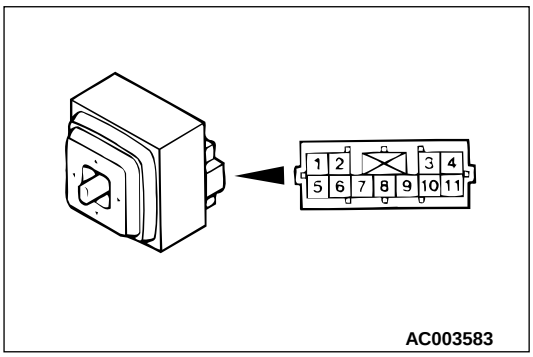
REMOTE CONTROLLED MIRROR SWITCH CONTINUITY CHECK



SWITCH POSITION		TESTER CONNECTION	SPECIFIED CONDITION
Left side	Up	6 – 8, 9 – 11	Continuity
	Down	6 – 9, 8 – 11	Continuity
	Left	6 – 9, 8 – 10	Continuity
	Right	6 – 8, 9 – 10	Continuity
Right side	Up	3 – 9, 6 – 8	Continuity
	Down	6 – 9, 8 – 11	Continuity
	Left	6 – 9, 8 – 10	Continuity
	Right	6 – 8, 9 – 10	Continuity

SPECIFICATIONS

FASTENER TIGHTENING SPECIFICATIONS

M1511015300097

ITEMS		SPECIFICATIONS
Windshield wiper and washer	Wiper arm and blade assembly nut	13 N·m (115 in-lb)
	Wiper link assembly bolt	5 N·m (44 in-lb)
	Wiper motor bolt	9 N·m (80 in-lb)

SERVICE SPECIFICATIONS

M1511000300080

ITEMS		STANDARD VALUE
Windshield wiper blade position installation mm (in)	Driver's side	20 – 30 (0.8 – 1.2)
	Passenger's side	30 – 45 (1.2 – 1.8)

ADHESIVES

M1511000500095

ITEM	SPECIFICATIONS
Door molding assembly, door garnish assembly.	Adhesive tape: Double-sided tape A; 10 mm (0.4 in) width and 0.8 mm (0.03 in) thickness B, C; 0.8 mm (0.03 in) thickness D; 5 mm (0.2 in) width and 0.8 mm (0.3 in) thickness

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