# BODY

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# **SPECIFICATIONS**

# **GENERAL SPECIFICATIONS**

ltems		Specifications
Hood _		
Туре		Rear hinged, front opening type
Front door		
Construction		Front hinged, sash construction
Regulator system		Wire type
Locking system		Pin-fork type
Rear door		
Construction		Front hinged, sash construction
Regulator system		Wire type
Locking system		Pin-fork type
Back door		
Construction		Right hinged, sash construction
Locking system		Pin-fork type
Glass installation method		
Windshield glass		Adhesive type
Back door window glass		Adhesive type
Glass thickness		
Windshield glass	mm (in.)	5.3 (0.21)
Quarter window glass	mm (in.)	3.5 (0.14)* <sup>1</sup> , 4.0 (0.16)* <sup>2</sup>
Front door glass	mm (in.)	3.5 (0.14)
Rear door glass	mm (in.)	3.5 (0.14)
Back door window glass	mm (in.)	
Sunroof glass	mm (in.)	5.0 (0.20)
Frame type		Ladder type
Power window motor		
Туре		Permanent magnet type (built-in circuit breaker)
Revolutions under no load	r/min.	75 or more
Revolutions under load	r/min.	
At 1 Nm (0.1 kgm, 0.72 ft.lbs.)		65–95
At 2 Nm (0.2 kgm, 1.45 ft.lbs.)		50-80
Bound current	А	34 or less
Direction of rotation		Clockwise and anti-clockwise
Sunroof motor		
Туре		DC ferrite (with built-in circuit breaker)
Speed at no load	r/min.	155–195, 130–160*3
Speed at load	r/min.	
At 1 Nm (0.1 kgm, 0.72 ft.lbs.)		115–145*3
At 2 Nm (0.2 kgm, 1.45 ft.lbs.)		110–150
Bound current	А	35 or less
Turning direction		Both clockwise and anti-clockwise

NOTE (1) \*1: Sliding type (2) \*<sup>2</sup>: Fixed type © Mitsubishi Motors Corporation Feb. 1991

ltems		Specifications
Power window relay		
Maximum contact current	А	20
Rated coil current	А	0.2 or less
Voltage drop between terminals (At 12 V and the rated load current)	V	0.3 or less
Door control unit		
Operating voltage range	V	10–16
Current consumption (when not in operation)	mA	3 or less
Front door lock actuator		
Bound current (at 12 V)	А	2.5–4.5
Operating voltage range	V	915
*Tripping time (at 12 V)	Second	5–30
Rear door lock actuator		
Bound current (at 12 V)	А	2.5-4.5
Operating voltage range	V	9–15
*Tripping time (at 12 V)	Second	5–30

NOTE \* Trip

Tripping time is the time consumed until current reaches 0.5 A after power connection.

# SERVICE SPECIFICATIONS

ltems		Standard value
Door inside handle play mm (in.)		4-10 (0.16-0.39)
Door outside handle play	Front and rear door	3-12 (0.12-0.47)
mm (in.)	Back door	2-8 (0.08-0.31)
Slipping force of motor	Power slide type sunroof	40-50 (4.0-5.0, 9-11)
clutch N (kg, lbs.)	Canvas top	45-55 (4.5-5.5, 10-12)
Sunroof sliding resistance	N (kg, lbs.)	200 (20, 44)

# SEALANTS AND ADHESIVES

Remarks Specified sealant and adhesive Items 3M ATD Part No. 8001 or 3M ATD Part No. Drying adhesive Intercooler weatherstrip Screen drip 8011, or equivalent Sunroof glass weatherstrip Roof cover weatherstrip Ribbon sealer 3M ATD Part No. 8625 or equivalent Fender panel Splush shield Waterproof film 3M Super Fast Urethan Auto Glass sealant \_ Windshield glass Part No. 8609 or equivalent Rear window glass 3M Super Fast Urethan Primer Part No. \_ 8608 or equivalent

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E42CE--

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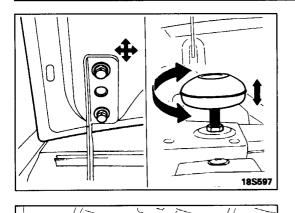
# **BODY – Specifications/Special Tools**

ltems	Specified sealant and adhesive	Remarks
Sunroof glass weatherstrip	3M ATD Part No. 8513 or equivalent	Drying sealant
	3M ATD Part No. 8509 or equivalent	Non-drying sealant
Rail end cover	3M ATD Part No. 8531 or 3M ATD Part No. 8646, or equivalent	Body sealant

# SPECIAL TOOLS

E42DA--

ΤοοΙ	Number	Name	Use
	MB990480	Glass holder	Removal and installation of windshield
	MB990449	Window moulding remover	Removal of the window moulding
	MB990900 or MB991164	Door adjusting wrench	Adjustment of door fit
	MB990784	Ornament remov- er	Removal of the window moulding and interior parts

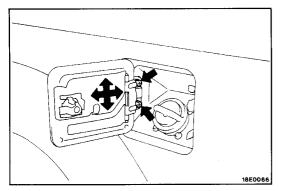


# SERVICE ADJUSTMENT PROCEDURES HOOD ADJUSTMENT

- 1. Loosen the hood mounting bolts, and then adjust the hood by moving it so that the clearance is equal on all sides.
- 2. Turn the hood bumpers, adjust the height of the hood.
- 3. Loosen the hood latch mounting bolts, and move the hood, latch to adjust the attachment between the hood latch and hood striker.

# FUEL FILLER DOOR ADJUSTMENT

E42FCAF



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#### Loosen the fuel filler door mounting screw and adjust the fuel filler door so that the clearance around the fuel filler door is even without any height differences.

# FRONT AND REAR DOOR ADJUSTMENT E42FDAH

1. Use the special tool to loosen the hinge mounting bolts on the body side, and then adjust the clearance around the door so that it is uniform on all sides.

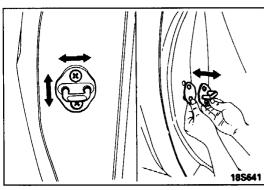
#### Caution

Attach protection tape to the fender edges where the hinge is installed.

- 2. When the door is replaced, loosen hinge mounting bolts on door side and adjust alignment of fender panel with front door panel.
- 3. Loosen door striker mounting screws to adjust alignment of door panel.
- 4. Increase or decrease the number of shims and move striker to adjust engagement of striker with door latch.

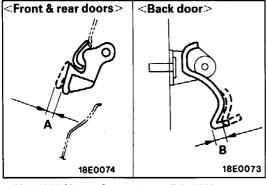
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MB990990 or MB991164



PWJE9086

# . 18W755 <Rear> <Front> 18E0069 0 18E0070 <Front & rear doors> 0 (0 18A0045 18A0014 <Back door> ( O $\cap$ υ 18E0067 18E0072 <Front & rear doors> <Back door>



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# **BACK DOOR ADJUSTMENT**

#### E42FMAF

- 1. Adjust the fit of the door panel to the body by loosening the striker mounting screws and moving the striker.
- 2. Adjust the linking of the striker and the door latch by increasing or decreasing the thickness of the striker shim.

# DOOR WINDOW GLASS ADJUSTMENT E42FEAN

Check that the door window glass runs smoothly in the door glass channel when the glass is fully raised and lowered. If it does not, adjust by the following procedure.

- 1. Remove the door trim and waterproof film. (Refer to P.42-25.)
- 2. Loosen the window regulator assembly mounting bolts and move the uupper attachment back and forward to adjust the tilt of the glass.
- 3. Loosen the rear door centre sash mounting bolt, and adjust the front-to-back position of the glass.

# DOOR INSIDE HANDLE PLAY ADJUSTMENT

- 1. Remove the door trim and waterproof film. (Refer to P.42-25, 35.)
- 2. Move the door inside handle installation position back and forth to adjust so that the inside handle play allowance agress with the standard value.

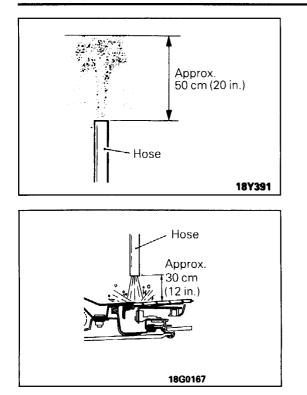
Standard value: 4-10 mm (0.16-0.39 in.)

### DOOR OUTSIDE HANDLE PLAY CHECK E42FHAG

If the door outside handle play does not conform to the standard value, check the door outside handle or door latch assembly, and replace if necessary.

Standard value: (A) 3-12 mm (0.12-0.47 in.) (B) 2-8 mm (0.08-0.31 in.)

PWJE9086



#### WATER TEST

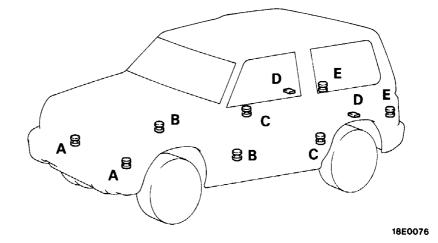
- ,
- 1. Fully close the sunroof or canvas.
- 2. Hold hose upward and adjust water fountain to about 50 cm (20 in.) high.

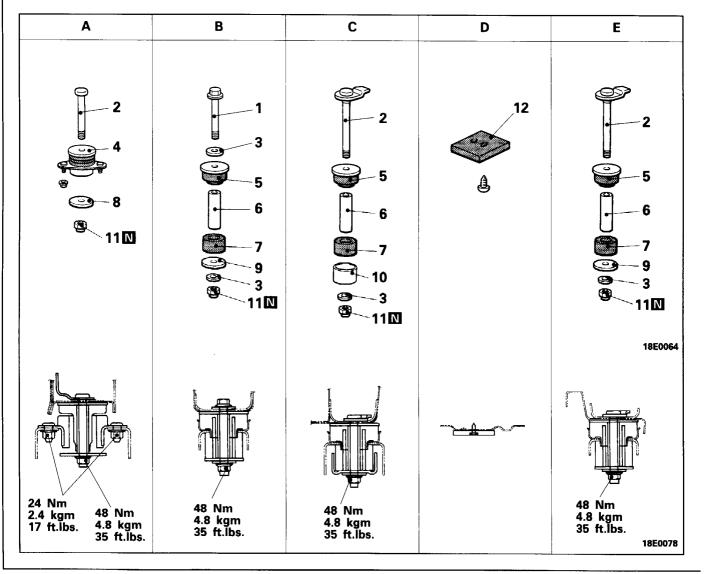
- 3. Pour water over the roof from about 30 cm (12 in.) above roof for more than 5 minutes.
- 4. While pouring water, check for leak around the sunroof or canvas.
- 5. In the event of leakage, check drain hose, weatherstrip contact and others.

# **BODY MOUNTING REMOVAL AND INSTALLATION**

#### <2-door models>

- Special bolt
   Mounting bolt
   Plain washer
   Body mounting rubber
   Body mounting rubber A
- 6. Spacer
- 7. Body mounting rubber B 8. Plate
- 9. Washer
- 10. Body mount stopper 11. Self locking nut
- 12. Body shim



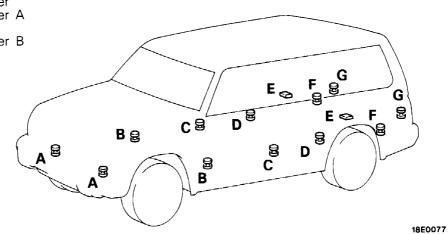


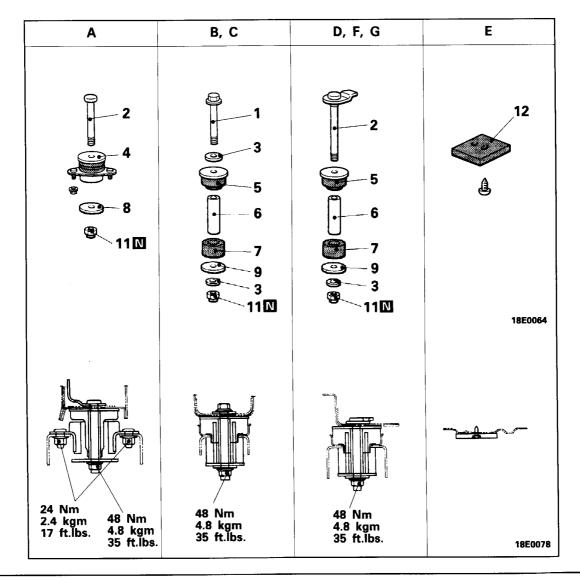
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#### <4-door models>

- Special bolt
   Mounting bolt
   Plain washer

- Body mounting rubber
   Body mounting rubber A
- 6. Spacer
   7. Body mounting rubber B
- 8. Plate
- 9. Washer
- 11. Self locking nut 12. Body shim

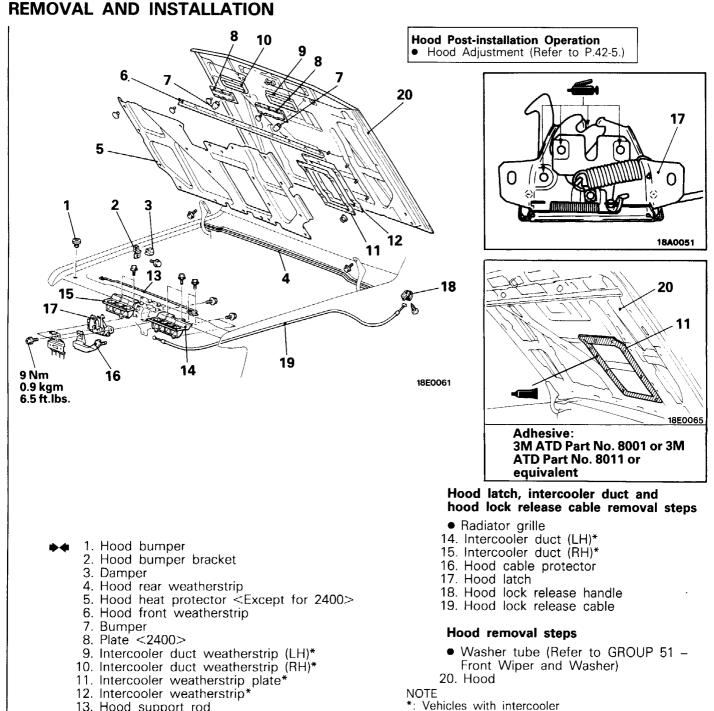




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# HOOD

E42HAAK

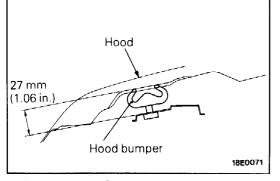


13. Hood support rod

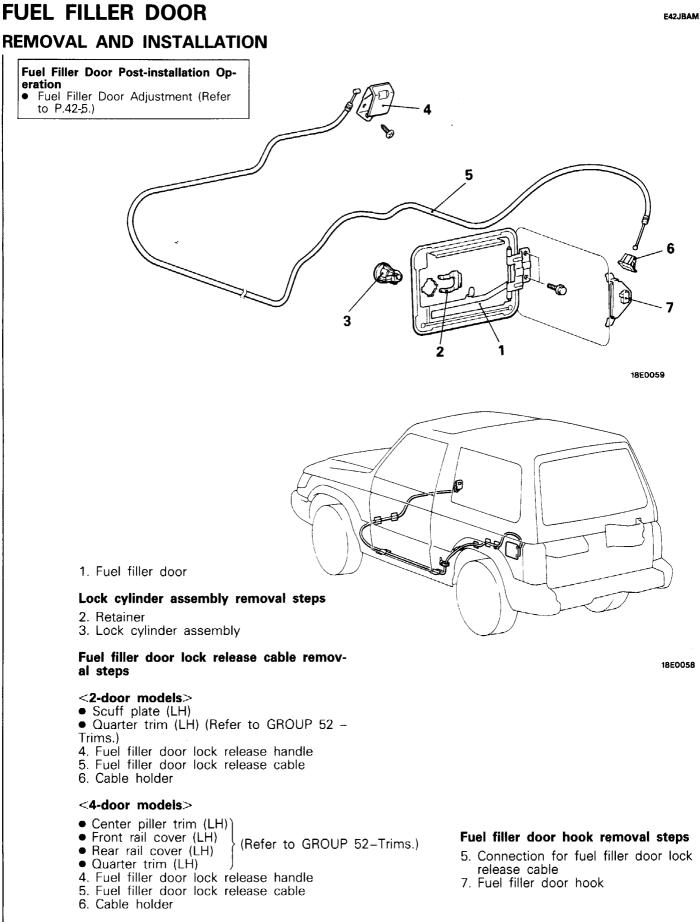




Install the hood bumper as shown in the figure.



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# **FENDER**

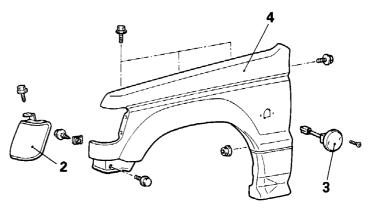
# **REMOVAL AND INSTALLATION**

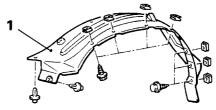
#### Pre-removal and Post-installation Operation **Removal and Installation**

- ۰
  - Side Step Front Cover (Refer to GROUP 51 Exterior Parts.)
- Front Mud Gard and Wide Fender (Refer to GROUP 51 Garnish and ۲ Moulding.)

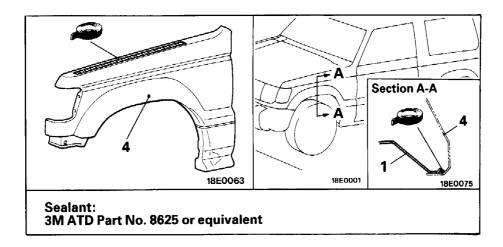
#### **Removal steps**

- 1. Splush shield 2. Front turn signal lamp
- Front bumper
- 3. Side turn signal lamp
- 4. Front fender panel





18E0062

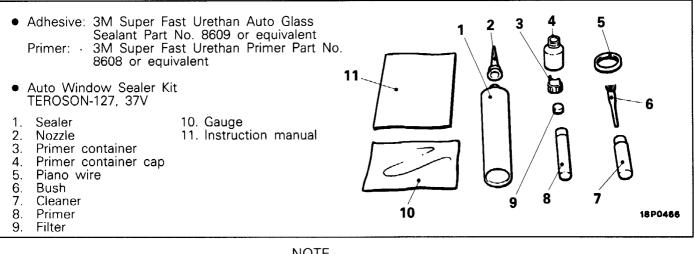


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# WINDSHIELD GLASS

### WINDSHIELD REPAIR



#### NOTE

When using TEROSON-127, 37V, follow the instructions of the manual included in the kit.

Additional material required		
Spacers	Available as service part	
Dam	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 $\times$ length 0.6 mm $\times$ 1 m (0.024 in. $\times$ 3 ft.)	
	For cutting adhesive	
Adhesive gun	For pressing-out adhesive	

#### HANDLING OF AUTO WINDOW SEALER

Keep the sealant in a cool place, not exposed to the direct ravs of the sun.

Do not place any heavy article on the sealant nor press it, otherwise it will become deformed.

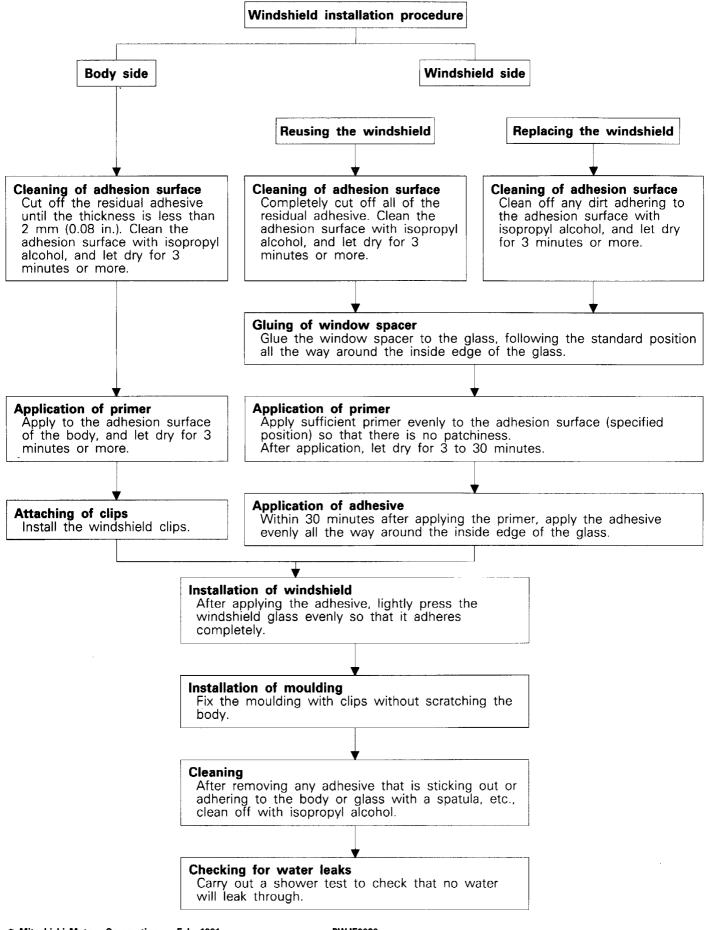
Avoid storing the sealant for more than 6 months, because it will lose its sealing effect.

#### **BODY PINCH-WELD FLANGE SERVICING**

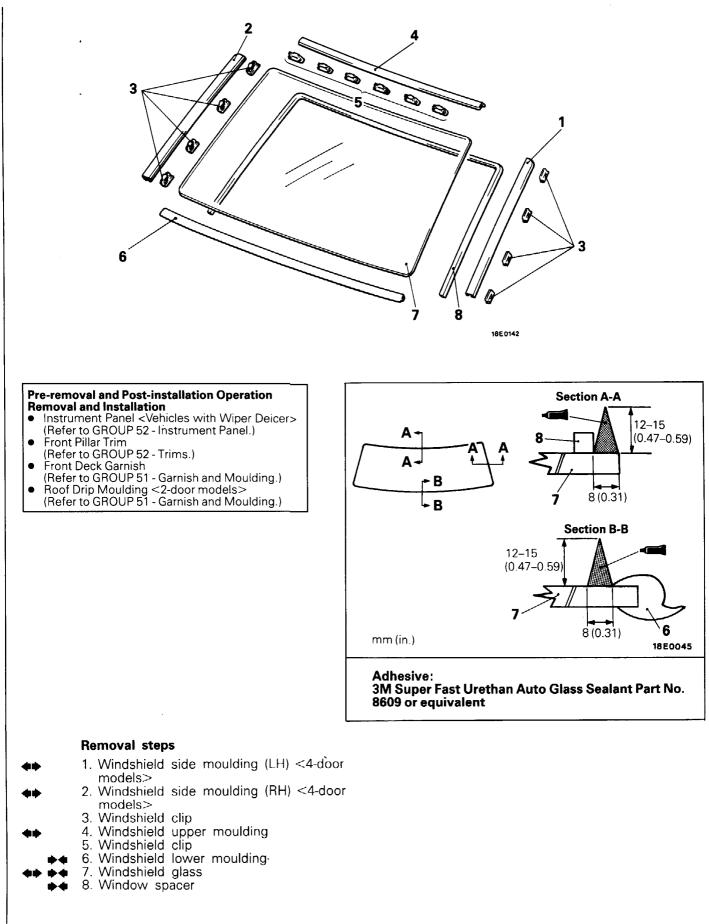
Before servicing the body pinch-weld flange, remove old adhesive completely.

If the flange requires painting, bake it after painting is completed.

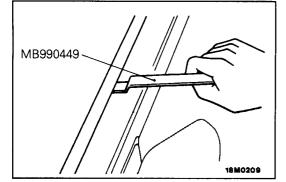
### WORKING PROCESS

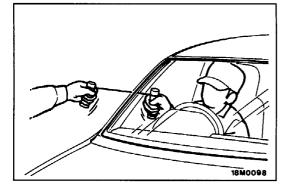


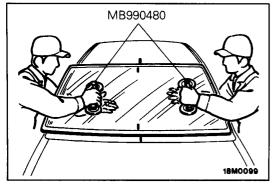
# **REMOVAL AND INSTALLATION**

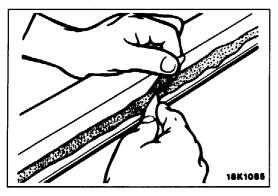












### SERVICE POINTS OF REMOVAL

#### 1. REMOVAL OF WINDSHIELD SIDE MOULDING (LH)/2. WINDSHIELD SIDE MOULDING (RH)/4. WINDSHIELD UPPER MOULDING

Remove by using the special tool to lever out each moulding.

#### Caution

Mouldings that become warped should not be re-used.

#### 7. REMOVAL OF WINDSHIELD GLASS

- (1) In order to protect the body (paint surface), apply cloth tape to all body areas around the installed windshield glass.
- (2) Using a sharp-point drill, make a hole in the windshield glass edhesive.
- (3) Pass 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 glass to cut the adhesive.

#### Caution

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

- (5) Make mating marks on the windshield glass and body.
- (6) Use the special tool to remove the windshield glass.

- (7) Use a knife to cut away the remaining adhesive so that the thickness can be within 2 mm (0.08 in.) around the entire circumference of the body flange.
- (8) Finish the flange surfaces so that they are smooth. **Caution**

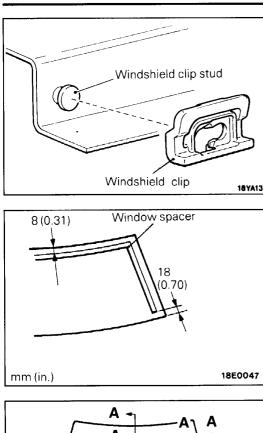
#### Laution

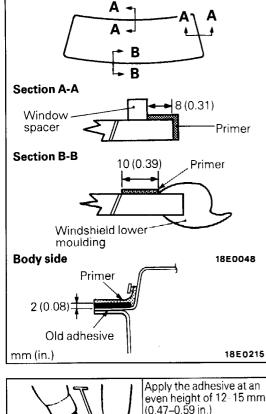
- 1. Be careful not to remove more adhesive than is necessary.
- 2. Be careful also not to damage the paintwork on the body surface with the knife. If the paintwork is damaged, repair the damaged area with repair paint or anti-rust agent.
- (9) When reusing the glass, remove the adhesive and window spacer chips still adhering to the window glass, and clean with isopropyl alcohol.

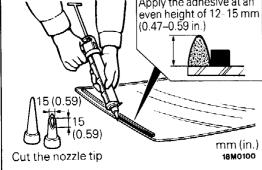
(10)Clean the body side in the same way.

#### 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.







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# WINDSHIELD CLIP STUD REPAIR

If the T-studs are broken, use a drill to make holes in the T-studs 3 mm (0.12 in.) in diameter, fill the holes with adhesive, and then use screws to mount the window moulding clips.

#### Caution

After installing the clip, apply antirust solvent to the screw head to protect them from rust.

### **SERVICE POINTS OF INSTALLATION** 8. INSTALLATION OF WINDOW SPACER

After cleaning the window spacer adhesion surface of the windshield glass with isopropyl alcohol to remove all grease, etc., attach the window spacer as shown in the figure.

#### 7. INSTALLATION OF WINDSHIELD GLASS/6. WIND-SHIELD LOWER MOULDING

- (1) When replacing the glass, temporarily set the glass against the body, and put mating marks on the glass and body where they match.
- (2) Install the windshield lower moulding onto the windshield glass.
- (3) Soak a sponge in the primer, and apply evenly to the glass and the body in the places shown in the figure.

#### Specified primer: 3M Super Fast Urethan Primer Part No. 8608 or equivalent

#### Caution

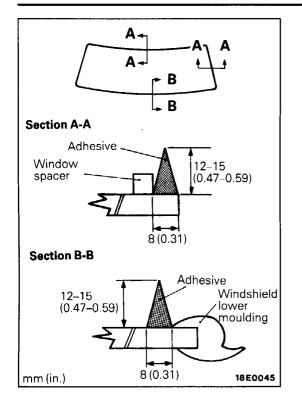
- 1. The primer strengthens the adhesive strength, so be sure to apply it evenly around the entire circumference. Also, a too thick application will cause lowering of the adhesive strength.
- 2. Do not touch the coated surface.
- (4) After applying the primer, let it dry for 3 to 30 minutes.
- (5) Within 30 minutes after applying the primer, fill the sealant gun with adhesive and apply the adhesive evenly around the entire circumference of the wind-shield.

#### Specified adhesive: 3M Super Fast Urethan Auto Glass Sealant Part No. 8609 or equivalent

#### NOTE

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

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(6) After applying the adhesive, match up the mating marks on the glass and the body, and lightly press the windshield glass evenly so that it adheres completely.

(7) After removing any adhesive that is sticking out or adhering to the body or glass with a spatula, etc., clean off with isopropyl alcohol.

After completion of this operation (after installing the glass), place it somewhere where it will not be disturbed, until the adhesive sets.

#### Caution

#### If heat is applied with an infra-red lamp to shorten the setting time, keep the surface temperature of the adhesive below 100°C.

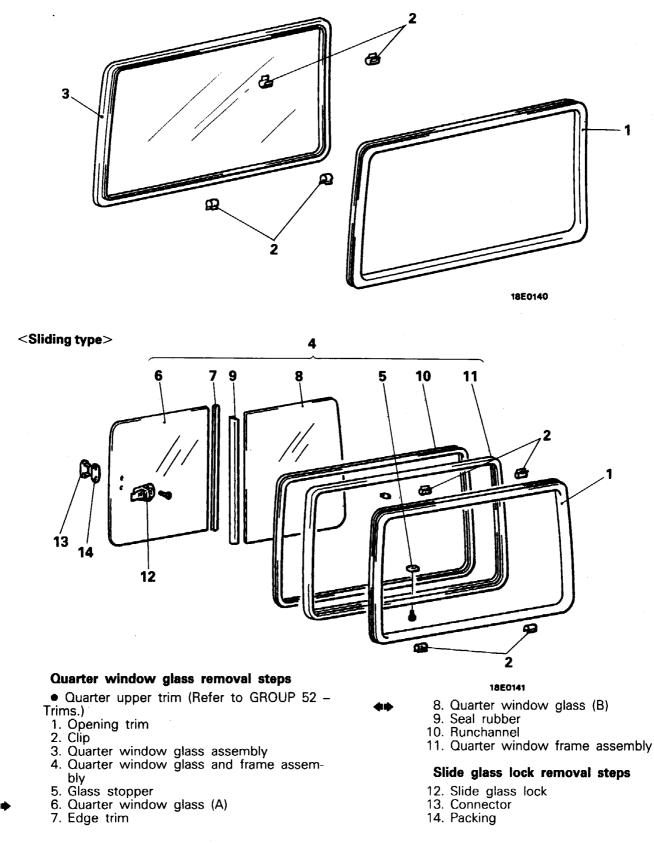
(8) After attaching the windshield glass to the body, let it stand for 30 minutes or more, and then test for water leakage.

#### Caution

- 1. If moving the vehicle, it should be done gently.
- 2. When testing for water leakage, do not pinch the end of the hose to spray the water.

# QUARTER WINDOW GLASS **REMOVAL AND INSTALLATION**

<Fixed type>

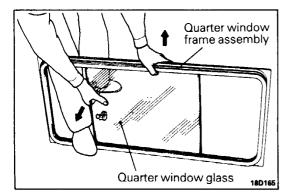


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**REMOVAL AND INSTALLATION** 

Pre-removal and Post-installation Op-

Removal and Installation of Back

Door Upper Trim (Refer to P.42-35.)

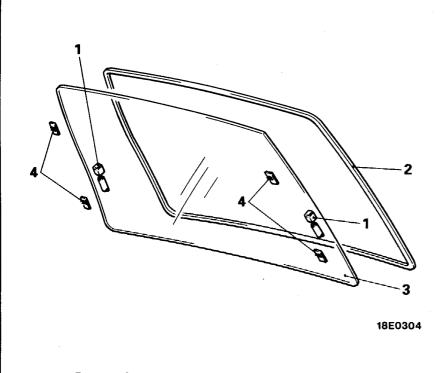
**BACK DOOR WINDOW GLASS** 

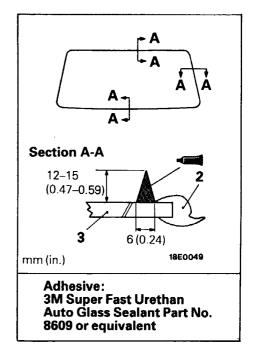
#### SERVICE POINTS OF REMOVAL

6. REMOVAL OF QUARTER WINDOW GLASS (A)/8. QUARTER WINDOW GLASS (B)

Remove the glass by moving the glass to the centre and widening the middle section of the quarter window frame assembly.

E42LDAG



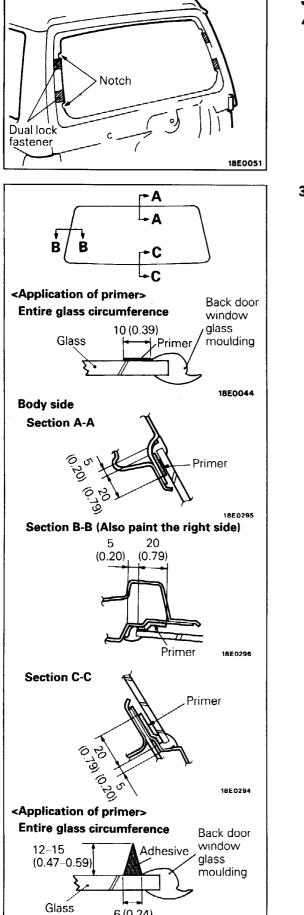


#### **Removal steps**

- 1. Defogger terminal
- 2. Back door window glass moulding
- 4 4 3. Back door window glass
  4. Dual lock fastener

#### SERVICE POINT OF REMOVAL 3. REMOVAL OF BACK DOOR WINDOW GLASS

Remove in the same way as for the windshield glass. (Refer to P.42-16.)



# SERVICE POINTS OF INSTALLATION

# 4. INSTALLATION OF DUAL LOCK FASTENER

Attach the dual lock fasteners so that the fastener ends are aligned with the notches on the body.

3. INSTALLATION OF BACK DOOR WINDOW GLASS/2. BACK DOOR WINDOW GLASS MOULDING

Install in the same way as for the windshield glass. (Refer to P.42-17.)

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mm (in.)

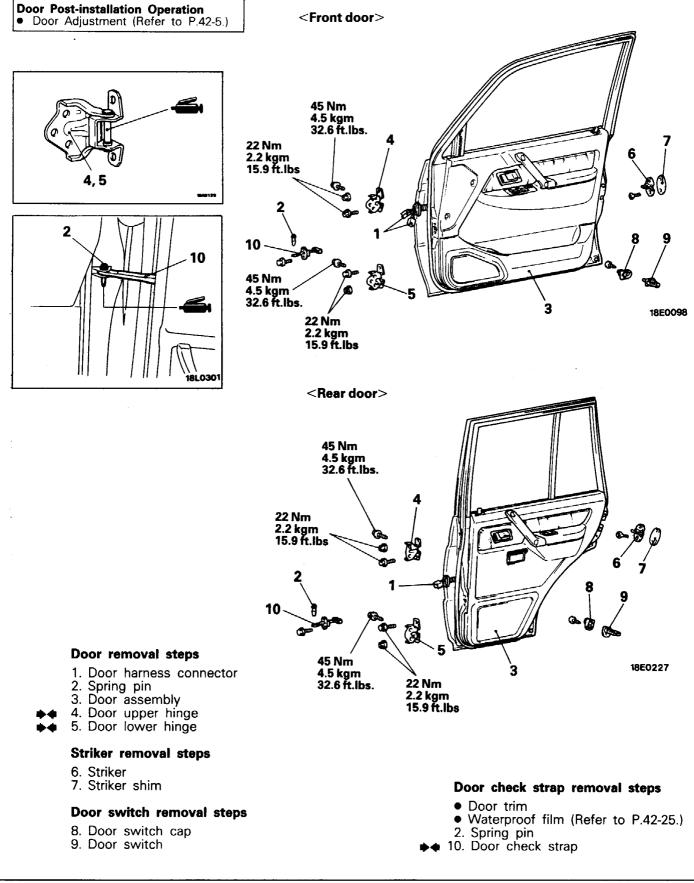
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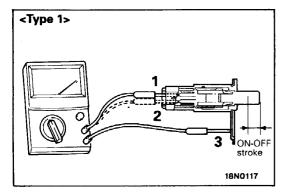
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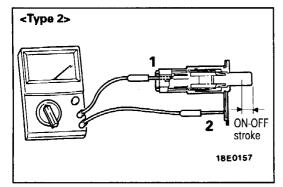
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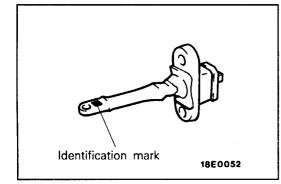
E42MAAO

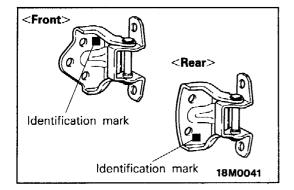
# DOOR ASSEMBLY REMOVAL AND INSTALLATION











#### INSPECTION DOOR SWITCH

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

#### <Type 1>

Terminal Switch position	1	2	3
Open (ON)	<b></b>	0	-0
Depressed (OFF)			

#### <Type 2>

Switch position	Terminal	1	2
Open (ON)		0	0
Depressed (OFF)			
NOTE			

O-O indicates that there is continuity between the terminals.

# SERVICE POINTS OF INSTALLATION 10. INSTALLATION OF DOOR CHECK STRAP

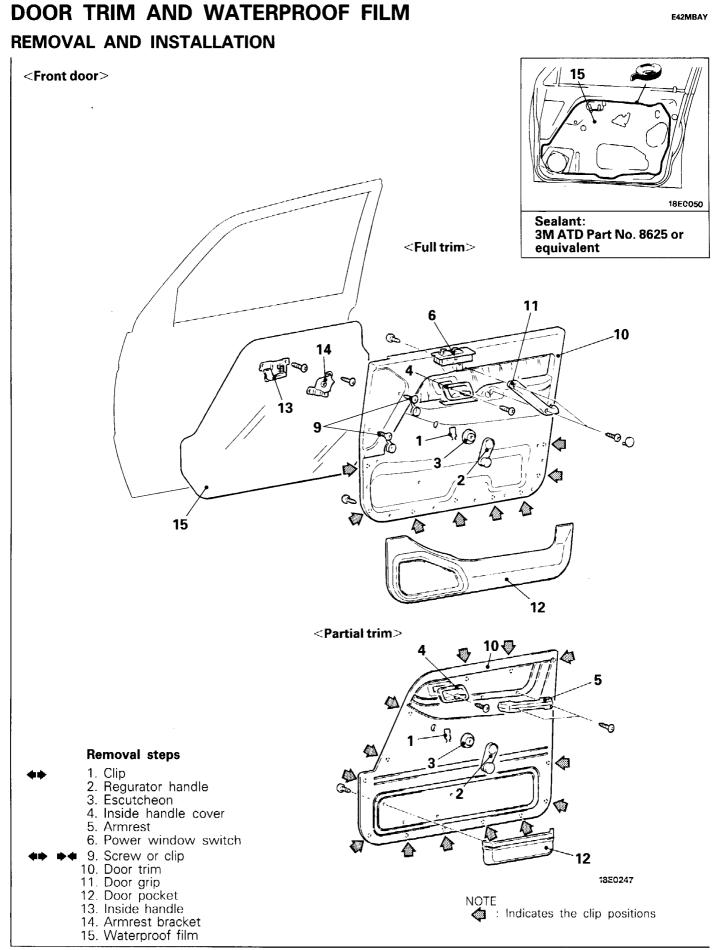
Install the door check so that the identification marks shown below are facing upwards.

Place of application		Identification mark
	Front door	PR
RH	Rear door	QR
	Front door	PL
LH	Rear door	QL

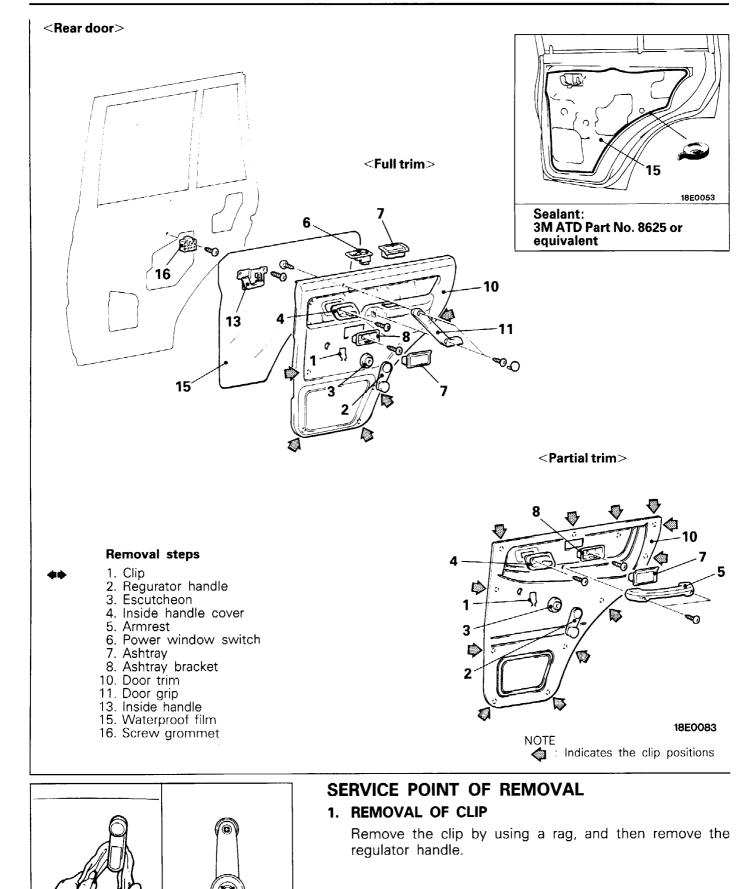
# 5. INSTALLATION OF DOOR LOWER HINGE/4. DOOR UPPER HINGE

The door hinges differ according to where they are used, so check the identification marks before installation.

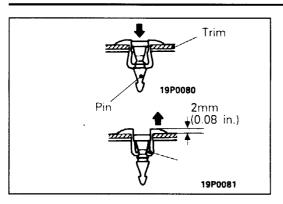
	Place of a	Identification mark	
<b>F</b>		Upper hinge	F
Front do	or	Lower hinge	E
		Upper hinge	X
Rear	RH	Lower hinge	Z
door	LH	Upper hinge	w
		Lower hinge	Y

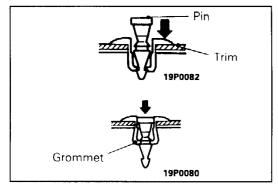


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1800430





#### 9. REMOVAL OF CLIP

- (1) Use a cross-tip (+) screwdriver to push inward the pin (at the centre of the trim clip) to a depth of about 2 mm (0.08 in.).
- (2) Pull the trim clip outward to remove it.

Caution

Do not push the pin inward more than necessary because it may damage the grommet, or the pin may fall in, if pushed too far.

# SERVICE POINT OF INSTALLATION

- 9. INSTALLATION OF SCREW OR CLIP
- (1) With the pin pulled out, insert the trim clip into the hole in the trim.
- (2) Push the pin inward until the pin's head in flush with the grommet.

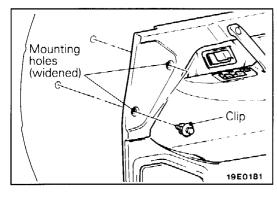
(3) Check whether the trim is secure.

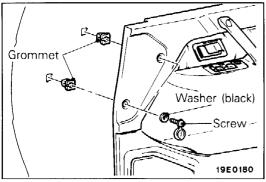
NOTE

Two types of door panel and door trim are available. Identify the type from the table below, and install by the following procedure.

	Туре А	Туре В	
Door panel	Round hole 8 mm (0.31 in.)	Square hole 10×12 mm (0.39×0.47 in.)	
Door trim	Round hole 11 mm (0.43 in.)	Round hole 6 mm (0.24 in.)	
Securing method	Clip	Cap assembled screw	

- When installing the type B door trim to the type A door panel
  - 1) Use a drill or similar tool to widen the mounting holes (6 mm dia.) in the door trim to 11 mm in diameter.
  - 2) Secure using clips.
- When installing the type A door trim to the type B door panel
  - 1) Insert grommets into the square mounting holes in the door panel.
  - 2) Tighten using black washers and screws, and then cover the screws with the caps.



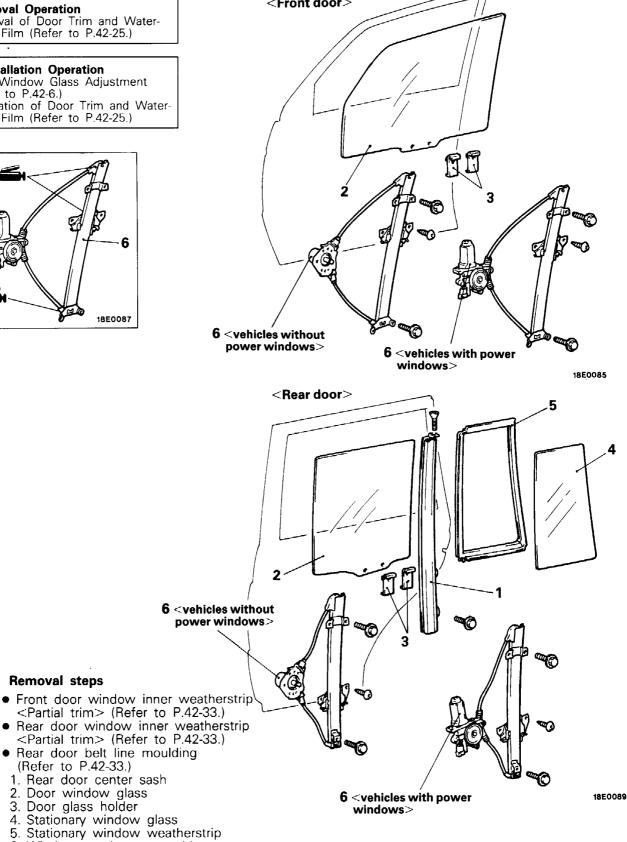


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# 42-26-2

NOTES

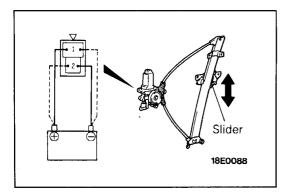
# DOOR GLASS AND REGULATOR **REMOVAL AND INSTALLATION** <Front door> **Pre-removal Operation** Removal of Door Trim and Water-. proof Film (Refer to P.42-25.) **Post-installation Operation** Door Window Glass Adjustment • (Refer to P.42-6.) Installation of Door Trim and Water-• proof Film (Refer to P.42-25.) 6 18E0087 6 < vehicles withoutpower windows> <Rear door>



#### **Removal steps**

6. Window regulator assembly

E42MCAN



# INSPECTION POWER WINDOW MOTOR

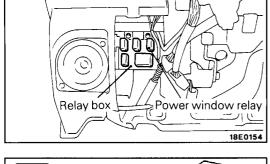
- (1) Check if the slider moves smoothly when the battery is directly connected to the motor terminals.
- (2) Check if the slider moves in the opposite direction when the battery is connected with the polarities reversed.

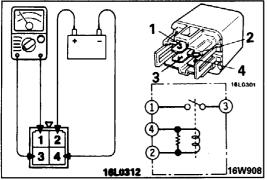
# CIRCUIT BREAKER (INCORPORATED IN THE POWER WINDOW MOTOR)

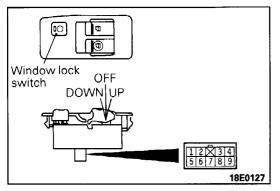
- (1) Press the UP switch to fully close the window glass, and continue to press the switch for 10 seconds.
- (2) At the moment that the UP switch is released, press the DOWN switch. The circuit breaker can be considered good if at this time the door window glass begins to open within 60 seconds.

#### POWER WINDOW RELAY

(1) Remove the power window relay from the relay box.







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(2) Check for continuity between the terminals.

When there is no	Between terminals @ - @	Continuity
current	Between terminals 🛈 - 🕄	No continuity
When there is current (Between terminals @ - @	Between terminals ① - ③	Continuity

#### POWER WINDOW SWITCH

Operate the switch and check for continuity between the terminals.

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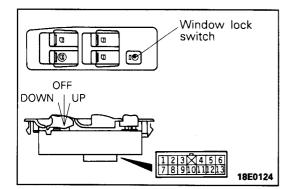
Switch position			Power window switch			
Terminal			UP	OFF	DOWN	
Power	Driver's	6	Q		<b>Q</b>	
window switch	side	3 (1)	0	Ŷ	0	
o tritoin	•	8 (5)	Ŷ	9	0	
		9	6	Ó	6	
	Passenger's	6	9		Q	
SI	side	1 (3)	0	9	ρ	
		5 (8)	9	4	0	
		9	6	0	0	

Switch position		Power window lock switch		
Terminal		NORMAL	LOCK	
Power window	6	Ŷ		
lock switch	4	0		

NOTE

(1)  $\bigcirc$ — $\bigcirc$  indicates that there is continuity between the terminals. (2) ( ) indicates RH drive vehicles.

Main switch <4-door models>



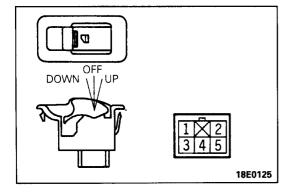
Switch position		Power	Power window switch (normal)			Power window switch (lock)		
Terminal		UP	OFF	DOWN	UP	OFF	DOWN	
Front	9	Q		Q	Q		0	
(Driver's	2(1)	0	Ŷ	Q	6	Ŷ	φ	
side)	8(7)	Q	- ¢	Ó	Q		0	
	13	Ó	Ó	Ó	6	0	0	
Front	9	Ŷ		Q	Q		Q I	
(Passenger's side)	1(2)	Ó	Q	Q Q	Ó	Q	<b>Q</b>	
side)	7(8)	Ŷ	<u>ф</u>	6	Q	$\diamond$		
	13	Ó	0	0	6	0	0	
Rear	9	Q		Ŷ				
(RH)	5(4)	Ó	Q	Q		Q	Q	
	12(11)	Q	¢	0	Ģ	<b></b>		
	13	Ó	ð	Ó	0	6	0	
Rear	9	φ		<b></b>				
(LH)	4(5)	<u> </u>	9	Q Q		Ŷ	Q	
	11(12)	Q	<u> </u>	0	ļ Ģ	φ –		
L	13	<u>Ó</u>	0	Ó	6	٥ (	0	

NOTE

**~** 

(1) O-O indicates that there is continuity between the terminals.

(2) () indicates RH drive vehicles.

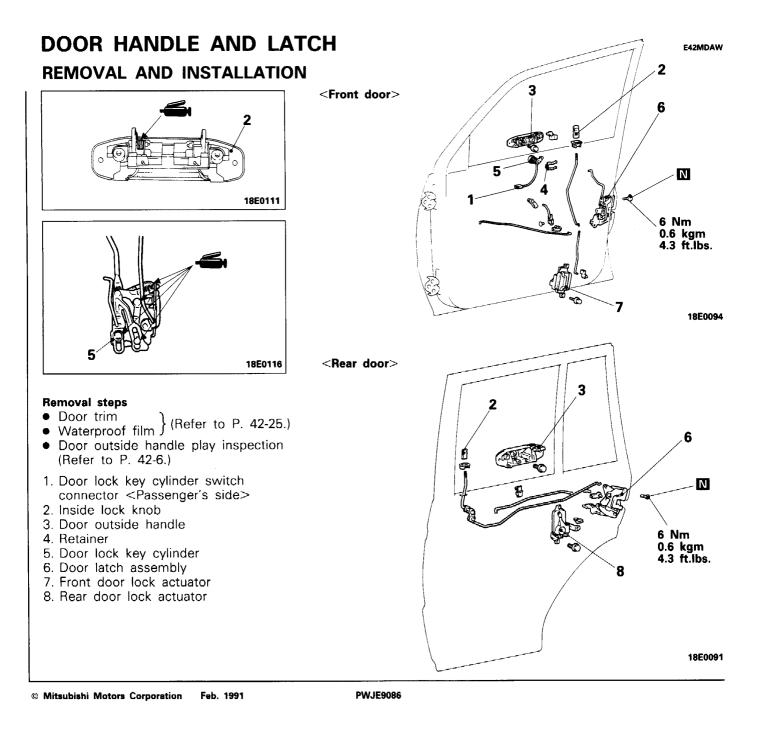


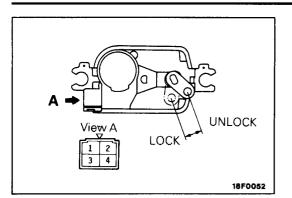
#### Sub switch

Switch position		Sub-switch			
Terminal		UP	OFF	DOWN	
	1	9	γ		
Sub-switch	2	0	0	9	
-	3	9	9	9	
	4	0		0	
	5		6	0	

NOTE

 $\bigcirc$ - $\bigcirc$  indicates that there is continuity between the terminals.



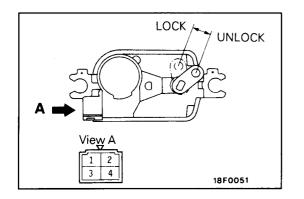


# INSPECTION

#### FRONT DOOR LOCK ACTUATOR

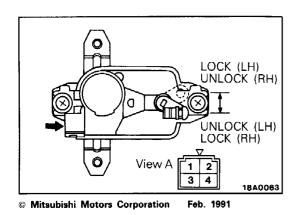
<LH>

- (1) After setting the rod to the LOCK position, apply battery voltage to terminal ① and check if the rod moves to the UNLOCK position when terminal ③ is earthed.
- (2) After setting the rod to the UNLOCK position and applying battery voltage to terminal ③, check if the rod moves to the LOCK position when terminal ① is earthed.
- (3) For left-hand drive vehicles, when the actuator rod is set to the UNLOCK position, check if there is continuity between terminal @ and terminal @, and when the rod is set to the LOCK position, check if there is no continuity.



#### <RH>

- (1) After setting the rod to the LOCK position and applying battery voltage to terminal<sup>(3)</sup>, check if the rod moves to the UNLOCK position when terminal <sup>(1)</sup> is earthed.
- (2) After setting the rod to the UNLOCK position and applying battery voltage to terminal ① check if the rod moves to the LOCK position when terminal ③ is earthed.
- (3) For right-hand vehicles, when the actuator rod is set to the UNLOCK position, check if there is continuity between terminal @ and terminal @, and when the rod is set to the LOCK position, check if there is no continuity.



#### **REAR DOOR LOCK ACTUATOR**

<LH>

- After setting the rod to the LOCK position and applying battery voltage to terminal<sup>®</sup>, check if the rod moves to the UNLOCK position when terminal<sup>®</sup> is earthed.
- (2) After setting the rod to the UNLOCK position and applying battery voltage to terminal<sup>①</sup>, check if the rod moves to the LOCK position when terminal <sup>③</sup> is earthed.

PWJE9086

#### < RH >

- (1) After setting the rod to the LOCK position, apply battery voltage to terminal ① and check if the rod moves to the UNLOCK position when terminal ③ is earthed.
- (2) After setting the rod to the UNLOCK position and applying battery voltage to terminal ③, check if the rod moves to the LOCK position when terminal ① is earthed.

#### DOOR LOCK KEY CYLINDER SWITCH

Operate the switch and check for continuity between the terminals.

Terminal Switch position	1	2	3
LOCK		0	0
Neutral (OFF)			
UNLOCK	0	0	

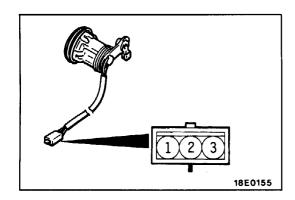
NOTE

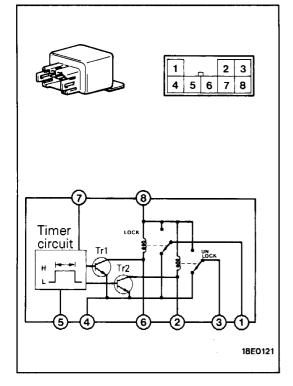
O—O indicates that there is continuity between the terminals.

#### DOOR LOCK CONTROL UNIT

- (1) Apply battery power to terminals ⑦ and ⑧, and earth terminals ④ and ⑤.
- (2) Connect a needle-type circuit tester between terminal ① and the earth, and after switching it to the DC V range, and check if the needle moves at the instant when the connection at terminal ⑤ is removed.
- (3) Next, connect the needle-type circuit tester between terminal ③ and the earth, and check if the needle moves at the instant when the connection at terminal ⑤ that was removed in (2) above is reconnected.
- (4) Also, check if there is a voltage of 12V between terminal and the earth, and between terminal and the earth. NOTE

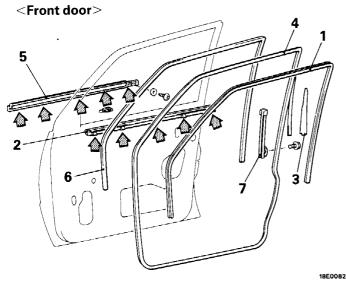
The reason why the needle of the circuit tester moves in (2) and (3) above is because battery voltage appears between terminals ① and ③ and the earth for approximately 0.5 seconds.

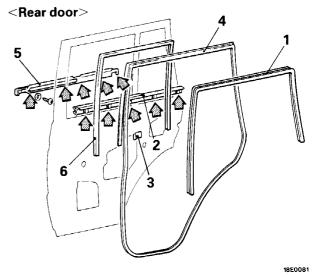




#### WINDOW GLASS RUNCHANNEL AND DOOR OPENING WEATHER-STRIP E42MEAG

#### **REMOVAL AND INSTALLATION**





#### NOTE

Indicates the clip positions

- 1. Door inner opening weatherstrip <3000 (excluding canvas top)>
- 2. Belt line inner weatherstrip <Partial trim>

#### Door outer opening weatherstrip removal steps

3. Weatherstrip protector

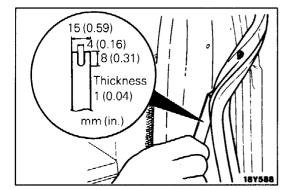
4. Door outer opening weatherstrip

#### Belt line moulding removal steps

- Door mirror (Refer to GROUP 51 -Outside Mirror.)
- 5. Belt line moulding
- Window glass runchannel removal

# steps

- Door window glass (Refer to P.42-27.)
- Window glass runchannel 7. Lower rear sash



# SERVICE POINT OF REMOVAL 4. REMOVAL OF DOOR OUTER OPENING WEATHERSTRIP

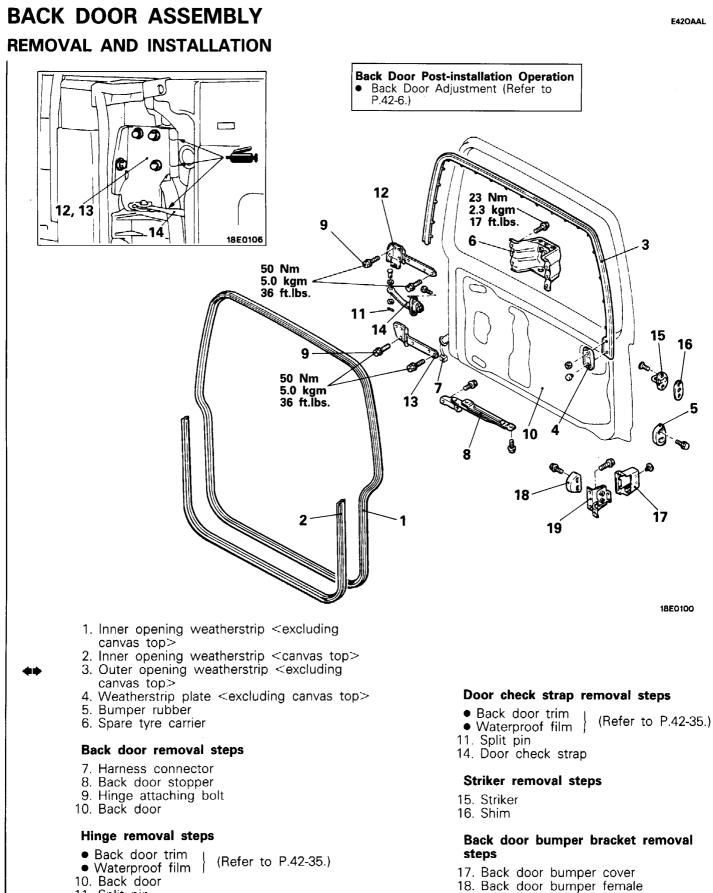
Make a tool as shown in the illustration to remove the door opening weatherstrip.

### SERVICE POINT OF INSTALLATION

#### 4. INSTALLATION OF DOOR OUTER OPENING WEATHER-STRIP

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

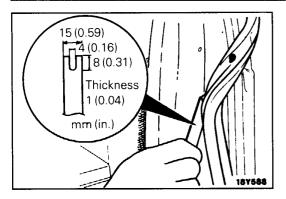
Identification colour	Applicable side
White	Left door
Brown	Right door



- 11. Split pin
- 12. Upper hinge
- 13. Lower hinge

#### Rear combination lamp

19. Back door bumper bracket



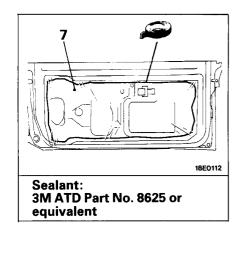
## SERVICE POINT OF REMOVAL

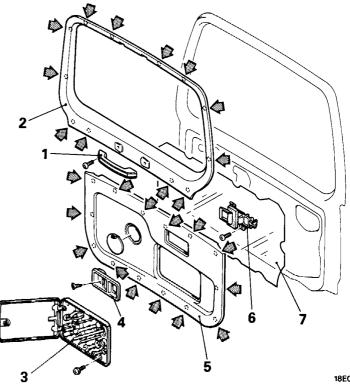
## 3. REMOVAL OF OUTER OPENING WEATHERSTRIP

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

# BACK DOOR TRIM AND WATERPROOF FILM **REMOVAL AND INSTALLATION**

E42OBAG





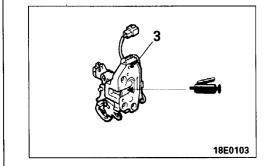
18E0101

### **Removal steps**

- 1. Door pull handle
- 2. Back door upper trim <Full trim>
- 3. Tool box lid assembly
- 4. Inside handle cover
- 5. Back door trim
- 6. Inside handle
- 7. Waterproof film

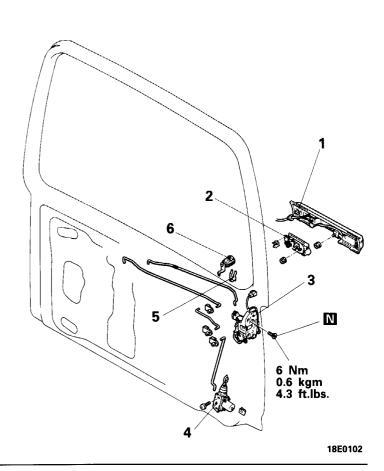
NOTE Indicates the clip positions

# BACK DOOR HANDLE AND LATCH REMOVAL AND INSTALLATION

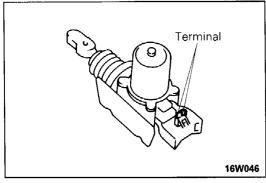


#### **Removal steps**

- Back door trim } (Refer to P.42-35.)
  Waterproof film }
- Waterproof film J
   Door outside handle play inspection (Refer to P.42-6.)
- 1. License plate lamp garnish
- 2. Door outside handle
- 3. Back door latch assembly
- 4. Back door lock actuator
- 5. Retainer
- 6. Back door key cylinder



OPEN CLOSED



INSPECTION

## LATCH SWITCH

Check the continuity between the terminals when the latch is moved.

Latch position	1	2
OPEN	0	0
CLOSED		

NOTE

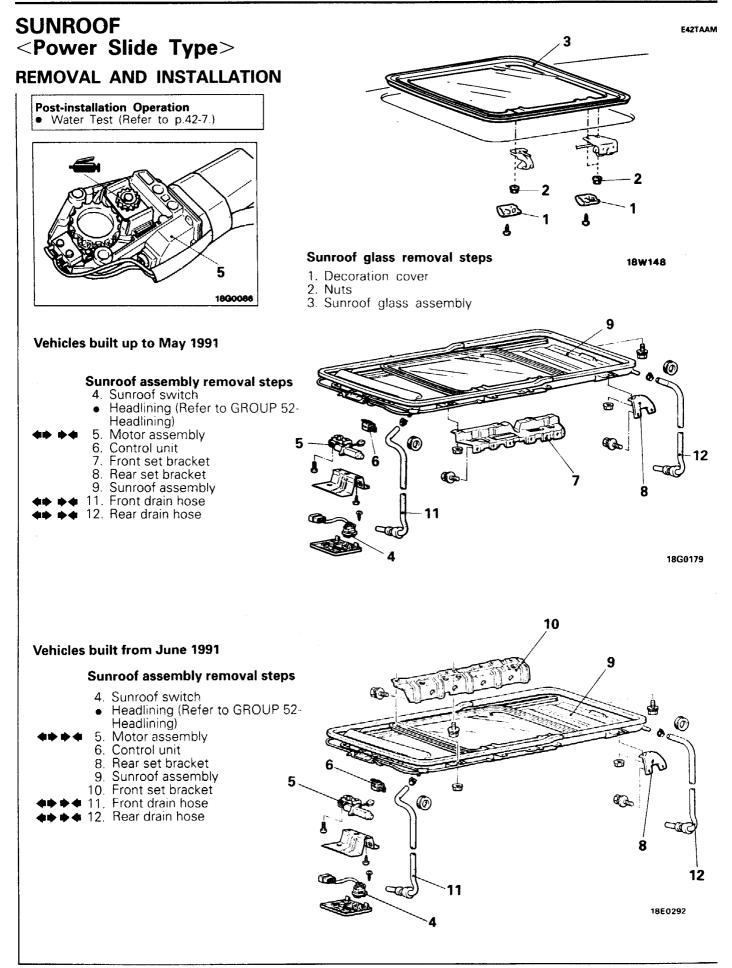
O-O indicates that there is continuity between the terminals.

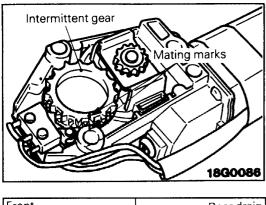
### BACK DOOR LOCK ACTUATOR

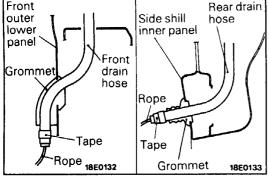
Connect the battery source to the actuator terminal, and check the shaft for operation. If the shaft moves in opposite direction when the connection polarity is changed, the actuator should be considered to be in normal condition.

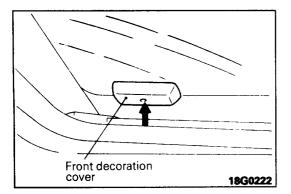
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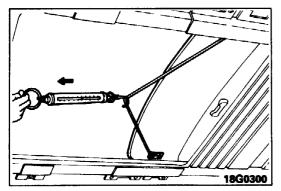
E42OCAH

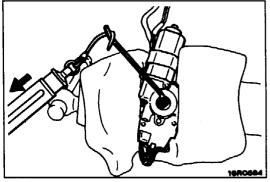












# SERVICE POINTS OF REMOVAL

## 5. REMOVAL OF MOTOR ASSEMBLY

- (1) Close sunroof fully. Remove motor.
   NOTE
   When sunroof does not move, place match marks on
- roof lid and guide rail.(2) Place match marks on motor intermittent gear and bracket.

# 11. REMOVAL OF FRONT DRAIN HOSE/12. REAR DRAIN HOSE

Tie a rope to the end of the drain hose, wind a tape around it so that there is no unevenness, and pull the drain hose into the inside of the passenger compartment.

## **INSPECTION** SUNROOF SLIDING RESISTANCE

- (1) Remove front decoration covers.
- (2) Remove front guide front nut.
- (3) Remove motor assembly.
- (4) Fasten string.
- (5) Measure sunroof drive resistance with spring scale. Standard value: 200 N (20 kg, 44 lbs.) or less
- (6) When the resistance exceeds the standard value, check the following.
  - ① Guide rail installation
  - 2 Defective or worn guide bracket
  - ③ Seized drive cable
  - ④ Defective drive tube

# CLUTCH SLIP FORCE

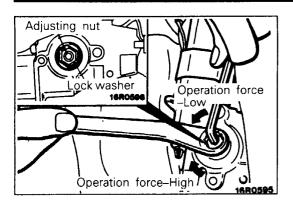
Inspect the sliding force of the clutch by the following procedure.

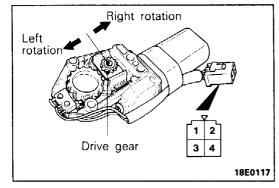
(1) Place the hexagonal wrench from the special tools into the hexagonal socket of the motor drive shaft, and use a spring balance to measure the force when the motor clutch starts to slip.

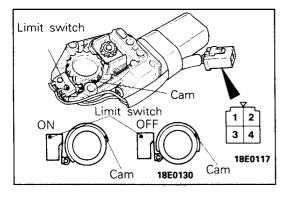
Standard value: 40-50 N (4.0-5.0 kg, 9-11 lbs.)

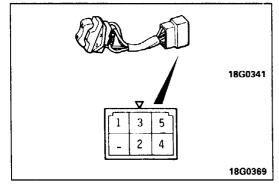
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### Caution

- 1. The spring balance should be kept a right angle to the wrench.
- 2. If a wrench other than that in the special tools is used, the value for the clutch sliding force will be different, so only the special tool should be used.
- (2) If the clutch sliding force is not within the standard value, turn the motor adjusting nut to the left or right to adjust.
- (3) After adjusting, tighten the adjusting nut securely with the lock washer.

## MOTOR

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

Terminal 1	Terminal 3	Drive gear rotation direction
+	-	Right
_	+	Left

## LIMIT SWITCH

Turn over the motor and check the continuity at each of the limit switch terminals.

Switch	2	4
ON		
OFF	0	0

NOTE

O-O Indicates that there is continuity between the terminals.

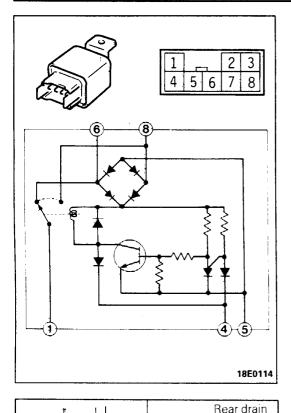
## SUNROOF SWITCH

Operate the sunroof switch and check the continuity between each of the terminals.

Terminal	1	2	3	5	6
OPEN	0	0		0	0
OFF		0	0	0	0
CLOSED	0	-0	0	0	

NOTE

O-O Indicates that there is continuity between the terminals.



## **CONTROL UNIT**

Check for continuity between terminals under the conditions described below.

Battery voltage Terminal	1	8	6	5	4
When there is no current	0 			-Θ	
When there is current	0		⊖ -⊕		

#### NOTE

- (1)  $\bigcirc$   $\bigcirc$  indicates that there is continuity between the terminals.
- (2)  $\oplus$   $\bigcirc$  indicates that there is continuity when the (+) is connected to the tester plus terminal, and the (-) is connected to the tester minus terminal.
- (3)  $\oplus$   $\odot$  indicates terminals to which battery voltage is applied.

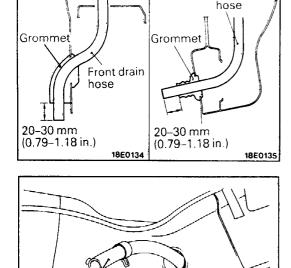
## SERVICE POINTS OF INSTALLATION

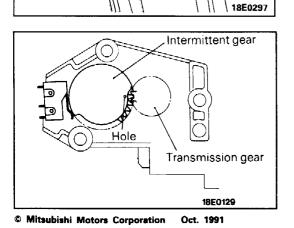
### 12. INSTALLATION OF REAR DRAIN HOSE/11. FRONT DRAIN HOSE

- (1) Tie the rope 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 rope to pull the drain hose through.
- (3) Pull the drain hose until the protruding length from the grommet is as shown in the figure.
- (4) Align the rear drain hose (RH) with the body hole with the marking at the bottom.
   (Vehicles built from June 1991)

### 5. INSTALLATION OF MOTOR ASSEMBLY

When replacing the motor assembly, open the sunroof glass approximately 200 mm (7.9 in.), set the hole of the intermittent gear so that it is aligned between the teeth of the motor assembly transmission gear, and then install the motor assembly.





Drain hose

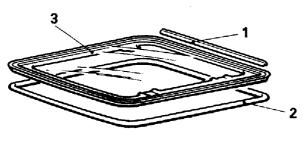
Marking (Yellow)

lc

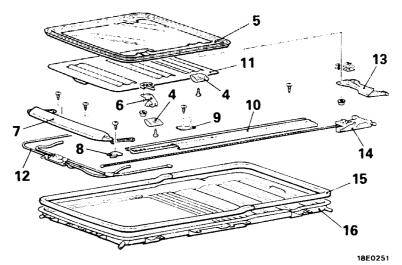
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## **DISASSEMBLY AND REASSEMBLY**



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#### Sunroof glass disassembly steps

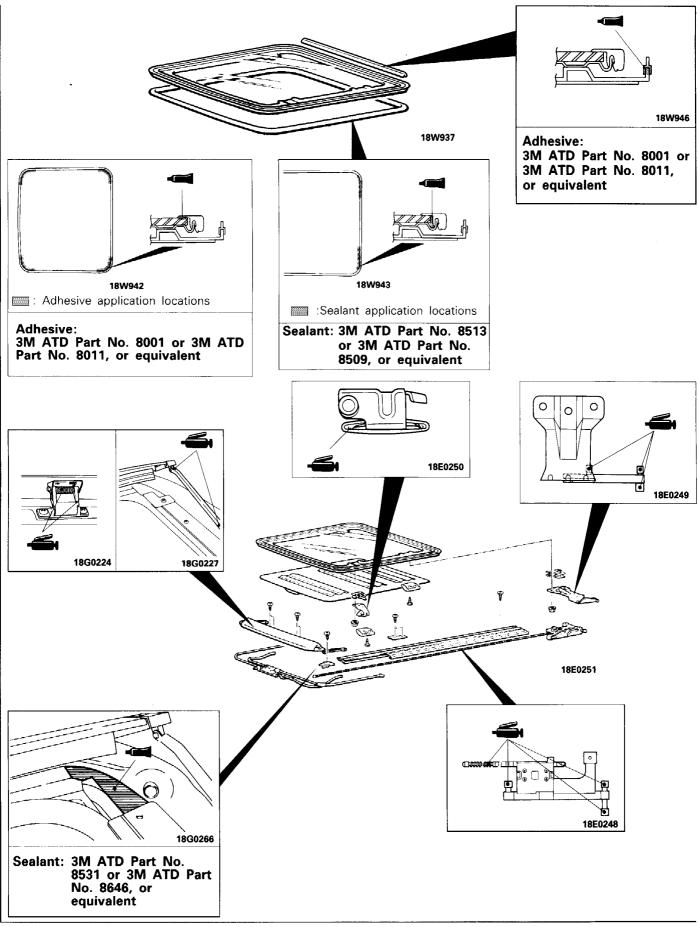
- 1. Screen drip
- 2. Weatherstrip 3. Sunroof glass

#### Sunroof assembly disassembly steps

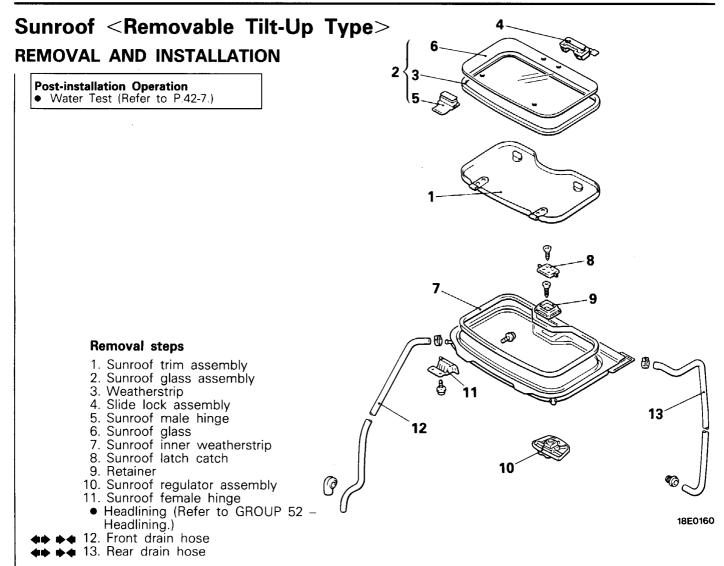
- 4. Decoration cover
- 5. Sunroof glass assembly
   6. Front guide bracket
   7. Deflector assembly
   8. Rail end cover

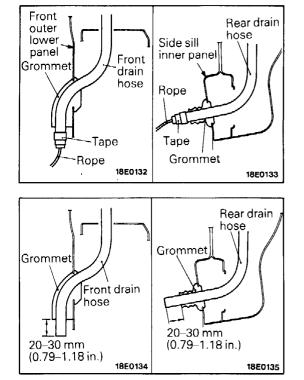
- 9. Set plate
- 10. Guide rail assembly
- 11. Sun shade
- 12. Drive tube 13. Lifter assembly
- 14. Slider assembly
- 15. Sealing tape16. Housing assembly

### LUBRICATION AND SEALING POINTS



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## SERVICE POINTS OF REMOVAL

# 12. REMOVAL OF FRONT DRAIN HOSE/13. REAR DRAIN HOSE

Tie a rope to the end of the drain hose, wind a tape around it so that there is no unevenness, and pull the drain hose into the inside of the passenger compartment.

## SERVICE POINTS OF INSTALLATION

# 13. INSTALLATION OF REAR DRAIN HOSE/12. FRONT DRAIN HOSE

- (1) Tie the rope 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 rope to pull the drain hose through.
- (3) Pull the drain hose until the protruding length from the grommet is as shown in the figure.

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18 N

-7

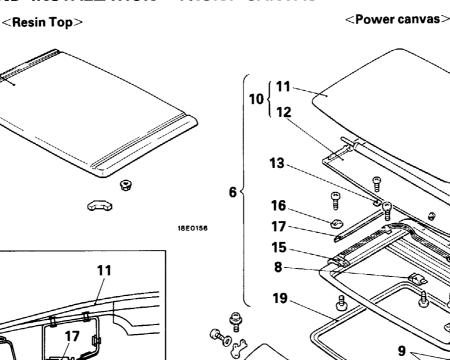
14

5

18E0162

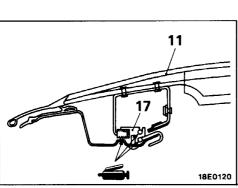
20

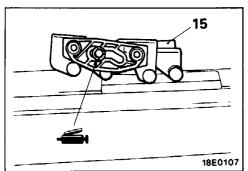
# **REMOVAL AND INSTALLATION <FRONT CANVAS>**



2

3







- Headlining (Refer to GROUP 52 -• Headlining)
- 1. Roof panel

#### Power canvas removal steps

- 2. Deflector
- 3. Canvasroof switch
- Headlining (Refer to GROUP 52 -
- Headlining)
- 4. Front drain hose 5. Rear drain hose
- 6. Folding top assembly 7. Motor assembly
- 8. Control unit
  - 9. Front guide assembly installation nut and screw 10. Leather top and inner leather assembly

**Post-installation Operation** • Water Test (Refer to P.42-7.)

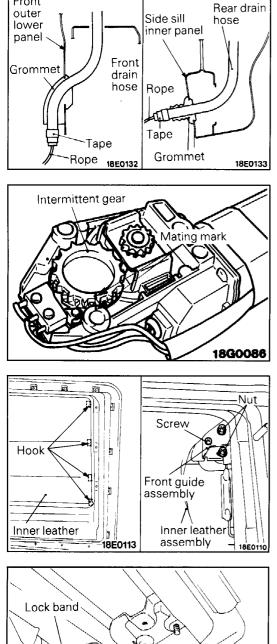
11. Leather top assembly

- 12. Inner leather assembly
  - 13. Set plate
  - 14. Drive unit assembly 15. Front guide assembly

- 16. Side rail cover 17. Guide rail assembly
- 18. Dam tape
- 19. Weatherstrip
- 20. Frame assembly

42-43

Front



## SERVICE POINTS OF REMOVAL

4. REMOVAL OF FRONT DRAIN HOSE/5. REAR DRAIN HOSE

Tie a rope to the end of the drain hose, wind a tape around it until there is no unevenness, and pull the drain hose into the inside of the passenger compartment.

### 7. REMOVAL OF MOTOR ASSEMBLY

- (1) Fully close the canvas and remove the motor assembly.
- (2) Make mating marks on the transmission gear and bracket of the motor assembly.
- 9. REMOVAL OF FRONT GUIDE ASSEMBLY INSTALLA-TION NUT AND SCREW

Remove the hook of the inner leather assembly and remove the nuts and screw while rolling up the inner leather.

### 11. REMOVAL OF LEATHER TOP ASSEMBLY/12. INNER LEATHER ASSEMBLY

After removing the E ring and lock band, remove the inner leather assembly from the leather top assembly.

## INSPECTION

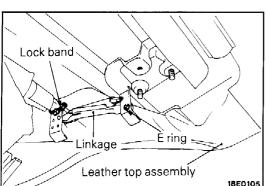
## CHECKING THE SLIDING FORCE OF THE MOTOR CLUTCH

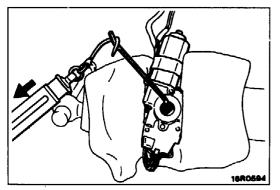
Inspect the sliding force of the clutch by the following procedure.

(1) Place the hexagonal wrench from the special tools into the hexagonal socket of the motor drive shaft, and use a spring balance to measure the force when the motor clutch starts to slip.

Standard value: 45–55 N (4.5–5.5 kg, 10–12 lbs.) Caution

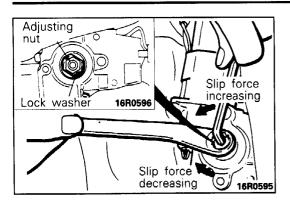
- 1. The spring balance should be kept a right angle to the wrench.
- 2. If a wrench other than that in the special tools is used, the value for the clutch sliding force will be different, so only the special tool should be used.

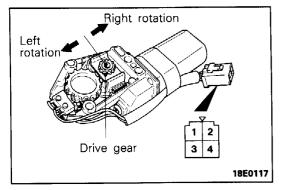


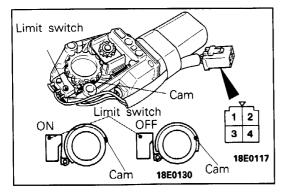


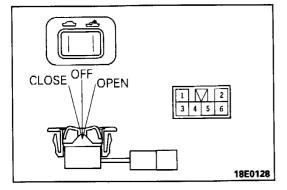
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PWJE9086









- (2) If the clutch sliding force is not within the standard value, turn the motor adjusting nut to the left or right to adjust.
- (3) After adjusting, tighten the adjusting nut securely with the lock washer.

### MOTOR

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

Terminal 1	Terminal 3	Drive gear rotation direction
+	_	Right
_	+	Left

### LIMIT SWITCH

Turn over the motor and check the continuity at each of the limit switch terminals.

Terminal Switch	2	4
ON		
OFF	0	0

NOTE

O-O indicates that there is continuity between the terminals

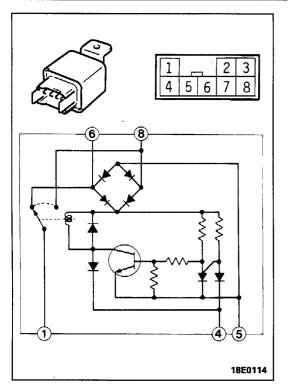
### CANVAS ROOF SWITCH

Operate the canvas roof switch and check the continuity between each of the terminals.

Switch Terminal	1	2	4	5
OPEN	0	0		o
OFF		<u> </u>		0
CLOSE	0	0		O

NOTE

O-O indicates that there is continuity between the terminals



## **CONTROL UNIT**

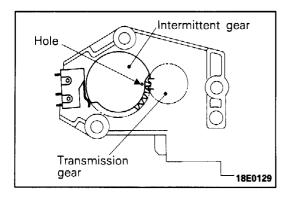
Check for continuity between terminals under the conditions described below.

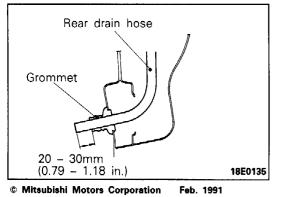
Battery voltage Terminal	1	8	6	5	4
When there is no current	0 ⊕			Θ	
When there is current	0	- ⊕ - ⊕ ⊕ -	⊖ ⊕		

#### NOTE

- (1)  $\bigcirc$ - $\bigcirc$  indicates that there is continuity between the terminals (2)  $\oplus$ - $\bigcirc$  indicates that there is continuity when the (+) is
- connected to the tester plus terminal, and the (-) is connected to the tester minus terminal.
- (3)  $\oplus$   $\oplus$  indicates terminals to which battery voltage is applied.

# Front guide assembly Cable holder Cable holder 70mm (2.8 in.) Guide rail Set plate 18E0118





# SERVICE POINTS OF INSTALLATION

### 7. INSTALLATION OF MOTOR ASSEMBLY

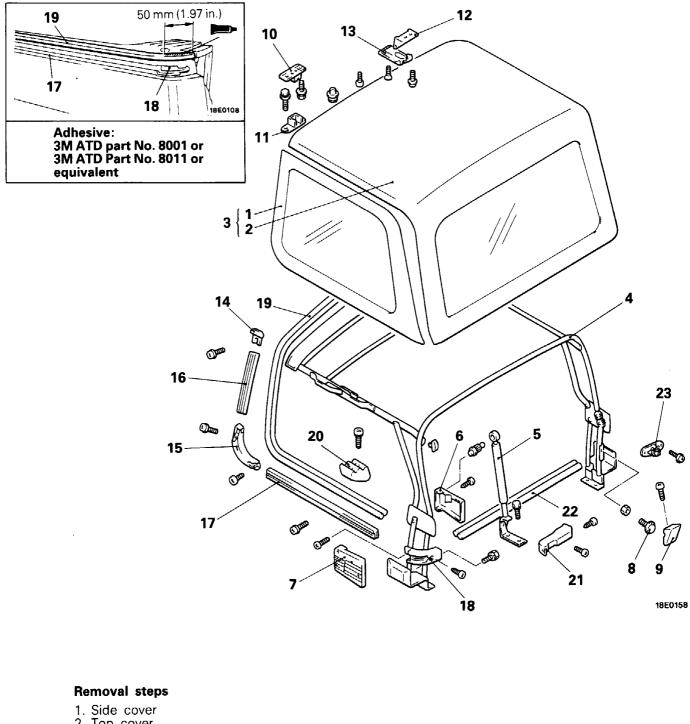
When replacing the motor assembly, install by the following procedure.

- (1) After installing the front guide assembly, set the distance between the front guide assembly cable holder and set plate to 70 mm (2.8 in.). (Canvas stopping position)
- (2) Set the hole of the intermittent gear so that it is aligned between the teeth of the motor assembly transmission gear, and then install the motor assembly.

# 5. INSTALLATION OF REAR DRAIN HOSE/4. FRONT DRAIN HOSE

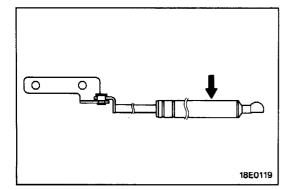
- (1) Tie the rope that was used during removal to the end of the drain hose, and wind tape around it so that there is no unevenness.
- (2) Pull the rope to pull the drain hose through.
- (3) Pull the drain hose until the protruding length from the grommet is as shown in the figure.

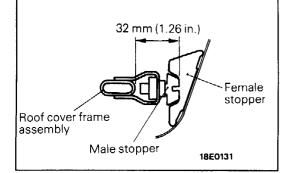
**PWJE9086** 



- 2. Top cover
- Roof cover
   Roof cover assembly
   Roof cover gas spring
- 6. Inside cover
- 7. Outside cover
- 8. Male stopper
- 9. Female stopper 10. Upper damper
- 11. Lower damper
- Folding top hook
   Folding top lock assembly

- 14. Rail end cap
- 15. Holder
- 16. Front rail
- 17. Side rail
- 18. Rear corner rail
- 19. Weatherstrip 20. Link damper
- 21. Back door opening weatherstrip
- 22. Back door weatherstrip
- 23. Rod holder





# ROLL BAR REMOVAL AND INSTALLATION

## SERVICE POINT OF REMOVAL

### 5. REMOVAL OF ROOF COVER GAS SPRING

When discarding the roof cover gas spring, place it horizontally with the piston rod extended, and make a 3 mm (0.12 in.) hole at the position shown in the figure to release the gas.

### Caution

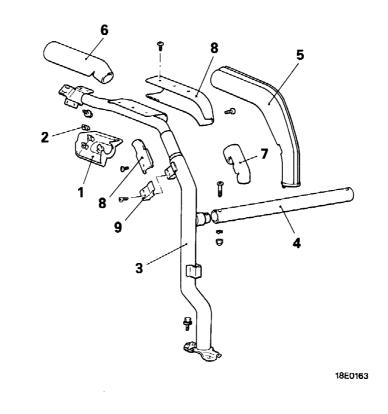
The gas is non-toxic, but there is a danger when the gas escapes together with the metal powder from the drill, so protective goggles should always be worn.

## SERVICE POINT OF INSTALLATION

### 8. INSTALLATION OF MALE STOPPER

Install the male stopper as shown in the figure.

E42ZAAA



### **Removal steps**

- 1. Roll bar bracket cover
- 2. Clip
- 3. Side bar assembly
- 4. Rear roll bar assembly

- 5. Protector cover A assembly
- 6. Upper protector pad
- 7. Lower protector pad
- 8. Protector pad
- 9. Anchor cover