
EXTERIOR

CONTENTS

E51AA-

SPECIFICATIONS	2	AERO PARTS	13
General Specifications	2	MUD GUARD	14
Service Specifications	3	WINDSHIELD WIPER AND WASHER	15
SPECIAL TOOLS	3	REAR WIPER AND WASHER	31
FRONT BUMPER	4	HEADLAMP WASHER	34
REAR BUMPER	6	DOOR MIRROR	37
GRILLES	8		
GARNISHES AND MOULDINGS	9		

Items	Specifications
Headlamp washer motor and pump	
Motor type	Direct current ferrite magnet type
Pump type	Centrifugal type
Rated current	21 or less
Tank capacity	lit. (U.S.qts., Imp.qts.) 3.5 (3.7, 3.1) or more
Check valve	
Valve opening and closing pressure	kPa (kg/cm ² , psi) 50–110 (0.5–1.1, 7.1–15.6)
Headlamp washer relay	
Timer operation time	sec. 0.52


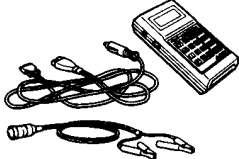

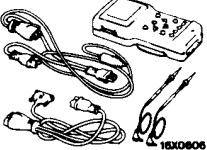

SERVICE SPECIFICATIONS

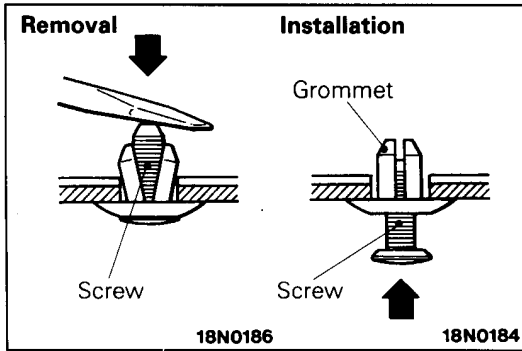
E51CB--

Items	Specifications
Standard value	
Wiper blade installation position	mm (in.) 23–33 (0.91–1.30)

SPECIAL TOOLS

E51DA--

Tool	Number	Name	Use
	MB990784	Ornament remover	Removal of rear wiper and washer switch
	MB991341	Multi-use tester assembly	Up to 1993 models Checking the ETACS input
		ROM Pack (For the number, refer to GROUP 00 - Precautions Before Service.)	
	MB991502	MUT-II	All models Checking the ETACS input
		ROM pack	



FRONT BUMPER

E51GABD

REMOVAL AND INSTALLATION OF CLIP WITH SCREW

Normally, remove the clip with a Phillips screwdriver. If, however, there is enough space to insert a screwdriver or the like behind the clip, use the following procedure for ease of work.

1. Removal

Using a screwdriver or the like, press the screw from the inside of the bumper to remove the clip.

2. Installation

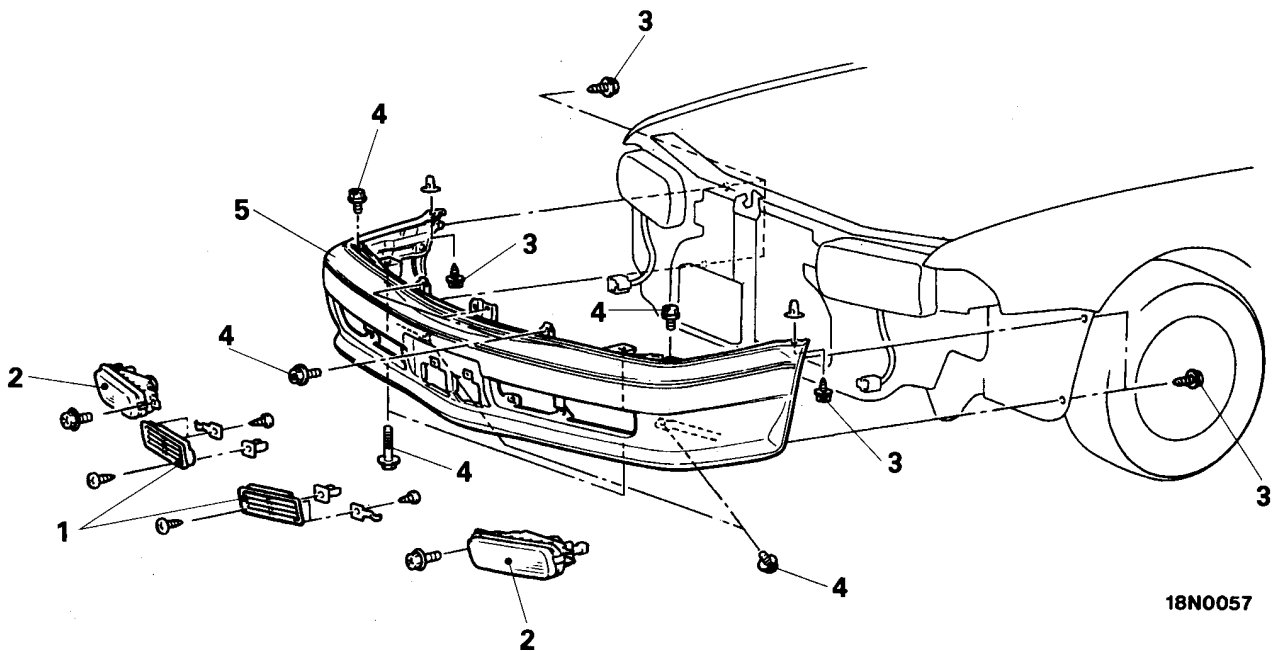
With the grommet inserted in the hole, press the screw in.

REMOVAL AND INSTALLATION

<Vehicles built up to October, 1992>

Pre-removal and Post-installation Operation

- Removal and Installation of Radiator Grille (Refer to P.51-8.)



18N0057

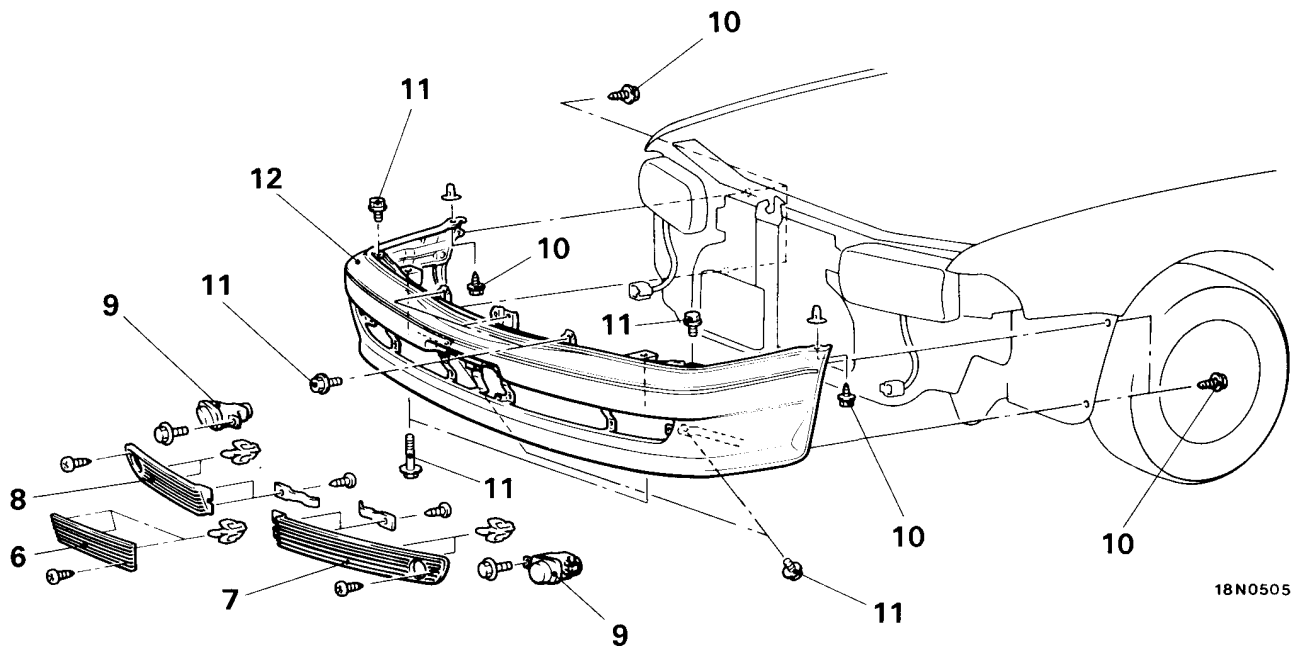
Removal steps

1. Under grille
2. Fog lamps
3. Screws
4. Bolts
5. Bumper assembly

<Vehicles built from November, 1992>

Pre-removal and Post-installation Operation

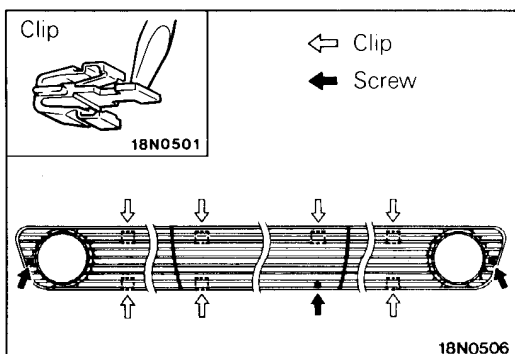
- Removal and Installation of Radiator Grille
(Refer to P.51-8.)



18N0505

Removal steps

- ↔ 6. Under grille (Centre)
- ↔ 7. Under grille (L.H.)
- ↔ 8. Under grille (R.H.)
- 9. Fog lamps
- 10. Screws
- 11. Bolts
- 12. Bumper assembly



SERVICE POINTS OF REMOVAL

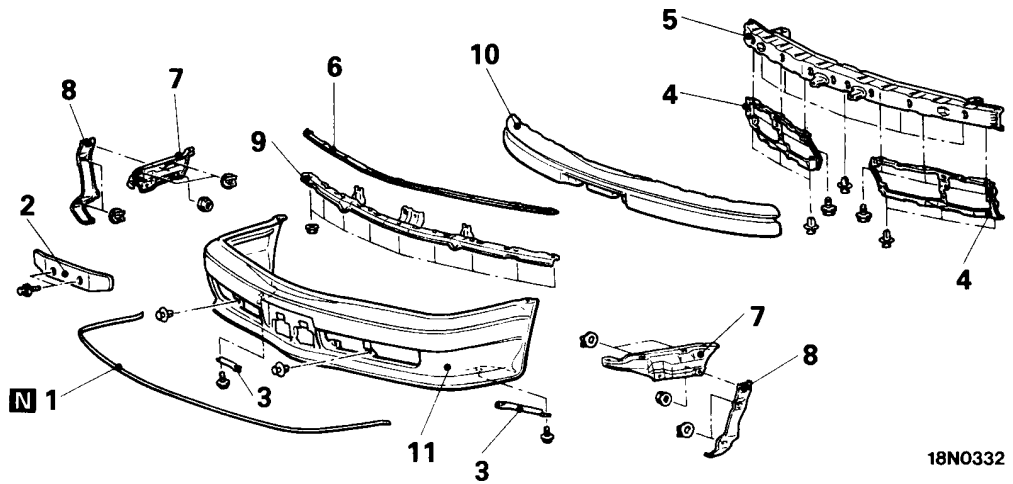
6. REMOVAL OF UNDER GRILLE (CENTRE)/7. UNDER GRILLE (L.H.)/8. UNDER GRILLE (R.H.)

Unscrew and push the tab of the clips with a flat-tipped screwdriver. Then remove the under grille by pulling it towards you.

51-4-2

NOTES

DISASSEMBLY AND REASSEMBLY



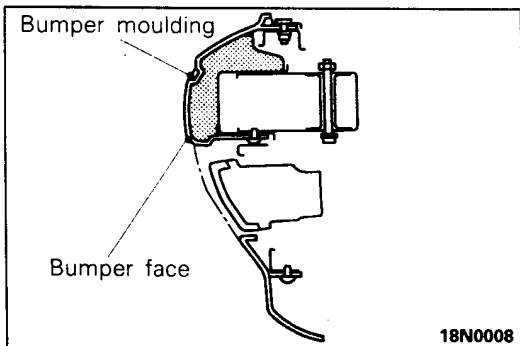
18N0332

- ◆◆ 1. Bumper moulding

Bumper assembly disassembly steps

- Airdam panel assembly (Refer to P.51-13.)
- 2. License plate bracket
- 3. Side stay
- 4. Lower reinforcement
- 5. Reinforcement
- 6. Upper plate

- 7. Side reinforcement upper
- 8. Side reinforcement rear
- 9. Upper support
- 10. Bumper core
- 11. Bumper face



18N0008

SERVICE POINTS OF REASSEMBLY

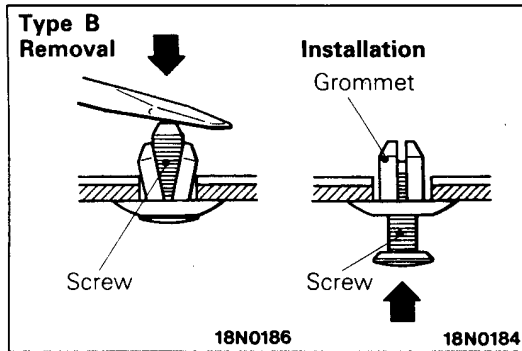
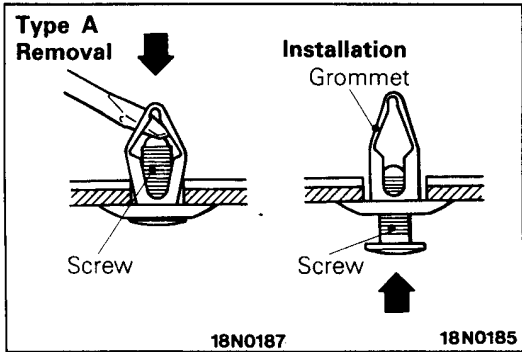
1. INSTALLATION OF BUMPER MOULDING

- (1) Clean away oil and grease from the bumper moulding installation surface at the bumper side by using petrol.
- (2) Peel off the paper from the bumper moulding, and then install the bumper moulding along the channel for installation of the bumper moulding (on the bumper surface).

REAR BUMPER

REMOVAL AND INSTALLATION OF CLIP WITH SCREW

Normally, remove the clip with a Phillips screwdriver. If, however, there is enough space to insert a screwdriver or the like behind the clip, use the following procedure for ease of work.



1. Removal

Using a screwdriver or the like, press the screw from the inside of the bumper to remove the clip.

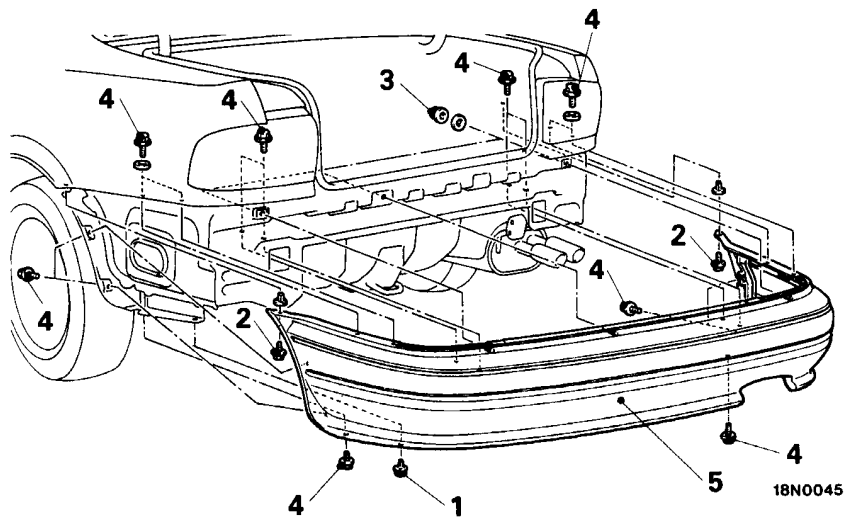
2. Installation

With the grommet inserted in the hole, press the screw in.

REMOVAL AND INSTALLATION

Pre-removal and Post-installation Operation

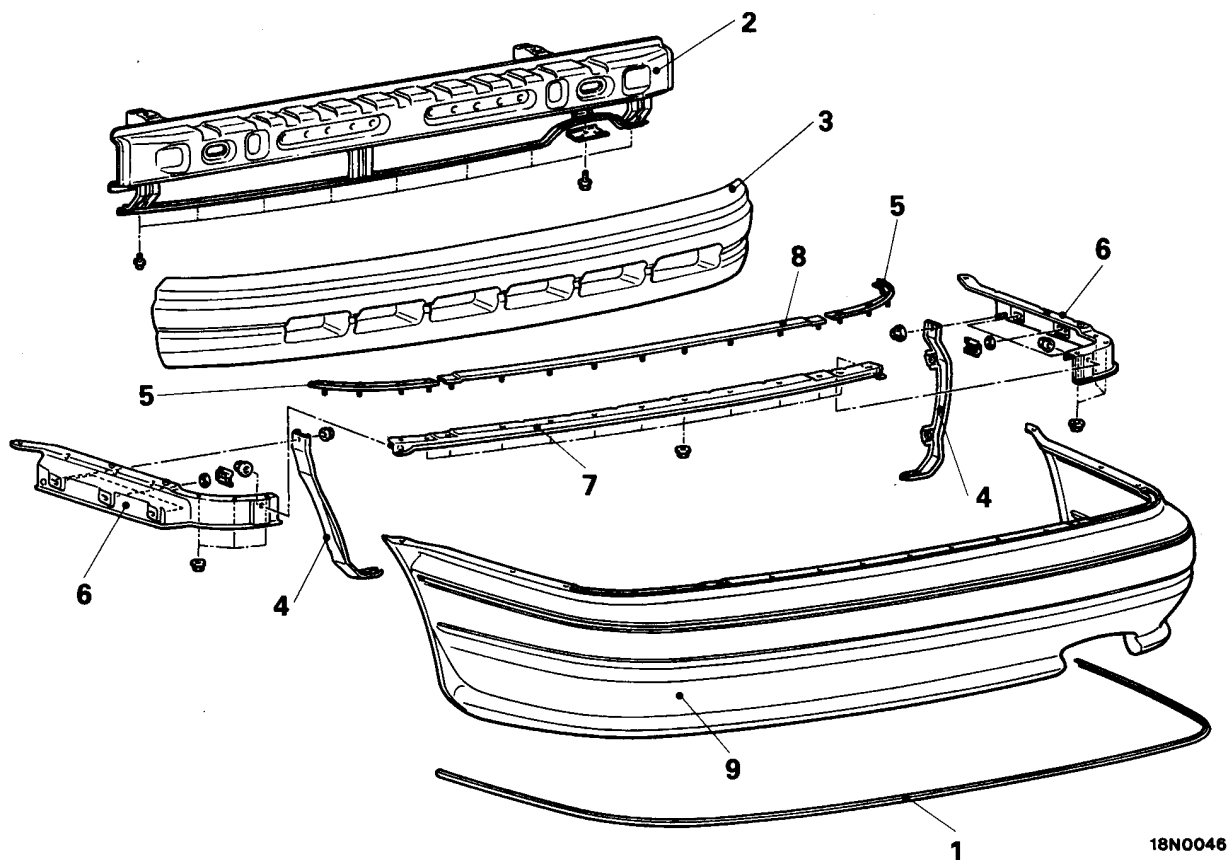
- Removal and Installation of Trunk Rear Trim and Trunk Side Trim (Refer to GROUP 52 – Trims.)
- Removal and Installation of Rear Mud Guard (Refer to P.51-14.)



Removal steps

1. Clip with screw attached
2. Screw
3. Nut
4. Bolt
5. Bumper assembly

DISASSEMBLY AND REASSEMBLY

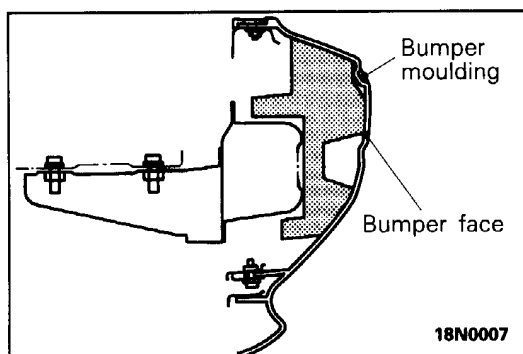


18N0046

◆◆ 1. Bumper moulding

Bumper assembly disassembly steps

2. Reinforcement
3. Bumper core
4. Side reinforcement front
5. Corner plate
6. Side reinforcement upper
7. Upper support
8. Upper plate
9. Bumper face



18N0007

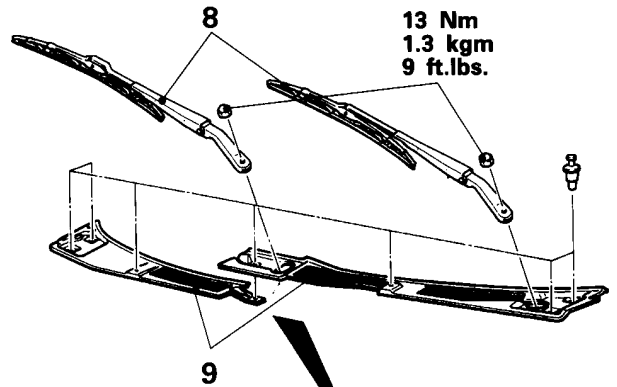
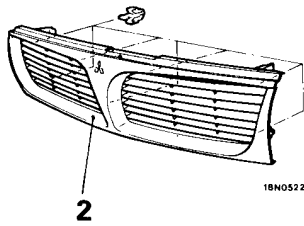
SERVICE POINTS OF REASSEMBLY**1. INSTALLATION OF BUMPER MOULDING**

- (1) Clean away oil and grease from the bumper moulding installation surface at the bumper side by using petrol.
- (2) Peel off the paper from the bumper moulding, and then install the bumper moulding along the channel for installation of the bumper moulding (on the bumper surface).

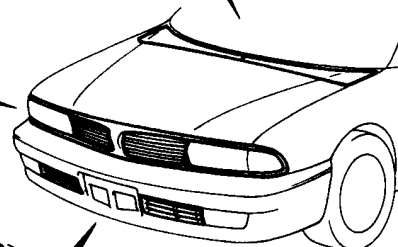
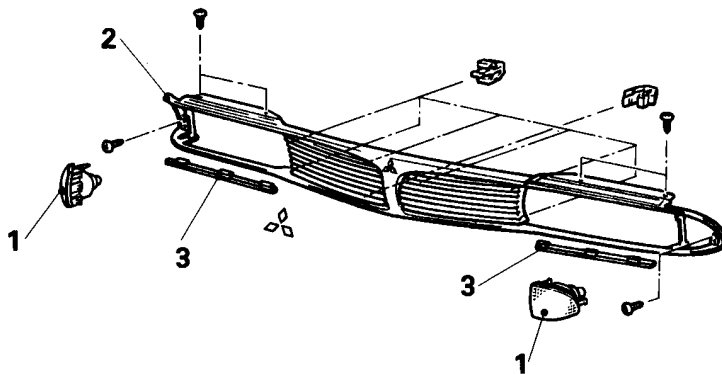
GRILLES

REMOVAL AND INSTALLATION

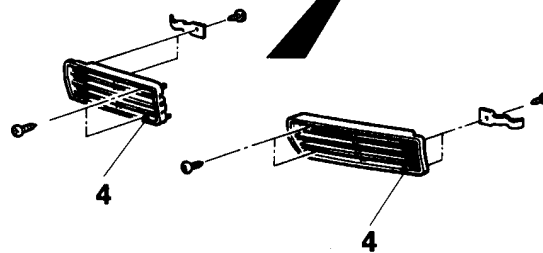
<Vehicles built from May, 1994>



<Vehicles built up to April, 1994>



<Vehicles built up to October, 1992>



18N0232

<Vehicles built from November, 1992>

Radiator grille removal steps

<Vehicles built up to April, 1994>



- 1. Front turn signal lamp
- 2. Radiator grille
- 3. Radiator grille reinforcement

<Vehicles built from May, 1994>



- 2. Radiator grille

Removal of under grille

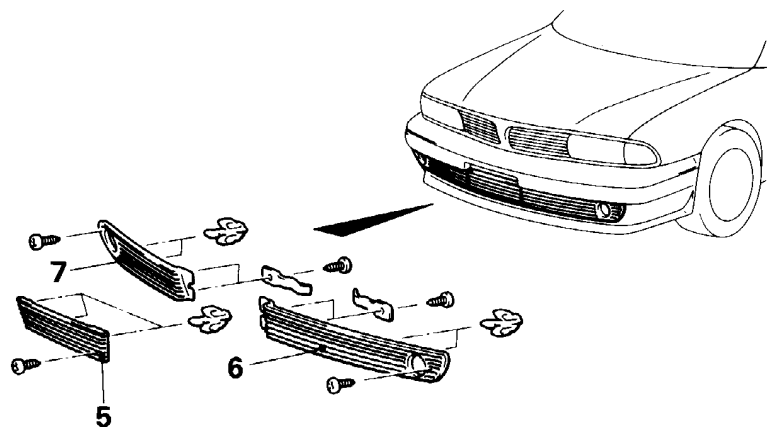
<Vehicles built up to October, 1992>

- 4. Under grille

<Vehicles built from November, 1992>



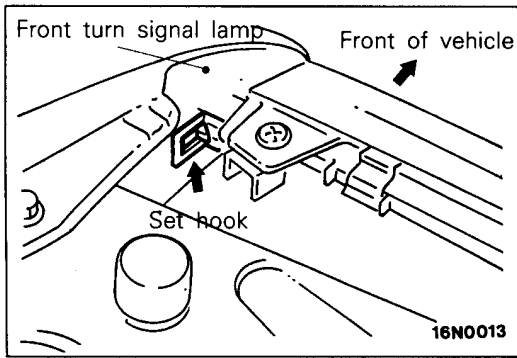
- 5. Under grille (Centre)
- 6. Under grille (L.H.)
- 7. Under grille (R.H.)



Air inlet grille removal steps

- 8. Wiper arm assembly
- 9. Air inlet grille

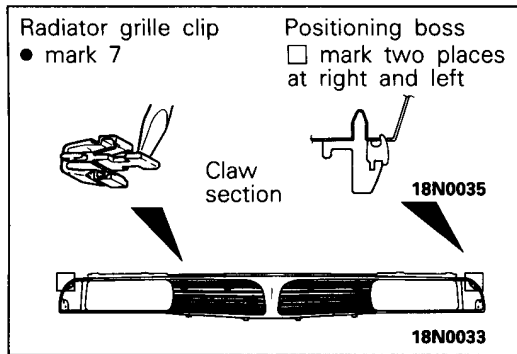
18N0507



SERVICE POINTS OF REMOVAL

1. REMOVAL OF FRONT TURN SIGNAL LAMP

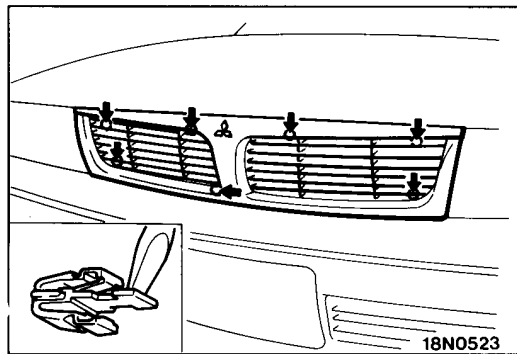
Remove the front turn signal lamp set hook and then remove the front turn signal lamp by pulling it towards the front of the vehicle.



2. REMOVAL OF RADIATOR GRILLE

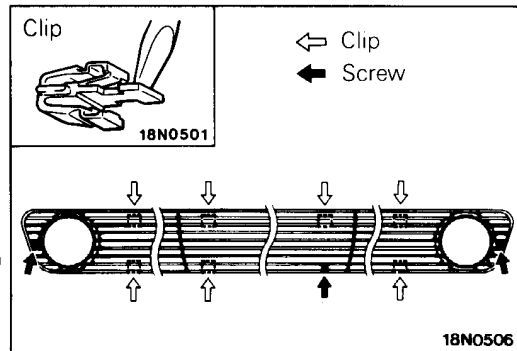
<Vehicles built up to April, 1994>

After removing the mounting screw, push the radiator grille clip claw section down or to the left with a (-) driver as shown in the figure, and then remove the radiator grille by pulling it towards you.



<Vehicles built from May, 1994>

While pulling the radiator grille gently towards you, push the clip tabs in the direction of the arrows with a flat-tipped screwdriver to remove the radiator grille.



5. REMOVAL OF UNDER GRILLE (CENTRE)/6. UNDER GRILLE (L.H.)/7. UNDER GRILLE (R.H.)

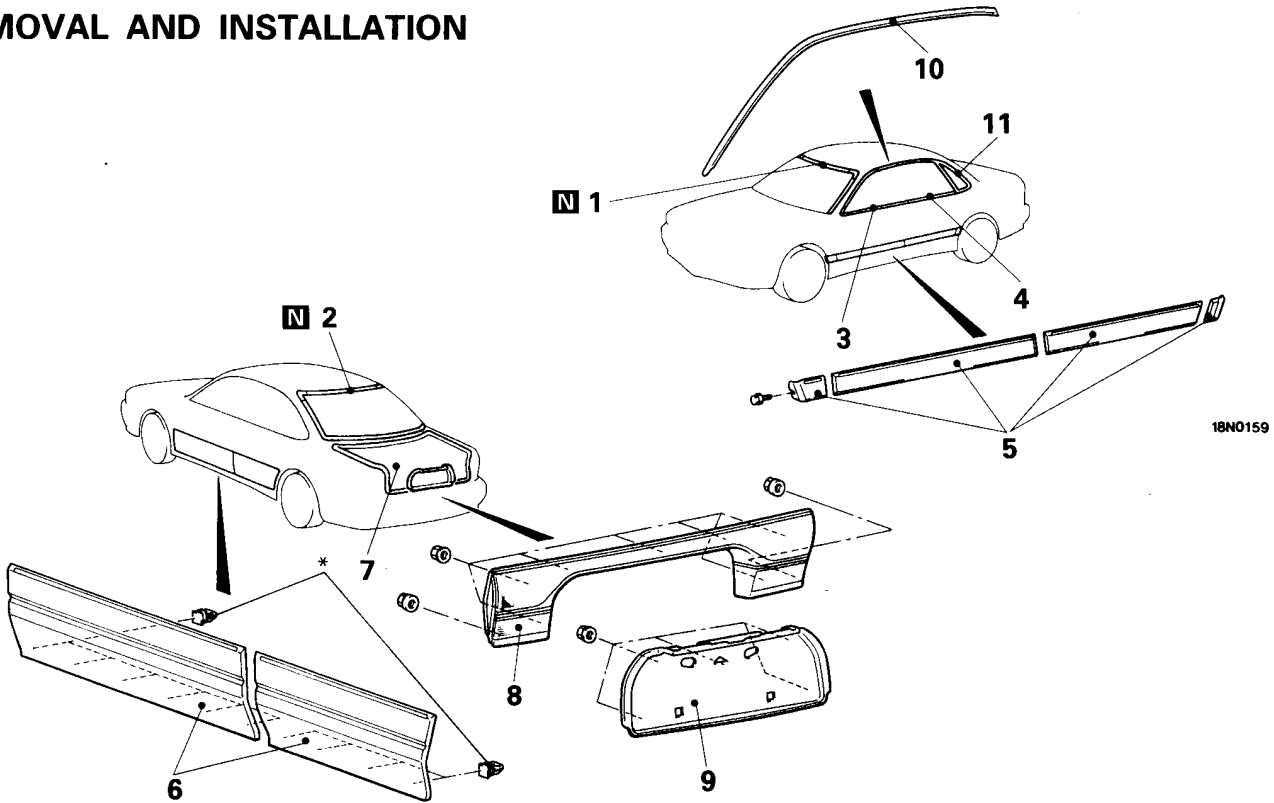
Unscrew and push the tab of the clips with a flat-tipped screwdriver. Then remove the under grille by pulling it towards you.

51-8-2

NOTES

GARNISHES AND MOULDINGS

REMOVAL AND INSTALLATION



- 1. Windshield moulding (Refer to GROUP 42-Windshield Glass.)
- 2. Rear window moulding (Refer to GROUP 42-Rear Window Glass.)
- 3. Front door belt line moulding
- 4. Rear door belt line moulding

Refer to GROUP 42 – Door Moulding and Drip Line Weatherstrip.

- ◄◄ ◄◄ 5. Side protector moulding
- ◄◄ ◄◄ 6. Side garnish

Rear panel garnish removal steps

- 7. Trunk lid trim
- 8. Rear lid lamp
- 9. Rear panel garnish

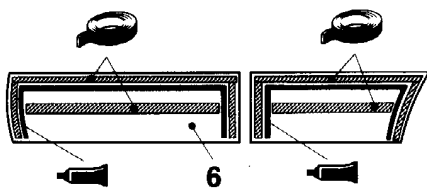
Drip moulding and quarter window moulding removal steps

- 10. Drip moulding
- 11. Quarter window moulding (Refer to GROUP 42-Quarter Window Glass.)

NOTE

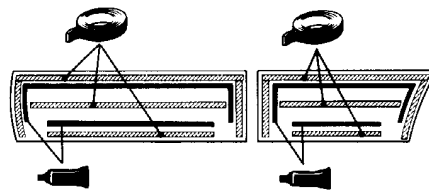
*: Vehicles built up to May, 1991

<Vehicles built up to May, 1991>

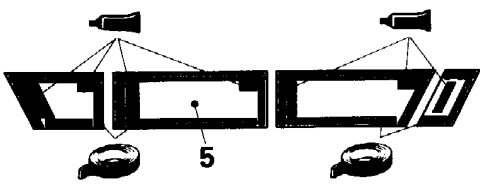


18N0010

<Vehicles built from June, 1991>



18N0456



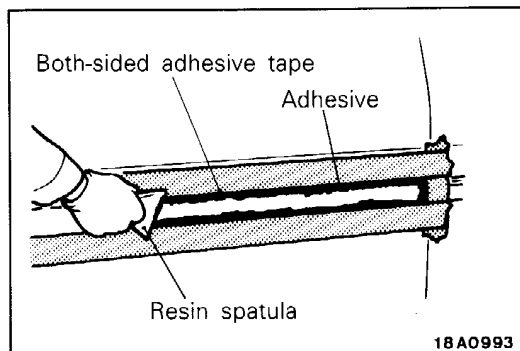
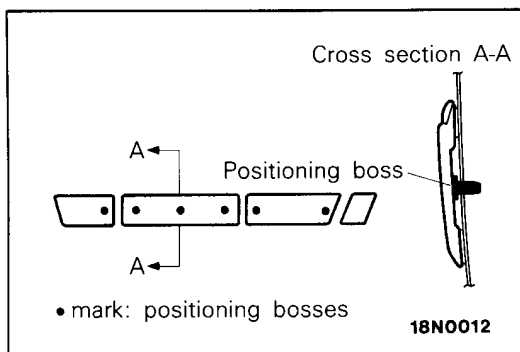
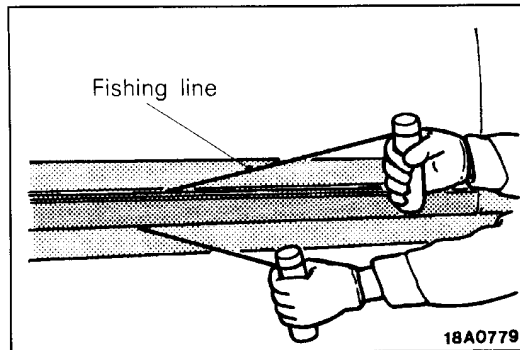
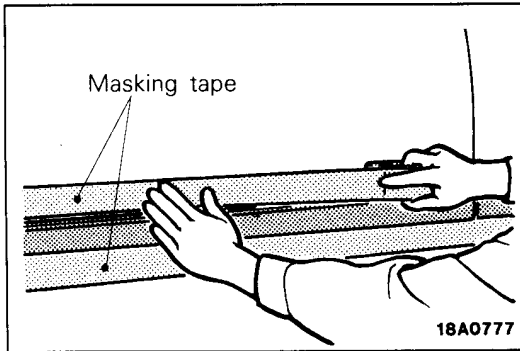
18N0009

Adhesive tape: Both-side tape

■ 15 mm (0.59 in.) wide and 1.2 mm (0.05 in.) thick

▨ 10 mm (0.39 in.) wide and 1.2 mm (0.05 in.) thick

Adhesive: Drying adhesive ■



SERVICE POINTS OF REMOVAL

5. REMOVAL OF SIDE PROTECTOR MOULDING

(1) Apply masking tape to the outside circumference of the side protector moulding.

(2) Insert fishing line ($\phi 0.8$ mm [0.03 in.]) in between the body and the side protector moulding, and pull both ends alternately to cut the adhesive section and remove the side protector moulding.

(3) Pull the section of the side protector moulding with the positioning bosses towards you to remove the bosses from the mounting holes.

Caution

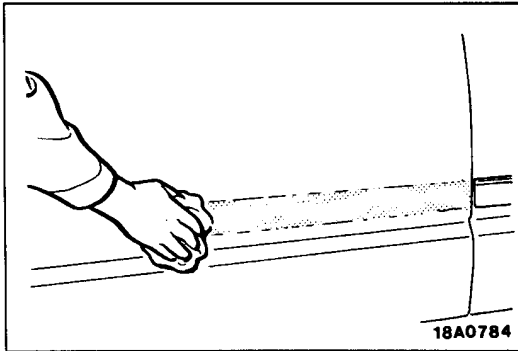
1. When reusing the side protector moulding, pull the fishing line along the edge of the body so as not to damage the edge of the side protector moulding.

2. If the adhesive is difficult to remove, heat it to 40°C (104°F).

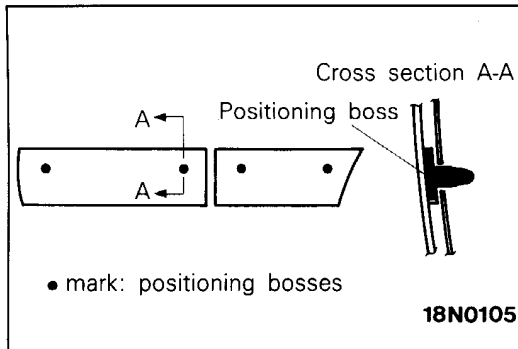
(4) Scrape off the both-sided adhesive tape with a resin spatula.

(5) Tear off the masking tape.

(6) Scrape off a small amount of the adhesive with a cutter knife.

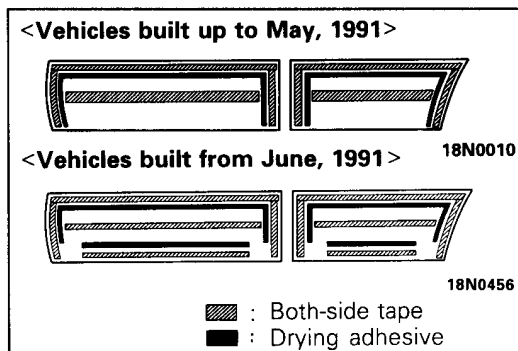


(7) Wipe the body surface clean with a rag moistened with unleaded petrol.



6. REMOVAL OF SIDE GARNISH

Remove by the same procedure as for the side protector moulding. (Refer to P.51-10.) There are positioning bosses in the places shown in the figure, so pull the side garnish towards you to remove the bosses.

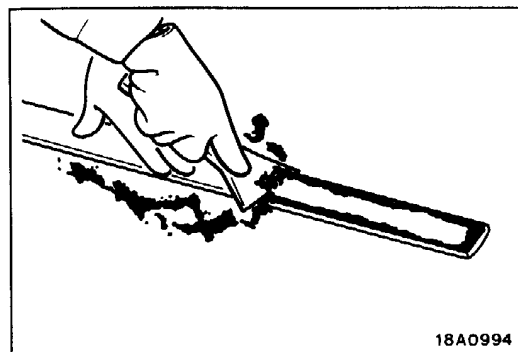


SERVICE POINTS OF INSTALLATION

6. INSTALLATION OF SIDE GARNISH

Install by the same procedure as for the side protector moulding.

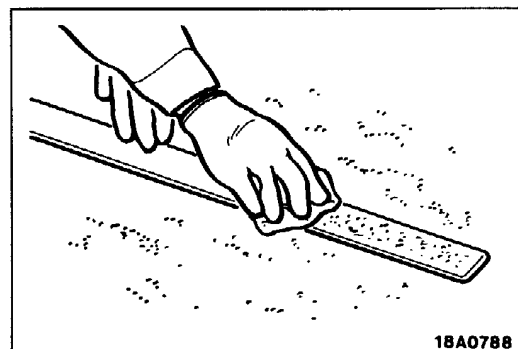
Adhesive tape: Both-side tape
10 mm (0.39 in.) wide and 1.2 mm (0.05 in.) thick



5. INSTALLATION OF SIDE PROTECTOR MOULDING

● **Affixing the both-sided tape to the side protector moulding (when reusing)**

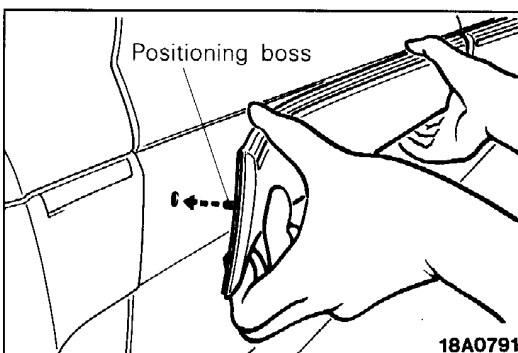
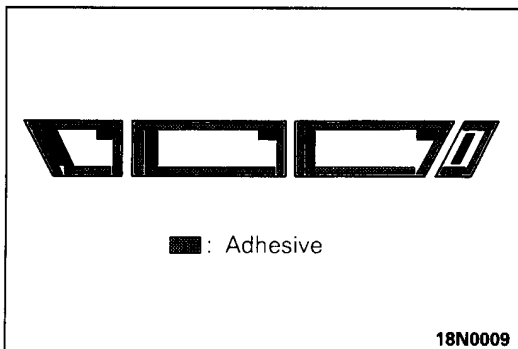
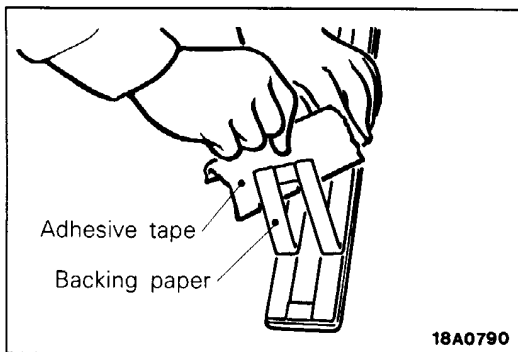
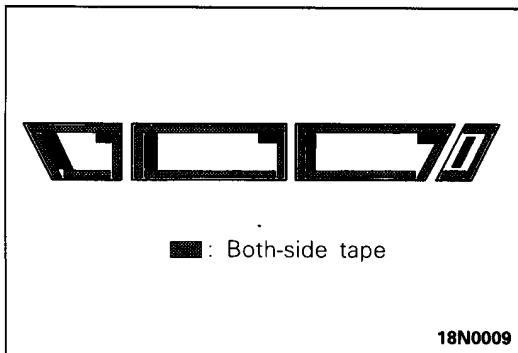
(1) Scrape off the both-sided adhesive tape with a resin spatula or gasket scraper.



(2) Wipe the body surface clean with a rag moistened with unleaded petrol.

(3) Remove a small portion of the residual adhesive.

Caution
Do not remove all of the residual adhesive.



- (4) Heat the adhesive surface of the both-side tape on the side protect moulding to about 40–60°C (104–140°F).
- (5) Affix the specified both-sided adhesive tape to the side protector moulding.

Adhesive tape: Both-side tape
15 mm (0.59 in.) wide and
1.2 mm (0.05 in.) thick

- **Installation of side protector moulding**

- (1) Tear off the both-sided tape backing paper.

NOTE

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

- (2) Apply dry adhesive to the side protector moulding.

NOTE

When reusing the side protector moulding, remove some of the residual adhesive, and apply the new adhesive over the top.

Caution

Do not get any adhesive on the adhesive surface of the tape.

- (3) Install the side protector moulding so that the positioning bosses match the body holes.

NOTE

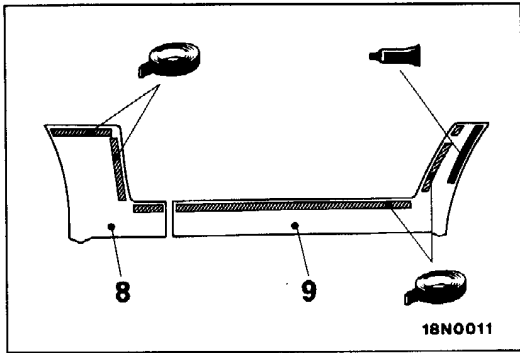
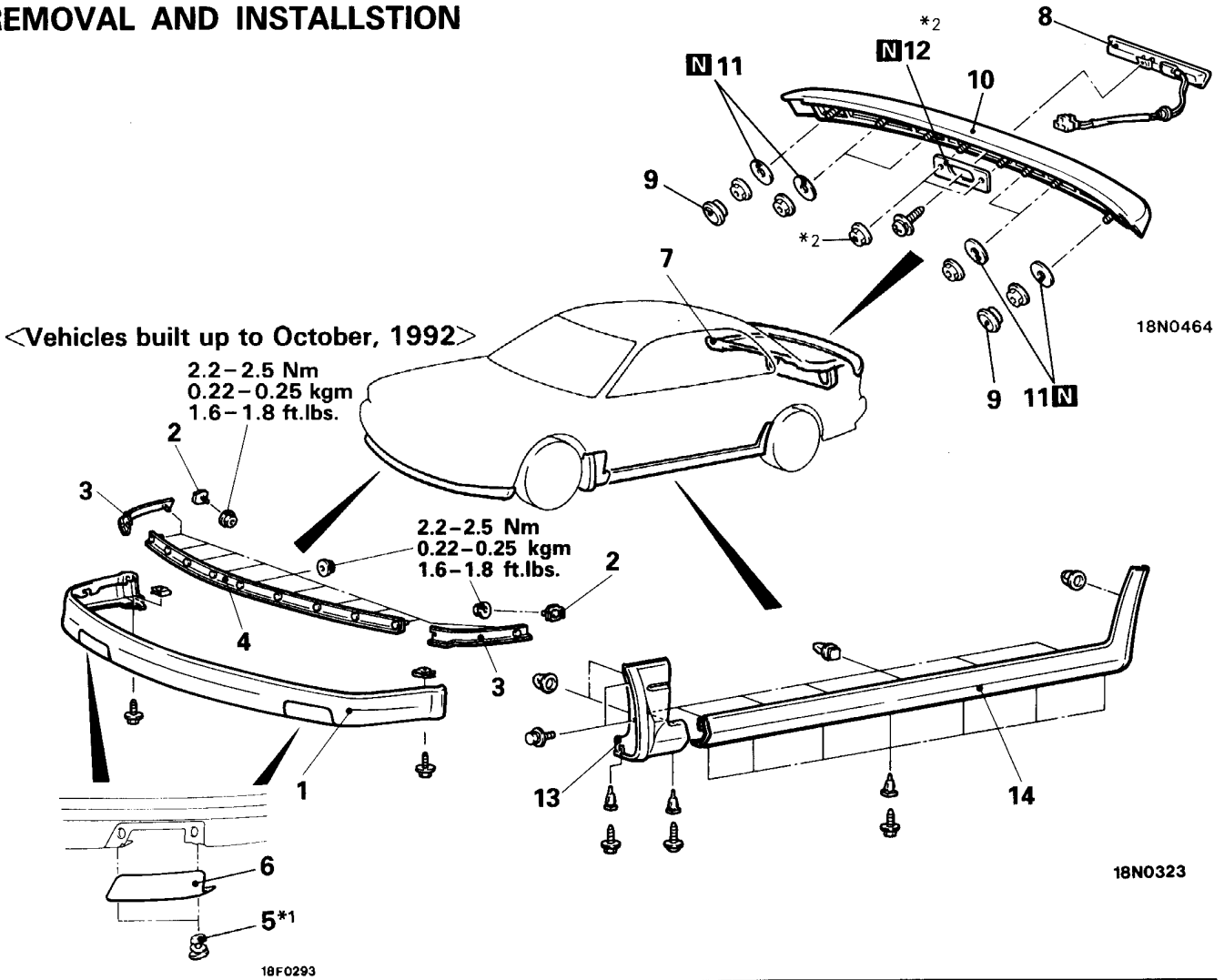
If the both-sided adhesive tape is difficult to affix during winter, etc., warm the bonding surfaces of the body and the side protector moulding to about 40–60°C (104–140°F) before affixing the tape.

- (4) Firmly press in the side protector moulding.

AERO PARTS

REMOVAL AND INSTALLSTION

E51HBAMa



Adhesive tape: Both-side tape
 ■ 10 mm (0.39 in.) wide and 1.2 mm (0.05 in.) thick
 Adhesive: Drying adhesive ■

Air dam panel removal steps <Vehicles built up to October, 1992>

- 1. Air dam panel assembly
- 2. Air dam side plate rear
- 3. Air dam side plate
- 4. Air dam center plate
- ↔ 5. Clip*1
- ↔ 6. Cover

Air spoiler removal steps

- 7. Trunk lid trim
- 8. High mounted stop lamp
- 9. Plug

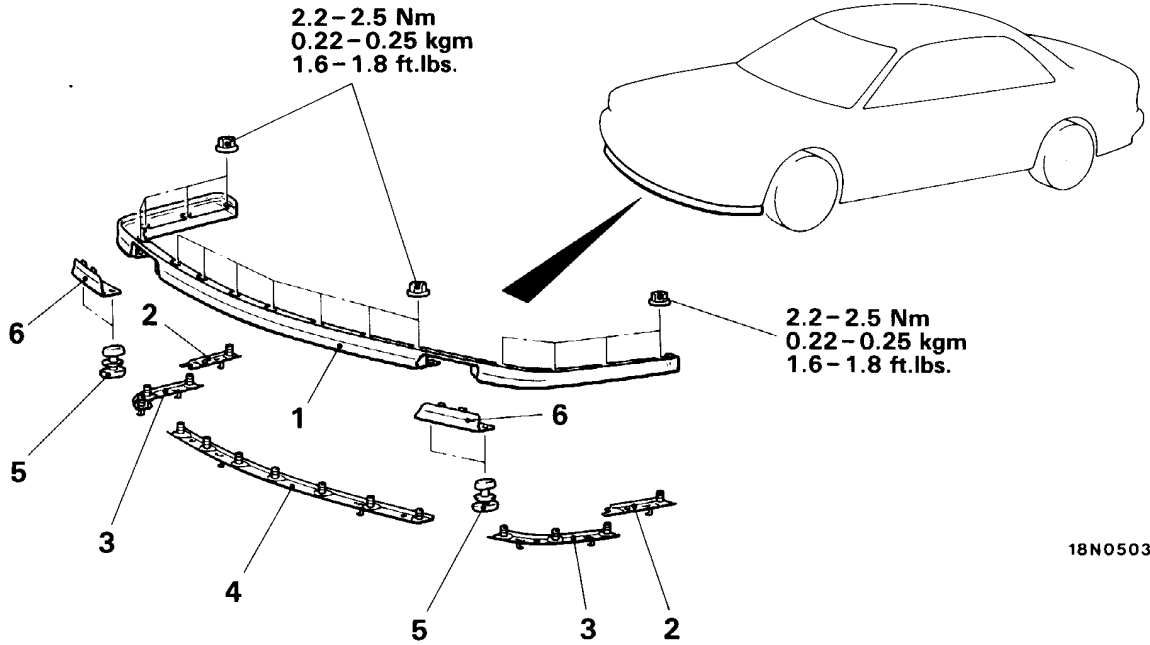
- 10. Air spoiler
- 11. Packing C
- 12. Packing A*2

Side air dam removal steps

- ↔↔↔ 13. Side air dam front
- ↔↔↔ 14. Side air dam rear

NOTE
 *1: Vehicles built from July, 1991
 *2: Vehicles with high-mount stop lamp

<Vehicles built from November, 1992>



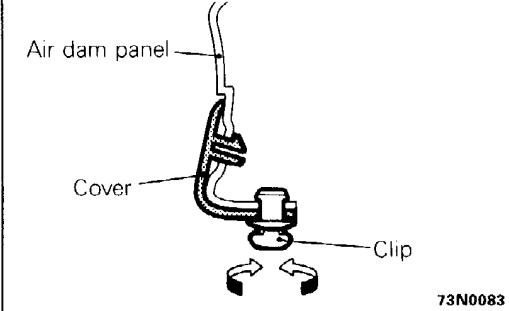
Air dam panel removal steps

1. Air dam panel assembly
2. Air dam side plate rear
3. Air dam side plate
4. Air dam center plate
5. Clip
6. Cover



18N0503

<Vehicles built up to October, 1992>



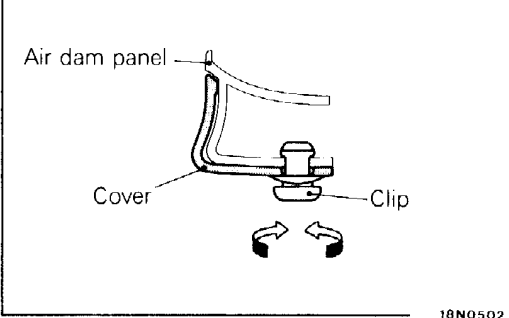
SERVICE POINTS OF REMOVAL

5. REMOVAL OF CLIP/6. COVER

<Vehicles built up to October, 1992>

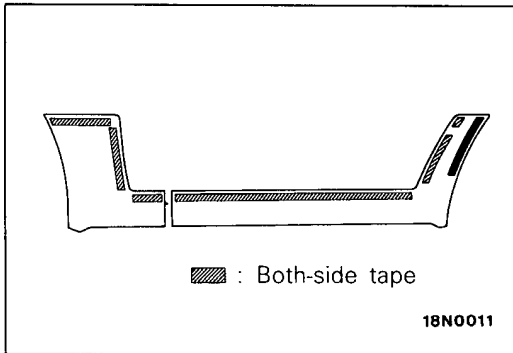
- (1) Turn the clip to either the right or left (approx. 90°) and remove it.
- (2) Remove the cover by releasing the pawl.

<Vehicles built from November, 1992>



<Vehicles built from November, 1992>

- (1) Turn the clip to either the right or left (approx. 90°) and remove it.
- (2) Remove the cover downward.

**13. REMOVAL OF SIDE AIR DAM FRONT/14. SIDE AIR DAM REAR**

Remove by the same procedure as for the side protector moulding. (Refer to P.51-10.)

SERVICE POINTS OF INSTALLATION**14. INSTALLATION OF SIDE AIR DAM REAR/13. SIDE AIR DAM FRONT**

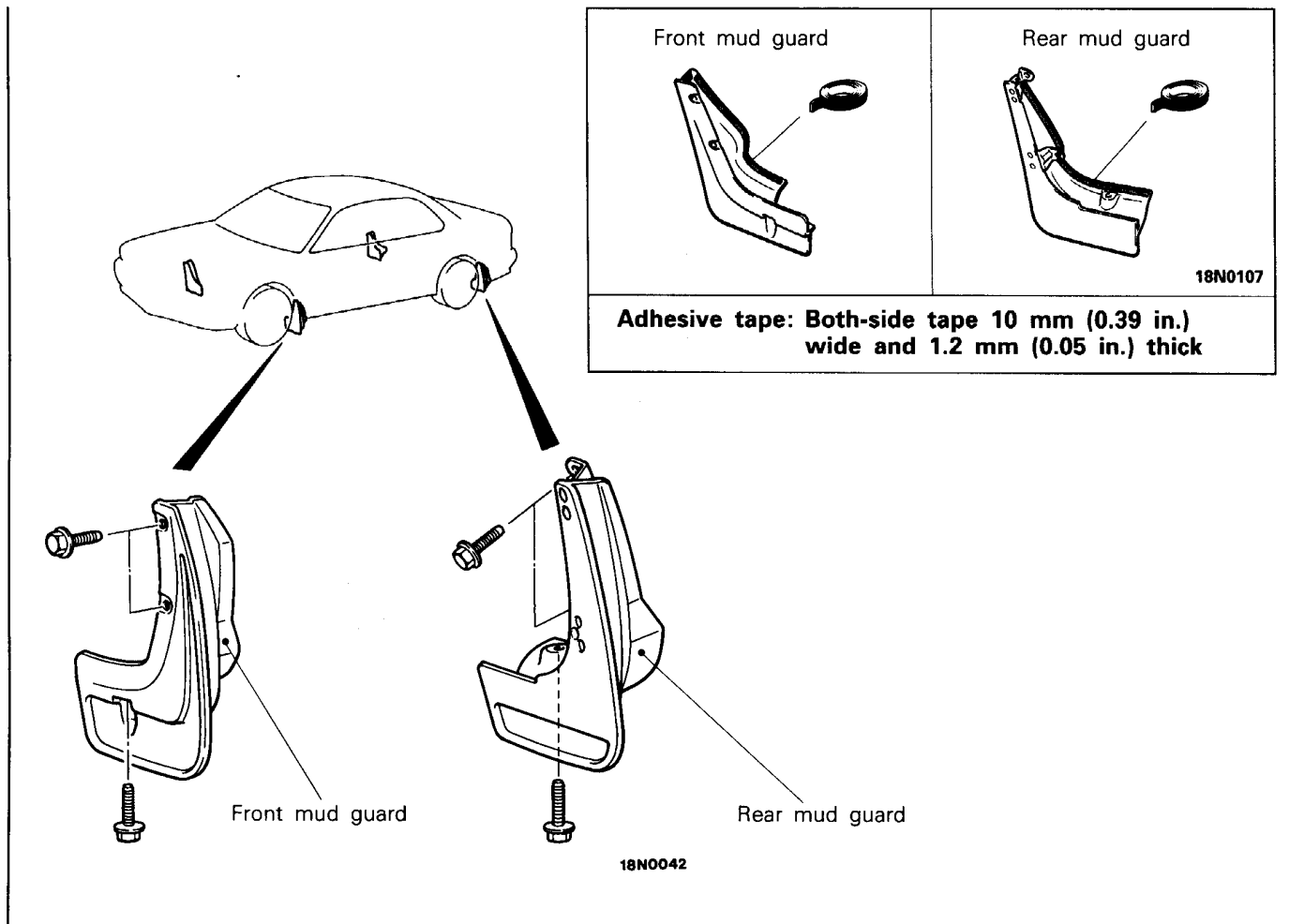
Install by the same procedure as for the side protector moulding. (Refer to P.51-11.)

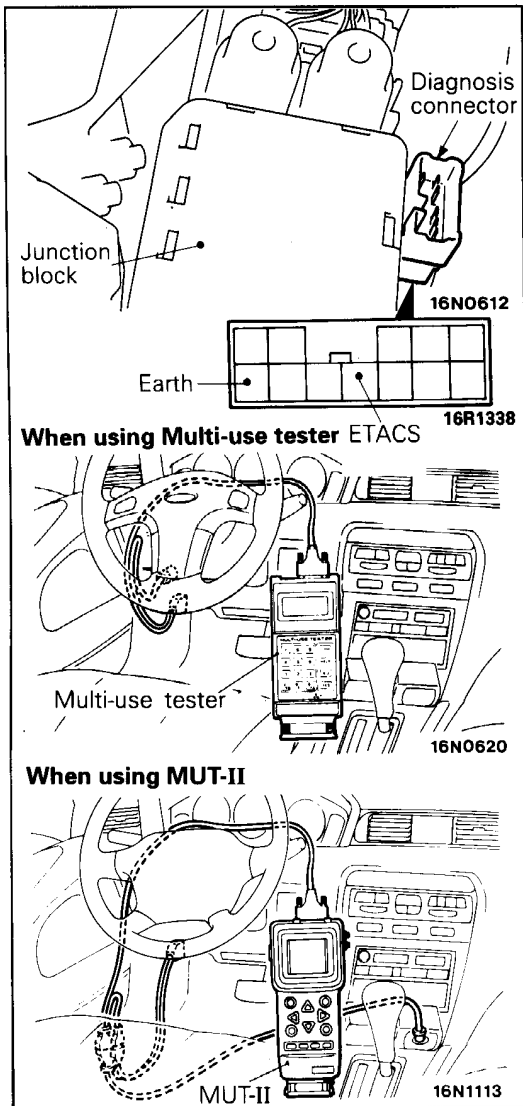
Adhesive tape: Both-side tape
10 mm (0.39 in.) wide and
1.2 mm (0.05 in.) thick

MUD GUARD

E51QAAF

REMOVAL AND INSTALLATION





WINDSHIELD WIPER AND WASHER

E51KCAD₀

TROUBLESHOOTING GUIDE (VEHICLE-SPEED-RESPONSE TYPE INTERMITTENT WIPERS, MIST WIPERS, AND WASHER-INTERLOCKED WIPERS)

INPUT CHECK

Using the multi-use tester <Up to 1993 models> or MUT-II <All models>, check whether or not the input signals from each switch are being input to the electronic control unit.

- (1) Connect the multi-use tester or MUT-II to the diagnosis connector (located at the right or left side of the junction block).

Caution

Connection and disconnection of the multi-use tester or MUT-II should always be made with the ignition switch in the OFF position.

- (2) Check to be sure that the buzzer of the multi-use tester or MUT-II sounds one time, when each switch noted below is operated.

If the buzzer sounds, the input signals are being input to the electronic control unit, so that switch can be considered to be functioning normally.

If there is a malfunction, there is an abnormality in the switch or in the switch input circuit, so they should be inspected.

- Ignition switch
- Wiper switch (AUTO)
- Intermittent variable-volume switch
- Washer switch
- Vehicle-speed sensor

TROUBLESHOOTING QUICK-REFERENCE TABLE

MIST WIPERS/WASHER-INTERLOCKED WIPERS

Problem	Probable cause (s)	Checking procedure	Remedy
The wipers do not function when the washer switch is switched ON for 0.6 second or longer. (With the wiper switch at the "AUTO" position, however, intermittent operation of the wipers is normal, and the washer function is normal.)	Damage or disconnection of the wiring of the washer switch input circuit.	If a malfunction is discovered as a result of the checking of the input, conduct check No. 6 (P.51-27) of the individual part and circuit.	Repair the wiring harness, or replace the washer switch.
	Damage or disconnection of the wiring of the washer switch.		
	Malfunction of the electronic control unit.	-	Replace the electronic control unit.

NOTE

The electronic control unit (ECU) indicates the ETACS control unit.

Problem	Probable cause (s)	Checking procedure	Remedy
The wipers do not function when the washer switch is switched ON for less than 0.6 second. (The wipers and washer do function, however, when the washer switch is switched ON for 0.6 second or longer.)	Malfunction of the electronic control unit.	–	Replace the electronic control unit.

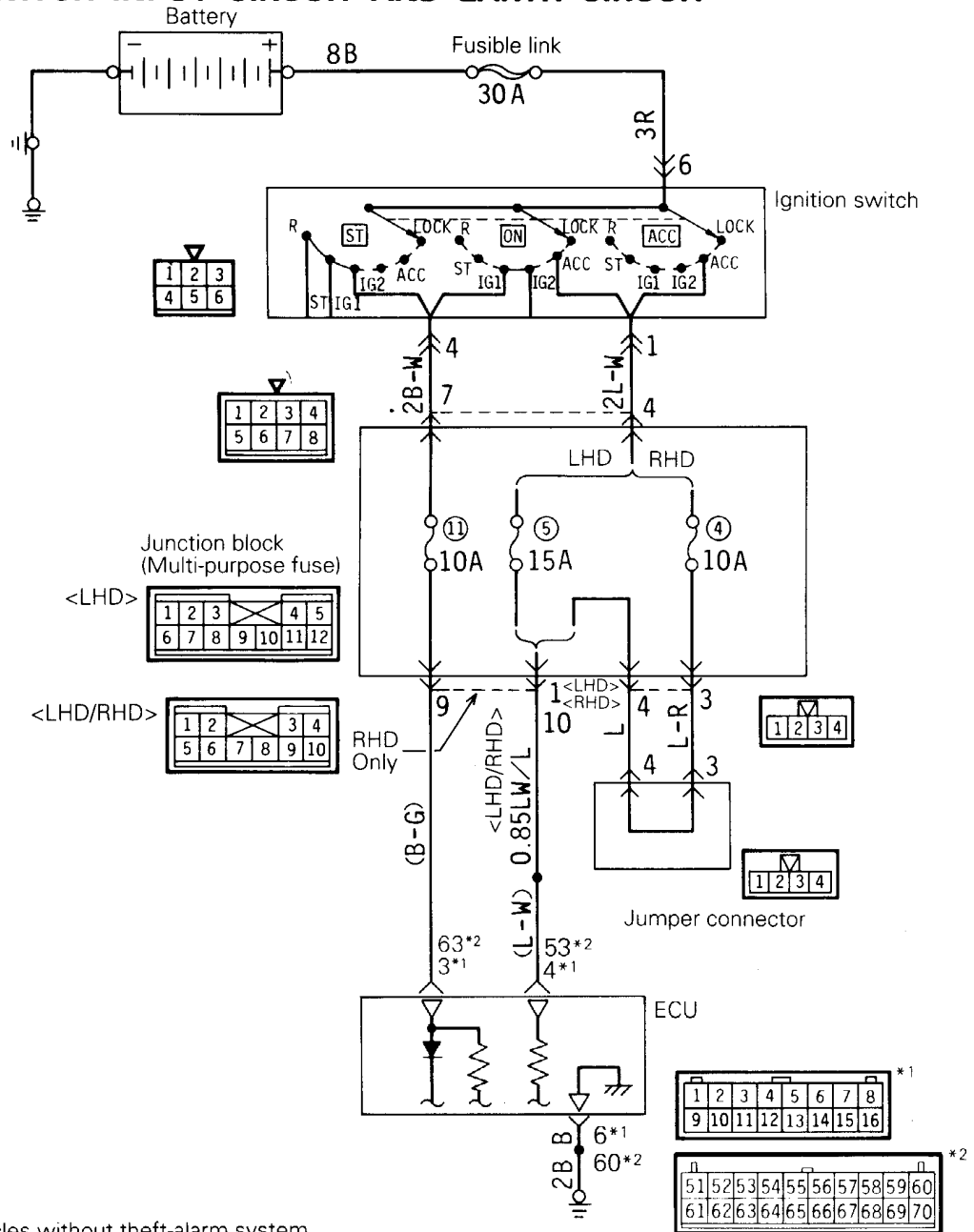
VEHICLE-SPEED-RESPONSE TYPE INTERMITTENT WIPERS

Problem	Probable cause (s)	Checking procedure	Remedy
The wipers don't operate when the wiper switch is set to the "AUTO" position. (The wipers do operate, however, when the wiper switch is set to the "1" (low speed) position.)	Damage or disconnection of the wiring of the wiper switch (AUTO) input circuit.	If a malfunction is discovered as a result of the checking of the input (P.51-15), conduct check No. 2 (P.51-20) of the individual part and circuit.	Repair the wiring harness, or replace the column switch.
	Damage or disconnection of the wiring of the wiper switch ("AUTO").		
	Damage or disconnection of the wiring of the ignition switch input circuit.	If a malfunction is discovered as a result of the checking of the input (P.51-15), conduct check No. 1 (P.51-18) of the individual part and circuit.	Repair the wiring harness.
	Damage or disconnection of the wiring of the wiper relay activation circuit.	Conduct check No. 5 (P.51-26) of the individual part and circuit.	Repair the wiring harness, or replace the wiper relay.
	Malfunction of the wiper relay.		
	Malfunction of the electronic control unit.	–	Replace the electronic control unit.
The wipers don't stop when the wiper switch is switched OFF. (This problem occurs at the low speed of the wipers.) NOTE If the wipers continue operating (without stopping) at the "2" position (high speed) of the wiper switch, there is a short-circuit in the circuit at the wiper motor high-speed side.	Short-circuit in the wiper switch ("AUTO") input circuit.	If a malfunction is discovered as a result of the checking of the input (P.51-15), conduct check No. 2 (P.51-20) of the individual part and circuit.	Repair the wiring harness, or replace the column switch.
	Short-circuit in the wiper switch ("AUTO").		
	Short-circuit in the wiper relay activation circuit.	Conduct check No. 5 (P.51-26) of the individual part and circuit.	Repair the wiring harness.
	Malfunction of the electronic control unit.	–	Replace the electronic control unit.

Problem	Probable cause (s)	Checking procedure	Remedy
When the wiper switch is set to the "AUTO" position, the wipers operate continuously at low speed, not intermittent operation. (The wipers stop, however, when the wiper switch is set to "OFF".)	Short-circuit in the wiper switch ("AUTO") input circuit.	If a malfunction is discovered as a result of the checking of the input (P.51-15), conduct check No. 2 (P.51-20) of the individual part and circuit.	Repair the wiring harness, or replace the column switch.
	Short-circuit in the wiper switch ("AUTO").		
	Malfuction of the electronic control unit.	–	Replace the electronic control unit.
The intermittent time does not change when the intermittent variable volume switch setting is changed. (The vehicle speed is a constant speed.)	Damage or disconnection of the wiring of the intermittent variable volume switch input circuit.	If a malfunction is discovered as a result of the checking of the input (P.51-15), conduct check No. 3 (P.51-22) of the individual part and circuit.	Repair the wiring harness, or replace the column switch.
	Damage or disconnection of the wiring of the intermittent variable volume switch.		
	Malfuction of the electronic control unit.	–	Replace the electronic control unit.
The wipers' intermittent time does not change according to changes in the vehicle speed. (The intermittent variable volume switch setting is fixed.)	Damage or disconnection of the wiring of the vehicle-speed sensor input circuit, or a short-circuit.	If a malfunction is discovered as a result of the checking of the input (P.51-15), conduct check No. 4 (P.51-24) of the individual part and circuit.	Repair the wiring harness, or replace the vehicle-speed sensor.
	Malfuction of the vehicle-speed sensor.		
	Malfuction of the electronic control unit.	–	Replace the electronic control unit.

CHECKING THE INDIVIDUAL PART AND CIRCUIT

1. IGNITION SWITCH INPUT CIRCUIT AND EARTH CIRCUIT



NOTE
 (1)*1: indicates vehicles without theft-alarm system.
 (2)*2: indicates vehicles with theft-alarm system.

16X0476

OPERATION DESCRIPTION

As the condition for operation of the system, HIGH-level signals are sent to the electronic control unit when the ignition switch is set to the "ACC" or "ON" position.

Electronic Control Unit Terminal Voltage (Disconnect the ECU Connector and Check at the Wiring Harness Side.)

ECU terminal No.	Signal	Status	Status	Standard
3*1 63*2	Ignition switch	ON	Ignition switch	OFF 0V
				ON System voltage
4*1 53*2	Ignition switch	OFF	Ignition switch	OFF 0V
				ACC System voltage

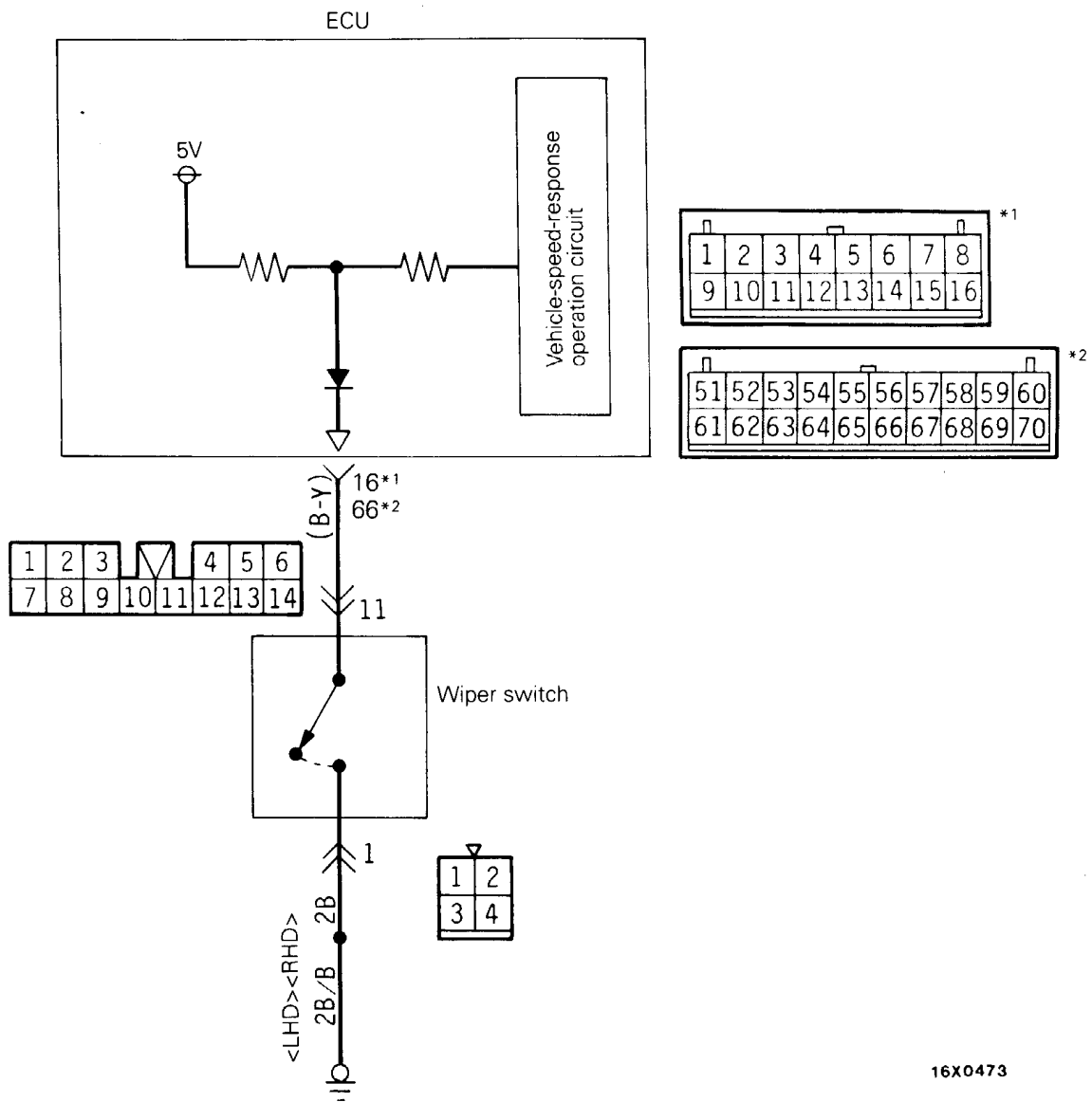
Checking the Earth Circuit (Disconnect the Connector and Check at the Wiring Harness Side.)

ECU Terminal No.	Connected to/measured component	Measurement	Tester connection	Check condition	Standard
6*1 60*2	ECU earth	Continuity	6-earth*1 60-earth*2	At all times	Continuity

Checking Individual Part

Ignition switch: Refer to GROUP 54 – Ignition Switch.

2. WIPER SWITCH “AUTO” INPUT CIRCUIT



16X0473

NOTE

- (1)*1: indicates vehicles without theft-alarm system.
- (2)*2: indicates vehicles with theft-alarm system.

OPERATION DESCRIPTION

When the wiper switch is set to the “AUTO” position, LOW-level signals are input to the electronic control unit; the vehicle-speed-response operation circuit is then activated, and the wipers operate at the intermittent time interval according to the setting of the intermittent variable volume switch and the speed of the vehicle.

Electronic Control Unit Terminal Voltage (Connection Status of Electronic Control Unit Connector)

ECU terminal No.	Signal	Status	Terminal voltage
16*1 66*2	Wiper switch “AUTO” signal	Wiper switch “OFF”	5V
		Wiper switch “AUTO”	0V

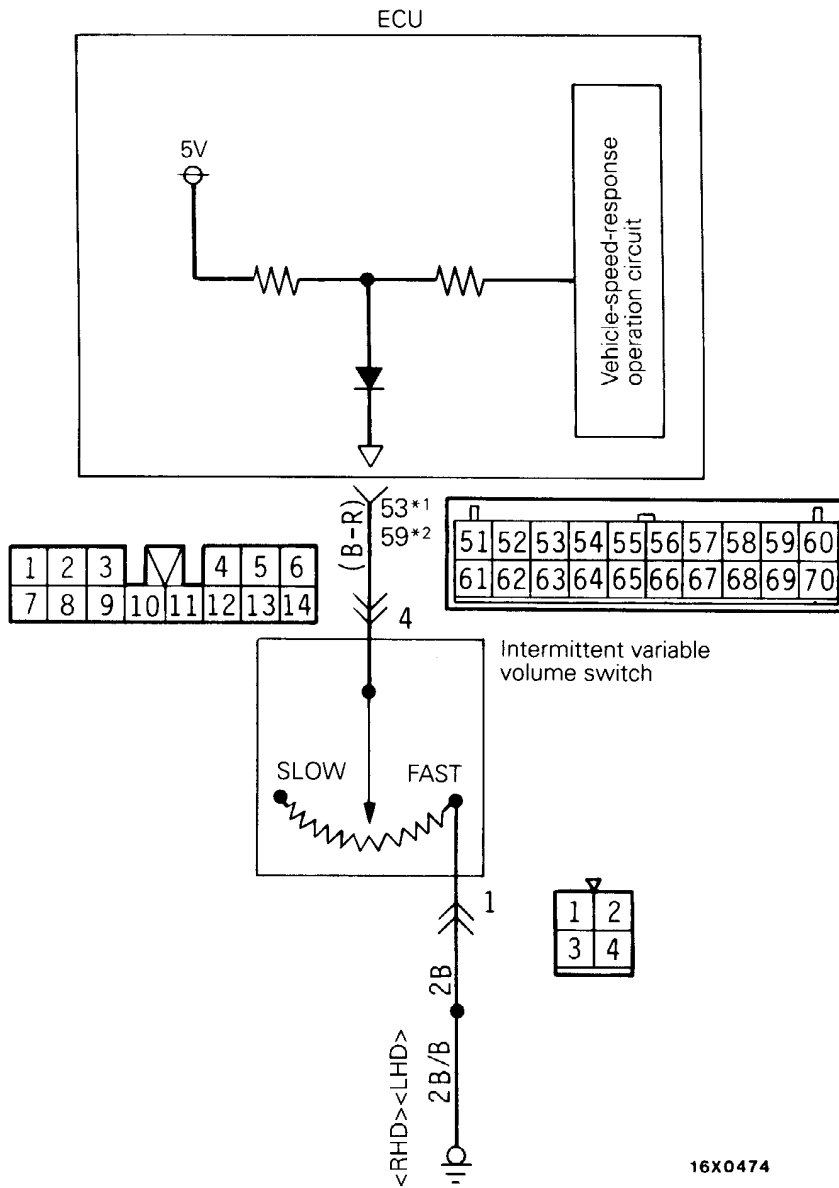
Checking the Wiper Switch ("AUTO" Position) Circuit (Disconnect the ECU Connector and Check at the Wiring Harness Side.)

ECU terminal No.	Connected to/measured component	Measurement	Tester connection	Check condition	Standard
16*1 66*2	Wiper switch "AUTO"	Continuity	16-earth*1 66-earth*2	Wiper switch "OFF"	No continuity
				Wiper switch "AUTO"	Continuity

Checking Individual Part

Wiper switch: Refer to P. 51-29

3. INTERMITTENT VARIABLE VOLUME SWITCH INPUT CIRCUIT



16X0474

NOTE
 (1)*1: indicates vehicles without theft-alarm system.
 (2)*2: indicates vehicles with theft-alarm system.

OPERATION DESCRIPTION

This circuit functions to input (to the vehicle-speed-response operation circuit of the electronic control unit) the set value of the intermittent variable volume switch.

Electronic Control Unit Terminal Voltage (Connection Status of Electronic Control Unit Connector)

ECU terminal No.	Signal	Status	Terminal voltage
53*1 59*2	Intermittent variable volume switch signal	Intermittent variable volume switch "FAST" → "SLOW"	0 → 2.5 V

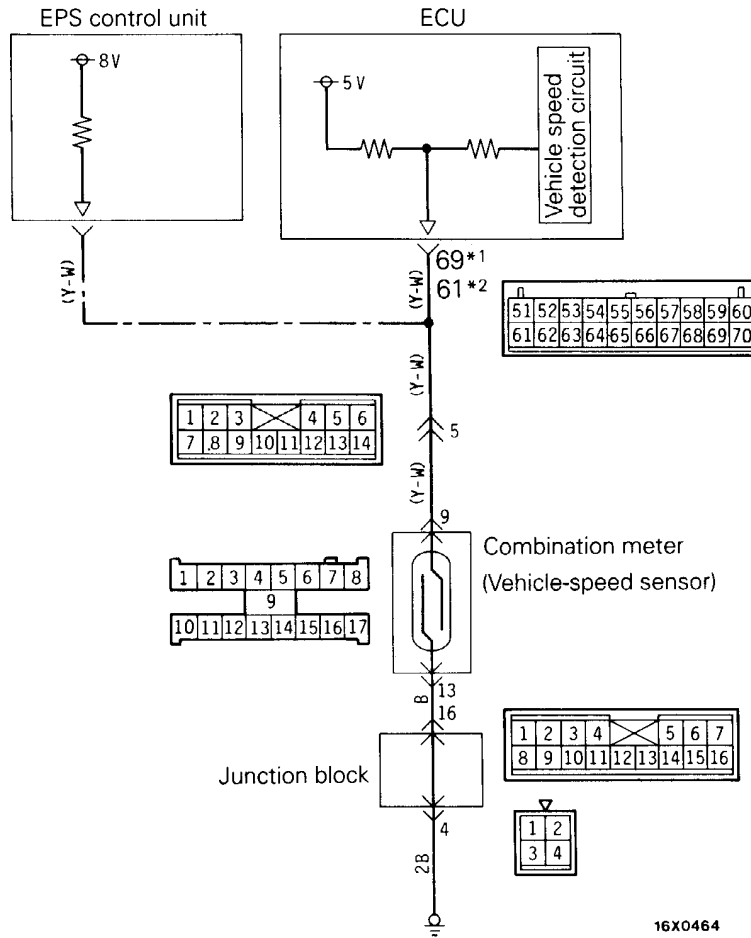
Checking the Intermittent Variable Volume Switch Circuit (Disconnect the Connector of the Electronic Control Unit and Check at the Wiring Harness Side.)

ECU terminal No.	Connected to/measured component	Measurement	Tester connection	Check condition	Standard
53* ¹ 59* ²	Intermittent variable volume switch	Resistance	53-earth* ¹ 59-earth* ²	"FAST" → "SLOW" (Should change in accordance with changes of the intermittent variable volume.)	0 → 1 kΩ

Checking Individual Part

Intermittent variable volume switch: Refer to P. 51-29.

4. VEHICLE-SPEED SENSOR INPUT CIRCUIT



16X0464

NOTE

- (1) The dotted line indicates vehicles with EPS.
- (2)*1: indicates vehicles without theft-alarm system.
- (3)*2: indicates vehicles with theft-alarm system.

OPERATION DESCRIPTION

The vehicle-speed sensor is the reed-switch type of sensor; it outputs four pulse signals for each rotation of the transmission's output gear (speedometer cable) and inputs those pulses to the vehicle-speed detection circuit of the electronic control unit.

Electronic Control Unit Terminal Voltage (Connection Status of Electronic Control Unit Connector)

ECU terminal No.	Signal	Status	Terminal voltage
69*1 61*2	Vehicle-speed sensor signal	When ON	0 V
			When OFF
			Vehicles with EPS 8 V*

NOTE

The * mark indicates that pull-up power of 8V is supplied from the EPS control unit.

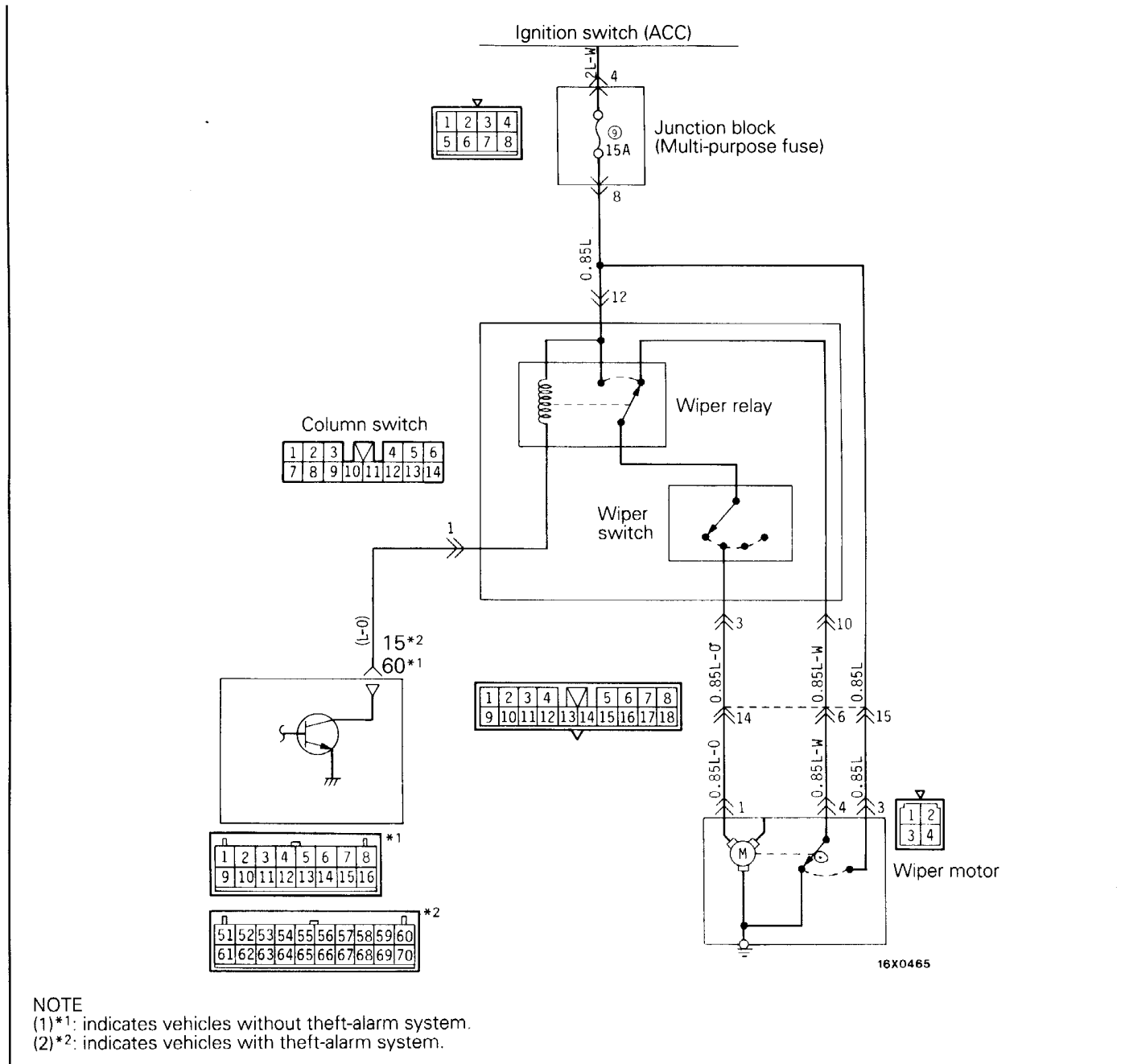
Checking the Vehicle-speed Sensor Circuit (Disconnect the Connector of the Electronic Control Unit and Check at the Wiring Harness Side.)

ECU terminal No.	Connected to/measured component	Measurement	Tester connection	Check condition	Standard
69*1 61*2	Vehicle-speed sensor	Continuity	69-earth*1 61-earth*2	(1) Jack up the front end. (2) Rotate the tyres in the forward direction.	Repeats "Continuity" ↑↓ No continuity"

Checking Individual Part

Vehicle-speed sensor: Refer to GROUP 54 – Meters and Gauges.

5. WIPER RELAY ACTIVATION CIRCUIT



OPERATION DESCRIPTION

With the wiper switch at the "AUTO" position, switch ON the transistor (by the intermittent activation signal from the electronic control unit) in order to activate the wiper relay.

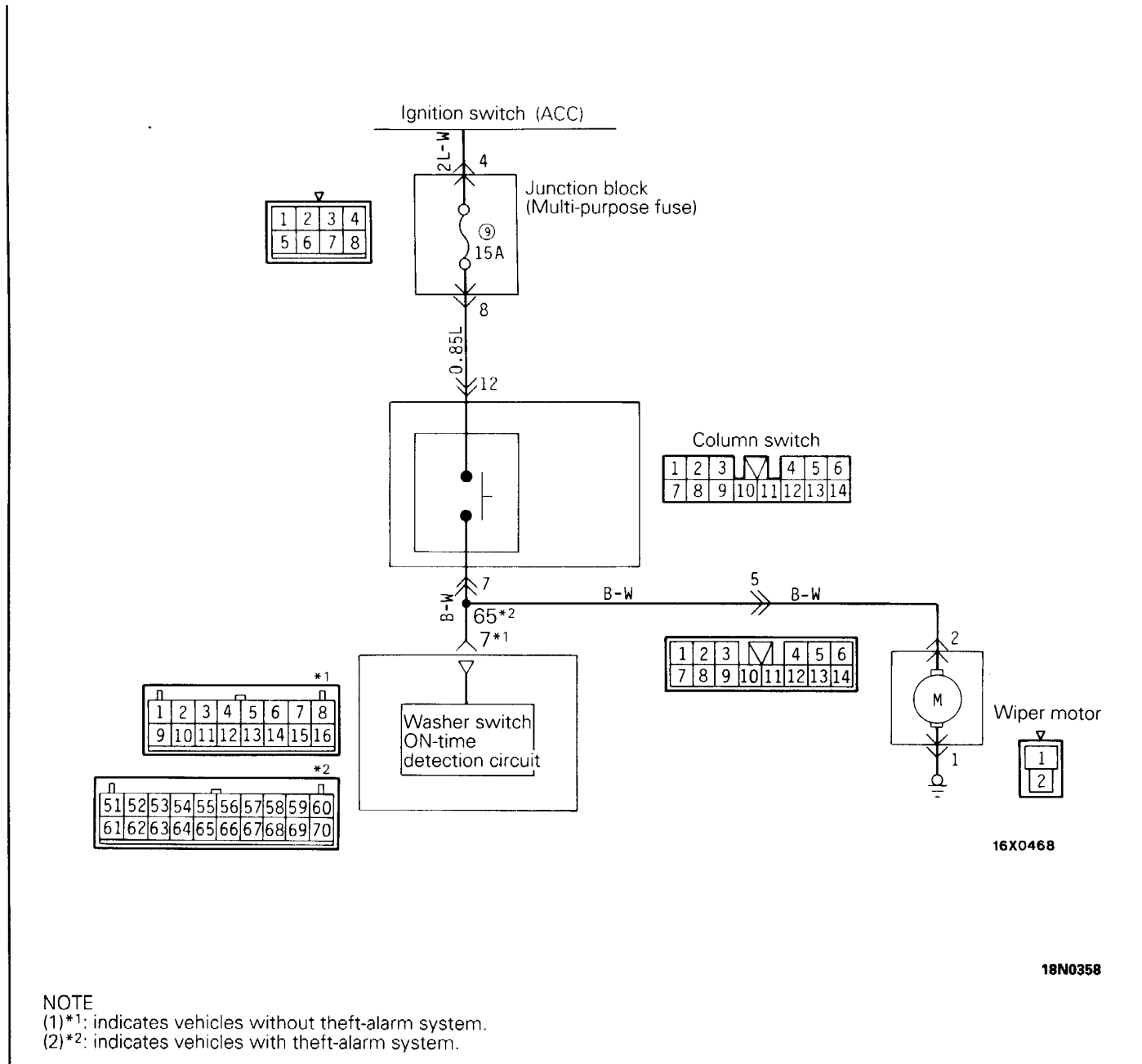
Electronic Control Unit Terminal Voltage (Connection Status of Electronic Control Unit Connector)

ECU terminal No.	Signal	Status	Terminal voltage
60*1 15*2	Wiper relay signal	Ignition switch "OFF"	0V
		Ignition switch "ACC"	System voltage

Checking Individual Part

Wiper relay: Refer to P. 51-30.

6. WASHER SWITCH INPUT CIRCUIT



16X0468

18N0358

OPERATION DESCRIPTION

While the washer switch is ON, HIGH-level signals are sent to the washer switch ON-time detection circuit simultaneous with the activation of the washer motor, thus causing the transistor to be switched ON and the wipers to be activated for a certain fixed time.

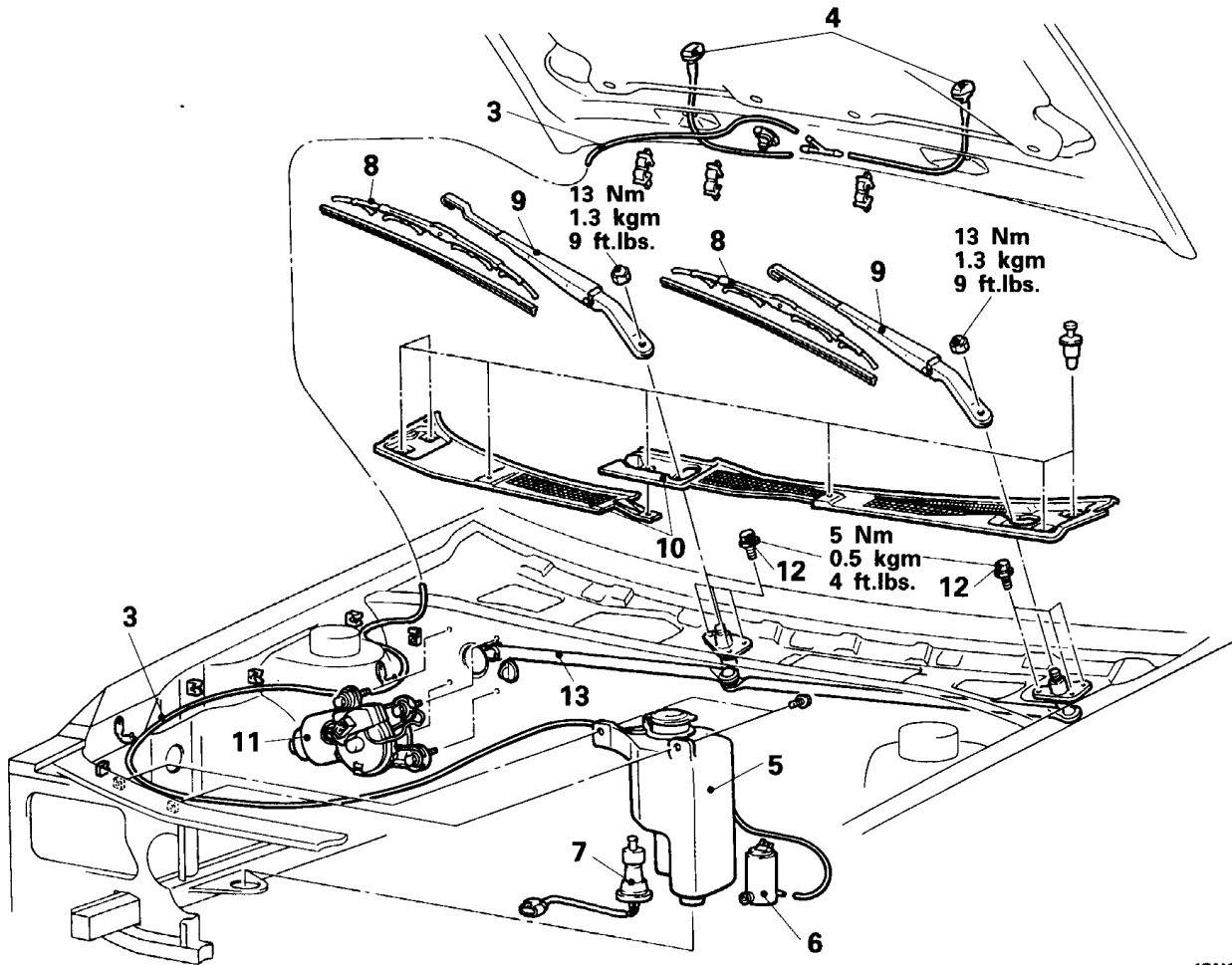
Electronic Control Unit Terminal Voltage (Connection Status of Electronic Control Unit Connector)

ECU terminal No.	Signal	Status	Terminal voltage
7*1 65*2	Washer switch signal	Ignition switch "ACC"	0V
			System voltage

Checking Individual Part

Washer switch: Refer to P. 51-29.

REMOVAL AND INSTALLATION



18N0234

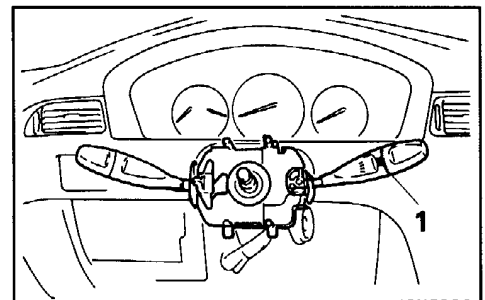
- 1. Column switch (with built-in wiper and washer switch and wiper relay) [Refer to GROUP 54 – Column Switch.]
- 2. ETACS control unit
- 3. Washer tube
- 4. Washer nozzle
- ◆◆ 5. Windshield washer tank assembly
- ◆◆ 6. Washer motor
- ◆◆ 7. Washer fluid level sensor
- ◆◆ 8. Wiper blade
- ◆◆ 9. Wiper arm

Wiper motor removal steps

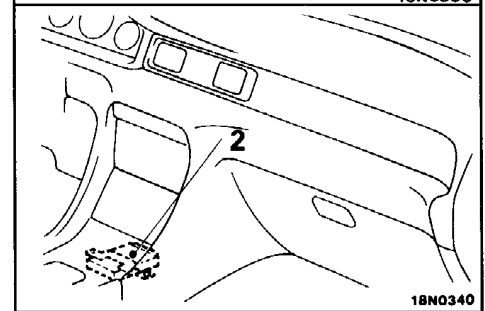
- ◆◆ 9. Wiper arm
- ◆◆ 10. Air inlet grille (RH)
- ◀▶ 11. Wiper motor

Linkage removal steps

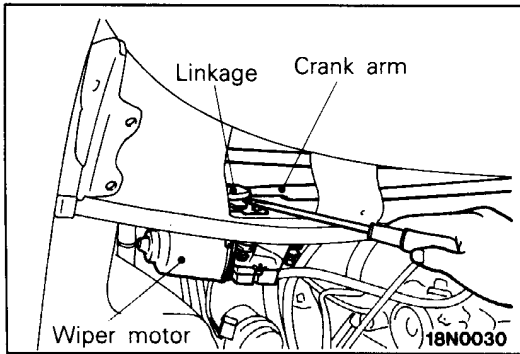
- ◆◆ 9. Wiper arm
- ◆◆ 10. Air inlet grille (RH)
- ◀▶ 11. Wiper motor assembly
- ◆◆ 12. Linkage mounting bolt
- ◆◆ 13. Linkage



18N0300



18N0340



SERVICE POINTS OF REMOVAL

11. REMOVAL OF WIPER MOTOR

Loosen the wiper motor assembly mounting bolts, and then remove the wiper motor assembly. Disconnect the linkage and the motor assembly, and then remove the linkage.

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.

INSPECTION

WIPER MOTOR

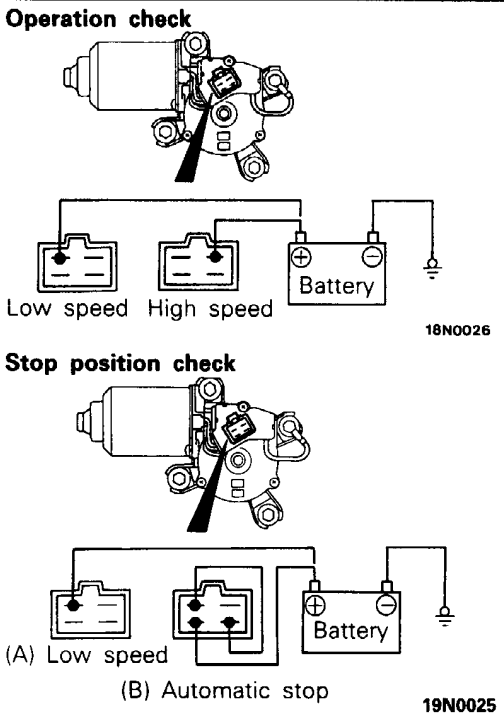
Check the wiper motor after disconnecting the wiring harness connector, and with the wiper motor remaining installed to the body.

Operation of Wiper Motor at LOW speed and HIGH speed

Connect a battery to the wiper motor as shown in the illustration and inspect motor operation at LOW speed and HIGH speed.

Operation of Wiper Motor at STOP Position

- (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, it stops at the automatic stop position.



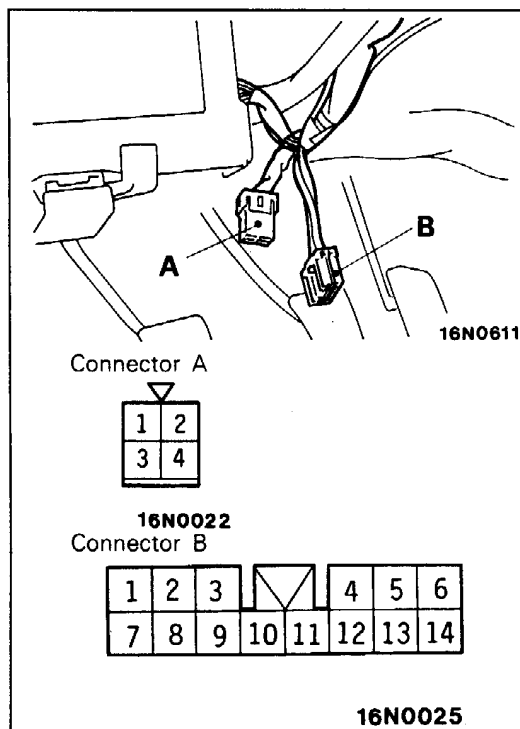
WIPER AND WASHER SWITCH

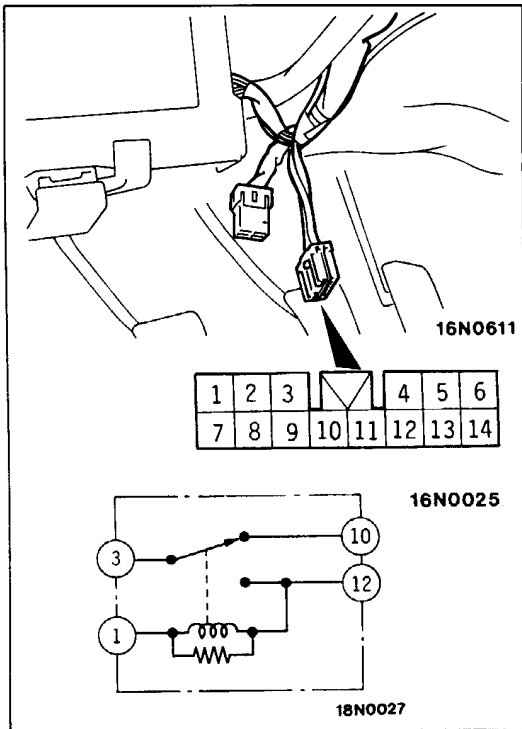
Disconnect the column switch connector and check the continuity between the terminals for each switch.

Switch position	Connector	B							
	Terminal	1	3	4	7	9	10	11	12
Wiper switch	OFF		○				○		
	AUTO	○					○		○
	1		○						○
	2					○			○
Intermittent variable volume switch		○	○						
Washer switch	ON				○				○

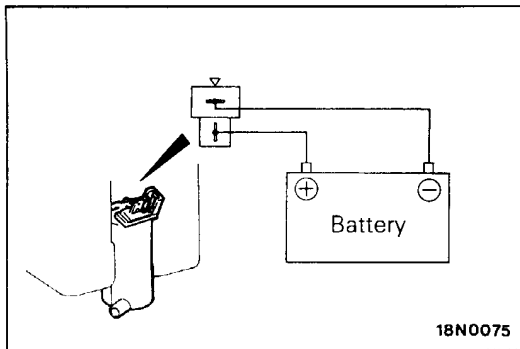
NOTE

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

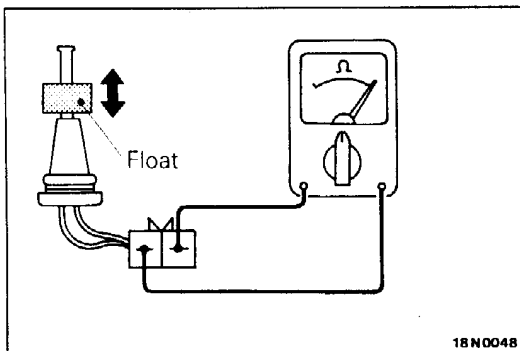


**WIPER RELAY**

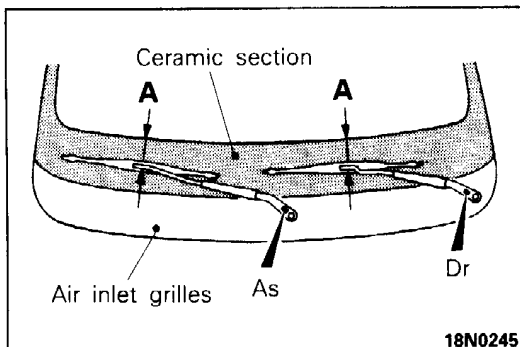
- (1) Disconnect the column switch connector and turn the column switch to the OFF or AUTO position.
- (2) Check if there is continuity between terminals ③ – ⑩ and ① – ⑫, and if there is no continuity between terminals ③ – ⑫.
- (3) When the battery (+) is connected to terminal ⑫, and the (-) is connected to terminal ①, check if there is battery voltage at terminal ③.

**WASHER MOTOR**

- (1) With the washer motor installed to the washer tank, fill the washer tank with water.
- (2) When the battery is connected as shown in the figure, check that the water squirts out strongly.

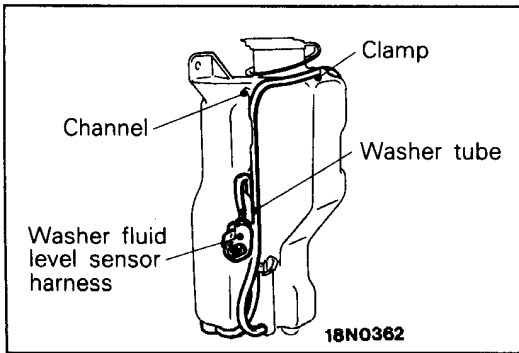
**WASHER FLUID LEVEL SENSOR**

- (1) Remove the washer fluid level sensor from the washer tank.
- (2) Connect a circuit tester to the connector of washer fluid level sensor.
- (3) Move the float up and down.
- (4) Make sure that when the float is raised, there is no continuity and when it is lowered, there is continuity.

**SERVICE POINTS OF INSTALLATION****9. INSTALLATION OF WIPER ARM/8. WIPER BLADE**

- (1) The movements of the left and right wiper arms are different, so check the identification marks.
- (2) Install the wiper blade in the specified position (standard value) as shown in the illustration.

Standard value (A): 23–33 mm (0.91–1.30 in.)

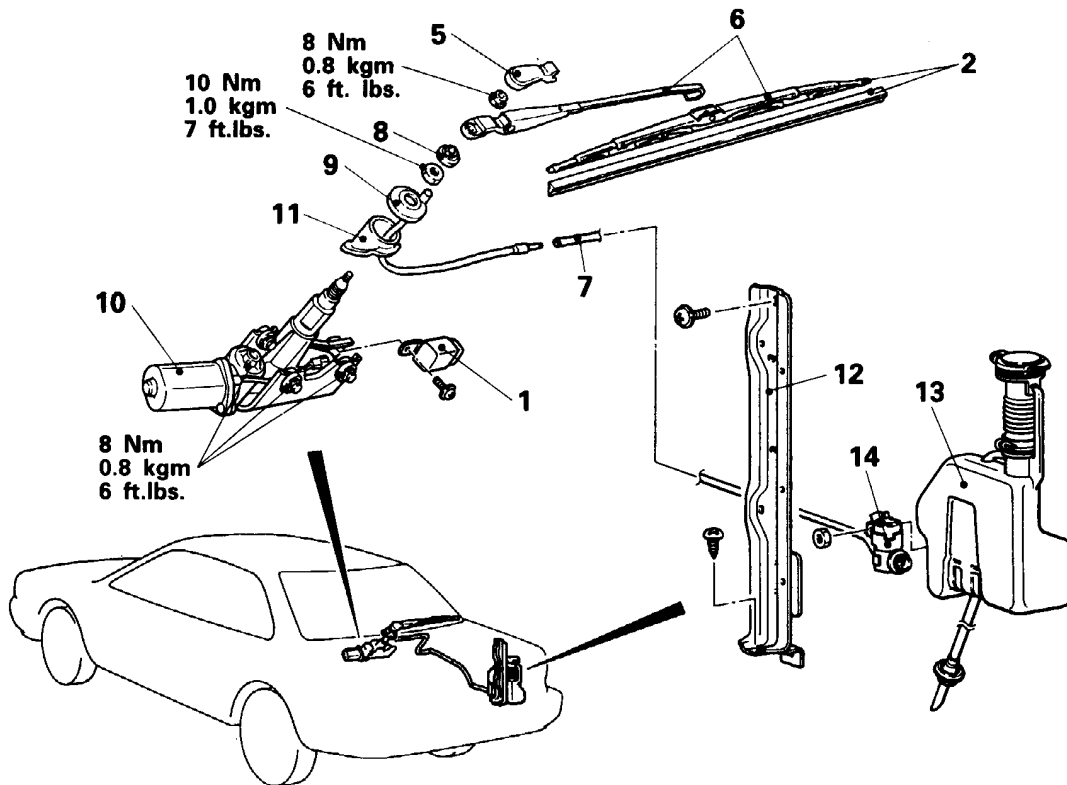


5. INSTALLATION OF THE WINDSHIELD WASHER TANK ASSEMBLY

Pass the harness of the washer fluid level sensor and the washer tube in that order along the windshield washer tank channel, and then, install the windshield washer tank.

**REAR WIPER AND WASHER
REMOVAL AND INSTALLATION**

E51LAAJ

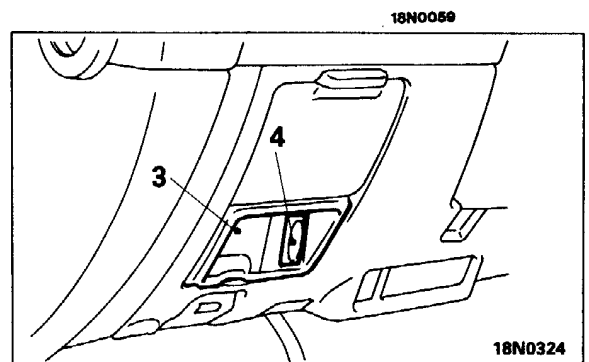


- 1. Rear intermittent wiper relay
 - 2. Wiper blade
- Rear wiper and washer switch removal steps**

- 3. Instrument lower switch panel
- 4. Rear wiper and washer switch

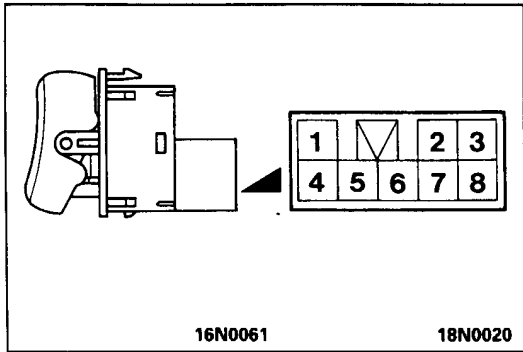
Wiper motor removal steps

- ◆◆ 5. Cover
- ◆◆ 6. Wiper arm and blade assembly
- 7. Washer tube connection
- 8. Shield cap
- 9. Nozzle and collar assembly
- 10. Wiper motor and bracket assembly
- 11. Packing and washer



Washer tank and motor removal steps

- Trunk side trim (Refer to GROUP 52 – Trims.)
- 12. Bracket
- 13. Washer tank assembly
- 14. Washer motor



INSPECTION

REAR WIPER AND WASHER SWITCH

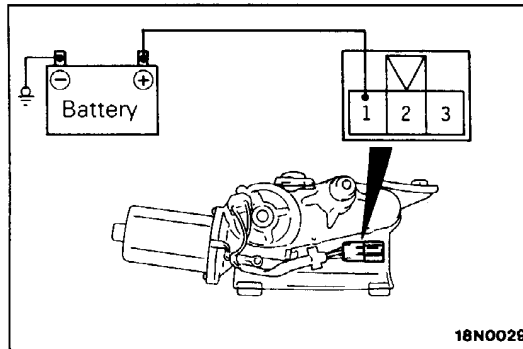
Operate the switch, and check the continuity between the terminals.

Terminal	1	2	4	5	8	6	7
Switch position							
INT				○	○		○
Washer	○	○					ILL

16A0252

NOTE

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

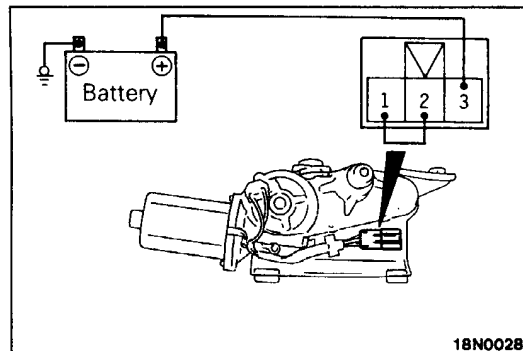


WIPER MOTOR

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

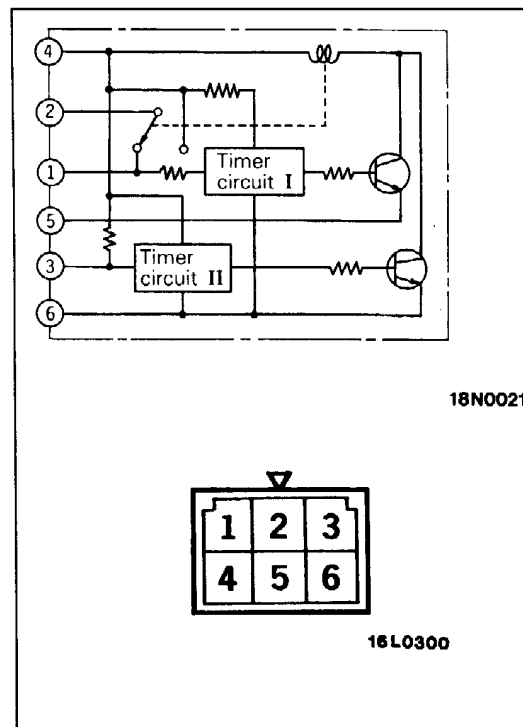
Operation of Wiper Motor

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



Operation of Wiper Motor at STOP Position

- (1) Run the wiper motor, disconnect the battery, and 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.



REAR INTERMITTENT WIPER RELAY

- (1) Check if there is continuity between terminals ①–②.
- (2) Connect the battery (+) side to terminal ④, and the battery (-) side to terminal ⑥.

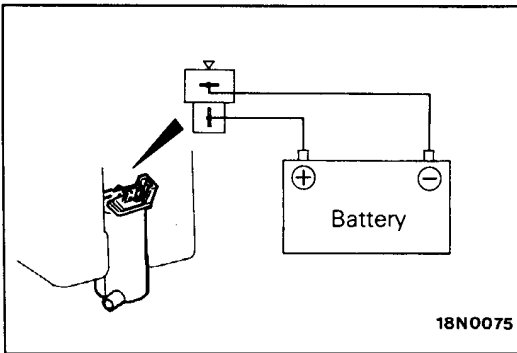
Inspection of intermittent wiper function

When the battery (-) side is connected to terminal ⑤, check if there is battery voltage at terminal ② at approximately every 8 seconds.

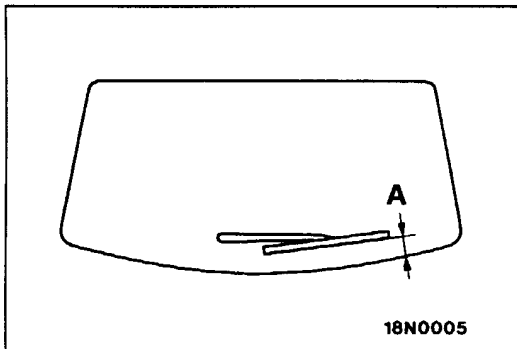
Inspection of continuous washer/wiper function

When the battery (-) side is connected to terminal ③, check if there is battery voltage at terminal ② after approximately 1 second.

When the battery is disconnected from terminal ③, check if the voltage that was at terminal ② becomes 0 V after approx. 3–4 seconds.

**WASHER MOTOR**

- (1) With the washer motor installed to the washer tank, fill the washer tank with water.
- (2) When the battery is connected as shown in the figure, check that the water squirts out strongly.

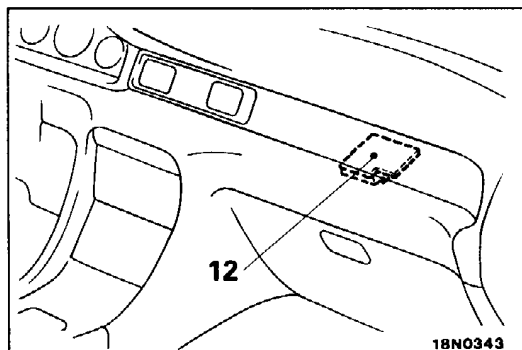
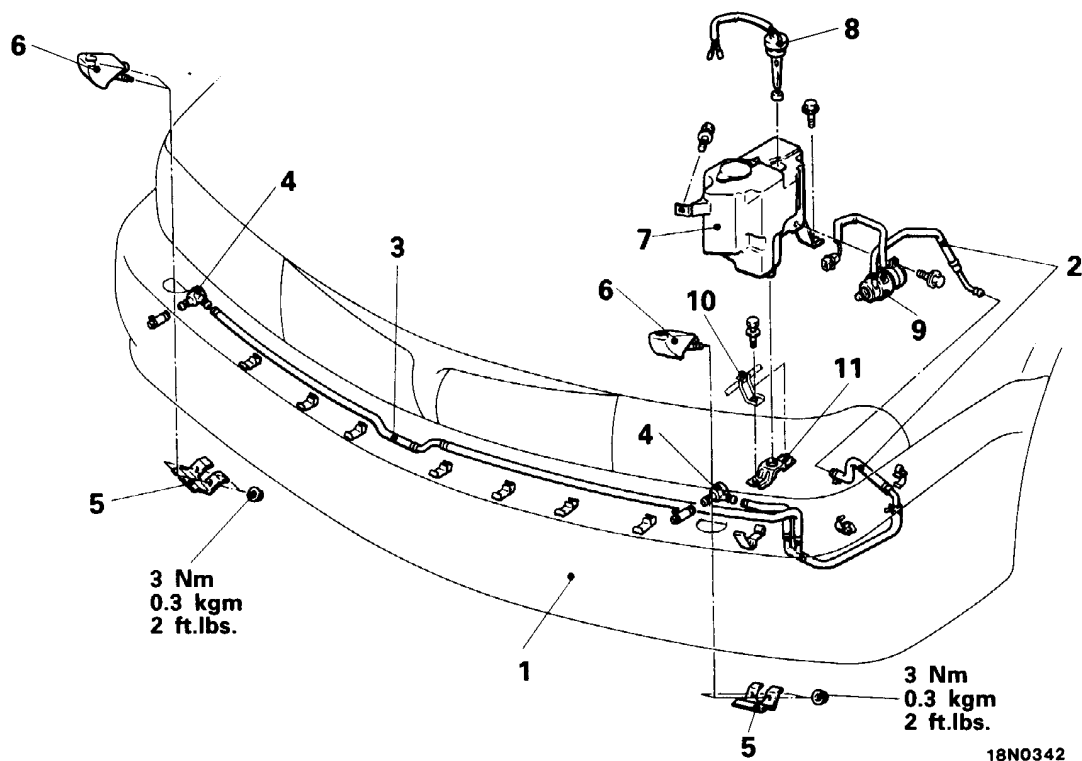
**SERVICE POINT OF INSTALLATION****6. INSTALLATION OF WIPER ARM AND BLADE ASSEMBLY**

Install the wiper arm to the pivot shaft so that the wiper blade's stop position is the position shown in the illustration.

Standard value (A): 45 ± 3 mm (1.77 ± 0.12 in.)

HEADLAMP WASHER

REMOVAL AND INSTALLATION

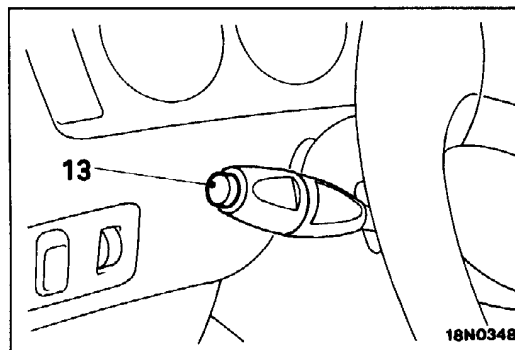


Headlamp washer nozzle removal steps

1. Front bumper (Refer to P.51-4.)
 2. Washer pipe connection
 - License plate bracket
 - Lower reinforcement
 - Reinforcement
 - Upper plate
 - Upper support
 - Bumper core
- } (Refer to P.51-5.)
3. Washer pipe assembly
 4. Check valve
 5. Bracket
 6. Nozzle

Headlamp washer switch removal

13. Headlamp washer switch (Refer to GROUP 54 – Column Switch.)

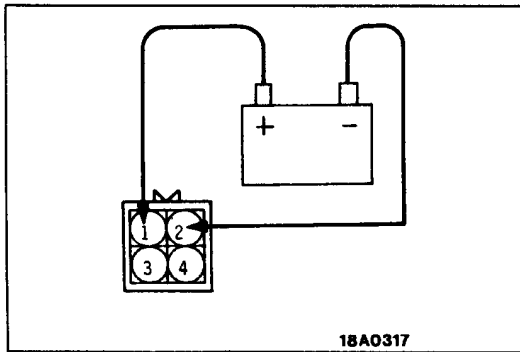


Headlamp washer relay removal steps

- Glove box and glove box outer case assembly (Refer to GROUP 52 – Instrument panel.)
12. Headlamp washer relay

Headlamp washer tank assembly removal steps

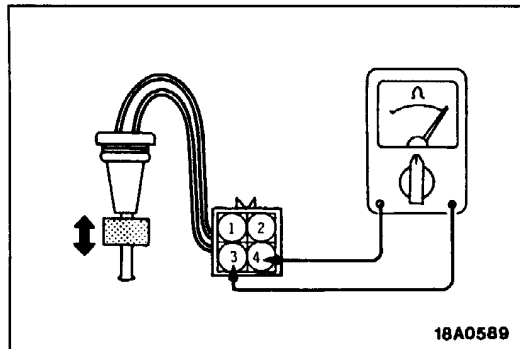
2. Washer pipe connection
7. Headlamp washer tank assembly
8. Washer fluid level sensor
9. Headlamp washer motor
10. High pressure pipe bracket
11. Bracket



INSPECTION

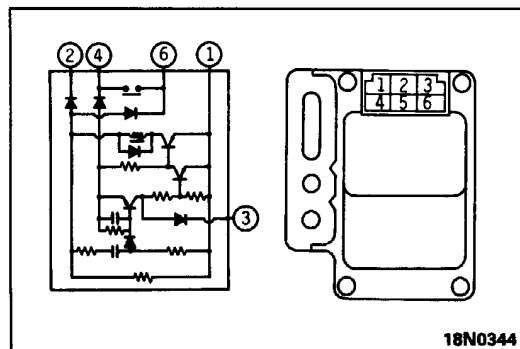
HEADLAMP WASHER MOTOR

- (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.



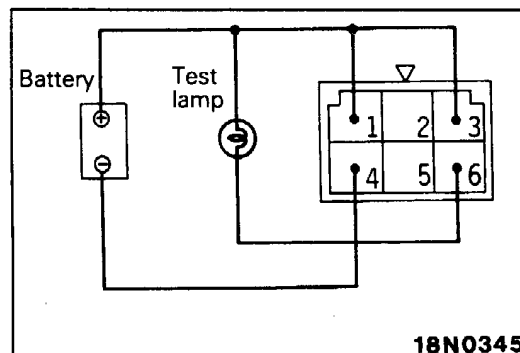
WASHER FLUID LEVEL SENSOR

- (1) Remove the washer fluid level sensor from the washer tank.
- (2) Connect a circuit tester to the connector of washer fluid level sensor.
- (3) Move the float up and down.
- (4) Make sure that when the float is raised, there is no continuity and when it is lowered, there is continuity.

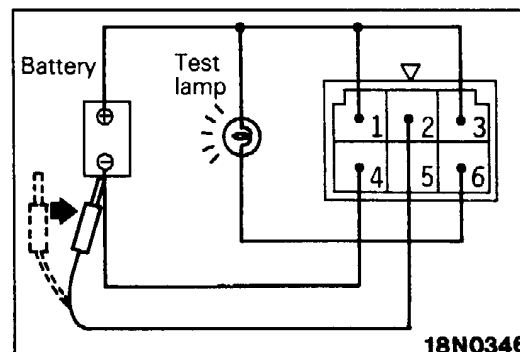


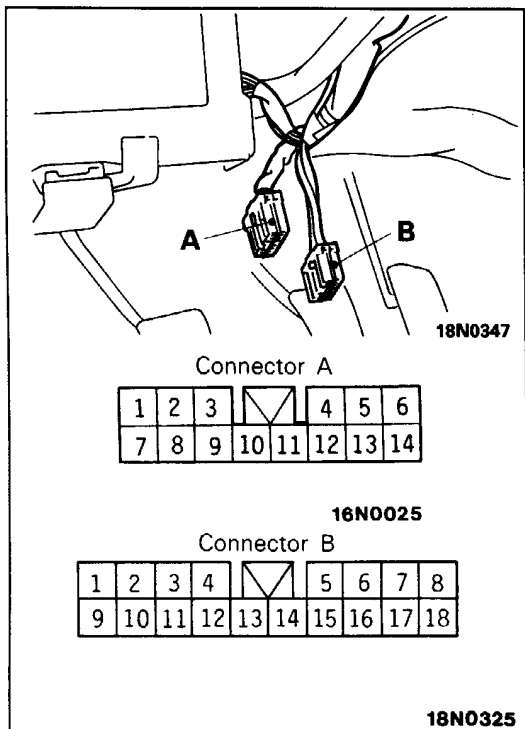
HEADLAMP WASHER RELAY

- (1) Connect battery and test lamp to the relay as illustrated.



- (2) The relay is normal if the lamp lights for approximately 0.5 second upon connection of terminal 2 to battery (-).





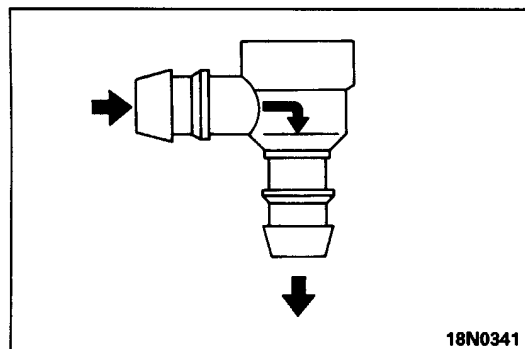
HEADLAMP WASHER SWITCH

Disconnect the column switch connector and check the continuity between the terminals for each switch.

Connector	A	B
Switch position Terminal	14	6
OFF		
ON	○—○	○—○

NOTE

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



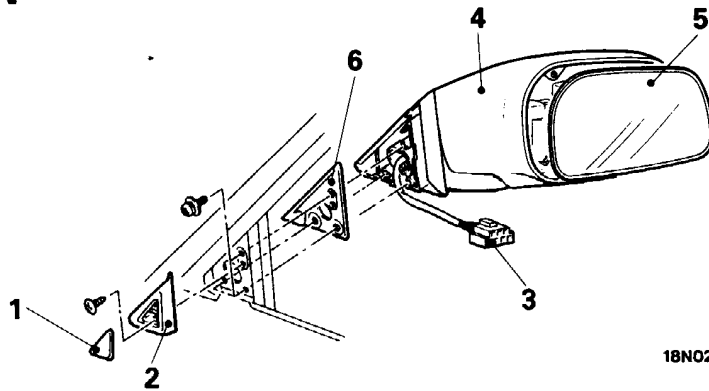
CHECK VALVE

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

Opening pressure: 50 – 110 kPa
(0.5 – 1.1 kg/cm², 7.1 – 15.6 psi)

**DOOR MIRROR
REMOVAL AND INSTALLATION**

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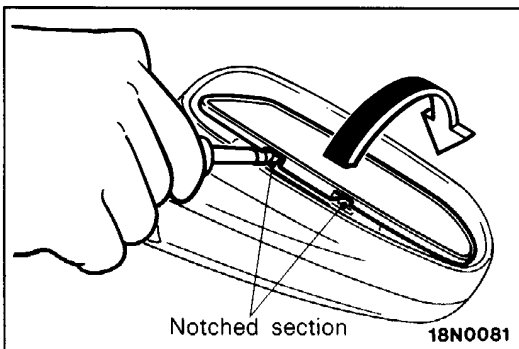


18N0289

Door mirror removal steps

● Front door trim (Refer to GROUP 42 – Door trim and Waterproof Film.)

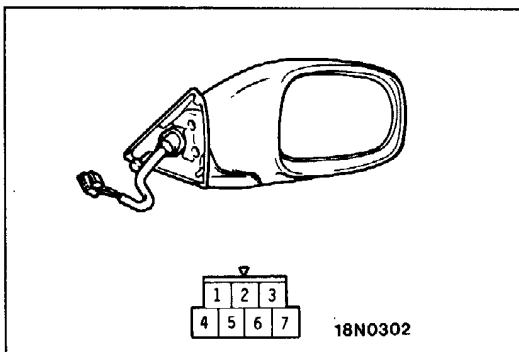
1. Delta cover inner cap
2. Delta cover inner
3. Harness connector
4. Door mirror
5. Mirror
6. Delta outer packing



SERVICE POINTS OF REMOVAL

5. REMOVAL OF MIRROR

Turn the mirror by hand so that it faces upwards, insert the (-) driver wound with masking tape into the notched section, and lever out the mirror to remove it.



INSPECTION

REMOTE CONTROL MIRROR ASSEMBLY

1. Check to be sure that the mirror moves as described in the table when each terminal is connected to the battery.
2. Check if there is continuity between terminals ① and ④.

Connection Direction of operation	Battery		Terminal			
	⊕	⊖	5	6	7	1* 4*
Up	○	○	○		○	
Down	○	○	○		○	
Left	○	○	○	○		
Right	○	○	○	○		

NOTE

○—○ indicates each terminal is connected to the battery.

*: Vehicles with heated mirror

DOOR MIRROR CONTROL SWITCH

Refer to GROUP 54 – Multiple Transmission Systems.