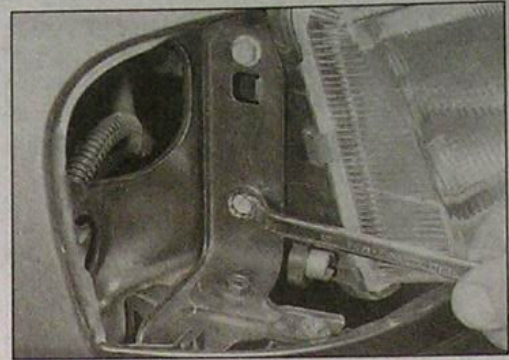




7.2 Removing the front grille panel



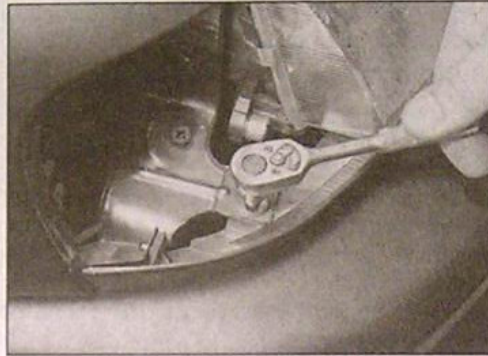
7.3 Disconnect the headlight unit wiring harness connector - Saloon and Hatchback models



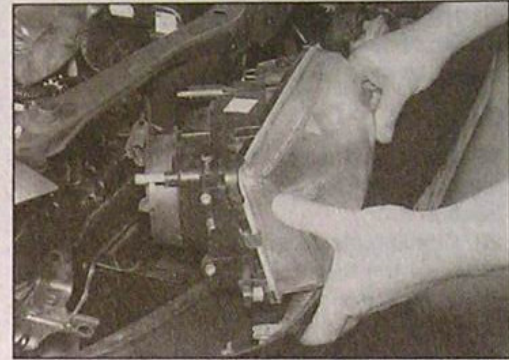
7.4 Unscrew the two headlight side securing bolts ...



7.5 ... the two rear securing nuts (arrowed) ...



7.6a ... and the lower securing bolt ...



7.6b ... then withdraw the headlight - Saloon and Hatchback models

Ashtray illumination bulb

35 Proceed as described previously for the cigarette lighter illumination bulb (see illustration).

7 Exterior light units - removal and refitting

Note: Disconnect the battery negative terminal (refer to Disconnecting the battery in the Reference Section of this manual), before removing any light unit, and reconnect the terminal after refitting the light.

Headlight - Saloon and Hatchback models

Removal

- 1 Remove the relevant direction indicator light as described later in this Section.
- 2 Pull the front grille panel forwards from the front of the vehicle to release the securing clips (see illustration).
- 3 Disconnect the headlight bulb wiring plug, then separate the two halves of the headlight unit wiring harness connector (see illustration).
- 4 Unscrew the two headlight side securing bolts (see illustration).
- 5 Similarly, unscrew the two headlight rear securing nuts (see illustration).
- 6 Unscrew the lower headlight securing bolt, and withdraw the headlight unit from the vehicle (see illustrations).
- 7 If desired, unbolt the lower trim panel from the headlight unit.

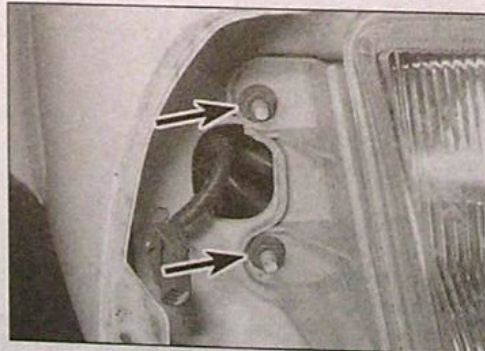
Refitting

8 Refitting is a reversal of removal, but check that the direction indicator light unit lower balljoint is securely engaged. On completion, it is wise to have the headlight beam alignment checked with reference to Section 8.

Headlight - Estate models

Removal

- 9 Proceed as described in paragraphs 1 and 2.
- 10 Disconnect the headlight bulb wiring plug.
- 11 Working in the direction indicator light aperture, unscrew the two headlight outer securing nuts (see illustration).
- 12 Working behind the headlight, unscrew the two headlight rear securing nuts (see illustration).
- 13 Withdraw the headlight from the vehicle, and disconnect the sidelight wiring plug.



7.11 Unscrew the two headlight outer securing nuts (arrowed) - Estate models

14 If desired, unbolt the lower trim panel from the headlight unit.

Refitting

15 Refitting is a reversal of removal, but reconnect the sidelight bulb wiring plug before refitting the light. On completion, it is wise to have the headlight beam alignment checked with reference to Section 8.

Front direction indicator light

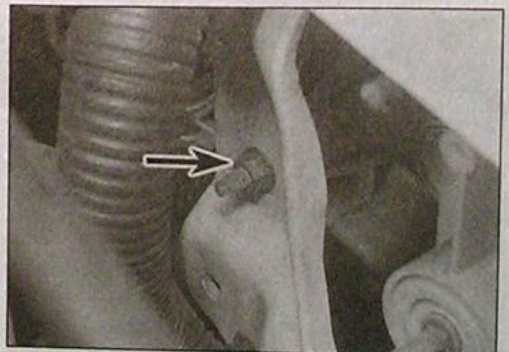
16 The procedure is described as part of the bulb renewal procedure in Section 5.

Front direction indicator side repeater light

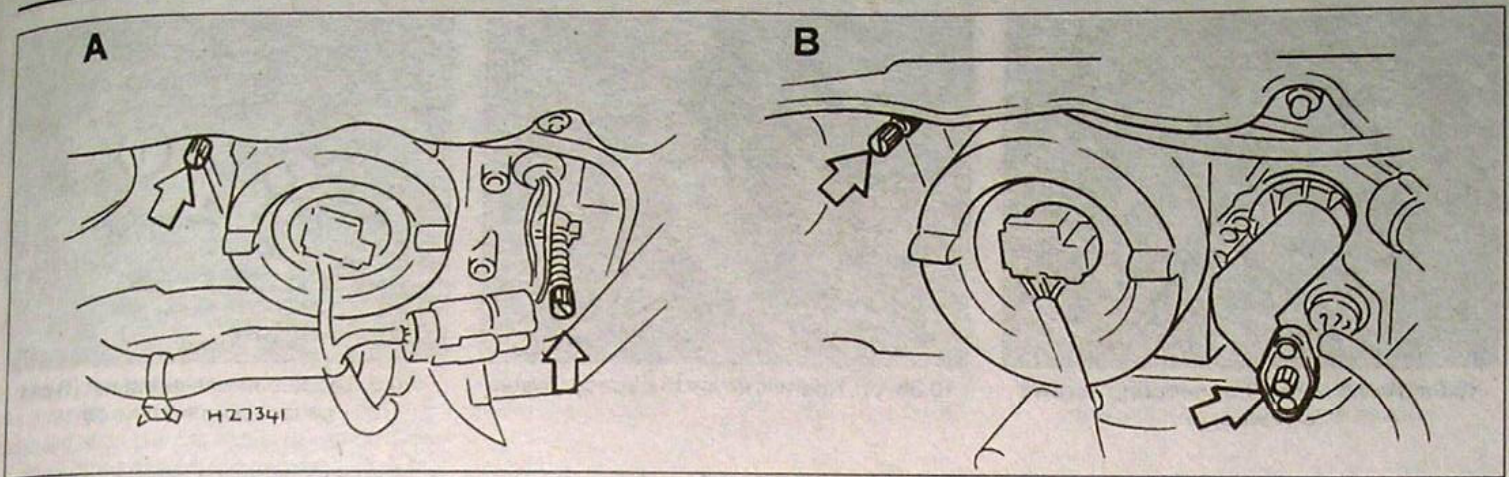
17 The procedure is described as part of the bulb renewal procedure in Section 5.

Front foglight

18 The procedure is described as part of the bulb renewal procedure in Section 5.



7.12 Headlight lower rear securing nut (arrowed) - Estate models



8.2 Headlight beam adjusting screws (arrowed)

A Models without electric headlight adjusters

B Models with electric headlight adjusters

2 For reference, the locations of the beam adjusting screws are as shown (see illustration). The outer screw (nearest the vehicle wing) is used to adjust the horizontal alignment, and the inner screw (located on the rear of the aim adjustment motor on models with electric aim adjustment) is used to adjust the vertical alignment. Note that on models with electric aim adjustment, the adjustment switch must be set to position '0' when carrying out beam alignment.

3 Certain models are equipped with a headlight beam adjustment switch, located on the centre console, which allows the aim of the headlights to be adjusted to compensate for the varying loads carried in the vehicle.

The switch should be positioned according to the load being carried in the vehicle - eg; position '0' for driver with no passengers or luggage; up to position '3' for maximum load, or towing.

9 Instrument panel - removal and refitting

Removal

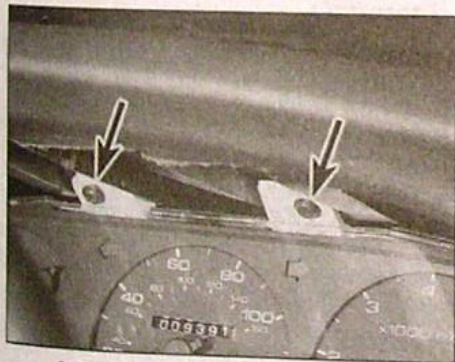
1 Disconnect the battery negative terminal (refer to *Disconnecting the battery* in the Reference Section of this manual).

2 Remove the instrument panel surround as described in Chapter 11A.

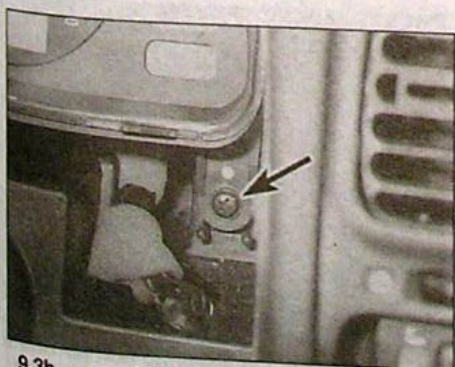
3 Remove the two upper and the two lower instrument panel securing screws (see illustrations).

4 Working in the engine compartment, disconnect the speedometer cable from the gearbox (see Section 14), then push the cable through the engine compartment bulkhead sufficiently to enable the instrument panel to be pulled forwards.

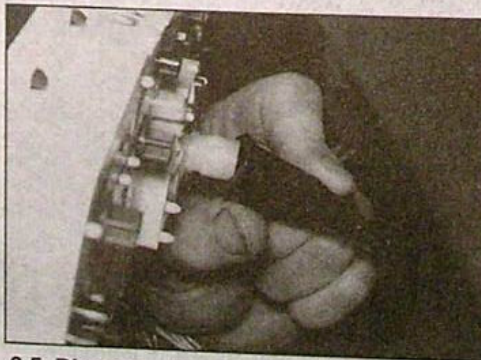
5 Pull the instrument panel forwards, and disconnect the wiring plugs and the speedometer cable from the rear of the panel (see illustration). Withdraw the instrument panel.



9.3a Remove the two upper ...



9.3b ... and two lower instrument panel securing screws (arrowed)



9.5 Disconnecting the speedometer cable from the rear of the instrument panel

Refitting

6 Refitting is a reversal of removal, bearing in mind the following points:

- When reconnecting the speedometer cable, reconnect the cable to the speedometer, then pull the cable through the bulkhead, back into the engine compartment, until the instrument panel can be seated securely in the facia. Reconnect the speedometer to the gearbox with reference to Section 14.
- After refitting the instrument panel surround, tighten the steering column upper securing bolts to the specified torque.

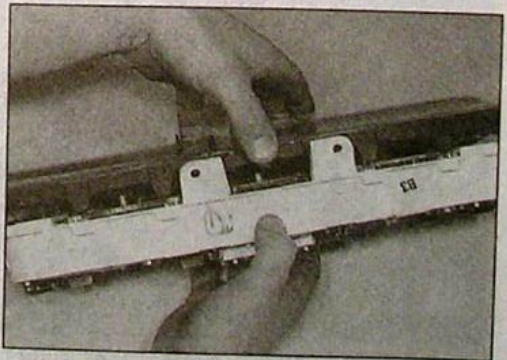
10 Instrument panel components - removal and refitting

General

1 Remove the instrument panel as described in Section 9, then proceed as described under the relevant sub-heading.

Speedometer

2 Unclip the lens assembly from the front of the instrument panel (see illustration).



10.2 Unclipping the lens assembly from the instrument panel

14 Speedometer drive cable - removal and refitting

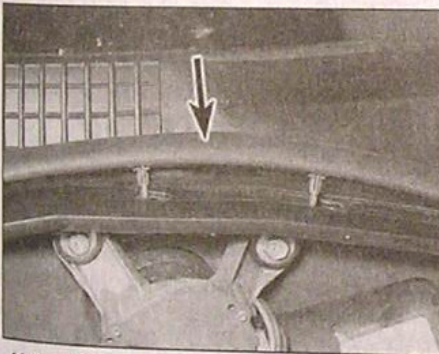
Removal

- 1 Remove the instrument panel as described in Section 9.
- 2 Working in the engine compartment, unscrew the sleeve securing the cable end to the gearbox, then pull the cable from gearbox (see illustration).
- 3 Where applicable, release the cable from the bracket on the engine compartment bulkhead, then pull the cable through into the engine compartment. If necessary, pull the cable grommet from the bulkhead.

Refitting

- 4 Refitting is a reversal of removal, bearing in mind the following points:

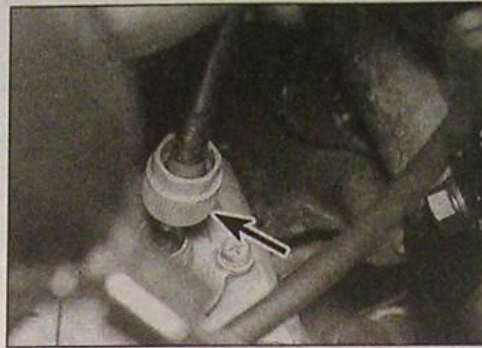
- a) Ensure that the bulkhead grommet is securely seated.
- b) Refit the instrument panel with reference to Section 9.
- c) Note that certain models have alignment marks on the cable outer for use when refitting. The marks should be aligned with the bulkhead bracket when the cable is correctly refitted and routed.



16.3 Pull the weatherstrip (arrowed) from the bulkhead cowl panel



16.4 Withdrawing the bulkhead cowl panel



14.2 Unscrew the sleeve (arrowed) securing the speedometer cable end to the gearbox

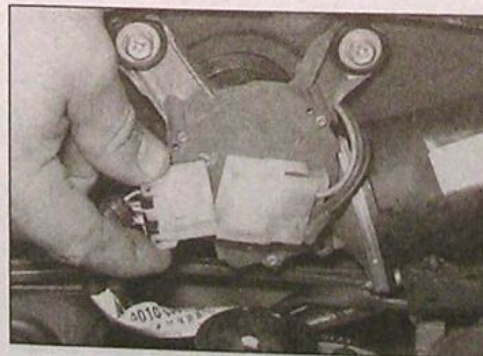
15 Wiper arm - removal and refitting

Removal

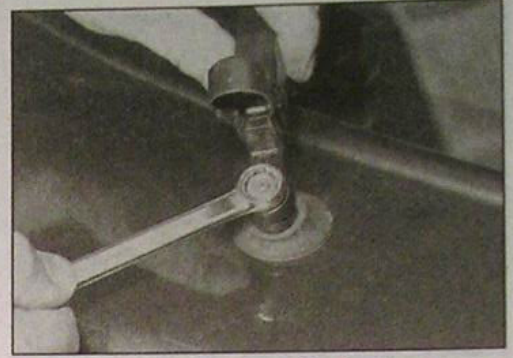
- 1 Operate the wiper motor, then switch it off so that the wiper arm returns to the at-rest/parked position.
- 2 If a windscreen or tailgate wiper is being removed, stick a piece of tape along the edge of the wiper blade, to use as an alignment aid on refitting.
- 3 Where applicable, lift up the wiper arm spindle nut cover, then slacken and remove the spindle nut (see illustration). Lift the blade off the glass, and pull the wiper arm off its spindle. If necessary, the arm can be levered off the spindle using a suitable flat-bladed screwdriver. If both windscreen wiper arms are removed, note their locations, as different arms are fitted to the driver's and passenger's sides.

Refitting

- 4 Ensure that the wiper arm and spindle splines are clean and dry.
- 5 When refitting a windscreen or tailgate wiper arm, refit the arm to the spindle, aligning the wiper blade with the tape fitted before removal. If both windscreen wiper arms have been removed, ensure that the arms are refitted to their correct positions as noted before removal.



16.5 Disconnect the wiper motor wiring plug



16.3 Unscrewing the tailgate wiper arm spindle nut - Hatchback model

- 6 When refitting a headlight wiper arm, hold the arm below the stops at the bottom of the headlight unit, until the spindle nut has been refitted and tightened.
- 7 Refit the spindle nut, tighten it securely, and where applicable, clip the nut cover back into position. If refitting a headlight wiper arm, once the spindle nut has been tightened, position the wiper blade against the upper surfaces of the stops on the headlight.

16 Windscreen wiper motor and linkage - removal and refitting

Motor

Removal

- 1 Disconnect the battery negative terminal (refer to *Disconnecting the battery* in the Reference Section of this manual).
- 2 Open the bonnet.
- 3 Pull the weatherstrip from the front edge of the bulkhead cowl panel (see illustration).
- 4 Remove the securing screw(s) and plastic clip(s), and withdraw the cowl panel (see illustration).
- 5 Disconnect the motor wiring plug (see illustration).
- 6 Using a suitable screwdriver, prise the crank arm from the motor drive balljoint (see illustration).
- 7 Unscrew the four motor securing bolts, and withdraw the motor (see illustrations).



16.6 Prising the crank arm from the motor drive balljoint



17.15 Lifting out the tailgate wiper motor - Estate model

Refitting

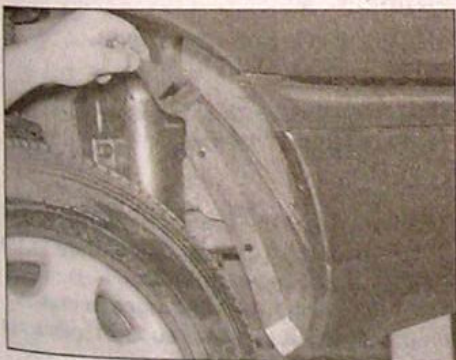
16 Refitting is a reversal of removal, but ensure that the grommet is correctly located in the tailgate, and refit the wiper arms with reference to Section 15.

18 Windscreen/tailgate washer system components - removal and refitting

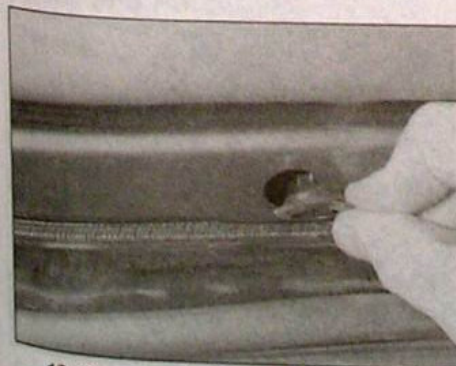
Washer fluid reservoir

Removal

1 Working in the engine compartment, twist the reservoir filler neck clockwise, then pull it from the top of the reservoir.
2 Disconnect the battery negative terminal (refer to *Disconnecting the battery* in the Reference Section of this manual).



18.4 Remove the wheel arch liner for access to the washer fluid reservoir



18.19a ... then prise off the rubber cover ...

3 Apply the handbrake, then jack up the front of the car and support it on axle stands (see *Jacking and Vehicle Support*). Remove the front right-hand roadwheel.

4 Remove the wheel arch liner (see illustration).

5 Disconnect the wiring plug(s) from the washer pump(s), and from the fluid level sensor, where applicable.

6 Disconnect the fluid hose(s) from the washer pump(s) - if the reservoir still contains fluid, be prepared for fluid spillage.

7 Where applicable, release the wiring harness from its clips, and move the harness to one side to allow sufficient clearance to remove the reservoir.

8 Working under the wheel arch, remove the three reservoir securing screws, then lower the reservoir from under the wheel arch (see illustration).

Refitting

9 Refitting is a reversal of removal.

Washer pump(s)

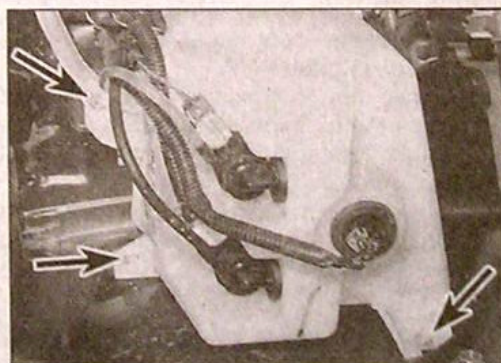
Removal

10 Proceed as described in paragraphs 2 to 4.
11 Disconnect the wiring plug and the fluid hose from the relevant washer pump.

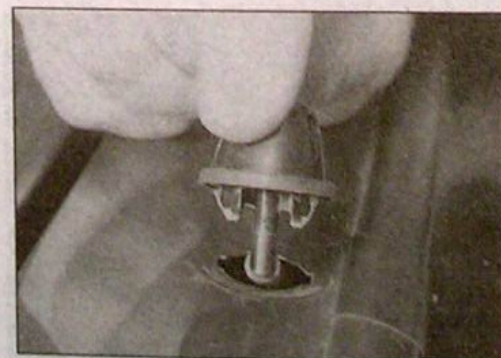
12 Pull the washer pump from the reservoir, and where applicable, recover the grommet. If the reservoir still contains fluid, be prepared for fluid spillage.

Refitting

13 Refitting is a reversal of removal.



18.8 Washer fluid reservoir securing screws (arrowed)



18.19b ... and push out the washer nozzle - Hatchback model

Windscreen washer nozzle

Removal

14 Open the bonnet.

15 Working under the bonnet, release the securing tabs using a suitable screwdriver, then push the nozzle from the bonnet. Disconnect the fluid hose, and withdraw the nozzle.

Refitting

16 Refitting is a reversal of removal.

Tailgate washer nozzle - Hatchback models

Removal

17 Open the tailgate.

18 For access to the washer nozzle, unscrew the two securing bolts, and remove the weatherstrip securing plate and the weatherstrip (see illustration).

19 Prise off the rubber cover, then push out the washer nozzle through the outside of the tailgate, and disconnect the fluid hose (see illustrations).

Refitting

20 Refitting is a reversal of removal, but ensure that the fluid hose is securely reconnected before refitting the rubber cover.

Tailgate washer nozzle - Estate models

Removal

21 Open the tailgate, and working at the inside top edge, pull the cover and the fluid hose from the washer nozzle (see illustration).



18.18 Remove the weatherstrip securing plate and the weatherstrip ...



18.21 Pulling the cover and the fluid hose from the tailgate washer nozzle - Estate model

screws, then withdraw the loudspeaker from the mounting bracket, and disconnect the wiring plug (see illustrations).

Refitting

17 Refitting is a reversal of removal.

Rear loudspeakers - Estate models

Removal

18 Disconnect the battery negative terminal (refer to *Disconnecting the battery* in the Reference Section of this manual).

19 Remove the luggage cover, where applicable.

20 Remove the securing screws, and withdraw the luggage cover supports from the trim panel.

21 Support the tailgate in the open position, then unscrew the tailgate support strut lower balljoint pin from the body. Note the positions of any spacers and/or washers on the balljoint pin.

22 Release the plastic securing clips at the rear edge of the trim panel, then pull the panel from the body to release the rest of the retaining clips. Pull back the panel sufficiently to expose the loudspeaker.

23 Remove the four loudspeaker securing screws, then disconnect the wiring plug and withdraw the loudspeaker (see illustrations).

Refitting

24 Refitting is a reversal of removal, but ensure that any spacers and/or washers on the balljoint pin are correctly refitted, as noted before removal.

21 Radio aerial - removal and refitting

Rear window aerial

1 Certain models may have a radio aerial incorporated in the rear window glass, with the heating element. In the event of a suspected fault, consult a Nissan dealer for advice.

Rear wing-mounted aerial - Saloon and Hatchback models

Removal

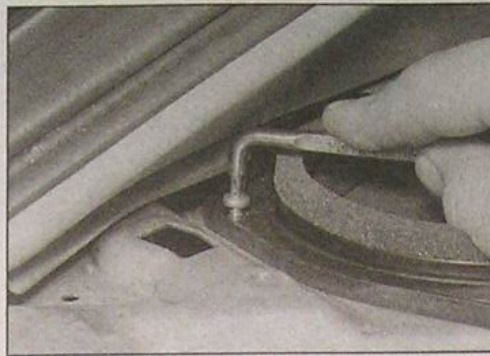
2 Disconnect the battery negative terminal (refer to *Disconnecting the battery* in the Reference Section of this manual).

3 Remove the carpet panel from the floor of the luggage compartment.

4 Release the securing clips, and pull the carpet trim panel from the side of the luggage compartment.

5 Working through the aperture in the body panel, disconnect the aerial motor wiring connector (see illustration).

6 Remove the screw securing the aerial earth lead to the body (see illustration).



20.16a Unscrew the securing screws . . .



20.16b . . . then lift out the rear loudspeaker and disconnect the wiring plug - Hatchback model



20.23a Remove the securing screws . . .

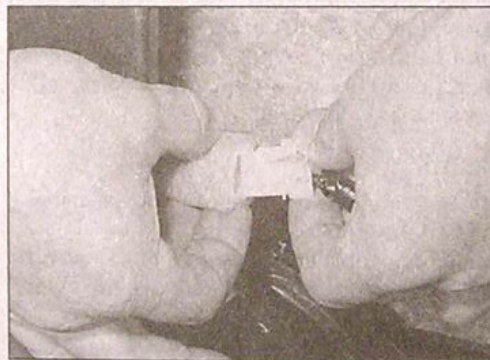


20.23b . . . then withdraw the rear loudspeaker and disconnect the wiring plug - Estate model

7 Unclip the aerial lead from the body, and disconnect the lead from the aerial (see illustration).

8 Working outside the vehicle, unscrew the

securing nut from the top of the aerial. This can be carried out using two short pieces of metal rod and a suitable screwdriver as shown (see illustrations).



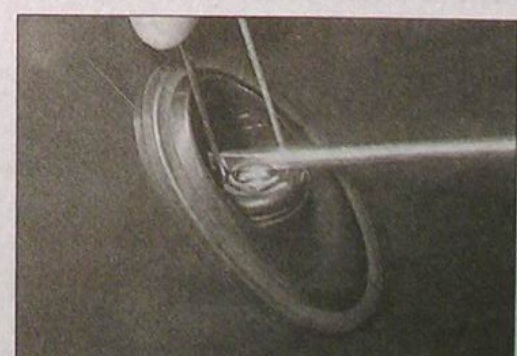
21.5 Disconnect the aerial motor wiring connector



21.6 Remove the screw securing the earth lead to the body



21.7 Disconnect the aerial lead



21.8a Using improvised tools . . .

23 Heated front seat components - general information

Certain models may be equipped with heated front seats. The seats are heated by electrical elements built into the seat cushions.

For access to the heating elements, the seats must be dismantled, and this work should be entrusted to a Nissan dealer.

Removal and refitting details for the heated seat switches are given in Section 4.

24 Air bag system - general information and precautions

General information

On later models, an air bag system is fitted, which is designed to prevent serious chest

and head injuries during an accident. A driver's air bag is fitted in the steering wheel centre pad. Additionally, on certain models, a passenger's air bag is located in the fascia.

The system is armed when the ignition key is in the 'ON' or 'START' positions (note that the system remains armed for a time after the ignition is switched off), and is activated by a 'g' sensor (deceleration sensor) mounted inside the vehicle, under the centre console. The system is controlled by an electronic control unit mounted under the steering column.

The air bag is inflated by a gas generator, which forces the bag out from its location in the steering wheel or fascia.

Precautions



Warning: The following precautions must be observed when working on vehicles with an air bag system, to prevent the possibility of personal injury.

- a) Do not attempt to test any of the air bag system circuits using test meters or any other test equipment.
- b) Before working on any vehicle components located near air bag system components (steering wheel, steering column, fascia and centre console), switch the ignition off, and disconnect the battery negative lead, then wait for at least 10 minutes before carrying out any further work.
- c) Do not attempt to remove the system electronic control unit (located under the steering column), or the sensor (located under the centre console).
- d) Do not attempt to turn the steering wheel or column with the steering gear removed.
- e) If the air bag warning light comes on, or any fault in the system is suspected, consult a Nissan dealer without delay. Do not attempt to carry out fault diagnosis, or any dismantling of the components.



21.8b ... unscrew the top aerial securing nut

9 Working in the luggage compartment, remove the two screws securing the aerial assembly to the body (see illustration).

10 Manipulate the assembly out through the aperture in the body, and disconnect the water drain tube from the bottom of the assembly (see illustrations).

Refitting

11 Refitting is a reversal of removal, bearing in mind the following points:

- Ensure that the drain hose is reconnected to the aerial before manipulating the assembly into position.
- Refit the screws securing the assembly to the body, but do not fully tighten them until the top securing nut has been refitted and tightened.

Roof-mounted aerial - Estate models

Removal

12 Working on the roof of the vehicle, remove the two securing screws, then carefully pull the aerial from the roof, and disconnect the aerial lead.

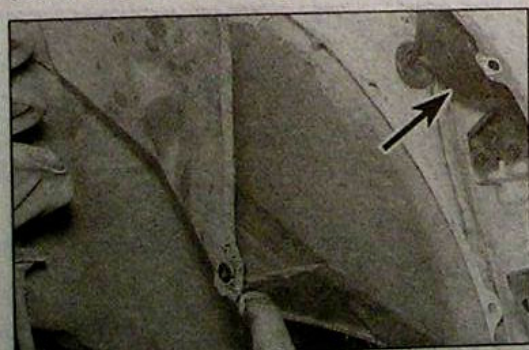
Refitting

13 Refitting is a reversal of removal, but ensure that the aerial housing is securely engaged with the roof panel.

Front wing-mounted aerial - Estate models

Removal

14 Disconnect the battery negative terminal (refer to *Disconnecting the battery* in the



21.16 Withdraw the wheel arch liner for access to the wing-mounted aerial (arrowed) - Estate model



21.9 Unscrew the two screws securing the aerial to the body

Reference Section of this manual).

15 Apply the handbrake, then jack up the front of the car and support it on axle stands (see *Jacking and Vehicle Support*). Remove the front left-hand roadwheel.

16 Remove the securing screws and release the clips, and withdraw the wheel arch liner (see illustration).

17 Disconnect the aerial lead wiring connector, and the motor wiring connector. On certain models, one or both of the connectors may be located inside the passenger compartment, behind the fascia - where necessary, remove the passenger's side footwell trim panel and/or the glovebox (see Chapter 11A) for access to the connector(s).

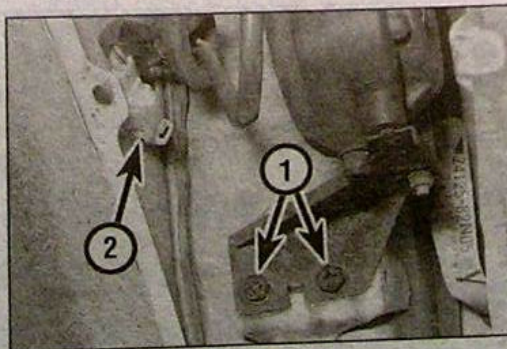
18 Working at the top of the aerial, unscrew the securing nut from the top of the aerial. This can be carried out using two short pieces of metal rod and a pair of pliers (see paragraph 8).

19 Remove the two screws securing the aerial lower mounting bracket to the wing panel, then lower the assembly from the wing (see illustration). Where applicable, pull the wiring grommet from the inner wing panel as the aerial is withdrawn.

Refitting

20 Refitting is a reversal of removal, bearing in mind the following points:

- Where applicable, ensure that the wiring grommet is correctly located in the inner wing panel.
- Refit the screws securing the mounting bracket to the wing panel, but do not fully tighten them until the top securing nut has been refitted and tightened.



21.19 Radio aerial lower securing screws (1). Note wiring connector (2) - Estate model



21.10a Manipulate the aerial through the body aperture ...



21.10b ... and disconnect the water drain tube

22 Anti-theft alarm system - general information

Note: This information is applicable only to the anti-theft alarm system fitted by Nissan as standard equipment.

Some models in the range are fitted with an anti-theft alarm/engine immobiliser system as standard equipment. The alarm is automatically armed and disarmed when the driver's door is locked using the key. When the system is first activated, the alarm indicator LED, located on the fascia, will glow continuously for 30 seconds. If the LED flashes during this time, this indicates that one of the doors, the bonnet, or the boot lid/tailgate is open. The system will not be activated until all the doors, the bonnet, and the boot lid/tailgate are closed. Additionally, if a door is unlocked, or the ignition switch is operated during this 30 seconds, the system will not activate.

After 30 seconds, the indicator LED should flash intermittently, indicating that the system is activated.

If the alarm is set off, the horn will sound for 30 seconds, and the direction indicator lights will flash for 5 minutes. Additionally, the starter motor will not operate.

The alarm can only be stopped by unlocking a door, or the boot lid/tailgate, using the key.

Any suspected faults with the system should be referred to a Nissan dealer.



19.3 Remove the radio/cassette player securing screws (arrowed) . . .

22 Unscrew the securing nut, then withdraw the nozzle from outside the tailgate.

Refitting

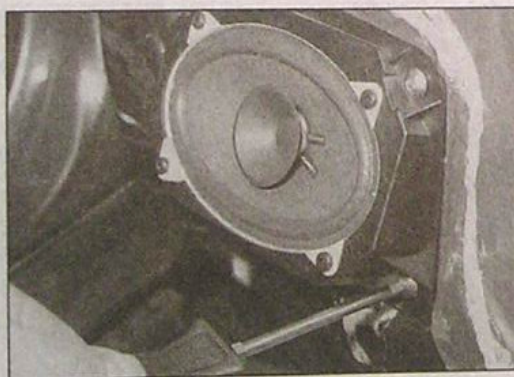
23 Refitting is a reversal of removal.

19 Radio/cassette player - removal and refitting



Removal

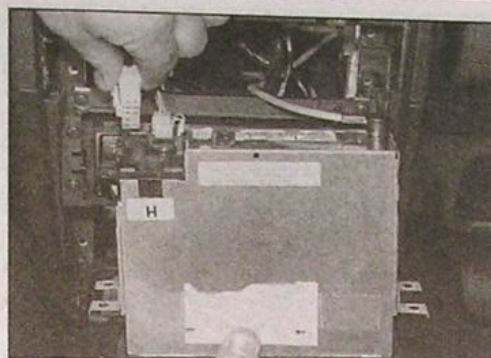
- 1 Disconnect the battery negative terminal (refer to *Disconnecting the battery* in the Reference Section of this manual).
- 2 Remove the facia centre switch/ventilation nozzle housing as described in Chapter 11A.
- 3 Remove the four now-exposed radio/cassette player securing screws (see illustration).



20.2a Remove the four loudspeaker housing securing screws . . .



20.2b . . . then withdraw the housing and disconnect the wiring plug



19.4 . . . then pull the unit forwards and disconnect the wiring plugs and aerial lead

4 Pull the unit forwards from the facia, then disconnect the wiring plugs and the aerial lead from the rear of the unit (see illustration).

5 Note the bayonet fuse, which is a push fit in the rear of the unit.

Refitting

6 Refitting is a reversal of removal, ensuring that the wiring is freely routed behind the unit.

20 Loudspeakers - removal and refitting



Front door-mounted loudspeakers

Removal

- 1 Remove the door inner trim panel as described in Chapter 11A.
- 2 Remove the four securing screws, and withdraw the loudspeaker housing from the door, then disconnect the wiring plug (see illustrations).
- 3 If desired, the loudspeaker can be withdrawn from the housing after removing the four securing screws.

Refitting

4 Refitting is a reversal of removal, but refit the inner door trim panel with reference to Chapter 11A.



20.7 Pull the trim panel from the front body pillar . . .

Front body pillar-mounted loudspeakers

Removal

- 5 Disconnect the battery negative terminal (refer to *Disconnecting the battery* in the Reference Section of this manual).
- 6 Open the relevant front door, and pull the weatherstrip from the edge of the body pillar trim panel.
- 7 Carefully pull the trim panel from the pillar to release the securing clips (see illustration).
- 8 Remove the two screws securing the loudspeaker to the pillar, then lift out the loudspeaker, and separate the two halves of the wiring connector (where necessary, pull the insulating foam from the connector) (see illustration).

Refitting

9 Refitting is a reversal of removal.

Rear parcel shelf-mounted loudspeakers - Saloon models

Removal

- 10 Disconnect the battery negative terminal (refer to *Disconnecting the battery* in the Reference Section of this manual).
- 11 Remove the parcel shelf, as described in Chapter 11A.
- 12 Remove the four securing screws, then withdraw the loudspeaker from the body panel, and disconnect the wiring plug (where necessary, release the wiring harness from the securing clips).

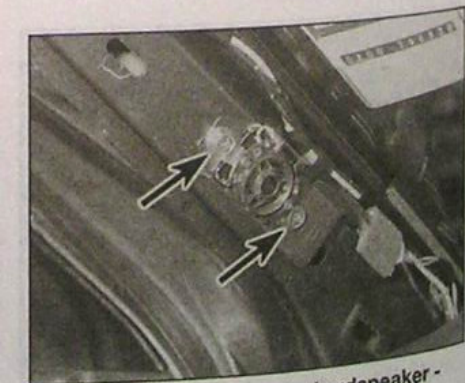
Refitting

13 Refitting is a reversal of removal.

Rear loudspeakers - Hatchback models

Removal

- 14 Disconnect the battery negative terminal (refer to *Disconnecting the battery* in the Reference Section of this manual).
- 15 Remove the relevant luggage compartment side/parcel shelf support panel, as described in Chapter 11A.
- 16 Unscrew the four loudspeaker securing



20.8 . . . to expose the loudspeaker - securing screws arrowed



16.7a Unscrew the four securing bolts ...



16.7b ... and withdraw the wiper motor



16.12 Prise the crank arm from the spindle unit

Refitting

8 Refitting is a reversal of removal, but ensure that the motor drive is in the 'parked' position before reconnecting the crank arm.

Linkage

Removal

9 Each spindle unit can be removed individually.

10 Proceed as described in paragraphs 1 to 4 inclusive.

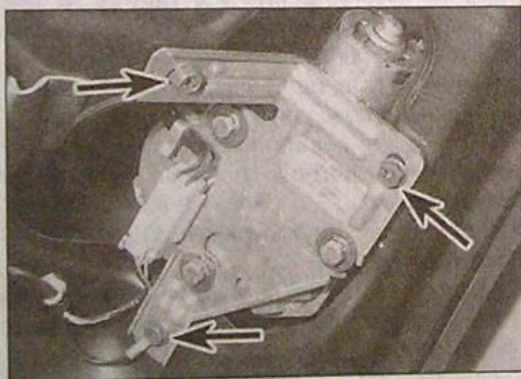
11 Remove the relevant wiper arm.

12 Using a suitable screwdriver, prise the crank arm from the spindle unit balljoint (see illustration).

13 Unscrew the three securing nuts, and withdraw the spindle unit (see illustration).

Refitting

14 Refitting is a reversal of removal, but



17.5 Unscrew the tailgate wiper motor securing bolts (arrowed) ...



17.6 ... then withdraw the wiper motor - Hatchback model

ensure that motor drive is in the 'parked' position before reconnecting the crank arm.

17 Tailgate wiper motor - removal and refitting

Hatchback models

Removal

1 Disconnect the battery negative terminal (refer to *Disconnecting the battery* in the Reference Section of this manual).

2 Remove the tailgate inner trim panels as described in Chapter 11A.

3 Remove the wiper arm with reference to Section 15.

4 Working inside the tailgate, disconnect the tailgate wiper motor wiring plug.

5 Unscrew the three bolts securing the motor mounting bracket to the tailgate, noting that one of the bolts also secures an earth lead (see illustration).

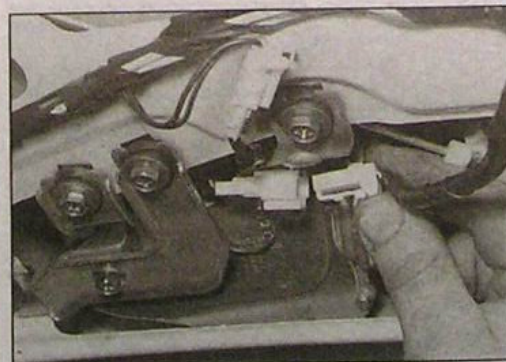
6 Withdraw the motor assembly through the aperture in the tailgate (see illustration).

7 The motor is secured to the mounting bracket by three bolts.

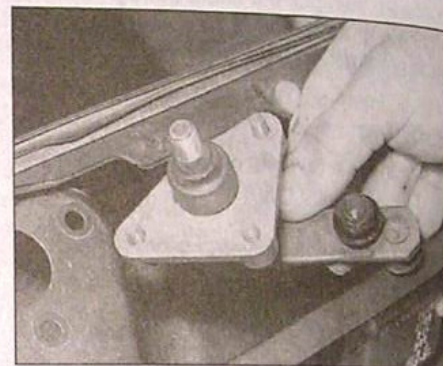
8 If desired, the motor spindle grommet can be pulled from the hole in the tailgate.

Refitting

9 Refitting is a reversal of removal, but where applicable, ensure that the grommet is correctly located in the tailgate, and refit the wiper arm with reference to Section 15.



17.13 Disconnecting the tailgate wiper motor wiring plug - Estate model



16.13 Withdrawing a spindle unit

Estate models

Removal

10 Disconnect the battery negative terminal (refer to *Disconnecting the battery* in the Reference Section of this manual).

11 Remove the tailgate inner trim panel, with reference to Chapter 11A.

12 Remove the wiper arm with reference to Section 15.

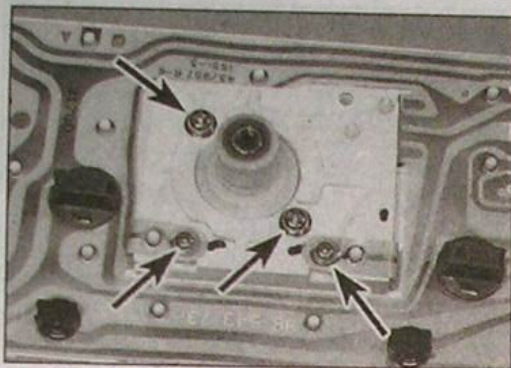
13 Disconnect the motor wiring plug (see illustration).

14 Unscrew the two bolts securing the auxiliary motor bracket to the tailgate, and the bolt securing the bracket to the main motor bracket (see illustration).

15 Unscrew the three bolts securing the main motor bracket to the tailgate, then lift out the motor assembly (see illustration).



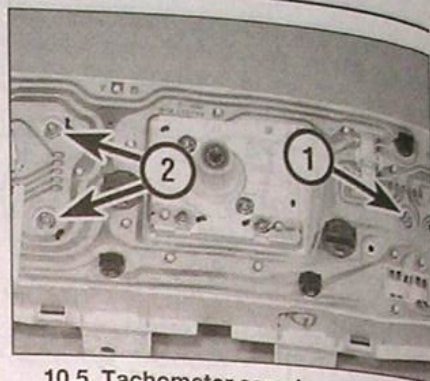
17.14 Removing the tailgate wiper motor auxiliary bracket - Estate model



10.3a Remove the four securing screws (arrowed) ...



10.3b ... and withdraw the speedometer



10.5 Tachometer securing nut (1) and gauge securing nuts (2)

3 Remove the four securing screws from the rear of the instrument panel, then withdraw the speedometer from the front of the panel (see illustrations).

4 Refitting is a reversal of removal, but refit the instrument panel with reference to Section 9.

Tachometer

5 Proceed as described previously for the speedometer, but note that the tachometer is secured by a single nut (see illustration).

Analogue clock

6 Proceed as described previously for the speedometer, but note that the clock is secured by a single nut.

Digital clock

7 The digital clock is an integral part of the tachometer, and cannot be removed independently.

Fuel gauge, temperature gauge and oil pressure gauge

8 Proceed as described previously for the speedometer, but note that the gauges are secured by two nuts.

Illumination and warning light bulbs

9 Twist the relevant bulbholder anti-clockwise, and withdraw it from the rear of the instrument panel.

10 The bulbs are integral with the bulbholders.



11.2 Removing the 'lights-on' warning buzzer (driver's side lower facia panel removed)

Printed circuit

11 The printed circuit assembly can be removed from the rear of the instrument panel after removing all the instruments, as described previously in this Section, and the instrument panel illumination and warning light bulbs.

11 'Lights on' warning system - general information

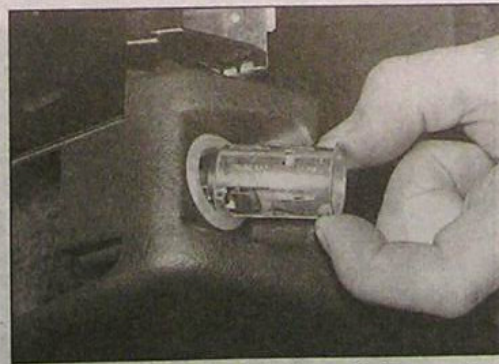
1 On all models, a 'lights-on' warning buzzer is fitted. The buzzer will sound if the driver's door is opened when the headlights or sidelights are switched on.

2 The buzzer unit is located behind the facia, to the left of the steering column, and is secured by a single screw. The unit can be accessed once the driver's side lower facia panel has been removed as described in Chapter 11A (see illustration).

12 Cigarette lighter - removal and refitting

Removal

1 Remove the facia lower centre panel, as described in Chapter 11A.
2 Pull the cigarette lighter from its socket.



12.3 Removing the cigarette lighter metal housing

3 To remove the metal housing, depress the retaining lugs, accessible from inside the plastic housing, then push the metal housing out through the front of the panel (see illustration).

4 The plastic housing can be withdrawn from the front of the panel after releasing the retaining lugs.

Refitting

5 Refitting is a reversal of removal, but refit the facia lower centre panel with reference to Chapter 11A.

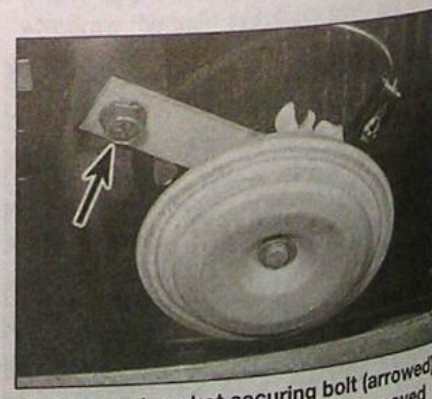
13 Horn - removal and refitting

Removal

1 Disconnect the battery negative terminal (refer to *Disconnecting the battery* in the Reference Section of this manual).
2 Open the bonnet, then pull the front grille panel from the front of the vehicle to release the securing clips.
3 Disconnect the wiring from the horn.
4 Unscrew the securing bolt, and withdraw the horn complete with its mounting bracket (see illustration).

Refitting

5 Refitting is a reversal of removal.



13.4 Horn bracket securing bolt (arrowed) - viewed with front grille panel removed



7.20 Rear stop/tail/direction indicator light unit securing nuts - Saloon model

Stop/tail and rear direction indicator light assembly - Saloon models

Removal

19 Remove the bulbholder assembly, as described for the bulb renewal procedure in Section 5.

20 Working inside the luggage compartment, unscrew the three securing nuts (release the wiring clips from the studs, where applicable), then withdraw the light unit from the rear of the vehicle (see illustration). Note that the light unit is held in place with a sealing compound.

Refitting

21 Before refitting the light unit, clean all traces of sealant from the light unit and the rear wing panel.

22 Apply the new sealing strip to the rear of the light unit (the sealing strip is supplied in rolls, and may have to be trimmed to the required length).

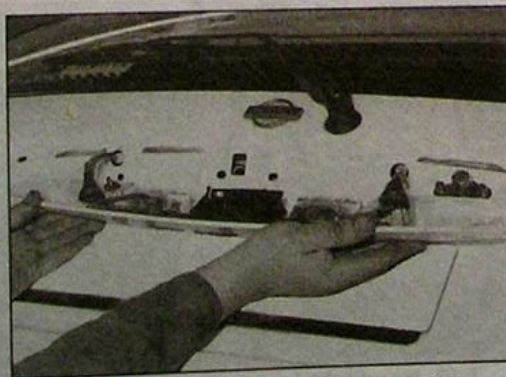
23 Refit the light unit using a reversal of the removal procedure.

Reversing light and rear foglight assembly - Saloon models

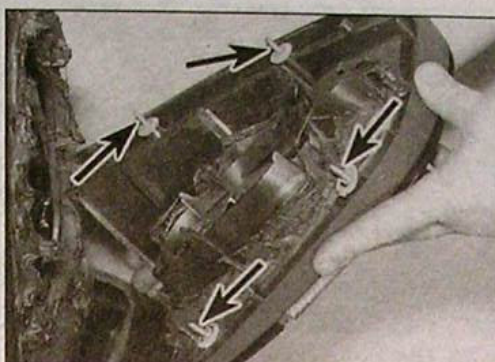
Removal

24 Remove the bulbholder assembly, as described for the bulb renewal procedure in Section 5.

25 Working inside the boot lid, unscrew the three securing nuts (release the wiring clips from the studs, where applicable), then pull the light unit from the outside of the boot lid.



7.48 Removing the tailgate outer trim/handle panel - Estate models



7.30 Removing the rear light cluster - Hatchback model (securing studs arrowed)

Note that the light unit is held in place with a sealing compound.

Refitting

26 Before refitting the light unit, clean all traces of sealant from the light unit and the boot lid.

27 Apply the new sealing strip to the rear of the light unit (the sealing strip is supplied in rolls, and may have to be trimmed to the required length).

28 Refit the light unit using a reversal of the removal procedure.

Rear light cluster - Hatchback models

Note: A new light unit sealing strip will be required on refitting.

Removal

29 Remove the bulbholder assembly, as described for the bulb renewal procedure in Section 5.

30 Working inside the luggage compartment, unscrew the four securing nuts (one at each corner of the light unit), then pull the light unit from the rear of the vehicle (see illustration). Note that the light unit is held in place with a sealing compound.

Refitting

31 Before refitting the light unit, clean all traces of sealant from the light unit and the wing panel.

32 Apply the new sealing strip to the rear of the light unit (the sealing strip is supplied in rolls, and may have to be trimmed to the required length).

33 Refit the light unit using a reversal of the removal procedure.

Rear light cluster - Estate models

Removal

34 Open the tailgate.

35 Remove the two screws securing the light unit to the rear body panel.

36 Lift the light unit slightly to release the lower retaining lug, then withdraw the unit from the body panel, taking care not to strain the wiring.

37 Twist the bulbholders anti-clockwise to release them from the rear of the light unit (note the locations of the bulbholders to ensure correct refitting), then withdraw the light unit.

Refitting

38 Refitting is a reversal of removal, but ensure that the bulbholders are refitted to their correct locations, as noted before removal.

Rear number plate light - Saloon models

Removal

39 Remove the two securing screws, and withdraw the light unit from the boot lid/tailgate.

40 Trace the wiring back from the light unit, and separate the two halves of the wiring connector.

Refitting

41 Refitting is a reversal of removal.

Rear number plate light - Hatchback models

42 The procedure is described as part of the bulb renewal procedure in Section 5.

Rear number plate light - Estate models

Removal

43 Remove the tailgate inner trim panels as described in Chapter 11A.

44 Working inside the tailgate, unscrew the four nuts securing the tailgate outer trim/handle panel.

45 Release the two outer trim/handle panel securing clips (one at each end of the panel, accessible from the inside of the tailgate).

46 Working inside the tailgate, disconnect the two number plate wiring connectors.

47 Disconnect the operating rod from the exterior handle.

48 Pull the panel from the outside of the tailgate, and pull the number plate light wiring grommets from their apertures in the tailgate (see illustration).

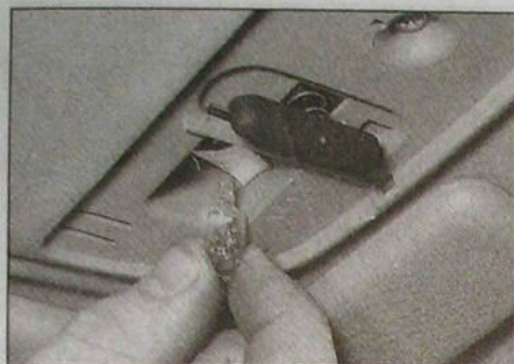
49 Remove the two securing screws, and where applicable release the clips, then withdraw the light assembly from the outer trim/handle panel.

Refitting

50 Refitting is a reversal of removal.

8 Headlight beam alignment - general information

1 Accurate adjustment of the headlight beam is only possible using optical beam-setting equipment, and this work should therefore be carried out by a Nissan dealer or suitably-equipped workshop.



6.8 ... for access to the twin map reading light bulbs

9 Fit the new bulb using a reversal of the removal procedure.

Luggage compartment light

10 Open the tailgate or boot lid, as applicable.

11 Where applicable, remove the two securing screws, then prise the light assembly from the body panel.

12 Unclip the lens from the light.

13 The bulb is a push fit in the light assembly (see illustration).

14 Fit the new bulb using a reversal of the removal procedure.

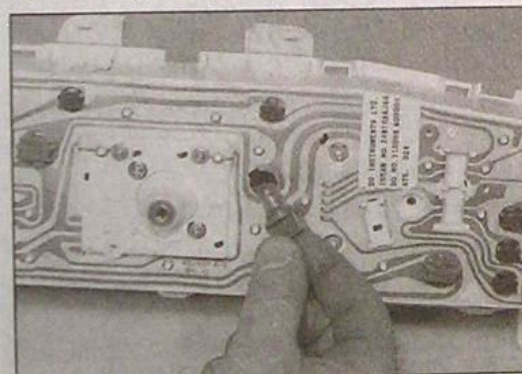
Glovebox light

15 Remove the glovebox, with reference to Chapter 11A.

16 Pull the bulbholder from the rear of the facia (see illustration).

17 The bulb is a push fit in the bulbholder.

18 Refitting is a reversal of removal.



6.20 Removing an instrument panel light bulb



6.26 Removing a heater control panel bulb via the access hole in the circuit board



6.13 Removing the luggage compartment light bulb - Hatchback model

Instrument panel lights

19 Remove the instrument panel, as described in Section 9.

20 Twist the relevant bulbholder anti-clockwise to remove it from the rear of the instrument panel (see illustration).

21 The bulbs are integral with the bulbholders.

22 Fit the new bulb, and twist it clockwise to lock it into position.

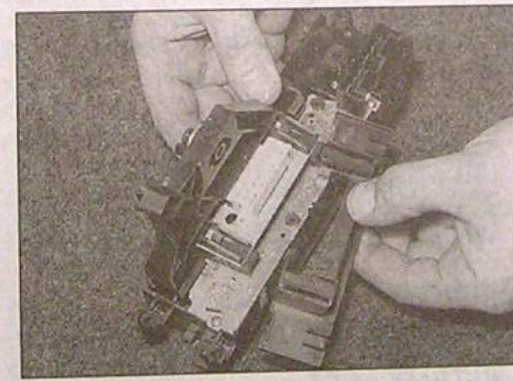
23 Refit the instrument panel as described in Section 9.

Heater control panel illumination bulbs

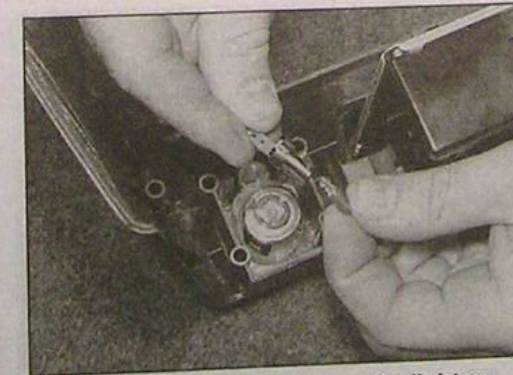
24 Remove the heater/ventilation control unit as described in Chapter 3.

25 Pull the top cover from the control unit, to expose the circuit board and the bulbs (see illustration).

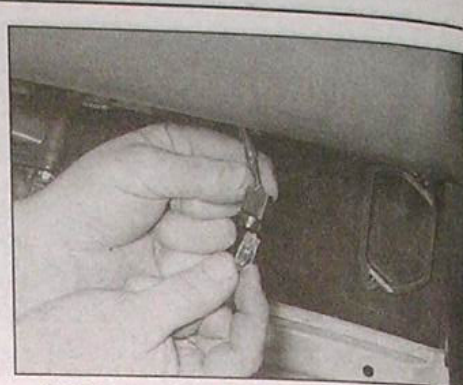
26 Twist the relevant bulbholder anti-



6.25 Pull the top cover from the heater control panel for access to the bulbs



6.33 Removing the cigarette lighter illumination bulb



6.16 Removing the glovebox light bulb

clockwise, using a screwdriver if necessary, and withdraw the bulbholder from the rear of the control unit. Note that an access hole is provided in the connector board for one of the bulbs (see illustration). The bulbs are integral with the bulbholders.

27 Fit the new bulb using a reversal of the removal procedure, then refit the heater/ventilation control unit as described in Chapter 3.

Switch illumination bulbs

28 All of the switches are fitted with illuminating bulbs, and some are also fitted with a bulb to show when the circuit concerned is operating.

29 In most cases, if a bulb blows, the complete switch must be renewed, but on Estate models, certain switch bulbs can be renewed. Check with a Nissan dealer for information on the availability of spare bulbs.

30 On switches where the bulbs can be renewed, remove the relevant switch as described in Section 4, then pull the bulbholder from the top of the switch. The bulbs are integral with the bulbholders.

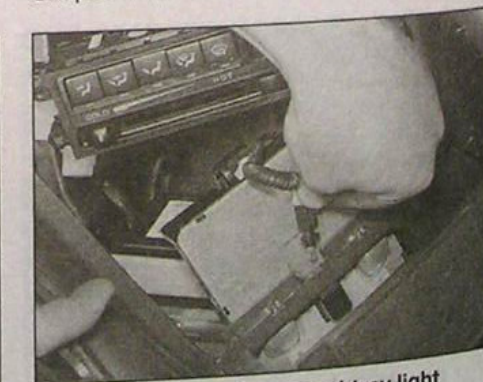
Cigarette lighter illumination bulb

31 Remove the facia lower centre panel as described in Chapter 11A.

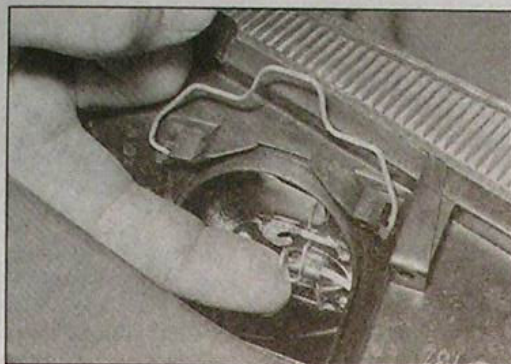
32 Working at the rear of the panel, pull out the bulbholder.

33 The bulb is a push fit in the bulbholder (see illustration).

34 Refitting is a reversal of removal, but refit the facia lower centre panel with reference to Chapter 11A.



6.35 Removing the ashtray light bulbholder



5.41a ... then release the retaining clip ...

42 When handling the new bulb, use a tissue or clean cloth, to avoid touching the glass with the fingers; moisture and grease from the skin can cause blackening and rapid failure of this type of bulb. If the glass is accidentally touched, wipe it clean using methylated spirit.

43 Install the new bulb, ensuring that its locating tabs are correctly located in the light unit cut-outs.

44 Secure the bulb with the retaining clip, then refit the plastic cover, and secure with the clip.

Front driving light - Estate models

45 The procedure is as described previously for Saloon and Hatchback models, noting that the bulb cover is a twist-fit on the rear of the



5.56 Removing a bulb from the reversing light/rear foglight bulbholder - Saloon model



5.41b ... and remove the bulb from the driving light - Saloon and Hatchback models

light unit. Twist the cover anti-clockwise to release it from the light unit.

Front foglight

46 Remove the two lens surround securing screws, then withdraw the surround, lens, and reflector.

47 Disconnect the wiring from the bulb, then release the spring clip, and withdraw the bulb from the rear of the light unit.

48 Fit the new bulb using a reversal of the removal procedure.

Stop/tail light and rear direction indicator light - Saloon models

49 Open the boot lid.

50 Working at the side of the luggage compartment, release the securing clip, and lift up the light unit cover flap.

51 Release the bulbholder securing clip, and withdraw the bulbholder from the rear of the light unit (see illustration).

52 The bulbs are a bayonet fit in the bulbholder.

53 Fit the new bulb using a reversal of the removal procedure. Note that the stop/tail light bulb has offset pins, to ensure correct installation.

Reversing light and rear foglight - Saloon models

54 Open the boot lid.

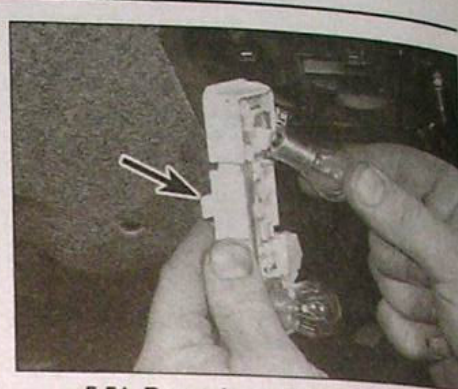
55 Working through the light aperture in the boot lid, squeeze the bulbholder retaining clips, and withdraw the bulbholder from the boot lid.



5.60 Removing the rear light cluster bulbholder - Hatchback model



5.61 Removing a rear light cluster bulb - Hatchback model



5.51 Removing a bulb from the stop/tail/rear direction indicator light unit - Saloon model

Bulbholder securing clip arrowed

56 The bulbs are a bayonet fit in the bulbholder (see illustration).

57 Fit the new bulb using a reversal of the removal procedure.

Rear light cluster - Hatchback models

58 Open the tailgate.

59 Working at the side of the luggage compartment, prise open the light unit cover.

60 Squeeze the securing clips to release the bulbholder from the rear of the light unit (see illustration).

61 The bulbs are a bayonet fit in the bulbholder (see illustration).

62 Fit the new bulb using a reversal of the removal procedure. Note that the stop/tail light bulb has offset pins, to ensure correct installation.

Rear light cluster - Estate models

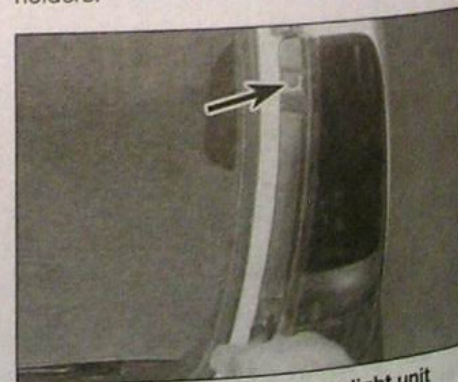
63 Open the tailgate.

64 Remove the two screws securing the light unit to the rear body panel (see illustration).

65 Lift the light unit slightly to release the lower retaining lug, then withdraw the unit from the body panel, taking care not to strain the wiring.

66 Twist the relevant bulbholder anti-clockwise to release it from the rear of the light unit (see illustration).

67 The bulbs are a bayonet fit in the bulbholders.



5.64 Remove the two rear light unit securing screws - Estate model

Glovebox light switch

36 Open the glovebox, then prise the switch from the lower edge of the facia, and disconnect the wiring plug (see illustration).

37 Refitting is a reversal of removal.

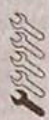
Luggage compartment light switch

38 The switch is integral with the boot lid/tailgate lock. Removal and refitting details for the boot lid/tailgate lock are provided in Chapter 11A.

Map reading light switches

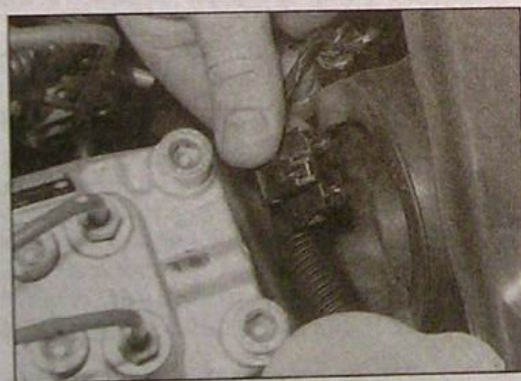
39 The switches are integral with the light assembly, and cannot be renewed independently.

5 Bulbs (exterior lights) - renewal

**General**

1 Whenever a bulb is renewed, note the following points:

- Disconnect the battery negative terminal (refer to Disconnecting the battery in the Reference Section of this manual).
- Remember that, if the light has just been in use, the bulb may be extremely hot.
- Always check the bulb contacts and holder, ensuring that there is clean metal-to-metal contact between the bulb and its live contact(s) and earth. Clean off any corrosion or dirt before fitting a new bulb.



5.3 Disconnecting a headlight bulb wiring plug - Saloon and Hatchback models



5.4 Pulling the rubber boot from the headlight - Saloon and Hatchback models



5.6 Removing a headlight bulb - Saloon and Hatchback models



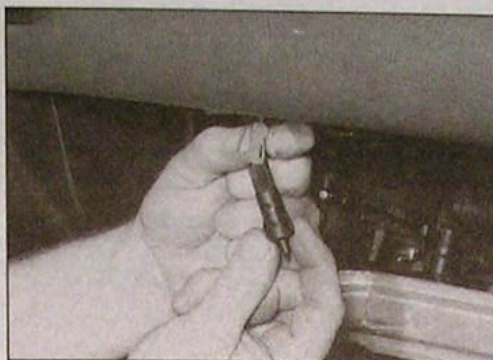
5.10a Unclip the plastic cover . . .



5.10b . . . then pull the wiring plug from the bulb contacts - Estate models



5.11 Pull the rubber cover from the rear of the headlight unit - Estate models



4.36 Removing the glovebox light switch

- Wherever bayonet-type bulbs are fitted, ensure that the live contact(s) bear firmly against the bulb contact.
- Always ensure that the new bulb is of the correct rating (see Specifications), and that it is completely clean before fitting it; this applies particularly to headlight/foglight bulbs (see following paragraphs).

Headlight - Saloon and Hatchback models

- Open the bonnet.
- Squeeze the securing lugs, and disconnect the wiring plug from the rear of the bulb (see illustration).
- Pull the rubber boot from the rear of the headlight (see illustration).
- Squeeze the retaining spring-clip lugs, and release the clip from the rear of the bulb.
- Withdraw the bulb (see illustration).

7 When handling the new bulb, use a tissue or clean cloth, to avoid touching the glass with the fingers; moisture and grease from the skin can cause blackening and rapid failure of this type of bulb. If the glass is accidentally touched, wipe it clean using methylated spirit.

8 Install the new bulb, ensuring that its locating tabs are correctly located in the light unit cut-outs. Secure the bulb in position with the retaining clip, then refit the rubber boot and reconnect the wiring plug. Note the 'TOP' mark on the rubber boot which should be uppermost.

Headlight - Estate models

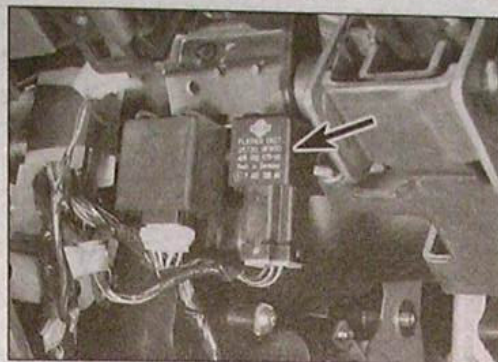
- Open the bonnet.
- Unclip the plastic cover from the rear of the headlight, then pull the wiring plug from the bulb contacts (see illustrations).
- Pull the rubber cover from the rear of the light unit (see illustration).
- Proceed as described in paragraphs 4 to 7 inclusive.
- Install the new bulb, ensuring that its locating tabs are correctly located in the light unit cut-outs. Secure the bulb in position with the retaining clip, then refit the rubber cover to the rear of the light unit.
- Reconnect the wiring plug, then refit the plastic cover to the rear of the light unit.

Front sidelight - Saloon and Hatchback models

- Open the bonnet.
- Squeeze the securing lugs, and disconnect the wiring plug from the rear of the headlight bulb.



3.13e Driver's side lower facia panel removed to expose relays next to fusebox



3.14 Driver's side lower facia panel removed to expose direction indicator/hazard warning flasher unit (arrowed)



3.16 Luggage compartment rear trim panel removed to expose tailgate wiper relay (arrowed) - Hatchback model

Testing is by the substitution of a known good unit, but be careful - while some relays are identical in appearance and in operation, others look similar but perform different functions.

18 To remove a relay, first ensure that the relevant circuit is switched off. The relay can then simply be pulled out from the socket, and pushed back into position.

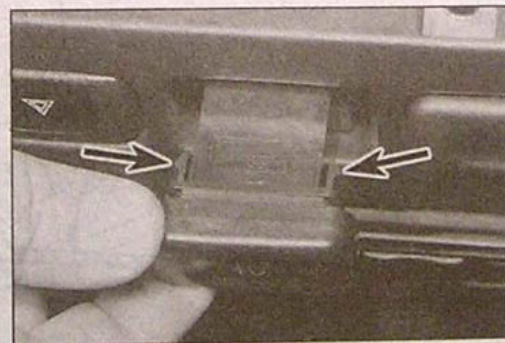
4 Switches - removal and refitting



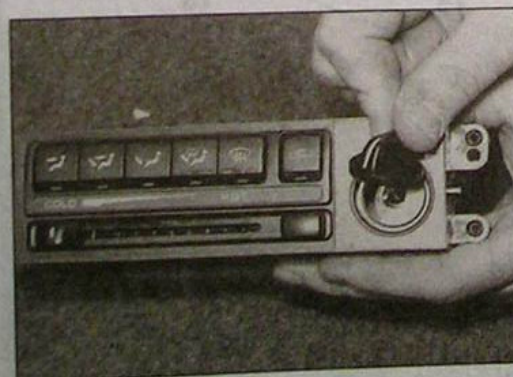
Note: Disconnect the battery negative terminal (refer to Disconnecting the battery in the Reference Section of this manual), before removing any switch, and reconnect the terminal after refitting the switch.



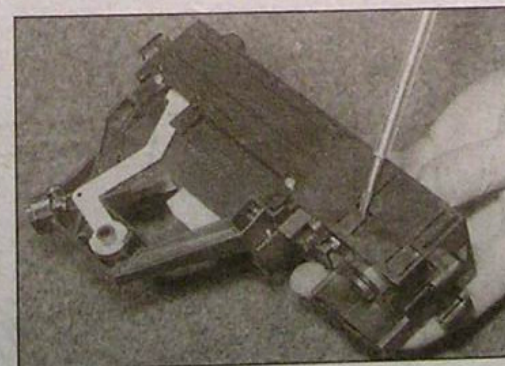
4.3 Sliding the wash/wipe switch from the steering column bracket



4.7 Removing the rear foglight switch from the facia centre switch/ventilation nozzle housing - securing clips arrowed



4.10 Pulling the knob from the heater blower motor switch



4.11a Release the securing clips ...



4.11b ... then pull the switch from the control panel

Ignition switch/steering column lock

1 Refer to Chapter 10.

Steering column combination switches

2 Remove the steering column shrouds, as described in Chapter 11A.

3 Where applicable, depress the securing clips, then slide the relevant switch from the bracket on the steering column, and disconnect the wiring plugs (see illustration).

4 Refitting is a reversal of removal.

Centre facia-mounted pushbutton switches

5 Remove the facia centre switch/ventilation nozzle housing as described in Chapter 11A.

6 Working at the rear of the panel, disconnect the wiring plug from the relevant switch.

7 Push the switch forwards from the panel to release the securing clips (see illustration).

8 Refitting is a reversal of removal.

Heater blower motor switch

9 Remove the heater/ventilation control unit as described in Chapter 3.

10 Carefully pull off the blower motor control knob (see illustration). If using pliers, wrap a suitable piece of cloth or card around the knob to protect it.

11 Release the securing clips (two at the bottom and one at the top of the switch), using a screwdriver if necessary, then pull the blower motor switch from the rear of the control panel (see illustrations).

12 Refit the switch using a reversal of the removal procedure, then refit the heater/ventilation control unit as described in Chapter 3.

Driver's side switch/ventilation panel-mounted switches

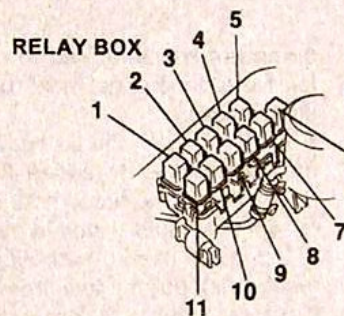
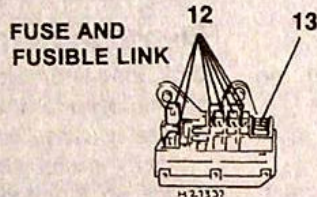
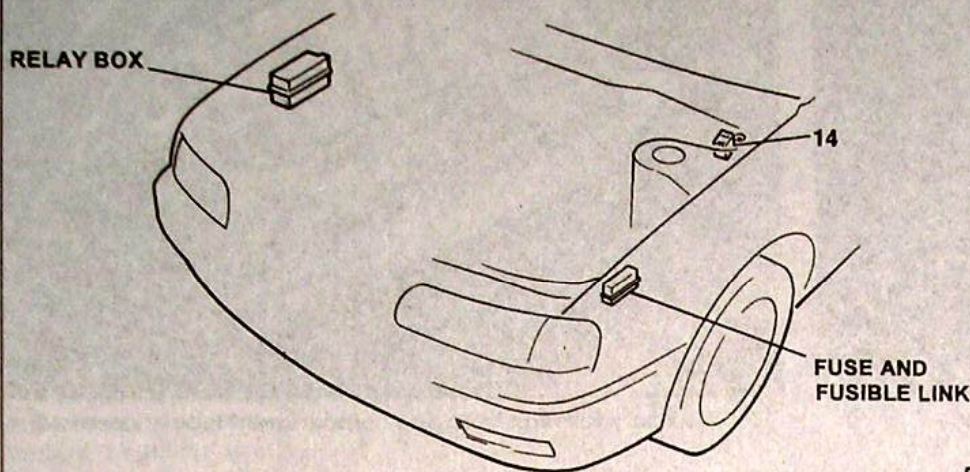
13 These switches include the electric door mirror switch, the instrument panel illumination switch, and the front foglight switch.

14 Remove the driver's side switch/ventilation panel, as described in Chapter 11A.

15 Working at the rear of the panel, release the securing clips, then push the relevant switch out through the front of the panel (see illustration).

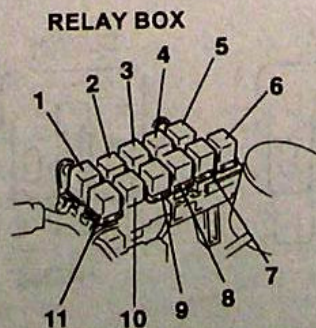
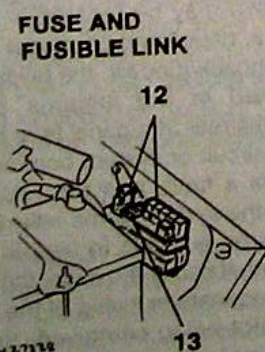
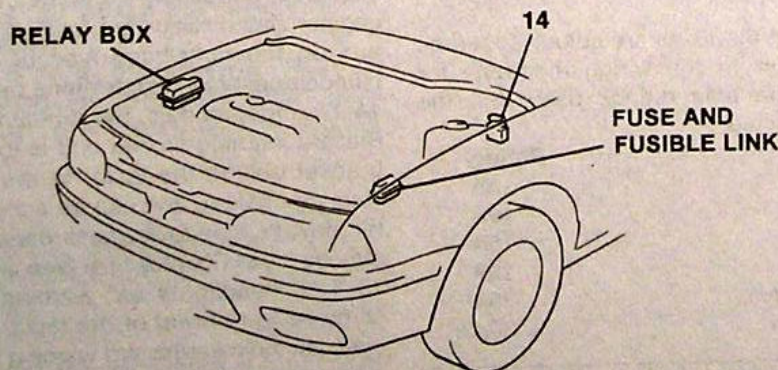
16 Refit the switch by pushing it into position in the panel, then refit the panel with reference to Chapter 11A.

3.13a Engine compartment relay locations - Saloon and Hatchback models



- 1 Front driving lights relay
- 2 Rear foglight relay
- 3 Horn relay
- 4 Radiator fan relay
- 5 Additional radiator fan relay (Phase I 2.0 litre engine models)
- 5 ECCS relay (Phase II 2.0 litre engine models and 1.6 litre fuel injection engine models)
- 5 Automatic choke relay (1.6 litre carburettor engine models)
- 6 Inlet manifold heater relay (Phase I models)
- 6 Starter inhibitor relay (Phase II automatic transmission models)
- 7 ECC relay (Phase I 1.6 litre engine models)
- 7 ECCS relay (Phase I 2.0 litre engine models)
- 7 Front foglight relay (Phase II models)
- 8 Starter inhibitor relay (Phase I automatic transmission models)
- 8 Additional radiator fan relay (Phase II models)
- 9 Fuel pump relay (Phase I models)
- 9 Air conditioning system relay (Phase II models)
- 10 Air conditioning relay (Phase I models)
- 10 Fuel pump relay (Phase II models)
- 11 Front foglight relay (Phase I models)
- 11 Anti-theft alarm system relay (Phase II models)
- 12 Fusible links
- 13 Fuses
- 14 Windscreen wiper motor amplifier

3.13b Engine compartment relay locations - Estate models



- 1 Radiator fan relay
- 2 Horn relay
- 3 Starter inhibitor relay (automatic transmission models)
- 4 Idle-up relay
- 5 Inlet manifold heater relay
- 6 Additional radiator fan relay
- 7 Rear wiper relay
- 8 Automatic choke relay (1.6 litre carburettor models)
- 8 Resistor (2.0 litre models)
- 9 Air conditioning system relay
- 10 Fuel pump relay
- 11 ECCS relay
- 12 Fusible links
- 13 Fuses
- 14 Wiper motor amplifier

1 General information and precautions

General information

The electrical system is of 12-volt negative earth type. Power for the lights and all electrical accessories is supplied by a lead/acid type battery, which is charged by the alternator.

This Chapter covers repair and service procedures for the various electrical components not associated with the engine. Information on the battery, alternator and starter motor can be found in Chapter 5A, and information on the ignition system is contained in Chapter 5B.

It should be noted that, prior to working on any component in the electrical system, the battery negative terminal should first be disconnected, to prevent the possibility of electrical short-circuits and/or fires.

Note: This Chapter is divided into two Parts; A and B. Part A covers the body electrical systems on Phase I models, (1990 to June 1993) and Phase II models (June 1993 to October 1996). Phase III models (October 1996 to September 1999) are covered in Part B of this Chapter.

Precautions



Warning: Before carrying out any work on the electrical system, read through the precautions given in Safety first! at the beginning of this manual, and in Chapter 5A.



Warning: Later models are equipped with an air bag system. When working on the electrical system, refer to the precautions given in Section 24, to avoid the possibility of personal injury.

Caution: Before proceeding, refer to Disconnecting the battery in the Reference Section of this manual for further information.

2 Electrical fault-finding - general information

Note: Refer to the precautions given in Safety first! and in Section 1 of this Chapter before starting work. The following tests relate to testing of the main electrical circuits, and should not be used to test delicate electronic circuits (such as anti-lock braking systems), particularly where an electronic control unit is used.

General

1 A typical electrical circuit consists of an electrical component, any switches, relays, motors, fuses, fusible links or circuit breakers related to that component, and the wiring and connectors which link the component to both the battery and the chassis. To help to

pinpoint a problem in an electrical circuit, wiring diagrams are included at the end of this manual.

2 Before attempting to diagnose an electrical fault, first study the appropriate wiring diagram, to obtain a more complete understanding of the components included in the particular circuit concerned. The possible sources of a fault can be narrowed down by noting whether other components related to the circuit are operating properly. If several components or circuits fail at one time, the problem is likely to be related to a shared fuse or earth connection.

3 Electrical problems usually stem from simple causes, such as loose or corroded connections, a faulty earth connection, a blown fuse, a melted fusible link, or a faulty relay (refer to Section 3 for details of testing relays). Visually inspect the condition of all fuses, wires and connections in a problem circuit before testing the components. Use the wiring diagrams to determine which terminal connections will need to be checked, in order to pinpoint the trouble-spot.

4 The basic tools required for electrical fault-finding include a circuit tester or voltmeter (a 12-volt bulb with a set of test leads can also be used for certain tests); a self-powered test light (sometimes known as a continuity tester); an ohmmeter (to measure resistance); a battery and set of test leads; and a jumper wire, preferably with a circuit breaker or fuse incorporated, which can be used to bypass suspect wires or electrical components. Before attempting to locate a problem with test instruments, use the wiring diagram to determine where to make the connections.

5 To find the source of an intermittent wiring fault (usually due to a poor or dirty connection, or damaged wiring insulation), a 'wiggle' test can be performed on the wiring. This involves wiggling the wiring by hand, to see if the fault occurs as the wiring is moved. It should be possible to narrow down the source of the fault to a particular section of wiring. This method of testing can be used in conjunction with any of the tests described in the following sub-Sections.

6 Apart from problems due to poor connections, two basic types of fault can occur in an electrical circuit - open-circuit, or short-circuit.

7 Open-circuit faults are caused by a break somewhere in the circuit, which prevents current from flowing. An open-circuit fault will prevent a component from working, but will not cause the relevant circuit fuse to blow.

8 Short-circuit faults are caused by a 'short' somewhere in the circuit, which allows the current flowing in the circuit to 'escape' along an alternative route, usually to earth. Short-circuit faults are normally caused by a breakdown in wiring insulation, which allows a feed wire to touch either another wire, or an earthed component such as the bodyshell. A short-circuit fault will normally cause the relevant circuit fuse to blow.

Finding an open-circuit

9 To check for an open-circuit, connect one lead of a circuit tester or voltmeter to either the negative battery terminal or a known good earth.

10 Connect the other lead to a connector in the circuit being tested, preferably nearest to the battery or fuse.

11 Switch on the circuit, bearing in mind that some circuits are live only when the ignition switch is moved to a particular position.

12 If voltage is present (indicated either by the tester bulb lighting or a voltmeter reading, as applicable), this means that the section of the circuit between the relevant connector and the battery is problem-free.

13 Continue to check the remainder of the circuit in the same fashion.

14 When a point is reached at which no voltage is present, the problem must lie between that point and the previous test point with voltage. Most problems can be traced to a broken, corroded or loose connection.

Finding a short-circuit

15 To check for a short-circuit, first disconnect the load(s) from the circuit (loads are the components which draw current from a circuit, such as bulbs, motors, heating elements, etc).

16 Remove the relevant fuse from the circuit, and connect a circuit tester or voltmeter to the fuse connections.

17 Switch on the circuit, bearing in mind that some circuits are live only when the ignition switch is moved to a particular position.

18 If voltage is present (indicated either by the tester bulb lighting or a voltmeter reading, as applicable), this means that there is a short-circuit.

19 If no voltage is present, but the fuse still blows with the load(s) connected, this indicates an internal fault in the load(s).

Finding an earth fault

20 The battery negative terminal is connected to 'earth' - the metal of the engine/transmission and the car body - and most systems are wired so that they only receive a positive feed, the current returning via the metal of the car body. This means that the component mounting and the body form part of that circuit. Loose or corroded mountings can therefore cause a range of electrical faults, ranging from total failure of a circuit, to a puzzling partial fault. In particular, lights may shine dimly (especially when another circuit sharing the same earth point is in operation), motors (eg wiper motors or the radiator cooling fan motor) may run slowly, and the operation of one circuit may have an apparently-unrelated effect on another. Note that on many vehicles, earth straps are used between certain components, such as the engine/transmission and the body, usually where there is no metal-to-metal contact between components, due to flexible rubber mountings, etc.

Chapter 12 Part A:

Body electrical systems - Phase I and Phase II models

Contents

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Degrees of difficulty

Easy, suitable for
novice with little
experience



Fairly easy, suitable
for beginner with
some experience



Fairly difficult,
suitable for competent
DIY mechanic



Difficult, suitable for
experienced DIY
mechanic



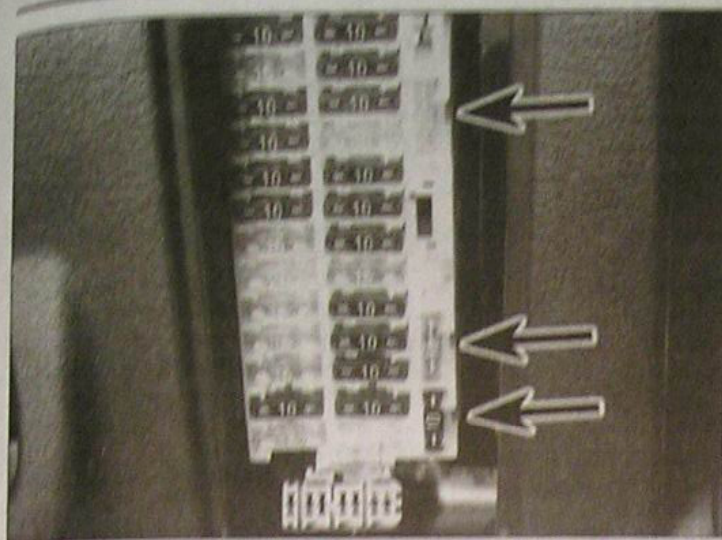
Very difficult,
suitable for expert DIY
or professional



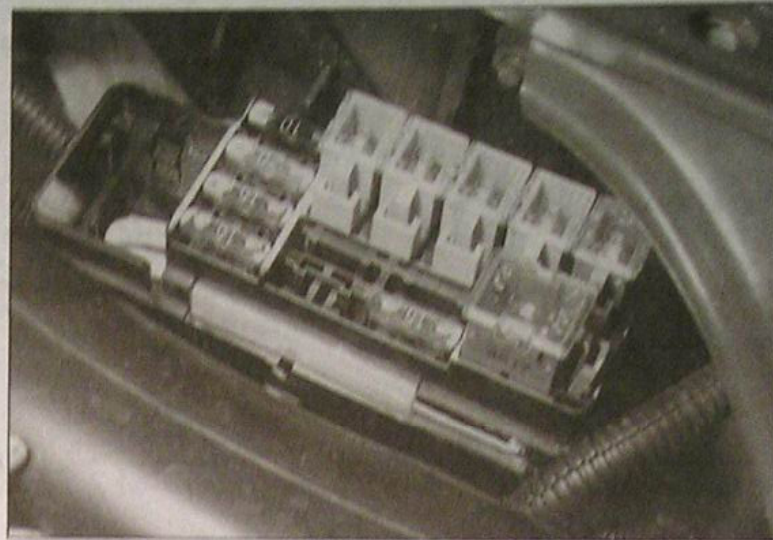
Specifications

Bulb ratings

	Watts
Courtesy light	10
Front direction indicator light	21
Front direction indicator repeater light	5
Front driving light	55
Front foglight	55
Front sidelight	5
Headlights	60/55
High-level stop-light:	
Saloon models	5
Hatchback models	2
Luggage compartment light:	
Saloon and Hatchback models	3.4
Estate models	5
Map reading light	10
Rear direction indicator light	21
Rear foglight	21
Rear number plate light	5
Reversing light	21
Stop/tail light	21/5



3.3 Fusebox cover removed to expose fuses - spare fuses arrowed



3.4 Auxiliary fusebox in engine compartment (cover removed)

21 To check whether a component is properly earthed, disconnect the battery, and connect one lead of an ohmmeter to a known good earth point. Connect the other lead to the wire or earth connection being tested. The resistance reading should be zero; if not, check the connection as follows.

22 If an earth connection is thought to be faulty, dismantle the connection, and clean back to bare metal both the bodyshell and the wire terminal or the component earth connection mating surface. Be careful to remove all traces of dirt and corrosion, then use a knife to trim away any paint, so that a clean metal-to-metal joint is made. On reassembly, tighten the joint fasteners securely; if a wire terminal is being refitted, use serrated washers between the terminal and the bodyshell, to ensure a clean and secure connection. When the connection is remade, prevent the onset of corrosion in the future by applying a coat of petroleum jelly or silicone-based grease, or by spraying on (at regular intervals) a proprietary ignition sealer.

3 Fuses and relays - general information

Fuses

1 Fuses are designed to break a circuit when a predetermined current is reached, in order to protect the components and wiring which could be damaged by excessive current flow. Any excessive current flow will be due to a fault in the circuit, usually a short-circuit (see Section 2).

2 The main fuses are located in the fusebox on the driver's side of the facia.

3 For access to the fuses, pull open the cover flap (see illustration).

4 Additional fuses and circuit-breakers are located in an auxiliary fusebox in the engine

compartment, attached to a bracket on the left-hand body panel, next to the battery (see illustration).

5 A blown fuse can be recognised from its melted or broken wire (see illustration).

6 To remove a fuse, first ensure that the relevant circuit is switched off.

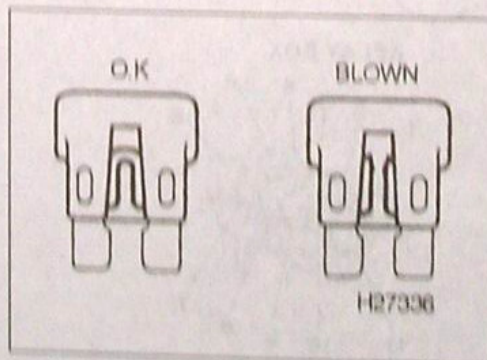
7 Using the plastic tool clipped to the main fusebox lid, pull the fuse from its location.

8 Spare fuses are provided in the main fusebox.

9 Before renewing a blown fuse, trace and rectify the cause, and always use a fuse of the correct rating (fuse ratings are specified on the inside of the fusebox cover flap). Never substitute a fuse of a higher rating, or make temporary repairs using wire or metal foil; more serious damage, or even fire, could result.

10 Note that the fuses are colour-coded as follows. Refer to the wiring diagrams for details of the fuse ratings used and the circuits protected.

Colour	Rating
Orange	5A
Red	10A
Blue	15A
Yellow	20A
Clear or White	25A
Green	30A



3.5 Checking the condition of a fuse

11 The radio/cassette player fuse is located in the rear of the unit, and can be accessed after removing the radio/cassette player.

Relays

12 A relay is an electrically-operated switch, which is used for the following reasons:

- a) A relay can switch a heavy current remotely from the circuit in which the current is flowing, therefore allowing the use of lighter-gauge wiring and switch contacts.
- b) A relay can receive more than one control input, unlike a mechanical switch.
- c) A relay can have a timer function - for example, the intermittent wiper relay.

13 Various relays are located behind the facia, next to the fusebox, and in various other locations, depending on model. Most of the engine-related relays are located in the relay box on the right-hand side of the engine compartment (see illustrations overleaf).

14 On most models, the direction indicator/hazard warning flasher unit is located on a bracket behind the facia, to the left of the steering column, and can be accessed once the driver's side lower facia panel has been removed (see Chapter 11A) (see illustration).

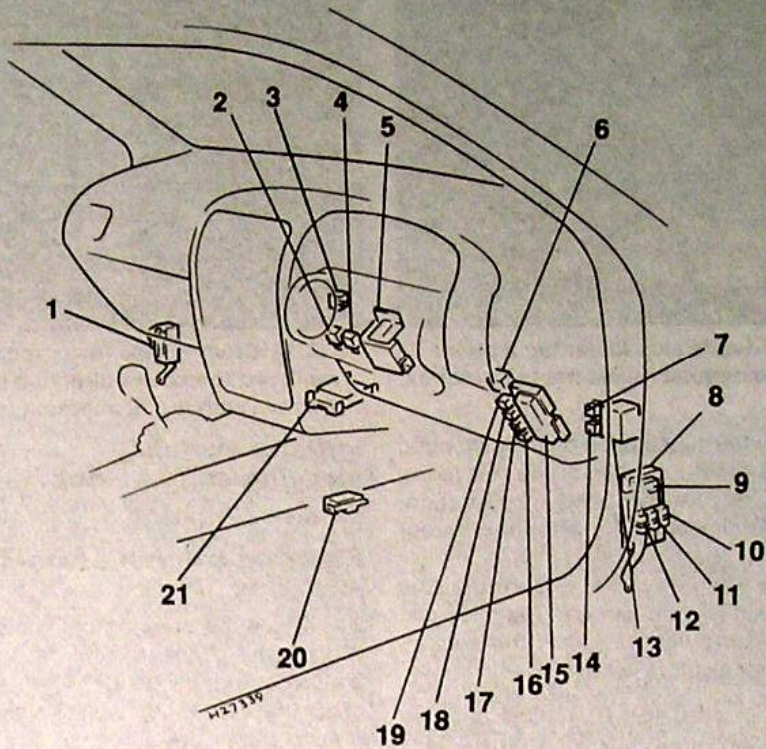
15 The 'headlights on' warning buzzer is screwed to the rear of the facia, above the direction indicator/hazard warning flasher unit (see paragraph 14).

16 Relays may be located in various other locations, depending on model - for example, on Hatchback models, the tailgate wiper relay is located in the luggage compartment, behind the rear trim panel (see illustration).

17 If a circuit or system controlled by a relay develops a fault, and the relay is suspect, operate the system. If the relay is functioning, it should be possible to hear it 'click' as it is energised. If this is the case, the fault lies with the components or wiring of the system. If the relay is not being energised, then either the relay is not receiving a main supply or a switching voltage, or the relay itself is faulty.

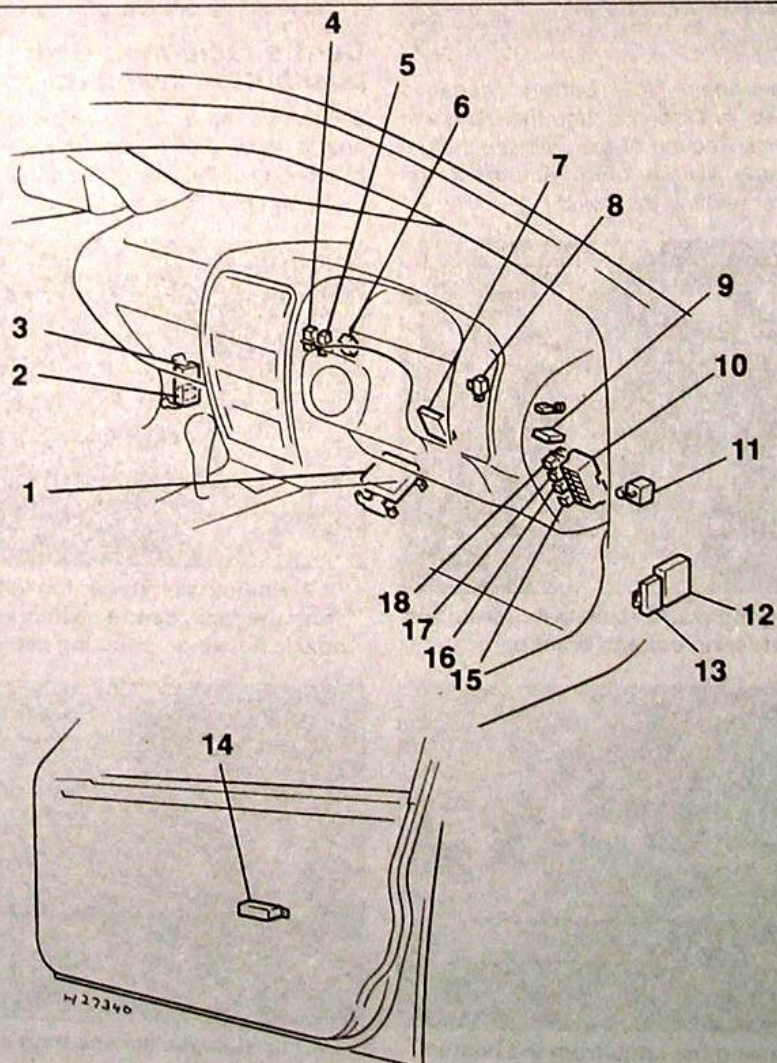
3.13c Facia-mounted relay and control unit locations - Saloon and Hatchback models

- 1 ABS electronic control unit
- 2 Rear wiper motor amplifier (Hatchback models)
- 3 Headlights 'on' warning buzzer
- 4 Direction indicator/hazard flasher relay
- 5 Anti-theft alarm control unit
- 6 Dim-dip lighting control unit
- 7 Additional ignition relay
- 8 Automatic transmission control unit
- 9 Central door locking control unit
- 10 Anti-theft alarm relay
- 11 Anti-theft alarm relay
- 12 Anti-theft alarm relay
- 13 Wiring connector block
- 14 Resistor (2.0 litre engine models)
- 14 Idle-up relay (1.6 litre engine models)
- 15 Fusebox
- 16 Heated rear window relay
- 17 Accessory relay
- 18 Accessory relay
- 19 Ignition relay
- 20 Electric window control unit (inside door)
- 21 ECCS control unit (fuel-injected models)
- 21 ECC control unit (carburettor models)



3.13d Facia-mounted relay and control unit locations - Estate models

- 1 ECCS control unit
- 2 Electric aerial timer
- 3 ABS control unit
- 4 Rear foglight relay
- 5 Heated rear window relay
- 6 Direction indicator/hazard flasher relay
- 7 Time control unit (wash/wipe, courtesy light, clock, electric windows delay, etc)
- 8 Headlights 'on' warning buzzer
- 9 Dim-dip lighting control unit
- 10 Fusebox
- 11 Connector block
- 12 Remote control central door locking control unit
- 13 Central door locking control unit
- 14 Electric window control unit (inside door)
- 15 Electric windows relay
- 16 Accessory relay
- 17 Accessory relay
- 18 Ignition relay





4.15 Removing the instrument panel illumination switch from the driver's side switch/ventilation panel



4.18a Remove the securing screws (two for each switch - arrowed) . . .



4.18b . . . and withdraw the switch from the rear of the centre console

Centre console-mounted switches

17 Remove the centre console, as described in Chapter 11A.

18 To remove the electric window switches, working under centre console, remove the two securing screws and withdraw the switch assembly (see illustrations). Note that the switches are integrated in pairs - ie, front and rear switches cannot be renewed individually.

19 To remove any of the other switches, working at the rear of the centre console, release the securing clips, then push the switch out through the top of the centre console.

20 Refit the relevant switch using a reversal of the removal procedure, then refit the centre console.

Electric window switches

Front door switch

21 To remove a front door switch, simply prise the switch from the door trim panel, and disconnect the wiring connector (see illustration). Note that the wiring connector is clipped to the inside of the door, and it may be necessary to remove the door inner trim panel (see Chapter 11A) for access to the connector.

22 Where applicable, refit the door inner trim panel as described in Chapter 11A, and refit the switch by pushing it into position.

Rear door switch

23 Pull the interior door handle surround from the door, complete with the switch, then disconnect the switch wiring plug.



4.21 Prising an electric window switch from the front door. Note card used to protect door trim

24 Push the switch out through the rear of the interior handle surround.

25 Refitting is a reversal of removal.

Centre-console-mounted switches

26 Refer to paragraphs 17 to 20.

Electric sunroof switch

27 Carefully prise the lens from the map reading lights in the overhead console.

28 Prise the cover plate from the rear of the overhead console.

29 Remove the two now-exposed securing screws, and lower the console from the roof (see illustrations).

30 Disconnect the wiring plugs.

31 Working at the rear of the panel, remove the two securing screws, and withdraw the switch from the rear of the panel (see illustration).



4.29a Remove the securing screws . . .

32 Refitting is a reversal of removal.

Courtesy light/door ajar warning switches

33 Open the door to expose the switch in the door pillar.

34 Remove the securing screw, then withdraw the switch from the door pillar. Disconnect the wiring connector as it becomes accessible (see illustration).

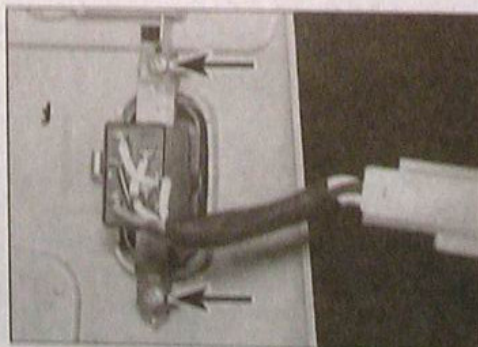


Tape the wiring to the door pillar, or tie a length of string to the wiring, to retrieve it if it falls back into the door pillar.

35 Refitting is a reversal of removal, but ensure that the rubber gaiter is correctly seated on the switch.



4.29b . . . and lower the roof console . . .



4.31 . . . for access to the sunroof switch securing screws (arrowed)



4.34 Removing a courtesy light switch



5.18 Removing a sidelight bulbholder - Saloon and Hatchback models

- 17 Pull the rubber boot from the rear of the headlight.
- 18 Pull the bulbholder from the rear of the light unit (see illustration).
- 19 The bulb is a push fit in the bulbholder.
- 20 Fit the new bulb using a reversal of the removal procedure.

Front sidelight - Estate models

- 21 Open the bonnet.
- 22 Working at the rear of the headlight unit, twist the sidelight bulbholder anti-clockwise, and withdraw it from the light unit (see illustration).
- 23 The bulb is a push fit in the bulbholder.
- 24 Fit the new bulb using a reversal of the removal procedure.

Front direction indicator - Saloon and Hatchback models

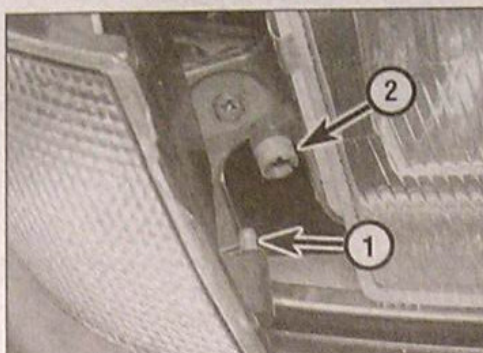
- 25 Remove the direction indicator light unit securing screw (located at the outer top corner of the light unit) (see illustration).
- 26 Using a suitable screwdriver, carefully release the light unit lower balljoint (see illustration).
- 27 Withdraw the light unit forwards from the wing panel, then twist the bulbholder anti-clockwise and withdraw it from the light unit (see illustration).
- 28 The bulb is a bayonet fit in the bulbholder.
- 29 Fit the new bulb, then refit the light assembly using a reversal of the removal procedure. Ensure that the light unit lower balljoint is securely engaged.



5.31 Unscrewing the front direction indicator light unit lower securing screw - Estate models



5.22 Removing a sidelight bulbholder - Estate models



5.26 Release the direction indicator light unit balljoint (1) from the socket (2) - Saloon and Hatchback models

Front direction indicator - Estate models

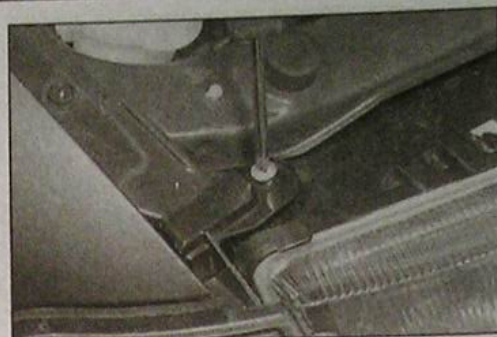
- 30 Remove the direction indicator light unit securing screw (located at the outer top corner of the light unit).
- 31 Remove the light unit lower securing screw (see illustration).
- 32 Withdraw the light unit forwards from the wing panel, then twist the bulbholder anti-clockwise and withdraw it from the light unit.
- 33 The bulb is a bayonet fit in the bulbholder.
- 34 Fit the new bulb, then refit the light assembly using a reversal of the removal procedure.

Front direction indicator side repeater

- 35 Push the light unit towards the front of the vehicle, and on Estate models, squeeze the



5.36 Removing the bulbholder from the direction indicator side repeater light



5.25 Removing a direction indicator light securing screw - Saloon and Hatchback models



5.27 Withdrawing the bulbholder from the direction indicator light unit - Saloon and Hatchback models

ends of the unit to release it from the wing panel.

- 36 Withdraw the light unit, then twist the bulbholder anti-clockwise to release it from the light unit (see illustration).
- 37 The bulb is a push fit in the bulbholder.
- 38 Fit the new bulb using a reversal of the removal procedure.

Front driving light - Saloon and Hatchback models

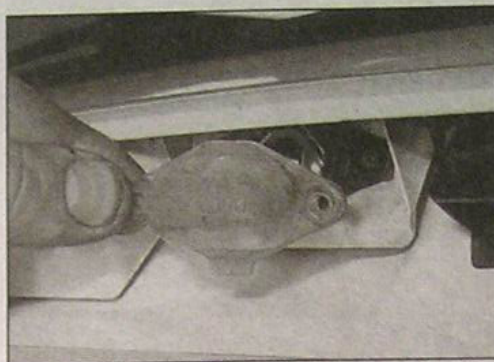
- 39 Open the bonnet.
- 40 Pull up the retaining clip, and remove the plastic cover from the rear of the headlight unit (see illustration).
- 41 Release the retaining clip from the rear of the bulb, then withdraw the bulb from the rear of the light unit, and disconnect the wiring connector (see illustrations).



5.40 Remove the plastic cover from the light unit . . .



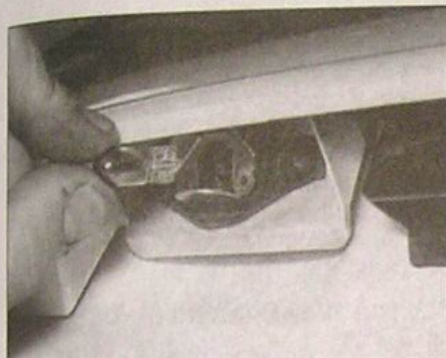
5.66 Removing a bulb from the rear light unit - Estate model



5.69 Removing the rear number plate light unit lens - Estate model



5.70 Unclipping the lens from the rear number plate light - Saloon model



5.71 Withdrawing the rear number plate light bulb - Estate model



5.74 Pulling the rubber cover from the rear number plate light - Hatchback model



5.75 Removing a rear number plate light bulb - Hatchback model

68 Fit the new bulb using a reversal of the removal procedure. Note that the stop/tail light bulb has offset pins, to ensure correct installation.

Rear number plate light - Saloon and Estate models

69 Remove the two securing screws, and withdraw the light unit lens from the boot lid/tailgate (see illustration).

70 On Saloon models, unclip the lens from the light unit for access to the bulb (see illustration).

71 The bulb is a push fit in the light unit (see illustration).

72 Fit the new bulb using a reversal of the removal procedure.

Rear number plate light - Hatchback models

73 Using a small flat-bladed screwdriver,

carefully prise the light unit from the rear bumper.

74 Pull the rubber cover from the rear of the light, then pull the bulbholder from the rear of the light unit (see illustration).

75 The bulb is a push fit in the bulbholder (see illustration).

76 Fit the new bulb using a reversal of the removal procedure.

6 Bulbs (interior lights) - renewal

General

1 Refer to Section 5, paragraph 1.

Courtesy light

2 Carefully prise the lens from the light unit (if

necessary, carefully use a flat-bladed screwdriver) (see illustration).

3 The bulb is a push fit in the light unit (see illustration).

4 Fit the new bulb using a reversal of the removal procedure.

Map reading light - models with single light

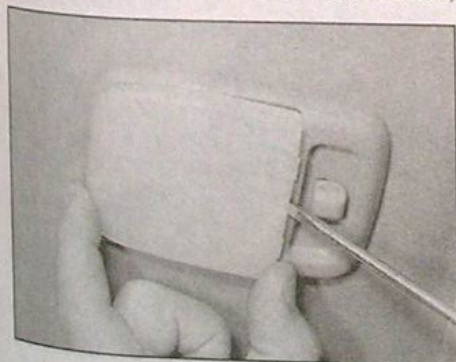
5 Proceed as described previously for the courtesy light.

Map reading lights - models with twin lights

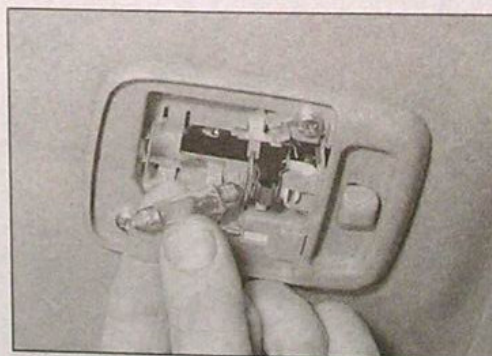
6 Carefully prise the lens from the light unit (if necessary, use a flat-bladed screwdriver) (see illustration).

7 Where applicable, remove the securing screw, and withdraw the light cover plate.

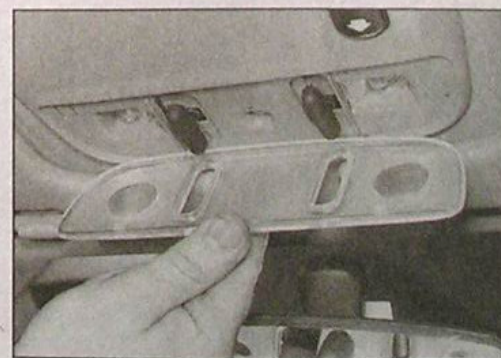
8 The bulbs are a push fit in the light unit (see illustration).



6.2 Prise off the lens...



6.3 ... for access to the courtesy light bulb



6.6 Prise the lens from the light unit...