

Chapter 12 Chassis electrical system

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Specifications

Bulbs

Headlight	H6054
Front combination light	1157
Front side marker light	158
Rear side marker light	158
Rear combination lights	
turn signal	1157
stop/tail	1157
back-up	1073

Fuses

10 Amp	Headlight RH, headlight LH, room light, hazard light, horn, auto door lock, fuel pump, meter, turn signal, A/T control, theft warning, audio, RR wiper and air conditioning control
15 Amp	Headlight motor RH, headlight motor LH, clearance, illumination, stop light, air conditioner blower, engine control, auxiliary driving light, FR wiper, fan motor (turbo models) and cigarette lighter
20 Amp	RR defogger

Fusible links

Color	
black	Power supply to battery, accessory, EFI circuit and ignition switch
brown	Ignition switch
brown	Headlight circuit
green	Power window
brown	EFI control unit
brown	EFI injector

1 General information

This Chapter covers the repair and service procedures for the various lighting and electrical components not associated with the engine, as well as general information on various electrical circuits, including the theft warning system. Information on the battery, alternator, distributor and starter motor can be found in Chapter 5.

Electrical components located in the dashboard do not use ground wires or straps, but rather use grounding provisions which are integrated in the printed circuit mounted behind the instrument cluster.

It should be noted that whenever portions of the electrical system are worked on, the negative ground cable should be disconnected at the battery to prevent electrical shorts and/or fires.

2 Electrical troubleshooting — general information

A typical electrical circuit consists of an electrical component, any switches, relays, motors, etc. relevant to that component and the wiring and connectors that connect the components to both the battery and the chassis. To aid in locating a problem in any electrical circuit, complete wiring diagrams of each model are included at the end of this Chapter.

Before tackling any troublesome electrical circuit, first thoroughly study the appropriate diagrams to get a complete understanding of what makes up that individual circuit. Trouble spots, for instance, can often be narrowed down by noting if other components related to that circuit are operating properly or not. If several components or circuits fail at one time, chances are the fault lies in the fuse or ground connection, as several circuits often are routed through the same fuse and ground connections. This can be confirmed by referring to the fuse box and ground distribution diagrams in this Chapter.

Often, electrical problems stem from simple causes, such as loose or corroded connections, a blown fuse or melted fusible link. Prior to any electrical troubleshooting, always visually check the condition of the fuses, wires and connections of the problem circuit.

If testing instruments are going to be utilized, use the diagrams to plan ahead of time where you will make the necessary connections in order to accurately pinpoint the trouble spot.

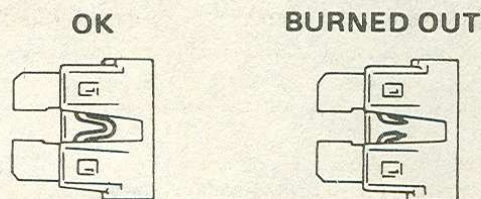
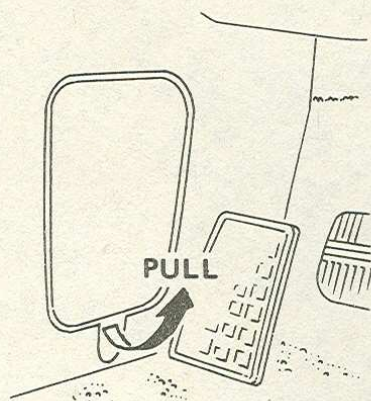
The basic tools needed for electrical troubleshooting include a circuit tester or voltmeter (a 12 volt bulb with a set of test leads can also be used), a continuity tester (which includes a bulb, battery and set of test leads) and a jumper wire, preferably with a circuit breaker incorporated, which can be used to bypass electrical components.

Voltage checks should be performed if a circuit is not functioning properly. Connect one lead of a circuit tester to either the negative battery terminal or a known good ground. Connect the other lead to a connector in the circuit being tested, preferably nearest to the battery or fuse. If the bulb of the tester goes on, voltage is reaching that point, which means the part of the circuit between that connector and the battery is problem-free. Continue checking along the circuit in the same fashion. When you reach a point where no voltage is present, the problem lies between there and the last good test point. Most of the time the problem is due to a loose connection. Keep in mind that some circuits only receive voltage when the ignition key is in the Accessory or Run position.

A method of finding shorts in a circuit is to remove the fuse and connect a test light or voltmeter in its place to the fuse terminals. There should be no load in the circuit. Move the wiring harness from side to side while watching the test light. If the bulb goes on, there is a short to ground somewhere in that area, probably where insulation has rubbed off a wire. The same test can be performed on other components of the circuit, including the switch.

A ground check should be done to see if a component is grounded properly. Disconnect the battery and connect one lead of a self-powered testlight such as a continuity tester to a known good ground. Connect the other lead to the wire or ground connection being tested. If the bulb goes on, the ground is good. If the bulb does not go on, the ground is not good.

A continuity check is performed to see if a circuit, section of circuit or individual component is passing electricity properly. Disconnect the battery and connect one lead of a self-powered test light such as a continuity tester to one end of the circuit being tested and the other lead to the other end of the circuit. If the bulb goes on, there is con-



3.1 The fuse box is located behind the drivers kick panel. Pull the suspected fuse from the panel and check to see if it has blown

tinuity, which means the circuit is passing electricity properly. Switches can be checked in the same way.

Remember that all electrical circuits are composed basically of electricity running from the battery, through the wires, switches, relays, etc. to the electrical component (light bulb, motor, etc). From there it is run to the car body (ground) where it is passed back to the battery. Any electrical problem is basically an interruption in the flow of electricity from the battery to the component and back to the battery.

3 Fuses — general information

Refer to illustration 3.1

The electrical circuits of the car are protected by a combination of fuses and fusible links.

The fuse box is located in the side panel underneath the dash on the drivers' side of the car (see illustration). Each of the fuses is designed to protect a specified circuit, as identified on the use cover.

If an electrical component has failed, your first check should be the fuse. A fuse which has blown can be readily identified by inspecting the curved metal element inside the plastic housing. If this element is broken the fuse is inoperable and should be replaced with a new one. Fuses are replaced by simply pulling out the old one and pushing in the new one.

It is important that the correct fuse be installed. The different electrical circuits need varying amounts of protection, indicated by the amperage rating on the fuse. A fuse with too low rating will blow prematurely, while a fuse with too high a rating may not blow soon enough to prevent serious damage.

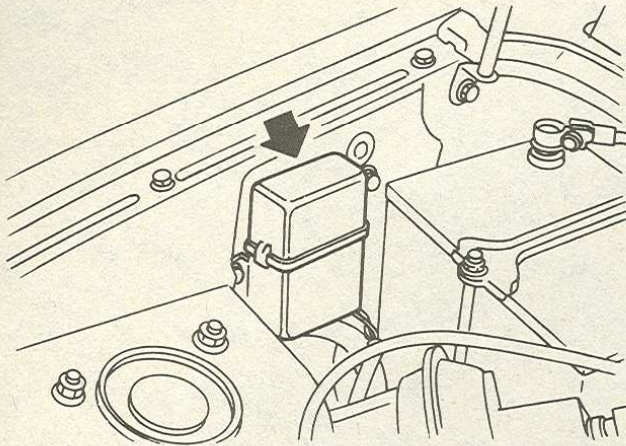
At no time should the fuse be bypassed by using metal or foil. Serious damage to the electrical system could result.

If the replacement fuse immediately fails, do not replace it with another until the cause of the problem is isolated and corrected. In most cases this will be a short circuit in the wiring system caused by a broken or deteriorated wire.

4 Fusible links — general information

Refer to illustration 4.1

In addition to fuses, the wiring system incorporates fusible links for



4.1 The fusible links located next to the battery are incorporated for overload protection

overload protection (see illustration). These links are used in circuits which are not ordinarily fused, such as the ignition circuit and the Electronic Fuel Injection circuit.

The fusible links are located near the positive battery terminal, and are easily removed by unplugging the connectors at either end.

If an electrical failure occurs in one of the circuits covered by a fusible link, these should be the first check. If the link is melted, the entire fusible link harness should be replaced, but only after checking and correcting the electrical fault that caused it.

5 Relays — general information

Refer to illustration 5.1

The various electrical relays are grouped together in the engine compartment (see illustration) for convenience in the event of needed replacement. If a faulty relay is suspected it can be removed and tested by a Nissan dealer or other qualified shop. Defective relays must be replaced as a unit.

6 Battery charging

1 If the battery is to remain in the vehicle during charging, disconnect the cables from the battery to prevent damage to the electrical system.

2 When the battery is being charged, hydrogen gas (which is very explosive) is produced. Do not smoke or allow an open flame near a charging or recently charged battery. Also, do not plug in the battery charger until the connections have been made at the battery posts.

3 The average time necessary to charge a battery at the normal rate is from 12 to 16 hours. Check the battery label and the charger instructions. Always charge the battery slowly. A quick charge or boost charge is hard on a battery and will shorten its life. Use a battery charger that is rated at no more than 1/10 the amp/hour rating of the battery.

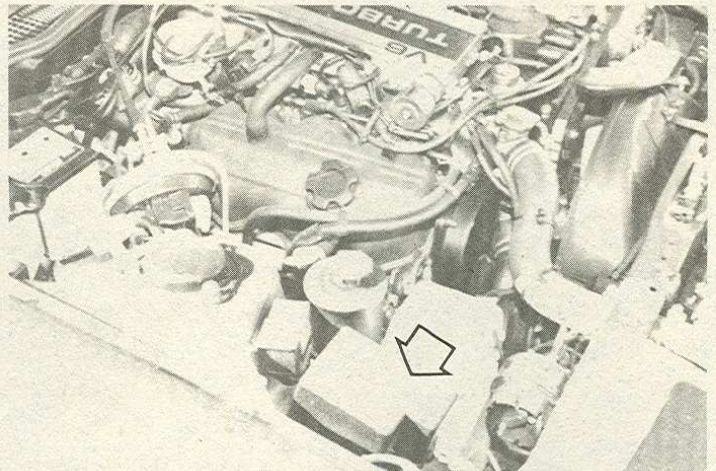
4 Remove all of the vent caps (if equipped) and cover the holes with a clean cloth to prevent the spattering of electrolyte. Hook the battery charger leads to the battery posts (positive to positive, negative to negative), then plug in the charger. Make sure it is set at 12 volts if it has a selector switch.

5 Watch the battery closely during charging to make sure that it does not overheat. If the battery temperature rises above 60°C (140°F), stop charging.

6 The battery can be considered fully charged when it is gassing freely and there is no increase in specific gravity during three successive readings taken at hourly intervals. Overheating of the battery during charging at normal charging rates, excessive gassing and continual low specific gravity readings are indications that the battery should be replaced with a new one.

7 Turn signals and hazard flasher — general information

Small canister-shaped flasher units are incorporated into the elec-



5.1 The electrical relays are grouped together (arrow) under the plastic cover next to the shock tower

trical circuits for the directional signals and hazard warning lights. These are located under the dash and just above the steering column.

When the units are functioning properly an audible click can be heard with the circuit in operation. If the turn signals fail on one side only and the flasher unit cannot be heard, a faulty bulb is indicated. If the flasher unit can be heard, a short in the wiring is indicated.

If the turn signal fails on both sides, the fault may be due to a blown fuse, faulty flasher unit or switch, or a broken or loose connection. If the fuse has blown, check the wiring for a short before installing a new fuse.

The hazard warning flasher is checked in the same manner as the turn signal flasher.

When replacing either of these flasher units it is important to buy a replacement of the same capacity. Check the new flasher against the old one.

8 Headlight — replacement

Sealed beam type

Refer to illustrations 8.2a, 8.2b, 8.3 and 8.4

1 Raise the headlights.

2 Remove the two screws attaching the plastic finisher plate to the headlight assembly (see illustration). Pull the top of the finisher plate forward and carefully pull the tight fitting finisher from the headlight assembly (see illustration).

3 Remove the screws attaching the lens retainer to the headlight assembly (see illustration).

4 Pull the headlight forward and disconnect the electrical connector from the back of the sealed beam unit (see illustration).

5 Install the sealed beam unit by pressing the electrical connector onto the back of the unit and place it into the headlight box.

6 Install the lens retainer and secure with the four attaching screws.

7 Install the finisher plate and secure it with the two attaching screws.

8 Adjust the headlight (Sec 9).

Auxiliary driving light

Refer to illustration 8.10 and 8.11

9 If only replacing the auxiliary driving light, complete Steps 1 and 2.

10 Remove the top adjusting/retaining screw located on top of the light (see illustration).

11 Tilt the light forward and disconnect the spring attaching the bottom of the light to the holder (see illustration).

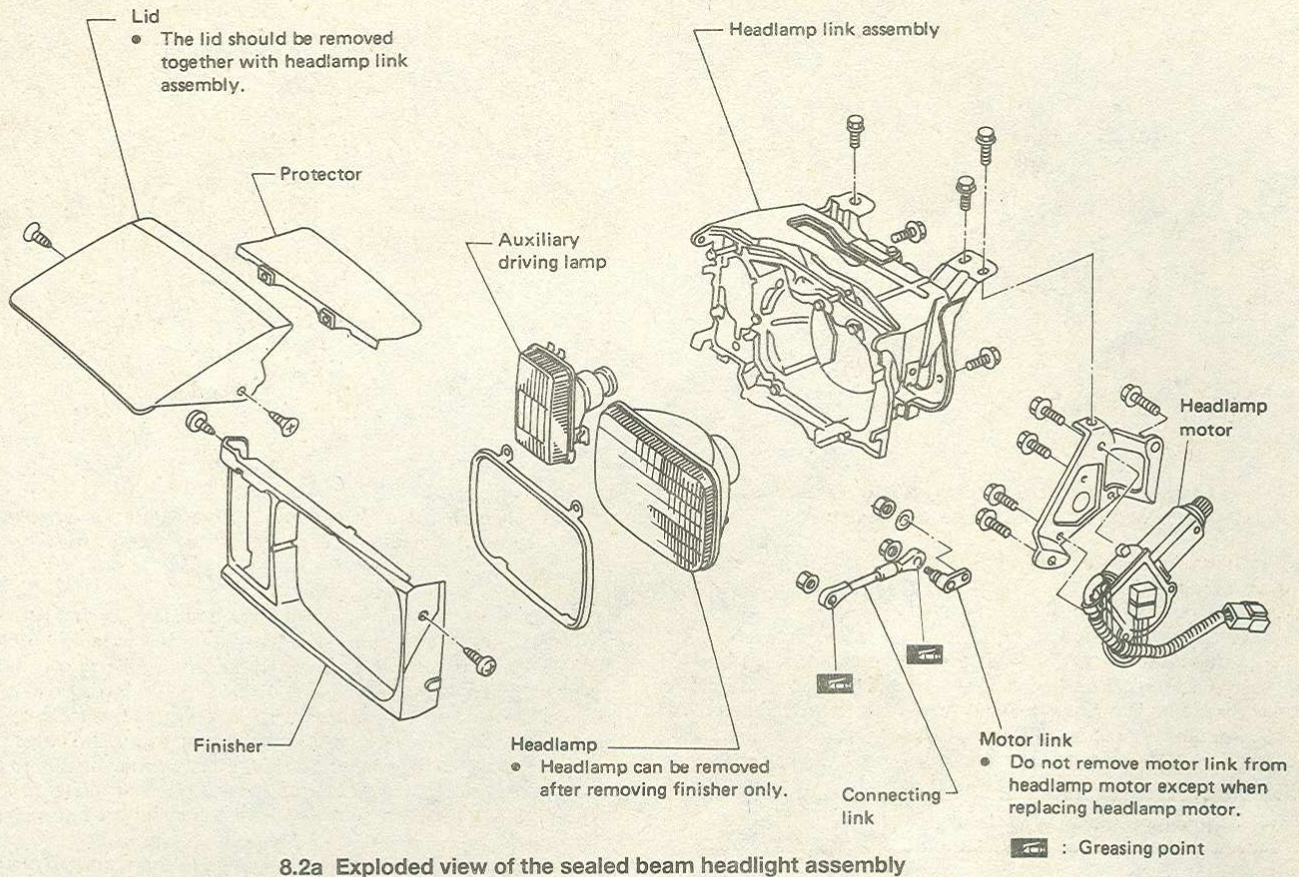
12 Unplug the connector and remove the light from the vehicle.

13 Plug the electrical connector into the back of the light.

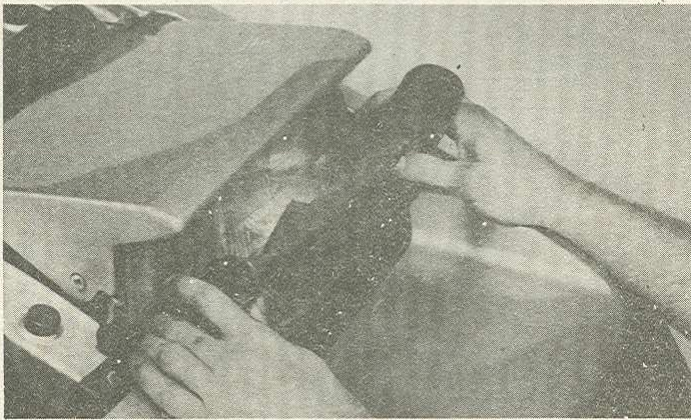
14 Install the spring retainer onto the light and the headlight assembly.

15 Install the top adjusting/retaining screw.

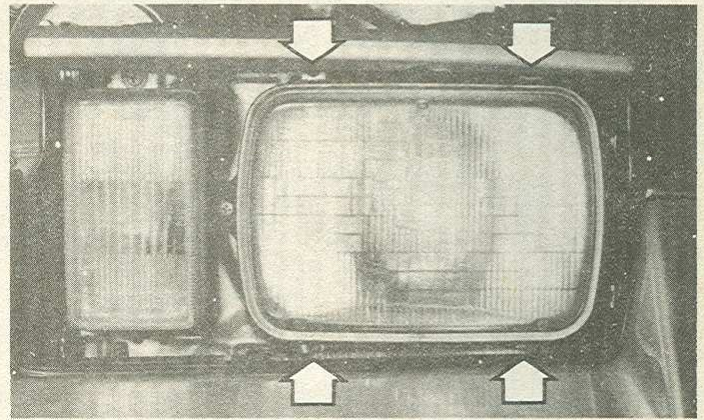
16 Adjust the auxiliary headlight.



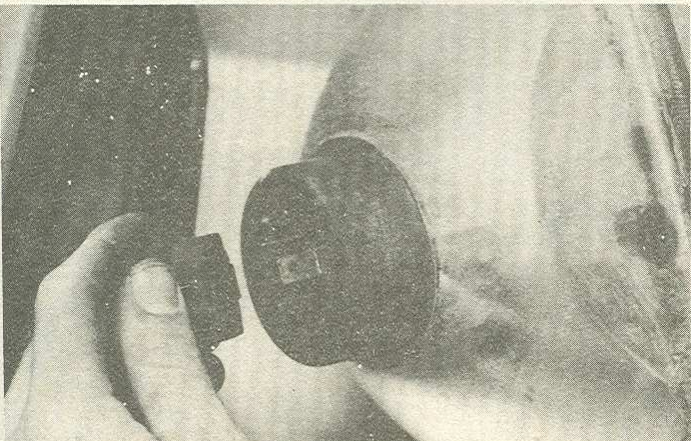
8.2a Exploded view of the sealed beam headlight assembly



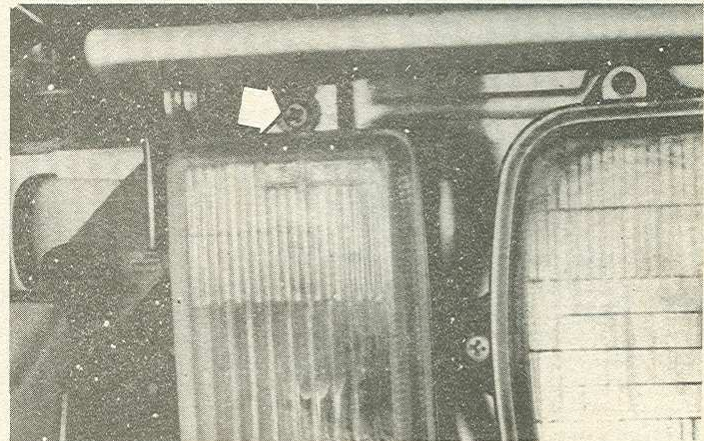
8.2b The headlight finisher plate can be pulled from the headlight



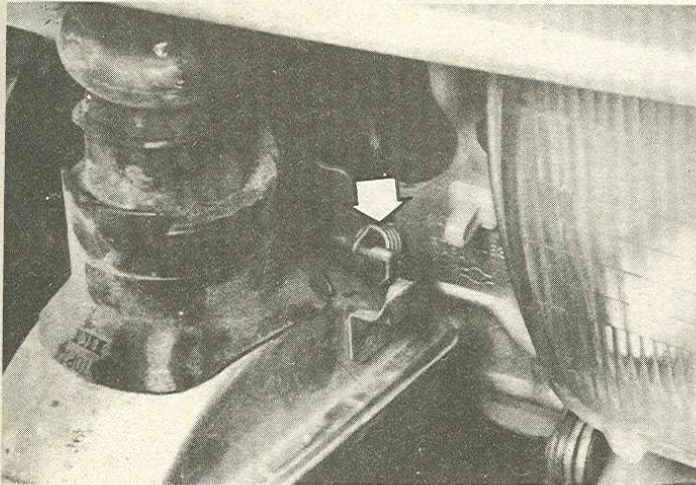
8.3 Remove the lens retainer screws (arrows) and lift the retainer out



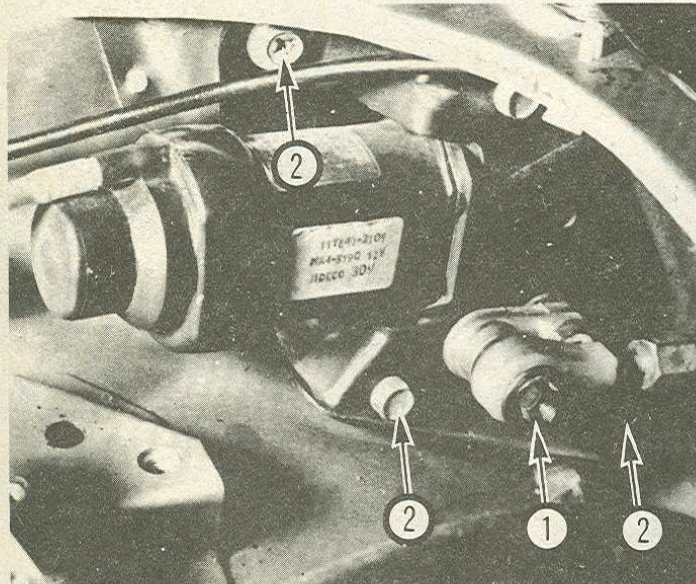
8.4 Pull the headlight forward and disconnect the electrical connector



8.10 Remove the auxiliary driving light by removing the screw located on top of the light (arrow)



8.11 Tilt the auxiliary driving light forward and disconnect the spring attaching the bottom of the light to the holder



10.2 Remove the connecting link nut and washer (1) and remove the bolts (2) attaching the motor bracket to the body

Halogen type

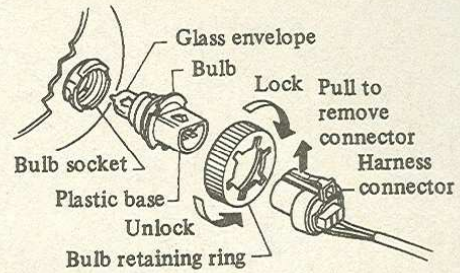
Refer to illustration 8.17

- 17 Open the hood and locate the bulb retaining ring on the back of the headlight housing (see illustration).
- 18 Rotate the retaining ring counterclockwise (viewed from the rear).
- 19 Withdraw the bulb assembly from the headlight housing.
- 20 Unplug the holder from the electrical connector.
- 21 Without touching the glass with your bare fingers, insert the new bulb assembly into the headlight housing, then install and tighten the retaining ring. **Caution:** If you do touch the glass with your fingers, clean it with rubbing alcohol and wipe it dry. The oils from your skin can cause the bulb to overheat and fail prematurely.
- 22 Plug in the electrical connector.

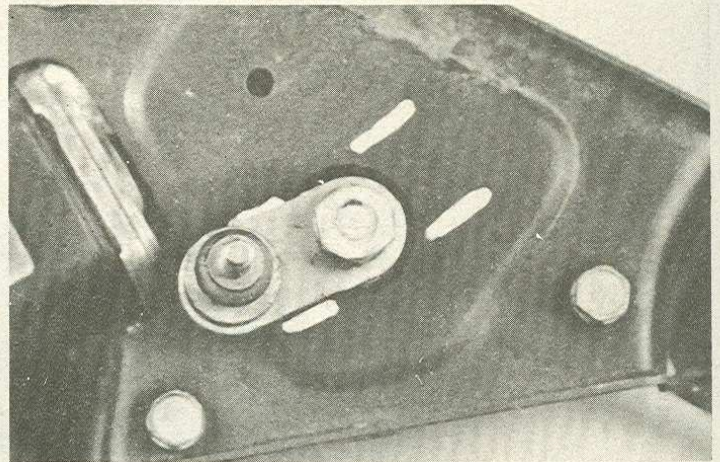
9 Headlight — adjustment

Note: It is important that the headlights be aimed correctly. If not adjusted correctly they could blind an oncoming car and cause a serious accident or reduce your ability to see the road.

Headlights have two spring loaded adjusting screws, one on the top controlling up and down movement and one on the side controlling left and right movement. The auxiliary lights have one adjusting screw located on the top that adjusts up and down movement.



8.17 Halogen headlight bulb details



10.6 Install the motor with the control arm in the down position

There are several ways to adjust the headlights. The simplest method is to set the vehicle on a level surface 25 feet from an empty wall. Adjustment should be made with the vehicle sitting level. Tire pressure should be correct, the gas tank should be full and the equivalent weight of the driver should be placed in the seat.

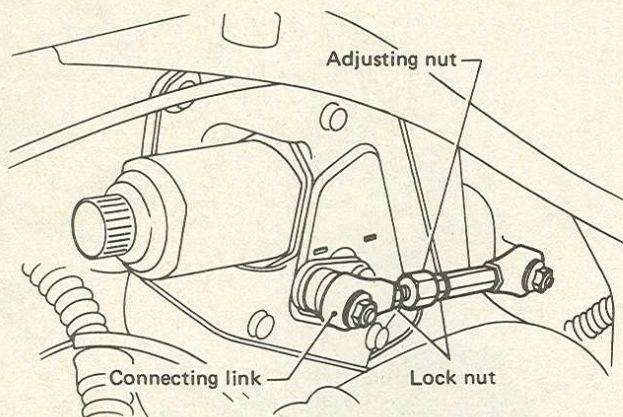
Preparation

- 1 Park the vehicle 25 feet in front of a light colored wall and turn on the lights.
- 2 Position masking tape vertically on the wall in reference to the center of the vehicle. Measure out from this line and place two vertical lines (one on each side) to represent the vertical center of each of the headlights. **Note:** If the vehicle has a four headlight system, four vertical lines plus the vehicle centerline will be used.
- 3 Position a horizontal tape line to reference the centerline of all the headlights. **Note:** It may be easier to position the tape on the wall with the vehicle parked only a few inches away.
- 4 Start adjustments with the low beam adjustment. Position the high-intensity zone so it is just below the horizontal line and four inches to the right of the headlight vertical line. Adjustment is made by turning the top adjusting screw clockwise to raise the beam and counterclockwise to lower the beam. The adjusting screw on the side should be used in the same manner to move the beam left or right.
- 5 With the high beams on, the high-intensity zone should be vertically centered four inches below the horizontal line. **Note:** It may not be possible to position the headlight aim exactly for both high and low beams. If a compromise must be used, keep in mind that the low beams are the most used and have the greatest effect on driver safety.
- 6 The auxiliary driving lights are preset horizontally but can be raised or lowered by turning the top adjusting screw.

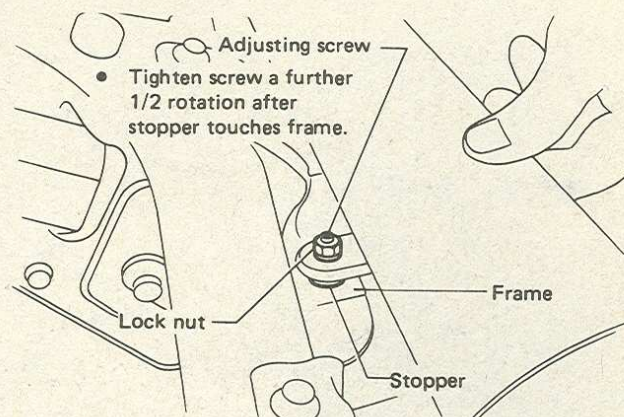
10 Headlight motor — removal, installation and adjustment

Refer to illustrations 10.2, 10.6, 10.8 and 10.10

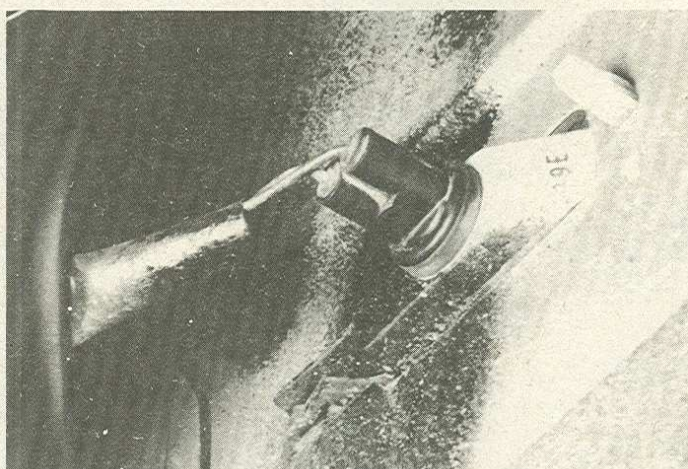
- 1 Disconnect the negative cable at the battery. Place the cable out of the way so it cannot accidentally come in contact with the negative terminal of the battery.
- 2 Remove the nut and washer holding the connecting link to the motor (see illustration).



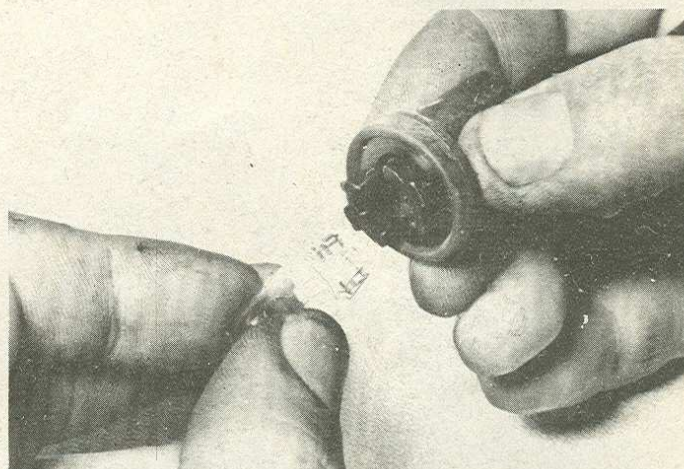
10.8 Adjust the headlight case connecting link by loosening the locking nut and turning the adjusting nut until it is properly adjusted



10.10 Adjust the stopper height by turning the adjusting screw until the stopper hits the frame, then tighten it 1/2-turn more



11.5 Grasp the side marker bulb connector assembly and twist the assembly clockwise to release it



11.6 Replace the side marker bulb by pulling it straight out of the connector

- 3 Remove the bolts attaching the motor bracket to the body.
- 4 Disconnect the electrical connector by pressing down on the tab and pulling the connector apart.
- 5 To install, connect the electrical connector.
- 6 Install the motor with the control arm in the down position (see illustration) and secure the motor to the body.
- 7 Install the connecting link to the motor and adjust if necessary.
- 8 With the headlight in the down position, adjust the connecting link so the lid is properly aligned with the hood and fender by loosening the locking nut and turning the adjusting nut until properly aligned (see illustration).
- 9 Tighten the locking nut.
- 10 Raise the headlight to the up position and adjust the stopper screw, if necessary.

11 Lenses and bulbs — replacement

Refer to illustrations 11.5, 11.6, 11.9, 11.13, 11.14, 11.15, 11.17, 11.21, 11.23 and 11.24

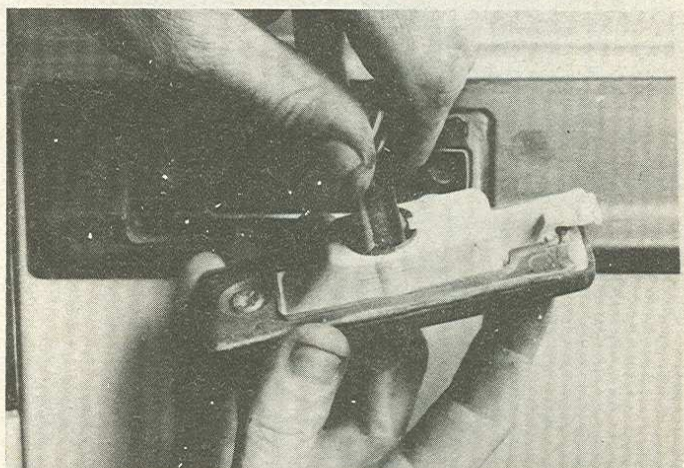
Exterior

Front turn signal

- 1 Remove the lens retainers and pull the lens from the apron.
- 2 Pull the assembly from the apron.
- 3 Replace the bulb by pushing in on the bulb and turning the bulb a quarter turn to release the bulb retaining tangs.
- 4 Install the bulb and assembly by reversing the removal procedure.

Side marker

- 5 Reach inside the front of the fender and grasp the bulb connector assembly (see illustration). Twist the assembly clockwise to release it from the lens assembly.

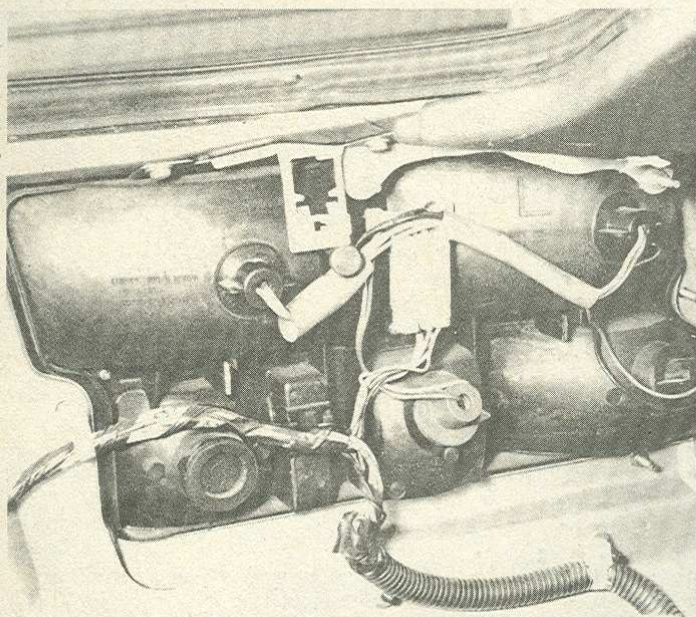


11.9 Twist the electrical connector a quarter turn to release it from the assembly

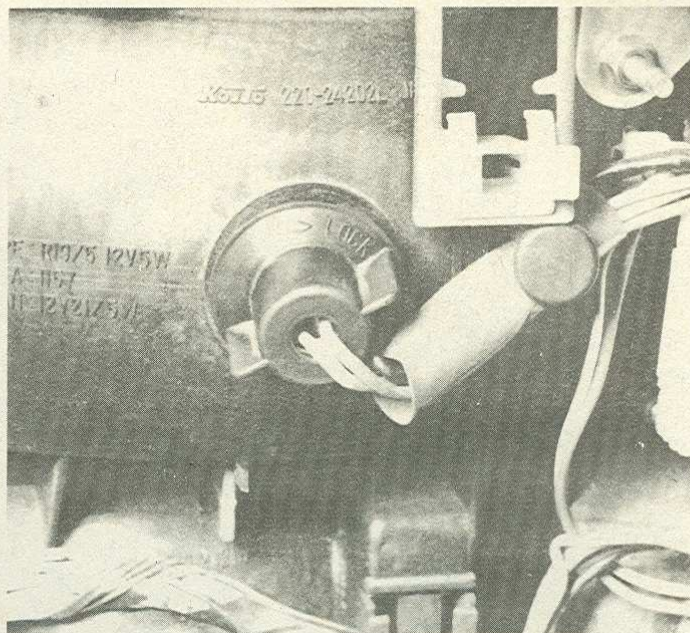
- 6 Replace the bulb by simply pulling it straight out of the connector (see illustration).
- 7 Install the bulb and assembly by reversing the removal procedure.

Rear side marker

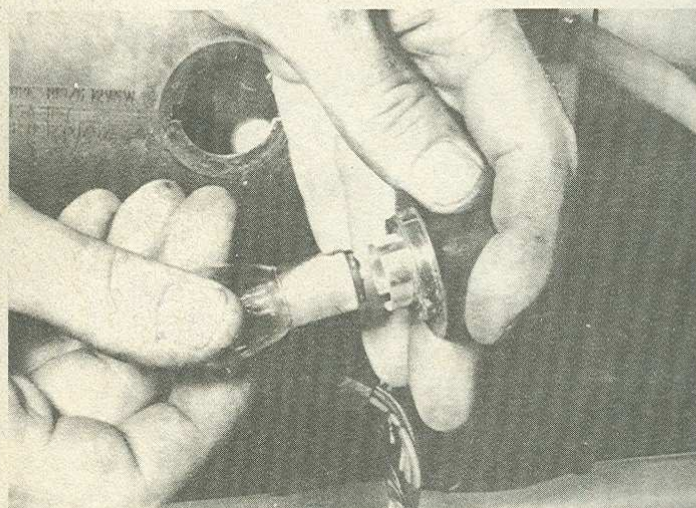
- 8 Remove the screw securing the lens assembly to the body and pull the assembly from the body.
- 9 Grasp the connector and turn it a quarter turn to release it from the assembly (see illustration).
- 10 Replace the bulb by pulling it straight out from the connector.
- 11 Installation is the reverse of the removal procedure.



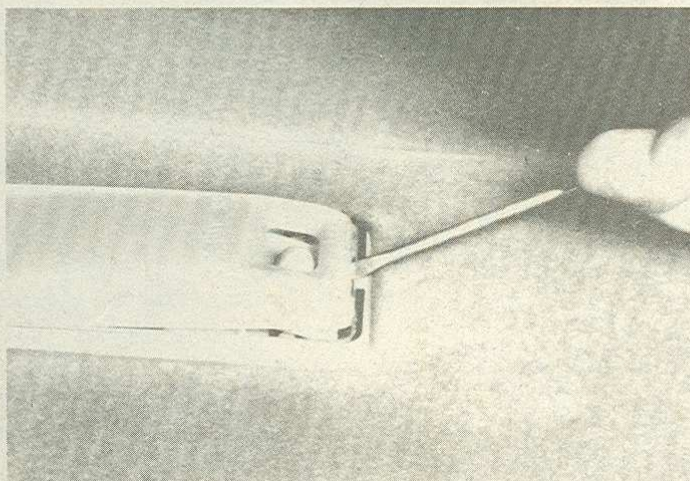
11.13 The cluster assembly has several light bulbs, so determine which bulbs need to be replaced



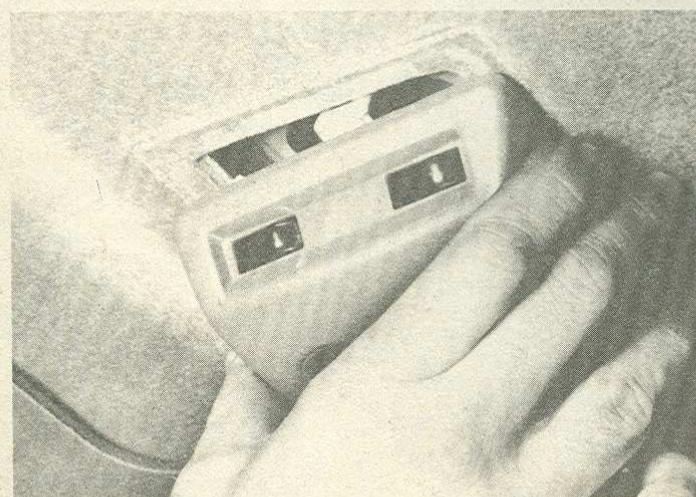
11.14 The lens assembly has an arrow indicating the connector/bulb locked position



11.15 Remove the bulb by pressing in on the bulb while turning it counterclockwise until the retaining tangs are released



11.17 Insert a screwdriver into the slot on the rear of the lens and pry the lens off



11.21 Grasp the convenience/map light fixture and pull it down from the overhead

Tail lights

- 12 Remove the luggage compartment rear trim piece (Chapter 11).
- 13 Note the bulb assembly cluster and determine the location of the bulb to be replaced (see illustration).
- 14 Each connector is marked with an arrow to show the locked position (see illustration). Reverse the locking arrow position (counterclockwise) and release the electrical connector/bulb assembly.
- 15 Grasp the electrical connector/bulb assembly and push in on the bulb and turn the bulb counterclockwise to release the retaining tangs (see illustration).
- 16 Installation is the reverse of the removal procedure.

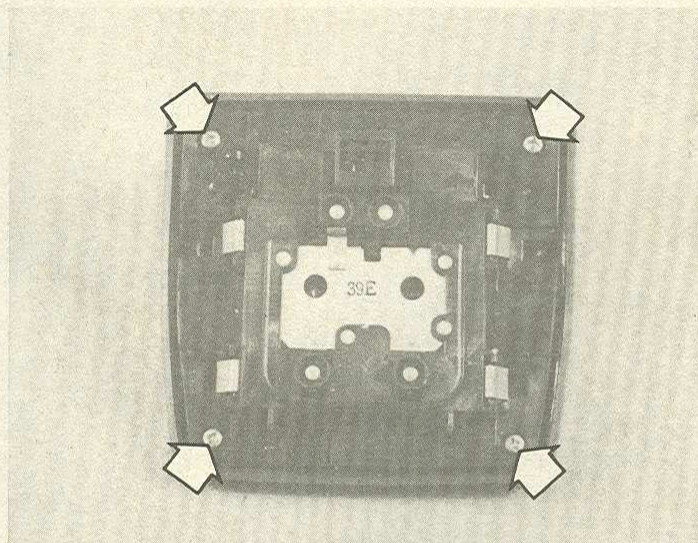
Interior

Dome light

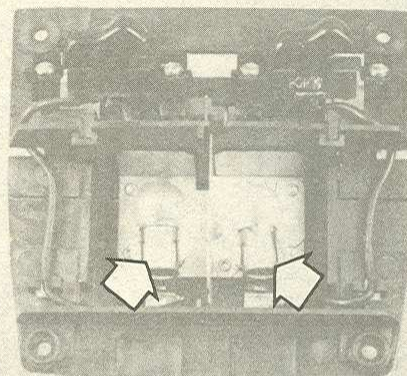
- 17 Pry the lens off by inserting a screwdriver into the slot on the rear of the lens (see illustration).
- 18 Remove the bulb by pulling it from the spring contact/retainer.
- 19 Install the bulb by placing the bulb between spring contact/retainer and pressing it into place.
- 20 Install the lens by pressing it into place, making sure it the slot is facing rearward.

Convenience/map light

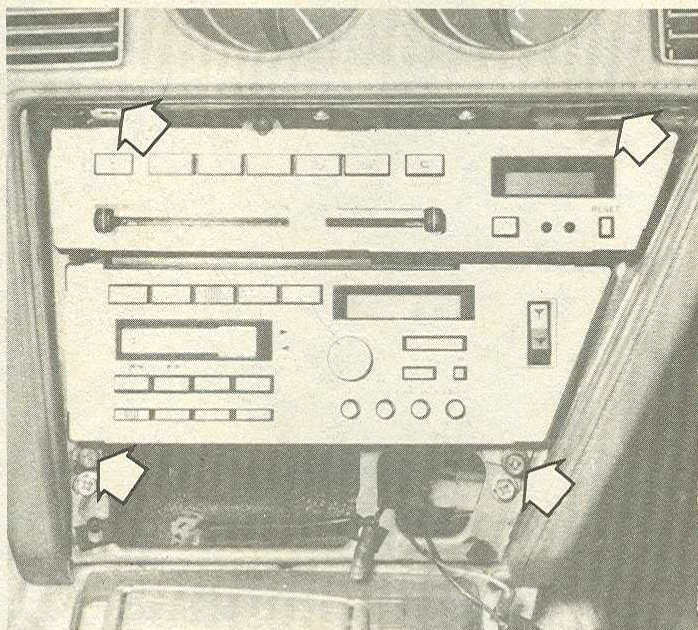
- 21 Grasp the convenience/map light fixture and pull down to release it from the overhead (see illustration).



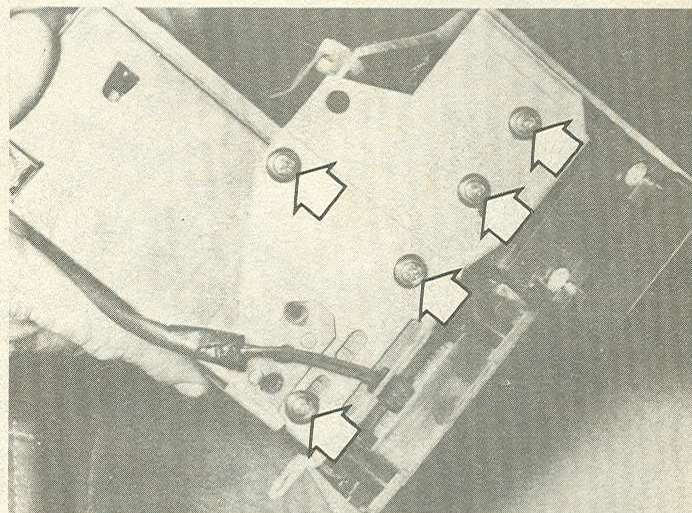
11.23 Remove the screws (arrows) to separate the front face from the back of the fixture



11.24 The bulbs (arrows) can be replaced by pulling them from the springs/contacts



12.3 Remove the screws securing the radio and air control assembly to the dash (arrows)



12.5 Remove the screws holding the radio to its bracket on the left side (arrows)

12 Radio — removal and installation

Refer to illustration 12.3 and 12.5

- 22 Disconnect the electrical connector by pressing down on the electrical connector retaining tab and pulling the connector apart.
- 23 Lay the convenience/map light face down and remove the screws to separate the face from the back of the fixture (see illustration).
- 24 Grasp the bulb and pull it from the spring retainer/contact (see illustration).
- 25 Reverse the removal procedure for installation.

Door safety light

- 26 Remove the screws and lift the lens off the door.
- 27 Grasp the bulb and pull it out of the spring contact/retainers.
- 28 Installation is the reverse of the removal procedure.

Floor convenience light — right and left side

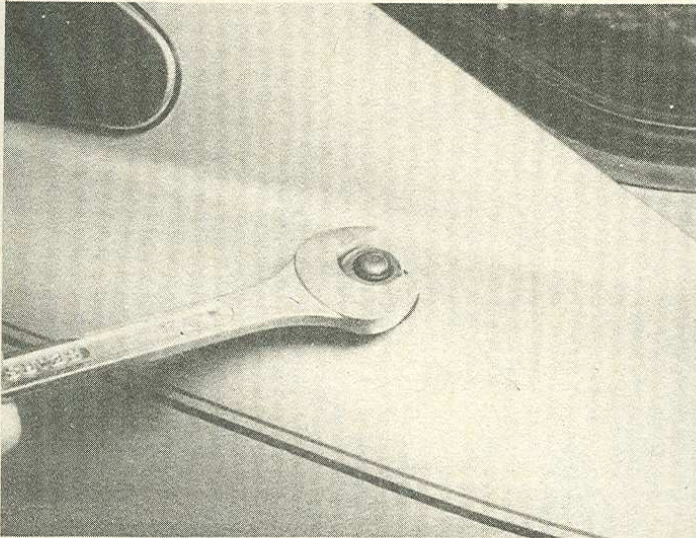
- 29 Remove the appropriate side lower side dash panel trim piece (Chapter 11).

- 30 Grasp the electrical connector and turn counterclockwise.
- 31 Pull the bulb straight out of the connector.
- 32 Installation is the reverse of the removal procedure.

Control panel trim illumination

- 33 Remove the control panel trim piece (Chapter 11).
- 34 Pull the bulb from the electrical connector.
- 35 Installation is the reverse of the removal procedure.

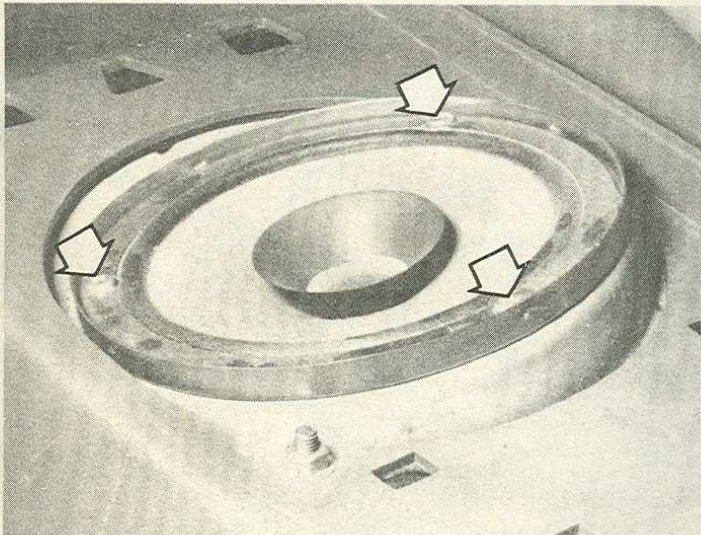
- 1 Disconnect the negative cable at the battery. Place the cable out of the way so it cannot accidentally come in contact with the negative terminal of the battery, as this would once again allow power into the electrical system of the vehicle.
- 2 Remove the control panel trim piece (Chapter 11).
- 3 Remove the retaining screws (see illustration), two on top and two on bottom, securing the radio and air control assembly to the dash.
- 4 Slide the radio and air control assembly forward and disconnect the electrical connectors and the antenna wire.
- 5 Remove the screws retaining left side of the radio to the radio and air control assembly bracket (see illustration).
- 6 Disconnect the right side of the radio by removing the four screws located on the side and one screw located on the bottom of the radio bracket.
- 7 Lift the radio from the radio and air control bracket.
- 8 Install the radio by placing it into the radio and air control bracket and securing it to the bracket with the screws.
- 9 Connect all electrical connectors and the antenna cable, then place the radio and air control assembly in place and secure it with the four retaining screws.
- 10 Install the control panel trim piece.
- 11 Install the battery cable.



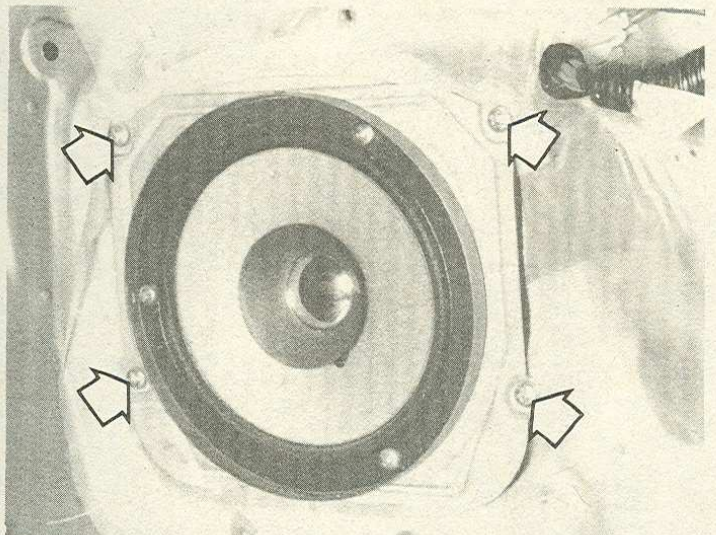
13.7 Remove the antenna mast retaining nut from the fender



14.1 Remove the speaker cover by pushing the cover forward and lifting up on the back of the speaker cover



14.2 Remove the speaker screws (arrows) and lift the speaker up to remove the electrical leads attached to the back



14.6 Remove the door speaker screws (arrows) to remove the speaker

13 Radio power antenna — removal and installation

Refer to illustration 13.7

- 1 Disconnect the negative cable at the battery. Place the cable out of the way so it cannot accidentally come in contact with the negative terminal of the battery, as this would once again allow power into the electrical system of the vehicle.
- 2 Remove the rear luggage compartment trim piece (Chapter 11).
- 3 Remove the drivers' side rear trim piece (Chapter 11).
- 4 Disconnect the antenna electrical connector by pressing down on the retaining tab and pulling the connector apart.
- 5 Disconnect the antenna cable by pulling it apart at the connection.
- 6 Remove the two screws holding the power antenna to the body.
- 7 Remove the antenna mast retaining nut (see illustration) from the fender panel.
- 8 Lower the power antenna from the fender and remove it from the vehicle.
- 9 Install the power antenna by placing the mast into the fender hole and loosely securing it with the mast retaining nut.
- 10 Loosely install the two lower retaining nuts securing the antenna to the body.
- 11 Tighten the mast retaining nut.
- 12 Tighten the two lower antenna retaining bolts.
- 13 Connect the antenna cable.

- 14 Connect the antenna electrical connector.
- 15 Install the side panel trim piece.
- 16 Install the rear luggage compartment trim piece.
- 17 Install the negative battery cable.

14 Speakers — removal and installation

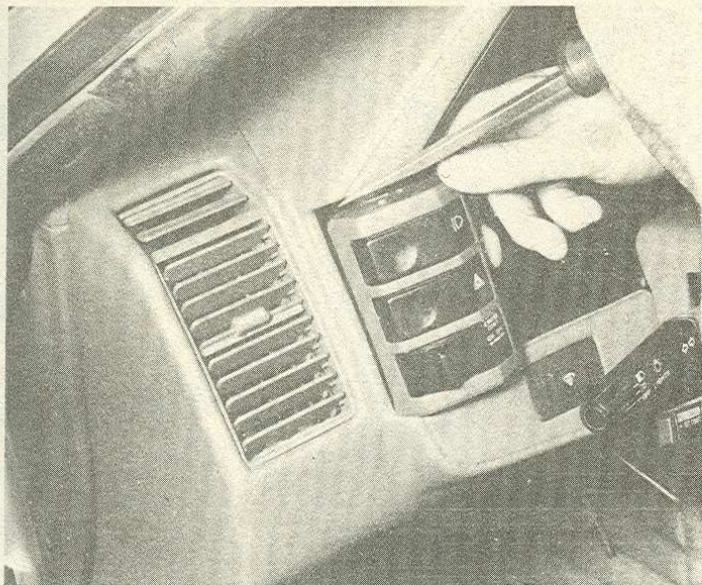
Refer to illustrations 14.1, 14.2 and 14.6

Rear speakers

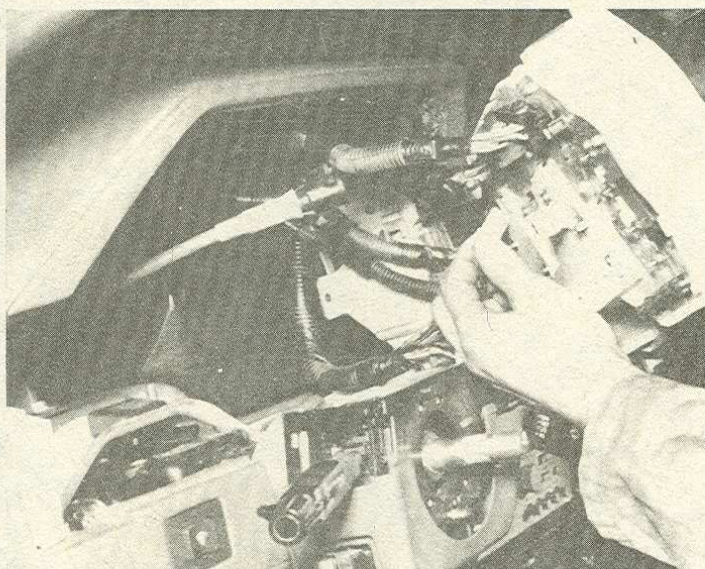
- 1 Push forward and pull up on the back of the speaker cover (see illustration).
- 2 Remove the three speaker screws (see illustration).
- 3 Raise the speaker up and disconnect the electrical connector.
- 4 Installation is the reverse of the removal procedure.

Door speakers

- 5 Remove the door panel (Chapter 11).
- 6 Remove the four screws (see illustration) holding the speaker to the door.
- 7 Lift the speaker out and disconnect the electrical connector.
- 8 Installation is the reverse of the removal procedure.



15.4 Carefully pry down on the top of the combination switch to release the tang on top of the switch

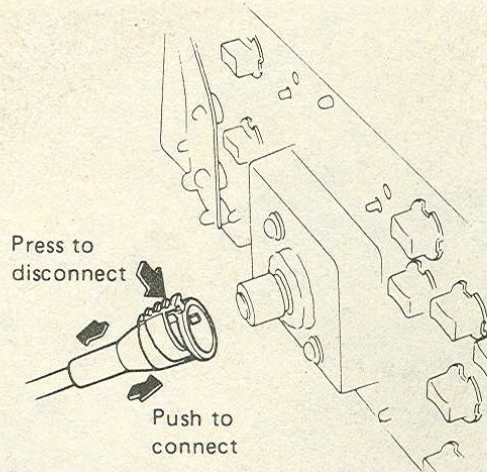


16.10a Pull the panel forward and disconnect all the electrical connectors

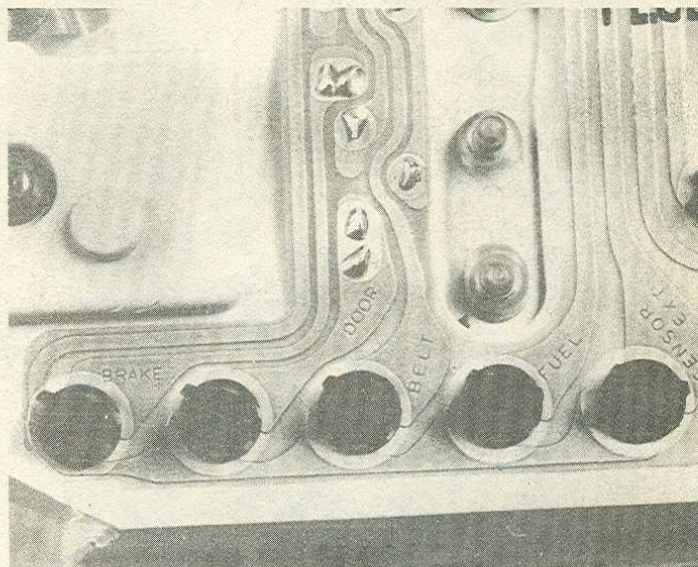
15 Instrument panel combination switches — removal and installation

Refer to illustration 15.4

- 1 Disconnect the negative cable at the battery. Place the cable out of the way so it cannot accidentally come in contact with the negative terminal of the battery, as this would once again allow power into the electrical system of the vehicle.
- 2 Remove the lower trim panel on the driver's side (Chapter 11).
- 3 Look under the dash and locate the left instrument combination switch retaining nut. Remove the nut.
- 4 Carefully pry out the instrument panel combination switch by prying down on the top of the switch (see illustration) to release the tang on the switch. Pull the switch from the dash.
- 5 Push the tab on the side of the electrical connector and disconnect the connector.
- 6 Repeat Steps 3 and 4 for the right side combination switch.
- 7 Install the switches by placing the switch into its recess (bottom first) and start the retaining stud into its retaining bracket. Press the top of the switch into the panel recess.
- 8 Install the combination switch retaining nut.
- 9 Install the lower trim panel piece.
- 10 Connect the battery negative cable.



16.9 Disconnect the speedometer cable by pressing down on the tang and pulling the cable from the speedometer

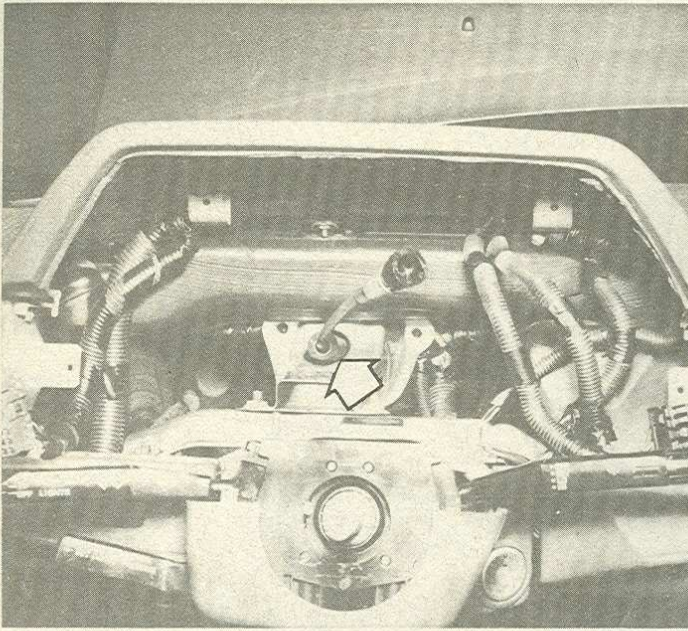


16.10b The back of the panel has each of the bulb/connectors labeled for identification

16 Instrument cluster panel — removal and installation

Refer to illustrations 16.9, 16.10a and 16.10b

- 1 Disconnect the negative cable at the battery. Place the cable out of the way so it cannot accidentally come in contact with the negative terminal of the battery, as this would once again allow power into the electrical system of the vehicle.
- 2 Remove the steering wheel (Chapter 10).
- 3 Remove the two instrument panel combination switches (Section 15).
- 4 Remove the screws retaining the upper steering column trim piece and remove it from the column.
- 5 Remove the four screws retaining the cluster panel trim piece to the dash. One is located on each of the lower corners and two are located on the top of the panel. Remove the trim piece.
- 6 Raise the vehicle and support it securely on jackstands.
- 7 Disconnect the speedometer cable from the transmission.
- 8 To gain enough room to release the speedometer cable, push the speedometer cable from the engine compartment towards the cluster.
- 9 Pull the cluster panel forward and tilt down the top of the panel. Reach behind the cluster panel and disconnect the speedometer by pressing the cable retaining tab and pulling the cable from the back of the speedometer (see illustration).
- 10 Pull the cluster panel from the dash and disconnect all the electrical connectors (see illustration) **Note:** The back of the cluster panel has all of the bulbs labeled (see illustration). The large bulb connec-



18.3 Grasp the cable housing and firmly pull it from the retaining bracket

tors are for the dash illumination and the small bulbs are for each of the sensors. To change the bulbs simply turn the connector and remove them from the panel.

11 Install the cluster panel by connecting all the electrical connectors disconnected during removal.

12 Reinstall the speedometer cable by pressing it into the back of the speedometer.

13 Install the cluster panel into the dash recess by first placing the bottom of the panel in and pressing the top of the panel into position. **Warning:** Note the location of the trip meter reset knobs and do not break them off. Have an assistant pull the speedometer cable into the engine compartment so the cluster panel will settle into its dash recess.

14 Install the cluster panel trim piece and secure it to the dash by installing the two lower corner screws, then press the top of the panel into place and install the two top screws.

15 Install the instrument panel combination switches.

16 Install the speedometer cable to the transmission and tighten the retaining ring.

17 Remove the jackstands and lower the vehicle.

18 Install the steering wheel.

19 Connect the negative battery cable to the battery.

20 Carefully check the operation of all instruments and warning lights before resuming normal vehicle operation

17 Speedometer — removal and installation

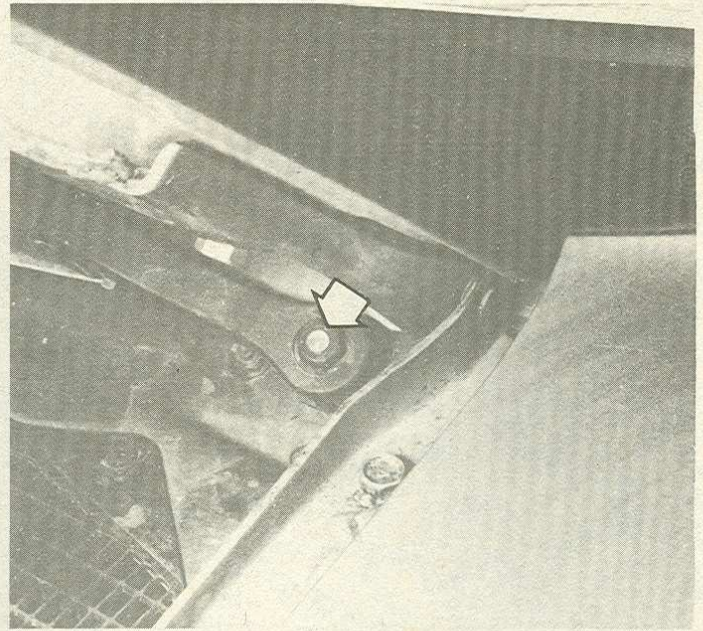
The speedometer is part of the instrument cluster panel and cannot be replaced as a separate unit. If failure occurs remove the instrument cluster panel and replace the entire unit.

Consult your local Nissan dealer regarding the mileage setting on the replacement speedometer, which must match the reading on the speedometer being replaced.

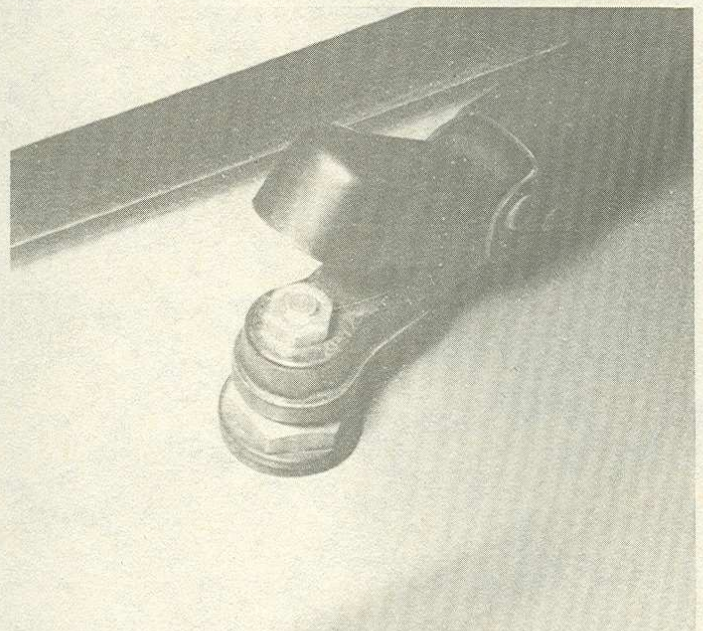
18 Speedometer cable — removal and installation

Refer to illustration 18.3

- 1 Remove the instrument cluster panel.
- 2 Working from the transmission end of the speedometer cable towards the speedometer head, open the hood and disconnect the cable plastic retainers.
- 3 From inside the vehicle, grasp the cable housing firmly (see illustration) and pull the cable and housing through the firewall.
- 4 Installation is the reverse of the removal procedure.



19.2 Remove the wiper arm retaining nut (arrow)



19.6 On the rear wiper, pry up the wiper arm retaining nut cover and remove the nut

19 Windshield wiper arm — removal and installation

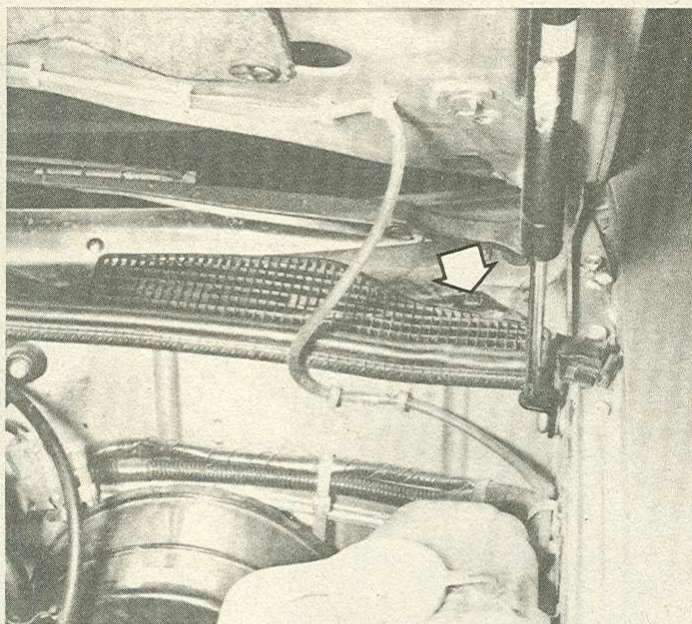
Refer to illustrations 19.2 and 19.6

Front wiper arm

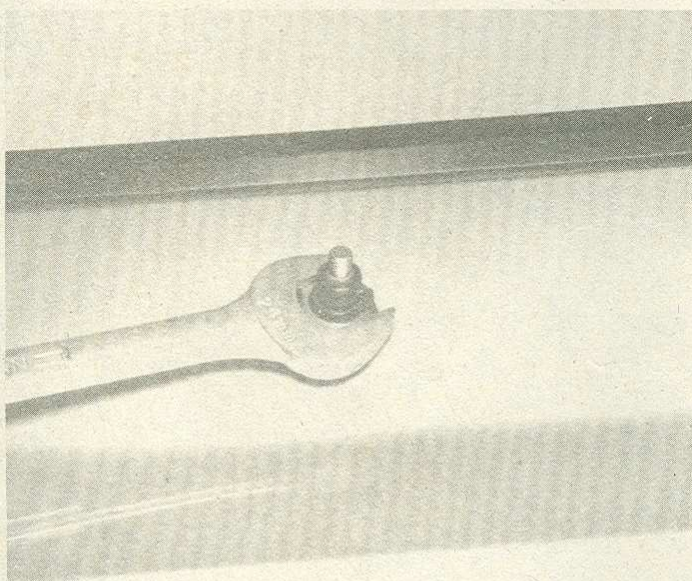
- 1 Open the hood.
- 2 Remove the wiper arm retaining nut (see illustration).
- 3 Note the location of the wiper arm and lift the arm off the wiper arm driveshaft.
- 4 Installation is the reverse of removal.

Rear wiper arm

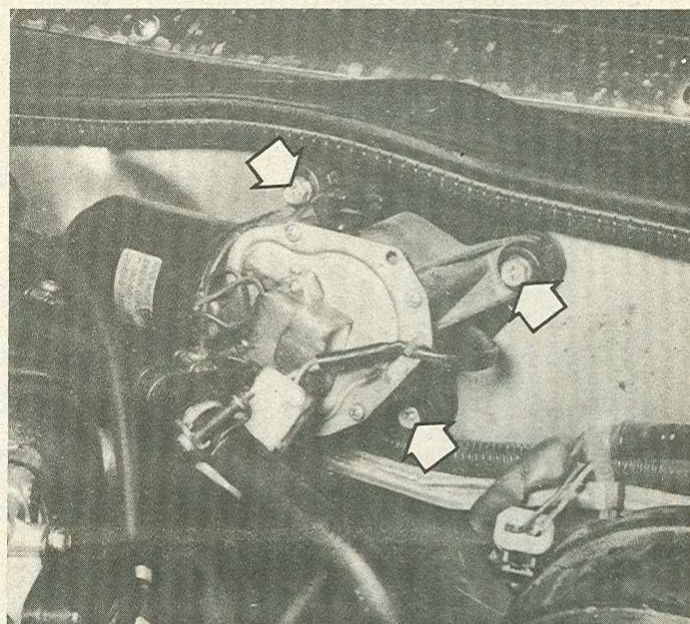
- 5 Use a small screwdriver to pry up on the wiper arm retaining nut cover.
- 6 Remove the wiper arm retaining nut (see illustration).
- 7 Note the position of the arm for installation and lift up to remove it from the vehicle.
- 8 Installation is the reverse of the removal.



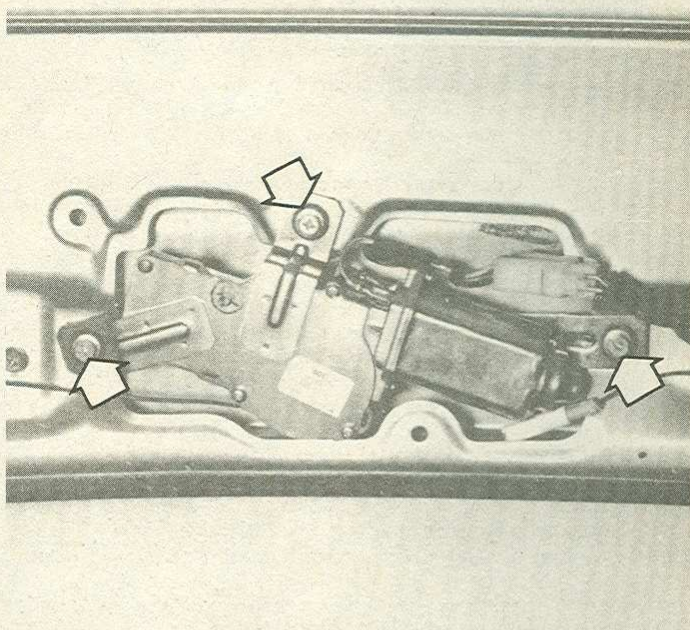
20.2 Remove the plastic drain screen by removing the Phillips head screw (arrow)



21.2 Remove the wiper motor large nut from the outside of the hatch



20.5 Remove the bolts (arrows) attaching the wiper motor to the body



21.5 Remove the wiper motor bolts (arrows)

20 Windshield wiper motor — removal and installation

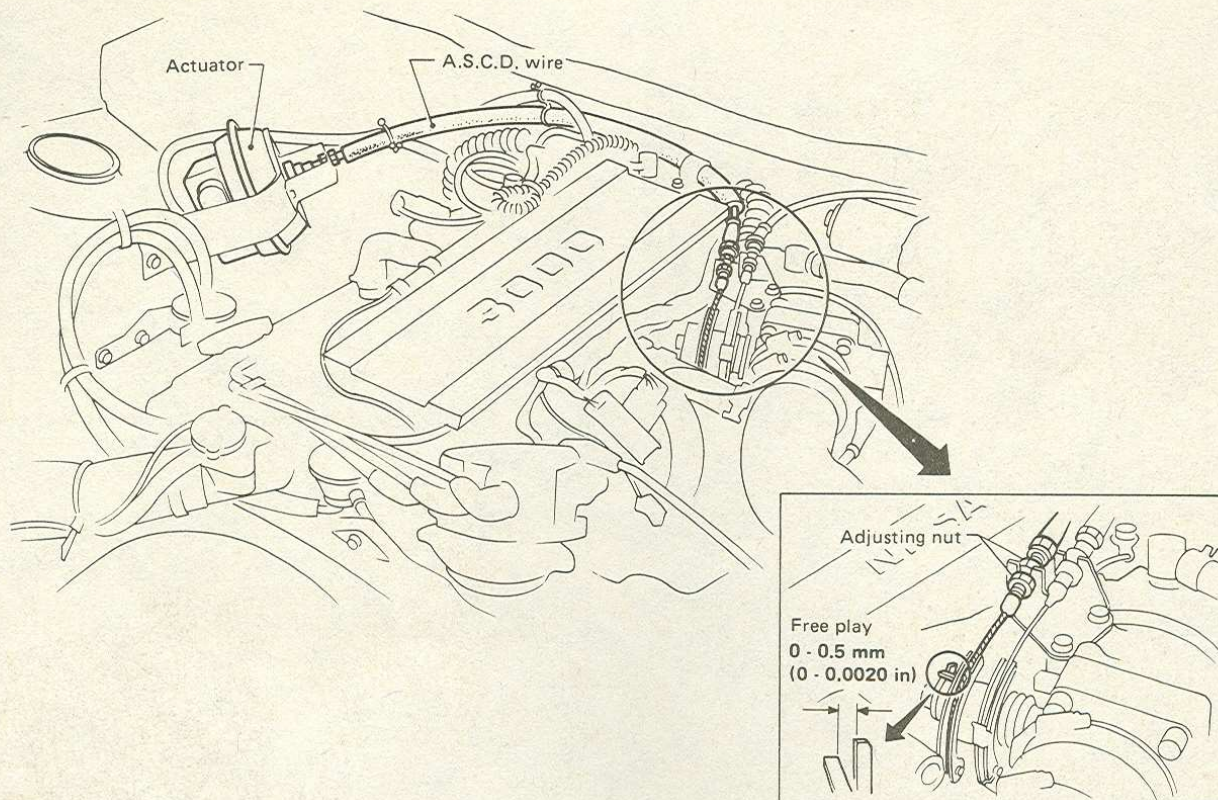
Refer to illustrations 20.2 and 20.5

- 1 Raise the hood.
- 2 Remove the screw retaining the plastic drain screen located on the drain pan below the wiper arm (see illustration) and lift the screen out.
- 3 Look in the opening where the screen was removed and locate the linkage attached to the wiper motor. Use a screwdriver to pry the linkage off.
- 4 Disconnect the two electrical connectors from the wiper motor.
- 5 Remove the three bolts attaching the wiper motor to the body (see illustration). Lift off the motor.
- 6 Install the wiper motor and secure the three retaining bolts.
- 7 Place the linkage onto the wiper motor driveshaft and press the linkage onto the shaft.
- 8 Connect the two electrical connectors.
- 9 Replace the plastic drain screen.

21 Rear wiper motor — removal and installation

Refer to illustrations 21.2 and 21.5

- 1 Remove the wiper arm.
- 2 Remove the large retaining nut on the outside of the hatch (see illustration).
- 3 Remove the rear hatch trim piece (Chapter 11).
- 4 Disconnect the electrical connector.
- 5 Remove the wiper motor retaining bolts (see illustration) and lift the motor from the hatch.
- 6 Install the motor and loosely install the large outside retaining nut.
- 7 Install the three wiper motor retaining bolts.
- 8 Connect the electrical connector.
- 9 Tighten the outside large retaining nut.
- 10 Install the wiper arm and secure the retaining nut.
- 11 Replace hatch trim piece.



22.1 Automatic Speed Control Device (ASCD)

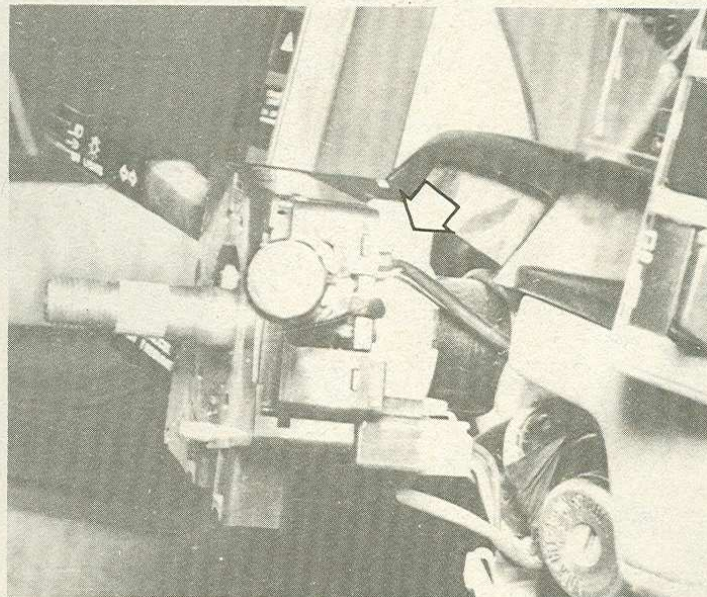
22 Cruise control — general information

Refer to illustration 22.1

1 The automactic speed control device (ASCD) is a cruise control system (see illustration) that allows the driver to maintain a constant highway speed without the necessity of continually applying foot pressure to the accelerator pedal.

2 The system utilizes a combination of electronic and vacuum controls. The ASCD controller senses the difference between the preset speed and the actual speed picked up by the speed sensor in the speedometer, and transmits an electrical signal to the servo valve. The servo valve then adjusts the vacuum which operates the actuator, which, in turn, adjusts the throttle valve opening to maintain the speed at the desired setting.

3 Due to the complexity of the ASCD system, if it begins to operate improperly, take the vehicle to your Nissan dealer or other qualified repair shop to have it diagnosed and corrected.



23.4 Remove the clamp screw (arrow) attaching the switch base to the column

23 Steering column switches — removal and installation

Refer to illustrations 23.4, 23.8a and 23.8b

- 1 Remove the steering wheel (Chapter 10).
- 2 Remove the top steering column trim piece by removing the two retaining screws.
- 3 Remove the bottom steering column trim piece by removing the two retaining screws. Pull down on the trim piece to release the plastic retaining clip from the column. Disconnect the electrical connector from the trim piece.
- 4 Remove the screw retaining the switch assembly clamp to the column (see illustration).
- 5 Spread the switch assembly retaining clamp and push it as far to the left as possible to get the clamp off the retaining tab. Lift up on the switch assembly to release the retaining tab from the hole in the column and pull the assembly forward.
- 6 Unplug the electrical connectors from the back of the switch assembly.
- 7 Remove the lower trim panel (Chapter 11) and trace the small wires

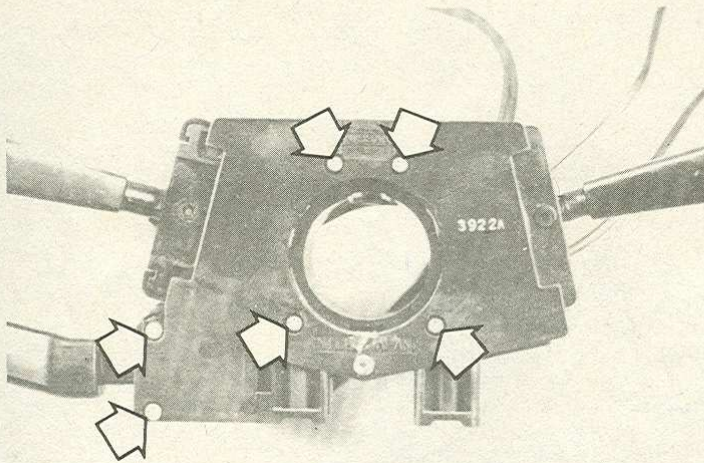
attached to the switch assembly to their connectors under the dash and disconnect them.

8 To replace the individual switches remove the retaining screws located on the front of the switch assembly (see illustration). Slide the component from the assembly base (see illustration). Replacement is the reverse of the removal procedure.

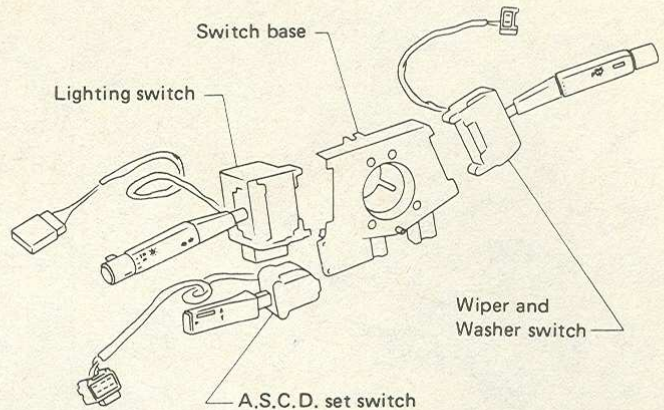
9 Installation begins by connecting the large electrical connectors into the back of the switch assembly.

10 Place the switch assembly on the steering column shaft and connect the small electrical connectors.

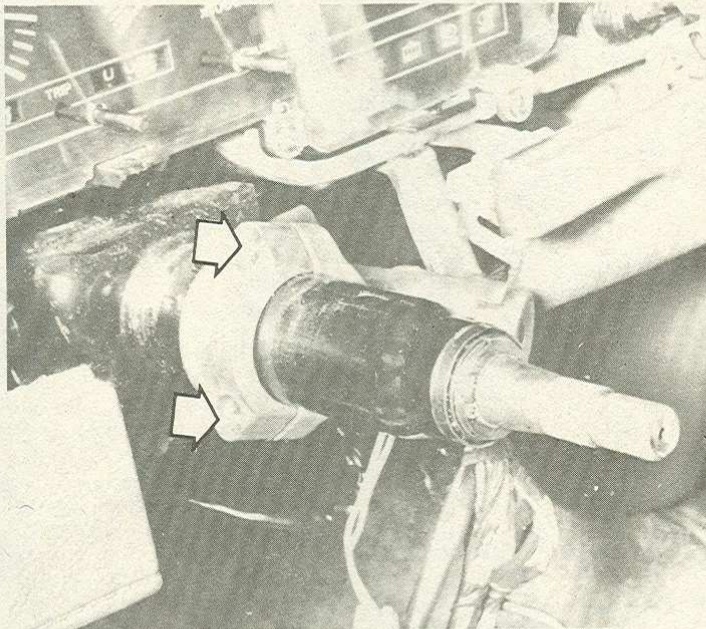
11 Install the assembly clamp retaining screw. Make sure the assembly retaining tab is in the notch in the column and tighten the retaining screw.



23.8a Remove the individual switches from the base by removing the component retaining screws (arrows) located on the front of the switch



23.8b The switch assembly is made up of four individual components



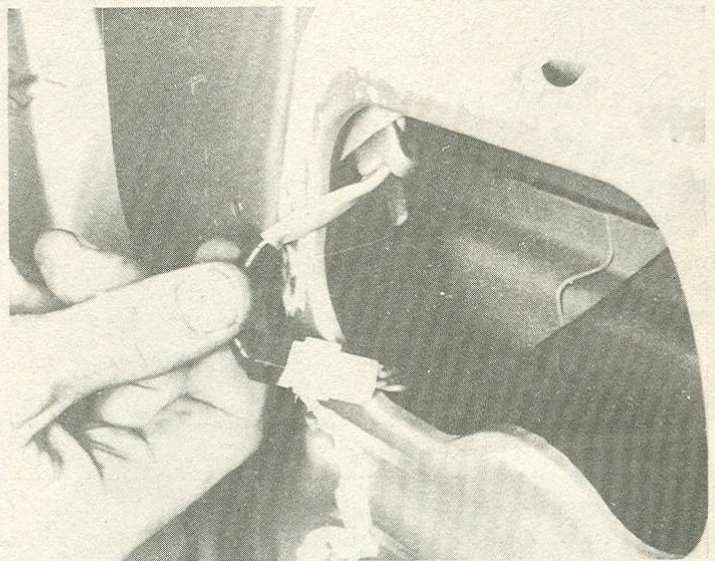
24.6 The steering lock/ignition switch self-shear screws (arrows) will have to be carefully drilled out

- 12 Replace the bottom column trim piece and secure with the two retaining screws.
- 13 Replace the top column trim piece and secure with the two retaining screws.
- 14 Replace the steering wheel.

24 Ignition switch — removal and installation

Refer to illustration 24.6

- 1 Obtain two self-shear screws from your Nissan dealer, needed to reinstall the steering lock.
- 2 Remove the steering wheel (Chapter 10).
- 3 Remove the top and bottom steering column covers attached to the column by two retaining screws each.
- 4 Remove the instrument panel combination switches.
- 5 Remove the trim panel from the cluster panel by removing the four retaining screws.
- 6 The steering lock/ignition switch assembly is secured to the steering shaft with two self-shear screws (see illustration). Removing the shear screws will involve very careful drilling of the screws.
- 7 Disconnect the ignition switch electrical connector.
- 8 To install, align the mating surface of the steering lock with the



26.5 Disconnect the electrical connector and remove the wire body strap

- hole in the steering column tube. Then loosely install the two self-shear screws. Once the operation of the lock is checked using the key, these screws can be tightened making sure the tops snap off.
- 9 Install the instrument cluster panel trim piece.
 - 10 Install the instrument panel combination switches.
 - 11 Install the top and bottom steering column trim pieces.
 - 12 Install the steering wheel.

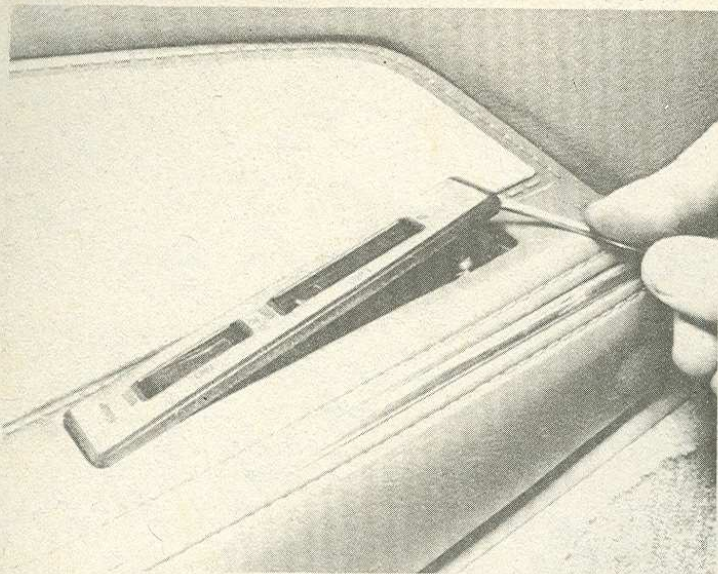
25 Remote control console switches — removal and installation

- 1 Remove the console (Chapter 11).
- 2 Turn the console over and press in on the two tangs securing the remote switch to the console and push the switch through the console.
- 3 Disconnect the switch electrical connector.
- 4 Install by pushing the switch into the console until the tangs catch.
- 5 Install the console.

26 Remote control door mirror — removal and installation

Refer to illustration 26.5

- 1 Lower the window.
- 2 Remove the door trim panel (Chapter 11).
- 3 Pry off the plastic cover that is held in place by three pop out type fasteners.
- 4 Remove the three screws and lift the mirror off.
- 5 Disconnect the electrical connector and remove the wire body strap (see illustration).



27.1 Pry up on the switch faceplate

- 6 Install the electrical connector and attach the wire body strap.
- 7 Secure the mirror to the door with the three screws.
- 8 Press the plastic face cover into place.
- 9 Install the door trim panel.

27 Power window switch — replacement

Refer to illustration 27.1

- 1 Open the door and use a small screwdriver to pry up the switch face plate (see illustration).
- 2 Remove the two switch screws.
- 3 Lift the switch assembly from the arm rest and disconnect the electrical connector.
- 4 Installation is the reverse of the removal procedure.

28 Electric door lock actuating solenoid — removal and installation

- 1 Raise the window.
- 2 Remove the door panel (Chapter 11).
- 3 Disconnect the door lock actuating rod by disconnecting the yellow plastic fastener.

- 4 Remove the two bolts securing the solenoid to the door.
- 5 Remove the solenoid and disconnect the electrical harness.
- 6 Installation is the reverse of the removal procedure. Make sure the yellow plastic fastener is secure on the actuating rod.

29 Windshield intermittent amplifier — general information

The windshield intermittent amplifier switch controls the speed of the windshield wiper while also controlling the windshield washer. Pull the lever toward you and hold it until there is sufficient water to wash the windshield. To operate the intermittent mode of the windshield wiping system, pull the lever down one notch. To adjust the intermittent time control knob, turn the end knob fully counterclockwise to activate the slowest intermittent operation of the wiper blade. This setting wipes the windshield every 12 seconds. For faster wiping action turn the knob clockwise. When the knob is turned fully clockwise the windshield will be wiped every four seconds.

30 Theft warning system — general information

The theft warning system has been designed to protect your vehicle and personal belongings when all the doors, hood and rear hatch are locked. If an attempt is made to open the doors, hood or rear hatch without using the key, the system will activate the headlights and horn while also making it impossible for the starter to operate. The headlights will flicker and the horn will sound intermittently. The alarm automatically stops in two to four minutes, but will activate again if the system is tampered with. If tampered with again the horn will sound and the starter will not work until the system is canceled by unlocking the door or hatch with a key. The retractable headlights will remain up after the alarm has stopped, making it necessary to retract the lights using the light retracting switch on the dash panel.

To arm the system, remove the key from the ignition switch, lock the doors and hatch and the warning light will flash for 30 seconds on the dash. If, during this time, the door is unlocked or ignition switch is turned to "On" or "Acc" the system will not arm. After the 30 second interval the system will be armed. The system will arm even if the window is left down. If this is the case it will be necessary to unlock the door using the key. If the door is unlocked by pulling up on the inside lock knob the alarm will go off.

Once the alarm is sounding the system can be stopped by unlocking the door or rear hatch with the key. The alarm will not go off by turning the ignition switch to "On" or "Acc".

If the system will not function properly, such as the warning light will not go off or the system will not arm itself, have the system checked by your Nissan dealer or other competent service facility.