






Chapter 13

Body electrical system

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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 
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Specifications

System type	12 volt, negative earth	
Bulbs	Fittings	Wattage
Halogen headlamps	H4	60/55
Auxiliary driving lamps	H3	55
Front foglamps	H3	55
Side lamps	Glass base	5
Direction indicator lamps	Bayonet	21
Brake/tail lamps	Bayonet	21/4
Reversing lamp(s)	Bayonet	21
Rear foglamp(s)	Bayonet	21
Rear number plate lamps	Glass base	5
Luggage compartment lamp	Bayonet	10
Underbonnet lamp	Bayonet	10
Courtesy lamp(s)	Bayonet	10
Map reading lamps	Glass base	5
Vanity mirror illumination lamp	Festoon	3
Glove compartment lamp	Glass base	3
Ashtray lamp	Glass base	1.2
Warning lamps	Glass base	1.2 or 2.5
Instrument illumination lamps	Glass base	1.2 or 2.5
Heater control illumination lamp	Glass base	1
Automatic transmission gear selector lamp	Bayonet	1.2
Clock illumination lamp	Bayonet	1.4
Cigarette lighter lamp	Glass base	1.2
Torque wrench settings	Nm	lbf ft
Trip computer fuel flow sensor unit fuel pipe unions	14 to 17	10 to 13

1 General information and precautions

General information

The electrical system is of the 12 volt, negative earth type. Electricity is generated by an alternator, belt-driven from the crankshaft pulley. A lead-acid storage battery provides a reserve of power for starting and when the demands of the system temporarily exceed the alternator output.

The battery negative terminal is connected to "earth" - vehicle metal - and most electrical system components are wired so that they only receive a positive feed, the current returning via vehicle metal. This means that the component mounting forms part of the circuit. Loose or corroded mountings can therefore cause apparent electrical faults.

Many semiconductor devices are used in the electrical system, both in the "black boxes" which control vehicle functions and in other components. Semiconductors are very sensitive to excessive (or wrong polarity) voltage, and to extremes of heat. Observe the appropriate precautions to avoid damage.

Precautions

It is necessary to take extra care when working on the electrical system to avoid damage to semi-conductor devices (diodes and transistors), and to avoid the risk of personal injury. In addition to the precautions given in the "Safety first!" Section at the beginning of this manual, take note of the following points when working on the system.

Always remove rings, watches, etc before working on the electrical system. Even with

the battery disconnected, capacitive discharge could occur if a component live terminal is earthed through a metal object. This could cause a shock or nasty burn.

Do not reverse the battery connections. Components such as the alternator or any other having semi-conductor circuitry could be irreparably damaged.

If the engine is being started using jump leads and a slave battery, connect the batteries *positive to positive* and *negative to negative*. This also applies when connecting a battery charger.

Never disconnect the battery terminals, or alternator multi-plug connector, when the engine is running.

The battery leads and alternator multi-plug must be disconnected before carrying out any electric welding on the car.

Never use an ohmmeter of the type incorporating a hand cranked generator for circuit or continuity testing.

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 (ECU) is involved.*

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 Chapter.

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. 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), an integrity test can be performed on the wiring, which involves moving 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.

Note: A short-circuit that occurs in the wiring between a circuit's battery supply and its fuse will not cause the fuse in that particular circuit to blow. This part of the circuit is unprotected - bear this in mind when fault-finding on the vehicle's electrical system.

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.

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's 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 - location and renewal



Location

1 The main fuses and relays are located in a box in the engine compartment on the right-hand side of the bulkhead. The circuits protected are identified by symbols on the underside of the fusebox cover. On certain models, additional relays and fuses are located in various positions beneath the facia panels. If uncertain of the location of an auxiliary relay or fuse, it is suggested that a Ford dealer is consulted, as the relay and fuse locations vary substantially depending on model.

Renewal

2 Always renew a fuse with one of identical rating and never renew it more than once without finding the source of the trouble (usually a short circuit). Always switch off the ignition before renewing a fuse or relay, and when renewing the wiper motor fuse keep the hands clear of the wiper linkage as it may return to the parked position. Note that the fuses are colour-coded as follows:

10A	Red
15A	Blue
20A	Yellow
25A	Natural
10A	Green

3 Access to the fuses and relays in the fusebox is gained by removing the loose cover and spring clip (if fitted), pulling the plastic clip and removing the cover. All fuses and relays are a push fit (see illustrations). The fuse/relay plate can be released from the fusebox for access to the wiring by carefully levering the plastic lugs around the perimeter of the plate.

4 For details of direction indicator/hazard warning flasher relay removal and refitting, refer to the relevant Section of this Chapter.



3.3a Remove the loose cover for access to the fusebox cover



3.3b Fusebox cover removed to expose fuses and relays (1.8 CVH model shown)

4 Ignition switch and lock barrel
- removal and refitting

Removal

- 1 Disconnect the battery negative lead.
- 2 For improved access, remove the securing screws and unclip the lower and upper steering column shrouds.
- 3 Insert the ignition key and turn to position "I", then, working through the access hole, depress the spring clip using a suitable tool and pull the key to withdraw the lock barrel and cylinder from the ignition switch housing. The spring clip access hole is shown (see illustration). Note that, on certain models, the spring clip must be released by inserting the tool through a small circular hole at the top of the switch housing, above the rectangular slot shown. Slight movement of the key may be necessary to allow removal of the barrel and cylinder.
- 4 To remove the lock barrel from the cylinder insert the key fully into the barrel and remove the retaining circlip, taking care not to damage the circlip location, then withdraw the key approximately 5.0 mm (0.2 in) to retract the lock barrel securing lug, and withdraw the barrel from the cylinder.
- 5 To remove the ignition switch, disconnect the wiring plug, then remove the two grub screws and withdraw the switch.

Refitting

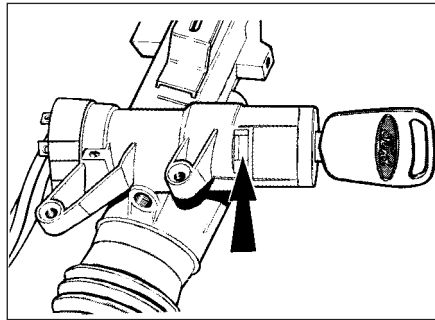
- 6 Refitting is a reversal of removal, bearing in mind the following points.
- 7 Note that the lock barrel can only be fitted to the cylinder in one position, and check with the key fully inserted that the barrel can be turned from position "O" to "III" satisfactorily.
- 8 The open jaws of the lock barrel retaining circlip must align with the keyway register on the cylinder, and the cylinder retaining circlip must locate in the slot in the ignition switch housing.
- 9 On completion, check the operation of the steering lock and ignition switch in all positions.

5 Direction indicator and hazard warning flasher switch assembly - renewal

- 1 Disconnect the battery negative lead.
- 2 Remove the securing screws and unclip the lower and upper steering column shrouds.
- 3 Remove the two securing screws and disconnect the two wiring plugs, then withdraw the switch from the steering column.
- 4 Refitting is a reversal of removal.

6 Direction indicator/hazard warning flasher relay - renewal

- 1 Disconnect the battery negative lead.



4.3 Ignition switch lock barrel spring clip location (arrowed)

- 2 The relay is located on a bracket above the steering column. Access is gained either by removing the driver's side lower fascia panel or the instrument panel.
- 3 Unclip the relay from the bracket, and disconnect the wiring plug (see illustration).
- 4 Refitting is a reversal of removal. Check for correct operation before refitting the fascia panel or instrument panel.

7 Lighting and wash/wipe switch assembly - renewal

The procedure is identical to that described for the direction indicator switch, except for the additional removal and refitting of an earth lead (see illustration).

8 Reversing lamp switch - renewal

- 1 For automatic transmission models, refer to Chapter 7, Part B. For manual gearbox models, proceed as follows:
- 2 Disconnect the battery negative lead.
- 3 Apply the handbrake, jack up the front of the vehicle and support on axle stands (see "Jacking and Vehicle Support").
- 4 Working underneath the vehicle, disconnect the wiring plug, then unscrew the switch from the gearbox extension housing.
- 5 Refitting is a reversal of removal, but make sure that the wiring is routed clear of the exhaust system.



7.1 Lighting and wash/wipe switch assembly earth lead securing screw (arrowed)



6.3 Direction indicator/hazard warning flasher relay location (arrowed)

9 Facia panel switches - removal and refitting

- 1 Disconnect the battery negative lead.
- Rocker switches and push button switches**
- 2 Using a thin-bladed screwdriver, carefully prise the switch from the facia panel.
 - 3 Disconnect the wiring plug and withdraw the switch.
 - 4 Refitting is a reversal of removal.

Instrument panel illumination and intermittent wipe rheostats

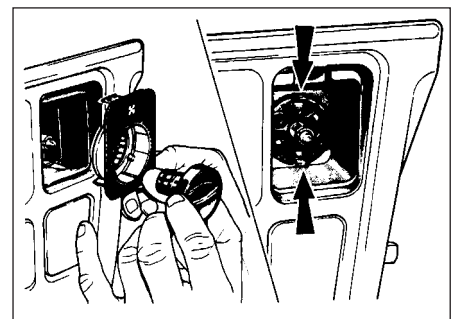
- 5 Proceed as described in paragraphs 2 to 4.

Heater blower switch

- 6 Carefully pull off the switch knob, using pliers with padded jaws if necessary.
- 7 Using a thin-bladed screwdriver, prise out the switch front plate from the facia panel.
- 8 Squeeze the switch retaining tabs, then withdraw the switch and disconnect the wiring plug (see illustration).
- 9 Refitting is a reversal of removal.

Loudspeaker balance joystick

- 10 Using a thin-bladed screwdriver, carefully prise the joystick front plate from the facia panel.
- 11 Twist the joystick assembly retaining ring anti-clockwise and remove the ring.
- 12 Working behind the facia panel, disconnect the wiring plug and slide out the joystick assembly.



9.8 Heater blower switch removal. Switch retaining tabs arrowed



10.3 Disconnect the wiring plug from the door mirror switch - models up to 1987

13 Refitting is a reversal of removal, but note that the wiring plug can only be fitted in one position, and ensure that the joystick assembly locating lug engages in the corresponding hole in the fascia panel.

10 Electric door mirror switch - removal and refitting

1 Disconnect the battery negative lead.

Models up to 1987

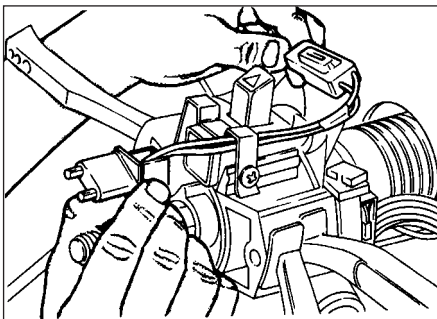
- 2 Using a thin-bladed screwdriver, carefully prise the switch from the door trim panel.
- 3 Disconnect the wiring plug and withdraw the switch (see illustration).
- 4 Refitting is a reversal of removal.

Models from 1987

5 Prise the securing screw cover from the



11.6 Prise the trim insert from the steering wheel, followed by the centre disc - models from 1987



11.14 Horn switch slip ring contact finger removal

mirror control panel, then remove the screw and withdraw the control panel.

- 6 Depress the switch retaining tang, then withdraw the switch from the control panel and disconnect the wiring plug.
- 7 Refitting is a reversal of removal.

11 Horn switch assembly - removal and refitting

1 Disconnect the battery negative lead.

Switch

Models up to 1987

- 2 Pull the trim insert from the centre of the steering wheel, and disconnect the lead from the horn push.
- 3 Disconnect the two leads from the horn slip ring, then remove the two securing screws and withdraw the switch assembly (see illustration).
- 4 Refitting is a reversal of removal, but check the operation of the switch on completion.

Models from 1987

- 5 Using a thin-bladed screwdriver, carefully prise the trim insert from the centre of the steering wheel. Disconnect the wire.
- 6 Prise the steering wheel centre disc from the steering wheel, and disconnect the wire (see illustration).
- 7 Refitting is a reversal of removal.

Slip ring

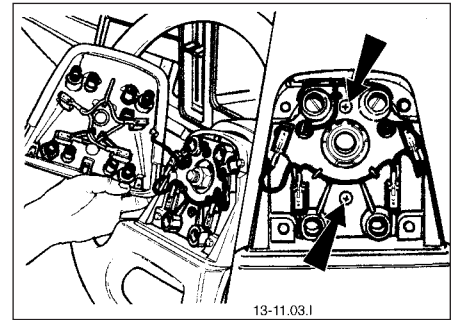
- 8 Remove the steering wheel.
- 9 On models up to 1987, remove the switch as described in paragraph 3.
- 10 Release the three slip ring retaining tangs and withdraw the slip ring from the steering wheel.
- 11 Refitting is a reversal of removal.

Slip ring contact finger

- 12 Remove the steering wheel.
- 13 Remove the securing screws and unclip the lower and upper steering column shrouds.
- 14 Disconnect the contact finger wiring plug, and pull the contact finger housing from its mounting (see illustration).
- 15 Refitting is a reversal of removal.



12.3 Withdrawing a courtesy lamp switch



11.3 Horn switch removal - models up to 1987. Switch securing screws arrowed

12 Courtesy lamp switch - renewal

- 1 Disconnect the battery negative lead.
- 2 Open the door and remove the switch securing screw.
- 3 Withdraw the switch from the door pillar and pull the wiring out sufficiently to prevent it from springing back into the pillar (see illustration).
- 4 Disconnect the wiring and remove the switch.
- 5 Refitting is a reversal of removal.

13 Luggage compartment lamp switch - removal and refitting

- 1 Disconnect the battery negative lead.
- Models up to 1987**
- 2 A level-sensitive switch is fitted to the tailgate.
 - 3 Unclip the tailgate trim panel.
 - 4 Disconnect the wiring from the switch terminal, then remove the securing screw and withdraw the switch, noting its fitted position (see illustration).
 - 5 Refitting is a reversal of removal, but ensure that the switch is refitted in its original position, as noted during removal, and test the operation of the switch on completion.

Models from 1987

6 Where applicable, unclip the tailgate/boot trim panel.



13.4 Luggage compartment lamp switch location - models up to 1987

13•6 Body electrical system

7 Unclip the switch from the lock assembly, disconnect the wiring plug and remove the switch.

8 Refitting is a reversal of removal.

14 Handbrake "on" warning lamp switch - renewal

- 1 Disconnect the battery negative lead.
- 2 Working inside the vehicle, remove the handbrake lever rubber gaiter and/or the centre console, as necessary.
- 3 Disconnect the wiring connector from the switch, then remove the two securing screws and withdraw the switch from the handbrake lever (see illustration).
- 4 Refitting is a reversal of removal.

15 Brake lamp switch - renewal

- 1 Disconnect the battery negative lead.
- 2 Unclip the trim panel from the lower edge of the driver's side lower fascia trim panel. If required for improved access, remove the lower fascia trim panel.
- 3 Disconnect the wiring from the terminal on the switch, then twist the switch anti-clockwise and remove it (see illustration).
- 4 When refitting, insert the switch into its aperture in the pedal bracket, then push the switch inwards until the switch barrel touches the pedal. *Ensure that the pedal is not moved from its stop.* Twist the switch clockwise to lock it in position. No further adjustment is necessary.
- 5 Further refitting is a reversal of removal, but check the operation of the switch on completion.

16 Oil pressure warning lamp switch - renewal

- 1 Disconnect the battery negative lead.
- 2 The switch is located towards the left-hand rear of the cylinder block on SOHC models (see illustration), towards the right-hand rear of the cylinder block on CVH models and on the right-hand side of the cylinder block, between the core plugs, on DOHC models.



16.2 Oil pressure warning lamp switch location (arrowed) - SOHC engine



14.3 Handbrake "on" warning lamp switch location (arrowed)

- 3 Disconnect the wiring from the switch terminal, then unscrew and withdraw the switch. Be prepared for some oil spillage.
- 4 Clean the threads of the switch and its seat before refitting.
- 5 After refitting, run the engine and check for oil leaks around the switch, then stop the engine and check the oil level, topping-up if necessary.

17 Electric sunroof components - removal and refitting

Switch

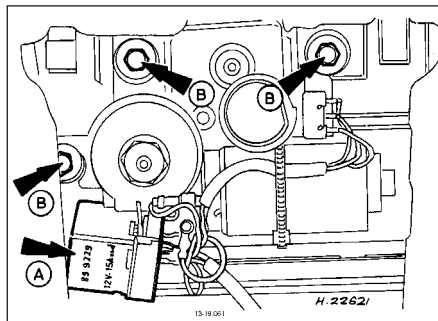
- 1 Disconnect the battery negative lead.
- 2 Using a thin-bladed screwdriver, carefully prise the switch from the overhead console.
- 3 Disconnect the wiring plug and remove the switch.
- 4 Refitting is a reversal of removal.

Relay

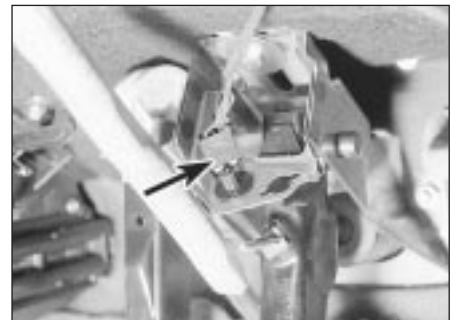
- 5 Remove the overhead console.
- 6 Unclip the relay from the motor assembly and disconnect the wiring plug (see illustration).
- 7 Refitting is a reversal of removal.

Motor

- 8 Remove the overhead console.
- 9 Disconnect the motor wiring plug.
- 10 Unscrew the three securing bolts, and withdraw the motor assembly from the roof.
- 11 Refitting is a reversal of removal, but ensure that the drive gear is aligned with the roof operating mechanism.



17.6 Electric sunroof relay (A) and motor securing bolts (B)



15.3 Brake lamp switch location (arrowed)

18 Cigarette lighter - renewal

- 1 Disconnect the battery negative lead.
- 2 Working behind the fascia panel, disconnect the wiring, then push out the lighter assembly through the front of the fascia panel.
- 3 If required, the illumination ring assembly can now be withdrawn after removing the bulbholder.
- 4 Refitting is a reversal of removal.

19 Clock - removal and refitting

- 1 Disconnect the battery negative lead.
- #### Standard clock
- 2 Using a thin-bladed screwdriver, carefully prise the clock from the fascia panel.
 - 3 Disconnect the wiring plug and withdraw the clock.
 - 4 Refitting is a reversal of removal.
- #### Multi-function digital/analogue clock
- 5 Remove the single screw from the top edge of the fascia panel in which the clock is housed, then withdraw the fascia panel.
 - 6 Remove the four now exposed securing screws, disconnect the wiring plug, and withdraw the clock (see illustration).
 - 7 Refitting is a reversal of removal.



19.6 Multi-function digital/analogue clock securing screws (arrowed)



20.4a Unclip the cover . . .



20.4b . . . for access to the lower right-hand instrument panel surround securing screw



20.5 Removing an upper instrument panel surround securing screw



20.8 Withdraw the instrument panel and disconnect the wiring plugs

20 Instrument panel - removal and refitting

Models up to 1992

- 1 Disconnect the battery negative lead.
- 2 Remove the securing screws and unclip the lower and upper steering column shrouds.
- 3 Where applicable, remove the instrument panel illumination and intermittent wiper rheostats.
- 4 Unclip the cover for access to the lower right-hand instrument panel surround securing screw (see illustrations).
- 5 Remove the two upper and two lower securing screws, and withdraw the instrument panel surround (see illustration).
- 6 On models fitted with a trip computer, unscrew the knurled nut and disconnect the



20.11 Removing an instrument panel surround lower securing screw (cover removed)



21.3a Removing an instrument panel warning lamp bulb - bulb is a push-fit in the bulbholder

Models from 1992

- 11 The procedure is as described above but note that both instrument panel surround lower securing screws are located beneath plastic covers (see illustration).
- 12 The steering column shrouds are secured by six screws - five through the lower shroud, and one through the upper shroud.

21 Instrument panel components - removal and refitting

- 1 Remove the instrument panel.

Panel illumination and warning lamp bulbs

- 2 Twist the relevant bulbholder anti-clockwise and withdraw it from the printed circuit board on the rear of the instrument panel.
- 3 The bulbs may be either a push-fit in the bulbholder, or integral with the bulbholder in which case the bulb and bulbholder must be renewed as a unit (see illustrations).
- 4 Refitting is a reversal of removal.

Panel lens

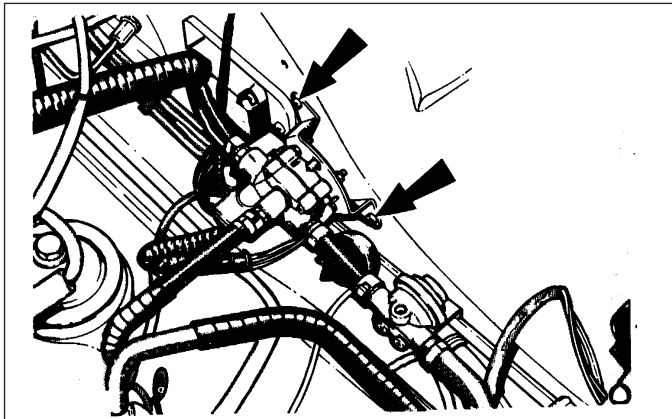
- 5 Remove the three upper and three lower securing screws and withdraw the lens from the instrument panel.
- 6 Refitting is a reversal of removal, but ensure that the two locating pegs on the upper corners of the instrument panel protrude through the lens, and locate the lugs on the lower edge of the lens in the cut-outs in the instrument panel.

Printed circuit board

- 7 Using a thin-bladed screwdriver, unclip and remove the wiring plug socket.
- 8 Remove all the illumination and warning lamp bulbs as described earlier in this Section.
- 9 Remove all the nuts and washers from the printed circuit board terminals.
- 10 Unclip the printed circuit board from the retainers at the back of the instrument panel, and carefully withdraw the board over the terminal pins on the gauges.
- 11 Refitting is a reversal of removal.



21.3b Removing an instrument panel illumination bulb - bulb is integral with bulbholder



22.17 Trip computer fuel flow sensor unit location - carburettor models up to 1987. Bracket retaining screws arrowed

Speedometer

- 12 Remove the panel lens (paras. 5 and 6).
- 13 Remove the two screws securing the speedometer to the rear of the instrument panel, taking care not to lose the two brushes. Withdraw the speedometer through the front of the instrument panel.
- 14 Refitting is a reversal of removal.

Tachometer

Models up to 1990

- 15 Remove the four or five securing screws, as applicable, and separate the two halves of the instrument panel housing.
- 16 Remove the three securing nuts and washers from the rear of the instrument panel housing, and withdraw the tachometer.
- 17 Refitting is a reversal of removal, but ensure that the tachometer engages with the locating ribs in the housing around the dial edge.

Models from 1990

- 18 The procedure is as described above but before the tachometer can be withdrawn from the instrument panel housing, the printed circuit board must be carefully pulled from the tachometer terminals. Ensure that the printed circuit board is pushed fully home when refitting.

Fuel and temperature gauges

Models up to 1987

- 19 Remove the four securing screws and separate the two halves of the instrument panel housing.
- 20 Remove the four securing nuts and washers from the rear of the instrument panel housing, and withdraw the combined gauge assembly.
- 21 Refitting is a reversal of removal.

Models from 1987

- 22 Remove the five securing screws and separate the two halves of the instrument panel housing.
- 23 Remove the printed circuit board as described previously in this Section.
- 24 On "low specification" models, remove the two securing screws from the front of the gauge assembly, then withdraw the combined gauge assembly from the printed circuit board.

- 25 On "high specification" models, simply withdraw the combined gauge assembly from the printed circuit board.
- 26 Refitting is a reversal of removal, but on "high specification" models, ensure that the gauge assembly engages with the locating ribs in the housing around the gauge edge.

22 Trip computer components - removal and refitting

- 1 Disconnect the battery negative lead

Computer module

- 2 Remove the single screw from the top edge of the fascia panel in which the module is housed, then withdraw the fascia panel.
- 3 Remove the four now exposed securing screws, disconnect the wiring plug, and carefully withdraw the module. On later models a retaining lug must be depressed before the wiring plug can be disconnected.
- 4 Where applicable, the mounting brackets can be removed from the module by unscrewing the securing nuts.
- 5 If necessary, the illumination bulb can be removed from the module by twisting the bulbholder anti-clockwise using a pair of long-nosed pliers. The bulb is a push-fit in the holder.
- 6 Refitting is a reversal of removal.

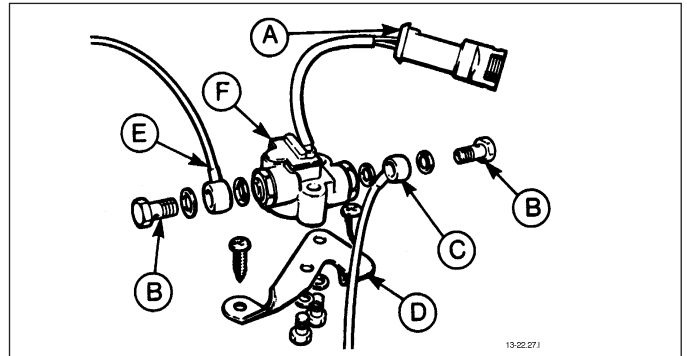
Speed sender unit

Models up to 1987

- 7 The speed sender unit is located in the engine compartment on the right-hand side of the bulkhead.
- 8 Disconnect the plug from the sender unit.
- 9 Unscrew the two knurled nuts from the sender unit and disconnect the two speedometer cables.
- 10 Remove the three securing screws and remove the bracket and sender unit.
- 11 Unscrew and remove the securing nut and washer, and separate the sender unit from the bracket.
- 12 Refitting is a reversal of removal.

Models from 1987

- 13 Detach the wiring, hose retainers and



22.27 Trip computer fuel flow sensor unit - fuel injection models

- | | |
|------------------------------|-------------------------------|
| A Wiring plug | D Bracket |
| B Hollow bolts | E Outlet port banjo connector |
| C Inlet port banjo connector | F Sensor unit |

cover panel from the bulkhead to gain access to the sender unit.

- 14 Proceed as shown in paragraphs 7 to 9.
- 15 Remove the retaining nut and washer and withdraw the sender unit.
- 16 Refitting is a reversal of removal.

Fuel flow sensor unit

Carburettor models

- 17 The fuel flow sensor is located on the left-hand side of the engine compartment (see illustration).
- 18 Disconnect the wiring plug from the sensor unit.
- 19 Refer to the "Safety first!" Section at the front of the manual, and the precautions in Chapter 4, then disconnect the fuel pipes from the sensor unit. Note that on models up to 1987 there are three fuel pipe connections, and on models from 1987 there are two fuel pipe connections. Be prepared for fuel spillage.
- 20 Remove the three securing screws and withdraw the bracket and sender unit.
- 21 Unscrew the four nuts and separate the sender unit from the bracket.
- 22 Refitting is a reversal of removal, but ensure that the flow direction arrows on the fuel inlet and outlet ports are correctly orientated, and that the arrow on the rear of the unit points to the top.

Fuel injection models

- 23 The sensor is located on the left-hand side of the engine compartment.
- 24 Disconnect the wiring plug from the sensor unit.
- 25 Refer to the "Safety first!" Section at the front of the manual, and the precautions in Chapter 4, then unscrew the two union nuts and disconnect the fuel pipes from the sensor unit. Be prepared for fuel spillage.
- 26 Remove the two securing screws and withdraw the sensor unit.
- 27 Refitting is a reversal of removal, but ensure that the No 2 injector fuel pipe is fitted to the sensor unit outlet port marked with an arrow, and ensure that the union washers are in place (see illustration). Tighten the fuel pipe unions to the specified torque.



23.7 Remove the screw from the warning lamp fascia panel



23.8 Removing an auxiliary warning lamp bulb



23.11a Removing the graphic display unit retaining screw

23 Auxiliary warning system components - location, testing, removal and refitting



Location

- 1 The AWS control unit, and (when fitted) the bulb failure monitor, are located behind the glovebox on models up to 1987.
- 2 On models from 1987, the control and bulb failure modules are located behind the driver's side footwell trim panel.

Testing

- 3 Thorough testing and fault finding should be left to a Ford dealer or other electrical specialist, having test equipment. Unskilled or uninformed testing may cause damage.
- 4 Investigation of malfunctions should begin by checking that all wiring is intact and securely connected. If checking wires or sensors for continuity, always disconnect the control unit and/or bulb failure monitor before so doing, otherwise damage may be caused.
- 5 Note that false oil level readings can result if the car is parked on a slope. False bulb failure warnings may occur if incorrect wattage bulbs are fitted.

Removal and refitting

- 6 Disconnect the battery negative lead.

Warning lamp bulbs

- 7 Remove the single screw from the top edge of the fascia panel in which the warning lamps are housed, then withdraw the fascia panel (see illustration).
- 8 Twist the relevant bulbholder through 90° to remove it from the rear of the fascia panel. The bulb is integral with the bulbholder and must be renewed as a unit (see illustration).
- 9 Refitting is a reversal of removal.

Graphic display unit and bulbs

- 10 Remove the clock or trip computer.
- 11 Remove the display unit retaining screw and the retainer, then pull the unit forwards and disconnect the wiring plug using a thin-bladed screwdriver (see illustrations).
- 12 To renew a bulb, remove the two securing screws and pull the circuit board from the back of the unit to reveal the bulbs. The bulbs are a push-fit.
- 13 Refitting is a reversal of removal.

Control unit and bulb failure monitor

- 14 Unclip the trim panel from the lower edge of the passenger side lower fascia panel.
 - 15 On models up to 1987, pull off the two clips to release the control unit/bulb failure monitor mounting bracket. Depress the retaining tab and disconnect the relevant wiring plug, then remove the two securing screws and withdraw the control unit/bulb failure monitor (see illustration).
 - 16 On models from 1987, release the retaining tang and carefully slide the control unit/bulb failure monitor downwards. Depress the retaining tab and disconnect the relevant wiring plug, then withdraw the control unit/bulb failure monitor.
 - 17 Refitting is a reversal of removal. Note that when both a control unit and bulb failure monitor are fitted, the control unit wiring plug is coloured brown, and the bulb failure monitor wiring plug is coloured green.
- Ice warning sender**
- 18 This sender is located beneath the front panel on the right-hand side of the vehicle.
 - 19 Where necessary, for improved access remove the horn.
 - 20 Depress the two retaining tangs, disconnect the wiring plug and withdraw the sender unit from the slot in the front panel.
 - 21 Refitting is a reversal of removal.

Door/tailgate/boot lid ajar switches

- 22 Remove the relevant lock.
- 23 Pull the switch from its location in the lock body, disconnect the wiring plug (if not already done) and withdraw the switch (see illustration).



23.15 Auxiliary warning system control unit location



23.11b Disconnecting the wiring plug from the graphic display unit

- 24 Refitting is a reversal of removal.

Low coolant level sensor

- 25 Refer to Chapter 3.

Low washer fluid level switch

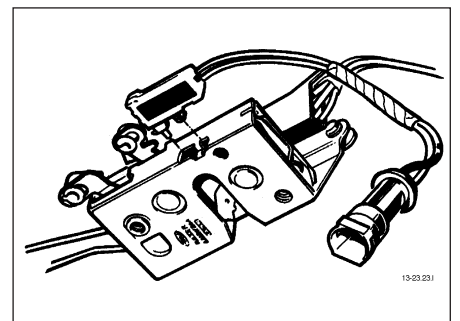
- 26 Siphon out the contents of the reservoir, then prise the switch from its grommet using a thin-bladed screwdriver. Disconnect the wiring plug.
- 27 Refitting is a reversal of removal, using a new grommet if necessary. Use a little liquid detergent as a lubricant.
- 28 On completion, refill the reservoir.

Low fuel level switch

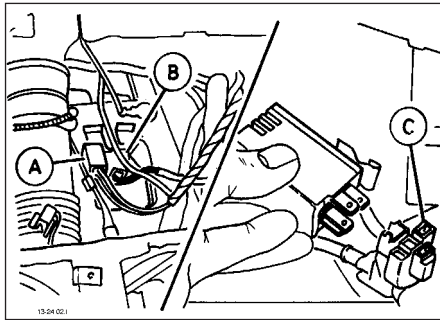
- 29 The switch is integral with the fuel level sender unit. Details of fuel level sender unit removal and refitting are given in Chapter 4.

Low oil level switch

- 30 The switch is integral with the oil level dipstick. To remove, simply withdraw the



23.23 Door lock and door ajar switch



24.2 "Lights-on" warning module location

- A "Lights-on" warning module
- B Direction indicator relay
- C "Lights-on" warning module wiring plug

diptstick from its tube and disconnect the wiring plug.

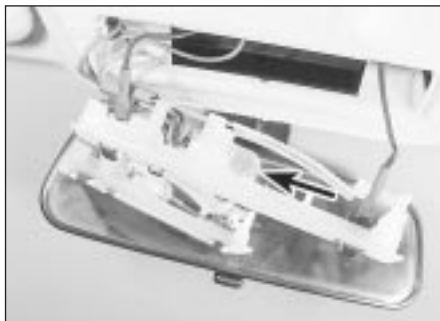
31 Refitting is a reversal of removal.

24 "Lights-on" warning module - renewal

- 1 Remove the instrument panel.
- 2 Unclip the direction indicator relay from the steering column support bracket (see illustration).
- 3 Unclip the "lights-on" warning module from the steering column support bracket, disconnect the wiring plug and remove the module.
- 4 Refitting is a reversal of removal.

25 Courtesy lamp and luggage compartment lamp - renewal

- 1 Disconnect the battery negative lead.
- 2 To remove a lamp, simply prise it from its location, using a thin-bladed screwdriver, and disconnect the wiring (see illustrations). When working on an overhead console-mounted courtesy lamp, disconnect the wiring between the map reading lamps and the courtesy lamp before removing the courtesy lamp.
- 3 Refitting is a reversal of removal.



27.3 Overhead console-mounted courtesy lamp bulb (arrowed)



25.2a Removing a courtesy lamp

26 Map reading lamp - removal and refitting

- 1 Disconnect the battery negative lead.
- 2 Remove the courtesy lamp and disconnect the map reading lamp wires.
- 3 Push the map reading lamp out of its location by inserting a finger through the courtesy lamp aperture.
- 4 Refitting is a reversal of removal.

27 Interior lamp bulbs - renewal

- 1 Disconnect the battery negative lead.

Courtesy lamp

- 2 Remove the courtesy lamp.
- 3 Unclip the bulb from the lamp. On models fitted with an overhead console and map reading lamps, the courtesy lamp reflector must be unclipped for access to the bulb (see illustration).
- 4 Refitting is a reversal of removal.

Map reading lamp

- 5 Remove the map reading lamp.
- 6 Pull the bulbholder from the rear of the lamp. The bulb is a push fit in the bulbholder (see illustration).
- 7 Refitting is a reversal of removal.

Glove compartment lamp

- 8 Open the glove compartment and pull the bulb from its holder.
- 9 Refitting is a reversal of removal.

Ashtray lamp

- 10 Open the ashtray and remove the tray from its housing.
- 11 Pull the bulbholder from the housing. The bulb is a push fit in the bulbholder.
- 12 Refitting is a reversal of removal.

Heater blower switch illumination lamp

- 13 Carefully pull off the switch knob, using pliers with padded jaws if necessary. The bulb is a bayonet fit in the end of the switch shaft.
- 14 Refitting is a reversal of removal.



25.2b Removing a luggage compartment lamp

Heater control illumination lamp

15 Refer to Chapter 12.

Vanity mirror illumination lamp

- 16 Lower the sun visor and, using a thin-bladed screwdriver, prise out the mirror and diffuser assembly. Remove the festoon bulb(s) from its/their spring contacts.
- 17 Refitting is a reversal of removal.

Hazard flasher switch lamp

- 18 Remove the securing screws and unclip the upper steering column shroud.
- 19 Ensure that the switch is in the "on" position, then pull off the switch cap/bulb cover. Carefully pull the bulb from the switch using a pair of pliers with padded jaws.
- 20 Refitting is a reversal of removal.

Automatic transmission gear selector illumination lamp

- 21 Unscrew the selector lever handle from the threaded end of the lever, then remove the three securing screws and withdraw the centre console front upper panel.
- 22 Pull off the selector gate cover to expose the bulbholder. The bulb is a bayonet fit in the bulbholder.
- 23 Refitting is a reversal of removal.

Luggage compartment lamp

- 24 Remove the lamp by carefully prising it from its location using a thin-bladed screwdriver. Unclip and remove the bulb (see illustration).
- 25 Refitting is a reversal of removal.



27.6 Removing a map reading lamp bulb



27.24 Removing a luggage compartment lamp bulb

Clock illumination lamp

- 26 Remove the clock.
- 27 The bulb is a bayonet fit in the rear of the clock.
- 28 Refitting is a reversal of removal.

28 Underbonnet lamp - removal, refitting and bulb renewal

- 1 Disconnect the battery negative lead.

Removal and refitting

- 2 Detach the wiring connector at the left-hand bonnet hinge, and attach a length of string to the end of the wire running from the lamp.
- 3 If necessary, remove the underbonnet insulation by prising out the two-piece plastic securing clips, then working at the lamp, pull the wiring and the string through the bonnet panel.
- 4 Detach the string from the end of the wire, and remove the screw securing the lamp to the bonnet. Withdraw the lamp.
- 5 Commence refitting by attaching the end of the wiring to the string, and pulling the string and wiring through the bonnet panel. Further refitting is a reversal of removal.

Bulb renewal

- 6 Simply press and twist the bulb to remove it from the bulbholder (see illustration).
- 7 Refitting is a reversal of removal.

29 Horn - removal and refitting

Removal

- 1 The horn(s) is/are located in front of the radiator beneath the front panel (see illustration). The horn(s) may be located on either side of the vehicle depending on model.
- 2 Disconnect the battery negative lead.
- 3 Disconnect the wiring from the horn, then unscrew the securing nut and washer and withdraw the horn and bracket assembly complete.
- 4 Repeat the operations for the remaining horn where applicable.

Refitting

- 5 Refitting is a reversal of removal.



28.6 Removing an underbonnet lamp bulb

30 Speedometer cable - removal and refitting

Removal

- 1 On models fitted with a trip computer, remove the speed sender unit.
- 2 Remove the instrument panel.
- 3 Pull the cable through the bulkhead into the engine compartment, and where applicable release it from the securing clips. On models fitted with a trip computer, the upper section of the cable can now be removed.
- 4 Apply the handbrake, jack up the front of the vehicle and support on axle stands (see "Jacking and Vehicle Support").
- 5 On vehicles with a manual gearbox, extract the circlip securing the cable end to the extension housing and withdraw the cable end (see illustration).
- 6 On vehicles with automatic transmission, remove the securing screw and disconnect the cable end from the extension housing.
- 7 The cable can now be withdrawn from the vehicle, noting its routing so that it can be refitted in the same position.

Refitting

- 8 Refitting is a reversal of removal, but where applicable, ensure that the speedometer cable rubber sleeve is in place over the square inner drive on the cable connector, and not in the speedometer head. Position the cable so that the coloured bands on the cable sheath line up with the bulkhead grommet and the clips in the engine compartment. Route the cable as noted during removal.



30.5 Speedometer cable end fitting in manual gearbox extension housing



29.1 Horn location beneath front panel

- 9 On completion, pull the speedometer cable from within the engine compartment to ensure that the cable is straight between the instrument panel and the bulkhead grommet.

31 Wiper blades - renewal

- 1 The wiper blades should be renewed when they no longer clean the glass effectively.
- 2 Lift the wiper arm away from the glass.
- 3 With the blade at 90° to the arm, depress the spring clip and slide the blade clear of the hook, then slide the blade up off the arm.
- 4 If necessary extract the two metal inserts and unhook the wiper rubber.
- 5 Fit the new rubber and blade in reverse order, making sure where necessary that the cut-outs in the metal inserts face each other.

32 Wiper arms - removal and refitting

Windscreen and rear wipers

- 1 Lift the hinged covers and remove the nuts and washers securing the arms to the spindles.
- 2 Mark the arms and spindles in relation to each other then prise off the arms using a screwdriver. Take care not to damage the paintwork.
- 3 Refitting is a reversal of removal.

Headlamp wipers

- 4 The procedure is as described in paragraphs 1 to 3, but the washer hose must be disconnected from the nozzle on the wiper arm (see illustration).



32.4 Removing a headlamp wiper arm

33 Washer nozzles - removal and refitting

Windscreen and rear window washers

1 To remove a nozzle, carefully prise it from its location using a thin-bladed screwdriver. Disconnect the washer hose and withdraw the nozzle.

2 To refit, reconnect the washer hose to the nozzle, and push the nozzle into its locating hole.

3 The nozzles can be adjusted by inserting a pin into the jet and swivelling to the required position.

Headlamp washers

Models up to 1987

4 Remove the radiator grille panel.

5 Disconnect the washer hose from the nozzle.

6 Separate the upper and lower halves of the nozzle by prising apart with a thin-bladed screwdriver, then withdraw the nozzle halves.

7 Refitting is a reversal of removal.

8 The nozzles can be adjusted as described in paragraph 3.

Models from 1987

9 Disconnect the washer hose from the nozzle on the end of the wiper arm.

10 Prise the combined wiper blade mounting and nozzle from the wiper arm using a thin-bladed screwdriver or a pair of pliers.

11 Refitting is a reversal of removal.

12 Note that the nozzles are not adjustable.

34 Windscreen wiper motor and linkage - removal and refitting

Removal

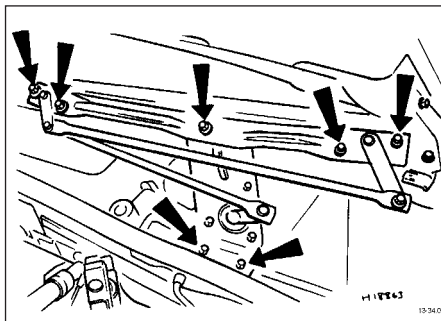
1 Disconnect the battery negative lead.

2 Remove the wiper arms.

3 Remove the windscreen cowl panel.

4 Disconnect the wiring plug from the motor.

5 Remove the seven securing screws, and withdraw the mounting bracket together with the linkage and motor (see illustration).



34.5 Windscreen wiper motor bracket securing screws (arrowed)

6 Unscrew the nut securing the link arm to the motor shaft, then remove the three securing bolts, and withdraw the motor from the mounting bracket.

Refitting

7 Refitting is a reversal of removal.

35 Windscreen/headlamp washer pump - removal and refitting

Removal

1 Where headlamp washers are fitted, a separate pump is used. The pump(s) is/are a push-fit in the base of the washer fluid reservoir (see illustration).

2 Disconnect the battery negative lead.

3 To remove a pump, syphon out the contents of the reservoir, then pull the pump from its grommet.

4 Disconnect the wiring plug and the washer hose.

Refitting

5 Refitting is a reversal of removal, using a new grommet if necessary. Use a little liquid detergent as a lubricant.

6 On completion, refill the reservoir and check for correct operation.

36 Windscreen/headlamp washer fluid reservoir - removal and refitting

1 Where headlamp washers are fitted, a combined windscreen/headlamp washer fluid reservoir is used. On models up to 1987, the reservoir is mounted on the right-hand side of the engine compartment. On models from 1987, the reservoir is mounted under the right-hand front wing, but has a filler within the engine compartment.

2 Disconnect the battery negative lead.

Models up to 1987

3 Syphon out the contents of the reservoir, and disconnect the wiring plug(s) and washer hose(s).

4 Remove the two or three reservoir retaining screws, as applicable, then withdraw the reservoir.



35.1 Windscreen washer pump - models from 1987

5 Refitting is a reversal of removal.

Models from 1987

6 Proceed as described in paragraph 3.

7 Working under the front wing, remove the three reservoir securing screws and pull the reservoir down slightly. On vehicles fitted with front foglamps, the bumper must be removed.

8 Withdraw the reservoir.

9 Refitting is a reversal of removal.

37 Rear window wiper motor - removal and refitting

Hatchback models

1 Disconnect the battery negative lead.

2 Remove the wiper arm.

3 Open the tailgate; remove the trim panel.

4 Unscrew the earth lead and disconnect the wiring plug from the motor.

5 Remove the three securing bolts and withdraw the mounting bracket and motor from the tailgate (see illustration).

6 The motor can be separated from the mounting bracket by removing the three securing bolts.

7 Refitting is a reversal of removal.

Estate models

8 The procedure is as described for Hatchback models except that the washer hose must be disconnected from the motor assembly, and the mounting bracket is secured by four bolts.

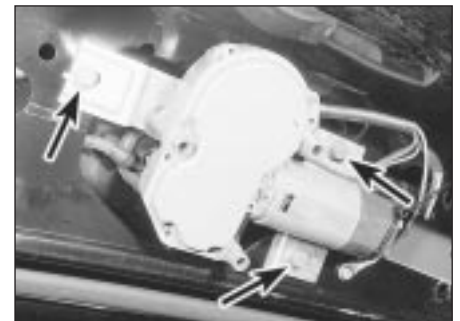
38 Rear window washer pump - removal and refitting

The procedure is as described for the windscreen/headlamp washer pump.

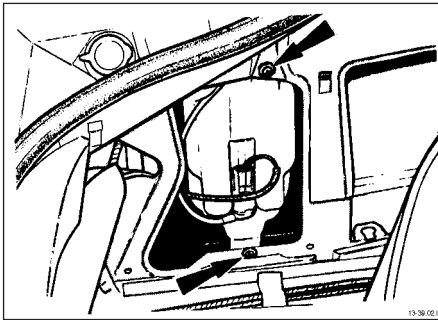
39 Rear window washer fluid reservoir - removal and refitting

Removal

1 On models from 1987, the rear window washer circuit shares the same reservoir as the windscreen/headlamp washers.



37.5 Rear window wiper motor location - mounting bracket securing bolts arrowed



39.2 Rear window washer fluid reservoir location - Hatchback models up to 1987. Securing screws arrowed

2 On models up to 1987, the reservoir is located behind the trim panel on the left-hand side of the luggage compartment (see illustration). To remove the reservoir proceed as follows.

- 3 Disconnect the battery negative lead.
- 4 Remove the trim panel.
- 5 Operate the washers to reduce the fluid level in the reservoir.
- 6 Remove the reservoir filler cap, and disconnect the wiring plug and water hose.
- 7 Remove the two securing screws and withdraw the reservoir.

Refitting

- 8 Refitting is a reversal of removal.

40 Headlamp wiper motor - removal and refitting

Note: On vehicles fitted with foglamps, the headlamp unit must be removed when the right-hand headlamp wiper motor is to be removed.

Removal

- 1 Disconnect the battery negative lead.
- 2 Disconnect the washer hose from the nozzle on the end of the wiper arm, then remove the wiper arm.
- 3 Pull the washer hose and retainer from the end of the motor shaft.
- 4 Remove the radiator grille panel.
- 5 Where applicable, prise the trim strip from the bottom of the headlamp unit for access to the wiper motor mounting bolts (see illustrations).



41.4b . . . the rear securing bolt . . .



40.5a Prise the trim strip from the bottom of the headlamp unit . . .

6 Remove the two mounting bolts, then working under the wheel arch, slide the wiper motor rearwards, disconnect the wiring plug and withdraw the motor.

Refitting

7 Refitting is a reversal of removal, but on completion adjust the free length of the washer hose between the nozzle and the retainer on the motor shaft.

41 Headlamp unit - removal and refitting

- 1 Disconnect the battery negative lead.
- 2 Remove the radiator grille panel.

Models up to 1987

- 3 Disconnect the headlamp wiring plug(s) (see illustration).



41.3 Disconnect the headlamp wiring plug - models up to 1987



40.5b . . . for access to the headlamp wiper motor mounting bolts

4 Remove the three or four headlamp securing bolts, as applicable, and the lower sliding clamp bracket bolt on the rear of the headlamp, then withdraw the headlamp (see illustrations).

5 If required, the headlamp lens can be removed by releasing the spring clips around its edge.

6 Refitting is a reversal of removal, but the headlamp securing bolts should not be tightened until the headlamp is aligned with the front grille panel.

7 On completion, check the headlamp alignment.

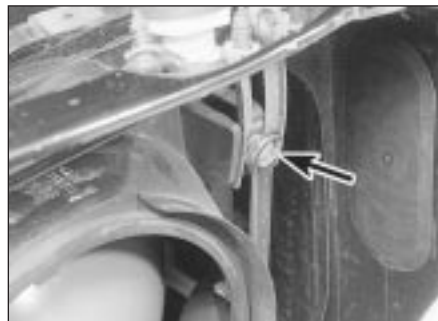
Models from 1987

8 Disconnect the headlamp wiring plug(s) (see illustration).

9 Where applicable, remove the headlamp wiper motor.



41.4a Remove the upper headlamp securing bolts (arrowed) . . .



41.4c . . . and the lower sliding clamp bracket bolt . . .



41.4d . . . then withdraw the headlamp unit - models up to 1987



41.8 Disconnect the headlamp wiring plug - models from 1987

10 Remove the headlamp securing bolt and the two nuts, then release the anchor spring and withdraw the direction indicator lamp unit (see illustrations).

11 Pull the headlamp forwards, then swivel it and remove it sideways.

12 If required, the headlamp lens can be removed by releasing the spring clips around its edge.

13 Refitting is a reversal of removal.

14 On completion, check the headlamp alignment.



41.10a Remove the headlamp rear securing bolt . . .

(33 feet) in front of, and at right-angles to, a wall or garage door.

3 Draw a vertical line on the wall corresponding to the centre line of the car. The position of the line can be ascertained by marking the centre of the front and rear screens with crayon then viewing the wall from the rear of the car.

4 Complete the lines shown (see illustration).

5 Switch the headlamps on dipped beam and adjust them as necessary using the knobs located behind the headlamps (see illustration). Cover the headlamp not being checked with cloth.



41.10b . . . the upper securing nut . . .



41.10c . . . and the side securing nut - models from 1987

42 Headlamps - alignment

1 It is recommended that the headlamp alignment is carried out by a Ford dealer using specialist beam setting equipment. However, in an emergency the following procedure will provide an acceptable light pattern.

2 With the vehicle unladen, with a full tank of fuel, and with the tyres correctly inflated, position the vehicle approximately 10 metres

43 Rear lamp unit - removal and refitting

1 Disconnect the battery negative lead.

Saloon and Hatchback models

2 Working inside the luggage compartment, press the plastic retaining tab and remove the

bulbholder assembly.

3 Disconnect the wiring plug from the bulbholder.

4 Unscrew the securing nuts, and withdraw the rear lamp unit from outside the vehicle. Recover the gasket.

5 Refitting is a reversal of removal.

Estate models

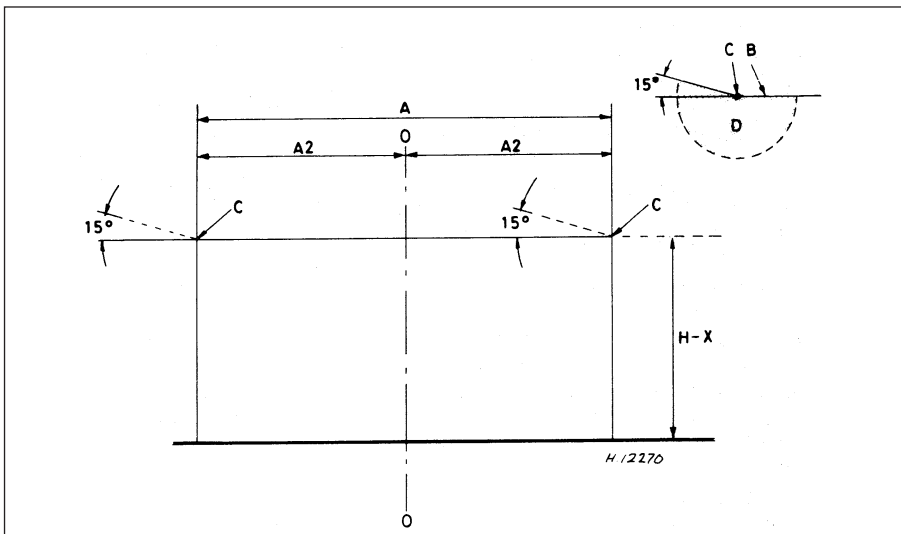
6 Working inside the luggage compartment, turn the retaining tabs a quarter-turn and remove the rear side trim panel cover.

7 Push out the retaining tabs and withdraw the bulbholder.

8 Disconnect the wiring plug from the bulbholder.

9 Unscrew the four securing nuts, and withdraw the rear lamp unit from outside the vehicle. Recover the gasket.

10 Refitting is a reversal of removal.



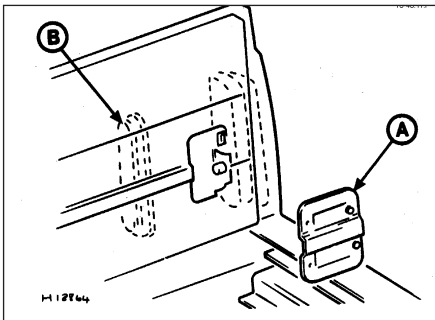
42.4 Headlamp alignment chart

A Distance between headlamp centres
B Light/dark boundary
C Centre of dipped beam
D Dipped beam pattern

H Height of headlamp centre from ground
X = 160.0 mm (6.3 in) for all models up to 1987
 120.0 mm (4.7 in) for all models from 1987



42.5 Adjusting the headlamp alignment



43.11 Rear lamp wiring cover (A) and rear lamp cover (B) - P100 models

P100 models

- 11 Remove the two securing screws and detach the rear lamp wiring cover from the side of the cargo area (see illustration).
- 12 Working through the cargo area aperture, unscrew the two wing nuts and remove the rear lamp cover.
- 13 Disconnect the wiring plug from the back of the lamp unit.
- 14 Unscrew the four securing nuts and withdraw the lamp unit from outside the cargo area. Recover the gasket.
- 15 Refitting is a reversal of removal, but ensure that the plastic washer between the wiring plug and the lamp unit is seated correctly, and make sure that the wiring protective sheath is seated correctly in the opening in the lamp cover.

44 Front direction indicator lamp unit - removal and refitting

- 1 Disconnect the battery negative lead.

Models up to 1987

Low specification

- 2 Push the lamp unit rearwards into the bumper until the plastic retaining tang is heard to click in the locked position.
- 3 Withdraw the lamp unit from the front of the bumper and disconnect the wiring plug (see illustration).
- 4 Commence refitting by reconnecting the wiring plug.
- 5 Release the retaining tang, then refit the lamp unit to the bumper, ensuring that the pivot on the lamp unit engages with the slot in the bumper. Reconnect the battery.

High specification

- 6 Press the release lever at the top of the lamp unit upwards, and withdraw the unit from the bumper. Disconnect the wiring plug.
- 7 To refit, reconnect the wiring plug, then push the lamp unit into the bumper until it locates securely. Reconnect the battery.

All models from 1987

- 8 Working in the engine compartment, unhook the lamp unit anchor spring from its



44.3 Withdrawing a front direction indicator lamp unit - "low specification" models up to 1987

anchorage next to the headlamp, then withdraw the lamp unit sideways from its recess (see illustrations). Disconnect the bulbholder by twisting it anti-clockwise.

9 Refitting is a reversal of removal, but ensure that the locating pins on the lamp unit engage with the corresponding holes in the headlamp mounting panel.

45 Front direction indicator side repeater lamp - removal and refitting

- 1 Disconnect the battery negative lead.

Models up to 1987

- 2 To improve access, turn the steering onto full lock.
- 3 Remove the relevant wheel arch liner.
- 4 Working under the wheel arch, depress the retaining tabs and withdraw the lamp through the outside of the wing (see illustration). Disconnect the bulbholder by twisting it anti-clockwise.
- 5 Refitting is a reversal of removal.

Models from 1987

- 6 To improve access, turn the steering onto full lock.
- 7 Working in the engine compartment, disconnect the wiring plug.
- 8 Remove the relevant wheel arch liner.
- 9 Working under the wheel arch, twist the lamp clockwise and withdraw it through the



44.4 Withdrawing a front direction indicator side repeater lamp - models up to 1987



44.8a Unhook the front direction indicator lamp unit anchor spring . . .



44.8b . . . and withdraw the lamp unit

outside of the wing. Feed the wiring through the holes in the wing panels.

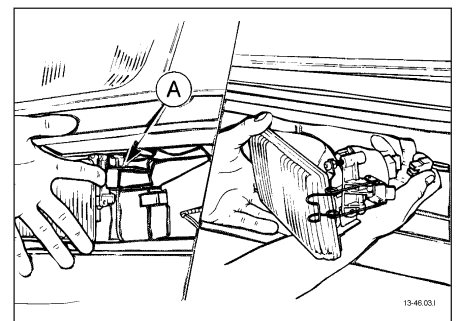
10 Refitting is a reversal of removal.

46 Front foglamps - removal and refitting

- 1 Disconnect the battery negative lead.

Models up to 1987

- 2 Remove the relevant front direction indicator lamp unit.
- 3 Release the retaining catch on the inside edge of the lamp, then withdraw the lamp from the bumper and disconnect the wiring plug (see illustration).
- 4 Refitting is a reversal of removal.



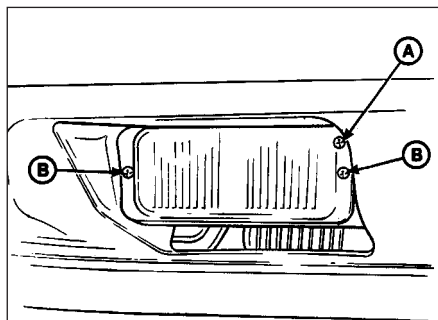
46.3 Front foglamp removal - models up to 1987
A Retaining catch

Models from 1987

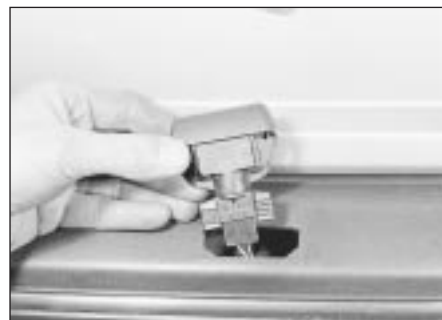
5 Remove the two securing screws, then withdraw the lamp forwards and disconnect the two wiring plugs.

6 Refitting is a reversal of removal, but where necessary use a new gasket between the lamp and bumper.

7 On completion, the vertical alignment of the foglamp must be adjusted. For the foglamps, dimension "X" (see illustration, 42.4) should be taken as 220.0 mm (8.7 in). The adjuster screw is located on the inside edge of the lamp above the securing screw (see illustration).



46.7 Front foglamp adjuster screw (A) and securing screws (B) - models from 1987



47.2 Removing a rear number plate lamp - Saloon, Hatchback and Estate models

47 Rear number plate lamp - removal and refitting

1 Disconnect the battery negative lead.

Saloon, Hatchback and Estate models

2 To remove a lamp, simply prise it from the bumper using a thin-bladed screwdriver, and disconnect the wiring plug (see illustration).

3 Refitting is a reversal of removal.

P100 models

4 Working behind the rear crossmember, pull the wiring plug from its clip and disconnect it.

5 Pull the lamp cover from the rubber housing, then pull the rubber housing and the wiring from the crossmember.

6 Refitting is a reversal of removal.

48 Exterior lamp bulbs - renewal

Note: The glass envelopes of the headlamp, auxiliary driving lamp and front foglamp bulbs must not be touched with the fingers. If the glass is accidentally touched, it should be washed with methylated spirits and dried with a soft cloth. Failure to observe this procedure may result in premature bulb failure.

1 Disconnect the battery negative lead.

Headlamps

2 Working in the engine compartment, remove the headlamp rear cover by turning it anti-clockwise (see illustration).

3 Pull the wiring plug from the base of the bulb, then release the spring clip, grasp the bulb by its contacts and carefully withdraw it (see illustrations). Do not touch the bulb glass.

4 Refitting is a reversal of removal, but on models up to 1987, refit the headlamp rear cover by aligning the arrow on the cover with the depression on the top of the headlamp unit and turning the cover clockwise until the arrow aligns with the lower depression. On models from 1987, the word "OBEN " or "TOP" on the rear cover should be exactly at the top after refitting.

Sidelamps

5 Working in the engine compartment, remove the headlamp rear cover by turning it anti-clockwise.

6 Pull the sidelamp bulbholder from its location in the headlamp reflector (see

illustration). On "high specification" models up to 1987 a retaining tab must be depressed before withdrawing the bulbholder. Note that the rubber sleeve should be left in position in the reflector.

7 Refitting is as described in paragraph 4.

Auxiliary driving lamps

Models up to 1987

8 Twist the cover on the top of the headlamp unit anti-clockwise and remove it to expose the bulb (see illustration).

9 Release the bulb from the two clips, then disconnect the wiring and remove the bulb. Do not touch the bulb glass (see illustration).

10 Refitting is a reversal of removal.

Models from 1987

11 Release the spring clip securing the cover to the rear of the headlamp unit, then remove the cover (see illustration).



48.2 Remove the headlamp rear cover



48.3a Pull off the wiring plug . . .



48.3b Release the spring clip and withdraw the headlamp bulb



48.6 Removing a sidelamp bulbholder



48.8 Auxiliary drive lamp bulb cover (arrowed) - models up to 1987



48.9 Withdraw the auxiliary driving lamp bulb from the headlamp unit - models up to 1987

12 Disconnect the wiring from the bulb, then release the spring clip and withdraw the bulb. Do not touch the bulb glass.

13 Refitting is a reversal of removal.

Front direction indicator lamps

Models up to 1987

14 Remove the lamp unit.

15 Twist the bulbholder anti-clockwise and withdraw it from the rear of the lamp. The bulb is a bayonet fit in the bulbholder (see illustration).

16 Refitting is a reversal of removal.

Models from 1987

17 Remove the lamp unit.

18 Release the bulbholder by pressing it and turning clockwise, then withdraw the bulb from the bulbholder (see illustration).

19 Refitting is a reversal of removal.

Front direction indicator side repeater lamps

Models up to 1987

20 To improve access, turn the steering onto full lock.

21 Remove the relevant wheel arch liner.

22 Working under the wheel arch, twist the bulbholder anti-clockwise and withdraw it from the lamp. The bulb is a push-fit in the bulbholder.

23 Refitting is a reversal of removal.

Models from 1987

24 Remove the lamp unit.



48.29 Front foglamp bulb retaining spring clip - models from 1987



48.11 Auxiliary driving lamp bulb location - models from 1987

25 Twist the bulbholder anti-clockwise to remove it from the lamp. The bulb is a push-fit in the bulbholder.

26 Refitting is a reversal of removal.

Front foglamps

27 Remove the foglamp.

28 On models up to 1987, remove the bulb cover from the rear of the lamp, then release the two spring clips, disconnect the wiring and withdraw the bulb. Do not touch the bulb glass.

29 On models from 1987, release the spring clip and pull the bulb from the bulbholder. Do not touch the bulb glass (see illustration).

30 Refitting is a reversal of removal.

Rear lamp unit

Saloon and Hatchback models

31 Working inside the luggage compartment, press the plastic retaining tab and remove the bulbholder assembly. The bulbs are a bayonet fit in the bulbholder (see illustrations).

32 Refitting is a reversal of removal.

Estate models

33 Working inside the luggage compartment, turn the retaining tabs a quarter-turn and remove the rear side trim panel cover.

34 Push out the retaining tabs and withdraw the bulbholder. The bulbs are a bayonet fit in the bulbholder.

35 Refitting is a reversal of removal.

P100 models

36 Remove the two securing screws and detach the rear lamp wiring cover from the side of the cargo area.



48.31a Press the plastic retaining tab to release the rear lamp bulbholder assembly - Saloon and Hatchback models



48.15 Removing a front direction indicator lamp bulb - models up to 1987



48.18 Removing a front direction indicator lamp bulb - models from 1987

37 Working through the cargo area aperture, unscrew the two wing nuts and remove the rear lamp cover.

38 Twist the relevant bulbholder anti-clockwise to remove it from the lamp. The bulb is a bayonet fit in the bulbholder.

39 Refitting is a reversal of removal, but ensure that the wiring protective sheath is seated correctly in the opening in the lamp cover.

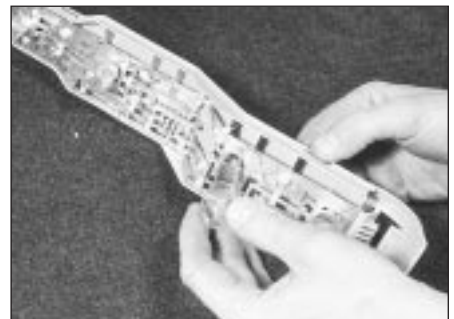
Rear number plate lamp

Saloon, Hatchback and Estate models

40 Remove the lamp unit.

41 Twist the bulbholder anti-clockwise to remove it from the lamp. The bulb is a push-fit in the bulbholder (see illustration).

42 Refitting is a reversal of removal.



48.31b Removing a bulb from the rear lamp bulbholder - Saloon and Hatchback models



48.41 Removing a rear number plate lamp bulb - Saloon, Hatchback and Estate models

P100 models

- 43 Pull the lamp cover from the rubber housing to expose the bulb. The bulb is a bayonet fitting in the bulbholder.
- 44 Refitting is a reversal of removal.

49 Electric window components - removal and refitting

- 1 Disconnect the battery negative lead.

Switches

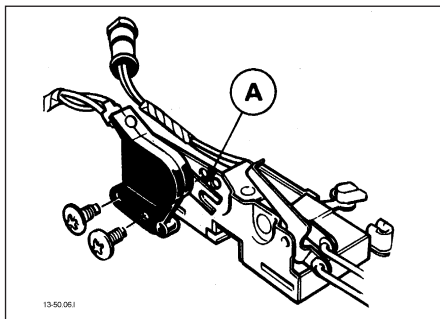
- 2 Prise the switch from its location using a thin-bladed screwdriver, and disconnect the wiring plug (see illustration).
- 3 Refitting is a reversal of removal.

Operating motors

- 4 Remove the window regulator.
- 5 Remove the three securing bolts, and withdraw the motor from the regulator assembly (see illustration).
- 6 Refitting is a reversal of removal, but ensure that the drive gear is correctly meshed with the regulator.

50 Central door locking components - operation, removal and refitting

Note: If a central locking solenoid or motor is to be renewed due to jamming or overheating, the central locking relay must be renewed at



50.6 Driver's door central locking switch - models up to 1987
A Switch lever cut-out



49.2 Disconnecting the wiring plug from a centre console-mounted electric window switch - models from 1987

the same time even if it is believed to be working correctly. Before starting work on the central locking system, unlock all the doors and the tailgate/boot. Make sure that the keys are outside the vehicle before reconnecting the battery on completion of work.

Operation

Models up to 1987

- 1 The central locking system is activated by turning the key in the driver's door lock, and the locks are operated by solenoids.

Models from 1987

- 2 The system is activated by turning the key in either of the front door locks, and the locks are operated by electric motors.

Removal and refitting

- 3 Disconnect the battery negative lead.

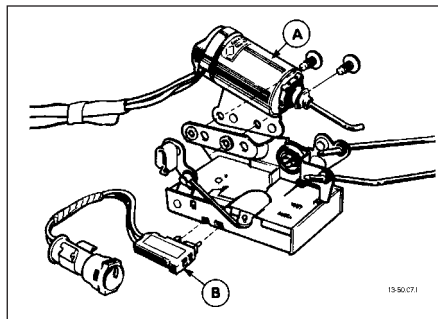
Models up to 1987

Switch (driver's door lock)

- 4 Remove the door lock.
- 5 Remove the two securing screws, then withdraw the switch from the lock assembly and disconnect the wiring plug.
- 6 Refitting is a reversal of removal, but ensure that the cut-out in the switch lever engages with the lock lever (see illustration).

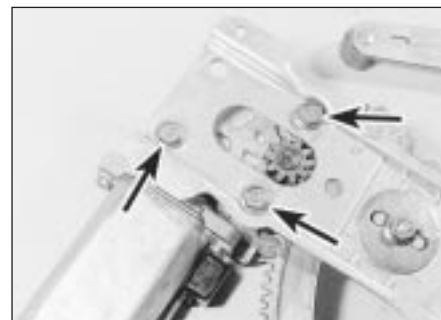
Solenoids (passenger and rear door locks)

- 7 Remove the door lock (see illustration).
- 8 Remove the two securing screws, then disconnect the solenoid operating rod and the



50.7 Central door locking assembly - models up to 1987

- A Solenoid
- B Door ajar switch (not fitted to all models)



49.5 Electric window motor securing bolts (arrowed)

wiring plug and withdraw the solenoid from the lock assembly.

- 9 Refitting is a reversal of removal.

Solenoid (tailgate lock)

- 10 Open the tailgate and remove the trim panel.
- 11 Disconnect the solenoid wiring plug and earth lead, and the operating rod, then remove the two securing screws and withdraw the solenoid from the tailgate (see illustration).
- 12 Refitting is a reversal of removal.

Models from 1987

Motors (door locks)

- 13 Remove the door inner trim panel.
- 14 Remove the retaining screws and disconnect the wiring plug and the motor operating rod, then withdraw the motor from the door.
- 15 Refitting is a reversal of removal.

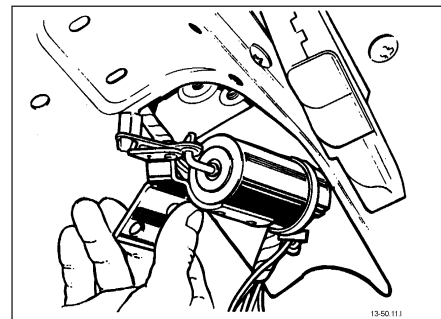
Motor (tailgate and boot lid locks)

- 16 Open the tailgate/boot lid and where applicable remove the trim panel.
- 17 Remove the retaining screws and disconnect the wiring plug and the motor operating rod, then withdraw the motor from the tailgate/boot.
- 18 Refitting is a reversal of removal.

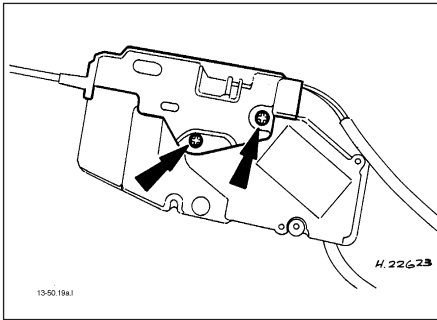
Models from 1990

Motors (door locking)

- 19 On models from 1990, the door locking motors are incorporated in the door lock units (see illustrations).
- 20 To remove a motor, first remove the door lock.



50.11 Removing a tailgate lock solenoid - Hatchback models up to 1987

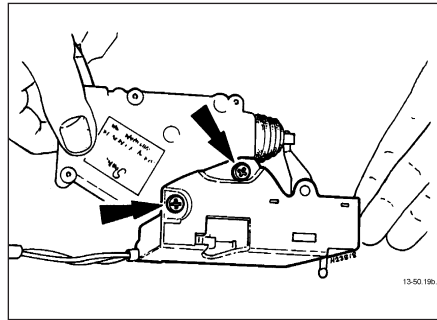


50.19a Front door central locking motor securing screws (arrowed) - models from 1990

- 21 Remove the two securing screws, and detach the motor from the lock assembly.
- 22 Refitting is a reversal of removal, ensuring that the motor operating rod engages with the lock lever.

51 Anti-theft alarm - location, removal and refitting

Note: The alarm system has a self-diagnosis function, which allows a Ford dealer to carry out fault diagnosis, using suitable specialist equipment. In the event of a problem with the alarm system, it is advisable not to tamper with the components until appropriate fault diagnosis has been carried out.



50.19b Rear door central locking motor securing screws (arrowed) - models from 1990

Location

- 1 From 1990, certain models are fitted with an anti-theft alarm (see illustration).
- 2 The alarm system consists of a control module mounted behind the driver's side facia; trip switches fitted to the doors, tailgate/boot lid, and bonnet; activating switches fitted to the front door locks; an additional horn mounted at the bulkhead next to the battery and an indicator light mounted on the top of the facia.

Module - removal and refitting

- 3 Disconnect the battery negative lead.
- 4 Release the carpet trim panel from under the driver's side facia.

- 5 Reach up behind the facia and locate the control module. Release the plastic retaining clips using a screwdriver, and lower the module.
- 6 Disconnect the wiring plug and withdraw the module.
- 7 Refitting is a reversal of removal.

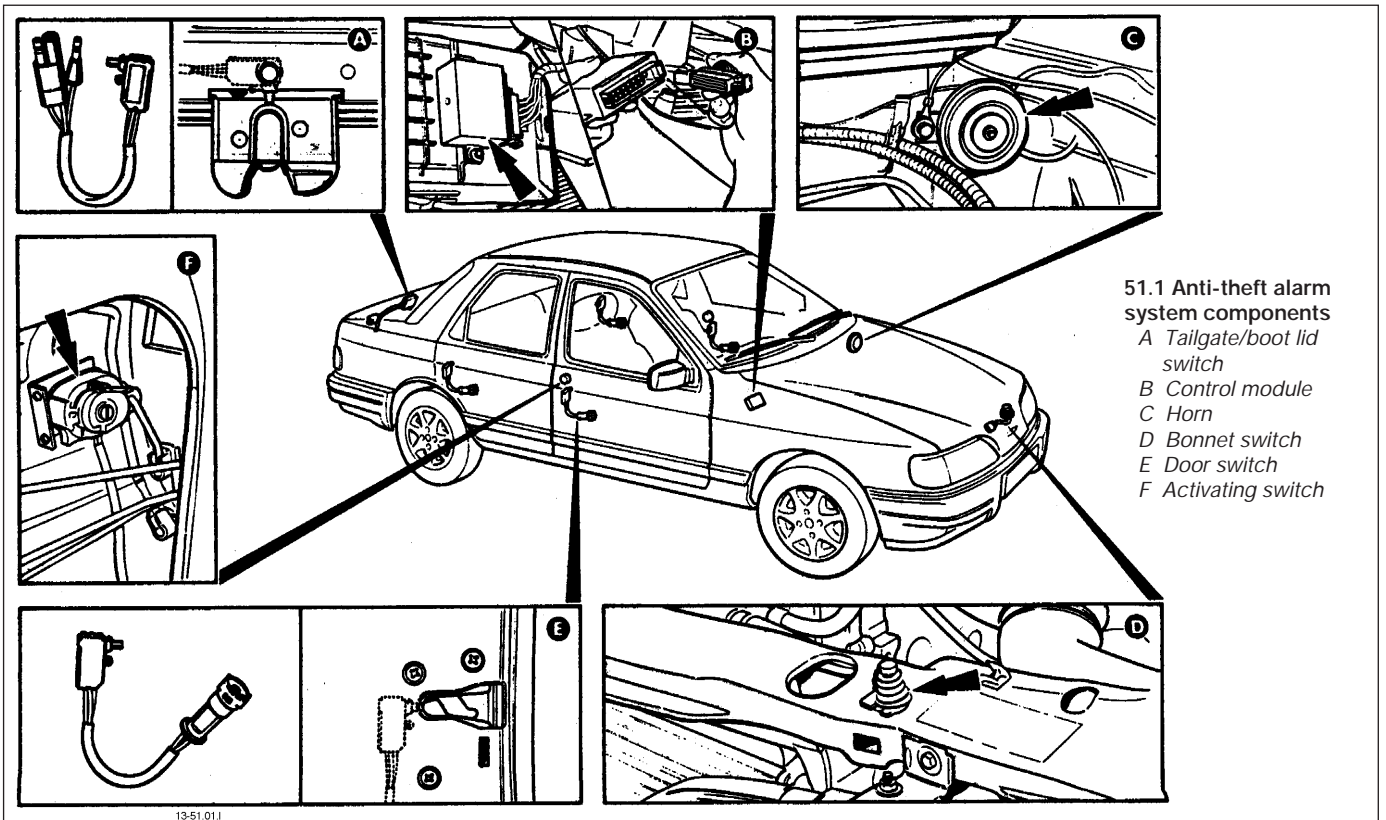
52 Seat heating pad - removal and refitting

Removal

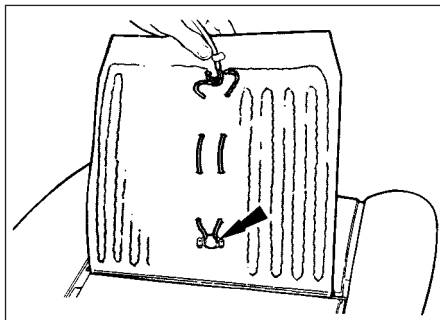
- 1 Disconnect the battery negative lead.
- 2 Remove the seat.
- 3 Remove the seat cushion trim or backrest trim as necessary.
- 4 Note which way round the pad is fitted, then remove the wire clips and adhesive tape which secure it to the seat. Retrieve the tie-rod and fit it to the new pad.

Refitting

- 5 Fit the new pad with the thermostat facing the cushion foam (see illustration). Secure the pad with wire clips and tape, making sure that it is not too tight - it must be able to flex when sat on.
- 6 Refit the cushion or backrest trim, as applicable, being careful not to trap or kink the pad.
- 7 Refit the seat, reconnect the wiring and check the pads for correct operation.



51.1 Anti-theft alarm system components
 A Tailgate/boot lid switch
 B Control module
 C Horn
 D Bonnet switch
 E Door switch
 F Activating switch



52.5 Seat heating pad

Thermostat (arrowed) must face foam



53.4 Pull the base of the aerial from the rubber bush (arrowed)



53.5 Removing an electric aerial - Saloon model

53 Radio aerial (exterior-mounted) - removal and refitting



1 On models fitted with an electric aerial, disconnect the battery negative lead.

Saloon and Estate models

2 Remove the right-hand side trim panel from the luggage compartment.

3 Working outside the vehicle, unscrew the nut and remove the spacer and seal from the base of the aerial.

4 Working inside the luggage compartment, either unscrew the aerial bracket securing screw and slide the bracket from the aerial tube, or pull the base of the aerial from the rubber bush in the bracket, as applicable (see illustration).

5 Ensure that the aerial is fully retracted, then pull it through the hole in the bodywork into the luggage compartment (see illustration).

6 The aerial lead may be a push-fit in the base of the aerial, or may be secured by a knurled nut. Disconnect the aerial lead and where applicable, disconnect the wiring from the electric motor. Note that the aerial lead runs through the roof. If it is necessary to renew the lead, it may prove easier to leave the old lead in place and run a new one under the carpet. Follow existing wiring runs where possible.

7 Refitting is a reversal of removal.

Hatchback models

8 Remove the right-hand rear seat side cushion.

9 Remove the rear parcel shelf.

10 On "high specification" models, lift the seat catch release lever, push out the pin securing the link rod to the lever and disconnect the link rod.

11 Remove the securing screws from the rear parcel shelf support (nine screws on models up to 1987, eight screws from 1987 onwards). Remove the rear parcel shelf support.

12 Remove the side trim panel from the luggage compartment.

13 Proceed as described in paragraphs 3 to 7 inclusive.

P100 models

14 Pull off the plastic trim cover and unscrew the aerial securing nut.

15 Withdraw the aerial assembly, and carefully prise the base seal from the roof panel.

16 The aerial lead runs across the roof panel under the headlining, and down the right-hand front pillar to the radio unit. Renewal is straightforward, but the front section of the headlining must be released for access and a length of string should be tied to the end of the aerial lead before removal to aid routing when refitting.

17 The aerial rod can be renewed by simply unscrewing it from the base.

18 Refitting is a reversal of removal.

54 Integral heated rear window/radio aerial amplifier - removal and refitting



1 Disconnect the battery negative lead.

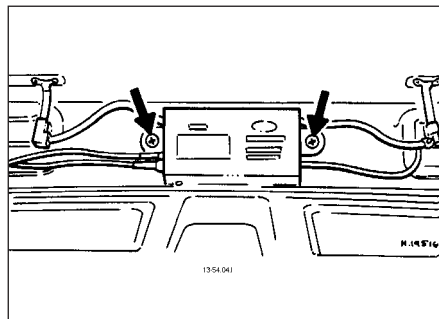
Saloon models

2 Remove both rear seat side cushions.

3 Remove the securing screws and withdraw the rear parcel shelf.

4 Make a note of the wiring connections for use when refitting, then disconnect the wiring, remove the two securing screws, and withdraw the amplifier unit (see illustration).

5 Refitting is a reversal of removal.



54.4 Integral heated rear window/radio aerial amplifier securing screws (arrowed) - Saloon models

Hatchback models

6 Unclip the tailgate trim panel.

7 Remove the amplifier bracket securing screws, and withdraw the amplifier through the tailgate panel aperture (see illustration).

8 Make a note of the wiring connections for use when refitting, then disconnect the wiring and remove the amplifier unit.

9 Refitting is a reversal of removal.

Estate models

10 Unclip the tailgate trim panel.

11 Make a note of the wiring connections for use when refitting, then disconnect the wiring, remove the four securing screws, and detach the loudspeaker/amplifier bracket assembly from the tailgate (see illustration).

12 Refitting is a reversal of removal.

55 Loudspeakers - removal and refitting



1 Disconnect the battery earth lead.

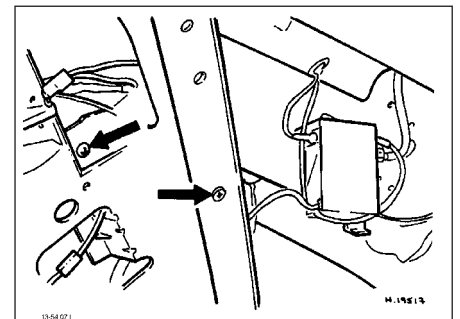
Facia panel-mounted speakers

Upper

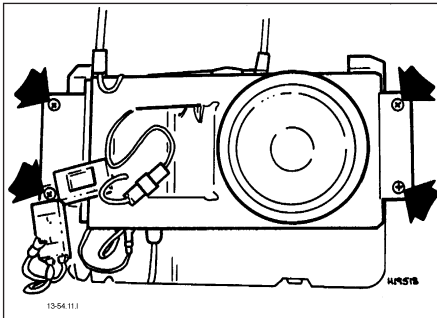
2 Prise the speaker grille from its four retaining clips in the facia using a thin-bladed screwdriver.

3 Remove the four securing screws, disconnect the wiring, and pull the loudspeaker from the facia panel.

4 Refitting is a reversal of removal.



54.7 Integral heated rear window/radio aerial amplifier bracket securing screws (arrowed) - Hatchback models



54.11 Loudspeaker/integral heated rear window/radio aerial amplifier bracket securing screws (arrowed) - Estate models

Lower

- 5 Remove the lower facia panel.
- 6 Remove the four securing screws, disconnect the wiring, and pull the loudspeaker from the facia panel.
- 7 Refitting is a reversal of removal.

Rear parcel shelf-mounted speakers

Saloon models

- 8 Working in the luggage compartment, remove the single securing screw, then lift the loudspeaker into the passenger compartment and disconnect the wiring. Withdraw the loudspeaker.
- 9 Note that it is important not to disturb the loudspeaker mounting gasket or retainer.
- 10 Refitting is a reversal of removal, but ensure that the wiring does not touch the retainer, shelf, or speaker, to prevent any audible rattles.

Hatchback models

- 11 Working under the parcel shelf, remove the four securing screws, disconnect the wiring, and withdraw the loudspeaker.
- 12 Refitting is a reversal of removal.

Door-mounted speakers

- 13 Remove the door inner trim panel.
- 14 Remove the four securing screws, then withdraw the loudspeaker from the door and disconnect the wiring. Remove the loudspeaker.
- 15 Do not remove the loudspeaker from the moulding, as the two are a sealed assembly.
- 16 Refitting is a reversal of removal.

Tailgate-mounted speakers - Estate models

- 17 Remove the tailgate trim panel.
- 18 Remove the four securing screws, disconnect the wiring and withdraw the loudspeaker. Note that on models with an integral heated rear window/radio aerial, the aerial amplifier unit is combined with one of the loudspeaker units.



57.4 Radio/cassette player securing tangs (arrowed) viewed from the rear of the unit - standard fixing

19 Refitting is a reversal of removal.

High frequency units

- 20 These units are used to reproduce high frequencies only, and incorporate an electronic filter network which must not be disconnected or bypassed. The units are located in the lower facia panels.
- 21 The removal and refitting procedure is as described for the lower facia panel-mounted loudspeakers earlier in this Section, but take care not to damage the extremely fragile speaker cones.

56 Radio/cassette player power amplifier - removal and refitting



Removal

- 1 Some "high specification" models are fitted with an audio power amplifier, which is mounted as a separate unit beneath the radio/cassette unit. To remove the unit proceed as follows.
- 2 Disconnect the battery negative lead.
- 3 Remove the two screws under the top edge of the power amplifier unit.
- 4 Slide the unit forwards from the facia panel, until the wiring plugs can be disconnected. Disconnect the wiring plugs and remove the unit.

Refitting

- 5 Refitting is a reversal of removal.

57 Radio/cassette player - removal and refitting



Standard fixing

- 1 Disconnect the battery negative lead.
- 2 Pull off the two control knob assemblies.
- 3 Release the trim panel by unscrewing the two securing nuts from the control spindles. Remove the trim panel.



57.10 Removing a radio/cassette player using special tools - DIN fixing

4 Using a hooked instrument, pull the mounting plate securing tangs towards the centre of the radio/cassette player, then slide the unit forwards from the facia panel (see illustration).

- 5 Disconnect the wiring plugs and the aerial lead, then remove the unit.
- 6 Remove the plastic support bracket from the rear of the unit, and unscrew the nuts and washers from the control spindles to remove the mounting plate from the front of the unit.
- 7 Refitting is a reversal of removal.

DIN fixing

- 8 An increasing number of radio/cassette players have DIN standard fixings. Two special tools, obtainable from in-car entertainment specialists, are required for removal.
- 9 Disconnect the battery negative lead.
- 10 Insert the tools into the holes in the front of the radio/cassette player and push them until they snap into place. Pull the tools outwards to release the unit (see illustration).
- 11 Pull the unit forwards and disconnect the wiring plugs and the aerial lead. Remove the unit from the facia panel.
- 12 To refit the radio/cassette player, reconnect the wiring and the aerial lead, then simply push the unit into its bracket until the retaining lugs snap into place.

58 Wiring diagrams - general information

Each wiring diagram covers a particular system of the appropriate vehicle; as indicated in each caption. Carefully read the Key to each diagram before commencing work.

13•22 Wiring diagrams

NOTES:

- All diagrams are divided into numbered circuits depending upon their function e.g Diagram 2 : Exterior lighting all models.
- Some components may appear on more than one diagram so their positions are given in coded form in the key below e.g. 2/A1 denotes a component on diagram 2 grid location A1.
- Feed wires are coloured red (black when switched) and originate from diagram 1. All other diagrams feed from fuse connections or common feeds.
- Earth wires on all diagrams are coloured brown.
- The tables below show where common feeds and common earths interconnect between diagrams.
- Not all items are fitted to all models.
- Brackets show how the circuit may be connected in more than one way.

COMMON
EARTH
POINT

DIAGRAM/
GRID REF.

G1004	2/C1 4/B1 4/B5 4a/B1
G1005	1/R8 2/C8 4/B4 4/B8 4a/B8
G1007	1/K1 2/E2 2a/E2 3/F2 3a/F3 4/K2 4a/C2
G1009	1/F1 3/E3
G1010	1/M5 2/M6 3a/M5
G1014	4a/M6 3/L7 3a/L6

FUSE RATING CIRCUIT

1	30A	Electric Windows
2	30A	Heated Rear Window, Heated Mirrors
3	10A	Wiper
4	30A	Heater Blower, Rear Wiper Motor, W/Screen Washer
5	30A	Headlamp Washer
6	15A	Horn - Steering Wheel Switch
7	15A	Driving Lamps
8	10A	Clock, Wiper Intermit., Warning Lamps
9	15A	Flasher, Stop Lamp, Reversing Lamp
10	15A	Front Fog Lamp
11	30A	Door Locking, Tailgate Release
12	25A	Interior Lights, Clock, Cigar Lighter
13	10A	Hazard, Horn - Multifunction Lever
14	10A	LH High Beam
15	10A	RH High Beam
16	10A	LH Low Beam, Rear Fog Lamp
17	10A	RH Low Beam
18	10A	LH Side, Licence, Engine Lamp
19	10A	RH Side, Glove Box, Switch Illumination
20		Free
21	1A	Fuel Computer
22	20A	Fuel Injection

Wire Colours

B	Blue	Rs	Pink
Bk	Black	S	Grey
Bn	Brown	V	Violet
Gn	Green	W	White
R	Red	Y	Yellow

COMMON FEED	DESCRIPTION	DIAGRAM/ GRID REF.
SI021	COMMON IGNITION FEED	1/L1 2/H3 3/J2 4a/H2
SI022	COMMON BATTERY FEED	1/J2 2/H2

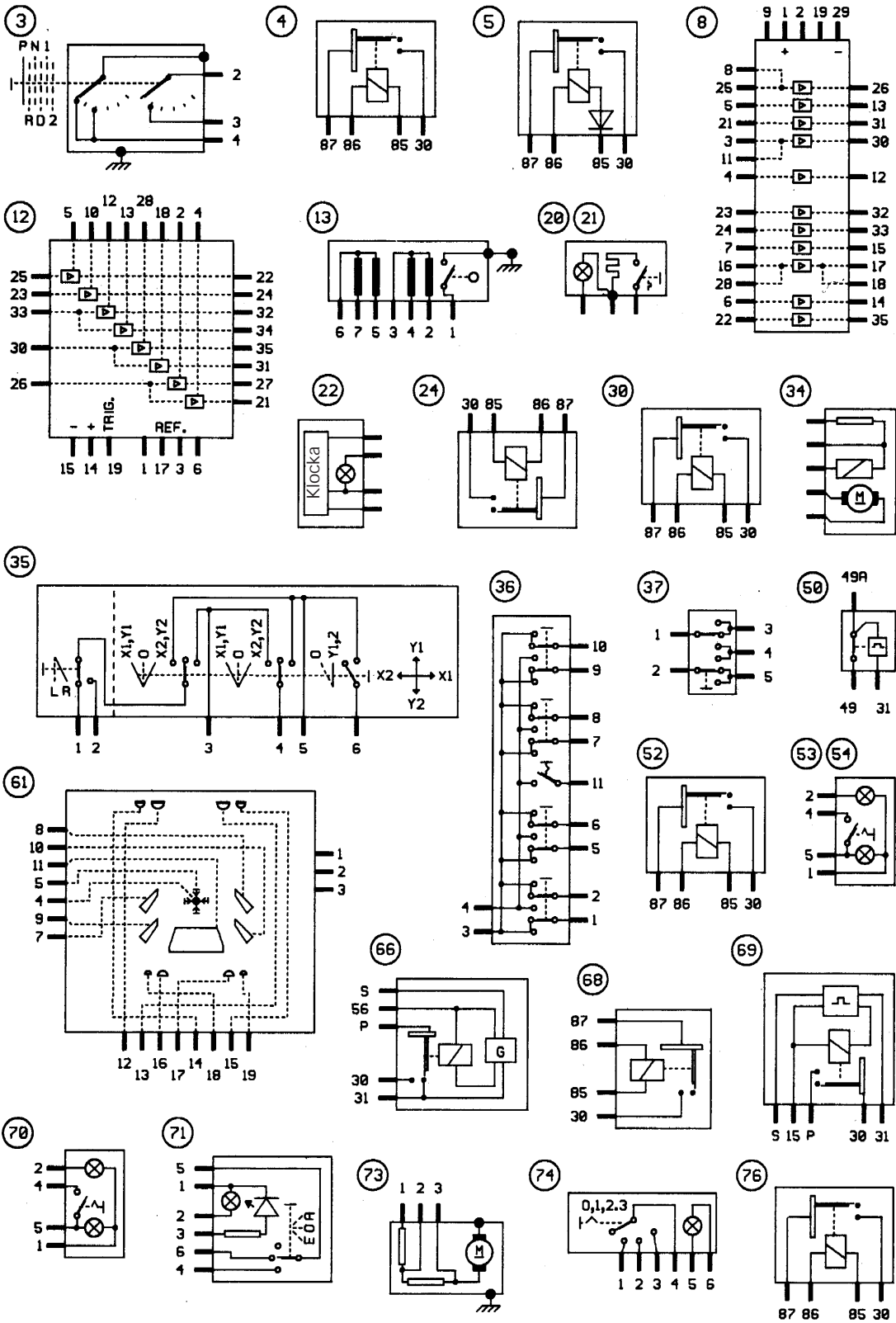
ITEM	DESCRIPTION	DIAGRAM/ GRID REF.	ITEM	DESCRIPTION	DIAGRAM/ GRID REF.
1	Alternator	1/R3	14	Central Locking Actuator LH Front	3a/G8
2	Ashtray Illumination	2a/G5	15	Central Locking Actuator LH Rear	3a/L8
3	Auto. Trans. Inhibitor Switch	1/G4	16	Central Locking Actuator RH Rear	3a/L1
4	Auto. Trans. Relay	2/E5	17	Central Locking Actuator Tailgate	3a/M5
5	Auto. Trans. Relay (Only 2.0 OHC With Elec. Aerial, From 1985)	1/H2	18	Central Locking Relay	3a/H6
6	Auto. Trans. Selector Illumination	1/H2	19	Central Locking Switch	3a/H1
7	Auxiliary Warning Module (Low Series)	2a/J4	20	Cigar Lighter Front	2a/F5
8	Auxiliary Warning Module (High Series)	4/J4	21	Cigar Lighter Rear	2a/K5
		4/H7	22	Clock	2a/F6
		4a/G5	23	Coolant Temp. Sensor	1/B4 1/B7
9	Battery	1/G7			1/F5
10	Brake Pad Sender LH	4/D4	24	Dip Beam Relay (From 1985)	2/C5
		4/D8	25	Distributor	1/D1 1/D3 1/D5
11	Brake Pad Sender RH	4/D1			1/E7
		4/D5			
12	Bulb Failure Module	4a/H6			
13	Carburettor Stepper Motor	1/C7			

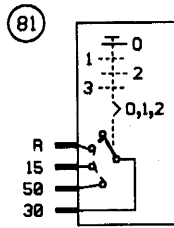
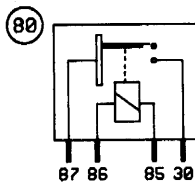
Notes, tables, wire colours and key to wiring diagrams. Models up to 1987

ITEM	DESCRIPTION	DIAGRAM/ GRID REF.	ITEM	DESCRIPTION	DIAGRAM/ GRID REF.
26	Door Ajar Sender LH Front	4a/F8	81	Ignition Switch	1/M1
27	Door Ajar Sender LH Rear	4a/K8	82	Instrument Cluster	1/M3
28	Door Ajar Sender RH Front	4a/F1			2/F4
29	Door Ajar Sender RH Rear	4a/K1			2a/E3
30	Driving Lamp Relay	2/C4			4a/H3
31	Econolight Switch (Amber)	1/G8	83	Instrument Illumination Control	2a/F3
32	Econolight Switch (Red)	1/H8			4a/J4
33	Electric Choke	1/F4	84	Interior Lamp Delay Relay	2a/B3
34	Electric Door Mirror	3a/E1	85	Interior Lamp Door Switch LH Front	2a/E8
		3a/E8	86	Interior Lamp Door Switch LH Rear	2a/J8
35	Electric Mirror Control Switch	3a/F2	87	Interior Lamp Door Switch RH Front	2a/E1
36	Electric Window Control Switch Front	3a/H4	88	Interior Lamp Door Switch RH Rear	2a/J1
37	Electric Window Control Switch Rear	3a/K1	89	Interior Lamp/Switch Front	2a/H4
		3a/K8	90	Interior Lamp/Switch Rear	2a/K4
38	Electric Window Motor LH Front	3a/F8	91	Licence Plate Lamp	2/M3
39	Electric Window Motor LH Rear	3a/J8			2/M6
40	Electric Window Motor RH Front	3a/F1			4a/M3
41	Electric Window Motor RH Rear	3a/J1			4a/M6
42	Electronic Ignition Module	1/C1	92	Light Cluster LH Rear	2/M8
43	Engine Comp. Lamp/Switch	2a/D5			4a/M8
44	ESC 1 Ignition Module	1/C2	93	Light Cluster RH Rear	2/M1
45	ESC 2 Ignition Module	1/B5			4a/M1
		1/C8	94	Light/Wiper Switch	2/J3
46	Flasher Lamp LH	2/A8			3/J3
47	Flasher Lamp LH Side Marker	2/E8			4a/K3
48	Flasher Lamp RH	2/A1	95	Low Brake Fluid Sender	1/F2
49	Flasher Lamp RH Side Marker	2/E1	96	Low Coolant Sender	4/D2
50	Flasher Relay	2/H5			4/D6
51	Foglamp Front	2/A2	97	Low Oil Sender	4/E3
		2/A7			4/E7
52	Foglamp Relay	2/C5	98	Low Washer Fluid Sender	4/C2
53	Foglamp Switch Front	2/H2			4/C6
54	Foglamp Switch Rear	2/H3	99	Luggage Comp. Lamp/Switch	2a/M4
55	Footwell Illumination	2a/D2	100	Manifold Heater (1.8/2.0 OHC Only From 1985)	1/F5
		2a/D7	101	Manifold Heater Relay (1.8/2.0 OHC Only From 1985)	1/J7
56	Fuel Computer	4a/G5	102	Multifunction Switch	2/J4
57	Fuel Flow Sensor	4a/C7			3/J5
58	Fuel Sender	1/M6	103	Oil Pressure Switch	1/F7
		4/L3	104	Power Hold Relay	1/J6
		4/L7	105	Reversing Lamp Switch	2/D5
		4a/L5	106	Seat Belt Warning Relay	2a/B5
59	Fuel Shut Off Valve	1/F4			4/E2
60	Glove Box Lamp/Switch	2a/E7			4/E6
61	Graphic Display Module	4a/H5	107	Spark Plugs	1/E1
62	Handbrake Warning Switch	1/L6			1/E3
63	Headlamp Unit LH	2/A6			1/E5
		4a/A6			1/F7
64	Headlamp Unit RH	2/A3			4a/E2
		4a/A3	108	Speed Sensor	1/G5
65	Headlamp Washer Pump	3/C3	109	Starter Motor	2/F4
66	Headlamp Washer Relay	3/D4			4a/E4
67	Heated Rear Window	3/L5	111	Tailgate Ajar Sender	4a/M4
		3a/L5	112	Tailgate Release Actuator	3a/M4
68	Heated Rear Window Relay	3/C3	113	Tailgate Release Relay	1/J5
69	Heated Rear Window Relay (Auto. Off)	3a/B3			3a/C5
70	Heated Rear Window Switch	3/H3	114	Tailgate Release Switch	3a/K5
71	Heated Rear Window Switch (Auto. Off)	3a/H2	115	Vanity Mirror Illumination	2a/G7
72	Heater Blower Illumination	2a/E5	116	Warning Lamp Cluster	4/K2
73	Heater Blower Motor	3/G6			4/K7
74	Heater Blower Switch	3/G5	117	Wash/Wipe Switch Rear	3/H3
75	Horn	3/A7	118	Washer Pump Front	3/B3
		3a/A7	119	Washer Pump Rear	3/L8
76	Horn Relay	3a/C4	120	Wiper Intermittent Relay Front	3/B5
77	Horn Switch	3a/J3	121	Wiper Intermittent Relay Rear	3/C4
78	Ice Warning Sender	4a/A4	122	Wiper Intermittent Speed Control	3/H4
79	Ignition Coil	1/C1	123	Wiper Motor Front	3/E3
		1/C2	124	Wiper Motor Rear	3/M6
		1/C5			
		1/D7			
80	Ignition Relay	1/G2			

Key to wiring diagrams (continued). Models up to 1987

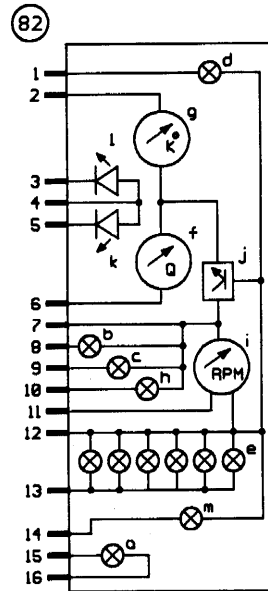
13•24 Wiring diagrams



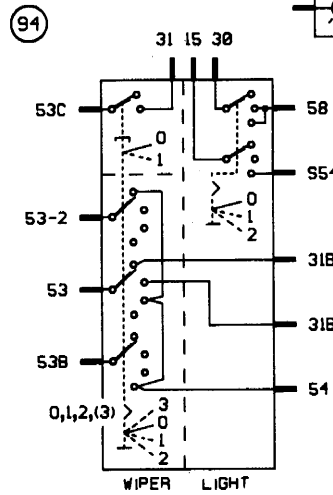
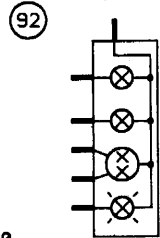
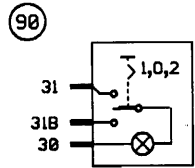
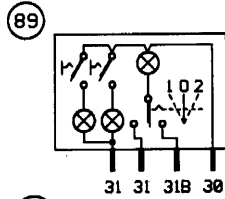
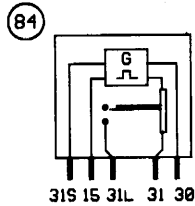


- a = Flasher Warning Lamp
- b = Alternator Warning Lamp
- c = Handbrake Warning Lamp
- d = Main Beam Warning Lamp
- e = Instrument Illumination
- f = Fuel Gauge
- g = Temperature Gauge
- h = Oil Pressure Lamp
- i = Tachometer
- j = Voltage Stabilizer
- k = Econolight Red
- l = Econolight Amber
- m = Seat Belt Warning Lamp

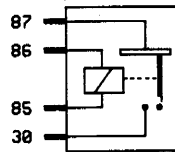
KEY TO INSTRUMENT CLUSTER (ITEM 82)



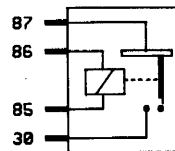
- 1 = Flash Lamp
 - 2 = Stop/Tail Lamp
 - 3 = Reversing Lamp
 - 4 = Fog Lamp
- KEY TO TYPICAL LIGHT CLUSTER (ITEMS 92 AND 93)



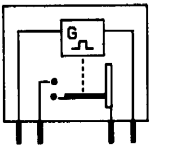
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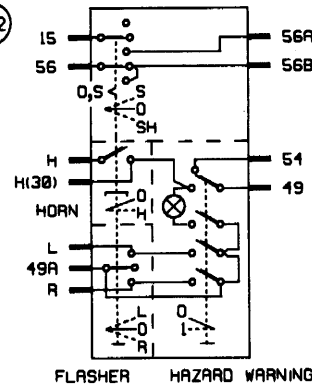
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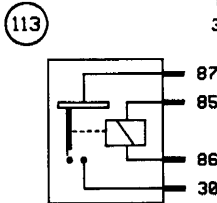
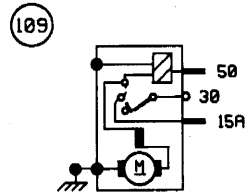
106



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FLASHER HAZARD WARNING



KEY TO WARNING LAMP CLUSTER (ITEM 116)

- m = Seat Belt Warning Lamp
- n = Low Fuel Warning Lamp
- o = Low Coolant Warning Lamp
- p = Low Oil Warning Lamp
- q = Low Washer Fluid Warning Lamp
- r = Brake Wear Warning Lamp

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