


# Chapter 11

## Bodywork and fittings

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### Degrees of difficulty

<b>Easy</b> , suitable for novice with little experience 	<b>Fairly easy</b> , suitable for beginner with some experience 	<b>Fairly difficult</b> , suitable for competent DIY mechanic 	<b>Difficult</b> , suitable for experienced DIY mechanic 	<b>Very difficult</b> , suitable for expert DIY or professional 
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### Specifications

Torque wrench settings	Nm	lbf ft
Bonnet hinges	20	15
Tailgate hinges	20	15
Tailgate lock striker	20	15
Front and rear trim panel nuts	12	9
Tailgate strut attachments	20	15
Seat belt mountings	35	25
Rear crossmember-to- lock bolts	55	43
Rear body panel-to-lock bolts	20	15
Front seat mountings	20	15
Front seat back-to-frame bolts	30	22

#### 1 General information

The main body structure is a welded construction of individually shaped panels which make up a 'monocoque' bodyshell, without a separate chassis. Various areas are strengthened to provide for suspension, steering and engine attachments and load distribution. The whole shell is very strong and rigid for its weight.

The front wings are bolted in position and can be renewed without special equipment.

Interior fittings are of an extremely high standard, even on basic models.

#### 2 Maintenance - bodywork and underframe

1 The general condition of a vehicle's bodywork is the one thing that significantly affects its value. Maintenance is easy but needs to be regular. Neglect, particularly after minor damage, can lead quickly to further deterioration and costly repair bills. It is important also to keep watch on those parts of the vehicle not immediately visible, for instance the underside, inside all the wheel arches and the lower part of the engine compartment.

2 The basic maintenance routine for the bodywork is washing preferably with a lot of water, from a hose. This will remove all the loose solids which may have stuck to the vehicle. It is important to flush these off in such a way as to prevent grit from scratching the finish. The wheel arches and underframe need washing in the same way to remove any accumulated mud which will retain moisture and tend to encourage rust. Strange as it may seem, the best time to clean the underframe and wheel arches is in wet weather when the mud is thoroughly wet and soft. In very wet weather the underframe is usually cleaned of large accumulations automatically and this is a good time for inspection.

**3** Periodically, except on vehicles with a wax-based underbody protective coating, it is a good idea to have the whole of the underframe of the vehicle steam cleaned, engine compartment included, so that a thorough inspection can be carried out to see what minor repairs and renovations are necessary. Steam cleaning is available at many garages and is necessary for removal of the accumulation of oily grime which sometimes is allowed to become thick in certain areas. If steam cleaning facilities are not available, there are one or two excellent grease solvents available which can be brush applied. The dirt can then be simply hosed off. Note that these methods should not be used on vehicles with wax-based underbody protective coating or the coating will be removed. Such vehicles should be inspected annually, preferably just prior to winter, when the underbody should be washed down and any damage to the wax coating repaired. Ideally, a completely fresh coat should be applied. It would also be worth considering the use of such wax-based protection for injection into door panels, sills, box sections, etc, as an additional safeguard against rust damage where such protection is not provided by the vehicle manufacturer.

**4** After washing paintwork, wipe off with a chamois leather to give an unspotted clear finish. A coat of clear protective wax polish, will give added protection against chemical pollutants in the air. If the paintwork sheen has dulled or oxidised, use a cleaner/polisher combination to restore the brilliance of this shine. This requires a little effort, but such dulling is usually caused because regular washing has been neglected. Care needs to be taken with metallic paintwork, as special non abrasive cleaner/polisher is required to avoid damage to the finish. Always check that the door and sill drain holes and pipes are completely clear so that water can be drained out (see illustrations). Bright work should be treated in the same way as paint work. Windscreens and windows can be kept clear of the smeary film which often appears, by the use of a proprietary glass cleaner. Never use any form of wax or other body or chromium polish on glass.

### Convertible

**5** A manual or electrically operated hood is fitted to Convertible models. Maintenance of the hood and its operating mechanism is minimal, but the following points should be noted to ensure that the hood has a long life and is satisfactory in operation.

**6** Before lowering the hood, make sure it is clean and dry and that the heated rear window is switched off. (Operating the heated rear window whilst the hood is lowered can cause permanent damage.)

**7** Clean the hood regularly, using a soft brush, warm water and a mild detergent. Do not use strong detergents or solvents. Stubborn stains can be removed with special products designed for cleaning plastics.

**8** The use of automatic car washes is not recommended for convertible models, as there is a risk of introducing water between the layers of the hood fabric.

### 3 Maintenance - upholstery and carpets

Mats and carpets should be brushed or vacuum cleaned regularly to keep them free of grit. If they are badly stained remove them from the vehicle for scrubbing or sponging and make quite sure they are dry before refitting. Seats and interior trim panels can be kept clean by wiping with a damp cloth and a proprietary car interior wax polish. If they do become stained (which can be more apparent on light coloured upholstery) use a little liquid detergent and a soft nail brush to scour the grime out of the grain of the material. Do not forget to keep the headlining clean in the same way as the upholstery. When using liquid cleaners inside the vehicle do not over-wet the surfaces being cleaned. Excessive damp could get into the seams and padded interior causing stains, offensive odours or even rot. If the inside of the vehicle gets wet accidentally it is worthwhile taking some trouble to dry it out properly, particularly where carpets are involved. Do not leave oil or electric heaters inside the vehicle for this purpose.

### 4 Minor body damage - repair

**Note:** For more detailed information about bodywork repair, the Haynes Publishing Group publish a book by Lindsay Porter called *The Car Bodywork Repair Manual*. This incorporates information on such aspects as rust treatment, painting and glass-fibre repairs, as well as details on more ambitious repairs involving welding and panel beating.

### Repairs of minor scratches in bodywork

**1** If the scratch is very superficial, and does not penetrate to the metal of the bodywork, repair is very simple. Lightly rub the area of the scratch with a paintwork renovator, or a very fine cutting paste, to remove loose paint from the scratch

and to clear the surrounding bodywork of wax polish. Rinse the area with clean water.

**2** Apply touch-up paint to the scratch using a fine paint brush; continue to apply fine layers of paint until the surface of the paint in the scratch is level with the surrounding paintwork. Allow the new paint at least two weeks to harden, then blend it into the surrounding paintwork by rubbing the scratch area with a paintwork renovator or a very fine cutting paste

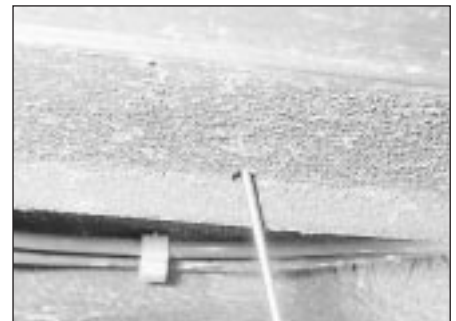
**3** Where the scratch has penetrated right through to the metal of the bodywork, causing the metal to rust, a different repair technique is required. Remove any loose rust from the bottom of the scratch with a penknife, then apply rust inhibiting paint to prevent the formation of rust in the future. Using a rubber or nylon applicator fill the scratch with bodystopper paste. If required, this paste can be mixed with cellulose thinners, to provide a very thin paste which is ideal for filling narrow scratches. Before the stopper-paste in the scratch hardens, wrap a piece of smooth cotton rag around the top of a finger. Dip the finger in cellulose thinners and quickly sweep it across the surface of the stopper-paste in the scratch; this will ensure that the surface of the stopper-paste is slightly hollowed. The scratch can now be painted over as described earlier in this Section.

### Repairs of dents in bodywork

**4** When deep denting of the vehicle's bodywork has taken place, the first task is to pull the dent out, until the affected bodywork almost attains its original shape. There is little point in trying to restore the original shape completely, as the metal in the damaged area will have stretched on impact and cannot be reshaped fully to its original contour. It is better to bring the level of the dent up to a point which is about 3 mm below the level of the surrounding bodywork. In cases where the dent is very shallow anyway, it is not worth trying to pull it out at all. If the underside of the dent is accessible, it can be hammered out gently from behind, using a mallet with a wooden or plastic head. Whilst doing this, hold a suitable block of wood firmly against the outside of the panel to absorb the impact from the hammer blows and thus prevent a large area of the bodywork from being 'belled-out'.



2.4a Door drain holes



2.4b Clearing a sill drain hole

5 Should the dent be in a section of the bodywork which has a double skin or some other factor making it inaccessible from behind, a different technique is called for. Drill several small holes through the metal inside the area - particularly in the deeper section. Then screw long self-tapping screws into the holes just sufficiently for them to gain a good purchase in the metal. Now the dent can be pulled out by pulling on the protruding heads of the screws with a pair of pliers.

6 The next stage of the repair is the removal of the paint from the damaged area, and from an inch or so of the surrounding 'sound' bodywork. This is accomplished most easily by using a wire brush or abrasive pad on a power drill, although it can be done just as effectively by hand using sheets of abrasive paper. To complete the preparation for filling, score the surface of the bare metal with a screwdriver or the tang of a file, or alternatively, drill small holes in the affected area. This will provide a really good 'key' for the filler paste.

7 To complete the repair see the Section on filling and respraying.

### ***Repairs of rust holes or gashes in bodywork***

8 Remove all paint from the affected area and from an inch or so of the surrounding 'sound' bodywork, using an abrasive pad or a wire brush on a power drill. If these are not available a few sheets of abrasive paper will do the job most effectively. With the paint removed you will be able to judge the severity of the corrosion and therefore decide whether to renew the whole panel (if this is possible) or to repair the affected area. New body panels are not as expensive as most people think and it is often quicker and more satisfactory to fit a new panel than to attempt to repair large areas of corrosion.

9 Remove all fittings from the affected area except those which will act as a guide to the original shape of the damaged bodywork (eg. headlights etc). Then, using tin snips or a hacksaw blade, remove all loose metal and any other metal badly affected by corrosion. Hammer the edges of the hole inwards in order to create a slight depression for the filler paste.

10 Wire brush the affected area to remove the powdery rust from the surface of the remaining metal. Paint the affected area with rust inhibiting paint if the back of the rusted area is accessible treat this also.

11 Before filling can take place it will be necessary to block the hole in some way. This can be achieved by the use of aluminium or plastic mesh, or aluminium tape.

12 Aluminium or plastic mesh or glass fibre matting is probably the best material to use for a large hole. Cut a piece to the approximate size and shape of the hole to be filled, then position it in the hole so that its edges are below the level of the surrounding bodywork. It can be retained in position by several blobs of filler paste around its periphery.

13 Aluminium tape should be used for small or very narrow holes. Pull a piece off the roll and trim it to the approximate size and shape required, then pull off the backing paper (if used) and stick the tape over the hole; it can be overlapped if the thickness of one piece is insufficient. Burnish down the edges of the tape with the handle of a screwdriver or similar, to ensure that the tape is securely attached to the metal underneath.

### ***Bodywork repairs - filling and respraying***

14 Before using this Section, see the Sections on dent, deep scratch, rust holes and gash repairs.

15 Many types of bodyfiller are available, but generally speaking those proprietary kits which contain a tin of filler paste and a tube of resin hardener are best for this type of repair which can be used directly from the tube. A wide, flexible plastic or nylon applicator will be found invaluable for imparting a smooth and well contoured finish to the surface of the filler.

16 Mix up a little filler on a clean piece of card or board - measure the hardener carefully (follow the maker's instructions on the pack) otherwise the filler will set too rapidly or too slowly. Alternatively, a no-mix brand can be used straight from the tube without mixing, but daylight is required to cure it. Using the applicator apply the filler paste to the prepared area; draw the applicator across the surface of the filler to achieve the correct contour and to level the surface. As soon as a contour that approximates to the correct one is achieved, stop working the paste - if you carry on too long the paste will become sticky and begin to 'pick-up' on the applicator. Continue to add thin layers of filler paste at twenty minute intervals until the level of the filler is just proud of the surrounding bodywork.

17 Once the filler has hardened, excess can be removed using a metal plane or file. From then on, progressively finer grades of abrasive paper should be used, starting with a 40 grade production paper and finishing with a 400 grade wet-and-dry paper. Always wrap the abrasive paper around a flat rubber, cork, or wooden block - otherwise the surface of the filler will not be completely flat. During the smoothing of the filler surface the wet-and-dry paper should be periodically rinsed in water. This will ensure that a very smooth finish is imparted to the filler at the final stage.

18 At this stage the 'dent' should be surrounded by a ring of bare metal, which in turn should be encircled by the finely 'feathered' edge of the good paintwork. Rinse the repair area with clean water, until all of the dust produced by the rubbing-down operation has gone.

19 Spray the whole area with a light coat of primer, - this will show up any imperfections in the surface of the filler. Repair these imperfections with fresh filler paste or

bodystopper, and once more smooth the surface with abrasive paper. If bodystopper is used, it can be mixed with cellulose thinners to form a really thin paste which is ideal for filling small holes. Repeat this spray and repair procedure until you are satisfied that the surface of the filler, and the feathered edge of the paintwork are perfect. Clean the repair area with clean water and allow to dry fully.

20 The repair area is now ready for final spraying. Paint spraying must be carried out in a warm, dry, windless and dust free atmosphere. This condition can be created artificially if you have access to a large indoor working area, but if you are forced to work in the open, you will have to pick your day very carefully. If you are working indoors, dousing the floor in the work area with water will help to settle the dust which would otherwise be in the atmosphere. If the repair area is confined to one body panel, mask off the surrounding panels; this will help to minimise the effects of a slight mis-match in paint colours. Bodywork fittings (eg. trim strips, door handles etc) will also need to be masked off. Use genuine masking tape and several thicknesses of newspaper for the masking operations.

21 Before commencing to spray, agitate the aerosol can thoroughly, then spray a test area (an old tin, or similar) until the technique is mastered. Cover the repair area with a thick coat of primer; the thickness should be built up using several thin layers of paint rather than one thick one. Using 400 grade wet-and-dry paper, rub down the surface of the primer until it is really smooth. While doing this, the work area should be thoroughly doused with water, and the wet-and-dry paper periodically rinsed in water. Allow to dry before spraying on more paint.

22 Spray on the top coat, again building up the thickness by using several thin layers of paint. Start spraying in the centre of the repair area and then, using a circular motion, work outwards until the whole repair area and about 2 inches of the surrounding original paintwork is covered. Remove all masking material 10 to 15 minutes after spraying on the final coat of paint.

23 Allow the new paint at least two weeks to harden, then, using a paintwork renovator or a very fine cutting paste to the edges of the paint. Finally, apply wax polish.

### ***Plastic components***

24 With the use of more and more plastic body components by the vehicle manufacturers (eg. bumpers, spoilers, and in some cases major body panels), rectification of more serious damage to such items has become a matter of either entrusting repair work to a specialist in this field, or renewing complete components. Repair of such damage by the DIY owner is not really feasible owing to the cost of the equipment and materials required for effecting such repairs. The basic technique involves making a groove



## 11•4 Bodywork and fittings

along the line of the crack in the plastic using a rotary burr in a power drill. The damaged part is then welded back together by using a hot air gun to heat up and fuse a plastic filler rod into the groove. Any excess plastic is then removed and the area rubbed down to a smooth finish. It is important that a filler rod of the correct plastic is used, as body components can be made of a variety of different types (eg. polycarbonate, ABS, polypropylene).

**25** Damage of a less serious nature (abrasions, minor cracks etc) can be repaired by the DIY owner using a two-part epoxy filler repair material, or a no-mix filler which can be used directly from the tube. Once mixed in equal proportions (or applied directly from the tube in the case of a no-mix filler), this is used in similar fashion to the bodywork filler used on metal panels. The filler is usually cured in twenty to thirty minutes, ready for sanding and painting.

**26** If the owner is renewing a complete component himself, or if he has repaired it with epoxy filler, he will be left with the problem of finding a suitable paint for finishing which is compatible with the type of plastic used. At one time the use of a universal paint was not possible owing to the complex range of plastics encountered in body component applications. Standard paints, generally speaking, will not bond to plastic or rubber satisfactorily, but a professional spraymatch paints to match any plastic or rubber finish can be obtained from dealers. However, it is now possible to obtain a plastic body parts finishing kit which consists of a pre-primer treatment, a primer and coloured top coat. Full instructions are normally supplied with a kit, but basically the method of use is to first apply the pre-primer to the component concerned and allow it to dry for up to 30 minutes. Then the primer is applied and left to dry for about an hour before finally applying the special coloured top coat. The result is a correctly coloured component where the paint will flex with the plastic or rubber, a property that standard paint does not normally possess.

### 5 Major body damage - repair

Where serious damage has occurred, or large areas need renewal due to neglect, it means that complete new panels will need welding in, and this is best left to professionals. If the damage is due to impact, it will also be necessary to check completely the alignment of the bodyshell, and this can only be carried out accurately by a Vauxhall/Opel dealer using special jigs. If the body is left misaligned, it is primarily dangerous as the car will not handle properly, and secondly, uneven stresses will be imposed on the steering, suspension and possibly transmission, causing abnormal wear, or complete failure, particularly to such items as the tyres.



6.3 Removing a bonnet hinge bolt

### 6 Bonnet - removal and refitting

#### Removal

- 1 Open and prop the bonnet.
- 2 When an under-bonnet light is fitted, disconnect its electrical lead.
- 3 Mark around the hinge bolts with a soft lead pencil as a guide for refitting. Have an assistant support the bonnet, then remove the hinge bolts from each side (see illustration).
- 4 Lift away the bonnet. If it is to be re-used, rest it carefully on rags or cardboard. If a new bonnet is to be fitted, transfer serviceable items (rubber buffers, lock striker etc) to it.

#### Refitting

- 5 Refit in the reverse order to removal, using the hinge bolt alignment marks for guidance when applicable.
- 6 If the lock striker was disturbed, adjust it to the dimension shown before tightening its locknut (see illustration).
- 7 Adjust the hinge bolts and front buffers until a good fit is obtained with the bonnet closed.

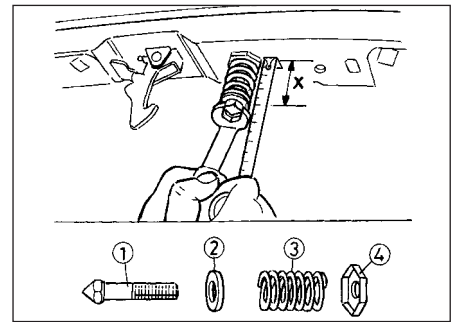
### 7 Bonnet release cable - removal and refitting

#### Removal

- 1 Open up the bonnet and unbolt the cable clip from the rear of the bonnet lock platform.
- 2 Prise the cable and fitting out of the release



8.2 Undoing a front trim panel screw



6.6 Bonnet lock striker adjustment

- |               |                 |
|---------------|-----------------|
| 1 Striker     | 4 Locknut       |
| 2 Washer      | X = 40 to 45 mm |
| 3 Coil spring |                 |

slide, using a screwdriver against the spring tension.

**3** Inside the car, free the cable from the release lever and bracket.

**4** Release the grommet from the bulkhead and withdraw the cable from under the bonnet.

#### Refitting

**5** Fit the new cable in the reverse order to removal. Adjust the position of the cable under the front panel clip so that, with the release lever at rest, the inner cable is just slack. Check that the release slide moves when an assistant operates the release lever, then close the bonnet and check for correct operation.

### 8 Front trim panel - removal and refitting

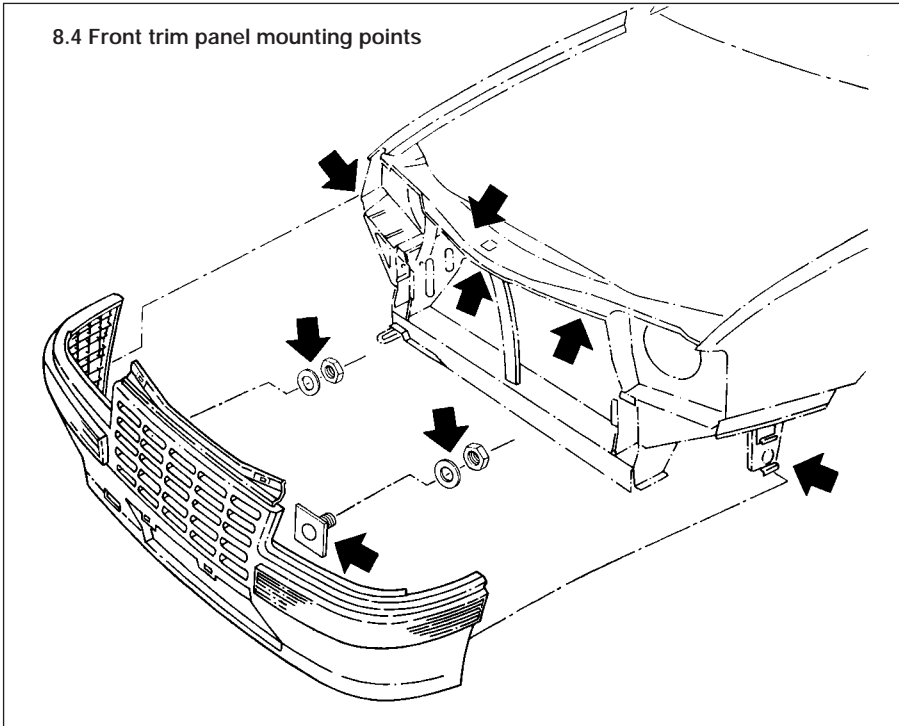
#### Removal

- 1 The front trim panel incorporates the radiator grille and the front bumper.
- 2 Remove the three screws which secure the panel to the bonnet lock platform (see illustration).
- 3 From under the vehicle remove the two nuts which secure the lower part of the panel (see illustration).
- 4 Pull the panel forwards so that it slides off the side mountings. If front foglights are fitted,



8.3 Front trim panel securing nut (arrowed)

## 8.4 Front trim panel mounting points



disconnect them as the panel is withdrawn (see illustration). Also disconnect the headlamp washer pipes (when fitted).

**Refitting**

5 Refit in the reverse order to removal. The side mountings are riveted in position and can be renewed if wished after drilling out the rivets.



9.2 Rear trim panel securing nut



9.3 Freeing one end of the rear trim panel - screw holes arrowed

**9 Rear trim panel - removal and refitting****Removal**

- 1 Remove the number plate lamps (see Chapter 12).
- 2 Inside the car, free the soft trim from the rear panel to expose the two securing nuts (see illustration). Remove the nuts.
- 3 Remove the two screws from inside each wheel arch to free the ends of the rear trim panel (see illustration). Withdraw the panel, disconnecting the rear foglight wires as it is withdrawn.

**Refitting**

- 4 Refit in the reverse order to removal.

**10 Front wing - removal and refitting****Removal**

- 1 Remove the front trim panel, as described in Section 8.
- 2 Remove the direction indicator lamp unit (see Chapter 12).
- 3 Remove the wheel arch protective panelling by pushing the centres out of the plastic rivets and unclipping it from the edge of the wing. Remove the headlamp washer reservoir, when fitted.
- 4 Remove the twelve bolts which secure the wing to the car. Free the wing from the sealing compound on its flanges and remove it.

**Refitting**

- 5 Clean all sealant away from the body flange; commence refitting by applying a thick bead of new sealant.
- 6 Offer the wing to the vehicle and bolt it loosely into position. When it is correctly aligned with the surrounding bodywork, fully tighten the bolts.
- 7 Coat the inside of the wing with protective wax or similar compound; when necessary, paint the outside of the wing to match the rest of the car.
- 8 Refit the headlamp washer reservoir, when applicable.
- 9 Refit the wheel and protective panelling, using new plastic rivets or other proprietary fasteners.
- 10 Refit the direction indicator lamp and the front trim panel.

**11 Wind deflector - removal and refitting****Removal**

- 1 The wind deflector fills the gap between the rear of the bonnet and the base of the windscreen.
- 2 Remove both windscreen wiper arms (see Chapter 12).
- 3 Remove the wind deflector securing screws (see illustrations).
- 4 Free the wind deflector from its clips and remove it. Disconnect the windscreen washer hoses as it is withdrawn.



11.3a Wind deflector screw at the wing



11.3b Wind deflector screw near the wiper



12.2 Window winder handle spring clip (arrowed)

5 The two halves of the wind deflector can be separated if wished by pulling them apart. Each half may also be removed individually, leaving the other in place.

### Refitting

6 Refit in the reverse order to removal.

## 12 Door inner trim panel - removal and refitting

### Removal

1 Procedure is described for a front door; rear doors are similar, except where noted.

2 Except on models with electric windows, the window winder handle must first be removed. In the absence of special tool KM-31 7-A, release the handle securing clip by introducing a strip of rag between the handle and the door trim panel and working it back and forth to pick up the ends of the clip. Remove the handle, clip and trim plate (see illustration).

3 Prise the surround from the remote control handle (see illustration).

4 Unscrew the interior lock button (see illustration).

5 When a door pocket is fitted, prise out the screw cover and remove the securing screw (see illustrations). Remove the two screws at the bottom of the pocket, if fitted, then remove the pocket. On rear doors, unclip the ashtray housing.

6 Remove the armrest. Precise details of fixing will vary with trim level, but usually there



12.3 Removing the surround from the remote control handle

are two Torx screws at the fore end (see illustrations). Some armrests also have an ordinary self-tapping screw at the rear end.

7 With some trim levels there is a self-tapping screw securing the trim to the door shut face. Remove this if present (see illustration).

8 Uncap the retaining clips with a broad-bladed screwdriver or a palette knife and remove the panel. The degree of force needed to release the clips is not far off that which will break them: obtain new clips for refitting if necessary.

9 Free the plastic sheets from the door or trim panel as appropriate.

### Refitting

10 Refit in the reverse order to removal. make sure that the plastic sheet is intact and securely glued round the bottom and sides on the door: if it is broken or detached, rainwater may leak into the vehicle or damage the door trim.



12.4 Unscrewing the lock button

## 13 Door - removal and refitting

### Removal

1 The door hinges are welded onto the door and onto the hinge pillar. The only remedy for worn hinges, unless oversize pins can be procured, is to renew the door and/or pillar.

2 To remove a door, open it fully and support its lower edge with well-padded blocks. Disconnect any door component wiring harness (mirrors, windows, central locking etc).

3 Disconnect the check strap and have an assistant support the door whilst the hinge pins are extracted. The pins should be extracted upwards, using a slide hammer, after removing their caps.



12.5a Door pocket screw cover



12.5b Removing a door pocket screw



12.6a Removing the armrest screw cover



12.6b Removing an armrest screw



12.7 Trim securing screw on the door shut face - rear door shown





13.4 Adjusting a door lock striker

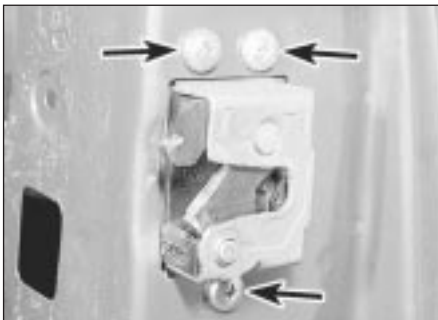
### Refitting

4 Refit the door in the reverse order to removal, using new hinge pins. Gross adjustment of the door position is possible by bending the hinges or hinge eyes. Fine adjustment to obtain satisfactory shutting is made by turning the socket-headed lock striker (see illustration).

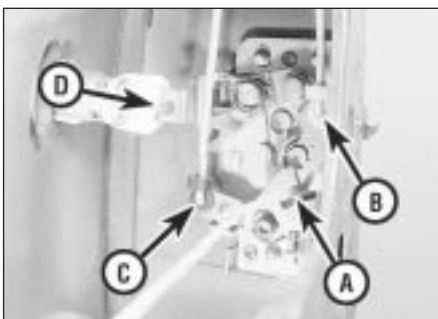
### 14 Door lock - removal and refitting

#### Removal

1 Remove the door trim panel (Section 12).  
2 Remove the three screws which secure the lock to the door shut face (see illustration).



14.2 Door lock securing screws (arrowed)



14.4 Door lock attachments inside the door

A Remote control handle rod  
B Lock button rod  
C Exterior handle rod  
D Lock cylinder arm

3 Disconnect the control rods and remove the lock. (In the case of the front door, do not disconnect the interior lock button rod, but withdraw the lock and rod complete.)

### Refitting

4 Refit in the reverse order to removal. When refitting the front door lock, make sure that the tongue on the lock engages with the slot in the cylinder arm (see illustration).  
5 Check for correct operation before refitting the door trim panel.

### 15 Door exterior handle - removal and refitting

#### Removal

1 Remove the door trim panel, as described in Section 12.  
2 Wind up the window fully.  
3 Unclip the handle-to-lock rod from the lock.  
4 Unbolt the handle from inside the door and remove it. Some manipulation will be needed to get the goose-neck and the operating rod through the hole.

### Refitting

5 Refit in the reverse order to removal. Check for correct operation before refitting the trim panel.

### 16 Door remote control handle - removal and refitting

#### Removal

1 Remove the door trim panel, as described in Section 12.  
2 Slide the handle rearwards to free it (see illustration). Unhook the link rod and remove it from the door.

### Refitting

3 Refit in the reverse order to removal. Check for correct operation before refitting the trim panel.

### 17 Front door lock cylinder - removal and refitting

#### Removal

1 Remove the door trim panel, as described in Section 12.  
2 Release the lock cylinder retaining clip by prising it forwards. Withdraw the cylinder and associated components from the outside of the door.  
3 The cylinder may be separated from the other items by inserting the key in the slot, then using a screwdriver to prise off the end piece and arm. Withdraw the cylinder from the housing and recover the circlip (see illustration).

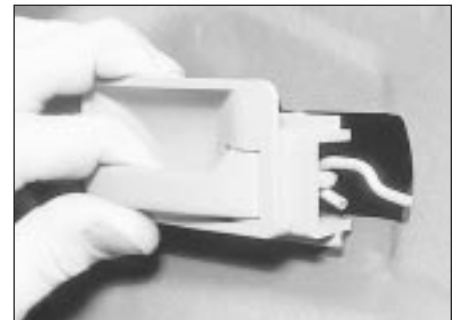
### Refitting

4 Reassemble in the reverse order, noting the position of the spring legs and their relationship to the arm.  
5 Refit in the reverse order to removal. Check for correct operation before refitting the trim panel.

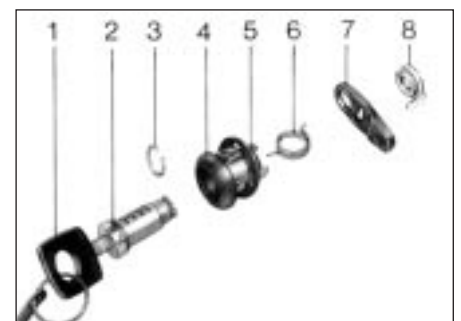
### 18 Window lifting mechanism - removal and refitting

#### Removal

1 Remove the door trim panel, as described in Section 12.  
2 Various types of mechanism may be fitted: scissors or cable, manual or electric. In all cases the principles of removal are similar. The electric motors cannot be repaired, though sometimes they can be renewed separately from the lifting mechanism. **Note:** On Convertible models with electric windows, prior to removal position the window lifting mechanism and secure it in position with some stout wire as shown (see illustration). This will prevent the mechanism being suddenly released as it is disconnected.  
3 Lower the window to the halfway position and wedge it securely.  
4 Disconnect the wiring harness from the electrically-operated mechanism.  
5 Drill the heads off the rivets and remove the mechanism from the door. The cable

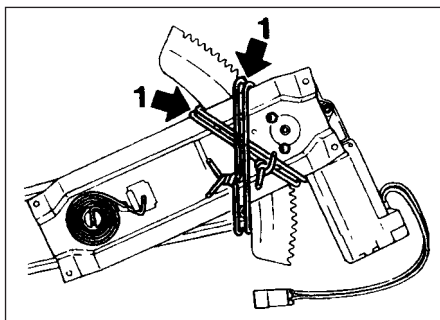


16.2 Removing a remote control handle



17.3 Exploded view of lock cylinder

1 Key  
2 Cylinder  
3 Circlip  
4 Housing  
5 Seal  
6 Spring  
7 Arm  
8 End piece



**18.2 Convertible electric window lifter arm secured (1) prior to removal of the regulator unit**



**18.6 Scissors lifting mechanism slider**

mechanism lifter must also be unbolted from the window channel (see illustrations).

### Refitting

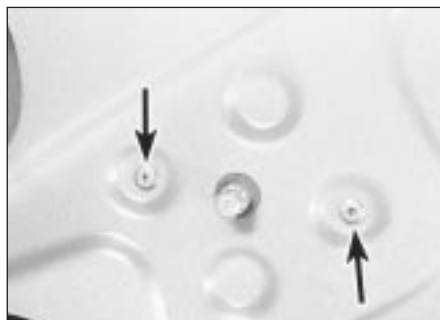
**6** Refit in the reverse order to removal, using new blind rivets. Lubricate the sliders and channel of the scissors type mechanism with silicone grease (see illustration). Tension the cable on the electric mechanism by turning the adjusters through 90°.

**7** Check for correct operation before refitting the door trim. On Convertible models the operation of the window can be adjusted by slackening the mounting bolts and repositioning the window guide. Find the place where the window operates the smoothest the securely tighten the bolts.

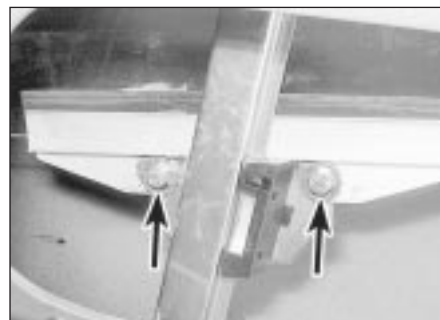
## 19 Door window - removal and refitting

### Removal

- 1 Remove the door trim panel as described in Section 12.
- 2 Remove the window weatherstrip from the top of the opening in the door.
- 3 In the case of the rear door, unbolt and remove the rear guide rail, then remove the fixed part of the window complete with seal.
- 4 If a scissors type lifter is fitted to the front door remove the rear guide rail. If a cable type lifter is fitted, unbolt the lifter from the glass channel.



**18.5a Two window lifting mechanism securing rivets (arrowed)**



**18.5b Window lifting channel bolts (arrowed)**

**5** Carefully lift the window out through its opening in the door. It will have to be tilted at a considerable angle.

### Refitting

**6** Refit in the reverse order to removal. Adjust the angle of the rear door window guide rail by means of the adjustment screw and locknuts until smooth operation is achieved (see illustration). Note that there are two locknuts, one on each side of the panel.

## 20 Tailgate - removal and refitting

### Removal

- 1 Open the tailgate and have an assistant support it.
- 2 Disconnect the rear screen washer tube and any wiring that enters the tailgate - this will vary according to model and equipment. Remove the tailgate trim panel if necessary to carry out the disconnections.
- 3 Disconnect the struts from the tailgate - see Section 22.
- 4 Extract the hinge pin circlips and press or drive out the hinge pins (see illustration). Lift away the tailgate.

### Refitting

**5** Refit in the reverse order to removal. Note that the circlip ends of the hinge pins face outwards. Lubricate the pins before fitting.



**19.6 Adjusting the rear window guide rail**  
There is another locknut behind the panel

## 21 Tailgate hinge - removal and refitting

### Removal

- 1 Open the tailgate and have an assistant support it.
- 2 Disconnect the strut on the side being worked on see Section 22.
- 3 Extract the circlip and press or drive out the hinge pin.
- 4 Unclip the roof trim panels and loosen the headlining to gain access to the hinge screws.
- 5 Undo the two screws with an offset screwdriver and remove the hinge, seal and screw plate.

### Refitting

**6** Refit in the reverse order to removal. Tighten the hinge screws to the specified torque. Lubricate the hinge pin before fitting; fit the pin with its circlip end facing outwards.

## 22 Tailgate strut - removal and refitting

### Removal

- 1 Open the tailgate and have an assistant support it.
- 2 Release the strut from its mounting balljoints by prising the spring clips a little way out and pulling the strut off the balljoints (see illustration). If the strut is to be re-used, do



**20.4 Tailgate hinge showing circlip (arrowed)**





22.2 Releasing a tailgate strut spring clip

not remove the spring clips completely, nor prise them out further than 6 mm (0.24 in).  
**3** Dispose of used struts carefully, since they contain gas under pressure.

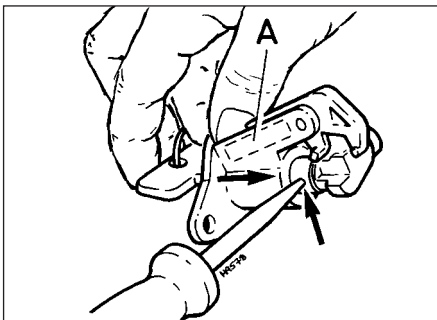
### Refitting

**4** Refit in the reverse order to removal.

## 23 Tailgate lock - removal and refitting

### Removal

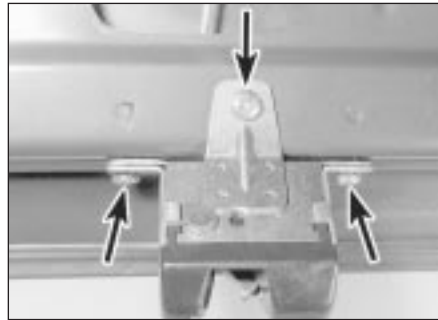
**1** Remove the tailgate trim panel by releasing its retaining clips.  
**2** Remove the retaining screws from the lock (see illustration). There are three retaining screws on the Hatchback, four on the Estate and Van.



24.3 Tailgate lock cylinder removal - roll pin and circlip arrowed  
 A Key number



25.4 Boot lid hinge bolts



23.2 Tailgate lock retaining screws (arrowed) - Hatchback

**3** Unhook the operating rod from the lock cylinder arm (see illustration). It may be necessary to unbolt the lock cylinder in order to disengage the rod. Remove the lock and rod together.

**4** If a new lock is being fitted, transfer the spring and rod to it.

### Refitting

**5** Refit in the reverse order to removal. Check for correct operation before refitting the trim panel.

## 24 Tailgate lock cylinder - removal and refitting

### Removal

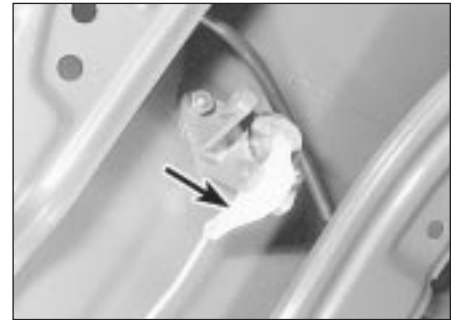
**1** Remove the tailgate trim panel by releasing its retaining clips.  
**2** Remove the two retaining nuts, disengage the lock operating rod and remove the lock cylinder, complete with housing.  
**3** Remove the lock cylinder from the housing by driving out the roll pin, moving aside the catch and extracting the circlip (see illustration). Remove the cylinder with the key inserted.  
**4** Fit the new cylinder and secure with the circlip and roll pin.

### Refitting

**5** Refitting is a reversal of the removal procedure. Check for correct operation before refitting the trim panel.



25.5a Torsion rod central housing bracket



23.3 Lock operating rod connection to arm (arrowed)

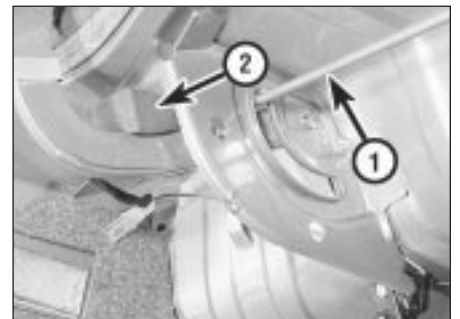
## 25 Boot lid and torsion rods - removal and refitting

### Removal

**1** Open the boot.  
**2** Draw alignment marks between the boot lid and the hinge brackets on both sides of the vehicle.  
**3** On models with central locking, disconnect the lock motor connector. The connector is located in the left-hand corner of the boot.  
**4** With the aid of an assistant, support the boot lid and undo the hinge bolts (see illustration). Remove the boot lid.  
**5** The torsion rods are held in place by their own spring tension. They can be removed by carefully unhooking them first from the central housing bracket, then from the hinge brackets (see illustrations).

### Refitting

**6** Refitting is the reverse of the removal procedure. Observe the alignment marks if refitting the original lid. If fitting a new lid, just nip up the hinge bolts at first until satisfied with the fit, then carry out final tightening.  
**Note:** On early models it may be found that despite correct alignment the boot lid contacts the rear screen at the centre of its front edge. This can be remedied by fitting rubber bump stops to limit the height of travel of the lid (see illustration 25.5b).



25.5b Hinge bracket assembly

1 Torsion rod

2 Bump stop



26.2 Boot lid lock securing screws

## 26 Boot lid lock components - removal and refitting

### Boot lid lock assembly - removal and refitting

- 1 Mark a line around the outer edge of the lock assembly on the boot lid.
- 2 Remove the securing screws (see illustration) and lift away the lock.
- 3 Refitting is the reverse of the removal procedure. Use the line marked before removal as a guide to positioning the lock.
- 4 Check the operation of the lock by opening and closing the boot lid several times. If necessary adjust the position of the lock or catch.

### Boot lock catch - removal, refitting and adjustment

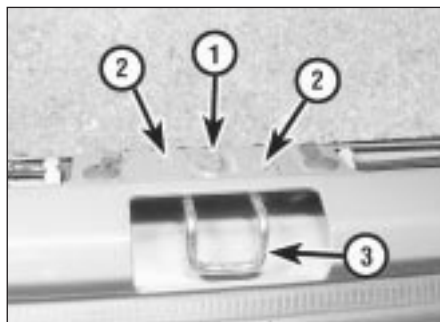
- 5 Remove the protective trim panel from the boot lip.
- 6 Remove the retaining bolt. Disengage the catch spigots and remove it (see illustration).
- 7 Refitting is the reverse of the removal procedure.
- 8 The height of the catch may be adjusted by slackening the retaining bolt and moving the catch up or down to provide satisfactory closing and a snug fit with the edge seal.

### Boot lid handle - removal and refitting

- 9 Open the boot and remove the two nuts, accessible from inside, which secure the handle (see illustration).



26.9 Boot lid handle retaining nut



26.6 Boot lock catch retaining bolt (1), spigots (2) and catch (3)

- 10 Refitting is the reverse of the removal procedure.

## 27 Windscreen and other fixed glass - removal and refitting

- 1 With the exception of the small fixed windows in the rear passenger door, whose removal is covered in Section 19, the fixed glass is glued in position with adhesive.
- 2 Special tools, equipment and expertise are required for successful removal and refitting of glass fixed by this method. The work must therefore be left to a GM dealer, a windscreen specialist or other competent professional.
- 3 The same remarks apply if sealing of the windscreen or other glass surround is necessary.

## 28 Rear quarterlight (opening type) - removal and refitting

### Removal

- 1 Unclip the interior trim panels from around the quarterlight.
- 2 Remove the three screws which secure the catch to the body.
- 3 Unscrew the two special nuts which hold the hinges to the front of the quarterlight. Remove the quarterlight and recover the hinge securing components.
- 4 Transfer the catch to the new quarterlight, if applicable, by drilling out the connecting pin and unscrewing the glass fitting. Use a new connecting pin on reassembly.



30.2a Remove the glass by levering with a wooden wedge

### Refitting

- 5 Refit in the reverse order to removal.

## 29 Rear quarterlight (opening type) - weatherstrip renewal

- 1 Remove the quarterlight, as described in the previous Section.
- 2 Cut the old weatherstrip and rubber mount from the body flange. Clean up the flange, but do not remove the old adhesive completely.
- 3 Clean the mating face of the new weatherstrip with petrol or other suitable solvent, taking appropriate precautions.
- 4 Apply a 6 mm bead of polyurethane-based glass adhesive on top of the remains of the old adhesive.
- 5 Fit the new weatherstrip, refit the quarterlight and keep it closed for at least four hours (or as advised by the makers of the adhesive) to allow the adhesive to set.

## 30 Exterior rear view mirror components - removal and refitting

### Mirror glass

- 1 On all types, the mirror glass may be renewed separately.
- 2 Prise out the old glass (if intact) with a wooden wedge, and when applicable disconnect the electrical cables. Engage the new glass with the linkage, connect the wires if applicable and snap the glass home (see illustrations). Be careful when pressing the glass home: the sudden movement as the ball enters its socket may cause the glass to break.

### Mirror motor - electric mirror

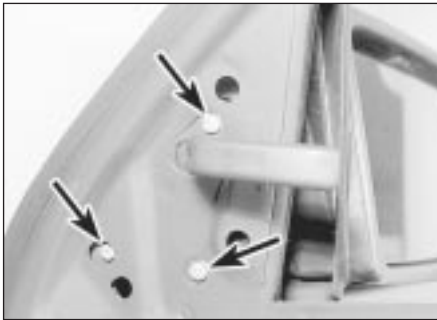
- 3 To renew an electric mirror motor, prise out the glass as just described, undo the motor securing screws and disconnect its multi-plug. Fit the new motor in the reverse order to removal.

### Complete mirror - manual mirror

- 4 To remove a manually adjusted mirror, pull off the adjuster handle and unclip the corner



30.2b Engage the linkage and press the ball into the socket (arrowed)



30.4 Mirror retaining screws (arrowed)



31.1 Seat rail trim removal



31.2a Seat rail front retaining bolt (one of two)

trim. Undo the three retaining screws and remove the mirror (see illustration).

5 Refitting is the reverse of removal.

### Complete mirror - electric mirror

6 Removal of the electrically adjusted mirror is similar, but instead of pulling off the handle, the wiring harness must be disconnected. The harness connector is inside the door cavity.

7 Refitting is a reversal of the removal procedure.

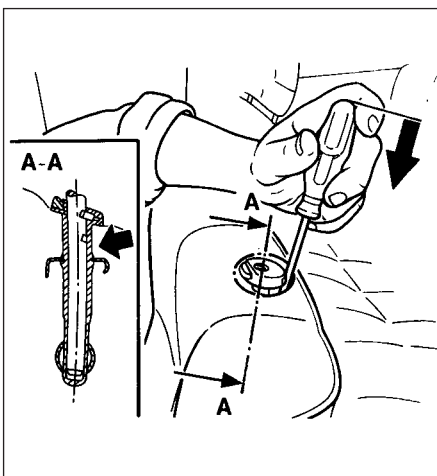
## 31 Front seat - removal and refitting

### Removal

1 Remove the trim which covers the seat outboard rail. This trim is secured by a single self-tapping screw at the front (see illustration).

2 Remove the four bolts which secure the seat rails to the floor (see illustrations). Remove the seat, complete with rails; disconnecting the seat heating wires (when fitted).

3 The seat can be separated from the rails if wished, for example if attention to the adjustment mechanisms is necessary.



32.4 Removing a head restraint guide sleeve - push down with screwdriver to release retaining lugs (arrowed)

## 32 Head restraints - removal and refitting

### Removal

1 Both front and rear head restraints are removed in the same way.

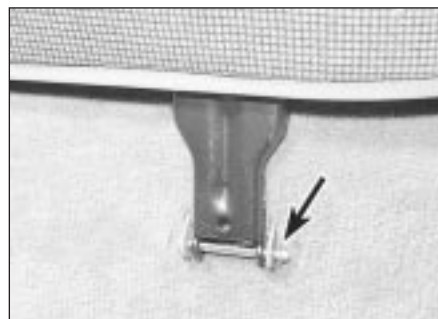
2 Pull the head restraint up as far as it will go.

3 Release the catch spring by pushing it rearwards and remove the head restraint. The catch springs are located on the left-hand side on front seats and on the right-hand side on rear seats.

4 The guide sleeves can be removed if necessary by releasing the retaining lugs with a screwdriver and pulling them upwards (see illustration).

### Refitting

5 Refit in the reverse order to removal.



33.1 Rear seat front hinge - circlip arrowed



31.2b Seat rail rear retaining bolt (one of two)

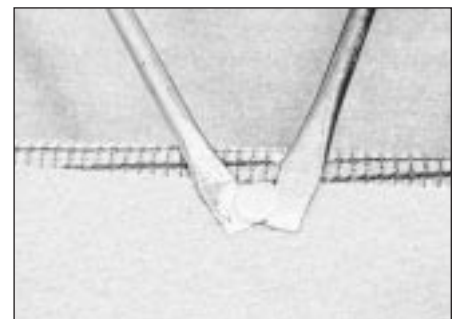
## 33 Rear seat - removal and refitting

### Removal

1 Uncover the hinges at the front of the seat. Free them by extracting the circlips and removing the hinge pins (see illustration). The bench section(s) of the seat can now be removed if wished.

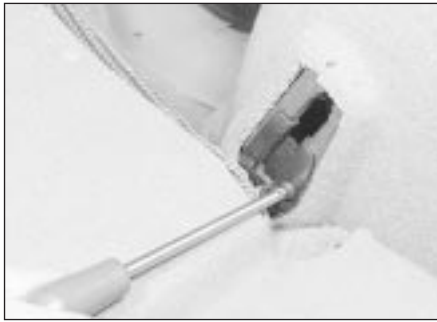
2 Unclip the carpet from the backrest (see illustration).

3 Free the backrest from its catches, unscrew the side hinges and remove the backrest. If a split seat is fitted, also separate the centre bearing. On Saloon models the rear seat backrest catch is retained by a nut, accessible from inside the boot (see illustrations).



33.2 Removing a carpet securing plug

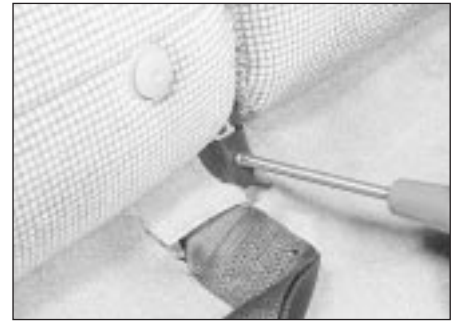




33.3a Unscrewing the side hinge plate



33.3b Seat pivot lifts out of hinge



33.3c Unscrewing the centre hinge cover



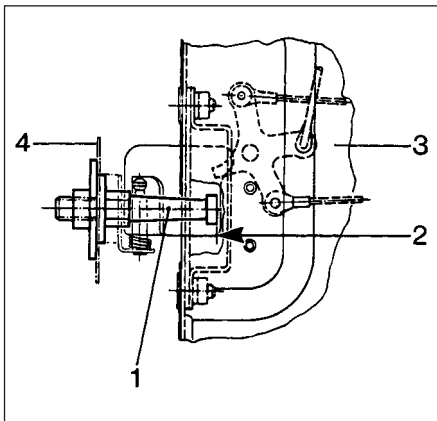
33.3d Centre hinge top half bearing



33.3e Rear seat backrest catch retaining nut - Saloon



33.5a Seat backrest catch striker - Hatchback



**33.5b Rear seat backrest catch - Estate**  
1 Striker  
2 Distance to other striker =  $1162 \pm 2.5$  mm  
3 Backrest  
4 Rear quarter panel

### Refitting

4 Refit in the reverse order to removal. When securing the split type backrest start at the centre and work outwards.

5 If adjustment of the catch striker is necessary, slacken the nut at the back of the striker pin, engage the seat backrest and then tighten the nut. This applies to Hatchback models. No procedure is laid down for Estate models; details of the catch construction are as shown (see illustrations).

### 34 Luggage area trim panel removal - general information

The 'soft' trim panels and carpets are mostly retained by plastic plugs. These can be levered out, but sometimes break. Where more frequent removal is envisaged, eg for access to the spare wheel and tools, the plugs are of a different design and incorporate pulling straps.

The side covers may be removed by unbolting them and (when applicable) disconnecting the loudspeaker wires (see illustration). They carry the rear parcel shelf catches on some models; the catches can be removed simply by pulling them towards the centre of the vehicle.

Other 'hard' trim Panels are either clipped or screwed into position.



34.2 Removing a luggage area side panel

### 35 Centre console - removal and refitting

#### Removal

1 The centre console is in two parts: the rear half, surrounding the handbrake lever, and the front half, which sits below the heater controls.

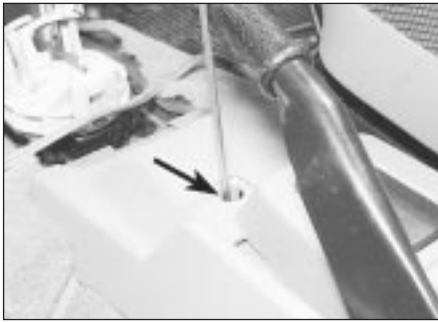
2 Commence removal with the rear half. Prise out the screw cover and remove the securing screw (see illustrations).

3 Slide the console rearwards to free it. Removal of the front half may proceed without further disturbing the rear; to remove the rear half completely, disconnect or remove any switches from it and lift it over the handbrake lever.

4 Unclip the cover from around the base of



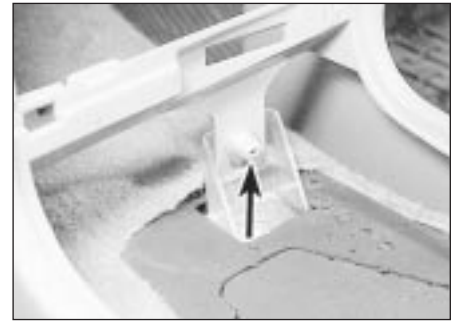
35.2a Centre console rear half screw cover



35.2b Removing the centre console rear half screw



35.4a Centre console screw (arrowed) to rear of gear lever



35.4b Centre console screw (arrowed) in front of gear lever



35.6 Centre console screw (arrowed) below heater control panel

the gear lever. There is no need to remove the gear lever boot itself. Undo the two screws to front and rear of the gear lever (see illustrations). On automatic transmission versions, remove the selector lever cover.



36.1 Glovebox check strap disconnected



36.2 Glovebox hinge bolt

5 Release the two retaining clips and remove the oddments box from below the heater control panel.

6 Remove the two screws which secure the console to the heater control panel (see illustration). Withdraw the console.

### Refitting

7 Refit in the reverse order to removal.

## 36 Glovebox - removal and refitting



### Removal

1 Open the glovebox and prise out the two check strap plugs (see illustration).

2 Support the glovebox and remove the two hinge bolts (see illustration). The glovebox can now be removed.

### Refitting

3 Refit in the reverse order to removal. Note that the hinge bolt holes are slotted to allow for fine adjustment when fitting.

## 37 Seat belts - general



**Warning:** If the vehicle has been involved in an accident in which structural damage was sustained all the seat belt components must be renewed.

1 Inertia reel front seat belts are fitted to all models. According to trim level, these may have adjustable upper mountings. Rear seat belts are available as an optional extra at time of purchase, or as a kit for aftermarket fitting.

2 Keep the belts untwisted so that they retract into their reels when not in use. Occasionally check the function of the inertia reel units by braking sharply from 5 mph (traffic permitting): the belts should lock. A defective unit must be renewed.

3 Only use soap and water to clean the belts. Strong detergents, bleaches or dyes may weaken the webbing. After cleaning, keep the belts extended until they are dry.

4 Belts which have been subject to impact loads must be renewed.

5 When renewing a belt, note carefully the fitted sequence of mounting washers and spacers. Use new mounting components when these are supplied, and tighten the mountings to the specified torque (see illustration).

6 Access to the adjustable top mounting is not immediately obvious. It is necessary to remove the floor level trim strip, then free the door seal from the pillar. The pillar trim can then be pulled inwards to free its top and centre mountings, then slid downwards to release the bottom lip. Notice how the belt feeds through the pillar trim (see illustrations).

7 Access to the rear inertia reel is gained by removing most of the rear quarter trim panels;



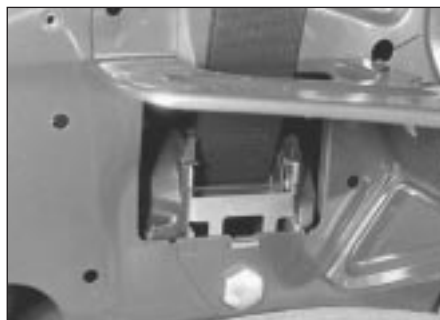
37.5 Front seat belt inertia reel and lower mounting bolts (arrowed)



37.6a Front seat belt adjustable top mounting



37.6b Belt feeds through guide in pillar trim



37.7a Rear seat belt inertia reel



37.7b Rear seat belt upper mounting

on 5-door models the door seal will have to be disturbed to remove the panels. Access to the floor mountings is gained by folding the seat forwards (see **illustrations**).

### 38 Sunroof - operation and maintenance

**1** A slide-and-tilt glass panel sunroof is available as an optional extra on most models. It is operated by a crank handle. After depressing the release button, turning the handle anti-clockwise open the roof. Turning

the handle clockwise when the roof is closed causes its rear end to tilt up for ventilation.

**2** A louvered panel, known as a sunshade, can be drawn out under the glass. This should only be done when the glass is closed or in the 'tilt' position.

**3** Maintenance is confined to checking periodically that the drain hoses are not blocked at their lower ends.

**4** No lubrication or other maintenance is specified.



37.7c Rear seat belt floorpan mounting