Body

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Introduction

This section has been compiled to help Service Personnel understand the body terminology associated with Rolls-Royce and Bentley motor cars.

Throughout this manual reference is made to the terms 'B' post and 'C' post. They are generally referred to as the 'B & C' post. The 'B' post faces the rear of the front door; the 'C' post the front of the rear door.

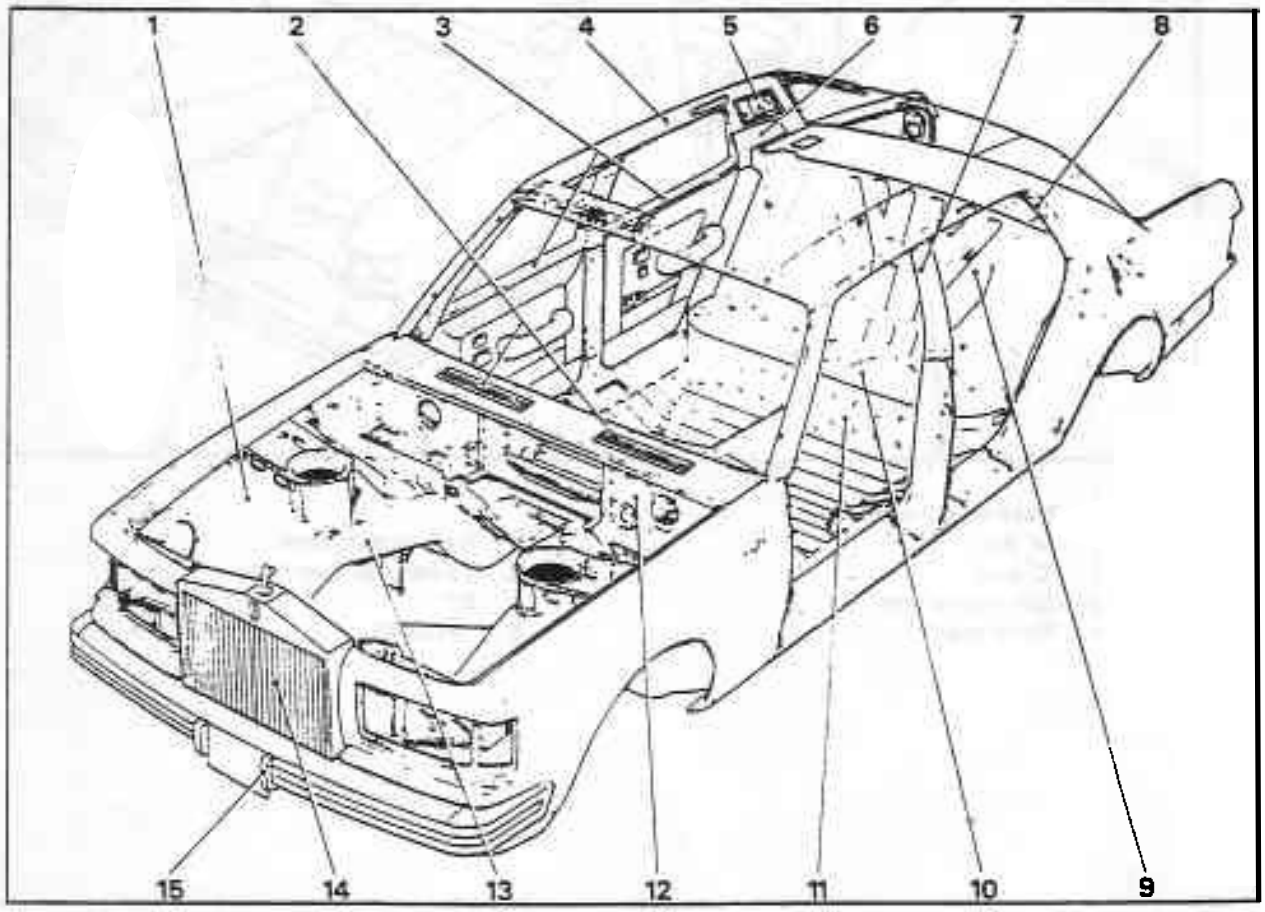

Fig. S1 - 1 Body terminology

1. Valance
2. Air intake grille
3. Waist rail finisher
4. Cantrail
5. Companion
6. Side cheek pad
7. 'B' post
8. 'D' post
9. Rear squab
10. Seat pan
11. Heelboard
12. Bulkhead
13. Longeron
14. Radiator shell
15. Overrider

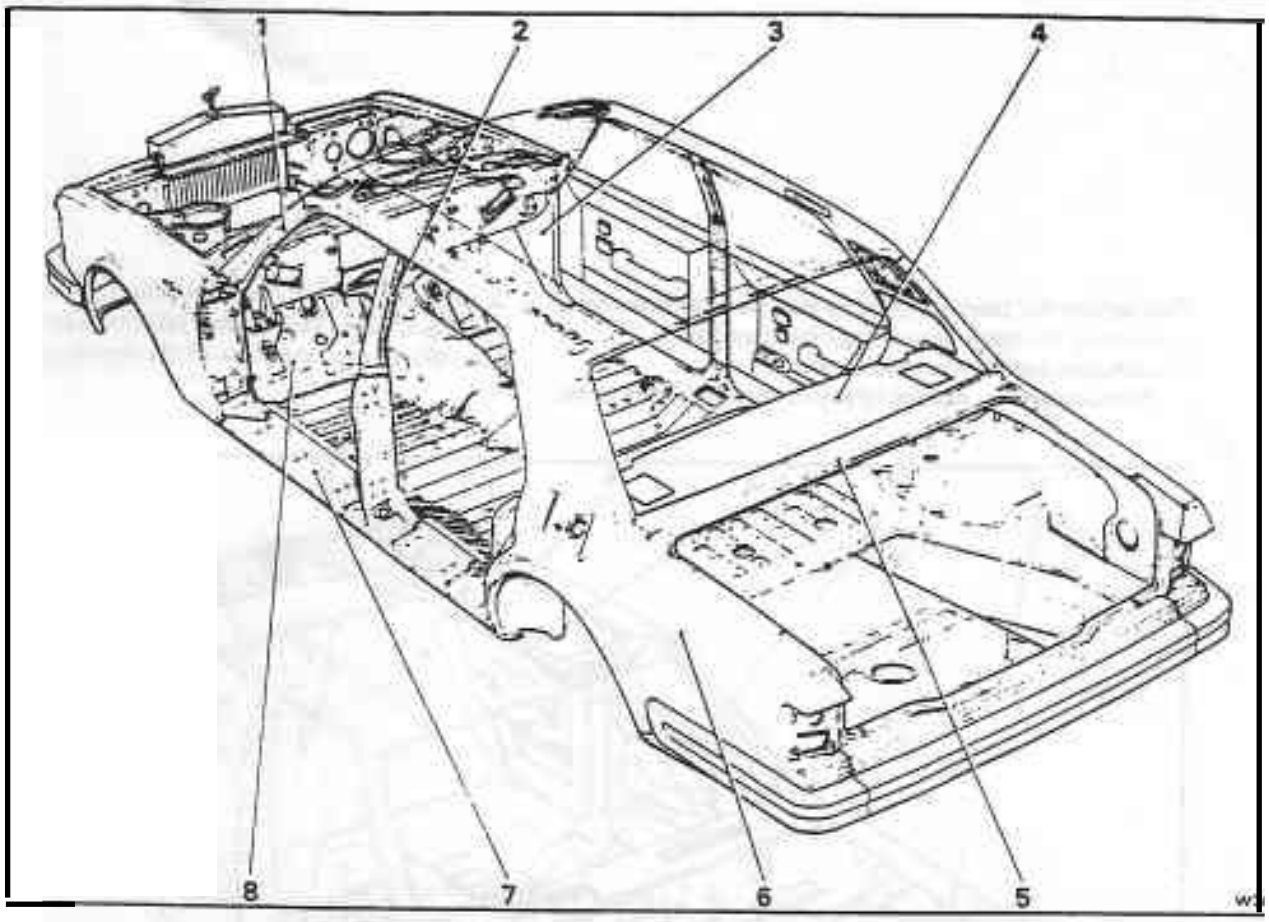

Fig. S1 - 2 Body terminology

1. 'A' post
2. 'C' post
3. Side scuttle trim
4. Parcel shelf
5. Rear decking panel
6. Tonneau or Rear wing
7. Sill
8. Toeboard

Special precautions

Introduction
Chapter S contains references to various types of cleaners, primers, adhesives, paints, etc. When these materials are used correctly, they are perfectly safe and do not constitute a health hazard. However, the following precautionary measures should be taken to eliminate the possible dangers associated with their use.

Cleaners, Primers, and Adhesives
Genklene
Bostik Cleaner 6001
Bostik Primer 9252
3M Glass/Body Primer XC 5892
Apollo Adhesive AX 2344
Apollo Adhesive AX 7006
Bostik Adhesive 1261
Boscoprene Adhesive 2402 (Parts 1 and 2)
Dunlop Adhesive S 1240
Dunlop Adhesive L 107
Dunlop Adhesive S 1127

With the exception of Genklene, the cleaners, primer and adhesives listed above are all classified as **highly inflammable**. When using them the following precautions must be taken.
1. Always replace the lid on any container when not in use.
2. Always store inflammable materials in lockable metal cupboards.
3. The cleaners and adhesives must not be used in a confined or badly ventilated area.
4. The use of a suitable barrier cream and/or the use of protective gloves is recommended.
5. Use a suitable antiseptic cleaner to remove any adhesive from the skin. **Do not use cleaning solvents.**

Genklene
Genklene is the I.C.I. trade name for trichloroethane. It possesses anaesthetic properties and the inhalation of high concentrations of vapour will cause drowsiness, headache, and giddyness.

When handling Genklene, the following precautions must be observed.
1. Genklene should only be used in well ventilated areas.
2. Genklene should not be stored or carried in buckets or open containers. Any container used for storing Genklene should be clearly marked.
3. Issue of Genklene should be closely controlled. The drums should be kept in locked storerooms with a responsible person in possession of the key.
4. In the event of a major spillage, the area should be evacuated and then thoroughly ventilated.
5. Genklene should not be emptied into drains.
6. Avoid skin contact with Genklene as far as possible. It is a powerful solvent and will remove fat and oils from the skin; this could lead to a skin disease such as dermatitis. If contact is likely, wear PVC gloves and an appropriate barrier cream such as Rozalex No. 9.
7. When applying Genklene with a brush, it is essential that the eyes are protected with goggles.
8. Genklene should be used sparingly. Avoid soaking the cloth and clean only small areas at a time.

Use a squeeze type bottle or a container with a spout for applying Genklene to the cloth.

After use, cloths should be deposited into a closed container.
9. Take care, when using Genklene, while working in an inspection pit. Genklene vapour is heavier than air, therefore vapours may collect at low levels.
10. Do not smoke when using Genklene. Vapours exposed to high temperatures degrade and produce toxic gases (e.g. Phosgene). For similar reasons, Genklene should not be allowed near naked flames, hot surfaces or welding arcs.

Warning
Anyone suffering from over exposure to Genklene vapour should be moved into the fresh air and medical attention sought immediately. Do not walk the patient about.

Boscoprene Adhesive 2402 (Parts 1 and 2)
1. When using Boscoprene Adhesive 2402 Parts 1 and 2 ensure that the uncured adhesive is not contaminated with water.
2. Part 2 of Boscoprene Adhesive 2402 contains the chemical isocyanate. When using this adhesive, the following precautionary and preventive measures listed in Operations 3 to 10 inclusive should be adopted.
3. Always ensure that good washing facilities are available.
4. Always wash hands thoroughly then apply a suitable barrier cream before commencing work. Rubber gloves may also be worn but care must be taken to ensure that they are clean.
5. Ensure that a suitable antiseptic cleansing cream is available for removing spilt isocyanate, etc. from the skin. **Do not use cleaning solvents.**

If contact with the skin has occured, clean the affected area with cleansing cream immediately, then wash thoroughly with soap and water. If prolonged contact has occured, treat the affected area with diluted ammonia in the following proportions

Water	90)
liquid detergent	2) Parts by
Concentrated ammonia S G 0.880	8) volume

then rinse thoroughly with water.

6. If the isocyanate is accidently splashed into the eye, **immediately** wash the eye thoroughly with water, apply a drop of olive oil then, **seek medical aid.**
7. If the isocyanate is spilt onto clothing, treat with liquid decontaminant i.e. diluted ammonia (see Operation 5).
8. Any spilt isocyanate should be **immediately** wiped away and the affected area treated with liquid decontaminant.
9. To dispose of any small quantities of waste isocyanate slowly add them to at least twenty times their volume of liquid decontaminant in an open container stirring slowly. Allow the mixture to stand for two hours after which it can be safely washed down the drain with large quantities of water.
10. If any Boscoprene Adhesive 2402, Part 2 (isocyanate) is in the vicinity of a fire the following precautions must be taken.
(a) If possible, move the containers to a safe area.
(b) If it is not possible to move the containers, the possibility of injurious vapour must be anticipated and the area evacuated immediately.
(c) Breathing apparatus resistant to isocyanate fumes must be used by anyone remaining in the affected area.
(d) **All fire brigade personnel must be informed of the chemical hazard.**
(e) Small fires are best extinguished with dry chemicals or carbon dioxide extinguishers. **Do not use water extinguishers**, as further heat is generated by the reaction of water with the isocyanate chemical (Part 2 of Boscoprene Adhesive 2402).

Paints, Solvents, Thinners, etc.
The following precautions should be taken to reduce fire risks from solvent fumes, static electricity and spontaneous combustion where paints, solvents and thinners are used or stored.

Solvent fumes
1. Display **'No Smoking'** and **'No Naked Flames'** signs and ensure that blow lamps and welding equipment are not used in the vicinity of the painting area.
2. Solvents and fumes can spread out over large areas and ignite. Therefore, **wipe up spilled thinners immediately and dispose of the cloth.**
3. Always provide a good ventilation system to remove fumes.
4. Replace all caps and covers on containers.
5. All solvent containers and electrical equipment should be properly earthed. **Do not use temporary electrical installations.**

Static electricity
1. It is advisable, when pouring thinners and solvents, to connect the containers with electrically conductive wire and earth them.
2. If possible, earth all equipment in the paint shop.
3. Do not splash the thinners when pouring. **Always pour the thinners down the side of the container.** Thinners that is allowed to free fall through the air can generate static electricity.
4. Do not use plastic containers for storage.

Spontaneous combustion
1. Some materials such as oils and certain paints, which have been wiped up with cloth and cotton waste, oxidise so rapidly that sufficient heat is generated to cause ignition. Therefore, immediately after wiping up any spillage, remove the cloth/cotton waste from the paint shop area.

Basic rules in the paint shop
Three basic rules apply to safety in the paint shop, they are.
1. Keep the paint areas clean and tidy.
2. Ensure proper ventilation.
3. Look after all equipment, especially the electrical equipment.

Front doors

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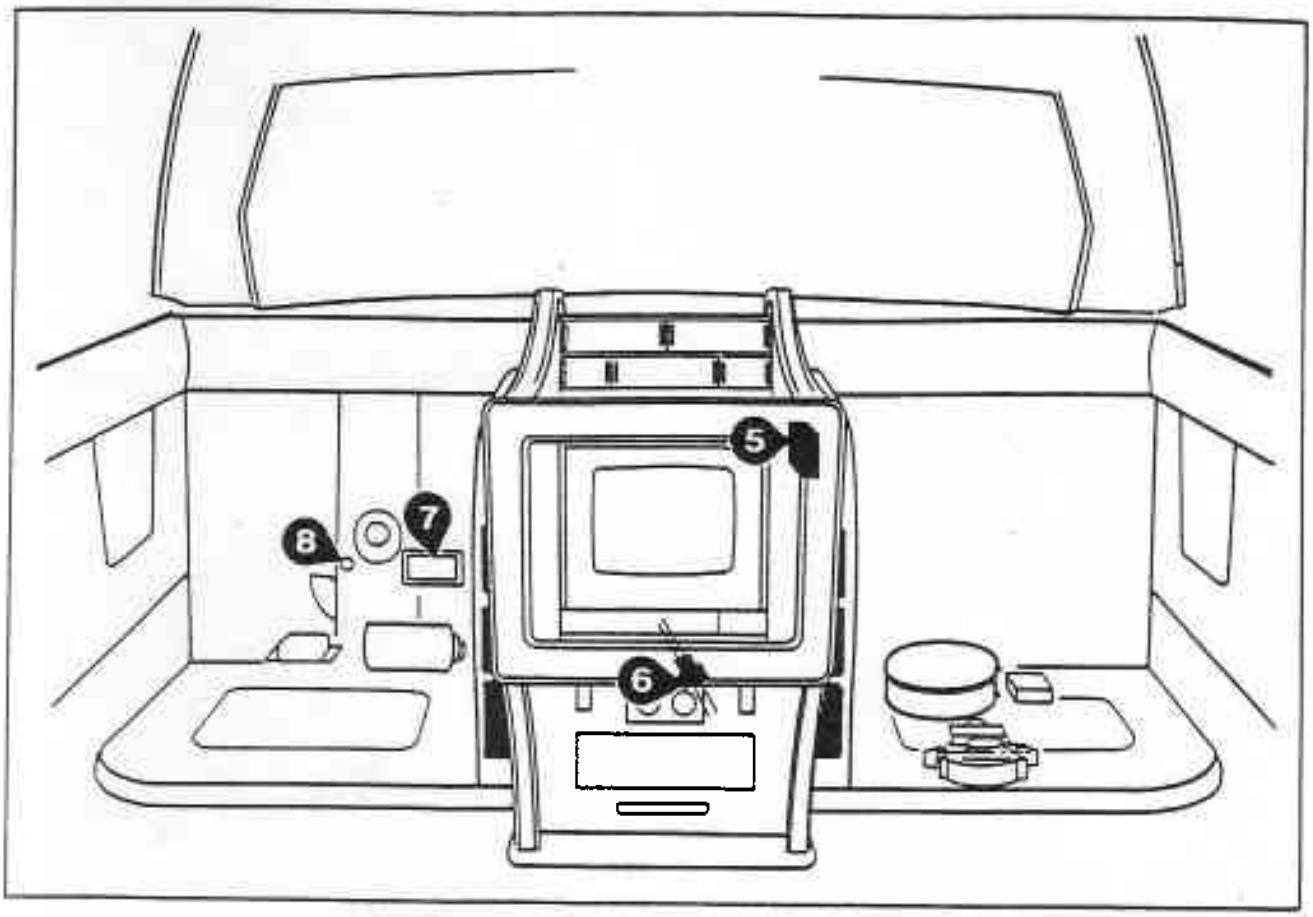
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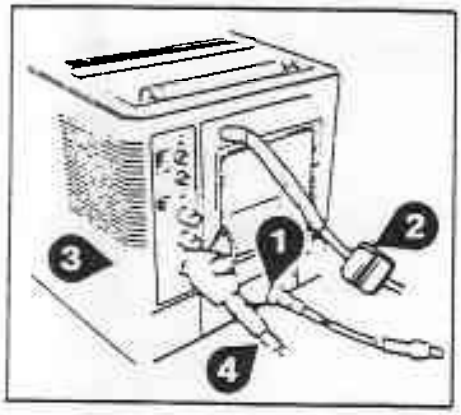
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Front doors

Introduction

The doors are constructed from aluminium. They have been designed with the emphasis placed upon ease of access to components within the door, i.e. adjustment points are attainable with the minimum of trim removal.

From vehicle identification number *SCBZS0T02DCH08001* a new door locking system was introduced. To accommodate the new lock, changes have been made to the door panels. This prevents the fitting of the new lock on cars prior to vehicle identification number *SCBZS0T02DCH08001*.

The new lock has a claw mechanism which locks into position on a striker pin mounted on the 'B' post.

Door trim - To remove (see fig. S3-1)

1. Disconnect the battery.
2. Unclip and remove the lower carpet trim panel.
3. Remove the outer trim panel.
4. Lower the bottom section of the arm rest. Release the step lamp bulb unit then remove the lower arm rest.
5. Remove the top section of the arm rest.
6. Using a small bladed tool, carefully remove the escutcheon covers from the door handle and window lift switch(es). Take care not to damage the surface of the covers.
7. Remove the escutcheons from around the door handle and window lift switch(es).
8. Remove the centre trim panel and pocket, threading the step lamp bulb unit through the panel.
9. Remove the black waterproof dust sheet.
10. Remove the waist rail finisher assembly as follows.

Remove the ash tray.

Release the door seal at both ends of the waist rail finisher and remove the screws situated in the seal channel.

Slacken the lock-nuts and unscrew the sill lock control button.

Release the setscrews and remove the waist rail finisher.

Note

On cars fitted with the micro-switches on the waist rail, remove the screws and allow the switches to hang loose. Then, release the setscrews and remove the waist rail finisher.

Door trim - To fit (see fig. S3-1)

Reverse the procedure given for removal noting the following.

1. Before fitting any trim, ensure that any loose debris is removed from the bottom of the door.
2. On cars fitted with micro-switches on the waist rail proceed as follows.

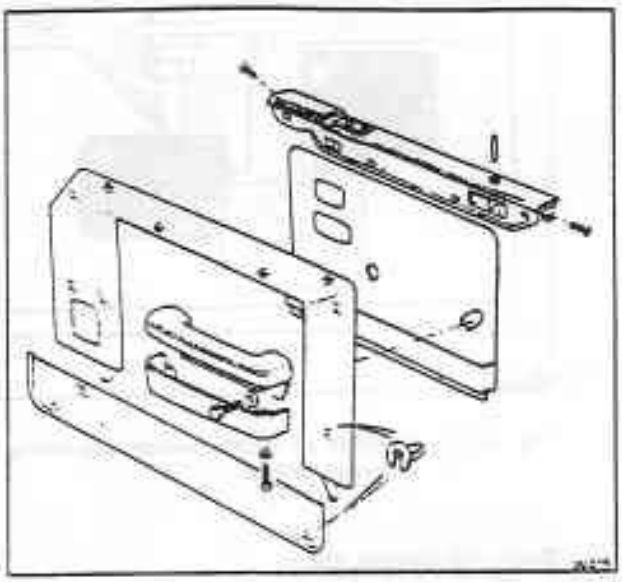

Fig. S3-1 Door trim

Ensure that the two nuts, washer, and micro-switch operating bracket are in position on the control rod. Screw the sill button onto the control rod so that the machined shoulder of the button fits into the hole in the micro-switch bracket.

Adjust the height of the operating bracket until the gap between the bracket and the micro-switches is equal at both ends of the travel (see fig. S3-17). Securely tighten the nuts so that the bracket is gripped firmly between the washer and sill button without altering the height of the bracket.

Check that the micro-switch operating bracket does not vibrate against the switches or rattle on the door locking rod. If rattles are found in these areas, release the two nuts securing the bracket and ensure that the bracket sits centrally between the two micro-switches (see fig. S3-2). Securely tighten the nuts, then check that the sill button locking operation is correct and that the overtravel is equal in both directions.

Apply Seelastik or Loctite around the guide hole in the operating bracket (see fig. S3-3).

3. Check that the sill lock control button slides smoothly through the guide bush. If any vibration is detected in the guide bush area, check that the guide bush is seated correctly in the waist rail finisher and that it is secured by a Starlock washer (see fig. S3-4). If necessary, renew the guide bush and Starlock washer.

Note

Apply a small amount of silicon grease inside the guide bush.

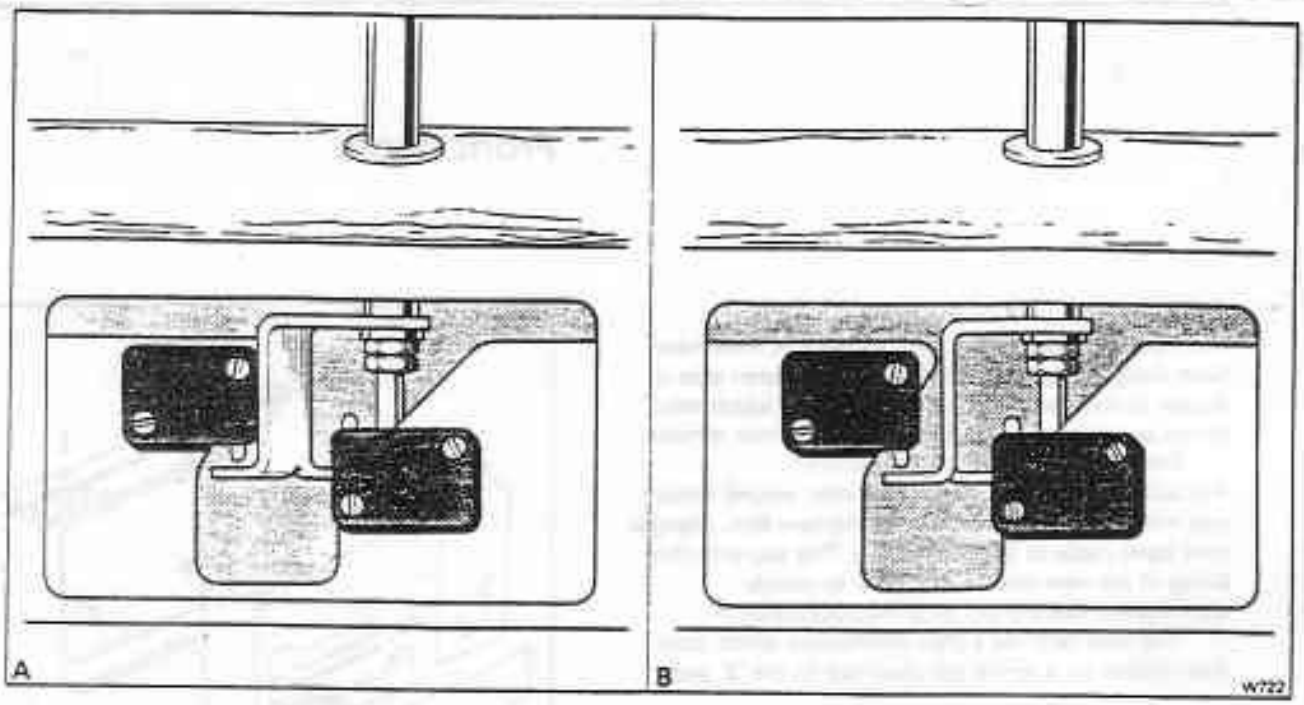

Fig. S3-2 Position of micro-switch operating bracket (Cars fitted with micro-switches at the waist rail)
A Incorrect fitting B Correct fitting

Door - To remove and fit

1. Disconnect the battery.
2. Remove the side scuttle trim pad.
3. Disconnect the door loom plugs and sockets (see fig. S3-5).
4. Apply masking tape to mark the position of the door hinges on the 'A' post.
5. Support the door then remove the setscrews from each hinge. An Allen key and extension bar are required to remove the setscrews from inside the apertures.
6. Remove the door and hinges; withdraw the door looms through the aperture in the door pillar.
7. To fit a door, reverse the procedure given for removal noting the following.
8. Lubricate all pivots and moving parts of the hinge check mechanism (except the cams) with EP 140 SC light mineral oil.
9. Check to ensure that the door hinge seals are in a satisfactory condition and that they are securely held by the retaining clips.

Door adjustment

1. Unclip and remove the lower carpet trim panel.
2. Remove the outer trim panel (see fig. S3-1).
3. Peel back the black waterproof dust sheet.
4. Slacken the hinge securing screws until they are slightly more than finger tight. The door can then be moved on its hinges.

The position of the door in the body aperture should be set as shown in figure S3-6.

When the door is correctly positioned, torque tighten the hinge securing screws (see Section S20).

Note

If the door is only partly assembled when carrying out this operation, the remaining parts of the door assembly should be weighed and the corresponding weight added to the bottom of the door. This allows for the possibility of the door dropping slightly when parts are added after the door has been set.

5. The door can also be adjusted on the striker plate as described in the following operations.
6. Use the minimum amount of striker plate shims to ensure that the door lock anti-burst flange freely locates within the slot in the striker plate.
7. Set the height position of the striker plate so that the door closes freely without raising or lowering the door.
8. Adjust the inboard/outboard position of the striker plate at its upper securing screw so that the front door aligns correctly with the rear door and the door seals seat properly on their flanges.
9. With the door closed, check the amount of inboard/outboard movement of the door in the striker plate (i.e. the door overtravel). Door overtravel is determined by the relationship between the inner face of the door lock anti-burst flange and the rubber buffer located in the striker plate (see fig. S3-7, item 4).

If the overtravel is too great, the door will rattle in the striker plate. It is therefore necessary for the rubber buffer to be brought closer to the anti-burst flange. To achieve this, slightly release the bottom securing screw. Carefully twist the striker plate about its upper fixing so that the lower part of the striker plate is swung slightly outboard. This will mean cross-serrating the striker plate; note that the maximum number of serrations that may be crossed is two.

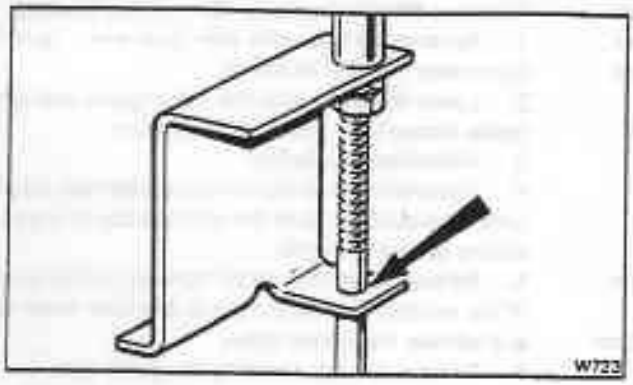

Fig. S3-3 Sealing of gap between operating bracket and door lock control rod (Cars fitted with micro-switches at the waist rail)

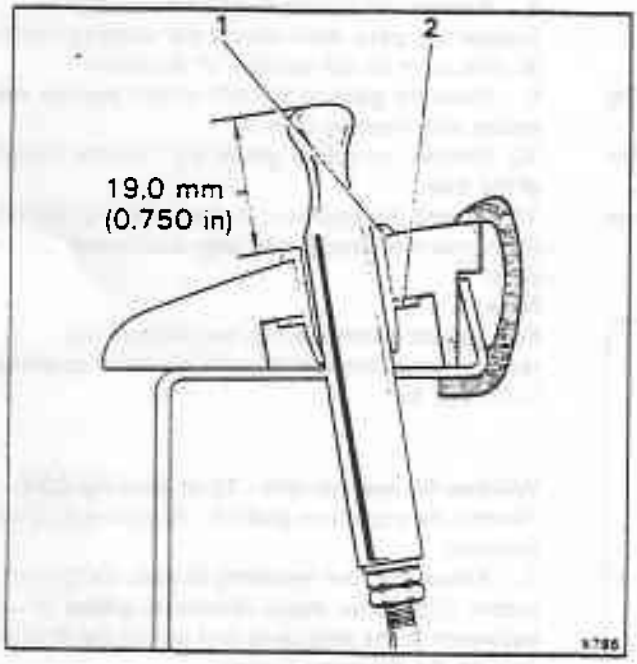

Fig. S3-4 Correct fitting of guide bush and Starlock washer

1 Guide bush
2 Starlock washer

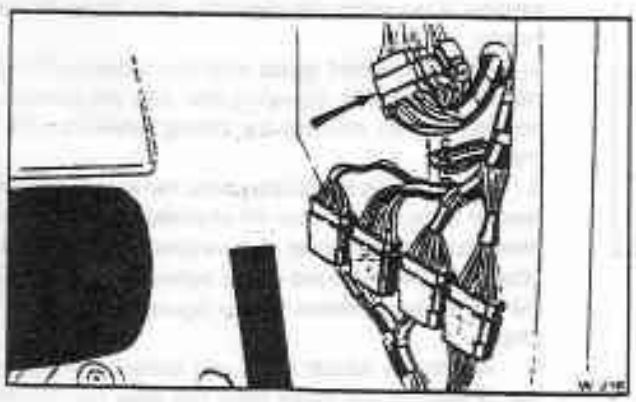

Fig. S3-5 Position of door loom plugs and sockets

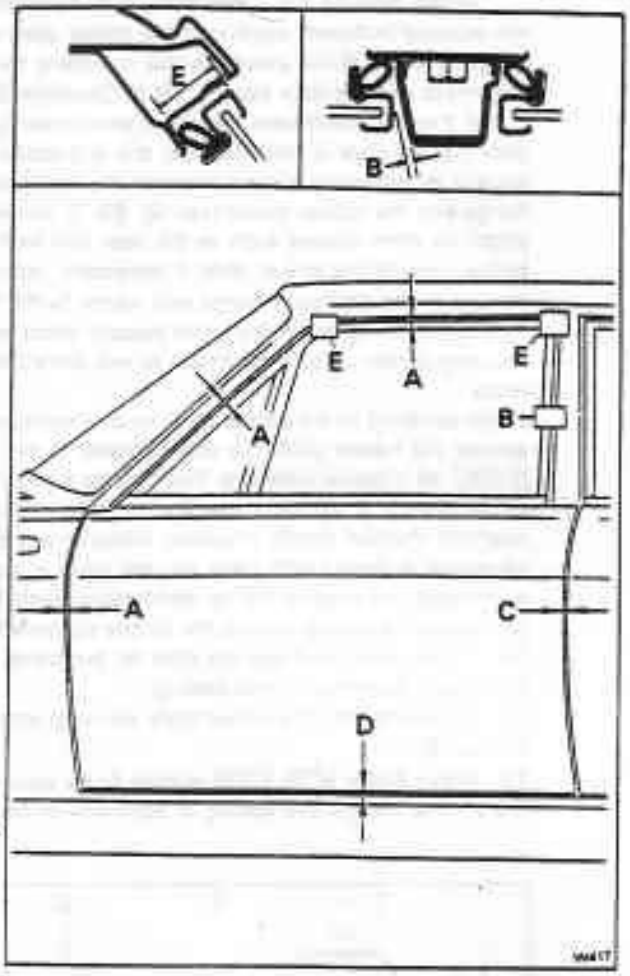

Fig. S3-6 Position of door in body aperture (Cars fitted with Dunlop door seals)

A&B 4,0 mm to 6,0 mm (0.157 in to 0.236 in)
C 5,0 mm to 7,0 mm (0.197 in to 0.275 in)
D 4,0 mm to 6,50 mm (0.157 in to 0.256 in)
E 31,0 mm to 32,0 mm (1.221 in to 1.260 in)
Cars fitted with or without the additional door frame stiffening.

Note

All door to aperture gaps to be parallel to within 1,50 mm (0.059 in) maximum in every 400 mm (15.760 in). The doors must be flush with, or up to 1 mm (0.039 in) below, the surface of the body panels.

Position of door in body aperture (Cars fitted with Meteor door seals)

A&B 5,0 mm (0.197 in)
C 6,0 mm (0.236 in)
D 4,0 mm to 6,50 mm (0.157 in to 0.256 in)
E 34,0 mm to 36,0 mm (1.339 in to 1.418 in)
Cars fitted with the additional door frame stiffening.

When twisting the striker plate, it is important that the inboard/outboard position of the striker plate upper securing screw is not altered as this maintains the door alignment and the door sealing, set in Operation 8.

If there is insufficient overtravel when closing the door (i.e. the door is hard to close) this is probably caused by excessive contact between the anti-burst flange and the rubber buffer (see fig. S3-7). However, check for other causes such as the door seal fouling, before moving the striker plate. If necessary, reduce the contact of the anti-burst flange and rubber buffer by carefully twisting the striker plate inboard about its upper securing screw up to a maximum of two serrations.

Note

Cross serrating of the striker plate by one serration adjusts the rubber buffer by approximately 1 mm (0.040 in) inboard/outboard. This creates a slight error in the seating of the serrations and prevents them reaching their full depth. However, because one set of serrations is coated with paint and the other is soft aluminium, the seating will be satisfactory when the striker plate securing screws are torque tightened.

10. If necessary, re-check the door for overtravel, closing load, gaps, alignments, and sealing.
11. Torque tighten the striker plate securing screws (see Section S20).
12. Apply Rocol MTS 1000 grease or its equivalent to the sliding wedge and spring of each striker plate.

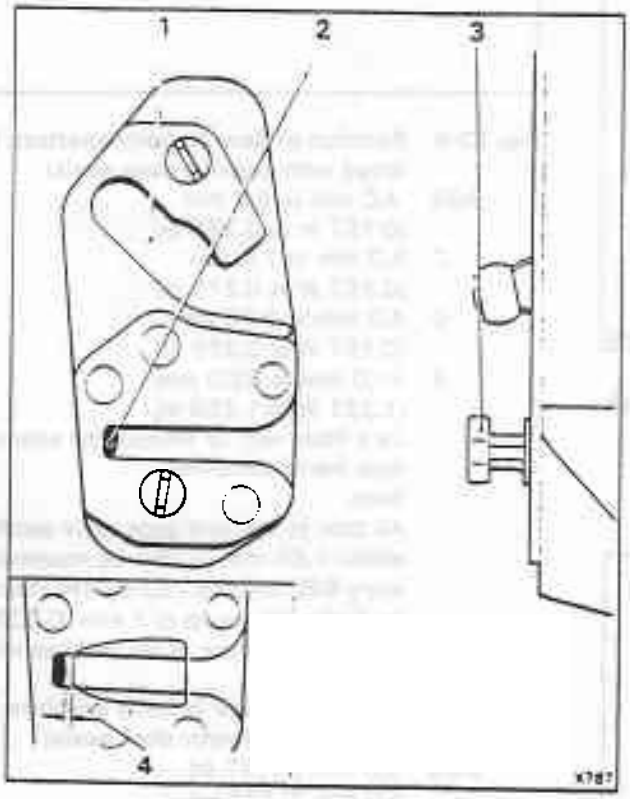

Fig. S3-7 Striker plate

1 Lock bolt roller channel
2 Rubber buffer
3 Anti-burst flange
4 Door overtravel

Window lift mechanism - To remove (see fig. S3-8)

1. Remove the door trim (see Door trim - To remove, Operations 1 to 10 inclusive).
2. Lower the glass until the nylon guide and spring are visible through the inner panel aperture.
3. Disconnect the battery.
4. Disconnect the window motor electrical leads at the Lucar connections. Note the colour code of the leads to ensure correct assembly.
5. Release the plastic retaining strap securing the top of the window lift mechanism to the door inner panel and remove the rubber block.
6. Remove the nut securing the guide plate to the window lift leg. From behind the motor, carefully push back the bolt sufficiently to slide the plate sideways. Push back the bolt and refit the nut.
7. Without removing the spring or clips, push the spring outwards, away from the end of the moulded guide. Carefully lever off and remove the moulded guide.
8. Remove the star washer and distance piece. Support the glass, then release the swinging arm from its pivot point on the window lift assembly.
9. Move the glass to the fully closed position and secure with masking tape.
10. Remove the rubber grommets from the bottom face of the door.
11. Release the setscrews and manoeuvre the window lift mechanism through the large aperture in the inner panel.

Note

Fore general information on the removal and replacement of the electric window motor assembly refer to Chapter M.

Window lift mechanism - To fit (see fig. S3-8)

Reverse the procedure given for removal noting the following.

1. Ensure that the mounting bushes are located in the bottom of the door. Apply Retinax 'A' grease or its equivalent to the setscrews and secure the mechanism through the mounting bushes.
2. Fit the rubber downstop onto the end of the swinging arm. It should be pushed on until it is 16 mm (0.625 in) past the end of the arm.
3. Ensure that the self aligning bearing on the pick-up plate is properly connected to the swinging arm on the window glass using the distance piece and a Starlock washer.
4. Fit the moulded guide over the window lift pick-up plate. Fit the hooks, ensuring that they are correctly positioned, then connect the spring between them (see inset A).
5. When fitting the guide plate, remove the nut and washer from the window lift channel. Ensure that the plate abuts to the top of the window lift channel and is fitted onto the moulded guide before torque tightening the nut to the standard torque figures specified in Chapter P.
6. Attach the rubber block and cable tie. Ensure that the tie secures the guide plate but does not foul the chain.

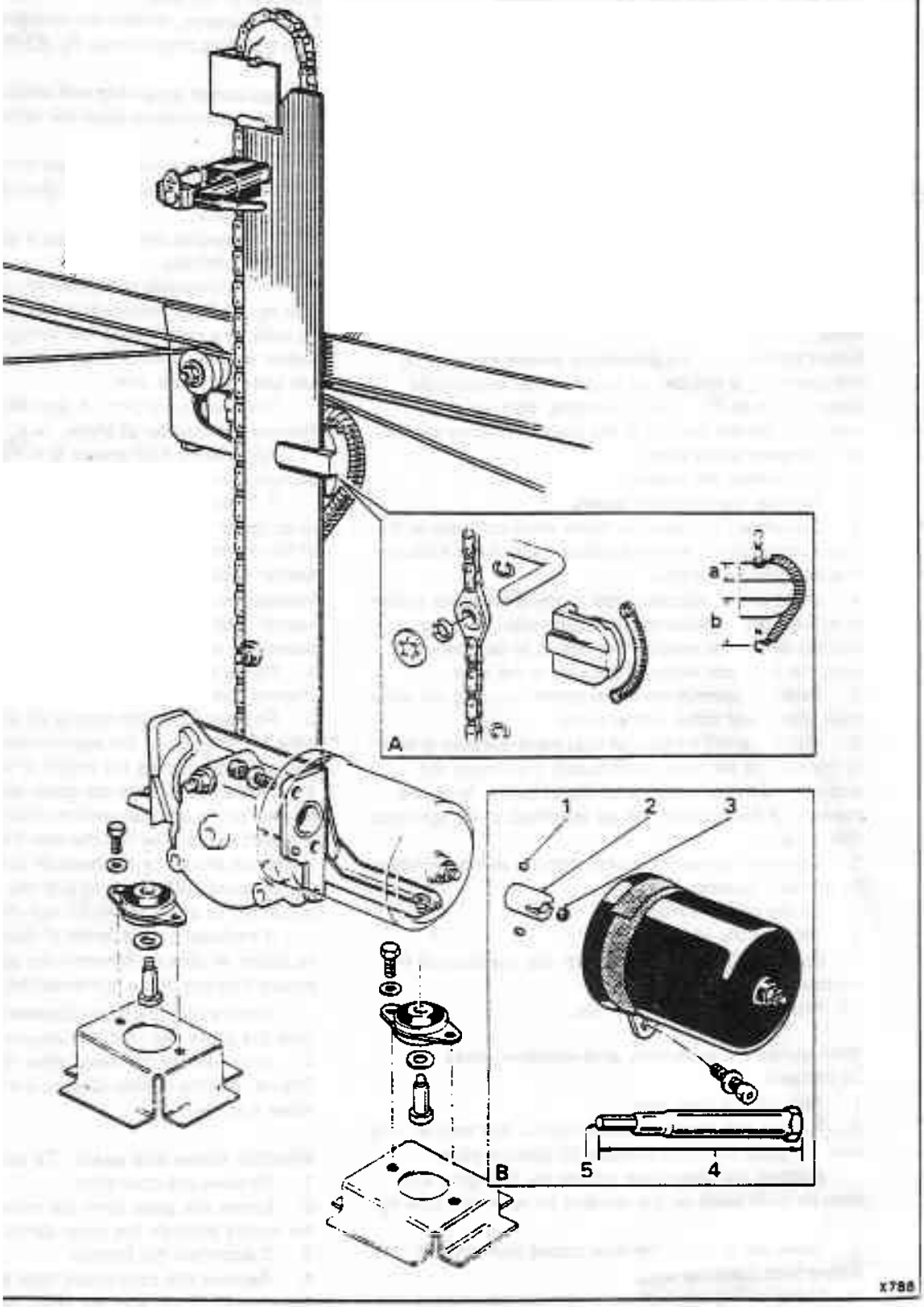

Fig. S3-8 Window lift mechanism

A Correct spring setting
1 Approximately 12,50 mm (0.50 in)
2 Approximately 34,0 mm (1.30 in)
B Daval clutch assembly
1 Silver steel roller
2 Nylon clutch body
3 Rubber buffer
4 108,0 mm (4.250 in)
5 4,76 mm (0.187 in) A/F

Window lift mechanism modification

Cars prior to vehicle identification number *SCAZS0006BCH02000*

On certain cars, the window lifts can be slow in operation and judder when the window is operated in the up position. One of the major causes for this is the incorrect positioning of the slots for the silver steel rollers in the Daval clutch (see fig. S3-8, inset B).

From the above vehicle identification number, a modified version of the Daval clutch assembly has been used which allows the silver steel rollers to function correctly without creating any unnecessary friction. These modified clutches can be fitted on cars prior to the above vehicle identification number using the following procedure.

Note

Before carrying out the procedure, always ensure that the juddering is not caused by any other undesirable feature such as, tight glass channels, tight waist rail finisher, incorrect tension of the counter balance cables or misaligned guide plate.

1. Disconnect the battery.
2. Remove the door trim panels.
3. Disconnect the window motor electrical leads at the Lucar connections. Note the colour code of the leads to ensure correct assembly.
4. Using a tool manufactured to the dimensions shown in figure S3-8, remove the window motor. This tool enables all electric window lift motors to be removed from the regulator whilst in position in the door.
5. Carefully remove the Daval clutch retaining the silver steel rollers and small rubber buffer.
6. Apply a small amount of light multi-purpose grease to the slots in the new Daval clutch, then insert the original silver steel rollers and rubber buffer. Note that the correct Daval clutch can be identified by its light blue colouring.
7. Carefully replace the clutch into the electric window lift gearbox housing.
8. Fit the window motor.
9. Connect the electrical leads.
10. Connect the battery and check the operation of the window lift mechanism.
11. Replace the door trim panels.

Wire guidance assembly and window glass - To remove

1. Remove the door trim.
2. Release the spring, moulded guide, star washer, and distance piece from the window lift pick-up plate.

Support the glass then release the swinging arm from its pivot point on the window lift assembly (see fig. S3-8).

3. Move the glass to the fully closed position and secure with masking tape.
4. Using a long screwdriver or similar tool, release the tension from one of the wires by extending the spring. Unhook the wire from its top anchor point and remove the wire.

Repeat the operation for the other guidance wire.

5. Remove the masking tape whilst supporting the glass. Lower the sloping bevelled edge of the glass until both sides are free of the window channels, then lift the glass out of the door.
6. If necessary, remove the swinging arm and pulleys from the glass channel (see fig. S3-9).

Wire guidance assembly and window glass - To fit

Reverse the procedure given for removal noting the following.

1. Always check that the glass is in its fully raised position. This ensures that the glass always fully enters the door frame.
2. If required to refit or replace a glass channel proceed as follows.
3. Fit the swinging arm assembly to the glass channel (see fig. S3-9). A minimum of two nylon washers should be used: one each side of the swinging arm. If required, further washers should be added in order to eliminate any end-float of the arm.

The lower pivot block is chamfered on one end. Position the chamfer as shown in figure S3-9 (arrowed).

Apply Rocol ASP grease to the pivot points of the swinging arm.

A 2BA bolt and washer are used to secure the top pivot. Insert the bolt and washer from the outboard side of the channel, passing it through the pivot. A 2BA washer should be fitted onto the bolt on the inboard side followed by a spacer, two small pulleys, a further 2BA washer, and two 2BA nuts. Two 2BA bolts and washers secure the swinging arm at the lower pivot block.

4. Fit the large pulleys at each end of the window channel (see fig. S3-9).
5. Fit black Gosheron tape or its equivalent over the edge of the glass, to the approximate depth of the channel and covering the length of the glass.
6. Fit the rubber over the glass, align the tongue on the end of the channel with the front edge of the glass and start to press on the channel. Considerable resistance should be felt because the rubber must be compressed sufficiently to grip the glass when subjected to a pull of 40.82 kgf (90 lbf).

If necessary, extra layers of Gosheron tape should be added as packing between the glass and rubber to ensure that this figure is maintained.

Ensure that the glass channel is pressed fully onto the glass and that it is square to the glass.

7. When fitting the wires refer to figure S3-9. Ensure that the rubber sleeves are fitted over the lower springs.

Window frame and seals - To remove

1. Remove the door trim.
2. Lower the glass until the nylon guide and spring are visible through the inner panel aperture.
3. Disconnect the battery.
4. Remove the centralized door locking micro-switches (if fitted) and the waist rail finisher.
5. Release the wires from the window guidance system.
6. Remove the star washer and distance piece. Support the glass, release the swinging arm from the window lift mechanism, then remove the window glass from the door.

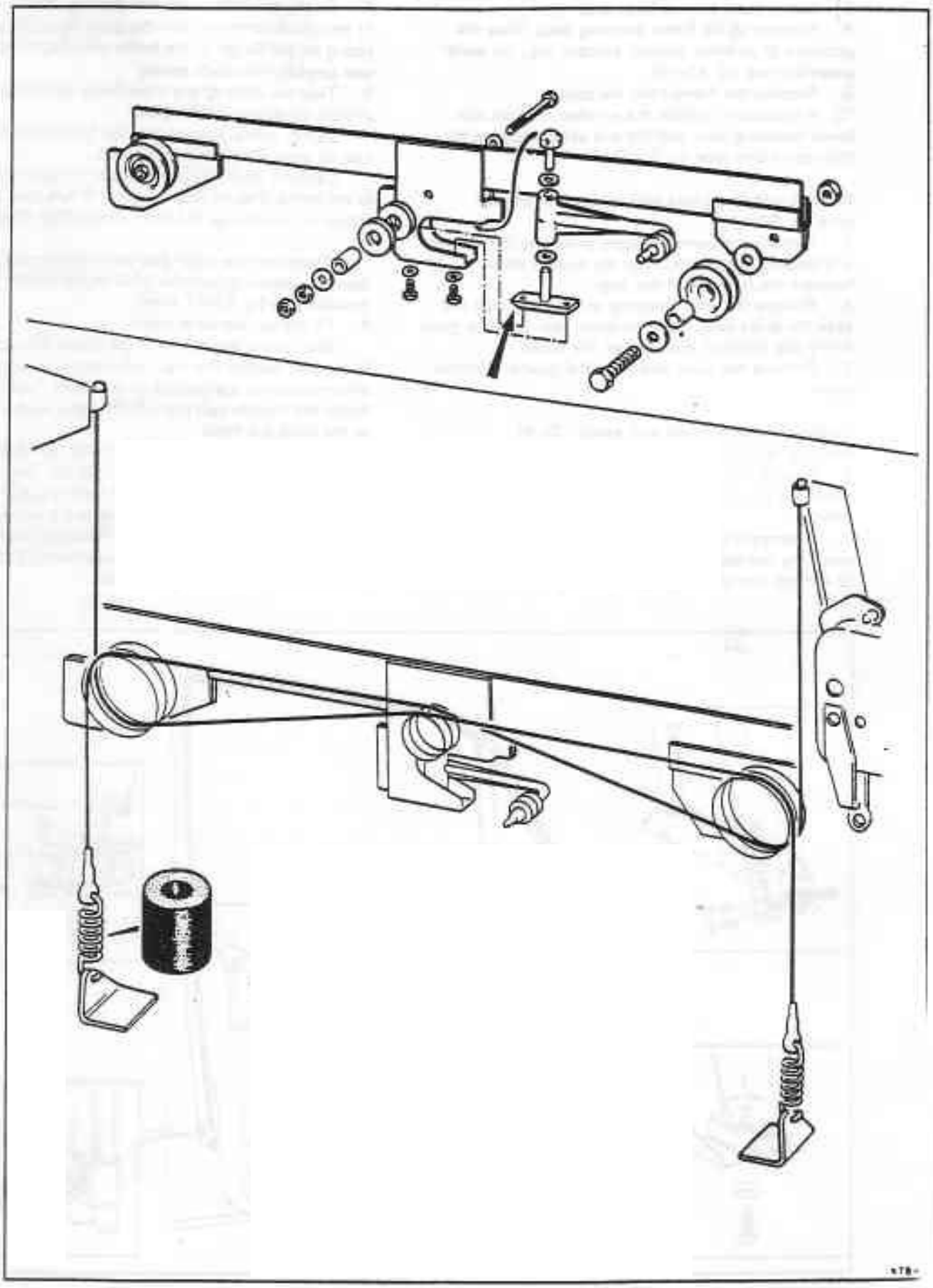

Fig. S3-9 Wire guidance assembly and window glass channel

7. Remove the door to body seal.
8. Remove all the frame securing bolts. Note the positions of all bolts, screws, spacers, etc., for easier assembly (see fig. S3-10).
9. Remove the frame from the door.
10. If necessary, remove the window channel seal, fence moulding seal, and the end seals between the door and frame (see fig. S3-11).

Quarter window glass and seals - To remove (see fig. S3-11)

1. Remove the frame securing bolts and the screws and tapping plate from under the quarter glass. Remove the frame from the door.
2. Release the inner sections of the glass seal and ease the glass away from the outer seal. Grip the glass firmly and carefully slide it from the frame.
3. Remove the outer seal from the quarter window frame.

Quarter window glass and seals - To fit (see fig. S3-11)

1. Ensure that the inside of the frame channels, especially the corner areas, are clean and free from debris.

If necessary, where old seals are being replaced, clean the window channel with Bostik Cleaner 6001 to remove any adhesive; allow to dry.

2. Fit the moulded outer seal (see fig. S3-11, item 1) into the door frame with the outer lip of the seal sitting on the flange of the frame channel. Work the seal carefully into each corner.
3. Tape the edge of the inner fence moulding to prevent scratching of the glass.

Lightly smear soap across the bottom of the outer seal for ease of access of the glass.

Carefully slide the quarter glass through the slot in the frame. Ensure that the glass is fully into the rebate on all sides or the inner seal will be difficult to fit.

Check that the outer seal has not been disturbed, then fit wedges to hold the glass in the correct position (see fig. S3-11 inset).

4. Fit the tubular inner seals.

Start at the top corner of the frame. First cut and fit the seal nearest the main window glass (item 2), then the one on the outside of the frame (item 3) and finally the bottom seal (item 4). Remove each wedge as the seals are fitted.

The seals should be fitted so that the lip of each seal fits over the channel (see fig. S3-11, item 5).

When fitted, ensure that the inner seals on the two vertical legs of the quarter frame are not visible when viewed through the glass. When looking through the glass at the bottom seal, approximately 6,3 mm (0.250 in) of seal should be visible.

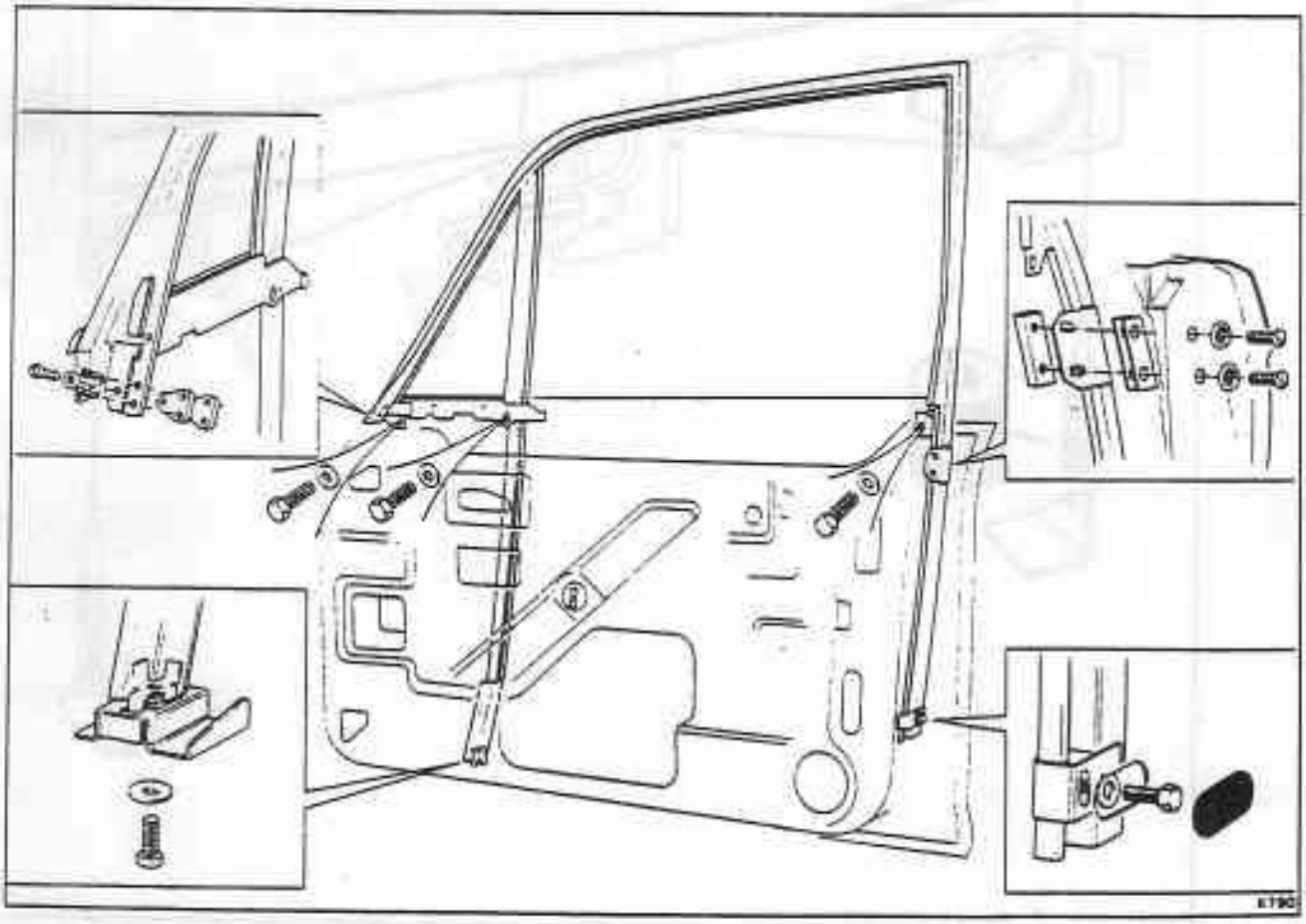

Fig. S3-10 Window frame fixing and adjustment points

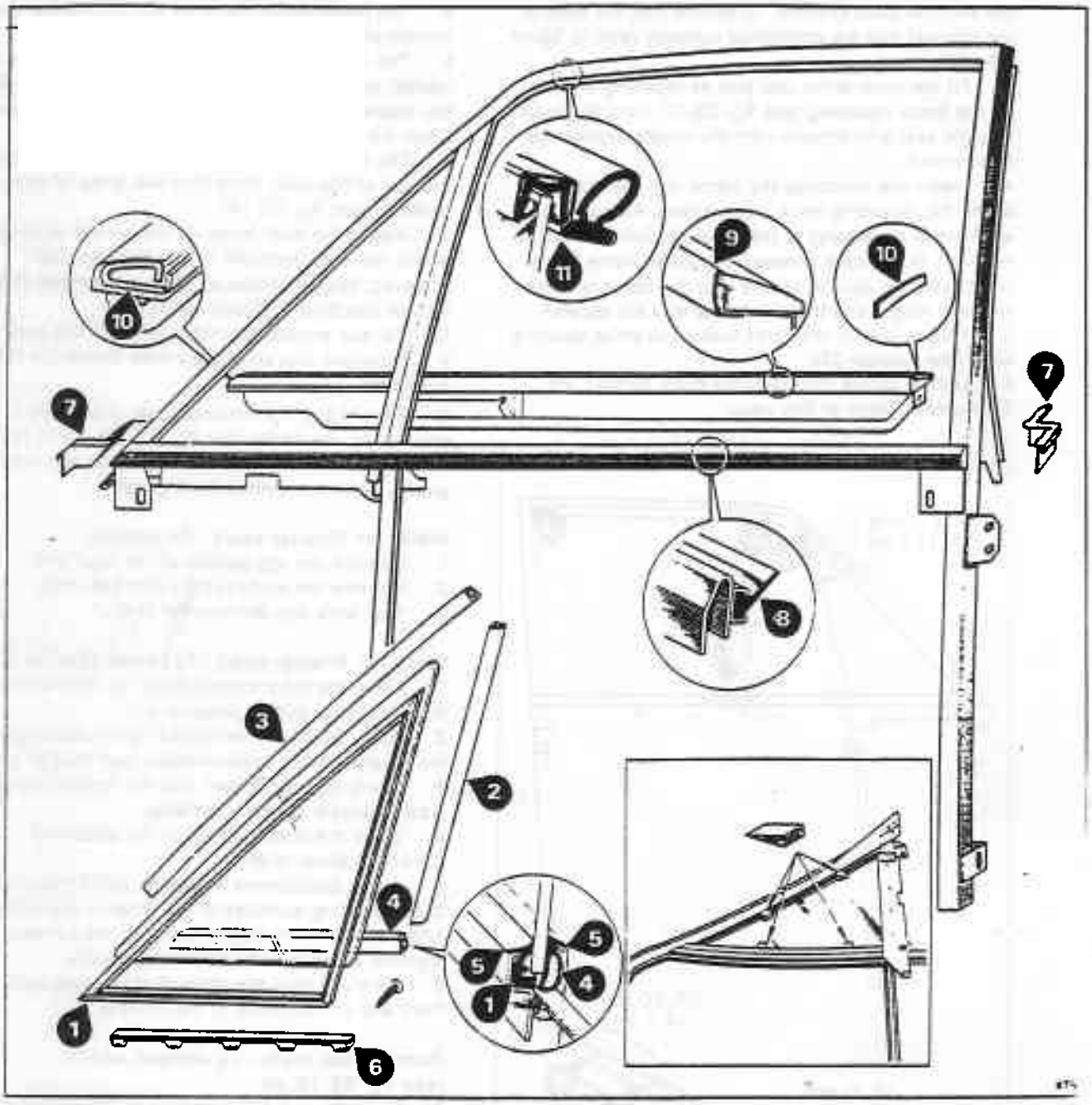

Fig. S3-11 Quarter window and door seals

1 Moulded outer seal
2 Inner section - Inner seal
3 Outer section - Inner seal
4 Bottom section - Inner seal
5 Correct seal lip position
6 Spacer
7 End seals
8 Fence moulding seal
9 Waist rail finisher seal
10 Self adhesive seals - Waist rail finisher
11 Window channel seal and Door to body seal

5. Using the self-tapping screws, secure the spacer (item 6) inside the inner fence moulding, and into the support angle of the frame.

Window frame and seals - To fit and adjust (see figs. S3-10 and S3-11)

Reverse the procedure given for removal noting the following.

1. Clean the bonding surfaces of the end seals (see fig. S3-11, item 7) and door using Bostik Cleaner 6001; allow to dry. Apply Bostik Primer 9252 to the bonding surface of the door. Allow approximately on hour to dry.

Apply Boscoprene Adhesive 2402 (parts 1 and 2 to the bonding surfaces of the door and seal. Allow 'flash' dry before bringing the surfaces together usir maximum hand pressure.

2. Apply Teepol or its equivalent around the inside

the window glass channel. To ensure that the slots in the channel seal are positioned correctly refer to figure S3-12.

3. Fit the outer waist seal into its retaining channel on the fence moulding (see fig. S3-11, item 8). Ensure that the seal is in contact with the vertical frame legs at each end.

4. Insert and centralize the frame into the door and locate the mounting bolts and washers. Fit packing washers (if necessary) at the waist rail fixings. Also, if required, fit washers between the lower frame fixing points and the door to ensure that the frame is at the required height and that the frame legs are parallel.

5. Torque tighten the three horizontal waist securing bolts (see Section 20).

6. Lightly secure the following bolts, screws, etc., but do not tighten at this stage.

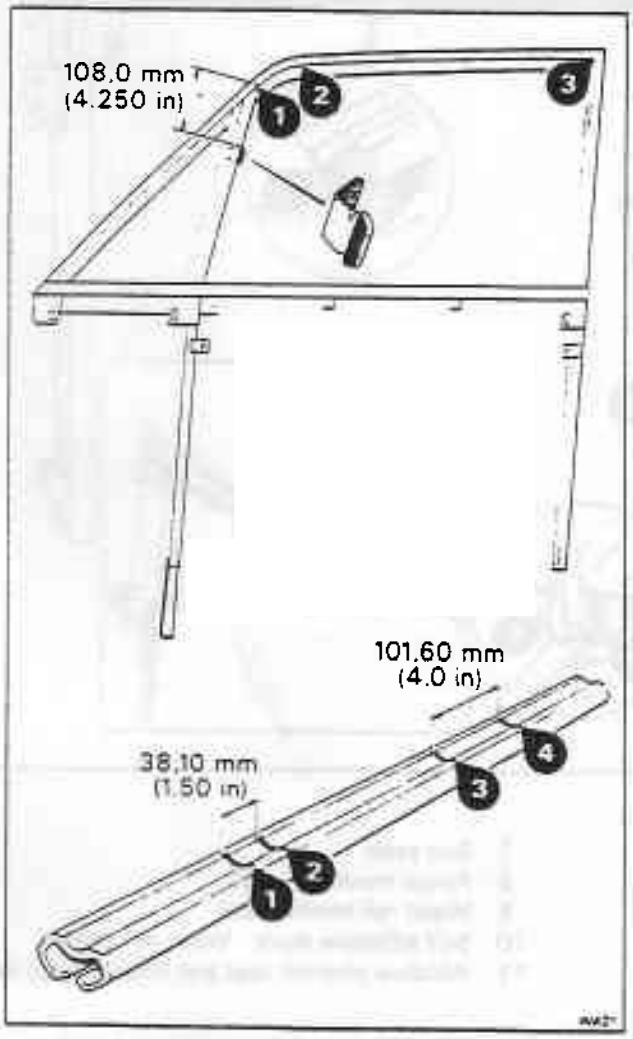

Fig. S3-12 Window frame channel seals and guides
Position slot 3 into top 'B' post corner.
Feed the remainder of the seal into the channel.
Slot numbers 1 and 2 should align with the 'A' post cantrail bends.
Slot number 4 is for use on rear door Silver Spur cars only.

a. The frame adjusting bolts and washers at the bottom and rear of the door.

b. The countersunk screws and large ring bolt and washer on the front of the frame. Note that the flat on the washer should be adjacent to the seal channel when the ring bolt has been fully tightened.

c. The countersunk screws and special washers on the rear of the door. Note that two sizes of shim are available (see fig. S3-10).

7. Adjust the door frame to the correct dimensions within the door aperture. When this has been achieved, torque tighten all bolts and screws to the figures specified in Section S20.

8. For any subsequent adjustment of the door frame, it is important that all of the frame fixings are first slackened.

9. Ensure that the window glass guides are in position on the frame (see fig. S3-12). To fit them, pull out the channel seal in the correct area and spring the guides into the channel. Fit the seal.

Waist rail finisher seals - To remove

1. Remove the top section of the door trim.
2. Remove the waist rail finisher assembly.
3. Peel back and remove the seals.

Waist rail finisher seals - To renew (see fig. S3-11)

1. Clean the old adhesive from the finisher with Bostik Cleaner 6001; allow to dry.
2. Apply Bostik Primer 9252 to the bonding face of the finisher. Allow approximately one hour to dry.
3. Using fine sandpaper, rub the face of the seals to create suitable bonding surfaces.
4. Clean the bonding face of the seals with Genklene; allow to dry.
5. Apply Boscoprene Adhesive 2402 (parts 1 and 2) to the bonding surfaces of the finisher and seals. Allow to 'flash' dry before bringing the surfaces together using maximum hand pressure.
6. Carefully stick the self-adhesive seals onto the front and end sections of the finisher.

Dunlop door seals - To remove and fit (see fig. S3-13, A)

1. Carefully pull out a section of the seal and progressively remove it from its channel.

Do not attempt to remove the black filler pieces at each side of the frame waist.

2. Fit the door seal at the points 1,2,3, and 4 shown in figure S3-13, A.

3. Manoeuvre the seal evenly into the channel as follows.

Above the points 3-3, locate the seal to the inner part of the door channel. Then, press in the outer edge a short length at a time.

Below the points 3-3, locate the seal to the outer part of the door channel. Then, press in the inner edge a short length at a time.

A wood or perspex wedge shaped tool with smooth edges will assist during this operation.

Care must be taken not to stretch the seal when fitting or to damage the paintwork. Do not lubricate

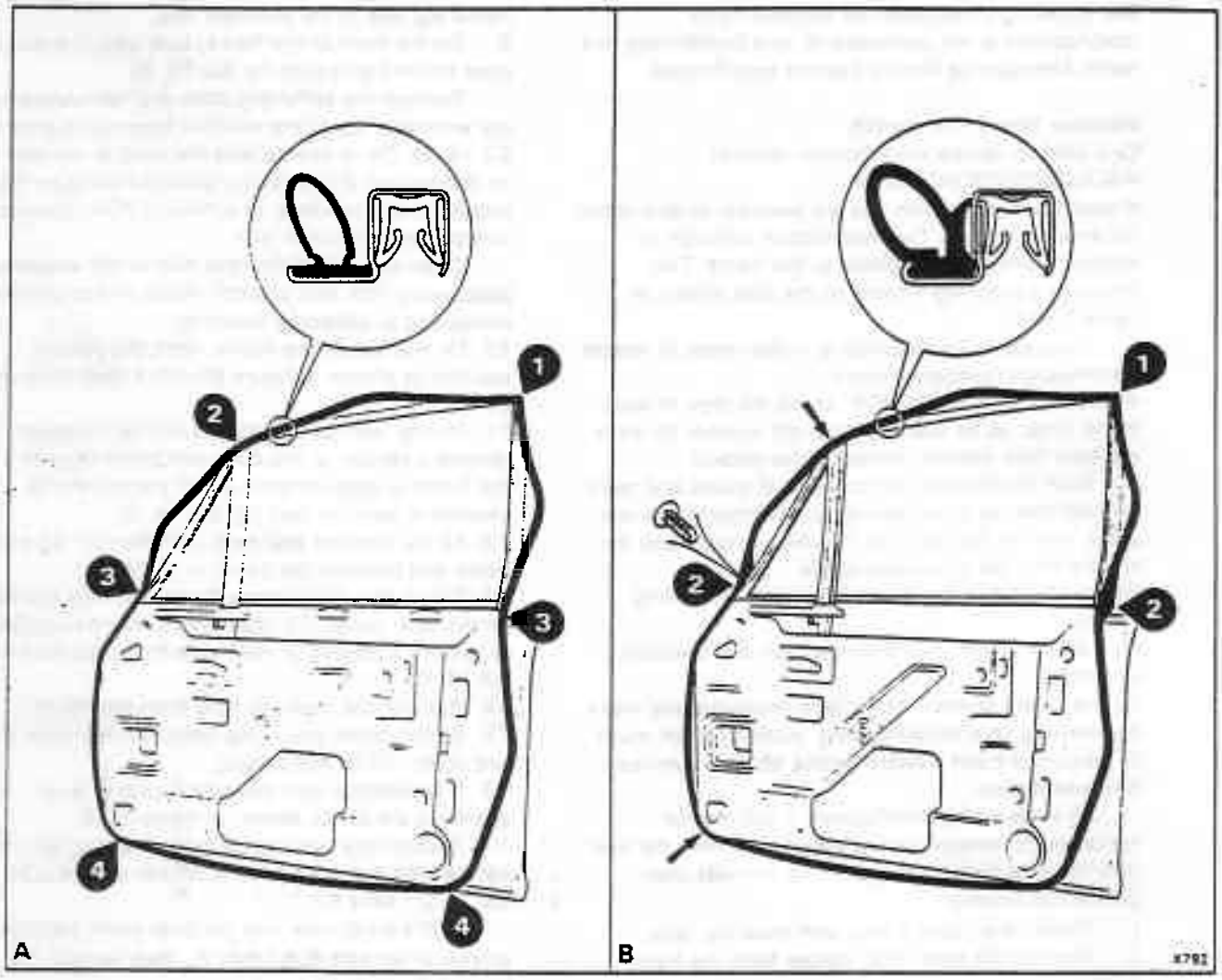

Fig. S3-13 Door to body seals
A Dunlop door seal
B Meteor door seal

the seal inside the channel when fitting.

4. When the seal has been fitted satisfactorily, fill any gaps immediately above the door to frame end seals using Glasticon Sealer.

5. Lightly smear the seal with Crude Palm Grease.

Meteor door seals - To remove and fit
(see fig. S3-13, B)

1. Release the Fastex drive fastener from the seal at the 'A' post.

2. Carefully pull out a section of the seal and progressively remove it from its channel.

3. To fit the seal, start by applying a light coating of Palm Grease to the base section of the seal. Apply the grease from the waist downwards (i.e. below the points 2-2). **Do not** apply the grease to the window frame or the upper half of the seal.

Note
Petroleum jelly or Vaseline must not be used on these seals.

4. Locate the seal onto the door frame at the top corner of the 'B' post (point 1). Then, to the 'A' and 'B' posts at the waist moulding (points 2-2).

Manoeuvre the remainder of the seal into the retaining channel between these points. Take care not to stretch the seal at the upper and lower 'A' post corners (arrowed).

When fitting the seal, **do not** close the door. Failure to observe this could lead to permanent damage of the seal.

Note
Use only a round edged perspex tool when pressing the seals into the retaining channel.

5. Secure the seal at the 'A' post waist with a Fastex drive fastener.

6. After fitting, apply a light coat of chalk or talcum powder around the outer bulbous section of the seal **Do not use grease or oil.**

7. Close the door. Check the frame to cantrail seal landing dimensions (see fig. S3-6). If necessary, adjust the seal until the correct measurement is attained.

8. With the seal correctly positioned, the door should be left fully closed for a minimum of twelve hours. This allows the seal to set, which will minimize the possibility of the seal fouling when closing the door.

The following information on window frame modifications is not applicable to cars conforming to a North American or Middle Eastern specification.

Window frame - To modify

Cars prior to vehicle identification number *SCAZS0006BCH02000*

If required, modification kits are available to strengthen the window frames. The modification consists of welding stainless steel plates to the frame. This produces a more rigid fixing of the type shown in figure S3-10.

If the car to be modified is in the range of vehicle identification numbers around *SCAZS0006BCH02000* check the type of door frame fitted, as an exact VIN cut off number for early and later type frames cannot be guaranteed.

Each modification kit consists of plates and seals for both front and rear doors (for information on rear doors, refer to Section S4). The kit numbers and the models they are applicable to are.

RH 2849 - Silver Spirit and Mulsanne (excluding Turbo).

RH 2851 - Silver Spur (Non-division and Division).

Important

Before using these kits, or commencing any work concerning this modification, authorization must be obtained from a Rolls-Royce Motors Service Representative.

To achieve the modification, it will first be necessary to remove the window frame from the door (see Window frame and seals - To remove) then proceed as follows.

1. Protect the upper frame with masking tape.
2. Remove the black filler pieces from the frame waist.
3. Pick out the correct plates, positioning them as shown in figure S3-14, A.
4. Using the original stiffening plate and suitable nuts and bolts, temporarily secure the new extension plate in position on the front of the frame (see fig. S3-14, B).
5. Remove the channel seal from the rear leg of the frame.
6. Position and clamp the new stiffening plate onto the rear leg of the frame (see fig. S3-14, C). Ensure that the elongated holes in the stiffening plate are facing uppermost. Also ensure that the back edge of the plate is positioned parallel with the radius of the frame leg edge.
7. Before welding the plates into position, note the following.

In order to minimize distortion of the window frame and localize heating, one of the following types of welding must be used.

a. Tungsten inert gas (T.I.G.).
b. Metal inert gas (M.I.G.).
c. Arc welding.

Important

Oxyacetylene must not be used, as this will distort the window frame.

8. Earth the window frame on the lower half of each frame leg, not to the polished face.
9. On the front of the frame, tack weld the extension plate to the frame (see fig. S3-14, D).

Remove the stiffening plate and run weld across the extension leg to the window frame joint (see fig. S3-14, E). Try to ensure that the weld is smooth with no projections. If necessary, grind the weld on the underside and top face, to achieve a flush fitting of the window frame to door face.

Clean and polish the face side of the extension plate, using fine 'wet and dry' paper and an abrasive compound or polishing machine.

10. On the rear of the frame, weld the plate in position as shown in figure S3-14, F then remove the clamp.
11. On the front of the door, it will be necessary to remove a section of the door seal channeling to allow the frame to seat correctly. Rivet the remaining channel in position (see fig. S3-14, G).
12. Fit the channel seal back into the rear leg of the frame and position the frame in the door.
13. Check that the window frame front leg fits flush on the door panel. If it does not, it may be necessary to remove a portion of the frame front seal (see fig. S3-14, H).
14. Remove the masking tape from the frame.
15. Fit the frame mounting bolts (see Window frame and seals - To fit and adjust).
16. It is essential that the door frame to body apertures are set as shown in figure S3-6.
17. Position the front tapping block and spacer then secure with two countersunk socket screws (see fig. S3-14, J - item 1).

Drill a small hole into the door panel through the extension leg bolt hole (item 2), then remove the tapping block and spacer.

Enlarge the drilled hole to 7,9 mm (0.312 in) diameter and remove any burrs.

Apply metal primer and primer surfacer to the edges of the hole and allow to dry.

Fit the tapping block and spacer and secure with the setscrews. Torque tighten to the figures specified in Section S20.

18. From inside the rear of the door, drill a small hole through the centre of the two elongated holes in the stiffening plate and through the door panel. The use of a slim type of drill will be necessary for this operation.

From outside the door, enlarge the drilled holes to 6.3 mm (0.250 in) diameter and remove any burrs.

Apply metal primer and primer surfacer to the edges of the hole and allow to dry.

Remove the lock roller, then the lock securing screws and bolt. Ease the lock to one side.

Use the aluminium spacers provided in the kit, as necessary, to close any gap between the stiffening plate and door panel.

Secure with the setscrews, cup washers, and tapping block (see fig. S3-14, K). Torque tighten the setscrews (see Section S20).

19. Replace the door lock and check for correct operation.
20. Fit the window glass. Ensure that the new star

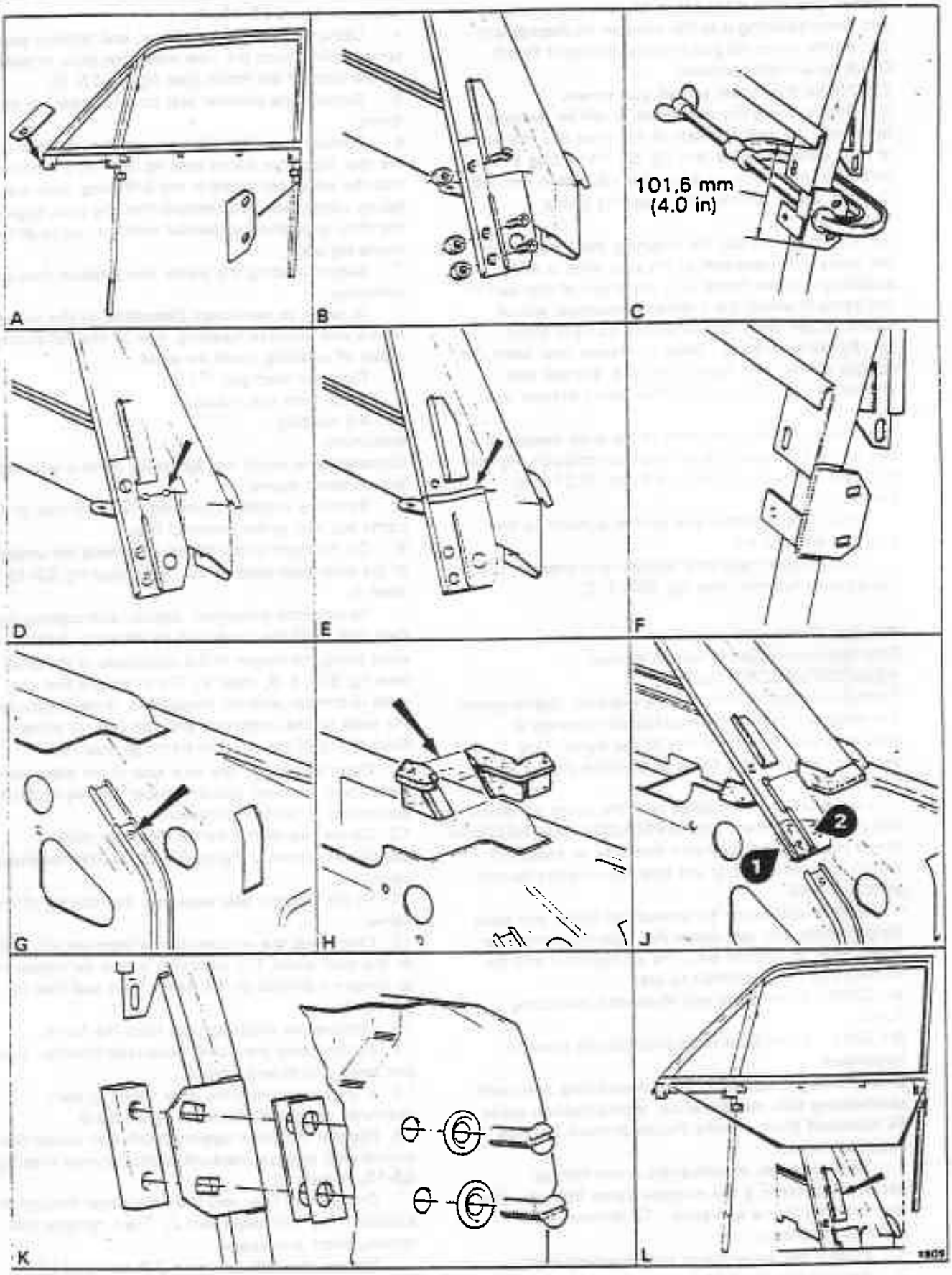

Fig. S3-14 Window frame modifications
Cars prior to vehicle identification number*SCAZS0006BCH02000*

washer, provided in the kit, is fitted to the swinging arm when securing it to the window lift mechanism.
21. Fit the waist rail and micro-switches (if fitted). Check for correct operation.
22. Fit the dust sheet and all trim panels.
23. Before fitting the door seals, it will be necessary to remove the seal retainers at the front and rear waist of each window frame (see fig. S3-14,L). Use a carbide tipped cutter or a suitable flat drill to remove the spot welds securing the retaining plates.
Important
Do not attempt to pull the retaining plate away from the frame while any part of the spot weld is still attaching it to the frame. Any distortion of that part of the frame to which the bracket is attached, will be visible on the inner face when the frame is fitted.
24. Fit the door seals . Refer to Meteor door seals -To remove and fit, and figure S3-13, B. Do not use petroleum jelly or Vaseline when fitting Meteor door seals.
25. Locate the moulded hole in the wide section of seal at the front waist. Mark the door through the hole. Pull back the seal and drill a 5,5 mm (0.218 in) diameter hole.

Apply metal primer and primer surfacer to the hole and allow to dry.

Slip the seal back into position and press in the Fastex drive fastener (see fig. S3-13, B).

Window frame - To modify
Cars from vehicle identification number *SCAZS0006BCH02000*
If required, modification kits are available to strengthen the window frames. The modification consists of welding stainless steel plates to the frame. This produces a more rigid fixing of the type shown in figure S3-10.

If the car to be modified is in the range of vehicle identification numbers around*SCAZS0006BCH02000* check the type of door frame fitted, as an exact VIN cut off number for early and later type frames cannot be guaranteed.

Each modification kit consists of plates and seals for both front and rear doors (for information on rear doors, refer to Section S4). The kit numbers and the models they are applicable to are.
RH 2850 - Silver Spirit and Mulsanne (excluding Turbo).
RH 2852 - Silver Spur (Non-division and Division).
Important
Before using these kits, or commencing any work concerning this modification, authorization must be obtained from a Rolls-Royce Motors Service Representative.

To achieve the modification, it will first be necessary to remove the window frame from the door (see Window frame and seals - To remove) then proceed as follows.
1. Protect the upper frame with masking tape.
2. Remove the black filler pieces from the frame waist.
3. Pick out the correct plates, positioning them as shown in figure S3-15, A.
4. Using the setscrews, spacer, and tapping block, temporarily secure the new extension plate in position on the front of the frame (see fig. S3-15, B).
5. Remove the channel seal from the rear leg of the frame.
6. Position and clamp the new stiffening plate onto the rear leg of the frame (see fig. S3-15, C). Ensure that the elongated holes in the stiffening plate are facing uppermost. Also ensure that the back edge of the plate is positioned parallel with the radius of the frame leg edge.
7. Before welding the plates into position note the following.

In order to minimize distortion of the window frame and localize heating, one of the following types of welding must be used.
a. Tungsten inert gas (T.I.G.)
b. Metal inert gas (M.I.G.)
c. Arc welding.
Important
Oxyacetylene must not be used, as this will distort the window frame.
8. Earth the window frame on the lower half of each frame leg, not to the polished face.
9. On the front of the frame, tack weld the underside of the extension plate to the frame (see fig. S3-15, B, inset 1).

Remove the setscrews, spacer, and tapping block then tack weld the lower end of the plate. Finally, run weld along the length of the underside of the plate (see fig. S3-15, B, inset 2). Try to ensure that the weld is smooth with no projections. If necessary, grind the weld on the underside and top face, to achieve a flush fitting of the window frame to door face.

Clean and polish the face side of the extension plate using fine 'wet and dry' paper and an abrasive compound or polishing machine.
10. On the rear of the frame, weld the plate in position as shown in figure S3-15, D then remove the clamp.
11. Fit the channel seal back into the rear leg of the frame.
12. Check that the window frame front leg fits flush on the door panel. If it does not, it may be necessary to remove a portion of the frame front seal (see fig. S3-15, E).
13. Remove the masking tape from the frame.
14. Fit the frame mounting bolts (see Window frame and seals - To fit and adjust).
15. It is essential that the door frame to body apertures are set as shown in figure S3-6.
16. Position the front tapping block and spacer then secure with two countersunk socket screws (see fig. S3-15, F, item 1).

Drill a small hole into the door panel through the extension leg bolt hole (item 2). Then, remove the tapping block and spacer.

Enlarge the drilled hole to 7,9 mm (0.312 in) diameter and remove any burrs.

Apply metal primer and primer surfacer to the edges of the hole and allow to dry.

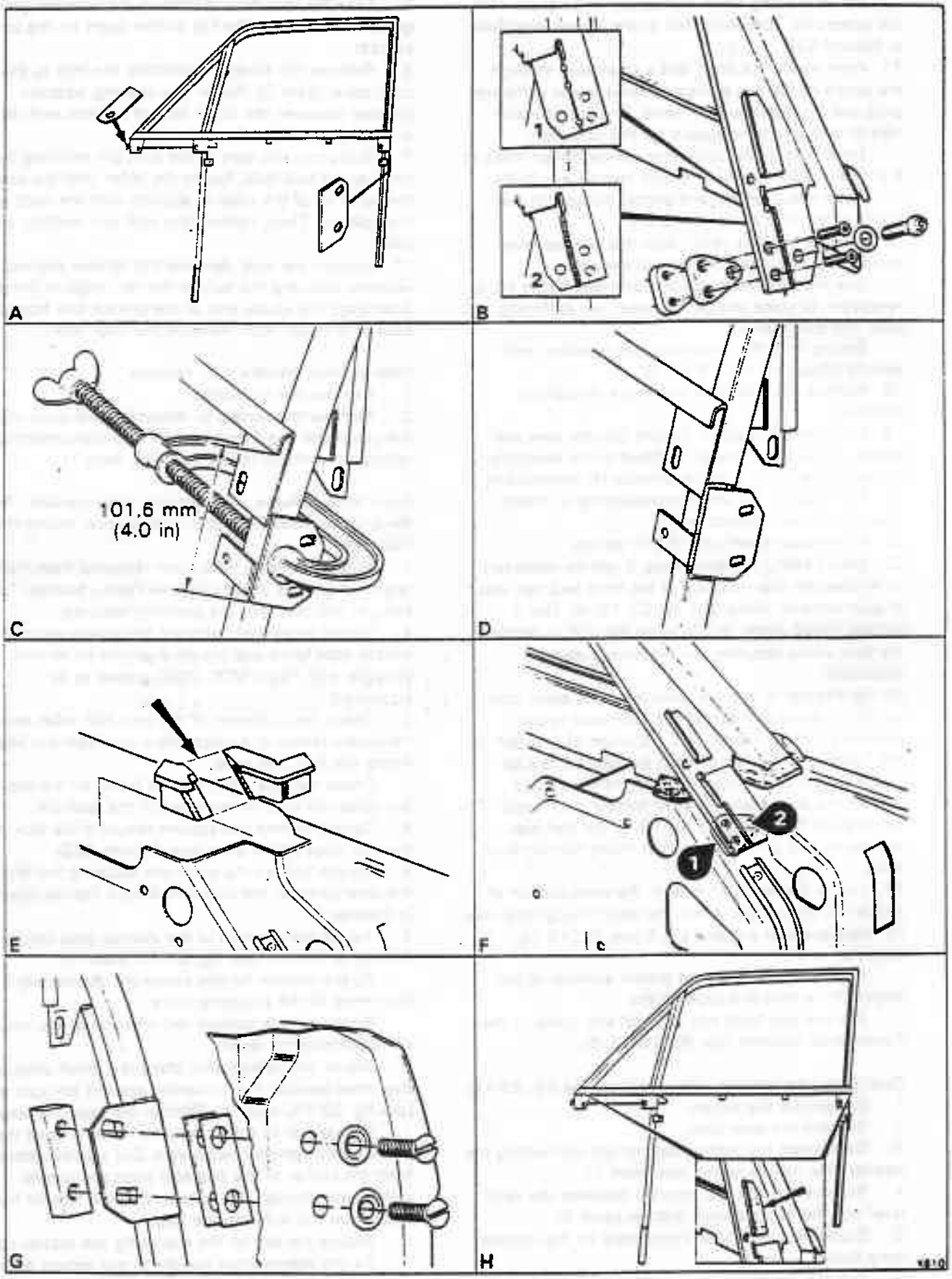

Fig. S3-15 Window frame modification
Cars from vehicle identification number*SCAZS0006BCH02000*

Fit the tapping block and spacer and secure with the setscrews. Torque tighten to the figures specified in Section S20.

17. From inside the door, drill a small hole through the centre of the two elongated holes in the stiffening plate and through the door panel. The use of a slim type of drill will be necessary for this operation.

From outside the door, enlarge the drilled holes to 6.3 mm (0.250 in) diameter and remove any burrs.

Apply metal primer and primer surfacer to the edges of the hole and allow to dry.

Remove the lock roller, then the lock securing screws and bolt. Ease the lock to one side.

Use the aluminium spacers provided in the kit, as necessary, to close any gap between the stiffening plate and door panel.

Secure with the setscrews, cup washers, and tapping block (see fig. S3-15, G).

18. Replace the door lock and check for correct operation.

19. Fit the window glass. Ensure that the new star washer, provided in the kit, is fitted to the swinging arm when securing it to the window lift mechanism.

20. Fit the waist rail and micro-switches (if fitted). Check for correct operation.

21. Fit the dust sheet and all trim panels.

22. Before fitting the door seals, it will be necessary to remove the seal retainers at the front and rear waist of each window frame (see fig. S3-15, H). Use a carbide tipped cutter or a suitable flat drill to remove the spot welds securing the retaining plates.

Important

Do not attempt to pull the retaining plate away from the frame while any part of the spot weld is still attaching it to the frame. Any distortion of that part of the frame to which the bracket is attached, will be visible on the inner face when the frame is fitted.

23. Fit the door seals. Refer to Meteor door seals - To remove and fit, and figure S3-13, B. **Do not** use petroleum jelly or Vaseline when fitting Meteor door seals.

24. Locate the moulded hole in the wide section of seal at the front waist. Mark the door through the hole. Pull back the seal and drill a 5,5 mm (0.218 in) diameter hole.

Apply metal primer and primer surfacer to the edges of the hole and allow to dry.

Slip the seal back into position and press in the Fastex drive fastener (see fig. S3-13, B).

Door lock and linkage - To remove (see fig. S3-16)

1. Disconnect the battery.
2. Remove the door trim.
3. Disconnect the remote control rod connecting the interior door handle to the lock (item 1).
4. Remove the link rod situated between the relay lever and the micro-switch bracket (item 2).
5. Disconnect the Lucar connectors on the courtesy lamp switch (item 3).
6. Release the screw, nut, and washer securing the micro-switch assembly to the lock lever (item 4). Carefully lie the assembly in the base of the door.
7. Ease the tension and remove the window glass guidance wire from the top anchor point on the lock bracket.
8. Remove the setscrew securing the lock to the door panel (item 5). Retain any spacing washers situated between the outer face of the lock and the mounting bracket.
9. Straighten the legs of the split pin retaining the roller to the lock bolt. Rotate the roller until the slot in the outer lip of the roller is aligned with the head of the split pin. Then, remove the split pin, washer, and roller.
10. Support the lock. Remove the screws and cup washers securing the lock to the rear edge of the door. Disengage the spade end of the private lock from the back of the door lock. Remove the door lock.

Interior door handle - To remove

1. Remove the door trim.
2. Remove the handle by detaching the open end of the polythene bag from the door and disconnecting the remote control rod (see fig. S3-16, item 1).

Door lock, linkage, and interior door handle - To fit

Reverse the procedure given for removal noting the following.

1. Where link rods have been removed from their retaining bushes, always fit new Fastex bushes. This ensures that the rods are correctly secured.
2. During assembly, lubricate the spade end of the private door locks and the pivot points on all lock linkages with Rocol MTS 1000 grease or its equivalent.
3. Check the condition of the lock bolt roller and if necessary renew it. Always use a new split pin when fitting the lock bolt roller.

Check that the roller rotates freely on the lock bolt and does not bind on the head of the split pin.

4. Torque tighten the screws securing the lock to the rear edge of the door (see Section S20).
5. Torque tighten the setscrew securing the lock to the door panel to the standard torque figures specified in Chapter P.
6. Adjust the position of the interior door handle linkage as follows (see fig. S3-16, inset A) .

Fit the interior handle assembly, positioning it in the centre of the adjusting slots.

Fit the remote control rod into one of the holes in the lock contactor lever.

Adjust the handle until there is a small amount of overtravel beyond the activation point of the lock bolt (see fig. S3-16, inset A). Tighten the securing screws.

7. If required, fit a new polythene bag around the interior door handle mechanism. Cut a small section from the corner of the bag and push the remote control rod through the hole so that the interior handle end of the rod is inside the bag.

Secure the bag to the rod using the rubber sleeve.

Fit the interior door handle to the remote control rod and secure the handle to the door, trapping the open end of the polythene bag.

Using Dunlop Adhesive S81, secure the open end

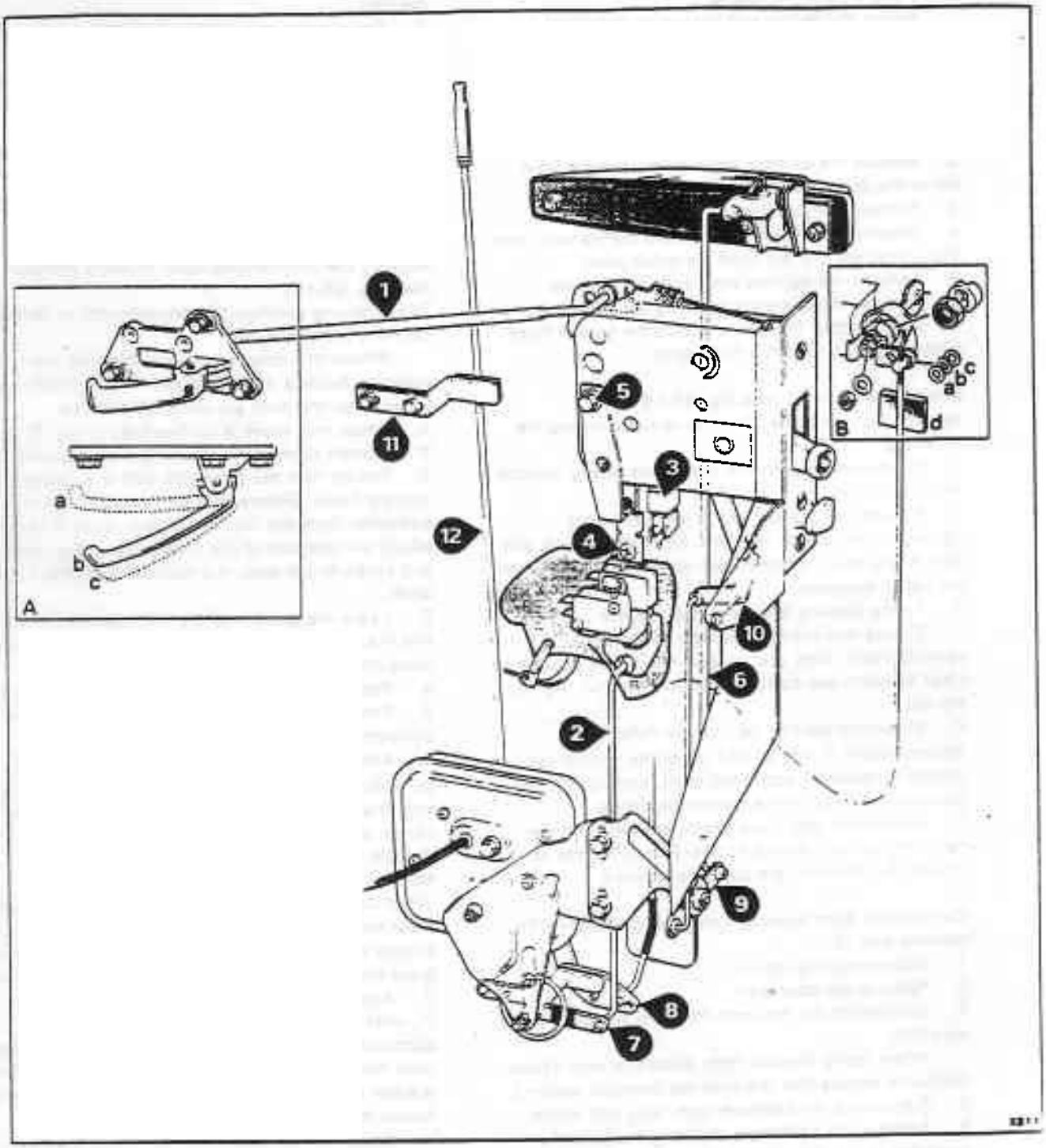

Fig. S3-16 Door locking - General arrangement

1 Remote control rod
2 Link rod - Relay lever to micro-switch bracket
3 Courtesy lamp switch
4 Screw- Micro-switch assembly to lock lever
5 Setscrew - Lock to door panel
6 Control rod - Exterior handle to cross-shaft lever
7 Relay lever
8 Transfer lever
9 Cross-shaft lever
10 Spindle lever
11 Anti-rattle bracket and pad
12 Sill control rod

A Setting the interior door handle
a Handle fully closed
b Point at which lock bolt is 'triggered off'
c Overtravel of handle

B Private lock and balance lever assembly
a Nylon washer
b Wave washer
c Nylon washer
d Anti-rattle foam pad

of the bag around the aperture.

Adjust the handle and linkage as described in Operation 6. Check that the handle operates without unduly straining the polythene bag.

Private lock - To remove (see fig. S3-16, B)

1. Raise the window glass.
2. Release the window glass guidance wire from above the door lock.
3. Remove the door lock.
4. Disconnect the control rod from the transfer lever. Then, unscrew the rod from the nylon pivot.
5. Remove the balance lever and two spacers.
6. Remove the large nut securing the private lock to the door. Remove the lock and also the spacer fitted between the nut and the door panel.

Private lock - To fit (see fig. S3-16, B)

Reverse the procedure given for removal noting the following.

1. Fit the spacer with the drain slots facing towards the outer panel.
2. Ensure that the key slot is vertical before tightening the lock to the door. Rotating the lock unit after it has been tightened will result in binding when the key is operated.
3. Fit the balance lever and two spacers.

Ensure that the lever is clear of the door reinforcement. Also, that at least one of the spacers is fitted between the balance lever and the nut. Tighten the nut.

4. Screw the control rod into the nylon pivot. Approximately 5 mm (0.187 in) of the control rod should be showing above the pivot. Ensure that the washers are fitted in the correct sequence.
5. Where link rods have been removed from their retaining bushes, always fit new Fastex bushes to ensure that the rods are correctly secured.

Centralized door locking solenoid assembly - To remove and fit

1. Disconnect the battery.
2. Remove the door trim.
3. Disconnect the link rods from the solenoid lever assembly.

When fitting the link rods, always fit new Fastex bushes to ensure that the rods are correctly secured.

4. Disconnect the solenoid loom plug and socket.
5. Remove the setscrews retaining the solenoid assembly to the door panel. Remove the assembly from the door.
6. To fit the centralized door locking solenoid assembly, reverse the procedure given for removal. To set the locking system, reference should be made to Setting the centralized door locking system.

Exterior door handle - To remove and fit

1. Remove the door trim.
2. Disconnect the control rod (see fig. S3-16, item 6) from the cross-shaft lever.

When fitting the control rod, always fit new Fastex bushes to ensure that the rods are correctly secured.

3. Remove the two nuts and washers securing the handle mounting plate and push button lever assembly. Remove the plate, lever, and control rod.
4. Remove the remaining nut and washer and withdraw the handle assembly.
5. To fit the exterior handle, reverse the procedure given for removal noting that: for details on setting the push button overtravel etc., reference should be made to Setting the centralized door locking system.

Setting the centralized door locking system (see fig. S3-17)

The following settings and adjustments must be made carefully and accurately.

Where link rods have been removed from their retaining bushes, always fit new Fastex bushes to ensure that the rods are correctly secured.

1. Check that there is no free-play in the 'C' spring. If necessary tighten the securing washers (item 1).
2. Ensure that the solenoids and lever assembly operate freely. Ensure that the plastic cover around the solenoids does not foul the output shaft. If necessary, adjust the position of the solenoids on the backplate and carefully cut away the cover around the output shaft.
3. Leave the bottom of the link rods disconnected and the solenoids and bracket assembly setscrews loose (item 2).
4. Press the lock control lever upwards (item 3).
5. Press the solenoid lever assembly to the lock position (item 4).
6. Adjust the height of the solenoid assembly (item 5), until the link rod from the lock control lever aligns with the bush in the relay lever (item 6). Tighten the centre setscrew in the solenoid cover (item 5). Press the rod into the bush.

Note

When carrying out this operation, the lever assembly must not be forced or held in the locked position. Simply press the levers into the locked position and leave them to lie naturally under their own weight.

7. Adjust the height of the cross lever bracket (item 7), until the spindle lever (item 8) takes up approximately 1,6 mm (0.062 in) of the contactor lever movement. Tighten the nuts of the cross lever bracket sufficiently to enable the exterior handle push button operation to be tested.

Raise the lock bolt (item 9). Press the push button until the lock bolt is triggered. Check the amount of overtravel (item 10). If necessary, re-adjust the cross lever bracket to achieve the required overtravel.

Note

If too much movement of the contactor lever is taken up, and the door is then closed, it cannot be opened in the normal way. To open the door, remove the link rod from the cross lever bracket then adjust again. Care must always be taken, during the setting of the cross lever bracket, so that the position of the solenoids is not affected.

When the push button operates the lock bolt

Setting the centralized door Locking system

Figure S3-17

XB17

Exterior door mirror - To fit (see fig. S3-18)
Reverse the procedure given for removal noting the following.
1. Clip the seal to the mirror base.
2. Connect the shrouded plug and socket.
3. Thread the plug and socket into the door in a forwards/outwards direction. This avoids the possibility of the plug and socket being inadvertantly pushed through the cut-out in the inner panel (item 1) and fouling the window lift mechanism.

Cars from and including vehicle identification number *SCBZS0T02DCH08001*

Door locking system
Striker pin - To set
1. Fit the setting piece RH 9779 onto the head of the striker pin.
2. Set the pin assembly to the bottom outer corner of the hole in the 'B' post (see fig. S3-19). Hold the striker pin steady and screw the lock-nut finger tight.
3. Carefully offer up the door to the striker pin and screw the pin in or out until the setting piece just contacts the back of the lock (see fig. S3-20).
4. Remove the setting piece. Unscrew the striker pin until the two location holes at the end of the pin are in a vertical position.
5. Ensure that the claw mechanism is in the unlocked position. Keeping the exterior handle push button fully depressed, carefully move the door into the closed position i.e. until the outer panel is flush with the rear door.
   Open the door.
6. Using the special tool RH 9778 hold the striker pin still then torque tighten the lock-nut (see Section S20).
7. Before closing the door, check that the head of the striker pin does not foul the back of the lock or the claw mechanism.
8. Close the door and check.
a. If the door rises or falls as it closes, loosen the lock-nut and re-adjust the vertical position of the pin.
b. If the door does not align with the rear door, loosen the lock-nut and re-adjust the inboard/outboard position of the pin.

Door lock and linkage - To remove
1. Remove the door trim and waist rail finisher (see Door trim - To remove and figure S3-1).
2. Lower the glass until the nylon guide and spring are visible through the inner panel aperture.
3. Disconnect the battery.
4. Disconnect the window motor electrical leads at the Lucar connections. Note the colour code of the leads to ensure correct assembly.
5. Release the plastic retaining strap securing the top of the window lift mechanism to the door inner panel and remove the rubber block.
6. Without removing the spring or clips, push the spring outwards away from the end of the moulded guide. Carefully lever off the guide (see fig. S3-8).
7. Remove the nut securing the guide plate to the window lift leg. Carefully push back the bolt sufficiently to slide the plate sideways. From behind the motor, push the bolt through and fit the nut.
8. Remove the star washer and distance piece. Support the glass, then release the swinging arm from

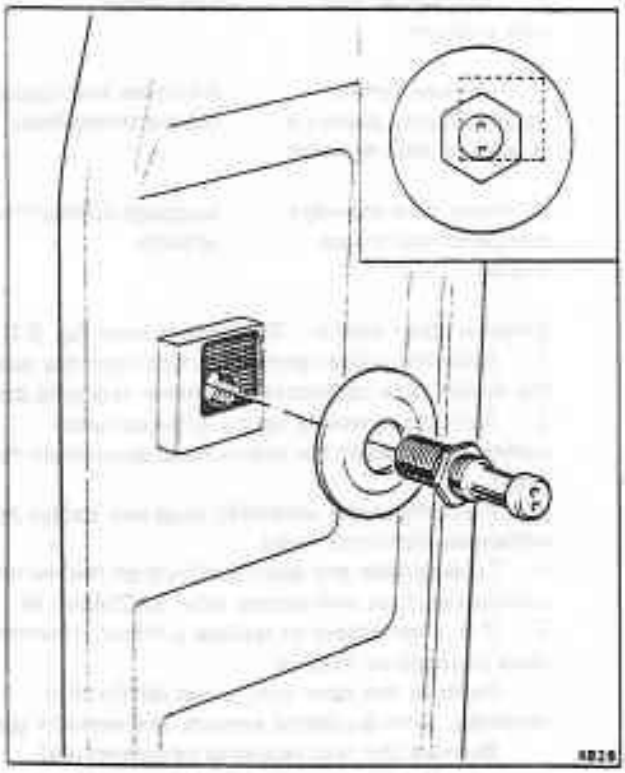

Fig. S3-19 Correct position of striker pin in 'B' post

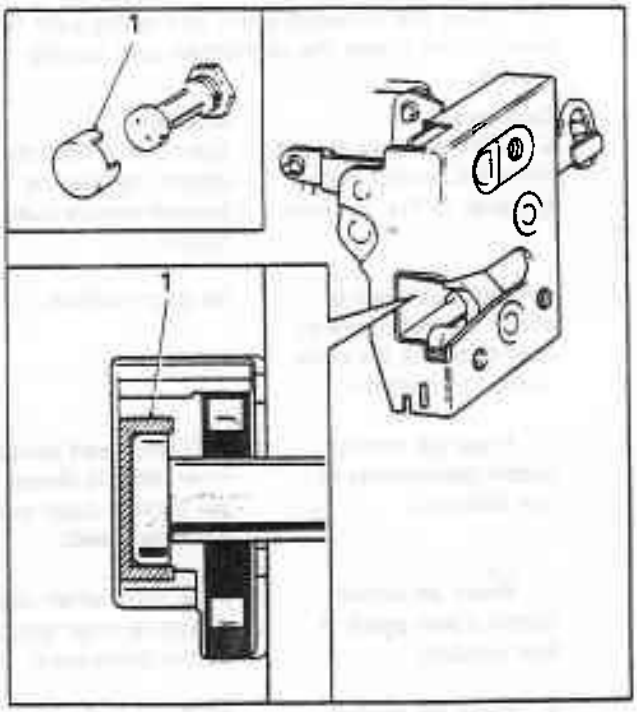

Fig. S3-20 Correct setting of striker pin in lock aperture
1 Setting piece RH 9779

correctly securely tighten the bolts (item 7).
8. Set the private lock key slot vertical (item 11). Press the lever assembly into the locked position (item 4). Press the transfer lever until the top of the elongated slot just touches the peg (item 12). Ensure that the lever assembly is not disturbed from the locked position.
9. Set the door key in the vertical position. Adjust the length of the balance lever control rod (item 13) by turning it, until it is aligned with the inner hole in the transfer lever (item 14). Press the rod into the bush.
10. Press the sill button control rod into the remaining bush (item 15). On cars fitted with the micro-switches in the waist rail; adjust the height of the micro-switch operating bracket until the gap between the bracket and the micro-switches is equal at both ends of the travel (item 16).

Securely tighten the nuts so that the bracket is gripped firmly between the washer and sill button without altering the height of the bracket.

Note
On certain cars, the thread adjustment on the sill button control rod retaining the micro-switch operating bracket is insufficient. It may be necessary in this circumstance to bend one leg of the micro-switch operating bracket to obtain the required setting.

11. Having set the door locking system, fit the key into the lock. Turn it alternately in opposite directions. Check that the amount of travel required to operate the sill control button is equal in both directions.

Check that, when applying further pressure to the key in either direction, the amount of overtravel is equal. Also ensure that all the doors and luggage compartment lid lock through the operation of the micro-switches.

12. Using the following chart, and taking each front door in turn, check the centralized door locking system.

Operation	Check
a. With the door closed, move sill control button upwards to first position.	Door opens from the interior handle and exterior handle push button.
b. Move sill control button further upwards against spring pressure to second position.	All doors unlock.
c. Press sill control button downwards to first position.	Sill button self cancels when door is closed (with the exterior push button not depressed).
d. Press sill control button down again to first position.	Door locks when door is closed (exterior push button depressed).
e. Press sill control button further down against spring pressure to second position.	All doors and luggage compartment lock.
f. Turn key to first unlock position.	Door unlocks.
g. Turn key further against pressure to second unlock position.	All doors unlock.
h. Turn key to first lock position.	Door locks
i. Turn key further against spring pressure to second lock position.	All doors and luggage compartment lock.
j. Press facia stowage compartment unlock button.	Luggage compartment unlocks.

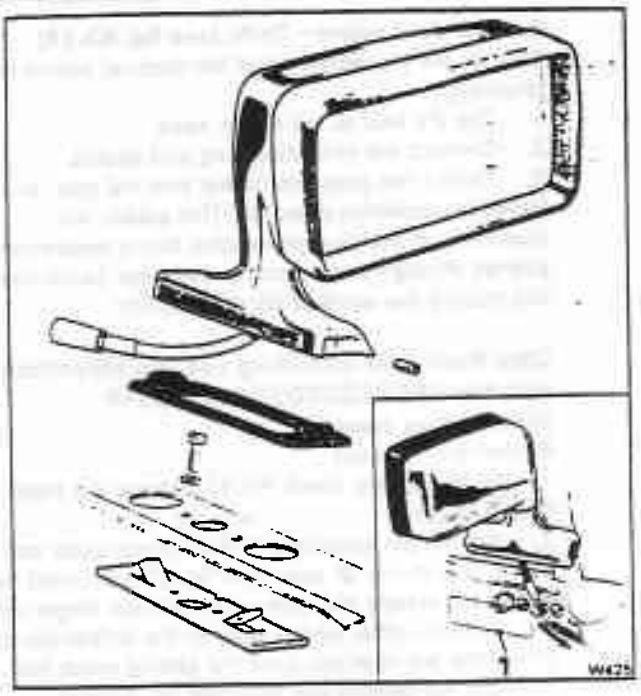

Fig. S3-18 Exterior door mirror
1 Aperture in inner skin panel

Exterior door mirror - To remove (see fig. S3-18)
1. Ease the rubber protection flap from the side of the mirror base to expose the mirror retaining screw.
2. Turn the retaining screw anti-clockwise sufficiently to ease the mirror head away from the door panel.
3. Disconnect the shrouded plug and socket and withdraw the mirror head.
4. To diagnose any electrical fault on the mirror control switches and looms, refer to Chapter M.
5. If it is necessary to replace a mirror mounting plate proceed as follows.

Remove the door trim, waist rail finisher assembly, wire guidance system, and window glass.

Remove the two retaining setscrews and withdraw the mounting bracket through the access hole in the door panel.

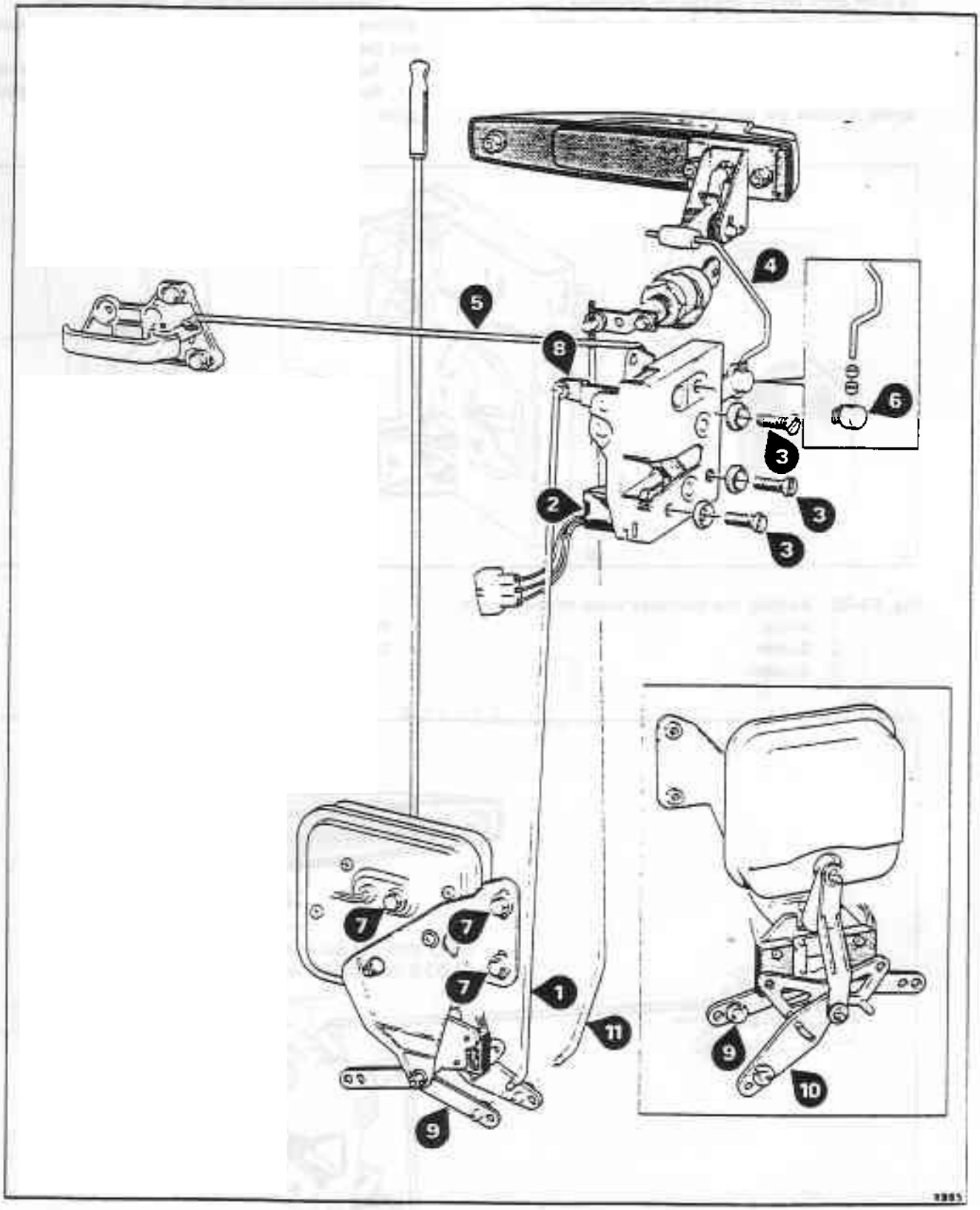

Fig. S3-21 Door locking - General arrangement

1 Link rod - Relay lever to lock
2 Courtesy lamp micro-switch
3 Lock securing screws
4 Control rod - Exterior handle to lock
5 Control rod - Interior handle to lock
6 Plastic connector
7 Solenoid adjustment screws
8 Locking lever
9 Relay lever
10 Transfer lever
11 Control rod - Private lock

January 1984

Printed in England

its pivot point on the window lift assembly.

9. Move the glass to the fully closed position and secure with masking tape.

10. Using a long screwdriver or similar tool, release the tension from one of the wires by extending the spring. Unhook the wire from its top anchor point.

On left-hand front doors only, release the additional spring situated between the window motor and the guidance wire (see fig. S3-25).

Repeat the operation for the other guidance wire.

11. Remove the masking tape whilst supporting the glass.

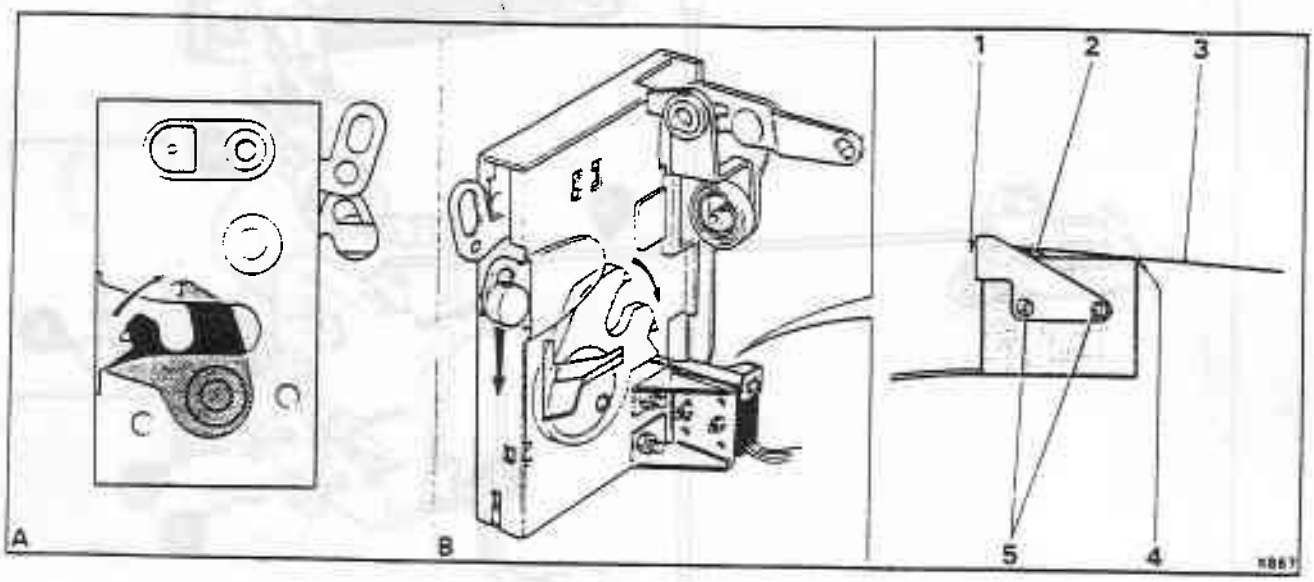

Fig. S3-22 Setting the courtesy lamp micro-switch

1 Hinge
2 Button
3 Actuator
4 Point at which actuator lever touches switch
5 Screws

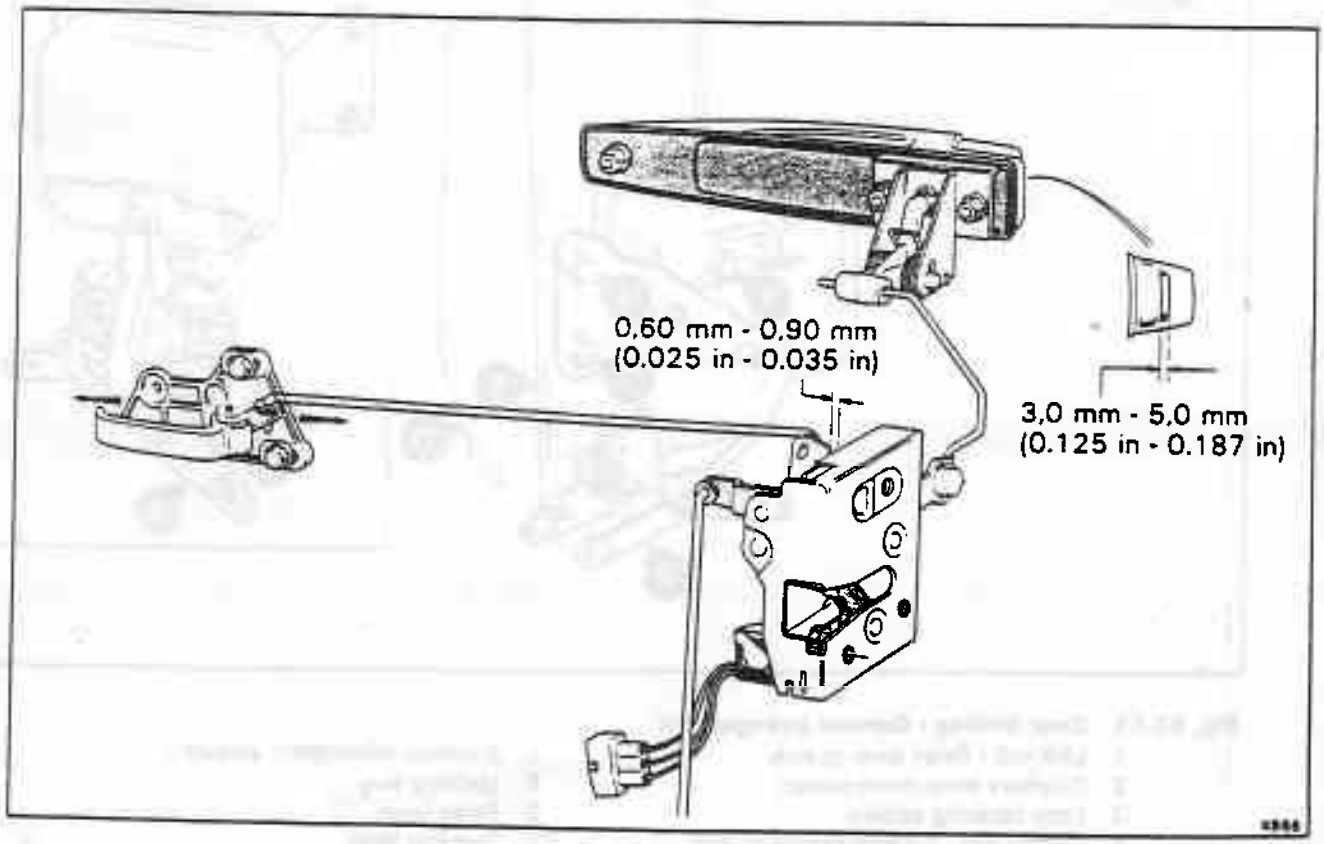

Fig. S3-23 Setting the interior and exterior door handles

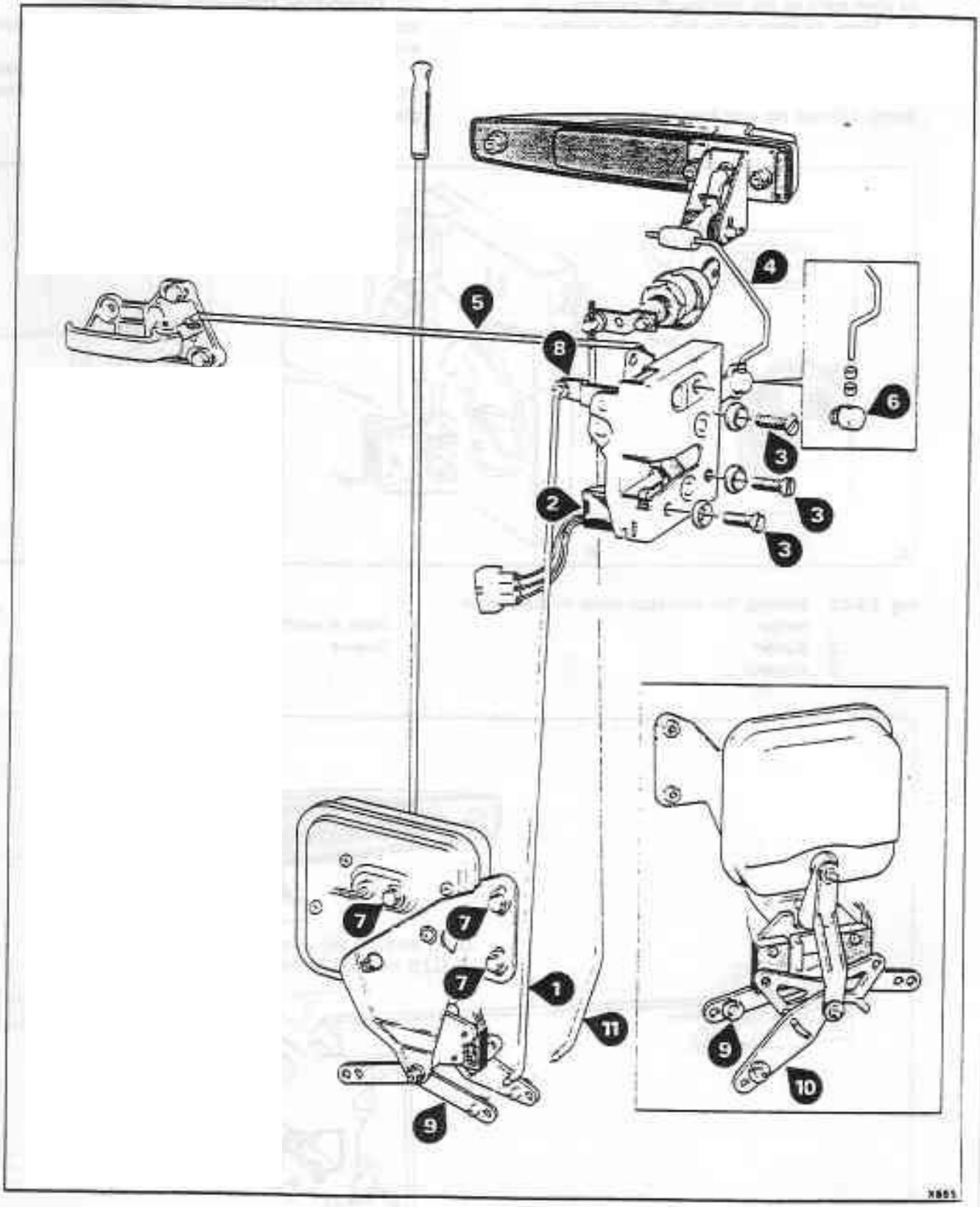

Fig. S3-21 Door locking - General arrangement

1 Link rod - Relay lever to lock
2 Courtesy lamp micro-switch
3 Lock securing screws
4 Control rod - Exterior handle to lock
5 Control rod - Interior handle to lock
6 Plastic connector
7 Solenoid adjustment screws
8 Locking lever
9 Relay lever
10 Transfer lever
11 Control rod - Private lock

its pivot point on the window lift assembly.

9. Move the glass to the fully closed position and secure with masking tape.

10. Using a long screwdriver or similar tool, release the tension from one of the wires by extending the spring. Unhook the wire from its top anchor point.

On left-hand front doors only, release the additional spring situated between the window motor and the guidance wire (see fig. S3-25).

Repeat the operation for the other guidance wire.

11. Remove the masking tape whilst supporting the glass.

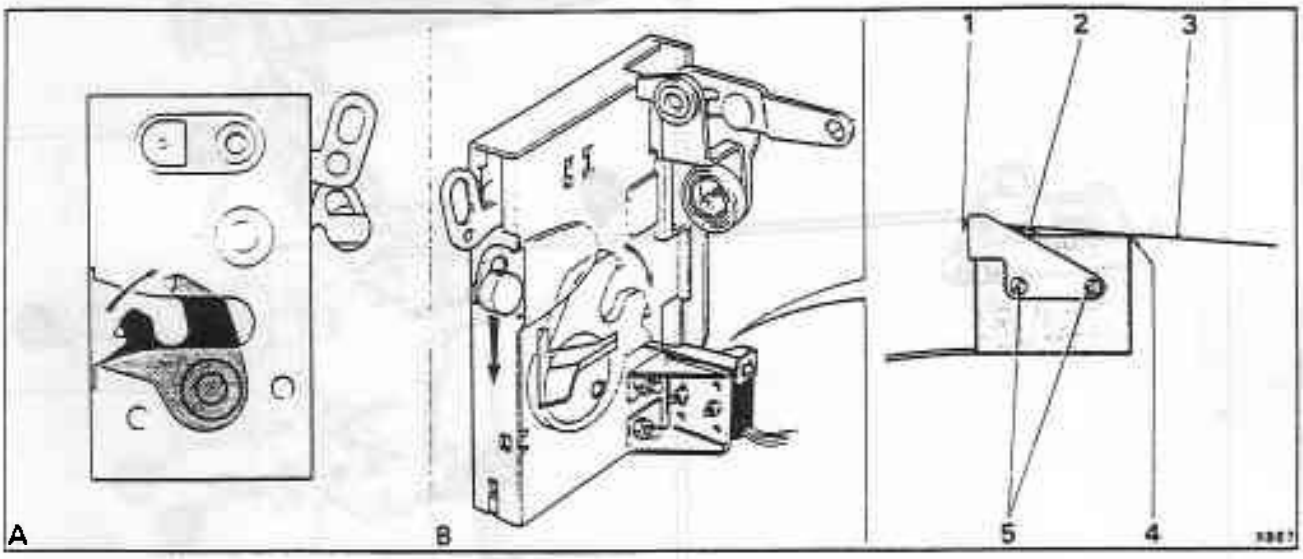

Fig. S3-22 Setting the courtesy lamp micro-switch

1 Hinge
2 Button
3 Actuator
4 Point at which actuator lever touches switch
5 Screws

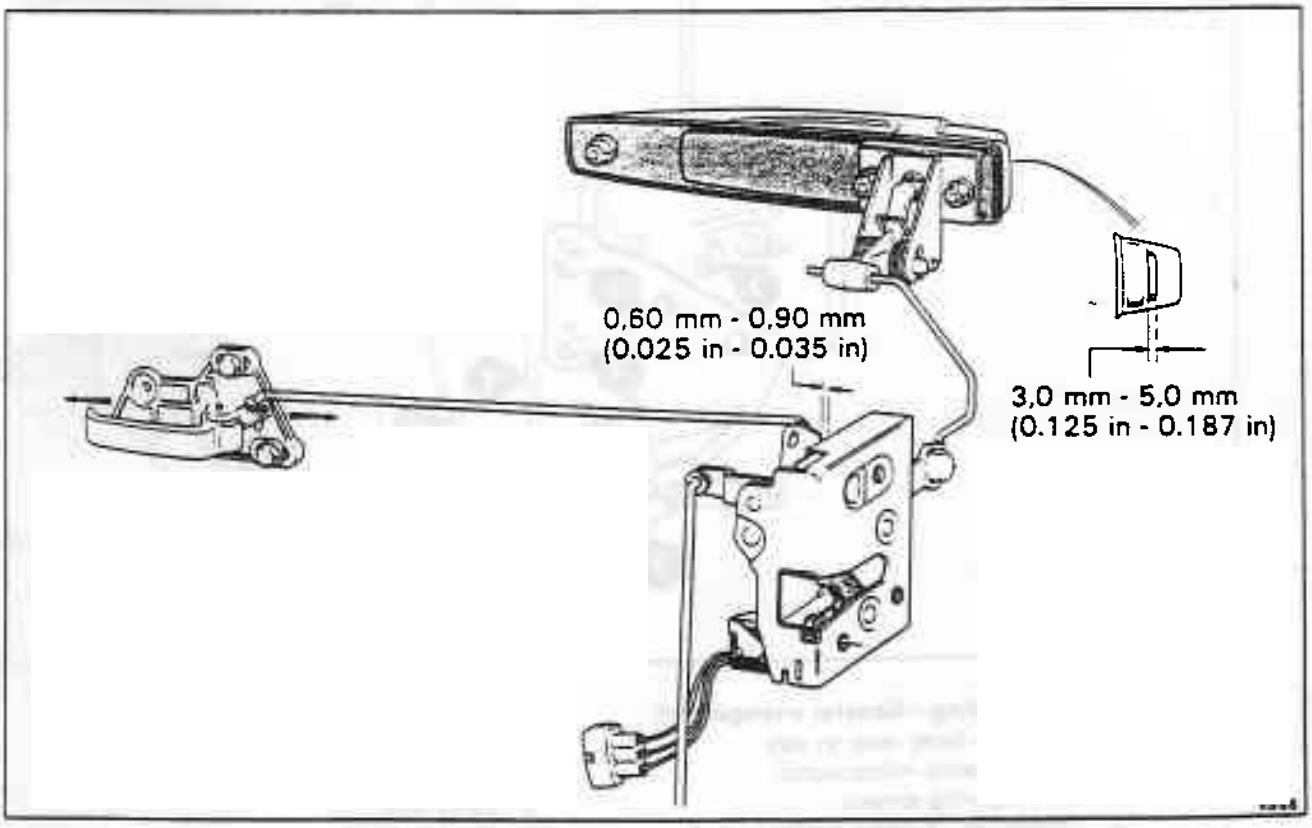

Fig. S3-23 Setting the interior and exterior door handles

Lower the sloping bevelled edge of the glass until both sides are free of the window channels, then lift the glass out of the door.
12. Remove the door to body seal.
13. Remove all the frame securing bolts. Note the positions of all bolts, screws, spacers, etc., for easier assembly (see fig. S3-10).
14. Remove the frame from the door.
15. Disconnect the relay lever link rod at the relay lever (see fig. S3-21, item 1).
16. Disconnect the plug and socket of the micro-switch (item 2).
17. Remove the three setscrews and washers securing the lock to the rear edge of the door (item 3).
18. Lower the lock and disconnect the exterior handle control rod at the lock (item 4). Ensure that the metal spacers are retained on the control rod.
19. Manoeuvre the lock and disconnect the interior door handle control rod at the lock (item 5).
20. Remove the lock and link rod from the door.
21. If a new lock is to be fitted, carefully remove the micro-switch.

Door lock and linkage - To fit

Reverse the procedure given for removal noting the following.

1. Where link rods have been removed from their retaining bushes, always fit new Fastex bushes to ensure that the rods are correctly secured.

Also, fit a new plastic connector (see fig. S3-21, item 6).

2. Before inserting the lock into the door, push the claw mechanism into the door closed position (see fig. S3-22, A).
3. Fit the micro-switch and actuator using the screws, nuts, and shakeproof washer but do not tighten at this stage. The actuator hinge must be at the same end as the button on the switch.

Release the claw mechanism into the door open position (see fig. S3-22, B). Adjust the position of the switch, ensuring that the actuator lever is lightly touching the corner of the switch (see fig. S3-22, item 4).

Tighten the screws.

4. Place the lock into the door and press the relay lever link rod into position (see fig. S3-21, item 1).
5. Manoeuvre the lock and fit the interior door handle control rod (see fig. S3-21, item 5).
6. Position the lock into its correct location. Ensure that the exterior handle control rod, with two spacers, engages into the plastic connector on the lock (see fig. S3-21 inset). Hold the spacers in position with Rocol MTS 1000 grease or its equivalent.
7. Using three M6 setscrews and special washers, secure the lock to the door (see fig. S3-21, item 3). Torque tighten immediately to between 5,5 Nm and 6.5 Nm (0,55 kgf m and 0.65 kgf m; 4.1 lbf ft and 4.8 lbf ft).

Important

This torque must not be exceeded.

Whenever the lock securing setscrews are removed, always fit new ones.

8. Check the operation and setting of the interior and exterior door handles.

Interior door handle - To set

1. Loosen the three securing bolts.
2. Push the handle forwards until all the slack is taken up in the control rod, and the handle returns fully against its stop. From that position, push the handle further forwards until the correct gap is attained between the lever and the lock (see fig. S3-23).
3. Tighten the bolts and check the operation of the handle.

Exterior door handle push button - To set

1. Push the claw mechanism into the door closed position (see fig. S3-22, A). Check the operation of the push button and ensure that the overtravel is correct (see fig. S3-23).

If the overtravel is incorrect, release and lower the lock and amend the number of spacers on the control rod (see fig. S3-21, inset).

Whenever the lock setscrews are removed, always replace them with new ones then torque tighten immediately (see Section S20).

Warning

Never shut the door while the claw mechanism is in the closed position or severe damage to the lock may result.

Solenoid assembly adjustment

1. Loosen the three solenoid adjustment screws (see fig. S3-21, item 7 and disconnect the relay lever link rod (item 1).

Ensure that new Fastex bushes are fitted whenever link rods are removed.

2. Press the locking lever down into the unlocked position (item 8).
3. Press the relay lever (item 9) down sufficiently to take up the free play, but do not operate the solenoid centring spring.
4. Adjust the height of the assembly until the link rod aligns with the hole in the relay lever. On cars fitted with relay levers in which there are two holes, always fit the rod into the inner hole (see fig. S3-21).
5. Tighten the solenoid setscrews and press the link rod into the Fastex bush.

Key and sill control button adjustment

1. Set the private lock key slot vertical, then remove the key.
2. Press the sill control rod down into the locked position. Leave the bottom of the rod disconnected.
3. Press the transfer lever until the top of the elongated slot just touches the peg (see fig. S3-21, item 10). Ensure that the remaining relay levers do not move.
4. Turn the private lock control rod, screwing it up or down as necessary to align with the hole in the transfer lever. Press the rod into the Fastex bush (item 11).
5. Check that the door locks and unlocks smoothly

when operated by the sill control rod and the key.
6. Check that the force required to operate the micro-switches is equal in both the lock and unlock directions. Operation of the micro-switches can be identified by listening for the 'click' as they operate.
7. If necessary, re-adjust the solenoid assembly or the private lock rod to ensure correct operation.

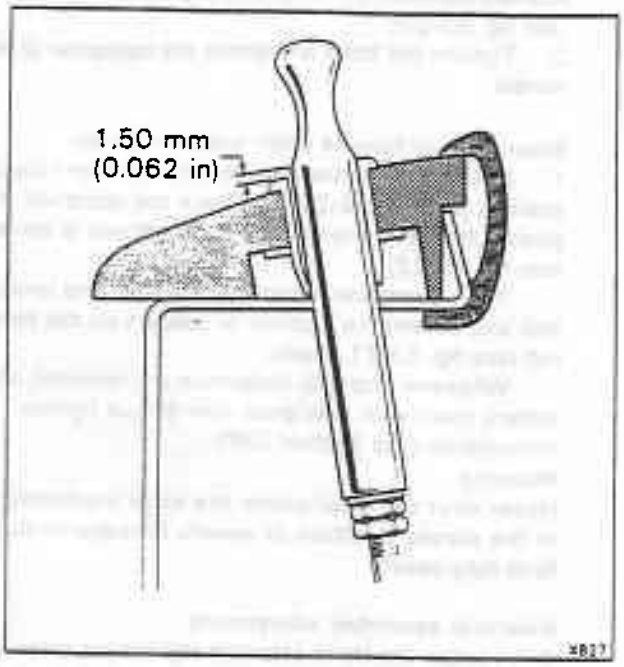

Fig. S3-24 Setting the sill control button

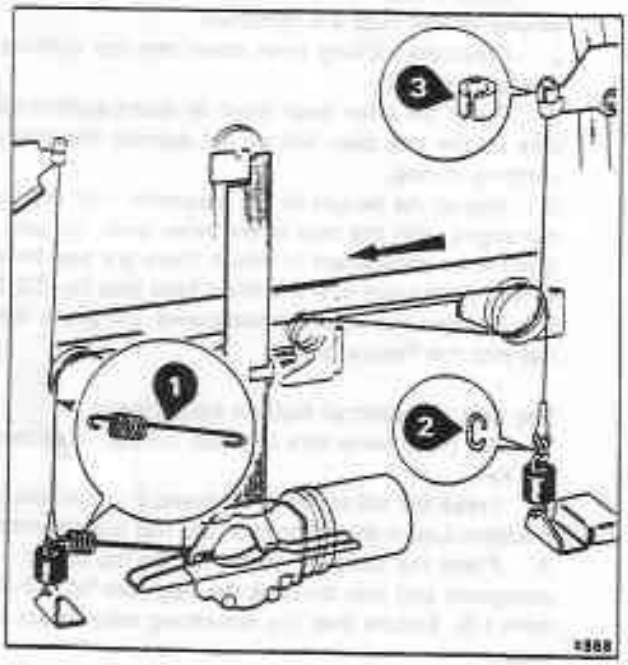

Fig. S3-25 Wire guidance assembly
1 Additional spring, left-hand front doors only
2 Link
3 Spacer

8. Check that there is approximately 1,50 mm (0.062 in) of the sill button showing below the neck when the button is in the locked position (see fig. S3-24).
9. Using the following chart, and taking each front door in turn, check the centralized door locking system.

Operation	Check
a. Move sill control button to first upwards position.	Door opens from the interior handle and exterior handle push button.
b. With the door closed, move sill control button to first down position.	Door cannot be opened from the exterior push button. Operation of the interior handle unlocks the button and opens the door.
c. With the door open, press sill control button to first down position.	Sill control button self cancels when door is closed (with the exterior push button not depressed). Door remains locked when door is closed (exterior push button depressed).
d. Press the sill control button further down against spring pressure to second down position.	All doors and luggage compartment lock.
e. Move sill control button upwards to first position then further upwards against spring pressure to second position.	All doors unlock.
f. Turn key to first lock position.	Door locks.
g. Turn key further, against spring pressure, to second lock position.	All doors and luggage compartment lock.
h. Turn key to first unlock position.	Door unlocks.
i. Turn key further, against spring pressure, to second unlock position.	All doors unlock.
j. Press facia stowage compartment unlock button.	Luggage compartment unlocks.

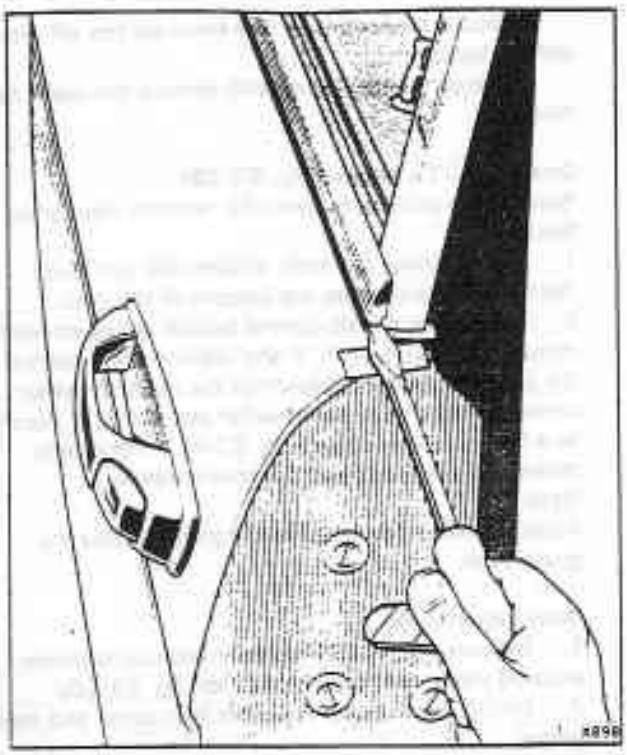

Fig. S3-26 Raising the fence moulding

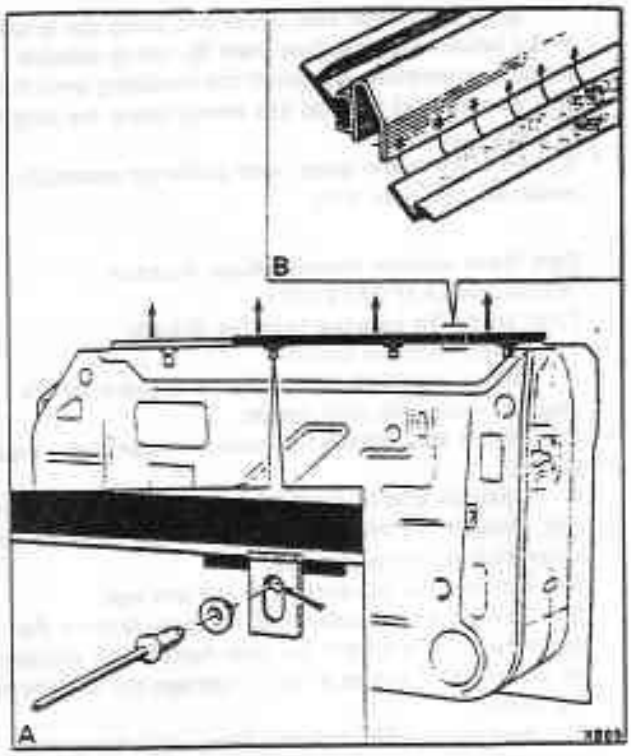

Fig. S3-27 Adjustable fence moulding

Wire guidance assembly and window glass

Refer to the information given for cars prior to vehicle identification number*SCBZS0T02DCH08001* and figure S3-9. However, note the following.

1. On left-hand front doors, note that there is an additional spring (see fig. S3-25, item 1) situated between the window motor and the guidance wire. Release this spring when removing the wire guidance assembly.
2. Check the operation of the window glass to ensure that the glass, when raised, seats fully into the window channel. If the glass needs to be moved rearwards within the channels, fit an additional link and spacer as shown in figure S3-25, items 2 and 3. If the glass requires moving forwards within the channels, fit the link and spacer on the rear guidance wire.

Cars from vehicle identification number *SCAZS42A7ECX08306*

Adjustable fence moulding - To raise

If it is necessary to repaint the door top or replace the rubber seal, carefully raise the fence moulding as follows.

1. Insert a small sharp screwdriver or similar tool under each end of the moulding in turn (see fig. S3-26). **Do not lever on the paintwork.** Insert a small piece of rubber or felt to protect the paintwork (see fig. S3-26).

   The moulding can be lifted approximately 3 mm (0.125 in) from the door top.
2. Remove the rubber seal.

Adjustable fence moulding - To remove (see fig. S3-27)

1. Remove the door trim and waist rail finisher assembly.
2. Remove the window glass and guidance wires etc., (see fig. S3-9).
3. Drill out the pop rivets and remove the fence moulding.

Adjustable fence moulding - To fit (see fig. S3-27)

1. If necessary, replace the four pieces of self-adhesive tape situated on the retaining flange above each fence moulding retaining tab (see inset A).
2. Place the fence moulding in position on the door retaining flange.
3. Ensure that the door frame is centralized in the door aperture and that the door to body gaps are correct (see fig. S3-6).
4. Align the fence moulding horizontally to the ends of the door frame i.e. flush to 2 mm (0.080 in) inboard from each end of the frame. Ensure that the fence moulding is flush to the door top along the full length of the door.
5. Secure each moulding with pop rivets and nylon bushes. Ensure that the holes for the pop rivets are drilled at the top of the elongated slots in the retaining tabs (see inset A).
6. Raise the moulding approximately 3 mm (0.125 in) clear of the door top.

7. Slide the rubber seal under and along the length of the fence moulding (see inset B). Using suitable protection, carefully tap down the moulding onto the seal. Ensure that the seal sits evenly along the length of the moulding.
8. Fit the window glass, wire guidance assembly, waist rail, and door trim.

Cars from vehicle identification number *SCAZS42A3FCX12001*

Door trim - To remove (see fig. S3-28)

1. Disconnect the battery.
2. Remove the two M4 screws and cup washers situated inside the map pocket.
3. Unclip and remove the outer trim panel and map pocket.
4. Unscrew and lower the bottom section of the arm rest. Release the step lamp bulb unit then remove the lower section of the arm rest.
5. Remove the top section of the arm rest.
6. Using a small bladed tool, carefully remove the escutcheon covers from the door handle and window lift switch(es). Take care not to damage the surface of the covers.
7. Remove the escutcheons from around the door handle and window lift switch(es).
8. Unscrew the centre trim panel, threading the step lamp bulb unit through the panel.
9. Remove the black waterproof dust cover.
10. Remove the waist rail finisher as follows.

Release the door seal at the rear of the waist rail finisher and remove the screw situated in the seal channel.

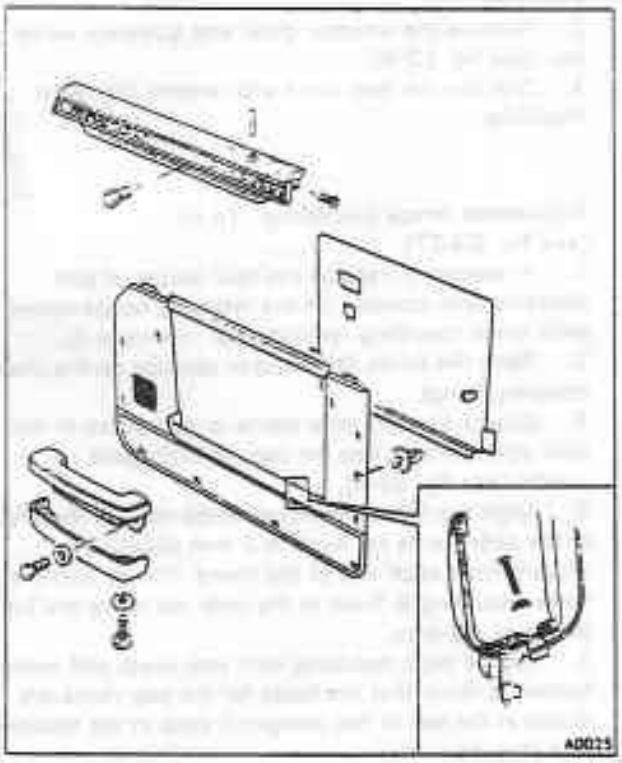

Fig. S3-28 Door trim

Slacken the lock-nuts and unscrew the sill lock control button.

Release the setscrews and remove the waist rail finisher.

Door trim - To fit (see fig. S3-28)

Reverse the procedure given for removal noting the following.

1. Before fitting any trim, ensure that any loose debris is removed from the bottom of the door.
2. Check that the sill control button slides smoothly through the guide bush. If any vibration is detected in the guide bush area, check that the bush is seated correctly in the waist rail finisher and that it is secured by a Starlock washer (see fig. S3-4). If necessary, renew the guide bush and Starlock washer.

Note

Apply a small amount of silicon grease inside the guide bush.

Door adjustment

1. Remove the two M4 screws and cup washers situated inside the map pocket (see fig. S3-28).
2. Unclip and remove the outer trim panel and map pocket.
3. Peel back the black waterproof dust cover.
4. Slacken the hinge securing screws just sufficient to enable the door to move on its hinges.

The position of the door in the body aperture should be set as shown in figure S3-6.

When the door is correctly positioned, torque tighten the hinge securing screws (see Section S20).

Note

If the door is only partly assembled when carrying out this operation, the remaining parts of the door assembly should be weighed and the corresponding weight added to the bottom of the door. This allows for the possibility of the door dropping slightly when fully assembled.

Rear doors

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Rear doors

Introduction
The doors are constructed from aluminium. They have been designed with the emphasis placed upon ease of access to components within the door, i.e. adjustment points are attainable with the minimum of trim removal.

Each rear door can be locked individually using the sill lock control button. The solenoids within each rear door are activated through the operation of the key or sill control button in each front door.

From vehicle identification number *SCBZS0T02DCH08001* a new door locking system was introduced. To accommodate the new lock, changes have been made to the door panels. This prevents the fitting of the new lock on cars prior to vehicle identification number*SCBZS0T02DCH08001*.

The new lock has a claw mechanism which locks into position on a striker pin mounted on the 'D' post.

Each rear door lock incorporates a child safety locking lever.

Door trim - To remove (see fig. S4-1)
1. Disconnect the battery.
2. Unclip and remove the lower carpet trim panel.
3. Lower the bottom section of the arm rest. Release the step lamp bulb unit and remove the arm rest.
4. Remove the top section of the arm rest.
5. Release the outer trim panel, disconnect the cigar lighter leads and remove the panel.
6. Using a small bladed tool, carefully remove the escutcheon covers from the door handle and window lift switch. Take care not to damage the surface of the covers.
7. Remove the escutcheons from around the door handle and window lift switch.
8. Remove the centre trim panel, threading the step lamp bulb unit through the panel.
9. Remove the black waterproof dust sheet.
10. Remove the waist rail finisher assembly as follows.

Release the door seal at both ends of the waist rail finisher and remove the screws situated in the seal channel.

Slacken the lock-nuts and unscrew the sill lock control button.

Release the setscrews and remove the waist rail finisher.

Door trim - To fit (see fig. S4-1)
Reverse the procedure given for removal noting the following.
1. Before fitting any trim, ensure that any loose debris is removed from the bottom of the door.
2. Check that the sill lock control button slides smoothly through the guide bush. If any vibration is detected in the guide bush area, check that the guide bush is seated correctly in the waist rail finisher and that it is secured by a Starlock washer (see fig. S4-2). If necessary, renew the guide bush and Starlock washer.

Note
Apply a small amount of silicon grease inside the guide bush.

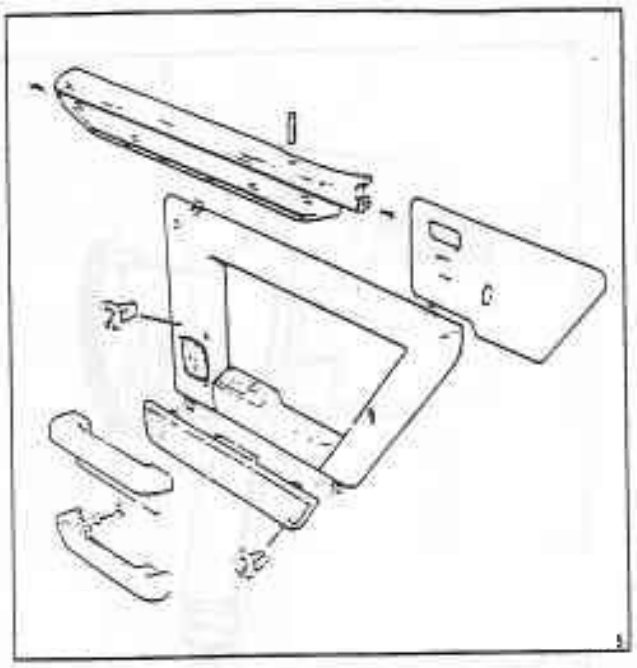

Fig. S4-1 Door trim

Door - To remove and fit
1. Disconnect the battery.
2. Remove the lower carpet trim panel.
3. Peel back the black waterproof dust sheet.
4. Disconnect the door loom plugs and sockets.
5. Using a small screwdriver or metal rod of approximately 1,60 mm (0.062 in) diameter disengage the spring clip securing each cable connector then withdraw the cable and connector.

Note the position of each cable as it is removed to ensure correct location during assembly. If in doubt refer to Chapter M.

Tape the ends of each cable together to provide easy removal from the door.

6. Remove the spring clip securing the check strap pin. Tap out the pin until it clears the hinge: release the check strap (see fig. S4-3).

7. Support the door then remove the setscrews securing each hinge to the 'C' post.
8. Remove the door and hinges, carefully withdraw the door loom.
9. To fit a door, reverse the procedure given for removal.
10. Ensure that all pivots and moving parts of the hinge check mechanism (except the cams) are lubricated with EP 140 SC light mineral oil.

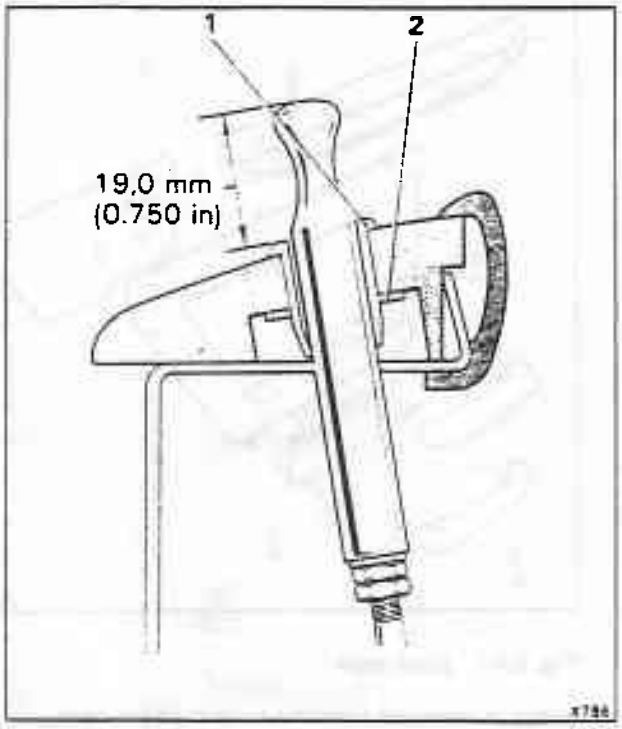

Fig. S4-2 Correct fitting of guide bush and Starlock washer
1 Guide bush
2 Starlock washer

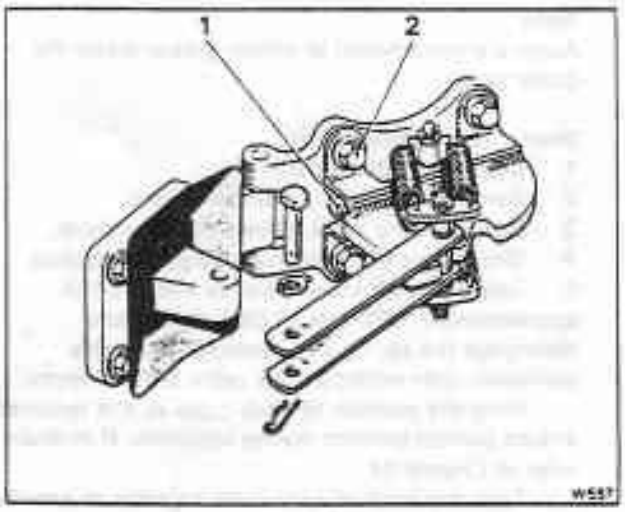

Fig. S4-3 Lower door hinge and check mechanism
1 Hinge securing bolt
2 Check mechanism securing bolt

Door adjustment

If the door requires to be set further inboard or outboard of the door pillars adjust the hinges on the face of the 'C' post. If there is insufficient adjustment at these points or if the door requires moving forwards or rearwards, it will be necessary to gain access to the hinges inside the door. To achieve this proceed as follows.

1. Disconnect the battery.
2. Remove the lower carpet trim panel, arm rest, and outer trim panel (see Door trim - To remove).
3. Peel back the black waterproof dust sheet.
4. Release the check strap on the bottom hinge.
5. Release the bolts securing the check hinge mechanism to the door hinge (see fig. S4-3). Remove the mechanism through the aperture in the front face of the door.
6. Slacken the hinge securing screws until they are slightly more than finger tight, the door can then be moved on its hinges.

The position of the door in the body aperture should be set as shown in figure S4-4.

When the door is correctly positioned, torque tighten the hinge securing screws (see Section S20).

Note

If the door is only partly assembled when carrying out this operation, the remaining parts of the door assembly should be weighed and the corresponding weight added to the bottom of the door. This allows for the possibility of the door dropping slightly when parts are added after the door has been set.

7. The door can also be adjusted on the striker plate as described in the following operations.
8. Use the minimum amount of striker plate shims to ensure that the door lock anti-burst flange freely locates within the slot in the striker plate.
9. Set the height position of the striker plate so that the door closes freely without raising or lowering the door.
10. Adjust the inboard/outboard position of the striker plate at its upper securing screw so that the rear door aligns correctly with the front door and the door seals seat properly on their flanges.
11. With the door closed, check the amount of inboard/outboard movement of the door in the striker plate (i.e. the door overtravel). Door overtravel is determined by the relationship between the inner face of the door lock anti-burst flange and the rubber buffer located in the striker plate (see fig. S4-5, item 4).

If the overtravel is too great, the door will rattle in the striker plate. It is therefore necessary for the rubber buffer to be brought closer to the anti-burst flange. To achieve this, slightly release the bottom securing screw. Carefully twist the striker plate about its upper fixing so that the lower part of the striker plate is swung slightly outboard. This will mean cross-serrating the striker plate; note that the maximum number of serrations that may be crossed is two.

When twisting the striker plate, it is important

that the inboard/outboard position of the striker plate upper securing screw is not altered as this maintains the door alignment and door sealing, set in Operation 10.

If there is insufficient overtravel when closing the door (i.e. the door is hard to close) this is probably caused by excessive contact between the anti-burst flange and the rubber buffer (see fig. S4-5). However, check for other causes such as the door seal fouling, before moving the striker plate. If necessary, reduce the contact of the anti-burst flange and rubber buffer by carefully twisting the striker plate inboard about its upper securing screw up to a maximum of two serrations.

Note

Cross serrating of the striker plate by one serration adjusts the rubber buffer by approximately 1 mm (0.040 in) inboard/outboard. This creates a slight error in the seating of the serrations and prevents them reaching their full depth. However, because one set of serrations is coated with paint and the other is soft aluminium, the seating will be satisfactory when the striker plate securing screws are torque tightened.

12. If necessary, re-check the door for overtravel, closing load, gaps, alignments, and sealing.
13. Torque tighten the striker plate securing screws (see Section S20).
14. Apply Rocol MTS 1000 grease or its equivalent to the sliding wedge and spring of each striker plate.

Window lift mechanism - To remove (see fig. S4-6)

1. Remove the door trim (see Door trim - To remove, Operations 1 to 10 inclusive).
2. Lower the glass until the nylon guide and spring are visible through the inner panel aperture.
3. Disconnect the battery.
4. Disconnect the window motor electrical leads at the Lucar connections. Note the colour code of the leads to ensure correct assembly.
5. Release the plastic retaining strap securing the top of the window lift mechanism to the door inner panel and remove the rubber block.
6. Remove the nut securing the guide plate to the window lift leg. From behind the motor, carefully push back the bolt sufficiently to slide the plate sideways. Push back the bolt and fit the nut.
7. Without removing the spring or clips, push the spring outwards, away from the end of the moulded guide. Carefully lever off and remove the moulded guide.
8. Remove the star washer and distance piece. Support the glass, then release the swinging arm from its pivot point on the window lift assembly.
9. Move the glass to the fully closed position and secure with masking tape.
10. Remove the rubber grommets from the bottom face of the door.
11. Release the setscrews and manoeuvre the window lift mechanism through the large aperture in the inner panel.

Note

For information on the removal and replacement of the electric window motor assembly refer to Chapter M.

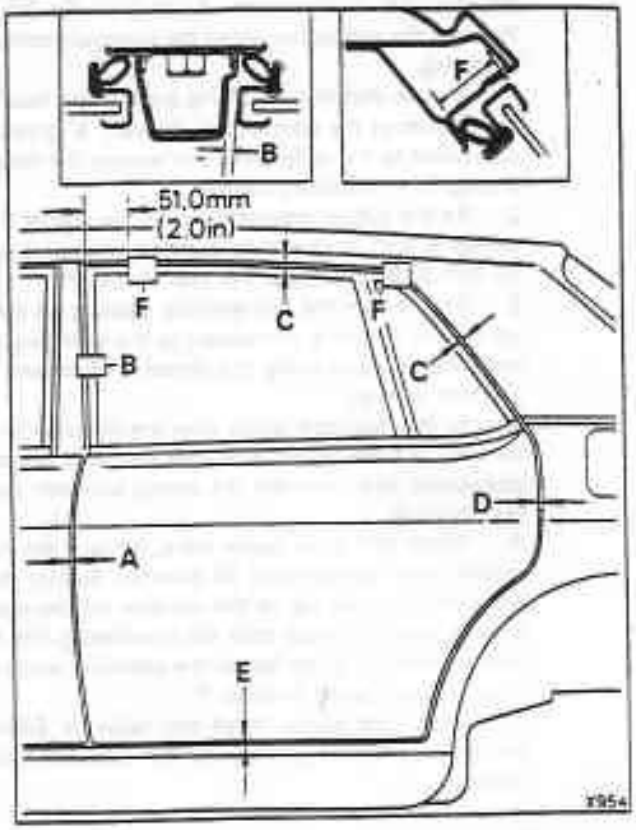

Fig. S4-4 Position of door in body aperture (Cars fitted with Dunlop door seals)

A 4,0 mm to 6,0 mm (0.157 in to 0.236 in)
B 5,0 mm to 7,0 mm (0.197 in to 0.275 in)
C 4,0 mm to 6,0 mm (0.157 in to 0.236 in)
D 3,0 mm to 5,0 mm (0.118 in to 0.197 in)
E 4,0 mm to 6,50 mm (0.157 in to 0.256 in)
F 31,0 mm to 32,0 mm (1.221 in to 1.260 in)
Cars fitted with or without the additional door frame stiffening.

Note

All door to aperture gaps to be parallel to within 1,50 mm (0.059 in) maximum in every 400 mm (15.760 in). The doors must be flush with or up to 1 mm (0.039 in) below, the surface of the body panels.

Position of door in body aperture (Cars fitted with Meteor door seals)

A&B 6,0 mm (0.236 in)
C 5,0 mm (0.197 in)
D 4,0 mm (0.157 in)
E 4,0 mm to 6,50 mm (0.157 in to 0.256 in)
F 34,0 mm to 36,0 mm (1.339 in to 1.418 in)
Cars fitted with the additional door frame stiffening.

Window lift mechanism - To fit (see fig. S4-6)
Reverse the procedure given for removal noting the following.
1. Ensure that the mounting bushes are located in the bottom of the door. Apply Retinax 'A' grease or its equivalent to the setscrews and secure the mechanism through the mounting bushes.
2. Fit the rubber downstop onto the end of the swinging arm. It should be pushed on until it is 16 mm (0.625 in) past the end of the arm.
3. Ensure that the self-aligning bearing on the pick-up plate is properly connected to the swinging arm on the window glass using the distance piece and a Starlock washer.
4. Fit the moulded guide over the window lift pick-up plate. Fit the hooks, ensuring that they are correctly positioned, then connect the spring between them (see inset A).
5. When fitting the guide plate, remove the nut and washer from the window lift channel. Ensure that the plate abuts to the top of the window lift channel. Also ensure that it is fitted onto the moulded guide before torque tightening the nut to the standard torque figures specified in Chapter P.
6. Attach the rubber block and cable tie. Ensure that the tie secures the guide plate but does not foul the chain.

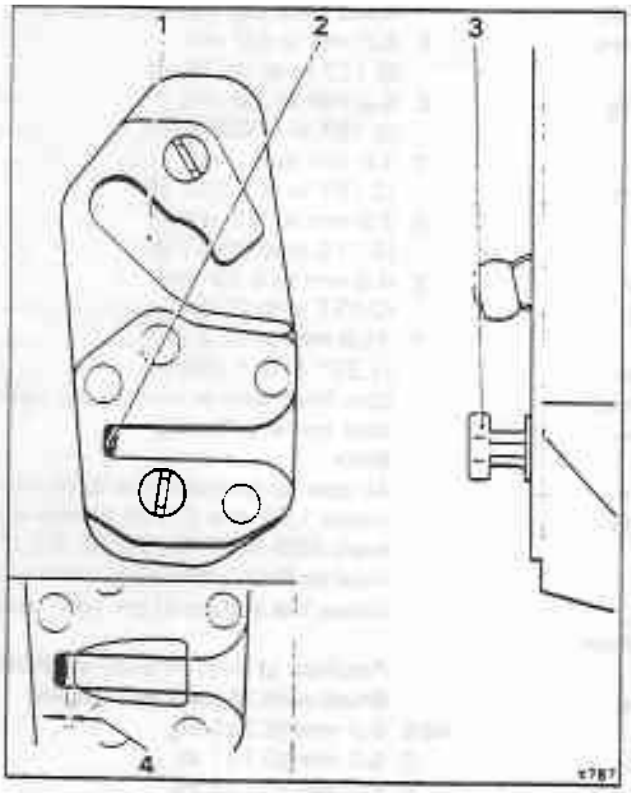

Fig. S4-5 Striker plate
1 Lock bolt roller channel
2 Rubber buffer
3 Anti-burst flange
4 Door overtravel

Window lift mechanism modification
Cars prior to vehicle identification number *SCAZS0006BCH02000*
On certain cars, the window lifts can be slow in operation and judder when the window is operated in the up position. One of the major causes for this is the incorrect positioning of the slots for the silver steel rollers in the Daval clutch (see fig. S4-6, inset B).

From the above vehicle identification number, a modified version of the Daval clutch assembly has been used which allows the silver steel rollers to function correctly without creating any unnecessary friction. These modified clutches can be fitted on cars prior to the above vehicle identification number using the following procedure.

Note
Before carrying out the procedure, always ensure that the juddering is not caused by any other undesirable feature such as, tight glass channels, tight waist rail finisher, incorrect tension of the counter balance cables or misaligned guide plate.
1. Disconnect the battery.
2. Remove the door trim panels.
3. Disconnect the window motor electrical leads at the Lucar connections. Note the colour code of the leads to ensure correct assembly.
4. Using a tool manufactured to the dimensions shown in figure S4-6, remove the window motor. This tool enables all electric window lift motors to be removed from the regulator whilst in position.
5. Carefully remove the Daval clutch retaining the silver steel rollers and small rubber buffer.
6. Apply a small amount of light multi-purpose grease to the slots in the new Daval clutch, then insert the original silver steel rollers and rubber buffer. Note that the correct Daval clutch can be identified by its light blue colouring.
7. Carefully replace the clutch into the electric window lift gearbox housing.
8. Fit the window motor.
9. Connect the electrical leads.
10. Connect the battery and check the operation of the window lift mechanism.
11. Replace the door trim panels.

Wire guidance assembly and window glass - To remove
1. Remove the door trim.
2. Release the spring moulded guide, star washer, and distance piece from the window lift pick-up plate. Support the glass, then release the swinging arm from its pivot point on the window lift assembly (see fig. S4-6).
3. Move the glass to the fully closed position and secure with masking tape.
4. Using a long screwdriver or similar tool, release the tension from one of the wires by extending the spring. Unhook the wire from its top anchor point and remove the wire.

Repeat the operation for the other guidance wire.
5. Remove the masking tape whilst supporting the glass.

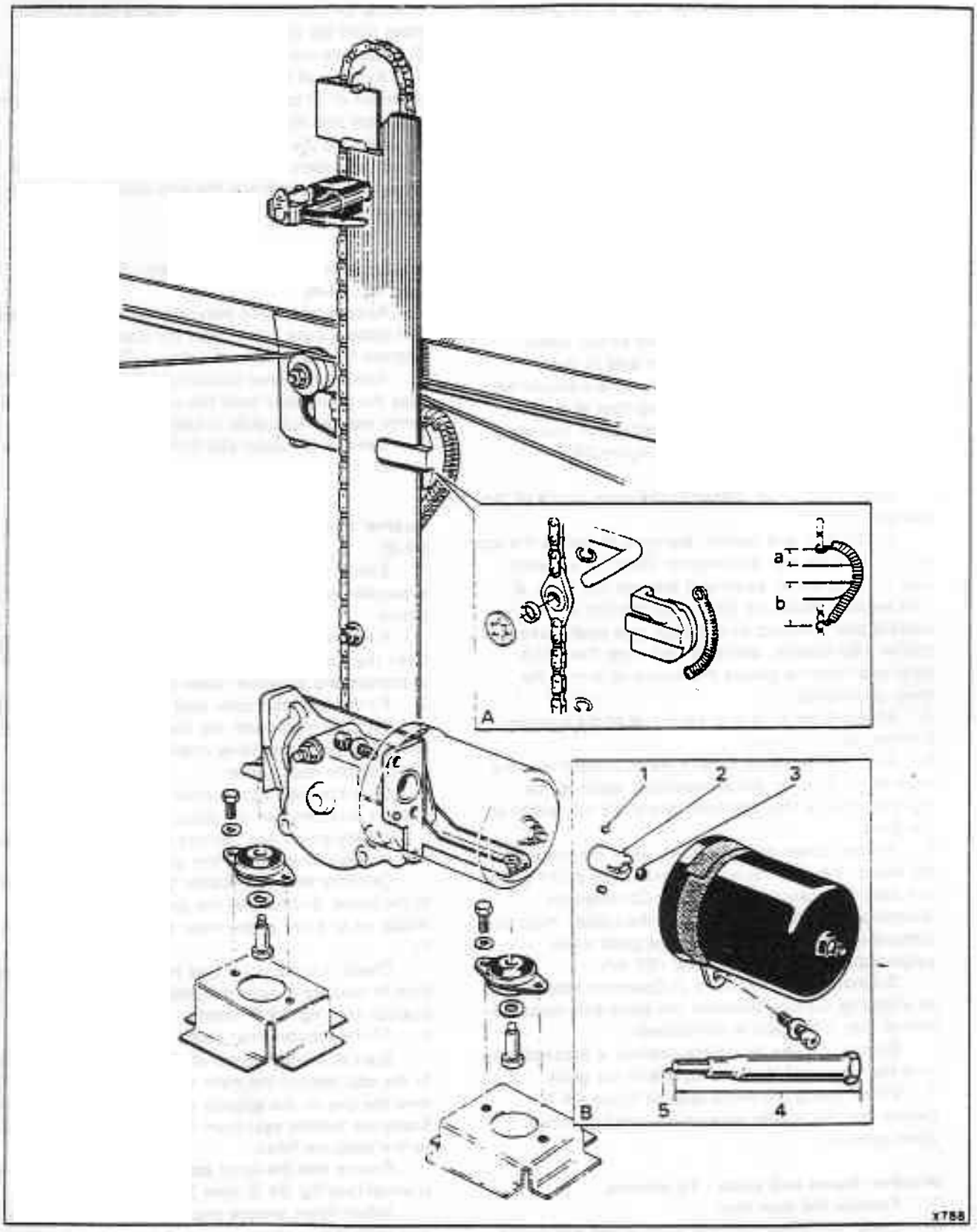

Fig. S4-6 Window lift mechanism

A Correct spring setting
1 Approximately 12.50 mm (0.50 in)
2 Approximately 34.0 mm (1.30 in)
B Daval clutch assembly
1 Silver steel roller
2 Nylon clutch body
3 Rubber buffer
4 108.0 mm (4.250 in)
5 4.76 mm (0.187 in) A/F

Lower the sloping bevelled edge of the glass until both sides are free of the window channels, then lift the glass out of the door.

6. If necessary, remove the swinging arm and pulleys from the glass channel (see fig. S4-7).

Wire guidance assembly and window glass - To fit

Reverse the procedure given for removal noting the following.

1. Always ensure that the glass is in its fully raised position. This ensures that the glass always fully enters the door frame.
2. If required to refit or replace a glass channel proceed as follows.
3. Fit the swinging arm assembly to the glass channel (see fig. S4-7). A minimum of two nylon washers should be used, one each side of the swinging arm. If required, further washers should be added in order to eliminate any end-float of the arm.

The lower pivot block is chamfered on one end. Position the chamfer as shown in figure S4-7 (arrowed).

Apply Rocol ASP grease to the pivot points of the swinging arm.

A 2BA bolt and washer are used to secure the top pivot. Insert the bolt and washer from the outboard side of the channel, passing it through the pivot. A 2BA washer should be fitted onto the bolt on the inboard side followed by a spacer, two small pulleys, a further 2BA washer, and two 2BA nuts. Two 2BA bolts and washers secure the swinging arm at the lower pivot block.

4. Fit the large pulleys at each end of the window channel (see fig. S4-7).
5. Fit black Gosheron tape or its equivalent over the edge of the glass to the approximate depth of the channel. Ensure that the tape covers the full length of the glass.
6. Fit the rubber over the glass, align the tongue on the end of the channel with the rear edge of the glass and start to press on the channel. Considerable resistance should be felt because the rubber must be compressed sufficiently to grip the glass when subjected to a pull of 40.82 kgf (90 lbf).

If necessary, extra layers of Gosheron tape should be added as packing between the glass and rubber to ensure that this figure is maintained.

Ensure that the dropglass channel is pressed fully onto the glass and that it is square to the glass.

7. When fitting the wires refer to figure S4-7. Ensure that the rubber sleeves are fitted over the lower springs.

Window frame and seals - To remove

1. Remove the door trim.
2. Lower the glass until the nylon guide and spring are visible through the inner panel aperture.
3. Disconnect the battery.
4. Release the wires from the window guidance system.
5. Remove the star washer and distance piece. Support the glass, release the swinging arm from the window lift mechanism, then remove the window glass from the door.
6. Remove the door to body seal.
7. Remove all the frame securing bolts. Note the positions of all bolts, screws, spacers, etc., for easier assembly (see fig. S4-8).
8. Remove the frame from the door.
9. If necessary, remove the window channel seal, fence moulding seal and the end seals between the door and frame (see fig. S4-9).

Quarter window glass and seals - To remove (see fig. S4-9)

1. Remove the frame securing bolts, and the screws and tapping plate from under the quarter glass. Remove the frame from the door.
2. Release the inner sections of the glass seal and ease the glass away from the outer seal. Grip the glass firmly and carefully slide it from the frame.
3. Remove the outer seal from the quarter window frame.

Quarter window glass and seals - To fit (see fig. S4-9)

1. Ensure that the inside of the frame channels, especially the corner areas, are clean and free from debris.

If necessary, where old seals are being replaced, clean the window channel with Bostik Cleaner 6001 to remove any adhesive; allow to dry.

2. Fit the moulded outer seal (see fig. S4-9, item 1) into the door frame with the outer lip of the seal sitting on the flange of the frame channel. Work the seal carefully into each corner.
3. Tape the edge of the inner fence moulding to prevent scratching of the glass.

Lightly smear soap across the bottom of the outer seal for ease of access of the glass.

Carefully slide the quarter glass through the slot in the frame. Ensure that the glass is fully into the rebate on all sides or the inner seal will be difficult to fit.

Check that the outer seal has not been disturbed, then fit wedges to hold the glass in the correct position (see fig. S4-9, inset).

4. Fit the tubular inner seals.

Start at the top corner of the frame. First cut and fit the seal nearest the main window glass (item 2), then the one on the outside of the frame (item 3), and finally the bottom seal (item 4). Remove each wedge as the seals are fitted.

Ensure that the lip of each seal fits over the channel (see fig. S4-9, item 5).

When fitted, ensure that the inner seals on the two vertical legs of the quarter frame are not visible when viewed through the glass. When looking through the glass at the bottom seal, approximately 6.3 mm (0.250 in) of seal should be visible.

5. Using the self-tapping screws, secure the spacer (item 6) inside the inner fence moulding, and into the support angle of the frame.

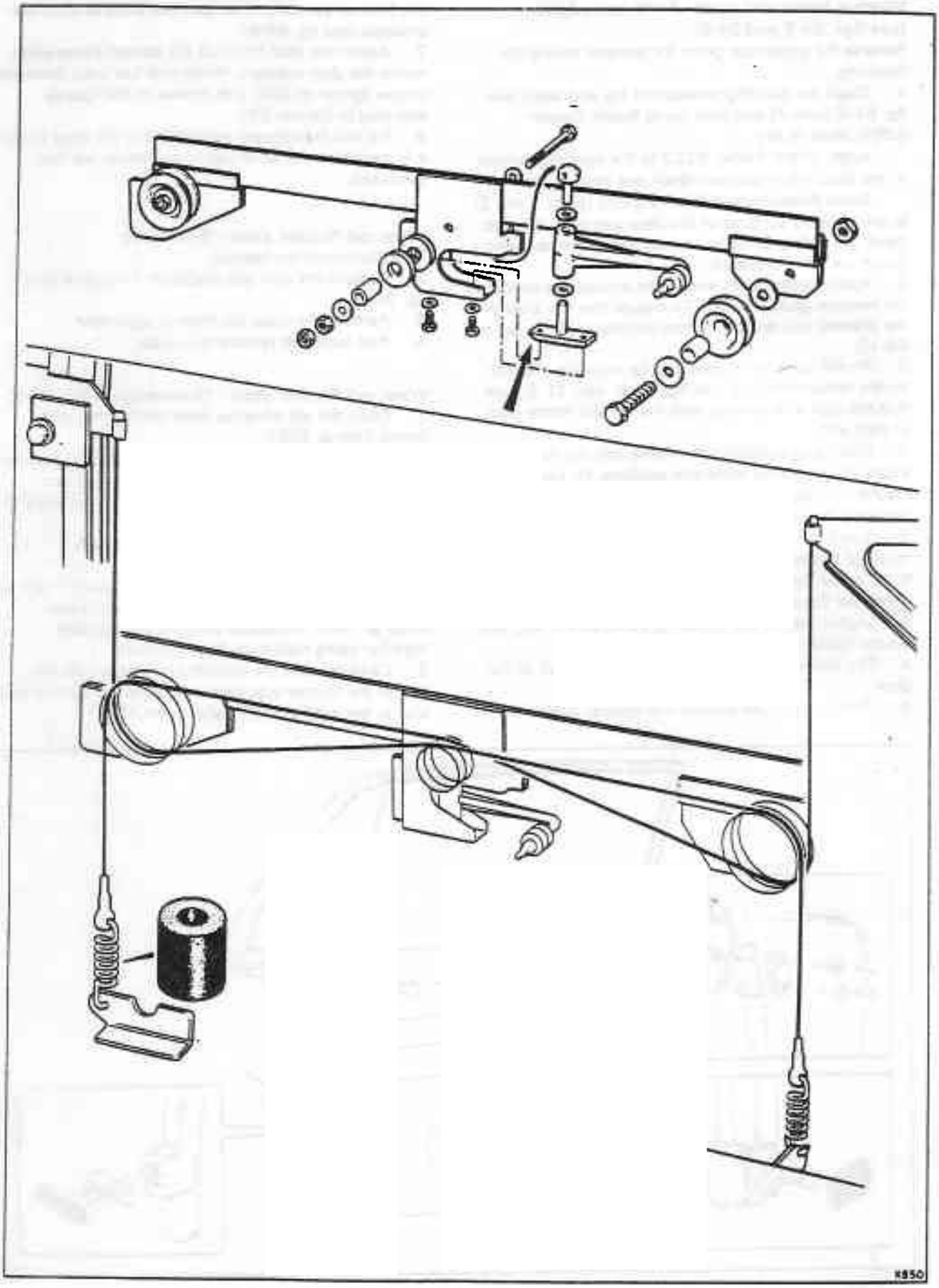

Fig. S4-7 Wire guidance assembly and window glass channel

Window frame and seals - To fit and adjust (see figs. S4-8 and S4-9)

Reverse the procedure given for removal noting the following.

1. Clean the bonding surfaces of the end seals (see fig. S4-9, item 7) and door using Bostik Cleaner 6001; allow to dry.

Apply Bostik Primer 9252 to the bonding surface of the door. Allow approximately one hour to dry.

Apply Boscoprene Adhesive 2402 (parts 1 and 2) to the bonding surfaces of the door and seal. Allow to 'flash' dry before bringing the surfaces together using maximum hand pressure.

2. Apply Teepol or its equivalent around the inside of the window glass channel. To ensure that the slots in the channel seal are positioned correctly refer to figure S4-10.
3. Fit the outer waist seal into its retaining channel on the fence moulding (see fig. S4-9, item 8). Ensure that the seal is in contact with the vertical frame legs at each end.
4. Insert and centralize the frame into the door and locate the mounting bolts and washers. Fit packing washers (if necessary) at the waist rail fixings. Also, if required, fit washers between the lower frame fixing points and the door to ensure that the frame is at the required height and that the frame legs are parallel.
5. Torque tighten the three horizontal waist securing bolts (see Section S20).
6. Lightly secure the following bolts, screw, etc., but do not tighten at this stage.

a. The frame adjusting bolts in the lower half of the door.

b. The countersunk screws and special washers on the front of the door. Note that two sizes of shim are available (see fig. S4-8).

7. Adjust the door frame to the correct dimensions within the door aperture. When this has been achieved, torque tighten all bolts and screws to the figures specified in Section S20.
8. For any subsequent adjustment of the door frame, it is important that all of the frame fixings are first slackened.

Waist rail finisher seals - To remove

1. Disconnect the battery.
2. Remove the arm rest and outer trim panel (see fig. S4-1).
3. Remove the waist rail finisher assembly.
4. Peel back and remove the seals.

Waist rail finisher seals - To renew (see fig. S4-9)

1. Clean the old adhesive from the finisher with Bostik Cleaner 6001.
2. Apply Bostik Primer 9252 to the bonding face of the finisher. Allow approximately one hour to dry.
3. Using fine sandpaper, rub the face of the seals to create suitable bonding surfaces.
4. Clean the bonding face of the seals with Genklene; allow to dry.
5. Apply Boscoprene Adhesive 2402 (parts 1 and 2) to the bonding surfaces of the finisher and seals. Allow to 'flash' dry before bringing the surfaces together using maximum hand pressure.
6. Carefully stick the self-adhesive seals onto the rear of the finisher just below the polished surface and also to the ends of the finisher (item 10).

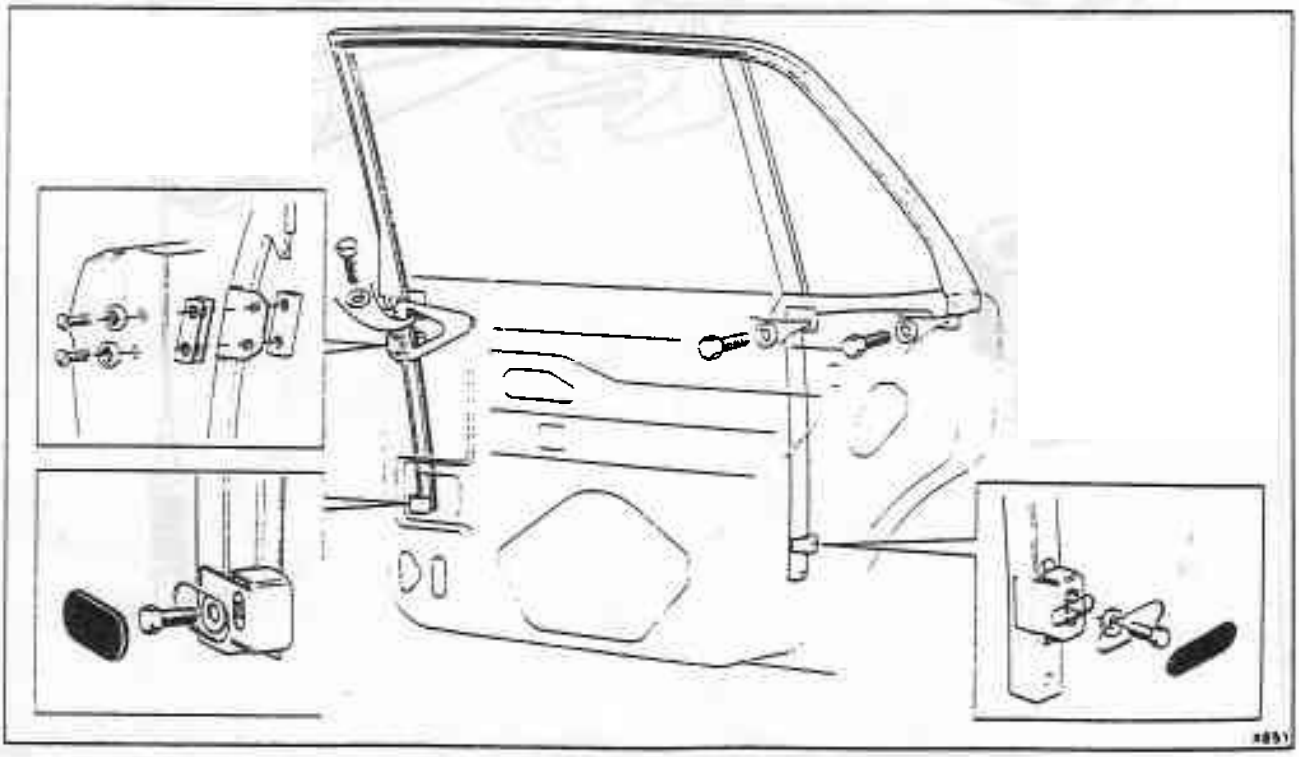

Fig. S4-8 Window frame fixing and adjustment points

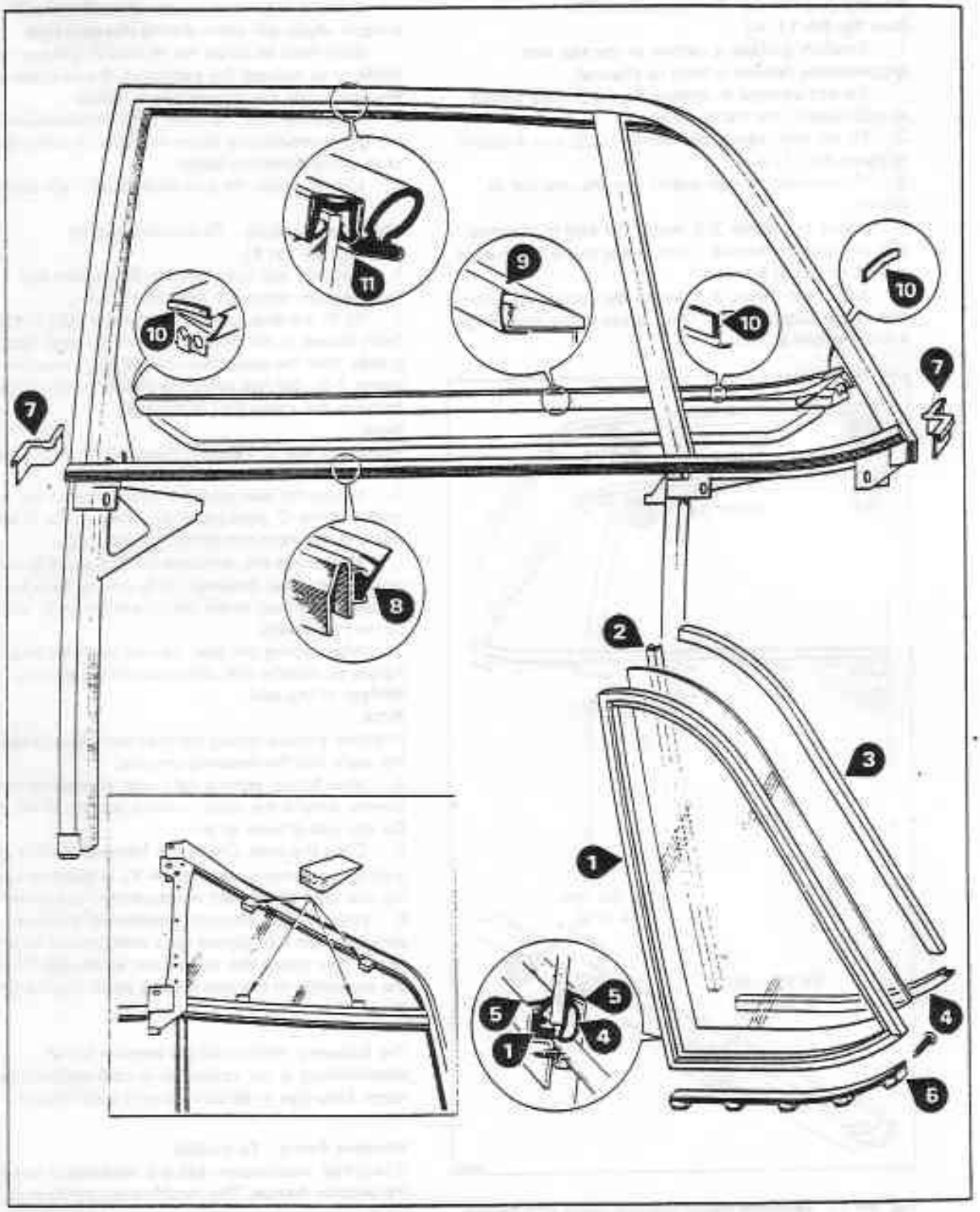

Fig. S4-9 Quarter window and door seals

1 Moulded outer seal
2 Inner section - Inner seal
3 Outer section - Inner seal
4 Bottom section - Inner seal
5 Correct seal lip position
6 Spacer
7 End seals
8 Fence moulding seal
9 Waist rail finisher seal
10 Self adhesive seals - Waist rail finisher
11 Window channel seal and Door to body seal

Dunlop door seals - To remove and fit (see fig. S4-11, A)

1. Carefully pull out a section of the seal and progressively remove it from its channel.

Do not attempt to remove the black filler pieces at each side of the frame waist.

2. Fit the door seal at the points 1,2,3, and 4 shown in figure S4-11, A.
3. Manoeuvre the seal evenly into the channel as follows.

Above the points 3-3, locate the seal to the inner part of the door channel. Then, press in the outer edge a short length at a time.

Below the points 3-3, locate the seal to the outer part of the door channel. Then, press in the inner edge a short length at a time.

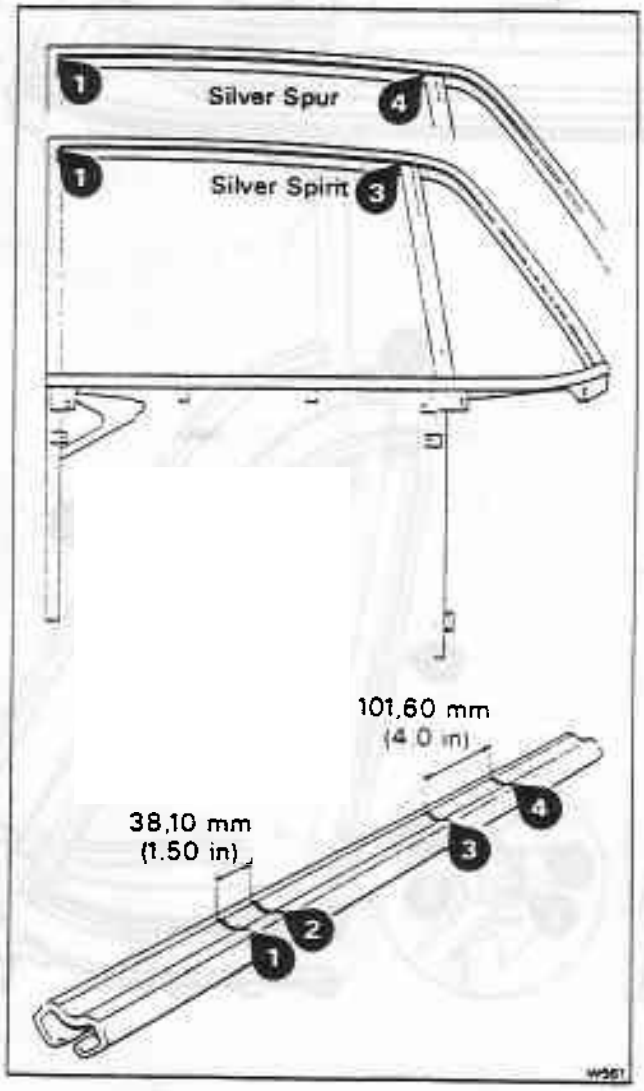

Fig. S4-10 Window frame channel seals and guides
Position slot 1 into top 'C' post corner. Feed the remainder of the seal into the channel. Slot number 3 should align with the top rear corner of the window glass channel.
On Silver Spur cars slot number 4 should align with the top rear corner of the window glass channel.

A wood or perspex wedge shaped tool with smooth edges will assist during this operation.

Care must be taken not to stretch the seal when fitting or to damage the paintwork. **Do not** lubricate the seal inside the channel when fitting.

4. When the seal has been fitted satisfactorily, fill any gaps immediately above the door to frame end seals using Glasticon Sealer.
5. Lightly smear the seal with Crude Palm Grease.

Meteor door seals - To remove and fit (see fig. S4-11, B)

1. Carefully pull out a section of the seal and progressively remove it from its channel.
2. To fit the seal, start by applying a light coating of Palm Grease to the base section of the seal. Apply the grease from the waist downwards (i.e. below the points 2-2). **Do not** apply the grease to the window frame or the upper half of the seal.

Note
Petroleum jelly or Vaseline must not be used on these seals.

3. Locate the seal onto the door frame at the top corner of the 'C' post (point 1). Then, to the 'C and D' posts at the waist mouldings (points 2-2).

Manoeuvre the remainder of the seal into the retaining channel between these points. Take care not to stretch the seal at the upper and lower 'D' post corners (arrowed).

When fitting the seal, **do not** close the door. Failure to observe this could lead to permanent damage of the seal.

Note
Use only a round edged perspex tool when pressing the seals into the retaining channel.

4. After fitting, apply a light coat of chalk or talcum powder around the outer bulbous section of the seal. **Do not use grease or oil.**
5. Close the door. Check the frame to cantrail seal landing dimensions (see fig. S4-4). If necessary, adjust the seal until the correct measurement is attained.
6. With the seal correctly positioned, the door should be left fully closed for a minimum of twelve hours. This allows the seal to set, which will minimize the possibility of the seal fouling when closing the door.

The following information on window frame modifications is not applicable to cars conforming to a North American or Middle Eastern specification.

Window frame - To modify

If required, modification kits are available to strengthen the window frames. The modification consists of welding stainless steel plates to the frame. This produces a more rigid fixing of the type shown in figure S4-8.

If the car to be modified is in the range of vehicle identification numbers around *SCAZS0006BCH02000* check the type of door frame fitted, as an exact VIN cut-off number for early and later type frames cannot be guaranteed.

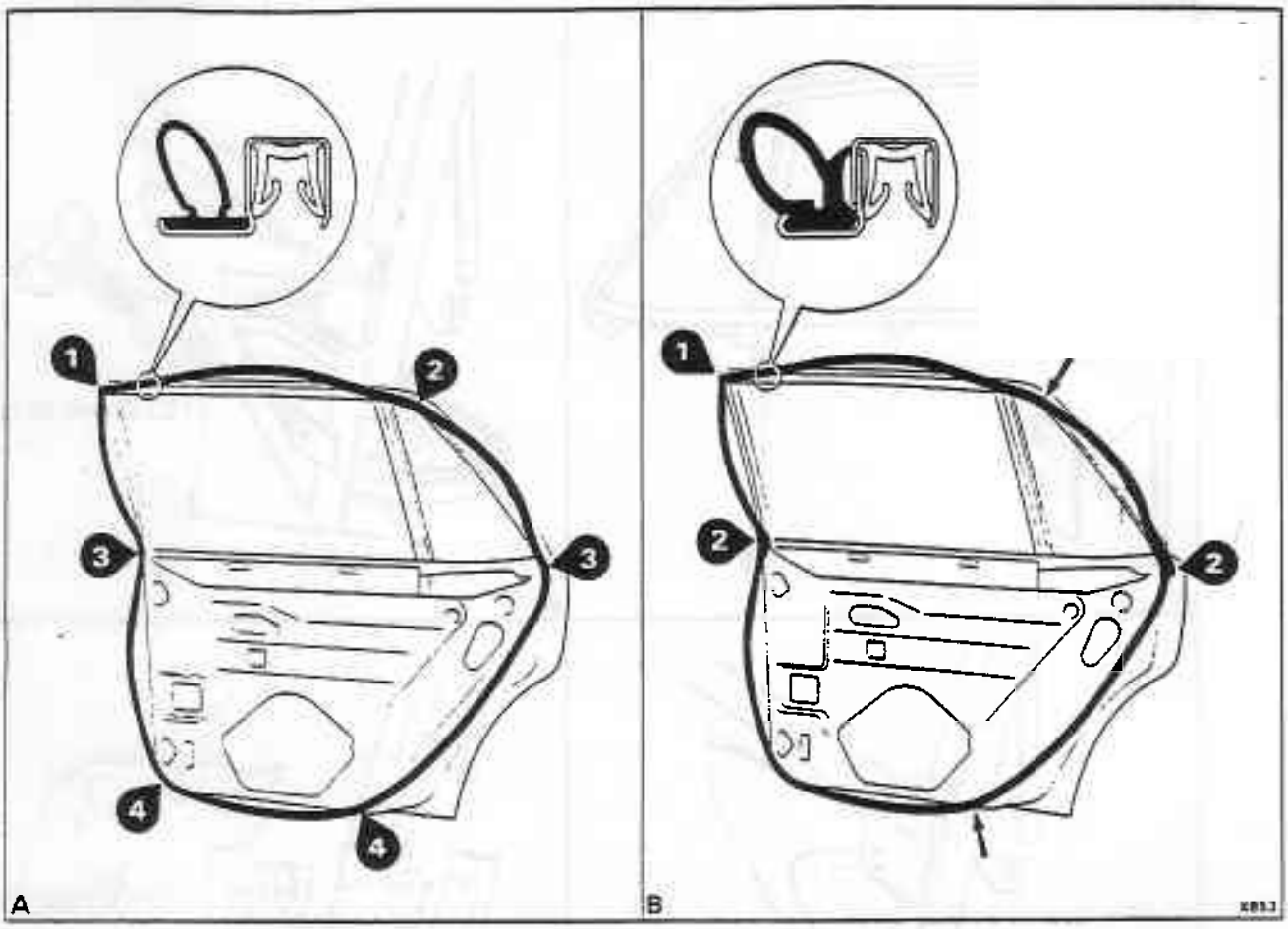

Fig. S4-11 Door to body seals
A Dunlop door seal
B Meteor door seal

Each modification kit consists of plates and seals for both front and rear doors (for information on front doors, refer to Section S3). The kit numbers and the models they are applicable to are.

Cars prior to vehicle identification number *SCAZS0006BCH02000*

RH 2849 - Silver Spirit and Mulsanne (excluding Turbo)

RH 2851 - Silver Spur (Non-division and Division)

Cars from vehicle identification number *SCAZS0006BCH02000*

RH 2850 - Silver Spirit and Mulsanne (excluding Turbo)

RH 2852 - Silver Spur (Non-division and Division)

Important

Before using these kits, or commencing any work concerning this modification, authorization must be obtained from a Rolls-Royce Motors Service Representative.

To achieve the modification, it will first be necessary to remove the window frame from the door (see Window frame and seals - To remove) then proceed as follows.

1. Protect the upper frame with masking tape.
2. Remove the black filler pieces from the frame waist.
3. Pick out the correct plate, positioning it as shown in figure S4-12, A.
4. Remove the channel seal from the front leg of the frame.
5. Position and clamp the new stiffening plate onto the front leg of the frame (see fig. S4-12, B). Ensure that the elongated holes in the stiffening plate are facing uppermost. Also ensure that the back edge of the plate is positioned parallel with the radius of the frame leg.
6. Before welding the plates into position note the following.

In order to minimize distortion of the window frame and localize heating, one of the following types of welding must be used.

a. Tungsten inert gas (T.I.G.)
b. Metal inert gas (M.I.G.)
c. Arc welding

Important

Oxyacetylene must not be used, as this will distort the window frame.

7. Earth the window frame on the lower half of the frame leg, not to the polished face.
8. Weld the plate into position as shown in figure S4-12, C then remove the clamp.
9. Fit the channel seal back into the front leg of the frame and position the frame in the door.
10. Remove the masking tape from the frame.

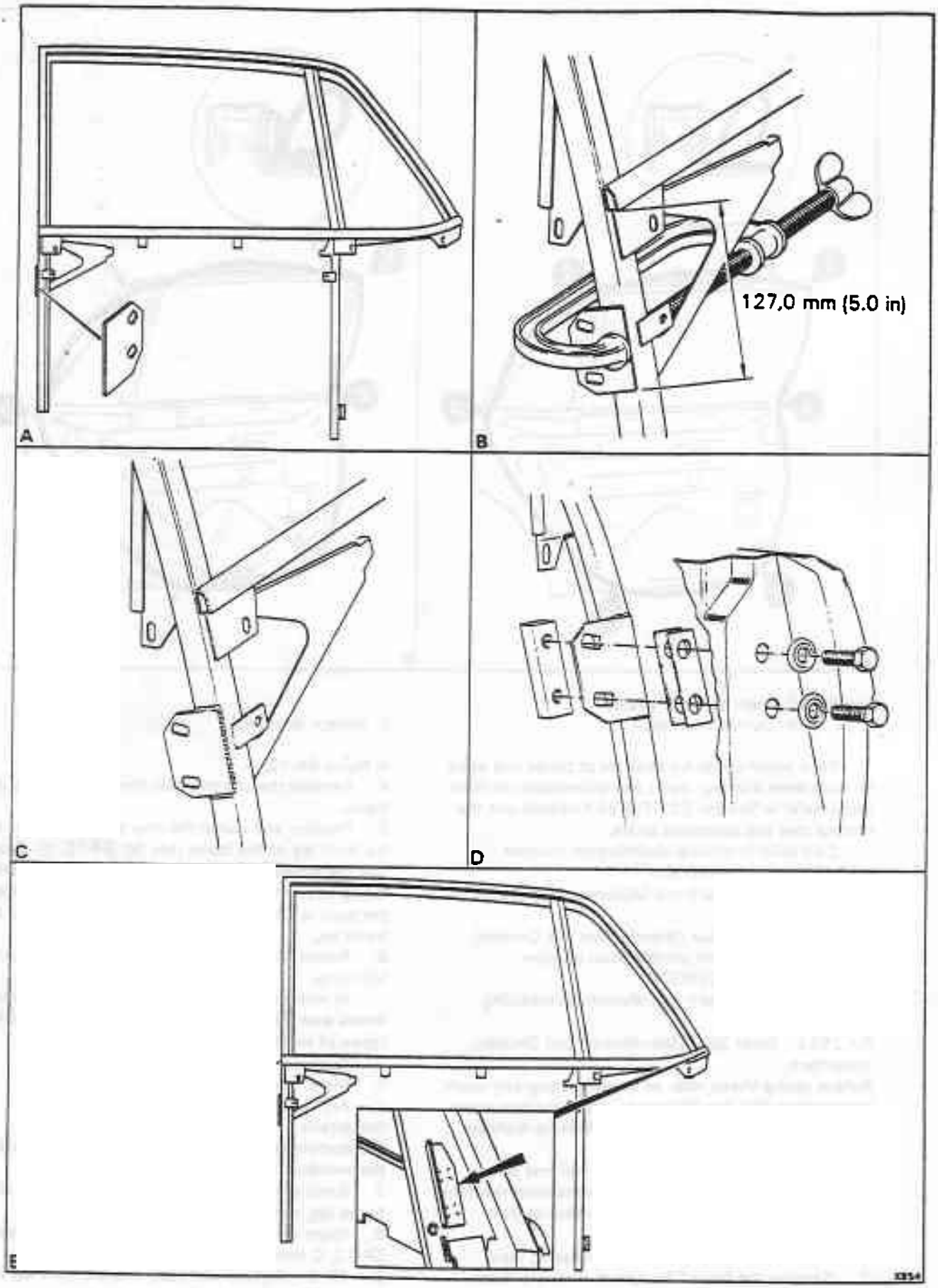

Fig. S4-12 Window frame modifications

situated between the outer face of the lock and the mounting bracket.
7. Straighten the legs of the split pin retaining the roller to the lock bolt. Rotate the roller until the slot in the outer lip of the roller is aligned with the head of the split pin. Remove the split pin, washer, and roller.
8. Support the lock. Remove the screws and cup washers securing the lock to the rear edge of the door; remove the door lock.

Interior door handle - To remove
1. Remove the door trim.
2. Remove the handle by detaching the open end of the polythene bag from the door and disconnecting the remote control rod (see fig. S4-13, item 1).

Door lock, linkage, and interior door handle - To fit
Reverse the procedure given for removal noting the following.
1. Where link rods have been removed from their retaining bushes, always fit new Fastex bushes. This ensures that the rods are correctly secured.
2. During assembly, lubricate the pivot points on all lock linkages with Rocol MTS 1000 grease or its equivalent.
3. Check the condition of the lock bolt roller and if necessary renew it. Always use a new split pin when fitting the lock bolt roller.

Check that the roller rotates freely on the lock bolt and does not bind on the head of the split pin.
4. Torque tighten the screws securing the lock to the rear edge of the door (see Section S20).
5. Torque tighten the setscrew securing the lock to the door panel to the standard torque figures specified in Chapter P. Check to ensure that the spacing washer(s) are in position between the lock and mounting bracket.
6. Adjust the position of the interior door handle remote control linkage as follows (see fig. S4-13, inset A).

Fit the interior handle assembly, positioning it in the centre of the adjusting slots.

Fit the remote control rod into one of the holes in the lock contactor lever.

Adjust the handle until there is a small amount of overtravel beyond the activation point of the lock bolt (see fig. S4-13, inset A). Tighten the securing screws.
7. If required, fit a new polythene bag around the interior door handle mechanism. Cut a small section from the corner of the bag and push the remote control rod through the hole so that the interior handle end of the rod is inside the bag.

Secure the bag to the rod using the rubber sleeve.

Fit the interior door handle to the remote control rod and secure the handle to the door, trapping the open end of the polythene bag.

Using Dunlop Adhesive S81, secure the open end of the bag around the aperture.

Adjust the handle and remote control linkage as described in Operation 6. Check that the handle operates without unduly straining the polythene bag.

Centralized door locking solenoid assembly - To remove and fit
1. Disconnect the battery.
2. Remove the door trim.
3. Disconnect the link rods from the relay lever assembly.

When fitting the link rods, always fit new Fastex bushes to ensure that the rods are correctly secured.
4. Disconnect the solenoid loom plug and socket.
5. Remove the three setscrews retaining the solenoid cover to the door panel. Remove the solenoid and lever assemblies from the door and retain the spacer.
6. To fit the centralized door locking solenoid assembly, reverse the procedure given for removal. To set the locking system, reference should be made to Setting the centralized door locking system.

Exterior door handle - To remove and fit
1. Remove the door trim.
2. Disconnect the link rod (see fig. S4-13, item 5) from the cross-shaft lever.

When fitting the link rod, always fit new Fastex bushes to ensure that the rods are correctly secured.
3. Remove the two nuts and washers securing the handle mounting plate and push button lever assembly; remove the plate, lever, and link rod.
4. Remove the remaining nut and washer and withdraw the handle assembly.
5. To fit the exterior handle, reverse the procedure given for removal noting that: for details on setting the push button overtravel etc., reference should be made to Setting the centralized door locking system.

Setting the centralized door locking system (see fig. S4-14)
The following settings and adjustments must be made carefully and accurately.

Where link rods have been removed from their retaining bushes, always fit new Fastex bushes to ensure that the rods are correctly secured.
1. Leave all link rods disconnected.
2. Press the lock control lever upwards (item 1) and align the cross-shaft lever approximately with the hole in the control lever (item 2). Ensure that there is a washer fitted beneath the nut at the lever pivot (item 3).
3. Ensure that the relay lever assembly is operating freely and that the Starlock washers do not turn (item 4).
4. Connect the rod between the lock and relay lever assembly (item 5).
5. Holding a screwdriver or similar tool behind the cross-shaft lever, press the link rod hanging from the bell crank lever of the exterior handle into the cross-shaft lever bush (item 6).
6. Check the operation of the exterior handle push button and levers. If the movement of the button and link rods is tight and the overtravel is too great, carefully tap the cross-shaft lever slightly downwards until the assembly is operating freely and the overtravel is correct (item 7).

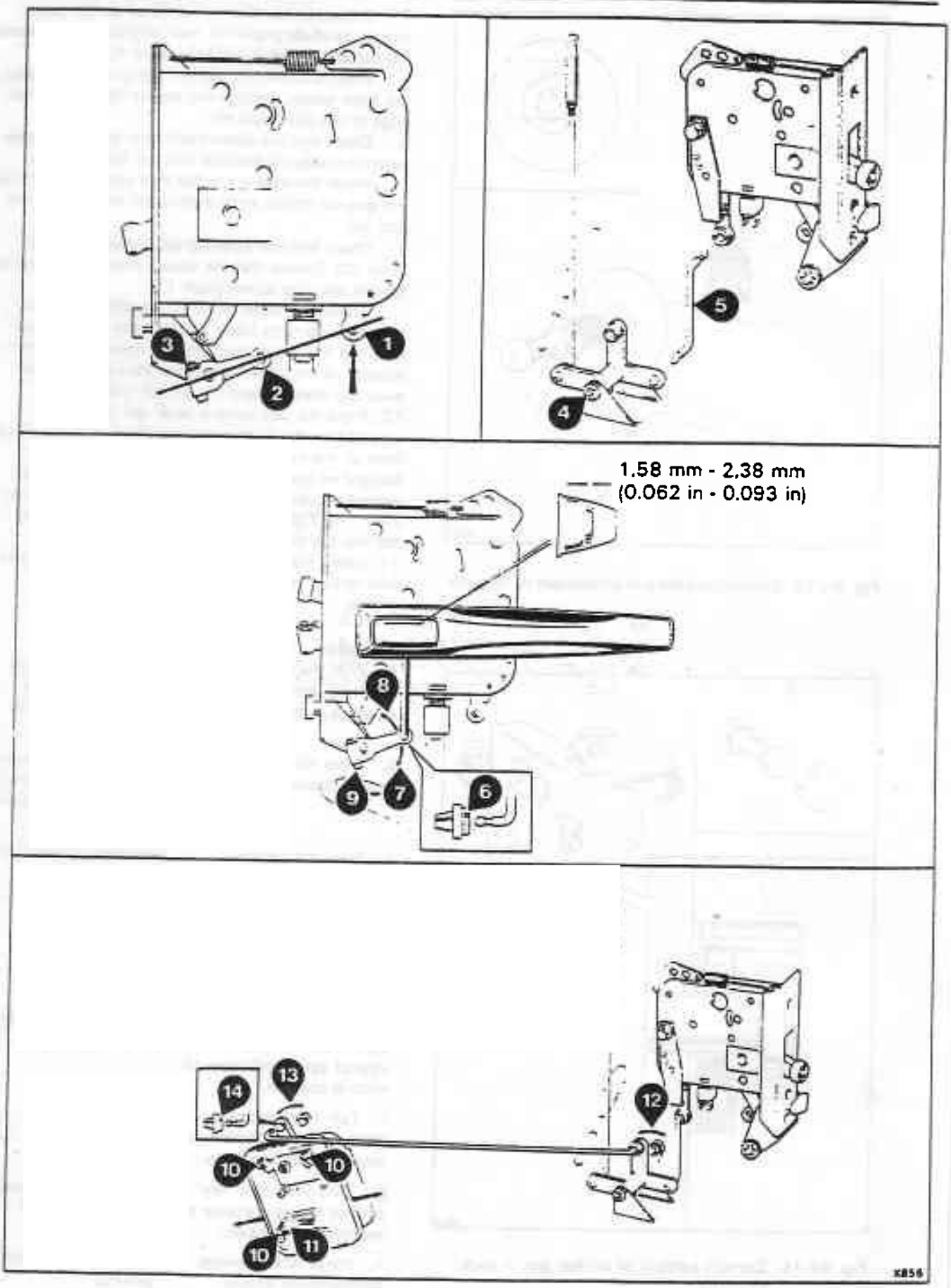

Fig. S4-14 Setting the centralized door locking system

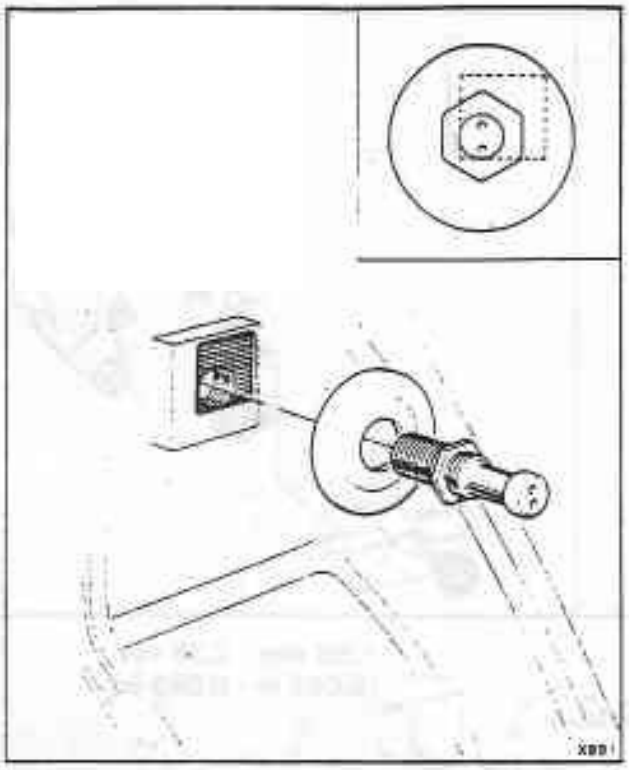

Fig. S4-15 Correct position of striker pin in 'D' post

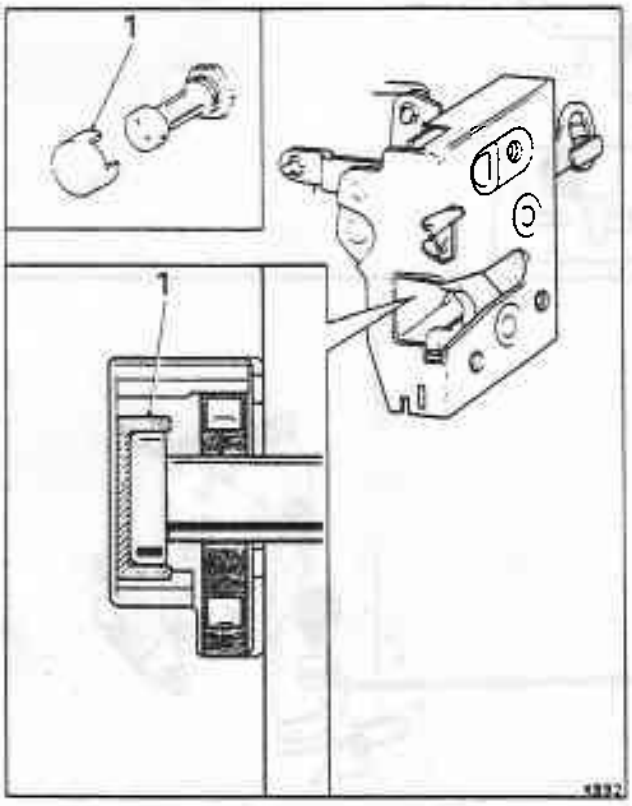

Fig. S4-16 Correct setting of striker pin in lock aperture
1 Setting piece RH 9779

7. If there is insufficient overtravel on the push button, carefully press the lever slightly upwards until the correct setting is achieved (item 8).

When satisfactory, tighten the cross-shaft lever at the Allen screw, through the access hole in the rear edge of the door (item 9).

8. Check that the cross-shaft lever does not move when the rods are pressed into the lock position.

When the rods are in the lock position check that the exterior handle push button will not operate the lock bolt.

9. Check that the solenoid setscrews are loose (item 10). Ensure that the spacer is in position on the bottom securing screw (item 11).

Check to ensure that the solenoids and lever assembly operates freely and that the plastic cover does not foul the output shaft. If necessary, adjust the position of the solenoids on the backplate and cut away the cover around the output shaft.

10. Press the lock control lever and relay lever assembly to the locked position (item 12). Press the lever on the outside of the solenoid cover as far forward as possible (item 13). Adjust the solenoid assembly until the link rod is aligned with the bush (item 14). Tighten the setscrews (item 10). Press the rod into the bush.

11. Using the following chart, and taking each rear door in turn, check the centralized door locking system.

Operation	Check
a. With the door closed, move sill control button upwards to first position.	Door opens from the interior handle and exterior handle push button.
b. Press sill control button downwards.	Sill button self cancels when door is closed (with the exterior push button not depressed).
c. Press sill control button down again.	Door locks when door is closed (exterior push button depressed).
d. Move front door sill control button upwards against spring pressure to second position.	All doors unlock.
e. Press front door sill control button down against spring pressure to second position.	All doors and luggage compartment lock.
f. Turn front door key against spring pressure to second unlock position.	All doors unlock.
g. Turn front door key against spring pressure to second lock position.	All doors and luggage compartment lock.
h. Press facia stowage compartment unlock button.	Luggage compartment unlocks.

Cars from and including vehicle identification number*SCBZS0T02DCH08001*

Door locking system

Striker pin - To set

1. Fit the setting piece RH 9779 onto the head of the striker pin.
2. Set the pin assembly to the bottom outer corner of the hole in the 'D' post (see fig. S4-15). Hold the striker pin steady and screw the lock-nut finger tight.
3. Carefully offer up the door to the striker pin and screw the pin in or out until the setting piece just contacts the back of the lock (see fig. S4-16).
4. Remove the setting piece. Unscrew the striker pin until the two location holes at the end of the pin are in a vertical position.
5. Ensure that the claw mechanism is in the unlocked position. Keeping the exterior handle push button fully depressed, carefully move the door into the closed position i.e. until the outer panel is flush with the rear wing.

   Open the door.
6. Using the special tool RH 9778 hold the striker pin still then torque tighten the lock-nut (see Section S20).
7. Before closing the door, check that the head of the striker pin does not foul the back of the lock or the claw mechanism.
8. Close the door and check.

a. If the door rises or falls as it closes, loosen the lock-nut and re-adjust the vertical position of the pin.

b. If the door does not align with the rear wing, loosen the lock-nut and re-adjust the inboard/outboard position of the pin.

Door lock and linkage - To remove

1. Remove the door trim and waist rail finisher (see Door trim - To remove and figure S4-1).
2. Disconnect the relay lever to lock link rod at the relay lever (see fig. S4-17, item 1).
3. Disconnect the plug and socket of the micro-switch (item 2).
4. Remove the three setscrews and washers securing the lock to the rear edge of the door (item 3).
5. Lower the lock and disconnect the exterior handle

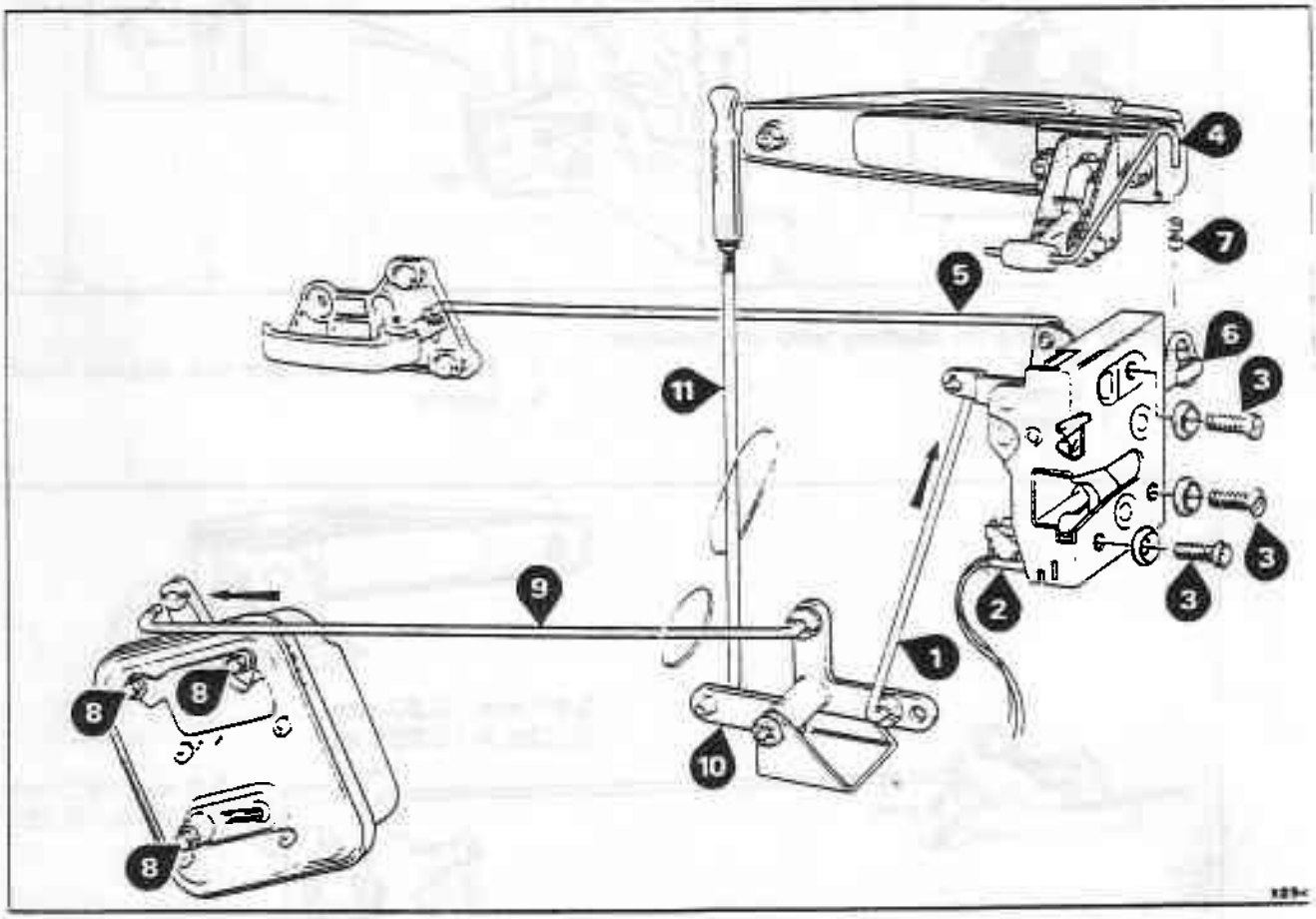

Fig. S4-17 Door locking - General arrangement

1 Link rod - Relay lever to lock
2 Courtesy lamp micro-switch
3 Lock securing screws
4 Control rod - Exterior handle to lock
5 Control rod - Interior handle to lock
6 Plastic connector
7 Metal spacers
8 Solenoid adjustment screws
9 Link rod - Solenoid assembly to relay lever
10 Relay lever
11 Sill control rod

control rod at the lock (item 4). Ensure that the metal spacers are retained on the control rod.
6. Manoeuvre the lock and disconnect the interior door handle control rod at the lock (item 5).
7. Remove the lock and link rod from the door.
8. If a new lock is to be fitted, carefully remove the micro-switch.

Door lock and linkage - To fit
Reverse the procedure given for removal noting the following.
1. Where link rods have been removed from their retaining bushes, always fit new Fastex bushes to ensure that the rods are correctly secured.

Also, fit a new plastic connector (see fig. S4-17, item 6).
2. Before inserting the lock into the door, push the claw mechanism into the door closed position (see fig. S4-18, A).
3. Fit the micro-switch and actuator using the screws, nuts, and shakeproof washer but do not tighten at this stage. The actuator hinge must be at the same end as the button on the switch.

Release the claw mechanism into the door open position (see fig. S4-18, B). Adjust the position of the switch, ensuring that the actuator lever is lightly touching the corner of the switch (see fig. S4-18, item 4). Tighten the screws.

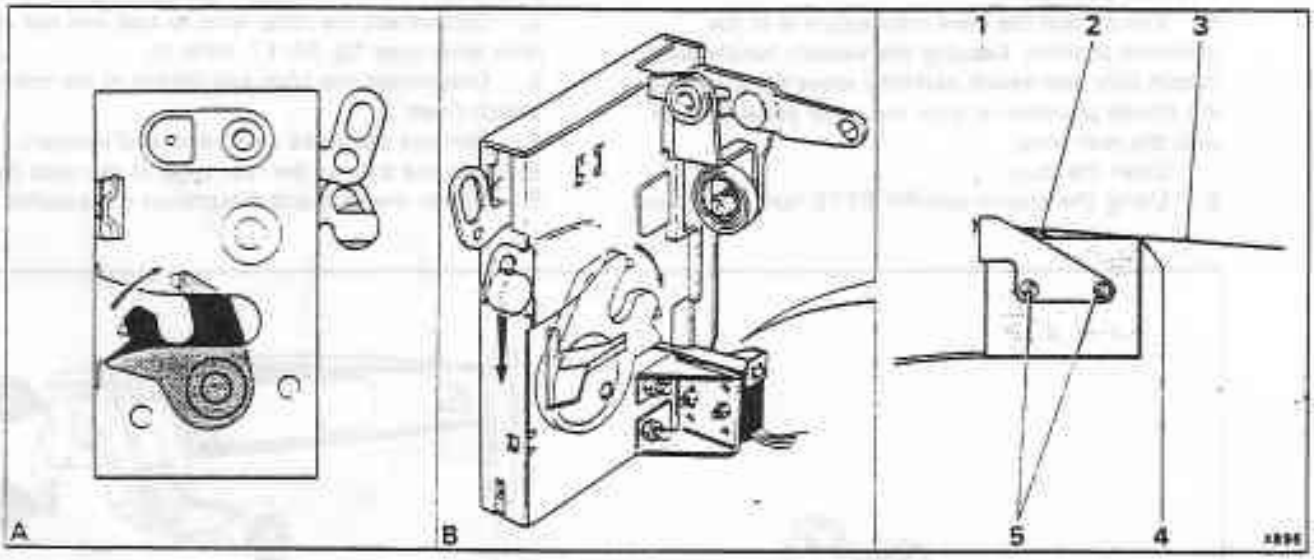

Fig. S4-18 Setting the courtesy lamp micro-switch
1 Hinge
2 Button
3 Actuator
4 Point at which actuator lever touches switch
5 Screws

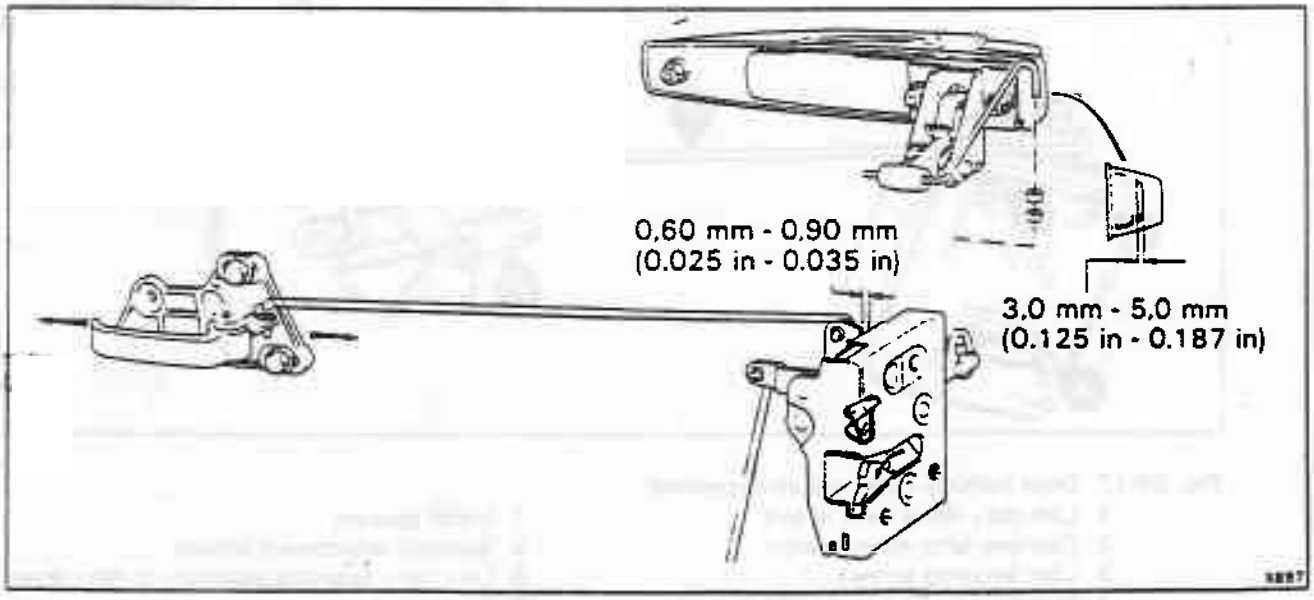

Fig. S4-19 Setting the interior and exterior door handles

4. Place the lock into the door and press the relay lever link rod into position (see fig. S4-17, item 1).
5. Manoeuvre the lock and fit the interior door handle control rod (see fig. S4-17, item 5).
6. Position the lock into its correct location. Ensure that the exterior handle control rod, with two spacers, engages into the plastic connector on the lock (see fig. S4-17, items 4,6, and 7). Hold the spacers in position with Rocol MTS 1000 grease or its equivalent.
7. Using three M6 setscrews and special washers, secure the lock to the door (see fig. S4-17, item 3). Torque tighten immediately to between 5,5 Nm and 6,5 Nm (0,55 kgf m and 0,65 kgf m; 4.1 lbf ft and 4.8 lbf ft).

Important

This torque must not be exceeded.

Whenever the lock securing setscrews are removed, always fit new ones.

8. Check the operation and setting of the interior and exterior door handles.

Interior door handle - To set

1. Loosen the three securing bolts.
2. Push the handle forwards until all the slack is taken up in the control rod, and the handle returns fully against its stop. From that position, push the handle further forwards until the correct gap is attained between the lever and lock (see fig. S4-19).
3. Tighten the bolts and check the operation of the handle.

Exterior door handle push button - To set

1. Push the claw mechanism into the door closed position (see fig. S4-18, A). Check the operation of the push button and ensure that the overtravel is correct (see fig. S4-19).

If the overtravel is incorrect, release and lower the lock and amend the number of spacers on the control rod (see fig. S4-17, items 4,6, and 7).

Whenever the lock setscrews are removed, always replace them with new ones then torque tighten immediately (see Section S20).

Warning

Never shut the door while the claw mechanism is in the closed position or severe damage to the lock may result.

Solenoid assembly adjustment

1. Loosen the three solenoid adjustment screws (see fig. S4-17, item 8 and disconnect the relay lever link rod (item 1).

Ensure that new Fastex bushes are fitted whenever link rods are removed.

2. Press the lock to relay lever link rod into position (see fig. S4-17, item 1).
3. Press the solenoid link rod (item 9) into the relay lever assembly. Press the door lock and solenoid lever into the locked position (see fig. S4-17, arrows).
4. Align the link rod (item 9) with the hole in the solenoid lever by moving the solenoid assembly in the elongated slots. Tighten the adjustment setscrews (item 8) and press the link rod into the bush.

Note

On cars fitted with relay levers in which there are two holes, always fit the rod into the inner hole.

5. Press the sill control rod (item 11) into the remaining hole in the relay lever.
6. Fit the waist rail finisher assembly and door trim.
7. Screw on the sill button. Check that there is approximately 1,5 mm (0.062 in) of the button showing below the neck when the button is in the locked position (see fig. S4-20).
8. Using the following chart, and taking each rear door in turn, check the door locking system.

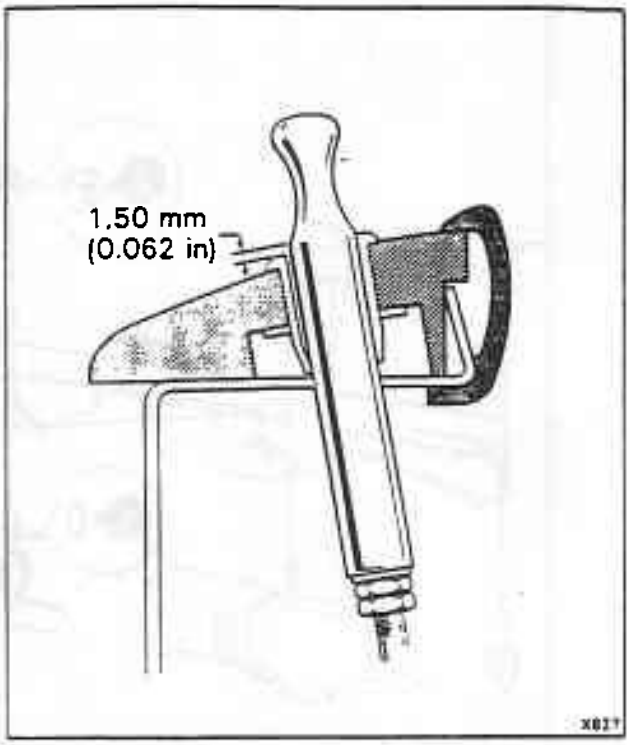

Fig. S4-20 Setting the sill control button

Operation	Check
1. Child safety lever disengaged (up).	
a. Move sill control button upwards.	Door opens from the interior handle and exterior handle push button.
b. Close the door, and move the sill control button downwards.	Door cannot be opened from the interior handle or exterior handle push button.
	Door remains locked when the door is closed with the exterior handle push button depressed or free.

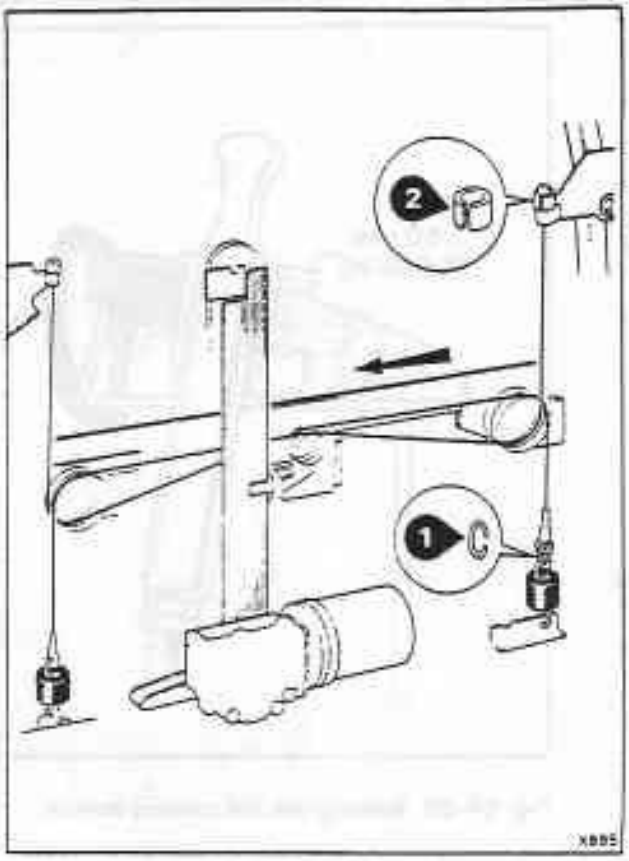

Fig. S4-21 Wire guidance assembly
1 Link
2 Spacer

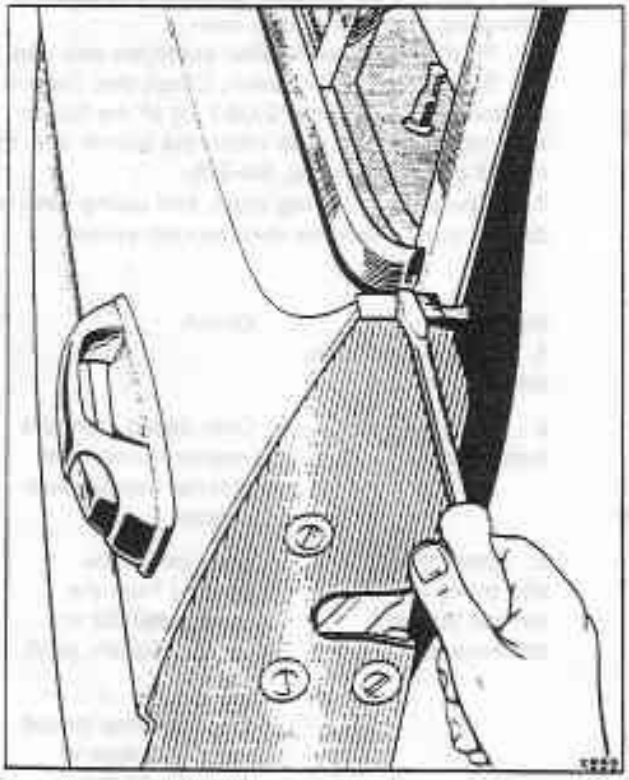

Fig. S4-22 Raising the fence moulding

2. Child safety lever engaged (down).

a. Move sill control button upwards.	Door opens from the exterior handle push button.
	Door cannot be opened from the interior handle.
b. Press sill control button downwards.	Door cannot be opened from the interior handle or exterior handle push button.
	Door remains locked when the door is closed with the exterior handle push button depressed or free.

Wire guidance assembly and window glass

Refer to the information given for cars prior to vehicle identification number *SCBZS0T02DCH08001* and figure S4-7. However, note the following.

1. Check the operation of the window glass to ensure that the glass, when raised, seats fully into the window channel. If the glass needs to be moved rearwards within the channels, fit an additional link and spacer as shown in figure S4-21, items 1 and 2. If the glass requires moving forwards within the channels, fit the link and spacer on the rear guidance wire.

Cars from vehicle identification number *SCAZS42A7ECX08306*

Adjustable fence moulding - To raise

If it is necessary to repaint the door top or replace the rubber seal, carefully raise the fence moulding as follows.

1. Insert a small sharp screwdriver or similar tool under each end of the moulding in turn (see fig. S4-22). **Do not lever on the paintwork.** Insert a small piece of rubber or felt to protect the paintwork (see fig. S4-22).

The moulding can be lifted approximately 3 mm (0.125 in) from the door top.

2. Remove the rubber seal.

Adjustable fence moulding - To remove (see fig. S4-23)

1. Remove the door trim and waist rail finisher assembly.
2. Remove the window glass and guidance wires etc., (see fig. S4-7).
3. Drill out the pop rivets and remove the fence moulding.

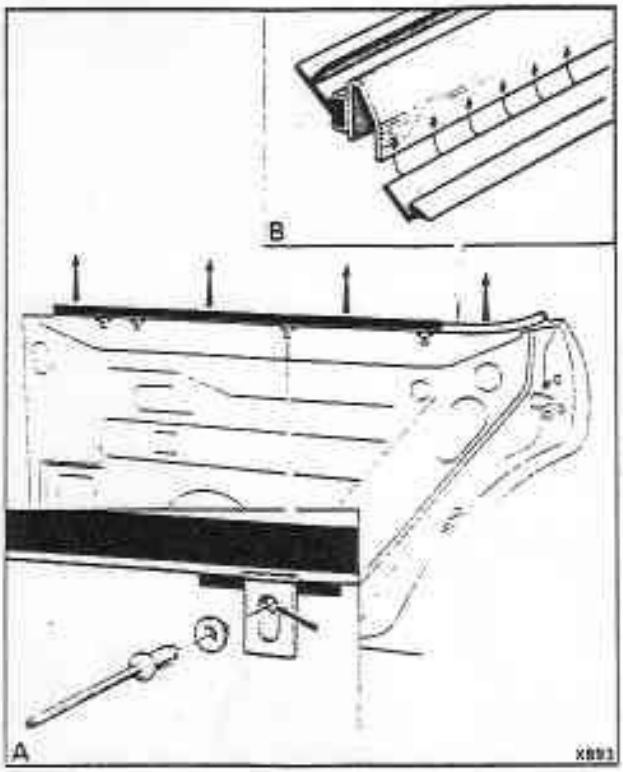

Fig. S4-23 Adjustable fence moulding

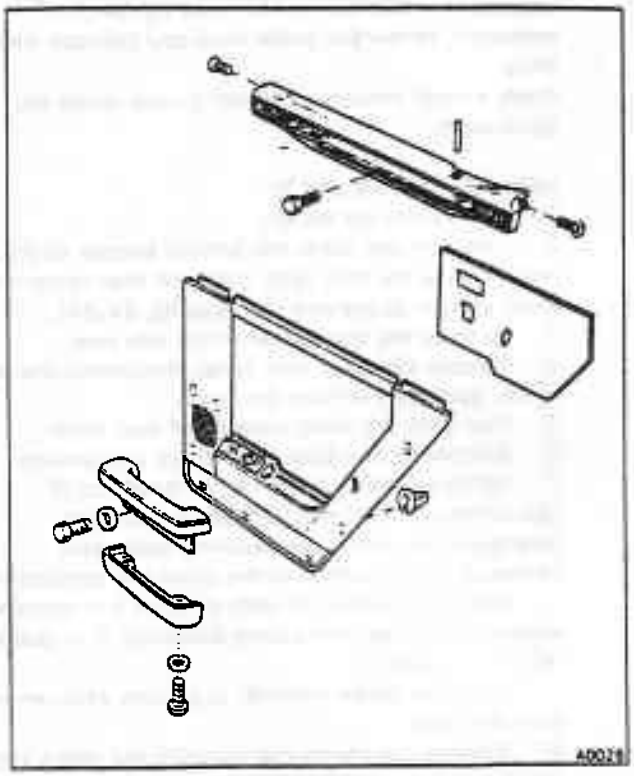

Fig. S4-24 Door trim

Adjustable fence moulding - To fit (see fig. S4-23)

1. If necessary, replace the four pieces of self-adhesive tape situated on the retaining flange above each fence moulding retaining tab (see inset A).
2. Place the fence moulding in position on the door retaining flange.
3. Ensure that the door frame is centralized in the door aperture and that the door to body gaps are correct (see fig. S4-4).
4. Align the fence moulding horizontally to the ends of the door frame i.e. flush to 2 mm (0.080 in) inboard from each end of the frame. Ensure that the fence moulding is flush to the door top along the full length of the door.
5. Secure each moulding with pop rivets and nylon bushes. Ensure that the holes for the pop rivets are drilled at the top of the elongated slots in the retaining tabs (see inset A).
6. Raise the moulding approximately 3 mm (0.120 in) clear of the door top.
7. Slide the rubber seal under and along the length of the fence moulding (see inset B). Using suitable protection, carefully tap down the moulding onto the seal. Ensure that the seal sits evenly along the length of the moulding.
8. Fit the window glass, wire guidance assembly, waist rail, and door trim.

Cars from vehicle identification number *SCAZS42A3FCX12001*

Door trim - To remove (see fig. S4-24)

1. Disconnect the battery.
2. Unscrew and lower the bottom section of the arm rest. Release the step lamp bulb unit then remove the lower section of the arm rest.
3. Remove the top section of the arm rest.
4. Release the outer trim panel, disconnect the cigar lighter leads and remove the panel.
5. Using a small bladed tool, carefully remove the escutcheon covers from the door handle and window lift switch. Take care not to damage the surface of the covers.
6. Remove the escutcheons from around the door handle and window lift switch.
7. Remove the centre trim panel, threading the step lamp bulb unit through the panel.
8. Remove the black waterproof dust cover.
9. Remove the waist rail finisher assembly as follows.

Release the door seal at both ends of the waist rail finisher. Then, remove the screws situated in the seal channel.

Slacken the lock-nuts and unscrew the sill lock control button.

Release the setscrews and remove the waist rail finisher.

Door trim - To fit (see fig. S4-24)

Reverse the procedure given for removal noting the following.

1. Before fitting any trim, ensure that any loose debris is removed from the bottom of the door.
2. Check that the sill lock control button slides smoothly through the guide bush. If any vibration is detected in the guide bush area, check that the bush is seated correctly in the waist rail finisher and that it is

secured by a Starlock washer (see fig. S4-2). If necessary, renew the guide bush and Starlock washer.

Note

Apply a small amount of silicon grease inside the guide bush.

Door - To remove and fit

1. Disconnect the battery.
2. Unscrew and lower the bottom section of the arm rest. Release the step lamp bulb unit then remove the lower section of the arm rest (see fig. S4-24).
3. Remove the top section of the arm rest.
4. Release the outer trim panel, disconnect the cigar lighter leads and remove the panel.
5. Peel back the black waterproof dust cover.
6. Disconnect the door loom plugs and sockets.
7. Using a small screwdriver or metal rod of approximately 1,60 mm (0.062 in) diameter disengage the spring clip securing each cable connector. Then, withdraw the cable and connector.

   Note the position of each cable as it is removed to ensure correct location during assembly. If in doubt refer to Chapter M.

   Tape the cables together to provide easy removal from the door.
8. Remove the spring clip securing the check strap pin. Tap out the pin until it clears the hinge; release the check strap (see fig. S4-3).
9. Support the door then remove the setscrews securing each hinge to the 'C' post.
10. Remove the door, carefully withdrawing the door loom.
11. To fit a door, reverse the procedure given for removal.

    Ensure that all pivots and moving parts of the hinge check mechanism (except the cams) are lubricated with EP 140 SC light mineral oil.

Seats

Contents

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Seats

Front seats

Seat - To remove and fit

1. Ease the seat squab back on the rake mechanism (see fig. S5-1, item 1).
2. Loosen the seat cushion and pull it onto its forward edge (item 2). Unhook the securing strap from the rear of the cushion and from the front of the seat base (items 3 and 4); remove the seat cushion.
3. Turn the ignition key to the accessories (ACC) position.
4. Operate the seat switch to move the seat as high and forward as possible. Then, remove the socket headed screws from the rear of the slide mechanism (see fig. S5-2, item 1); retain the tapping plates from beneath the seat mountings.
5. Energize the seat, moving it rearwards until the screws securing the front of the seat are visible through the access holes in the top of the seat base frame (item 2). Remove the screws and retain the tapping plate from under the outer seat mounting.
6. Disconnect the plug and socket (item 3). With the help of an assistant, remove the seat from the car.
7. To fit the seat, reverse the procedure given for removal.

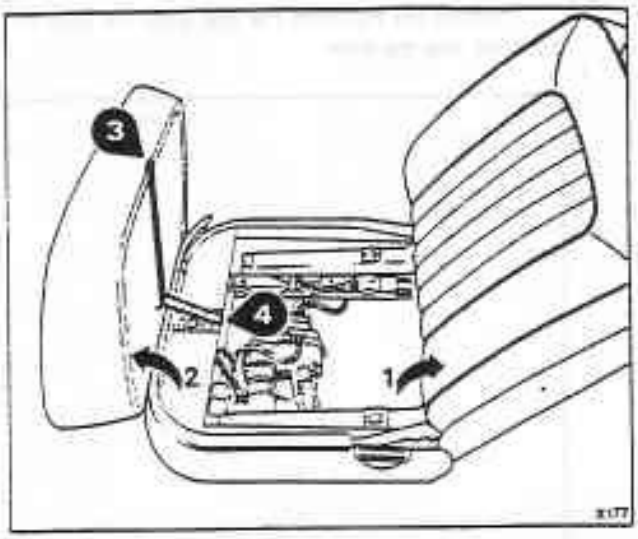


Fig. S5-1 Removing a seat cushion

Seat trim - To remove (see fig. S5-3)

1. Remove the head restraint.
2. Release the four screws and remove the seat valance (item 1).
3. Release the screws and cupwashers retaining the seat back to the squab (item 2). Lift and unhook the seat back from the squab (item 3).
4. To remove the seat squab, release the nuts and bolts securing the rods of the rake mechanism assemblies (item 4). Remove the bolts and washers (item 5), then remove the seat squab.
5. To remove the arm rest, first remove the seat back (items 2 and 3) then, insert a thin 15/16 A/F spanner between the seat and arm rest to release the shouldered bolt (item 6).

To split the arm rest, carefully insert a thin bladed instrument between the top section and the beading attached to the bottom section; prize the two halves apart.

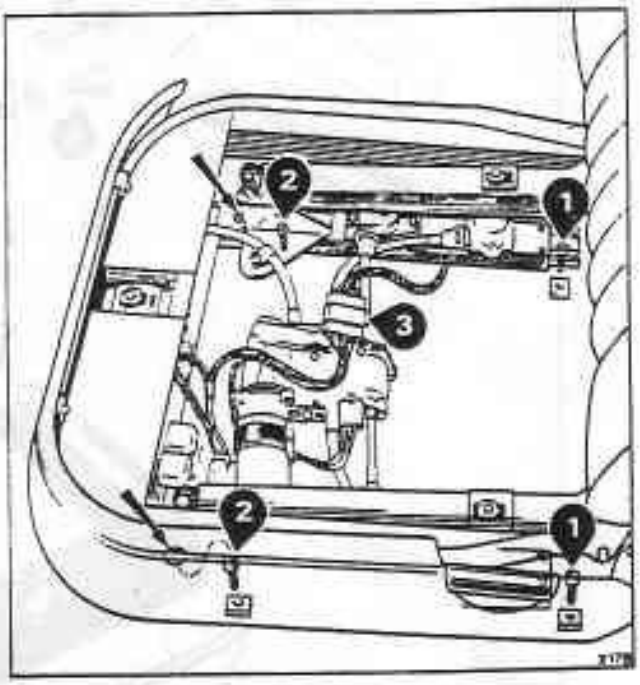


Fig. S5-2 Removing a seat from the car

Seat trim - To fit (see fig. S5-3)

Reverse the procedure given for removal noting the following.

1. When fitting the two halves of the arm rest together, slide the forward clips into position. Bring the rear halves almost together, insert a slim bladed instrument and press the retaining clip slightly downwards to enable the rear clips to engage and fully close the arm rest.
2. Fit the arm rest to the seat frame, torque tightening the shouldered bolt to the figures specified in Chapter P.
3. If required to replace the shouldered bolt within

the arm rest, split the arm rest and remove the bolts, washers, nuts, and split pin.

To replace a new bolt, screw the bolt into the seat frame and torque tighten (see Chapter P). Place a wave washer over the bolt.

Smear a small amount of Shell Retinax 'A' multi-purpose grease into the arm rest bearing. Care must be taken not to get any grease on the trim.

Place the upper arm rest assembly bearing over the shouldered bolt.

Tighten the nut onto the bolt until the split pin can be fitted into the hole.

Assemble the lower arm rest assembly onto the upper arm rest assembly.

4. When fitting a seat squab ensure that the nylon spacers, fitted between the rods of the rake mechanism assemblies and the base of the squab, are positioned to allow the rods to slide freely through their links.

Seat base and rake mechanism - To dismantle (see fig.S5-4)

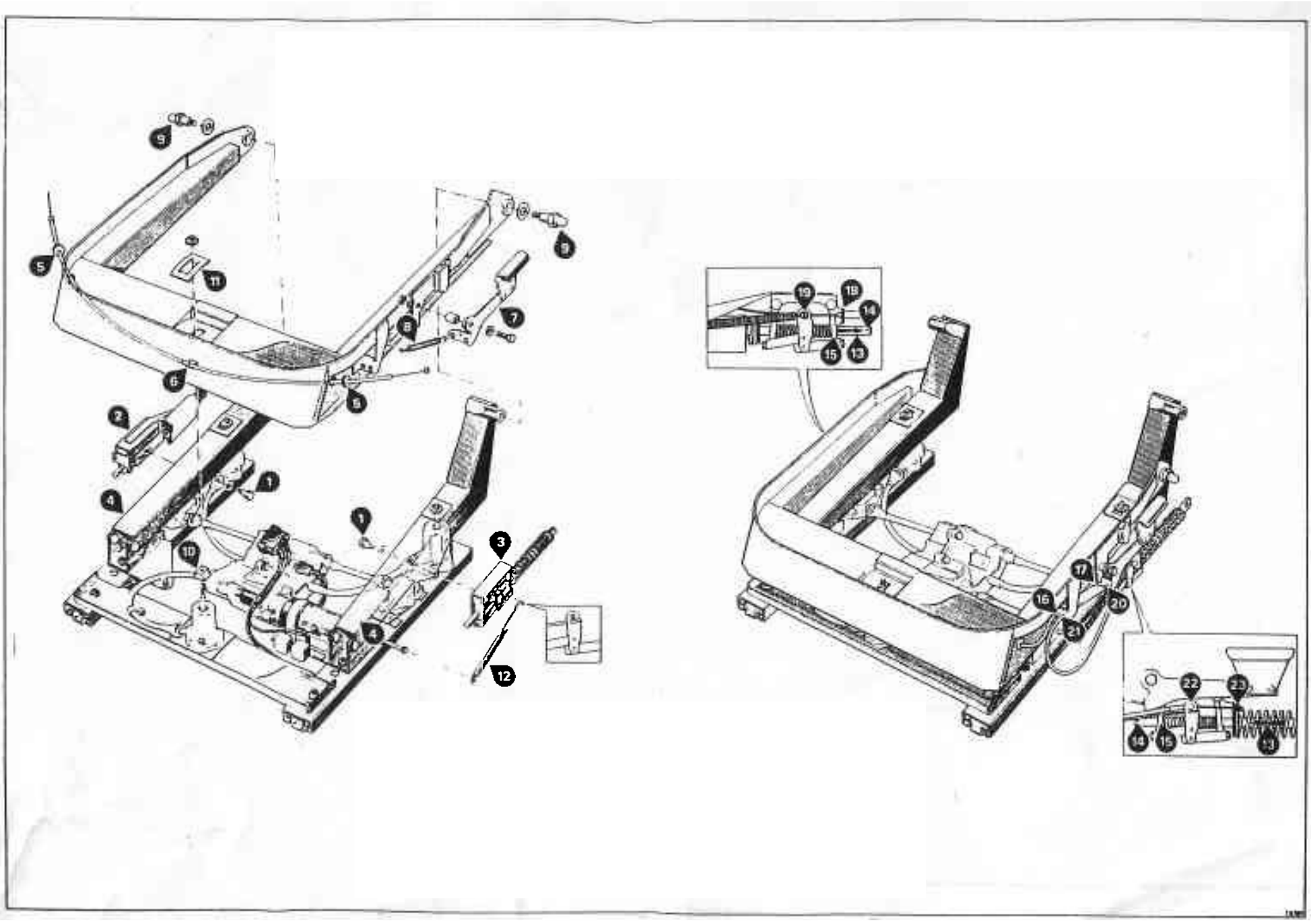
1. Remove the nuts, bolts, spacers, etc., securing the rake mechanism rods to the squab frame (see fig.S5-3).

Fig. S5-3 Removing the seat trim

Seat base assembly

Incorporating the rake mechanism and the position of the motor drive cables to their respective jacks/pinions

Figure S5-4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2. Operate the rake handle. Ensure that the roll pin (item 14) is pressed tight against the front link (item 15) thus releasing any tension in the large spring.

Warning

Care must always be taken when handling rake mechanism assemblies not to insert fingers into the mechanism.

3 Unscrew the solderless nipple (item 23) of the short rake cable. Release the cable from the spotwelded bracket and rake handle (items 20 and 21); remove the short rake cable.

4. Release the solderless nipple of the long rake cable (item 19) and remove the cable from the inner rake mechanism assembly.

Release the cable from the bracket and rake handle (items 16 and 17).

5. Unhook the springs (items 8 and 12).

6. Release the front seat jack by removing the nut and spring plate (item 11).

7. Remove the pivot/stop bolts (item 9); remove the seat base.

8. Remove the rake handle assembly (item 7).

9. Release the long rake cable from the retaining clip at the front of the seat base (item 6).

Ease out the grommets (item 5) and remove the long rake cable.

10. Remove the inner and outer rake mechanism assemblies (items 2 and 3).

Seat base and rake mechanism - To assemble (see fig. S5-4)

1. Using the shouldered bolts and washers (item 1), secure the inner and outer rake mechanism assemblies (items 2 and 3) to the fulcrum bracket assemblies (item 4). Torque tighten the bolts to the figures specified in Chapter P.

2. Slide a grommet (item 5) onto the outer end of the long rake cable. Thread the cable through the base and insert a grommet onto the inner side of the cable. Clip the cable inside the centre section of the base (item 6). Fit the grommets into the holes.

3. Fit the rake handle assembly (item 7) to the bracket on the seat base side using the bolt, washers, and nut.

4. Hook the spring (item 8) through the holes in the rake handle assembly and the outer side of the seat base.

5. Fit the seat base and rake mechanism assembly to the motor and clutch mechanism assembly using the pivot bolts and washers (item 9).

Screw the inverted 'T' piece of the front jack (item 10) onto the shaft. Ensure that the longer sides of the 'T' piece are parallel to the seat runners, coat the grooves with Rocol anti-scuffing paste then fit the seat base.

Apply the anti-scuffing paste to the underside of the spring (item 11), fit the spring and nut then torque tighten to the figures specified in Section S20.

6. Fit the spring (item 12), between the rake mechanism assembly and the long bolt.

7. Before securing the ends of the seat rake cables, ensure that the central shafts of the inner and outer rake mechanism assemblies (item 13) are pushed forward so that the roll pins (item 14) are clear of the front links (item 15).

8. Clip the outer end of the sleeve of the long rake cable into the slot on the spotwelded bracket (item 16) and the soldered nipple of this cable into the inner slot of the rake handle assembly (item 17).

Clip the inner end of the sleeve into the slot on the front of the inner rake mechanism assembly (item 18); feed the inner cable through the centre link and solderless nipple (item 19).

9. Clip the soldered nipple of the short rake cable into the outer slot in the rake handle assembly (item 20). Secure the sleeve of this cable into the outer slot of the spotwelded bracket (item 21).

Loop the cable and feed the loose end through the centre link of the outer rake mechanism assembly (item 22), through the cable guide and the hole in the back of the assembly.

Screw on the solderless nipple (item 23) so that it abuts to the rear face of the rake mechanism.

Note

Ensure that any free play in the cable/link system is taken up before tightening the nipple.

Complete seat motor, gearbox, jacks, and fulcrum bracket assemblies - To dismantle (see fig. S5-5)

1. Remove the springs and nuts (item 19). Slide the fulcrum brackets upwards and remove the inverted 'T' pieces (item 18).

2. Release the front jack drive cable at the retaining clips (items 7 and 15).

3. Loosen the motor securing strap (item 13).

Ease the motor away from the fulcrum bracket to release any tension on the short drive cables.

Carefully release the snap-on ends of the cables from the jacks and pinions; remove the motor/gearbox assembly.

If necessary, release the motor (item 10) and the coupling (item 8) from the gearbox.

4. Remove the setscrews and washers passing through items 14 and 15. Retain the tapping plates when removing the fulcrum brackets.

5. Remove the front jack and mounting channel assembly (items 5 and 6).

To release the jack, remove the screws from above and below the mounting channel.

6. Remove the pinion assemblies and fouling plates (items 3 and 4).

7. Remove the rear jacks (item 2).

8. If necessary, separate the seat runners by removing the bolts, nuts, and washers.

Complete seat motor, gearbox, jacks, and fulcrum bracket assemblies - To assemble (see fig. S5-5)

1. Assemble the seat runners. The lower slide is the shorter section. Fit the bolts and spacers to the inner two holes of the lower slides (item 1); fit the washers and nuts, then torque tighten to the figures specified in Chapter P. Ensure that the flats of the nuts are square across the runners to produce equal travel in each runner (see inset).

2. Fit the rear jacks (item 2) to the seat runners. Position the jacks so that the drive cable holes face forward and slightly inboard on each seat.
3. Apply Rocol anti-scuffing paste between the lower seat slide and the fouling plate.
4. Using the screws and washers, fit the pinion assemblies (item 3) and fouling plates (item 4) to the seat runners. Position the drive cable holes inwards i.e. the same side as the rear jacks. Push the pinion assemblies fully onto the rack before tightening the setscrews; this is essential as failure to do this will result in free play in the runner assembly.

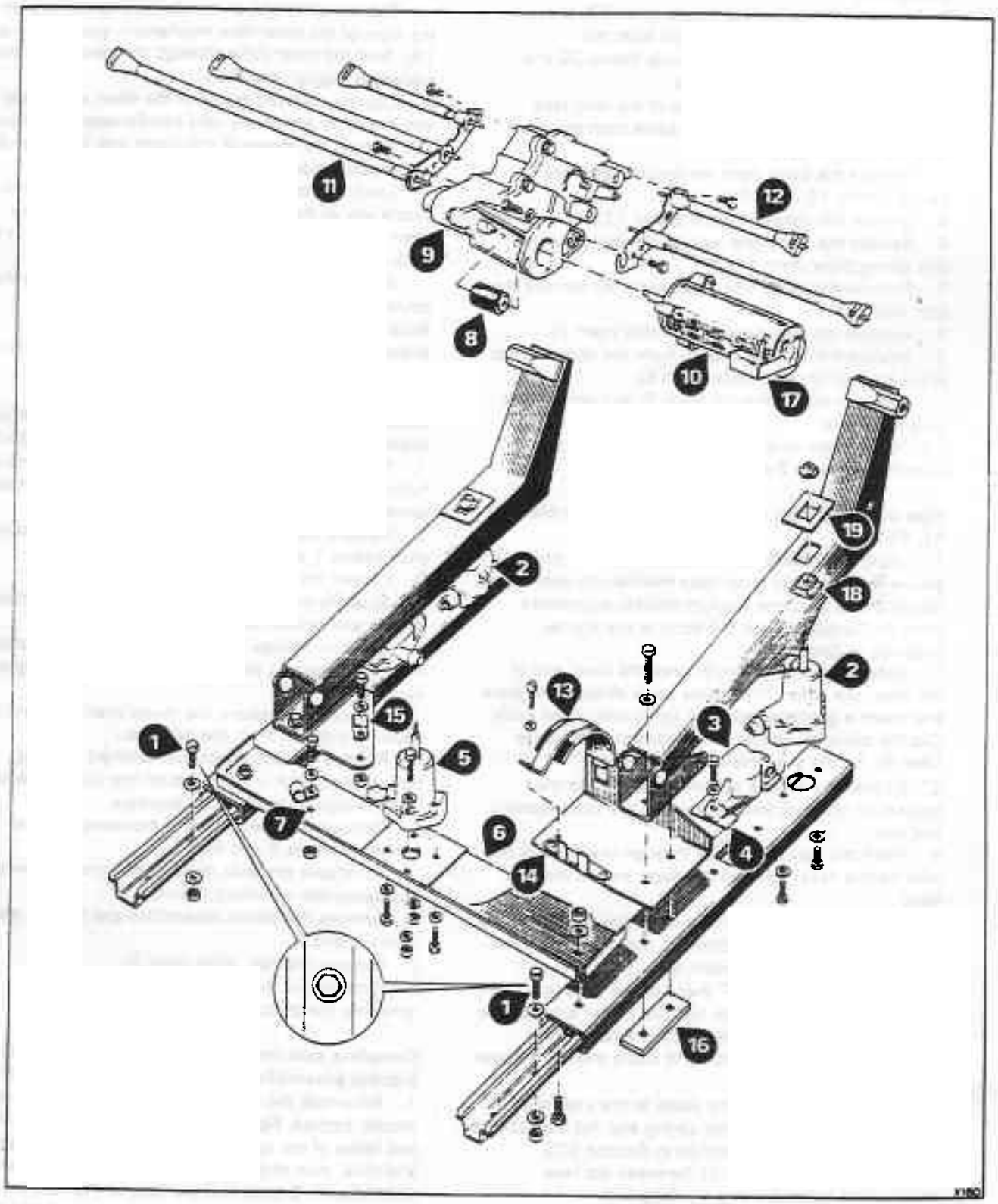

Fig. S5-5 Assembly of seat motor, gearbox, jacks, and fulcrum brackets

5. Using a suitable tool fitted into the cable socket, screw the runners into their maximum forward position. Leave the runners in this position until the gearbox cable assemblies are fitted; this ensures that both sides of the seat have the same amount of travel.
6. Fit the front jack (item 5), identified by its longer shaft, to the mounting channel (item 6). The channel end and forward flanges should point upwards. The jack must be positioned with the drive cable hole facing the cable clip hole (item 7). Secure the jack with two screws from underneath and two hexagon headed bolts and washers from the top with nuts underneath.
7. Place the white coloured end of the coupling (item 8) onto the input shaft of the gearbox (item 9). Using the three screws, fit the motor (item 10). Ensure that the motor output shaft is fitted into the blue coloured end of the coupling.
8. Using the two screws, fit the three cable assembly (item 11). In a similar manner fit the two cable assembly (item 12).
9. Fit the front jack and mounting channel assembly to the seat runners. Insert the bolts from inside the runners to prevent interference with the stop bolts fitted in the lower runners; add the washers and nuts and torque tighten to the figures in Chapter P.
10. Fit the strap (item 13) to the seat motor mounting bracket (item 14). Loosely finger tighten the securing screw.
11. Insert two setscrews and washers through each fulcrum bracket assembly. Thread them through the motor mounting bracket on the left-hand side (item 14) and the cable clip bracket on the right-hand side (item 15). Finally, thread them through the seat runners and secure with tapping plates (item 16).
12. Place the motor (item 10) in position under the securing strap (item 13).

Connect the snap-on ends of the drive cables to their respective jacks/pinions (see fig. S5-4).

With the drive cables connected, the motor/-gearbox assembly will centralize itself.

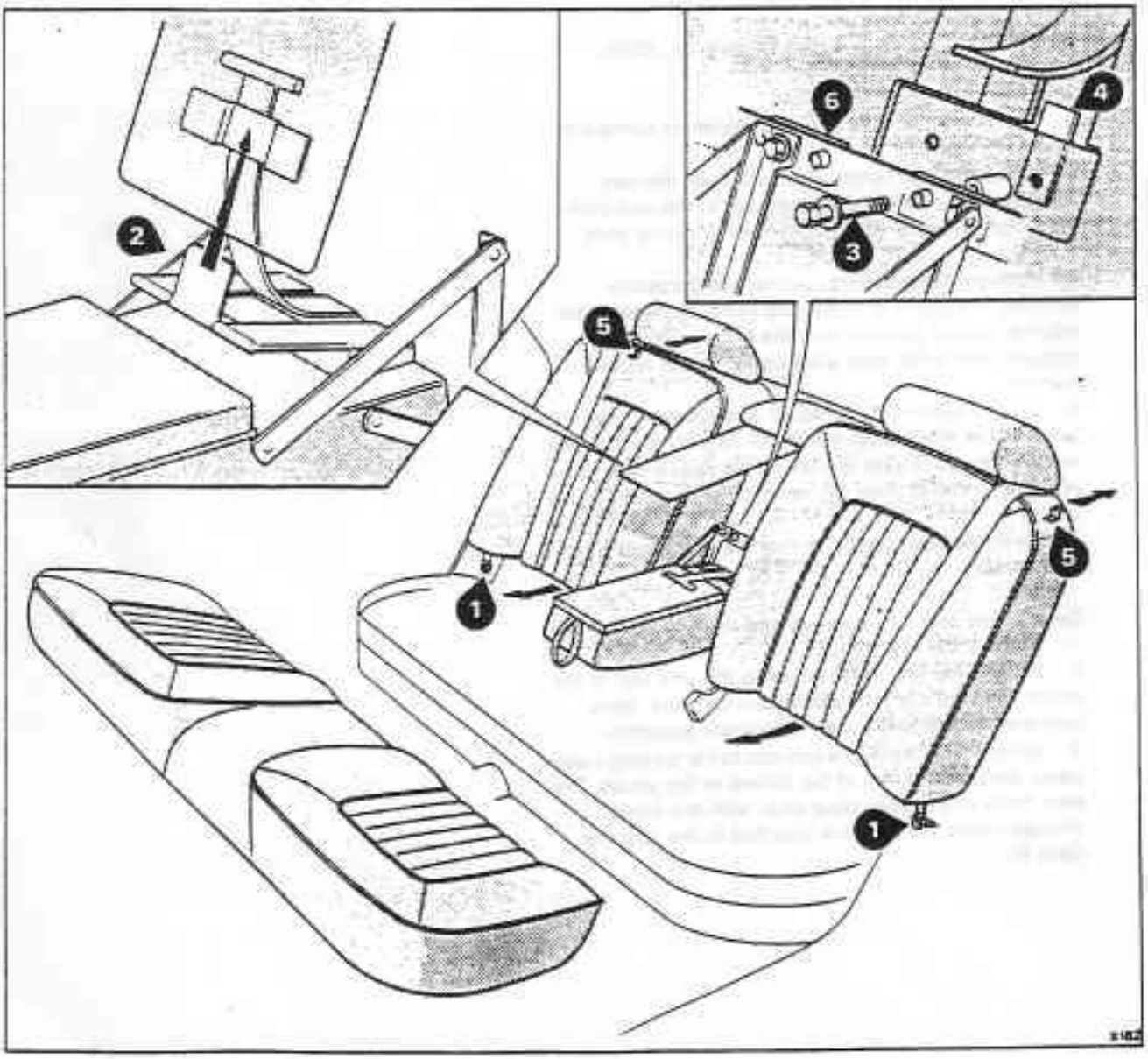

Fig. S5-6 Removing the rear seats

Ensure that the motor connector block (item 17) will not foul the fulcrum bracket assembly.

Raise the rear end of the gearbox to give as much clearance as possible under the two short drive cables for the carpet.

Torque tighten the motor securing strap screw (see Section S20).

13. Secure the front jack drive cable to the mounting channel cable hole (item 7) and the cable clip bracket (item 15) using clips, bolts, washers, and nuts.
14. Fully extend the rear jacks. Fit the inverted 'T' pieces (item 18) onto the shafts. Ensure that the longer sides of the 'T' pieces lie parallel to the seat runners, then apply Rocol anti-scuffing paste to the grooves.
15. Slide the fulcrum bracket assemblies over the shafts, ensuring that they fit into the grooves of the 'T' pieces. Apply anti-scuffing paste to the underside of the springs (item 19), fit the springs and nuts then torque tighten to the figures specified in Section S20.

Rear seats

Rear squab - To remove and fit (see fig. S5-6)

1. Remove the seat cushion.
2. Remove the head restraints.
3. Remove the screws securing the lower corners of the squab (item 1).
4. Lower the rear centre arm rest. Push the pad inwards, manipulating the lower part of the pad until the trimmed flap is released from its retaining plate (item 2).
5. Remove the two bolts, washers, and spacers retaining the centre of the squab (item 3). Retain each tapping plate in position with the fingers whilst removing the bolts, then slide upwards and remove (item 4).
6. Lift the bottom of the squab and slide the seat belts off the sides. Slide the squab slightly towards the rear window to release the top of the squab from its retaining brackets (item 5); remove the squab from the car.
7. To fit the seat squab, reverse the procedure given for removal.

Centre arm rest - To remove and fit (see fig. S5-6)

1. Remove the seat squab.
2. Release the four bolts retaining the arm rest to the squab. Remove the arm rest. Retain the nuts, bolts, washers, and tapping plates to facilitate assembly.
3. When fitting the centre arm rest fit the tapping plates plates securing the top of the hinges to the squab. The plain holes in the plate must align with the holes through which the squab is attached to the rear seat (item 6).

Seat belts

Introduction

Kangol (series 12 vehicle and webbing sensitive) lap and diagonal retractable seat belts are fitted to all cars. The front compartment seat belt reels are vertically mounted; the reels in the rear compartment are horizontally mounted. Where required a static lap belt is fitted between the lap and diagonal belts in the rear compartment.

When replacing a seat belt, always ensure that the new belt conforms to the correct specification for the country in which the car is domiciled.

Precautions

1. Do not alter the fittings or mountings of the seat belts.
2. Replace any seat belt that has been subjected to stress arising from an accident and carefully inspect all anchorage points.
3. Replace any seat belt that is cut, frayed, or damaged.
4. Do not replace part of a seat belt. If one section of the belt is damaged, fit a new complete seat belt.
5. Do not use a bleach or dye on the webbing as this may impair the efficiency of the seat belt. If the webbing requires cleaning, sponge with a mild soap and water solution.

Front seat belt - To remove

1. Energize the front seat, moving it as far forward as possible.
2. Remove the foot rest from the rear of the seat.

Unclip and remove the rear compartment floor carpet.

Remove the carpet retaining clips from the outer edge of the floor and peel back the soundproofing material.

3. Remove the small piece of trim covering the air conditioning sensor and the top seat belt fixing point. Release the two screws from under the bottom edge of the trim, lift and disengage the retaining lugs and remove the trim from the car (see fig. S6-1).
4. Remove the 'B & C' post trim as follows.

Release the two bolts retaining the bottom of the trim to the reel cover plate (see fig. S6-1).

Loosen the stainless steel sill cover plates, adjacent to the 'B & C' post, to enable the ends of the trim to be released.

Release the seat belt from its retaining slide.

Slide the trim upwards, disengaging the retaining brackets at the rear.

5. Release the seat belt from the top of the cover plate.
6. Release the bolts from the reel cover plate, thread the belt through the access hole in the plate; remove the plate (see fig. S6-2).
7. Remove the two seat belt retaining slides from the 'B & C' post.
8. Remove the bolt, washers, spacer, etc., from the top seat belt fixing point on the 'B & C' post. Allow the belt to retract into its reel (see fig. S6-2).
9. From the exterior of the car, locate and remove the two bolts and plate retaining the reel in its recess; these are located under the sill as shown in figure S6-2. Remove the seat belt.
10. Peel back the transmission tunnel carpet either side of the seat belt stalk. Release the bolt, washer, etc., and remove the stalk from the tunnel.

On cars conforming to a North American specification, disconnect the Lucar connectors

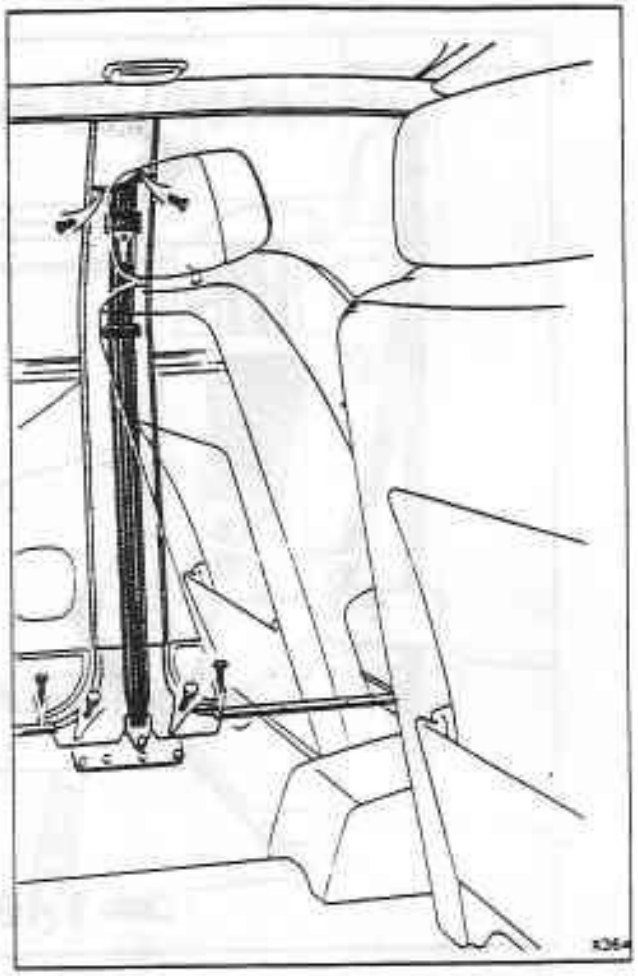

Fig. S6-1 Removing the trim from the 'B & C' post

protruding from the seat belt stalk before releasing the bolt and removing the stalk from the tunnel (see fig. S6-2).

Front seat belt - To fit

Reverse the procedure given for removal noting the following.

1. *On cars conforming to a North American specification,* connect the Lucar connectors on the seat belt stalks then check the following.

Start the engine. If the driver's seat belt is not fastened, a warning buzzer should sound and the warning panel will illuminate. The buzzer and panel will remain energized for approximately seven seconds after the engine starts, although the buzzer will cease immediately the driver's seat belt is fastened.

If the engine is started with the driver's seat belt fastened, the warning panel will illuminate for approximately seven seconds to remind any front seat passenger to fasten their seat belt. The panel will illuminate whether or not the seat belts are fastened.

Note

If the buzzer and /or the warning panel do not operate satisfactorily refer to Chapter M - Section M15.

2. When fitting the reel of a seat belt into a sill recess, ensure that the bracket situated beneath the reel is correctly located. This will ensure that the reel, when mounted, is vertical.

To check the location of the lower bracket proceed as follows (see fig. S6-3).

a. Loosen the securing setscrew.

b. Position the reel cover plate flat onto a bench with the threaded boss protruding upwards.

c. Position the reel onto the cover plate as shown in figure S6-3. Ensure that the edge of the lower bracket rests on the boss.

d. With the reel and bracket held firmly in this position, torque tighten the setscrew (see Section S20).

3. After fitting the seat belt, ensure that the belt is capable of retracting the fully extended webbing. The belt should retract, with no external assistance, at least to the point where the tongue on the belt touches the fixing bracket at the top of the 'B & C' post.

4. Check whether the seat belts lock and unlock satisfactorily by selecting an open stretch of road, then when the car is free from any potential danger, accelerate the car to 24km/h (15 mile/h) and brake sharply from this speed; ensure that the belts lock and subsequently release.

An alternative method of checking is to give the webbing a sharp pull. Ensure that the belt locks. On releasing the tension, ensure that the belt releases immediately.

5. Torque tighten the seat belt anchorage setscrews to the figures specified in Section S20.

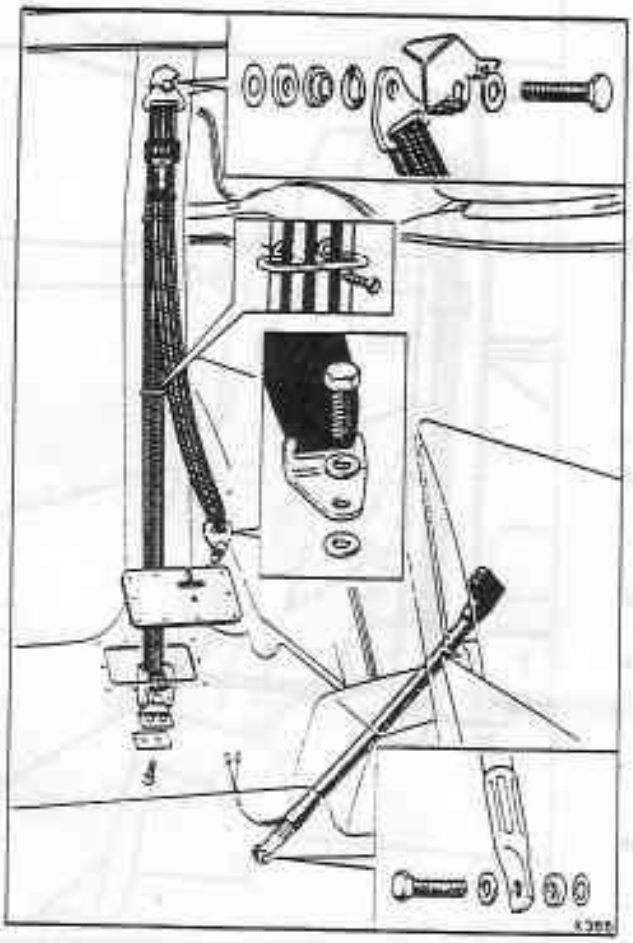

Fig. S6-2 Removing the front seat belt and stalk

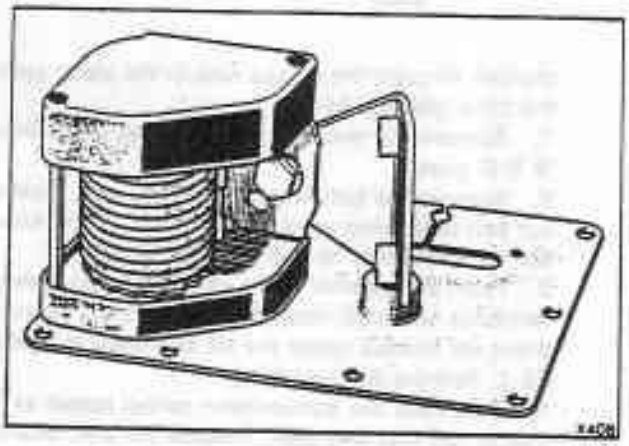

Fig. S6-3 Correct location of lower bracket on seat belt reel

Rear seat belts - To remove (see fig. S6-4)

1. Remove the rear seat cushion.
2. Remove the head restraints.
3. Release the screws securing the lower corners of the squab (see Section S5, fig. S5-6).

Ease the bottom of the squab away from the body panel to give greater access to the seat belts and seat belt stalks.

Remove the securing bolts and washers and release the belts and stalks.

4. Press and release the trim covers from the reel mechanisms.
5. Release the large setscrews and washers securing the reels to the parcel shelf. Release the

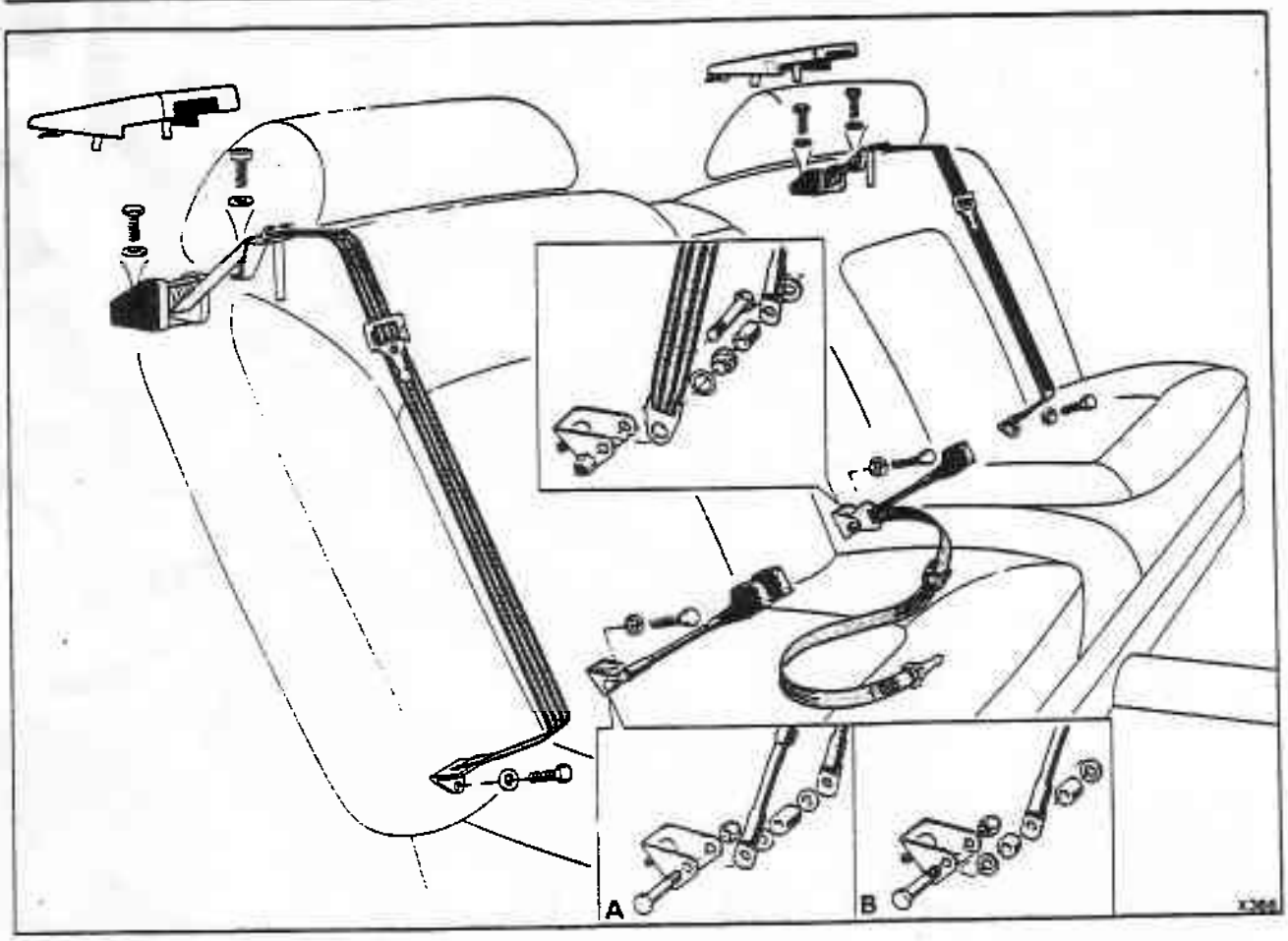

Fig. S6-4 Removing the rear seat belts and stalks
A Including an additional stalk for a centre static lap belt
B Excluding centre static lap belt stalk

webbing from the belt guide pedestal and remove the reels from the car.

Rear seat belts - To fit (see fig. S6-4)
Reverse the procedure given for removal noting the following.
1. Torque tighten the seat belt anchorage setscrews to the figures specified in Section S20.
2. After fitting the seat belt, ensure that the belt is capable of retracting the fully extended webbing, with no external assistance.
3. Check whether the seat belts lock and unlock satisfactorily by selecting an open stretch of road, then when the car is free from any potential danger, accelerate the car to 24 km/h (15 mile/h) and brake sharply from this speed; ensure that the belts lock and subsequently release.

An alternative method of checking is to give the webbing a sharp pull. Ensure that the belt locks. On releasing the tension, ensure that the belt releases immediately.

Facia, top roll, and lower trim panels

Introduction

To minimize the risk of damage to the trim panels, in particular the polished surface of the facia panels, it is essential that a suitable covered bench is available upon which to store all removed pieces of trim. Also ensure that the correct sized tools are used when removing and fitting the polished facia panels.

Upper instrument facia panels – To remove and fit (see fig. S7-1)

1. Disconnect the battery.
2. On cars fitted with a switchbox protection pad (item 1) proceed as follows.

Using a suitable tool, remove the three blanking plugs. Then, release the screws and remove the protection pad.

3. Release the screws and remove the trimmed beadings (item 2) situated along the lower edge of the instrument facia panel.
4. On Silver Spirit, Bentley Mulsanne (including Turbo), and Silver Spur cars from vehicle identification number *SCAZS42A3FCX12001* . Also Bentley Eight cars from vehicle identification number *SCBZS800XFCH12013* , release the grub screws (item 3) and remove both facia vent control knobs.
5. Release the three screws and cup washers (item 4) securing the instrument facia panel. Then, manoeuvre the panel from underneath the top roll and remove.
6. To remove the instrument facia end panel proceed as follows.

Open the facia stowage compartment.

Lower the fuse compartment door by depressing the release button situated on the top roll side panel.

Remove the end panel lower securing setscrew and washer (item 5).

To gain access to the end panel upper securing nut remove the screws and cup washers (item 6), then pull back the side lining of the stowage compartment. Note that on a number of early cars the stowage compartment was a sectional assembly. This enabled the lining to be unclipped and removed separately.

Remove the nut and washer (item 7), taking care not to damage the soldered connections at the rear of the map lamp/vanity mirror switch.

Withdraw the panel and release the Lucar connectors, noting the position of the leads to ensure correct assembly.

7. To fit the facia panels, reverse Operations 1 to 6 inclusive.

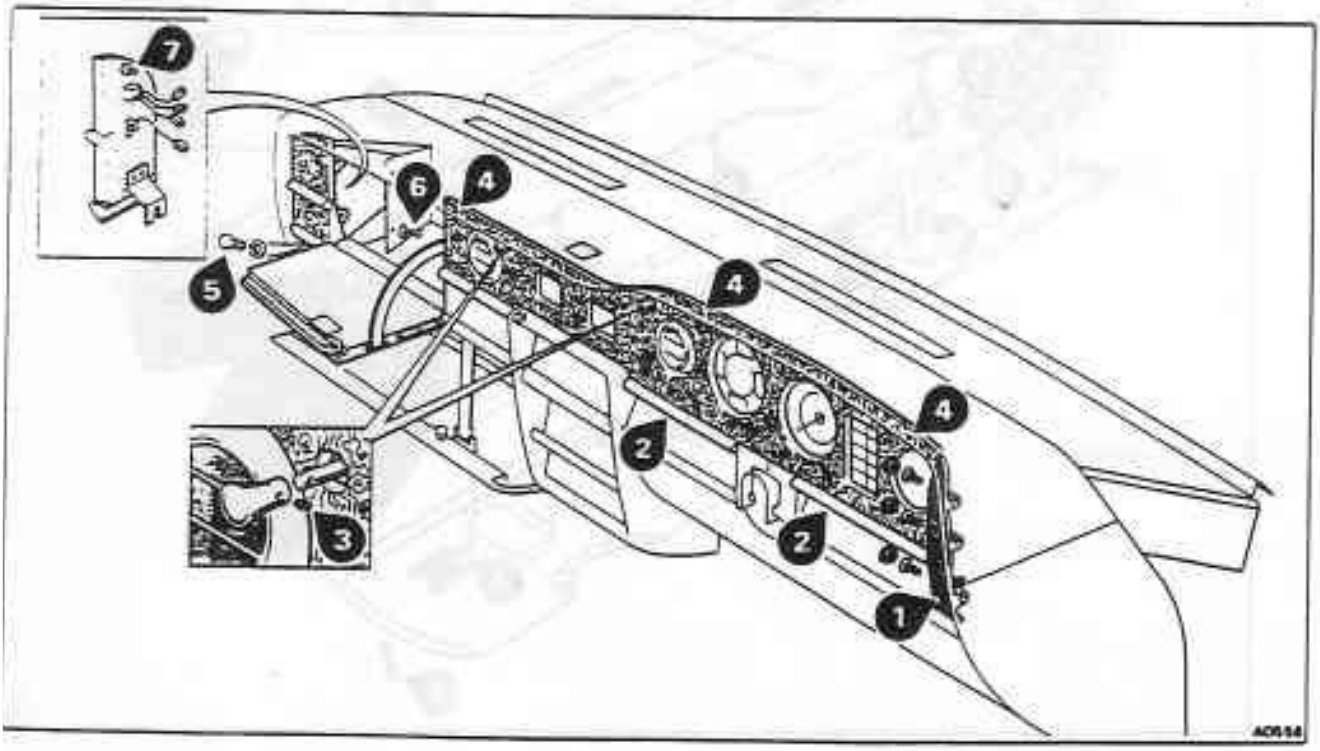

Fig. S7-1 Upper instrument facia panels

Top roll, demister panel, and lower trim panels – To remove and fit (see fig. S7-2)

1. Remove the upper instrument facia panels (see Upper instrument facia panels – To remove and fit).
2. If fitted, carefully ease the filler trim pieces (item 1) from between the top roll and the 'A' post trim.
3. Remove the screws (item 2) and lower the parking brake trim panel.

On Silver Spirit, Bentley Mulsanne (including Turbo), and Silver Spur cars from vehicle identification number *SCAZS42A3FCX12001* . Also Bentley Eight cars from vehicle identification number *SCBZS800XFCH12013*, release the Lucar connectors (item 3) from the footwell lamp.

Remove the panel.

4. Remove the top roll securing screws (item 4).
5. Remove the screws (item 5) securing the top roll side panels. Note that on a number of early cars the side panels were separate items and not part of the top roll assembly.
6. Carefully withdraw the top roll assembly horizontally to avoid damaging the solar temperature sensor (item 6).
7. To remove the demister panel proceed as follows.

Remove the setscrews, nuts, and washers (item 7).

Raise the front of the panel slightly to clear the windscreen demister ducting. Then, carefully ease the panel from underneath the windscreen finisher trim and remove.

8. Remove the windscreen finisher trim panel (item 8) by pulling it forward to disengage the retaining tabs.
9. To remove the fuse compartment door proceed as follows.

Unhook the support straps.

On Silver Spirit, Bentley Mulsanne (including Turbo), and Silver Spur cars from vehicle identification number *SCAZS42A3FCX12001* . Also Bentley Eight cars from vehicle identification number *SCBZS800XFCH12013*, release the Lucar connectors (item 9) from the footwell lamp.

Release the nuts and washers (item 10), then remove the fuse compartment door. Note that the fuse compartment lamp switch cancelling bracket is secured underneath the outboard securing nuts.

10. To fit the top roll, demister panel, and lower trim panels reverse Operations 1 to 9 inclusive.

Facia door and stowage compartment – To remove and fit (see fig. S7-3)

1. Release the screws (item 1) and remove the facia stowage door.

If necessary, remove the door catch and lock assembly (item 2).

2. To remove the stowage compartment proceed as follows. Disconnect the battery.

Remove the screws (item 3). Withdraw the stowage compartment lamp and release the Lucar connectors.

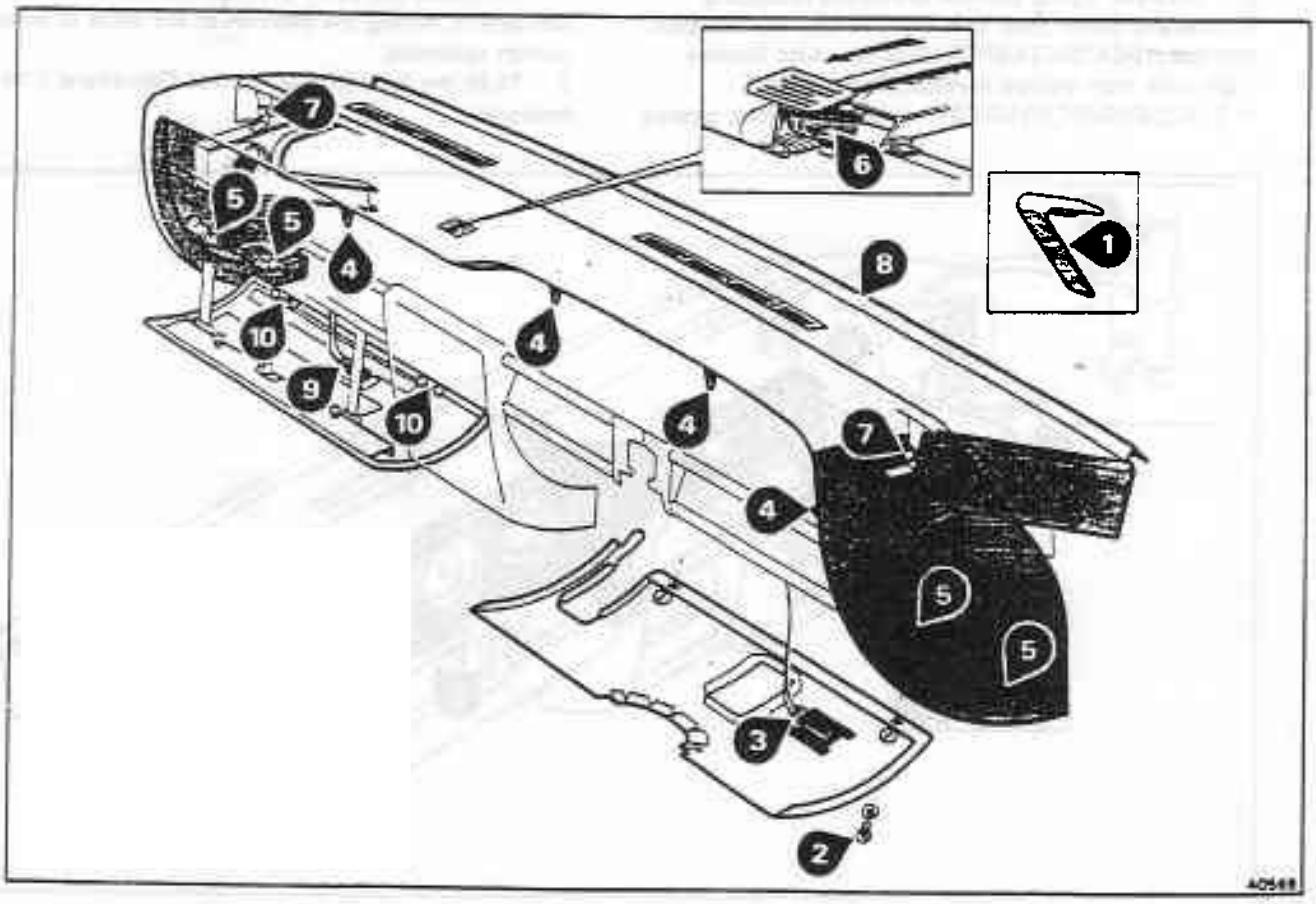

Fig. S7-2 Top roll, demister panel, and lower trim panels

Remove the screws, cup washers, and plastic clips (item 4) securing the stowage compartment to the instrument board.

To gain access to the stowage compartment lamp switch and luggage compartment unlock button, pull back the side lining of the stowage compartment (item 5). Note that on a number of early cars the stowage compartment was a sectional assembly. This enabled the lining to be unclipped and removed separately.

Release the Lucar connectors from the stowage compartment lamp switch and luggage compartment unlock button.

Release the screws and washers (item 6), then remove the switch mounting bracket/check arm assembly.

Carefully withdraw the stowage compartment.

3. To fit the stowage compartment and facia door, reverse the procedure given for removal.

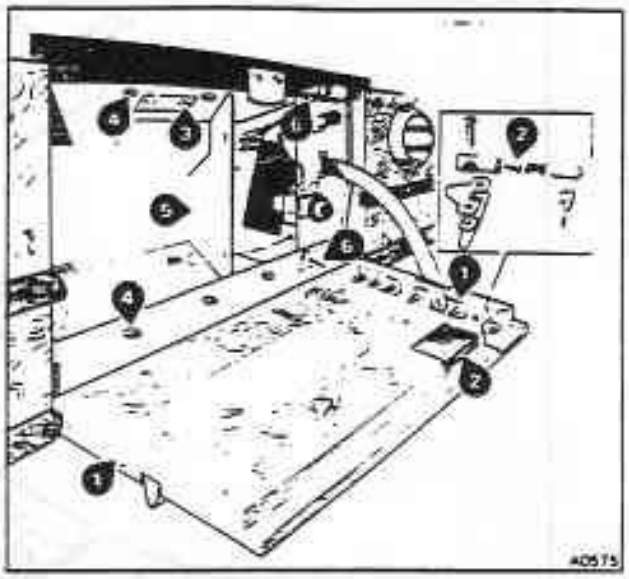

Fig. S7-3 Facia door and stowage compartment

Centre console – To remove and fit (see fig. S7-4)

Other than Bentley Turbo R

1. Disconnect the battery.
2. Remove the upper instrument facia panel (see Upper instrument facia panels – To remove and fit).
3. Loosen the setscrews and washers (item 1) securing the lower sides of the console.
4. Remove the screws and washers (item 2) securing the top of the console to the instrument board.

Carefully withdraw the console sufficiently to gain access to the electrical connections. Disconnect the various leads, noting their positions to ensure correct assembly.

5. To remove the audio equipment from the console refer to Chapter M.
6. To fit the centre console, reverse Operations 1 to 4 inclusive.

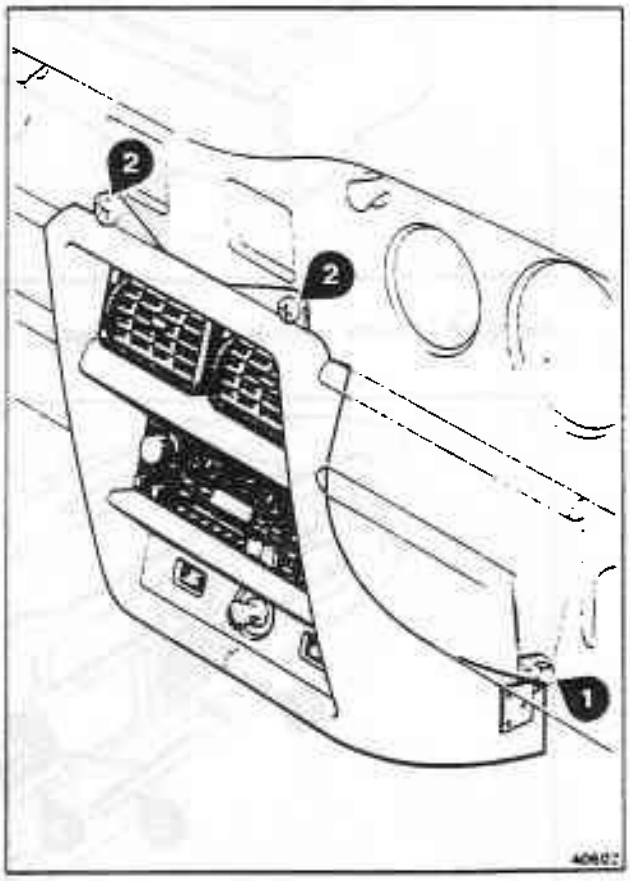

Fig. S7-4 Centre console (other than Bentley Turbo R)

Centre console – To remove and fit (see fig. S7-5)

Bentley Turbo R

1. Turn the ignition key to the ACC position. Then, using the seat adjustment controls, move each front seat to its rearmost position.
2. Disconnect the battery.
3. Remove both front seat cushions as follows.

Operate the rake mechanism and fully recline the seat squab.

Pull the cushion onto its forward edge, unhook the securing strap and remove the cushion.

4. Remove the upper instrument facia panel (see Upper instrument facia panels – To remove and fit).
5. Release the screws (item 1) securing the console to the instrument board.
6. Remove the ash tray, then release the screws and washers (item 2) securing the console to the transmission tunnel.
7. Release the screws (item 3) securing the rear of the console to the sides of the transmission tunnel.
8. Carefully withdraw the console sufficiently to disconnect the various electrical leads.

In view of the numerous connections, it is advisable to label each one as it is disconnected.

9. To remove the audio equipment, instruments, switches, etc., from the console refer to Chapter M.
10. To fit the console, reverse Operations 1 to 8 inclusive.

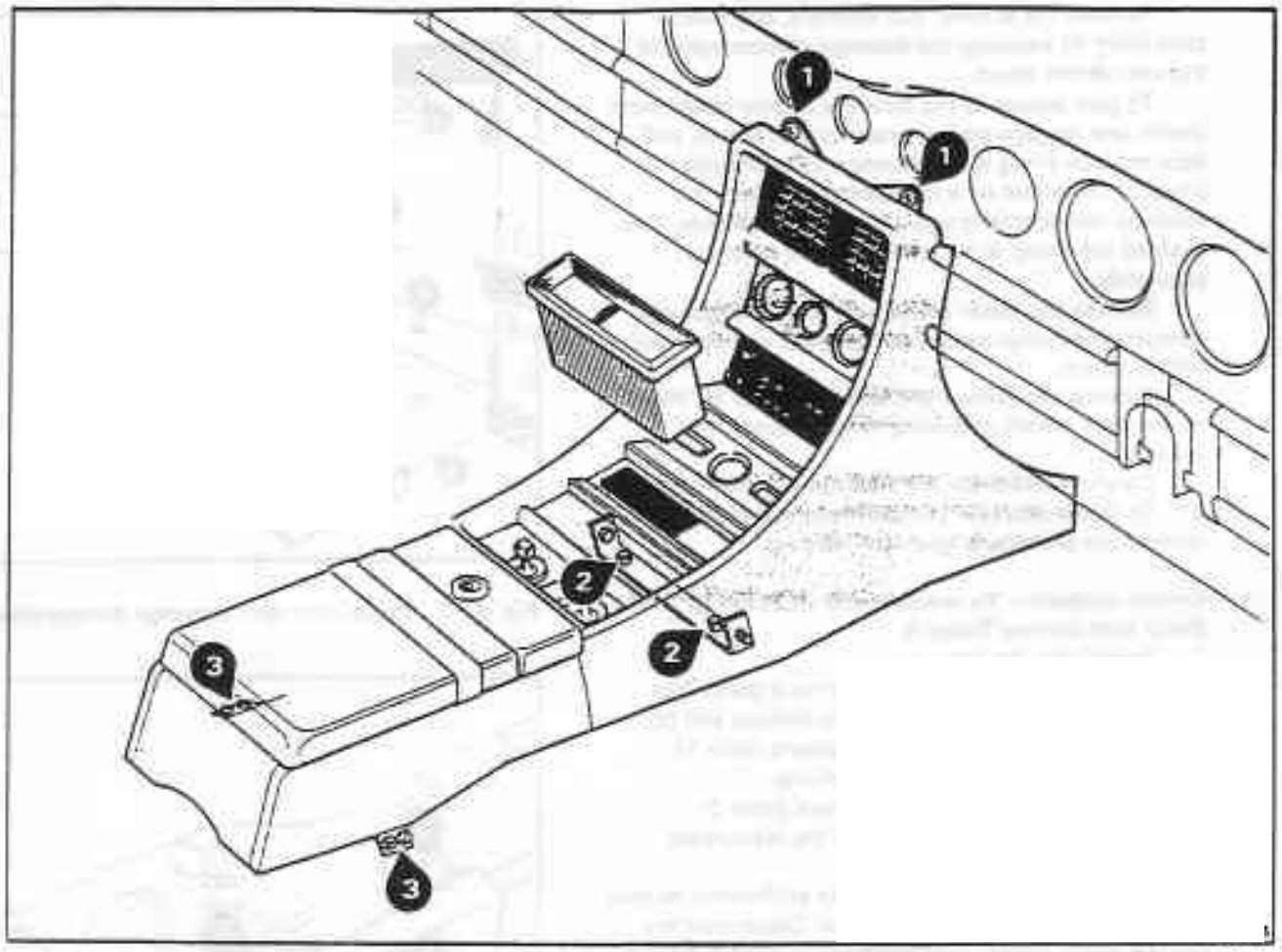

Fig. S7-5 Centre console (Bentley Turbo R)

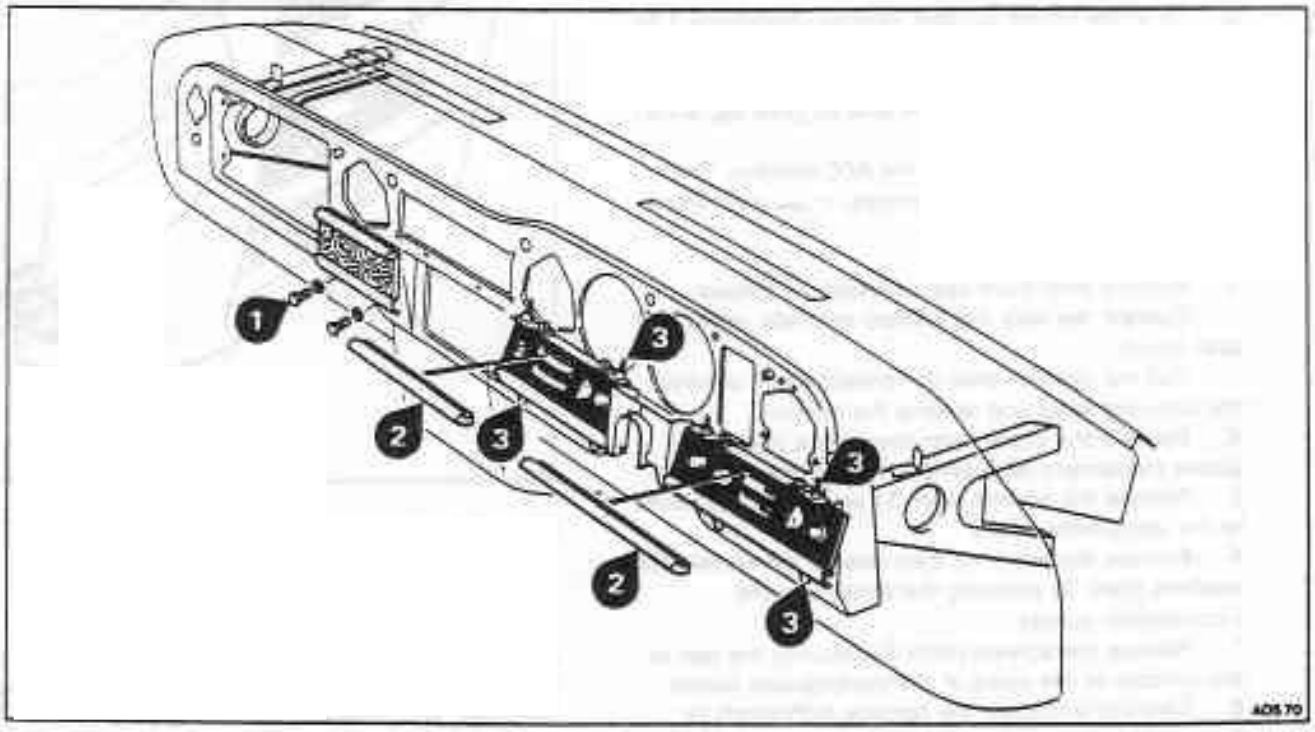

Fig. S7-6 Lower instrument facia panels

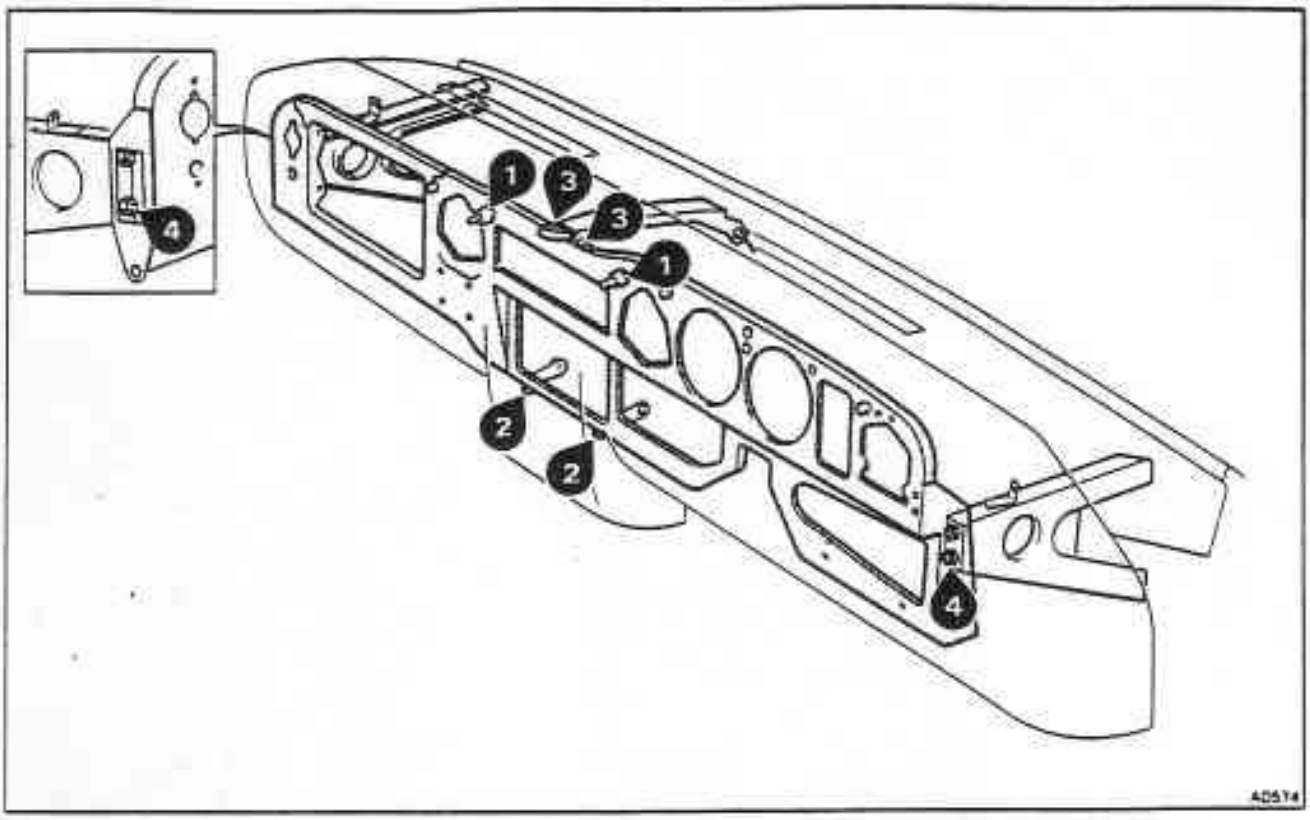

Fig. S7-7 Instrument board

Lower instrument facia panels – To remove and fit (see fig. S7-6)

1. Disconnect the battery.
2. Lower the fuse compartment door by depressing the release button situated on the top roll side panel.
3. Release the setscrews and washers (item 1), then unclip and remove the facia panel adjacent to the centre console.
4. Remove the parking brake trim panel (see Top roll, demister panel, and lower trim panels – To remove and fit, Operation 3).
5. Release the screws and remove the trimmed beadings (item 2) situated along the lower edge of the instrument facia panel.
6. Release the screws and washers (item 3) securing the air conditioning control panel to the instrument board. Withdraw the panel and release the electrical connections, noting the position of the leads to ensure correct assembly.

Similarly, remove the control panel containing the windscreen wipers switch, fuel filler door release button, etc.

7. To fit the lower instrument facia panels, reverse Operations 1 to 6 inclusive.

Instrument board – To remove and fit (see fig. S7-7)

1. Disconnect the battery.
2. Remove the upper and lower instrument facia panels, facia stowage door, top roll, demister panel, and lower trim panels.
3. Disconnect the electrical leads from all instruments, lamps, switches, etc.

In view of the numerous connections, it is advisable to label each one as it is disconnected to facilitate assembly.

4. On Silver Spirit, Bentley Mulsanne (including Turbo), and Silver Spur cars from vehicle identification number *SCAZS42A3FCX12001* . Also Bentley Eight cars from vehicle identification number *SCBZS800XFCH12013* , remove the nuts (item 1) securing the air vent control levers to the instrument board.
5. To remove the circular facia air outlets and ducts refer to Chapter C.
6. To remove the instruments, lamps, switches, etc., refer to Chapter M.
7. Remove the bolts, nuts, and washers (item 2) securing the lower centre section of the instrument board.
8. Remove the bolts, nuts, and washers (item 3) securing the upper centre section of the instrument board.
9. With the help of an assistant, support the instrument board and release the nuts and washers (item 4) securing each end. Remove the instrument board.
10. To fit the instrument board, reverse Operations 1 to 9 inclusive.

Interior trim

Contents

Interior trim

Introduction

It is essential when removing or fitting the headlining or other trimmed pieces that strict cleanliness is maintained. Ensure that a working surface covered with thick clean felt or a similar material, is available upon which to lay the panels. Cover the panels to protect them from dust and dirt.

For further information relating to interior trim, reference should be made to Sections S5, S6, and S7.

Warning

Always refer to Section S2 - Special precautions, before using adhesives and cleaning agents.

Headlining and associated trim - To remove

1. Disconnect the battery.
2. Remove the mirror head.
3. Pull the sun visors from their inner retaining clips. Release the screws and remove the sun visors (see fig. S8-1, item 1).
4. Remove the screws securing the sun visor inner retaining clips (see fig. S8-1, item 2). Slide back the centre header trim panel (item 3).

Silver Spirit, Bentley Mulsanne, and Silver Spur cars from vehicle identification number *SCAZS42A3FCX12001* . Release the Lucar connector from the passenger side sun visor retaining clip.

Remove the centre header panel.

5. Carefully ease the filler trim pieces (if fitted) from between the top roll and 'A' post trim.

If the car is fitted with the type of 'A' post trim shown in figure S8-10, item 1, release the retaining screws and remove the trim.

6. On cars fitted with a one-piece cantrail trim panel, unclip and remove the 'A' post trim panels (see fig. S8-1, item 4).

On cars fitted with a two-piece cantrail trim panel proceed as follows referring to figure S8-2.

Remove the flexible outer covers from the coat hooks (item 1) situated on the cantrail trim panels.

Release the screws, then remove the coat hooks and the stainless steel finishers (item 2).

Unclip and remove the 'A' post/cantrail trim panel (item 3).

7. Remove the rear seat cushion.
8. Press the sides and release the trim covers from

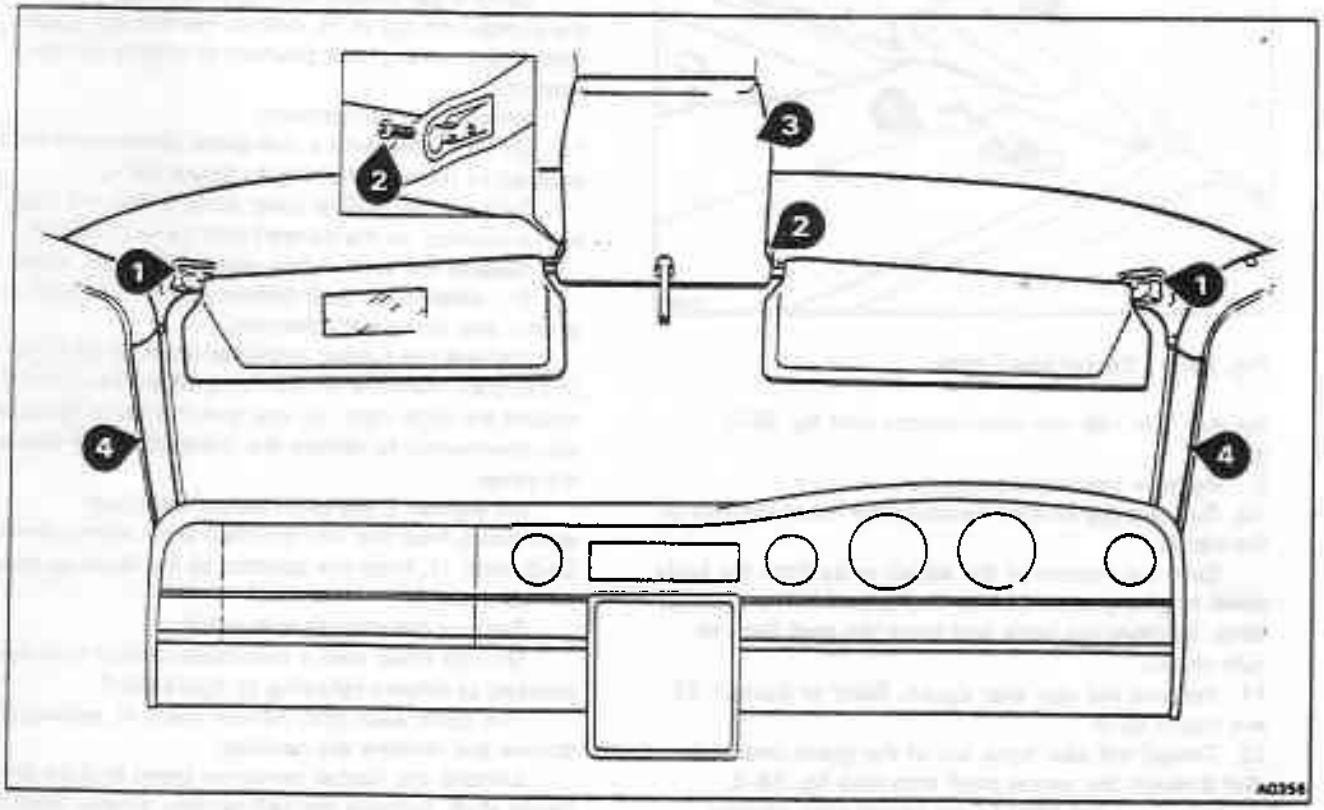

Fig. S8-1 Windscreen interior trim

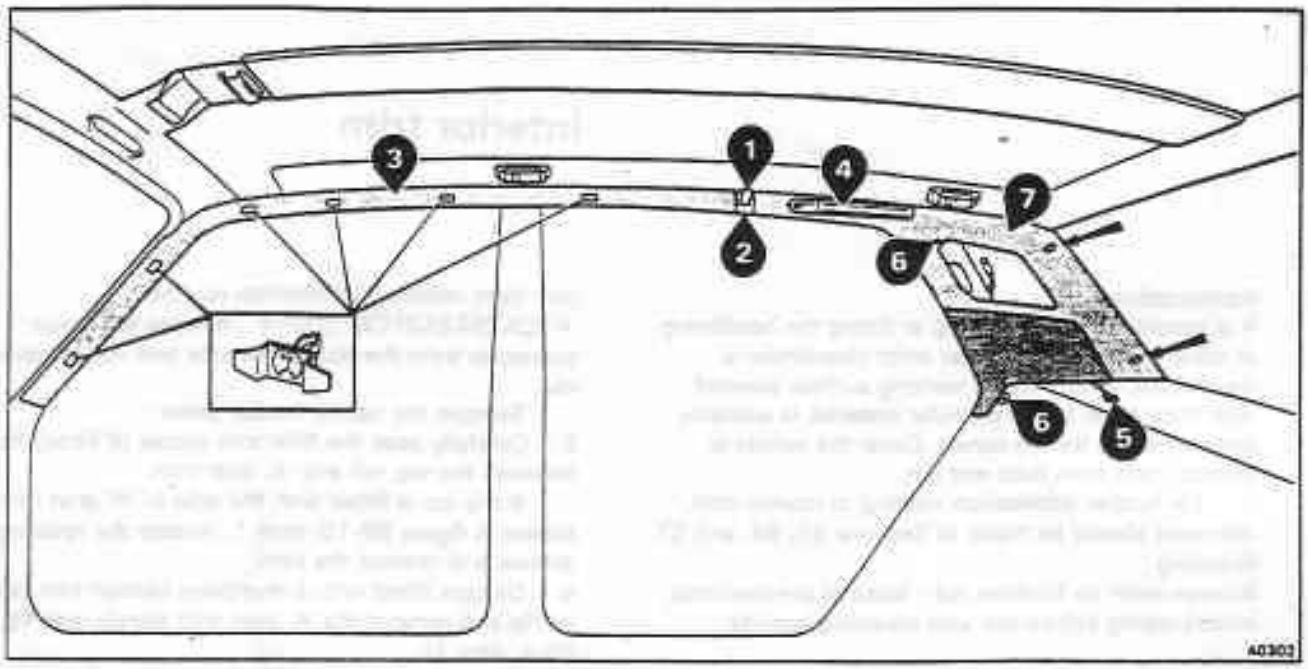

Fig. S8-2 Cantrail/quarter (two-piece) trim

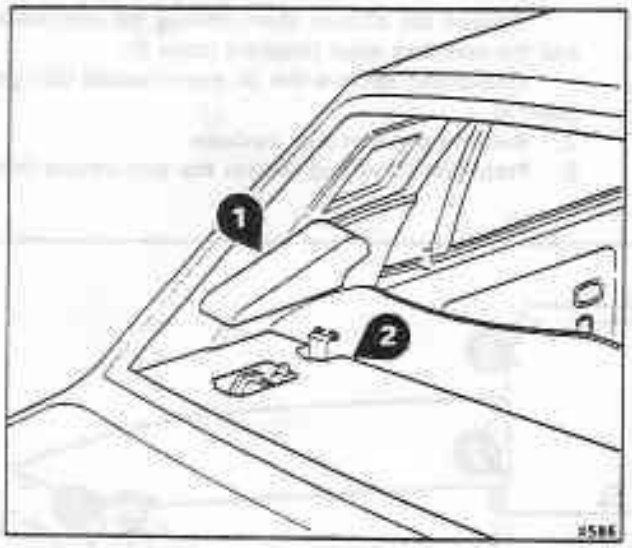

Fig. S8-3 Parcel shelf trim

the rear seat belt reel mechanisms (see fig. S8-3, item 1).

9. Remove the head restraints.

10. Remove the screws securing the lower corners of the squab.

Ease the bottom of the squab away from the body panel to give greater access to the seat belt anchorage bolts. Remove the bolts and allow the seat belts to fully retract.

11. Remove the rear seat squab. Refer to Section S5 and figure S5-6.

12. Thread the seat belts out of the guide pedestals and through the parcel shelf trim (see fig. S8-3, item 2). Ease the front of the parcel shelf slightly upwards and carefully remove.

13. Peel back the lower 'D' post trims and remove the securing screws (see fig. S8-4, item 1). Remove the rear screw from the rear sill finisher to enable the trim to be released (see fig. S8-4, item 2).

14. On Silver Spirit, Bentley Mulsanne, and Silver Spur cars remove the companions as follows referring to figure S8-4.

Using a flat bladed tool, carefully ease the front of the companion out of its recess. Release the Lucar connectors, noting their position to ensure correct assembly.

Remove the companions.

15. On cars fitted with a one-piece cantrail trim panel proceed as follows referring to figure S8-4.

Remove the flexible outer covers from the coat hooks situated on the cantrail trim panels (item 3).

Release the screws and remove the coat hooks.

Pull down each grab handle (item 4), release the screws and remove the handles.

Unhook the rubber tensioner (item 5) from the parcel shelf. Remove the self-tapping screws (item 6), release the clips (item 7), and pull the panel forwards and downwards to release the brackets at the rear of the panel.

On Bentley Eight cars release the Lucar connectors from the interior/map lamp switch (see fig. S8-5, item 1). Note the position of the leads to ensure correct assembly.

Remove the cantrail trim panel.

On cars fitted with a two-piece cantrail trim panel proceed as follows referring to figure S8-2.

Pull down each grab handle (item 4), release the screws and remove the handles.

Unhook the rubber tensioner (item 5) from the parcel shelf. Remove the self-tapping screws (item 6), and pull the rear half of the panel (item 7) forwards

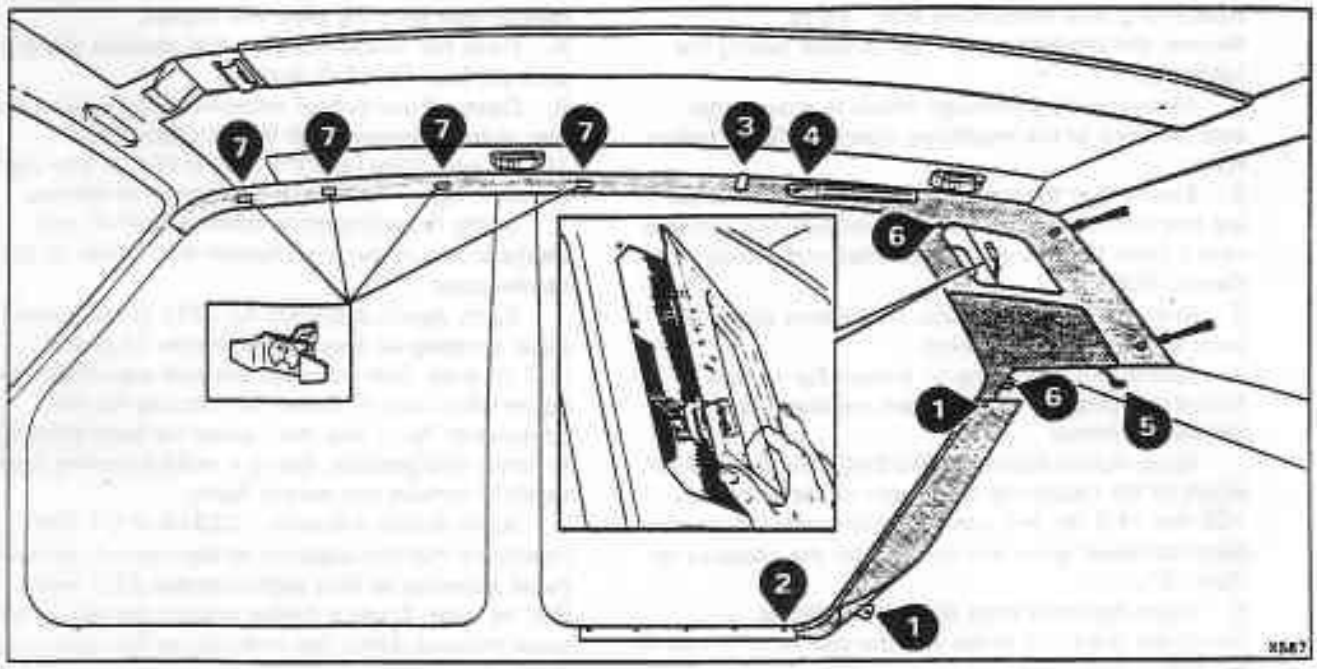

Fig. S8-4 Cantrail/quarter (one-piece) and lower 'D' post trim

and downwards to release the brackets at the rear of the panel.

On Bentley Eight cars release the Lucar connectors from the interior/map lamp switch (see fig. S8-5, item 1). Note the position of the leads to ensure correct assembly.

Remove the cantrail trim panel.

16. Unscrew and remove the sun visor clip retaining brackets (see fig. S8-6, item 1). Then, remove the front header trim panels (item 2).

17. On cars fitted with the type of header trim pieces shown in figure S8-6, item 3, proceed as follows.

Carefully separate the trim cloth and foam from the headlining material.

Remove the self-tapping screws (item 4) and washers, then remove the trim pieces.

18. Remove the rear header trim panel as follows.

Remove the screw from each end of the panel (see fig. S8-7, item 1). Then, pull the panel forward to disengage the rear retaining brackets.

19. To remove the upper 'BC' post trim panel proceed as follows referring to figure S8-8, item 1.

Remove the screws (item 2) situated under the lower edge of the panel. Lift the panel slightly to disengage the retaining lugs, then remove the trim panel.

On cars prior to vehicle identification number *SCAZS42A3FCX12001* disconnect the air conditioning sensor and thread the electrical leads (item 3) under the draught welt.

20. Release the interior lamp loom connectors (see fig. S8-8, item 4). Remove the retaining screws (item 5) and withdraw the side header panels (item 6).

21. Slide the centre roof trim panel forward to disengage the retaining brackets (see fig. S8-8, item 7).

Fig. S8-5 Interior/map lamp switch

On cars from vehicle identification number *SCAZS42A3FCX12001* release the Lucar connectors at the rear of the panel.

Remove the panel.

22. From above the rear window, drill out the pop rivets and remove the two outer header trim securing brackets (see fig. S8-9, item 1).

23. Unclip the headlining from the sides (see fig. S8-9, item 2). Peel back the headlining, slide back each nylon strip from its channel (item 3) and remove both pieces of headlining.

Headlining and associated trim - To fit

Reverse the procedure given for removal noting the following.

1. Always make a thorough check to ensure that both sections of the headlining match perfectly before fitting.
2. Ensure that the cantrails and header panel areas are free from dirt, grease, etc., by rubbing the surfaces with a clean lint free cloth moistened with Bostik Cleaner 6001.
3. Slide the nylon strips into the sleeves along the inner edges of the headlining.
4. Spread the headlining on a clean flat surface. Before applying the adhesive, ensure that it is thoroughly stirred.

Apply Apollo Adhesive AX2344 around the outer edges of the headlining to a depth of approximately 100 mm (4.0 in), and also to the cantrails and header panel surfaces; allow five minutes for the adhesive to 'flash' dry.

5. Insert the inner edge of each headlining containing the nylon strips into the channels formed in the centre roof panel.
6. Carefully stretch and attach each headlining to the cantrails using maximum hand pressure to bring the 'tacky' surfaces together. Ensure that there are no creases, then stick the headlining to the front and rear header panels.
7. Using a sharp trimming knife, cut off any excess trim. Cut around the headlining retaining holes along the cantrail, and also pierce the headlining where the cantrail trim securing clips will engage.
8. Press the headlining clips into position along the cantrails (see fig. S8-9, item 2).
9. Clean off any excess adhesive using a clean lint free cloth moistened with Bostik Cleaner 6001.
10. On cars fitted with the type of header trim pieces shown in figure S8-6 item 3, proceed as follows.

Using the self-tapping screws (item 4) and washers, secure the front header trim pieces to the header panel.

Apply Apollo Adhesive AX2344 to the header panel covering an area approximately 75.0 mm (3.0 in) wide. Refer to cross hatched area shown in figure S8-6, item 5. Allow five minutes for the adhesive to 'flash' dry, then press the foam panel (item 6) firmly into position. Using a sharp trimming knife, carefully remove any excess foam.

Apply Apollo Adhesive AX2344 to the roof headlining material adjacent to the edge of the foam panel, covering an area approximately 25.0 mm (1.0 in) wide. Cover a similar area on the header trim piece material. Allow five minutes for the adhesive to 'flash' dry.

Then, keeping the trim piece material taut, press firmly into position. Using a sharp trimming knife, carefully remove any excess trim.

Clean off any excess adhesive using a clean lint free cloth moistened with Bostik Cleaner 6001.

Draught welts - To remove

1. Remove the 'BC' post trim (see Section S6).

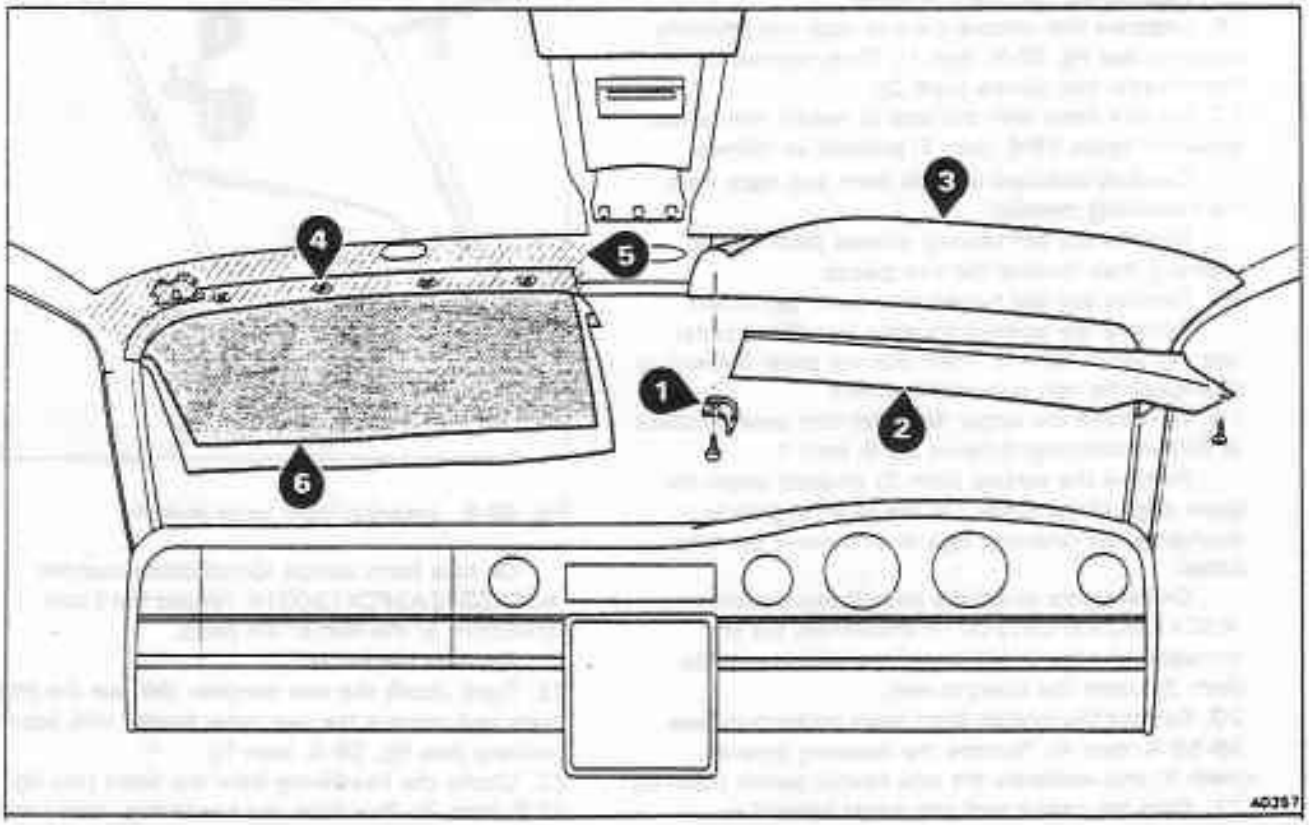

Fig. S8-6 Front header trim panels

2. Remove the rear seat squab and cushion (see Section S5).
3. Remove the cantrail trim and lower 'D' post trim.
4. Unclip and remove the upper 'A' post trim panel, if fitted (see fig. S8-1, item 4).
5. Unscrew and remove the lower 'A' post trim panel (see fig. S8-10, item 1).
6. Remove the front screw of the front sill finisher to enable the draught welt to be released (see fig. S8-10, item 2).
7. Peel back the draught welt and remove from the car.
8. To remove the draught welt from the 'BC' post, it will first be necessary to remove the seat belts and their retaining slides (see Section S6). Release the brackets (see fig. S8-10, item 3), then remove the screw (item 4) and washer.

On cars prior to vehicle identification number *SCAZS42A3FCX12001* remove the air conditioning sensor (item 5).

9. Remove the retaining clips from the bottom of the draught welt (see fig. S8-10, item 6), peel back the top of the trim and remove.

Draught welts - To fit

1. Clean the cantrails, 'A' posts, and 'D' post areas with a clean lint free cloth moistened with Bostik Cleaner 6001.
2. Fit the 'BC' post trim. Ensure that the retaining clips are in position and that the seat belt retaining slide holes are aligned.

Stir the Apollo Adhesive AX2344 thoroughly, then apply to the top flap of the trim and the cantrail. Allow five minutes for the adhesive to 'flash' dry before bringing the surfaces firmly together.

3. Spread the draught welt on a clean flat surface. Then, apply the adhesive along the 'D' post, cantrail, and 'A' post and also along the length of the cloth strip; allow five minutes to 'flash' dry.
4. Starting at the position shown in figure S8-10 (arrowed), carefully press the draught welt into position around the cantrail, etc. At each bend, cut the cloth to enable the draught welt to easily follow the shape of the door apertures (see fig. S8-10).
5. Fit the cantrail trim and companion, lower 'D' post trim, rear seat squab and cushion, and the 'A' post trim.

Centre stowage bin - To remove and fit

1. Disconnect the battery.
2. Remove the front seat cushions (see Section S5).
3. Remove the hexagon headed screws from the sides of the stowage bin (see fig. S8-11, item 1).
4. Remove the ash tray.
5. Release the screws securing the front of the stowage bin (see fig. S8-11, item 2).
6. Disconnect the plugs and sockets of the electrical looms and remove the stowage bin from the car.

Note the position of each plug and socket as it is disconnected to facilitate the fitting procedure.

7. To fit the stowage bin, reverse the procedure given for removal.

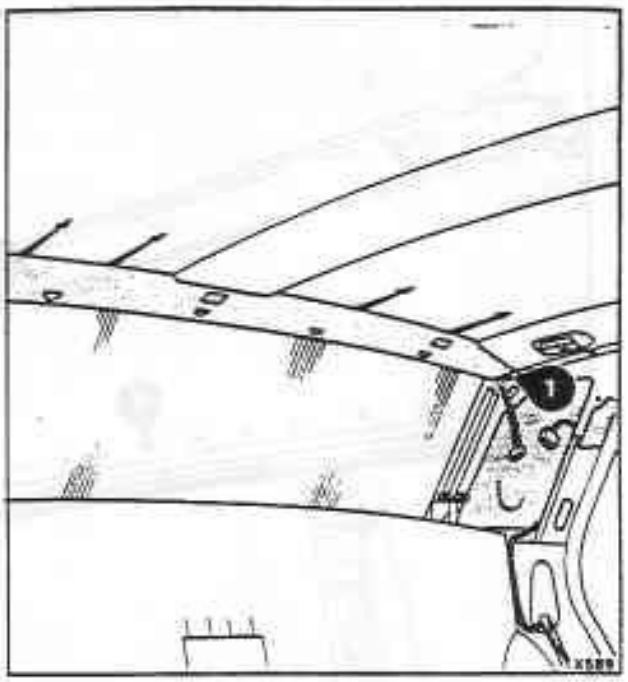

Fig. S8-7 Rear header trim panel

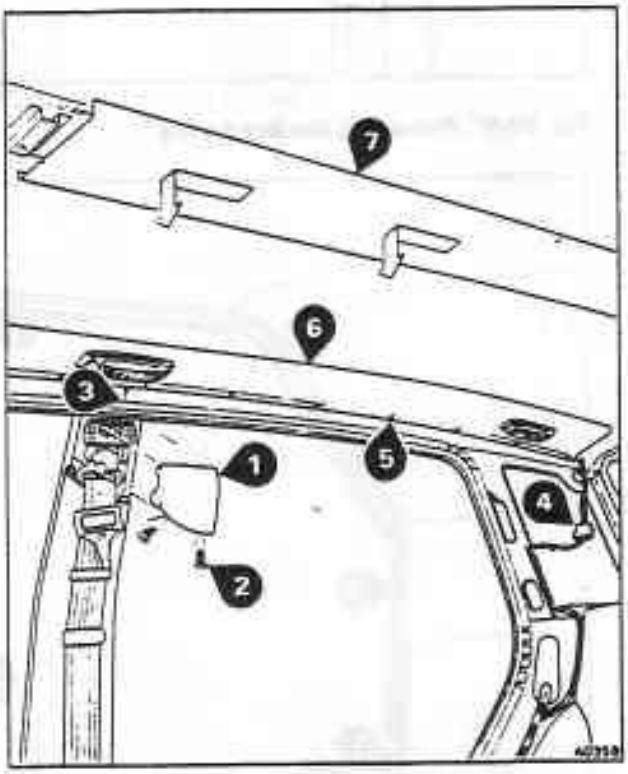

Fig. S8-8 Removing the side header trim panels

Carpets - To remove and fit

1. Release the Velcro strips and stud fasteners securing the carpets to the floor, front transmission tunnel, and side scuttle trim (see fig. S8-12). Remove the carpets storing them in a clean dry area.
2. When fitting the carpets, reverse the procedure given for removal, noting that the carpets should lie

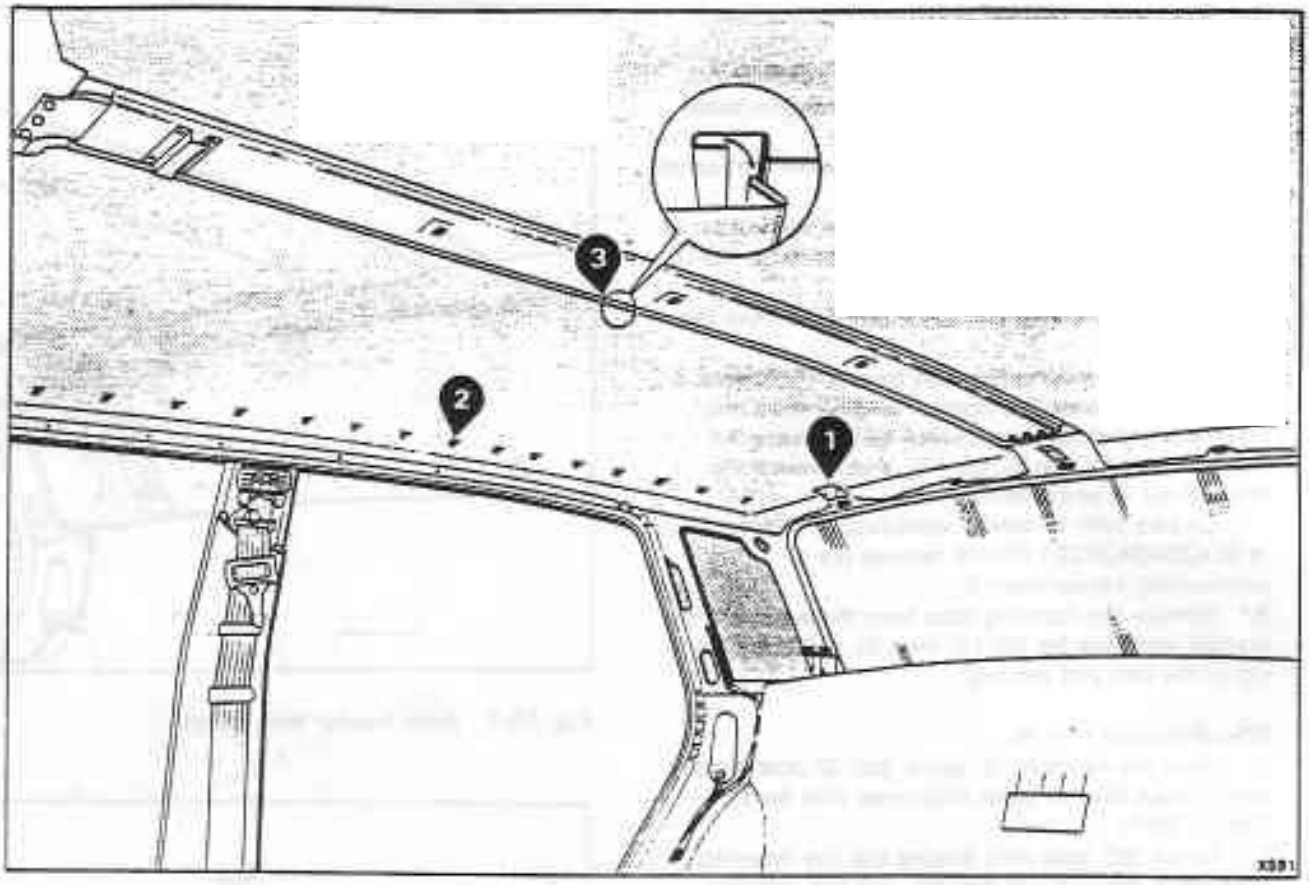

Fig. S8-9 Removing the headlining

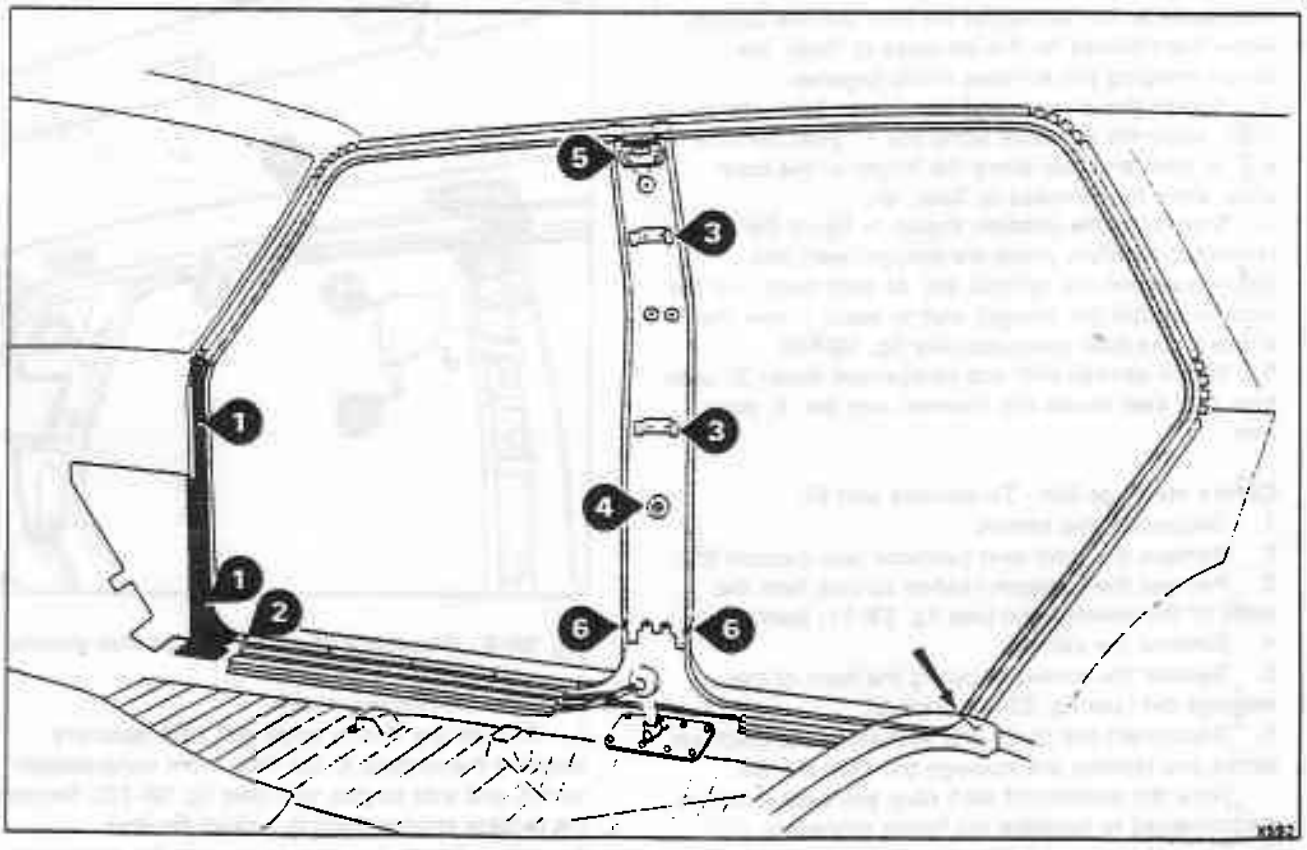

Fig. S8-10 Draught welts

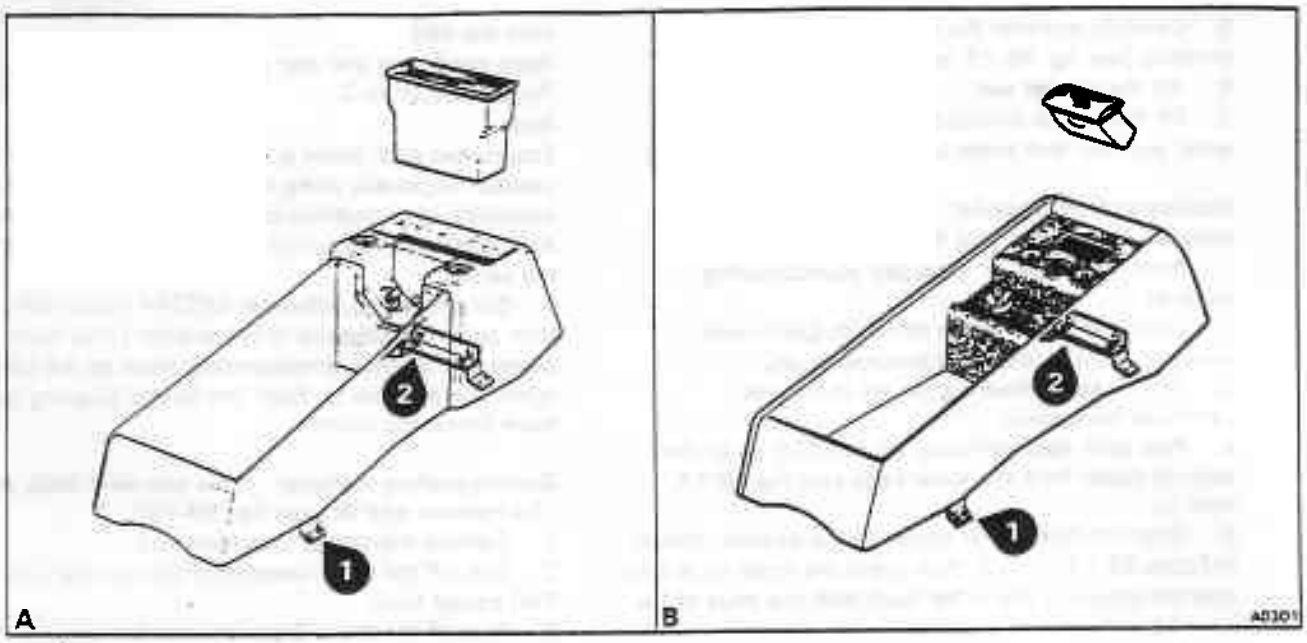

Fig. S8-11 Centre stowage bin

A Cars prior to vehicle identification number *SCAXZ42A3FCX12001*

B Cars from vehicle identification number *SCAZS42A3FCX12001*

flat, especially under and around the front seats.

3. Stains or grease marks may be removed from the carpets using a mild detergent diluted with clean warm water. Do not over-wet the carpets (see Chapter A).

Heelboard carpet trim - To remove and fit

1. Remove the rear floor carpets.
2. Remove the rear seat cushion.
3. Peel back the PVC soundproofing material from the front of the seat base. Release the carpet securing flap at the base of the heelboard, then peel back the PVC soundproofing and foam underlay from the rear floor areas.
4. Peel off the heelboard carpet trim.
5. Scrape off any excess adhesive. If necessary, remove any dirt, etc., using a clean lint free cloth moistened with Bostik Cleaner 6001.
6. Replace the thin foam strip around the top section of the heelboard.

Stir the Apollo Adhesive AX2344 thoroughly, then apply it to the foam and metal faces. Allow five minutes to 'flash' dry before bringing the surfaces together.

7. Apply the adhesive to the heelboard soundproofing and foam.

Spread the heelboard trim onto a clean flat surface and apply the adhesive; allow five minutes to 'flash' dry.

8. Starting in the centre, press the carpeted area of the trim around the transmission tunnel and work outwards. Use maximum hand pressure to press the surfaces together.

Stretch the leather trim over the seat base flange, ensuring that no creases occur, especially on the two outer bends.

Rear transmission tunnel carpet - To remove and fit

1. Remove the rear floor carpets.
2. Remove the centre stowage bin (see fig. S8-11).
3. Peel off the carpet from the tunnel.
4. Clean off any dirt, etc., with Bostik Cleaner 6001. If necessary, replace the soundproofing material on the rear transmission tunnel.
5. To fit a new carpet, thoroughly stir the Apollo Adhesive AX2344, apply the adhesive to the soundproofing on the tunnel and to the carpet trim; allow five minutes to 'flash' dry before pressing firmly into position. Ensure that the carpet is placed accurately around the seat belt stalks, etc.
6. Replace the stowage bin and the floor carpets.

Soundproofing material - engine compartment bulkhead, transmission tunnel, and rear seat areas - To remove and fit (see fig. S8-13)

1. Remove any old or damaged soundproofing material and scrape off any excess adhesive.

When removing the bulkhead soundproofing, it will be necessary to remove the bonnet seal.

2. Clean off any dust or dirt with Clene-wipe solution; allow at least two minutes to dry.
3. Stir the Apollo Adhesive AX2344 thoroughly, then apply the adhesive evenly to the body and the hessian fabric face of the soundproofing; allow five minutes to 'flash' dry.
4. Fit the engine compartment panels. Ensure that all holes and cut-outs are correctly located before pressing firmly into position. Rub the surface vigorously to ensure good contact. It is important that the joints between the various panels are neat and do not overlap.

5. Carefully chamfer the top edge of the soundproofing (see fig. S8-13, inset).
6. Fit the bonnet seal.
7. Fit the panels around the transmission tunnel areas and rear seat areas as described in Operation 4.

Soundproofing material - roof and rear quarter panels - To remove and fit (see fig. S8-14)

1. Remove any old or damaged soundproofing material.
2. Clean the inside of the roof with Clene-wipe solution; allow at least two minutes to dry.
3. Fit the soundproofing panels as follows.

Left-hand front panel.

a. Peel back approximately 75 mm (3.0 in) of the backing paper from the inner edge (see fig. S8-14, item 1).

b. Align the front inner corner to the position shown in figure S8-14, item 2, then press the inner edge into position ensuring that it fits flush with the edge of the centre beam.

c. Peel all the backing paper from the panel and roll onto the roof.

Left-hand rear panel.

a. Peel back approximately 75 mm (3.0 in) of the backing paper from the front edge (item 3).

b. Align the front edge (item 3) with the rear edge of the left-hand front panel (item 4). Ensure that there is no overlap of the panels, then press the front edge into position.

c. Peel all the backing paper from the panel and roll onto the roof.

Right-hand front and rear panels.

Repeat Operation 3.

Note

Ensure that each panel is thoroughly pressed into position, especially along all edges, to eliminate the possibility of air bubbles occuring under the panels. Also, check to ensure that there is no overlapping of the panels.

4. Stir the Apollo Adhesive AX2344 thoroughly, then apply the adhesive to the quarter panel foam pieces and to their corresponding areas on the panels. Allow five minutes to 'flash' dry before pressing the foam firmly into position.

Soundproofing material - floor and seat base areas - To remove and fit (see fig. S8-15)

1. Remove the carpet stud fasteners.
2. Peel off the black waterproof tape and remove the PVC coated foam.
3. Peel off the foam. Clean the areas where the foam is attached to the floor.
4. Clean off any dust or dirt with Bostik Cleaner 6001.
5. Stir the Apollo Adhesive AX2344 thoroughly, then apply the adhesive evenly to the floor and foam in the areas indicated in figure S8-15. Allow five minutes to 'flash' dry.
6. Lay the foam underlay and press into position. Note that there is no foam underlay on the driver's side of the car (see fig. S8-15).

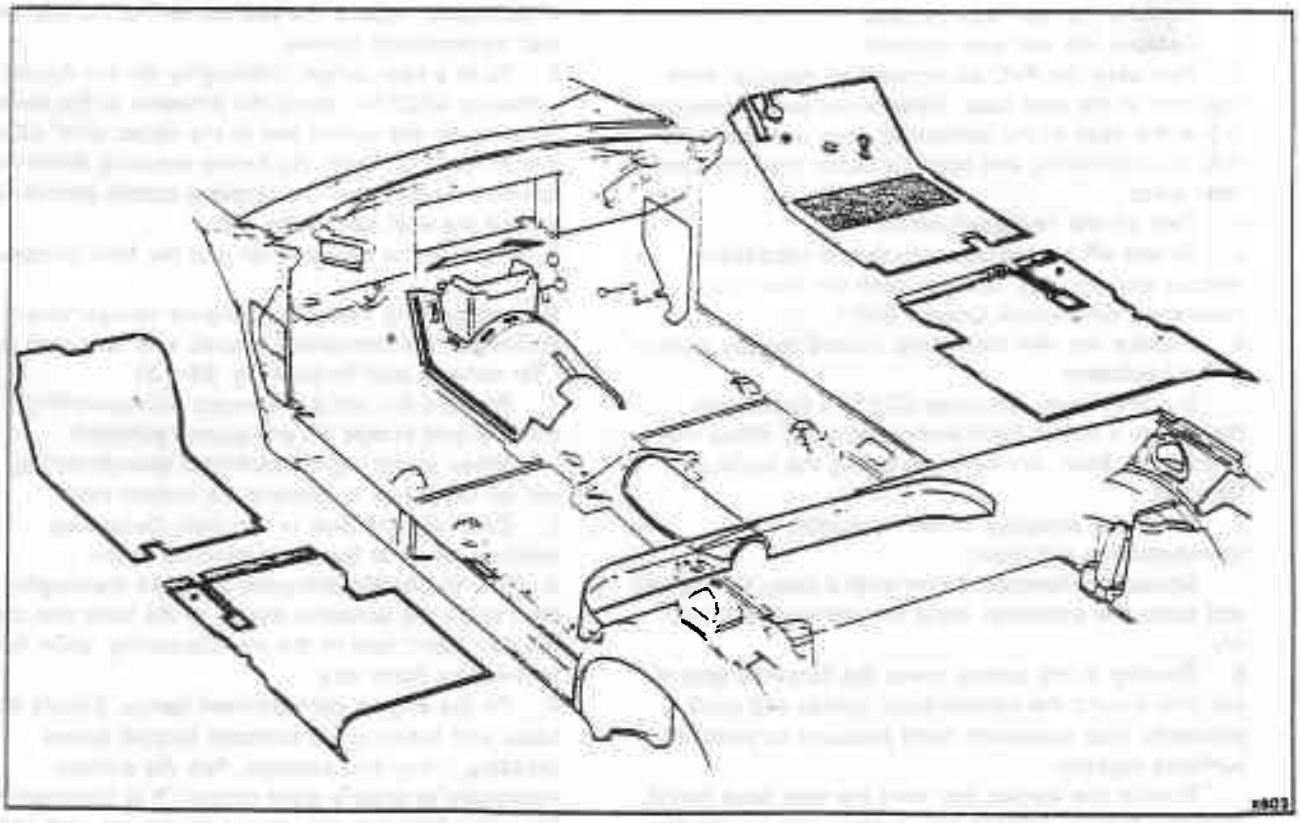

Fig. S8-12 Carpets

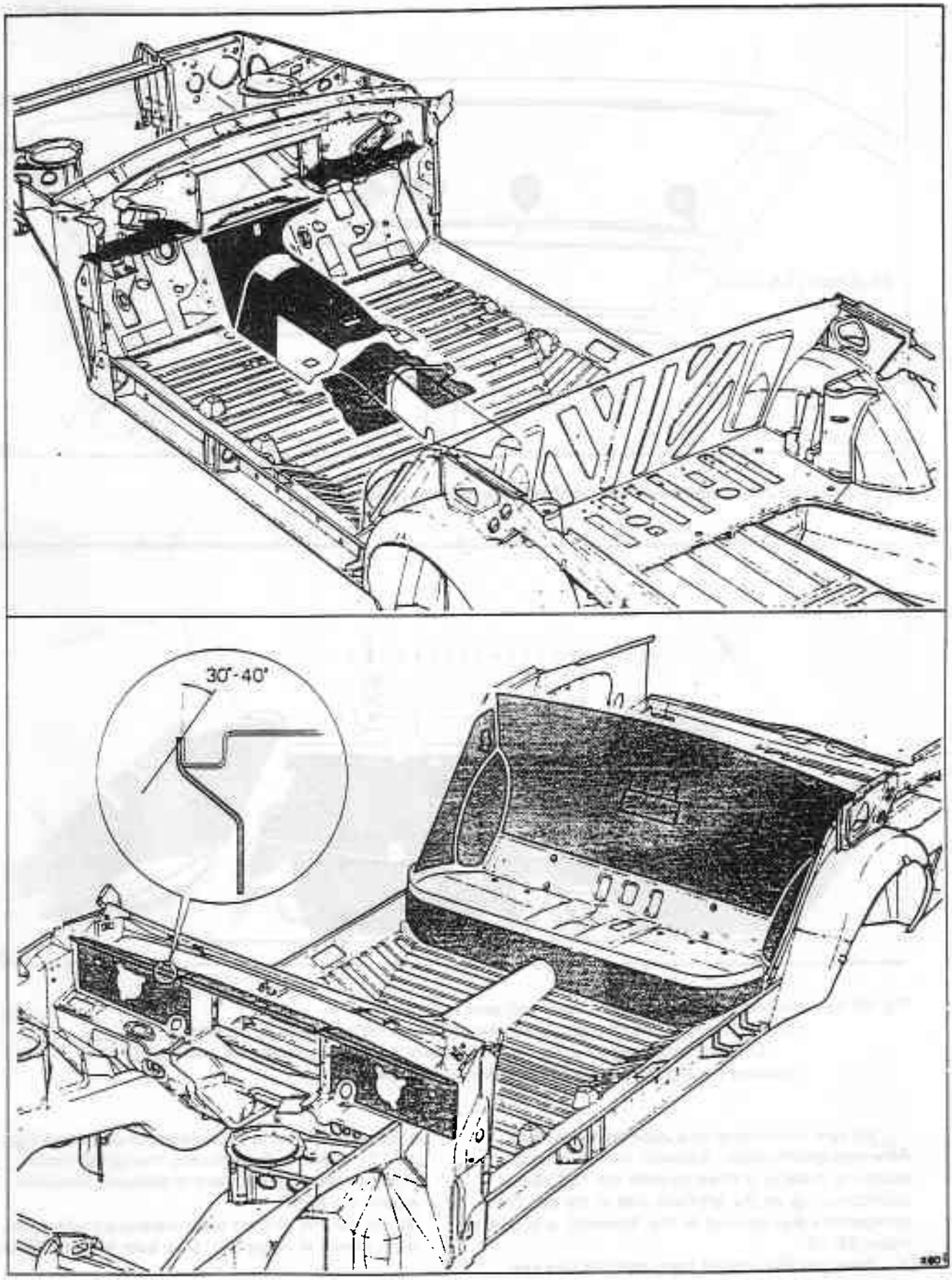

Fig. S8-13 Soundproofing material - engine compartment bulkhead, transmission tunnel, and rear seat areas

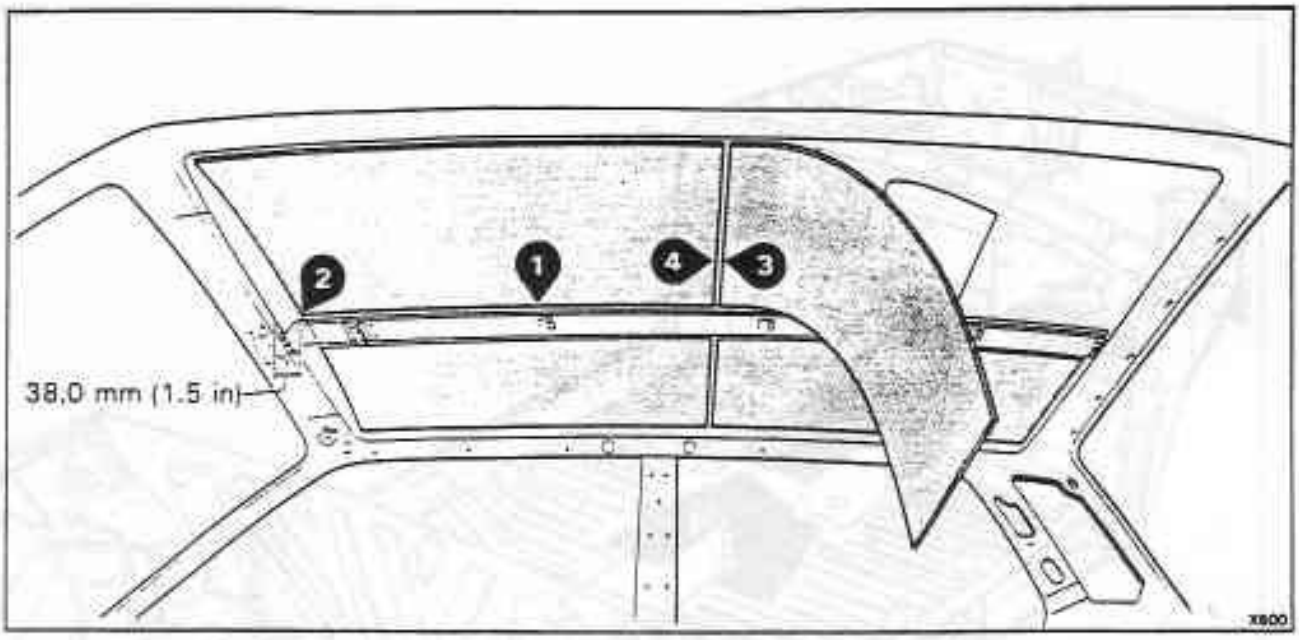

Fig. S8-14 Soundproofing material - roof and rear quarter panels

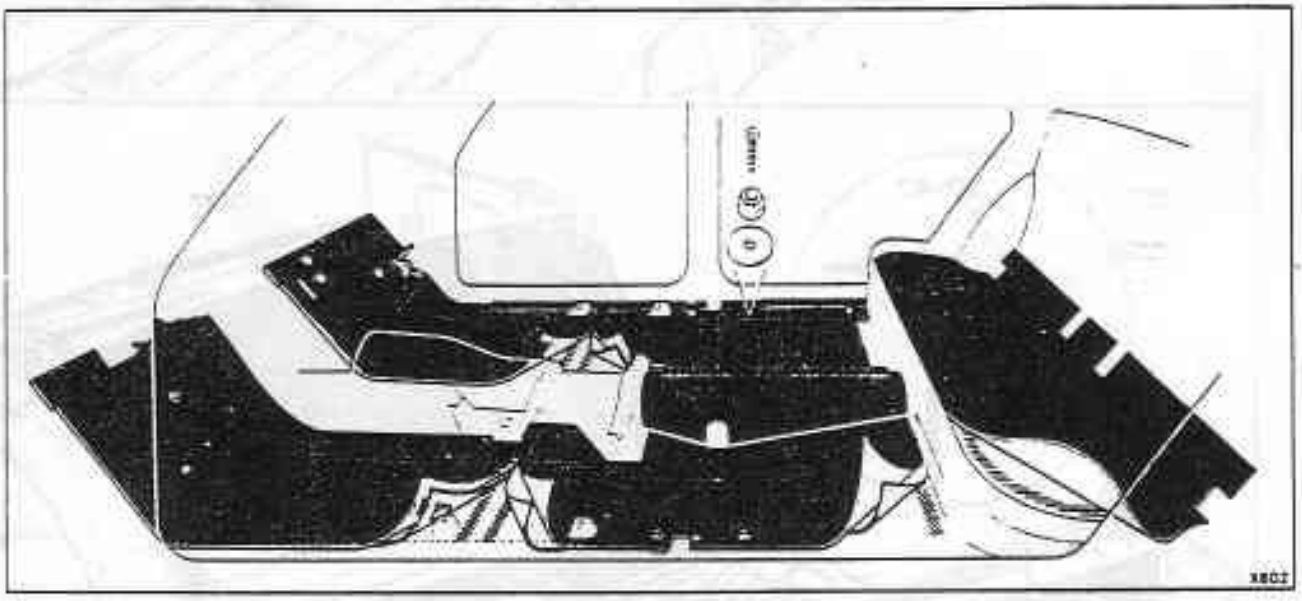

Fig. S8-15 Soundproofing material - floor and seat base areas
Cross hatching indicates areas where the soundproofing is secured to the floor
On cars conforming to a Japanese and North American specification, the dotted line indicates the approximate area to be covered by 'Koawool'

On cars conforming to a Japanese and North American specification, 'Koawool' non inflammable insulating material is fitted beneath the PVC coated soundproofing, on the left-hand side of the car. The approximate area covered by the 'Koawool' is shown in figure S8-15.

7. Press the PVC coated foam onto the rear seat base.
8. Fit the PVC coated foam around the accelerator, brake pedal, etc. Apply the Apollo adhesive to the floor and foam adjacent to the accelerator pedal (see fig. S8-15). Leave for five minutes, then press firmly together ensuring that there is adequate clearance around the pedals.
9. Fit 50 mm (2.0 in) black waterproof tape to the areas shown in figure S8-15 on both sides of the car.

Luggage compartment interior trim

Carpet and trim panels - To remove (see fig. S9-1)
Silver Spirit, Silver Spur, and Bentley Mulsanne (excluding Turbo)

1. Release the five retaining studs (item 1) and remove the main floor carpet.
2. Remove the front trim panel as follows.

Remove the screws and cup washers (item 2) situated across the top and bottom of the panel.

Release the two press fasteners (item 3) retaining the hinged cover of the tools tray.

Remove the battery master switch knob (item 4) by releasing the centre screw, ring nut, and instruction plate.

3. Pull and release the retaining stud (item 5). Release the screws and cup washers (item 6) then withdraw the panel.
4. Remove the ring (item 7) from the fuel filler door manual release handle. Pull and release the retaining stud (item 8), remove the screws and cup washers (item 9) then withdraw the panel.
5. If it is necessary to renew the wheel-arch carpet trim, carefully peel back the carpet from the soundproofing material and remove from the car.

If felt soundproofing is fitted to the wheel-arches, it may be necessary to renew it when the carpet trim is removed.

Note
Difficulty may be experienced in removing and fitting the wheel-arch carpet trim due to the close proximity of the fuel tank. If it is imperative that the carpet is renewed, it may be necessary to remove the fuel tank assembly (see Chapter K or U).

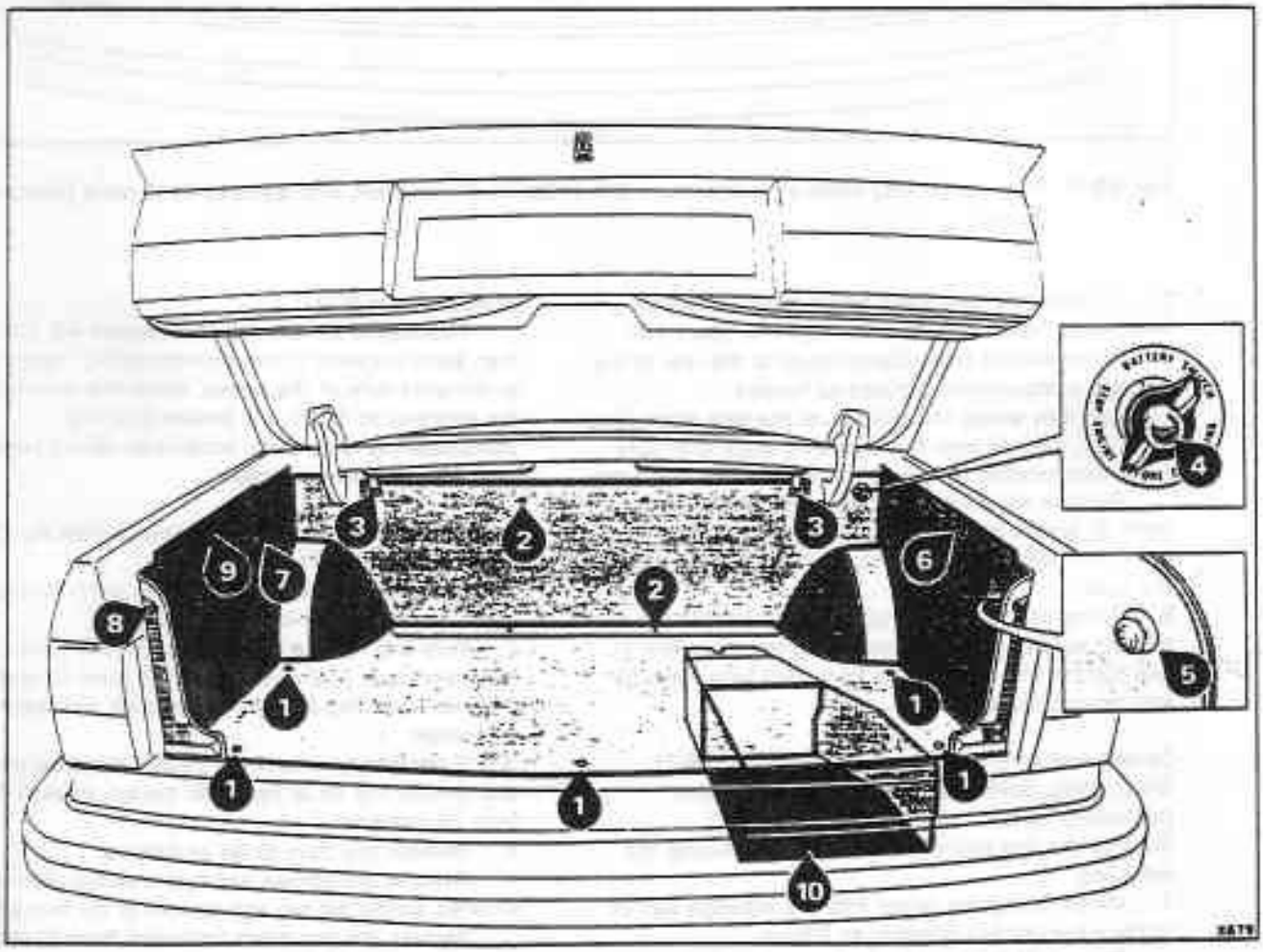

Fig. S9-1 Carpet and trim panels - Silver Spirit, Silver Spur, and Bentley Mulsanne (excluding Turbo)

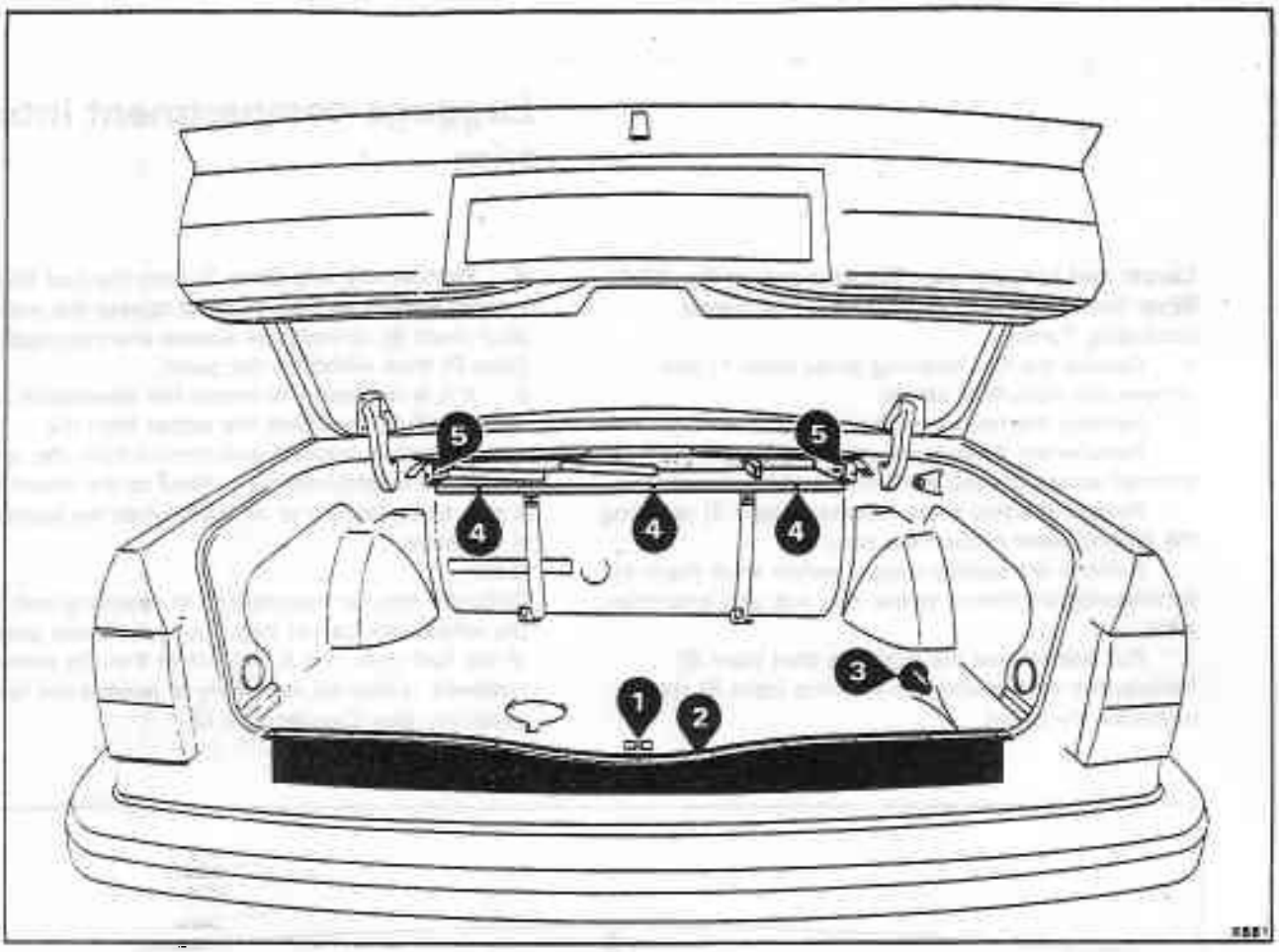

Fig. S9-2 Rear cover and tools stowage tray - Silver Spirit, Silver Spur, and Bentley Mulsanne (including Turbo)

6. If necessary, peel back and remove the carpet trim pieces from inside the stowage well (item 10).

7. To renew the black plastic cover at the rear of the luggage compartment proceed as follows.

Carefully scribe the position of the lock catch (see fig. S9-2, item 1) onto the mounting plate to ensure its correct location on assembly; remove the lock catch.

Remove the screws securing the finishing strip (item 2) across the top of the rear panel. Carefully lever and release the black studs (item 3) then remove the cover.

8. To remove the tools stowage tray, release the self-tapping screws along the bottom of the tray (item 4), drill out the three pop rivets from each side (item 5) and remove the tray.

Carpet and trim panels - To fit (see fig. S9-1)
Silver Spirit, Silver Spur, and Bentley Mulsanne (excluding Turbo)

Reverse the procedure given for removal noting the following.

1. When fitting the carpet into the stowage well or to the wheel-arches proceed as follows.

Scrape off any excess adhesive. Any dirt should be removed with a clean lint free cloth moistened with Bostik Cleaner 6001.

Thoroughly stir the Apollo Adhesive AX 2344, then apply it evenly to the soundproofing material and to the underside of the carpet. Allow five minutes for the adhesive to 'flash' dry. Ensure that the soundproofing is correctly positioned before bringing the surfaces firmly together.

Carpet and trim panels - To remove (see fig. S9-3)
Bentley Mulsanne Turbo

1. Release the five retaining studs and Velcro strip (item 1); remove the main floor carpet.

2. Turn and release the two battery trim cover fasteners (item 2). Release the stud (item 3) retaining the trim cover flap to the floor then lift and remove the trim cover.

3. If necessary, release the rubber retaining strap and remove the tin of hydraulic system mineral oil from its container.

4. Remove the front panel as follows.

Remove the screws and cup washers (item 4) situated across the top and bottom of the trim panel.

Release the two press fasteners (item 5) retaining the hinged cover of the tools tray.

Remove the battery master switch knob (item 6)

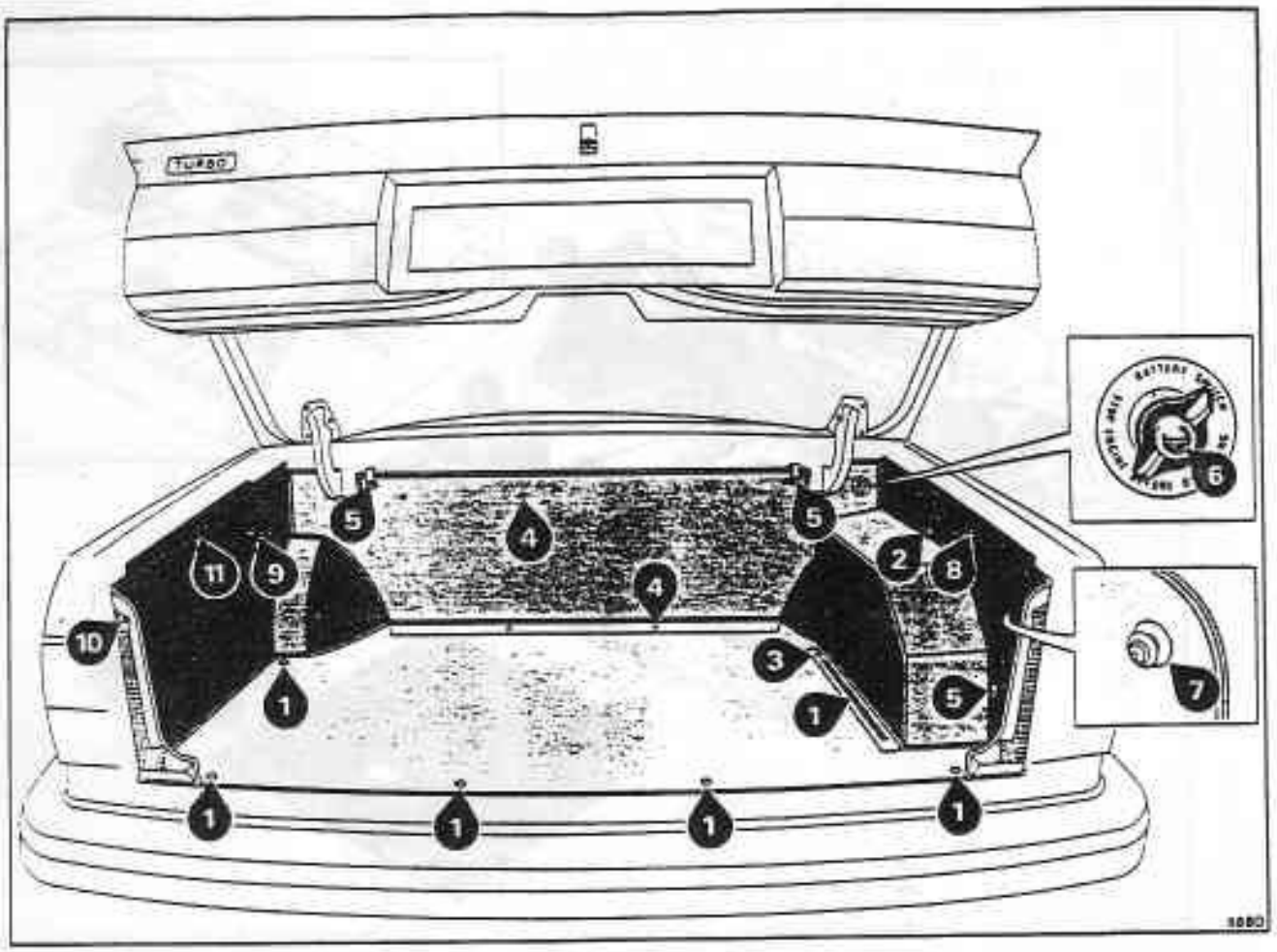

Fig. S9-3 Carpet and trim panels - Bentley Mulsanne Turbo

by releasing the centre screw, ring nut, and instruction plate.

5. Pull and release the retaining stud (item 7). Release the screws and cup washers (item 8) then withdraw the panel.

6. Remove the ring (item 9) from the fuel filler door manual release handle. Pull and release the retaining stud (item 10), remove the screws and cup washers (item 11) then withdraw the panel.

7. If it is necessary to renew the wheel-arch carpet trim, carefully peel back the carpet from the soundproofing material and remove from the car.

If felt soundproofing is fitted to the wheel-arches, it may be necessary to renew it when the carpet trim is removed.

Note

Difficulty may be experienced in removing and fitting the wheel-arch carpet trim due to the close proximity of the fuel tank. If it is imperative that the carpet is renewed, it may be necessary to remove the fuel tank assembly (see Chapter K).

8. To renew the black plastic cover at the rear of the luggage compartment proceed as follows.

Carefully scribe the position of the lock catch (see fig. S9-2, item 1) onto the mounting plate to ensure its correct location on assembly; remove the lock catch.

Remove the screws securing the finishing strip (item 2) across the top of the rear panel. Carefully lever and release the black studs (item 3) then remove the cover.

9. To remove the tools stowage tray, release the self-tapping screws along the bottom of the tray (item 4), drill out the three pop rivets from each side (item 5) and remove the tray.

Carpet and trim panels - To fit (see fig. S9-3)

Bentley Mulsanne Turbo

Reverse the procedure given for removal noting the following.

1. When fitting the carpet onto the wheel-arches proceed as follows.

Scrape off any excess adhesive. Any dirt should be removed with a clean lint free cloth moistened with Bostik Cleaner 6001.

Thoroughly stir the Apollo Adhesive AX 2344, then apply it evenly to the soundproofing material and to the underside of the carpet. Allow five minutes for the adhesive to 'flash' dry. Ensure that the soundproofing is correctly positioned before bringing the surfaces firmly together.

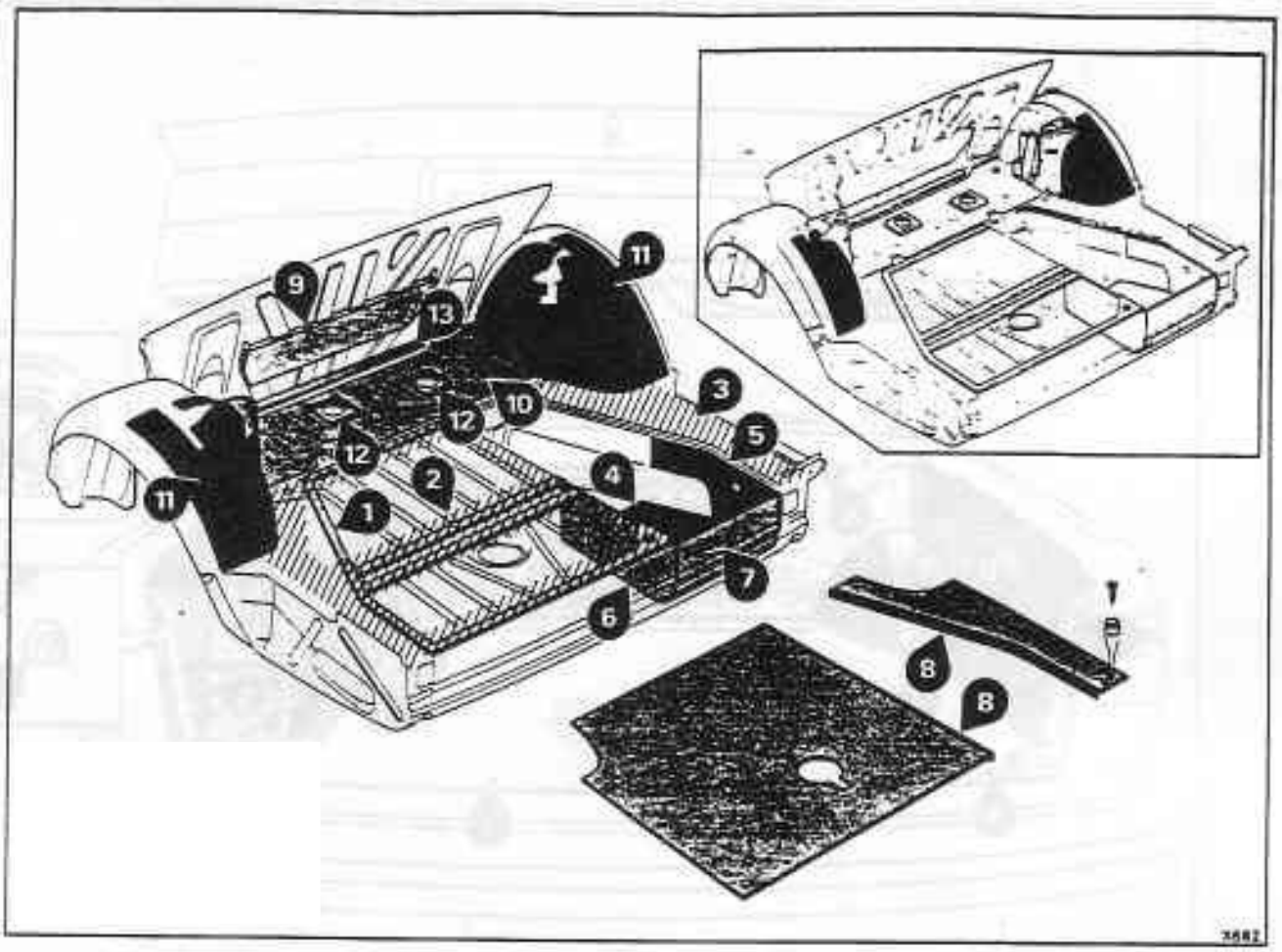

Fig. S9-4 Soundproofing material - Silver Spirit, Silver Spur, and Bentley Mulsanne (excluding Turbo)

Soundproofing material - To remove and fit (see fig. S9-4)

Silver Spirit, Silver Spur, and Bentley Mulsanne (excluding Turbo)

1. Remove all carpet trim and carpet studs.
2. Remove any old or damaged soundproofing material and scrape off any excess adhesive.
3. Clean off any dust or dirt with Clene-wipe solution; allow at least two minutes to dry.
4. Stir the Apollo Adhesive AX 2344 thoroughly.
5. Apply the adhesive to the channels and also to the felt strips. Allow five minutes for the adhesive to 'flash' dry before pressing the felt strips firmly into position (item 1).
6. Apply the adhesive evenly around the main floor area in a band approximately 76 mm (3.0 in) wide (see cross hatched area, item 2). Also, apply the adhesive to the floor area on the right-hand side of the stowage well (item 3).

Brush the adhesive onto the corresponding areas on the soundproofing felt. Allow all areas five minutes to 'flash' dry.

Bring the surfaces together using maximum hand pressure.

7. Apply the adhesive to the rear of the stowage well and also to the soundproofing felt. Allow five minutes for the adhesive to 'flash' dry.

Press the floor felt into position (item 4), aligning the rear edge with the raised body flange.

Press the right-hand side into position (item 5) ensuring that the two holes fit over the heads of the bumper bracket retaining bolts.

Press the left-hand side into position (item 6) and then the rear upper felt (item 7).

8. Fit 50 mm (2.0 in) wide black tape along the top edges of the stowage well (item 8).
9. If the fuel tank has been removed, check to ensure that the soundproofing material, mounting pads, Compriband strips, etc., are in a satisfactory condition. If they require to be renewed proceed as follows.

a. Peel off and remove all soundproofing and Compriband pads.

b. Thoroughly clean the forward area of the luggage compartment, removing any loose debris e.g., nuts, washers, blanking grommets. This is important as any loose articles could create undesirable noise levels which may prove difficult to eradicate once the fuel tank is in position.

c. Apply Apollo Adhesive AX 2344 to the large foam pad (item 9) and the rear seat panel. Allow five minutes to 'flash' dry. Ensure that the pad is correctly

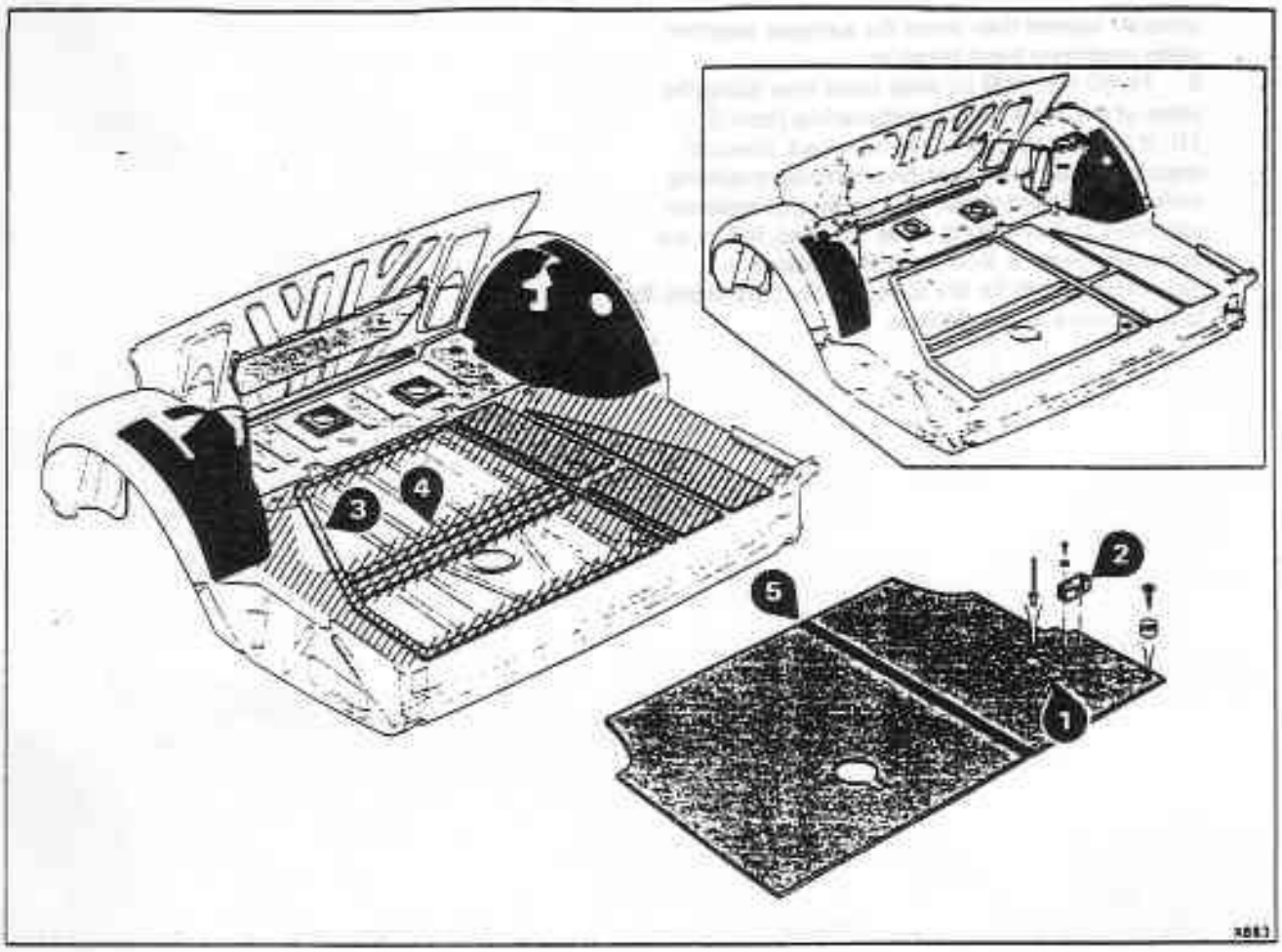

Fig S9-5 Soundproofing material - Bentley Mulsanne Turbo

positioned before pressing firmly into position. The pad should be fitted approximately 100 mm (4.0 in) above the luggage compartment floor.

d. Peel off the backing paper from the self-adhesive rubber matting (item 10). Carefully place the matting centrally over the holes in the luggage compartment floor then press firmly into position.

e. Apply the Apollo adhesive to the suspension pots and wheel-arches, and also to the rubber soundproofing. Allow five minutes to 'flash' dry. Ensure that the pre-formed soundproofing (item 11) is correctly located then press firmly into position.

On certain cars, soundproofing felt is fitted in place of the pre-formed rubber soundproofing (see inset). Secure the felt into position in the same manner as the rubber soundproofing.

f. Press the two Compriband pads (item 12) into position around the large holes in the luggage compartment floor.

g. Slide the Compriband covered wooden strip (item 13) into position at the forward edge of the luggage compartment floor adjoining the rear seat panel.

h. Ensure that the rubber blanking grommets are fitted into the forward corners of the luggage compartment floor.

i. If necessary, replace the Compriband strips fitted around the fuel tank. Refer to Chapters K and U for the fitting of the retaining straps and the fuel tank.

Soundproofing material - To remove and fit (see fig. S9-5)

Bentley Mulsanne Turbo

1. Remove all carpet trim and carpet studs.
2. Drill out the four pop rivets securing the service plate (item 1) in position; remove the plate.
3. Release the two screws and washers retaining the base (item 2) for the hydraulic system mineral oil tin; remove the base.
4. Remove any old or damaged soundproofing material and scrape off any excess adhesive.
5. Clean off any dust or dirt with Clene-wipe solution; allow at least two minutes to dry.
6. Stir the Apollo Adhesive AX 2344 thoroughly.
7. Apply the adhesive to the channels and also to the felt strips. Allow five minutes for the adhesive to 'flash' dry before pressing the felt strips firmly into position (item 3).
8. Apply the adhesive around the floor area (see cross hatched area, item 4).

Brush the adhesive onto the corresponding areas on the soundproofing felt. Allow all areas five minutes to 'flash' dry. Ensure that the soundproofing is

correctly located then press the surfaces together using maximum hand pressure.

9. Fit 50 mm (2.0 in) wide black tape along the joints of the main floor soundproofing (item 5).

10. If the fuel tank has been removed, check to ensure that the soundproofing material, mounting pads, Compriband strips, etc., are in a satisfactory condition. If they require to be renewed, follow the procedure given in Soundproofing material - To remove and fit for the Silver Spirit - Operations 9a to 9i inclusive (see fig. S9-4).

Windscreen

Introduction

The method of removing and replacing a damaged windscreen requires considerable care and attention to detail. It is important that the procedures listed below are adhered to, especially in the areas concerning the cleaning, priming, and bonding of the windscreen aperture and glass.

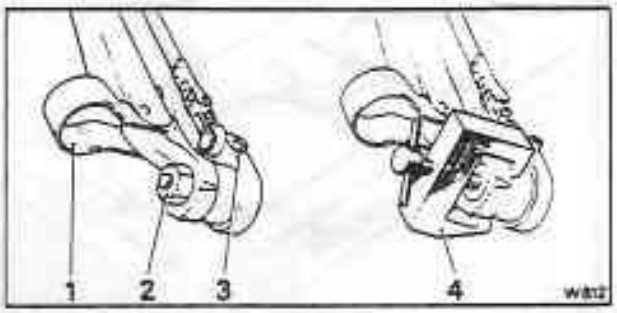

Fig. S10-1 Removing the windscreen wiper blades and arms
1 Hinged cover
2 Nut
3 Allen screw
4 Extractor tool RH 9623

Windscreen — To remove

1. Disconnect the battery.
2. Raise the bonnet.
3. Protect the paintwork in the vicinity of the windscreen with clean thick felt.
4. Remove the wiper blades and arms as follows (see fig. S10-1).

Lift the hinged covers on the top of each spindle.

Remove the nuts.

Using the special extractor tool RH 9623 carefully remove the wiper arms.

Using an Allen key, loosen the remaining arm.

Remove the wiper blades and arms.

5. Remove the air intake grilles (see fig. S10-2).

Loosen the screws securing the front flange of the scuttle panel to the scuttle channel.

Remove the four setscrews (arrowed) securing the top of the scuttle panel.

Ease the panel out, release the windscreen washer jets and remove the scuttle panel.

6. On early cars, remove the stainless steel strip and lower seal from the bottom of the windscreen (see fig. S10-3, A).

On later cars, remove the small brackets (arrowed) spaced evenly along the bottom of the windscreen (see fig. S10-3, B).

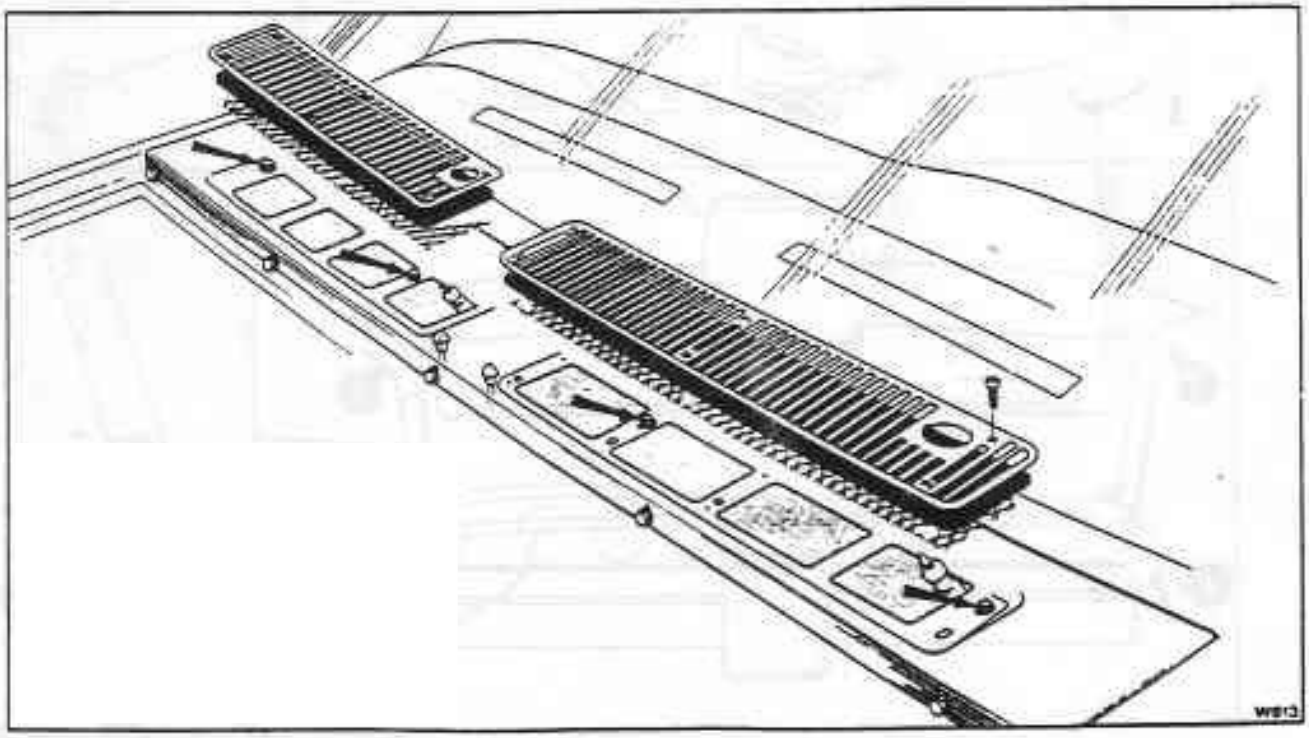

Fig. S10-2 Removing the air intake grilles and scuttle panel

7. Fit protective covers to the seats and carpets.
8. Remove the mirror head.
9. Pull the sun visors from their inner retaining brackets. Release the screws and remove the sun visors (see fig. S10-4, item 1).
10. Remove the screws from the sun visor inner retaining brackets (see fig. S10-4, item 2). Slide back and remove the centre header trim panel (see fig. S10-4, item 3).
11. Carefully ease the filler trim pieces from between

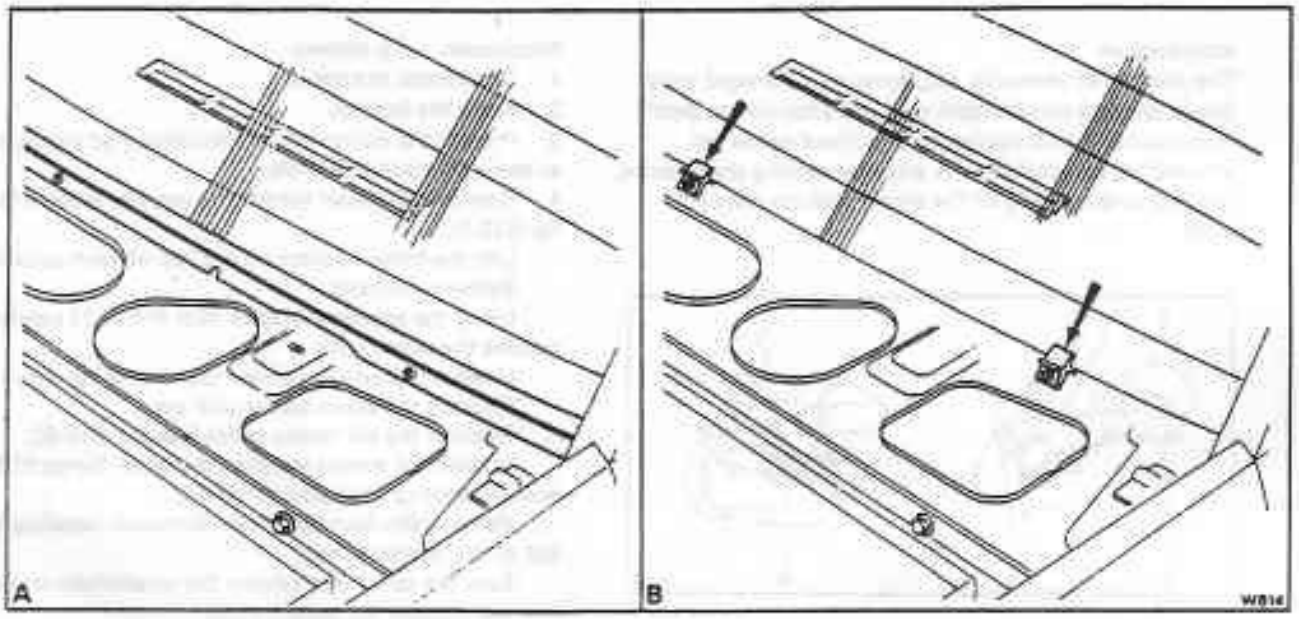

Fig. S10-3 Removing the retaining strip/brackets from the bottom of the windscreen
A Retaining strip (early cars) B Retaining brackets (later cars)

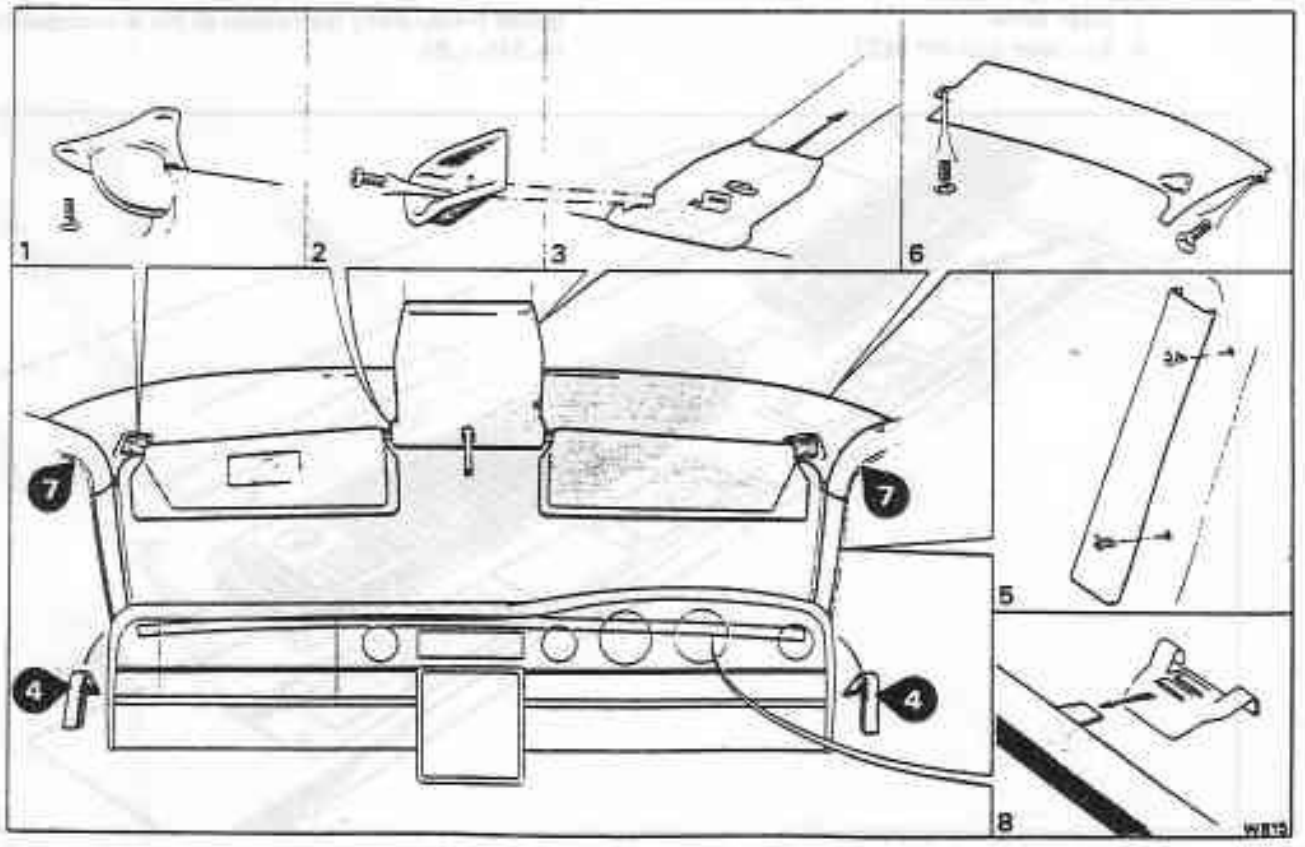

Fig. S10-4 Windscreen interior trim

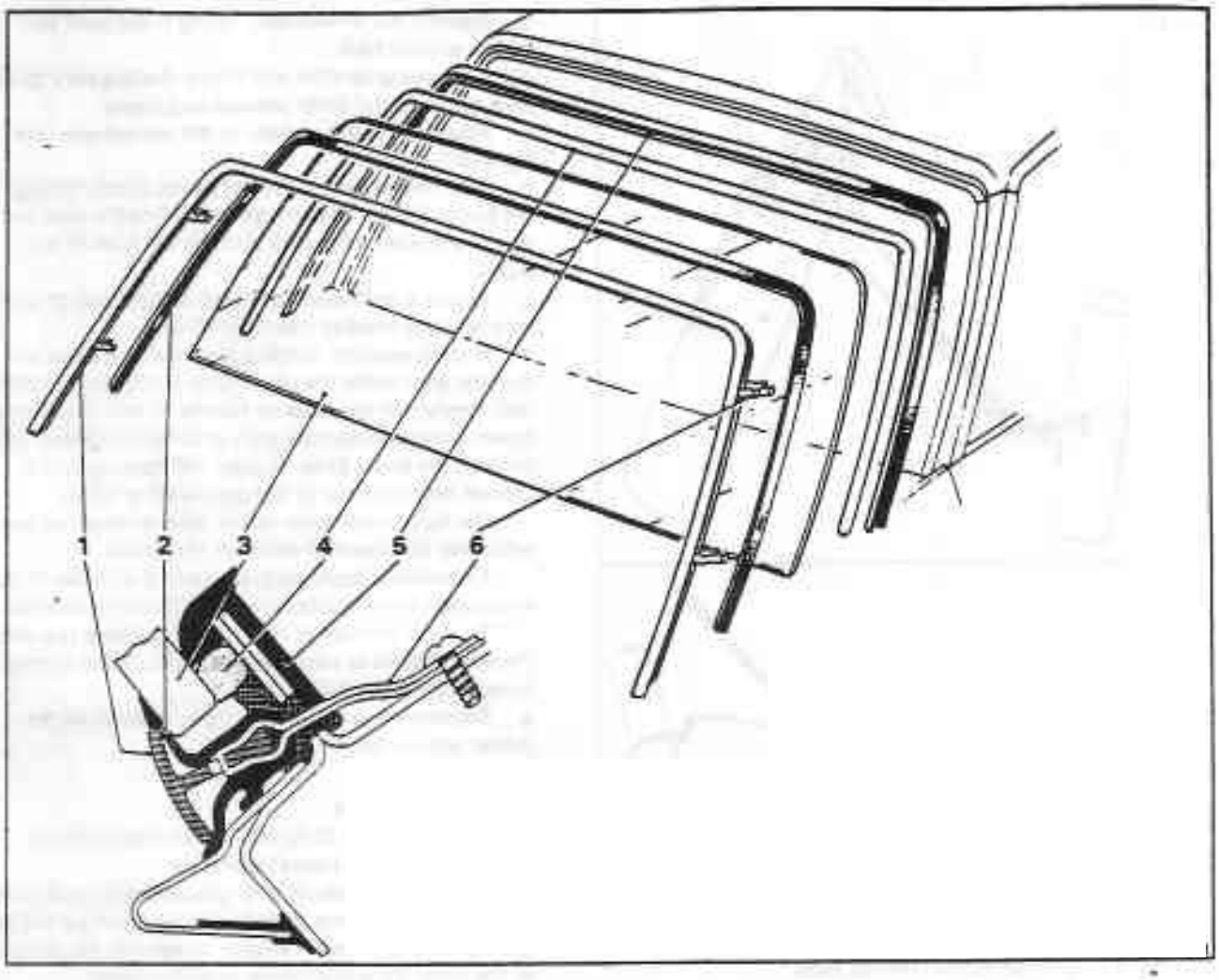

Fig. S10-5 General windscreen arrangement

1 Finisher
2 Finishing seal
3 Windscreen
4 Butyl Strip
5 Inner spacing and finishing strip
6 Windscreen retention plates

the top roll and 'A' post trim (see fig. S10-4, item 4).

12. Unclip and remove the 'A' post trim panels (see fig. S10-4, item 5).

13. Remove the header trim panels (see fig. S10-4, item 6).

To gain access to the screws securing the outer sides of the panels, unclip the front part of each cantrail trim panel (see fig. S10-4, item 7).

14. Remove the facia panels, top roll, and demister panel (see Section S7).

15. Remove the windscreen finisher rail (see fig. S10-4, item 8).

16. Place a protective cover i.e., a plastic sheet, over the top of the instrument board, to prevent the ingress of debris from the removal of the windscreen.

17. Peel back and remove the inner spacing and finishing strip from the inside of the windscreen (see fig. S10-5, item 5).

18. Remove the screws securing the windscreen retention plates to the 'A' posts (see fig. S10-5).

19. Carefully lever the combined finisher, seal, and retention plates from the aperture recess (see fig. S10-5, items 1,2 and 6). Take care to avoid damaging the paintwork or finisher during this operation.

20. Before the windscreen can be removed, use either of the tools shown in figure S10-6 to cut through the Butyl Strip bonding the windscreen to the aperture. Always wear safety glasses and gloves when carrying out this operation.

21. When using the special windscreen knife RH 9637 to cut through the Butyl Strip proceed as follows.

a. Attach a suction pad to each side of the windscreen (see fig. S10-7).

b. From outside the windscreen, carefully insert the blade of the tool through the Butyl and behind the glass (see fig. S10-7, inset).

c. Pull the handle attached to the wire, at right-angles to the main body of the tool. Cut through the Butyl by moving the knife slowly around the complete periphery of the windscreen.

An assistant applying pressure to the inside of the windscreen as it is released will facilitate its removal.

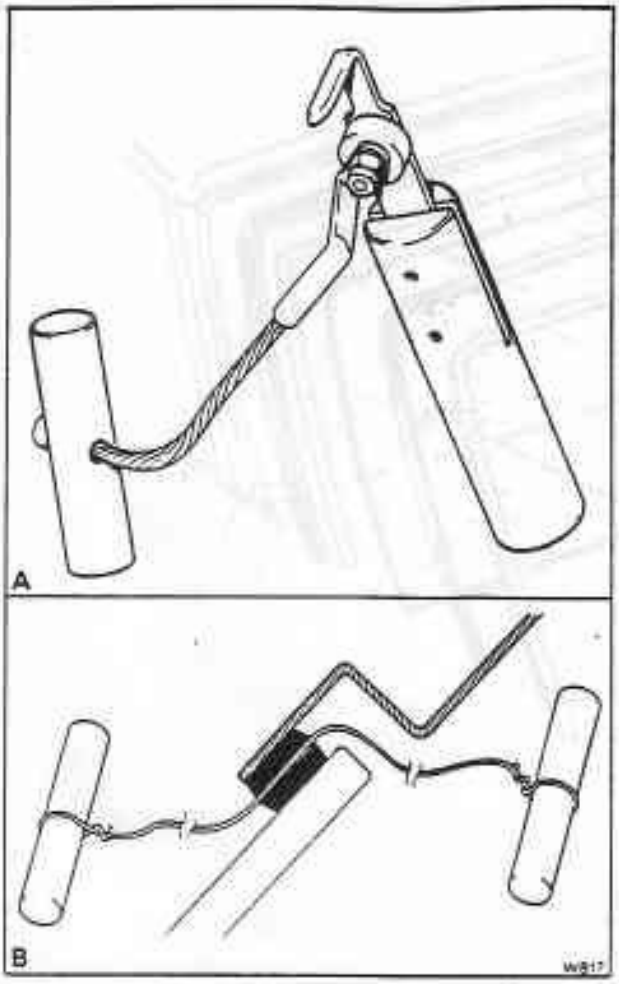

Fig. S10-6 Windscreen removal tools
A Knife RH 9637
B Handles and strong flexible wire

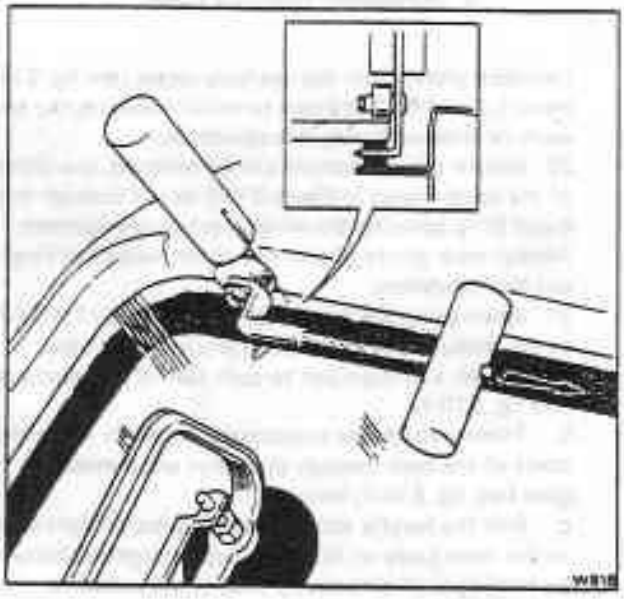

Fig. S10-7 Correct method of using the windscreen knife

d. Remove the windscreen, lifting it out with the rubber suction pads.

22. When using handles and strong flexible wire to cut through the Butyl Strip proceed as follows.

a. Attach two suction pads to the windscreen (see fig. S10-7).

b. From inside the car, cut or pierce a hole through the Butyl. Obtain a length of strong flexible wire and thread one end of the wire through the hole in the Butyl.

c. Attach a small piece of wood to each end of the wire to act as handles (see fig. S10-6).

d. With an assistant holding the interior handle so that the wire inside the car is lying along the line of the seal, firmly pull the exterior handle so that the wire is drawn along between the glass and the flange thus cutting through the Butyl Strip. Repeat this cutting action around the periphery of the glass until it is free.

Use long steady pulls rather than short quick ones otherwise the wire will overheat and break.

An assistant applying pressure to the inside of the windscreen as it is released will facilitate its removal.

To avoid damage to the paintwork, keep the ends of the wire as close as possible to the glass when cutting through the Butyl Strip.

e. Remove the windscreen, lifting it out with the rubber suction pads.

Windscreen — To fit

1. Place the Butyl Strip into a warm atmosphere approximately two hours before use.

2. Remove all traces of dirt, grease, sealing compound, Butyl Strip, etc., from the windscreen aperture flanges. Use a plastic or wooden scraper to remove the remains of the Butyl Strip then clean with Genklene.

Ensure that the Genklene does not come into contact with the finished paintwork.

3. Clean the inner spacing and finishing strip and the inner aperture flange with Genklene; allow to dry.

4. Apply Dunlop Adhesive S1127 to both the strip and aperture flange. Allow between five and twenty minutes to 'flash' dry before carefully pressing the finishing strip into position using maximum hand pressure.

Remove any excess adhesive with Genklene.

5. Temporarily place the windscreen into the aperture against the inner spacing and finishing strip.

Assess what depth of spacer is required at the bottom of the aperture after fitting 10 mm (0.40 in) spacing blocks at the top and sides (see fig. S10-10).

Produce the spacing blocks and slide them into position. Ensure that the glass is pressed against the blocks all around the aperture.

Remove the blocks and windscreen from the aperture.

Note

The four 10 mm (0.40 in) spacing blocks are available as part of windscreen seal kit RH 2803.

6. Fit the rubber suction pads onto the windscreen and lay it on a suitable working surface, i.e. a surface which will hold the windscreen steady whilst the primer, etc., is applied to the inner surface edge and yet

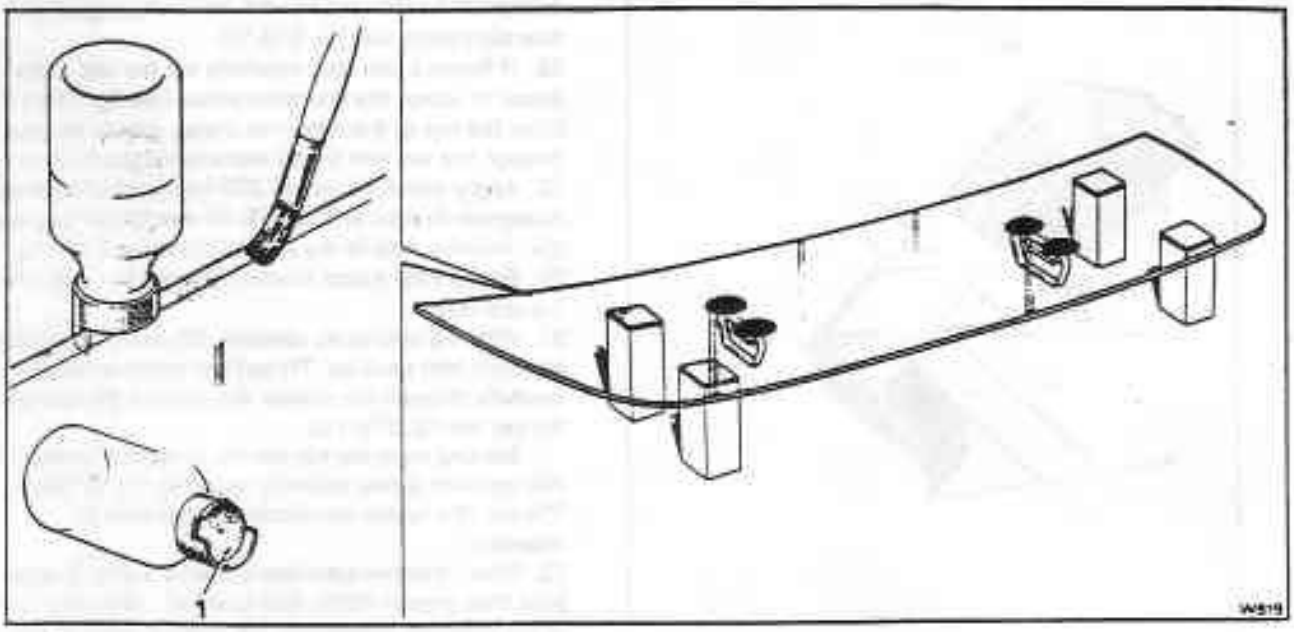

Fig. S10-8 Applying primer to the windscreen
1 Felt pads

cushion the outer surface from being damaged (see fig. S10-8).

7. Wipe the inside edge of the windscreen and around the aperture flange with a cloth moistened with Genklene; allow to dry.

8. Apply 3M Primer XC 5892 to the windscreen to a width of 7 mm (0.275 in) from the inside edge (see fig. S10-8). This should be applied with a bottle and felt pads and should be drawn carefully and steadily around the glass using a clean even line. Alternatively, the primer can be applied with the careful use of a brush.

Allow five minutes for the primer to dry. Do not touch the primer.

9. Apply 3M Primer XC 5892 to the outside of the aperture flange to a width of 7 mm (0.275 in) from the edge of the inner spacing and finisher seal.

Apply the primer with a bottle and felt pads or a brush as Operation 8; allow five minutes to dry.

10. Place the Butyl Strip onto the primed aperture flange with the edge positioned against the inner spacing and finisher seal (see fig. S10-9). Do not remove the backing paper at this stage. Start at the lower corner of an 'A' post and carefully press the strip around the top header flange and down the opposite 'A' post; cut the strip at the corner. Cut a separate strip for the bottom flange, butt jointing it against the 'A' post strips.

It is important that the strip is positioned accurately around the aperture. Special care needs to be taken at the top corner sections.

Note

The Butyl Strip is available as part of windscreen seal kit RH 2803.

11. Place the spacing blocks into position in the aperture (refer to Operation 5 and fig. S10-10).

12. Remove the backing paper from the Butyl Strip taking care not to displace or touch the strip.

13. Using the suction pads, lift the windscreen into

Fig. S10-9 Placing the Butyl Strip onto the primed aperture flange

position. Do not touch the primed edge of the screen as this will contaminate the primer and prevent correct adhesion.

Centralize the windscreen within the spacer blocks before lightly pressing it onto the Butyl Strip.

Remove the suction pads.

14. With the help of an assistant, carefully press the windscreen against the inner spacing and finishing strip. Correct adhesion is indicated by a solid black line of Butyl with no air bubbles.

15. Carefully remove any excess Butyl from inside the finisher seal recess and the inside of the windscreen. Use a plastic or wooden scraper and a cloth moistened with Bostik Cleaner 6001.

16. Prepare the finisher and rubber seal by cleaning with Genklene to remove all grease, wax, and dirt.

17. Place the four retention plates into the slots in the finisher. Using a sealant cartridge gun, apply Arbomast

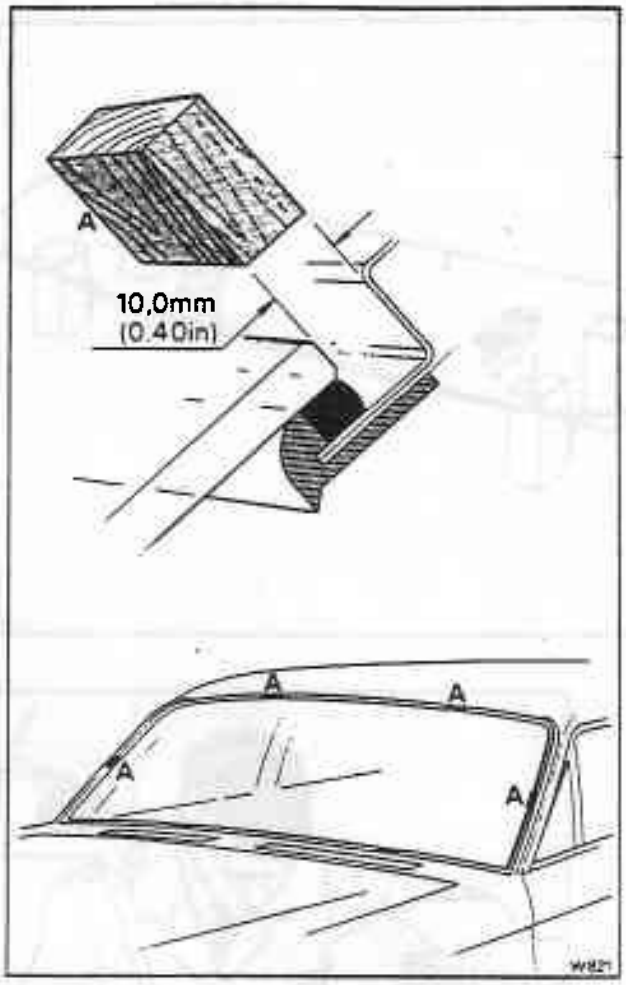

Fig. S10-10 Positioning the spacer blocks around the aperture

Autograde Sealant or Seelastik inside the legs of the retention plates (see fig. S10-11).

18. If fitting a new seal, carefully slit the seal in four places to accept the retention plates (see fig. S10-11). Close the legs of the retention plates, thread the plates through the seal and fit the seal around the finisher.
19. Apply four 6,40 mm (0.250 in) beads of Arbomast Autograde Sealant or Seelastik 76 mm (3 in) long across the retention slots in the aperture (see fig. S10-11).
20. Remove the spacer blocks from the top and sides of the aperture.
21. With the help of an assistant, lift the finisher/seal assembly into position. Thread the retention plates carefully through the sealant and slots in the aperture flanges (see fig. S10-11).

Starting from the top centre, press the finisher into position, slowly working round to the 'A' posts. The use of a rubber windscreen mallet may be necessary.

22. Check that the assembly is seated evenly around the glass then press it firmly into position. Align the holes in the retention plates with the original holes in the 'A' posts and secure in position with self-tapping screws.
23. Check that the finisher is pressed firmly into position around the top and sides of the windscreen.
24. On cars fitted with the stainless steel strip across the bottom of the windscreen (see fig. S10-3, A), remove the lower spacer blocks. Press the lower seal into position, between the glass and body, then secure the strip with self-tapping screws.

On cars fitted with the small brackets across the bottom of the windscreen (see fig. S10-3, B) secure the brackets, ensuring that the inner sections are sitting firmly against the bottom edge of glass. Remove the lower spacer blocks.

25. Test the windscreen for water leaks by applying

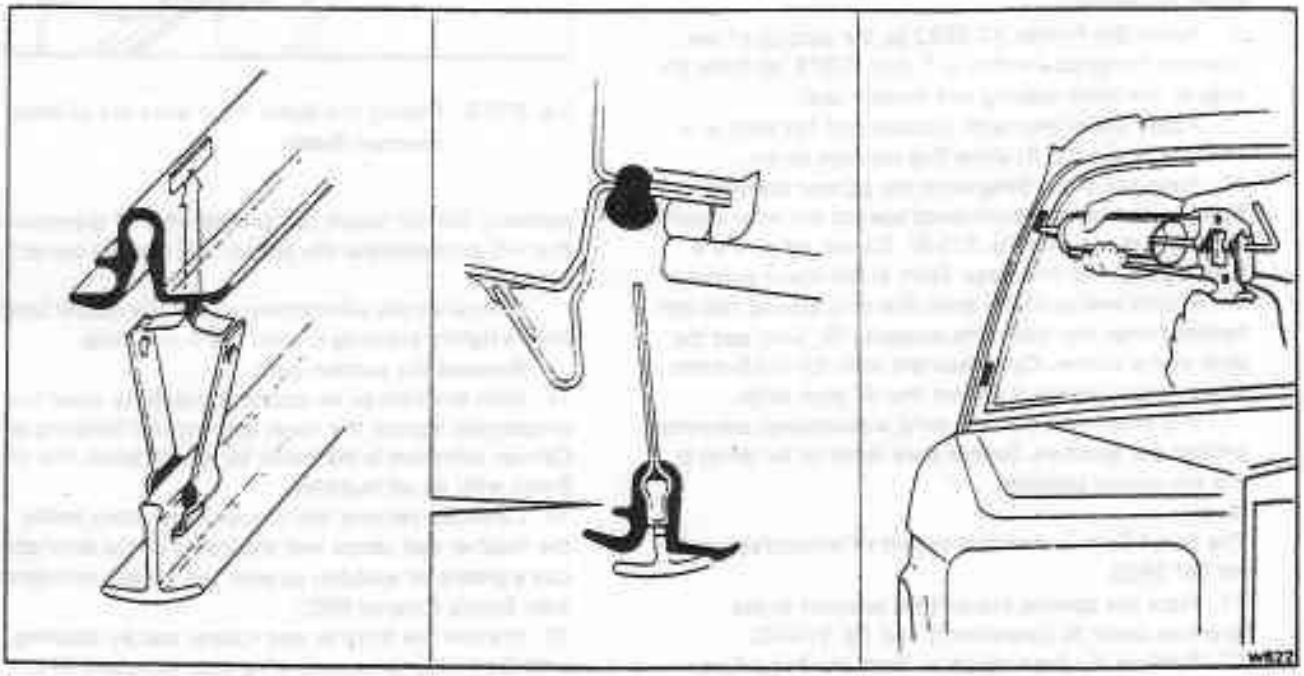

Fig. S10-11 Windscreen retention

water under pressure to the outside of the screen.

If a water leak is detected, carefully note its position, remove the relevant part and start again. For example; if the windscreen seal and finisher are not sealing properly in the recess and the sealing of the retention slots has not been thorough enough, it will be necessary to remove the finisher/seal/retention plate assembly.

If the sealing is satisfactory, fit the trim panels surrounding the windscreen by reversing the procedure given for removal.

Fit the scuttle panel, air intake grilles, windscreen wipers, etc., by reversing the procedure given for removal.

Do not operate the wiper blades with a dry windscreen.

Check that the windscreen wipers operate and park correctly (see Chapter M).

26. Thoroughly clean the windscreen (see Chapter A).

Do not use Acetone or Genklene to clean the windscreen.

Do not use any proprietary brand of window cleaner.

Do not use car polish.

Rear window

Rear window - To remove

Silver Spirit and Bentley Mulsanne, also Silver Spur cars from vehicle identification number *SCAZN42A8BCX02596*

1. Disconnect the battery.
2. Remove the rear seat cushion.
3. Remove the head rests.

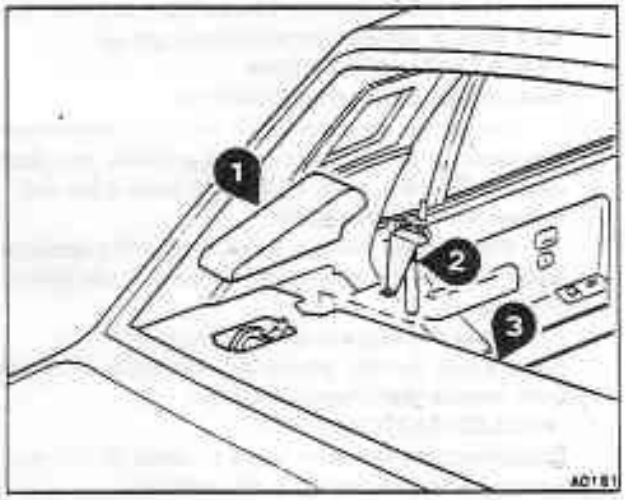

Fig. S11-1 Parcel shelf trim

4. Unclip and remove the seat belt trim covers (see fig. S11-1, item 1).
5. Remove the rear seat squab (see Rear squab - To remove and fit, Section S5).
6. Remove the seat belt anchorage bolts situated on the rear squab panel. Release the webbing from the seat belt pedestals (see fig. S11-1, item 2) and allow the belts to retract into the reel mechanism.
7. Ease the front of the parcel shelf (item 3) slightly upwards and carefully remove.
8. Remove the companions as follows referring to figure S11-2.

   Using a flat bladed tool, carefully ease the front of the companion out of its recess. Release the Lucar connectors, noting their position to ensure correct assembly. Remove the companions.
9. Pull down each grab handle (see fig. S11-2, item 1); release the screws and remove the handles.
10. Remove the flexible outer covers from the coat hooks on the cantrail trim panels (item 2). Release the screws and remove the hooks. On cars fitted with a two-piece cantrail trim panel remove the stainless steel finisher situated underneath the coat hook (see fig. S11-3, item 1).
11. On cars fitted with a one-piece cantrail trim panel proceed as follows (see fig. S11-2).

    Unhook the rubber tensioner (item 3) from the

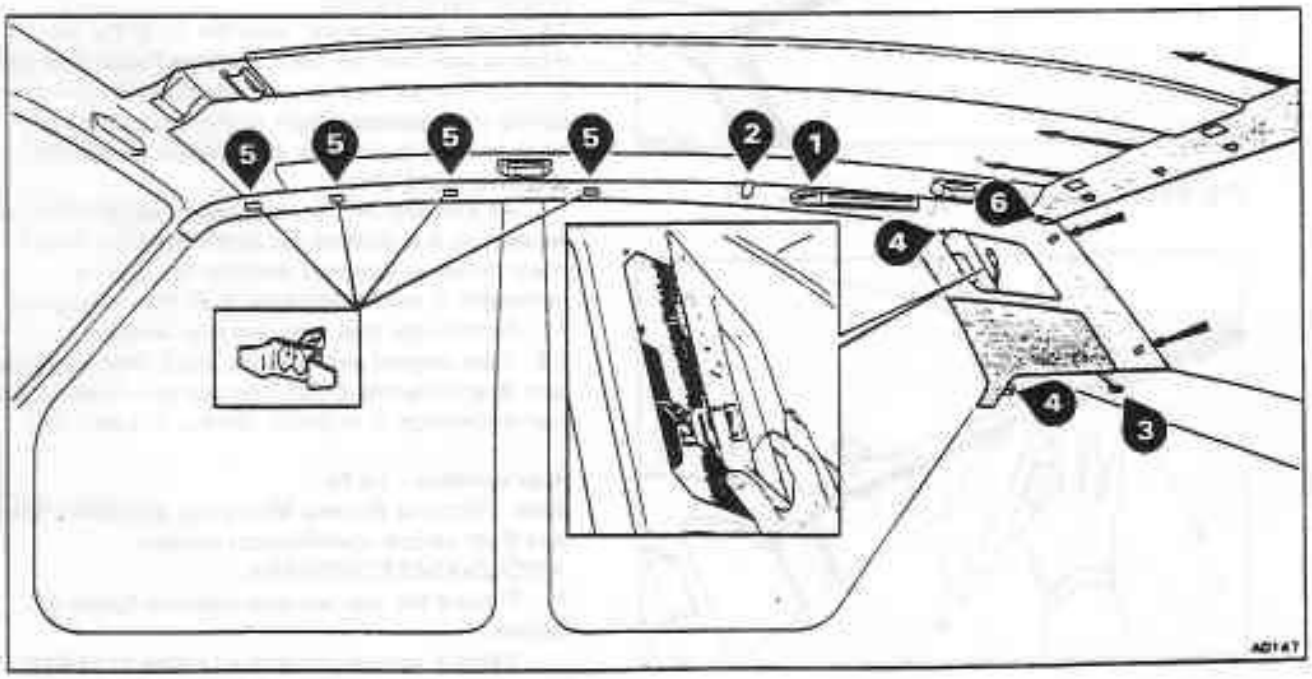

Fig. S11-2 Cantrail/quarter (one-piece)

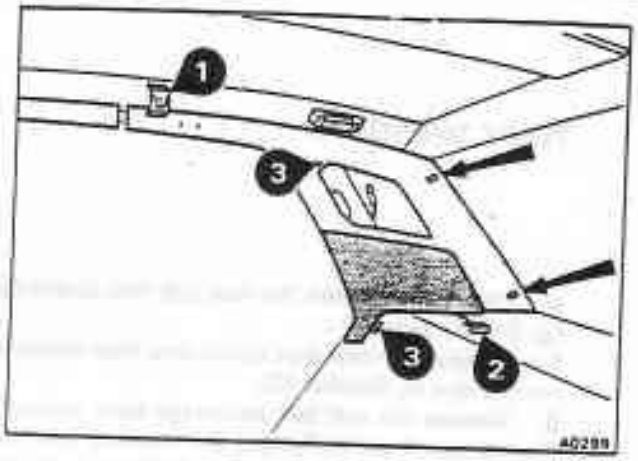

Fig. S11-3 Cantrail/quarter (two-piece)

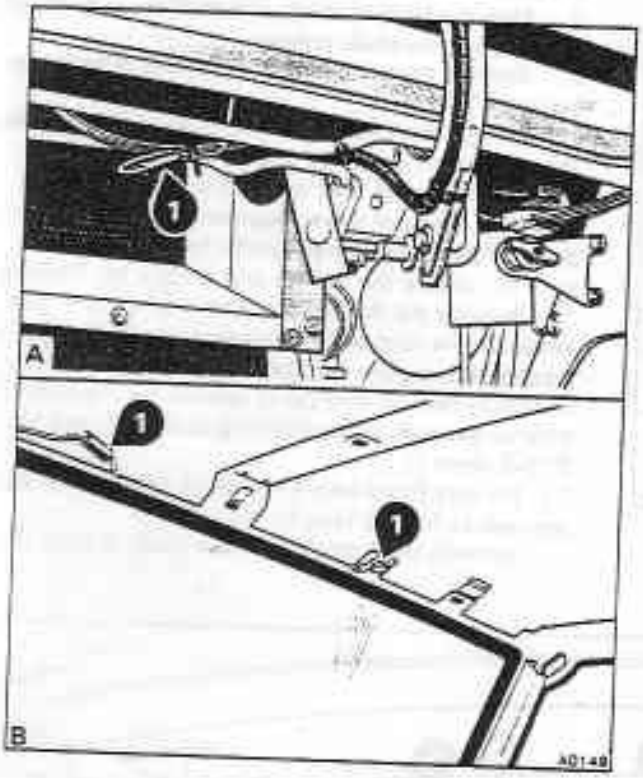

Fig. S11-4 Demister lead connections

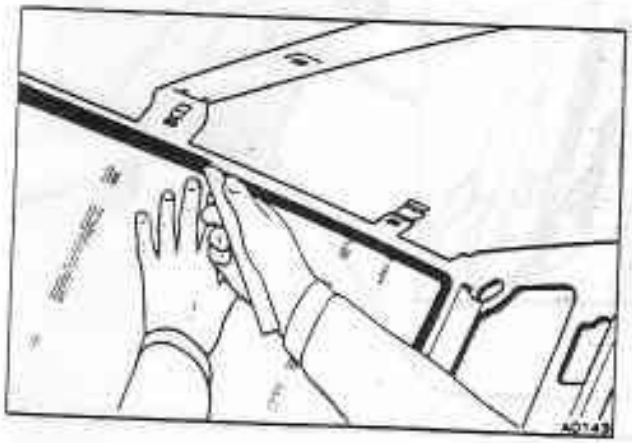

Fig. S11-5 Removing the rear window

parcel shelf. Remove the self-tapping screws (item 4), release the clips (item 5), and pull the panel forwards and downwards to release the brackets at the rear of the panel.

Remove the panel.

On cars fitted with a two-piece cantrail trim panel proceed as follows (see fig. S11-3).

Unhook the rubber tensioner (item 2) from the parcel shelf. Remove the self-tapping screws (item 3), and pull the rear half of the panel forwards and downwards to release the brackets at the rear of the panel.

Remove the panel.

12. Remove the rear header trim panel as follows.

Remove the screw from each end of the panel (see fig. S11-2, item 6). Then, pull the panel forward to disengage the rear retaining brackets.

13. Silver Spirit, Bentley Mulsanne, and Silver Spur cars prior to vehicle identification number *SCAZS42A3FCX12001*

Raise the luggage compartment lid.

Locate the demister leads situated underneath the rear decking panel and release the 'bullet' connectors (see fig. S11-4A, item 1). Cut the cable clips and release the demister leads.

From inside the car, carefully pull the demister leads through the grommets situated in the parcel shelf panel.

Close the luggage compartment lid.

Silver Spirit, Bentley Mulsanne, and Silver Spur cars from vehicle identification number *SCAZS42A3FCX12001*

Disconnect the demister leads situated on the rear header panel (see fig. S11-4B, item 1).

14. Protect the paintwork in the vicinity of the rear window with clean felt or a similar material.

15. Using a flat bladed tool, carefully ease the chrome finisher out of the seal.

16. From inside the car, ease the lip of the rear window seal over the body aperture flange (see fig. S11-5). A small steel rule or a similar tool will assist during this operation. Start at the top corners and work towards the centre, simultaneously applying pressure to the glass.

An assistant will be required to support the rear window as it is pushed out of the aperture. Avoid sharp blows as this may damage the glass or paintwork. A steady pressure is all that is required.

17. Remove the seal from the rear window.

18. If the original seal is to be fitted, thoroughly clean with Bostik Cleaner 6001 and examine closely for any sign of damage. If in doubt, always fit a new seal.

Rear window - To fit

Silver Spirit and Bentley Mulsanne, also Silver Spur cars from vehicle identification number *SCAZN42A8BCX02596*

1. Prepare the rear window aperture flange as follows.

Using a scraper, remove all traces of sealing compound. Then, completely remove the black waterproof tape from the flange.

Thoroughly clean the flange using a lint free cloth moistened with Bostik Cleaner 6001 and allow to dry.

Apply a layer of black waterproof tape to the aperture flange (see fig. S11-6 inset A, item 3). The tape should be turned over the edge of the flange for approximately 12,70 mm (0.50 in).

2. Rest the rear window, external surface uppermost, on a suitable working surface. Ensure that the surface has been covered with a layer of thick felt or similar material.

If the original window is to be fitted, ensure that all traces of sealing compound are removed.

3. If a new seal is to be fitted, proceed as follows.

Fit the seal to the glass and mark the position of the two demister leads.

Remove the seal, then drill two 3,17 mm (0.125 in) clearance holes through the rubber (see fig. S11-6 inset B).

4. Fit the seal, threading the demister leads through the holes in the rubber.

5. Apply a small amount of Palm grease, or its equivalent, to the chrome finisher.

Position the finisher centrally then, press it into its aperture starting in the centre and working outwards.

6. Turn the window over so that the internal surface is uppermost. Then, thread a length of cord around the inside lip of the seal (see fig. S11-6 inset A, item 1). Leave a loop in the cord at the bottom of the window and overlap the two ends of the cord at the top (see fig. S11-6). Secure the loose ends of the cord and the demister wires to the glass with masking tape.

7. Using a sealant cartridge gun, run a continuous 6 mm (0.236 in) bead of Arbomast Autograde Sealant or Seelastik around the window aperture flange (see fig. S11-6, item 2).

8. With the help of an assistant, position the glass/seal assembly with the bottom edge seated in the aperture. Using a rubber mallet, apply several sharp blows around the seal/finisher area starting in the centre of the top edge. The window should then be seated inside the aperture.

9. From inside the car, remove the masking tape securing the cord and demister leads.

10. With the help of an assistant pressing on the outside of the window, carefully pull the looped cord at the bottom of the window so that the seal is drawn over the aperture flange (see fig. S11-7). Pull the cord alternatively to the right and left, along the bottom of the window and half-way up each side. Similarly, carefully pull each end of the cord along the top of the window until the cord is completely removed.

Ensure that the seal is fitted over the flange at all points around the aperture.

11. From outside the car, check that the seal/finisher is seated flush with the body. If necessary apply further pressure with a rubber mallet.

12. Carefully ease back the seal and insert the nozzle of a sealant cartridge gun between the seal and the window. Then, apply a continuous bead of Arbomast Autograde Sealant or Seelastik into the glass channel as shown in figure S11-8.

13. Remove any excess sealant from the inside and outside of the window with Bostik Cleaner 6001.

14. Connect the demister leads.

15. Test the window for leaks by applying water under pressure.

If the sealing is satisfactory, fit the trim by reversing the procedure given for removal.

Rear window - To remove

Silver Spur cars prior to vehicle identification number *SCAZN42A8BCX02596*

1. Disconnect the battery.
2. Remove the rear seat cushion.
3. Remove the head rests.
4. Unclip and remove the seat belt trim covers (see fig. S11-1, item 1).
5. Remove the rear seat squab (see Rear squab - To remove and fit, Section S5).
6. Remove the seat belt pedestals (see fig. S11-1, item 2).
7. Remove the seat belt anchorage bolts situated on

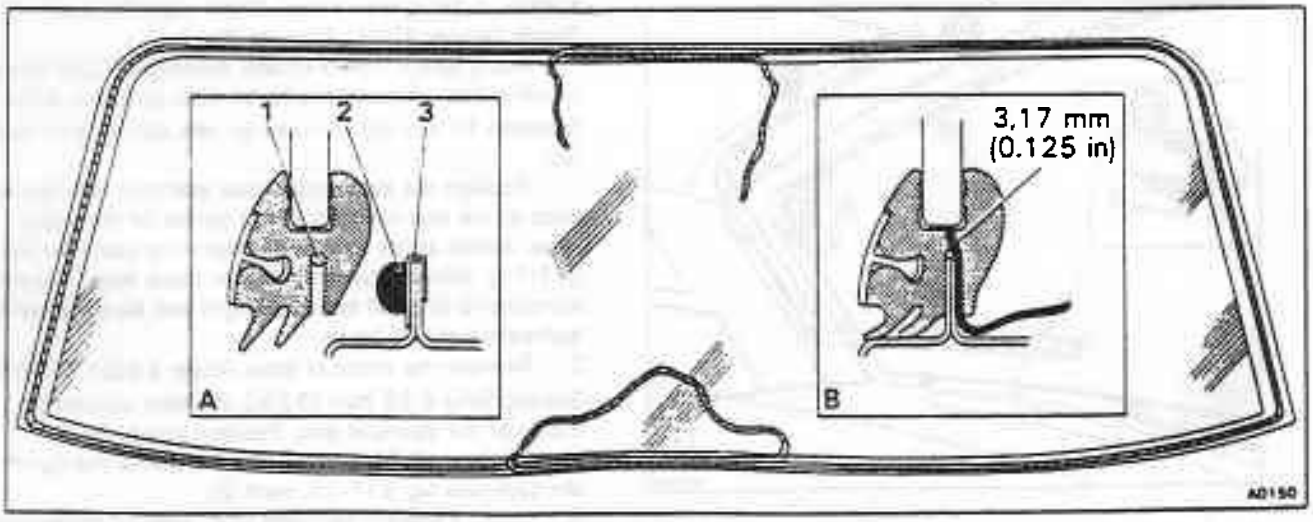

Fig. S11-6 Position of cord and sealing arrangement

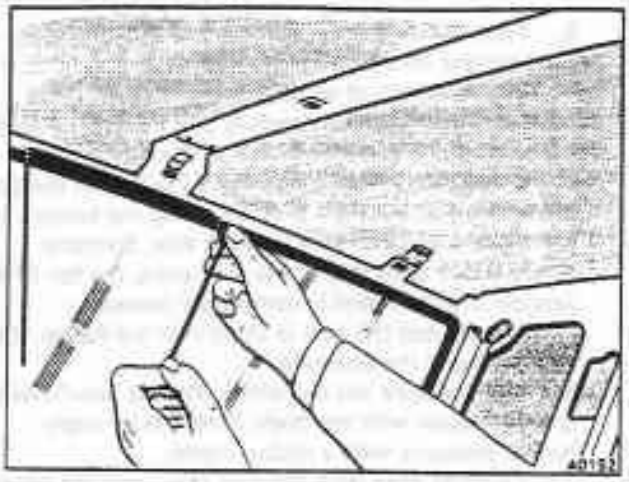

Fig. S11-7 Fitting the rear window

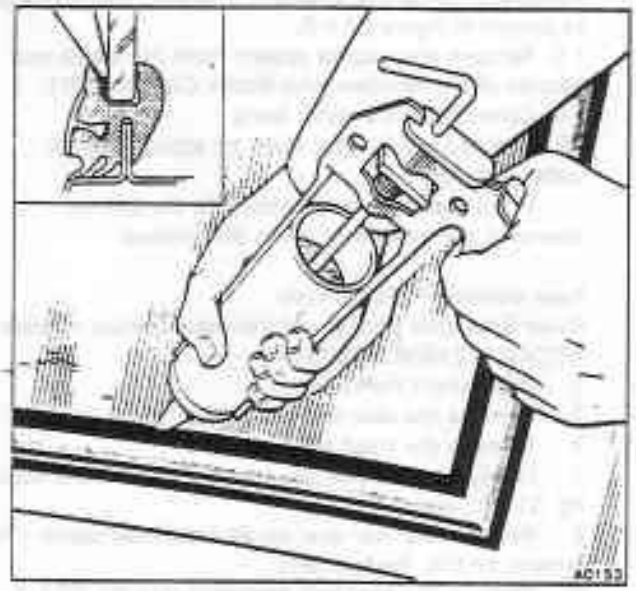

Fig. S11-8 Applying sealant between the rubber seal and the glass

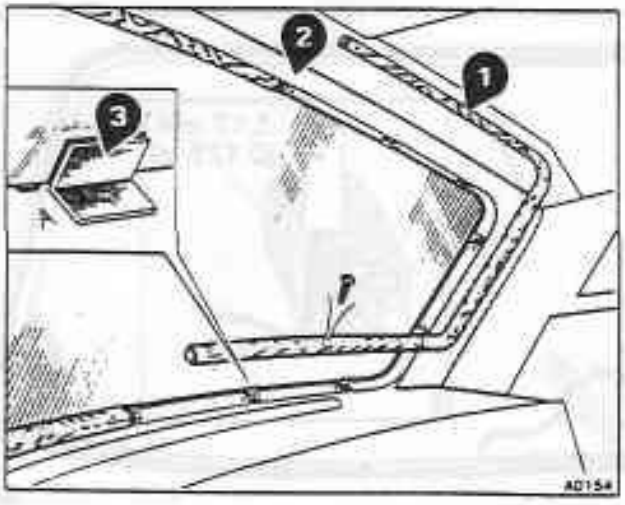

Fig. S11-9 Rear window interior trim

the rear squab panel. Allow the belts to retract to the reel mechanism.

8. Ease the front of the parcel shelf slightly upwards and carefully remove.

9. Remove both halves of the polished wood window surround (see fig. S11-9, item 1).

10. Unclip and remove the rear window trim panel (see fig. S11-9, item 2).

11. Raise the luggage compartment lid.

Locate the demister leads situated underneath the rear decking panel and release the 'bullet' connectors (see fig. S11-4A, item 1). Cut the cable clips and release the demister leads.

From inside the car, carefully pull the demister leads through the grommets situated in the parcel shelf panel.

Close the luggage compartment lid.

12. Prior to removing the glass retaining brackets (see fig. S11-9, item 3), individually mark each one to ensure they are fitted in their original positions.

Unscrew and remove the brackets.

13. From outside the car, insert the tip of a small steel rule or similar tool between the seal and the glass (see fig. S11-10). Work the rule carefully around the perimeter of the glass to release the seal, simultaneously applying light pressure to the glass. An assistant will be required inside the car to support the glass as it is freed from the seal.

14. If the original glass is to be fitted, remove all traces of sealant using Bostik Cleaner 6001.

Rear window - To fit

Silver Spur cars prior to vehicle identification number *SCAZN42A8BCX02596*

1. Thoroughly clean the window aperture seal with Bostik Cleaner 6001. If the seal is damaged or perished, renew as follows.

Remove the seal, taking care not to damage the everflex roof material.

Using Bostik Cleaner 6001 remove all traces of sealing compound from the window aperture. Allow to dry.

Using abrasive paper produce a rough bonding surface to the aperture seal. Then, wipe the seal with Bostik Cleaner 6001. Allow to dry.

Apply Bostik Polyurethane Adhesive 3206 to the bonding face of the seal and window aperture. Allow between 10 and 20 minutes for the adhesive to 'flash' dry.

Position the seal around the aperture with the two ends of the seal meeting in the centre of the upper edge. Attach strips of tape to retain the seal (see fig. S11-11). Allow between two and three hours for the adhesive to dry; full bond strength will be achieved in approximately 48 hours.

2. Remove the strips of tape. Apply a bead of Prestik Sealing Strip 6,35 mm (0.250 in) wide around the inside of the aperture seal. Position the bead approximately 9,52 mm (0.375 in) below the lip of the seal (see fig. S11-11, item 2).

3. Using a sealant cartridge gun, apply a continuous bead of Arbomast Autograde Sealant or Seelastik

between the Prestik and the lip of the seal (see fig. S11-11, item 3).

4. From inside the car, place the lower edge of the rear window onto the rubber packing pieces. Centralize the glass then press firmly into position.

5. An assistant will be required to hold the glass in position while the glass retaining brackets are fitted. Ensure that each bracket is fitted in its original position and is complete with a rubber buffer pad (see fig. S11-11, item 4).

6. From outside the car, check that the lip of the aperture seal is flush with the glass. If the lip is turned under at any point, correct this with the careful use of a small steel rule or similar tool.

7. Carefully ease the seal away from the Everflex material. Then, run a continuous thin bead of Seelastik around the aperture between the seal and the Everflex (see fig. S11-11, item 1).

8. Remove any excess sealant from the inside and outside of the window with Bostik Cleaner 6001.

9. Test the window for leaks by applying water under pressure.

If the sealing is satisfactory, fit the trim by reversing the procedure given for removal.

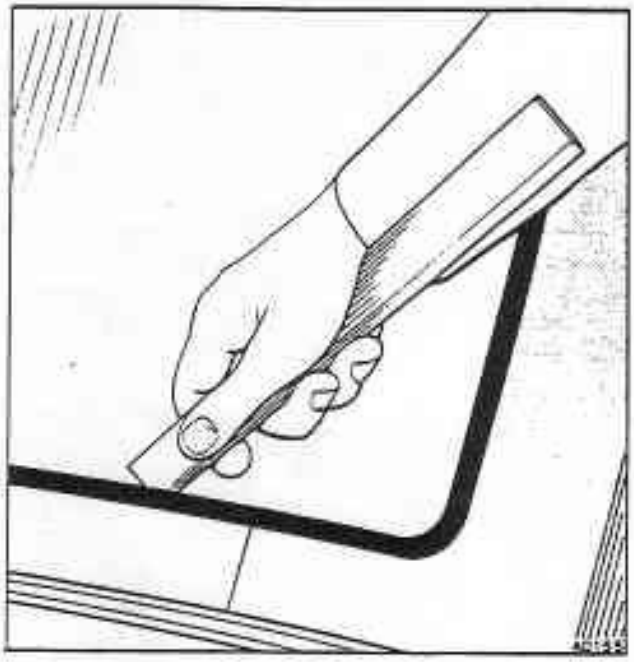

Fig. S11-10 Releasing the rear window from the seal

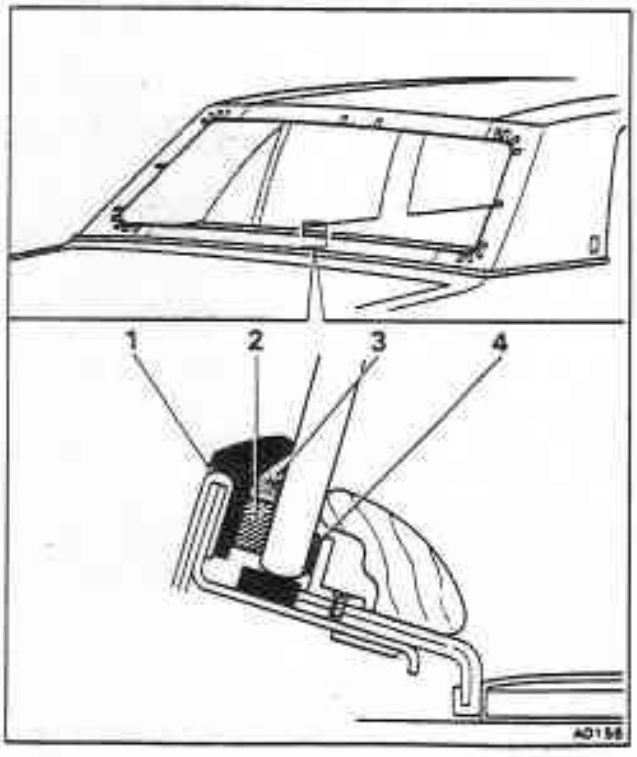

Fig. S11-11 Rear window sealing arrangement

Bonnet

Bonnet - To remove

1. Raise the bonnet.
2. Disconnect the battery.
3. Disconnect the leads to the bonnet lamp at the connections adjacent to the left-hand bonnet hinge (see fig. S12-1, item 2). Note the colour and position of the leads to ensure correct assembly.
4. Cut the clips securing the bonnet lamp loom to the coolant hose (see fig. S12-1, item 3).
5. Mark around the washers of the setscrews securing the bonnet to the hinges. This ensures that the bonnet will be fitted in its original position.
6. With the help of an assistant, remove the setscrews and washers from each hinge. Note that there is an earth bonding strap secured under one of the setscrews (see fig. S12-1, item 1).
7. Remove the bonnet and store safely on felt or similar material to avoid damaging the paintwork.

Bonnet - To fit

Reverse the procedure given for removal noting the following.

1. Ensure that the earth bonding strap is located correctly.
2. After fitting the bonnet, check the bonnet to body clearances (see fig. S12-2). If necessary, slacken the securing bolts and move the bonnet until the correct clearances are obtained. Tighten the setscrews.
3. Check that the bonnet can be opened and closed without difficulty. If necessary, adjust the position of the bonnet catch plates as follows.

Slacken the setscrews securing the two catch plates to the bonnet until they are finger tight. Adjust the position of each plate until the bonnet can be opened and closed without difficulty, then fully tighten the setscrews.

3. *On cars conforming to a North American specification,* ensure that the protrusions on the bonnet retention brackets, align with their respective holes in the brackets situated on the bulkhead.

Bonnet hinges - To remove

1. Remove the bonnet.
2. Using strong wire, carefully pull and release the large coil spring from each hinge.
3. Remove the setscrews and washers securing each hinge to the front wall of the engine compartment. Remove the hinges.

Bonnet hinges - To fit

Reverse the procedure given for removal noting the following.

1. Before fully tightening the setscrews securing the

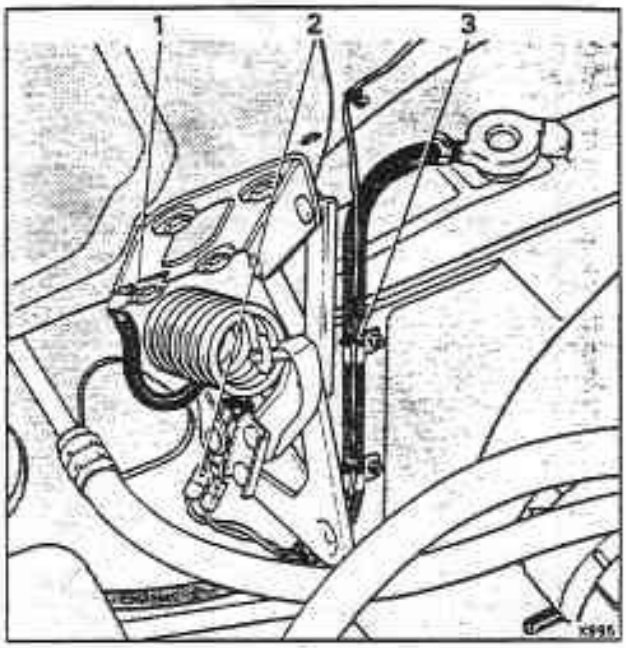

Fig. S12-1 Releasing the bonnet lamp loom
1 Earth bonding strap
2 Connections - bonnet lamp leads
3 Clip - loom to hose

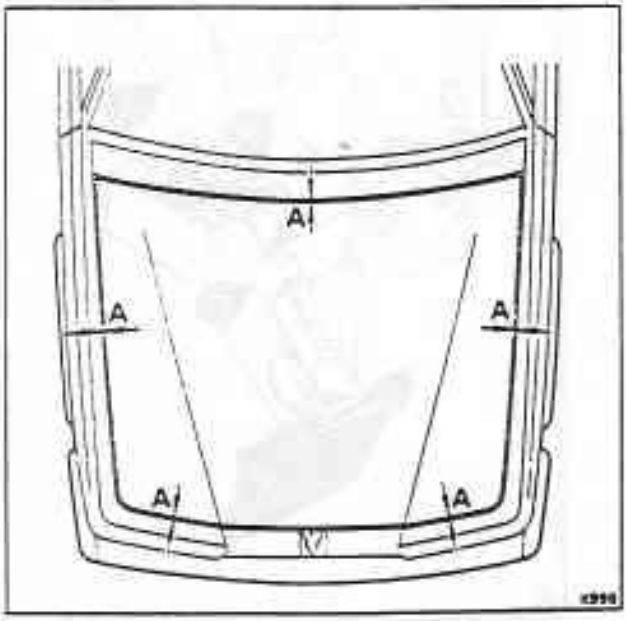

Fig. S12-2 Bonnet clearances
A 3,0 mm to 5.0 mm (0.118 in to 0.197 in)

bonnet to the hinges, ensure that the bonnet to body clearances are correct (see fig. S12-2). Also ensure that the bonnet will open and close satisfactorily (see Bonnet - To fit).

Bonnet catch mechanism - To remove and fit (see fig. S12-3)

1. For easier assembly, scribe the profile of the bonnet catch mounting brackets onto their adjacent

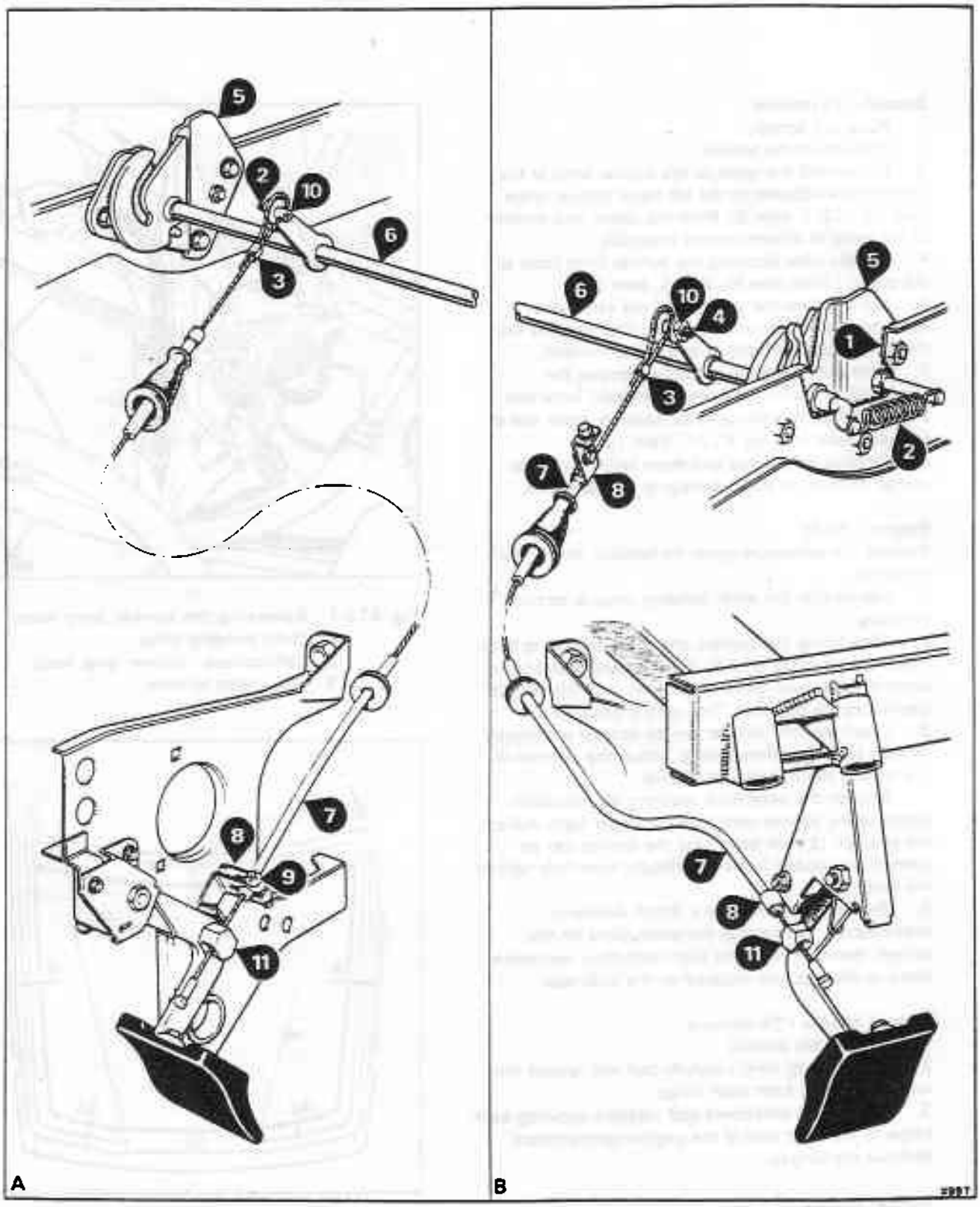

Fig. S12-3 Bonnet operating mechanism
A Left-hand drive cars
B Right-hand drive cars

guide plates (see fig. S12-3, item 1).
2. Remove the toggle spring from each end of the countershaft (item 2).
3. Unclip the looped end of the bonnet release cable (item 3) then using pliers, straighten the wire.
Slacken the grub screw (item 4) and release the wire.
4. Remove the setscrews and washers securing the guide plates to the mounting brackets. Note the position and number of the windscreen wiper motor suppressors and earth bonding strap when removing the guide plates.
5. Remove the guide plates (item 5) from the countershaft.
6. Carefully feed the countershaft (item 6) under the wiper motor driving link and remove from the countershaft support bracket.
7. To fit the catch mechanism, reverse the procedure given for removal noting the following.
If the operating wire is disconnected from the countershaft, **do not** attempt to close the bonnet until the wire has been fitted and set.

Bonnet catch operating wire - To remove (see fig. S12-3)

1. Release the wire from the countershaft (see Bonnet catch mechanism - To remove and fit; Operation 3).
2. Remove the lower trim panel (see Section S7).
3. Thread the wire through the outer cable and remove.
4. If necessary, remove the outer sheath cable (item 7) by releasing the nuts and washers from the retaining bracket. Withdraw the cable.

Bonnet catch operating wire - To fit (see fig. S12-3)

1. Check that the bonnet operating handle pivots freely. Also, check that the spring returns the handle to its stop, each time the handle is pulled.
2. Ensure that the correct outer sheath cable securing clip is fitted (item 8). On left-hand drive cars, the clip is secured to the cable using an M4 screw, nut, and washer (item 9).
3. Feed the outer cable into position. Carefully press the grommets into place.
4. On left-hand drive cars, fit the outer cable securing clip to the steering column support bracket using an M5 nut and washer. Do not tighten at this stage.
On right-hand drive cars, fit the outer cable to the support bracket using a ¼ in UNF screw and nut. Do not tighten at this stage.
5. Lightly smear the inner operating wire with Rocol MTS 1000 grease or its equivalent. Feed the wire through the pivot on the handle and then through the outer sheath cable.
6. Align the cable clip assembly with the pivot on the handle. Tighten the respective nut.
7. Position a piece of 6.35 mm (0.250 in) diameter bar in the guide plate and countershaft locking cam to

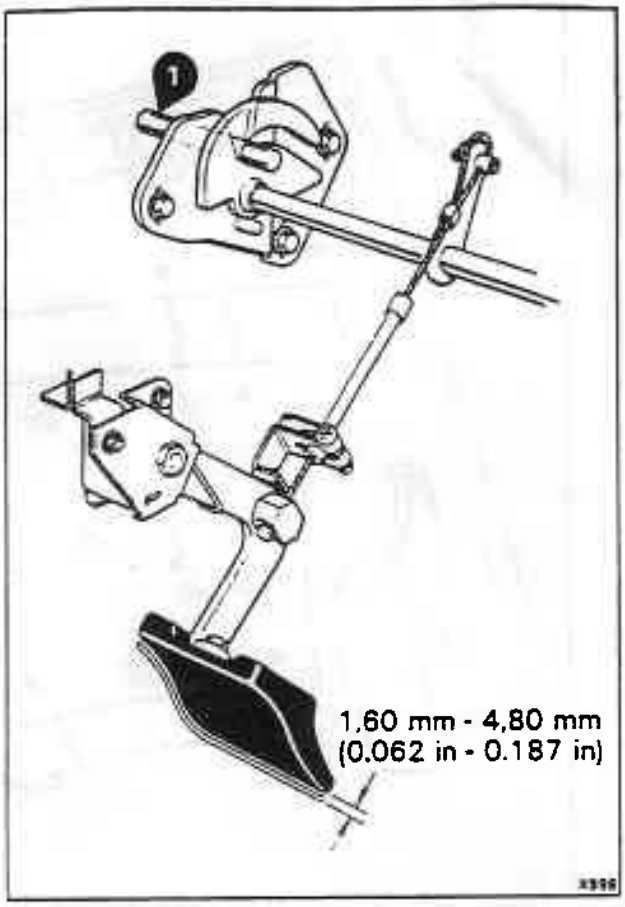

Fig. S12-4 Setting the bonnet catch operating mechanism

represent the bonnet closed position (see fig. S12-4, item 1). Move the countershaft to the closed position.
8. Push the wire retainer (see fig. S12-3, item 10) through the countershaft lever. Thread the operating wire through the hole in the retainer until the swaged end of the wire fits into the pivot of the handle (item 11).
9. Tighten the socket headed grub screw (item 2) into the wire retainer. Ensure that there is between 1,6 mm and 4,8 mm (0.062 in and 0.187 in) of horizontal free movement in the operating handle. This movement is between the lever resting on its rubber stop and when it starts to open the cam (see fig. S12-4).
10. Loop the excess wire and clip into position approximately 38 mm (1.50 in) from the wire retainer.
11. Remove the setting bar and operate the bonnet release lever. Check that the countershaft moves to the unlocked position, and that the operating handle returns to its stop when released.
12. Close the bonnet. Check that the operating cams on the countershaft are fully engaging the bonnet catch plates. If necessary, reset the catch plates.

Bonnet seals - To remove and fit

1. Carefully prise the large and small sectioned seals from the bonnet flanges.
2. When fitting the large sectioned seal, start at one

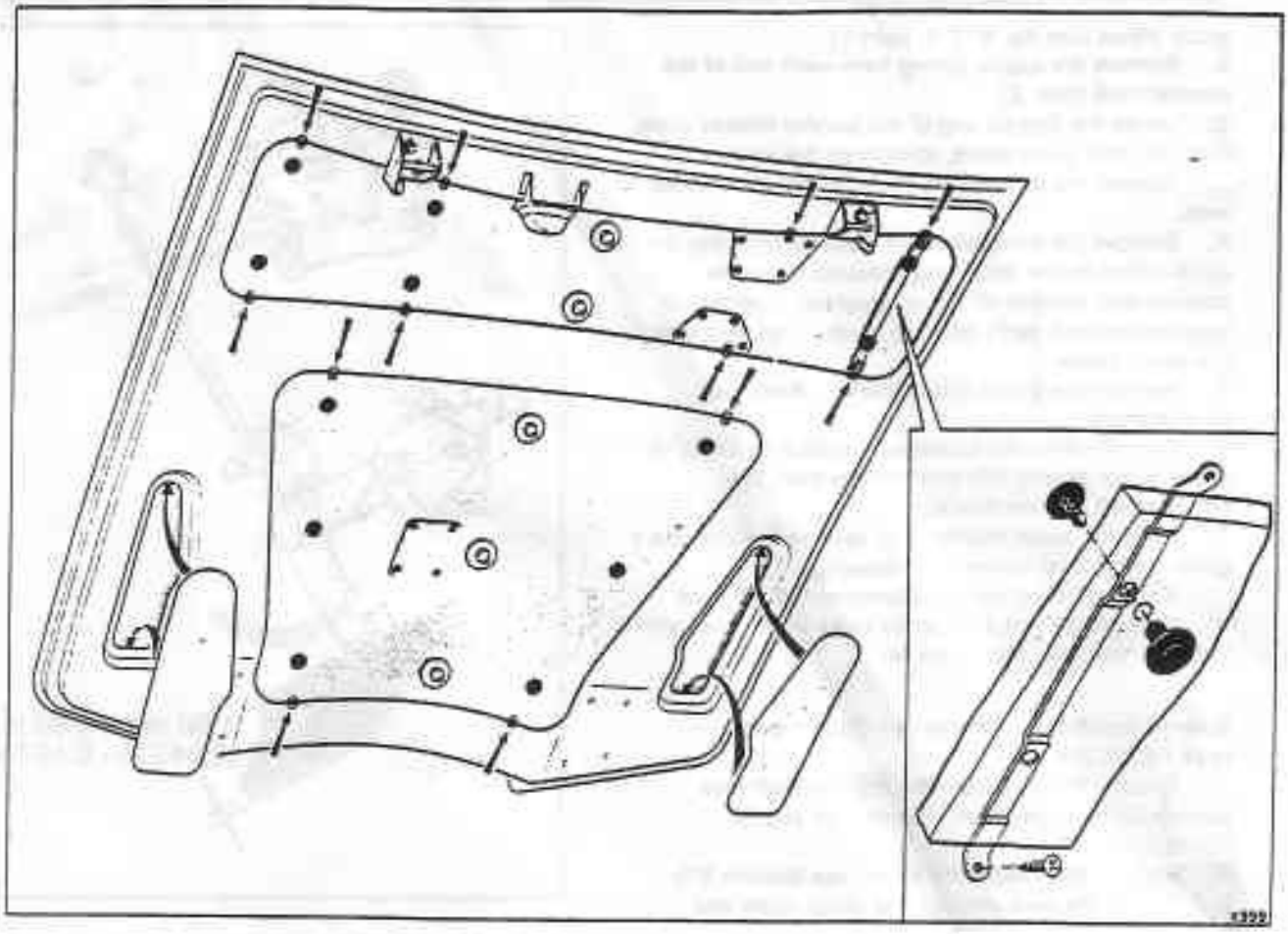

Fig. S12-5 Bonnet pads

of the corners and work the seal across the rear flange. Tap into position using a small leather or rubber mallet. Ensure that the corners are correctly positioned, then fit the side sections.

3. Press the small seals into position around the front and sides of the bonnet flange.

Bonnet pads - To remove (see fig. S12-5)

1. Pull and release the small pads situated in the recesses of the bonnet front corners.
2. Release the self-tapping screws securing the rear and centre bonnet pads.
3. Remove the domed nuts and large washers from the centre of the large pads.
4. If replacing the bonnet pads, release the metal retaining straps. Note their positions for easier assembly.

Bonnet pads - To fit (see fig. S12-5)

Reverse the procedure given for removal noting the following.

1. When fitting new bonnet pads, check the specification of the car to ensure that the correct pads are obtained.
2. Fit the retaining straps to the pads. Ensure that they are fitted exactly as they were on the old pad to match the screw holes in the bonnet.
3. On the rear pad, loosen the bonnet lamp retaining screws to enable the pad to be slipped partly behind the lamp bracket.

Secure the pad with the self-tapping screws and tighten the bonnet lamp.

Luggage compartment lid

Contents

Luggage compartment lid

Carpet and trim panels - To remove and fit (see fig. S13-1)

1. Disconnect the battery.
2. Remove both outer trim panels (item 1).
3. Unscrew and lower the centre trim panel (item 2), then disconnect the luggage compartment lamp leads. Note the position of the leads to ensure correct assembly.
4. Remove the hinge cover trim (item 3).
5. Remove the plastic edge trim, if fitted (item 4).
6. If it is necessary to renew the carpet proceed as follows.

Remove the carpet.

Using a scraper, remove any excess adhesive from the luggage compartment lid. Clean the bonding surface of the lid using a lint free cloth moistened with Bostik Cleaner 6001.

Thoroughly stir the Apollo Adhesive AX 2344. Then, apply the adhesive evenly to the underside of the carpet and to the luggage compartment lid inner panel. Allow five minutes for the adhesive to 'flash' dry. Ensure that the carpet is correctly aligned before pressing firmly into position.

Warning

Both adhesive and cleaner are classified as **highly flammable**, for guidance on their use see Section S2.

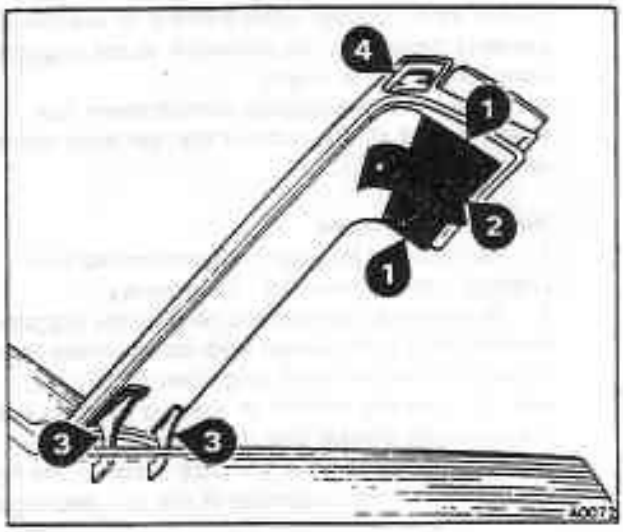

Fig. S13-1 Carpet and trim panels

Luggage compartment lid - To remove

1. Disconnect the battery.
2. Remove the hinge cover trim (see fig. S13-1, item 3).
3. Remove the luggage compartment front trim panel (see Carpet and trim panels - To remove, Section S9).
4. Disconnect the loom connectors (see fig. S13-2, item 1) situated in the hinge mounting area and manoeuvre them clear of the hinge mounting brackets.
5. Cut the cable ties securing the looms to the luggage compartment lid hinges (see fig. S13-2, item 2). Discard the ties.
6. Before releasing the setscrews securing the luggage compartment lid to its hinges, scribe location marks around the hinges. This will ensure the correct position of the lid during assembly.
7. With the help of an assistant, remove the setscrews and washers securing the lid to each hinge. Note the position and quantity of any shims situated between the hinges and the luggage compartment lid.
8. Remove the lid and store it safely on thick felt or a similar material to avoid damage to paintwork.

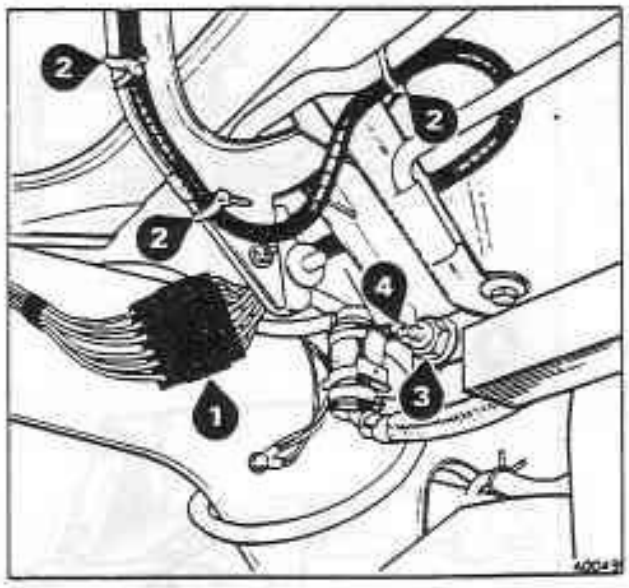

Fig. S13-2 Left-hand hinge mounting

Luggage compartment lid - To fit

Reverse the procedure given for removal noting the following.

1. Before tightening the setscrews securing the lid, align the marks made during removal.
2. Carefully mark the position of the lock catch (see fig. S13-3, item 4) before removing it. This ensures that the lid cannot jam in the closed position.
3. Prior to fitting the hinge cover trim, carefully close the lid and check that the clearances between the lid and the body are equal. Adjust if necessary, then

tighten the setscrews securing the luggage compartment lid.

4. Fit the lock catch. Check that the lid can be opened and closed without difficulty and that the lid is flush with the top of the rear wing panels when closed. If necessary, adjust the lock catch until this is achieved.

5. Ensure that the overtravel stops (see fig. S13-3, item 5) are positioned to give approximately 2,0 mm (0.078 in) of luggage compartment lid overtravel. This prevents damage to the paintwork as the luggage compartment lid is closed.

6. Check that the luggage compartment lock solenoids and all the bulbs in the rear lamp clusters operate correctly.

Hinges - To remove

1. Remove the luggage compartment lid (see Luggage compartment lid - To remove).

2. Release the lock-nut and remove the luggage compartment lamp switch from its mounting bracket situated on the left-hand hinge (see fig. S13-2, item 3). Note the number of spacing washers between the mounting bracket and the switch.

3. Carefully prise open the clips securing the hinge torsion bars to the underside of the rear decking panel.

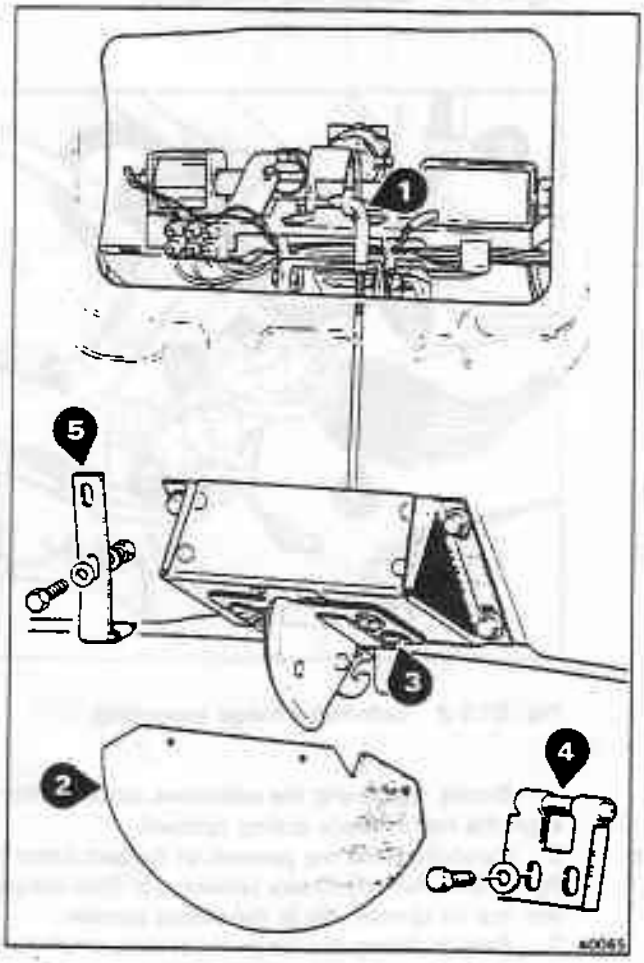

Fig. S13-3 Catch mechanism

4. Remove the setscrews and washers that secure the hinges to the body. Note that a bracket is secured under one of the setscrews on the left-hand hinge (see fig. S13-2, item 4).

5. Remove the hinges.

Hinges - To fit

Reverse the procedure given for removal noting the following.

1. Ensure that the hinge setscrews are replaced in their original positions. The shorter 'Allen' setscrews fit closest to the luggage compartment lid.

2. Check that the correct number of spacing washers are replaced between the switch and the mounting bracket.

Seal - To remove and fit

1. Carefully pull out a section of the seal and progressively remove it from its retaining channel.

2. To fit the seal, start by applying a light coating of Palm Grease, or its equivalent, to the base section of the seal.

3. Loosley fit the moulded corners of the seal into position on the luggage compartment lid (see fig. S13-4).

4. Ensure that the seal is positioned with the narrower fitting flange upwards (see fig. S13-4, inset A).

5. Starting at a central position below the lock catch mechanism, carefully press the seal into the retaining channel. A wooden or perspex wedge shaped tool with smooth edges will assist during this operation.

Care must be taken not to stretch the seal when fitting or to damage the paintwork.

Catch mechanism - To remove (see fig. S13-3)

1. Disconnect the battery.

2. Unscrew and lower the centre trim panel (see fig. S13-1, item 2). Disconnect the luggage compartment lamp leads. Note the position of the leads to ensure correct assembly.

3. Disconnect the catch mechanism control rod (item 1) from the release lever.

4. Unscrew and remove the catch mechanism shield, if fitted (item 2).

5. Mark the position of the catch mechanism on its mounting bracket. This ensures that it will be fitted in its original position.

6. Remove the four screws (item 3) and washers securing the catch mechanism.

7. Withdraw the catch mechanism/control rod assembly from the luggage compartment lid.

8. Disconnect the control rod from the catch mechanism.

Catch mechanism - To fit (see fig. S13-3)

Reverse the procedure given for removal noting the following.

1. Where control rods have been removed from their retaining bushes, always fit new Fastex bushes. This will ensure that the rods are correctly secured.

2. Prior to tightening the screws securing the catch,

align the marks made during removal.

3. Before closing the luggage compartment lid, check that the catch is released when the handle is operated (see Lock mechanism - To set).

Lock mechanism - To remove and dismantle (see fig. S13-5)

Cars prior to vehicle identification number *SCAZS42A3FCX12001*

1. Disconnect the battery.
2. Unscrew and lower the centre trim panel (see fig. S13-1, item 2). Disconnect the luggage compartment lamp leads. Note the position of the leads to ensure correct assembly.
3. Disconnect the catch mechanism control rod (item 1) from the release lever.
4. Drill out the three pop rivets (item 2) securing the release handle. Remove the retaining plate, handle, and seal.
5. Disconnect the electrical leads (item 3) at the terminal block. Note the colour and position of the leads to ensure correct assembly.
6. Release the loom from the clip situated on the lock mounting bracket (item 4).
7. Remove the two bolts (item 5), nuts, and washers that secure the lock mechanism. Carefully withdraw the mechanism from the luggage compartment lid.
8. Remove the release lever springs (item 6). Unscrew the securing nut and remove the private lock unit (item 7).
9. Remove the Starlock washer (item 8) from the actuator spigot. Manoeuvre the actuator (item 9) clear of the guide bracket and release lever pins.
10. Disconnect the solenoid leads from the terminal block, noting their position to ensure correct assembly.
11. Remove the solenoid mounting screws and washers then withdraw the solenoid/connecting link assembly (item 10). The solenoids can then be separated from the connecting link by removing the roll pins.

Lock mechanism - To assemble and fit (see fig. S13-5)

Cars prior to vehicle identification number *SCAZS42A3FCX12001*

Reverse the procedure given for removal noting the following.

1. To ensure the correct operation of the lock mechanism, a new Starlock washer (item 8) and private lock sealing rings (item 12) should be used on assembly.
2. Before securing to the lock mounting bracket, align the solenoids to give unrestricted movement of the connecting link.
3. With the actuator in the unlocked position, place a 0,20 mm (0.007 in) feeler gauge between the release lever stops and the lock mounting bracket (see fig. S13-7, item 1). Locate the Starlock washer (item 2) over the actuator spigot and push it firmly up to the bush in the guide bracket. Remove the feeler gauge.
4. Prior to fitting the mechanism to the luggage compartment lid apply a small amount of Palm Grease, or its equivalent, to the private lock sealing rings.

Having positioned the mechanism check that the

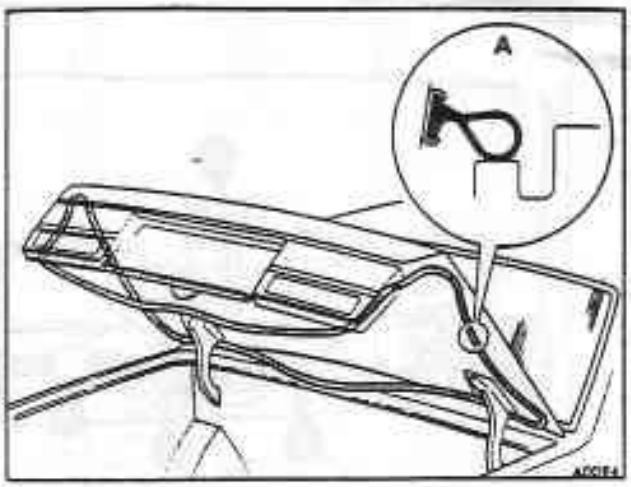

Fig. S13-4 Luggage compartment lid seal

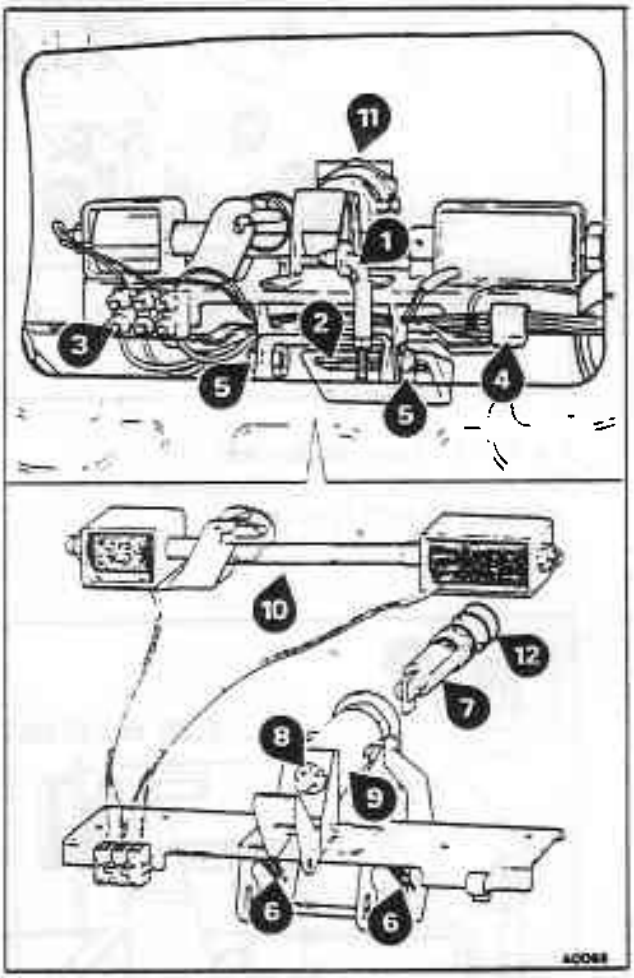

Fig. S13-5 Lock mechanism
Cars prior to vehicle identification number *SCAZS42A3FCX12001*

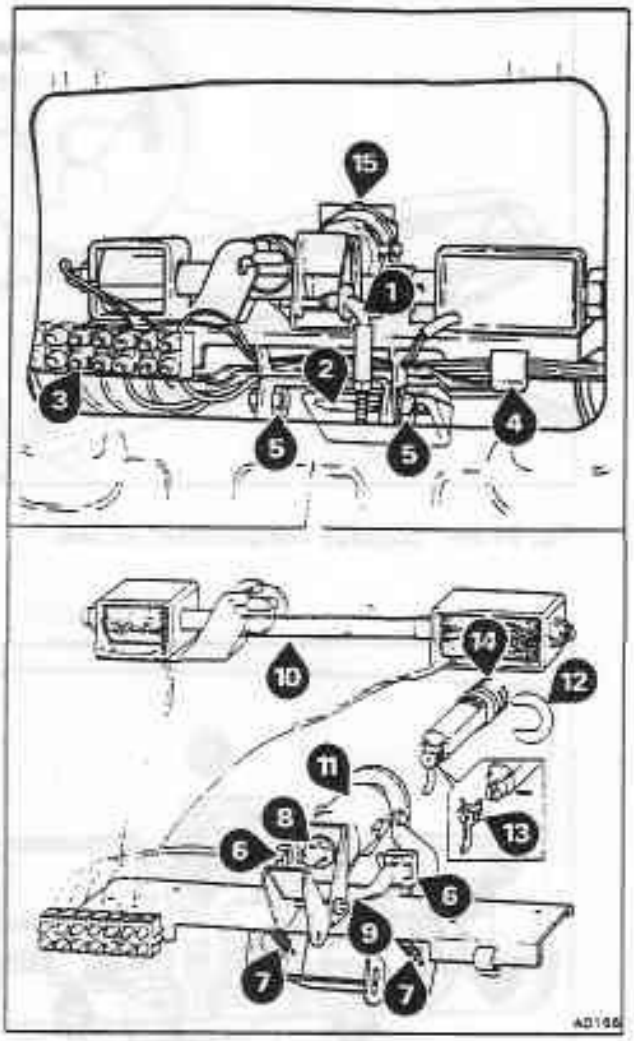

Fig. S13-6 Lock mechanism
Cars from vehicle identification number
SCAZS42A3FCX12001

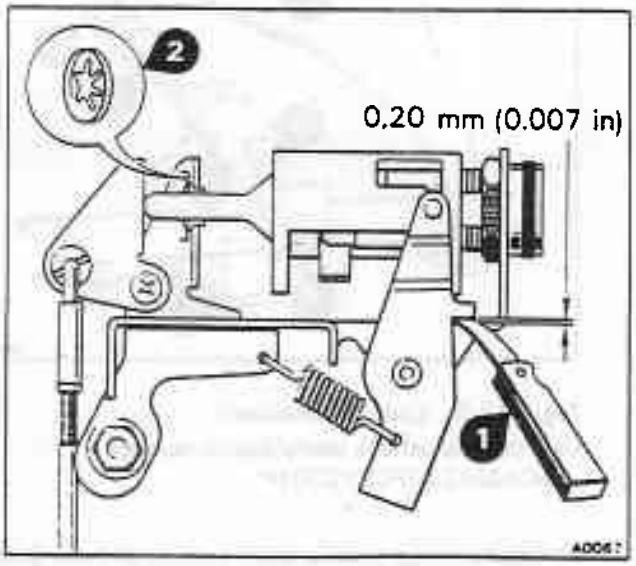

Fig. S13-7 Setting the lock actuator

private lock mounting bracket is firmly seated against the lock-nut (item 11) that secures the hinged lock cover.

5. Before closing the luggage compartment lid, check that the catch is released when the handle is operated (see Lock mechanism - To set).

6. Check that the lock solenoids and luggage compartment lamp operate correctly.

Lock mechanism - To remove and dismantle (see fig. S13-6)

Cars from vehicle identification number
SCAZS42A3FCX12001

1. Disconnect the battery.
2. Unscrew and lower the centre trim panel (see fig. S13-1, item 2). Disconnect the luggage compartment lamp leads. Note the position of the leads to ensure correct assembly.
3. Disconnect the catch mechanism control rod (item 1) from the release lever.
4. Drill out the three pop rivets (item 2) securing the release handle. Remove the retaining plate, handle, and seal.
5. Disconnect the electrical leads (item 3) at the terminal block. Note the colour and position of the leads to ensure correct assembly.
6. Release the loom from the clip situated on the lock mounting bracket (item 4).
7. Remove the two bolts (item 5), nuts, and washers that secure the lock mechanism. Carefully withdraw the mechanism from the luggage compartment lid.
8. Loosen the two screws securing each micro-switch (item 6). Then, remove the switches from the guide bracket lugs.
9. Remove the release lever springs (item 7).
10. Remove the Starlock washer (item 8) from the actuator spigot.
11. Disconnect the solenoid and micro-switch leads from the terminal block.
12. Remove the screws and washers securing the guide bracket (item 9) and the solenoid assemblies. Withdraw the guide bracket clear of the actuator spigot. Then, remove the bracket together with the solenoid/connecting link assembly (item 10) from the lock mounting bracket. The solenoids can then be separated from the connecting link by removing the roll pins.
13. Manoeuvre the actuator (item 11) clear of the release lever pins and drive arm.
14. Remove the circlip (item 12) and withdraw the private lock/drive arm assembly. Tap out the roll pin and remove the drive arm/centralizing spring assembly (item 13).

Lock mechanism - To assemble and fit (see fig. S13-6)

Cars from vehicle identification number
SCAZS42A3FCX12001

1. To ensure the correct operation of the lock mechanism, a new Starlock washer (item 8) and private lock sealing rings (item 14) should be used on assembly.

2. Locate the spring/drive arm assembly into the slot in the private lock unit. Ensure that the spring legs are between the pins protruding from the lock unit. Secure with a roll pin.
3. Fit the private lock to the mounting bracket and secure with a circlip.
4. Using the key, turn the drive arm to approximately 45°. Manoeuvre the actuator into position over the drive arm and release lever pins.
5. Slide the guide bracket into position on the actuator spigot and loosely fasten to the lock mounting bracket.
6. Position the solenoid/connecting link assembly and loosely fasten to the lock mounting bracket. Ensure that the connecting link pin engages with the slot in the actuator. Align the solenoids to give unrestricted movement of the connecting link then, tighten the solenoid mounting screws.
7. Check that the guide bracket is square to the lock mounting bracket and that the actuator spigot slides freely through the guide bracket bush. Tighten the screws securing the guide bracket.
8. Attach the release lever springs.
9. Fit the micro-switch assemblies to the guide bracket lugs. Position the switches so that the drive arm makes contact with the switches when the key is turned approximately 45° from the vertical position, both clockwise and anti-clockwise.

Tighten the screws and check the operation of the drive arm.

10. With the actuator in the unlocked position, place a 0.20 mm (0.007 in) feeler gauge between the release lever stops and the lock mounting bracket (see fig. S13-7, item 1). Locate the Starlock washer (item 2) over the actuator spigot and push it firmly up to the bush in the guide bracket. Remove the feeler gauge.
11. Prior to fitting the mechanism to the luggage compartment lid apply a small amount of Palm Grease, or its equivalent, to the private lock sealing rings.

Having positioned the mechanism, check that the private lock mounting bracket is firmly seated against the lock-nut (item 15).

12. Before closing the luggage compartment lid, check that the catch is released when the handle is operated (see Lock mechanism - To set).
13. Check that the lock solenoids, centralized door locking micro-switches, and luggage compartment lamp are operating correctly.

Hinged lock cover - To remove and fit (see fig. S13-8)

1. Remove the lock mechanism (see Lock mechanism - To remove and dismantle).
2. Unscrew and remove the lock cover securing nut (item 1). Remove the retaining plate (item 2).
3. Remove the lock cover and fibre washer (item 3).
4. When fitting, ensure that the lock cover is positioned vertically on the luggage compartment lid.

Note

To prevent damage to the paintwork, attach a piece of transparent self-adhesive tape to the landing face of the lock cover magnet.

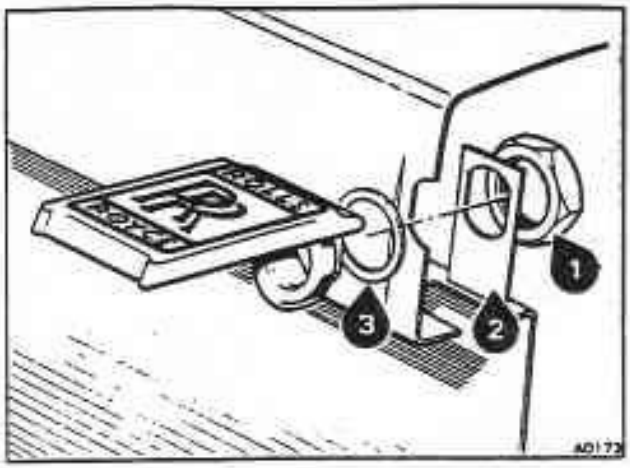

Fig. S13-8 Hinged lock cover

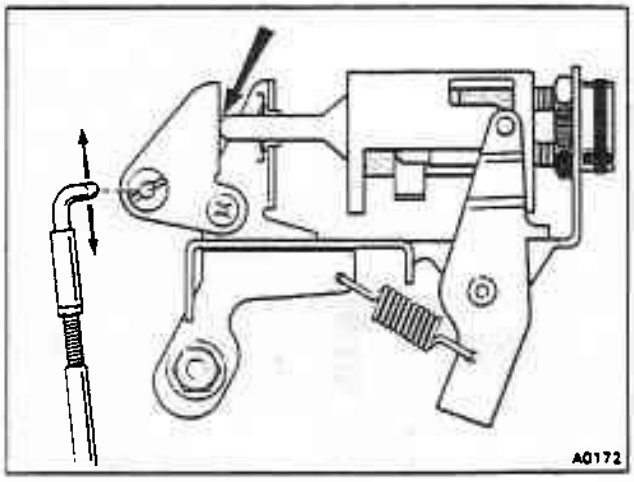

Fig. S13-9 Setting the lock mechanism

Lock mechanism - To set (see fig. S13-9)

With the luggage compartment lid open, depress the release handle and check that the catch mechanism claw is disengaged; allowing it to pivot freely. If the catch does not disengage, adjust the mechanism as follows.

1. Disconnect the catch mechanism control rod from the release lever.
2. With the actuator in the unlocked position and the release lever touching the spigot, loosen the lock-nut. Then, adjust the length of the control rod to coincide with the bush in the release lever.
3. Fit a new Fastex bush to the release lever and connect the control rod, tighten the lock-nut.

Bumpers

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Bumpers

Introduction

The main bumper member comprises of an aluminium beam to which a polished stainless steel finisher is attached.

Fixed to the outer face of the finisher is a black rubber moulding which adjoins to the two moulded sides. This forms a continuous rubber moulding around the entire outer face of the bumper. Situated into the moulding is a stainless steel finisher strip.

From the following vehicle identification numbers a sectional finisher strip was introduced into both the front and rear bumpers.

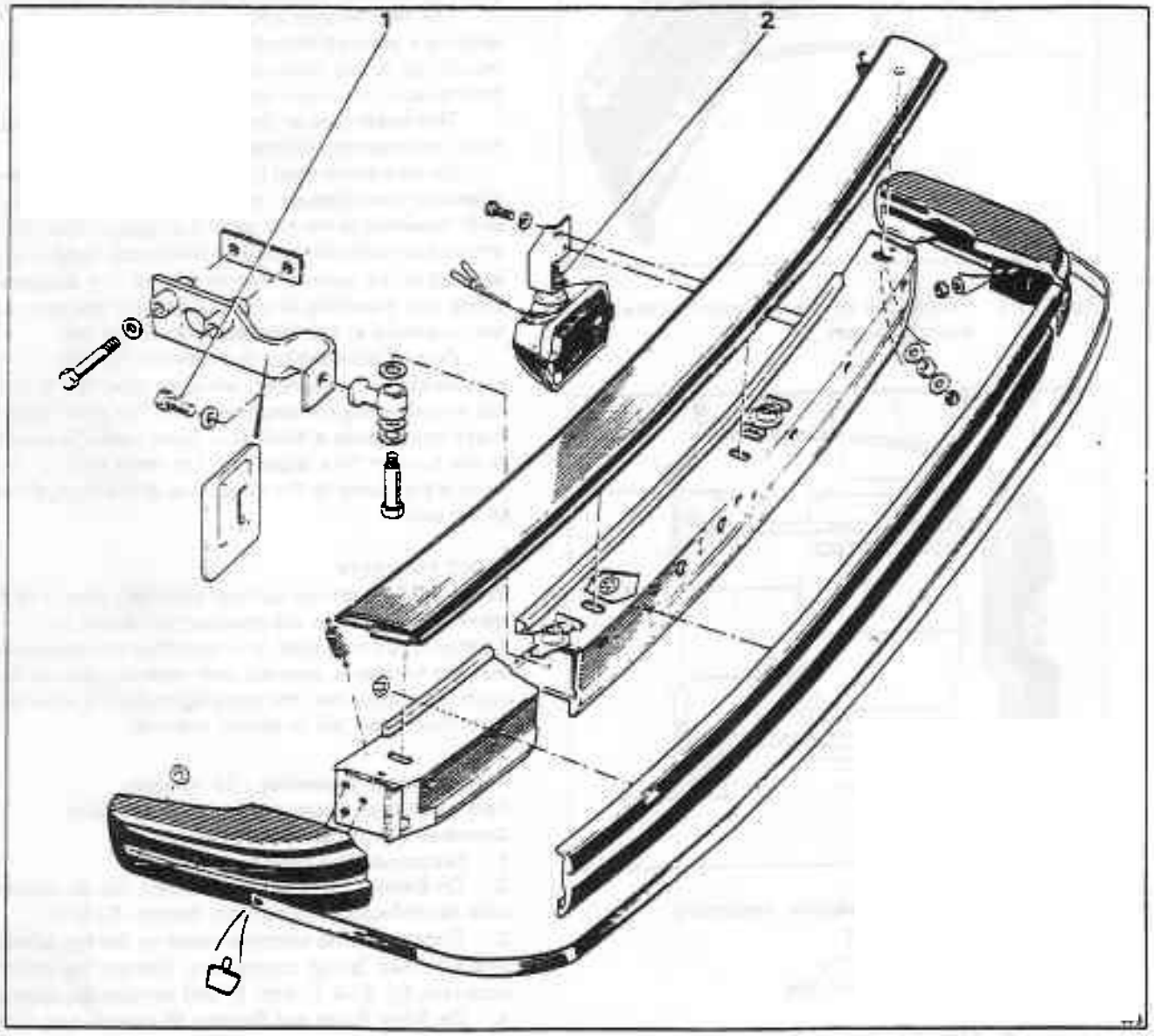

Fig. S14-1 Front bumper assembly

Cars other than those conforming to a Japanese and North American specification

1 Bumper retaining bolt - adapter to mounting bracket

2 Fog lamp retaining nut

Silver Spirit and Bentley Mulsanne (including Turbo) cars from vehicle identification number
SCAZS0000DCH07602 including,
SCAZS42A6DCX06819
SCBZS0T00DCH07459
SCBZS0T06DCH07479
SCAZS000XDCH07560
SCBZS0T07DCX07570
SCBZS0T00DCX07572
SCBZS0000DCH07594
SCAZS0002DCH07598
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SCAZS0007DCH07600

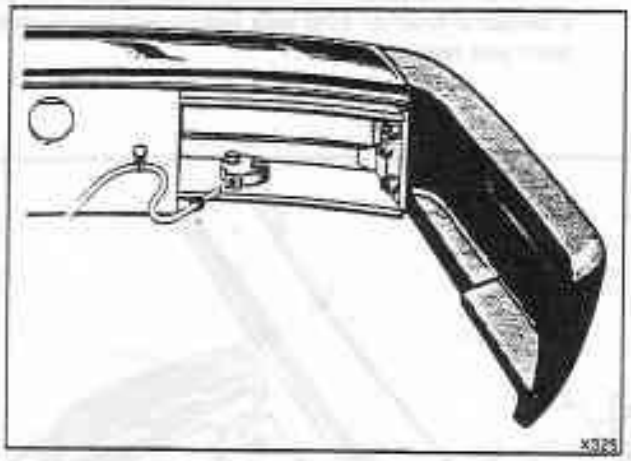

Fig. S14-2 Fitting the ambient sensor to the bumper beam

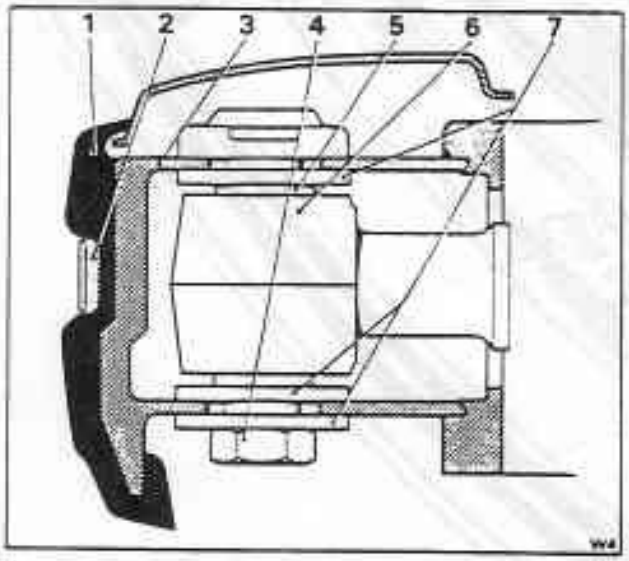

Fig. S14-3 Bumper to adapter mounting arrangement
1 Centre moulding
2 Inseal adhesive tape
3 Beam
4 Mounting bolt
5 Metalastik bush
6 Adapter
7 Washers

Silver Spur cars from vehicle identification number *SCAZN42A9DCX07518* including,
SCAZN42A3DCX07448
SCAZN42A5DCX07452
SCAZN42A0DCX07455
SCAZN42A5DCX07466
SCAZN42A7DCX07467
SCAZN42A2DCX07473
SCAZN42A6DCX07475
SCAZN42A5DCX07476

On cars other than those conforming to a Japanese and North American specification, the front bumper incorporates three separate strips (previously incorporating one).

Cars conforming to a Japanese and North American specification incorporate four separate strips (previously incorporating two).

The rear bumpers incorporate three separate strips (previously incorporating one) for all countries.

The new finisher strips are retained by studs which are secured through the bumper beam and side mouldings. Small stainless steel trim pieces cover the finisher strip abutment joints.

This latest type of finisher strip will be supplied for all replacement purposes.

On cars other than those conforming to a North American specification, the front and rear bumpers are each mounted to the car by two adapters. The outer end of each adapter houses a Metalastik bush which is secured to the bumper by a large bolt. The adapters locate into mounting brackets and these are secured to the longerons at the front and rear of the car.

On cars conforming to a North American specification, the bumpers are each mounted to the car by two energy absorption units. The outer ends of these units house a Metalastik bush which is secured to the bumper by a large bolt. The inner ends of the units are secured to the longerons at the front and rear of the car.

Front bumpers

When working on the bumper assembly care must be taken to ensure that the polished surface of the finisher is not damaged. It is therefore recommended that the finisher is covered with masking tape or linen cloth tape. Also, that the working surface is covered with thick clean felt or similar material.

Front bumper assembly - To remove

Cars other than those conforming to a North American specification (see fig. S14-1)

1. Disconnect the battery.
2. On Bentley Turbo R cars, remove the air deflector (see Air deflector - To remove, Section S15/1).
3. Disconnect the electrical leads to the fog lamps (if fitted) at their 'bullet' connectors. Release the retaining nuts (see fig. S14-1, item 2) and remove the lamps.
4. On Silver Spirit and Bentley Mulsanne cars from vehicle identification number *SCAZS0003CCX05080*, and on Silver Spur cars from vehicle identification number *SCAZN42A8CCX05127*; remove the air

conditioning unit ambient sensor from the lower right-hand side of the bumper beam as follows.

Release the setscrew, washers, and nut retaining the cable tie to the rear face of the bumper. Carefully withdraw the sensor and grommet from the mounting block inside the beam (see fig. S14-2). Secure the sensor lead safely to the lower body panel until the bumper is refitted.

5. If fitted, locate the headlamp power wash hoses situated underneath the bumper finisher and then slacken the securing clips. Disconnect the hoses and remove the clips.
6. With the help of an assistant support the bumper.
7. Remove the bolt securing each of the adapters to the mounting brackets (see fig. S14-1, item 1).
8. Carefully withdraw the bumper assembly from the body.
9. If it is required to remove the bumper assembly

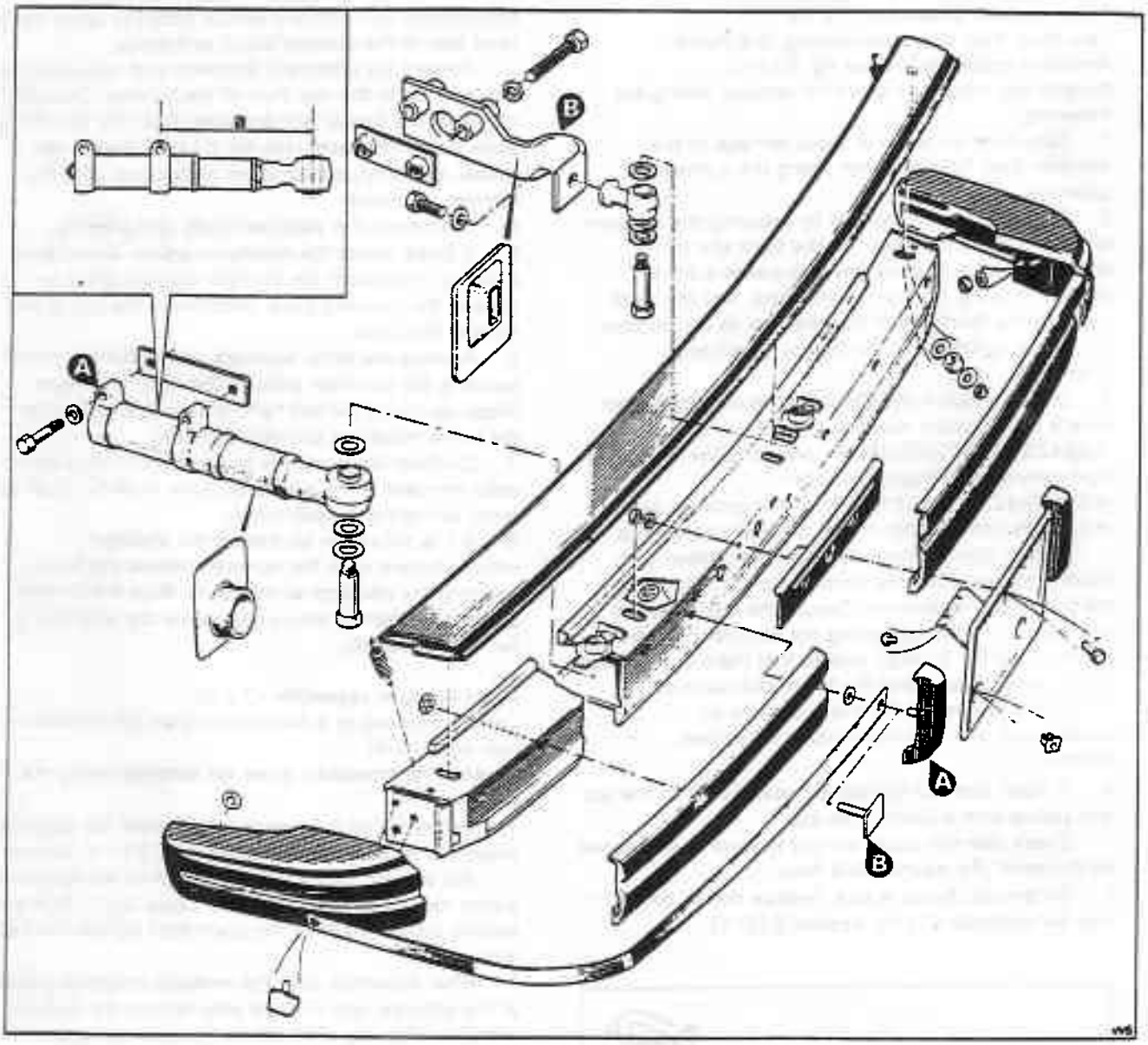

Fig. S14-4 Front bumper assembly

Cars conforming to a Japanese and North American specification

A *North American cars*

a Length of unit measured from the centre of the adapter to the centre of the outer mounting bolt

Length of absorber unit	High limit	–	Low limit
Rolls-Royce cars	205 mm	–	204 mm
	(8.071 in	–	8.031 in)
Bentley cars	232,20 mm	–	231 mm
	(9.141 in	–	9.094 in)

B *Japanese cars*

mounting brackets proceed as follows.
10. Disconnect the electrical leads to the horns.
11. Remove the two bolts securing each bumper mounting bracket to the body longeron. Remove the mounting brackets together with the aperture seals and mounting plates.

When removing the left-hand side mounting bracket, also remove the mounting bracket assembly for the horns.

Front bumper assembly - To fit

Cars other than those conforming to a North American specification (see fig. S14-1)

Reverse the procedure given for removal noting the following.

1. Care must be taken to avoid damage to the stainless steel finisher when fitting the bumper assembly.
2. Fit the bumper assembly by securing the adapters to the mounting brackets. On the front end of the adapters, ensure that the spacing washers are in position (see fig. S14-3). Then, check that the bolts securing the front end of the adapters to the bumper are torque tightened to the figures specified in Chapter P.
3. On Silver Spirit and Bentley Mulsanne cars from vehicle identification number *SCAZS0003CCX05080*, and on Silver Spur cars from vehicle identification number *SCAZN42A8CCX05127*, fit the ambient sensor into the mounting block inside the beam as follows.

Ensure that the mounting block is packed with silicone grease. Slide the sensor into the block and fit the grommet into position. Secure the lead onto the rear face of the bumper using the setscrew, washers, and nut (see fig. S14-2); ensure that there is sufficient play in the lead between the block and cable tie.

Check to ensure that the automatic air conditioning unit is functioning correctly (see Chapter C).

4. If fitted, connect the power wash hoses to the jets and secure with a worm drive clip.

Check that the hoses are not twisted or positioned as to restrict the washer fluid flow.

5. On Bentley Turbo R cars, replace the air deflector (see Air deflector - To fit, Section S15/1).

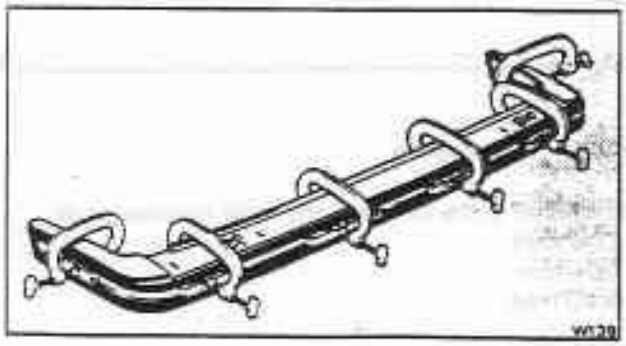

Fig. S14-5 Bonding a new finishing strip around the mouldings

Front bumper assembly - To remove

Cars conforming to a North American specification (see fig. S14-4)

1. Disconnect the battery.
2. With the help of an assistant support the bumper.
3. On Silver Spirit and Bentley Mulsanne cars from vehicle identification number *SCAZS0003CCX05080*, and on Silver Spur cars from vehicle identification number *SCAZN42A8CCX05127*; remove the air conditioning unit ambient sensor from the lower right-hand side of the bumper beam as follows.

Release the setscrew, washers, and nut retaining the cable tie to the rear face of the bumper. Carefully withdraw the sensor and grommet from the mounting block inside the beam (see fig. S14-2). Secure the sensor lead safely to the lower body panel until the bumper is refitted.

4. Disconnect the electrical leads to the horns.
5. If fitted, locate the headlamp power wash hoses situated underneath the bumper finisher and then slacken the securing clips. Disconnect the hoses and remove the clips.
6. Remove the bolts, washers, and mounting plates securing the absorber units to the body longerons. When removing the left-hand side unit, also remove the horns mounting bracket assembly.
7. Carefully withdraw the bumper until the absorber units are clear of the apertures. Care must be taken to avoid damaging the paintwork.
8. If it is necessary to remove the absorber units/adapters from the bumper, release the bolts securing the adapters to the beam. Note the number of spacing washers above and below the adapters to facilitate assembly.

Front bumper assembly - To fit

Cars conforming to a North American specification (see fig. S14-4)

Reverse the procedure given for removal noting the following.

1. Before fitting the absorber units into the apertures check the length of the units (see fig. S14-4, item a).

Set the unit to the correct length by adjusting the piston rod. Place a few drops of Casco MLF 13 thread locking compound onto the stem then tighten the lock-nut.

2. After assembly, coat the exposed threaded section of the absorber unit (i.e. the area behind the lock-nut) with Dow Corning MS4 silicone grease compound or its equivalent.
3. Coat the large outer diameter of each absorber unit with a light oil or grease.
4. If the adapters have been removed, place a few drops of Casco MLF 13 thread locking compound onto the stem before fitting the adapters.
5. Ensure that the spacing washers are in position above and below the adapters (see fig. S14-3). If necessary, adjustment can be made to the bumper height utilizing these washers (see Bumper height - To check).
6. Torque tighten the bolts securing the bumper to

the adapters to the figures specified in Chapter P.

7. On Silver Spirit and Bentley Mulsanne cars from vehicle identification number *SCAZS0003CCX05080*, and on Silver Spur cars from vehicle identification number *SCAZN42A8CCX05127*; fit the ambient sensor into the mounting block inside the beam as follows.

Ensure that the mounting block is packed with silicone grease. Slide the sensor into the block and fit the grommet into position. Secure the lead onto the rear face of the bumper using the setscrew, washers, and nut (see fig. S14-2); ensure that there is sufficient play in the lead between the block and cable tie.

Check to ensure that the automatic air conditioning unit is functioning correctly (see Chapter C).

8. If fitted, connect the power wash hoses to the jets and secure with a worm drive clip.

Check that the hoses are not twisted or positioned as to restrict the washer fluid flow.

Front bumper - To dismantle (incorporating a one-piece finisher strip)

Cars other than those conforming to a Japanese and North American specification (see fig. S14-1)

1. Remove the bumper assembly.
2. Release the Starlock washers, press out the retaining plates and remove the finishing strip.
3. Release the nuts and washers then remove the side mouldings.
4. Release the Starlock washers, press out the retaining studs and remove the centre mouldings.
5. Remove the number plate assembly from the underside of the beam.
6. Unhook the springs from the stainless steel finisher. Remove the nuts, plain washers, and rubber washers from the four fixing points; remove the finisher.
7. Remove the adapters from the bumper assembly.

Front bumper - To assemble (incorporating a one-piece finisher strip)

Cars other than those conforming to a Japanese and North American specification (see fig. S14-1)

Reverse the procedure given for removal noting the following.

1. Protect the polished surface of the finisher with masking tape or linen cloth tape. Also, ensure that the working surface is covered with thick clean felt or similar material.
2. When fitting the adapters, ensure that the spacing washers are in their correct positions, before torque tightening the securing bolts to the figures specified in Chapter P.
3. When fitting the centre moulding, press the retaining studs through their corresponding holes in the beam. Turn the assembly onto the moulding, then press the Starlock washers onto the studs.
4. When fitting the side mouldings ensure that they align perfectly with the centre moulding.
5. Clean the rear face of the finishing strip and the depression in the mouldings using a clean dry cloth moistened with Genklene; allow to dry.
6. Apply Bostik Primer 9252 to the rear face of the finishing strip; allow one hour to dry.
7. Apply Apollo AX7006 adhesive to the rear face of the finishing strip and the depression in the mouldings; allow 15 minutes for the adhesive to become 'tacky'.
8. Place Inseal 5202 adhesive tape into the moulding recess and roll down. Remove the paper from the Inseal and fit the finishing strip.
9. Using wooden blocks and cramps (see fig. S14-5), tighten the finishing strip into position. Leave the cramps in position for one hour to allow the Apollo AX7006 adhesive to cure.

Fit the retaining plates and Starlock washers.

10. When fitting a new stainless steel finisher, it may also be necessary to fit a new centre moulding, as the lengths of the finishers may vary slightly. If this situation does arise, it may be necessary to use packings under the end mouldings.

Front bumper - To dismantle (incorporating a three-piece finisher strip)

Cars other than those conforming to a Japanese and North American specification (see fig. S14-6)

1. Remove the bumper assembly.
2. Loosen the centre finisher strip retaining nuts closest to the side mouldings (item 1).
3. Release the nuts and washers securing each side finisher strip (item 2). Then, remove the strips and trim pieces (item 3).
4. On cars with the number plate mounted on the front face of the bumper refer to figure S14-6, inset A.

Unscrew and remove the number plate. Then, release the Starlock washers (item 4) and remove the number plate surround.

5. Release the nuts and washers securing the centre finisher strip(s), then remove the strip(s).
6. Release the nuts and washers securing the side mouldings. Then, remove the mouldings.
7. Release the Starlock washers (item 5), press out the retaining studs and remove the centre moulding(s).
8. If fitted, unscrew and remove the number plate assembly from the underside of the bumper beam.
9. Unhook the springs (item 6) from the stainless steel finisher. Remove the nuts, plain washers, and rubber washers securing the finisher. Remove the finisher.
10. If fitted, remove the headlamp power wash jets as follows.

Invert the finisher and remove the two screws securing each power wash jet mounting bracket (see fig. S14-7). Unscrew the jet lock-nut and remove the jet.

11. If it is necessary to remove the adapters from the bumper beam, note the number of spacing washers above and below the adapters to facilitate assembly.

Front bumper - To assemble (incorporating a three-piece finisher strip)

Cars other than those conforming to a Japanese and North American specification (see fig. S14-6)

Reverse the procedure given for removal noting the following.

1. Protect the polished surface of the finisher with masking tape or linen cloth tape. Also, ensure that the working surface is covered with thick clean felt or similar material.
2. Prior to fitting the adapters, ensure that the spacing washers are in their correct positions. Torque tighten the securing bolts to the figures specified in Chapter P.
3. When fitting the centre moulding, ensure that new Starlock washers are used.
4. Fit the side mouldings, ensuring that they align perfectly with the centre moulding.
5. When fitting the finisher strips, check that the trim pieces are in line with the side moulding seams.

Apply a small amount of Keenomax C3 grease, or its equivalent, between the mild steel finisher strip retaining washers and the aluminium bumper beam. This prevents corrosion caused by the contact of dissimilar metals.

Note
Take care not to overtighten the retaining nuts, as this will cause indentations in the finisher strips.

Front bumper - To dismantle (incorporating a two-piece finisher strip)
Cars conforming to a Japanese and North American specification (see fig. S14-4)
1. Remove the bumper assembly.
2. *On Japanese cars,* release the Starlock washers and press out the retaining plates.

On North American cars, release the Starlock washers, press out the retaining studs and remove the overriders.
3. Remove the Starlock washers from the ends of

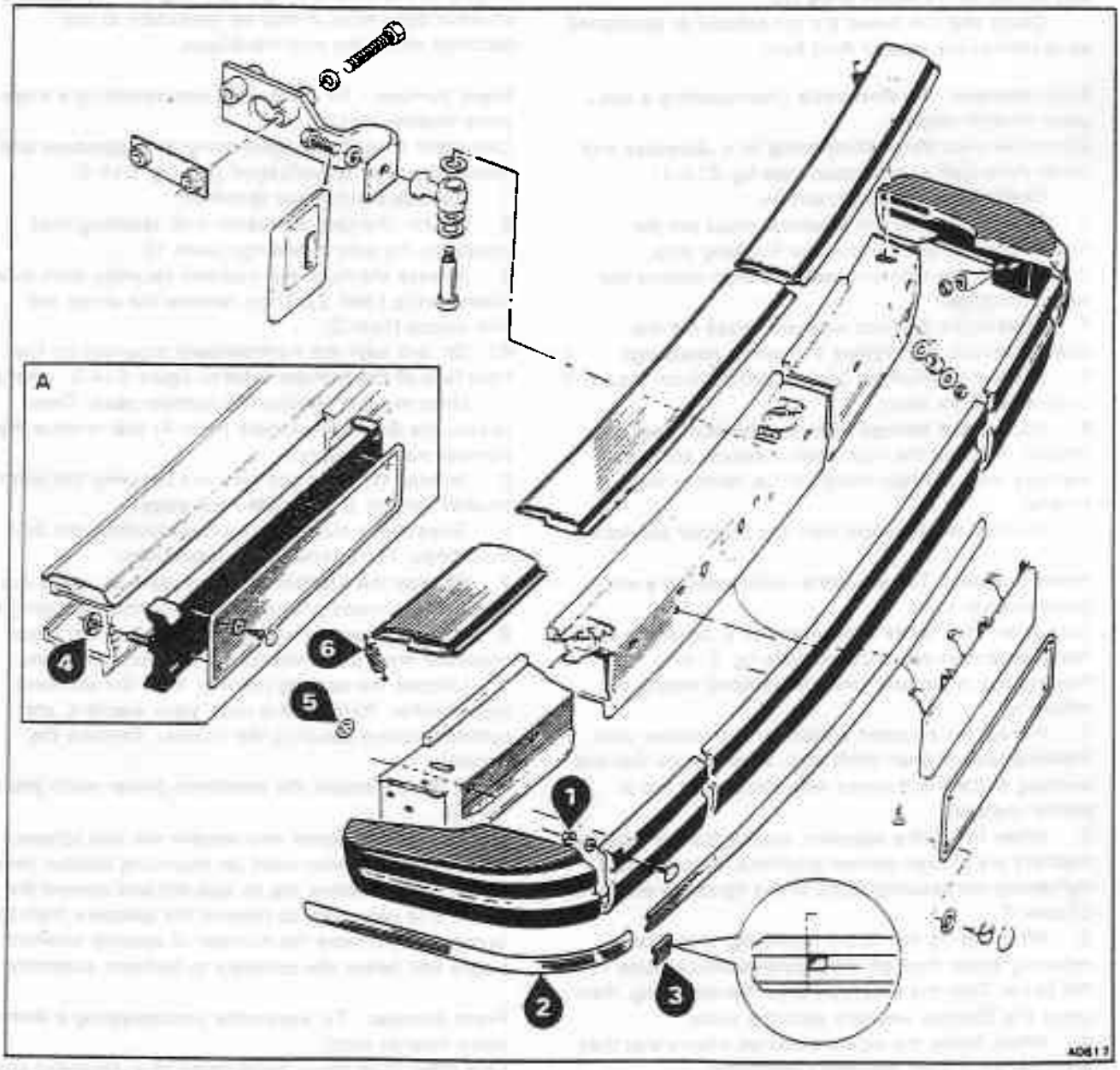

Fig. S14-6 Front bumper assembly
Cars other than those conforming to a Japanese and North American specification

the finishers, press out the retaining plates and remove the finishing strips.
4. Release the nuts and washers then remove the side mouldings.
5. Release the Starlock washers, press out the retaining studs and remove the centre mouldings.
6. Remove the number plate.

Remove the backing plate assembly by releasing the screws from under the beam, also the nut and bolt securing the upper centre section to the front of the beam.
7. Remove the polyurethane foam backing strip.
8. Unhook the springs from the stainless steel finisher. Remove the nuts, plain washers, and rubber washers from the four fixing points; remove the finisher.

Front bumper - To assemble (incorporating a two - piece finisher strip)
Cars conforming to a Japanese and North American specification (see fig. S14-4)
Reverse the procedure given for removal noting the following.
1. Protect the polished surface of the finisher with masking tape or linen cloth tape. Also, ensure that the working surface is covered with thick clean felt or similar material.
2. Ensure that there are two strips of black PVC tape fitted over the gap between the number plate and the rubber mouldings. The tape should be turned over the bottom edge of the beam for approximately 12 mm (0.50 in).
3. When fitting the centre mouldings, press the retaining studs through their corresponding holes in the beam. Turn the assembly onto the mouldings, then press the Starlock washers onto the studs.
4. When fitting the side mouldings ensure that they align perfectly with the centre mouldings.
5. Clean the rear face of the finishing strips and the depression in the mouldings using a clean dry cloth moistened with Genklene; allow to dry.
6. Apply Bostik Primer 9252 to the rear face of the finishing strip; allow one hour to dry.
7. Apply Apollo AX7006 adhesive to the rear face of the finishing strip and the depression in the mouldings; allow 15 minutes for the adhesive to become 'tacky'.
8. Place Inseal 5202 adhesive tape into the moulding recess and roll down. Remove the paper from the Inseal and fit the finishing strip.
9. Using wooden blocks and cramps in a similar manner to those shown in figure S14-5, tighten the finishing strip into position. Leave the cramps in position for one hour to allow the Apollo AX7006 adhesive to cure.

Fit the end retaining plates, overriders (if fitted), plain washers, and Starlock washers.
10. When fitting a new stainless steel finisher, it may also be necessary to fit a new centre moulding, as the lengths of the finishers may vary slightly. If this situation does arise, it may be necessary to use packings under the end mouldings.

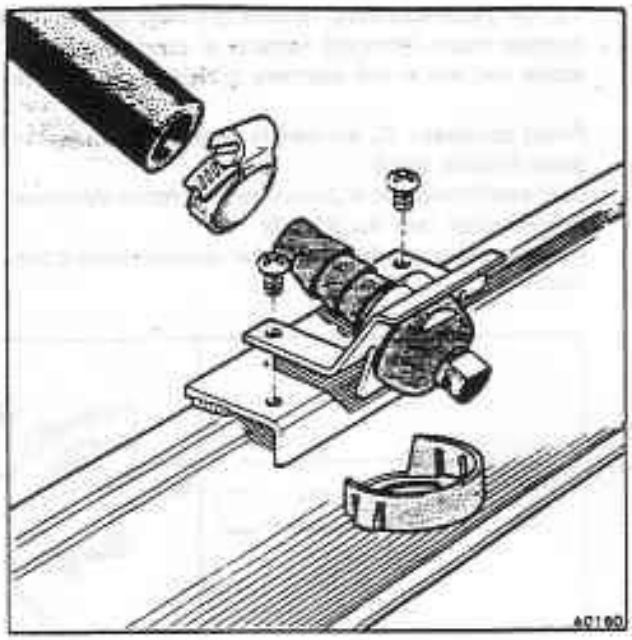

Fig. S14-7 Removal of power wash jets
Viewed from underside of bumper finisher

Front bumper - To dismantle (incorporating a four - piece finisher strip)
Cars conforming to a Japanese and North American specification (see fig. S14-8)
1. Remove the bumper assembly.
2. Loosen the centre finisher strip retaining nuts closest to the side mouldings (item 1).
3. Release the nuts and washers securing each side finisher strip (item 2). Then, remove the strips and trim pieces (item 3).
4. *On Japanese cars,* release the retaining nuts and remove the centre moulding end cap trims (item 4).

On North American cars, release the Starlock washers and remove the overriders (item 5).
5. Release the nuts and washers securing the centre finisher strips, then remove the strips.
6. Release the nuts and washers securing the side mouldings. Then, remove the mouldings.
7. Release the Starlock washers (item 6) press out the retaining studs and remove both centre mouldings.
8. Remove the number plate.

Remove the backing plate assembly by releasing the screws situated underneath the bumper beam. Then, remove the nut and bolt securing the upper centre section to the front of the beam.
9. Remove the foam number plate backing strip.
10. Unhook the springs (item 7) from the stainless steel finisher. Remove the nuts, plain washers, and rubber washers securing the finisher. Then, remove the finisher.
11. If fitted, remove the headlamp power wash jets as follows.

Invert the finisher and remove the two screws securing each power wash jet mounting bracket (see fig. S14-7). Unscrew the jet lock-nut and remove the jet.

12. *On Japanese cars,* remove the adapters from the bumper beam. Note the number of spacing washers above and below the adapters to facilitate assembly.

Front bumper - To assemble (incorporating a four - piece finisher strip)

Cars conforming to a Japanese and North American specification (see fig. S14-8)

Reverse the procedure given for removal noting the following.

1. Protect the polished surface of the finisher with masking tape or linen cloth tape. Also, ensure that the working surface is covered with thick clean felt or similar material.
2. *On Japanese cars,* prior to fitting the adapters ensure that the spacing washers are in their correct positions. Torque tighten the securing bolts to the figures specified in Chapter P.
3. When fitting the centre mouldings, ensure that new Starlock washers are used.

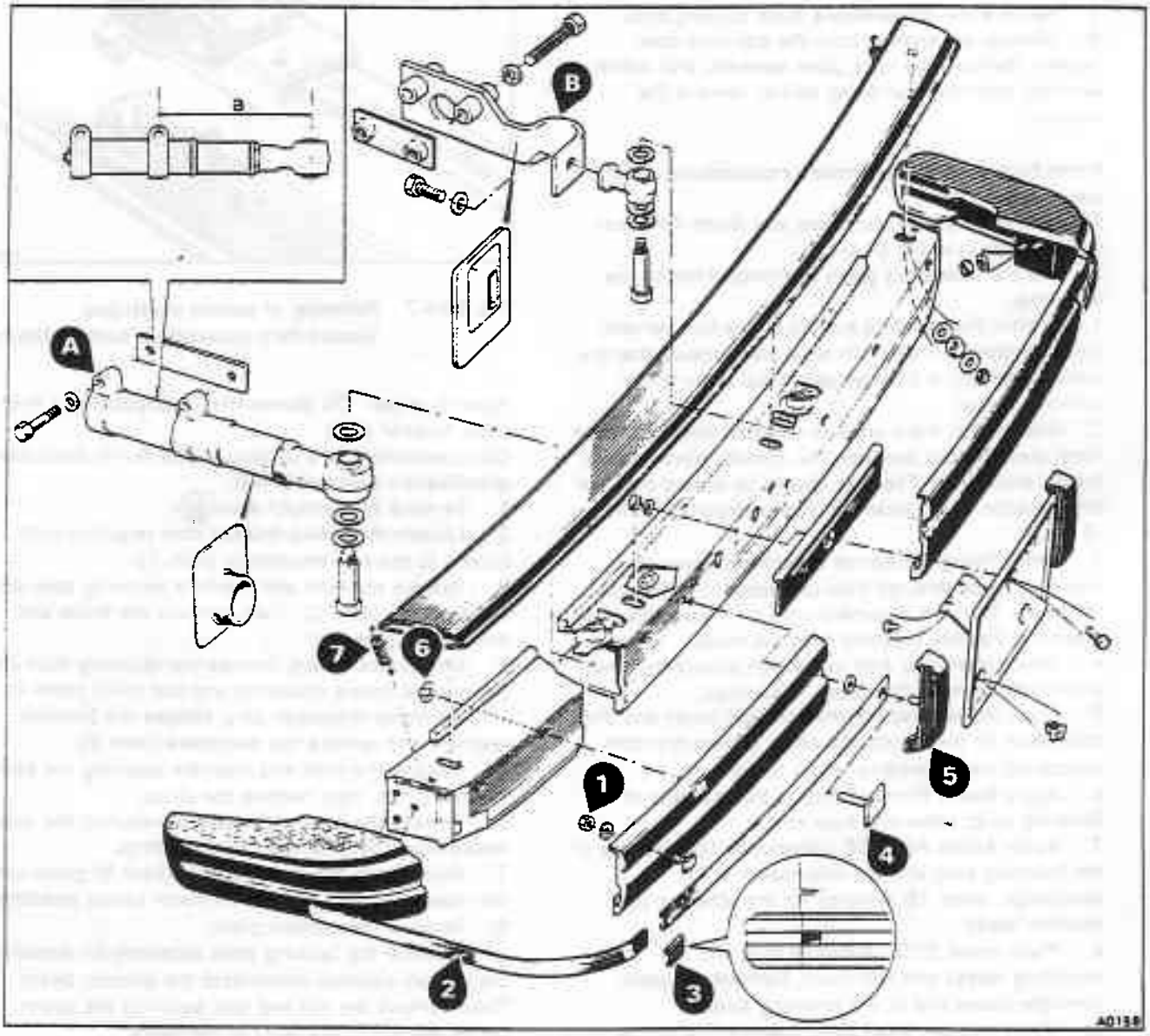

Fig. S14-8 **Front bumper assembly**
Cars conforming to a Japanese and North American specification

A *North American cars*

a Length of unit measured from the centre of the adapter to the centre of the outer mounting bolt

Length of absorber unit	High limit	-	Low limit
Rolls-Royce cars	205 mm	-	204 mm
	(8.071 in	-	8.031 in)
Bentley cars	232.20 mm	-	231 mm
	(9.141 in	-	9.094 in)

B *Japanese cars*

4. Fit the side mouldings, ensuring that they align perfectly with the centre mouldings.
5. When fitting the finisher strips, check that the trim pieces are in line with the side moulding seams.

Apply a small amount of Keenomax C3 grease, or its equivalent, between the mild steel finisher strip retaining washers and the aluminium bumper beam. This prevents corrosion caused by the contact of dissimilar metals.

Note
Take care not to overtighten the retaining nuts, as this will cause indentations in the finisher strips.

Bumper height - To check
1. Ensure that the tyres are to the correct pressures; refer to Chapter R.
2. Adopt either of the following procedures.
(a) Fill the fuel tank.
or
(b) Engage the Park position and switch on the ignition. If the Low fuel warning panel illuminates, add 77 kg (170 lb) of ballast in the luggage compartment. The ballast must be positioned as near as possible to the fuel tank trim panel.

If the warning panel fails to illuminate when the car is gently rocked, drain the fuel from the tank until the warning panel does illuminate. Then, add the specified ballast to the luggage compartment.

Switch off the ignition.
3. Position the car on a level surface. Measure the bumper height from the level surface to the position shown in figure S14-9.
4. If the bumper height is below the minimum limit specified in figure S14-9, carry out the following procedures taking the necessary corrective action.
5. To eliminate suspension stiffness as a possible cause for incorrect bumper height, drive the car both forwards and in reverse two or three times then bring the car gently to rest: measure the bumper height.
6. If the height is within 1,58 mm (0.062 in) of the set limits, remove the bumper to adapter bolt (see fig. S14-3) and alter the spacing washer combination to produce an acceptable position.
7. If the bumper height is still outside the limits, check the standing height of the car and adjust if necessary (see Chapter H).

If any adjustment is made to the car standing height check, and if necessary, adjust the bumper height.

Headlamp power wash jets - To adjust
(see fig. S14-10)
1. Remove the plastic jet covers from the bumper finisher as follows.

Take a length of 1,21 mm (0.050 in) diameter wire and at one end form a 5,0 mm (0.200 in) right angle bend. Loop the remaining end of the wire to form a handle.

Thread the wire hook inside the jet cover and release each of the retaining legs in turn (see fig. S14-10, inset A). Then, carefully remove the cover.
2. Using a suitable tool, position the jet nozzle so that the washer fluid strikes the centre of the headlamp lens. Care must be taken not to damage the polished surface of the finisher.

Replace the jet covers.

Note
The power wash system will only operate when the headlamps are switched on.

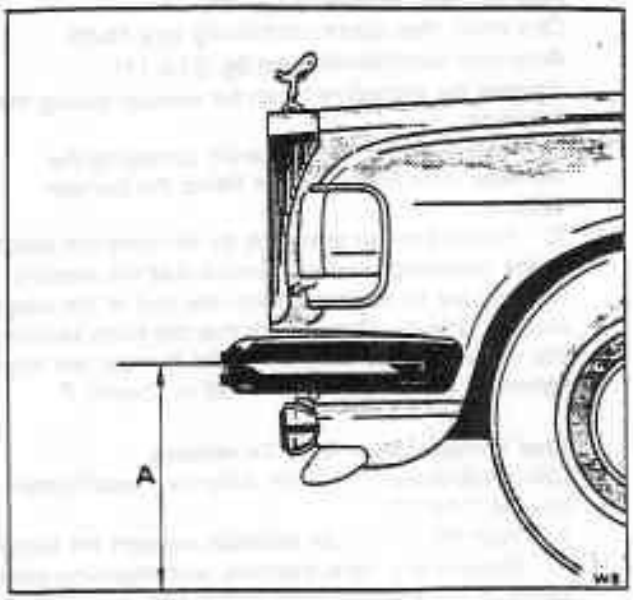

Fig. S14-9 Bumper height
A 445,0 mm (17.52 in) minimum
Other than Bentley Turbo R cars
A 440,0 mm (17.32 in) minimum
Bentley Turbo R cars fitted with Pirelli P7R 275/55 tyres

Rear bumpers
When working on the bumper assembly care must be taken to ensure that the polished surface of the finisher is not damaged. It is therefore recommended that the finisher is covered with masking tape or linen cloth tape. Also, that the working surface is covered with thick clean felt or similar material.

Rear bumper assembly - To remove
Cars other than those conforming to a North American specification (see fig. S14-11)
1. With the help of an assistant support the bumper.
2. Remove the bolt securing each of the adapters to the mounting brackets (see fig. S14-11, item 1).
3. Slacken the side retaining bolts and lift the brackets clear of the body. Carefully withdraw the bumper assembly.
4. If it is necessary to remove the bumper assembly mounting brackets, remove the two bolts securing each bracket to the body longeron. Then, remove the mounting brackets and the aperture seals.

Access to the bolt heads securing the right-hand side mounting bracket is from within the well of the luggage compartment, behind the carpet trim.

Rear bumper assembly - To fit
Cars other than those conforming to a North American specification (see fig. S14-11)
Reverse the procedure given for removal noting the following.
1. Care must be taken to avoid damaging the stainless steel finisher when fitting the bumper assembly.
2. Fit the bumper assembly by securing the adapters to the mounting brackets. Ensure that the spacing washers are in position on the rear end of the adapters (see fig. S14-3). Then, check that the bolts securing the rear end of the adapters to the bumper are torque tightened to the figures specified in Chapter P.

Rear bumper assembly - To remove
Cars conforming to a North American specification (see fig. S14-11)
1. With the help of an assistant support the bumper.
2. Remove the bolts, washers, and mounting plates securing the absorber units to the body longerons. Access to the bolt heads securing the right-hand side absorber unit is from within the well of the luggage compartment behind the carpet trim.
3. Carefully withdraw the bumper until the absorber units are clear of the apertures. Then, remove the aperture seals.
Care must be taken to avoid damaging the paintwork.
4. If it is necessary to remove the absorber units/adapters from the bumper, release the bolts securing the adapters to the beam. Note the number of spacing washers above and below the adapters to facilitate assembly.

Rear bumper assembly - To fit
Cars conforming to a North American specification (see fig. S14-11)
Reverse the procedure given for removal noting the following.

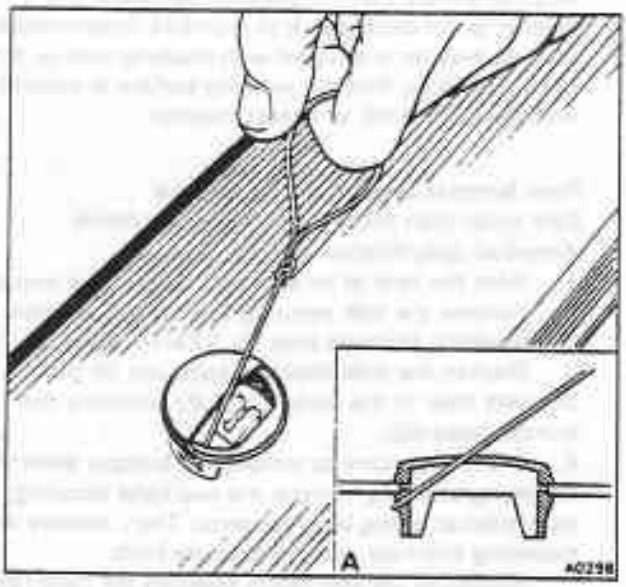

Fig. S14-10 Power wash jet adjustment

1. Before fitting the absorber units into the apertures check the length of the units (see fig. S14-11, item a).
Set the unit to the correct length by adjusting the piston rod. Place a few drops of Casco MLF 13 thread locking compound onto the stem then tighten the lock-nut.
2. After assembly, coat the exposed threaded section of the absorber unit (i.e. the area behind the lock-nut) with Dow Corning MS4 silicone grease compound or its equivalent.
3. Coat the large outer diameter of each absorber unit with a light oil or grease.
4. If the adapters have been removed, place a few drops of Casco MLF 13 thread locking compound onto the stem before fitting the adapters.
5. Ensure that the spacing washers are in position above and below the adapters (see fig. S14-3). If necessary, adjustment can be made to the bumper height utilizing these washers (see Bumper height - To check).
6. Torque tighten the bolts securing the bumper to the adapters to the figures specified in Chapter P.

Rear bumper - To dismantle (incorporating a one-piece finisher strip)
Refer to figure S14-11
1. Remove the bumper assembly.
2. Release the Starlock washers, press out the retaining plates and remove the finishing strip.
3. Release the nuts and washers then remove the side mouldings.
4. Release the Starlock washers, press out the retaining studs and remove the centre mouldings.
5. Unhook the springs from the stainless steel finisher. Remove the nuts, plain washers, and rubber washers from the four fixing points; remove the finisher.
6. *On cars other than those conforming to a North American specification,* remove the adapters from the bumper assembly.

Rear bumper - To assemble (incorporating a one-piece finisher strip)
Refer to figure S14-11
Reverse the procedure given for removal noting the following.
1. Protect the polished surface of the finisher with masking tape or linen cloth tape. Also, ensure that the working surface is covered with thick clean felt or similar material.
2. *On cars other than those conforming to a North American specification,* when fitting the adapters, ensure that the spacing washers are in their correct positions before torque tightening the securing bolts to the figures specified in Chapter P.
3. When fitting the centre moulding, press the retaining studs through their corresponding holes in the beam. Turn the assembly onto the moulding, then press the Starlock washers onto the studs.
4. When fitting the side mouldings ensure that they align perfectly with the centre moulding.
5. Clean the rear face of the finishing strip and the

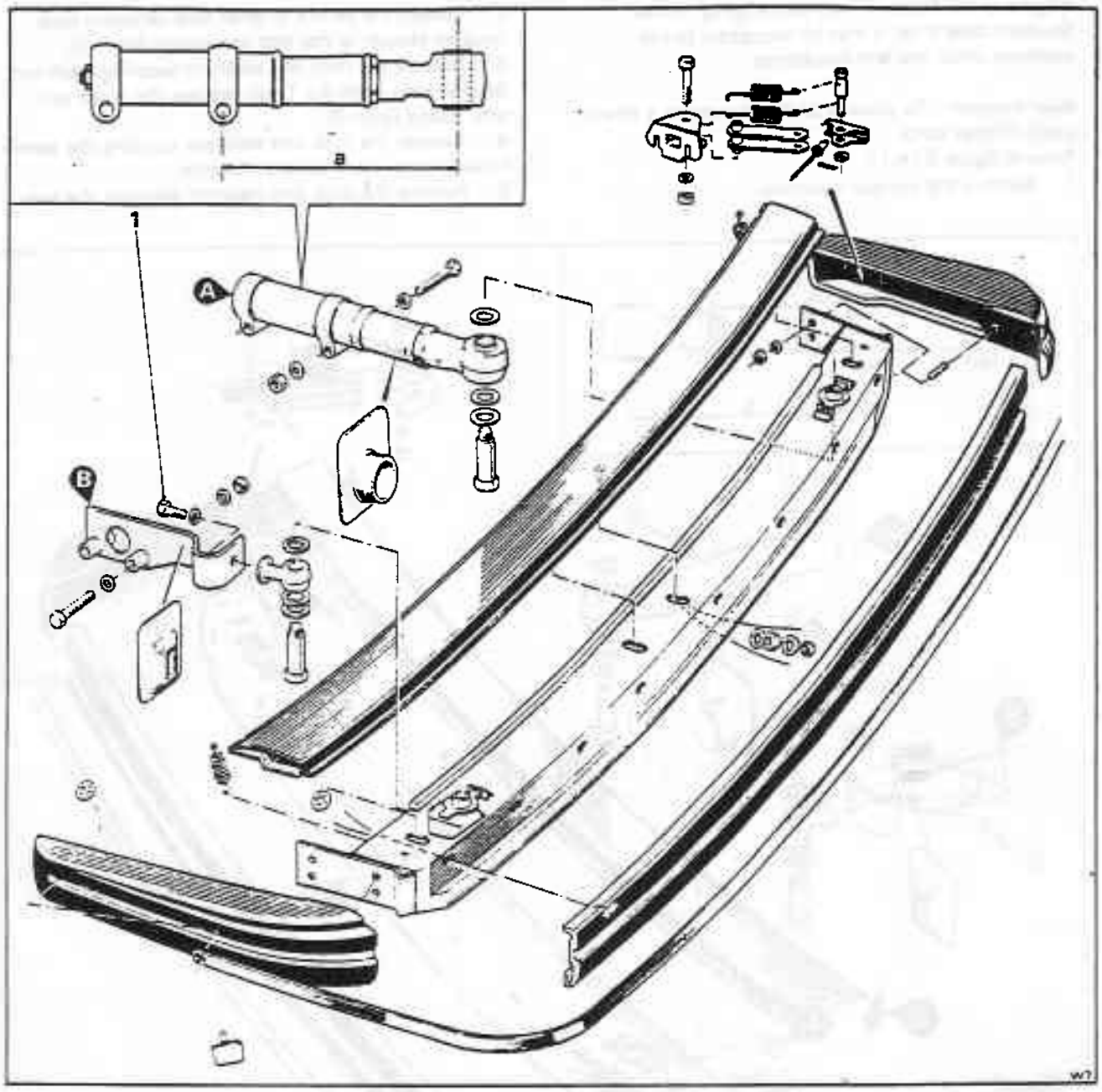

Fig. S14-11 **Rear bumper assembly**

A *North American cars*

a Length of unit measured from the centre of the adapter to the centre of the outer mounting bolt

Length of absorber unit	High limit	–	Low limit
Rolls-Royce and	205 mm	–	204 mm
Bentley cars	(8.071 in	–	8.031 in)

B *Other than North American cars*

1 Bumper retaining bolt - adapter to mounting bracket

depression in the mouldings using a clean dry cloth moistened with Genklene; allow to dry.

6. Apply Bostik Primer 9252 to the rear face of the finishing strip; allow one hour to dry.

7. Apply Apollo AX7006 adhesive to the rear face of the finishing strip and the depression in the mouldings; allow 15 minutes for the adhesive to become 'tacky'.

8. Place Inseal 5202 adhesive tape into the moulding recess and roll down. Remove the paper from the Inseal and fit the finishing strip.

9. Using wooden blocks and cramps (see fig. S14-5), tighten the finishing strip into position. Leave the cramps in position for one hour to allow the Apollo AX7006 adhesive to cure.

Fit the retaining plates and Starlock washers.

10. When fitting a new stainless steel finisher, it may also be necessary to fit a new centre moulding, as the

lengths of the finishers may vary slightly. If this situation does arise, it may be necessary to use packings under the end mouldings.

Rear bumper - To dismantle (incorporating a three-piece finisher strip)
Refer to figure S14-12

1. Remove the bumper assembly.
2. Loosen the centre finisher strip retaining nuts situated closest to the side mouldings (item 1).
3. Release the nuts and washers securing each side finisher strip (item 2). Then, remove the strips and trim pieces (item 3).
4. Release the nuts and washers securing the centre finisher strip, then remove the strip.
5. Release the nuts and washers securing the side

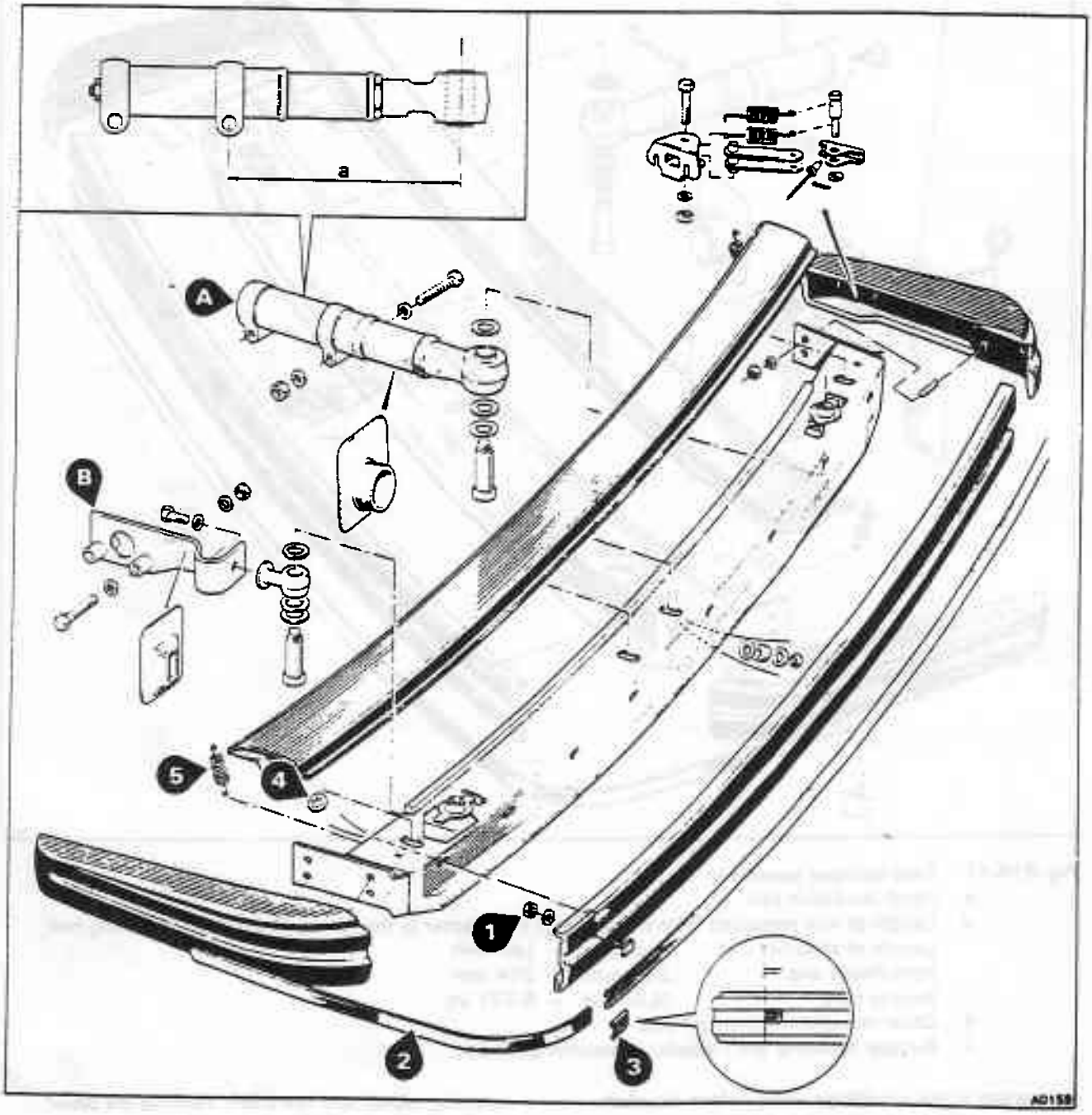

Fig. S14-12 Rear bumper assembly

A *North American cars*

a Length of unit measured from the centre of the adapter to the centre of the outer mounting bolt

Length of absorber unit	High limit	-	Low limit
Rolls-Royce and Bentley cars	205 mm (8.071 in	-	204 mm 8.031 in)

B *Other than North American cars*

mouldings, then remove the mouldings.

6. Release the Starlock washers (item 4), press out the retaining studs and remove the centre moulding.

7. Unhook the springs (item 5) from the stainless steel finisher. Remove the nuts, plain washers, rubber washers securing the finisher. Then, remove the finisher.

8. *On cars other than those conforming to a North American specification.*

If necessary, remove the adapters from the bumper beam. Note the number of spacing washers above and below the adapters to facilitate assembly.

Rear bumper - To assemble (incorporating a three-piece finisher strip)

Refer to figure S14-12

Reverse the procedure given for removal noting the following.

1. Protect the polished surface of the finisher with masking tape or linen cloth tape. Also, ensure that the working surface is covered with thick clean felt or similar material.

2. Prior to fitting the adapters, ensure that the spacing washers are in their correct positions. Torque tighten the securing bolts to the figures specified in Chapter P.

3. When fitting the centre moulding, ensure that new Starlock washers are used.

4. Fit the side mouldings, ensuring that they align perfectly with the centre moulding.

5. When fitting the finisher strips, check that the trim pieces are in line with the side moulding seams.

Apply a small amount of Keenomax C3 grease, or its equivalent, between the mild steel finisher strip retaining washers and the aluminium bumper beam. This prevents corrosion caused by the contact of dissimilar metals.

Note

Take care not to overtighten the retaining nuts, as this will cause indentations in the finisher strips.

Side retaining brackets - To dismantle and assemble (see fig. S14-12)

1. Remove the bumper assembly.

2. Unhook the retention spring.

3. Remove the body pivot plate.

4. Remove the centre channel by releasing the split pin, washer, and pivot pin.

5. Drill out the pop rivets and remove the bumper pivot plate.

6. To assemble the side retaining brackets reverse the removal procedure.

Bumper height - To check

Measure the rear bumper height to the same point on the finishing trim as shown in figure S14-9. See Bumper height - To check, on page S14-11.

Exterior trim and body under trim

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Exterior trim and body under trim

The information contained within this section is applicable to Bentley Turbo R cars only. For all other information relating to Exterior trim , refer to Section S15.

Contents

Exterior trim and body under trim

Introduction

The information contained within this section is applicable to Bentley Turbo R cars only. For all other information relating to Exterior trim, refer to Section S15.

Air deflector — To remove (see fig. S15/1-1)

1. Using a small screwdriver or similar tool, carefully remove the plastic rivets (item 1) securing the air deflector to the front wing panels.
2. Release the screws (item 2) and clamping washers securing the air deflector to the underside of the bumper beam. Remove the air deflector.

Air deflector — To fit (see fig. S15/1-1)

Reverse the procedure given for removal noting the following.

1. To ensure adequate retention of the air deflector it is advisable to fit new plastic rivets (item 1) on assembly.
2. Air deflector adjustment can be achieved horizontally by means of elongated slots, and vertically by varying the quantity of spacing washers (item 3).

The air deflector has been designed so that in its optimum position two 1,6 mm (0.063 in) thick spacing washers should be fitted at each deflector to bumper beam fixing point.

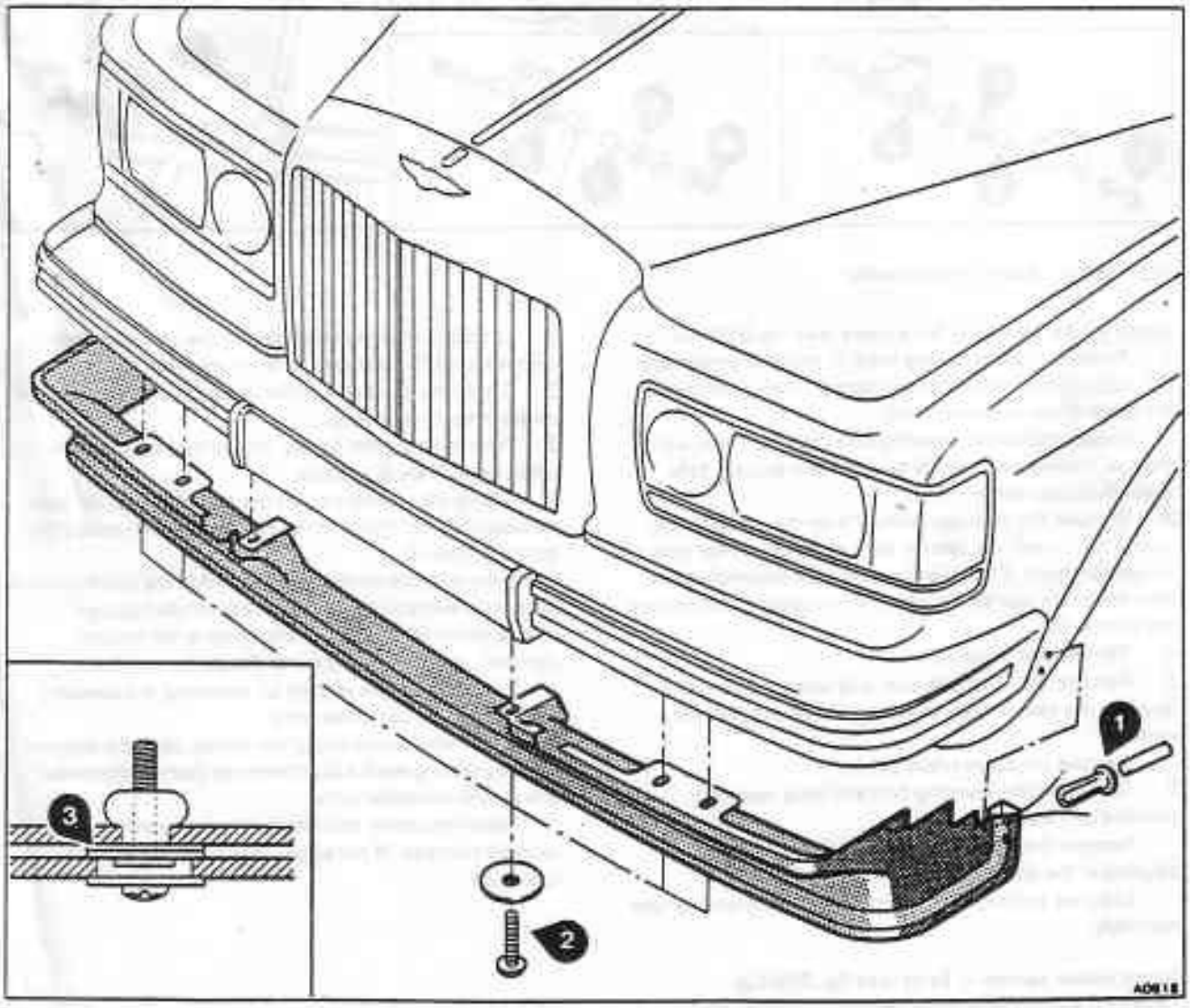

Fig. S15/1-1 Air deflector

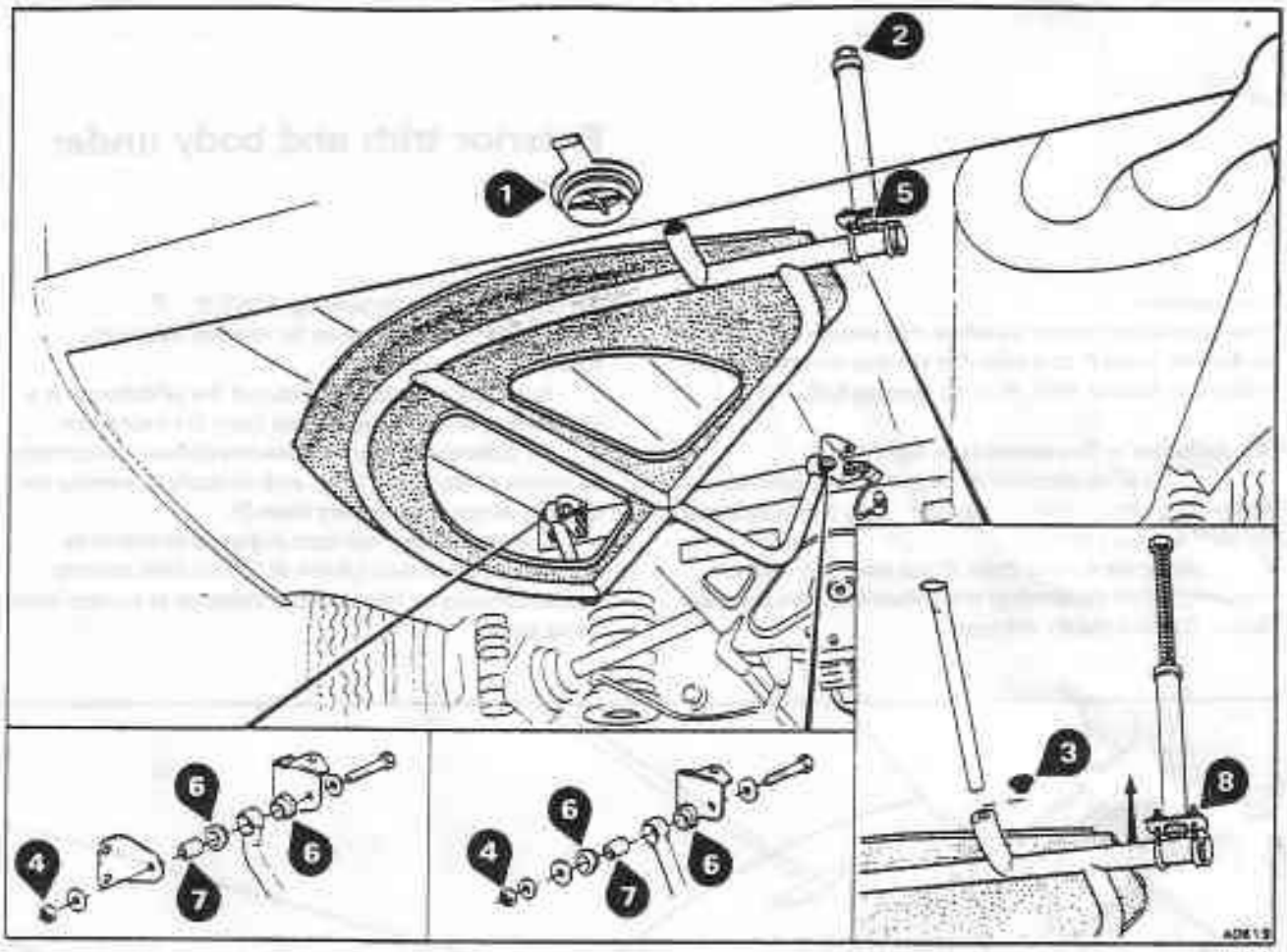

Fig. S15/1-2 Spare wheel carrier

Spare wheel carrier — To remove (see fig. S15/1-2)

1. Remove the rubber plug (item 1) situated underneath the luggage compartment floor carpet. Then, disengage the spare wheel retention hook.
2. Locate the carrier lowering bolt (item 2). Then, using the box spanner and tommy bar from the tool kit, fully lower the spare wheel carrier.
3. Remove the dust cap (item 3) from the carrier lifting tube. Then, insert the tommy bar and lift the carrier clear of its support hook. Pivot the lowering tube assembly clear, then lower the rear of the carrier to the ground and remove the tommy bar.
4. Remove the spare wheel.
5. Remove the pivot bolt nuts and washers (item 4). Support the carrier, then withdraw the pivot bolts and washers.

   Remove the spare wheel carrier.
6. To remove the lowering bolt and tube assembly proceed as follows.

   Remove the lock-nut (item 5), full nut, and washer situated at the lower end of the tube assembly.

   Unscrew and separate the lowering bolt from the tube assembly.

Spare wheel carrier — To fit (see fig. S15/1-2)

Reverse the procedure given for removal noting the following.

1. Lubricate the lowering bolt and the two pivot bolts with Rocol MTS 1000 grease, or its equivalent.
2. Check the condition of the rubber bushes (item 6) and renew them if necessary.
3. Prior to fitting the carrier, ensure that the distance tubes (item 7) are in position.
4. Using the tommy bar, lift the rear of the carrier onto its support hook. Remove the tommy bar and replace the dust cap (item 3).
5. Fully raise the carrier and check that the spare wheel is firmly clamped against the underside of the luggage compartment floor panel. If the wheel is not securely clamped, adjust the position of the carrier as follows.

   Lower the carrier slightly by loosening the lowering bolt four or five complete turns.

   Then, whilst supporting the carrier, raise the support hook by turning each adjustment nut (item 8) clockwise one or two complete turns.

   Raise the carrier and check that the spare wheel is securely clamped. If necessary repeat the adjustment operation.

Exterior trim and body under trim

Radiator shell - To remove (see fig. S15-1)
When removing the radiator shell care must be taken not to damage the shell or surrounding paintwork.
1. Raise the bonnet.
2. Support the radiator shell, then remove the setscrews and washers (item 1) securing the shell to the body.
3. Lift the shell to disengage the lower mounting pegs (item 2).

Radiator shell - To fit (see fig. S15-1)
Reverse the procedure given for removal noting the following.
1. On earlier cars, hexagon headed setscrews were used to secure the radiator shell to the body. For security reasons they should be replaced by Allen headed setscrews.
2. Check the grommets (item 3) situated in the lower mounting brackets for damage or excessive wear, renew if necessary.
3. After fitting the radiator shell, carefully close the bonnet and check the shell to bonnet alignment; adjust if necessary.

Rolls-Royce radiator shell - To dismantle (see fig. S15-2)
Cars other than those fitted with a retractable mascot
1. Remove the radiator shell (see Radiator shell - To remove).
2. Protect the polished surface of the radiator shell with masking tape, then place it face downwards on a covered bench.
3. Slacken the Allen headed setscrew (item 1) until the mascot assembly can be withdrawn from the shell.

Note
If a chrome finisher button (item 2) is fitted care must be taken when unscrewing the setscrew (item 1). A spring is situated underneath the button and could suddenly eject the button as the setscrew is released.

4. Unscrew and remove the radiator shell lower mounting brackets (item 3).
5. To remove the radiator vane assembly proceed as follows.

Drill out the two pop rivets (item 4). Then, remove the screws (item 5) securing the radiator vanes to the shell.

Carefully withdraw the vane assembly from the shell.

Rolls-Royce radiator shell - To assemble (see fig. S15-2)
Cars other than those fitted with a retractable mascot
If the original radiator vane assembly is to be refitted reverse the procedure given for dismantling.

If a new radiator vane assembly is to be fitted proceed as follows.
1. Position the vane assembly centrally in the radiator shell.

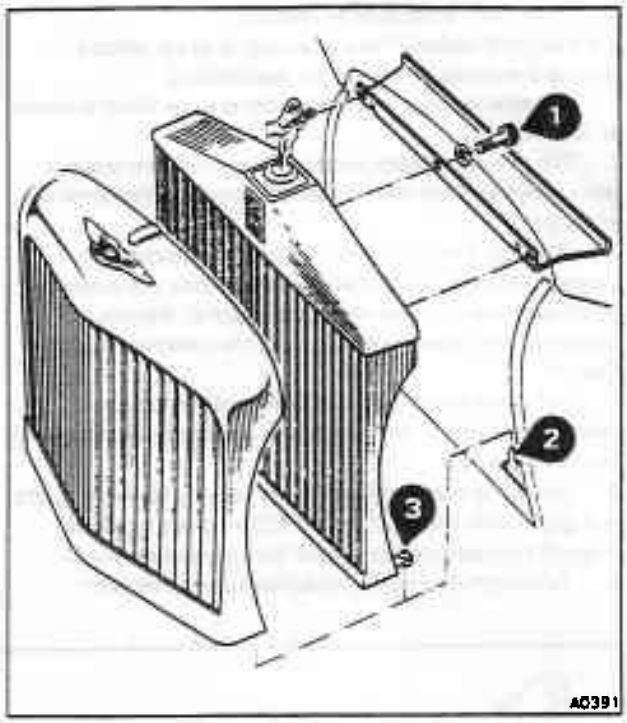

Fig. S15-1 Removing the radiator shell

2. Secure the bottom of the vane assembly using the existing setscrews (item 5).
3. Using the shell to body Allen headed setscrews (item 6) temporarily secure the top of the vane assembly to the radiator shell.
4. Using the existing holes in the radiator shell backplate as a guide, drill two 3,17 mm (0.125 in) clearance holes through the radiator vane upper bearing plate (item 4).
5. To prevent corrosion, treat any bare metal with etching primer and a suitable air-drying paint.
6. Secure the top of the vane assembly to the radiator shell using two 3,17 mm (0.125 in) diameter pop rivets.
7. Remove the Allen headed setscrews (item 6).

Rolls-Royce radiator shell - To dismantle (see fig. S15-3)
Cars fitted with a retractable mascot
1. Remove the radiator shell (see Radiator shell - To remove).
2. Protect the polished surface of the radiator shell with masking tape, then place it face downwards on a covered bench.
3. With the retract mechanism in the raised position, remove the nut and washer (item 1) securing the mascot. Remove the mascot assembly.
4. Unscrew and remove the radiator shell lower mounting brackets (item 2).

5. To remove the vane/retract mechanism assembly proceed as follows.

Retract the mechanism.

Drill out the two pop rivets (item 3). Then, remove the screws (item 4) securing the radiator vanes to the shell.

Carefully withdraw the vane/retract mechanism assembly from the radiator shell.

Rolls-Royce radiator shell - To assemble (see fig. S15-3)

Cars fitted with a retractable mascot

If the original radiator vane assembly is to be refitted reverse the procedure given for dismantling.

If a new radiator vane assembly is to be fitted proceed as follows.

1. Transfer the retract mechanism to the new radiator vane assembly (see Retract mechanism - To dismantle and assemble).
2. Position the vane/retract mechanism assembly centrally in the radiator shell. Carefully ease the mascot plinth lugs (item 5) over the guide bracket. Secure the bottom of the vane assembly using the existing setscrews (item 4).
3. Using the shell to body Allen headed setscrews (item 6) temporarily secure the top of the vane assembly to the radiator shell.
4. Using the existing holes in the radiator shell backplate as a guide, drill two 3,17 mm (0.125 in) clearance holes through the radiator vane upper bearing plate (item 3).
5. To prevent corrosion, treat any bare metal with etching primer and a suitable air-drying p[illegible]
6. Secure the top of the vane assembly to the radiator shell using two 3,17 mm (0.125 in) diameter pop rivets.
7. Remove the Allen headed setscrews (item 6).
8. With the retract mechanism in the raised position, fit the mascot assembly.

Ensure that the mascot is positioned centrally with the hole in the mascot plinth. If necessary, retract the mascot and adjust the position of the mechanism by releasing the setscrews securing it to the radiator vane upper bearing plate.

9. To set the retract mechanism overtravel stop proceed as follows.

Retract the mascot.

Release the lock-nut (item 7). Then, adjust the length of the overtravel stop until the wing tip of the mascot protrudes a maximum of 10 mm (0.393 in) above the surface of the radiator shell (Dimension A).

Tighten the lock-nut.

10. Check that the retract mechanism operates when the mascot is moved forwards, rearwards, or deflected from side to side.

Retract mechanism - (Hydraulic damper) - To dismantle and assemble (see fig. S15-4)

1. Dismantle the radiator shell (see Rolls-Royce radiator shell - To dismantle).
2. Slacken the setscrew (item 1), then remove the mascot plinth and spring assembly (item 2).

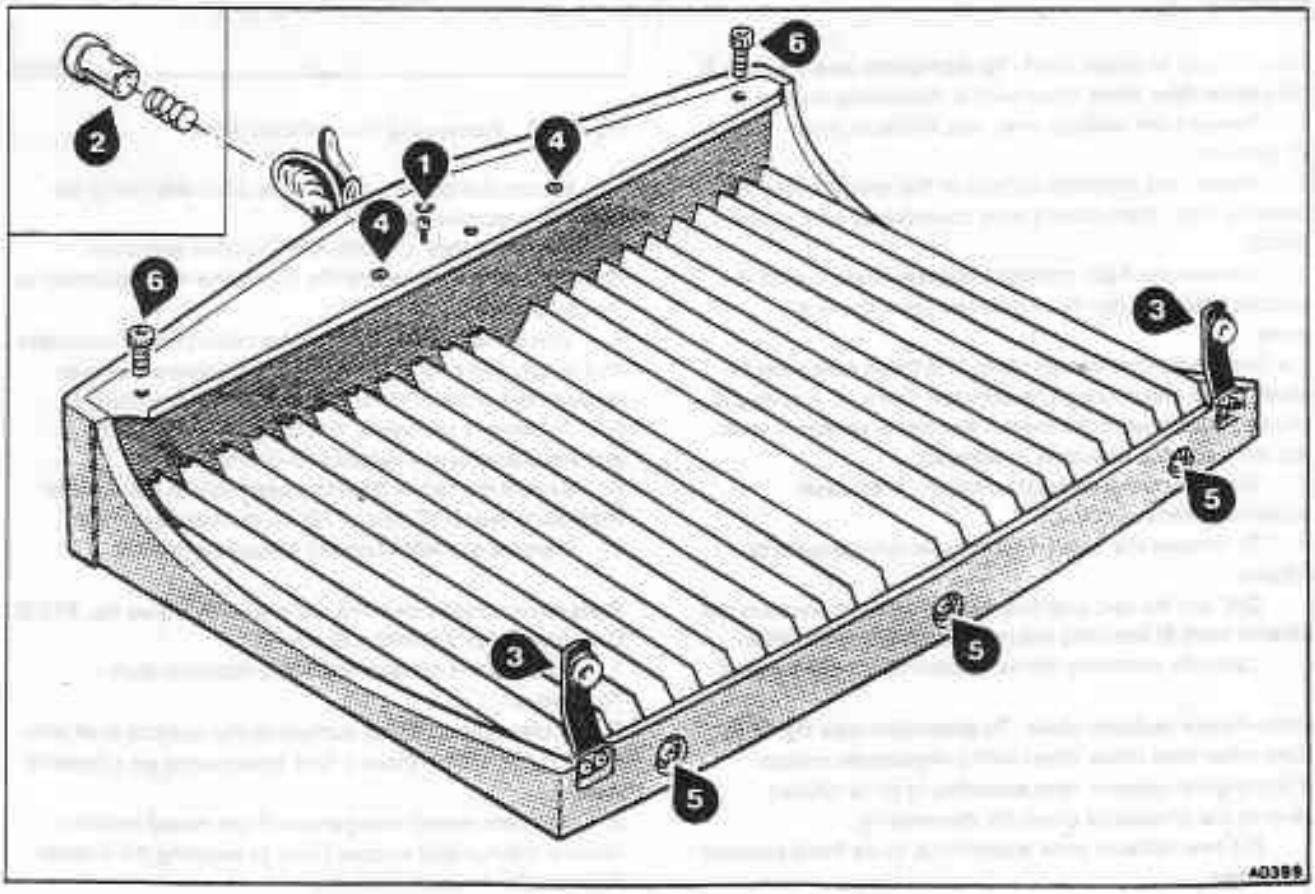

Fig. S15-2 Radiator shell (non retractable mascot)

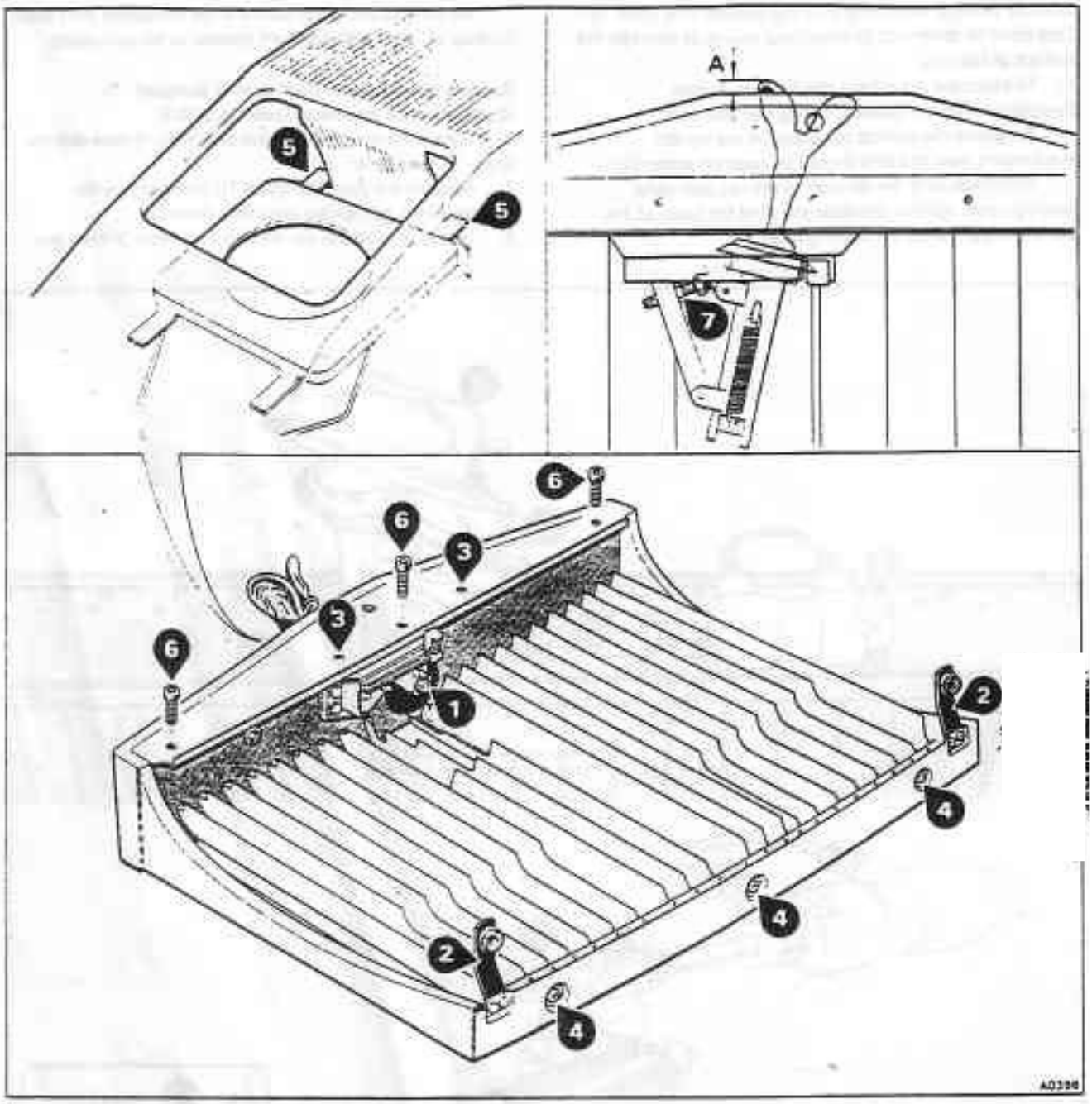

Fig. S15-3 Radiator shell (retractable mascot)

3. Remove the setscrew (item 3), spring, and nut securing the damper to the upper mounting plate.

4. Remove the setscrews (item 4), clamping plate, and washer securing the retract mechanism to the radiator vane assembly. Withdraw the mechanism.

5. To remove the damper proceed as follows.

With the mechanism in the retracted position, release the circlip (item 5).

Remove the pivot pin. Note the position of any spacing washers situated between the operating lever and the clevis jaw of the damper.

Remove the damper.

6. Unhook the retract spring (item 6) from the mascot spring container link arms.

7. Unhook and remove the pawl spring (item 7).

8. To remove the detent spring (item 8) proceed as follows.

Remove the roll pin (item 9) securing the detent lever (item 10) to the retract mechanism mounting bracket.

Remove the lever and spring.

9. To remove the mascot container spring (item 11) proceed as follows noting that the spring is in a compressed state and could suddenly eject when the roll pins (item 12) are removed.

Remove the roll pins (item 12) securing the tab-washer (item 13) and spring.

Then, remove the spring.

10. To remove the mascot finisher spring (item 14)

carefully unwind the spring over the finisher ring (item 15). Care must be taken not to distort the spring or damage the surface of the ring.

11. To assemble the retract mechanism reverse Operations 1 to 10 inclusive, noting the following.

To ensure the correct operation of the retract mechanism, new roll pins should be used on assembly.

When securing the damper to the radiator vane bearing plate, tighten the setscrew until the body of the damper is parallel to the bearing plate.

All springs and pivot points to be lubricated with Shell Retinax 'A' high melting point grease, or its equivalent.

Retract mechanism - (Gas spring damper) - To dismantle and assemble (see fig. S15-5)

1. Dismantle the radiator shell (see Rolls-Royce radiator shell - To dismantle).
2. Slacken the setscrew (item 1), then remove the mascot plinth and spring assembly (item 2).
3. Unclip one end of the damper unit (item 3) from the

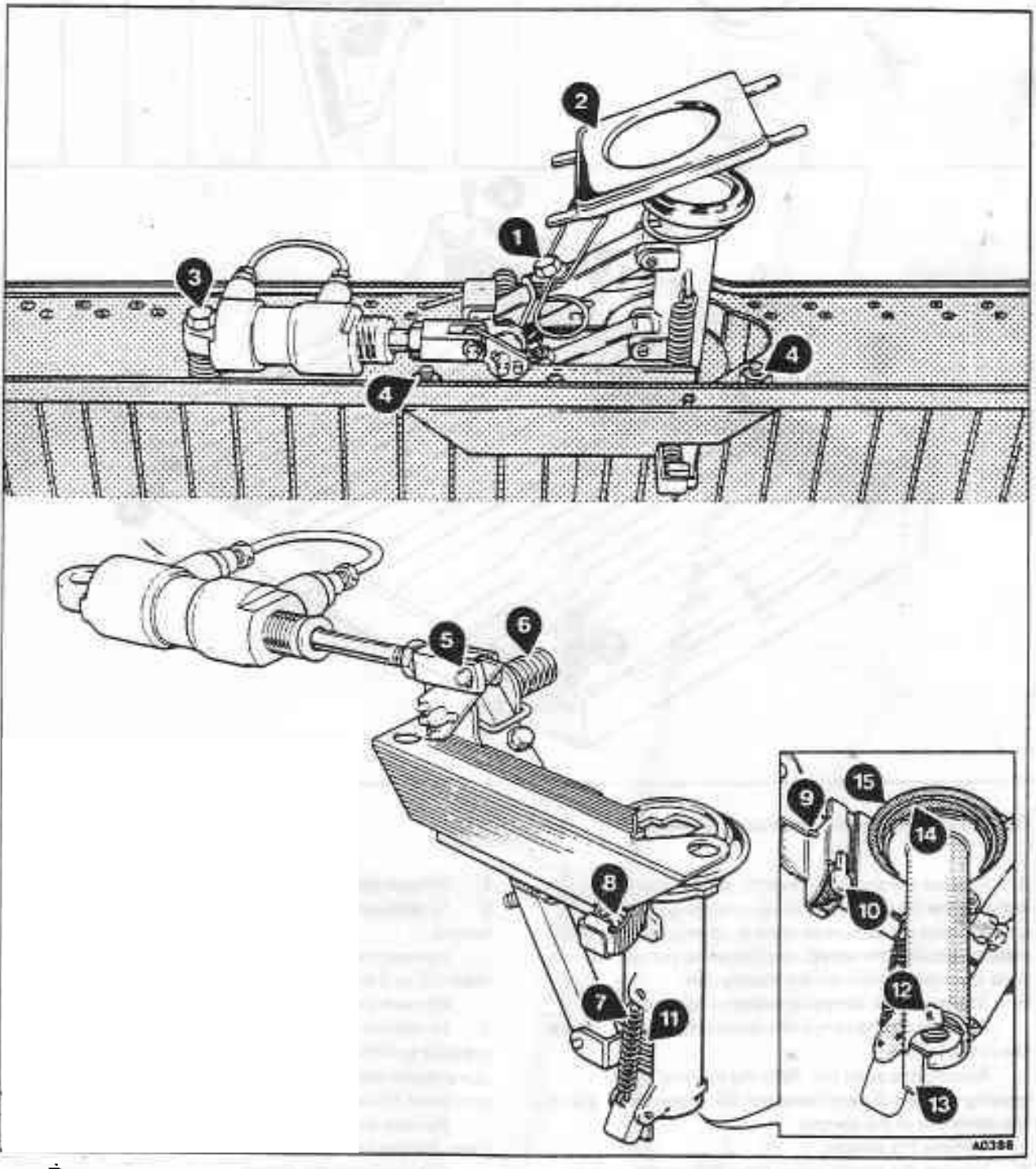

Fig. S15-4 Retract mechanism (hydraulic damper)

ball pin situated on the upper mounting plate.

4. Remove the setscrews (item 4), clamping plate, and washer securing the retract mechanism to the radiator vane assembly. Withdraw the mechanism.

5. To remove the damper proceed as follows.

With the mechanism in the retracted position, release the spring pin (item 5). Note the position of any spacing washers situated between the operating lever and the clevis jaw of the damper.

Remove the damper.

Warning

The gas spring damper is a pressurized unit and no attempt should be made to dismantle it.

6. Unhook and remove the pawl spring (item 6).

7. To remove the detent spring (item 7) proceed as follows.

Remove the roll pin (item 8) securing the detent lever (item 9) to the retract mechanism mounting bracket.

Remove the lever and spring.

8. To remove the mascot container spring (item 10)

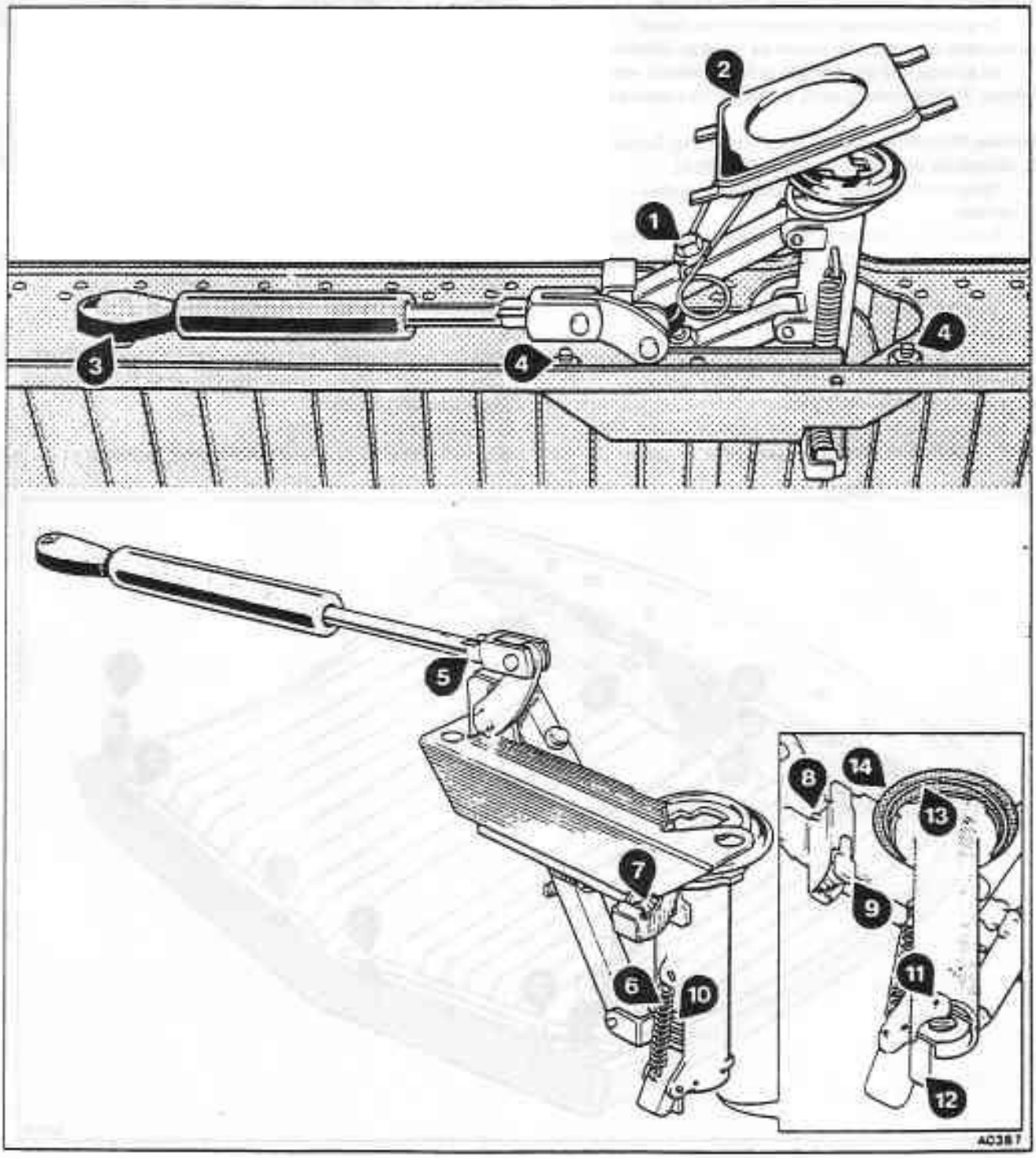

Fig. S15-5 Retract mechanism (gas spring damper)

proceed as follows noting that the spring is in a compressed state and could suddenly eject when the roll pins (item 11) are removed.

Remove the roll pins (item 11) securing the tab-washer (item 12) and spring. Then, remove the spring.

9. To remove the mascot finisher spring (item 13) proceed as follows.

Carefully unwind the spring over the finisher ring (item 14). Care must be taken not to distort the spring or damage the surface of the ring.

10. To assemble the retract mechanism reverse Operations 1 to 9 inclusive, noting the following.

To ensure the correct operation of the retract mechanism, new roll pins should be fitted on assembly.

All springs and pivot points to be lubricated with Shell Retinax 'A' high melting point grease, or its equivalent.

Bentley Mulsanne radiator shell (including Turbo) - To dismantle and assemble (see fig. S15-6)

1. Remove the radiator shell (see Radiator shell - To remove).
2. Protect the polished surface of the radiator shell with masking tape, then place it face downwards on a covered bench.
3. Unscrew and remove the radiator shell lower mounting brackets (item 1).
4. Remove the setscrews and washers (item 2) securing each vane assembly to the radiator shell. Carefully withdraw both vane assemblies.
5. Release the nuts (item 3) and spring washers, then remove the Bentley motif and nose trim.
6. To assemble the radiator shell, reverse Operations 1 to 5 inclusive.

Bentley Eight radiator shell - To dismantle and assemble (see fig. S15-7)

1. Remove the radiator shell (see Radiator shell - To remove).
2. Protect the polished surface of the radiator shell with masking tape, then place it face downwards on a covered bench.
3. Unscrew and remove the radiator shell lower mounting brackets (item 1).
4. To remove the radiator shell grille proceed as follows.

Remove the retaining nuts (item 2) securing the grille to the radiator shell.

Remove the clamping plates, then withdraw the grille from the radiator shell.

5. Release the nuts and spring washers (item 3), then remove the Bentley motif and nose trim.
6. To assemble the radiator shell, reverse Operations 1 to 5 inclusive.

Note

To prevent corrosion, coat the assembled grille retaining nuts (item 2) and clamping plates with 'Tectyl', or its equivalent.

Headlamp finishers - To remove and fit (see fig. S15-8)

Cars other than those conforming to a Japanese and North American specification

1. Disconnect the battery.
2. On cars prior to vehicle identification number

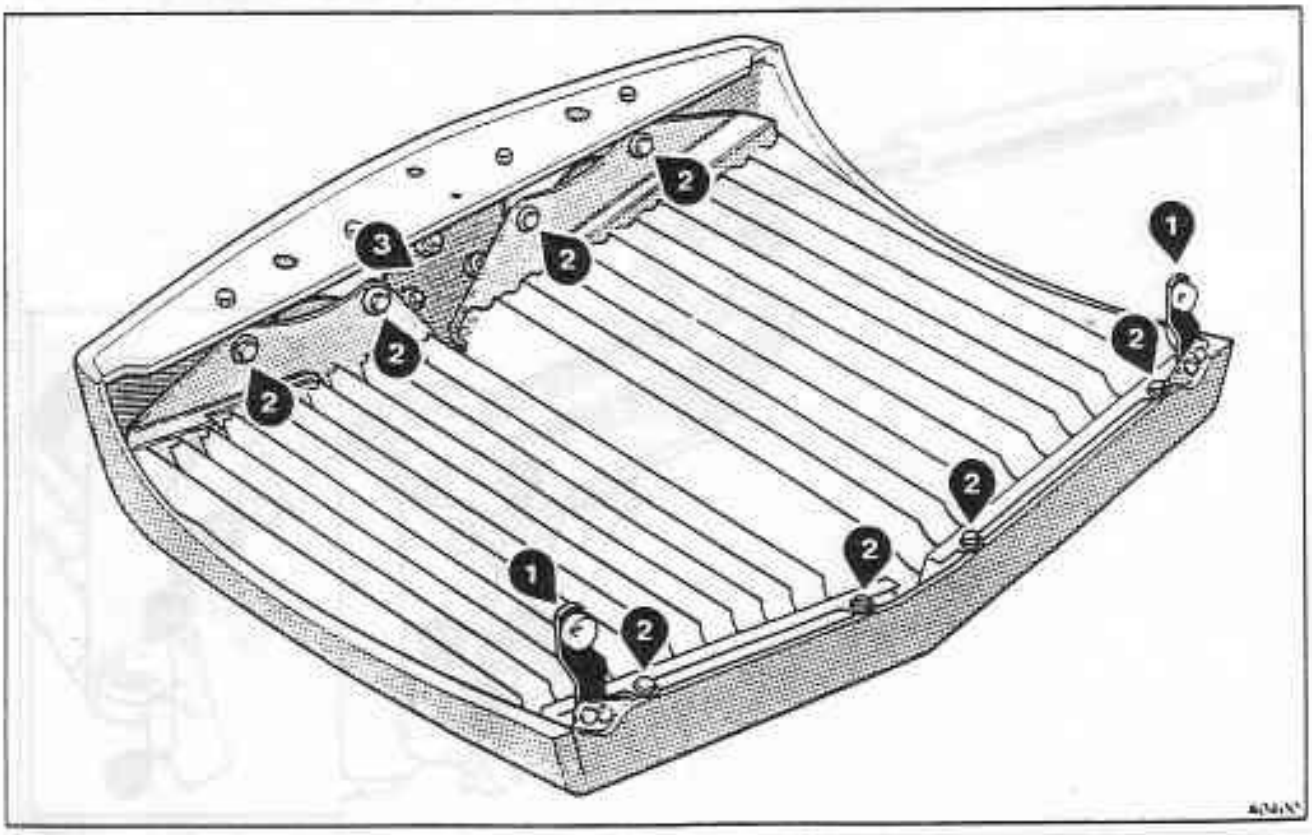

Fig. S15-6 Radiator shell - Bentley Mulsanne (including Turbo)

SCAZS42A3FCX12001 release the securing nut (item 1) and remove the headlamp wiper arm.

3. Remove the screw (item 2) securing the outboard end of the lower trim strip. Carefully detach the strip from the clips (item 3) situated below the headlamp unit.

Disconnect the headlamp washer hose and remove the strip.

4. Unclip and remove the headlamp finisher (item 4), taking care not to distort the finisher.

5. If it is necessary to renew the headlamp finisher retaining clips proceed as follows.

Remove the headlamp and sidelamp units (see Chapter M).

Using a suitable tool, remove and discard the clips taking care not to damage the paintwork.

Position the new clips as shown (inset).

Secure the clips by tapping the retaining pegs (item 5) into position.

6. Check the condition of the self-adhesive foam seals (item 6) and renew if necessary.

7. To fit the headlamp finishers reverse Operations 1 to 4 inclusive.

Headlamp finishers - To remove and fit (see fig. S15-9)

Cars conforming to a Japanese and North American specification

1. Disconnect the battery.

2. Remove the screw (item 1) securing the outboard end of the lower trim strip. Carefully detach the strip from the clips (item 2) situated below the headlamp units. Remove the strip.

3. Unclip and remove the headlamp finisher (item 3), taking care not to distort the finisher.

4. If it is necessary to renew the headlamp finisher retaining clips proceed as follows.

Release the screws (item 4), then remove the headlamp surround trim panel.

Remove the sidelamp units (see Chapter M).

Using a suitable tool, remove and discard the clips taking care not to damage the paintwork or the headlamp units.

Position the new clips as shown (inset).

Secure the clips by tapping the retaining pegs (item 5) into position.

5. Check the condition of the self-adhesive foam seals (item 6) and renew if necessary.

6. To fit the headlamp finishers reverse Operations 1 to 3 inclusive.

Air deflector - To remove and fit (see fig. S15-10)

Cars other than those conforming to a Japanese and North American specification

1. From underneath the front bumper, release the self-tapping screws (item 1) securing the air deflector to the lower body panel. Remove the air deflector.

2. To ensure the correct retention of the air deflector, check that the plastic 'Fastex' nuts (item 2) are not damaged or excessively worn. Renew if necessary.

Front wing undersheets - To remove (see fig. S15-10)

1. Raise the bonnet.

2. To protect the paintwork, fit front wing covers RH 2684.

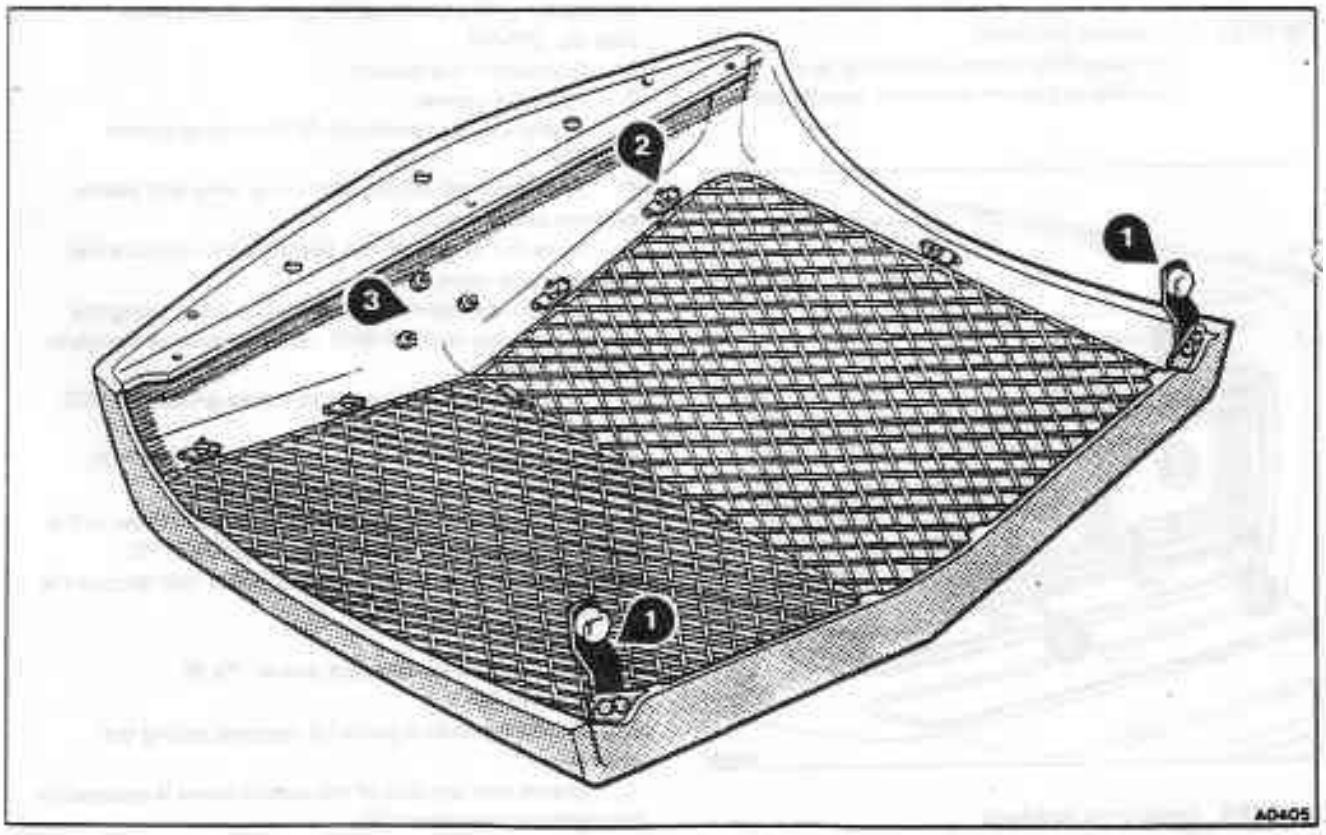

Fig. S15-7 Radiator shell - Bentley Eight

3. Raise the front of the car and remove the wheels (see Chapter R).
4. From inside the engine compartment, remove the plastic thread protectors (item 3) from the undersheet screws.
5. Remove the self-tapping screws (item 4) securing the rear half of the undersheet to the valance panel. Break the seal between the undersheet and the valance panel, then remove the undersheet.

Similarly, remove the front half of the undersheet.

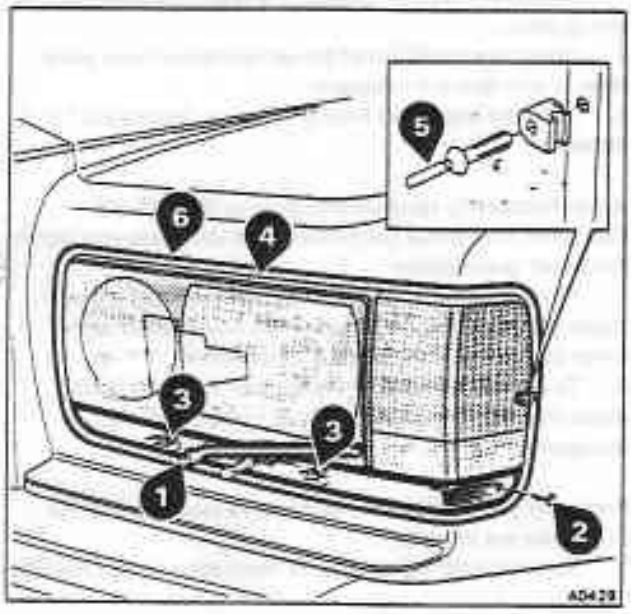

Fig. S15-8 Headlamp finishers
Cars other than those conforming to a Japanese and North American specification

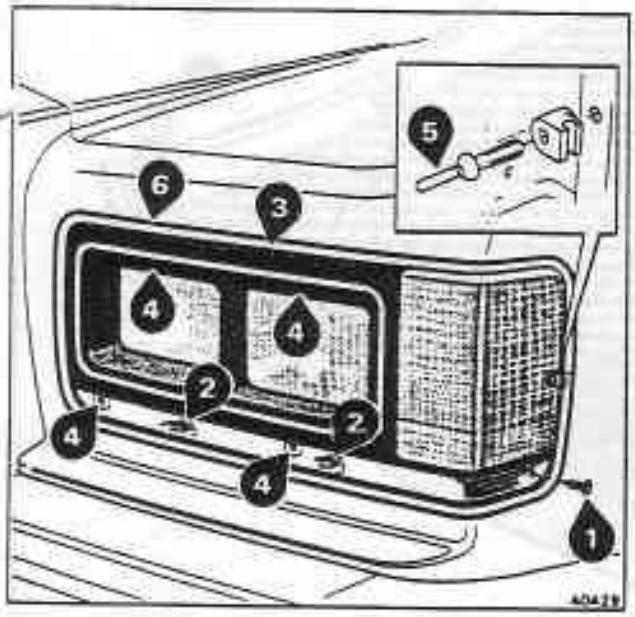

Fig. S15-9 Headlamp finishers
Cars conforming to a Japanese and North American specification

Front wing undersheets - To fit (see fig. S15-10)
Reverse the procedure given for removal noting the following.
1. To prevent possible water ingress, ensure that the wheel-arch sealing strip (item 5) is in good condition and forms a waterproof seal when the undersheet is fitted. Renew the sealing strip if necessary.
2. Apply a bead of Bostik Seelastik, or its equivalent, between the undersheet and valance panel. This prevents water ingress and subsequent corrosion.

Bonnet moulding - To remove (see fig. S15-10)
1. Remove the large bonnet pads (see Bonnet pads - To remove, Section S12).
2. Remove the nut and washer (item 6) securing the front of the moulding.
3. Remove the screw and washer (item 7) securing the rear of the moulding.
4. Remove the five retaining nuts (item 8), plain washers, and rubber sealing washers.
5. Remove the bonnet moulding, complete with retaining studs, taking care not to damage the paintwork.

Bonnet moulding - To fit (see fig. S15-10)
Reverse the procedure given for removal noting the following.
1. To prevent water ingress it is important that the rubber sealing washers are positioned between the plain washers and the bonnet panel.
2. Do not overtighten the retaining nuts (item 8) as this could distort the bonnet moulding.

Air intake grilles and scuttle panel - To remove (see fig. S15-10)
1. Disconnect the battery.
2. Raise the bonnet.
3. To protect the paintwork, fit front wing covers RH 2684.
4. To remove the windscreen wiper arms and blades proceed as follows.

Raise the hinged covers (item 9), then remove the retaining nuts (item 10).

Loosen the Allen screw (item 11). Then, using the special extractor tool RH 9623 carefully remove the wiper arms and blades.
5. Unscrew and remove the air intake grilles (item 12), and foam filters.
6. Loosen the scuttle retaining setscrews (item 13).
7. Remove the four setscrews (item 14).
8. Lift the front of the scuttle panel slightly, then pull it forward to disengage the retaining clips (item 15). Disconnect the windscreen washer hoses and remove the scuttle panel.

Air intake grilles and scuttle panel - To fit (see fig. S15-10)
Reverse the procedure given for removal noting the following.
1. Ensure that the rear of the scuttle panel is secured by the retaining clips (item 15).
2. Check that the scuttle panel fits flush with the top of the front wings.

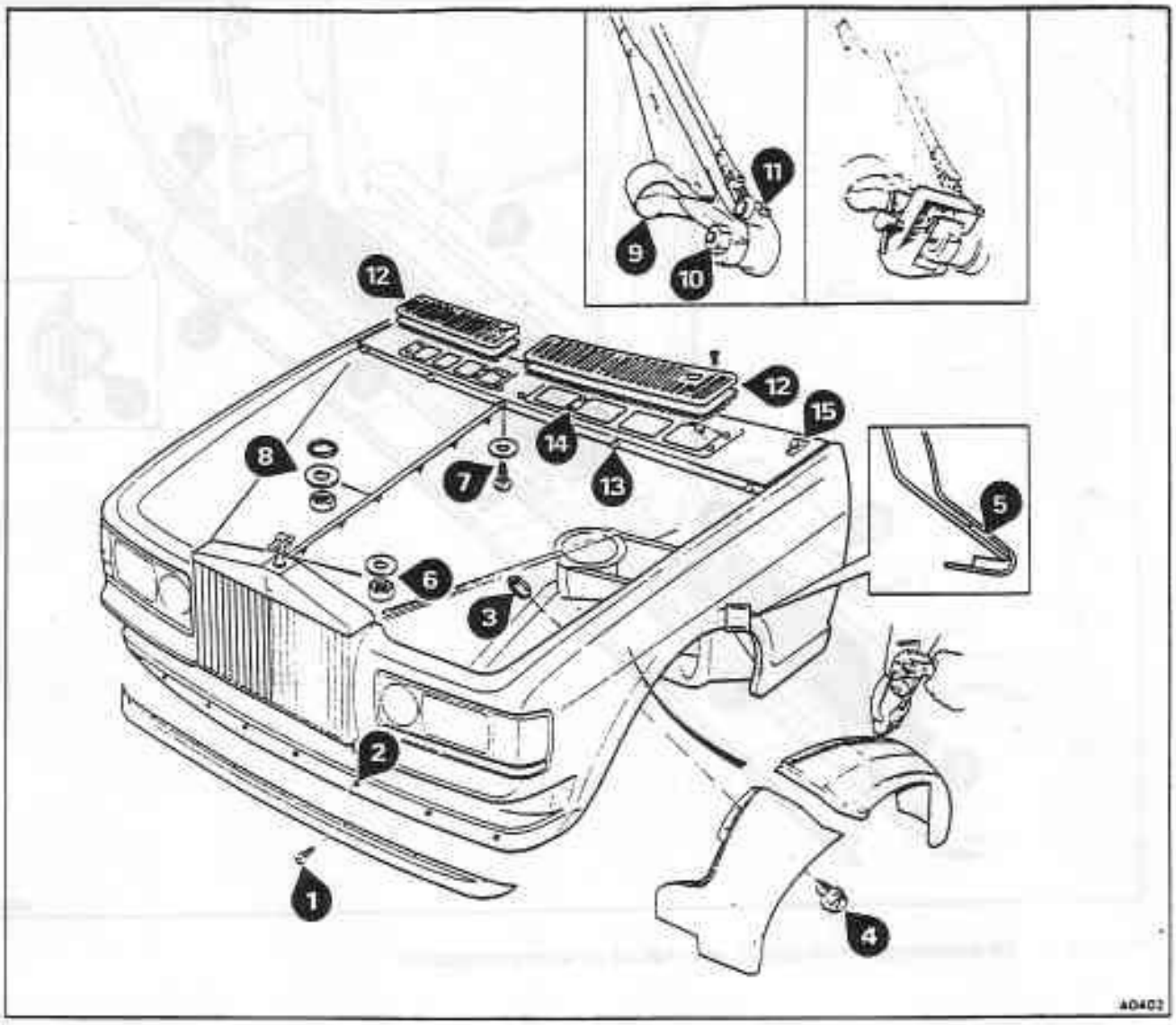

Fig. S15-10 Air deflector, front wing undersheets, bonnet moulding, and air intake panels

3. If the foam air intake filters are found to be damaged or excessively dirty they must be renewed.
4. Check that the windscreen wipers and washers operate correctly. Also that the wipers park correctly (see Chapter M).

Sill mouldings - To remove and fit (see fig. S15-11)

1. Unscrew and remove the access plate (item 1) situated on the front wing undersheet.
2. Remove the nut (item 2), plain washer, and sealing washer securing the moulding to the wing panel.
3. Lift the front of the moulding away from the wing panel and progressively disengage the plastic retaining clips (item 3).
4. Remove the moulding by pulling it forward to disengage the spring clip (item 4).
5. To ensure the correct retention of the mouldings, check that the clip retainers (item 5) situated in the sill panel are not damaged or excessively worn. Renew if necessary.
6. To fit the mouldings reverse Operations 1 to 4 inclusive.

Note

To prevent water ingress it is important that the sealing washer is positioned between the plain washer and the wing panel.

Sill treadrubbers - To renew (see fig. S15-11)

1. Unscrew and remove the stainless steel trim covers (item 6).
2. Unscrew and remove the treadrubber retainers (item 7).
3. Using a scraper, remove the treadrubbers (item 8) taking care not to damage the paintwork. Using abrasive paper produce a rough bonding surface on the new treadrubber.
4. Clean the treadrubber and sill bonding surfaces using a lint free cloth moistened with Bostik Cleaner 6001. Allow at least one hour to dry.
5. Apply Bostik Primer 9252 to the bonding surface of

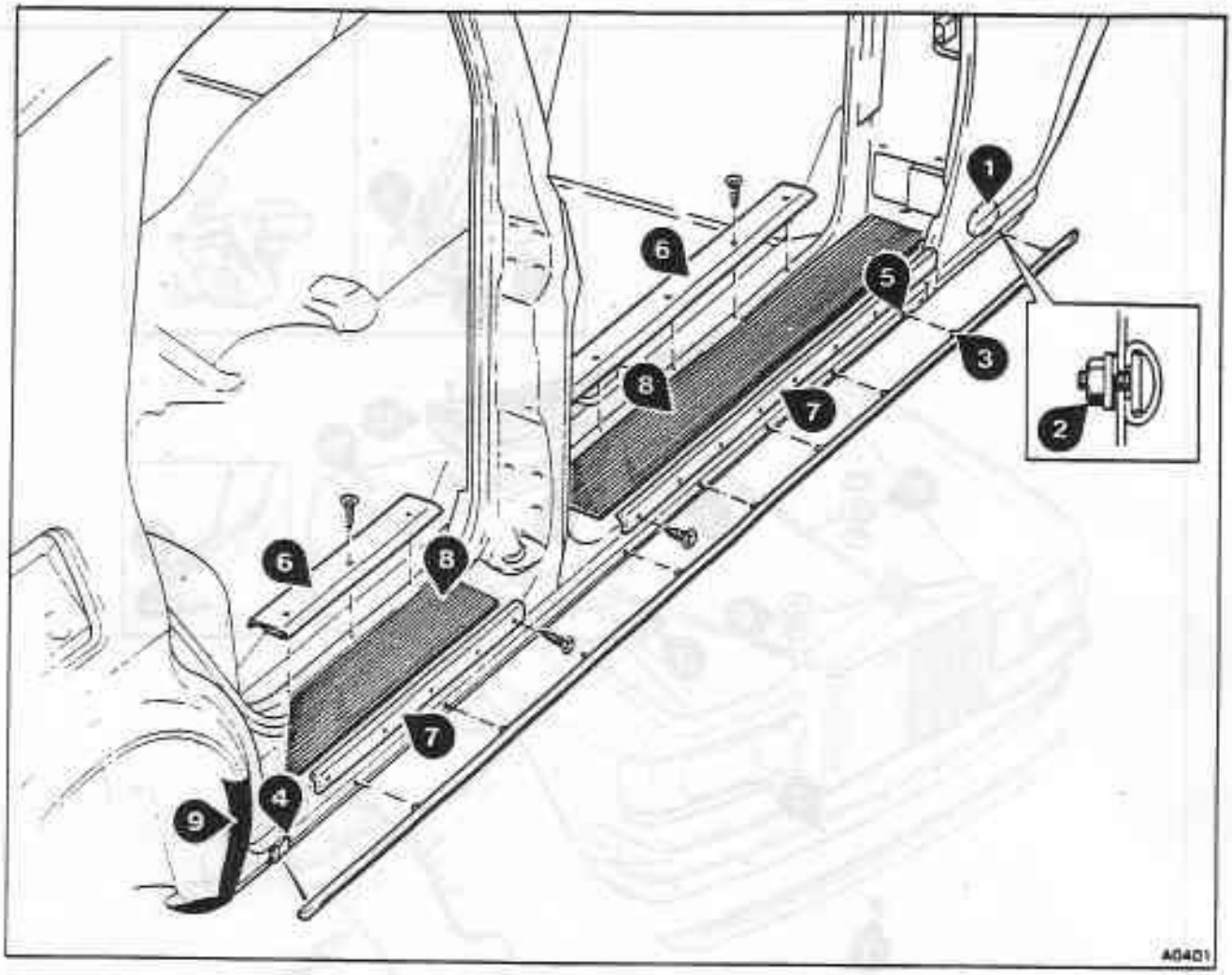

Fig. S15-11 Sill mouldings, treadrubbers, and rear wheel-arch stoneguards

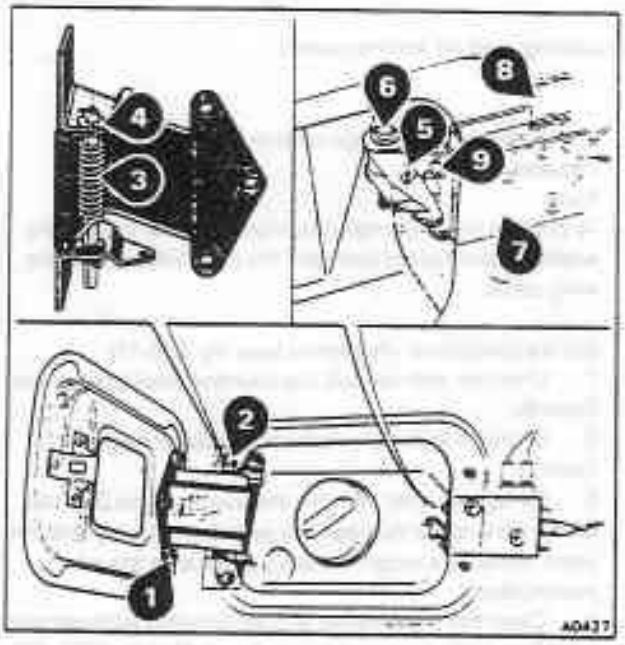

Fig. S15-12 Fuel filler door and release mechanism

the sill. Allow at least one hour to dry.

6. Thoroughly mix the Boscoprene Adhesive 2402 (parts 1 and 2) and apply to the bonding surfaces of the treadrubber and sill.

7. Allow between 10 and 15 minutes for the adhesive to 'flash' dry. Then, press the treadrubber into position using maximum hand pressure.

8. Remove any excess adhesive using Bostik Cleaner 6001.

Rear wheel-arch stoneguards - To renew (see fig. S15-11)

1. Using a suitable scraper, remove the stoneguard (item 9) taking care not to damage the paintwork.

2. Remove all traces of adhesive from the wheel-arch using a lint free cloth moistened with Bostik Cleaner 6001. Allow at least one hour to dry.

3. Apply Bostik Primer 9252 to the bonding surface of the wheel-arch. Allow at least one hour to dry.

4. Using abrasive paper produce a rough bonding surface on the new stoneguard, then clean with Bostik Cleaner 6001. Allow at least one hour to dry.

5. Thoroughly mix the Boscoprene Adhesive 2402 (parts

1 and 2) and apply to the bonding surfaces of the stoneguard and wheel-arch.

6. Allow between 10 and 15 minutes for the adhesive to 'flash' dry. Then, press the stoneguard into position using maximum hand pressure.

7. Remove any excess adhesive using Bostik Cleaner 6001.

Fuel filler door and hinge - To remove (see fig. S15-12)

1. Open the fuel filler door. This can be achieved manually from the ring pull in the luggage compartment or electrically by depressing the button situated on the instrument facia.

2. Release the nuts and washers (item 1) securing the door to the hinge. Remove the door and spacing plate.

3. To facilitate assembly, mark the position of the hinge onto the body.

4. Remove the hinge assembly by releasing the three Allen headed setscrews (item 2) and washers.

Note

On cars conforming to a Japanese and North American specification a warning plate is attached to the hinge assembly.

5. To separate the door spring (item 3) from the hinge proceed as follows.

Remove the spring clip (item 4) and washer from the hinge pin.

On cars conforming to a Japanese and North American specification unhook the warning plate spring.

Withdraw the hinge pin and remove the door spring, noting the position of any spacing washers.

Fuel filler door and hinge - To fit (see fig. S15-12)

Reverse the procedure given for removal noting the following.

1. Prior to tightening the setscrews securing the hinge, align the marks made during removal.

2. Ensure that the door blends perfectly with the rear wing panel and that an even clearance exists around the door.

3. Check that the door can be opened and closed without difficulty.

Fuel filler door release mechanism - To remove and fit (see fig. S15-12)

1. Remove the split pin (item 5) and washers securing the release trigger to the solenoid plunger.

2. Release the nut and remove the pivot bolt (item 6). Remove the release trigger and spacing tube.

Note the position of any spacing washers situated between the release trigger and mounting bracket.

3. To remove the fuel filler door release solenoid (item 7) proceed as follows.

Disconnect the battery.

To gain access to the release solenoid, it will be necessary to remove the left-hand side trim panel from within the luggage compartment (see Carpet and trim panels - To remove, Section S9).

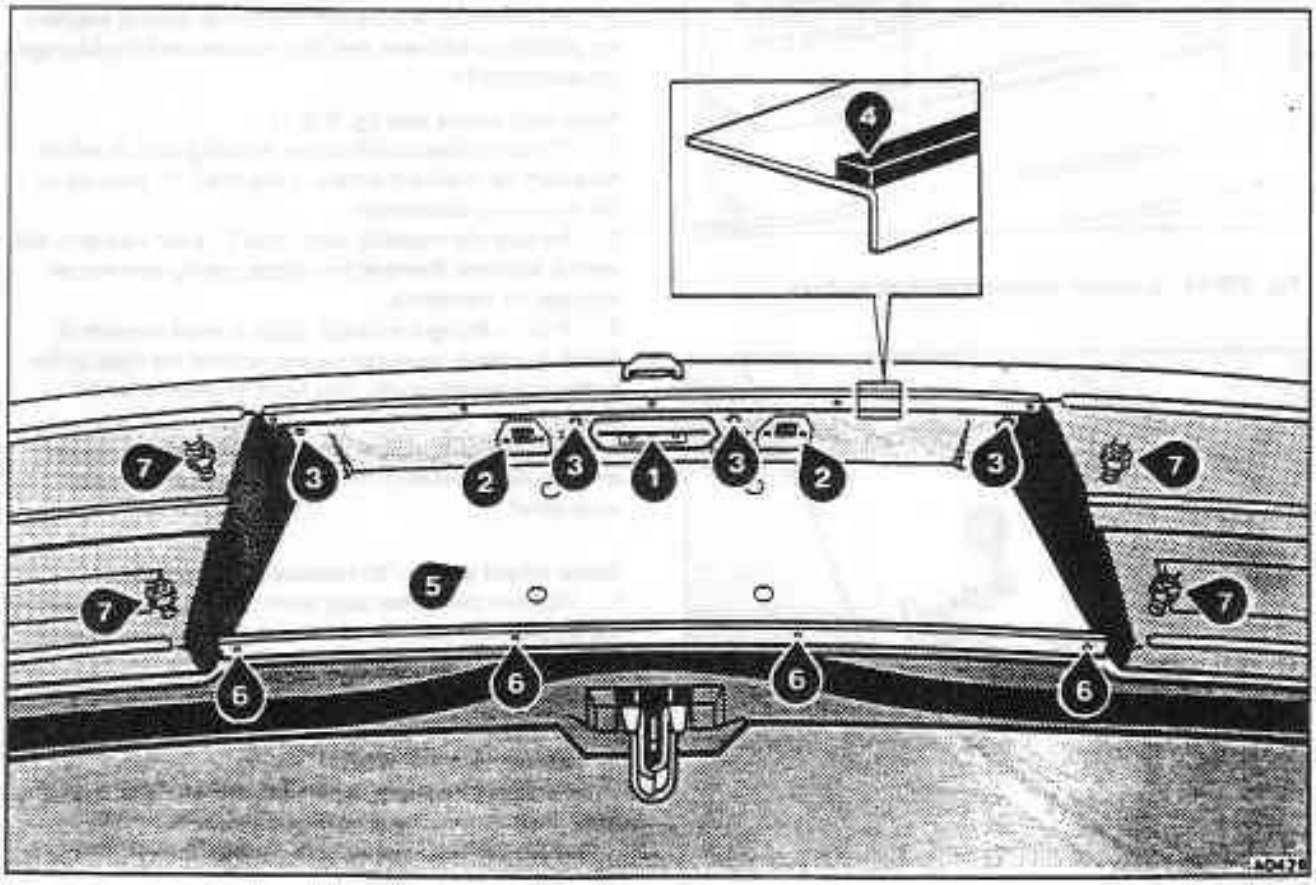

Fig. S15-13 Luggage compartment lid exterior fittings

Release the Lucar connectors (item 8).

Support the solenoid assembly, then unscrew and remove the retaining nuts and washers (item 9).

Withdraw the solenoid assembly.

4. To fit the filler door release mechanism reverse Operations 1 to 3 inclusive.

Number plate lamp mounting bracket - To remove and fit (see fig. S15-13)

1. Disconnect the battery.
2. Drill out the pop rivets (item 1) securing the luggage compartment lid release handle. Remove the retaining plate, handle, and seal.
3. Remove the screws (item 2) securing each number plate lamp. Withdraw the lamps and foam gaskets. Then, release the Lucar connectors and remove the lamps.
4. Release the screws and washers (item 3) securing the mounting bracket. Remove the mounting bracket/finger grip assembly together with the foam seal (item 4).

If the seal is found to be damaged or ineffective it must be renewed.

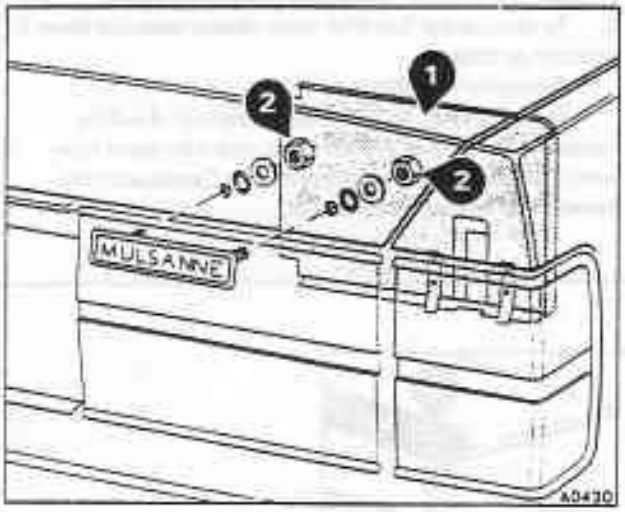

Fig. S15-14 Luggage compartment lid badges

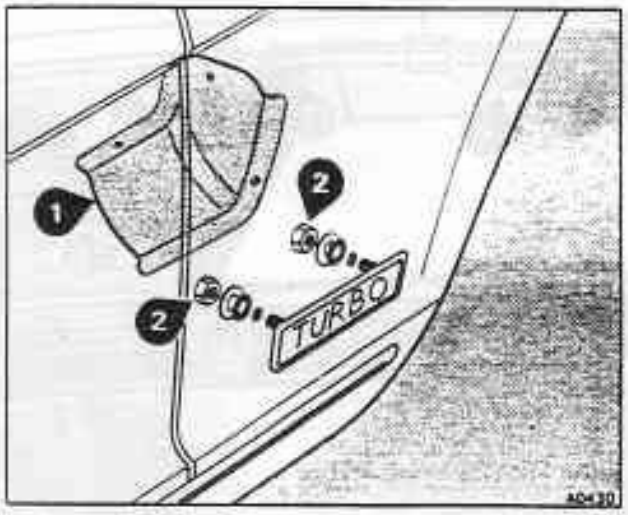

Fig. S15-15 Front wing badges

5. To fit the mounting bracket reverse Operations 1 to 4 inclusive.

Rear number plate trim panel - To remove and fit (see fig. S15-13, item 5)

Silver Spur cars only

1. Disconnect the battery.
2. Unscrew and remove the number plate.
3. Release the screws (item 6), then remove the lower finger grip.
4. To release the number plate trim panel from underneath the lamp units proceed as follows.

Remove both luggage compartment lid outer trim panels.

Slacken the lamp unit securing nuts (item 7) sufficiently to allow the trim panel to be removed.

5. To fit the trim panel reverse Operations 1 to 4 inclusive.

Exterior badges - To remove and fit

Luggage compartment lid (see fig. S15-14)

1. To gain access to the badge retaining nuts, it will be necessary to remove the appropriate luggage compartment lid trim panel (item 1).
2. Release the retaining nuts (item 2), plain washers, and sealing washers. Remove the badge, taking care not to damage the paintwork.
3. Prior to fitting the badge, apply a small amount of Bostik Seelastik, or its equivalent, around the base of the badge attachment studs. This helps to prevent water ingress.
4. On assembly, ensure that the rubber sealing washers are positioned between the plain washers and the luggage compartment lid.

Front wing panels (see fig. S15-15)

1. To gain access to the badge retaining nuts, it will be necessary to remove the cover plate (item 1), situated on the front wing undersheet.
2. Release the retaining nuts (item 2), plain washers, and sealing washers. Remove the badge, taking care not to damage the paintwork.
3. Prior to fitting the badge, apply a small amount of Bostik Seelastik, or its equivalent, around the base of the badge attachment studs. This helps to prevent water ingress.
4. On assembly, ensure that the rubber sealing washers are positioned between the plain washers and the front wing panel.

Spare wheel carrier - To remove (see fig. S15-16)

1. Remove the rubber plug (item 1) situated underneath the luggage compartment floor carpet. Then, disengage the spare wheel retention hook (if fitted).
2. Locate the carrier lowering bolt (item 2). Then, fully lower the spare wheel carrier.
3. Remove the spare wheel.
4. To facilitate assembly, scribe the outline of the large washer (item 3) onto the lowering bolt tube assembly.
5. Remove the securing nut and washer (item 4). Then, lower the rear of the carrier.
6. Remove the pivot bolt nuts and washers (item 5).

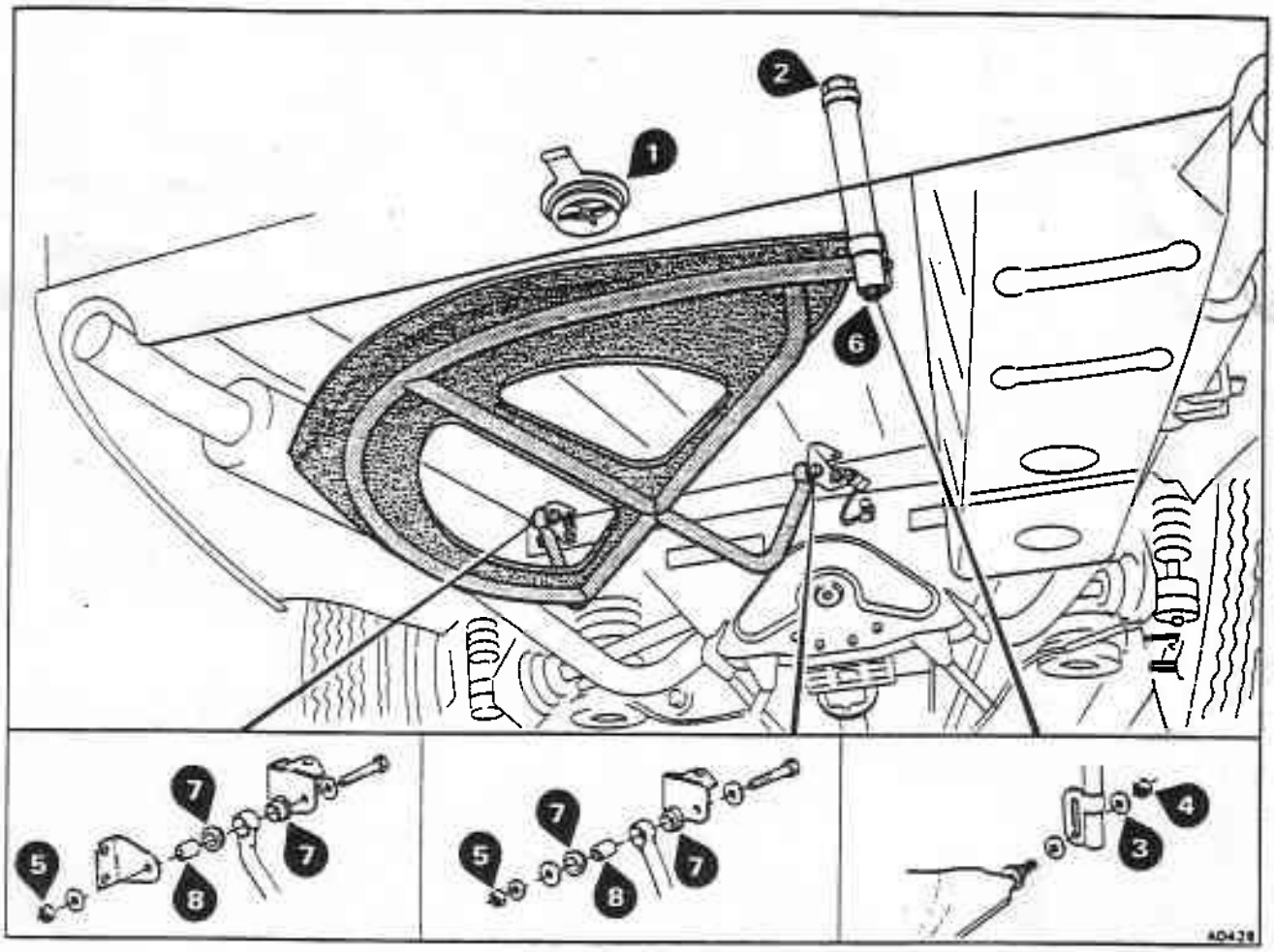

Fig. S15-16 Spare wheel carrier

Support the carrier, then withdraw the pivot bolts and washers.

Remove the spare wheel carrier.

7. To remove the lowering bolt and tube assembly proceed as follows.

Remove the lock-nut (item 6), full nut, and washer situated at the lower end of the tube assembly.

Unscrew and separate the lowering bolt from the tube assembly.

Spare wheel carrier - To fit (see fig. S15-16)

Reverse the procedure given for removal noting the following.

1. Lubricate the lowering bolt and the two pivot bolts with Rocol MTS 1000 grease, or its equivalent.
2. Check the condition of the rubber bushes (item 7) and renew them if necessary.
3. Prior to fitting the carrier, ensure that the distance tubes (item 8) are in position.
4. After fitting the spare wheel, raise the carrier and check that the wheel is held firmly in position.

If necessary, adjust the position of the carrier as follows.

Lower the carrier slightly by loosening the lowering bolt four or five complete turns.

Support the carrier, then loosen the securing nut (item 4).

Move the carrier securing bolt to a higher position within the adjustment slot. Tighten the securing nut.

Raise the carrier and check that the spare wheel is securely held. If necessary repeat the adjustment operation.

Paint

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Paint

Introduction

This section has been prepared to assist refinishing personnel during the rectification and repainting of Rolls-Royce and Bentley motor cars.

Care of paint finishes

To obtain a deeper lustre and a smoother surface in the paint finish of cars the use of modified acrylic nitrocellulose and full thermoplastic acrylic type paints is recommended.

Modified cellulose and full thermoplastic finishes are extremely resistant to all normal forms of atmospheric attack, provided that the simple maintenance procedures are followed.

Note

Car finishes are not chemically resistant. Severe localized contamination with acid or alkaline solution can cause pitting or discolouration if left in contact with the paint for any length of time.

Maintenance of paintwork

For the correct maintenance of paintwork the following procedures are recommended.

1. Always wash paintwork with clean, preferably running cold water.
2. Do not use excessive pressure from the hose, but thoroughly wet the car all over before commencing cleaning.
3. Start at the top of the car and work downwards. Use clean sponges and fresh water as much as possible. Frequent washing of the car is the best safeguard against unseen contaminants.

Note

If washing with cold water is not effective, warm water with a small amount of a mild detergent such as Teepol will help to remove the gummy deposits exuded by some trees in the summer months, but always rinse off well with clean cold water.

4. Remove the water with a chamois leather. When leathering off the car the leather should be frequently washed in clean cold water and the surface water wrung out before continuing.
5. Sponge and leather all window frames and door edges.
6. Clean the windscreen, rear window and door windows inside and out. Lower the windows to clean the portion normally covered by the window channels.
7. Remove any road tar from the car by gently rubbing with a soft cloth, moistened with turpentine substitute.
8. **Under no circumstances should any attempt be made to remove dirt, mud or dust when dry or with a dry cloth.** This practice can produce serious scratching of the surface finish, which will probably require professional repairs.
9. **The use of automatic car washes is not recommended,** as the detergents used and the nylon brush washing action, may stain or seriously scratch the paintwork or damage the windows or radiator shell.
10. At least every three months, after normal cleaning with cold water the paintwork should be restored by application of a suitable cleaner/polish. In climatic conditions where long periods of sunshine prevail, more frequent cleaning/polishing may be necessary, dependent upon the colour of the car.
11. **Do not polish the car in a dusty or gritty atmosphere or in direct sunlight.**
12. When polishing do not apply a wax polish on top of previous wax layers and traffic film, as a build-up of wax can induce its own type of rain spotting or discolouration defects. A good quality friction emulsion cleaner/polish should be applied in accordance with the manufacturer's instructions. Slight discolouration on the polishing cloth when carrying out this procedure will be evident but is of no cause for concern.
13. After the cleaner has been applied and removed, a good quality wax polish should then be applied to provide a weatherproof lustre.

Note

If regular maintenance polishing as described in Operations 10 to 13 inclusive is not carried out, the original gloss will be obscured and rain spotting may reach objectional proportions. Paintwork should therefore be cleaned and polished as soon as the gloss begins to fade, not when it has already become dull.

Properties and uses of paint

General information

There are two distinct stages in the repair of paint or in the complete refinish of a car, they are.

1. The preparation of the metal or old paint surface and the application of any undercoating system to give a smooth level surface that will accept the final finishing coats. The correct choice of undercoats and correct application are essential, as mistakes made at this stage cannot be seen until the colour coats are applied and will then be extremely expensive to rectify.
2. The application of a sufficient number of colour coats to give the required film build for durability. This also obliterates the undercoat on the repaired areas and matches the original finish for colour and general appearance.

Paint is a product which, by its very composition, is vulnerable to misuse. Once a container is opened

numerous problems can arise. For example, it has been found when investigating colour problems in service, that often the material has not been sufficiently stirred. The necessity to completely and thoroughly stir the paint before use cannot be over emphasised especially with the increasing use of metallic paints.

Few paints used in the refinishing trade are supplied ready for use, therefore the addition of thinners is necessary. Rolls-Royce Motors Limited and the paint manufacturers indicate clearly in their literature the correct thinner to use, the approximate thinning proportions and the recommended application viscosity. It cannot be too strongly emphasised that these recommended procedures must be adhered to.

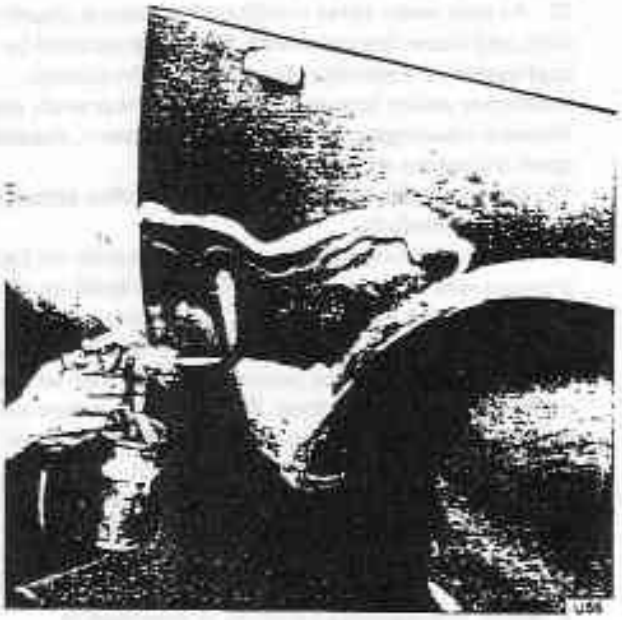


Fig. S17-1 Spray application of etching primer onto bare metal and polyester stopper

Fig. S17-2 Spray application using primer surfacer

A paint can generally be described as a mixture of fluids and solids of different types. They are.

Fluids – solvent, binder, plasticiser and additives.
Solids – pigments and fillers.

The term 'paint' can be used to identify any liquid material that when applied to a surface will dry to give a hard continuous film. Film forming or drying takes place in solvent based paints (the ones used by Rolls-Royce Motors Limited) solely by evaporation of the solvents and there is no chemical change involved. Paints which fall into this category are.

Cellulose and acrylic based colour paints.
Cellulose or acrylic based primers/surfacers.
Primer fillers and cellulose or acrylic based stoppers.

Undercoats

Undercoat is a general description broadly used to identify coatings which can provide a base for the final colour coats. Primers, fillers, surfacers or stoppers all belong to this group.

Primers

Primers are formulated to give good adhesion between the substrate and the final paint system.

As their main purpose is to establish a secure base for any subsequent painting operations, primers are most effective when applied in relatively thin films. They are not designed to fill scratches and should not be flatted, a very light de-nib is all that is required.

Etching primers are a special type of primer formulated to provide a metal etch particularly on light alloy or zinc surfaces. They contain an acid activator which has to be mixed with the primer base approximately twenty minutes before use. After mixing, etching primers have only a useful life of approximately six hours.

Etching primers contain special pigments which help to prevent corrosion should the paint film become damaged.

Etching primers should be applied to all bare metal areas on steel, aluminium or zinc (see fig. S17-1).

Primer surfacers

Primer surfacers are formulated to contain a larger amount of pigment than primers and consequently they are capable of filling minor scratches or imperfections. As well as better filling properties primer surfacers also have to promote good adhesion between the primer and subsequent coats of applied paint. After drying, they are generally sanded to eliminate surface imperfections and to ensure that a uniform gloss is achieved after applying the colour coats (see fig. S17-2).

Nitrocellulose based primer surfacers and fillers are recommended for use in refinishing. They are universal products and can be used in virtually any paint rectification system. Their particular attributes are quick drying to the flatting stage and a dry over-spray which will not adhere to and spoil adjoining work. Do not attempt to fill all metal imperfections in the shortest time as these products should not be used in

one heavy application at a high viscosity. This would result in slow drying, difficult flatting, sinkage of top coats and in many cases sand scratch swelling when the colour coats are applied. The correct way which also saves time is to thin correctly and to build up in several thin coats.

The correct way to use primer surfacers can be summarized as follows.

1. Stir thoroughly to ensure that any pigment settlement is fully dispersed.
2. Use the manufacturer's recommended thinner.
3. Thin to the recommended viscosity and check with a viscosity cup (see fig. S17-8).
4. Apply a minimum of two even coats, allowing an adequate drying time between coats.
5. Avoid applying primer surfacer in a dusty atmosphere as this can lead to pin holing.
6. Ensure that the primer surfacer is properly dry before starting flatting operations.

Stoppers

A stopper is a heavily pigmented material with a paste like consistency. It is used to fill deep scratches, etc. and is usually applied with a knife or spreader. The stopper should be applied in the following manner.

1. Using a knife or spreader at an angle of approximately 60° to the painted surface, apply firm even pressure. If the spreader is held at a more acute angle the stopper will tend to roll over the spreader and force air bubbles into the film.
2. **Stopper must never be applied in one thick coat.** The stopper will only dry on the surface and remain soft underneath with subsequent sinkage of the colour coats. A high proportion of refinishing paint failures can be attributed to attempts to reduce processing times by applying stopper in thick layers.

The surface should be built-up with several thin layers and the operator should ensure that each layer is completely hard before proceeding with the next.

3. Stoppers should not be used as a substitute for work on metal which normally requires a hammer or file.
4. After the final application inspect the surface to ensure that the surface is smooth, free from knife marks and pin holes.

Polyester stoppers (see fig. S17-3)

Polyester stoppers are two pack materials which dry by chemical reaction. Although thicker films may be applied which harden more quickly, it is recommended that the thickness is built up in more than one operation. Due to the consistency of these products the mixing of the two components before use will introduce air bubbles. If very thick layers are applied, it is not possible to press out the stopper and pin holes result. After the first layers have been flatted, a thin layer should then be applied to seal off any exposed pin holes.

Note

Two pack polyester stoppers must never be sandwiched between coats of colour as there is a considerable risk of blistering or cracking of the feather edge.

Fig. S17-3 Hand application of polyester stopper to bare metal

Fig. S17-4 Localized spray application of colour onto primer surfacer exposed during the flatting operation — 'spotting-in'

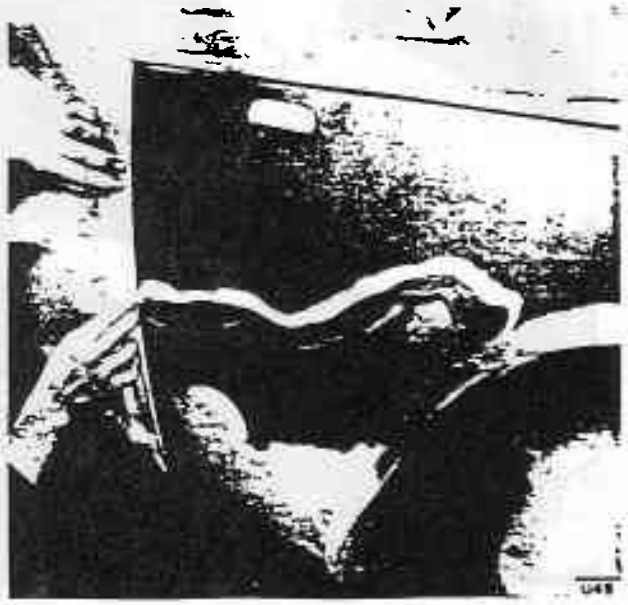


Fig. S17-5 Checking the masking

Colour coats

General preparation before paint

1. Before the paint is prepared the vehicle should be thoroughly inspected to ensure that the preparation is to the recommended standard.
2. Ensure that all bare metal and stopper areas have been spotted in with colour and that there are no damaged or unflatted areas (see fig. S17-4).
3. Check that there is no detached or broken masking and that there is no loosely adherent overspray on the paper (see fig. S17-5).

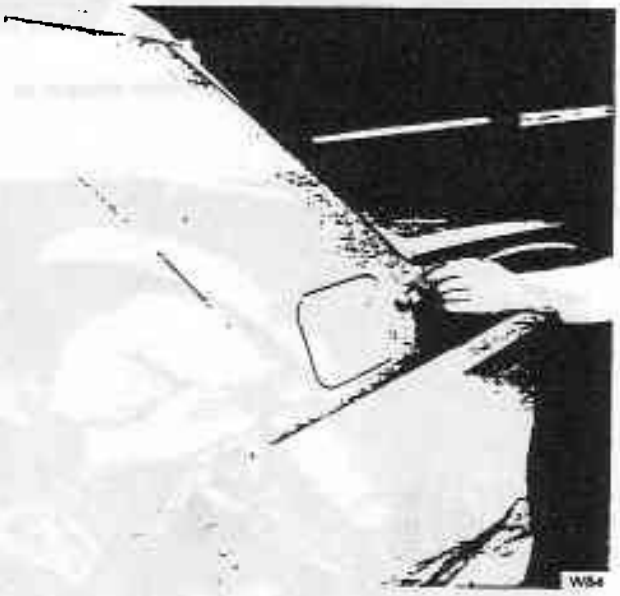


Fig. S17-6 Blowing out crevices etc., with clean dry compressed air before cleaning and painting

4. All seams, crevices, channels, etc. should be blown out with clean dry compressed air applied at low pressure (see fig. S17-6).
5. The area to be painted should be thoroughly washed with clean water and immediately dried by hand using clean dry cloths. Do not blow dry using compressed air as this method will leave concentrations of water soluble salts which will produce blistering in service.
6. The whole area should be degreased using a proprietary degreasing solvent. This will remove all traces of remaining grease, hand marks or other oily contaminants (see fig. S17-7).

General preparation of finishing paints

Before preparing the finishing colour check on the actual colour of the vehicle as one of the greatest problems with paint is colour matching. This is achieved by examining the paint and trim identification label located on the underside of the bonnet lid in the front left-hand corner.

When respraying a part of the car, check the colour of the refinishing material against the car. To do this, an area of paintwork on the car which is not to be resprayed, should be thoroughly cleaned. Use a light abrasive to remove all traffic film so that the true colour can be established.

To minimise colour differences Rolls-Royce Motors Limited supply only the original colour materials for use in service.

When preparing colour for refinishing the following guidelines should be followed.

1. Stir the paint thoroughly. This applies to all paints, it is particulary important when using metallic paint.
2. Before any thinners are added, ensure that the paint is at the recommended paint shop temperature of not less than 18°C (see fig. S17-8).

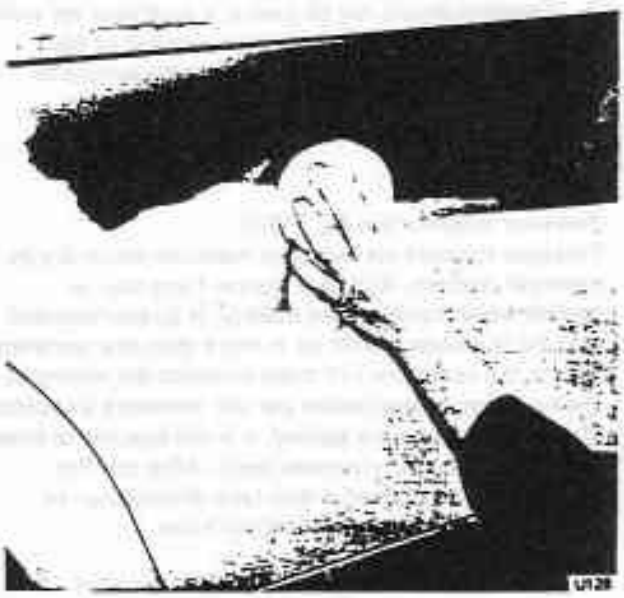


Fig. S17-7 Degreasing the car using a clean lint free cloth

3. Check that the correct thinner is being used. Note Rolls-Royce Motors Limited and the paint manufacturers recommendations.

The correctly formulated thinner will produce optimum results. The solvent which is already being used in the manufacture of the paint is taken into account. Therefore the mixture of solvents in the thinners will produce the correct dissolving power and an evaporation rate which will allow the quickest drying time consistent with good flow and gloss. Cheap thinners do not have these properties.

4. Thin with the correct proportion of thinners and then carry out a viscosity check (see fig. S17-8) as follows. This involves timing the flow of liquid through an orifice until the first brake-point in the thread of liquid occurs.

(a) Ensure that the cup and particularly the orifice, is clean, then carry out the preparation of the paint sample and all the following operations without delay.

(b) Adjust the temperature of the paint sample, the flow cup and receiver to approximately 20°C.

(c) With the orifice closed by the finger, fill the cup with the freshly stirred bubble-free paint sample until it just begins to overflow into the gallery. Pour slowly to avoid the formation of air bubbles. If bubbles are present, allow them to rise and then remove them from the surface. Check that the temperature of the paint sample in the cup is approximately 20°C.

(d) Ensure that the level of the paint sample coincides with that of the top of the cup. This can conveniently be done by drawing the glass plate or straightedge across the rim of the cup.

(e) Time the flow as described in Operation f. Verify immediately before and after each determination that the temperature of the paint sample is approximately 20°C.

(f) Place a suitable receiver under the flow cup, remove the finger from the orifice and simultaneously start the stopwatch, stopping it when the stream of the paint sample first breaks (see fig. S17-8).

(g) Repeat the determination at least once. If a large variation is found, the cleanliness of the orifice should be checked and the determination repeated with a fresh paint sample.

(h) If an excessive variation in flow time is still obtained, it is likely to be due to anomalous flow properties (thixotrophy, etc.).

Note

It is important that viscosity checks are made. Variations in viscosity will affect film thickness, drying time, flow characteristics and general appearance. It is particularly important when applying metallic finishes to use the correct recommended viscosity.

5. After preparing the colour to the recommended guidelines proceed as follows.

'Tak-rag' the surface before the colour coat is sprayed. Because the surface will have already been degreased, it is important to avoid touching the metal with bare hands. Operators are recommended to wear clean cotton gloves (see fig. S17-9).

6. For all information on spraying refer to 'Spraying techniques, equipment, application faults and remedies' (see page S17-11).

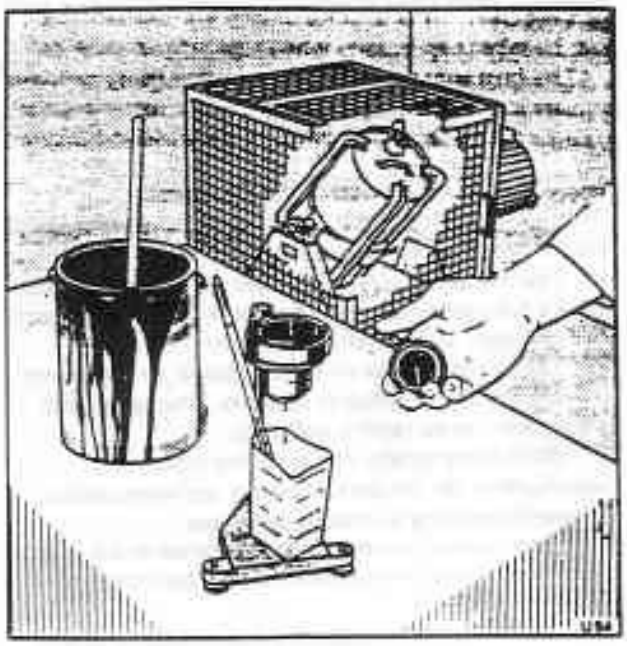


Fig. S17-8 Making a viscosity check

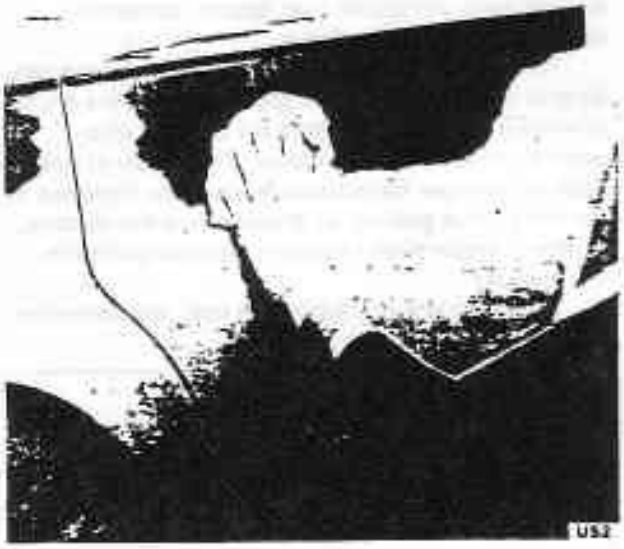


Fig. S17-9 Tak-rag the surface before spraying colour coat

Colour finishes — Material types

Nitro cellulose or Modified nitro cellulose lacquers

When using nitro cellulose or modified nitro cellulose lacquers the following points should be noted.

1. The lacquers are blends of nitro cellulose and synthetic resins.
2. They provide rapid drying, a reasonable gloss from the spray gun and good colour stability characteristics.
3. If necessary, polishing can be undertaken after drying to improve the gloss and to remove any slight imperfections in the paint film.
4. The thinners used in the lacquers are strong and may

cause old paint films to craze or wrinkle, therefore care must be taken particularly when repairing an older car.
5. The final appearance of the car when using cellulose lacquers is dependent upon following the recommended procedures and using the specified materials and thinners.

Thermoplastic acrylic lacquers (FTA paints)

When using thermoplastic acrylic lacquers (FTA paints) the following points should be noted.
1. Thermoplastic acrylic lacquers are generally based upon a fully synthetic resin system – methyl methacrylate (perspex) and a plasticising agent.
2. The characteristics of thermoplastic acrylic paints are very similar to cellulose lacquers. They give rapid drying and can be readily polished.
3. When using acrylic paints during repair, it is important to use the correct primer surfacers/sealers otherwise cracking or crazing can occur.
4. In temperate climates little difference exists in gloss and colour retention between modern cellulose and acrylic finishes.

In sub-tropical climates the thermoplastic acrylic lacquers have considerably better gloss retention.

Metallic paints

To obtain a satisfactory match to the original metal finish, it is helpful to know that the composition of metallic paint consists of clear lacquer, colouring pigment and aluminium flakes.

The aluminium flakes play a decisive role, not only do they provide the metallic appearance but the degree of sinkage of the flakes within the wet film after application will affect the colour. The degree of sinkage depends on many factors such as viscosity, thickness or wetness of coat applied, air pressures and drying time, or rate of evaporation of solvent from the paint film. For example.
1. If sprayed as a very heavy wet coat, the aluminium will settle deeper within the film and the colouring pigment will remain on the surface producing a darker shade or a mottling effect.
2. If sprayed as too dry a coat, the reverse effect takes place giving too light a colour and usually a lower gloss.

Different applications can alter the finished colour and appearance, it is therefore important that the number of variables is kept to a minimum. For this reason it is imperative that the recommended thinning and viscosity information is adhered to.

There is no single reason for the various faults of incorrect shade, streakiness or mottle effect. Faults can be attributed to any one or a combination of reasons.

Many of the problems associated with metallic paints can be avoided by reference to figure S17-10.

Thinners

1. Use only the high quality thinners that are recommended for use with each paint.

Cheap thinners often contain solvents which do little but reduce the paint to a viscosity suitable for spraying. Gloss and flow characteristics can be severely impeded with the result that the work may have to be repeated.
2. Every thinner recommended for a particular type of paint should be a blend of solvents carefully formulated to take into account the solvents already used in the manufacture of the paint. Also, the overall evaporation rate which will allow the fastest drying time consistent with good flow characteristics.

Surface preparation

General information

Correct surface preparation is the solution to successful paint rectification and respraying. Any work undertaken can only be as good as the efficiency of this preparation.

Prior to any painting being undertaken, the whole of the car should be washed with clean water to remove

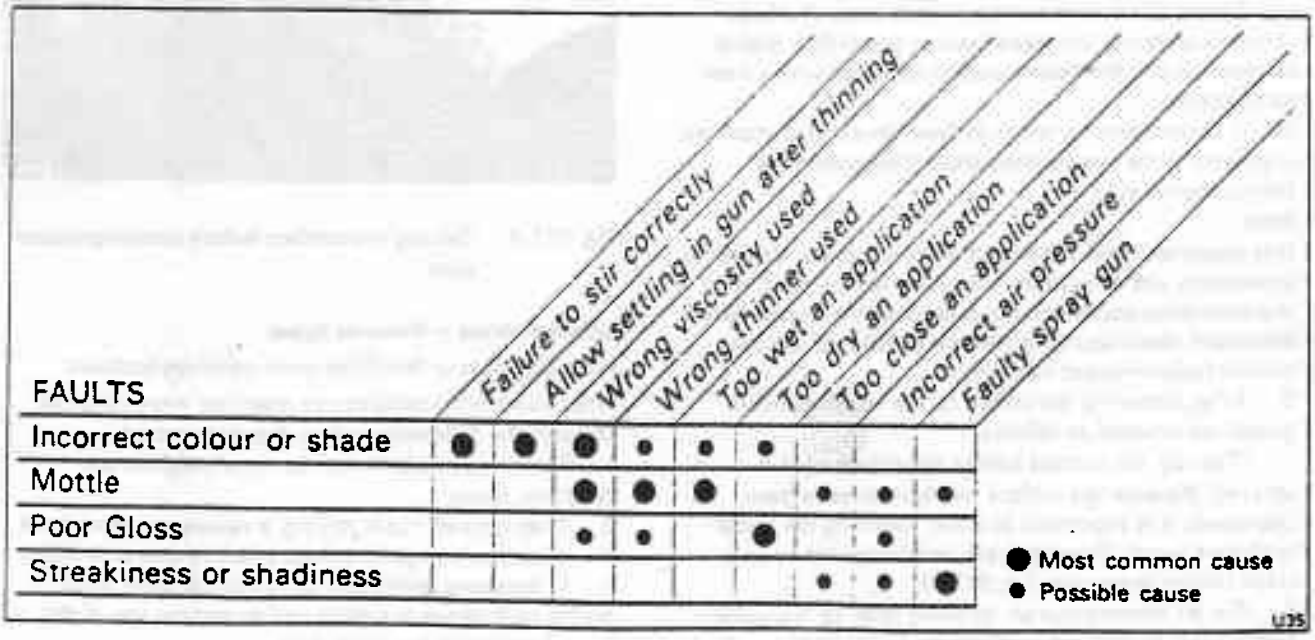


Fig. S17-10 Metallic paints – common application faults

road dirt. This will enable areas that require painting to be examined properly.

Deterioration of paint films usually takes place more rapidly on horizontal surfaces. An examination of the roof, bonnet and luggage compartment lid will often be a good guide to the overall condition of the paintwork, look carefully for any kind of film breakdown. Failure to recognize paint faults at this stage will almost inevitably lead to a failure of the final paint finish both in terms of clearance and durability.

Having removed any damaged paint film, thoroughly clean and degrease all surfaces to be painted, both bare metal and existing paint film (see fig. S17-7). The importance of this operation cannot be over-emphasised. If it is not carried out efficiently, it will almost invariably lead to an early breakdown of the finished paintwork.

To ensure adhesion and good durability, the surface must be thoroughly degreased to remove all traces of dirt, traffic film, wax, grease and oil. The correct method of achieving this is to use a proprietary degreasing fluid. Petrol should not be used as many modern motor fuels contain additives which can produce contamination.

Apply the cleaning solvent liberally using clean cloths (see fig. S17-7). Do not pour on solvents and leave them to dry. All areas must be wiped dry with clean cloths.

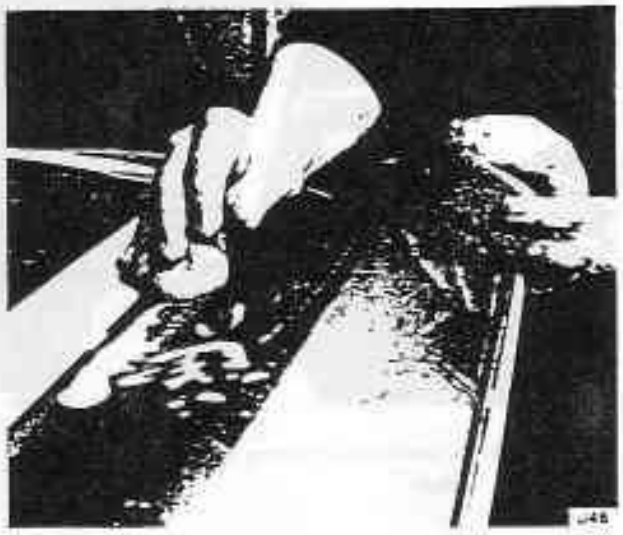


Fig. S17-11 Hand flatting a curved area using a soft pad

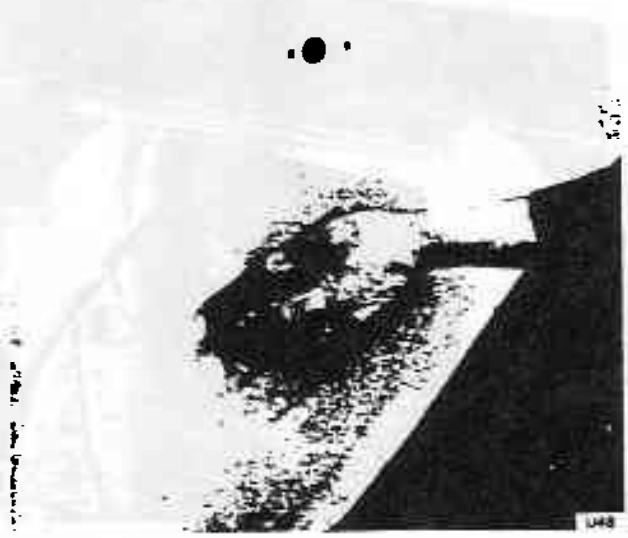


Fig. S17-12 Using a hard rubber block to flat large areas of minimal contour

Flatting

The purpose of flatting is to obtain a level surface, this is essential for good intercoat adhesion.

Care must be taken when carrying out this very important operation. Failure to flat adequately can create intercoat adhesion problems. Excessive flatting with coarse paper will produce deep scratches which will become apparent when the finishing coat is applied.

Flatting can be carried out by hand or by a machine sander and either wet or dry.

When flatting the following points should be noted.

1. Hand flatting should always be used on areas with curves or complex contours. Use a soft cloth pad inside wet or dry abrasive paper (see fig. S17-11).
2. Short parallel strokes should be used with the hand positioned so that the fingers are at an angle to the direction of the stroke; this will prevent furrows being formed by the fingers.
3. A light medium pressure is all that is required, a heavy pressure will produce clogging of the paper and excessively deep scratches. A way of eliminating these scratches is to use progressively finer grades of paper as the paint system is built up.
4. On flat areas the use of a rubber, felt or cork block behind the paper will eliminate the effects of finger furrowing (see figs. S17-12 and S17-13).

Note

During the flatting operations some bare metal areas are usually exposed, either due to the removal of a localized defect or because of a thin paint film. These areas must be feather edged (see fig. S17-14). To do this, the paint edges surrounding the bare metal area should be flatted well back into the surrounding paint. They should taper

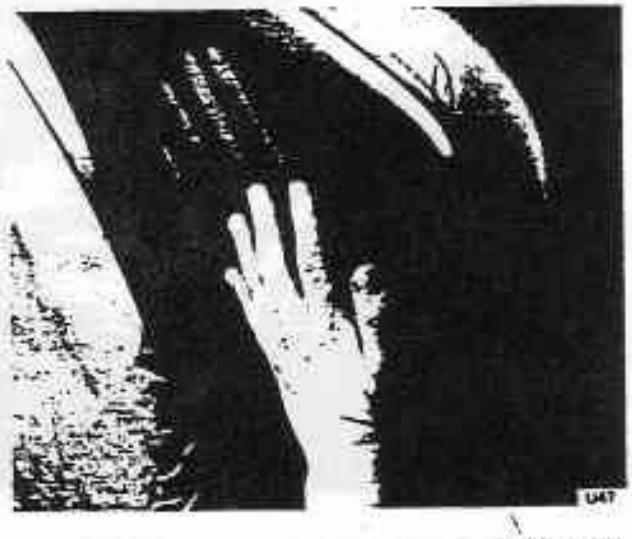


Fig. S17-13 Finger furrowing – an incorrect method of flatting

gradually from the metal so that the finger tips can feel no break or ridge between the metal and the surrounding paintwork.

5. When using wet or dry abrasive paper, it is important that plenty of clean water is used; this ensures that the paper cuts freely and eliminates dust.

6. Flatting water should never be allowed to evaporate naturally as residues could remain. These would eventually cause blistering.

7. On completion of the flatting of each panel, the areas should be thoroughly hosed off with clean water, then dried immediately with clean cloths.

Note

Lubricated abrasive papers are available for dry flatting and as the lubricant is usually a stearate, cleaning of the flatted surface is even more essential. Any residue of lubricant left on the surface could lead to poor adhesion.

Metal pretreatment

1. Ensure that all bare metal areas are thoroughly degreased and completely free of rust. If rust is present it should be removed using a proprietory phosphoric acid metal cleaner.

2. Apply a thin coat of acid etch primer to all bare metal surfaces (see fig. S17-1). Care should be taken to avoid applying this material in too great a quantity to the surrounding paintwork.

Fig. S17-14 A method of checking the feather edge after flatting

Fig. S17-16 A method of folding tape to minimise tape edges

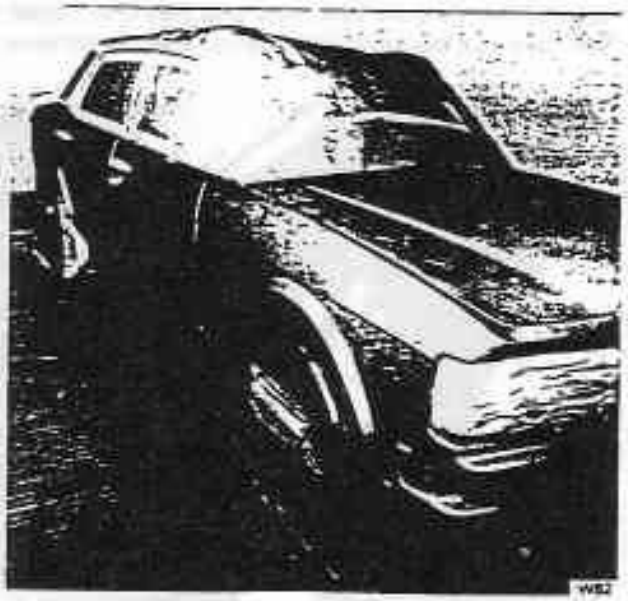


Fig. S17-15 Typical masking preparation before paint

Fig. S17-17 A method of detail masking to minimise tape edges

Masking

Careful masking can mean the difference between a reasonable paint finish and a first class finish (see fig. S17-15).

Only the best quality materials, both paper and tape should be used. The paper should have a good wet strength and have no loose fibres. Do not use newspaper, it does not possess the correct properties. Also, printing inks are soluble in some of the solvents in paint and therefore can cause staining.

Tapes of various widths should be kept in stock, using the narrower tapes on difficult curved areas as it is easier to manipulate (see figs. S17-16 and S17-17).

Spraying techniques, equipment, application faults and remedies

General spraying techniques

Spray painting is a craft, as is any other method of painting. With the correct knowledge and use of spray gun techniques a surface can be given a first class coating in the minimum amount of time. It also greatly reduces paint wastage and creates less fatigue for the operator.

Many jobs have been spoiled because of the operator not understanding the correct technique or by disregard of its value. It cannot be too strongly emphasised that a little time spent in study and practice will be amply repaid by the greatly improved quality of finishes obtained, along with the saving of time and material.

Spraying techniques vary considerably from person to person, however the following points are of particular importance.

1. The paint can be applied in single or double coats.
2. Single coats give a rapid solvent release with fast through drying.
3. Double coats give good flow, gloss build-up and freedom from dry spray.
4. Whatever type of coat is applied, adequate time must be given between coats for solvent to evaporate. Inadequate 'flash-off' times will result in an excessive amount of solvent remaining in the film. This will produce slow hardening through the film. Also, it may affect the durability of the paint system should the vehicles be put into humid conditions too quickly.
5. Recommended 'flash-off' times apply to average working conditions. If conditions are cold and/or damp the 'flash-off' time may need to be increased. Conversely in hot dry conditions a shorter 'flash-off' time may be adequate.

It is also important to allow adequate 'flash-off' time if force drying, using either infra-red lamps or a low stoving oven. If heat is applied too soon, excess solvent in the paint film may boil resulting in solvent popping and pin holes.

Planning

Plan the spraying sequence carefully before starting work. Ensure that continuity is achieved to maintain a wet edge and eliminate dry overlap joints. It is advisable to spray door edges, luggage compartment channels, bonnet edges, etc., first as this has the effect of laying down any dust which could blow out and spoil the final finish.

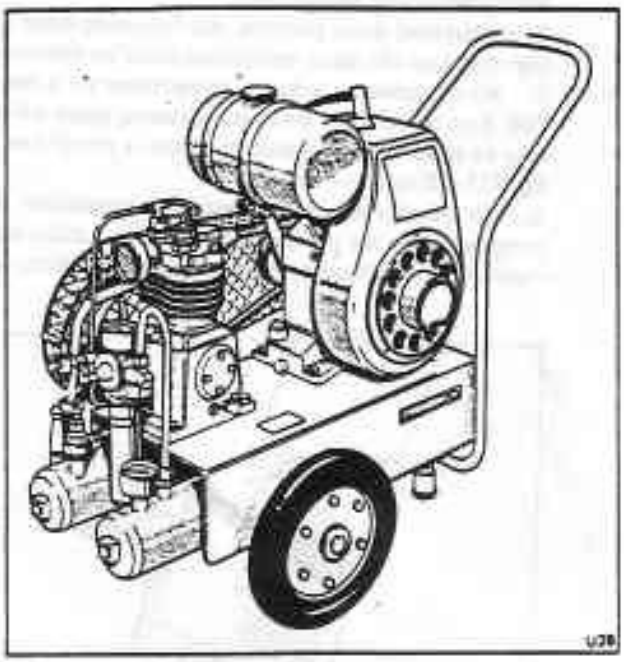


Fig. S17-18 Petrol driven portable air compressing plant for one operator

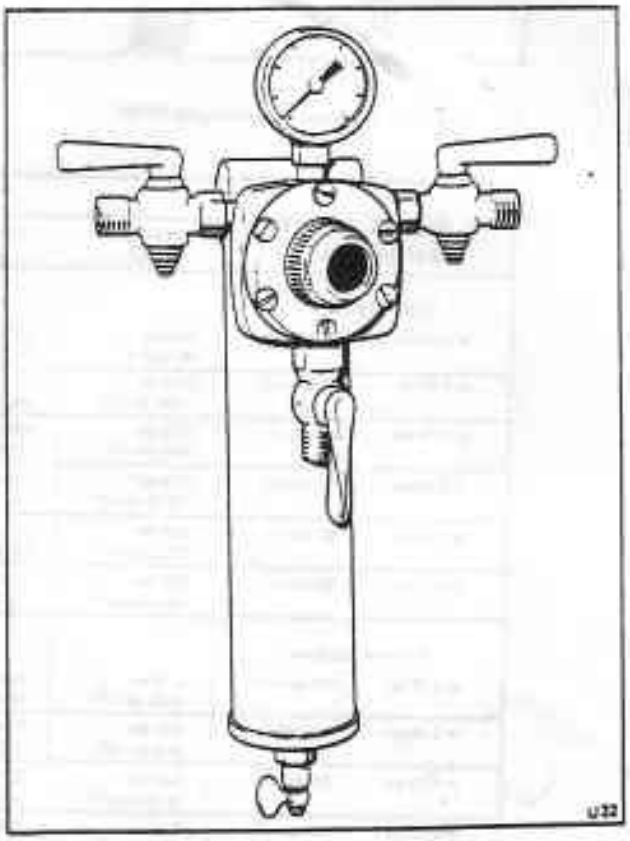


Fig. S17-19 A typical air transformer

Spray painting equipment

To understand spray painting, the following basic items that make up the spray equipment must be understood.

1. Air compressor. Initially, compressed air is required. This is obtained from an air-compressing plant which may be powered by an electric motor, a petrol (see fig. S17-18) or diesel engine.
2. Air transformer. It is necessary to 'condition' the compressed air for use with a spray gun or allied equipment. This conditioning means filtering the air to remove dirt, oil and moisture, together with reducing the air pressure to that required for spray operation. This is generally done by a filter and regulator or a combination of the two called an air transformer (see fig. S17-19). On portable air-compressing plants the transformer is usually fitted to the plant.
3. Air hose. Clean, dry compressed air regulated to the required pressure is conveyed to the spray gun through the air hose.
4. Paint container. The paint may be in a container attached to the spray gun, or it may be contained in a separate pressure feed tank and forced by air pressure through a length of fluid hose to the spray gun.
5. Spray gun. The spray gun is really the heart of the system. It is the tool with which the paint is applied to to a surface.

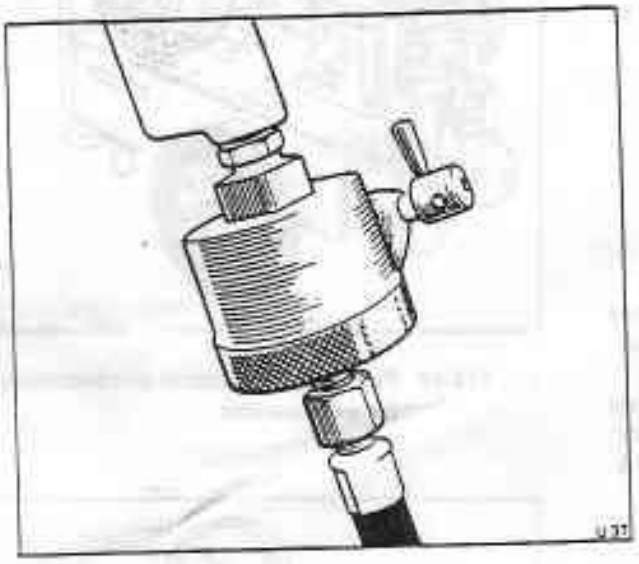


Fig. S17-20 A small lightweight filter

Air compressor

The compressor takes the air in at atmospheric pressure, compresses it and stores it in an air receiver at a higher pressure.

It is strongly recommended that the use of a compressor made by a reputable firm expressly for the purpose of spray painting should be used otherwise problems can occur. The compressor must be capable of maintaining a steady pressure for long periods, all day if necessary, without developing heat and delivering hot compressed air. It is a fact that the action of compressing air generates heat in itself, but in a properly designed air compressor this generated heat is dissipated and the compressed air delivered at normal atmospheric temperature.

Size of air hose inside diameter	Air pressure drop at spray gun					
	1,52m (5ft) length	3,04m (10ft) length	4,57m (15ft) length	6,09m (20ft) length	7,62m (25ft) length	15,24m (50ft) length
6,35 mm (0.250 in)						
at 2,75 bar (40 lbf/in²)	0,41 bar (6.0 lbf/in²)	0,55 bar (8 0 lbf/in²)	0,65 bar (9 5 lbf/in²)	0,76 bar (11.0 lbf/in²)	0,88 bar (12.75 lbf/in²)	1,65 bar (24 0 lbf/in²)
at 3,45 bar (50 lbf/in²)	0,52 bar (7.50 lbf/in²)	0,69 bar (10 0 lbf/in²)	0,83 bar (12.0 lbf/in²)	0,96 bar (14.0 lbf/in²)	1,10 bar (16.0 lbf/in²)	1,93 bar (28.0 lbf/in²)
at 4,14 bar (60 lbf/in²)	0,62 bar (9 0 lbf/in²)	0,86 bar (12.5 lbf/in²)	1,0 bar (14.5 lbf/in²)	1,15 bar (16.75 lbf/in²)	1,31 bar (19.0 lbf/in²)	2,14 bar (31.0 lbf/in²)
at 4,83 bar (70 lbf/in²)	0,74 bar (10.75 lbf/in²)	1,0 bar (14.5 lbf/in²)	1,17 bar (17 0 lbf/in²)	1,34 bar (19.5 lbf/in²)	1,55 bar (22.5 lbf/in²)	2,34 bar (34.0 lbf/in²)
at 5,52 bar (80 lbf/in²)	0,84 bar (12 25 lbf/in²)	1,14 bar (16.5 lbf/in²)	1,34 bar (19.5 lbf/in²)	1,55 bar (22.5 lbf/in²)	1,76 bar (25.5 lbf/in²)	2,55 bar (37.0 lbf/in²)
at 6,21 bar (90 lbf/in²)	0,96 bar (14 0 lbf/in²)	1,29 bar (18.75 lbf/in²)	1,52 bar (22.0 lbf/in²)	1,74 bar (25.25 lbf/in²)	2,0 bar (29.0 lbf/in²)	2,72 bar (39.5 lbf/in²)
7,93 mm (0.312 in)						
at 2,75 bar (40 lbf/in²)	0,15 bar (2.25 lbf/in²)	0,19 bar (2.75 lbf/in²)	0,22 bar (3.25 lbf/in²)	0,24 bar (3.5 lbf/in²)	0,27 bar (4.0 lbf/in²)	0,59 bar (8.5 lbf/in²)
at 3,45 bar (50 lbf/in²)	0,21 bar (3.0 lbf/in²)	0,24 bar (3.5 lbf/in²)	0,27 bar (4.0 lbf/in²)	0,31 bar (4.5 lbf/in²)	0,34 bar (5.0 lbf/in²)	0,69 bar (10.0 lbf/in²)
at 4,14 bar (60 lbf/in²)	0,26 bar (3.75 lbf/in²)	0,31 bar (4.5 lbf/in²)	0,34 bar (5.0 lbf/in²)	0,38 bar (5.5 lbf/in²)	0,41 bar (6.0 lbf/in²)	0,79 bar (11.5 lbf/in²)
at 4,83 bar (70 lbf/in²)	0,31 bar (4.5 lbf/in²)	0,36 bar (5.25 lbf/in²)	0,41 bar (6.0 lbf/in²)	0,46 bar (6.75 lbf/in²)	0,50 bar (7.25 lbf/in²)	0,90 bar (13.0 lbf/in²)
at 5,52 bar (80 lbf/in²)	0,38 bar (5.5 lbf/in²)	0,43 bar (6.25 lbf/in²)	0,48 bar (7.0 lbf/in²)	0,53 bar (8.0 lbf/in²)	0,60 bar (8.75 lbf/in²)	1,0 bar (14.5 lbf/in²)
at 6,21 bar (90 lbf/in²)	0,45 bar (6 5 lbf/in²)	0,52 bar (7.5 lbf/in²)	0,56 bar (8 5 lbf/in²)	0,65 bar (9.5 lbf/in²)	0,72 bar (10.5 lbf/in²)	1,10 bar (16 0 lbf/in²)

Fig. S17-21 Table of air pressure drop

An air receiver is used to store the air for a cooling off period, and its capacity should be in proportion to the size of the compressor. In cooling the air the receiver permits the moisture and all vapour entrained in the compressed air to condense; in this condition they can be easily separated from the air. The air receiver also completely blankets out pulsations from the compressor so that compressed air is drawn from the receiver at a steady, even pressure.

A compressor delivering approximately 0,14 m^3 to 0,19 m^3 (5 ft^3 to 7 ft^3) per minute is recommended as the minimum requirement for one operator. This provides a maximum output pressure of 5,73 bar (80 lbf/in^2).

It should be noted that some manufacturers quote the volume of displacement of their compressors. On no account should this figure be confused with the volume of air delivered, as in all cases the latter figure is lower than the former. For example, a compressor quoted as having a displacement of 0,25 m^3 (8.95 ft^3) of air per minute delivers only 0,19 m^3 (6.98 ft^3) of air per minute. The air pressure required to give an effective finish with a spray gun varies with the painting material used, and to a certain extent on the type of spray gun. Air pressure is very widely understood and appreciated. However air volume which is equally important, is very often completely overlooked until the lack of it is betrayed by falling air pressure whilst spraying.

Where it is necessary to operate two or three guns simultaneously from one air compressor, larger plants are necessary and these can be powered by either electric, petrol or diesel motors.

Another very important point is that compressed air for the spray gun must be absolutely clean and free from moisture, dirt and oil, any of which would ruin a sprayed surface. A standard air compressing plant for spray painting work is normally fitted with an air intake filter to prevent dust entering the compressor. Also, a compressed air filter is usually incorporated in an air transformer.

Air transformer (see fig. S17-19)
An air transformer consists of two units, a condenser or filter for removing oil and moisture from the air and a pressure regulator. The condenser allows the air to expand into a chamber, thus cooling the air. It then removes the moisture and oil by means of an easily removable filter. A cock is fitted to draw off the accumulated impurities at suitable intervals. The regulator is actually a reducing valve which regulates the air pressure from the compressor to that required for spraying. A transformer should be fitted with a gauge giving an accurate reading of the pressure of air which has passed through the regulating valve.

In circumstances where exceptionally humid air is compressed and moisture tends to settle in the air hose between the spray gun and the transformer, a small lightweight filter (i.e. Dryit) can be fitted directly on to the handle of the gun as a final safeguard against water settling on the work (see fig. S17-20).

Air hose
Compressed air is fed to the spray gun by the air compressor, through a suitable length of pressure-resisting air hose. The internal diameter and length of the air hose used has a marked effect on the efficient performance of the spray gun and the quality of the coating it produces. Correct hose sizes for compressed air are essential.

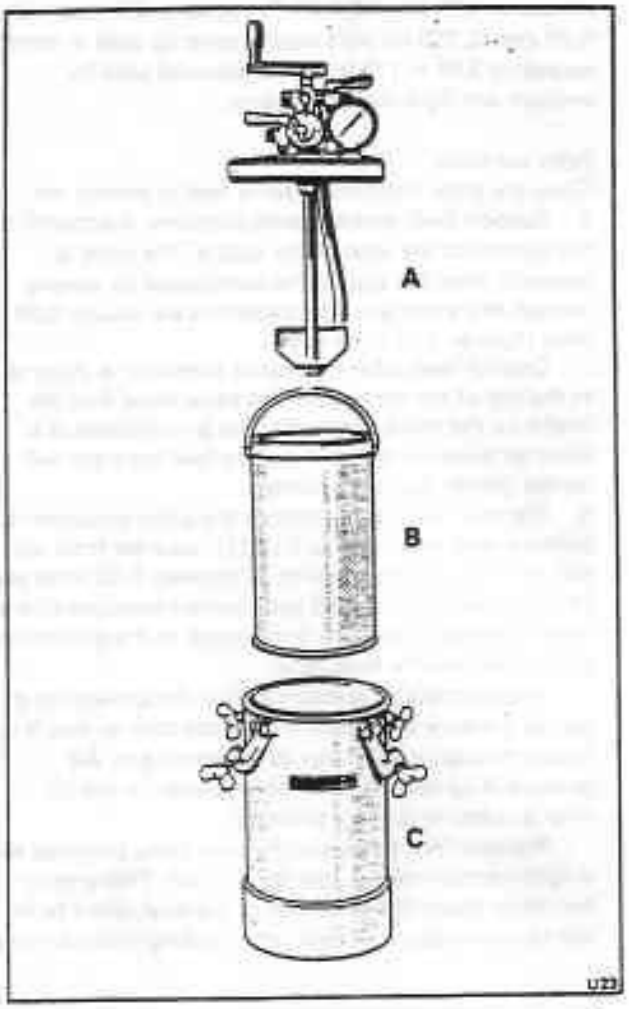


Fig. S17-22 Pressure feed paint tank
A Hand agitator
B Insert container
C Tank

Too often a spray gun is blamed for functioning improperly, or a material is considered of inferior quality, when the real cause of the trouble is an inadequate supply of compressed air at the gun. Frequently operators believe they are using an extremely high air pressure, but investigation reveals that, due to a small hose size or extra long length, pressure is inadequate for proper atomization.

The interior wall of air hose is smooth, even so it creates a certain resistance to the flow of air, particularly when a long length is used.

Air hose is available in a range of bore sizes and figure S17-21 shows the approximate pressure drop from various lengths of 6,35 mm (0.250 in) and 7,93 mm (0.312 in) air hose when used with a spray gun consuming approximately 0,33 m^3 (12 ft^3) of air per

minute at 4,29 bar (60 lbf/in^2) pressure. Air hose with 6,35 mm (0.250 in) bore should never be used in lengths exceeding 3,65 m (12 ft) and is intended only for medium and light duty spray guns.

Paint container

There are three methods of paint feed in general use.

1. Suction feed, where a paint container is attached to the gun below the level of the nozzle. The paint is siphoned from the cup by the compressed air passing through the spray gun. The capacities are usually 0,56 litres (1pt) or 1,13 litres (2pt).
2. Gravity feed, where the paint container is attached to the top of the spray gun. The paint flows into the nozzle by the force of gravity. The gun operates at a lower air pressure than the suction feed type and will handle heavier bodied materials.
3. Pressure feed. In this system the paint container is a pressure feed tank (see fig. S17-22), separate from the gun, and may have a capacity of between 9,09 litres and 181,83 litres (2 gal and 40 gal). Certain containers have a larger capacity. The paint is conveyed to the gun through a length of flexible fluid hose.

The principle of pressure feed is the application of low air pressure on the material in the tank so that it is forced through a fluid hose to the spray gun. Air pressure is controlled by an air regulator on the lid. Also, a pressure gauge is provided.

Pressure feed tanks are, in many cases, provided with a light insert container (see fig. S17-22). This greatly facilitates cleaning and change of material; some tanks can be mounted on a castor base, making removal from place to place an easy matter. The tanks are strongly constructed to avoid any risk of distortion under pressure and are usually galvanized inside and outside. The lid is secured by clamps and is fitted with a gasket to prevent air leakage. There is a safety valve, an air release valve and at least one air and one fluid draw-off cock. On the larger size tanks there are two or three extra air and fluid cocks, so that the tank can be used by more than one operator. Provision is made for a hand operated agitator to keep the material properly mixed (see fig. S17-22) and for large capacity tanks it is advisable to have an agitator driven by a compressed air motor (see fig. S17-23).

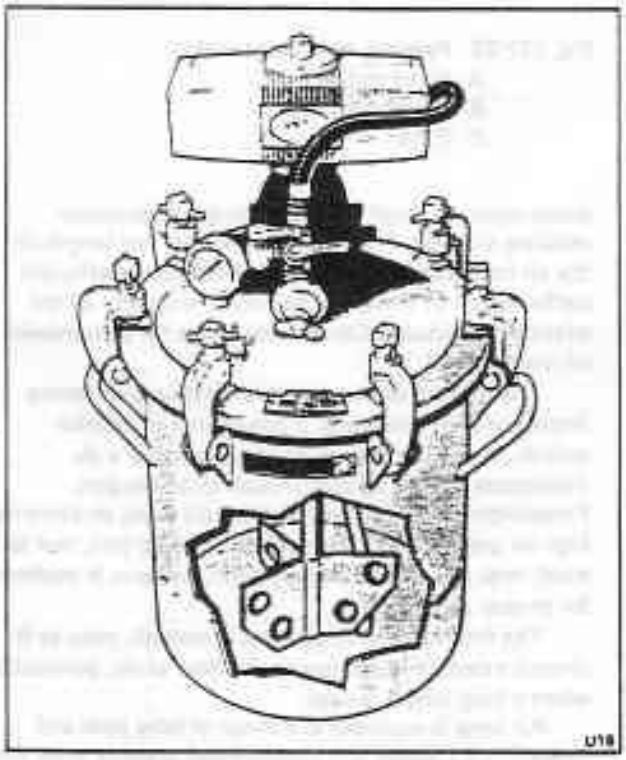


Fig. S17-23 Pressure feed paint tank with an air motor driven agitator

The air motor ensures that the paint is kept at a constant consistency, even during periods when the gun is not used. It consumes less than 0,028 m^3 (1 ft^3) of air per minute, however, where a number of motors are likely to be used, provision must be made for them by selecting a compressor which will supply more than the maximum volume of air required by the spray guns.

Pressure feed cups of 1,13 litres (2 pt) capacity are also available which attach to the gun itself for spraying comparatively small volumes of heavy material.

In all cases where large quantities of the same material have to be applied, the use of a pressure feed tank is strongly recommended for the following reasons.

(a) A very large amount of work can be carried out before refilling is necessary.
(b) The spray gun may be turned to any angle to coat the work effectively.
(c) The material is supplied to the gun in greater volume than by any other method, particularly if heavy paints are used.
(d) Less air pressure is required to obtain the correct speed of operation.
(e) Paint wastage and losses by evaporation are eliminated.

Remote cup

Remote cup equipment combines all the advantages of standard pressure feed equipment. In addition, it has the advantage of being portable similar to the smaller paint containers attached directly to the gun. The kit (see fig. S17-24, item F), consists of a 2,27 litres (4 pt) pressure feed cup fitted with sensitive controls to balance air and fluid flow. It is connected to the gun by 1,22 m (4 ft) lengths of air and fluid hose; therefore the gun can always be held at the correct angle to any surface for uniform coverage and reduced overspray. It has a convenient carrying handle and is ideal for work that requires up to 2,27 litres (0.50 gal.).

Paint pumps

For large volume work fluid pumps driven by compressed air are available. These pumps supply paint to the spray guns directly from the manufacturer's container. The maximum flow of paint ranges from approximately 9,09 litres to 25,0 litres (2.0 gal to 5.50 gal) per minute.

Fluid hose

The best quality fluid hose should always be used. It is essential that the hose lining is solvent resisting and will withstand any softening effect from water, oil, turpentine.

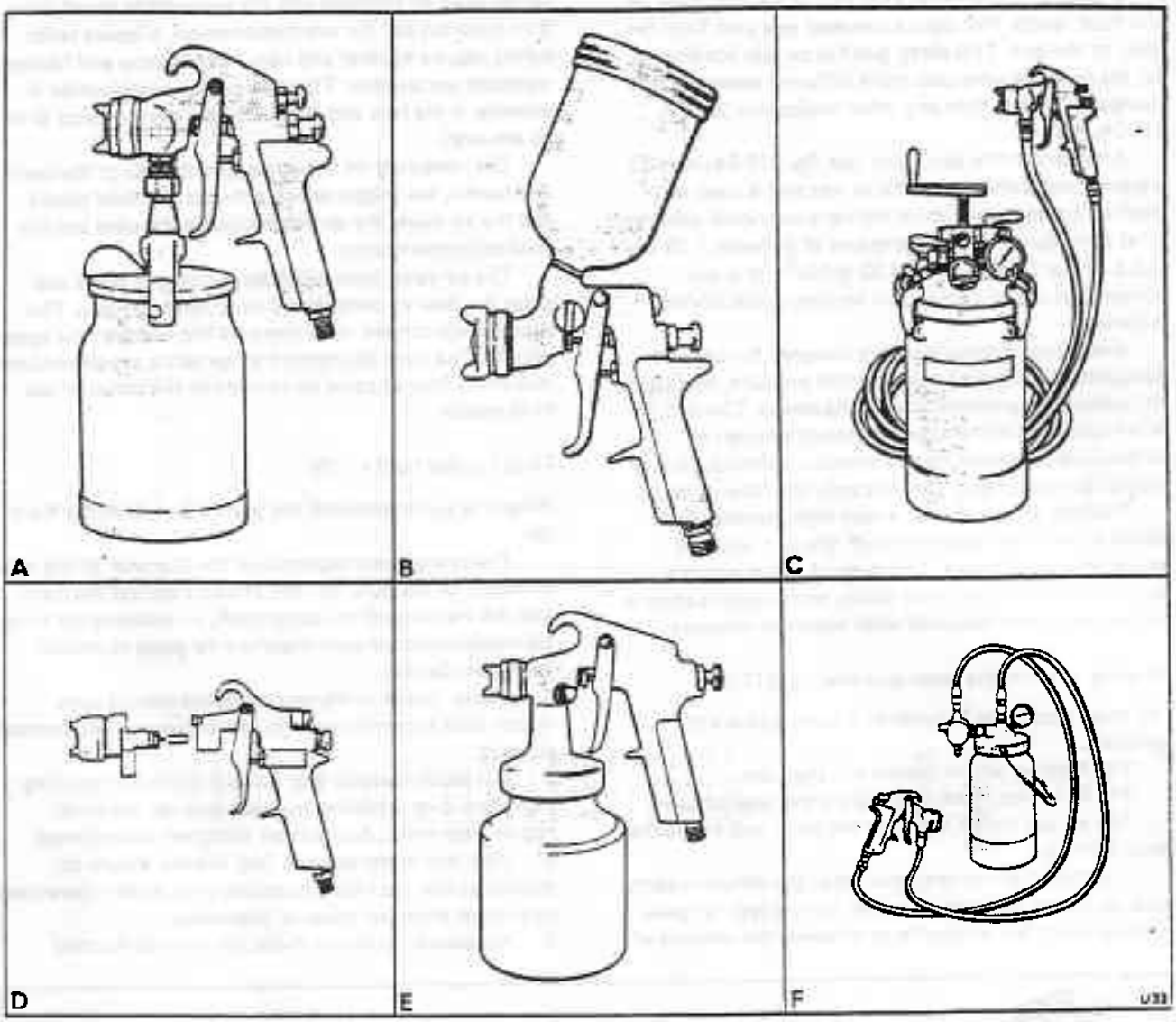


Fig. S17-24 Types of spray guns

A Suction feed spray gun
B Gravity feed spray gun
C Spray gun with 9,09 litre (2 gal) pressure feed tank
D Spray gun with detachable spray head
E Low air consumption gun
F Remote cup outfit

cellulose, synthetics and other painting materials. Do not use cheap hose, after a while the lining will disintegrate and fragments will spoil the finish and choke the spray gun.

Fluid hose of 9,52 mm (0.375 in) diameter is recommended for paints of normal viscosity, but a 12,7 mm (0.50 in) diameter is necessary for heavier bodied mixtures and where longer lengths than 6,09 m (20 ft) are used.

Spray guns

As the success of spray painting depends to a very large extent on the efficiency of the spray gun, great care should be taken in selecting it. There are several types of guns available expressly designed to suit the type of work required. The most suitable gun for the operator is one used in high production manufacturing (see figs. S17-25 and S17-26). It has the capacity for the work and its design is such that it will keep fully operational throughout the period of the working day. This type of gun is mainly used with pressure paint feed (see fig. S17-24, item C). It can also be used with a suction feed cup for smaller jobs, provided the correct fluid tip and air cap are fitted to suit that method of paint feed (see fig. S17-24, item A).

Gravity feed spray guns are also very popular for painting smaller areas because of the ease with which they can be refilled and cleaned. They cannot be used for spraying upwards on car roofs, etc. (see fig. S17-24, item B).

If the volume of work justifies separate spray guns for each particular kind of job they should be obtained. The guns should be kept clean and in good working order.

A spray gun can be obtained, which has a spray head

barrel complete with fluid inlet nipple, air cap, fluid tip and fluid needle that can be removed as a unit from the body of the gun. This spray gun has certain advantages for the operator who uses more different materials and changes of colour than any other tradesman (see fig. S17-24, item D).

An internal mix spray gun (see fig. S17-24, item E) mixes air and paint inside the air cap and is used with small air compressors which deliver a restricted volume of air at a comparatively low pressure of between 1,78 bar and 2,14 bar (25 lbf/in^2 and 30 lbf/in^2). It is not advisable to use this spray gun for very quick drying materials.

Bleeder-type spray guns are designed for use with compressors of limited capacity and pressure, that have no unloader or pressure controlling device. The gun has no air valve and compressed air passes through it continuously, preventing any pressure build-up. In this type of gun the trigger controls only the flow of paint.

Volume spray guns use a very high volume of air, blown at very high speed through the gun, with no appreciable air pressure. This type of gun is suitable only for materials that flow easily, as the atomization is not as fine as that obtained with higher air pressure.

Principal parts of the spray gun (see fig. S17-26)

The most important features of a spray gun are the following.

The fluid tip which meters out the paint.

The fluid needle which controls the flow of paint.

The air cap which atomizes the paint and forms the spray pattern.

It is important to remember that the different parts must be mated correctly together for the type of paint to be sprayed, the surface to be covered, the amount of compressed air available and the permissible speed. Very thin materials call for one combination. Viscous tacky paints require another and very heavy coarse and fibrous materials yet another. Thus the proper combination is essential if the best and most efficient performance is to be achieved.

The remainder of the spray gun consists of the body and handle, the trigger which actuates the fluid needle and the air valve, the spreader adjustment valve and the fluid adjustment screw.

The air valve, controlled by the trigger, starts and stops the flow of compressed air through the gun. The spreader adjustment valve controls the width of the spray pattern. The fluid adjustment screw sets a pre-determined maximum flow of paint by restricting the travel of the fluid needle.

Fluid tip (see fig. S17-26)

When the gun is operated the paint flows from the fluid tip.

The rate of flow depends on the diameter of the hole or nozzle of the fluid tip, the pressure behind the paint and the viscosity of the paint itself. In selecting the fluid tip consideration should therefore be given to several important factors.

1. Heavy, coarse or fibrous materials require large nozzle sizes to permit passage of the material and prevent clogging.
2. It is recommended that viscous materials requiring high atomizing pressures are used through the small nozzle sizes which assure more complete atomization.
3. Very thin materials that 'sag' readily should be applied at low atomizing pressures with small nozzle sizes to prevent excessive material application.
4. Abrasive or corrosive materials must be handled

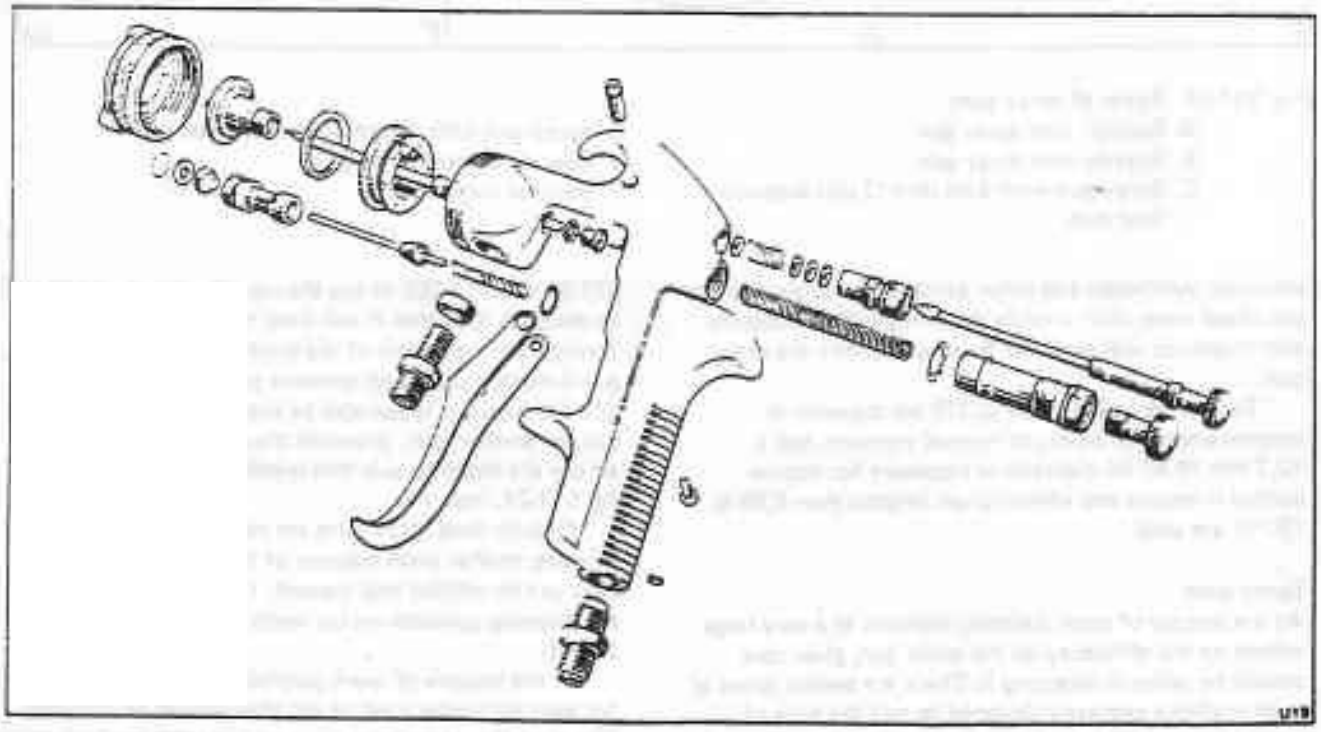


Fig. S17-25 A typical standard high speed spray gun (PA-JGA-502-1/P-JGA-502-1)

with tips made of wear-resistant or non-corrosive metals.
5. The type of material feed to be used is important. The nozzle size sometimes recommended for pressure feed will not be satisfactory for suction feed although the converse does not apply.

Spray gun technique

Each kind of paint or finishing material has a different 'feel' or viscosity, some flow out easier than others, while some are very viscous or sluggish in their movement.

A good spray gun can quite easily produce a perfectly good finish with any of the wide variety of paints available, provided that.
1. The correct spray gun adjustments are made to suit the material.
2. That the paint itself is of reasonably good quality.

Spray gun adjustments

The all important spray gun adjustments are.
1. The volume flow of paint from the nozzle to suit the size of the area to be covered and the speed of operation required.
2. The correct proportioning of atomizing air pressure to the flow of material.
3. The proper spray width adjustment.

All these adjustments are inter-dependent, as they vary according to the viscosity of the paint, the volume and pressure of compressed air available and the sizes of areas to be covered.

Provided the spray gun is fitted with the correct size fluid tip to suit the type of material, adjustments to obtain the best results are made as follows.

Volume flow adjustment

The only mechanical adjustment possible with a gravity or suction feed spray gun is made by means of the fluid needle adjusting screw (see fig. S17-26). Screwing this control inwards restricts the flow of material to the nozzle; screwing it outwards has the reverse effect. This adjustment should only be used when it is necessary to reduce the flow of paint temporarily. Turning in the adjusting screw increases the compression of the needle spring and makes the trigger harder to pull back. When a reduced flow of paint is required for a lengthy period this can easily be obtained by fitting a fluid tip with a slightly smaller size nozzle.

The flow of paint from a pressure feed tank to the spray gun is very accurately controlled by the air pressure regulator on the tank lid. The higher the air pressure in the tank the faster the flow of material; naturally a heavy paint requires greater air pressure than a lighter one. It should also be noted that the higher the gun is used above floor level the greater is the pressure needed to force the paint up to it.

Where long lengths of fluid hose are employed, a certain amount of friction resistance to the fluid flow has to be overcome by pressure adjustment.

To obtain the correct adjustment of fluid pressure for any particular paint in the tank proceed as follows.
1. Hold the spray gun at normal working level and cut

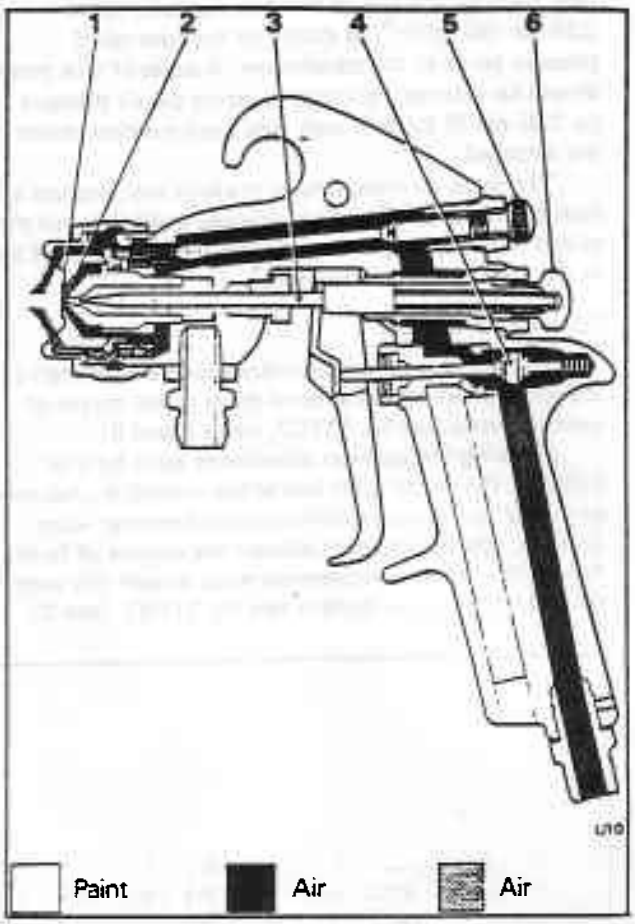


Fig. S17-26 Principal parts of a spray gun
1 Air cap
2 Fluid tip
3 Fluid needle
4 Air valve
5 Spreader control valve
6 Fluid needle adjusting screw

off the atomizing air supply from the gun by means of a cock stop on the tank.
2. Pull back the trigger to its fullest extent and gradually screw down the fluid regulating valve on the tank until the paint flows in a steady stream from the nozzle falling in an arc approximately 152,40 mm (6 in) from the gun.

Adjustment of the pressure from a fluid pump is controlled by raising or lowering the pressure of the air which drives the pump. If the paint is drawn form a circulating fluid line a fluid pressure control valve can be fitted into the line at the spraying point.

Atomizing air pressure adjustment

Having adjusted the paint flow for pressure feed spraying it is then necessary to determine the correct atomizing air pressure so that it will break up the paint stream finely and evenly.

The atomizing air pressure is adjusted by means of a regulator on the air transformer. This is usually fitted to the air receiver outlet on a portable air compressing plant. In some cases it is attached to the pressure feed

tank starting with the air pressure regulator set at 3,58 bar (50 lbf/in^2) as shown on the controlled pressure gauge of the transformer. A series of trial panels should be sprayed, raising or lowering the air pressure by 0,35 bar (5 lbf/in^2) each time until the best results are obtained.

Too small an atomizing air pressure will produce a coarse grain effect. Too high a pressure will thin out the centre of the spray pattern and also cause wastage of paint in the form of fog and overspray.

Spreader adjustment

The spreader adjustment provides a means of changing the spray pattern from a round spray to fan sprays of various widths (see fig. S17-27, items A and B).

Screwing the spreader adjustment valve fully in produces the round spray and as the control is unscrewed so the fan spray pattern develops and becomes wider. Spreader adjustment must balance the volume of fluid flow; if the spreader adjustment valve is open too wide it will split the spray pattern (see fig. S17-27, item C).

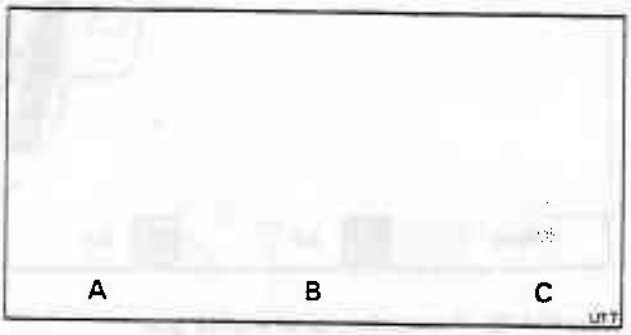


Fig. S17-27 Spray patterns
A Round spray pattern
B Fan spray pattern
C Split spray pattern

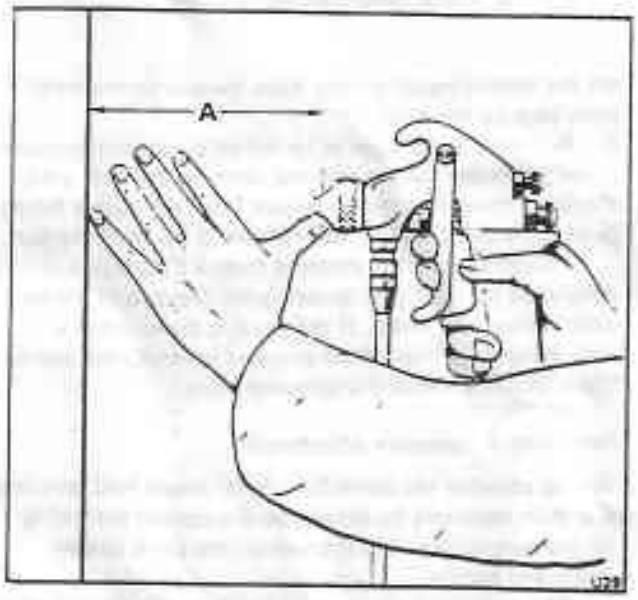


Fig. S17-28 Quick guide to spraying distance
A 152,40 mm to 203,20 mm (6 in to 8 in)

Basic rules of spraying

The following are basic rules to be learned, assuming that the operator has the correct gun for the job, has mixed and strained his paint correctly and has adjusted the fluid and atomizing air pressures to suit the material and speed of operation required.

1. The spray gun should be held at right-angles to the surface to be sprayed. The distance between the surface and the face of the air cap should be between 152,40 mm and 203,20 mm (6 in and 8 in), or a hand span as a quick check (see fig. S17-28).
2. Each stroke should be made with a free arm motion across the face of the surface with the wrist flexible so that the gun is kept at right-angles to the surface and at the correct distance from it.

The speed of each successive stroke must be constant so as to maintain a uniform thickness of coating. In order to prevent the build-up of paint on the surface at the beginning and end of each stroke, the movement of the gun should be started before the trigger is pulled. Similarly, the trigger should be released before the gun movement ceases at the end of the stroke. The spray gun trigger should always be handled smoothly and not pulled or released abruptly.

3. The edges of a spray pattern taper off slightly and to obtain even coverage of a surface it is essential to overlap the previous stroke by approximately 50%. It is recommended that the gun is aimed at the extreme edge of the previous stroke to ensure the required overlap.

Common faults

One of the faults that arises from using the incorrect spray technique is the waste of paint. For instance one method sometimes used is to pull the trigger and wave the gun over the surface until it is all one colour and then release the trigger. The result is a tremendous amount of spray fog causing a very uneven coat. It may have developed runs and sags in places and, of course, very much more paint than necessary has been used.

These faults can easily be overcome by avoiding the errors in spray technique described as follows.

1. Arcing the spray gun (see fig. S17-29). This is brought about by keeping the wrist rigid so that the gun is not pointing directly at the surface throughout the stroke. The result is an uneven coating and excessive overspray at each end of the stroke caused by the paint being deflected from the surface into the air. When the gun is arced through 45° from the centre, approximately 65% of the paint is lost, most of it creating spray fog.
2. Tilting the spray gun (see fig. S17-30). If the gun is tilted during a stroke the spray pattern will be uneven and a certain amount of spray fog will form. The gun should always be held at right-angles to the surface.
3. Holding the spray gun at the incorrect distance from the surface (see fig. S17-31). When the gun is held too close to the surface the paint is concentrated into a smaller area. Unless the speed of the stroke is increased considerably the surface will be overloaded, probably causing runs and sags.

Where the gun is held too far from the surface more solvent is evaporated from the atomized paint, resulting

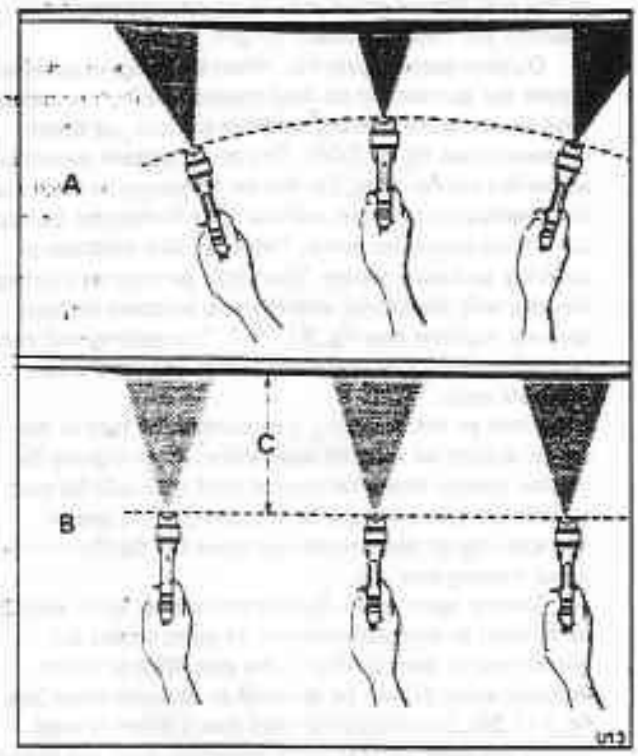


Fig. S17-29 Arcing the spray gun
A Incorrect method
B Correct method
C 152,40 mm to 203,20 mm (6 in to 8 in)

in a coarse, dry coating that has an 'orange peel' finish. This is caused by lack of flow on the surface due to loss of solvent. For the same reason the coating loses some of its power of adhesion. When the atomized paint has an unnecessary distance to travel there is a certain amount of 'fall out' before it reaches the surface, thus causing a waste of paint and spray fog.

4. Failure to trigger the gun correctly. Continuously holding the trigger back while spraying a surface causes a heavy build-up of paint at the end of each stroke. This waste paint, leads to runs and sags. It also gives a very patchy finish.

Holding the trigger open in this manner also causes unnecessary fatigue, because the hand is constantly pulling aginst the compressed needle spring. The momentary relaxation of muscle tension during correct triggering action is much less tiring.

It should be noted that when regulating the fluid pressure the needle adjusting screw of the gun should be set fully open. This ensures the minimum compression of the needle spring for the fingers to pull against.

5. Varying the speed of the stroke. The speed of a stroke is closely co-related to the volume of paint flow. The fluid pressure should therefore be set compatible with the operator's natural speed of movement.

Moving the gun too fast over the surface will give a poor coating. Too slow a stroke will overload the surface, making the finish 'liney'.

6. Incorrect overlapping. If strokes are too far apart and do not overlap by approximately 50% a streaky, patchy

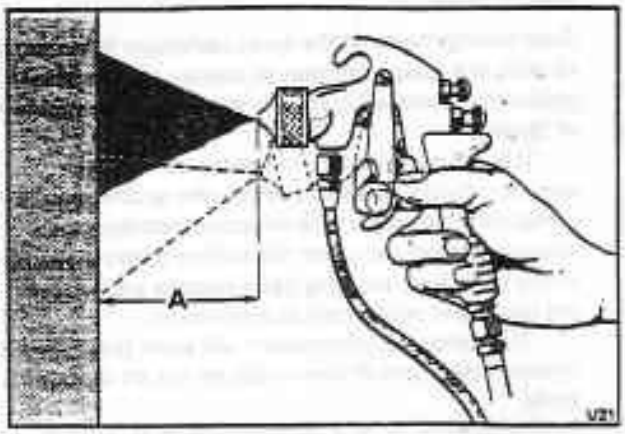


Fig. S17-30 Tilting the spray gun
A 152,40 mm to 203,20 mm (6 in to 8 in)

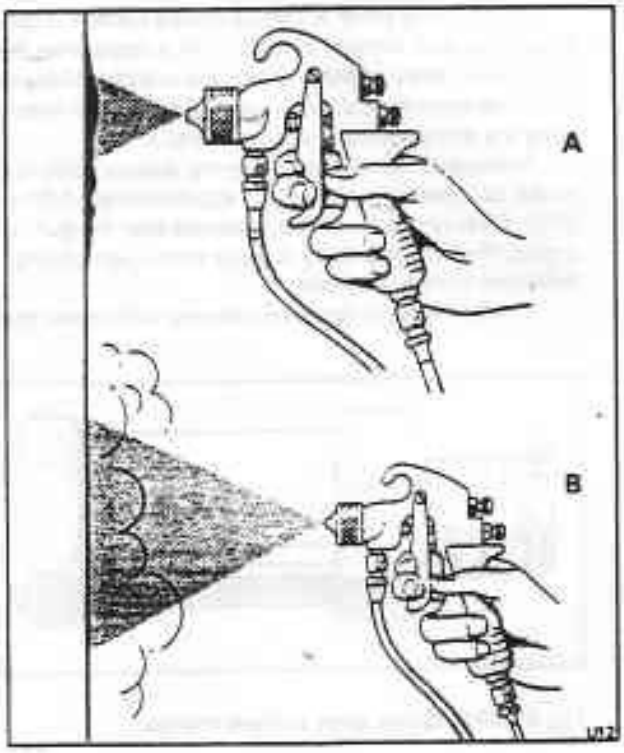


Fig. S17-31 Effects of incorrect spraying distances
A Gun held too close – surface overloaded
B Gun held too far away – poor finish, waste of paint and spray fog

finish will result. Too great an overlap uses extra paint and can easily overload the surface.

7. Quick pattern changer (see fig. S17-32). This fits on the spray gun in place of the fluid needle adjusting screw. It enables the operator to produce two fan pattern sizes whenever they are required. When fitted, a light pull on the spray gun trigger gives a narrow pattern for spraying edges and other small areas. Full movement of the trigger produces the conventional pattern for spraying larger surfaces.

Motion study

Once having mastered the spray technique it is necessary to learn the basic principles of motion study in order to obtain maximum efficiency in spraying with the minimum of fatigue.

It is not sufficient just to spray correctly, the operator should be able to decide the quickest way to complete a job so that the minimum number of gun strokes necessary to cover the surface adequately are used; at the same time avoiding paint wastage and reducing the moving of equipment to a minimum.

The following information will assist the operator in acquiring practical knowledge on the art of motion study.

1. Long work. A long panel should be sprayed in separate sections between 457,20 mm and 914,40 mm (18 in and 36 in) long (see fig. S17-33), triggering the gun in the usual manner at the ends of each stroke. Each section should overlap the previous section by approximately 101,60 mm (4 in).

When a long panel is comparatively narrow it can be sprayed with vertical strokes. This is sometimes the best system since stroke end laps are avoided. However most operators have a better control of the gun when using the more natural horizontal stroke.

Never over-reach when spraying, always confine the stroke to a comfortable length, approximately 0,91 m (3 ft). Over-reaching inevitably means that the gun is angled, thus causing spray fog due to the paint being deflected from the surface.

It is advisable to practice spraying with either hand, as this will allow a larger area to be covered from one position and help to reduce fatigue.

2. Outside corner spraying. When spraying an outside corner the gun should be held directly facing the corner edge so that the adjoining surfaces are sprayed simultaneously (see fig. S17-34). The spray pattern should be across the corner edge, i.e. the pattern must be horizontal for a vertical corner and vertical for a horizontal corner.

3. Inside corner spraying. There are two methods of spraying an inside corner. The spray gun can be pointed directly into the corner and the two adjacent surfaces sprayed together (see fig. S17-35). The coating will not be uniform, but the technique is fast and satisfactory for most work.

When an even coating is required each face of the corner should be sprayed separately. After making the vertical stroke, short horizontal strokes should be used to coat the area adjacent to the corner. This avoids overspraying or double coating when the flat face of the panel is being sprayed.

4. Slender open work. Grilles and similar work should be sprayed so that the majority of paint covers the largest area at each stroke of the gun. Wire or other intricate work should be sprayed at an acute angle (see fig. S17-36). It is recommended that a shield is used behind the wire, so that paint deflected from the shield will help to coat the back of the work.

When spraying slender panels, the rule is to make the spray pattern fit the job. A small horizontal pattern or a large vertical one will give complete coverage, with a minimum of overspray. However, it is a mistake to use too narrow a spray pattern on this kind of work as more strokes would be necessary, with probably too much overlapping.

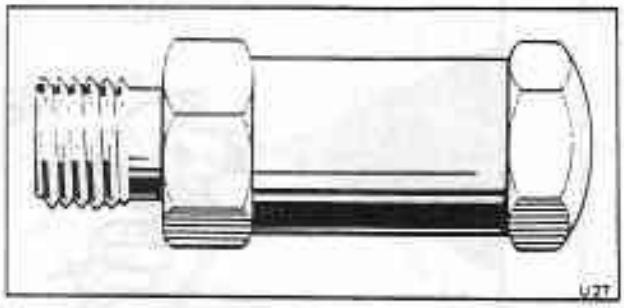


Fig. S17-32 Quick spray pattern changer

Cleaning

Cleaning spray painting equipment is essential. Provided it is done systematically and thoroughly, it will pay dividends in better spraying and trouble free spray gun performance. The habit should be developed of cleaning equipment promptly after spraying to avoid the possibility of having to remove hardened paint, particularly from the fluid tip and passages of the spray gun.

The cleaning fluid used must be suitable for the kind of paint that has been sprayed.

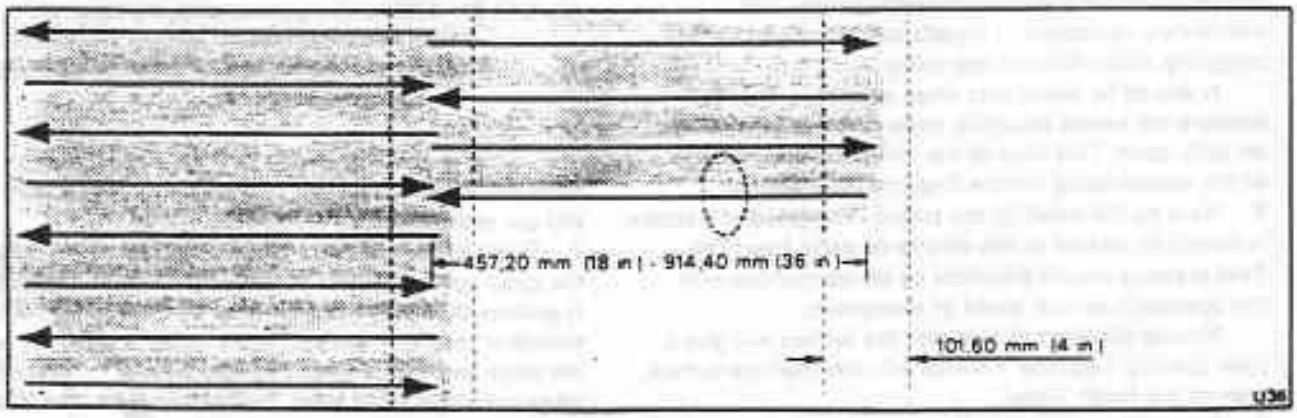


Fig. S17-33 Manageable distances when spraying long panels

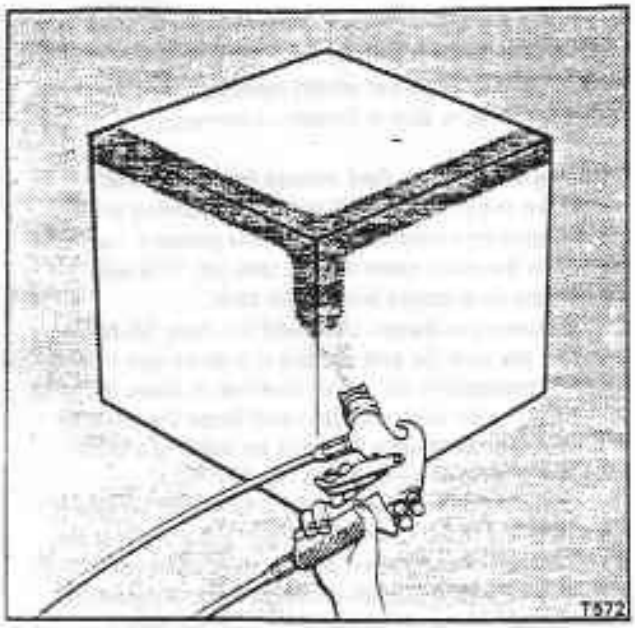


Fig. S17-34 Outside corner spraying

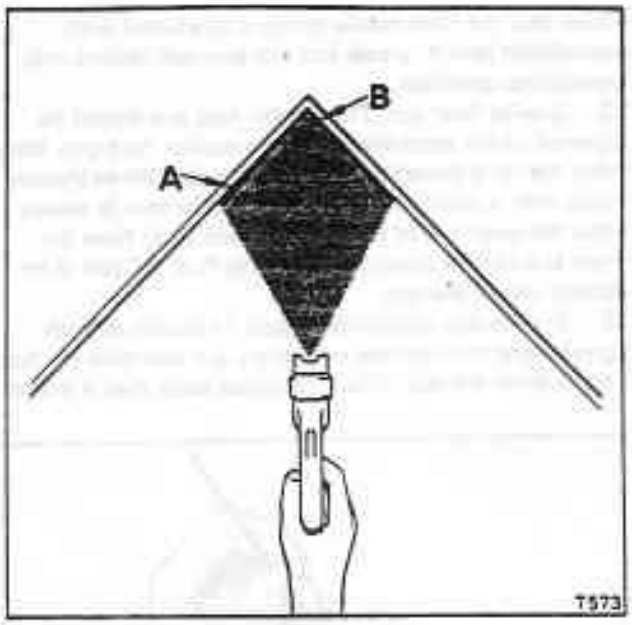


Fig. S17-35 Inside corner spraying
A Heavy
B Thin

Note

A caustic solution must never be used for cleaning a spray gun or any other parts of the equipment, as it will inevitably attack the metal of which they are constructed. Also, the spray gun must not be immersed in cleaning fluid, as this will destroy the lubricant in the fluid needle and air valve packings.

Cleaning the spray gun

1. Suction feed gun. After spraying and whilst the gun is still connected to the compressed air supply, loosen the cup. With the fluid tube still within the cup, hold a piece of cloth lightly over the centre hole of the air cap (see fig. S17-37). Pull the trigger, the cloth pad will then turn back the compressed air through the fluid tube into the cup.

Empty the cup, allowing it a few moments to drain. Partially fill it with a suitable cleaning fluid and re-attach the cup to the gun. Spray the fluid through the gun in the normal way, but occasionally hold the cloth over the cap as before so that the cleaning fluid is surged backwards and forwards through the fluid passages, cleaning them thoroughly (see fig. S17-37).

Remove the air cap from the gun and, having soaked it in cleaning fluid, rub it with a stiff brush. If any of the holes in the cap are blocked, probe them with a match stick, tooth pick or other soft implement (see fig. S17-38). Do not attempt to clean these holes with a metal tool as irreparable damage to the cap could occur. The best way to dry the cap and the gun after cleaning is to hold it in a stream of compressed air.

Whilst the air cap is disconnected from the gun, ensure that the outside of the fluid tip is free of paint. Also, take care to ensure that the tip is not damaged while it is unprotected.

When the spray gun is re-assembled wipe it clean with a cloth soaked in cleaning fluid, also clean the inside and outside of the fluid cap. Always apply a drop of oil to the parts needing lubrication (see fig. S17-39).

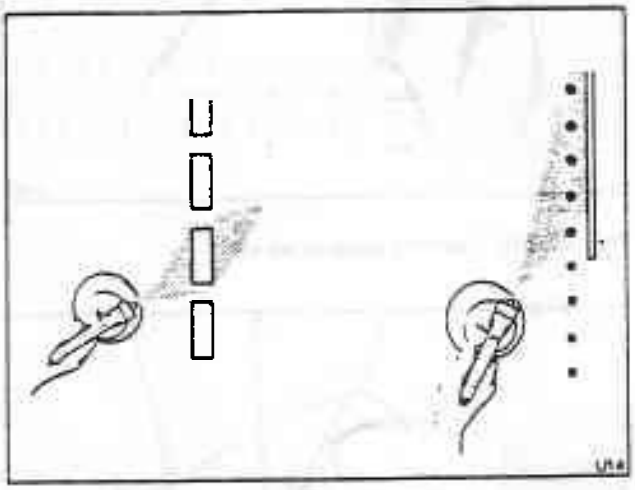


Fig. S17-36 Slender open work spraying

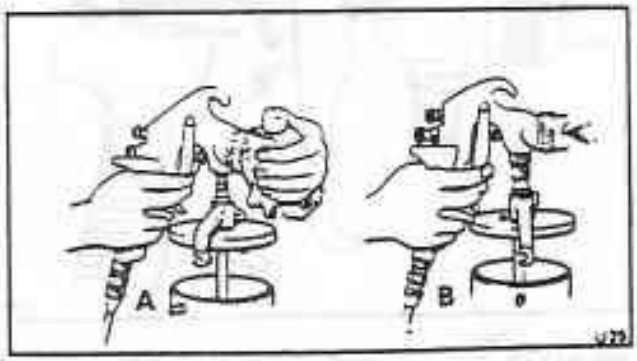


Fig. S17-37 Cleaning a suction feed spray gun
A Turning the compressed air through the fluid tube into the cup
B Spraying cleaning fluid through the gun

Note that the fluid needle spring is lubricated with petroleum jelly or grease and this part will require only occasional attention.

2. Gravity feed gun. The gravity feed gun should be cleaned in the same manner as the suction feed gun. Note that the lid is detachable and not the cup. When blowing back with a gravity feed gun take special care to ensure that the open top of the cup is turned away from the face as a certain amount of cleaning fluid is liable to be blown out of the cup.

3. Gravity and suction feed cups. In the lid of both gravity and suction feed cups there is a vent hole to allow air to enter the cup. This air replaces paint that is drawn out and it is essential that this vent hole is kept open as otherwise the paint will not flow out of the gun correctly. There is also a lid gasket which must be carefully cleaned to ensure that it functions correctly.

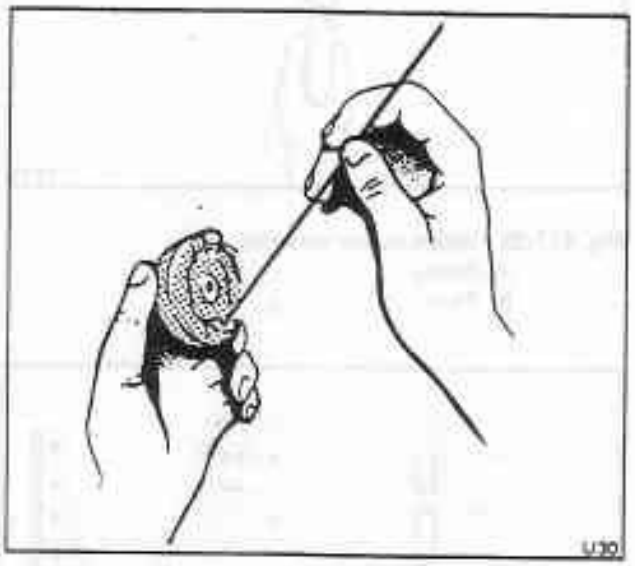


Fig. S17-38 Clearing holes in air cap

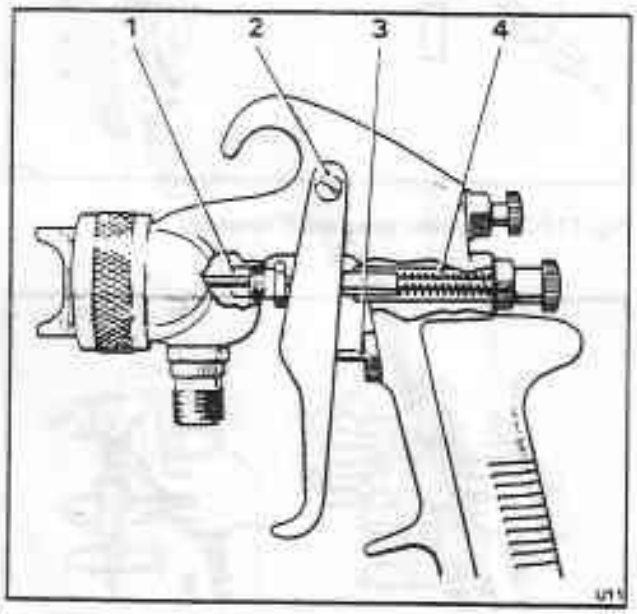


Fig. S17-39 Parts of a spray gun requiring lubrication
1 Fluid needle packing
2 Trigger fulcrum screw
3 Air valve stem and packing
4 Fluid needle spring

Cleaning the pressure feed system (see fig. S17-40)

1. Clean the pressure feed system by turning off the cock supplying compressed air to the pressure feed tank and open the relief valve on the tank lid. This will release the air pressure within the tank.
2. Unscrew the clamps that hold the tank lid down.
3. Lift the tank lid and replace it slightly out of position so that atmospheric air is free to enter or leave the tank.

Turn the air cock on again and force the paint in the fluid hose back into the tank by holding a cloth over the spray gun air-cap (see fig. S17-40).

4. Drain the paint from the fluid tank and replace it with cleaning fluid. Operate the gun ensuring that the fluid is sprayed and blown back until the hose and fluid passages are clean. Detach the hose from the gun and tank; allow both ends of the hose to drain into a receptacle.

Clean and lubricate the gun (see Cleaning the spray gun) and also clean the tank inside and out including the lid gasket. The air pressure regulating valve on the tank should be unscrewed until it feels free thus relieving the tension on the valve spring.

When the pressure feed equipment is to be used again, within a few hours, it is not necessary to clean it. Ensure that the parts are left connected, with the fluid hose full of material. Also ensure that the lid of the pressure feed tank is tightly secured.

Hose and equipment cleaner

A special 9 litres (2 gal) tank which will contain cleaning solvent provides a quick, simple means of cleaning hoses and equipment. It operates by compressed air and provides a finely atomized blast of solvent which travels through the passages of guns, tanks, hoses, etc. Air and fluid valves permit a mixture variation of air and solvent. Also, the valves allow either air or solvent to be used separately.

Cleaning other equipment

Equipment other than the spray gun and tank should always be kept scrupulously clean to ensure their constant efficiency.

1. To ensure that any dust or loose material is removed, the air hose should always be blown out with compressed air before it is attached to the gun. Keep the outside of the fluid hose free from accumulation of material.
2. Ensure that hose connections are clean and not damaged; if they cannot seat correctly leakages will occur at the connection, causing a waste of air or paint.
3. The oil level in the air compressor sump should be inspected regularly and if necessary, topped-up with the oil recommended by the manufacturer. The oil in the sump should be renewed periodically; the interval dependent upon the amount of time the compressor has been used.
4. Another feature of the air compressor is the air inlet which usually contains a filter. This filter must be kept

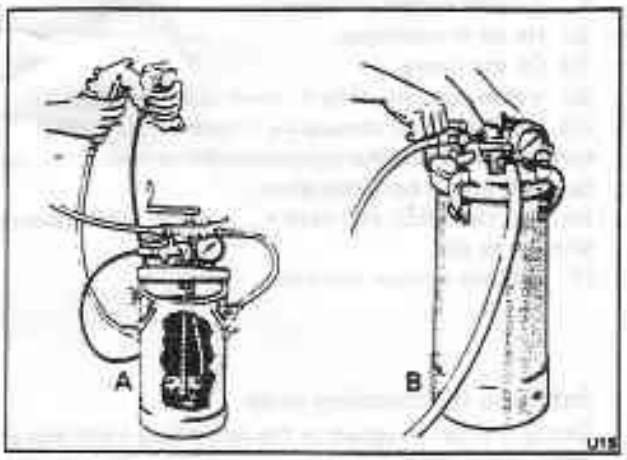


Fig. S17-40 Cleaning the pressure feed system
A Forcing paint in the fluid hose back into the tank
B A 9,09 litre (2 gal) tank for holding cleaning solvent to clean all hose and equipment

scrupulously clean and the filtering medium within it replaced when it becomes laden with dirt.

5. The air receiver is fitted with a drain cock which should be opened at least once a day, with the compressor running, to blow out accumulated water and oil.

6. When an air transformer is fitted to the air compressor the drain cock on the transformer must be opened at least once a day. If not, the transformer must be opened at least once a day. If these operations are not carried out, the transformer will become water-logged and moisture will enter the air hose.

Remedies for spraying problems

Even with excellent spraying equipment, problems will at some time arise. If these problems are allowed to develop they can spoil a paint finish. Usually these problems can be quickly rectified if the operator knows where to look for the source.

The following list and figures S17-41 to S17-44 inclusive, indicate the causes of problems most commonly encountered in spraying.

1. If there is an excessive mist or spray fog it is caused by.
(a) Too thin a paint.
(b) Over-atomization, due to using too high an atomizing air pressure for the volume of paint flowing.
(c) Improper use of the gun, such as making incorrect strokes or holding the gun too far from the surface.

2. Runs or sags on a sprayed surface are caused by.
(a) Sags are the result of applying too much paint to the surface, possibly by moving the gun too slowly. Runs are caused by using too thin a paint.
(b) If the gun is tilted at an angle to the surface, excessive paint is applied where the pattern is closest to the surface, causing a build-up of paint and sagging.

3. An 'orange-peel' defect such as that sometimes obtained with cellulose and synthetic materials is caused by.
(a) Using unsuitable thinners.

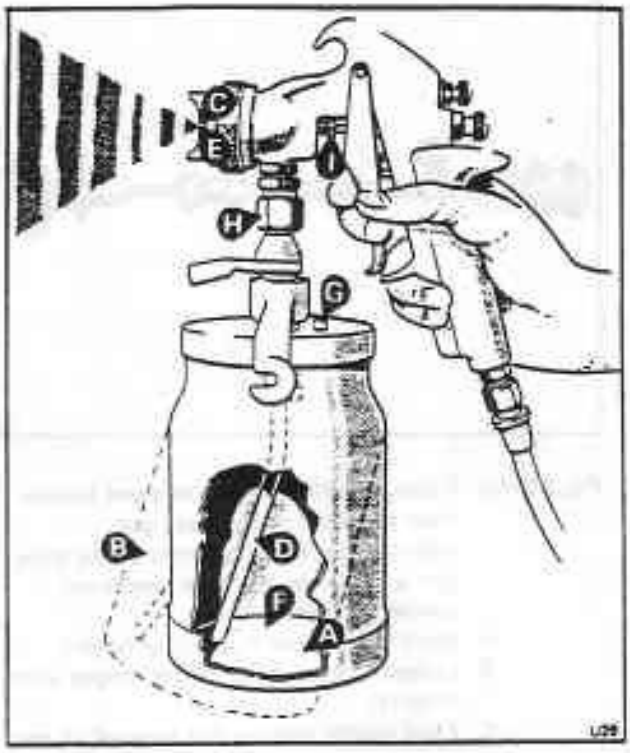


Fig. S17-41 Diagnosing the problems of a spray gun giving a fluttering or jerky spray
A Insufficient paint in the cup or pressure feed tank causing the end of the fluid tube to be uncovered
B When a suction feed gun is used, the cup is tilted at an excessive angle so that the fluid tube does not come into contact with the paint
C An obstruction in the fluid passage-way which must be removed
D Fluid tube loose, cracked or resting on the bottom of the paint container
E A loose fluid tip on the spray gun
F Too heavy a material for suction feed
G A blocked air vent in the cup lid
H A loose nut coupling the suction feed cup or fluid hose to the spray gun or pressure feed tank
I A loose fluid needle packing nut or dry packing

(b) Either too high or too low an atomizing air pressure.
(c) Holding the gun either too far away or too close to the surface.
(d) The paint not thoroughly mixed or agitated.
(e) Draught blowing on to the surface.
(f) Improperly prepared surface.

4. If the air compressor pumps oil into the air line, it is for the following reasons.
(a) Strainer on air intake blocked with dirt.
(b) Blocked intake valve.
(c) Too much oil in crankcase.
(d) Worn piston rings.

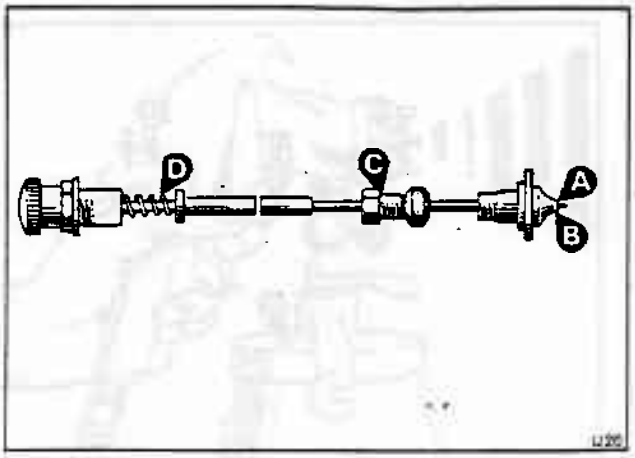


Fig. S17-42 Diagnosing the problem of paint leakage from the front of the spray gun

Paint leakage from the front of the spray gun is caused by the fluid needle not seating properly due to:

A Worn or damaged fluid tip or needle
B Lumps of dried paint or dirt lodged in the fluid tip
C Fluid needle packing nut screwed up too tightly
D Broken fluid needle spring

Note

Paint leakage from the fluid needle packing nut is caused by a loose packing nut or a worn or dry fluid needle packing. The packing can be lubricated with a small quantity of light oil however, fitting new packing is strongly advised.

Finger tighten the packing nut to prevent leakage; ensure that the nut does not bind on the needle.

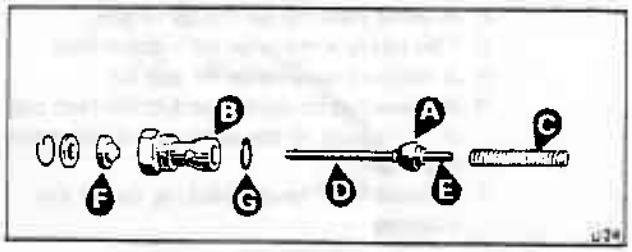


Fig. S17-43 Diagnosing the problem of compressed air leakage from the front of the spray gun

Compressed air leakage from the front of the gun is caused by:

A Dirt on the air valve or air valve seating
B Worn or damaged air valve or air valve seating
C Broken air valve spring
D Sticking valve stem due to lack of lubrication
E Bent valve stem
F Lack of lubrication on air valve packing
G Air valve gasket damaged

5. An over-heated air compressor is caused by.
(a) No oil in crankcase.
(b) Oil too heavy.
(c) Valves sticking, dirty or covered with carbon.
(d) Insufficient air circulating around an air-cooled compressor due to the compressor being placed too close to a wall or in a confined space.
(e) Cylinder block and head coated with a thick deposit of paint or dirt.
(f) Air inlet strainer blocked.

Safety in the finishing shop

Safety is often an aspect in the refinishing trade that is sadly neglected. Fire in connection with paint and solvents develops quickly and can rapidly become out of control.

Fires in painting areas generally have three principal causes.

1. Solvents and fumes spread out over large areas and ignite.
2. Fumes in empty or nearly empty containers ignite and explode.
3. Spontaneous combustion.

Preventive measures

Solvent fumes

1. Display 'No Smoking' and 'No Naked Flames' signs and ensure that blow lamps and welding equipment are not used in the vicinity of the painting area.
2. Wipe up spilled thinners immediately; dispose of cloth.
3. Provide a good ventilation system to remove fumes.
4. Replace all caps and covers on containers.
5. All solvent containers and electrical equipment should be properly earthed. **Do not use temporary electrical installations.**

Static electricity

1. When pouring thinners and solvents, connect the containers with electrically conductive wire and earth them.
2. If possible earth all equipment in the paint shop.
3. Do not splash when pouring. Pour the thinner down the side of the container; free falling through the air can generate static electricity.
4. Do not use plastic containers for storage.

Spontaneous combustion

1. Some materials such as oils and certain paints, which have been wiped up with cloth and cotton waste, oxidise so rapidly that sufficient heat is generated to cause ignition.

In all, three basic rules apply to safety in the paint shop, they are.

1. **Keep the paint areas clean and tidy.**
2. **Ensure proper ventilation.**
3. **Look after all equipment, especially the electrical equipment.**

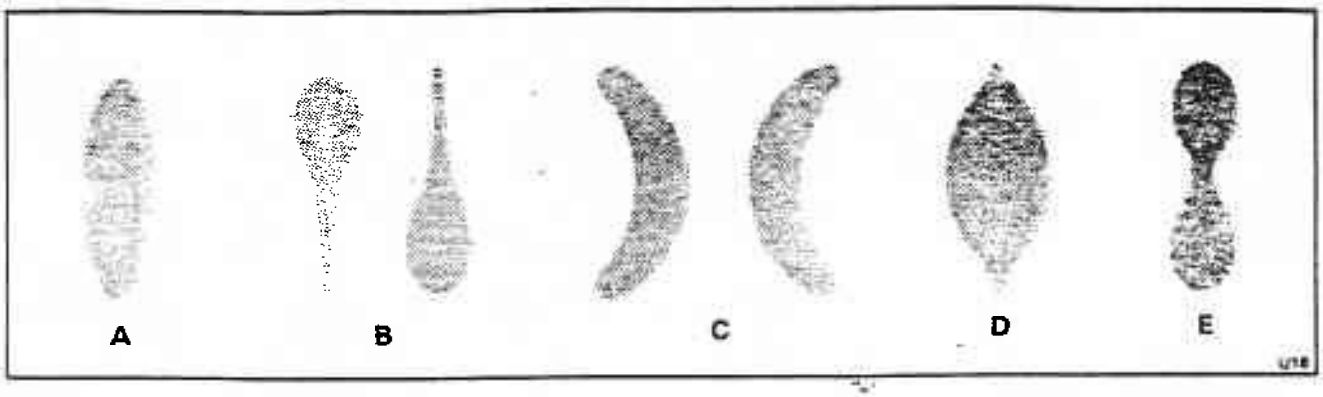


Fig. S17-44 Spray patterns

A Normal spray pattern

Defective spray patterns can develop from the following

B Top or bottom heavy pattern caused by:
1 Horn holes in air cap partially blocked
2 Obstruction on top or bottom of fluid tip
3 Dirt on air cap seat or fluid tip seat

C Heavy right or left side pattern caused by:
1 Right or left side horn hole in air cap partially blocked
2 Dirt on right or left side of fluid tip

D Heavy centre pattern caused by:
1 Too low a setting of the spreader adjustment valve on the gun
2 Atomizing air pressure is too low or the paint is too thick
3 With pressure feed, the fluid pressure is too high or the flow of paint exceeds the normal capacity of the air cap
4 The incorrect size fluid tip for the paint being sprayed

E Split spray pattern caused by:
1 Atomizing air and fluid flow not being correctly balanced

Remedies for defective spray patterns are as follows.

B Top or bottom heavy pattern
or
C Heavy right or left side pattern

Determine if the obstruction is in the air cap by spraying a test pattern. Then rotate the air cap half a turn and spray a further test. If the defect is inverted the obstruction is in the air cap which should be cleaned as previously described.

If the defect has not changed its position the obstruction is on the fluid tip. When cleaning the fluid tip, check for fine burr on the tip which can be removed with 600 wet or dry sandpaper.

D Heavy centre pattern
or
E Split spray pattern

Check if the adjustments are unbalanced. If necessary, adjust the atomizing air pressure, fluid pressure, and spray width control setting until the correct pattern is obtained.

Everflex roof trim

Introduction

The Everflex roof trim is a standard feature on long wheelbase cars and is fitted as a customer request item on short wheelbase cars.

Prior to commencing work, it should be noted that a number of special tools will be required when fitting the Everflex roof trim. Also, a stretching jig and windscreen/rear window aperture pegs will have to be manufactured. The various tools needed, and the specification of the stretching jig and wooden pegs are shown in figure S18-2.

When fitting an Everflex roof, it is essential that strict cleanliness is maintained and a high level of attention to detail observed.

Warning

The cleaners, primers, and adhesives used in the fitting of an Everflex roof are classified as highly flammable. for guidance on their use refer to Section S2.

Everflex roof trim - To remove (see fig. S18-1)

1. Disconnect the battery.
2. Remove the rear window and associated trim (see Rear window - To remove, Section S11).
3. Remove the windscreen and associated trim (see Windscreen - To remove, Section S10).
4. Remove the nut (item 1) and spacer securing each badge. Remove both badges.
5. Unscrew and remove both 'BC' post finishers (item 2).
6. Unscrew and remove both door aperture finisher joining pieces (item 3).
7. Unscrew and remove the front and rear door aperture finishers and seals (item 4).

Note

On short wheelbase cars, the stainless steel door aperture finishers are replaced by brass strips which are screwed to the underside of the front and rear door apertures

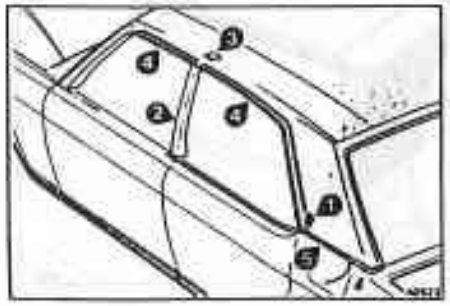


Fig. S18-1 Removal of the Everflex roof

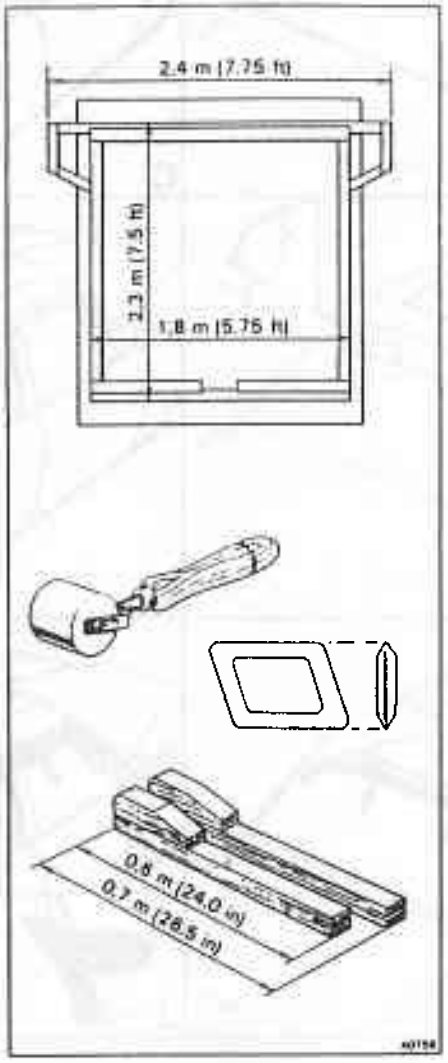
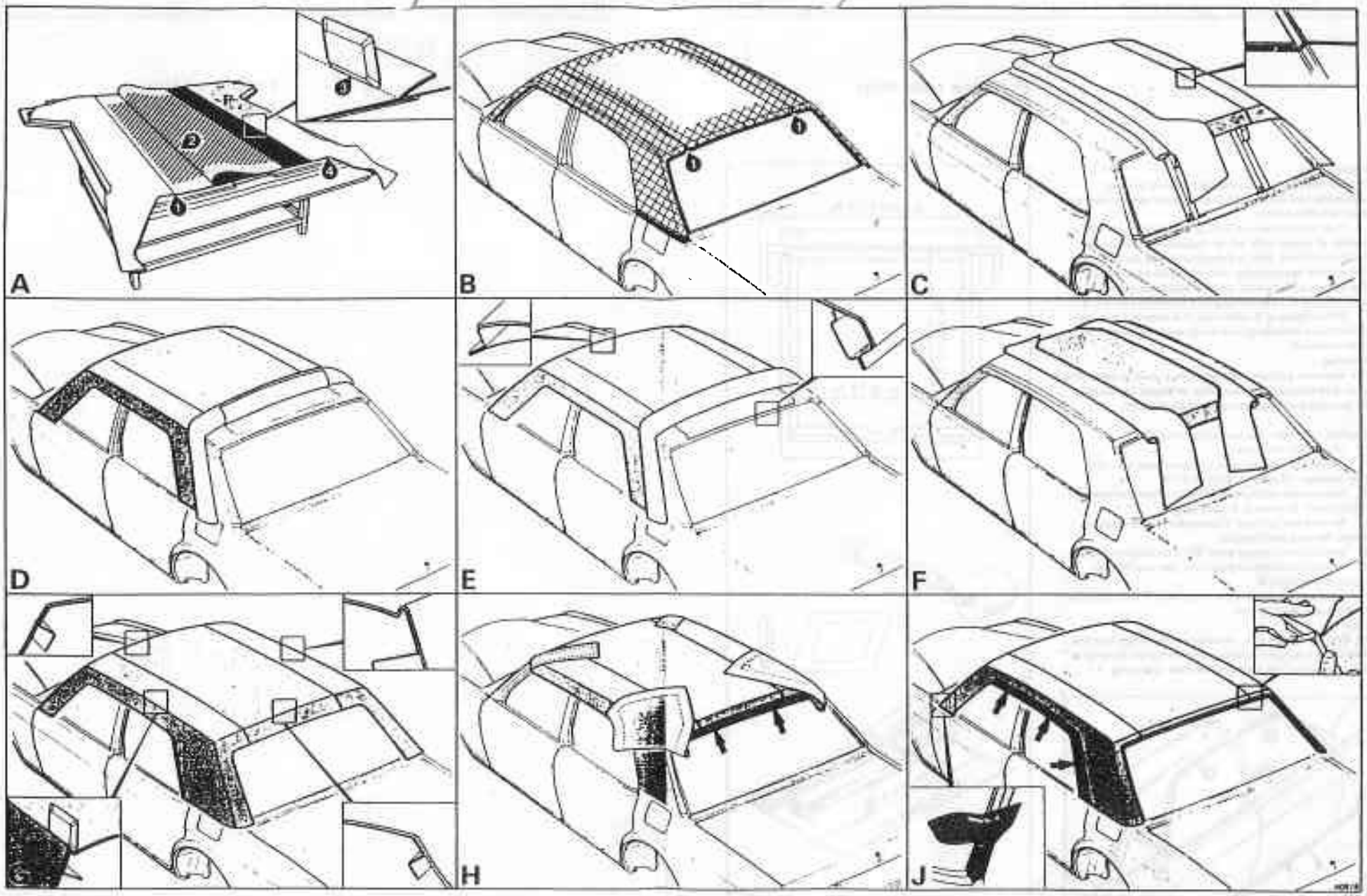


Fig. S18-2 Stretching jig and tools

Fitting of the Everflex roof

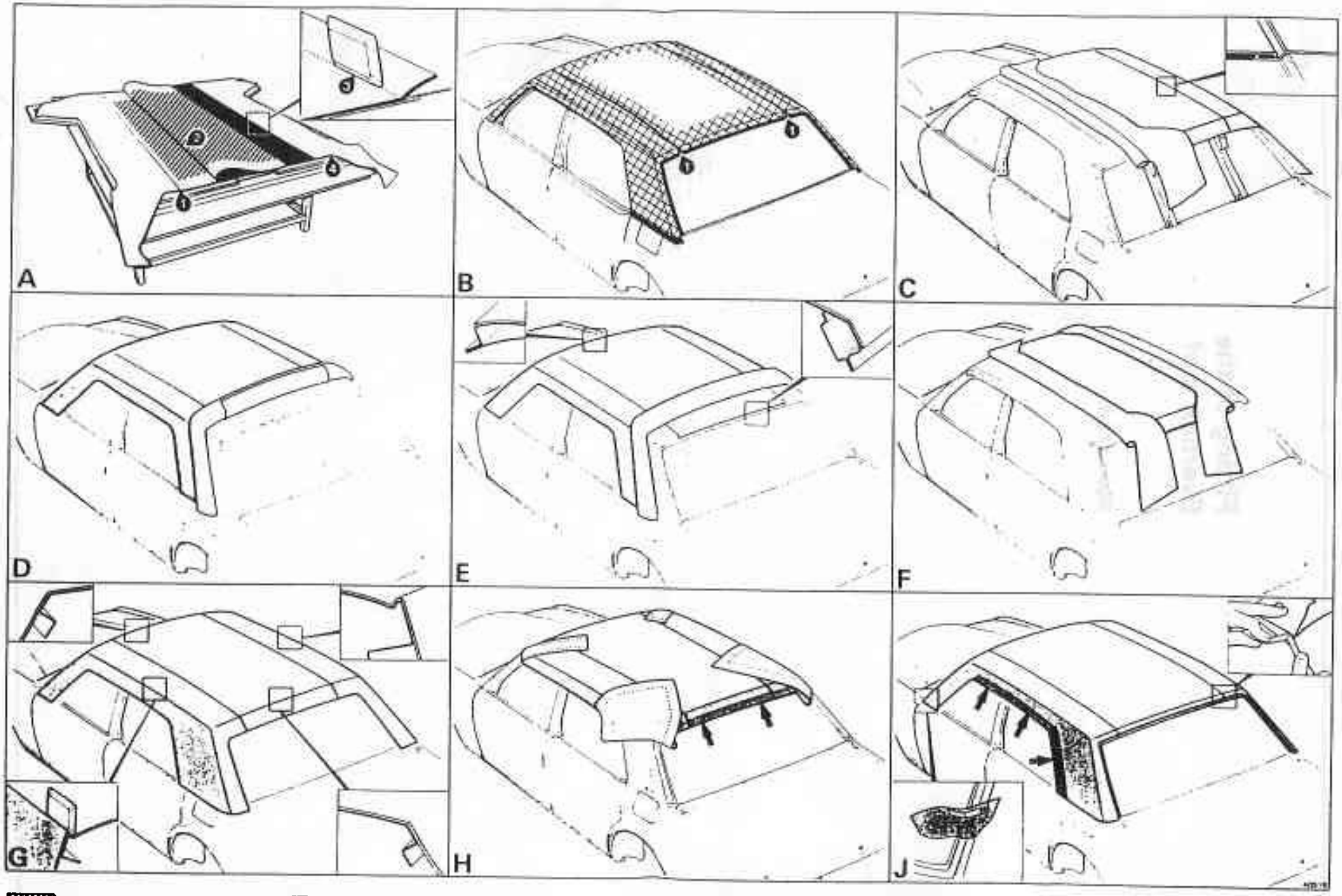
Figure S18-3



Dunlop L107 adhesive Bostik Primer 9252 Boscoprene 2402 adhesive

Fitting of the Everflex roof

Figure S18-3



Dunlop L107 adhesive Bostik Primer 9252 Boscoprene 2402 adhesive

Everflex roof trim

Introduction

The Everflex roof trim is a standard feature on long wheelbase cars and is fitted as a customer request item on short wheelbase cars.

Prior to commencing work, it should be noted that a number of special tools will be required when fitting the Everflex roof trim. Also, a stretching jig and windscreen/rear window aperture pegs will have to be manufactured. The various tools needed, and the specification of the stretching jig and wooden pegs are shown in figure S18-2.

When fitting an Everflex roof, it is essential that strict cleanliness is maintained and a high level of attention to detail observed.

Warning

The cleaners, primers, and adhesives used in the fitting of an Everflex roof are classified as highly flammable, for guidance on their use refer to Section S2.

Everflex roof trim - To remove (see fig. S18-1)

1. Disconnect the battery.
2. Remove the rear window and associated trim (see Rear window - To remove, Section S11).
3. Remove the windscreen and associated trim (see Windscreen - To remove, Section S10).
4. Remove the nut (item 1) and spacer securing each badge. Remove both badges.
5. Unscrew and remove both 'BC' post finishers (item 2).
6. Unscrew and remove both door aperture finisher joining pieces (item 3).
7. Unscrew and remove the front and rear door aperture finishers and seals (item 4).

Note

On short wheelbase cars, the stainless steel door aperture finishers are replaced by brass strips which are screwed to the underside of the front and rear door apertures

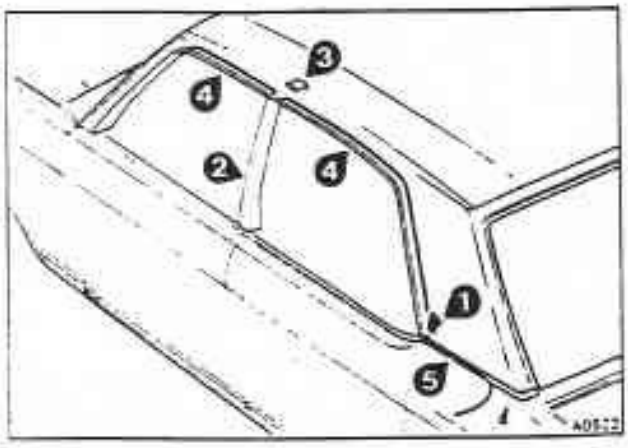


Fig. S18-1 Removal of the Everflex roof

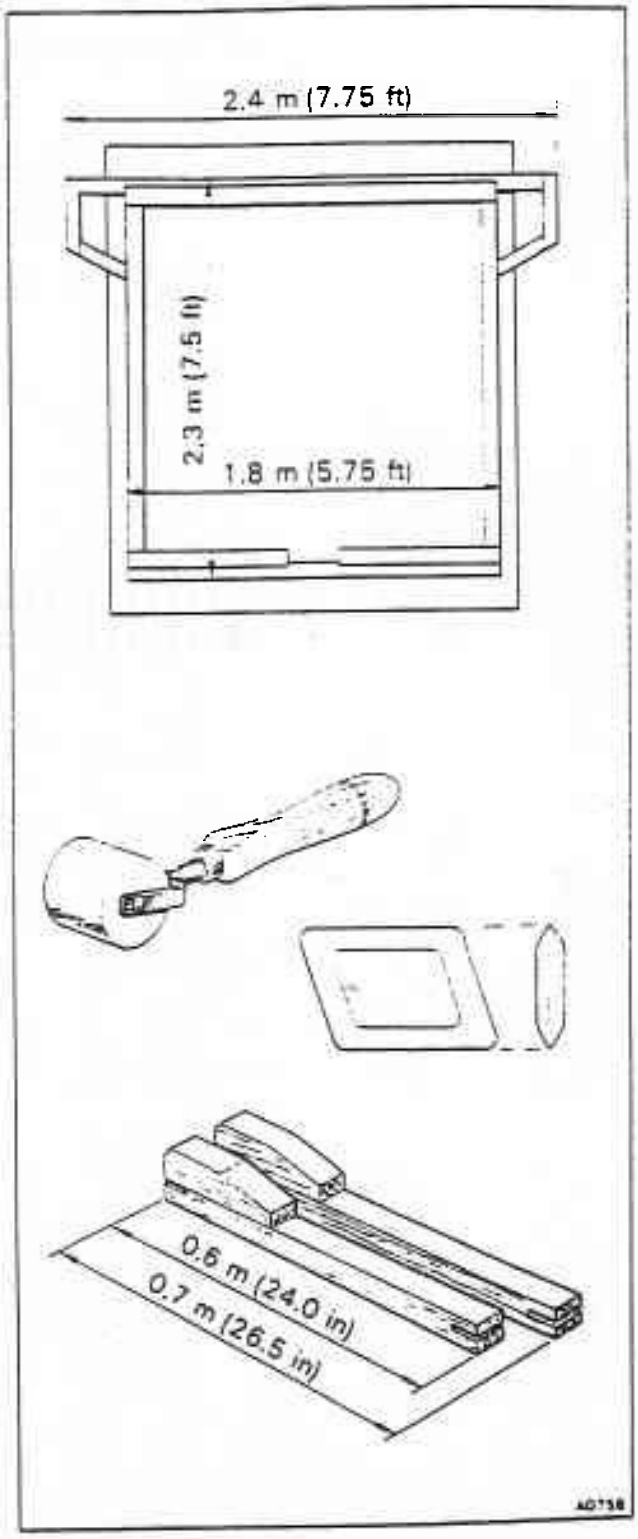


Fig. S18-2 Stretching jig and tools

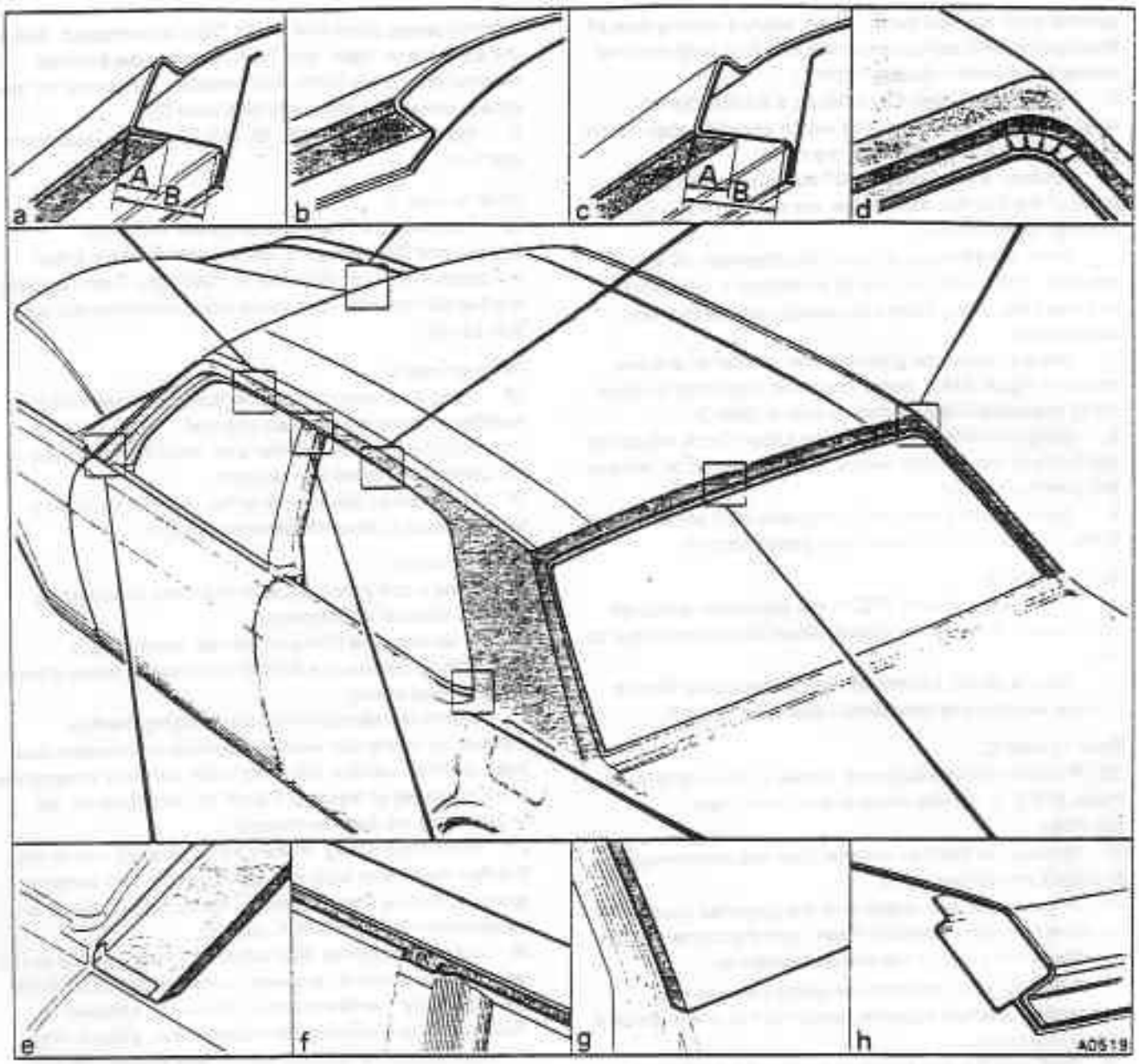


Fig. S18-4 Everflex roof

A 19,0 mm (0.75 in) approximately - Long wheelbase cars

B 44,5 mm (1.75 in) approximately - Short wheelbase cars

concealing the edge of the Everflex material.

8. To remove the tonneau mouldings (item 5) proceed as follows.

Using a small screwdriver or similar tool, release the Everflex material and rubber insert from within each moulding.

Release the self-tapping screws and remove both mouldings.

9. Starting at the base of each 'A' post, completely peel the Everflex material from the car.

Everflex roof trim - To fit (see fig. S18-3)

1. Protect all the surrounding paintwork, except the area vacated by the Everflex material, with masking tape and clean felt or a similar material.

2. Completely remove the old adhesive from the roof panel, tonneau sides, and 'A' post panels using 180 grit wet or dry abrasive paper. Take care not to rub through the paintwork. Ensure that all areas of the roof etc., where bonding is to take place are clean and dry.

3. Using a stretching jig similar to the one shown in figure S18-2, centralize and tack the four corners of the Everflex centre panel, outer surface upwards, to the frame. Ensure that the centre panel is lightly tensioned, then tack the Everflex side panels to the frame.

4. Wipe the outer surface of the Everflex material with a clean lint free cloth. Any creases in the material must be removed by applying warm air from a suitable heat source. Refer to figure S18-3, inset A.

5. Place the frame, outer surface downwards, onto a

suitable cloth covered bench. Then, apply a sealing coat of Boscoprene 2402 adhesive (parts 1 and 2) to both stitched seams in the areas indicated (item 1).

6. Position the Union Cloth flat on a suitable bench. Apply Dunlop L107 adhesive to within approximately 10 cm (4.0 in) of the front and rear of the cloth.

Similarly, apply Dunlop L107 adhesive to the centre panel of the Everflex material i.e. the area between the stitched seams (item 2).

Allow the adhesive to 'flash' dry (between 10 and 15 minutes). Then, with the help of an assistant, centralize and press the Union Cloth into position on the Everflex centre panel.

7. Using a hardwood grooving tool, similar to the one shown in figure S18-2, press the Union Cloth into position along the inside of both stitched seams (item 3).

8. Using a trimming knife, cut the Union Cloth exactly to the inside of the stitched seams, taking care not to damage the Everflex material.

9. Apply a sealing coat of Boscoprene 2402 adhesive (parts 1 and 2) to the Everflex side panels (item 4).

Refer to inset B.

10. Apply Bostik Primer 9252 to the previously prepared roof panel in the areas indicated. Allow at least one hour to dry.

11. Using a pencil, extend the roof panel styling lines to the rear window and windscreen apertures (item 1).

Refer to inset C.

12. Position wooden supports, similar to those shown in figure S18-2, in the rear window and windscreen apertures.

13. Remove the Everflex material from the stretching jig and place on the roof panel.

14. Align the stitched seams with the pencilled guide lines on the rear window aperture. Then, tack the corners of the Everflex centre panel to the wooden supports.

Similarly, align and tack the centre panel to the windscreen aperture supports, ensuring that the material is lightly tensioned.

15. Fold back the side panels to expose the roof panel styling lines and the Everflex stitched seams. Apply Boscoprene 2402 adhesive (parts 1 and 2) to the areas indicated.

Allow the adhesive to 'flash dry'.

16. Align the stitched seams parallel with the roof panel styling lines and press firmly into position. Using a tool similar to the one shown in figure S18-2, roll the styling line areas of the roof to ensure adhesion.

Refer to inset D.

17. Remove the wooden supports from the rear window and windscreen apertures.

18. Fold back the rear of the Everflex and Union Cloth. Apply Boscoprene 2402 adhesive (parts 1 and 2) to the roof panel and Union Cloth in the areas indicated. Allow the adhesive to 'flash' dry.

Refer to inset E.

19. Keeping the Union Cloth taut, press firmly onto the roof panel. Then, trim the cloth parallel with the inside of the rear window aperture.

20. Apply Boscoprene 2402 adhesive (parts 1 and 2) to the Everflex centre panel and Union Cloth as indicated. Allow the adhesive to 'flash' dry. Then, keeping the Everflex material taut, press firmly into position. Do not cut off the excess material at this stage (see inset G).

21. Repeat Operations 18, 19, and 20 on the windscreen aperture.

Refer to inset F.

22. Fold back the Everflex side panels and apply Boscoprene 2402 adhesive (parts 1 and 2) to the areas indicated. Allow the adhesive to 'flash' dry. Then, keeping the Everflex material taut, press into position on the roof side panels.

Refer to inset G.

23. Using a hardwood grooving tool, carefully work the Everflex material into the rain channel.

Fold the Everflex material over onto the outer face of the cantrail and bond into position.

24. At this stage leave the Everflex material for at least sixteen hours to allow the adhesive to cure.

Refer to inset H.

25. Using a soft pencil, roughly mark the overhanging Everflex material as indicated.

26. To facilitate the fitting of the rear window, it is necessary to remove the double thickness of material from both stitched seams.

Unpick the seams on the overhanging Everflex material up to the rear window aperture as indicated (see inset J). Then, using a trimming knife, carefully remove the extra thickness of material. Tie off the last stitch on the underside of the Everflex material.

27. To facilitate fitting, make a series of small cuts in the Everflex material at both top corners of the rear window aperture. Ensure that the cuts do not extend further than those shown in figure S18-4, inset d.

28. Apply Boscoprene 2402 adhesive (parts 1 and 2) to the rear window aperture (arrowed), tonneau panels, and the corresponding Everflex material. Allow the adhesive to 'flash' dry. Then, keeping the material taut, press it firmly into position on the tonneau panels and around the rear window aperture. The hardwood grooving tool will assist during this operation.

29. Trim the excess Everflex material from around the rear window aperture as shown in figure S18-4, inset h.

Refer to inset J.

30. Carefully trim the Everflex material to fit around the upper 'BC' post (see fig. S18-4, inset f).

31. Apply Boscoprene 2402 adhesive (parts 1 and 2) to the underside of the cantrails, upper 'D' post panels (arrowed), and the corresponding Everflex material. Allow the adhesive to 'flash' dry. Then, keeping the material taut, press firmly into position.

32. To facilitate the fitting of the windscreen, it is necessary to remove the double thickness of material from both stitched seams.

Unpick the seams on the overhanging Everflex material up to the windscreen aperture. Then, using a trimming knife, carefully remove the extra thickness of material. Tie off the last stitch on the underside of the Everflex material.

33. Apply Boscoprene 2402 adhesive (parts 1 and 2) to the

top of the windscreen aperture and the corresponding Everflex material. Allow the adhesive to 'flash' dry. Then, keeping the material taut, press firmly into position along the top of the windscreen aperture. The hardwood grooving tool will assist during this operation.

34. Apply Boscoprene 2402 adhesive (parts 1 and 2) to both 'A' posts, up to approximately 10 cm (4.0 in) from the base of each post. Also apply the adhesive to the corresponding Everflex material (see fig. S18-3, inset H). Allow the adhesive to 'flash' dry. Then, keeping the material taut, press it firmly into position on the 'A' posts; also around the sides of the windscreen and front door apertures. The hardwood grooving tool will assist during this operation.

35. To fit the brass 'A' post finishing strips proceed as follows referring to inset J.

Fold back the Everflex material from the base of each 'A' post.

Fit the brass strip around the base of each 'A' post, parallel with the top edge of the front door panel.

Trim the overhanging Everflex material from the base of the 'A' post, approximately 12 mm (0.50 in) below the brass strip.

Apply Boscoprene 2402 adhesive (parts 1 and 2) to the brass strip and the bottom edge of the corresponding Everflex material. Allow the adhesive to 'flash' dry.

Holding the brass strip in position, press the Everflex material firmly onto the base of the 'A' post. Fold back the Everflex material together with the brass strip. The strip is now in its correct position.

Apply Boscoprene 2402 adhesive (parts 1 and 2) to the brass strip and the edge of the Everflex material i.e. the area below the brass strip. Allow the adhesive to 'flash' dry. Then, cut and fold the Everflex material into position on the brass strip.

Apply Boscoprene 2402 adhesive (parts 1 and 2) to the lower area of the 'A' post and the corresponding Everflex material. Allow the adhesive to 'flash' dry. Then, keeping the material taut, press firmly into position on the 'A' post.

36. Trim the excess Everflex material from around the windscreen aperture as shown in figure S18-4, inset b.

37. Trim the excess Everflex material from around the front and rear door apertures to the dimensions shown in figure S18-4, insets a and c.

38. Trim the excess Everflex material from the tonneau panels, ensuring that the cut edge of the material will be covered by the tonneau moulding but will not show beneath it.

39. Refit the items previously removed by reversing the removal procedure noting the following.

Prior to fitting the tonneau mouldings and badges, apply a thin bead of Bostik Seelastik to the rear face of each. Use black Seelastik on cars fitted with dark coloured Everflex and cream Seelastik on cars fitted with light coloured Everflex.

40. Ensure that the roof is throughly cleaned. Remove any excess adhesive using a clean lint free cloth moistened with Genklene. **Extreme care must be taken to avoid Genklene coming into contact with the paintwork.**

41. Using a clean lint free cloth or sponge, apply a protective coating of Everflex Top Dressing to all areas of the Everflex. This gives the roof a glossy appearance and prevents dirt becoming trapped in the grain of the Everflex material. Allow the Top Dressing to dry for fifteen minutes then apply a second coat.

If any of the liquid is spilt on the paintwork it must be removed before it dries.

Clean the cloth or sponge and any container used by rinsing them with water.

42. Using a clean lint free cloth, apply Barbour Thornproof Waterproof Dressing to both stitched seams. Ensure that the Waterproof Dressing is thoroughly worked into the stitch holes in the seams.

Workshop tools

RH 2849	Window frame modification kit Silver Spirit and Mulsanne (excluding Turbo) Cars prior to vehicle identification number*SCAZS0006BCH02000*
RH 2851	Window frame modification kit Silver Spur (Non-division and Division) Cars prior to vehicle identification number*SCAZS0006BCH02000*
RH 2850	Window frame modification kit Silver Spirit and Mulsanne (excluding Turbo) Cars from vehicle identification number*SCAZS0006BCH02000*
RH 2852	Window frame modification kit Silver Spur (Non-division and Division) Cars from vehicle identification number*SCAZS0006BCH02000*
RH 9778	Striker pin holding tool - door locking system
RH 9779	Setting piece - striker pin - door locking system
RH 9623	Extractor tool - removal of windscreen wiper arms
RH 9637	Windscreen knife
RH 2803	Windscreen seal kit

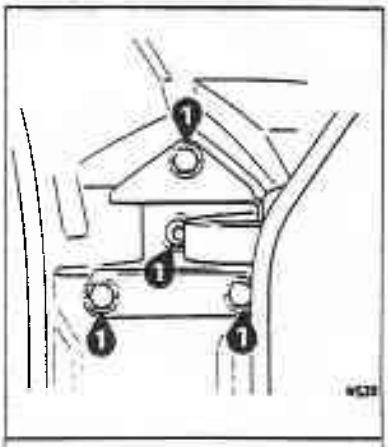
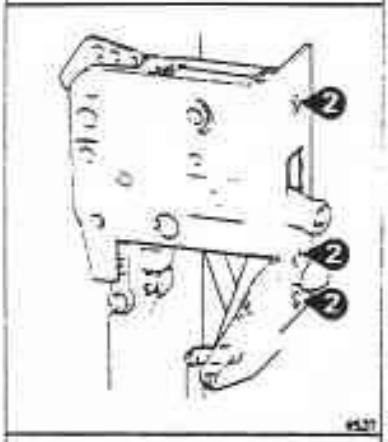
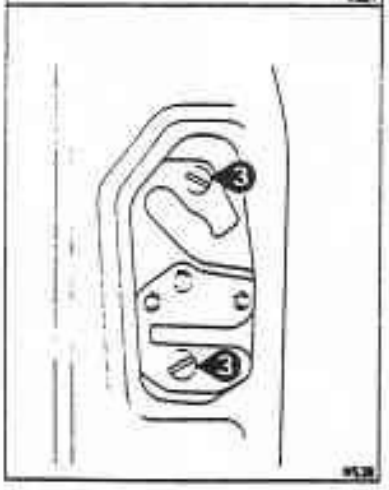
Special torque tightening figures

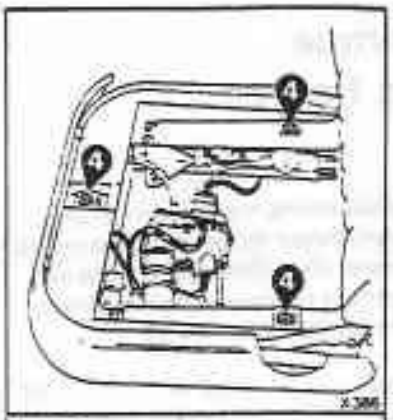
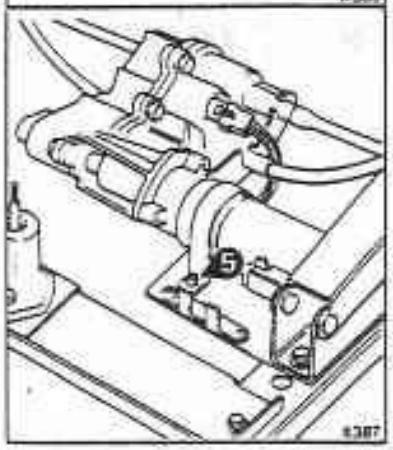
Introduction

This section contains the special torque tightening figures applicable to Chapter S.

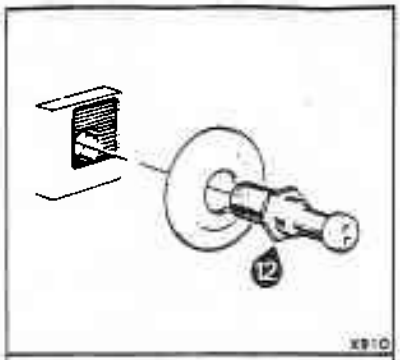
For standard torque tightening figures refer to Chapter P.

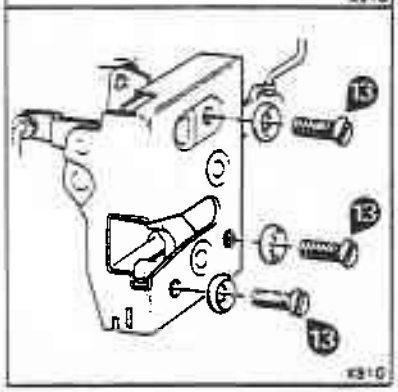
Components used during manufacture of the vehicle have different thread formations (Metric, UNF, UNC, etc.). Therefore, when fitting nuts, bolts and setscrews it is important to ensure that the correct type and size of thread formation is used.

Section S3/S4	Ref.	Component	Nm	kgf m	lbf ft
	1	Front and rear door hinges – bolts and Allen screws	26 - 34	2.6 - 3.4	19 - 25
	2	Door lock – countersunk screws	11 - 13	1.1 - 1.4	8 - 10
	3	Door striker plate – countersunk screws	22 - 24	2.2 - 2.5	16 - 18

Section S5	Ref.	Component	Nm	kgf m	lbf ft
	4	Nut and spring - seat base to front and rear jacks	11 - 16	1,2 - 1,6	8 - 12
	5	Screw - motor securing strap	6 - 8	0,6 - 0,8	4 - 6

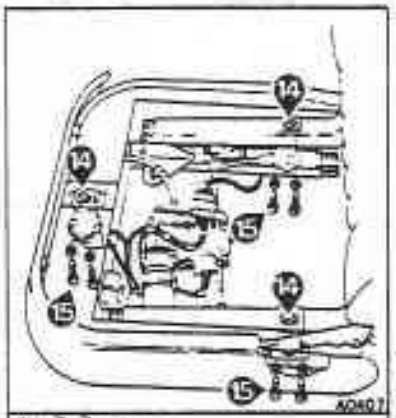
Section S3/S4

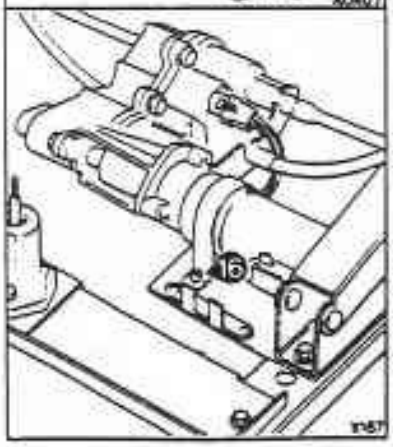




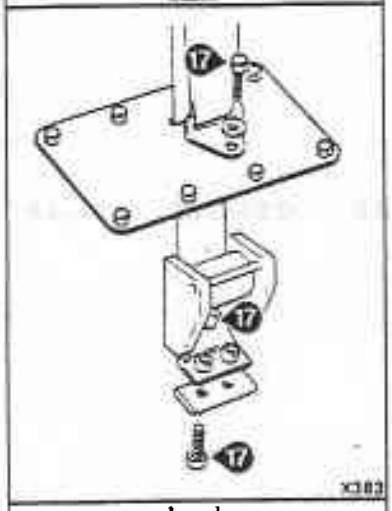
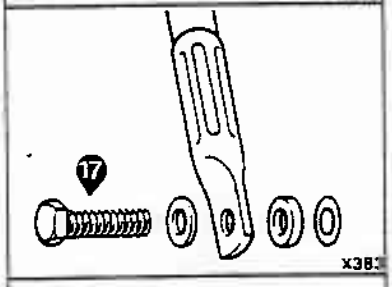
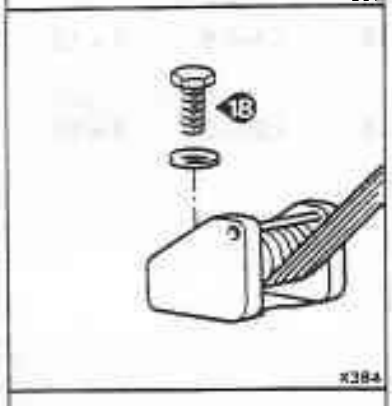
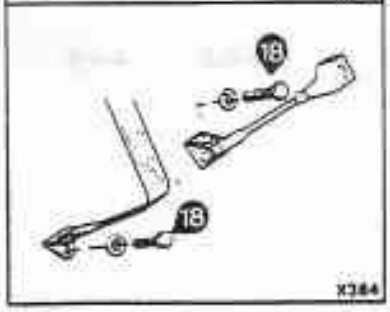
Ref.	Component	Nm	Kgf.m	lbf ft
12	Striker pin - new door lock - 'B' and 'D' posts - lock-nut	27 – 33	2,8–3,3	20 – 24
13	Front and rear new door locks - countersunk screws	5,5 – 6,5	0,55–0,65	4,1 – 4,8

Section S5





Ref.	Component	Nm	Kgf.m	lbf ft
14	Seat base to front and rear jacks - nut and spring	11 – 16	1,1–1,6	8 – 12
15	Front and rear jacks to seat slides – screw	12 – 15	1,2–1,5	9 – 11
16	Motor securing strap - screw	6 – 8	0,6–0,8	4 – 6

Section S6	Ref.	Component	Nm	kgf m	lbf ft
	17	Front seat belt anchorages - setscrews	29 – 31	2,9–3,2	21 – 23
					
					
	18	Rear seat belt anchorages - setscrews	29 – 31	2,9–3,2	21 – 23
					

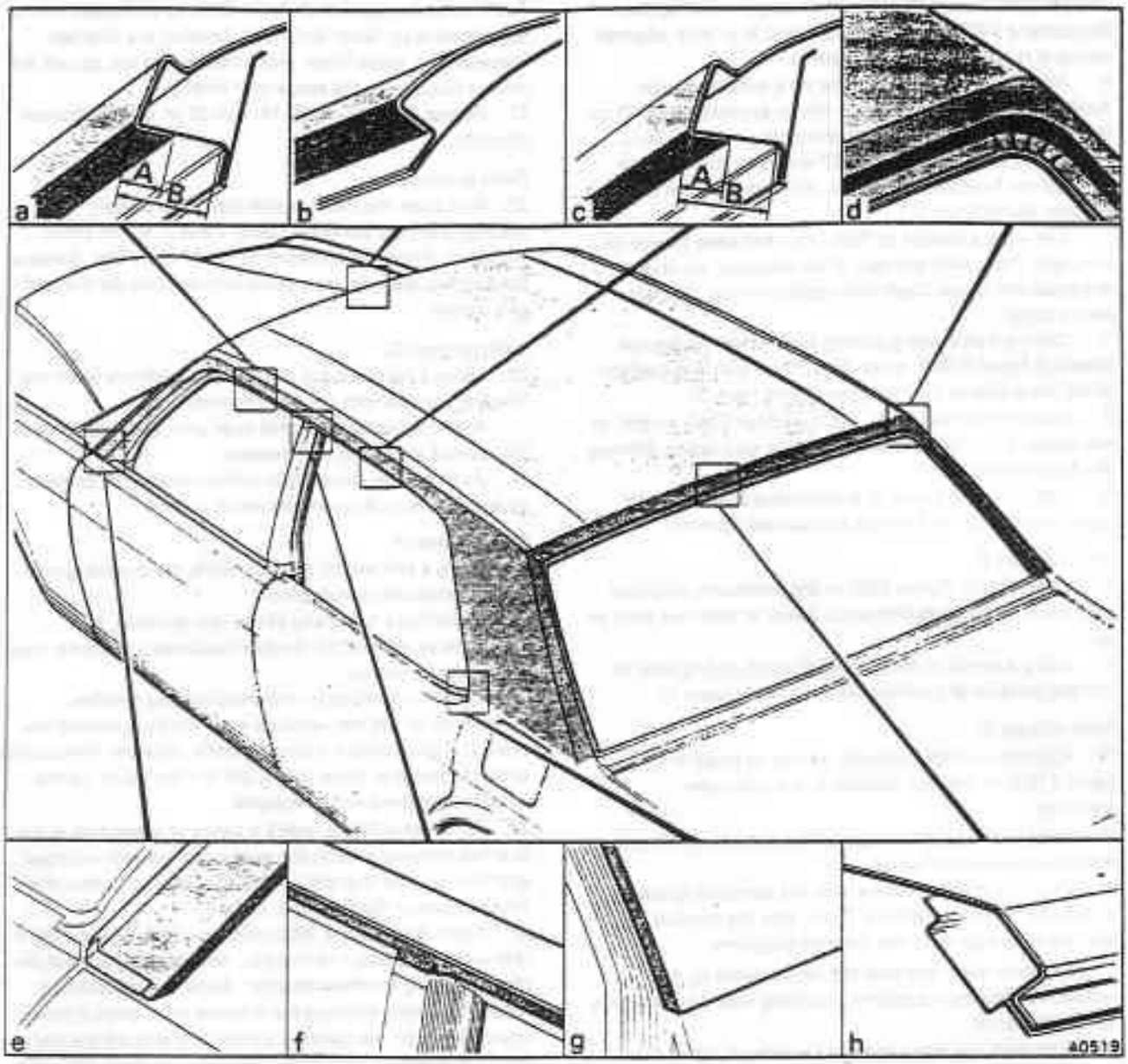


Fig. S18-4 Everflex roof

A 19,0 mm (0.75 in) approximately - Long wheelbase cars

B 44,5 mm (1.75 in) approximately - Short wheelbase cars

concealing the edge of the Everflex material.

8. To remove the tonneau mouldings (item 5) proceed as follows.

Using a small screwdriver or similar tool, release the Everflex material and rubber insert from within each moulding.

Release the self-tapping screws and remove both mouldings.

9. Starting at the base of each 'A' post, completely peel the Everflex material from the car.

Everflex roof trim - To fit (see fig. S18-3)

1. Protect all the surrounding paintwork, except the area vacated by the Everflex material, with masking tape and clean felt or a similar material.

2. Completely remove the old adhesive from the roof panel, tonneau sides, and 'A' post panels using 180 grit wet or dry abrasive paper. Take care not to rub through the paintwork. Ensure that all areas of the roof etc., where bonding is to take place are clean and dry.

3. Using a stretching jig similar to the one shown in figure S18-2, centralize and tack the four corners of the Everflex centre panel, outer surface upwards, to the frame. Ensure that the centre panel is lightly tensioned, then tack the Everflex side panels to the frame.

4. Wipe the outer surface of the Everflex material with a clean lint free cloth. Any creases in the material must be removed by applying warm air from a suitable heat source. Refer to figure S18-3, inset A.

5. Place the frame, outer surface downwards, onto a

suitable cloth covered bench. Then, apply a sealing coat of Boscoprene 2402 adhesive (parts 1 and 2) to both stitched seams in the areas indicated (item 1).

6. Position the Union Cloth flat on a suitable bench. Apply Dunlop L107 adhesive to within approximately 10 cm (4.0 in) of the front and rear of the cloth.

Similarly, apply Dunlop L107 adhesive to the centre panel of the Everflex material i.e. the area between the stitched seams (item 2).

Allow the adhesive to 'flash' dry (between 10 and 15 minutes). Then, with the help of an assistant, centralize and press the Union Cloth into position on the Everflex centre panel.

7. Using a hardwood grooving tool, similar to the one shown in figure S18-2, press the Union Cloth into position along the inside of both stitched seams (item 3).

8. Using a trimming knife, cut the Union Cloth exactly to the inside of the stitched seams, taking care not to damage the Everflex material.

9. Apply a sealing coat of Boscoprene 2402 adhesive (parts 1 and 2) to the Everflex side panels (item 4).

Refer to inset B.

10. Apply Bostik Primer 9252 to the previously prepared roof panel in the areas indicated. Allow at least one hour to dry.

11. Using a pencil, extend the roof panel styling lines to the rear window and windscreen apertures (item 1).

Refer to inset C.

12. Position wooden supports, similar to those shown in figure S18-2, in the rear window and windscreen apertures.

13. Remove the Everflex material from the stretching jig and place on the roof panel.

14. Align the stitched seams with the pencilled guide lines on the rear window aperture. Then, tack the corners of the Everflex centre panel to the wooden supports.

Similarly, align and tack the centre panel to the windscreen aperture supports, ensuring that the material is lightly tensioned.

15. Fold back the side panels to expose the roof panel styling lines and the Everflex stitched seams. Apply Boscoprene 2402 adhesive (parts 1 and 2) to the areas indicated.

Allow the adhesive to 'flash dry'.

16. Align the stitched seams parallel with the roof panel styling lines and press firmly into position. Using a tool similar to the one shown in figure S18-2, roll the styling line areas of the roof to ensure adhesion.

Refer to inset D.

17. Remove the wooden supports from the rear window and windscreen apertures.

18. Fold back the rear of the Everflex and Union Cloth. Apply Boscoprene 2402 adhesive (parts 1 and 2) to the roof panel and Union Cloth in the areas indicated. Allow the adhesive to 'flash' dry.

Refer to inset E.

19. Keeping the Union Cloth taut, press firmly onto the roof panel. Then, trim the cloth parallel with the inside of the rear window aperture.

20. Apply Boscoprene 2402 adhesive (parts 1 and 2) to the Everflex centre panel and Union Cloth as indicated. Allow the adhesive to 'flash' dry. Then, keeping the Everflex material taut, press firmly into position. Do not cut off the excess material at this stage (see inset G).

21. Repeat Operations 18, 19, and 20 on the windscreen aperture.

Refer to inset F.

22. Fold back the Everflex side panels and apply Boscoprene 2402 adhesive (parts 1 and 2) to the areas indicated. Allow the adhesive to 'flash' dry. Then, keeping the Everflex material taut, press into position on the roof side panels.

Refer to inset G.

23. Using a hardwood grooving tool, carefully work the Everflex material into the rain channel.

Fold the Everflex material over onto the outer face of the cantrail and bond into position.

24. At this stage leave the Everflex material for at least sixteen hours to allow the adhesive to cure.

Refer to inset H.

25. Using a soft pencil, roughly mark the overhanging Everflex material as indicated.

26. To facilitate the fitting of the rear window, it is necessary to remove the double thickness of material from both stitched seams.

Unpick the seams on the overhanging Everflex material up to the rear window aperture as indicated (see inset J). Then, using a trimming knife, carefully remove the extra thickness of material. Tie off the last stitch on the underside of the Everflex material.

27. To facilitate fitting, make a series of small cuts in the Everflex material at both top corners of the rear window aperture. Ensure that the cuts do not extend further than those shown in figure S18-4, inset d.

28. Apply Boscoprene 2402 adhesive (parts 1 and 2) to the rear window aperture (arrowed), tonneau panels, and the corresponding Everflex material. Allow the adhesive to 'flash' dry. Then, keeping the material taut, press it firmly into position on the tonneau panels and around the rear window aperture. The hardwood grooving tool will assist during this operation.

29. Trim the excess Everflex material from around the rear window aperture as shown in figure S18-4, inset h.

Refer to inset J.

30. Carefully trim the Everflex material to fit around the upper 'BC' post (see fig. S18-4, inset f).

31. Apply Boscoprene 2402 adhesive (parts 1 and 2) to the underside of the cantrails, upper 'D' post panels (arrowed), and the corresponding Everflex material. Allow the adhesive to 'flash' dry. Then, keeping the material taut, press firmly into position.

32. To facilitate the fitting of the windscreen, it is necessary to remove the double thickness of material from both stitched seams.

Unpick the seams on the overhanging Everflex material up to the windscreen aperture. Then, using a trimming knife, carefully remove the extra thickness of material. Tie off the last stitch on the underside of the Everflex material.

33. Apply Boscoprene 2402 adhesive (parts 1 and 2) to the

top of the windscreen aperture and the corresponding Everflex material. Allow the adhesive to 'flash' dry. Then, keeping the material taut, press firmly into position along the top of the windscreen aperture. The hardwood grooving tool will assist during this operation.

34. Apply Boscoprene 2402 adhesive (parts 1 and 2) to both 'A' posts, up to approximately 10 cm (4.0 in) from the base of each post. Also apply the adhesive to the corresponding Everflex material (see fig. S18-3, inset H). Allow the adhesive to 'flash' dry. Then, keeping the material taut, press it firmly into position on the 'A' posts; also around the sides of the windscreen and front door apertures. The hardwood grooving tool will assist during this operation.

35. To fit the brass 'A' post finishing strips proceed as follows referring to inset J.

Fold back the Everflex material from the base of each 'A' post.

Fit the brass strip around the base of each 'A' post, parallel with the top edge of the front door panel.

Trim the overhanging Everflex material from the base of the 'A' post, approximately 12 mm (0.50 in) below the brass strip.

Apply Boscoprene 2402 adhesive (parts 1 and 2) to the brass strip and the bottom edge of the corresponding Everflex material. Allow the adhesive to 'flash' dry.

Holding the brass strip in position, press the Everflex material firmly onto the base of the 'A' post. Fold back the Everflex material together with the brass strip. The strip is now in its correct position.

Apply Boscoprene 2402 adhesive (parts 1 and 2) to the brass strip and the edge of the Everflex material i.e. the area below the brass strip. Allow the adhesive to 'flash' dry. Then, cut and fold the Everflex material into position on the brass strip.

Apply Boscoprene 2402 adhesive (parts 1 and 2) to the lower area of the 'A' post and the corresponding Everflex material. Allow the adhesive to 'flash' dry. Then, keeping the material taut, press firmly into position on the 'A' post.

36. Trim the excess Everflex material from around the windscreen aperture as shown in figure S18-4, inset b.

37. Trim the excess Everflex material from around the front and rear door apertures to the dimensions shown in figure S18-4, insets a and c.

38. Trim the excess Everflex material from the tonneau panels, ensuring that the cut edge of the material will be covered by the tonneau moulding but will not show beneath it.

39. Refit the items previously removed by reversing the removal procedure noting the following.

Prior to fitting the tonneau mouldings and badges, apply a thin bead of Bostik Seelastik to the rear face of each. Use black Seelastik on cars fitted with dark coloured Everflex and cream Seelastik on cars fitted with light coloured Everflex.

40. Ensure that the roof is throughly cleaned. Remove any excess adhesive using a clean lint free cloth moistened with Genklene. **Extreme care must be taken to avoid Genklene coming into contact with the paintwork.**

41. Using a clean lint free cloth or sponge, apply a protective coating of Everflex Top Dressing to all areas of the Everflex. This gives the roof a glossy appearance and prevents dirt becoming trapped in the grain of the Everflex material. Allow the Top Dressing to dry for fifteen minutes then apply a second coat.

If any of the liquid is spilt on the paintwork it must be removed before it dries.

Clean the cloth or sponge and any container used by rinsing them with water.

42. Using a clean lint free cloth, apply Barbour Thornproof Waterproof Dressing to both stitched seams. Ensure that the Waterproof Dressing is thoroughly worked into the stitch holes in the seams.

Workshop tools

RH 2849	Window frame modification kit Silver Spirit and Mulsanne (excluding Turbo) Cars prior to vehicle identification number*SCAZS0006BCH02000*
RH 2851	Window frame modification kit Silver Spur (Non-division and Division) Cars prior to vehicle identification number*SCAZS0006BCH02000*
RH 2850	Window frame modification kit Silver Spirit and Mulsanne (excluding Turbo) Cars from vehicle identification number*SCAZS0006BCH02000*
RH 2852	Window frame modification kit Silver Spur (Non-division and Division) Cars from vehicle identification number*SCAZS0006BCH02000*
RH 9778	Striker pin holding tool - door locking system
RH 9779	Setting piece - striker pin - door locking system
RH 9623	Extractor tool - removal of windscreen wiper arms
RH 9637	Windscreen knife
RH 2803	Windscreen seal kit

Special torque tightening figures

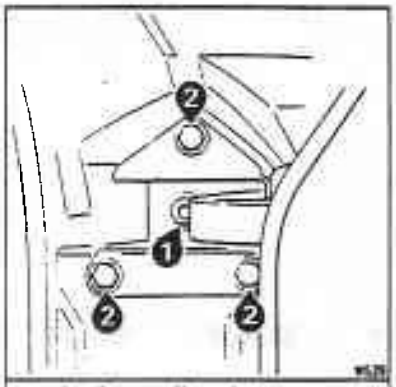
Introduction

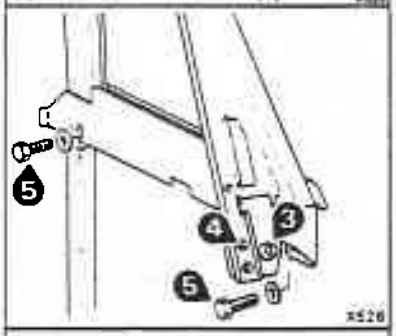
This section contains the special torque tightening figures applicable to Chapter S.

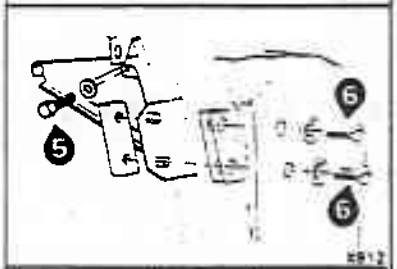
For standard torque tightening figures refer to Chapter P.

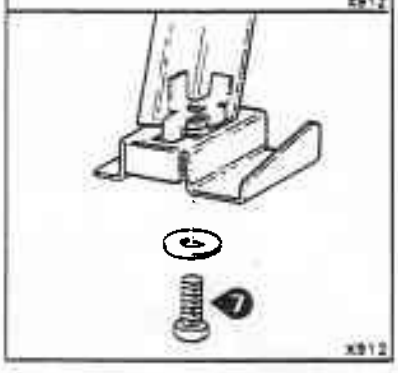
Components used during manufacture of the vehicle have different thread formations (Metric, UNF, UNC, etc.). Therefore, when fitting nuts, bolts and setscrews it is important to ensure that the correct type and size of thread formation is used.

Section S3/S4

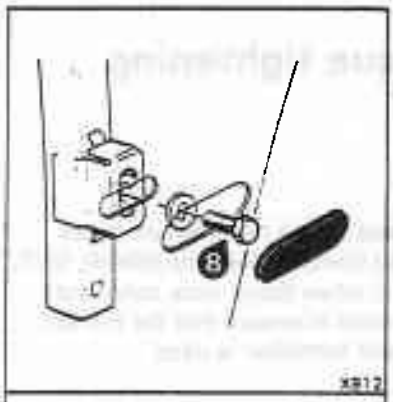
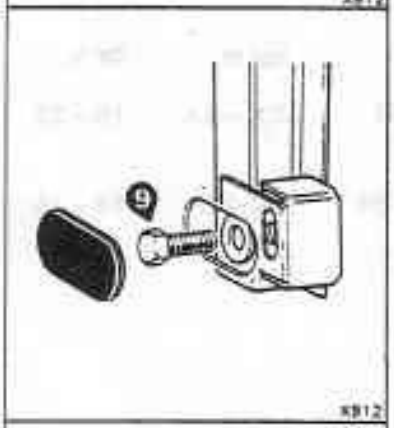
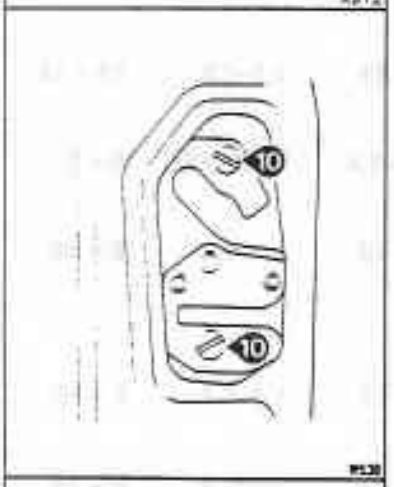
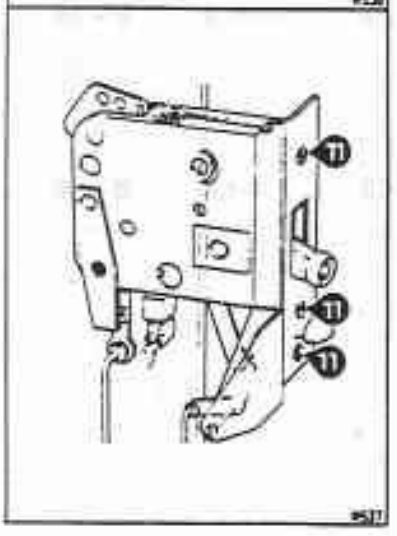




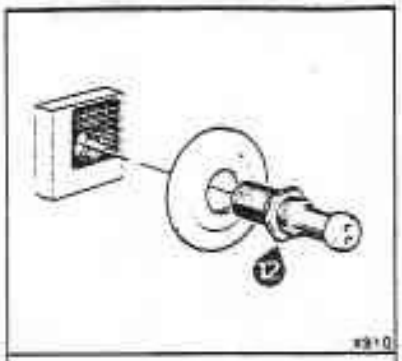


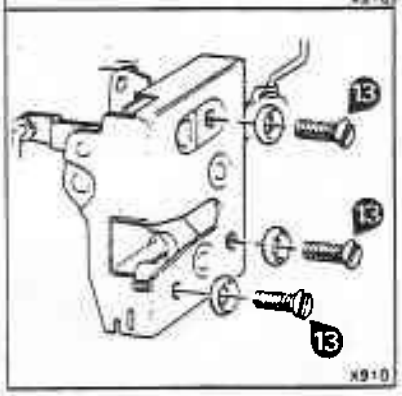


Ref.	Component	Nm	kgf m	lbf ft
1	Front door hinges - Allen screws	26–34	2,6 – 3,4	19 – 25
2	Front and rear door hinges - bolts	22 – 24	2,2–2,5	16 – 18
3	Front door frame - 'A' post - ring bolt	22 – 24	2,2–2,5	16 – 18
4	Front door frame - 'A' post - countersunk socket screws	8,2 – 9,4	0,83–0,96	6 – 7
5	Front and rear door frames - waist securing bolts	11 – 13	1,1–1,4	8 – 10
5	Front and rear door frames - waist securing bolts	11 – 13	1,1–1,4	8 – 10
6	Front door frames - 'B' post - setscrews Rear door frames - 'C' post - bolts	11 – 13	1,1–1,4	8 – 10
7	Front door frame - bottom securing bolt	11 – 13	1,1–1,4	8 – 10

Section S3/S4	Ref.	Component	Nm	kgf m	lbf ft
	8	Front and rear door frames - lower rear securing bolt	11 – 13	1,1–1,4	8–10
	9	Rear door frame - lower front edge securing bolt	11 – 13	1,1–1,4	8 – 10
	10	Striker plate - 'B' and 'D' posts - countersunk screws	22 – 24	2,2–2,5	16 – 18
	11	Front and rear door locks - countersunk screws	11 – 13	1,1–1,4	8 – 10

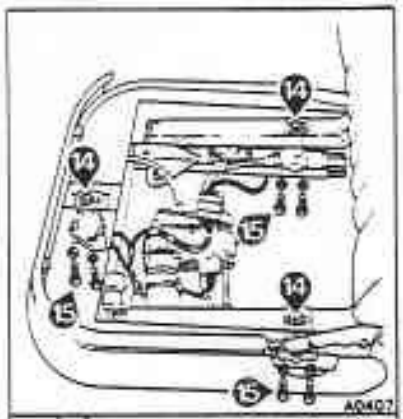
Section S3/S4

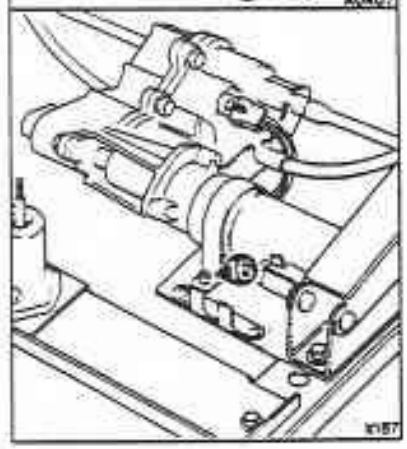




Ref.	Component	Nm	Kgf m	lbf ft
12	Striker pin - new door lock - 'B' and 'D' posts - lock-nut	27 – 33	2,8–3,3	20 – 24
13	Front and rear new door locks - countersunk screws	5,5 – 6,5	0,55–0,65	4.1 – 4.8

Section S5

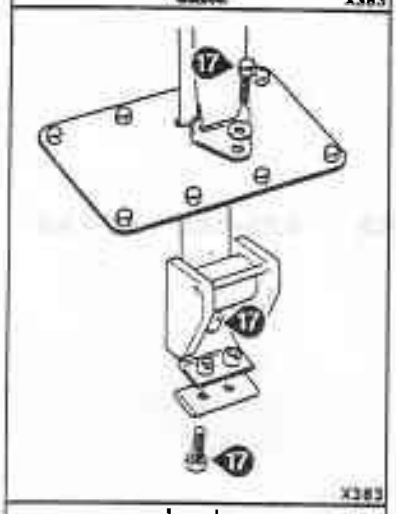


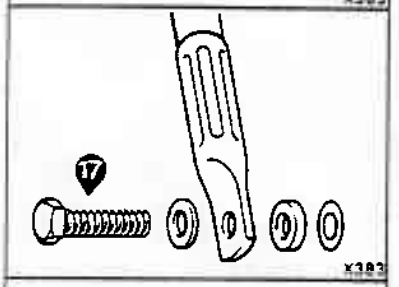


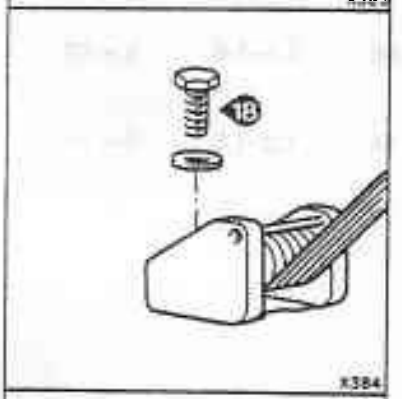
Ref.	Component	Nm	Kgf m	lbf ft
14	Seat base to front and rear jacks - nut and spring	11 – 16	1,1–1,6	8 – 12
15	Front and rear jacks to seat slides – screw	12 – 15	1,2–1,5	9 – 11
16	Motor securing strap - screw	6 – 8	0,6–0,8	4 – 6

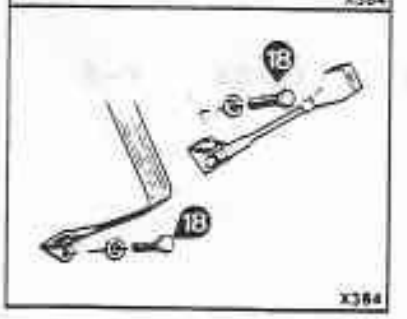
Section S6

Ref.	Component	Nm	kgf m	lbf ft
17	Front seat belt anchorages - setscrews	29 – 31	2,9–3,2	21 – 23
18	Rear seat belt anchorages - setscrews	29 – 31	2,9–3,2	21 – 23









Workshop tools

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