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# CHAPTER S

# BODY

## SECTION S1 — DESCRIPTION AND GENERAL MAINTENANCE

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### Description

**On S1 and S2 cars,** the standard saloon body is constructed from pressed steel and supported on the chassis frame by means of rubber mountings.

The doors, bonnet and luggage boot are made of 'Birmabright' alloy, the salient features of which are lightness combined with strength and rigidity.

Large front and rear doors are hinged to the front and centre pillars respectively and permit easy access to the front and rear seats.

Due to the ample proportions of the doors and the boot lid, assistors are provided to minimise the effort required to open and maintain them in an open position.

The front doors are provided with self-cancelling type locks and the action of closing either front door automatically releases the lock; this eliminates the possibility of being inadvertently locked outside the car whilst the key is still inside.

To enable the front doors to be locked from the outside, a lock is provided below each external door handle; the key for operating these locks is also used to turn the ignition switch.

The locks on the rear doors are not the self-cancelling type, therefore they can be locked by means of the remote control handles on the inside of the doors.

Bench type front seats are fitted having individual backs provided with adjustment for rake.

A rear luggage boot provides ample space for luggage and also has a separate compartment for stowing the spare wheel.

### General Maintenance

In order to maintain the paintwork in the best possible condition the following procedure should be carried out.

Always remove dirt and mud by means of a liberal supply of clean water; tar can be removed by means of one of the many special proprietary cleaning solutions available, or by gently rubbing with a soft cloth moistened with turpentine substitute.

Under no circumstances should an attempt be made to dry clean the car: this practice can produce scratches which will only be removed by subsequent levelling down and polishing.

After thoroughly washing and drying the paintwork, it should be polished with a good quality wax polish.

**Under no circumstances should a polishing compound containing ammonia be used.**

Every third month, thoroughly wash the paintwork to remove traffic film and other atmospheric deposits, remove all residual wax polish by means of a suitable cleaning compound such as 'Belco' No. 7 and finally polish with a good quality wax polish.

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## Leather Upholstery

The leather upholstery will be maintained in a clean and preserved condition if lightly washed with a good quality soap, such as toilet soap, then thoroughly dried with a clean cloth. An occasional application of Connolly's Hide Food will preserve the upholstery; this compound should be applied evenly with a clean soft cloth, then polished with a second clean cloth.

## Floor Carpets and Head Cloth

Floor carpets should be removed from the car and cleaned with a vacuum cleaner.

Stains or grease marks may be removed from the carpets by means of a suitable cleaning solvent such as 'Drik'; this solvent can also be used to clean the head cloth.

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# SECTION S2 — FRONT DOORS

## Doors — to remove and dismantle

Remove the split pin and withdraw the clevis pin from the check-strap.

Support the door and remove the screws securing the upper and lower hinges to the front pillar; the door can then be lifted off together with its hinges.

## Cars Fitted with Electrically Operated Windows

Before removing the door from a car fitted with electrically operated windows see Section S4.

## Arm Rest and Slide

To remove the arm rest, lift the release lever and slide the rest upwards.

Unscrew the two screws securing the arm rest slide and remove the slide from the door; retain the screws together with the distance washers.

## Trim and Finisher

Note the angular positions of the door and window winding handles on the interior of the door to ensure that they may be returned to their original positions when refitting.

Unscrew the escutcheons with a 'C' spanner and remove the handles by drawing them off their splines.

Using a screwdriver, carefully ease the trim from the door, taking care not to damage the trim, the paintwork or the concealed spring fasteners (see Fig. S1).

**On S2 cars,** a grab handle is fitted to the finisher on the passenger side of the car and must be removed before unscrewing the finisher securing screws. To remove the grab handle, insert a $\frac{5}{16}$ in. U.N.F. spanner

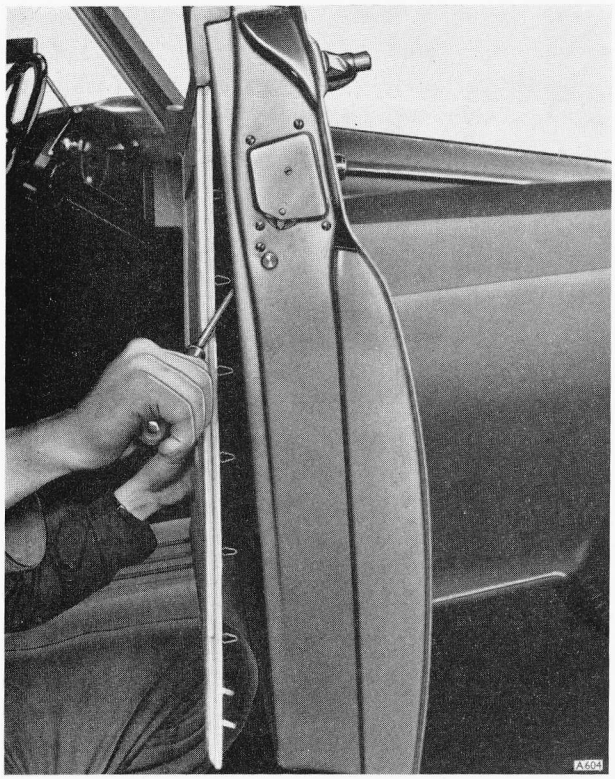


**Fig. S1 Removing the trim from the front door**

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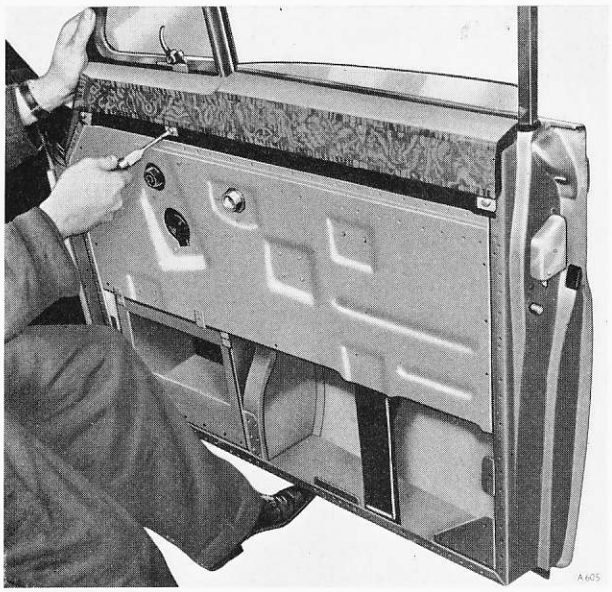

Fig. S2 Removing the finisher from the front door

between the metal trim panel and the finisher and alternately unscrew the captive nut at each end of the handle, half a turn at a time. Lightly pull on the handle whilst releasing the captive nuts until the handle can be withdrawn; retain the distance pieces.

Slightly open the ventilating window and lower the drop window; remove the retaining screws (see Fig. S2) and carefully ease off the finisher and plate.

Carefully remove the plastic cover from the door inner panel.

## Ventilating Window

Having removed the door finisher and plate, the lower pivot and friction device of the ventilating window will then be exposed (see Fig. S3).

Unscrew the nuts from the lower pivot and withdraw the washers, discs and spring (see Fig. S4). Withdraw the ventilating window stop pin to enable the window to be lifted off the upper pivot; retain the $\frac{1}{4}$ in. (6·35 mm.) diameter steel ball.

## Drop Window and Winder Mechanism

It will assist disengagement of the runner if the window winder mechanism is in the fully raised position.

Unscrew the screws marked 8 and 9 shown in Figure S5, then withdraw the winder mechanism.

If a new window is to be fitted, it is not necessary to remove the winder mechanism; in this case proceed as follows.

**On early S1 cars,** remove the five screws marked 11 shown in Figure S5 and withdraw the stop bracket.

**On late S1 and all S2 cars,** remove the twelve screws securing the support bracket brace. Withdraw the support bracket brace and stop bracket as an assembly.

**On all cars,** remove the two screws at the lower end of the forward channel and withdraw the channel, leaving the felt on the glass.

To permit disengagement and removal of the rubber, lower the glass to its fullest extent.

## Window Frame

Should it be necessary to remove the window frame, note the position of the packing pieces in order that they may be refitted correctly, thus avoiding upsetting the frame adjustment in relation to the body sealing.

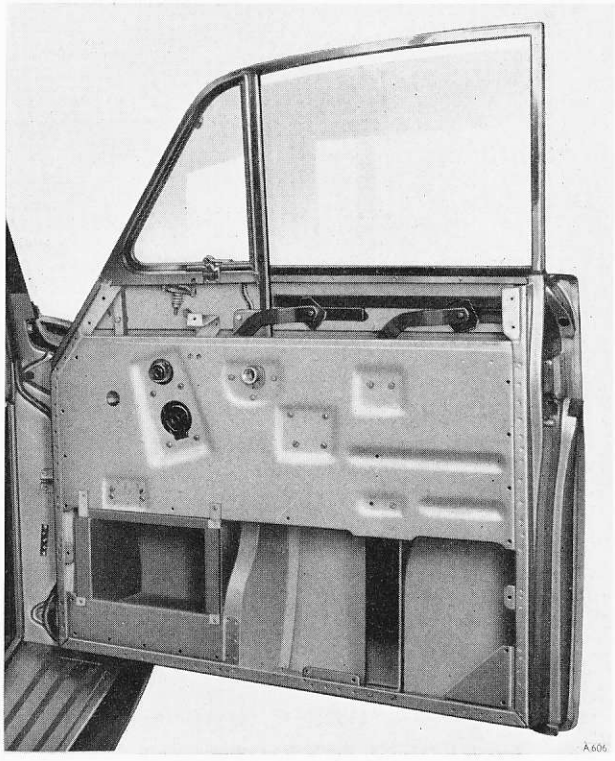

Fig. S3 Front door with the trim and finisher removed

To withdraw the window frame, remove the screws marked 5 and 7 in Figure S5, also the screws securing the window frame at the rear (these screws are not illustrated in Figure S5). Drill out the rivets marked 1, shown in Figure S5, using a $\frac{1}{8}$ in. (0·317 cm.) drill.

## Chromium Plated Finishing Strip

The waist finisher strips are retained by spring clips and can be removed without further dismantling being necessary.

## Door Locks and Locking Mechanism

To remove the external lock, detach the lock clip (fitted to **later S1 and all S2 cars**), screw back the locking nut as far as possible, insert the key and rotate the lock a few times; it should then be possible to remove the nut.

The door locking mechanism should be removed by unscrewing the screws marked 12 in Figure S5.

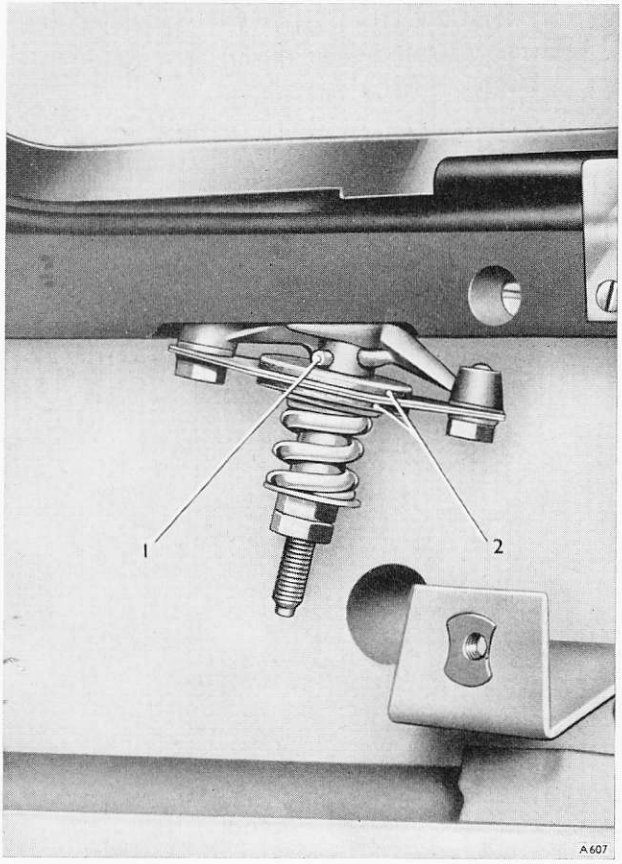


**Fig. S4 Ventilating window bottom pivot**

1. STOP PIN 2. FRICTION DISCS

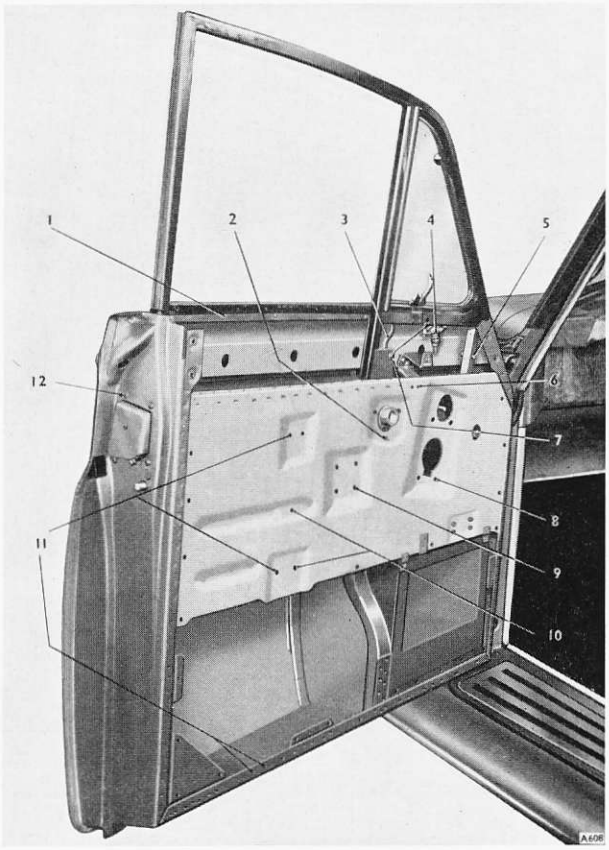


**Fig. S5 Front door dismantled showing bolt holes**

1. WINDOW FRAME RIVETS
2. BOLT HOLES FOR REMOTE CONTROL DOOR LOCK
3. VENTILATING WINDOW DRAIN PIPE
4. VENTILATING WINDOW LOWER PIVOT
5. WINDOW FRAME BOLTS
6. STIFFENER BRACKET BOLT
7. WINDOW FRAME BOLTS
8. WINDOW WINDER BOLT HOLES
9. WINDOW WINDER CENTRE BRACKET BOLT HOLES
10. ARM REST SLIDE BOLT HOLES
11. WINDOW STOP BRACKET BOLT HOLES
12. DOOR LOCK SCREWS

## Door Assistor

Before removing the front door assistor, it will be necessary to detach the glove compartment (see Fig. S3).

**On early S1 cars,** it is necessary to drill out the rivets securing the glove compartment, using a $\frac{1}{8}$ in. (0·317 cm.) drill, before removing the compartment.

Remove the clevis pin, unscrew the retaining screws and withdraw the assistor through the glove compartment aperture.

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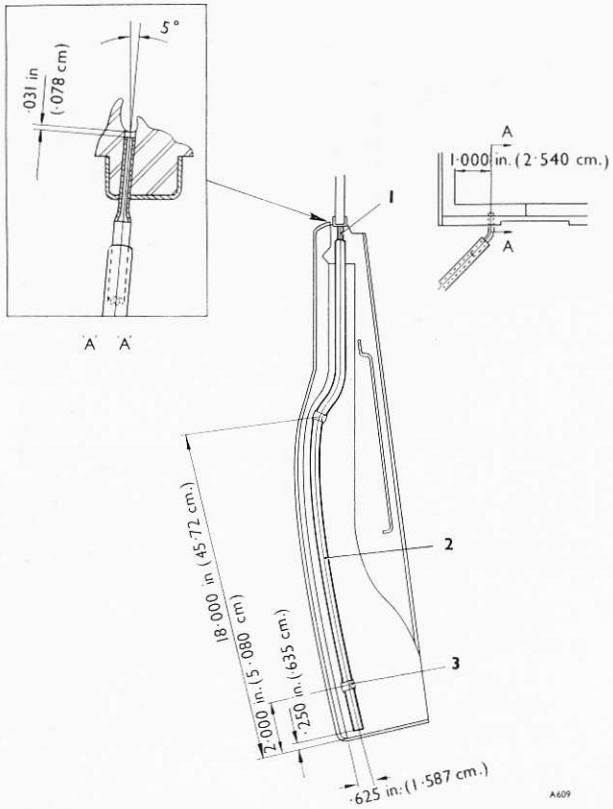


**Fig. S6 Method of fitting drain to the ventilating window**

1. COPPER TUBE 2. RUBBER TUBE 3. FIXING CLIPS

## Doors — to assemble and fit

To assemble and fit the front doors, reverse the procedure given for removal and dismantling. Whilst carrying out this procedure ensure that reference is made to Section S8 and that particular note is made of the following points.

## Ventilating Window

When assembling the lower pivot, the nut should be tightened until the distance piece is securely clamped, otherwise the friction discs will not operate effectively.

**On early S1 cars,** complaints of water leaks may be due to pressure build-up at the rear corner of the ventilating window. If necessary this can be relieved by providing a drain 1 in. (2·54 cm.) forward of the rear lower corner as illustrated in Figure S6.

Drill a hole $\frac{1}{4}$ in. (0·635 cm.) diameter through the rubber seal and the door frame; enlarge the hole in the door frame to $\frac{5}{16}$ in. (0·792 cm.) diameter to give clearance for a 3 in. (7·620 cm.) length of copper tube, $\frac{1}{4}$ in. (0·635 cm.) outside diameter.

Slightly flatten one end of the copper tube to avoid bulging the rubber seal, then attach a 24 in. (60·96 cm.) length of $\frac{1}{4}$ in. (0·635 cm.) diameter rubber tube to the other end and secure it with 'Bostik' adhesive No. 1261.

Insert the flattened end of the copper tube into the rubber seal so that it is $\frac{1}{32}$ in. (0·079 cm.) below the sealing face, then secure the tube with 'Bostik' adhesive No. 1261.

Attach the rubber hose to the door at the points shown in Figure S6.

When carrying out the above modification, ensure that the drain holes in the bottom of the door are clear.

## Drop Window and Winder Mechanism

When assembling the drop window and winder mechanism, all working parts should be lubricated with 'Molytone' 265 grease.

**On early S1 cars,** failures have occurred due to fracture of the lower channel lugs; if new parts are not available, a fractured channel may be repaired in the manner shown in Figures S7 and S8. **On later cars** the lower channel lugs have been strengthened accordingly.

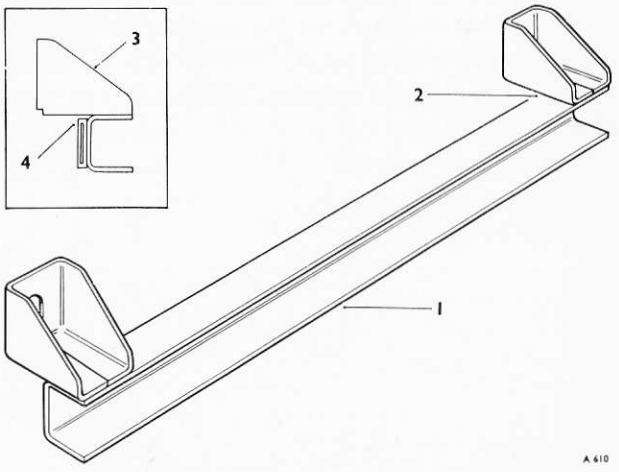


**Fig. S7 Method of repairing window channel**

1. WINDOW CHANNEL WITH NEW BRACKETS WELDED ON
2. WELD ALL AROUND AT THIS POINT ON BOTH BRACKETS
3. SCRAP VIEW OF NEW BRACKET
4. EXISTING BRACKET TO BE CUT OFF HERE

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## Door Locks and Locking Mechanism

When fitting the lock, make certain to position the lock in order that the same amount of movement is obtained when the key is turned either clockwise or anti-clockwise; this should be ascertained before toggling the intermediate lever.

Fit the locking mechanism but do not tighten the remote control assembly; this is operated by the interior handle.

Insert the handle and move it to the locked position; slide the control assembly back until the bellcrank lever on the lock contacts the backplate, then tighten the screws securing the remote control assembly.

If adjusted correctly, the push-button should have $\frac{1}{32}$ in. (0·079 cm.) free movement before it strikes the contactor and the adjusting screw tongue should be set horizontally rearwards.

Before fitting the trim, check the locking and releasing action by operating both the interior and the exterior controls.

## Striker Plate

Should adjustment to the striker plate be necessary, slacken the three retaining screws and reposition the plate to obtain the desired result.

The striker plate should first be adjusted horizontally to provide satisfactory door closure and then adjusted for striker pin relationship. If correct adjustment has been obtained, the striker pin should travel along the centre line of the striker plate slot.

Check whether the optimum adjustment has been obtained by closing the door whilst depressing the button in the door handle.

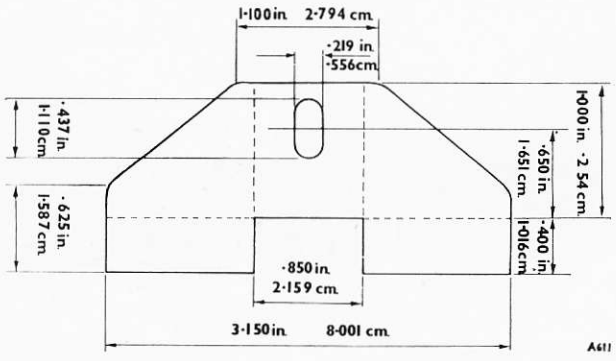


**Fig. S8 Dimensions for new window channel brackets**

BEND UP ALONG DOTTED LINES

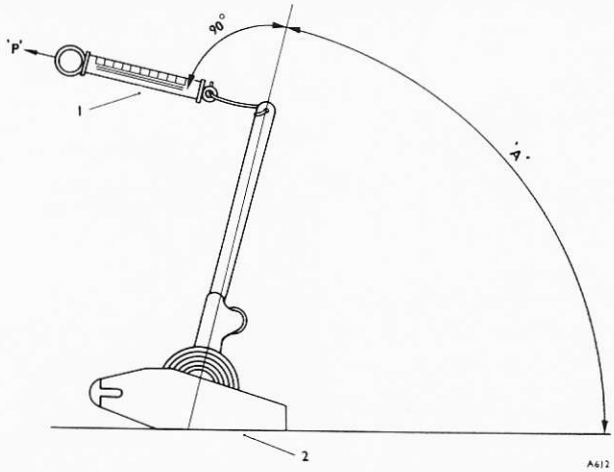


**Fig. S9 Method of checking door assistor poundage**

1. SPRING BALANCE 2. BODY OF ASSISTOR CLAMPED IN POSITION

FRONT DOORS

'A' ANGLE 9 deg. 'P' PULL 7·25 lb (3·288 kg.)
'A' ANGLE 74 deg. 'P' PULL 12·25 lb. (5·556 kg.)

REAR DOORS

'A' ANGLE 10·5 deg. 'P' PULL 4 lb. (1·814 kg.)
'A' ANGLE 80 deg. 'P' PULL 10·75 lb. (4·877 kg.)

Lubricate the spring for the dovetail wedge with 'Molytone' 265 grease.

## Front Door Assistor

To check the assistor poundage for opening the door, first ensure that the car is standing on level ground. Attach a spring balance to the interior door handle with the door in the open position; a load of approximately 5 lb. (2·268 kg.) should then be required to close the door.

Checking the assistor poundage on the bench should be carried out at angles equivalent to the door being in both the open and the closed position as shown in Figure S9.

A positive door stop is incorporated in the upper hinge and a cushioned stop is provided by the assistor when opening the door; under normal operating conditions the positive stop does not operate, as the load is absorbed by the cushioned stop of the assistor.

It should be noted that the door must be initially opened at least 10 deg. before the assistor commences to operate.

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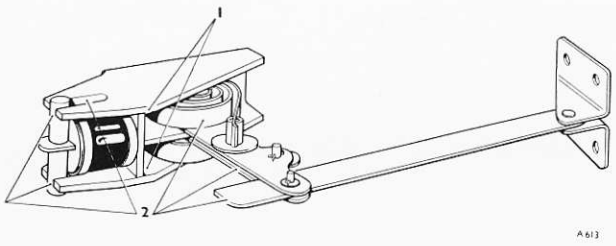


**Fig. S10 Lubrication of door assistors**

1. FILE FILLETS HERE 2. LUBRICATE AT THESE POINTS

When checking the door stop adjustment, the door should be allowed to open and come to rest **only by the action of the assistor.**

If the adjustment is correct, there should be a clearance of 0·025 in. (0·635 mm.) between the faces of the positive stop when the door is in the open position as stated above.

Should it be necessary to adjust the clearance between the faces of the positive stop, remove the door trim, then slacken the assistor retaining screws and reposition them to obtain the desired result.

Having made the necessary adjustment and before fitting the door trim, lubricate the door assistor with 'Molytone' 265 grease at the points shown in Figure S10.

## SECTION S3 — REAR DOORS

### Doors — to remove and dismantle

The procedure for removing and dismantling the rear door is similar to that adopted for the front door, the following points being noted.

### Drop Window

To enable the drop window to be removed from the rear door, withdraw the rear channel and window stop. Lower the window to clear the channels, then raise it again and lift out.

### Quarter Light Glass

To remove the quarter light glass, withdraw the frame, then remove the felts from the upper and rear channels; this allows access to the screws securing the quarter light channel. Remove the screws and draw the channel downwards to enable the glass to be withdrawn.

### Doors — to assemble and fit

The procedure for assembling and fitting the rear door is similar to that adopted for the front door, therefore reverse the procedure given for removal and dismantling but note the following.

### Door Assistor

The rear door assistor is not intended to open the door entirely on its own, therefore when checking the assistor poundage, with the door in the open position, a spring balance reading of 4 lb. (1·814 kg.) is adequate to close the door.

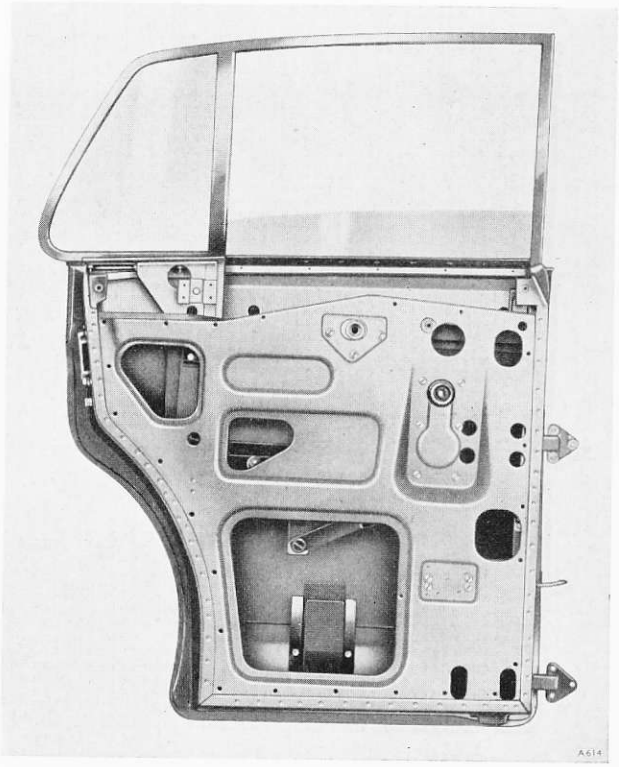


**Fig. S11 Rear door with trim and finisher removed**

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# SECTION S4 — ELECTRICALLY OPERATED WINDOWS

The electrically operated windows, introduced on Rolls-Royce and Bentley cars, enable the windows to be raised or lowered, by both the passengers and the driver, with the minimum amount of effort.

This feature is offered as an extra and will be installed if specified when ordering, but cannot be fitted retrospectively.

## Control Switches

Self-centering toggle switches, which are conveniently mounted on each door, control the up and down movement of the windows (see Fig. S12); any desired window position may be obtained, as movement of the windows will cease immediately on releasing the switch.

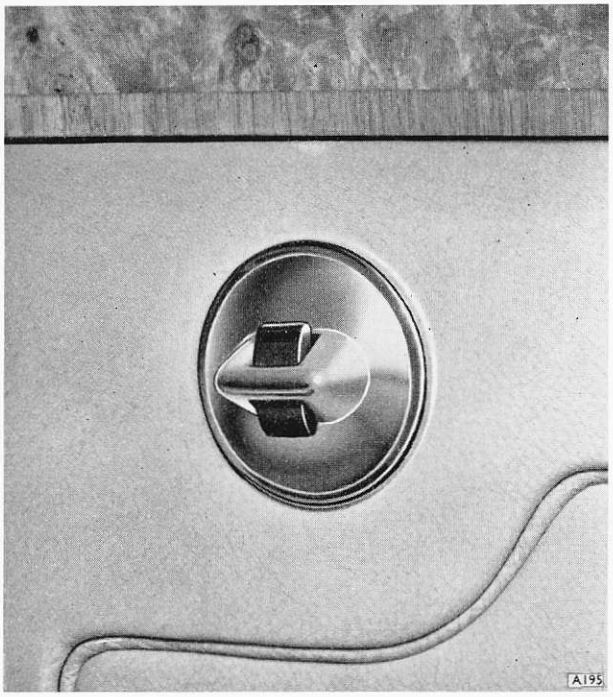


**Fig. S12 Passenger switch for electrically operated window**

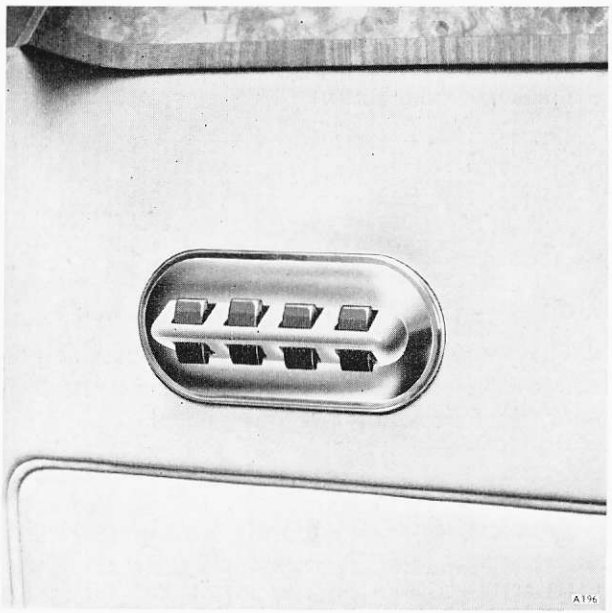


**Fig. S13 Driver's switches for electrically operated windows**

To enable all windows to be operated by the driver, four switches are mounted on the driver's door (see Fig. S13).

Raising or lowering the window normally takes 2 to 3 seconds, but this time may vary slightly due to prevailing conditions of the window channel felt. When the window reaches the end of its travel it is stopped by 'stalling' against rubber buffers; the top buffer is incorporated in the window seal and the lower buffers are bolted to the chain casing.

## Electric Motor

The window mechanism is actuated by means of an electric motor which is enclosed together with the drive and the brake mechanism inside a protective casing.

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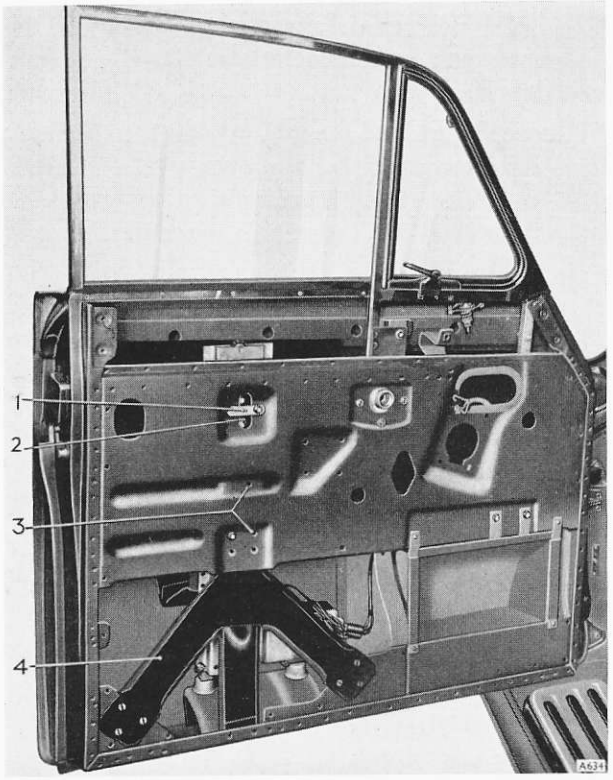


**Fig. S14 Left-hand front door with trim removed**

1. MECHANISM STOP
2. MECHANISM STOP TONGUE
3. SCREW HOLES FOR ARM REST SLIDE
4. DOOR BRACE

The electric motor is a reversible type unit, the direction of rotation being provided by dual field windings; incorporated in the motor is a thermostatically controlled cut-out. This cut-out is provided to safeguard the motor against possible damage due to overloading. Should a window switch be held in the operating position after the window has reached the fully open or fully closed position, the motor will heat up and the thermostatically controlled cut-out will break the circuit. After a delay of several seconds the circuit is automatically restored and the switch may again be effectively operated.

Further protection for the motors is provided by four fuses in a fuse box mounted on the left-hand side of the bulkhead.

No relay is necessary in the electrical circuit as the current for the motors is taken directly by the switches (see Fig. S20).

## Transmission

The drive from the motor is transmitted to the mechanism through a flexible coupling which in turn drives a steel worm and nylon reduction gear.

A driving sprocket attached to the reduction gear spindle and an idler sprocket mounted on the upper end of the chain casing carry an endless chain. The chain is secured by means of a 'pick-up' link which is bolted to the window support channel; this link forms part of the chain and is secured by two 90 deg. links (see Fig. S18).

A tensioning spring is secured to the 'pick-up' link to take up any slackness in the chain and to prevent chain rattle.

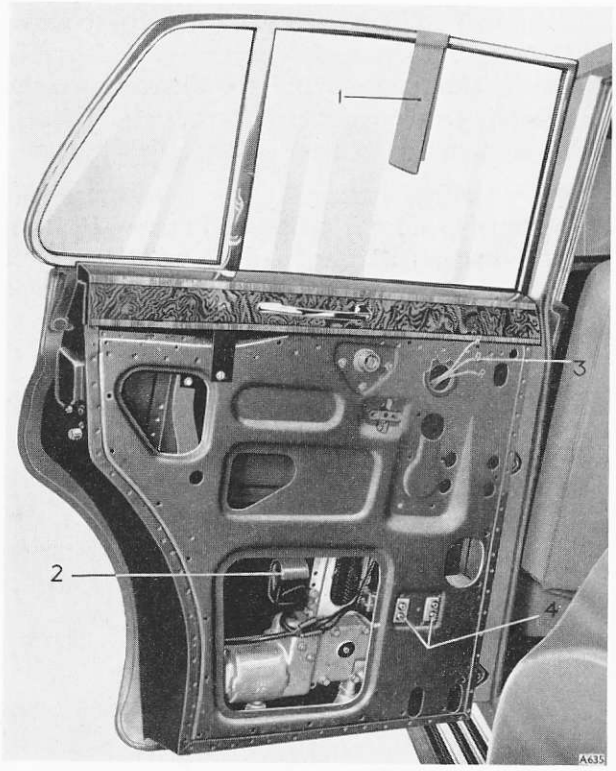


**Fig. S15 Left-hand rear door with trim removed**

1. MASKING TAPE FOR SECURING WINDOW
2. LOWER BUFFER STOP
3. CABLES FOR SWITCH
4. RETAINING NUTS FOR CHECK-STRAP

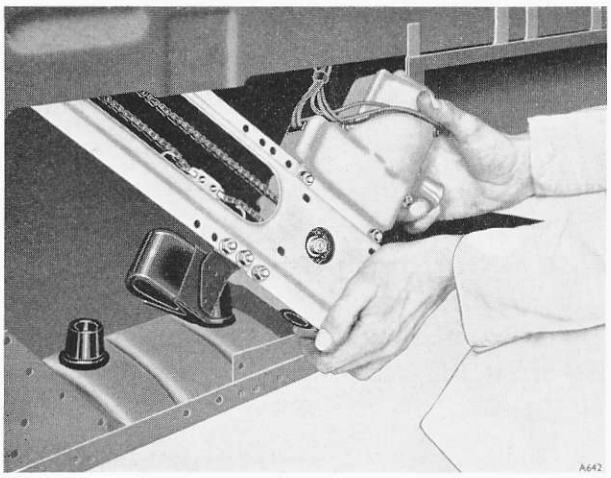

Fig. S16 Method of removing the mechanism assembly from the left-hand front door

## Brake

A brake is built into the motor assembly to prevent the window moving once the operating switch has been released. The brake mechanism consists of a solenoid, a coil spring and plunger and a brake drum; the brake drum forms an integral part of the flexible coupling.

When a switch is applied and the motor is operating, the solenoid, which is connected in parallel with the motor, becomes energised and the brake is released; on releasing the switch, the solenoid becomes de-energised and the brake is applied by means of the coil spring and plunger (see Fig. S24) which contacts the brake drum.

## Electric Motor and Drive Unit — to remove

Should it be necessary to remove the motor and drive unit from the car, it is advisable to disconnect the leads from the battery.

### Front Doors

Remove the arm rest by lifting the release lever and sliding the arm rest upwards. Unscrew the two screws securing the arm rest slide and remove the slide from the door; retain the screws together with the distance washers.

Note the angular position of the handle on the interior of the door, to ensure that it is returned to its original position when refitting. Unscrew the escutcheon with a 'C' spanner and draw the handle from its splines.

Using a screwdriver, carefully ease the trim from the door, taking care not to damage the trim, paintwork or the concealed spring fasteners, then disconnect the cables from the switch and remove the trim.

**On S2 cars,** a grab handle is fitted to the finisher on the passenger side of the car and must be removed before unscrewing the finisher securing screws. To remove the grab handle, insert a $\frac{5}{16}$ in. U.N.F. spanner between the metal trim panel and the finisher and progressively unscrew the captive nut at each end of the handle, half a turn at a time. Lightly pull on the handle whilst releasing the captive nuts until the handle can be withdrawn; retain the distance pieces.

Remove the retaining screws and ease off the finisher and its plate.

Carefully remove the plastic cover from the door inner panel.

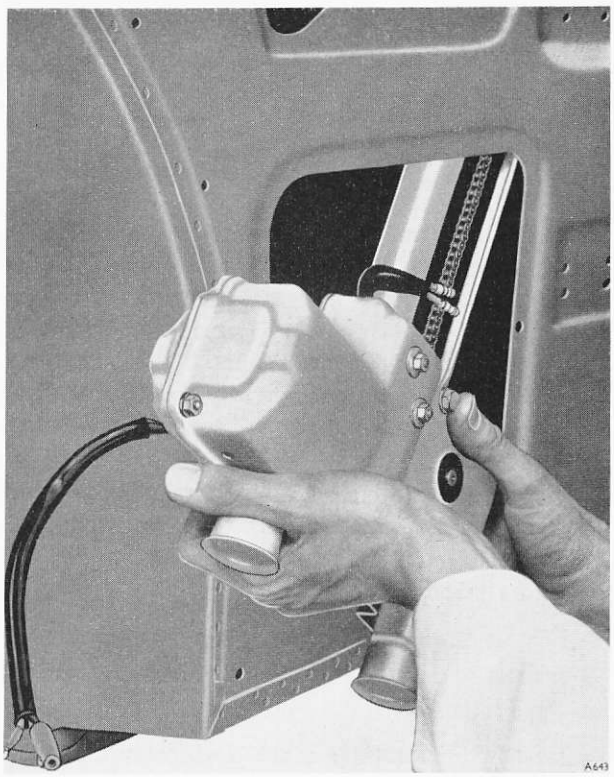

Fig. S17 Method of removing the mechanism assembly from the left-hand rear door

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Disconnect the cables to the electric motor and solenoid at the snap connectors.

If it is necessary to remove the door, pull the loom for the electric motor downwards from the conduit fastened to the front pillar; the loom is held in the conduit by spring clips. Unscrew the three screws securing the conduit to the front pillar and remove the conduit. Carefully withdraw the loom from the door.

Remove the split pin and withdraw the clevis pin from the check-strap.

Support the door and remove the screws securing the upper and lower hinges to the front pillar; the door can now be lifted off together with its hinges.

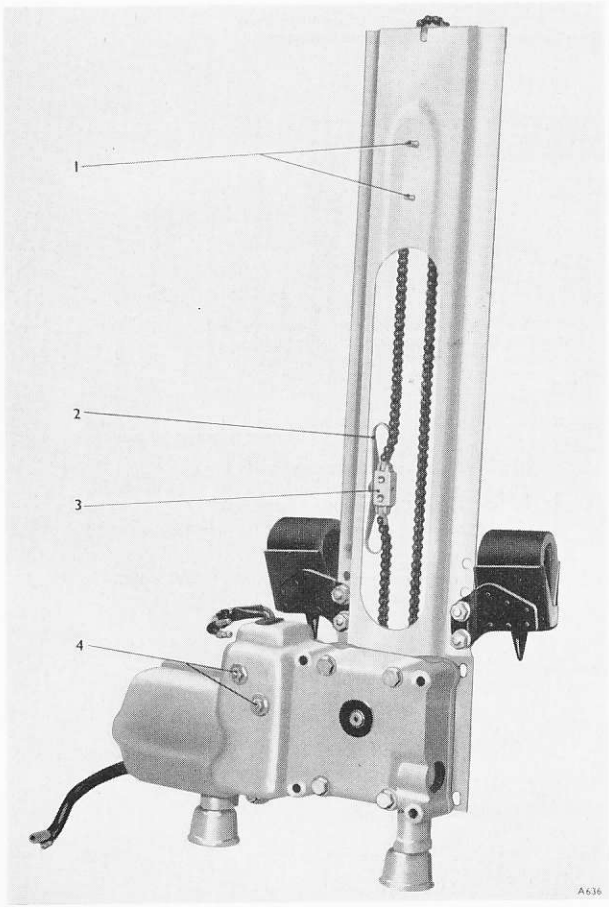


**Fig. S18 Motor and mechanism assembly for left-hand rear door**

1. STUDS FOR UPPER FLEXIBLE MOUNTING
2. CHAIN TENSION SPRING
3. PICK-UP LINK
4. SOLENOID RETAINING NUTS

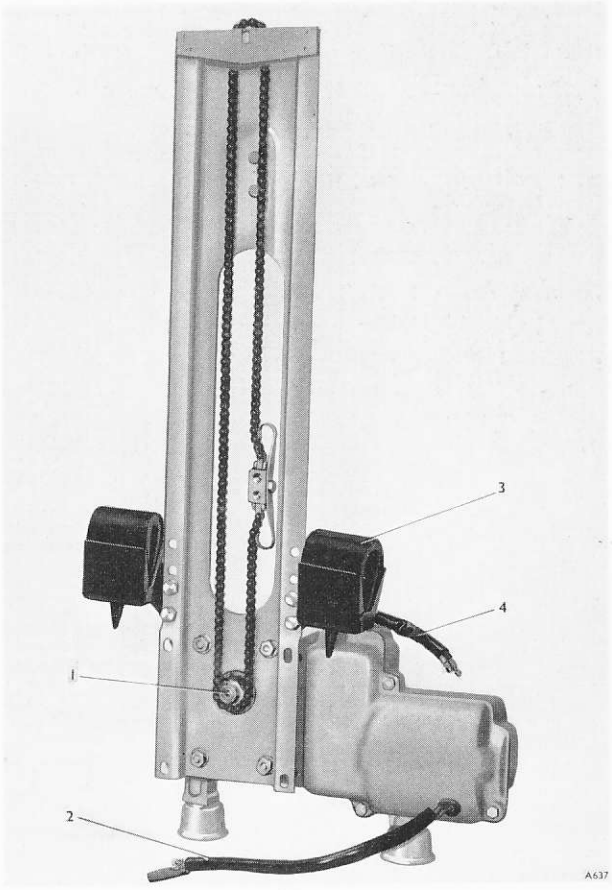


**Fig. S19 Reverse side of motor and mechanism assembly for left-hand rear door**

1. CHAIN DRIVING SPROCKET
2. CABLES TO ELECTRIC MOTOR
3. LOWER BUFFER STOP
4. CABLES TO SOLENOID

If there is no reason for removing the door, proceed as follows.

Ensure that all cables are placed where they are not liable to impede the removal of the motor and drive unit.

Unscrew the two $\frac{3}{16}$ in. Allen screws which secure the chain 'pick-up' link to the window support channel; these screws are located behind the mechanism (see Fig. S29). If not supported, the window will now be free to drop on to the lower buffer stops; to prevent this it should be secured to the window frame by means of masking tape as shown in Figure S15.

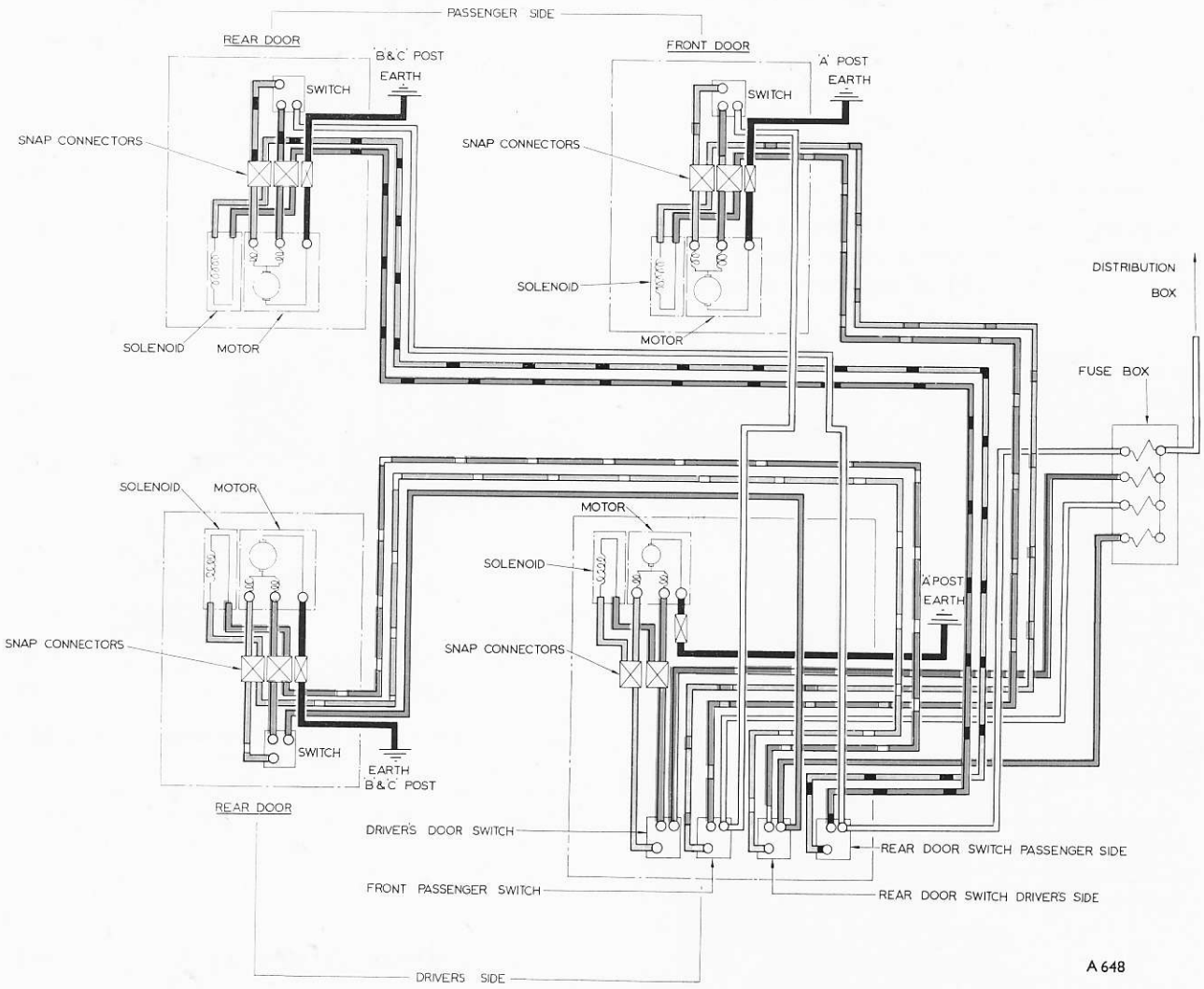


**Fig. S20 Wiring diagram for electrically operated windows**

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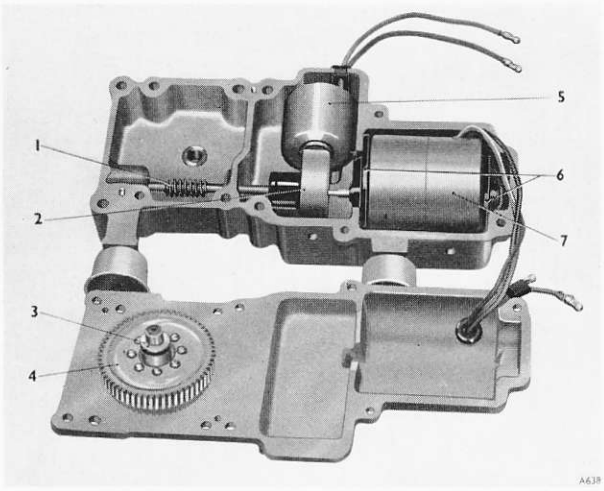


**Fig. S21 Electric motor and drive assembly with cover removed**

1. WORM DRIVE
2. FLEXIBLE COUPLING AND BRAKE DRUM
3. PLAIN WASHER
4. NYLON REDUCTION GEAR
5. BRAKE SOLENOID
6. RUBBER SHOCK WASHERS
7. ELECTRIC MOTOR

Unscrew the two 2 B.A. nuts and the two 2 B.A. setscrews, then remove the rubber mounting and stop tongue (see Fig. S28); note the number and position of the packing washers.

Remove the retaining screws and detach the brace from the door (see Fig. S14).

To facilitate removal of the assembly, it will be necessary to remove one of the lower buffer stops from the chain casing as shown in Figure S16. When working on the **front left-hand door,** remove the **right-hand** buffer stop, and if working on the **front right-hand door** remove the **left-hand** buffer stop, as seen when viewing the door from inside the car.

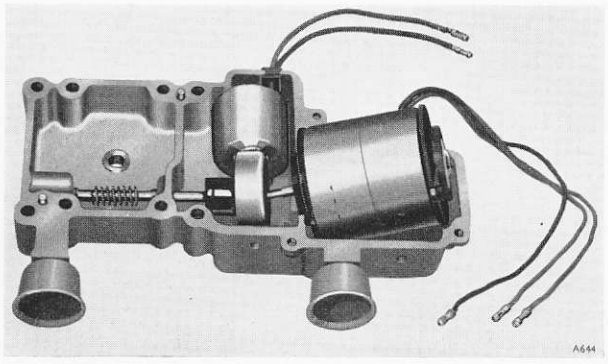

**Fig. S22 Method of removing electric motor from the casing**

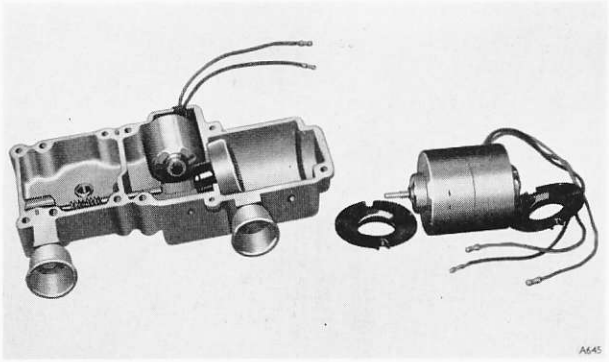

**Fig. S23 Method of removing the flexible coupling from the casing**

Remove the motor and mechanism assembly from the door in the manner shown in Figure S16.

### Rear Doors

The procedure for removing the motor and drive unit from the rear doors is similar to that adopted for the front doors, but it is important that the following points be noted in order to facilitate removal of the assembly.

Detach the clip securing the electric cables to the door and place the cables in a position where they will not impede the removal of the assembly.

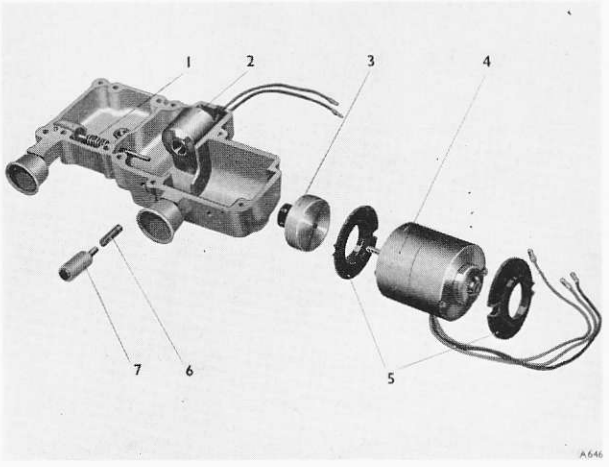


**Fig. S24 Exploded view of the motor and drive assembly**

1. WORM DRIVE
2. BRAKE SOLENOID
3. FLEXIBLE COUPLING AND BRAKE DRUM
4. ELECTRIC MOTOR
5. RUBBER SHOCK WASHERS
6. BRAKE PLUNGER SPRING
7. BRAKE PLUNGER

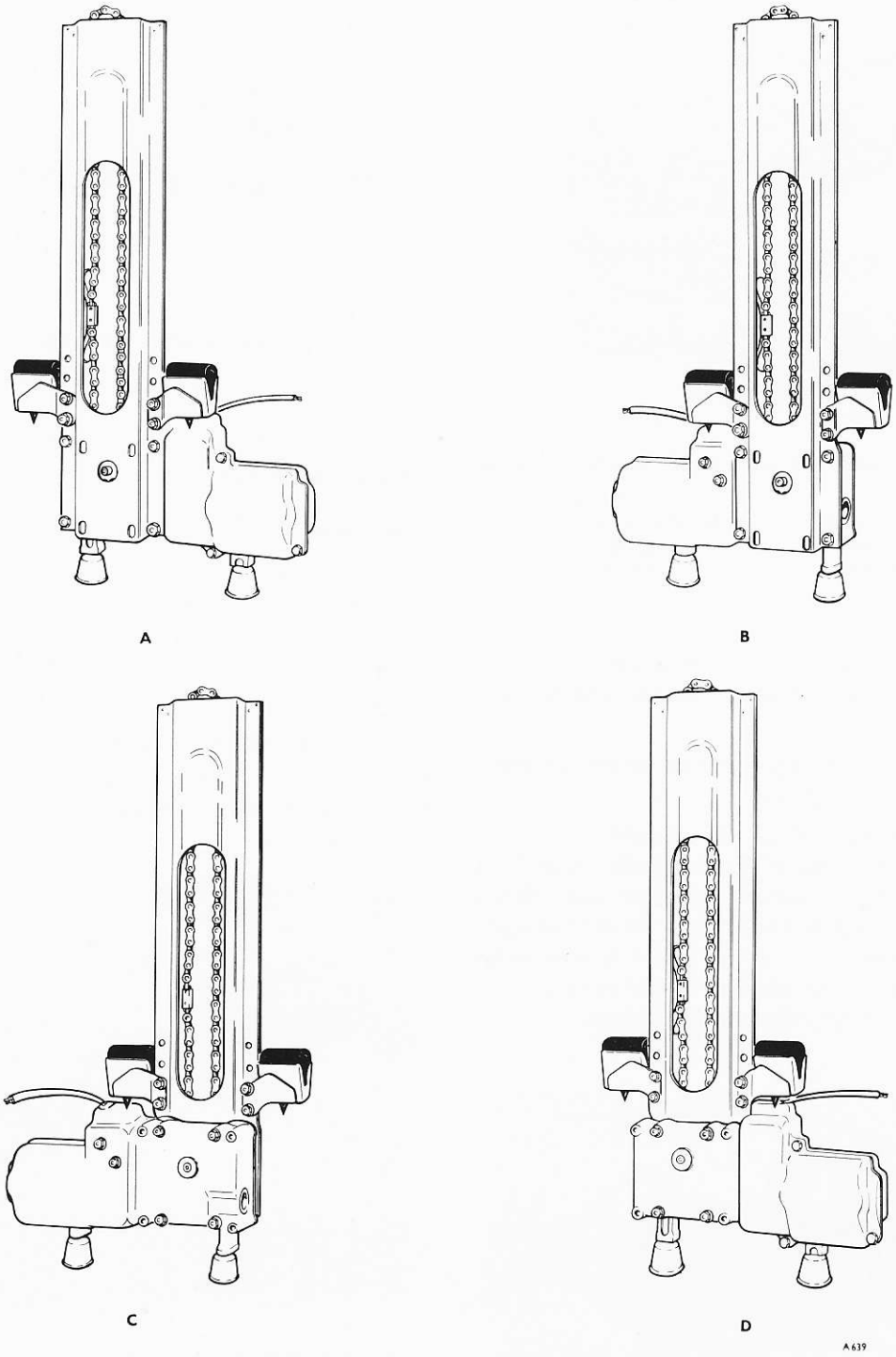


**Fig. S25 Four positions for fitting chain casing to motor assembly**

A. LEFT-HAND FRONT DOOR
B. RIGHT-HAND FRONT DOOR
C. LEFT-HAND REAR DOOR
D. RIGHT-HAND REAR DOOR

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Disconnect and remove the check-strap assembly from the door.

When working on the **rear left-hand door,** remove the **left-hand** buffer stop from the chain casing and if working on the **rear right-hand door,** remove the **right-hand** buffer stop, as seen when viewing the door from inside the car.

The assembly should then be removed from the door in the manner shown in Figure S17.

## Drive Unit — to dismantle

In the event of failure, it may be necessary to dismantle the motor assembly. Should the fault be in the motor unit or the brake solenoid, the faulty unit should be returned for overhaul to either Rolls-Royce Service Department, Pym's Lane, Crewe, or Rolls-Royce Service Department, Hythe Road, Willesden, London, N.W.10.

The procedure for dismantling the motor assembly is as follows.

Remove the bolts securing the chain case to the motor casing, lower the chain case, remove the chain and then detach the chain case from the motor casing.

Remove the remaining bolts which secure the cover to the motor casing and separate the casing and cover as shown in Figure S21.

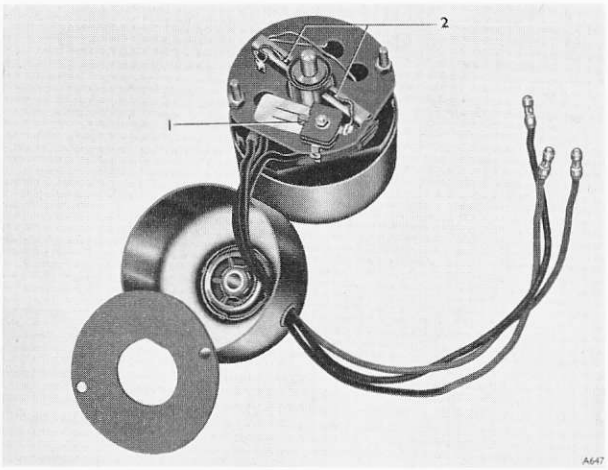


**Fig. S26 Electric motor with the cover removed**

1. CUT-OUT 2. BRUSHES

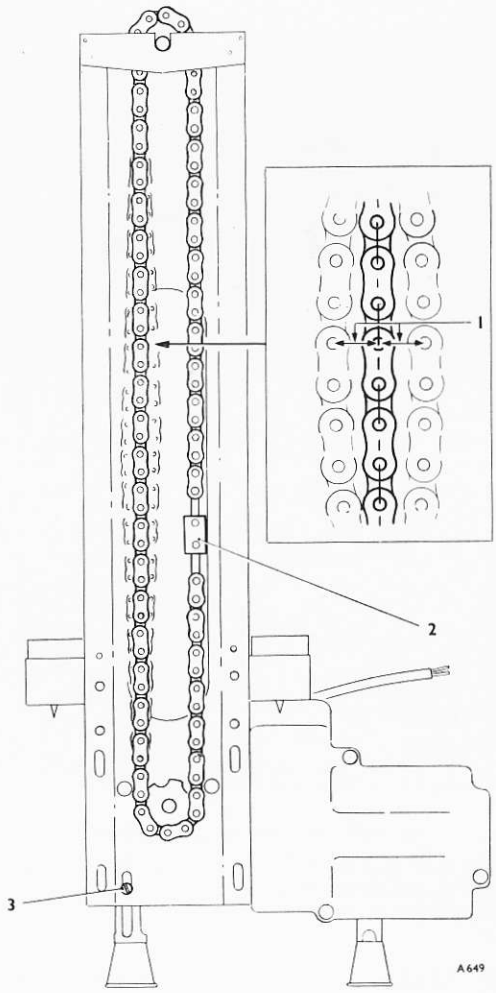


**Fig. S27 Chain adjustment for electrically operated windows**

1. SLACK MOVEMENT (MAXIMUM OF 0·500 in. (1·27 cm.)
2. PICK-UP LINK WITH CHAIN TENSION SPRING REMOVED
3. ELONGATED HOLE FOR OBTAINING ADJUSTMENT

Withdraw the motor unit from the casing by tilting it upwards while at the same time drawing it from the flexible coupling as shown in Figure S22; ensure that the rubber shock washers are retained.

If the flexible coupling is to be removed, ensure that the brake plunger and coil spring are not mislaid.

To remove the brake solenoid from the casing, unscrew the two nuts which secure it to the casing (see Fig. S18).

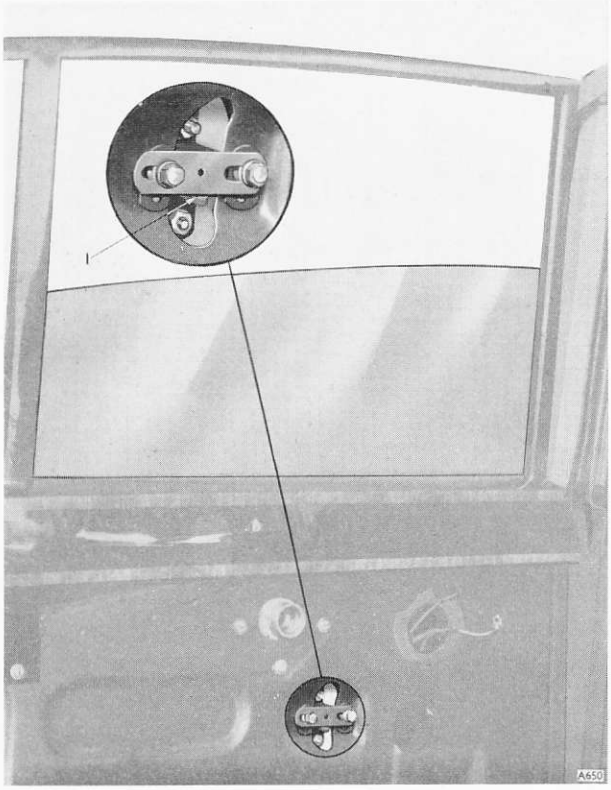


**Fig. S28 Mechanism stop adjustment**

ADJUST STOP TONGUE TO OBTAIN A GAP AT '1' OF BETWEEN 0·015 in. and 0·030 in. (0·381 mm. and 0·762 mm.) WITH THE WINDOW IN THE POSITION AS ILLUSTRATED

## Drive Unit — to assemble and install

Reverse the procedure for removing and dismantling, noting the following points.

Lubricate the worm and reduction gear with 'Molytone' 265 grease.

The joint faces of the motor casing should be smeared with jointing compound prior to bolting the halves together.

The motor casing is bolted to the chain casing to form a unit which is mounted on rubber mountings to ensure quietness during operation; the motor casing may be attached to the chain casing in four different positions depending to which door the assembly is to be fitted (see Fig. S25).

When attaching the motor assembly to the chain casing ensure that the chain is so adjusted that it has a slack movement of 0·500 in. (1·27 cm.) each side of the chain centre line (see Fig. S27).

Remove the tension spring from the 'pick-up' link and adjust the chain tension by means of the elongated bolt holes in the chain casing (see Fig. S27). Fit the chain tension spring to the 'pick-up' link, ensuring that the two ends are seated on the rollers of the chain. The chain should be lightly smeared with 'Molytone' 265 grease.

Adjust the mechanism stop tongue, by means of the elongated fixing holes, to obtain a gap at '1' of between 0·015 in. (0·38 mm.) and 0·030 in. (0·76 mm.) with the window in the halfway position as shown in Figure S28.

Ensure that the switch cables do not foul the edges of the hole in the door inner panel, otherwise they may become damaged and result in 'shorting'.

Check that the correct gauge fuse wire is fitted in the fuse box; the specification for the fuse wire is 30 S.W.G. high conductivity tinned copper wire, diameter 0·0124 in. (0·315 mm.). For stocks of fuse wire in America, 28 American or Brown and Sharps gauge, diameter 0·0126 in. (0·320 mm.) is satisfactory.

Should further attention to the wiring be necessary, a wiring diagram is provided in Figure S20.

Before fitting the door trim, ensure that the plastic cover is fitted and secured with 'upholsterers' solution.

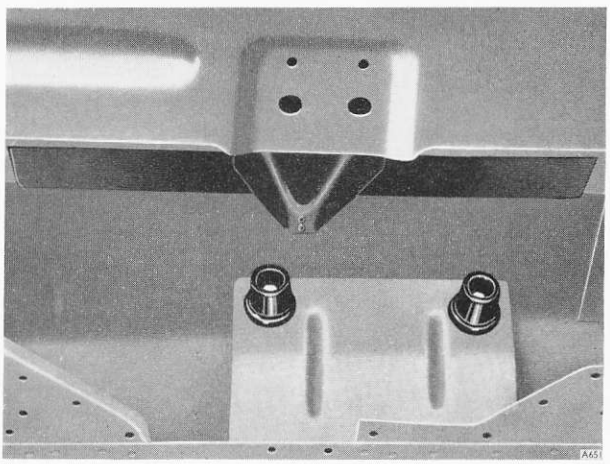


**Fig. S29 Lower rubber mountings for mechanism and connection for chain pick-up link**

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## SECTION S5 — ELECTRICALLY OPERATED GLASS DIVISION

The electrically operated glass division is fitted to **S1 and S2 long wheelbase cars only.** The division is positioned behind the front seats and is operated by means of a 'Piper' electric motor and relay. The motor is mounted on a channel section panel fitted to the front face of the division structure.

Upward and downward movement of the division is controlled by means of two push button switches, or a single switch as shown in Figure S30, mounted on the instrument panel in the rear compartment.

Assistance for the motor is provided on initial starting by means of a spring-loaded roller on which a nylon cord is wound; the cord is also attached to two hooks fitted to the glass division bottom channel.

An endless chain, driven by the motor, is carried on two sprockets and attached to the chain is a tongue which moves up and down a guide rail (see Figs. S31 and S32). This tongue is located between two rollers attached to the glass channel, so that when the motor is operated the division will move up or down, depending on which switch is operated.

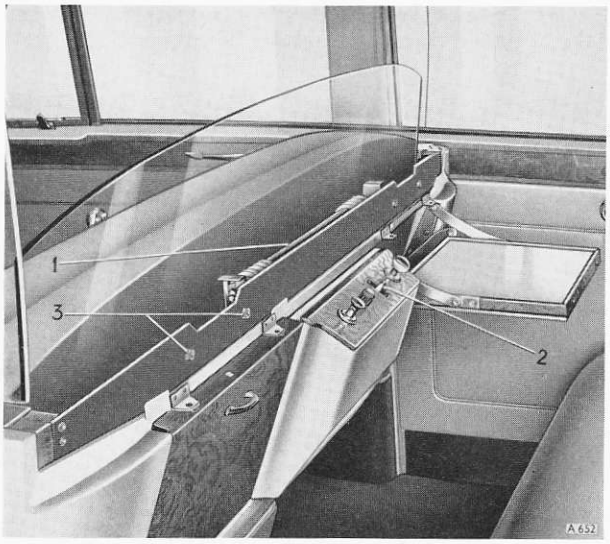


**Fig. S30 Electrically operated division**

1. SPRING-LOADED ROLLER AND NYLON CORD
2. OPERATING SWITCH
3. CAPTIVE RETAINING NUTS FOR GRAB HANDLES

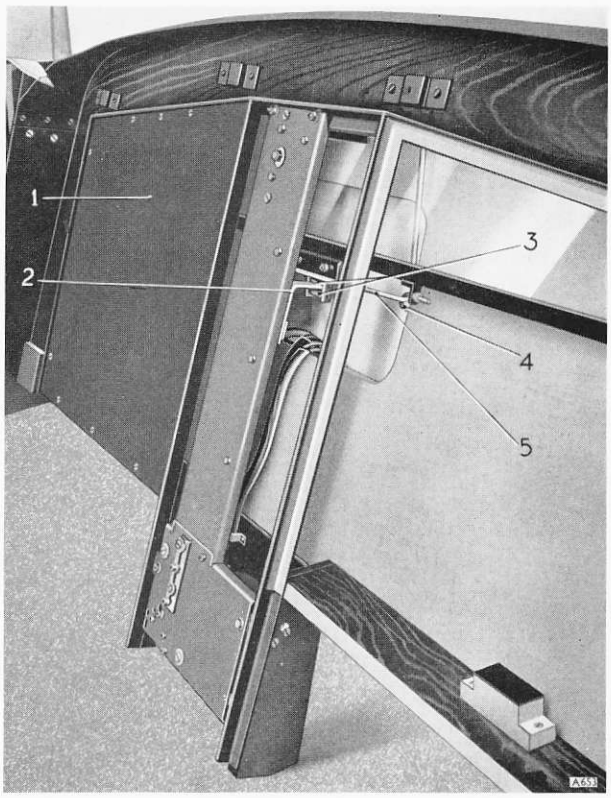


**Fig. S31 View of electrically operated division with the panel removed**

1. PLYWOOD PANEL
2. ACTUATING TONGUE
3. TONGUE ROLLERS
4. HOOKS FOR NYLON CORD
5. NYLON CORD

**On S1 cars,** trip switches are not provided, as the motor is designed to withstand stalling when the division reaches the end of its travel and until the operating switch is released.

**On S2 cars,** trip switches are fitted on either side of the motor. The trip switches are operated by two special links in the chain which are so placed that as the glass division reaches either end of its travel, one of the special links operates a trip switch and breaks the circuit, although the operating switch may still be depressed.

The design and construction of the division and motor is such that no maintenance is required, but should it be necessary to remove the motor assembly or the glass, proceed as follows.

## Motor Assembly — to remove

To facilitate removal of the motor assembly, it will be necessary to remove the front seats.

Remove the felt covered panel by unscrewing the four wood screws, then disconnect the cables from the relay.

Remove the four bolts securing the plate at the base of the motor assembly; the top two bolts also locate the motor assembly.

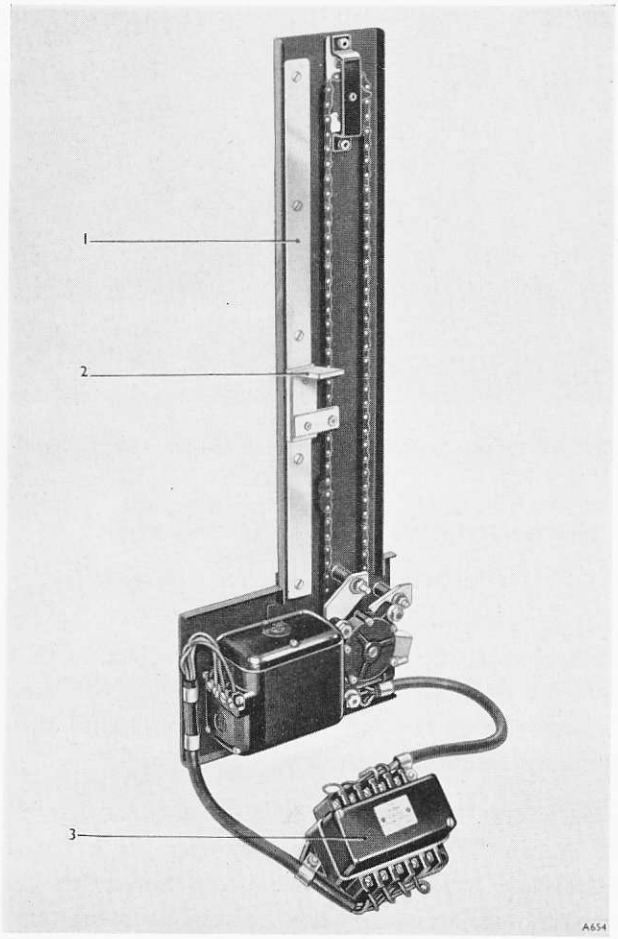


**Fig. S32 Electrically operated division motor assembly**

1. GUIDE FOR ACTUATING TONGUE 2. ACTUATING TONGUE
3. ELECTRIC MOTOR RELAY

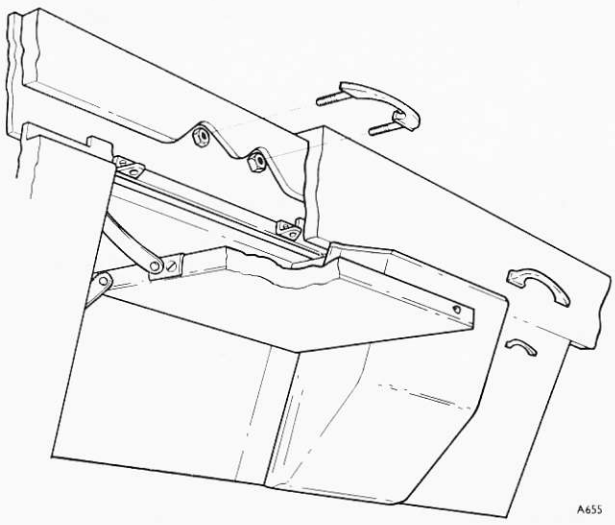


**Fig. S33 View showing access to the grab handle concealed nuts**

Unscrew the two self-tapping screws securing the assembly at the top, then withdraw the tongue from between the rollers and remove the motor assembly (see Fig. S31).

## Division Glass — to remove

Ensure that the division is lowered and remove one of the plywood panels as shown in Figure S31.

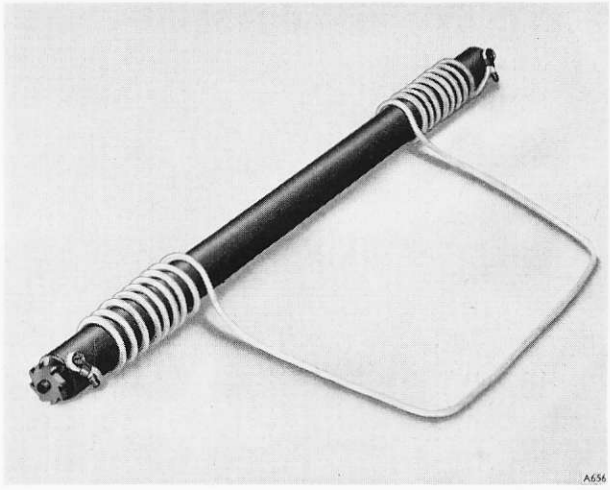


**Fig. S34 Spring-loaded roller and nylon cord**

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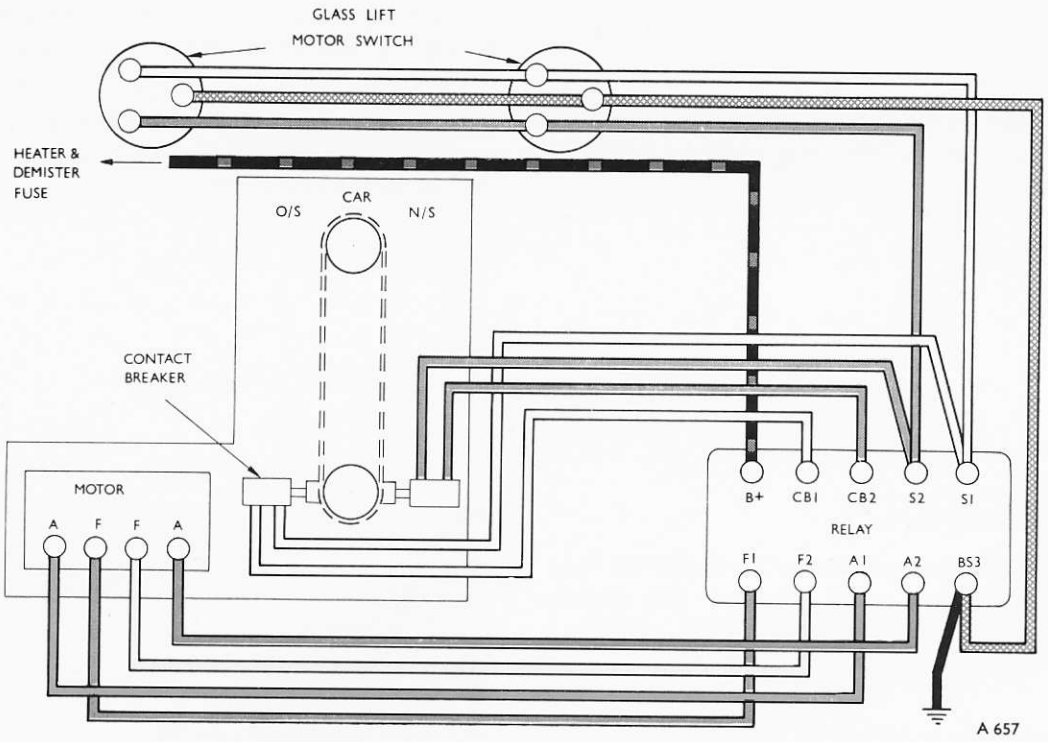


**Fig. S35 Wiring diagram for the electrically operated division**

To remove the finisher and capping rail it will be necessary first to remove the grab handles from the finisher, as the concealed captive nuts which retain the grab handles also secure the finisher; access to the $\frac{1}{4}$ in. U.N.F. concealed nuts is obtained from behind the picnic trays as shown in Figure S33.

Alternately unscrew the concealed nuts on each end of the grab handles, half a turn at a time. Lightly pull on each grab handle whilst unscrewing the concealed nuts until each grab handle can be withdrawn; retain the distance pieces. Remove the wood screw from each end of the capping rail, then withdraw the finisher and capping rail.

To remove the perspex side windows, ease away the trim from the top of each side window and from the side pillars; it should now be possible to remove the perspex windows.

Remove the wood screws securing the top half of each window channel at the top and bottom, then detach the channels.

To remove the spring-loaded roller, attach a length of string to the nylon cord at a point between the two hooks. Whilst holding the string taut, remove the nylon cord from the two hooks and allow the cord and the string to wind onto the roller until all spring tension is released; remove the roller assembly from the division.

Should it be necessary to renew the nylon cord, note the manner in which the cord is wound onto the roller before detaching it.

Before withdrawing the division glass, ascertain whether it is necessary to remove the centre roof light in order to avoid damaging it, then withdraw the glass whilst tilting it slightly in the process.

## Division Glass and Motor Assembly—to install

When fitting the division glass and electric motor assembly, reverse the procedure for removal, noting the following points.

Care should be taken when connecting the cables from the motor to the relay and reference should be made to the wiring diagram shown in Figure S35.

If it is necessary to rewind the nylon cord onto the roller, it should be wound fourteen turns in the manner shown in Figure S34.

Insert the roller into the slots in the division and engage the ratchet so that to fit the cord over the hooks in the channel it is necessary to stretch the cord.

When the correct tension is obtained it should be possible for the glass division to be raised 4 in. (10·16 cm.) by means of the spring-loaded roller alone.

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## SECTION S6 — LUGGAGE BOOT

### Boot Lid Assistors

When checking the load required to operate the boot lid assistors, attach a spring balance to the luggage strap rail; a pull of approximately 7 lb. (3·17 kg.) should be required to move the lid from the fully open position.

If it is necessary to adjust the assistors, remove the trim and re-set each assistor an equal amount until the desired result is obtained.

In the case of a boot lid having been removed, the assistors may be checked individually as shown in Figure S36; the pull on the spring balance should then be between 57 and 60 lb. (25·85 and 27·22 kg.).

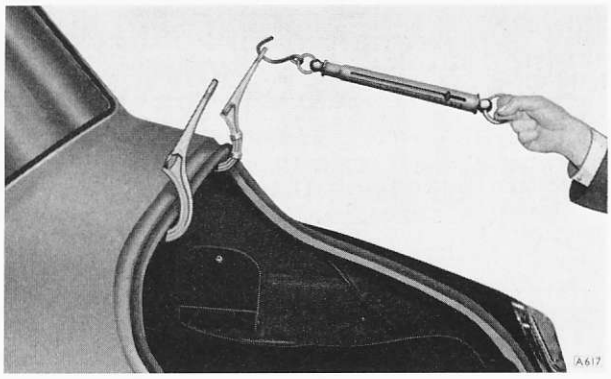


**Fig. S36 Checking the luggage boot lid assistor poundage**

### Boot Lock

Necessary adjustment of the striker pin is affected by slackening and repositioning the retaining screws. If this does not provide sufficient adjustment, a further range of adjustment can be obtained by reversing the striker. Adjustment can then be obtained by the off-set positioning of the pin on its mounting plate.

**On early S1 cars,** check the operating cables to ensure that there is neither slackness nor too much tension. With the boot lid open, turn the locking cams to the locked position, slowly depress the push-button and check that both locking cams are released simultaneously; means of adjustment for the cable is illustrated in Figure S37.

**On late S1 and all S2 cars,** solid control rods are fitted to the locking assembly and no provision is made for adjustment.

Complaints concerning stiff operation of the push rod button may be due to corrosion at the pivots. In this case remove the corrosion to free the joints, then lubricate the pivots with 'Molytone' 265 grease. If corrosion has reached an advanced stage, the assembly should be renewed.

The private lock fitted to the luggage boot lid operates in a similar manner to the private locks fitted to the front doors; to remove the handle, which also contains the lock, proceed as follows.

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Remove the trim pad from inside the luggage boot lid, unscrew the nut on the end of the lock plunger and on each end of the handle; withdraw the handle assembly from the lid.

## Locking Cam Assembly — to renew

If both locking cam assemblies are to be renewed it is advisable to complete one side at a time to ensure correct assembly.

Raise the luggage boot lid and remove the trim pad to gain access to the centre lock assembly.

**On early S1 cars,** release the lock-nut and unscrew and remove the left-hand cable from the centre lock assembly.

**On late S1 and all S2 cars,** remove the split pin from the left-hand control rod and withdraw the control rod clear of the backplate.

**On all cars,** unscrew and remove the six screws and washers securing the left-hand mounting bracket to the luggage boot lid and remove the bracket, complete with the locking cam assembly and control rod or cable. Care should be taken not to bend the control rod when withdrawing the assembly.

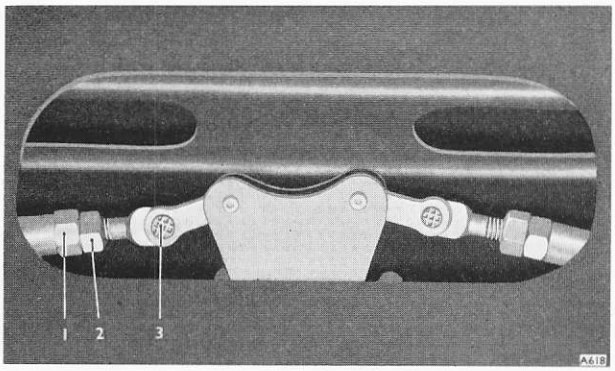


**Fig. S37 Cable adjusters for the luggage boot lock — early S1 cars**

1. ADJUSTING NUT 2. LOCK-NUT 3. PIVOT

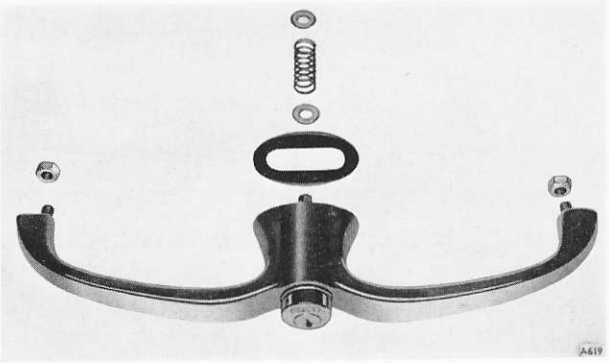


**Fig. S38 Luggage boot lock and handle assembly**

**On early S1 cars,** release the lock-nut and unscrew and remove the cable from the locking cam assembly.

**On late S1 and all S2 cars,** remove the split pin securing the control rod to the locking cam assembly and remove the control rod, noting its position so that it may be refitted correctly.

**On all cars,** remove the four screws and washers securing the locking cam assembly to the mounting bracket and withdraw the assembly.

The new locking cam assembly should be fitted by reversing the procedure given for removal, noting the following points.

Before fitting, smear a little 'Molytone' 265 grease onto the pivots and fit new split pins to the control rods.

The right-hand locking cam assembly should be fitted in a similar manner to that described for the left-hand side.

**On late S1 and all S2 cars,** to prevent jamming of the luggage boot lid, a locking cam assembly with a modified cam form has been introduced. This modified cam assembly has the same Part Number and replaces the old type cam assembly.

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## SECTION S7 — DOORS AND LUGGAGE BOOT LID SEALING

### Door and Luggage Boot Seals—to renew

Should it be necessary to renew a seal, it is most important that great care be taken to ensure satisfactory adhesion; this is only possible provided that the contact faces of the seal and the body channel are perfectly clean.

'Bostik' adhesive No. 1261 is recommended for securing the seals, but as the seals are not supplied already prepared, they should be thoroughly cleaned with 'Bostik' cleaner two hours before it is necessary to apply the adhesive.

When the contact faces have been prepared, apply the adhesive to both surfaces and allow it to air-dry for 15 minutes before fitting the seals.

The seals should be pressed firmly into position so that any trapped air is removed.

When fitting a seal to the sill, ensure that it is fitted with the lip downwards and **not** towards the door as is the case elsewhere; this rubber section has a wedge-shaped base which renders the lip invisible when the door is closed.

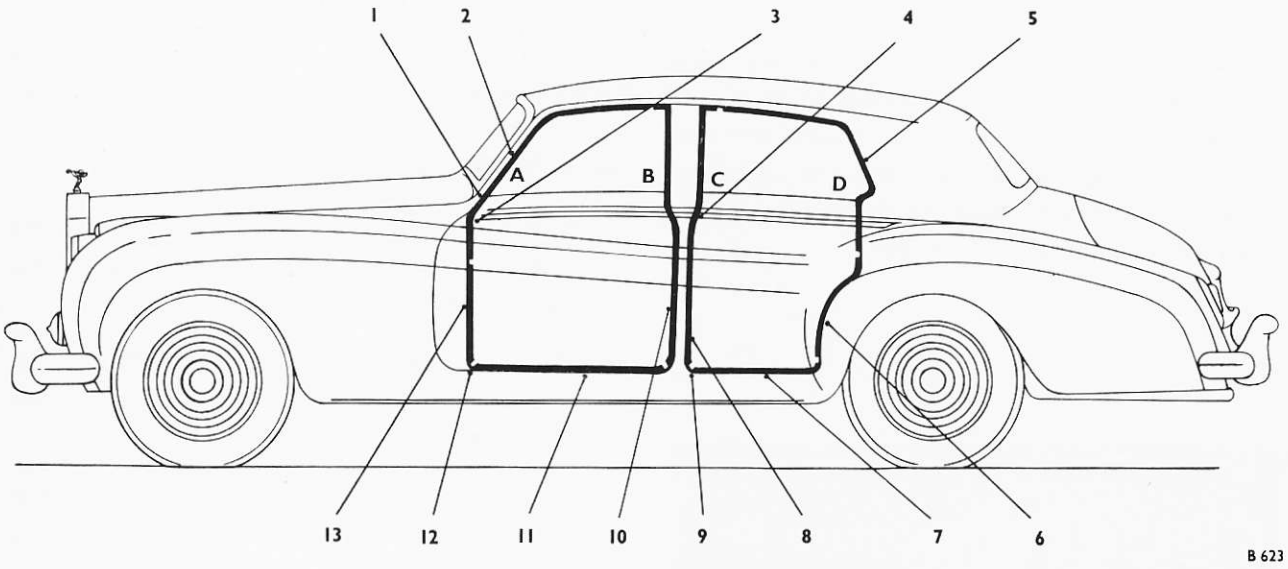


**Fig. S39 Method of fitting door seals**

A. 'A' POST B. 'B' POST C. 'C' POST D. 'D' POST

1. SEAL REINFORCED BY SPONGE RUBBER UB 2595
2. RIGHT AND LEFT-HAND SEALS UB 2229
3. TWIST THE SEAL AT THIS POINT
4. TWIST THE SEAL AT THIS POINT.
5. RIGHT-HAND SEAL UB 2225, LEFT-HAND SEAL UB 2226
6. RIGHT-HAND SEAL UB 2594, LEFT-HAND SEAL UB 2593
7. RIGHT AND LEFT-HAND SEAL UB 2230
8. FRONT RIGHT-HAND AND REAR LEFT-HAND SEALS UB 2227
9. RIGHT-HAND SEAL UB 2764, LEFT-HAND SEAL UB 2763 — EXPORT CARS
10. FRONT LEFT-HAND AND REAR RIGHT-HAND SEALS UB 2228
11. RIGHT AND LEFT-HAND SEALS UB 2230
12. RIGHT-HAND SEAL UB 2762, LEFT-HAND SEAL UB 2761 — EXPORT CARS
13. PORTION OF SEAL UB 2229

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Sponge cord is used for reinforcement on the front pillar for a distance of 2 to 3 in. (5·08 to 7·62 cm.) at the waistline.

In order to follow the body contour, twist the seal on the forward edge of both front and rear doors immediately above the waist rail.

When attaching the seal to the front pillar, cut the rubber obliquely at the base to ensure complete seating of the seal to the body.

If the car is constantly used on dusty roads it may be necessary to fit additional seals to the bottom corners of the 'A' and 'C' door posts; this is provided for by means of moulded rubber seals as shown in Figure S40.

When fitting these corner seals, trim the existing seals fitted to posts 'A' and 'C' and along the sills, so that they butt against the corner seals (see Fig. S40).

In order to obtain optimum results, it may be necessary to trim the back edge of the corner seals, which should be secured in position by means of 'Bostik' adhesive No. 1261.

To check whether the seals are effective, place a piece of paper against the seal and close the door or boot lid. If the sealing is efficient the paper should be firmly held by the seals; this check should be made around the complete seal.

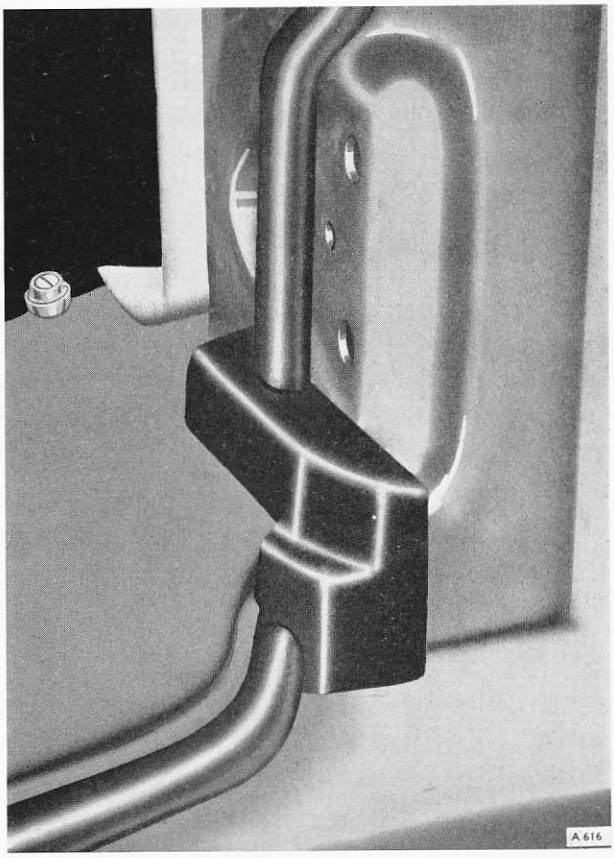


**Fig. S40 Corner seal shown in position**

| *FRONT SEALS* | *REAR SEALS* |
|---|---|
| LEFT-HAND UB 2761 | LEFT-HAND UB 2763 |
| RIGHT-HAND UB 2762 | RIGHT-HAND UB 2764 |

## SECTION S8 — VIBRATIONS AND RATTLES

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**On late S1 and all S2 cars,** special provision has been made to stop body rattles and creaks, but **on early S1 cars** where no such special provision has been made, rattles and creaks may develop during service. The following information deals with the method of overcoming this trouble. A list of anti-rattle felts is available and the Part Numbers may be obtained from the Spares Schedule.

### Arm Rest and Slide

In the event of rattle from the arm rest or slide, this fault may be due to the arm rest not being securely attached to the door trim.

If this is the case, the fault may be rectified by reducing the length of the distance pieces and the retaining screws which secure the arm rest slide to the door trim.

## Door Check-strap

Creaking noises from the check-straps during opening or closing of the doors may be caused by the spiral spring in the check-strap assistor fouling the fillet welds on the check-strap body; in this case sufficient clearance for the spring should be obtained by filing the fillet welding.

File the fillet welding sufficiently to ensure that a minimum clearance of 0·050 in. (1·27 mm.) is obtained around the periphery of the spring, when the check-arm is at any point of its travel (see Fig. S10).

When this operation is completed and before assembling the check-strap, the spiral spring should be lubricated, while in its free slate, with 'Molytone' 265 grease (see Fig. S10).

## Window Regulator Arm

To prevent the window regulator arm rattling against the window channel, felt washers should be fitted between the regulator and the button.

These washers should be cut from $\frac{1}{8}$ in. (3·17 mm.) thick black art felt and should be 2 in. (5·08 cm.) square with a central cut $\frac{3}{4}$ in. (1·90 cm.) long to enable it to fit over the regulator arm buttons.

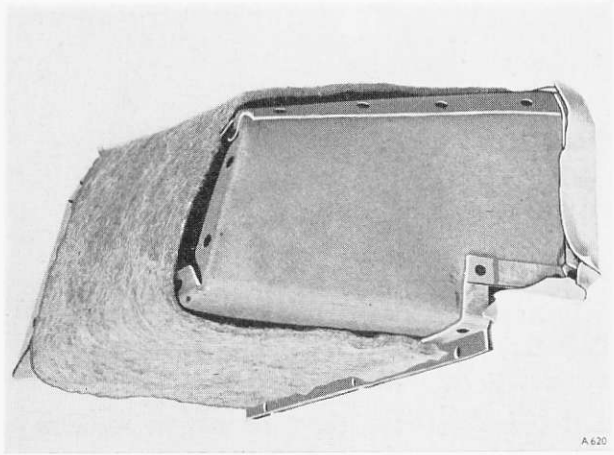


**Fig. S41 Method of attaching anti-rattle felt to the cubby box**

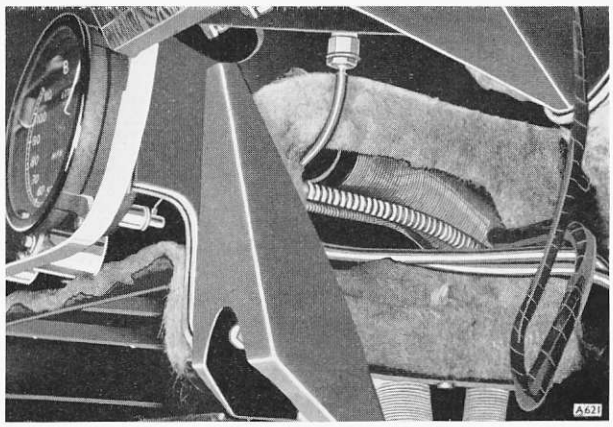


**Fig. S42 Method of attaching anti-rattle felts to the instrument panel side plates and radio loudspeaker duct**

Care should be taken to ensure that each window regulator is fitted with 3 'wave' washers and that the regulator is adequately lubricated with 'Molytone' 265 grease, particularly at points where the 'wave' washers are fitted.

It is also necessary to ensure that the fit between the regulator buttons and their slides is of a reasonable standard.

## Garnish Rail

Rattle may be caused by the garnish rail contacting the window frame.

In this case, ensure that the garnish rail does not foul the ventilator window striker plate, then attach small pieces of headcloth to the back of the garnish rails on the front and rear doors, using 'Bostik' A adhesive.

## Door Trim Panel

In order to prevent the trim panel vibrating between the waist finisher and the garnish rail, a strip of 'Aeroprene' $1\frac{3}{4}$ in. (4·445 cm.) wide should be fitted to the door trim panel.

Fit the 'Aeroprene' over the top edge of the door trim panel and fold it under the leather.

## Door Lock Remote Control Links

Rattles caused by the door lock remote control links may be overcome by attaching black art felt, $\frac{1}{4}$ in. (6·35 mm.) thick, to the inner panels of the door;

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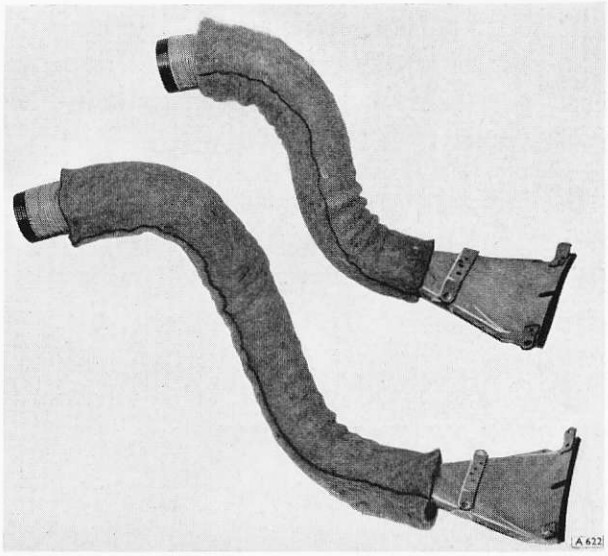

Fig. S43 Method of attaching anti-rattle felts to the de-mister ducts

the felt should be secured by means of 'Bostik' adhesive.

To avoid bending the control bar whilst fitting, it is advisable that this modification be carried out before the door lock is fitted.

## Door Inner Panel Stiffener bracket

**On early S1 cars,** the door inner panel stiffener brackets are secured by means of countersunk headed screws; these have a tendency to become loose and on later cars the countersinking has been deleted and binding head screws fitted in place of the countersunk headed screws.

**On early S1 cars,** in order to replace the countersunk headed screws, it is necessary to fit the binding head screws with plain washers.

## Rattles from Behind Facia

Before proceeding to fit the felts it will be necessary to remove the facia panel assembly; in order to simplify location when refitting it is advisable that the panel should be removed complete with its fixing brackets.

## Cubby Boxes

Felt should be attached to the cubby boxes by means of 'Bostik' A adhesive, so that the top, back and bottom of the boxes are covered as shown in Figure S41.

## Instrument Panel Side Plates

Before attaching the felts to the side plates, cut a hole in the centre of each felt, leaving sufficient of the material to turn over and cover the sharp edge of the side plate (see Fig. S42).

Attach the felt to the side plate and secure it with 'Bostik' A adhesive.

It is important that the felt completely covers the sharp edge, particularly at the bottom of the hole, as the speedometer trip has a tendency to contact the side plate at this point. If the edge is not covered, it is liable to cause rattles or even cut through the felt covering the speedometer trip.

## Radio Loudspeaker Duct

The radio need not be removed in order to fit the felt to the loudspeaker duct; fit the felt by sliding it over the top of the duct as shown in Figure S42.

Care must be taken to ensure that the felt is fitted well to the rear of the loudspeaker duct, in order to prevent the various wires and cables from tapping against the back edge of the duct.

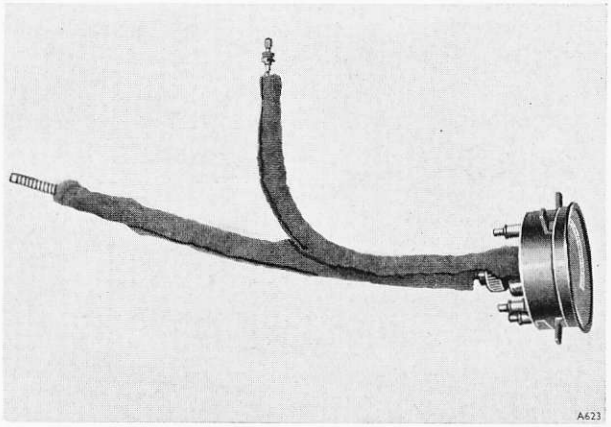

Fig. S44 Method of attaching anti-rattle felts to the speedometer cable and trip winder

## Speedometer Cable, Trip Winder and Clock Winder

In order to attach the felt sleeve to the speedometer cable, after detaching the cable from the gearbox, unclip the cable from the bulkhead and draw it into the saloon.

To permit easy fitting of the felt sleeves, they should be cut down the length of the sleeve wrapped around the cable or trip, then sewn up again (see Fig. S44).

## De-mister Ducts

In order to simplify the removal of the de-mister ducts, it is essential that the de-mister cross-tube be dismantled.

The de-mister duct felts should be sewn together to produce four sleeves; these should then be fitted by sliding them into position over the ducts (see Fig. S43).

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# SECTION S9 — WINDSCREEN AND REAR WINDOW GLASS

## Windscreen — to remove

Before attempting to remove the windscreen, it is necessary to adopt the following procedure.

Cover the bonnet in the vicinity of the windscreen with thick felt to ensure against possible damage to the paintwork when removing the windscreen.

Remove the instrument panel by unscrewing the four retaining screws situated at the top and under the lower edge of the panel.

**On S1 cars,** detach the trafficator switch and unscrew the serrated nut at the rear of the capping rail.

**On all cars,** remove the retaining screws and detach the upper and side windscreen finishers.

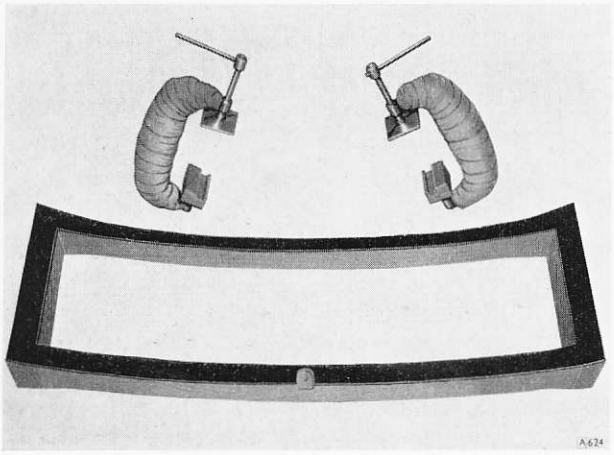

Fig. S45 Jig for pressing in the windscreen

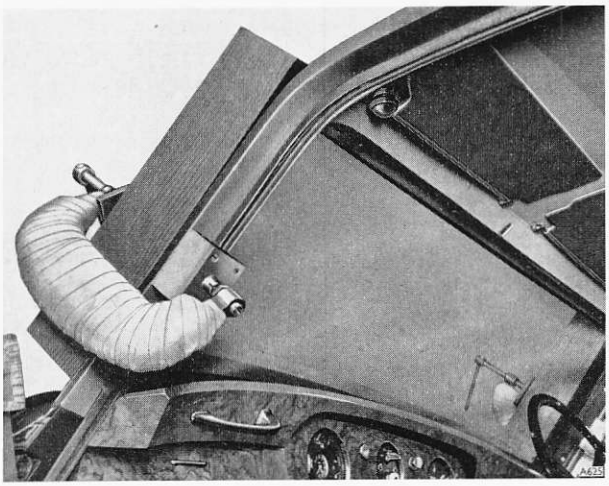

Fig. S46 Clamp positions for fitting the windscreen

Remove the trim pads from beneath the capping rail at each end; each trim pad is secured by three 2 B.A. screws and four self-tapping screws.

**On all S1 cars and S2 Long Wheelbase cars without the division,** remove the grab handles by releasing the two securing nuts.

**On S2 cars,** unscrew the two screws from the capping rail lamp and remove the green screen.

**On all cars,** unscrew the four 2 B.A. nuts at each end of the capping rail; these are located at the rear of the capping rail.

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Remove the two 2 B.A. setscrews securing the interior mirror support; these are situated underneath the capping rail. Withdraw the capping rail with the mirror attached.

**Note:** Special care must be taken to ensure that the packing behind the capping rail is maintained in its original position to ensure correct adjustment when refitting.

Slacken the screws and bolts which secure the metal strip at the base of the windscreen aperture.

Ensure that the wiper blades are clear of the windscreen and do not obstruct the removal operation.

The windscreen, together with the chromium-plated finisher, is held in position by the rubber seal and should be pressed out of its aperture in the body by two operators, working one at each end of the screen from the outside of the car.

## New Windscreen — to fit

The roof radio aerial (if fitted) should be removed from the car to enable the windscreen fitting jig to be placed correctly in position.

Clean off all traces of the old sealing compound from the windscreen aperture, then apply a thin coating of 'Secomastic' sealing compound about $\frac{1}{8}$ in. (3·17 mm.) thick to the outer edge of the aperture; this is to prevent the ingress of water into the saloon.

Examine the rubber seal. If the seal is in a serviceable condition it can be used with the new windscreen; if it is not serviceable, a new seal should be fitted.

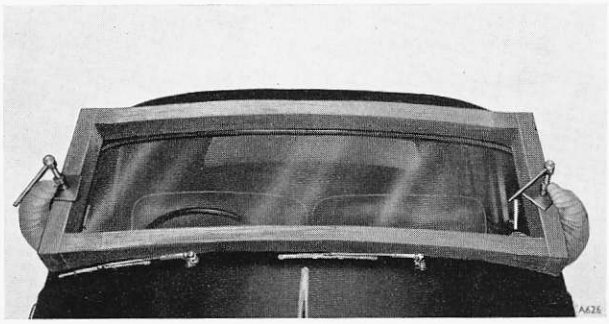

**Fig. S47 Jig clamped in position**

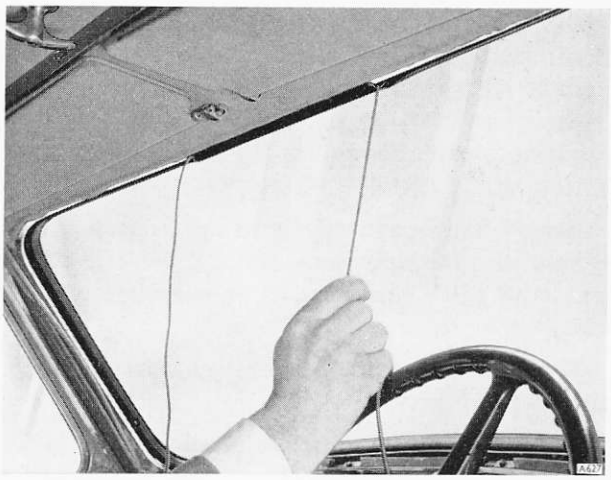

**Fig. S48 View of windscreen showing cord in position for fitting the rubber seal**

If the original seal is to be fitted, ensure that it is perfectly clean and free from old sealing compound.

Before fitting the seal to the glass, apply a thin coating of sealing compound in the channel of the seal, into which the glass is to fit.

Examine the chromium plated finisher and if in a serviceable condition, fit it into the seal; if the finisher is distorted, it should be renewed.

It is essential that the finisher be fitted to the seal before the windscreen is fitted to the car.

Fit a length of cord around the inside lip of the rubber seal, leaving the two ends free at the top of the windscreen (see Fig. S48).

Working from the outside of the car, carefully ease the windscreen assembly squarely into position as far as possible by hand, ensuring that the ends of the cord are inside the car and not trapped.

Fit the jig (RH.343) shown in Figure S45 and clamp it into position by means of the clamps and blocks, as shown in Figures S46 and S47.

**Care should be taken when tightening the clamps to ensure that an even pressure is exerted on the wooden frame; an uneven pressure may dislodge the chromium-plated finisher or even break the glass.**

When the windscreen is firmly in position, carefully pull one end of the cord at an angle to the windscreen

so that the lip of the rubber seal is drawn into position. Continue this operation around the screen to the bottom corner, then repeat the procedure for the opposite side of the screen. Pull both ends of the cord together to guide the rubber lip into position at the bottom of the screen.

Remove the jig and check that the screen assembly is flush with the body at the front; if not, refit the jig and apply further pressure until the desired result is obtained.

Test the windscreen for leaks by means of water applied under pressure.

Parts removed to enable the windscreen to be renewed should be fitted by reversing the procedure for their removal.

## Rear Window Glass — to remove

Unscrew the retaining screws and withdraw the finisher.

Remove the upper front trim from the luggage boot, then disconnect the two de-mister cables; one lead to the de-mister switch and the other to earth.

The glass should be pressed evenly towards the interior of the car by one operator so that a second operator inside the car can remove the glass.

## Rear Window Glass — to fit

Clean off all traces of the old sealing compound from the rear window aperture, then apply a thin coating of sealing compound, approximately $\frac{1}{8}$ in. (3·17 mm.) thick, to the inner edge of the aperture; this is to prevent the ingress of water into the saloon.

**Fig. S49 Method of fitting clamps for pressing in the rear window glass**

Examine the rubber seal. If the seal is in a serviceable condition it may be used with the new glass; if it is unserviceable, then a new seal must be fitted.

Before fitting the seal to the glass, apply a thin coating of sealing compound to the channel of the seal into which the glass is to be fitted.

Fit a length of cord around the inside lip of the rubber seal, leaving the ends free at the top of the glass.

Carefully ease the glass assembly into its aperture from inside the car, then fit the four wooden fixing blocks as shown in Figure S49; care should be taken to ensure that the cord or the de-mister cables are not trapped during this operation.

Working from the centre towards the ends of the glass, screw up the adjusting nut on each block evenly and in succession, until slight pressure is exerted on the lip of the seal.

**Pressure on the seal should be evenly applied around the complete inner edge of the aperture; uneven pressure may result in a broken glass.**

Carefully pull one end of the cord at an angle to the glass so that the lip of the rubber seal is drawn into position. Continue this operation around the glass to the bottom corner, then repeat the procedure with the other end of the cord for the opposite side of the glass.

Pull both ends of the cord together to guide the rubber lip into position at the bottom of the glass.

Make certain that the lip of the rubber seal is in position completely around the aperture, then carefully apply further pressure by means of the blocks until the glass is fully registered in the aperture.

Remove the wooden blocks and fit the finisher to the rear window.

Connect the de-mister leads and refit the trim to the luggage boot.

Remove all traces of superfluous sealing compound, then test the rear window for leaks by means of water applied under pressure.

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## SECTION S10 — FRONT AND REAR SEATS

### Front Seat — to remove

Depress the catch in the centre of the front seat valance and slide the seat forward to the limit of its travel.

Remove the two Allen screws from the rear end of each slide, then move the seat back and unscrew the two Allen screws from the front end of each slide.

It will then be possible to remove the front seat from the car, through the front door opening.

Care should be taken to ensure that the distance pieces at each end of the slides are retained.

### Front Seat — to fit

To fit the front seat, reverse the procedure for removal, noting the following points.

**On early S1 cars,** complaints of front seat rattles may be due to one or both of the following causes.

(i) Shrinkage of the hardboard mounting which causes the woodscrews and setscrews to become loose.

(ii) Settling of the leather trim around the screw holes in the hardwood blocks, which causes the set-screws securing the slides to the floor to become loose.

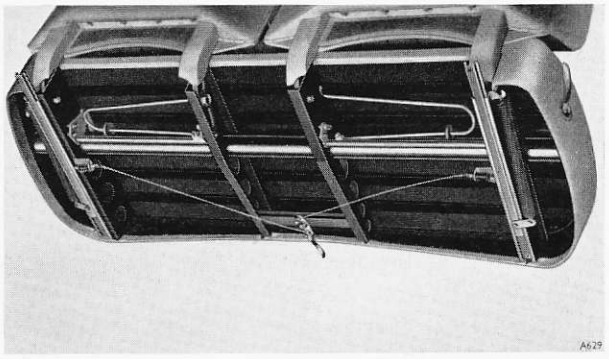


**Fig. S50 Front seat showing the slide release and individual backrest rake**

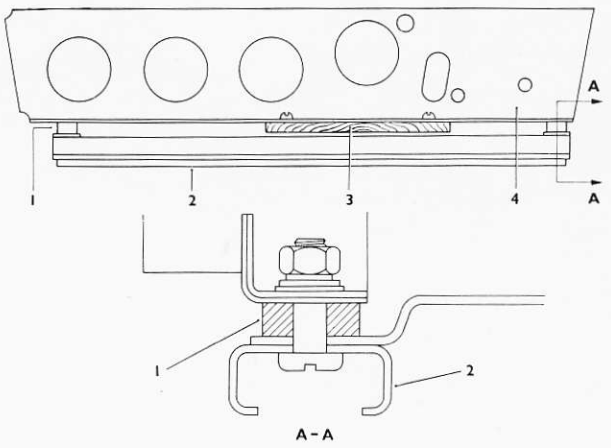


**Fig. S51 Method of fitting hardwood block to eliminate front seat rattles — early S1 cars**

1. ALUMINIUM DISTANCE PIECE
2. SEAT RUNNER
3. HARDWOOD MOUNTING BLOCK (UW 1634)
4. SEAT

To rectify these faults proceed as follows.

(i) Remove the existing mount and in its place fit a short hardwood block and aluminium distance pieces as shown in Figure S51, then refit the runners.

(ii) Open out the holes in the existing hardboard mounting to $\frac{1}{2}$ in. (12·7 mm.) dia., then press mild steel bushes into the holes, so that when the floor slides are tightened down they bear on the bushes instead of the leather-trimmed hardwood (see Fig. S52).

When re-fitting the seat slides, use $\frac{1}{4}$ in. U.N.F. Allen screws in place of the existing setscrews.

Rattles may also be detected from the spring-loaded locking bolts in the slides; in this case the fault can be rectified by building up to obtain a sliding fit in the bracket and the slide.

The slide release and the individual back-rest rake adjusters are illustrated in Figure S50.

It is seldom possible to cure internal rattles from the slides and, in such cases, it is recommended that a replacement unit be fitted.

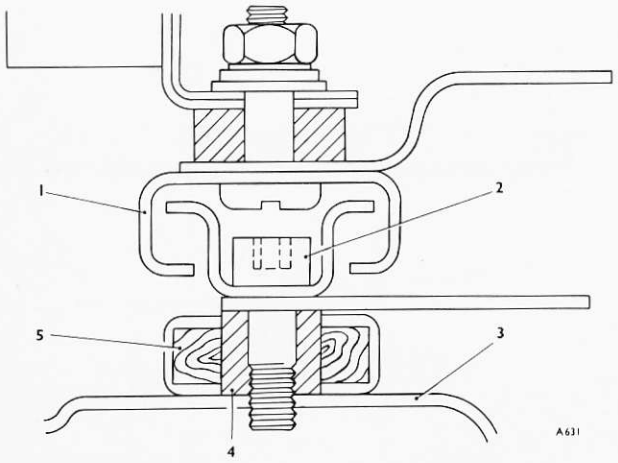


**Fig. S52 Method of fitting bushes in the hardwood blocks for securing the front seat slides to the floor — early S1 cars**

1. SEAT RUNNER
2. ALLEN SCREW (UG 1422)
3. CAR FLOOR
4. MILD STEEL BUSH (UB 1935)
5. HARDWOOD MOUNTING BLOCK

Should it be necessary to adjust the front seat catch, re-position the 2 B.A. bolts and the nipples situated on the seat slide cables to obtain the desired result.

## Rear Seats and Squabs — to remove

The rear seat cushion can be removed by lifting the front of the seat cushion out of the well and pulling it out through the rear door.

The rear seat back rest is secured by eight Phillips screws to which access can be gained from inside the luggage boot.

**On cars fitted with the Boot Refrigeration Unit,** access is a little more difficult and is gained by removing the back-board from inside the luggage boot. No attempt should be made to disturb the refrigeration pipes.

Each head squab is secured by three Phillips screws; access to these screws is gained from inside the luggage boot.

## Rear Seats and Squabs — to fit

To fit the rear seat and squabs, reverse the procedure given for their removal.

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# SECTION S11 — RADIATOR GRILLE

## Radiator Grille — to remove

Should it be necessary to remove the radiator grille, proceed as follows.

Remove the bonnet top, then remove the nuts and bolts which secure the grille to the radiator header tank and to the top edge of the wing valance.

Unscrew the nuts securing the front bumper to the chassis frame brackets and remove the front bumper.

Unscrew the retaining screws and bolts, then remove the front apron.

Remove the retaining screws and detach the stone-guard situated at the rear of the front apron, then remove the grille from the car.

## Radiator Grille — to fit

When re-fitting the grille to the car, reverse the procedure given for its removal.

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## SECTION S12 — BODY REMOVAL AND MOUNTING

### Body — to remove

Disconnect the leads at the battery and remove the battery.

Remove the front doors as described in Sections S2 and S4.

Disconnect the leads for the fog/flasher lamps at the lamps and remove the lamps.

Disconnect and remove the bonnet top, front apron and side fairings, radiator grille and front bumper as described in Section S11.

Disconnect the leads for the headlamps, side lamps and blower motors where fitted, at the snap connectors at the front end of each valance plate.

Disconnect the horn leads at the snap connectors adjacent to the horns.

**On late S2 cars,** disconnect the fresh air duct support bracket from the left-hand side wing stiffener.

**On all S2 cars,** remove the metal front undersheet and the fibreglass or metal rear undersheet from the right-hand side of the car.

**On all cars,** remove the self-tapping screws and the single bolt which secure the stainless steel strip to the lower edge of each wing.

Disconnect the wing stiffeners at the valance plate and mounting bracket on each side of the car.

Before removing the wings from a car fitted with a wing mounted aerial, disconnect the leads and remove the unit.

Supporting the weight of the right-hand wing, remove the setscrews securing the wing to the valance plate; the left-hand wing should then be removed in a similar manner.

After removing the wings, disconnect the following components at the connecting points on the component — generator, choke solenoid, stop lamp switch, oil pressure transmitter, coolant temperature transmitter, oil sump rheostat, starter relay switch and fuel pump. Disconnect the lead from the SW or +ve terminal of the ignition coil.

Disconnect the plastic pipe at the top of the screenwasher reservoir; **on S1 cars,** it will also be necessary to disconnect the vacuum pipes between the screenwasher switch and the inlet manifold, and the switch and the screenwasher reservoir.

**On standard S2 cars,** disconnect the leads at the heater flap actuator and fresh air flap actuator which are positioned at the rear of the right-hand valance plate. Also disconnect the leads to the water tap actuator positioned at the front of the right-hand valance plate.

**On all S2 cars,** disconnect the leads to the screenwasher motor.

After disconnecting the above leads, unclip each loom on the engine and valance plates so that they are only secured at the bulkhead.

**On all cars,** drain the coolant from the radiator and crankcase as described in Chapter L.

Remove the matrices and ducting for the Air Conditioning System from the valance plates, referring to Chapter C for the standard systems and to the Air Conditioning Manual TSD.723 and TSD.744 for refrigeration systems.

After discharging the refrigerant and removing the matrices and ducting from cars fitted with refrigeration systems, disconnect the refrigerant pipes and fit blanking plugs to all pipes and connections.

Disconnect the coolant connections between the engine and the valance plates.

**On late S1 cars, S2 Long Wheelbase and Continental S2 cars,** remove the clip securing the manually operated Summer/Winter tap(s) to the left-hand valance plate; disconnect the coolant hose from the cylinder head to the tap(s). Disconnect the coolant hose between the vacuum operated tap and the left-hand valance plate. Disconnect the rubber vacuum pipes between the control switches and the induction manifold, between the control switches and the vacuum operated water taps and between the control switches and the inlet air flap actuators.

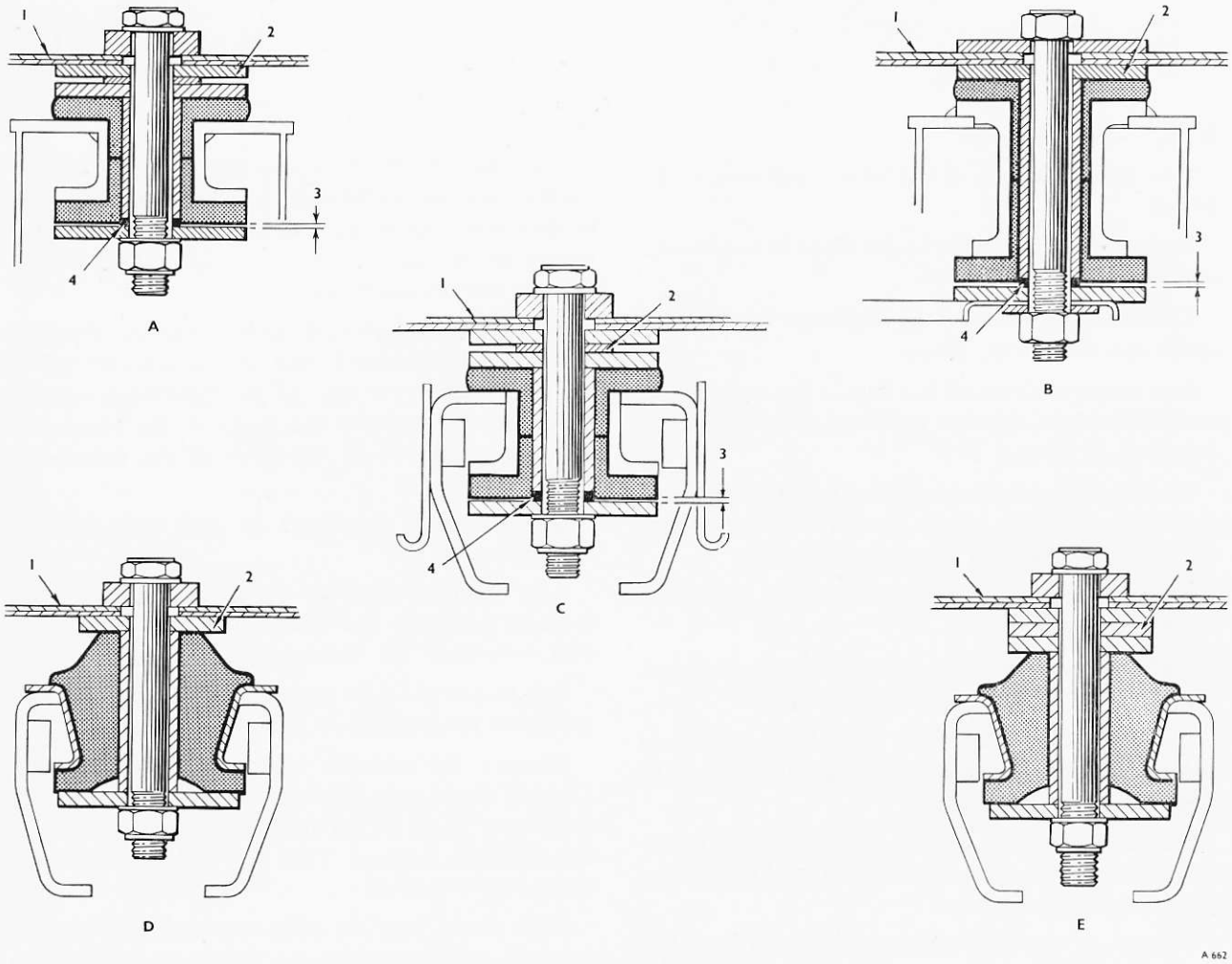


**Fig. S53 Body mountings for standard steel body**

A. No. 1 MOUNTINGS — EARLY S1 CARS
B. No. 1 MOUNTINGS — LATE S1 AND ALL S2 CARS
C. No. 2 AND 4 MOUNTINGS
D. No. 3 AND 5 MOUNTINGS
E. No. 6 MOUNTING

1. BODY
2. WASHERS
3. VERTICAL FREEDOM 0·010 in. (0·254 mm.)
4. SHIM

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**On all cars,** drain the brake fluid, remove the pipes between the master cylinder and the reservoirs and remove the handbrake and cable as described in Chapter G. Care should be taken when draining the brake fluid to ensure that it does not come into contact with the paintwork.

Disconnect and remove the accelerator pedal.

Remove the steering column as described in Chapter N.

Unscrew the lock-nut on each bonnet lock control rod, remove the split pin securing each locking handle to its control rod and remove both of the rods.

Disconnect the earthing strip between the front of each valance plate and the chassis frame.

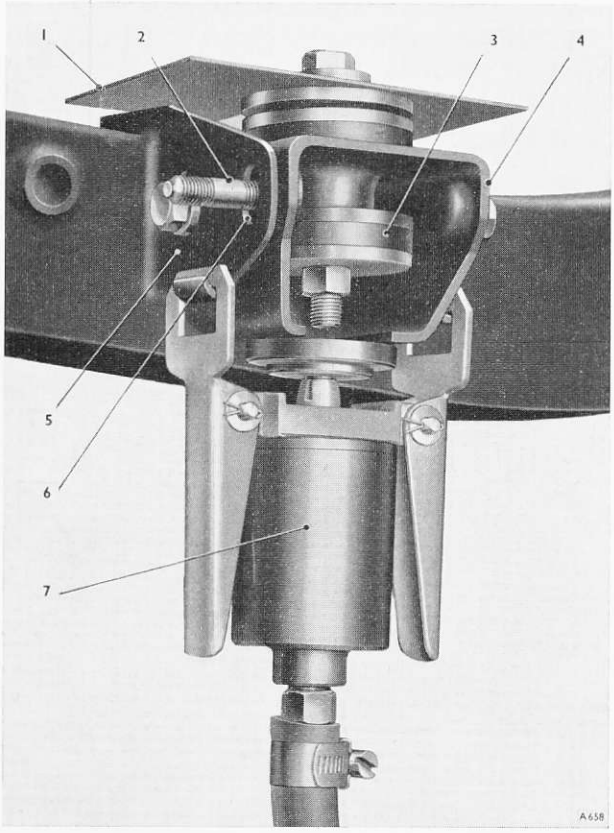


**Fig. S54 Body mounting ram in position**

1. BODY FLOOR
2. INDICATOR STUD
3. BODY MOUNTING RUBBER
4. CRADLE
5. MOUNTING BRACKET
6. ELONGATED HOLE
7. PNEUMATIC RAM

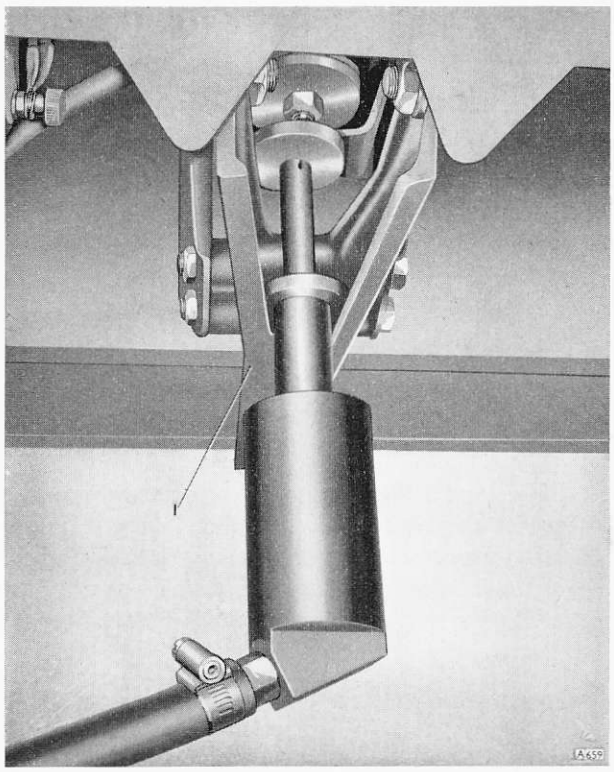


**Fig. S55 Body mounting ram for jacking slide mounting**

1. JACKING SLIDE

Unscrew and remove the setscrews securing each valance plate and remove the valance plates.

Disconnect the speedometer cable at the gearbox.

Disconnect the earthing strip between the voltage regulator and the chassis frame at the connection on the chassis frame.

**On S1 cars,** disconnect the oil pipe between the Centralised Chassis Lubrication pump fitted to the bulkhead and the junction box on the chassis frame.

**On all cars,** remove the screws securing the rear wheel arch extensions to the wheel arch and remove the extensions.

Disconnect the leads to the shock damper solenoids and the fuel level indicator unit at the snap connectors adjacent to these components.

Remove each body mounting bolt and lift off the body, taking care not to damage the paintwork, trim or fittings.

If a new body is to be fitted it will be necessary to remove from the old body all the components and fittings which can be used again, and to fit them to the new body.

## Description of Body Mounting

Each fully floating rubber mounting, on which the standard saloon body is supported, must carry the proportion of weight for which it is designed.

A body mounting carrying more than its share of weight is liable to give a metal-to-metal effect, while an underloaded body mounting causes additional weight to be carried by the other mountings.

It is essential that the body be correctly mounted, otherwise excessive noise and vibrations will be produced. Care should be taken to ensure that lubricant does not contact the mounting rubbers at any time otherwise the mechanical properties of the rubber will be destroyed.

**On some early S1 cars,** when doors have not fitted correctly, it has been necessary to adjust the body mounting below the door pillar. **On later cars** however, it is most important that the body mounting is not disturbed, unless the complete mounting procedure is carried out.

The mounting procedure consists mainly of attaching pneumatic rams to the body mountings and ensuring that the body is free to pivot axially about No. 1 mountings.

The pneumatic rams are connected in series to a compressed air supply, thereby ensuring that an equal load is applied to each body mounting; this enables it to assume its correct position within the vertical limits of the slots in the chassis brackets.

The mountings are then locked in position by means of setscrews, the rams removed and the centre mounting bolts tightened.

## Body — to mount

Attach the rubber mounting assemblies to the frame, using only three setscrews for each assembly; do not tighten the setscrews. In place of the fourth setscrew insert a short stud to serve as an indicator as shown in Figure S54.

Ensure that the cradles are free to move in the chassis brackets, then lower the body onto the frame so

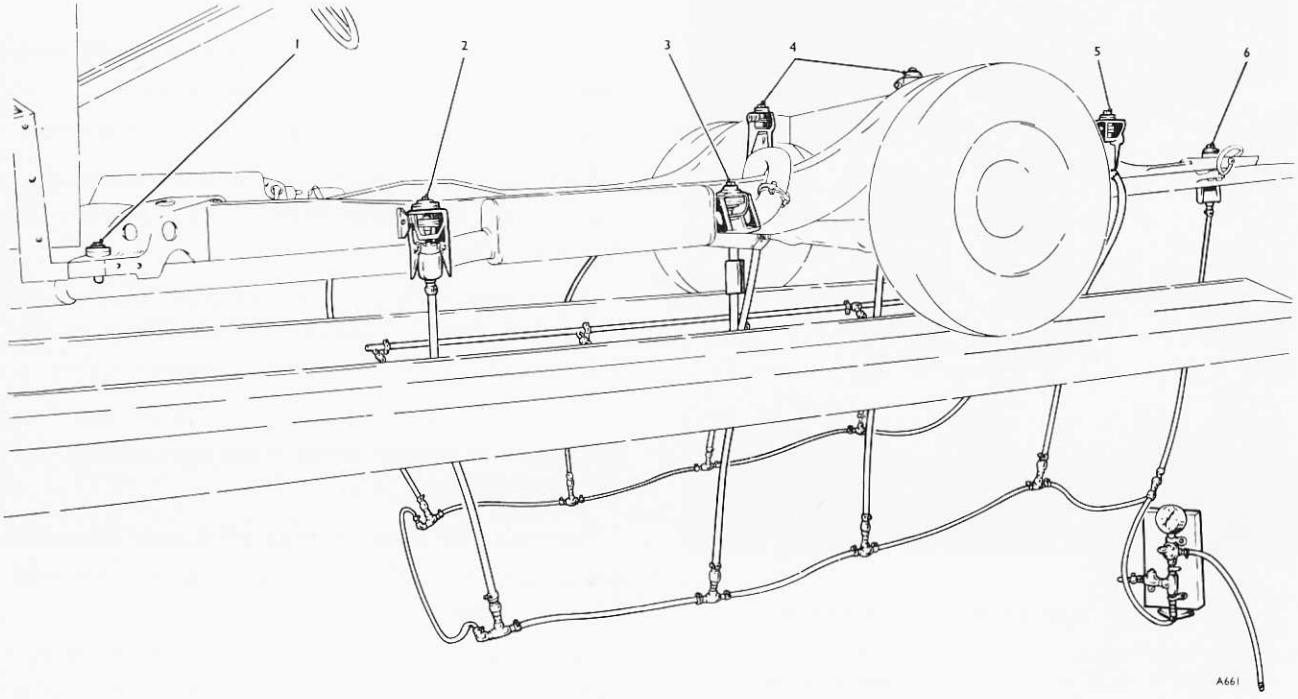


**Fig. S56 Pneumatic rams in position**

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that the pedal gap plate is centralised with the steering column.

When mounting an untrimmed body, ballast should be used to bring the body to its final unladen weight; the ballast should be arranged to resemble the final load pattern as closely as possible.

For the standard saloon completely without trim, arrange the ballast as follows.

Junction of floor and toe board
2 @ 56 lb. (25·4 kg.) weights

In line between centre pillars
2 @ 56 lb. (25·4 kg.) weights

In line along the front edge of rear seat pan
4 @ 56 lb. (25·5 kg.) weights

On luggage boot floor immediately forward of battery and tool tray aperture
2 @ 56 lb. (25·4 kg.) weights

Bodies which are trimmed do not require ballast, but if the car is complete and remounting is necessary the following parts should be disconnected from the body before releasing the body mounting bolts.

Remove the front doors as described in Sections S2 and S4 and unscrew the setscrews which retain the wings to the body at the front door post.

Disconnect the bonnet, front wings and valances by slackening the bolts securing them at the scuttle.

Disconnect the steering column from the body and chassis frame as described in Chapter N.

The body can then be raised and pivoted freely about No. 1 body mountings as necessary.

Fit the centre bolts to No. 1 mountings but do not yet tighten them, then if necessary fit sufficient washers to obtain approximately $\frac{5}{8}$ in. (1·59 cm.) clearance between the body and the frame brackets.

Should the clearance between body and frame be greater on one side than the other, initial correction should be made at No. 1 mountings.

Assemble the remainder of the side mountings and fit the rams in position under the mountings as shown in Figures S54 and S56.

Operate the pressure release valve and check whether the rams deflate smoothly; adjust the restrictor if necessary.

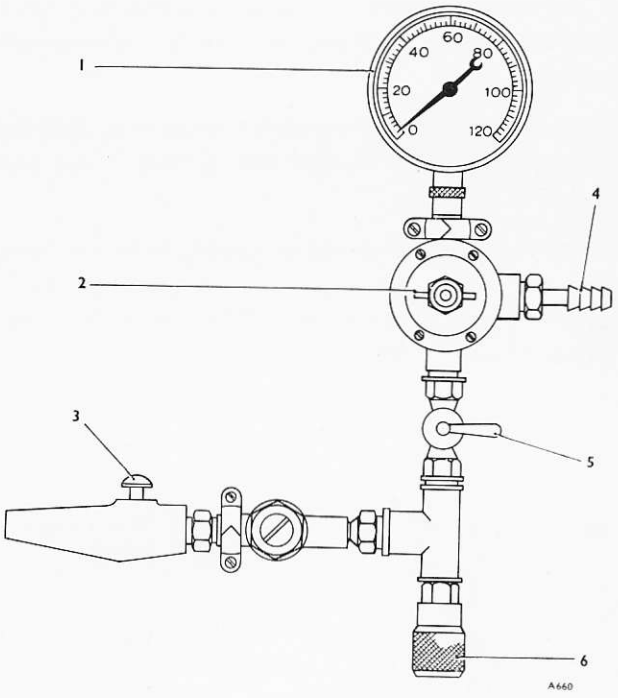


**Fig. S57 Regulator for the pneumatic rams**

1. PRESSURE GAUGE
2. PRESSURE REGULATOR
3. AIR RELEASE BUTTON
4. INLET FROM SUPPLY
5. STOP VALVE
6. OUTLET TO PNEUMATIC RAMS

Inflate and deflate the rams several times to ensure that the body will rise and lower freely and evenly, whilst pivoting about the No. 1 mountings.

Greater movement will be noted at the rear than at the front.

Turn the stop valve tap, on the pneumatic ram regulator, to the open (vertical) position, then adjust the air pressure by means of the regulator, to read 80 lb/sq.in. (5·625 kg/sq.cm.) on the pressure gauge; check the system for air leaks.

**Note:** Should attention be required to only one body mounting, it is not necessary to deflate all the rams, as each ram is provided with an air valve.

After having made an adjustment it is not necessary to alter the controls in order to compensate for loss of pressure, because air losses are automatically replaced by means of the pressure release valve.

Adjustment should be made to obtain a general clearance of $\frac{5}{8}$ in. (1·59 cm.) between the body and the frame.

**On S1 cars,** it is of particular importance that the clearance over the gearbox bell housing is not less than $\frac{5}{8}$ in. (1·59 cm.).

Packing washers should be used between the body and the mounting to position the indicator studs approximately in the centre of the slot in the frame bracket (see Fig. S54).

Adjustment should be made if necessary by means of shim washers.

**On standard S1 and S2 cars,** fit the two centre mountings positioned behind the centre of the cruciform and **on all cars,** fit the rear centre mounting, using packing washers as necessary. When the centre bolts are finally secured, the rubbers should not be under compression.

After mounting the body, remove the ballast weights

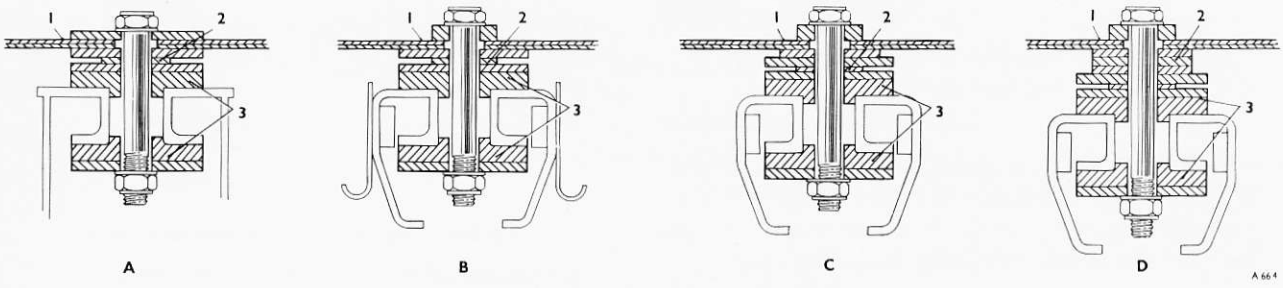


**Fig. S58 Body mountings for coupe body**

A. No. 1 MOUNTINGS B. No. 2 AND 4 MOUNTINGS C. No. 3 AND 5 MOUNTINGS D. No. 6 MOUNTINGS

1. BODY 2. ADJUSTING WASHERS 3. STEEL SPACING FLANGES

Should the indicator stud bear on the top of the slot, further adjusting washers are required; if the stud bears on the bottom of the slot, adjusting washers should be removed to obtain the desired result.

With the air pressure maintained at 80 lb/sq.in. (5·625 kg/sq.cm.), tighten the three setscrews in each mounting assembly, then remove the indicator stud and replace it by a setscrew.

Release the air pressure and remove the rams.

Tighten the centre bolts of all mountings and check that the vertical clearance of Nos. 1, 2 and 4 rubbers is between zero and 0·010 in. (0·254 mm.) as shown in Figure S53.

if these have been used, and fit the various components, reversing the procedure used for the removal.

## Coupe Body

The mounting procedure for coupe bodies is the same as for standard bodies, but instead of rubber mountings, solid mountings are fitted (see Fig. S58).

**Note:** Should damage occur as the result of an accident, which is not sufficient to necessitate removal of the body, the body mounting brackets both on the chassis and the body should be corrected to the dimensions shown in Chapter P and the body mounted as previously described.

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## SECTION S13 — ACCIDENT REPAIRS

The body shell fitted to **standard S1 and S2 cars** is formed from deep drawn sheet steel.

Damage to the body shell is usually of a localised nature and in such cases replacement of the appropriate section may be more satisfactory than extensive re-shaping.

Figures S59 and S60 illustrate typical cutting lines and available replacement sections; the broken lines indicate spot welding which may be drilled or cut away.

Welding repairs can be carried out using an ordinary gas torch.

A suitable filler for use after welding is lead with Fryolux flux and Russian Tallow used on the paddle to smooth the filler.

Care should be exercised when applying heat to sheet metal as prolonged heat will cause distortion.

### 'Birmabright' Aluminium Alloy

The luggage boot lid, doors, bonnet and fuel filler door **on standard S1 and S2 cars** are all manufactured from 'Birmal' Sheet BB-3.

This is a light, non-corrosive aluminium alloy containing magnesium.

Small welds and fillings may be carried out with excellent results, but care should be taken when applying heat, as prolonged heating is apt to cause surface distortion which cannot be beaten out satisfactorily.

Therefore when damage is extensive it is advisable to fit a new panel.

Should it be necessary to carry out small welding repairs, the following materials are required:

| | |
|---|---|
| Welding rod | 'Birmabright' No. 2 |
| Flux | Welding flux for aluminium and its alloys |
| Filler | 'Birmetal Filzall' |
| Lubricant | Aluminium powder |

These materials can be obtained from Messrs. Birmabright Ltd., who also offer a complete kit containing a S.I.F. welding torch, three wooden paddles, an electric paddle and a supply of consumable materials.

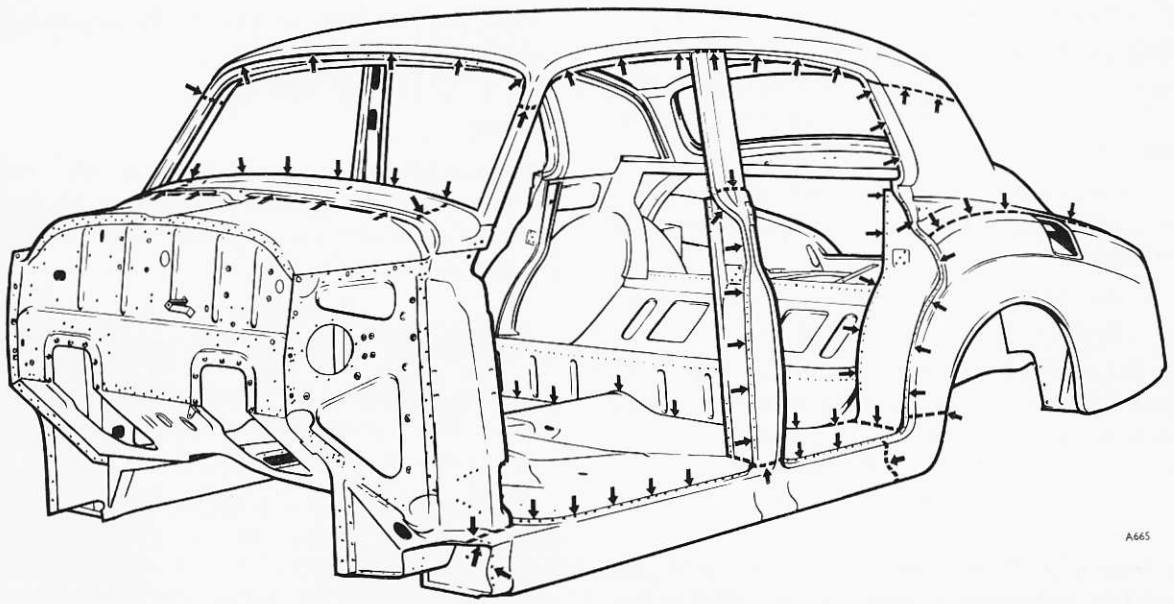


**Fig. S59 Body cutting diagram — three quarter front view**

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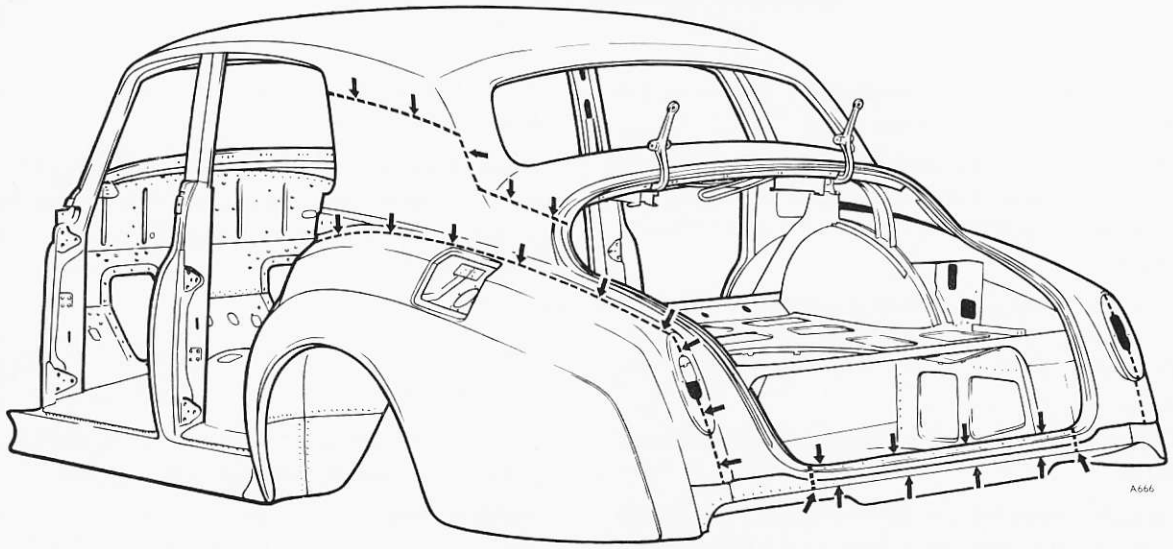

Fig. S60 Body cutting diagram — three quarter rear view

## Welding

The welding procedure employed closely resembles that used for pure aluminium, but the welding rod specified above must be used.

The 'leftwards' technique should be adopted and after initial 'tacking', the weld should be completed as quickly as possible in one run.

Using a cellulose stripper, remove the paint where necessary, then clean with wire wool the edges which are to be welded, for a width of not less than $\frac{1}{2}$ in. (13 mm.) on each side.

Mix a small quantity of flux with water until a smooth stiff paste is obtained, then brush it onto the cleaned edges.

Clean the welding rod with wire wool and brush on the flux paste.

If a British Oxygen Company or a S.I.F. torch is to be used, fit a No. 2 nozzle or its equivalent if another make is to be used. Adjust the flame so that it is slightly reducing; that is, so that it has a slight excess of acetylene. The flame should also be smooth and quiet.

At intervals of 2 in. (5·08 cm.) to 4 in. (10·16 cm.) tack weld the edges then, working from right to left, complete the weld in one run.

Do not quench the weld to cool, it should be allowed to cool naturally.

When cool, wash off any surplus flux using hot water and a scrubbing brush; owing to the strong corrosive nature of the flux, it is essential that all traces are removed.

Dress the repaired part with a file, then rub down and paint in the normal way.

## Filling

'Birmetal Filzall' is a thermal plastic resin containing 75 per cent aluminium powder and 25 per cent synthetic resin and has a melting point of approximately 120 deg. C.

It should be applied in a similar manner to that for normal metallic solders and little heat is required.

If heat is applied by means of an oxy-acetylene flame, it should be neutral and soft; only the tip of the outer flame should contact the metal.

In order to provide a rough surface to enable the filler to adhere, remove the paint where necessary using a cellulose stripper, then thoroughly clean the surface with coarse glasspaper; cleaning with a wire brush is not sufficient.

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Apply a thin coat of filler over the whole of the working surface; to ensure good adhesion, heat the surface then allow the 'Filzall' stick to melt by contact with the heated surface. Do not apply the flame directly onto the 'Filzall' stick.

Build up the surface with filler whilst playing the flame over the coated area.

Care should be taken not to overheat the filler, otherwise it will turn brown and small holes will appear on the surface.

Level off the filler with a wooden paddle, after covering the paddle with aluminium powder to prevent sticking.

The electric paddle enables the filling to be applied without the aid of a flame and requires no aluminium powder as a lubricant. It is possible to obtain a smooth surface which requires only a little hand dressing before painting.

When the filler is cold, feather the edges with a file and rub down in the usual way.

If a sanding disc is used for rubbing down, use the reverse face of the disc and apply light pressure with the edge of the disc to produce a glaze by friction.

A further aid to body repairs has been the introduction of certain catalytic fillers. When one of these fillers is to be used, it is advisable to adhere strictly to the manufacturer's instructions.

As a general rule the manufacturers stipulate that the paint should be stripped from the metal surface, and the metal thoroughly cleaned before applying the filler to the surface.

## Paintwork

The painting of Rolls-Royce and Bentley cars is far too complex a subject for the scope of this Workshop Manual.

Due to the many varied materials available for car paintwork re-finishing, it is suggested that the choice of both materials and the method of painting be left to the people concerned.

The need for meticulous attention to detail should be stressed, in order to achieve the high quality finish expected.

Should difficulties arise, information can be obtained from the Paint and Plastics Laboratory, Rolls-Royce, Crewe.

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# SECTION S14 — ACCESSORIES

## Sun Visors

**On early S1 cars** a Belleville washer was fitted to the sun visors, this was later replaced by a wave washer.

The procedure for replacing this washer and also re-setting the friction poundage is stated below.

Care should be taken when dismantling the pivot assembly to note how the parts are fitted, as correct assembly and adjustment is most important.

Remove the sun visor from the car and dismantle the pivot assembly, discard the Belleville washer and replace it by a wave washer and a plain washer as shown in Figure S61.

Using 'Molytone' or Retinax 'A' grease, liberally smear the pivot assembly and lightly smear the Ferodo friction pad to prevent surface chafing, then assemble the unit as shown in Figure S61.

Hold the sun visor bracket in a vice and attach a spring balance to the edge of the blade, then measure the pull required to move the visor blade; the correct load on the spring balance should be $2\frac{1}{2}$ lb. (1·13 kg.).

Tighten the adjusting nut until the spring balance reads approximately 2 lb. (0·91 kg.), then further tighten the adjusting nut until the correct loading is obtained.

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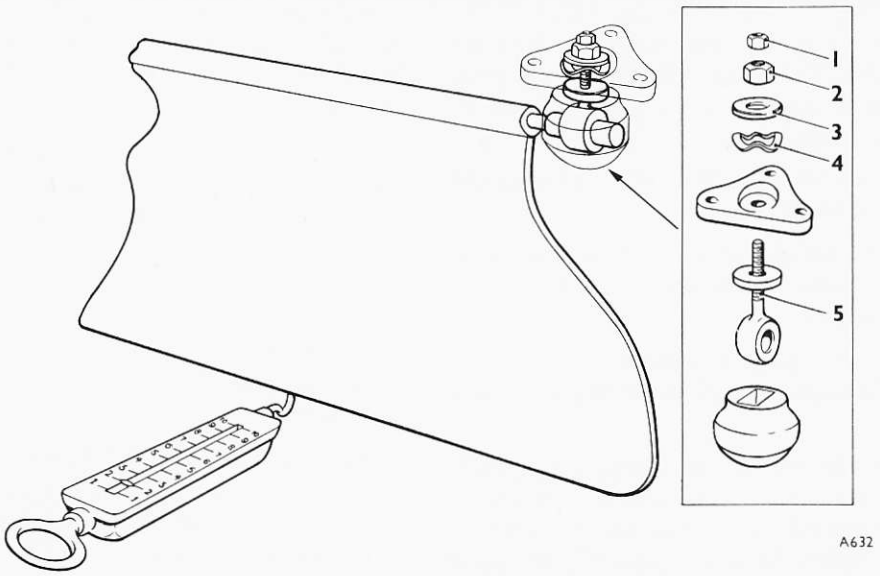


**Fig. S61 Sun visor assembly and method of checking the poundage**

1. LOCK-NUT
2. ADJUSTING NUT
3. PLAIN WASHER
4. WAVE WASHER
5. EYEBOLT

## Companion Set Mirrors — to remove

Before proceeding to remove the mirrors, remove the bulb from each box and from the right-hand box remove also the cigar lighter, then proceed as follows.

Unscrew the three screws securing each head squab and remove the head squabs; access to these screws is obtained via the luggage boot.

Detach the door sealing sufficiently to expose the three screws which secure the trim pad, then remove the screws.

Remove the hand pull, then carefully ease off the trim which is also secured by panel pins.

The trim will then fall away sufficiently for the wires to be disconnected. It should be noted that the purple wire is connected to the companion lamp and that the black and yellow is connected to the cigar lighter.

The three screws securing the box will then be visible; remove these screws, which are situated in the forward, rear and upper faces of the box; withdraw the box.

## Companion Set Mirrors — to fit

To fit the mirror and box, reverse the procedure for removal, noting the following points.

Paint around the edge of the glass with matt black enamel, then bind the back with black adhesive tape; this will provide a soft bed for the mirror and will reduce reflections of the surrounding woodwork.

Before clamping the mirror to the woodwork, seal all round with 1 in. (2·54 cm.) wide masking tape.

Complaints are occasionally received concerning oxidation of the silver and this is usually due to the 'dum-dum' which is used for dust sealing purposes; it is important that this should not be used adjacent to the mirror.

## Fuel Filler Door

When fitting a new rubber seal under the fuel filler door, it may be necessary either to trim the seal or to fit packing under it, to enable the door to fit flush with the wing.

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Failures are usually attributable to heavy loading on the electrically operated bolt.

To ensure correct operation of the bolt, check the alignment of the filler door, then slowly close the door to check that light pressure is necessary in order to compress the rubber seal before the bolt engages the tag.

Check the alignment of the engagement tag and if necessary re-position the bolt aperture.

This should be done either by packing out the tag or by elongating the aperture by filing.

Information regarding electrical actuation of the fuel filler door is contained in Chapter M.

## Safety Belts

'Irvin' safety belts are designed to conform to British Standard Specification 3254 and will withstand shock loads of 3000 lb. (1360 kg.). They are intended solely for fixing to cars with METAL floors and must not be attached to a wooden floor or to car seats.

On all cars the following types of 'Irvin' safety belts have been approved:

Front seats: 'Irvin' diagonal and lap safety belt.

Rear seats: 'Irvin' lap safety belt.

The safety belts can be supplied in four colours: grey, red, green or fawn. They are supplied in the form of a kit and instructions for fitting them follow later in this section.

## Front Seat Belts

The 'Irvin' diagonal and lap safety belt comprises two sections of 2 in. (50·8 mm.) wide nylon or terylene webbing and attached to each section is one part of a two-piece light alloy fixing buckle. The two parts of the buckle are designed so that they can be easily connected to form a harness to hold the wearer securely in the seat, and can be quickly released either by the wearer or, in an emergency, by another person. The ends of one section of the belt are securely fixed to shackles bolted to the car floor and the centre door pillar. The other section of the belt is firmly anchored to the car floor on the opposite side of the seat.

## Rear Seat Belts

The 'Irvin' lap belt is manufactured from the same material as the front seat belts and is fitted with the same type of quick-release buckle. The belt comprises two sections which can be buckled across the wearer's lap to form a continuous belt. The two sections of the belt are securely anchored to the rear seat floor.

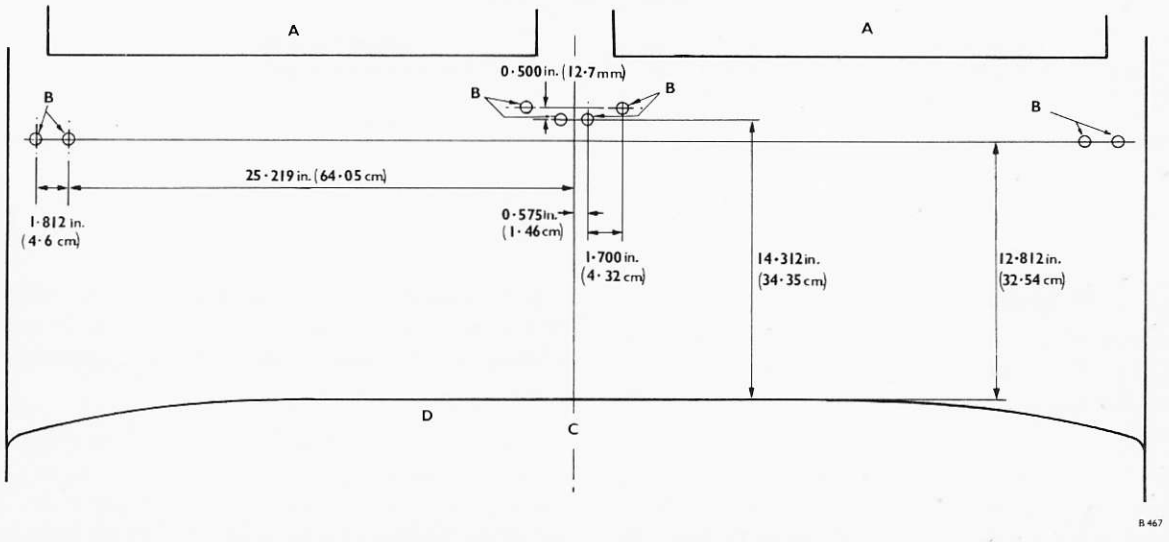


**Fig. S62 Dimensions for drilling holes for front seat shackles — standard S1 and S2 cars**

A. FRONT SEATS
B. 8 HOLES 0·312 in. (0·792 cm.) DIA.
C. CENTRE LINE OF CAR
D. REAR SEAT PAN

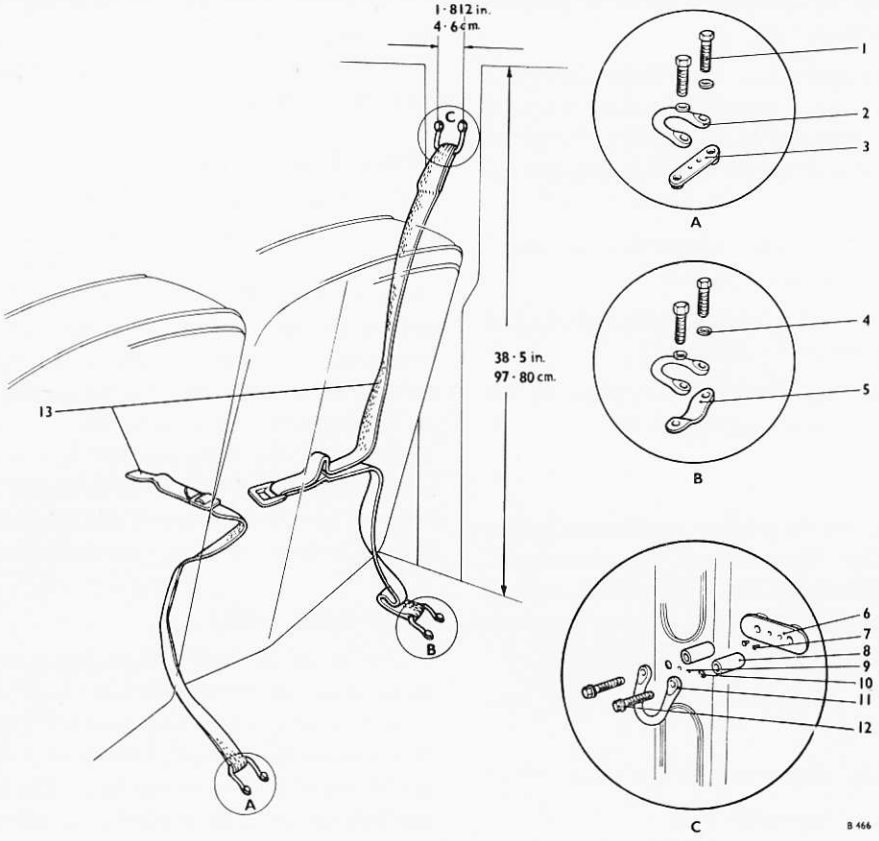


**Fig. S63 Positions for front seat safety belts and shackles — standard S1 and S2 cars**

1. SETSCREW
2. SHACKLE
3. ANCHOR PLATE
4. PLAIN WASHER
5. STIFFENER
6. ANCHOR PLATE
7. SELF-TAPPING SCREW
8. DISTANCE PIECE
9. 2 HOLES 0·140 in. (0·356 cm.) DIA.
10. 2 HOLES 0·328 in. (0·833 cm.) DIA.
11. SHACKLE
12. SETSCREW
13. SAFETY BELT

## Front Seat Belts — to fit

**Standard S1 and S2 cars.** Move the front seat forward to its fullest extent and remove the rear carpet so that the positions for drilling the holes are easily accessible.

Working to the dimensions given in Figure S62 drill eight $\frac{5}{16}$ in. (7·93 mm.) dia. holes in the car floor. The two outer left-hand holes will pass through the exhaust heat shield and care should be taken not to drill through the front silencer box which is positioned directly below the heat shield.

It is necessary to drill four holes in the plate welded to the centre door post, but before this can be accomplished the trim pads must be removed as follows:

Disconnect the battery.

Prise the rubber seals from both sides of the door posts at a point approximately 4 in. (10·16 cm.) from the underside of the roof sill. Remove the two screws securing the trim pad to each side of the door post, then remove the pad. Before the right-hand trim pad can be removed it will be necessary to remove the roof lamp switch and disconnect the leads.

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Place a cloth in the centre channel of the door post to prevent swarf dropping inside the channel, then working to the dimensions given in Figure S63 drill two $\frac{21}{64}$ in. (8·334 mm.) dia. holes in the plate welded to the door post. Drill two further holes, $\frac{9}{64}$ in. (3·572 mm.) dia., at $\frac{13}{16}$ in. (20·637 mm.) centres, and equally spaced to the larger holes, so that they correspond with the holes in the anchor plate (see Fig. S63). When drilling these holes care should be taken to avoid damaging the wiring looms inside the door posts.

Place the anchor plate inside the door post channel and secure it to the welded plate on the door post with two No. 8 self-tapping screws.

The trim pad must also be drilled so that two distance pieces can be inserted between the belt shackle and the door post. Screw two short $\frac{5}{16}$ in. U.N.F. studs into the anchor plate, then fit the trim pad into position and press it against the door post and the two studs. When the trim pad is removed, a clear impression of the two studs will be seen. Using these indentations as centres, drill two holes $\frac{9}{16}$ in. (14·3 mm.) dia. through the trim pad.

To ensure that the belts are fitted in their correct positions lay them on the seats in the positions that they will occupy when in use.

Fit the six shackles through the loops formed in the belts so that when fitted the four shackles fitted to the floor will slope forwards and the two shackles fitted to the door posts will slope downwards as shown in Figure S63.

The shackle fitted to the left of the car centre line is to secure the right-hand safety belt and the shackle fitted to the right of the car centre line is to secure the left-hand safety belt; this ensures a more direct pull on the shackles.

To ensure that the shackles seat firmly on the car floor, cut the felt away from the areas around the holes.

Place the two centre shackles over the appropriate holes in the floor and insert the four $\frac{5}{16}$ in. U.N.F. fixing bolts and washers from inside the car.

Place the two anchor plates A (see Fig. S63) in position under the floor and screw in the four securing bolts.

Place the outer left-hand shackle in position then insert a $\frac{5}{16}$ in. U.N.F. bolt which is long enough to pass through the shackle, car floor and heat shield. Screw the bolt into the stiffener plate B (see Fig. S63).

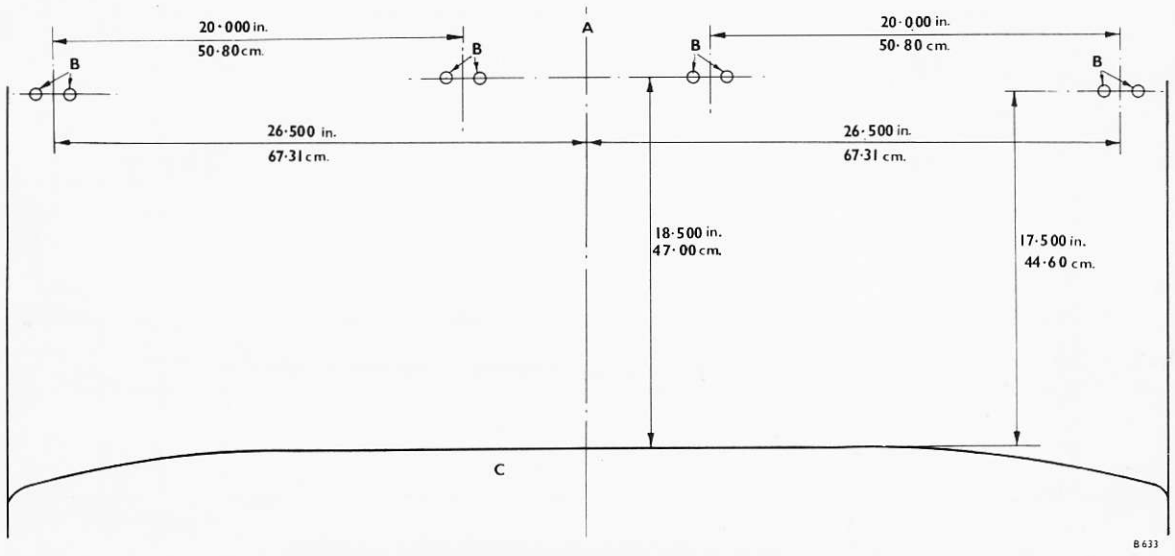


**Fig. S64 Dimensions for drilling holes for front seat shackles — Long Wheelbase cars with division**

A. CENTRE LINE OF CAR B. 8 HOLES 0·312 in. (0·792 cm.) DIA.
C. REAR SEAT PAN

With the aid of the bolt, pull the stiffener upwards until the heat shield touches the underside of the floor. Line up the stiffener plate and screw in a bolt of the correct length through the other hole. Remove the long bolt and replace with a washer and bolt of the correct length.

Similarly position the outer right-hand shackle and screw the two $\frac{5}{16}$ in. U.N.F. bolts and washers into the stiffener plate. It should be noted that the two bolts used on the left-hand shackle are $\frac{1}{4}$ in. (6·35 mm.) longer than those used on the right-hand shackle.

Cut three slots in the carpet to accommodate the shackles; one for each outer shackle and one for the two inner shackles. The two outer slots should run to the edge of the carpet so that it can be removed when necessary without removing the safety belts. Bind the edges of the slots with leather to prevent the carpet from fraying.

Fit the trim pads to the door posts, reversing the procedure for their removal. Secure the rubber seals with 'Bostik' 1261 adhesive. Fit the roof lamp switch and connect the battery. Place the two distance pieces into the holes in the trim pad, then secure the shackles with two $\frac{5}{16}$ in. U.N.F. bolts. Ensure that the distance pieces are of the correct length, otherwise the wooden trim pad may be crushed when the bolts are tightened.

**Long Wheelbase Cars with Division.** The method of fitting safety belts to the front seats of long wheelbase cars differs very slightly to that for the standard saloons. Because of the difference another part number is used for kits supplied for use on long wheelbase cars.

Remove both the front seats, the driver's seat will slide off whereas the passenger's seat is secured by four setscrews to which access can be gained by removing the cushion.

Remove both door post trims as described in **Front Seat Belts — to fit — Standard S1 and S2 Cars.** Drill the post and fit the shackle as previously described. It will be noted that the distance pieces used on long wheelbase cars are longer than those on the standard saloons. The length of the distance pieces to be used is 1·5 in. (3·81 cm.).

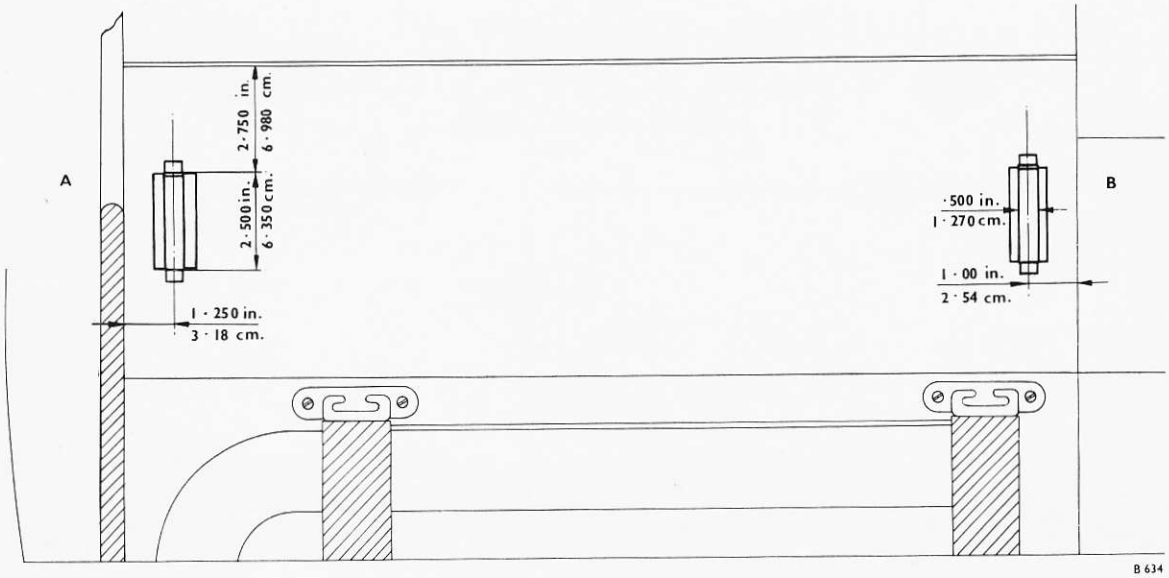


**Fig. S65 Dimension for cutting slots in sloping metal panel at the rear of the front seats — Long Wheelbase cars with division**

A. FRONT SEAT FINISHER
B. COVER FOR THE DIVISION ELECTRIC MOTOR

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The floor should then be drilled to the dimensions given in Figure S64.

Four slots 0·500 in. × 2·500 (1·27 cm. × 6·35 cm.) must be cut in the metal panel behind the front seats.

The dimensions for these are given in Figure S65; after cutting the slots the edges should be covered with either leather or rubber to prevent chafing of the belts.

When all holes have been drilled or cut the belts should be fitted as follows:

Ensure that the belts are fitted in the correct positions by laying them on the seats in the positions they will occupy when in use.

Fit the shackles through the loops formed in the belts so that when fitted the four shackles fitted to the floor will slope forwards and the two fitted to the door post slope downwards.

It will of course follow that due to the 1·5 in. distance pieces being used, a 2·375 in. (6·03 cm.) long bolt will also have to be used in the door post.

The shackle fitted to the left of the car centre line is to secure the left-hand safety belt. This is unlike the standard cars where the belts cross to give a more direct pull.

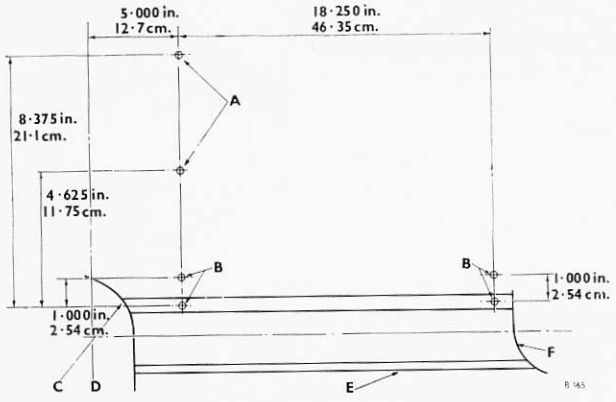


**Fig. S66 Dimensions for drilling holes for rear seat 'U' bolts and stiffening brackets — S1, S2 and Long Wheelbase cars**

A. 2 HOLES 0·250 in. (0·635 cm.) DIA.
B. 4 HOLES 0·312 in. (0·792 cm.) DIA.
C. DEPRESSION FOR REAR AXLE CENTRE CASING
D. CENTRE LINE OF CAR
E. SEAT PAN STIFFENER
F. REAR WHEEL ARCH

Cut the felt away from the areas around the holes in the floor to ensure that the shackles seat firmly.

Fit the shackles to the floor and post as described in **Front Seat Belts — to fit — Standard S1 and S2 Cars.**

It will also be necessary to cut four slots out to the nearest edge of the carpet to enable the carpet to be removed whilst leaving the safety belts in position. After cutting the slots, bind the edges of the carpet to prevent fraying.

Fit the trim pads to the door posts, reversing the procedure given for their removal. Secure the door seals with 'Bostik' 1261 adhesive. Place the two distance pieces into the holes in the trim pad, then secure the shackles with two $\frac{5}{16}$ in. U.N.F. bolts. Ensure that the distance pieces are of the correct length otherwise the wooden trim pad may be crushed when the bolts are tightened.

**Long Wheelbase Cars without Division.** The method of fitting front safety belts to cars without a division is very similar to that for standard cars, except that in Figure S62, 4 in. (10·16 cm.) should be added to the dimensions from the rear seat pan.

The run of the belts is also the same as that for standard cars, i.e. the shackle fitted to the left of the car centre line is to secure the right-hand safety belt and the shackle fitted to the right of the car centre line is to secure the left-hand safety belt; this ensures a more direct pull on the shackles.

## Rear Seat Belts — to fit

**Standard S1, S2 and Long Wheelbase cars.** To fit the rear safety belts it is necessary to remove the rear seats, squabs and centre arm rest.

Remove the felt from the seat pan, then working to the dimensions in Figure S66 drill eight $\frac{5}{16}$ in. (7·43 mm.) dia. holes and four $\frac{1}{4}$ in. (6·35 mm.) dia. holes in the seat pan. The holes drilled slightly to the left of the car centre line will pass through the rear heat shield.

Fit the two stiffeners 2 (see Fig. S67) to the underside of the seat pan and secure them in position with four $\frac{1}{4}$ in. U.N.F. bolts, washers and nuts.

Place the safety belts in the position they will occupy when in use, then thread the four 'U' bolts through the loops in the belt.

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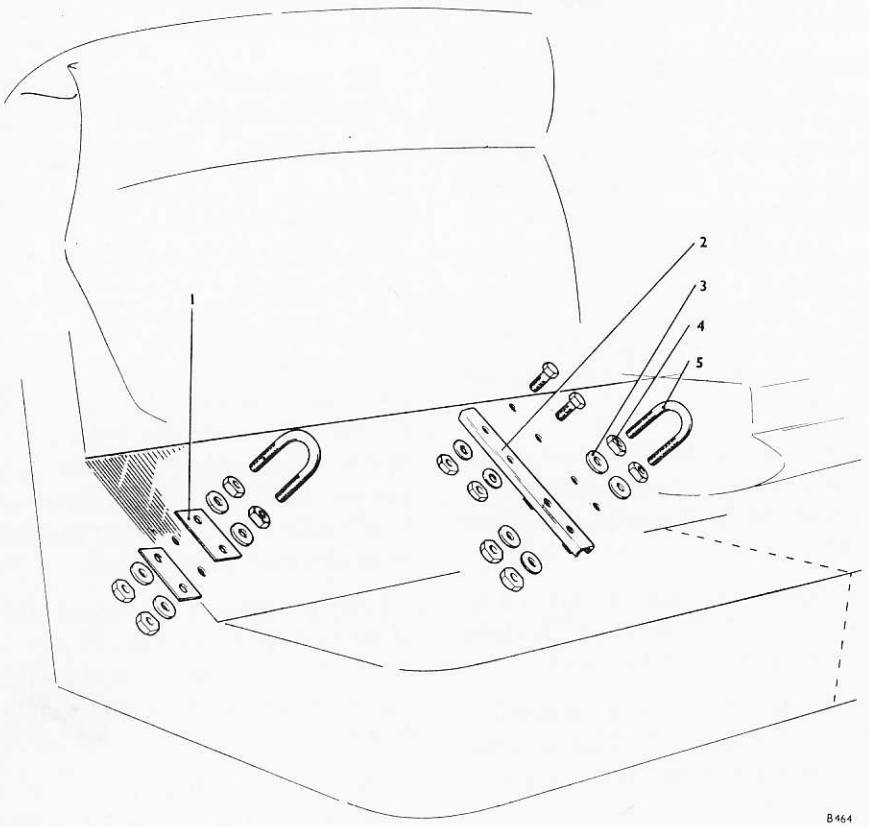


**Fig. S67 Rear seat belt fixtures—S1, S2 and Long Wheelbase cars**

1. RETAINING PLATE
2. STIFFENING BRACKET
3. PLAIN WASHER
4. NUT
5. 'U' BOLT

Fit nuts and washers to the 'U' bolts, then insert the two centre 'U' bolts through the seat pan and stiffener brackets. Secure them in position with further nuts and washers. Ensure that the nuts are tightened both above and below the seat pan and stiffener bracket.

Fit retaining plates 1 (see Fig. S67) to each of the outer 'U' bolts and then insert them through the appropriate holes in the seat pan. Fit further retaining plates to the 'U' bolts securing them with nuts and washers (see Fig. S67). Again ensure that the nuts are tightened both above and below the stiffener plates.

Cut slots in the felt around the 'U' bolts and stick the felt to the seat pan with 'Bostik' 87 AA adhesive.

Fit the centre arm rest seat and squabs, allowing the safety belts to pass between the base of the seat and the squabs.