

Saab 900

SERVICE MANUAL



SAAB

8:1 Body, body repairs

M.1979 - 1991

Body repairs

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Body repairs

In all of the body repairs described below, exposure is necessary to enable the work to be done in a rational fashion without damaging other parts of the car not involved in the repair.

Group 8 of the service manual, Body, contains descriptions of how to remove door trim and interior fittings, seats and seat cushions.

When replacing side panels and front fenders, a decision has to be made in each individual case as to which parts need to be removed.

In the case of more extensive jobs, such as replacement of wheel housing where the power train has to be removed, reference has been made to group 2:1, Basic Engine.

The different relevant sections are referred to at the beginning of the work descriptions.

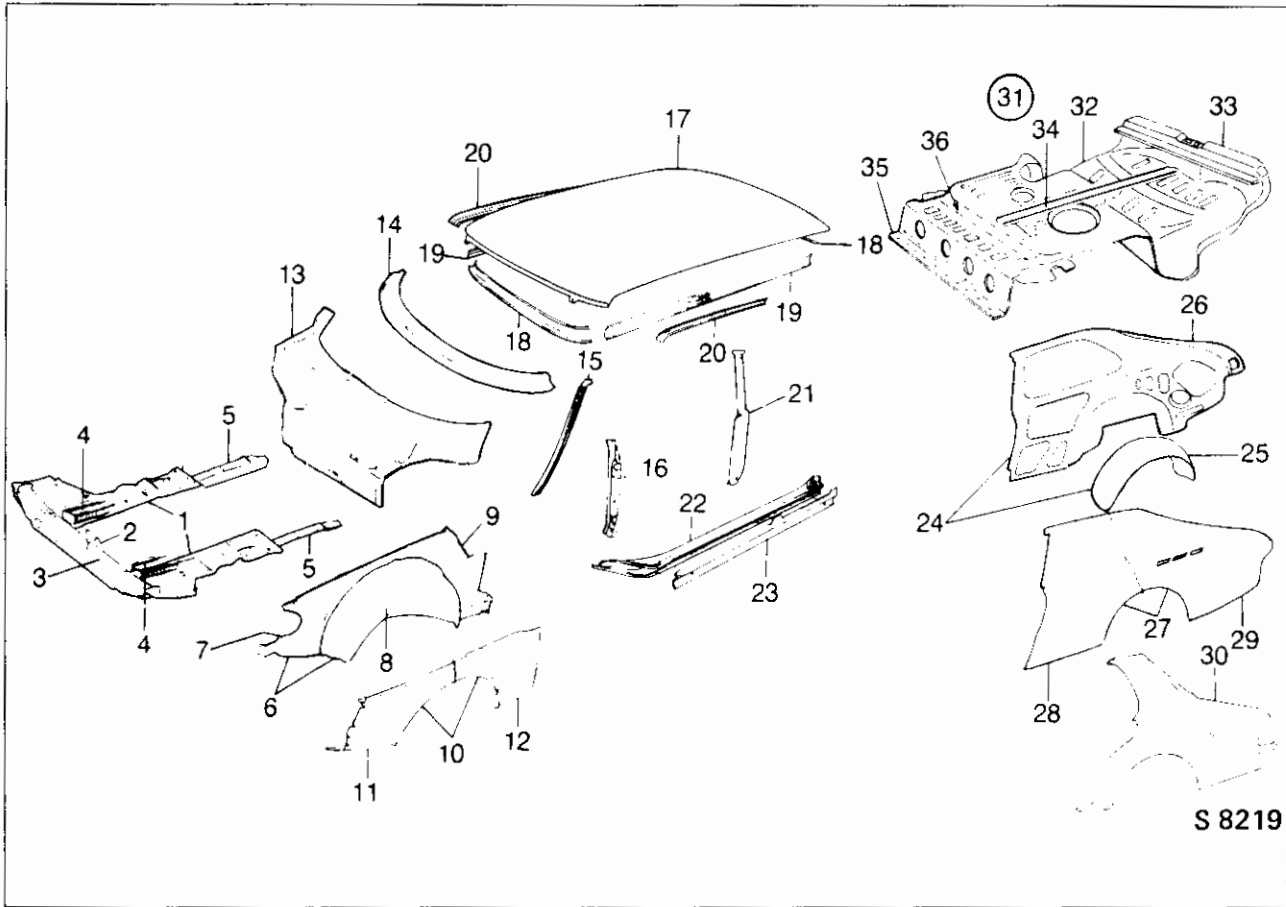
In only a few parts need to be removed, they are enumerated.

Finishing

After sanding and blowing clean with compressed air, primer is applied to the sanded surfaces. Haftgrund is recommended for this purpose.

Polyurethane-based sealant, which is also available paintable, is used for sealing of joints. Spray with PVC substitute on those places where the underbody compound has been scraped away and needs to be replaced.

The following procedure is recommended for filling joints: Loadbearing parts such as pillars shall be filled with tin filler, along with all edges. Otherwise plastic can be used.



Economy spares

dividing line for economy spares ----

Examples of parts included in the body that are available as spares.

- | | |
|---|---|
| <ul style="list-style-type: none"> 1. Front floor, left and right sides 2. Front floor, middle 3. Engine member 4. Impact-absorbing members 5. Reinforcement members, under floor 6. Front wheel housing, cpl. 7. Front wheel housing, inner section 8. Front wheel housing, outer section 9. Wheel housing panel 10. Front fender 11. Front fender, front economy spare 12. Front fender, rear economy spare 13. Bulkhead 14. Windshield member 15. Front pillar 16. Panel, front pillar 17. Roof panel 18. Roof members, front and rear 19. Side members 20. Roof members 21. Rear pillar 22. Sill, inner section 23. Sill, outer section 24. Rear wheel housing, cpl. 25. Rear wheel housing, outer section | <ul style="list-style-type: none"> 26. Wheel housing bracket 27. Outer valance, 3-door Combi Coupé 28. Outer side panel, front economy spare 29. Rear side panel, 4-door Sedan and 5-door Combi Coupé 31. Rear floor, cpl. 32. Rear floor panel 33. Sill 34. Impact-absorbing member 35. Cross member 36. Transverse reinforcement member |
|---|---|

Welding and treatment

Welds with safety requirements

The welds at a number of points on the body must be sufficiently strong to withstand the torsional stresses and loads that can arise in connection with a collision.

Remember that:

- Welding primer shall be applied between the panels to prevent corrosion from attacking and weakening the sheet metal around the weld.
- The new panel shall be attached with at least as many spot welds as the original part had.
- Continuous welds shall be as long as and located in the same position as the welds on the original part.
- All welds must be properly fused.

Joining panels

If the damage is of such a nature that it is economical to replace a portion of a panel rather than the complete panel, this is possible.

Note!

Some sections of the underbody are treated with underbody sealant of the polyester type.

When welding is carried out in the polyester compound, gases are emitted that are hazardous to inhale. Heat the compound from the back of the panel in the weld area and remove it with a steel putty knife.

Always use a local exhaust device during welding work or wear a respiratory protector (filter face mask).

Remember that the joint should be positioned:

- Where the welding length is as short as possible.
- Where the joint is the least visible.

Panels shall always be joined with a continuous weld unless otherwise stipulated.

Surface treatment in conjunction with sheet-metal repairs

It is important that surface treatment also be performed on those places that are not accessible during the painting work.

Examples are cavities, sheet-metal joints and metal surfaces to which filler has been applied.

Materials (welding primer, sealants, filler etc.)

Always use well-known brands for example Teroson or similar, and follow the manufacturer's instructions carefully. It is advisable to consult with the paint shop to make sure that suitable materials are used that will be compatible with the subsequent surface treatment.

Cleaning

It is important that an effective cleaning agent be used to ensure that grease and excess welding primer is removed from the metal so that paint, sealant and filler will adhere properly.

Welding primer

Welding primer shall be applied to the edges of the metal before they are welded together. Sand off the paint from the edge of a new section to ensure good electrical contact. Grind the matching surface so that old spot welds are smoothed out. Remove all traces of paint, oxide and corrosion from the metal. Clean the surfaces of the metal and apply primer immediately. Clean off any excess primer after welding.

Note!

Welding primer on the metal provides a poor key for filler, sealant and paint.

Paintable sealant

Metal seams and joints sealed from the factory shall be resealed after repair with polyurethane so that water cannot enter the joints, or the car through the joints. Clean the metal surface around the joint or seam.

Important

It is difficult to get good paint coverage on the edges of the metal, with the result that corrosion may soon set in. This makes it even more important that the folded metal edges on doors and the luggage compartment lid, for example, also be thoroughly covered.

Plastic filler

Fill up small irregularities in the surface of the metal to achieve a smooth surface. Mix the filler and hardener thoroughly. Apply the filler and work it from all directions. Hold the putty knife at a right angle to the metal surface to ensure even distribution of the filler. Repeat the procedure if additional layers are required. Clean the surface thoroughly, mix the filler, apply it and work it in carefully.

Important

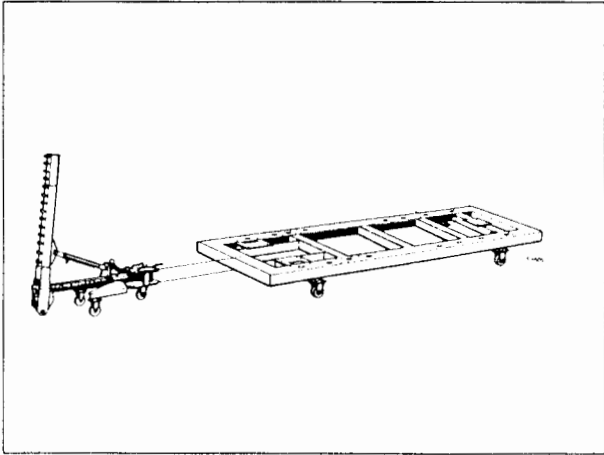
Clean the surface with solvent before each application of filler. Even small traces of oil from the skin can cause blistering in the curing oven and impair the key. Do not use more hardener than required. Excess hardener will not be consumed in the curing process and will react with the finishing coat, causing discoloration. Always read and follow the manufacturer's instructions carefully.

Anti-corrosion treatment

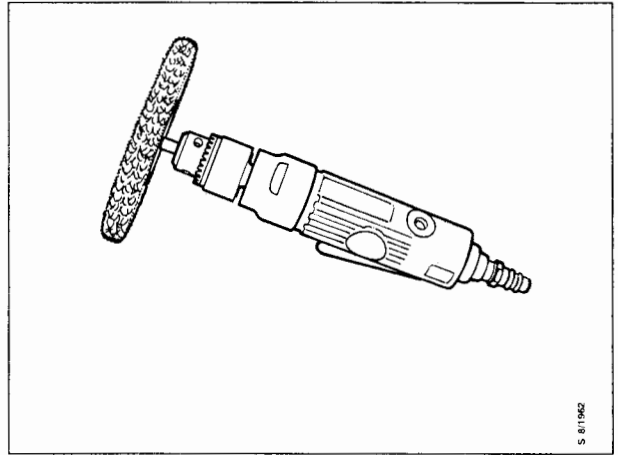
Cavities and metal joints should be treated with a thin (penetrating) anti-corrosion oil. The underbody should be treated with a thick (non-penetrating) anti-corrosion oil. It is advisable to treat the most vulnerable areas, such as wheel housings and the undersides of the sills, with polyester/PVC underseal.

Anti-corrosion treatment should be carried out after the body has been painted. The anti-corrosion oil contains a naphtha-based solvent which usually evaporates slowly; but the evaporation process is speeded up in the curing oven, with the risk that the solvent will settle out on painted surfaces, causing poor adhesion. Moreover, the anti-corrosion oil might seep through joints, causing the paint to lift.

Tools and materials

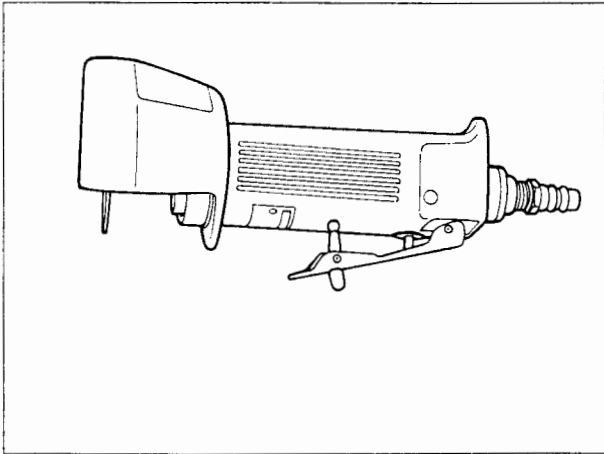


Aligning bench for body alignment

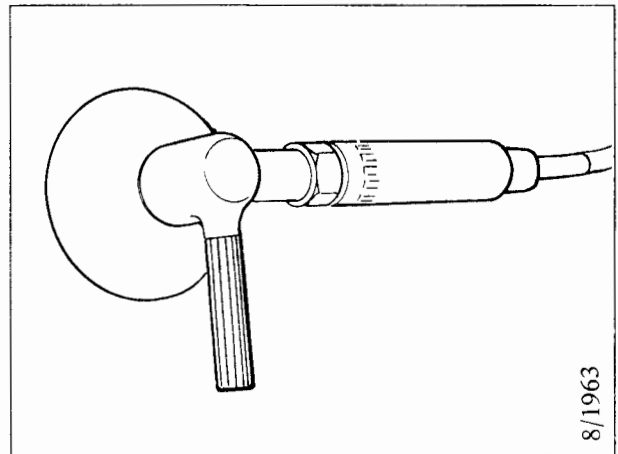


Grinder with wheel for removal of paint coating

S 8/1962

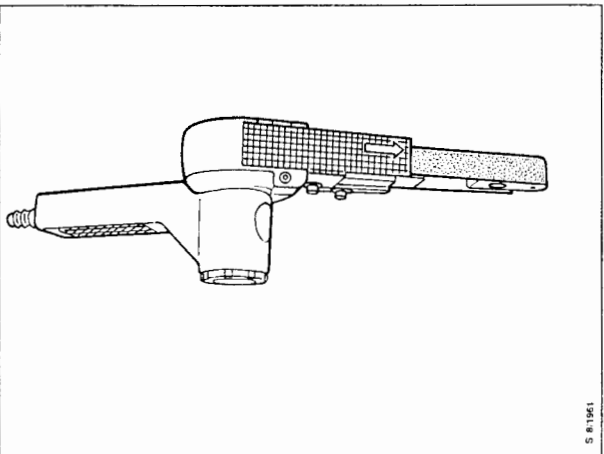


Grinder with wheel for grinding and cutting



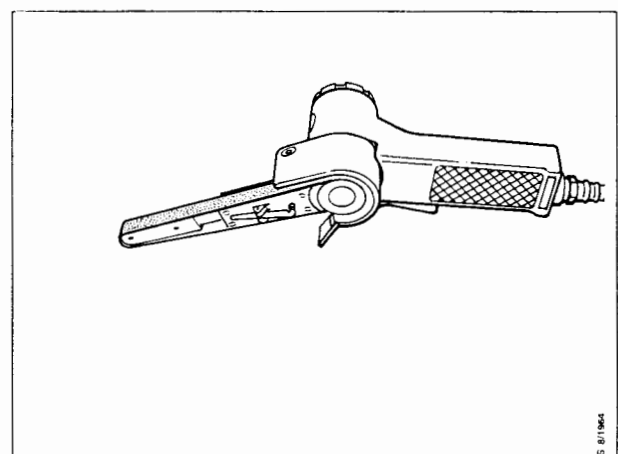
Angle grinder for grinding of welded joints

8/1963



Belt grinder with wide belt

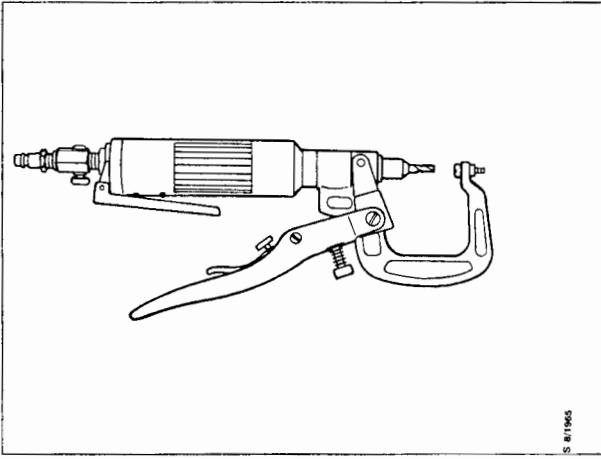
S 8/1964



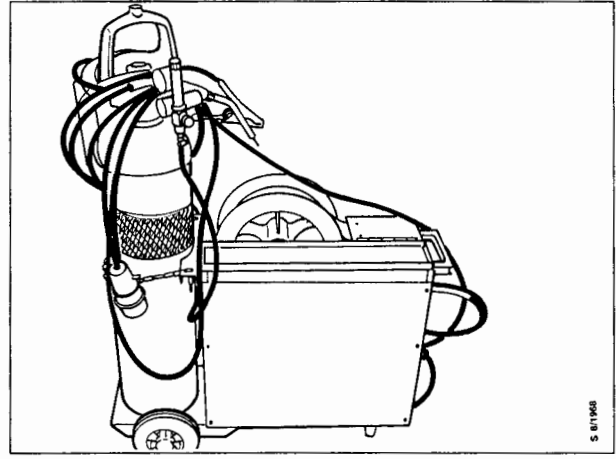
Belt grinder with narrow belt

S 8/1964

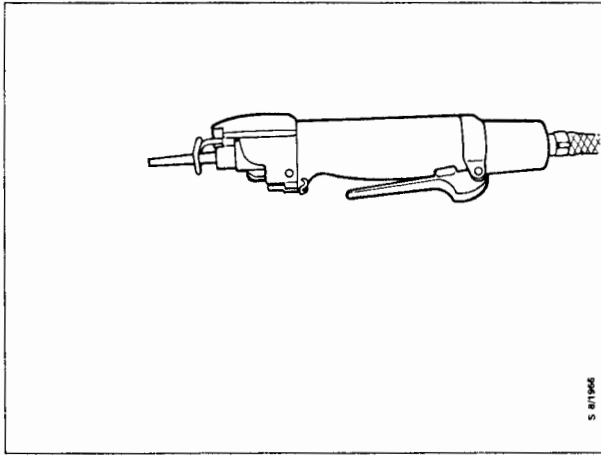
6 Body repairs



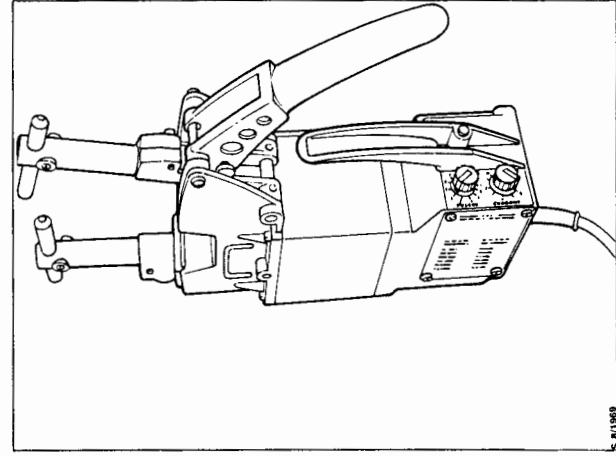
Spot weld drill



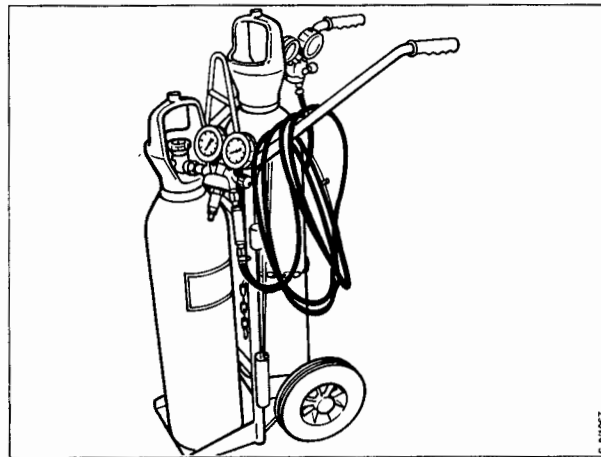
MAG welder



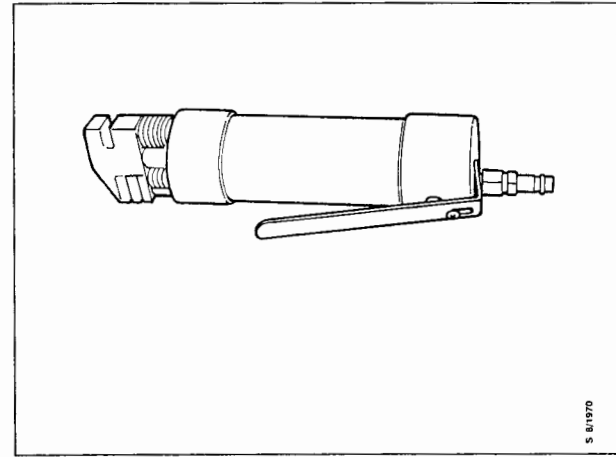
Saber saw



Spot welder



Gas welder for welding and cutting



Punch tool

Plastic filler

Welding primer

Primer

Knife for removal of underbody compound

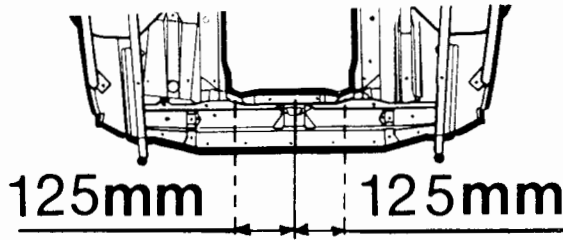
Cabinet file

Truing-up tool for alignment work

Joining

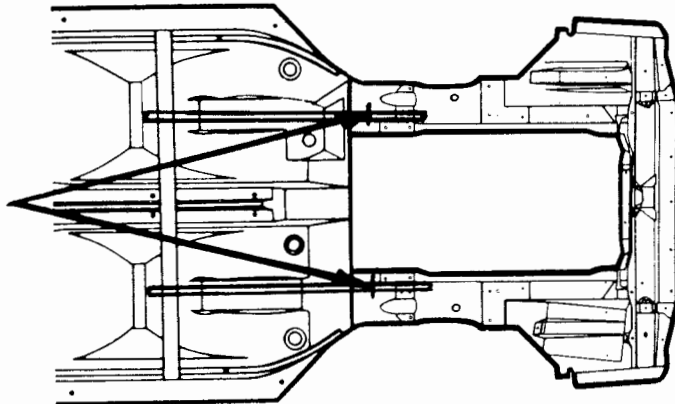
On the following parts, joining may only be done at marked zones.

Engine member

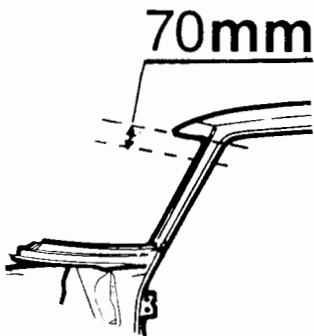


No joints within this zone from the engine mounting

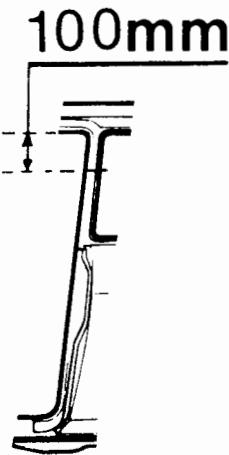
Reinforcement member under floor



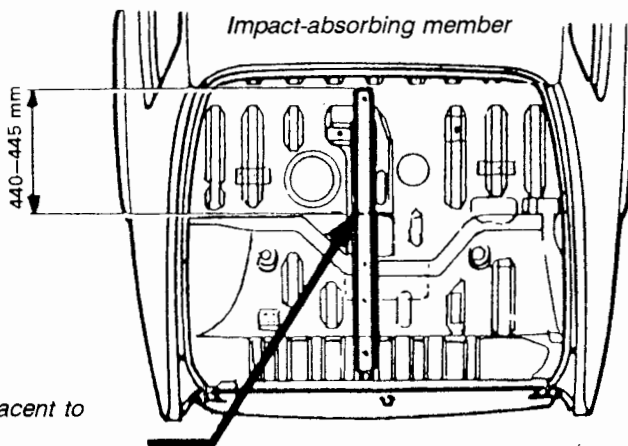
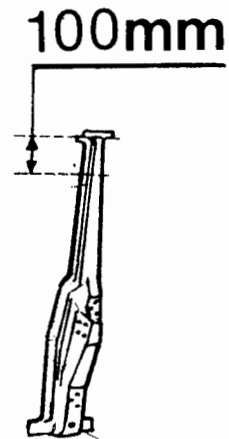
Joints may only be made forward of square members



Front pillar



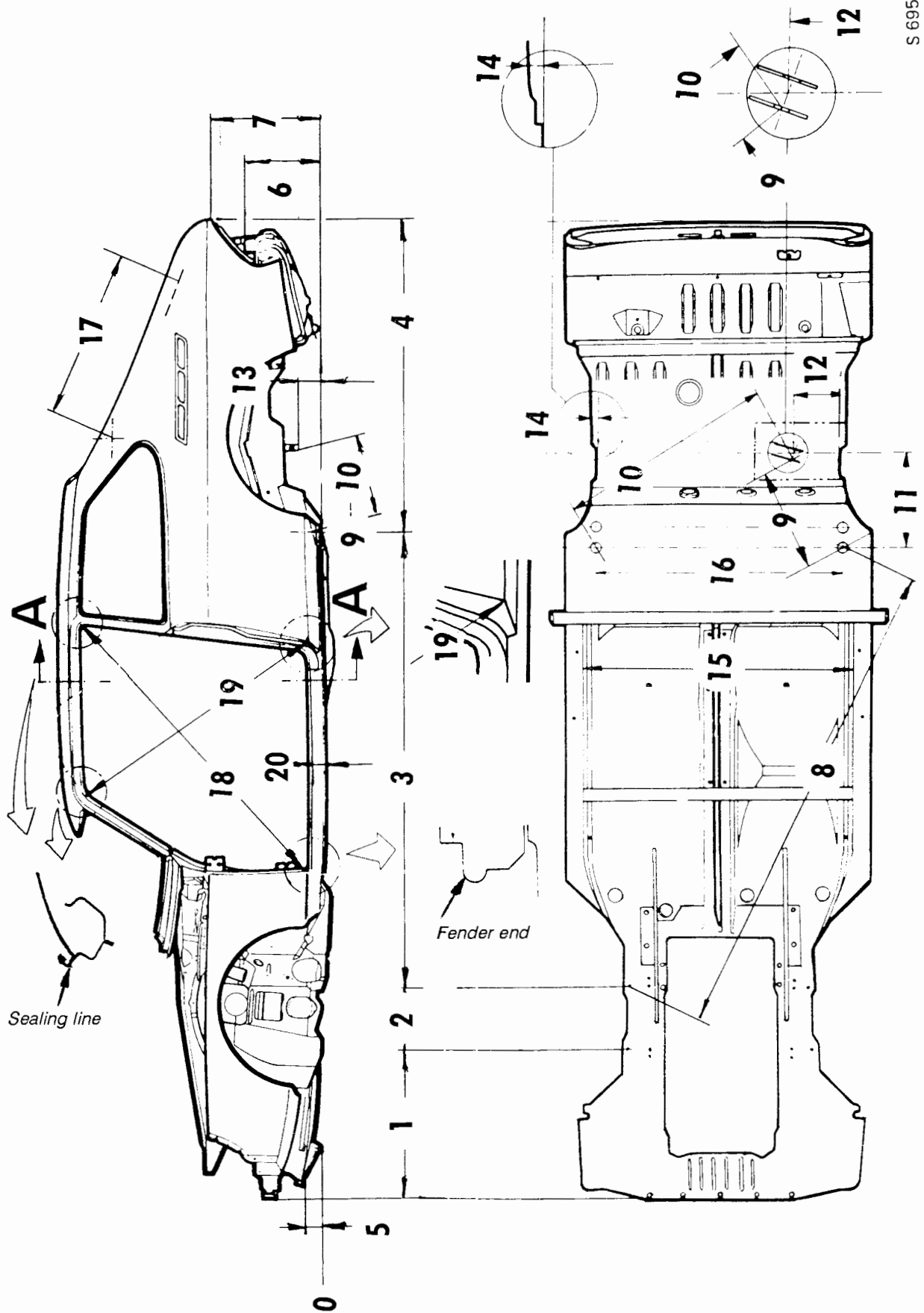
Rear pillar



A joint may be made adjacent to the floor panel

S 8/023

Reference data



S 6952

Reference data for checking body dimensions

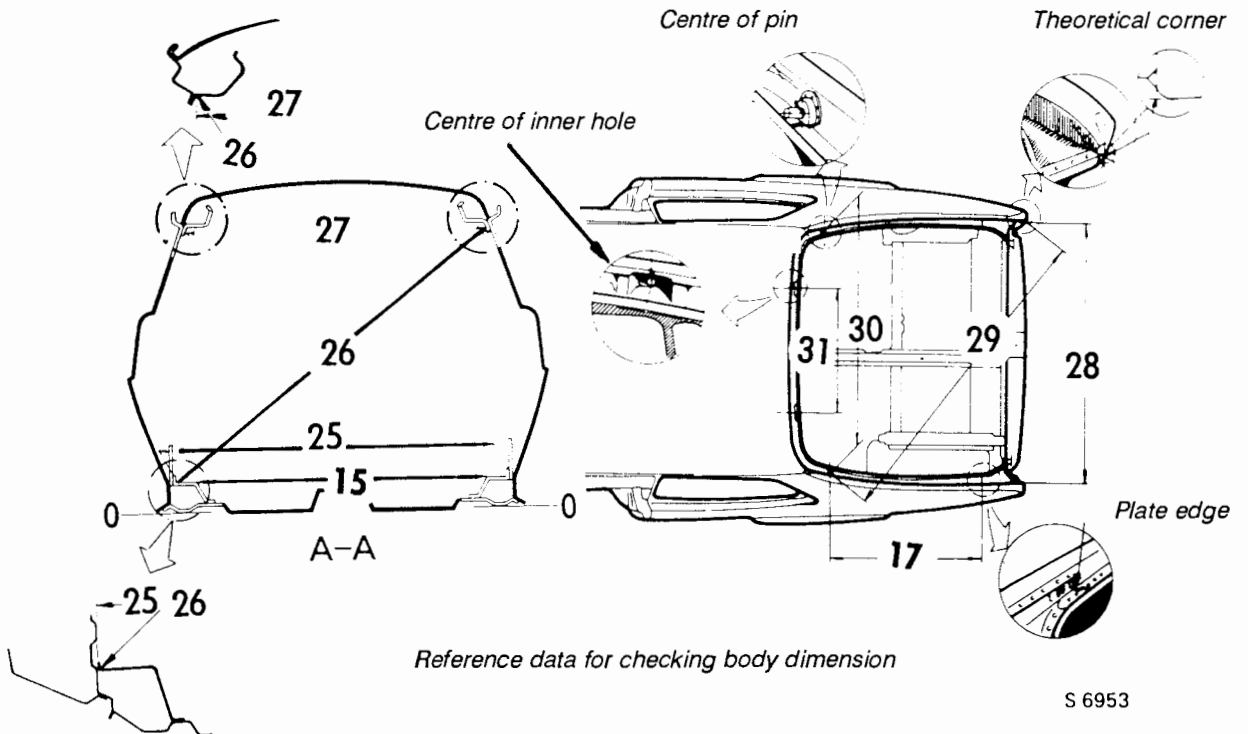
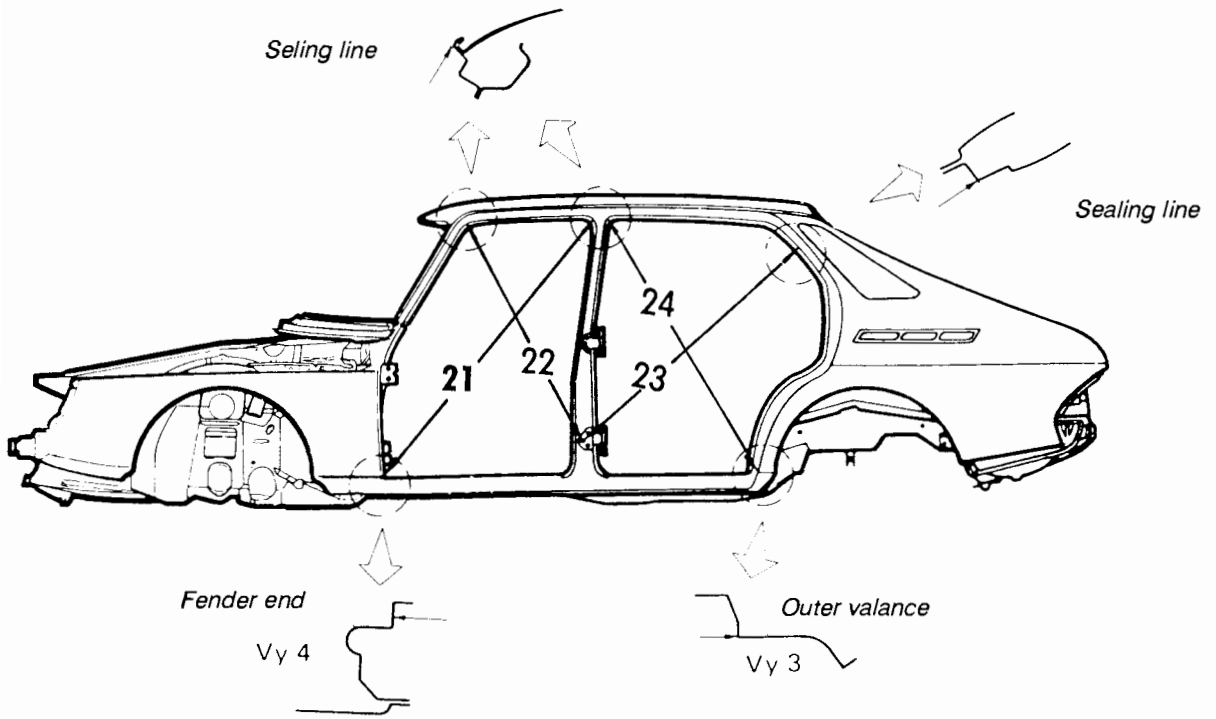
Checking body dimensions

If any part of the body has had to be renewed or straightened, it is important to check the measurements of the door openings and the attachment points of the sus-

pension and power unit. Diagonal measurements should also be made to check that there is no residual skew or asymmetry after repairs.

Item	Dimension (inches and millimetres)	Measuring point
0		Parallel to sill beam, 80 mm below top of sill
1	26.31 \pm 0.12 in (668.3 \pm 3 mm)	3 Bumper hole 1 - control arm hole 1
2	10.60 \pm 0.04 in (299.2 \pm 1 mm)	3 Front and rear control arm holes 1
3	76.04 \pm 0.08 in (1931.5 \pm 2 mm)	3 Control arm hole 1 - front spring link hole 1
4	57.81 \pm 0.16 in (1468.5 \pm 4 mm)	3 Front spring link hole 1 - rear edge of waist line
5	3.26 \pm 0.04 in (82.9 \pm 2 mm)	5 Horizontal reference line - edge of panel (with five central holes for spoiler)
6	11.81 in (300 mm)	5 Horizontal reference line - top of rear sill scuff plate
7	19.84 in (504 mm)	5 Horizontal reference line - extreme rear of waist line
8	84.16 \pm 0.12 in (2137 \pm 3mm)	2 Diagonally between rear, outer control arm hole 1 - front hole 1 in spring link
9	17.64 \pm 0.08 in (448 \pm 2 mm)	2 Front hole in left spring link 1 - front hole 1 in side member mounting
10	38.84 \pm 0.12 in (986.6 \pm 3 mm)	2 Front hole 1 in right spring link - front hole 1 in side member mounting
11	16.40 \pm 0.12 in (416.5 \pm 3 mm)	3 Front hole 1 in spring link - side member centre
12	5.67 \pm 0.08 in (144 \pm 2 mm)	4 Plate edge in recess - side member mounting (centre line of hole mid-way between holes)
13	5.35 \pm 0.08 in (136 \pm 2 mm)	5 Horizontal reference line - side member mounting 1
14	1.30 \pm 0.06 in (33 \pm 1.5 mm)	4 Recess, rear floor
15	46.46 \pm 0.16 in (1180 \pm 4 mm)	4 Top edge inside sill beam
16	41.73 \pm 0.12 in (1060 \pm 3 mm)	4 Spring link attachment hole
17	33.07 in (840 mm)	2 Spindle in pneumatic spring (centre) - edge of rear door guttering
18	57.36 in (1457 mm)	6.2 Diagonal, door opening (view 1-view 4)
19	47.13 in (1197 mm)	6.2 Diagonal, door opening (view 1-view 5)
20	3.15 in (80 mm)	5 Horizontal reference line - top of sill beam

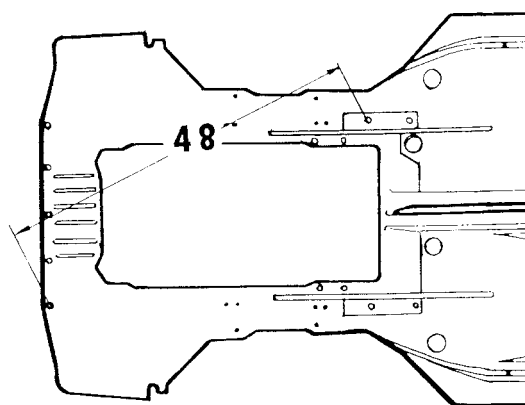
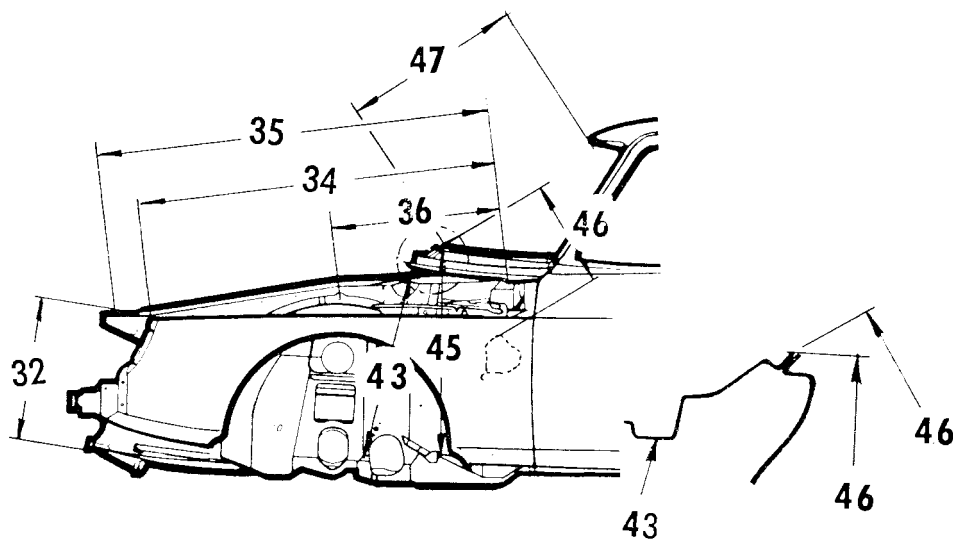
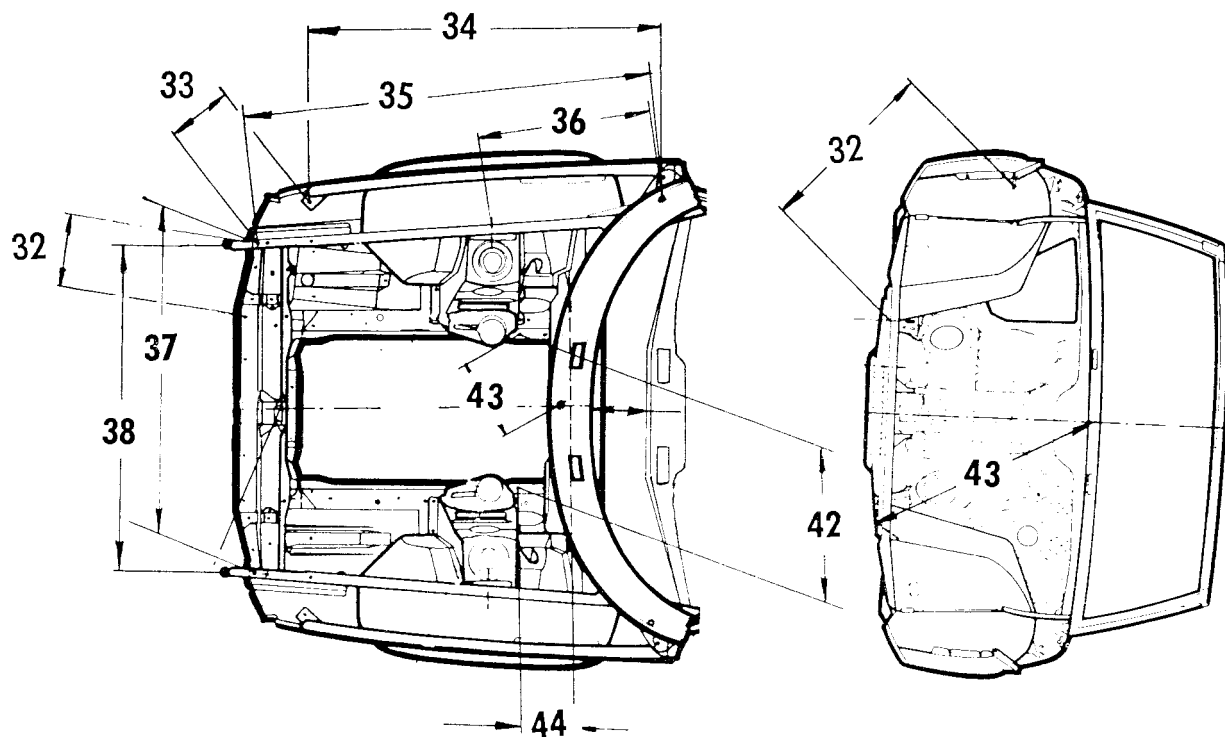
- | |
|---|
| 1 Centre of hole |
| 2 Actual dimension |
| 3 Coordinate measured along x axis (longitudinal) |
| 4 Coordinate measured along y axis (lateral) |
| 5 Coordinate measured along z axis (vertical) |
| 6 Tolerance giving best door fit |



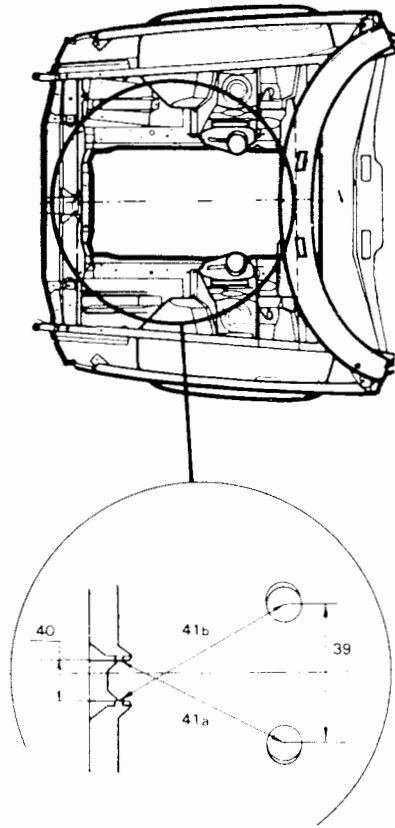
S 6953

Item	Dimension (inches and millimetres)		Measuring point
15	46,46 \pm 0,16 in (1180 \pm 4 mm)	4	Top edge inside sill beam
17	33,07 in (840 mm)	2	Spindle in pneumatic spring (centre) -edge of rear door guttering
21	51,54 in (1309 mm)	6,2	Diagonal, door opening (view 1-view 4)
22	38,19 in (970 mm)	6,2	Diagonal, door opening (view 1 - front hinge hole 1)
23	43,27 in (1099 mm)	6,2	Diagonal, door opening (front hinge hole 1 -view 2)
24	45,55 in (1157 mm)	6,2	Diagonal, door opening (view 1 - view 3)
25	52,60 \pm 0,16 in (1336 \pm 4 mm)	4	Inside of sill beam flange
26	62,80 \pm 0,12 in (1595 \pm 3 mm)	2	Lower, inside edge of sill beam flange - upper, inside edge of roof side member flange
27	45,35 \pm 0,08-0,24 in 1152 \pm $\frac{2}{6}$ mm)	4	Upper, inside edge of roof side member flange
28	48,82 in (1240 mm)	4	Inside of door opening, level with waist line
29	64,9 in (1628 mm)	2	Diagonal, spindle in pneumatic spring (centre) -rear edge of door opening, level with waist line
30	45,83 in (11,64 mm)	4	Width measurement, pneumatic spring spindles
31	23,62 in (600 mm=	2	Width measurement, hinge pivot (centre of inner hole)

- 1 Centre of hole
2 Actual dimension
3 Coordinate
measured along x axis (longitudinal)
4 Coordinate measured along
y axis (lateral)
5 Coordinate
measured along z axis (vertical)
6 Tolerance giving best door fit



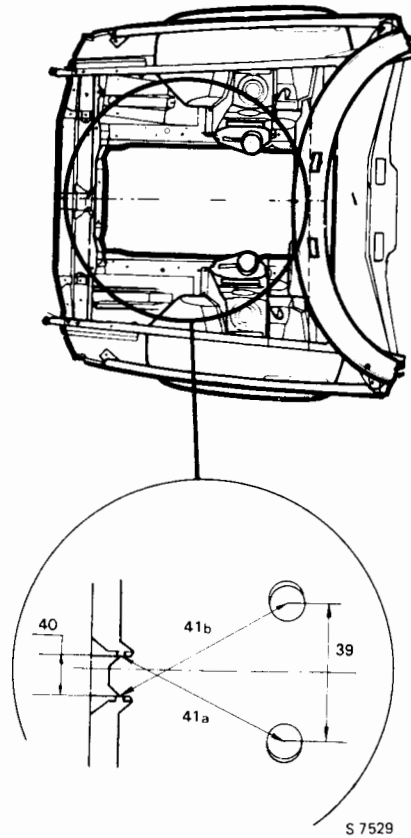
S 7528



Item	Dimension (inches and millimetres)		
32	19.25 ± 0.12 in (489 ± 3 mm)	2	Front hole 1, attachment to radiator member - outer hole 1 (of five spoiler attachment holes)
33	7.60 ± 0.08 in (193 ± 2 mm)	2	Front hole 1, attachment to radiator member - hole 1 in attachment lug
34	44.58 ± 0.08 in (1132.2 ± 2 mm)	2	Hole 1 in attachment lug - hole 1 in bulkhead guttering
35	50.36 ± 0.08 in (1279.1 ± 2 mm)	2	Front hole 1, attachment to radiator member - hole 1 in bulkhead guttering
36	21.88 ± 0.04 in (555.8 ± 1 mm)	2	Hole 1 in vertical section directly above wheel housing - hole 1 in bulkhead guttering
37	42.44 ± 0.12 in (1078 ± 3 mm)	4	Width measurement, front hole 1 for attachment of radiator member
38	41.89 ± 0.08 in (1064 ± 2 mm)	4	Width measurement, hole 1 for bumper
39	20.35 ± 0.08 in (516 ± 2 mm)	4	Width measurement, centre hole 1 for engine mounting (symmetrically related to the centre line) 1
40*	2.87 + 0.04/-0 in (73 + 1/-0 mm)	4	Width measurement, front engine mounting bracket (inside)
41a*	29.10 ± 0.8 in (739.2 ± 2 mm) **28.31 ± 0.08 in (719.3 ± 2 mm)	2	Diagonal, centre hole for left rear engine mounting - opposite hole 1 in front engine mounting (1)
41b*	29.58 ± 0.08 in (731 ± 2 mm) **28.78 ± 0.08 in (731 ± 2 mm)	2	Diagonal, centre hole for right rear engine mounting - opposite hole 1 in front engine mounting (1)

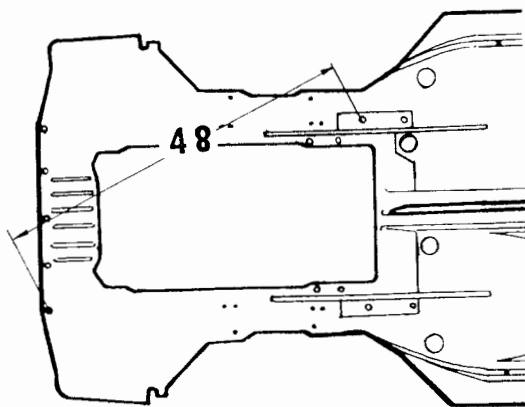
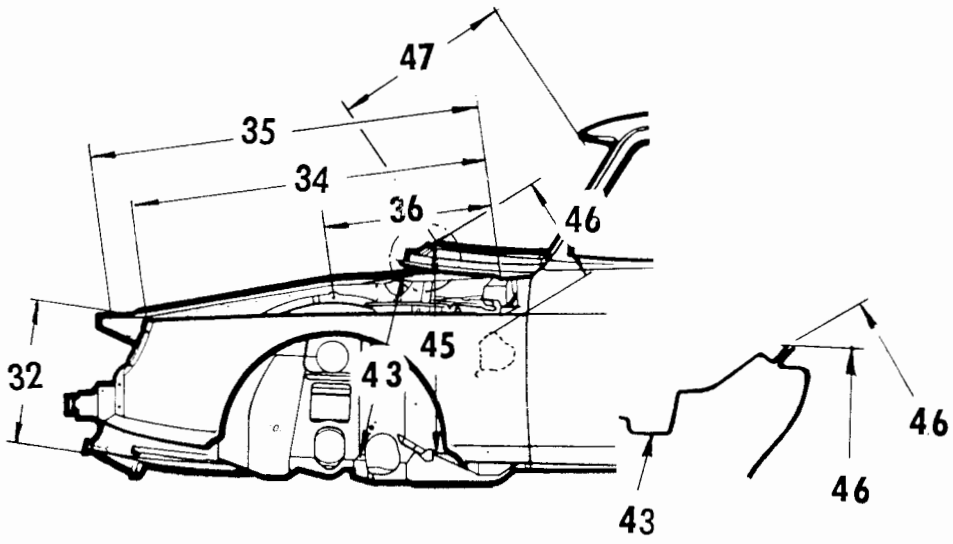
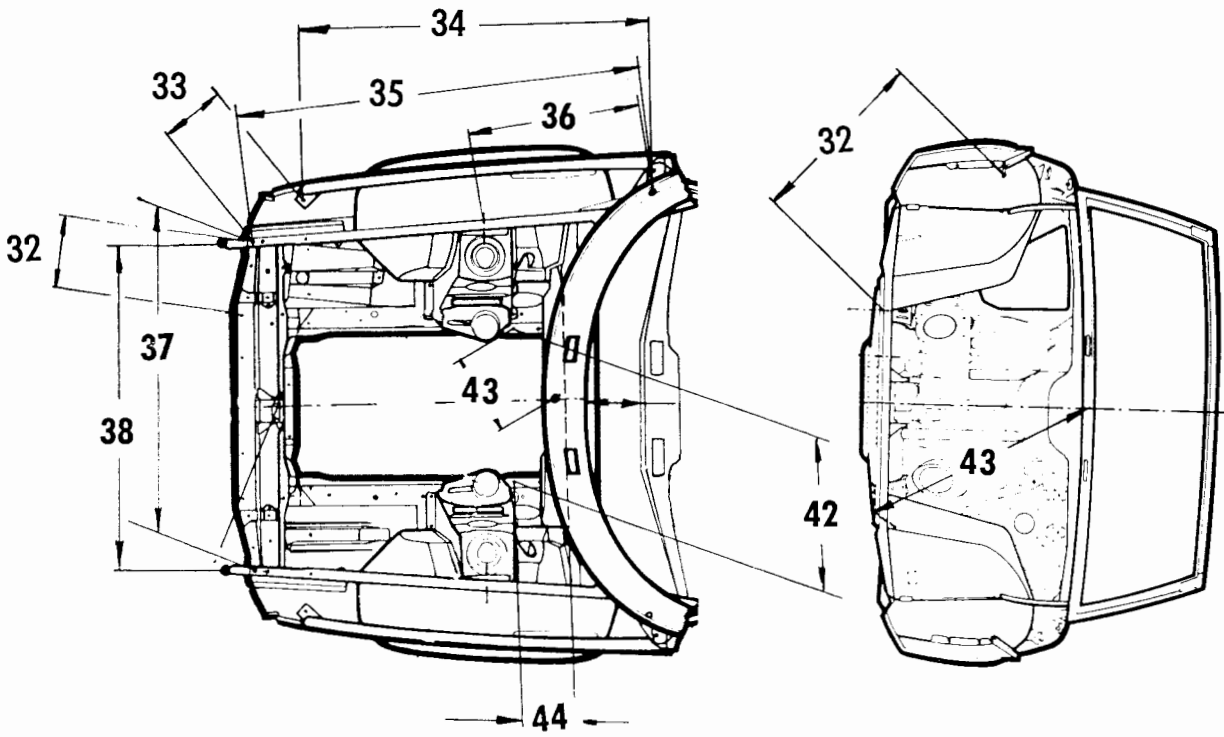
*) Up to and incl. model 1985

***) Up to and incl. chassis Nos.: 90791030000, 90796003966 and 90792003200



As from model 1986

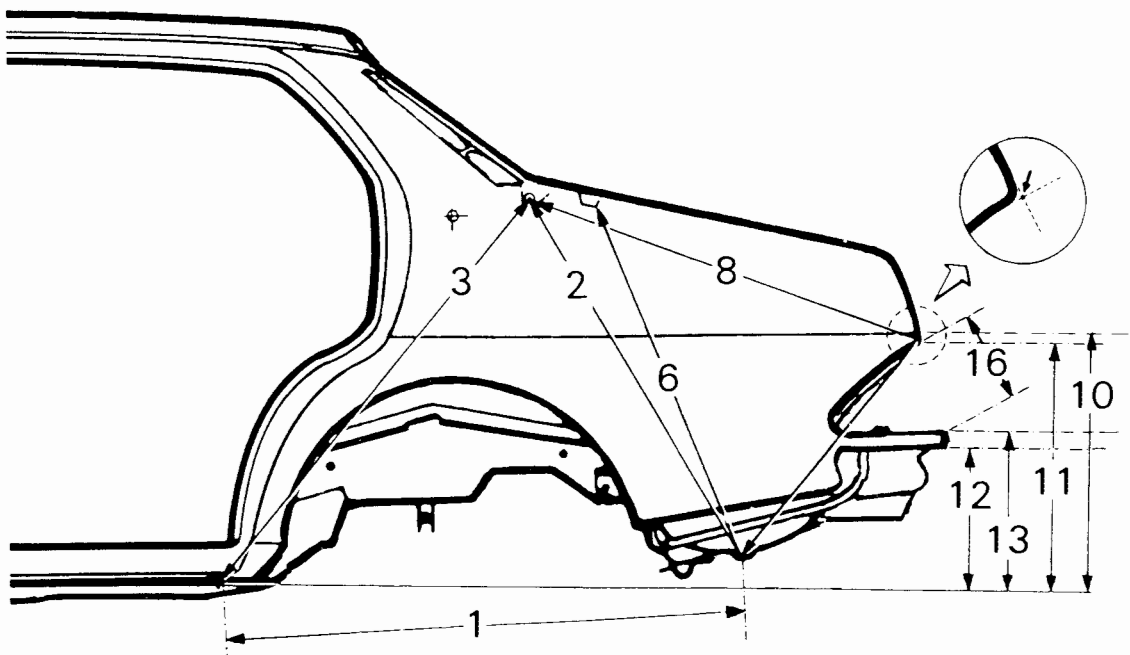
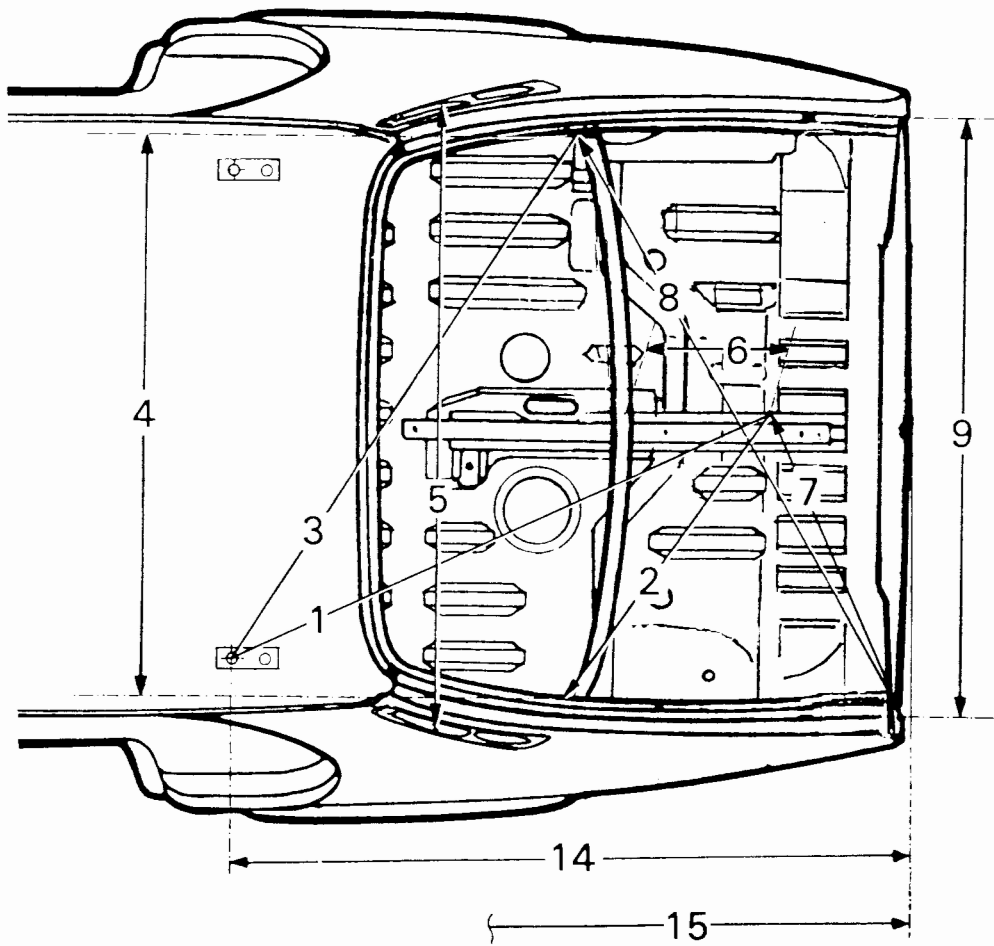
Item	Dimension (inches and millimetres)		
39	20.35 ± 0.08 in (516.8 ± 2 mm)	4	Width measurement, centre hole for rear engine mounting
40	5.17 ± 0.08 in (131.5 ± 1 mm)	4	Width measurement, centre hole for front engine mounting bracket
41a	29.3 ± 0.08 in (744.8 ± 2 mm)	2	Diagonal, centre hole for left rear engine mounting - opposite centre hole front engine mounting
41b	29.7 ± 0.08 in (757.8 ± 2 mm)	2	Diagonal, centre hole for right rear engine mounting - opposite centre hole front engine mounting



S 7528

Item	Dimension (inches and millimetres)		
42	19.75 _± 0.04 in (502 _± 1 mm)	4	Width dimension 1, hole for steering gear
43	28.35 _± 0.12 in (720.2 _± 3 mm)	2	Hole 1 for steering gear - centre of lower edge of bulkhead guttering (mid-way between holes for wiper spindles)
44	7.75 _± 0.08 in (196.8 _± 2 mm)	3	Hole 1 for steering gear - lower vertical bulkhead (not on reinforcement moulding)
45	25 98 _± 0.12 in (660 _± 3 mm)	5	Windshield flange at centre of car (upper edge) - top of exhaust pipe tunnel (edge by bulkhead)
46	8.57 _± 0.08 in (217.6 _± 2 mm)	2	Windshield flange at centre of car (upper edge) - top of instrument panel member
47	22.95 _± 0.12 in (583 _± 3 mm)	2	Mid-way along glass reference line
48	48.17 _± 0.12 in (1223.5 _± 3 mm)	2	(Diagonal, rear hole 1 in support member under bulkhead (with bolt) - outer hole 1 of five spoiler attachment holes

- 1 Centre of hole
- 2 Actual dimension
- 3 Coordinate
measured along x axis
(longitudinal)
- 4 Coordinate measured along
y axis (lateral)
- 5 Coordinate
measured along z axis (vertical)
- 6 Tolerance giving best door fit



Saab 900 Sedan

Item	Dimension (inches and millimetres)	Measuring points
1.	51.9 in (1301.7 mm)	Front hole in spring link (either LH or RH side) - centre hole in luggage compartment floor. (Actual measurement).
2.	41.0 in (1044 mm)	Hinge pivot mounting (centre) - centre hole in luggage compartment floor. (Actual measurement.)
3.	62.4 in (1584 mm)	Front hole in spring link. either LH or RH side (hole centre in upper side of reinforcement) - opposite hinge pivot mounting (centre). (Actual measurement.)
4.	52.7 in (1321.6 mm)	Width measurement, hinge pivot mounting. (Measured along Y axis.)
5.	54.1 in (1375.6)	Width measurement, rear seat belt mounting bracket holes. (Measured along Y axis.)
6.	27.0 in (687.4 mm)	Lower edge of channel in middle - centre hole in luggage compartment floor. (Actual measurement)
7.	31.8 in (808.7 mm)	Corner of luggage compartment aperture - centre hole in luggage compartment floor. (Actual measurement).
8.		Corner of luggage compartment aperture - opposite hinge pivot mounting (centre). (Actual measurement).
9.	51.9 in (1321.0 mm)	Width measurement. Luggage compartment aperture rear edge, see item 8. (Measured along Y axis.)
10.	19.9 in (504.8 mm)	Basic plan - rearmost waist line. (Measured along Z axis).
11.	19.2 in (489 mm)	Basic plan - rear corner of luggage compartment aperture, see Plate No. 8. (Measured along Z axis.)
12.	10.9 in (276.8 mm)	Basic plan - rear cross member upper side. (Measured along Z axis.)
13.	12.6 in (318.8 mm)	Basic plan - mounting plate upper side. (Measured along Z-axis).
14.	59.4 in (1506.1 mm)	Front hole in spring link - rear edge of body. (Measured along X axis.)
15.	172.6 in (4383.6 mm)	Total length of body. (Measured along X axis.)
16.		Rear corner of luggage compartment aperture, see item 8 - opposite edge below light aperture.

- | |
|--|
| 1 Centre of hole
2 Actual dimension
3 Coordinate
measured along x axis
(longitudinal)
4 Coordinate measured along
y axis (lateral)
5 Coordinate
measured along z axis (vertical)
6 Tolerance giving best door fit |
|--|

Work operations

Replacement of section of rear fender

Exposure, 5-door car

Parts that need to be removed before the work is begun:

Bumper and bumper extension

Taillight

Mouldings

Antenna

Luggage compartment floor

Side trim in luggage compartment.

The section of the rubber strip around the luggage compartment door that is affected

Side trim on C pillar

Seat cushion and backrest

Fixed side window

Door moulding in rear edge

Exposure, 3-door car

Parts that need to be removed before the work is begun:

Bumper and bumper extension

Taillight

Luggage compartment floor and side trim in luggage compartment

Window with seal

The section of the rubber strip around the luggage compartment door that is affected

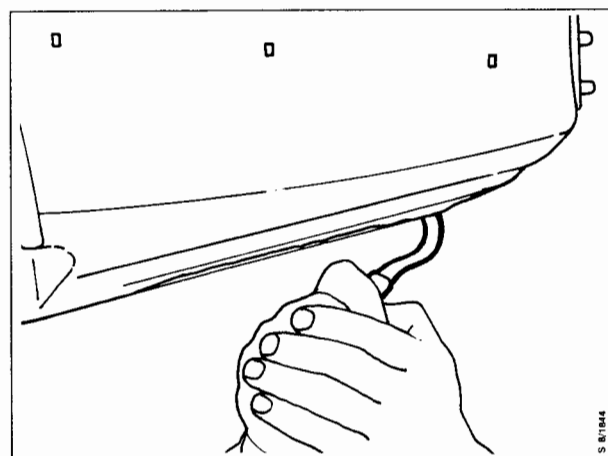
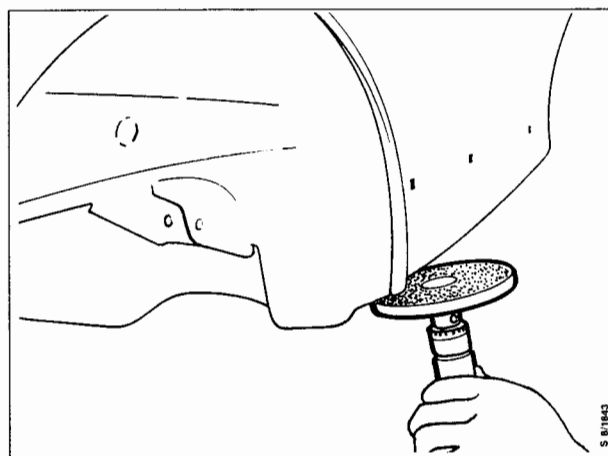
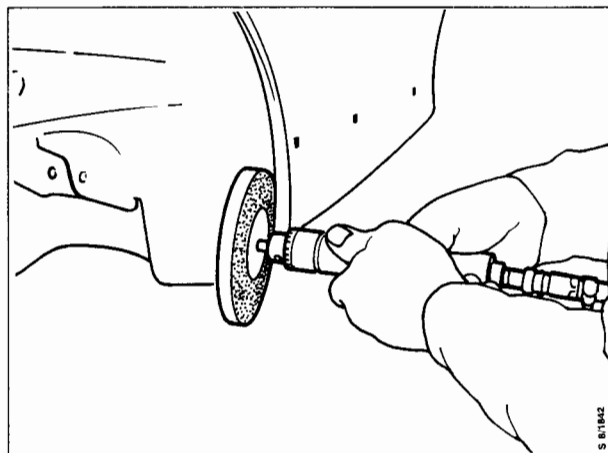
Seat cushion and backrest

Side trim in back seat

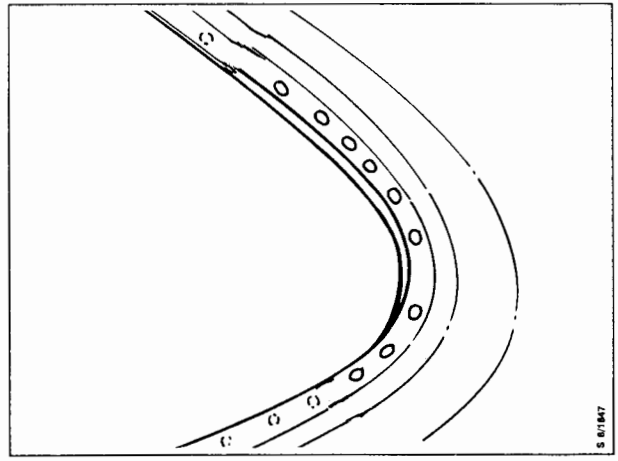
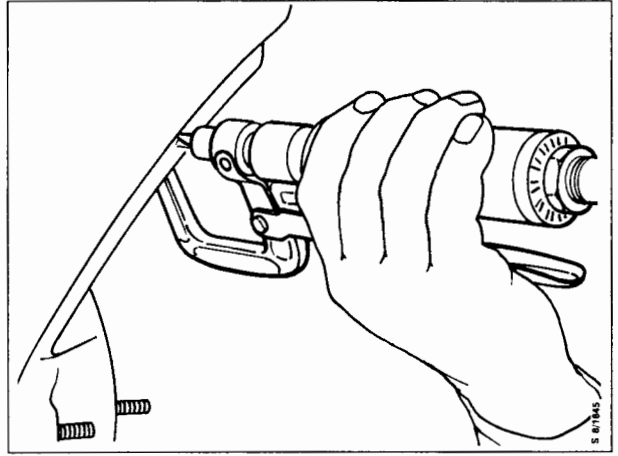
Side trim, C pillar

Sheet-metal work

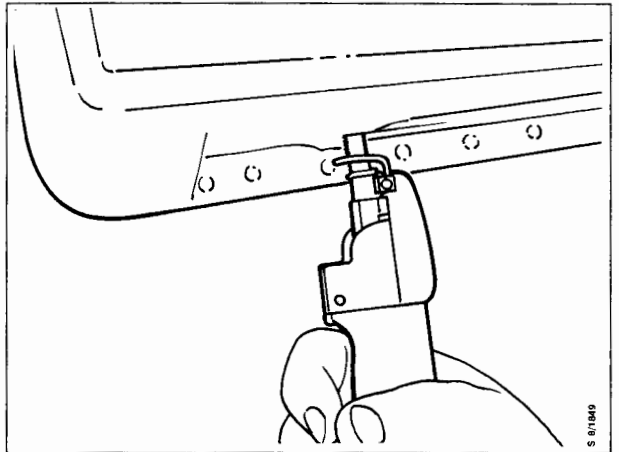
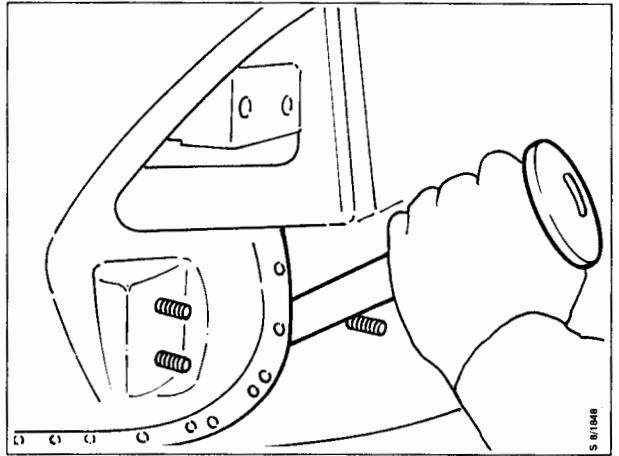
- 1 Sand off the paint and scrape away the underbody compound with a grinding wheel and knife so that the spot welds are visible.



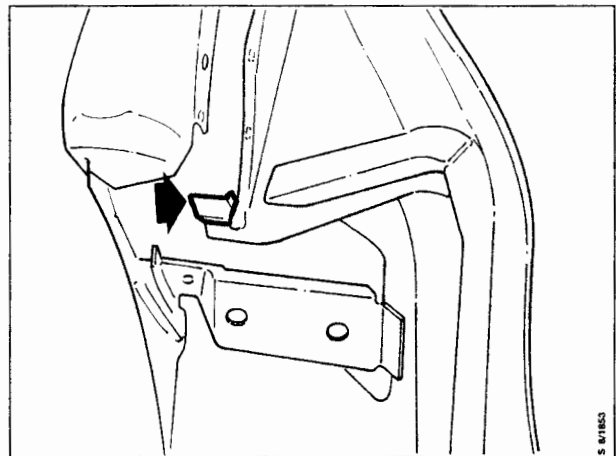
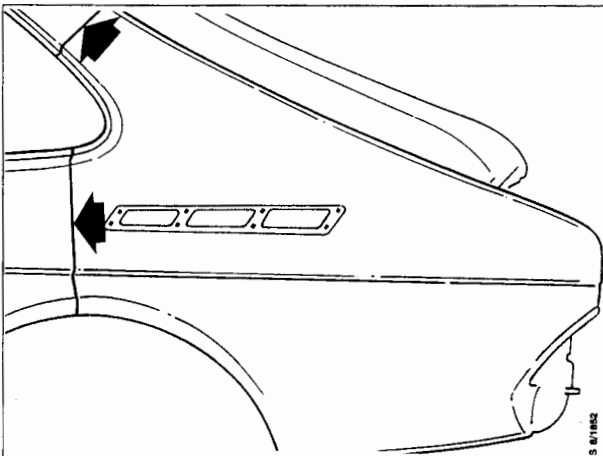
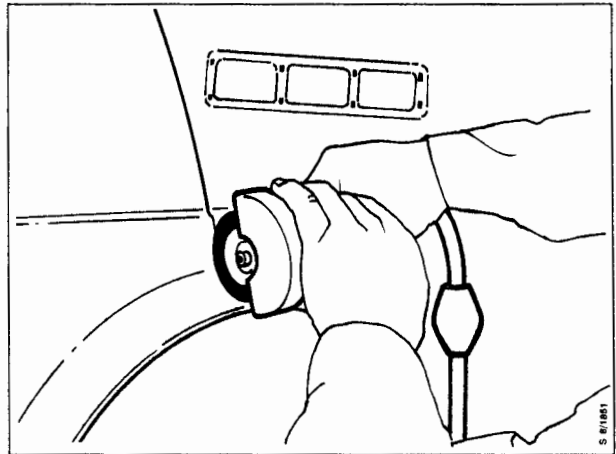
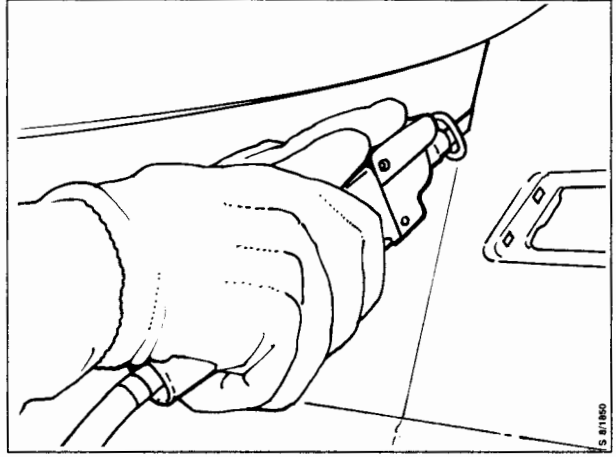
2 Drill out the spot welds with a spot weld drill.



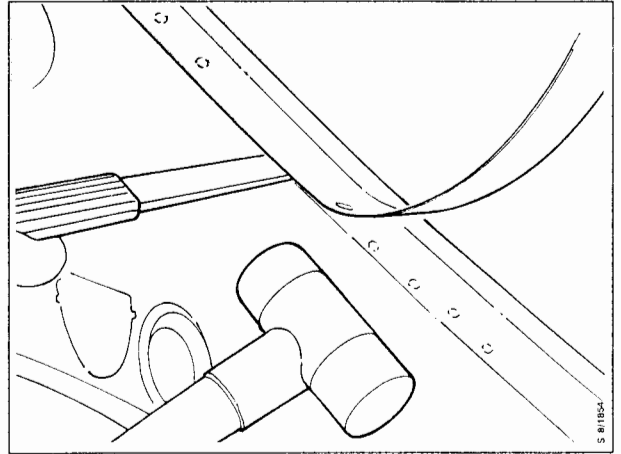
- 3 Part the spot weld joint using a chisel and hammer. It is also possible to rough-cut along the side of the weld and remove the spot welds later if this turns out to be simpler.



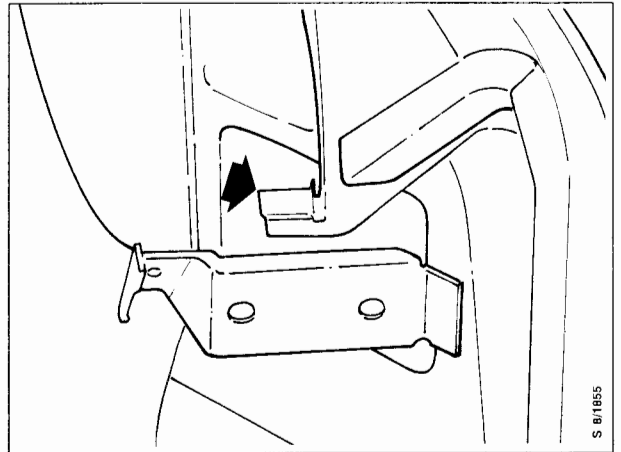
- 4 Cut the fender side at the point where the panel is to be joined. Use a cutting wheel where there is underlying sheet metal so it will not be damaged.



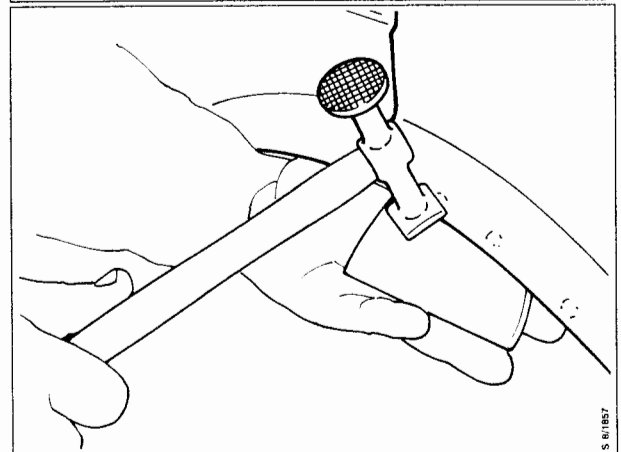
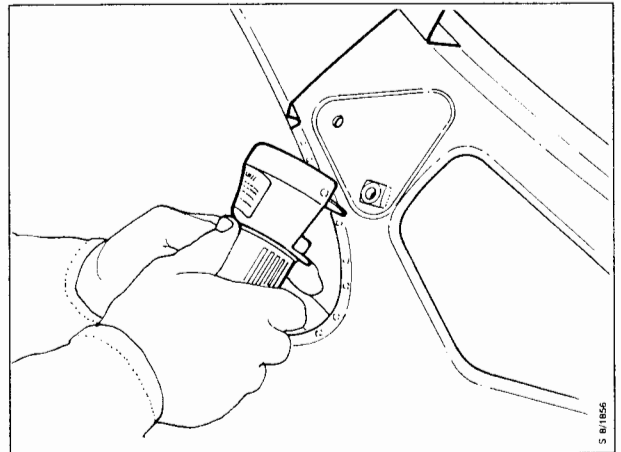
5 Clean away remaining traces of sheet metal.



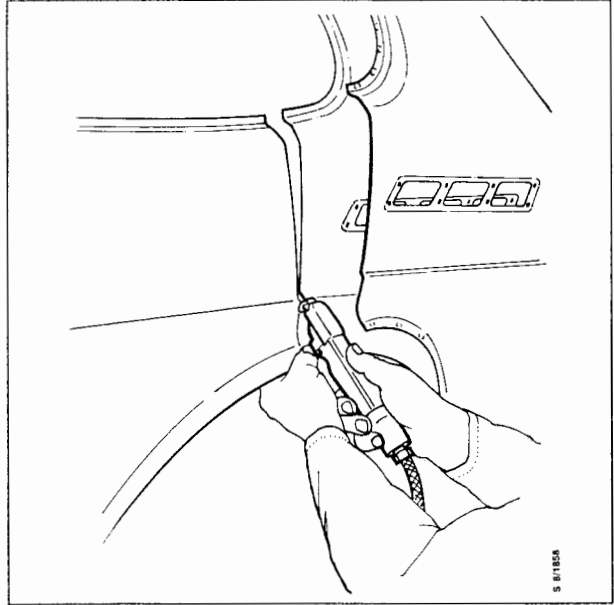
6 Make sure that the reinforcement between the fender and the filler panel is not damaged.



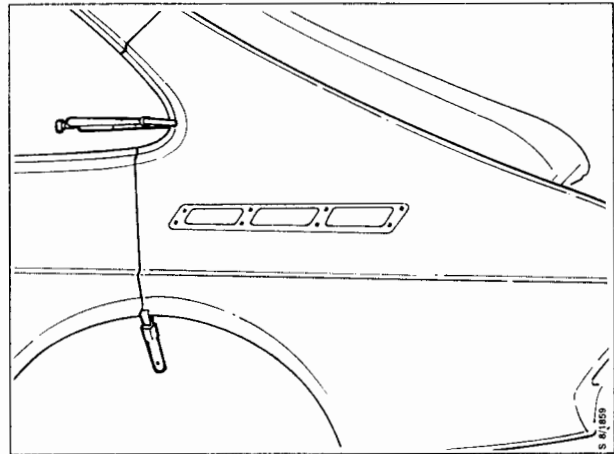
7 Grind down the spot welds and straighten the edge using a hammer and anvil.



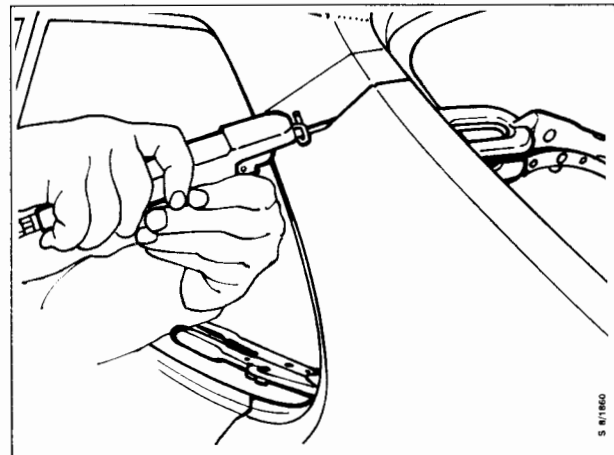
- 8 Rough-cut the spare so it is slightly larger than the removed section.



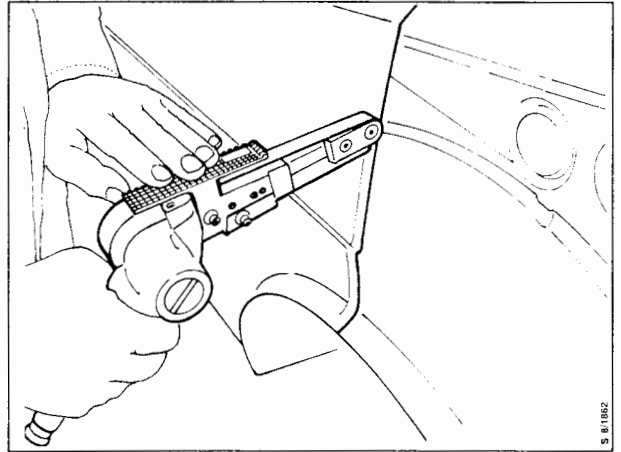
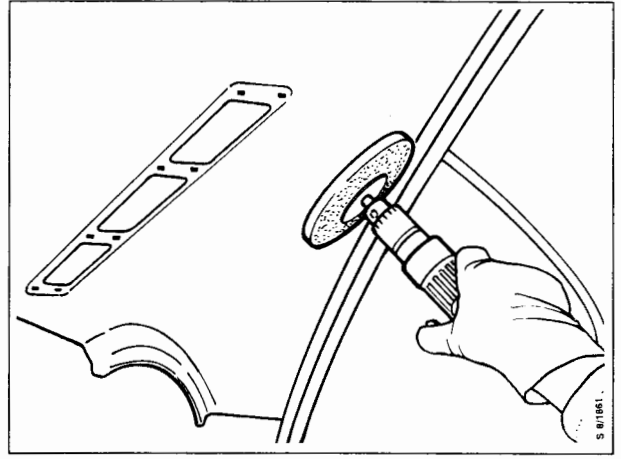
- 9 Place the new section on the car and adjust it to fit. Fix the section with welding rods.



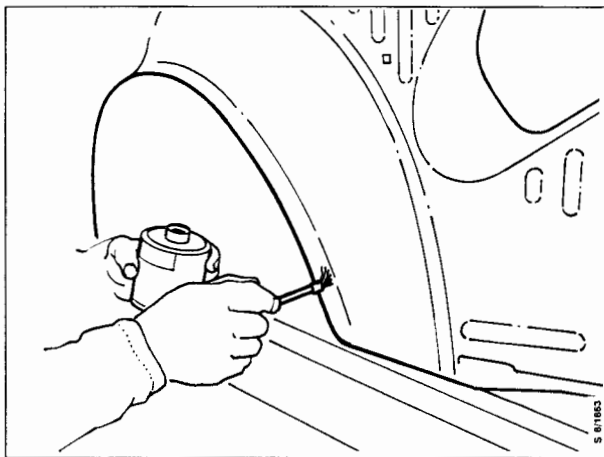
- 10 Now saw through both panels simultaneously so that both of the joined sections will have a perfect fit.



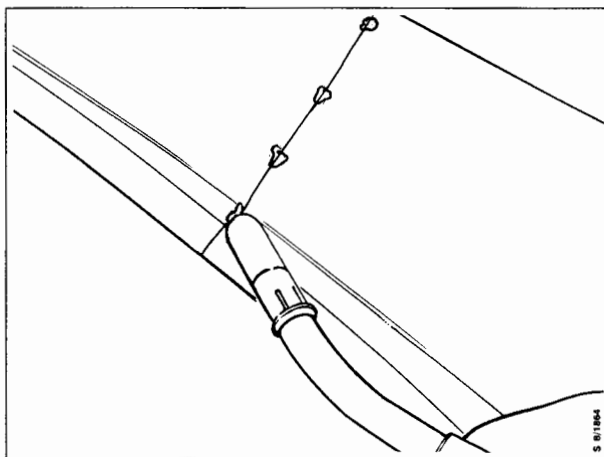
- 11 Take the new section down again and sand off the primer at those places where welding is to be done. Also sand off the paint on the weld site on the car.



12 Apply welding primer to the body and to the spare part where welding is to be done.

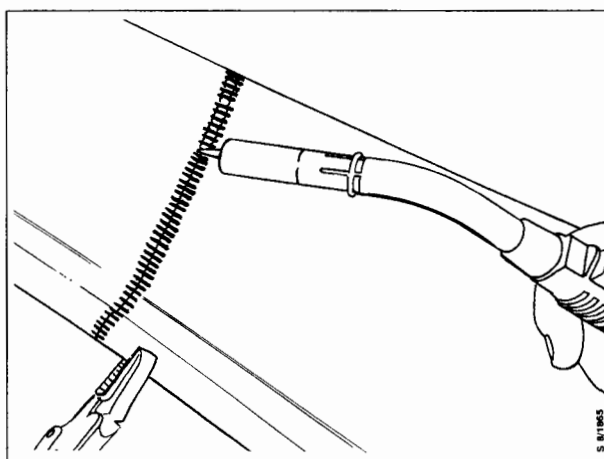


13 Place the new section in position and attach it with a tack at a point where the tack can later be removed if necessary. Close the luggage compartment door and check the clearance between the fender and the door before finally attaching the fender.

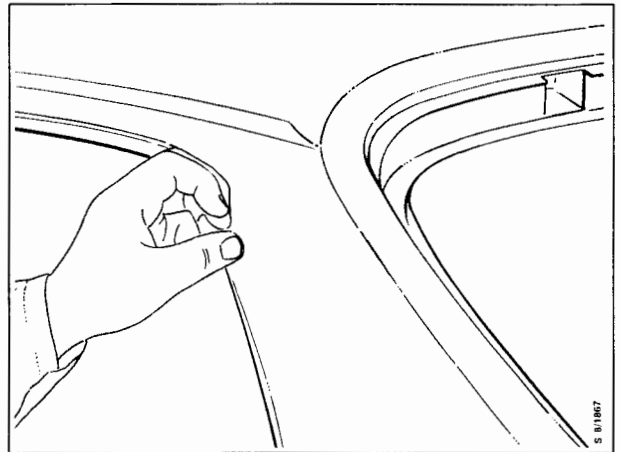
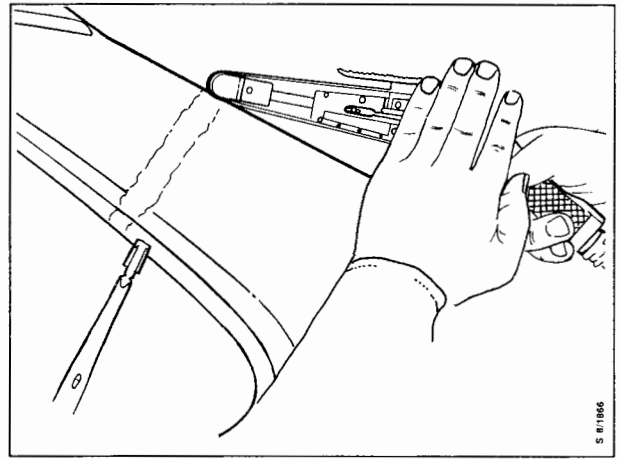


14 Make continuous welds at the joints where the panels lie edge to edge.

- ● ● Spot weld or plug weld
- ≡ ≡ ≡ Seam weld
- ||||| Continuous welds

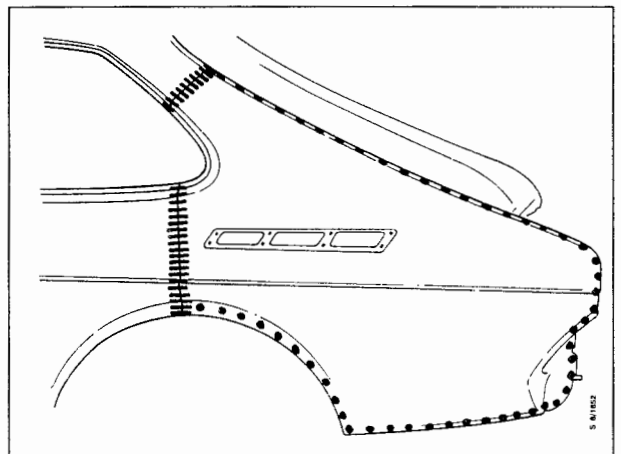


15 Grind down the welded joint and paint so that it is smooth.

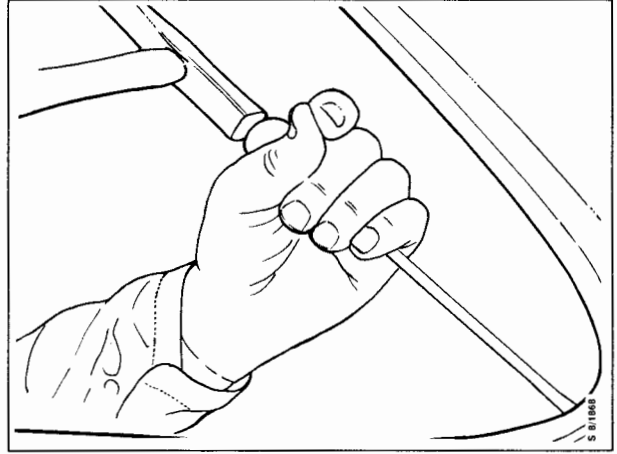


16 Resistance-spot-weld or plug-weld at those points where this shall be done.

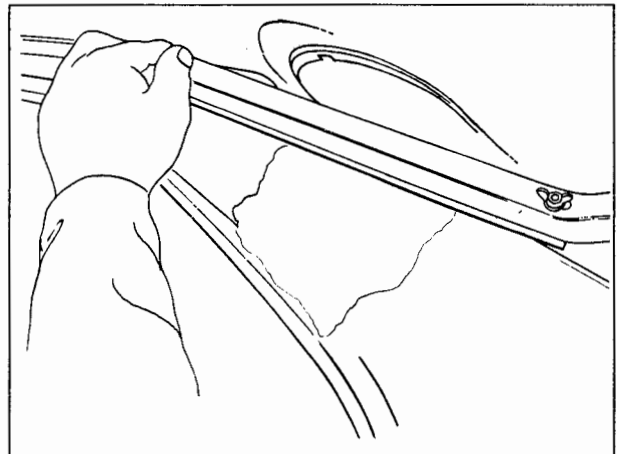
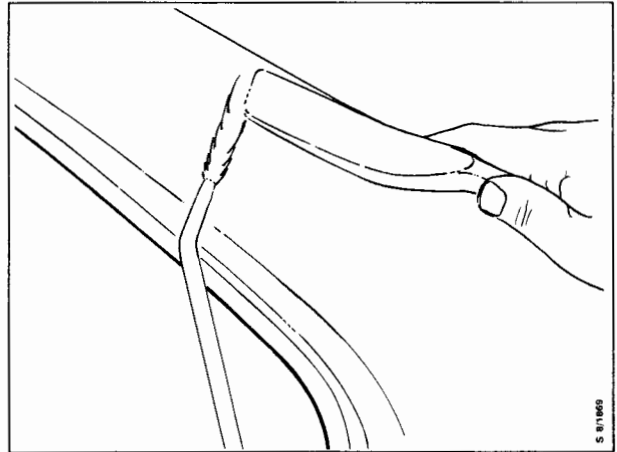
- ● ● Spot weld or plug weld
- ||||| Seam weld
- ||||||||| Continuous welds



- 17 Check that the spot welds have penetrated by knocking in a screwdriver between the spots.



- 18 Apply tin filler to the welded seam and grind it down with a cabinet file, or apply plastic filler.



- 19 a Paint with primer, if necessary fill with plastic.
 b Apply body putty at flanges and joints.
 c Apply PVC compound substitute.
 Anti-corrosion oil should be applied after the paint.

Replacement of outer side panel, complete

Exposure

5-door car

The following parts must be removed before the work is begun:

Bumper and bumper extension

Mouldings

Antenna

Luggage compartment floor

Side trim in luggage compartment

Rubber strip on the relevant side of the luggage compartment

Rubber strip, rear of side door

Trim, C-pillar

Evacuation grille

Guide, luggage compartment lid

Electrical wiring

3-door car

Bumper and bumper extension

Mouldings

Antenna

Luggage compartment floor

Side trim in luggage compartment

Rubber strip, luggage compartment door, partially

Rubber strip, rear door

Trim, C-pillar

Evacuation grille

Guide, luggage compartment lid

Electrical wiring

4-door car

Bumper and extension

Taillight

Antenna

Rear window

Parcel shelf

Backrest and seat cushion

Trim, luggage compartment and floor

Evacuation grille

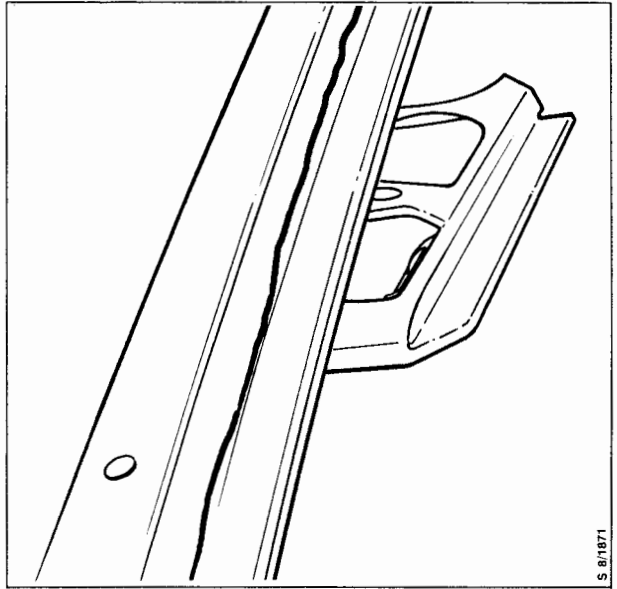
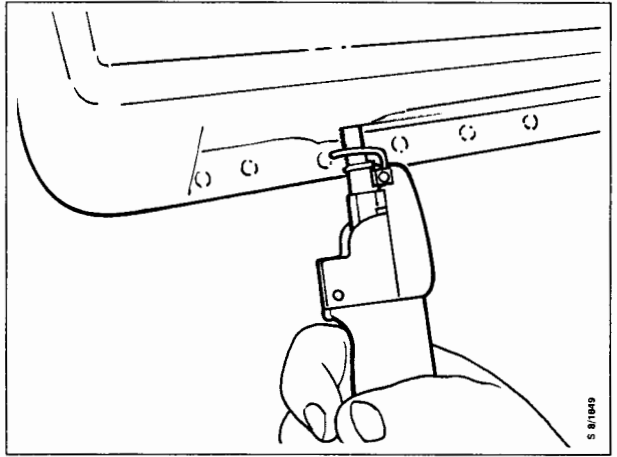
Trim, C-pillar

Rubber door strip

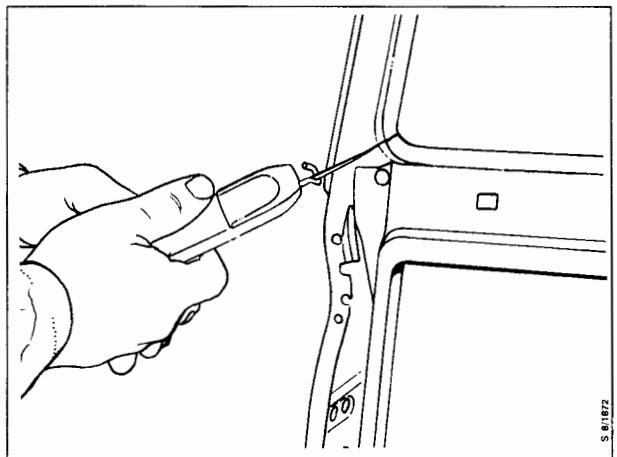
Electrical wiring

Sheet-metal work

- 1 Rough-cut around the attachment and drill out the spot welds.

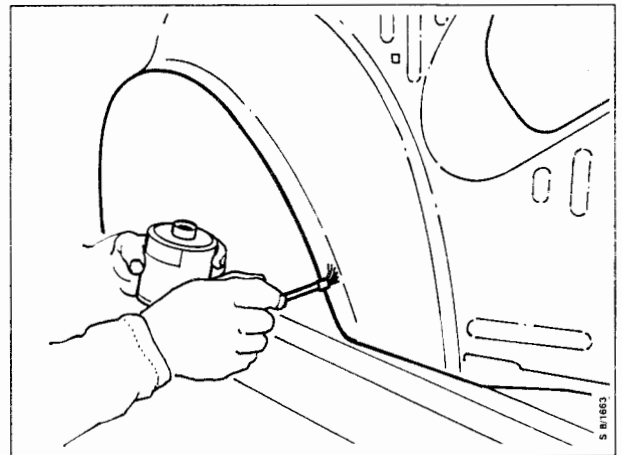
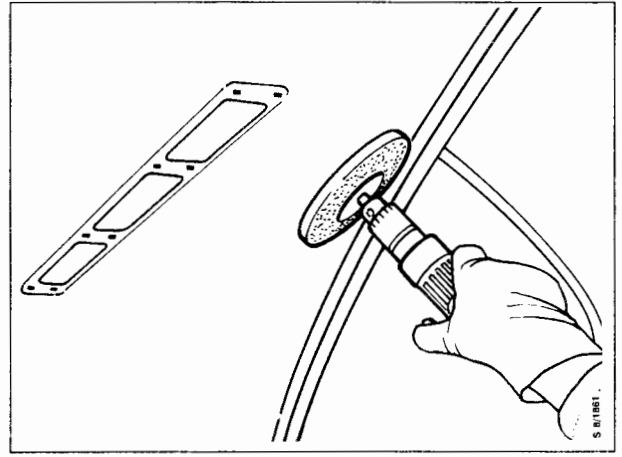
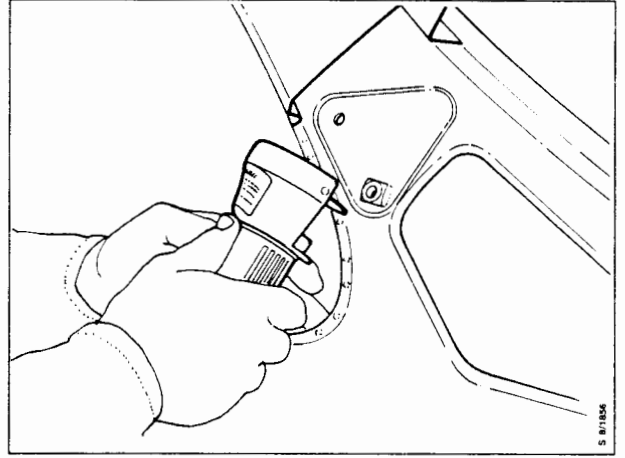


- 2 Trim away remaining bits of sheet metal and spot welds.

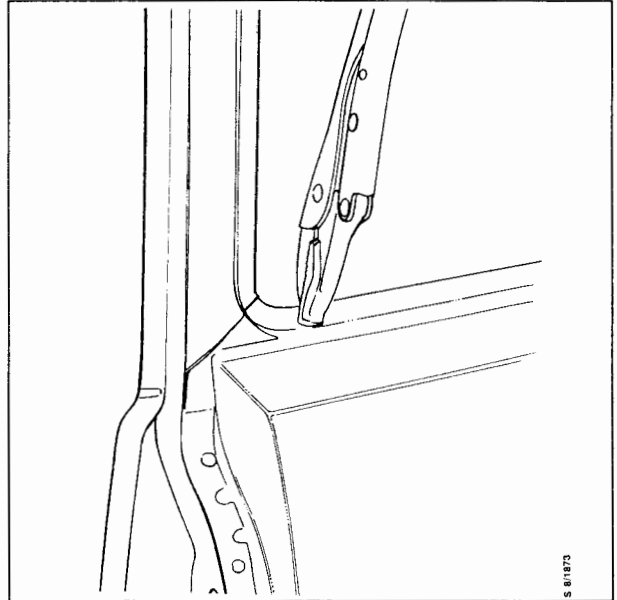


3 Sand clean those places where resistance spot welding or continuous welding is to be performed.

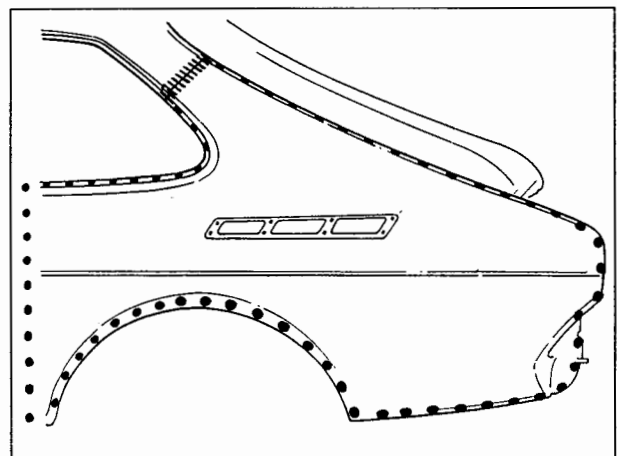
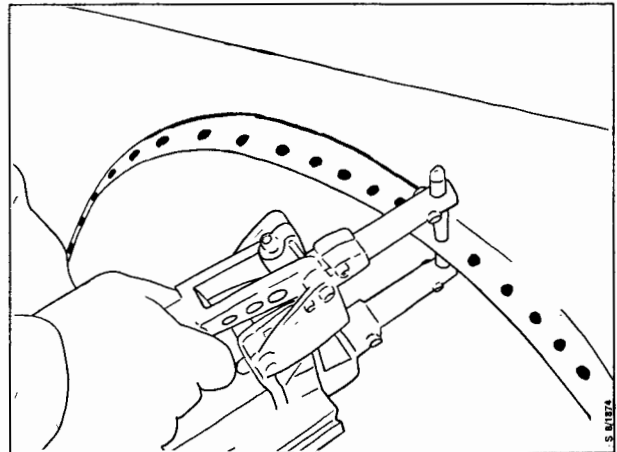
Apply welding primer.



4 Put on the new sid panel and fit it in. Saw a cut through the spare part and the body at the same time. Fix the side panel with welding rods. Check the fit at the door and at the luggage compartment door.

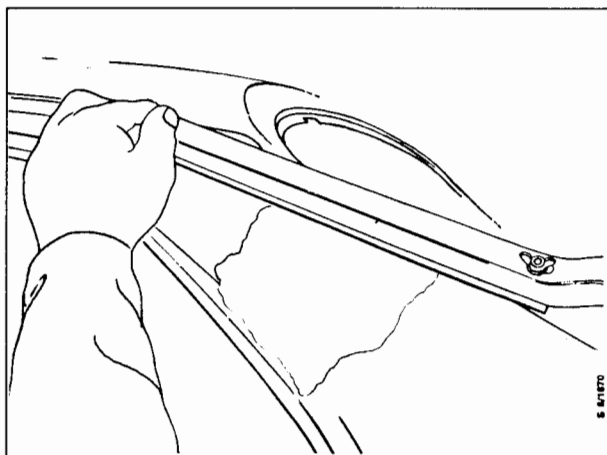
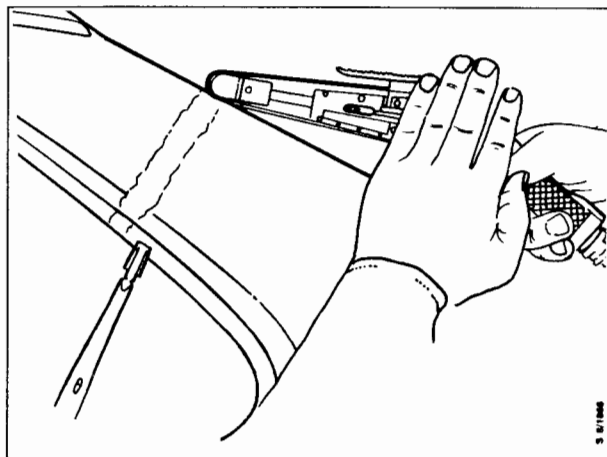


5 Resistance-spot-weld and plug-weld at those points where joints of this type are to be made. Place the spot welds so that they are covered by the trim later.



- ● ● Spot weld or plug weld
- ≡ ≡ ≡ Seam weld
- ≡≡≡≡≡≡≡≡≡≡ Continuous welds

- 6 Grind down welded joints and spot welds as well as burned paint. Apply tin filler to continuous welds.



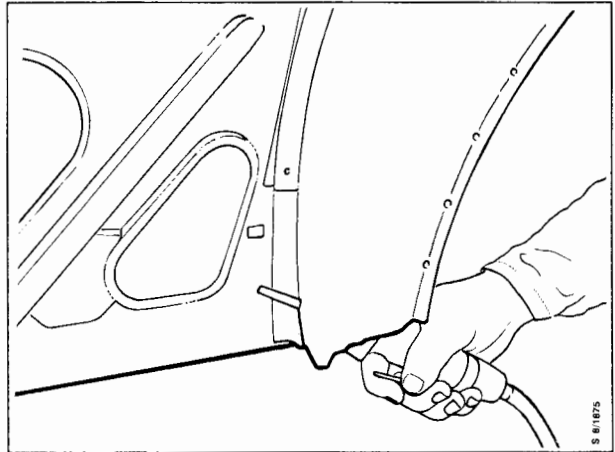
- 7 Apply primer and sealant in the joint at the door pillar and at the rear of the side panel.
- 8 a Paint with primer, if necessary fill with plastic.
b Apply body putty at flanges and joints.
c Apply PVC compound substitute.
Anti-corrosion oil should be applied after the paint.

Replacement of outer wheel housing (side panel removed)

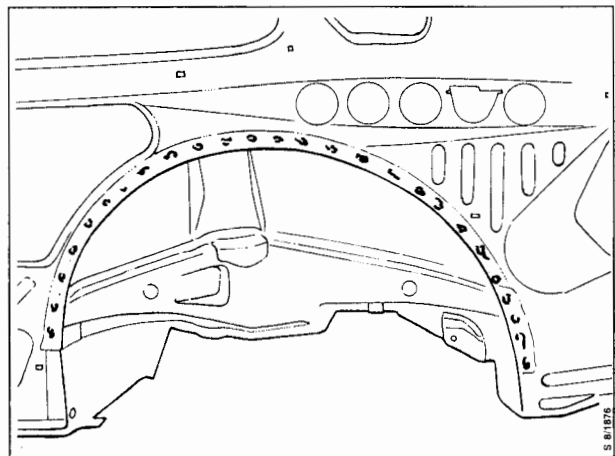
Exposure

The same instructions apply here as for replacement of side panel cpl. on 3-, 4- or 5-door car, see this section

- 1 Saw or chisel off the wheel housing panel.

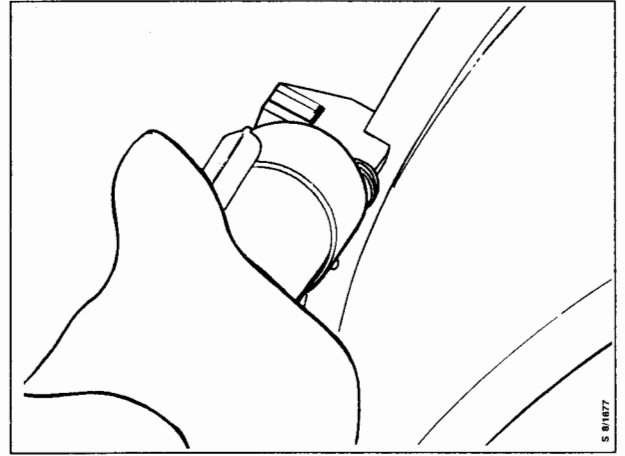


- 2 Drill out the spot welds and clean away the spot weld strip.

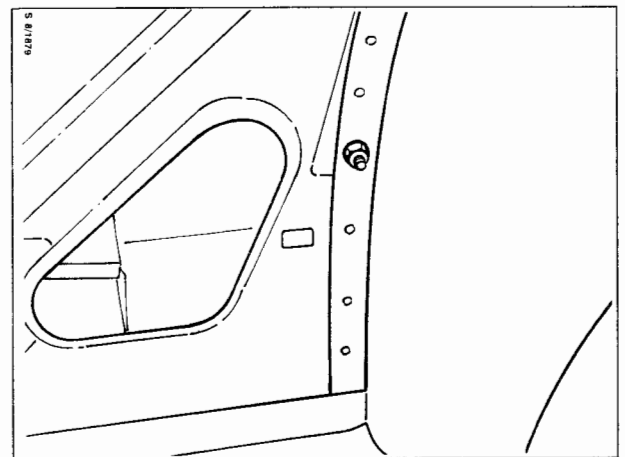
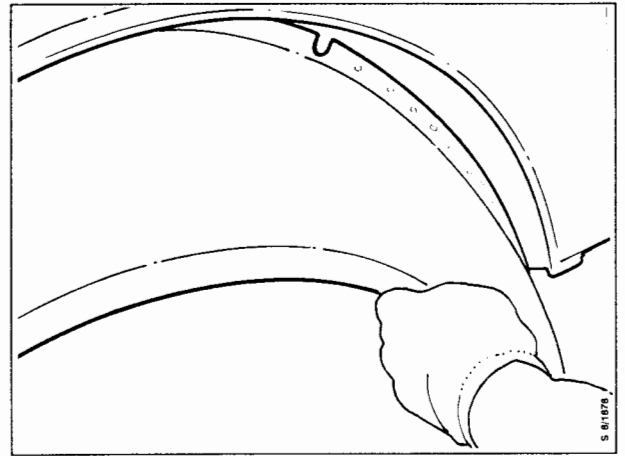


- 3 Grind off the remains of the spot welds. Apply welding primer to the body and to the wheel housing panel after grinding off the paint on the places where welding is to be done.

4 Punch holes for plug welding.



5 Fix the side panel together with the wheel housing panel so that a correct fit is obtained at the edge of the fender. Attach the wheel housing panel with two M6 screws from the inside and then take down the side panel again.

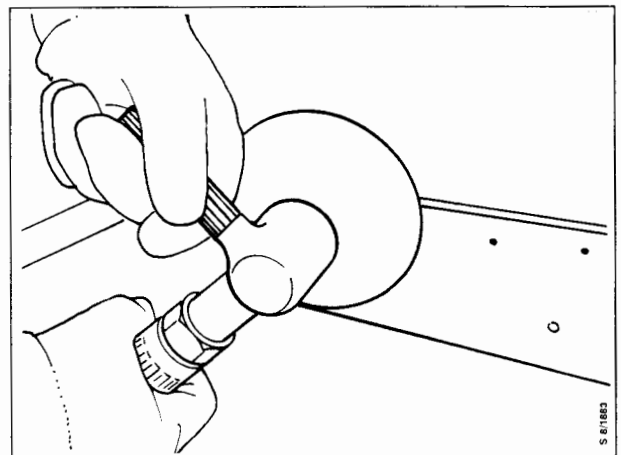
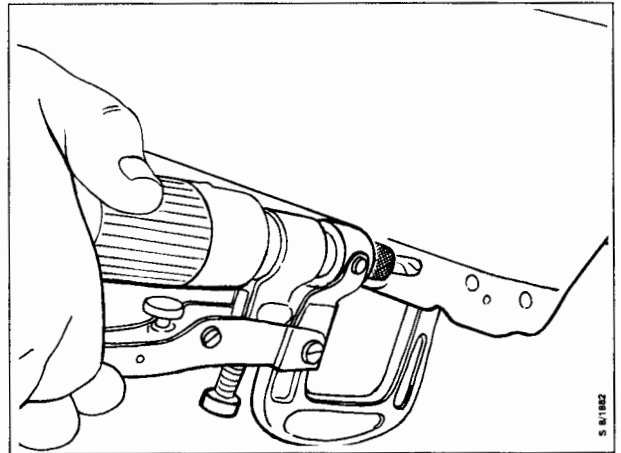
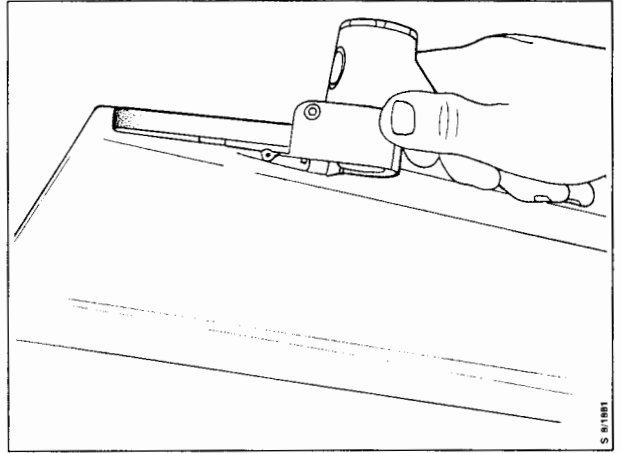


Replacement of door, cpl.

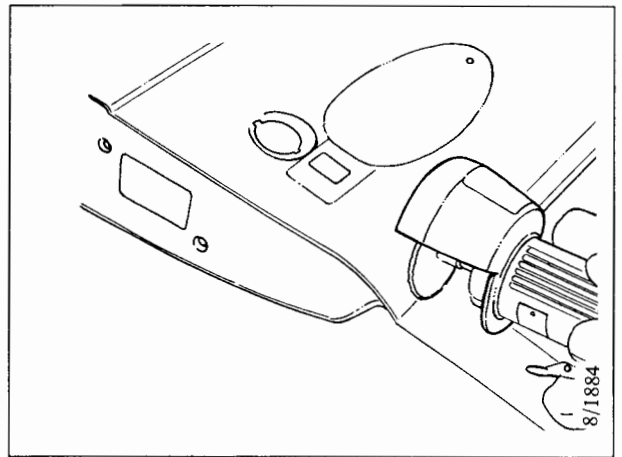
When replacing the complete door, first put up the door without interior fittings on the car, then screw on the hinge and adjust the position. When the door fits correctly, move the equipment over from the old door to the new one.

Replacement of outer panel, door

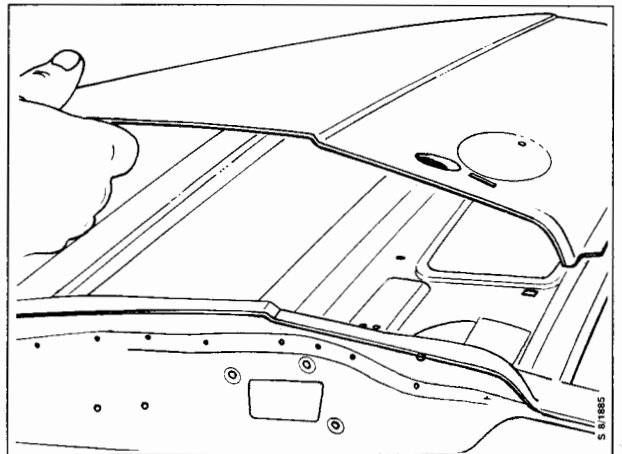
- 1 Remove the door's opening handle, the window regulator crank (where applicable) and the door trim.
- 2 Remove the door handle and lock cylinder. Unscrew and remove the rear-view mirror. Remove moulding and window seals. Disconnect electrical leads to window regulator, rear-view mirror and central lock. Remove the door window
- 3 Unscrew the door from the hinge and place the door on a suitable surface. The door window shall be removed. Remove the rubber seal at the bottom of the door (pop-riveted) and the door seal around the window frame.
- 4 Remove the protective moulding on the door.
- 5 Scrape away the underbody compound at the bottom of the door and sand so that the spot welds are accessible.
- 6 Drill out the spot welds and remove the outer panel from the underside of the door using a chisel and hammer.
- 7 Grind the door edges until the outer panel comes loose from the door.



8 Grind down the welds at the back arch



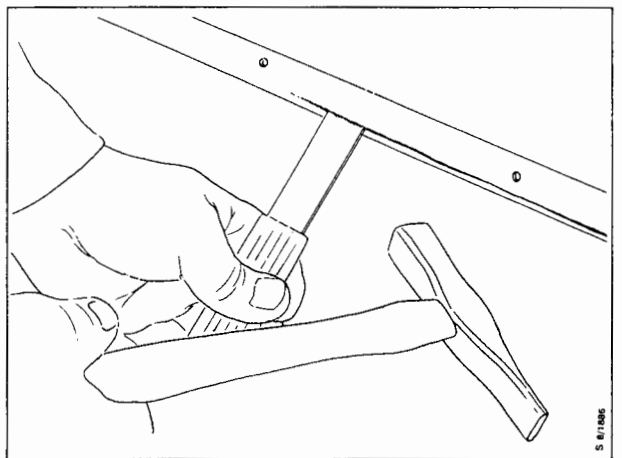
9 Lift the outer panel away from the door.



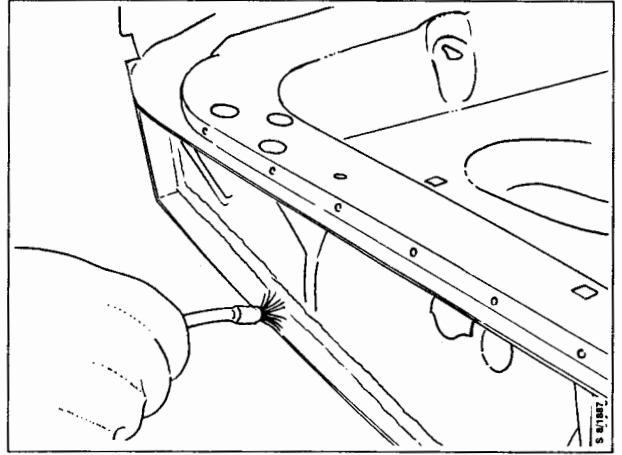
10 Grind the welds at the back arch.

11 Turn over the door and remove the remaining sheet-metal strip that is folded over the edge but is also MAG-welded at several points.

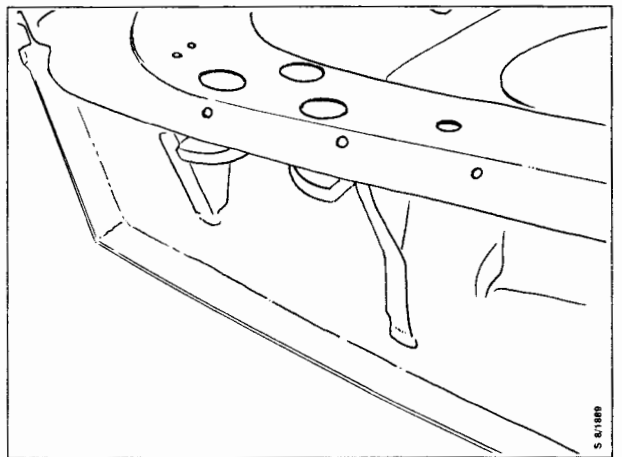
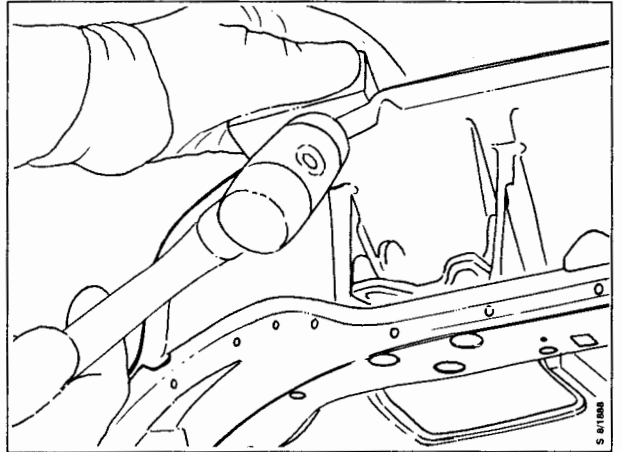
Grind down these points and the sheet-metal strip can then be removed with a chisel and hammer.



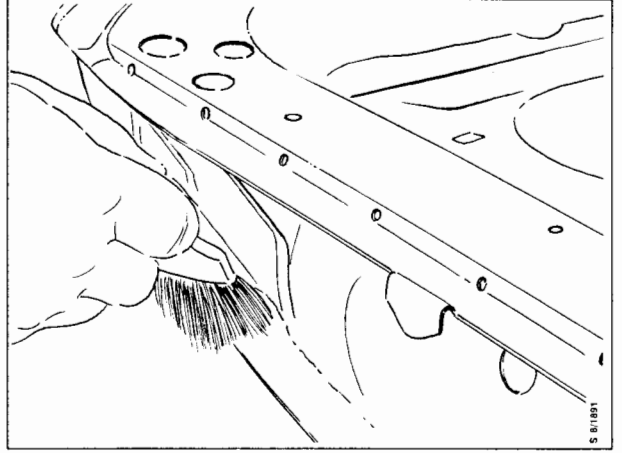
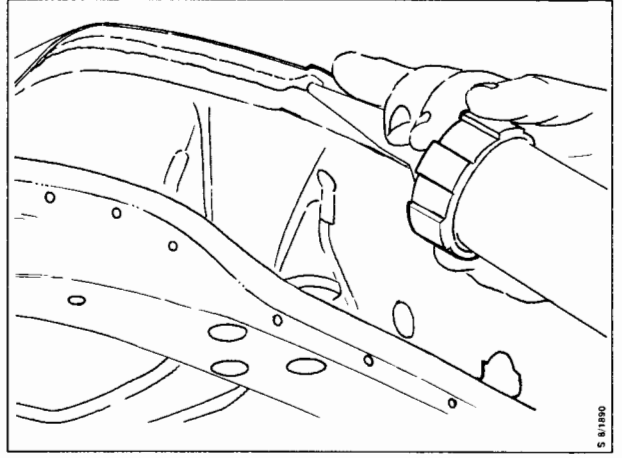
- 12 Apply welding primer to the ground edge.



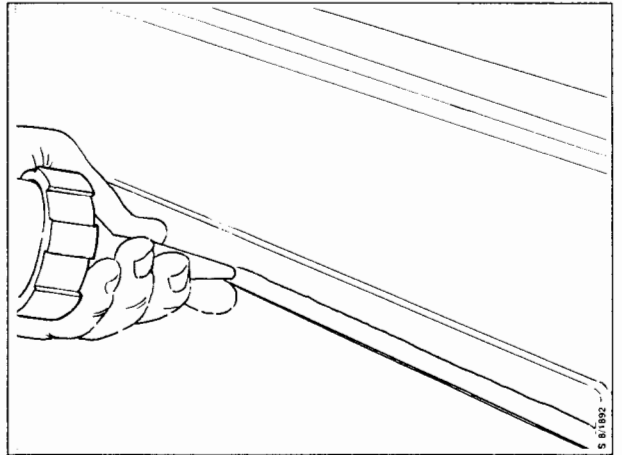
- 13 Turn over the door. Sand off the primer on the new outer panel where welding is to be done. Apply welding primer.
- 14 Put the new outer panel on the door and turn over the door with the outer panel facing down, fix the panel with welding rods.
- 15 Fold down the sheet-metal edge over the door. Don't fold down the whole edge at once; do it in three stages.



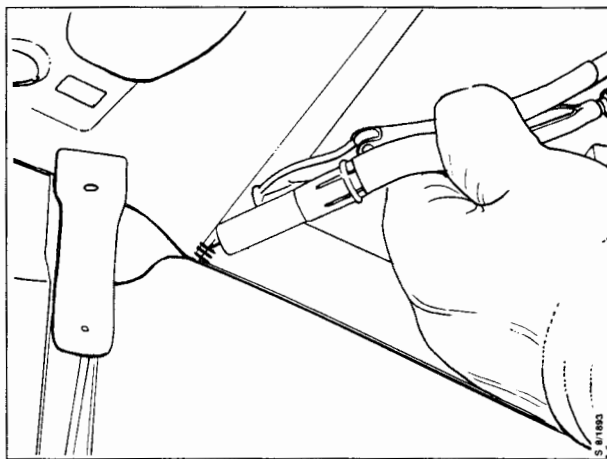
- 16 Spot-weld along the front edge. Seal the joint with polyurethane sealant so you won't have to take down the door after testing. Hang the door on the car and test the fit. Adjust any misalignment.



Weld the bottom edge of the door and seal the joint with sealant. Do the same on the rear edge.



17 Make a continuous weld at both ends of the back arch. Grind down the welds and apply primer.



18 Fit the parts in the door.

- ● ● Spot weld or plug weld
- ≡ ≡ ≡ Seam weld
- ≡≡≡≡≡≡≡≡≡≡≡≡≡≡≡≡ Continuous welds

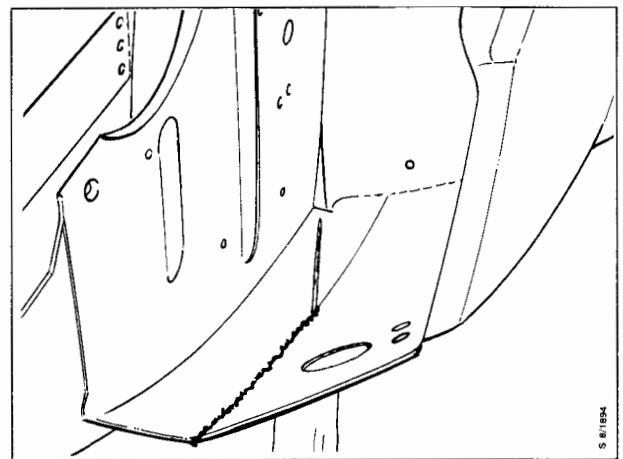
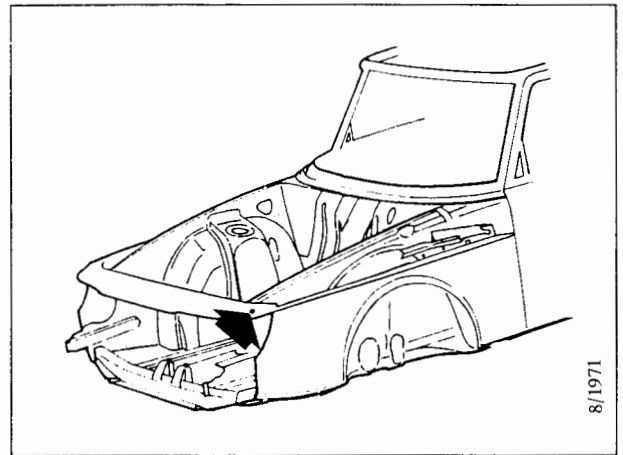
Replacement of front fender, front section (left side)

Exposure (left side) (applies to all versions)

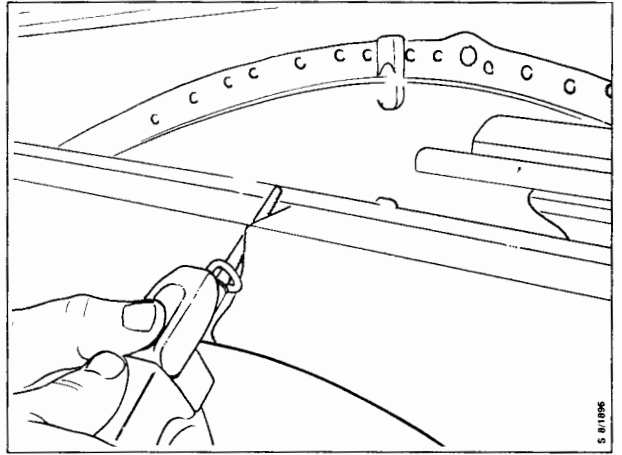
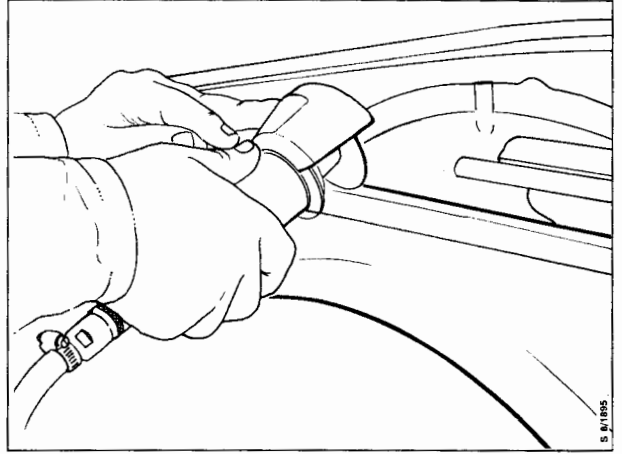
- Disconnect the battery cable
- Remove the headlight
- Remove the direction indicator
- Remove the bumper extension
- Remove the bumper
- Remove the moulding at the wheel housing
- Undo and remove the guide devices from the fender
- The carbon canister. NOTE! The carbon canister's hose runs under the edge of the fender
- Do not forget the risk for fire!

Sheet-metal work

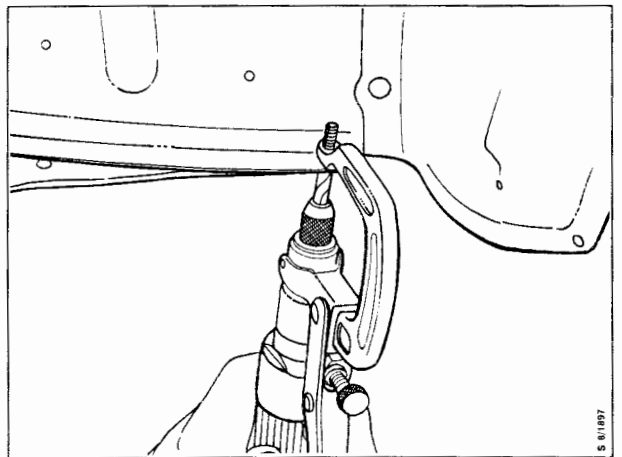
- 1 Remove the bolt that holds the radiator member to the fender.
- 2 Saw off the old fender at the front edge where it connects to the floor.



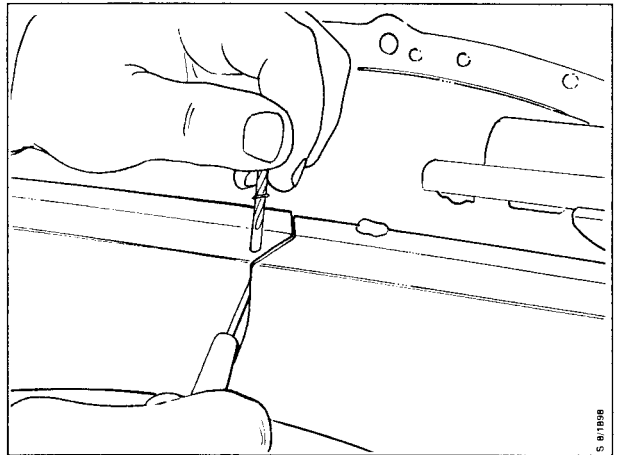
- 3 Grind off the weld to the wheel housing. Saw a cut on the narrowest part of the fender.



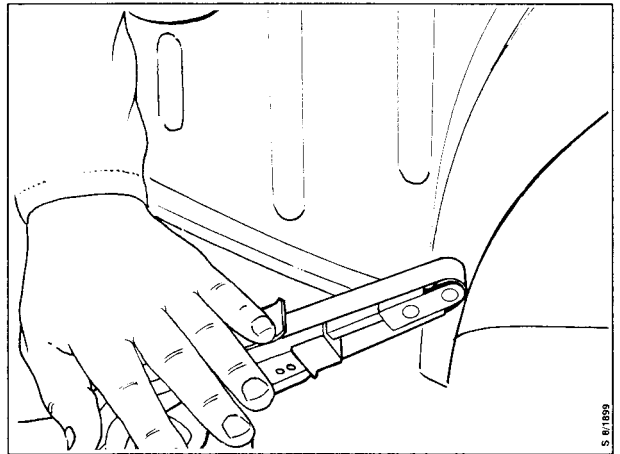
- 4 Drill out the spot welds in the edge of the fender against the wheel housing.
- 5 Chisel off the spot welds using a chisel and hammer.
- 6 Drill out the spot welds in the remaining front sheet-metal strip and chisel it loose.



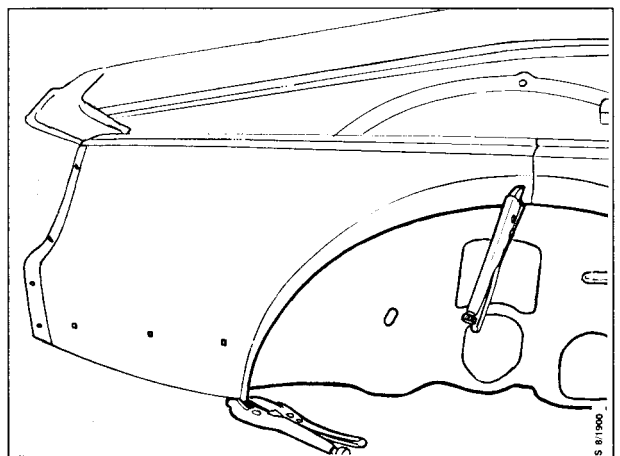
- 7 Scrape off the sealant. Don't forget the edge against the inside of the wheel housing.
- 8 Grind down the spot welds.
- 9 Put on the new spare. Fix it with a drill in the hole in the fender.



- 10 Scribe a line marking the saw cut and saw off the old fender.
- 11 Sand off the primer on the spare at the weld sites. Apply welding primer where resistance spot welding is to be done.



- 12 Put on the fender, attach it with welding rods. Test by closing the hood to make sure it fits against the fender.



Replacement of front fender, cpl.

Exposure left side (all versions)

Disconnect the battery cable

Remove the direction indicator

Remove the bumper extension

Remove the bumper

Remove the moulding at the wheel housing

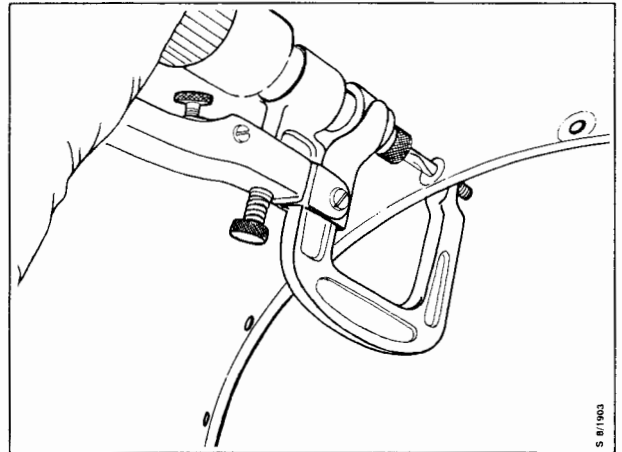
Undo and remove the guide devices from the fender

Remove the carbon canister. NOTE! the carbon canister's hose runs under the edge of the fender

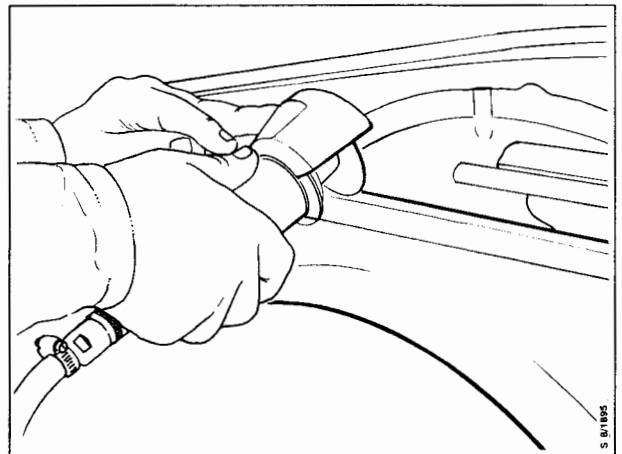
Do not forget the risk for fire!

Sheet-metal work

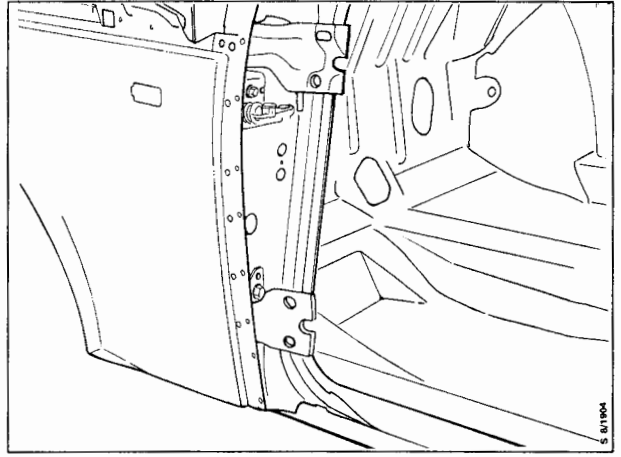
- 1 Remove the bolt that holds the radiator member.
- 2 Saw off the old fender at the front edge where it connects to the floor. Drill out the spot welds in the edge of the fender against the wheel housing.



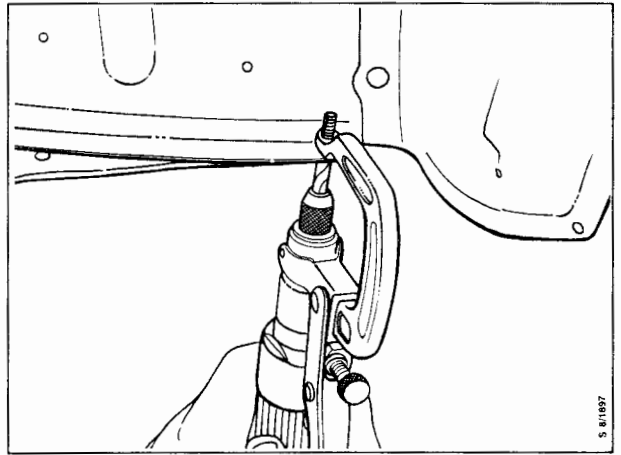
- 3 Grind off the weld against the wheel housing.



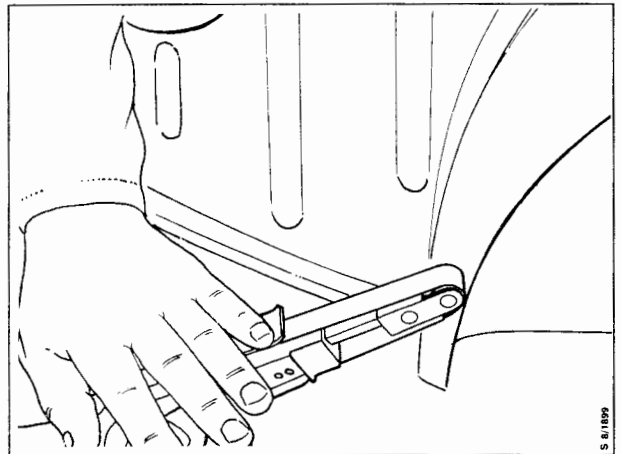
- 4 Remove the door. Drill out the spot welds in the rear edge of the fender.
- 5 Chisel off the spot welds using a chisel and hammer.



- 6 Drill out the spot welds in the front section of the fender. Chisel off the sheet-metal strip.



- 7 Scrape off the sealant. Don't forget the edge against the inside of the wheel housing.
- 8 Grind down the spot welds.
- 9 Put on the new spare, fix it and test with door and hood to make sure it fits right.
- 10 Sand off the primer on the spare and on the car at the weld sites.
Apply welding primer where resistance welding is to be done.



Replacement of wheel housing front, front inner section (front fender removed)

Exposure (all versions)

Disconnect the hose to the windshield washers from the hood

Unscrew and lift off the hood

Disconnect the battery cable

Unscrew the EZK guide device and remove it from the connector

Unscrew the expansion tank and lay it aside together with its hose

Unscrew and remove the air cleaner

Remove the direction indicator

Remove the headlamp

Detach and fold away the electrical distribution panel with wiring

Remove the air cleaner

Remove the carbon canister **NOTE!** The carbon canister's hose runs under the edge of the fender

Remove the ABS unit if the car has one

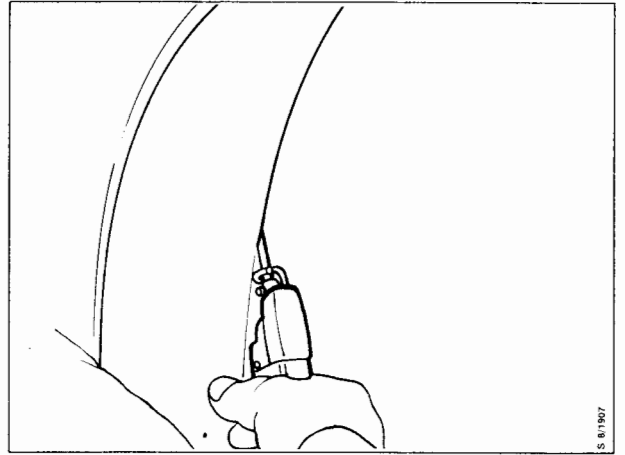
Disconnect the brake lines to the front wheel brakes

Remove the radiator member and the radiator

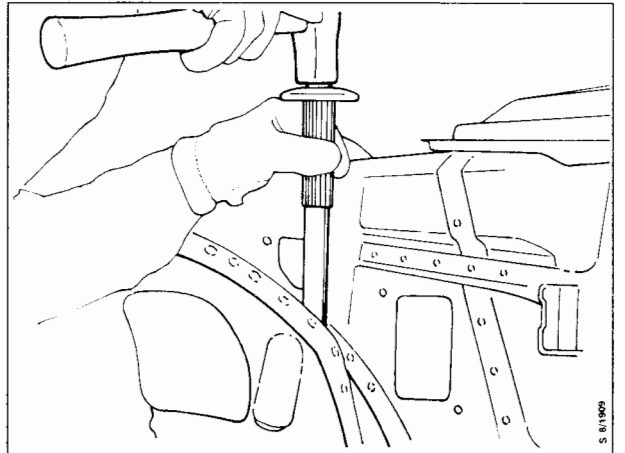
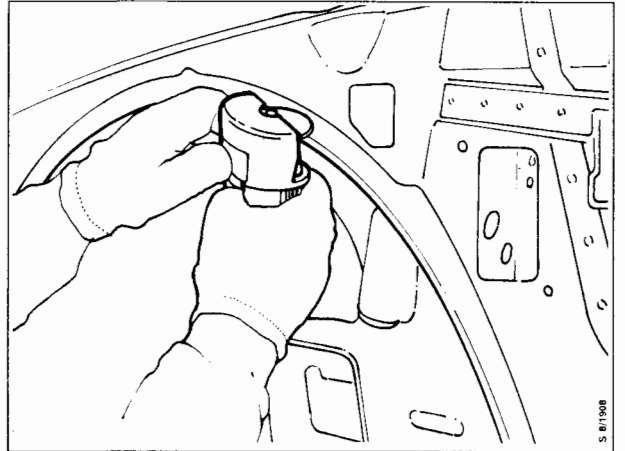
Cover the engine compartment.

Sheet-metal work

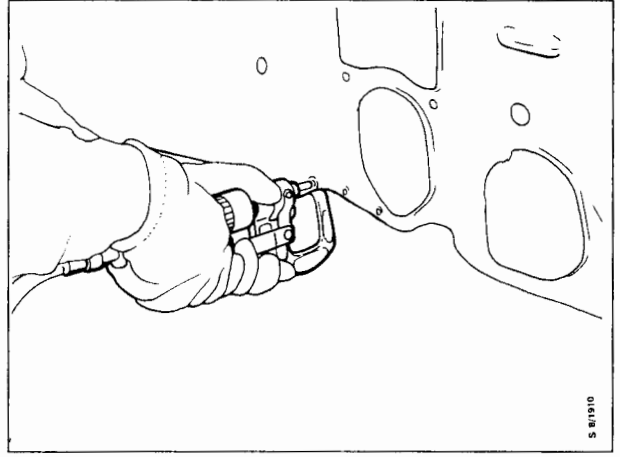
1 Saw off the outer wheel housing from the body.



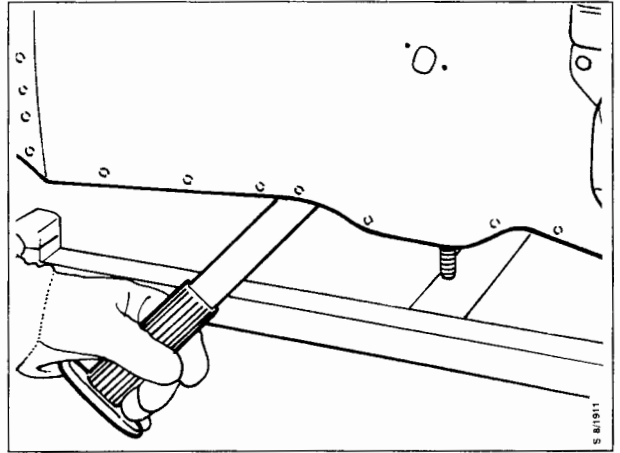
2 Grind down the spot welds with a grinder. Chisel off the spot weld strip with a chisel and hammer around the edge for the outer wheel housing.



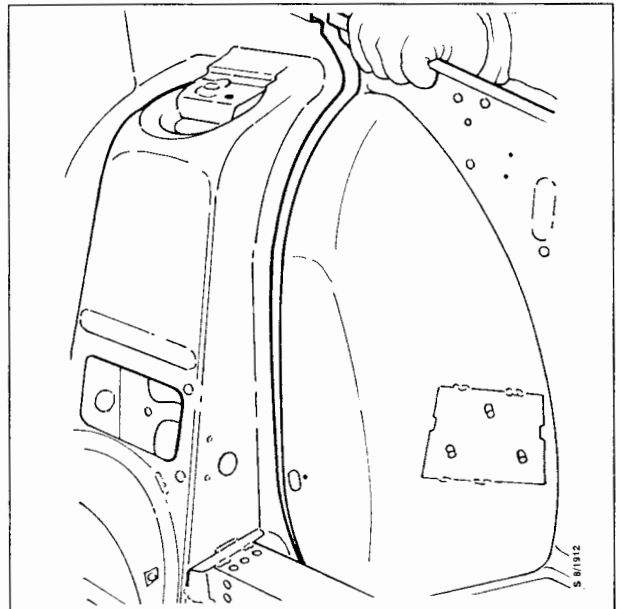
- 3 Drill out the spot welds that hold the wheel housing wall to the front floor.



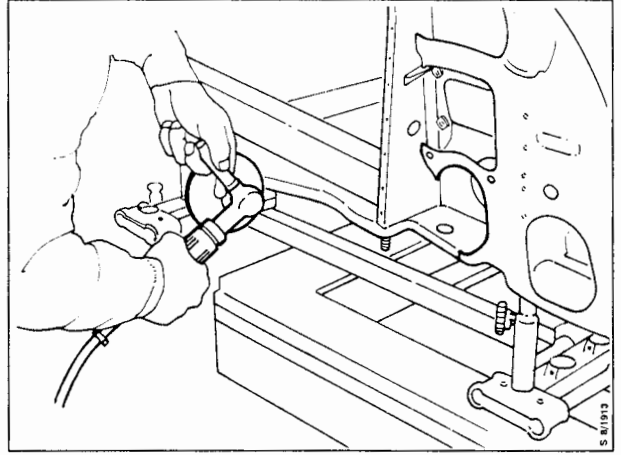
- 4 Drill out the spot welds in the folded part of the front floor. Separate the panels using a chisel and hammer.



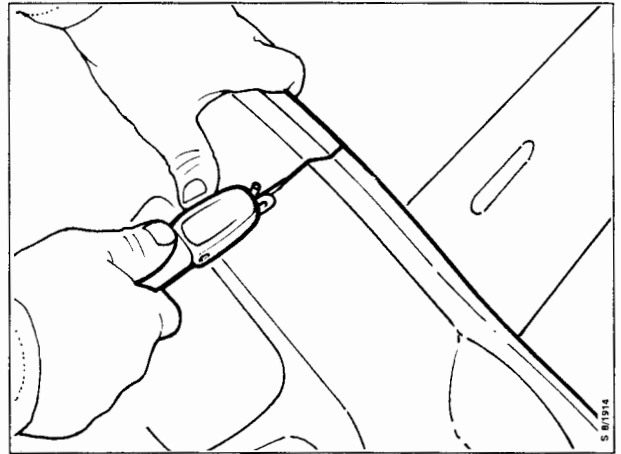
- 5 Rough-cut the wheel housing in front of the bracket. The cut should follow the bracket on the inside of the housing.



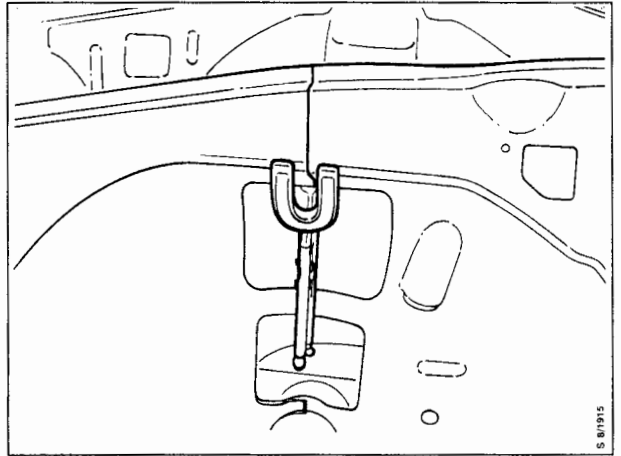
- 6 Drill out the spot welds in the front edge of the bracket and trim away the remaining portion of the wheel housing. Grind all edges.



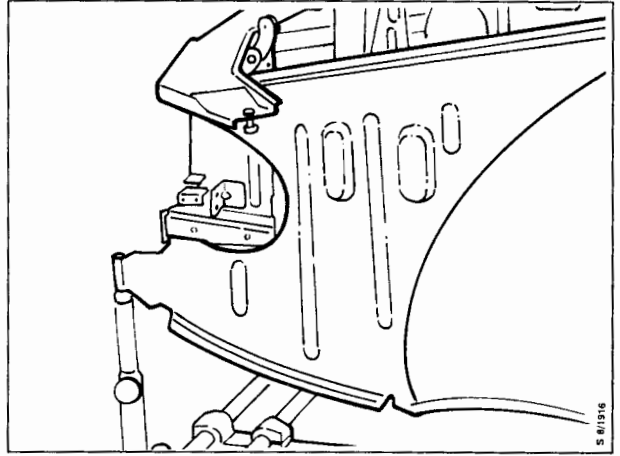
- 7 Take out the spare and saw it to size so that it is about 2 in (50 mm) larger than the removed section on the car. Utilize fixing holes.



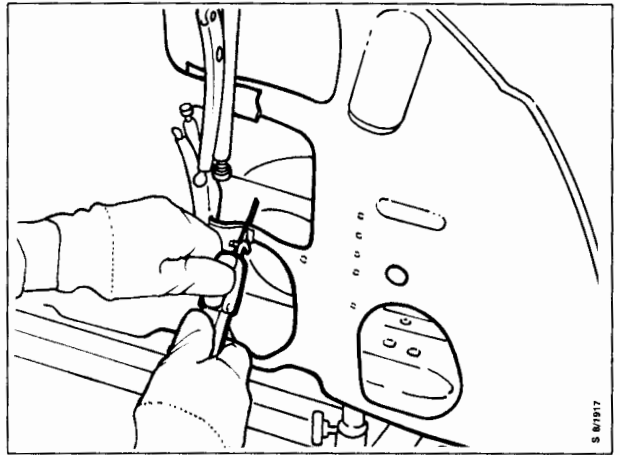
- 8 Place the spare on the car, fasten it with welding rods.



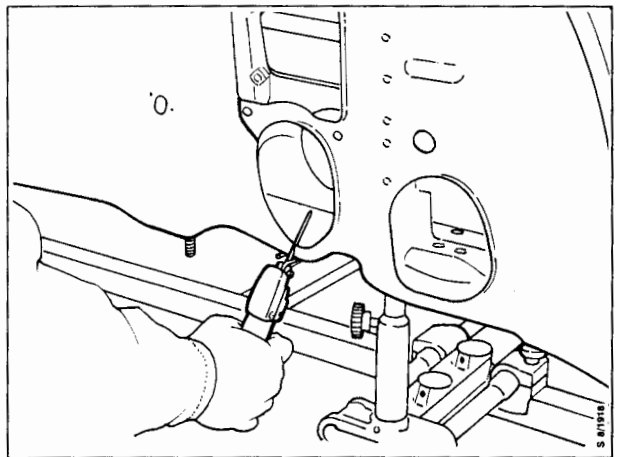
- 9 Mount the gauge in the front end of the wheel housing and check that the dimension is as specified.



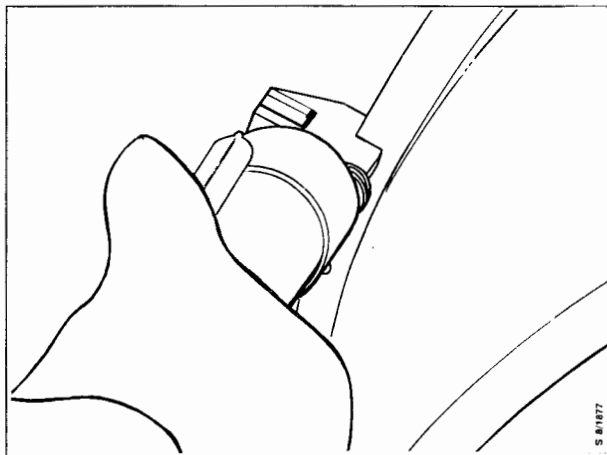
- 10 Saw through both the spare and the old wheel housing at the top part of the wheel housing. Then continue with the piece above the bracket in the groove made when the spare was sawn.



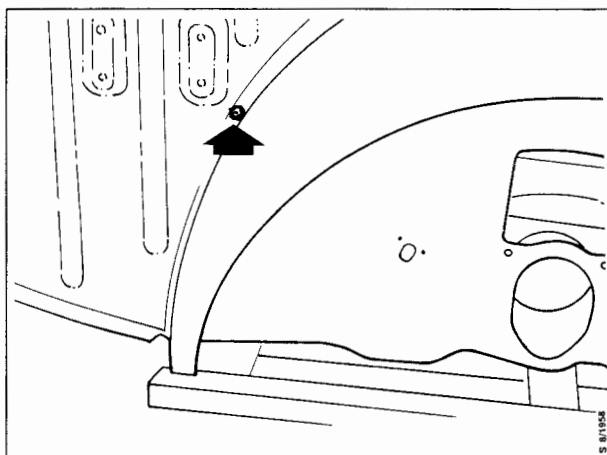
- 11 Saw off the wheel housing wall at the bottom of the narrowest point.



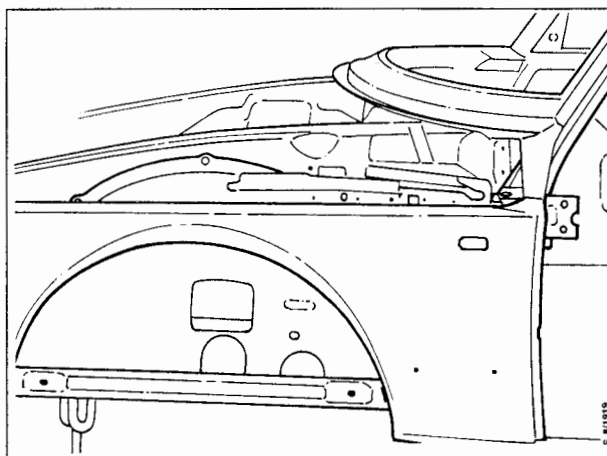
12 Punch holes in the outer wheel housing.



13 Sand, apply welding primer, put the outer wheel housing in place and fix it with screws in the fixing holes.



14 Fit the front fender temporarily and make sure the fit between the wheel housing and the fender is correct.



Replacement of engine compartment floor, left side

Exposure (all versions)

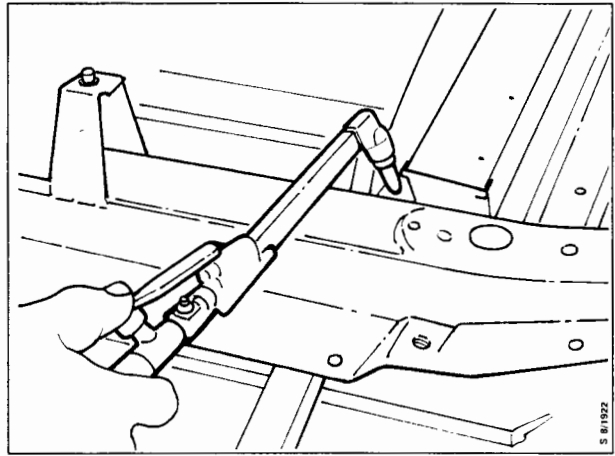
In this case it is assumed that the wheel housing has been removed. The power train has been removed.

In other cases the steps described under "Replacement of wheel housing, front section" must be carried out and the power train must be removed. See group 2:1 Basic Engine, section 201.

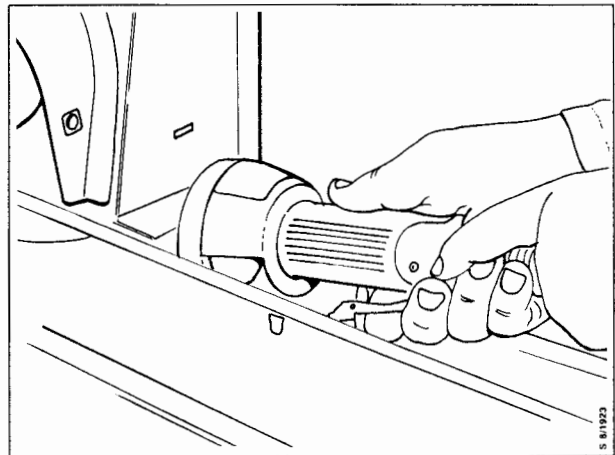
An aligning bench must be used for this work.

Sheet-metal work

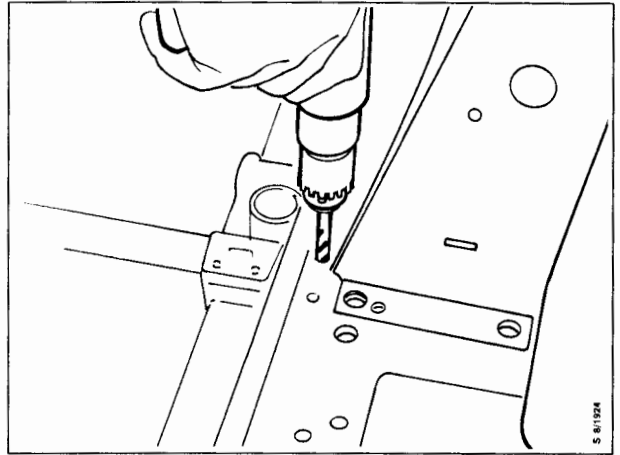
- 1 Cut loose the impact-absorbing member and remove it.



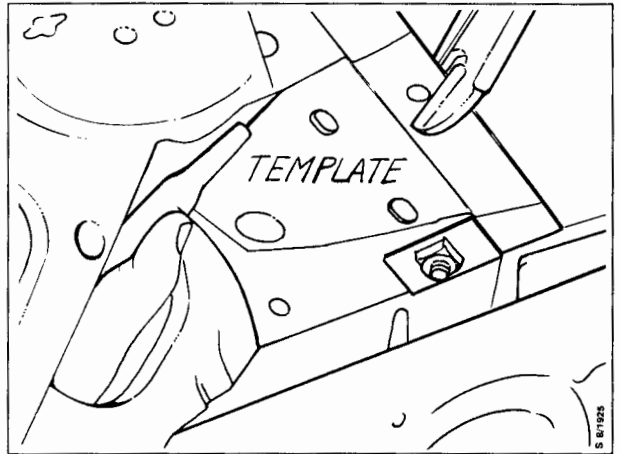
- 2 Cut loose the retaining bolt for the floor member. There is a spot weld underneath the bolt's washer.



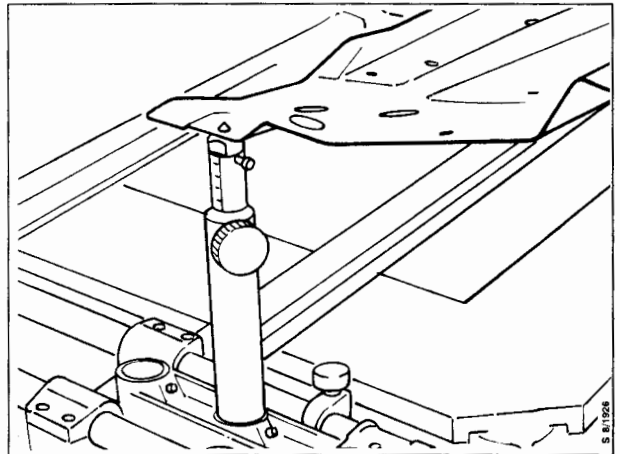
- 3 Drill out the spot welds and bend down the Z member on the underside. Trim away all traces of sheet metal.



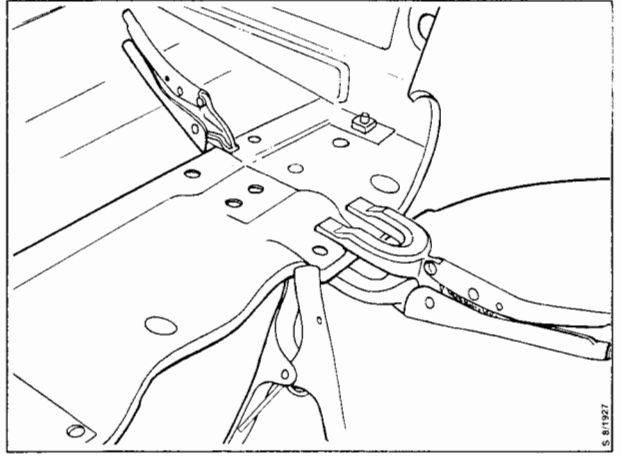
- 4 Scribe the joint location on the spare and saw off the floor panel. When only a portion of the floor panel is to be used, the other piece can be used to saw a template.



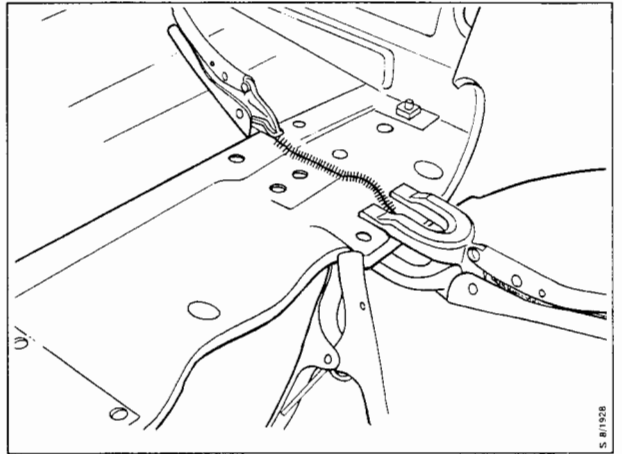
- 5 Sand down the weld sites. Measure the front section of the engine compartment panel. Sand down the weld sites and apply welding primer.



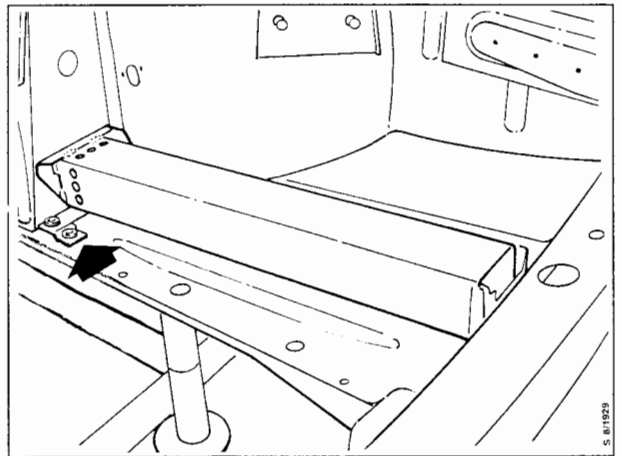
6 Put on the floor panel and attach it with welding rods.



7 Lay a continuous weld in the joint in the engine compartment panel.



8 Insert the nut washer under the impact-absorbing member. Put in the washer that serves as a point of attachment for the link rod.



- ● ● Spot weld or plug weld
- ≡ ≡ ≡ Seam weld
- ≡≡≡≡≡≡≡≡≡≡ Continuous welds

Replacement of wheel housing cpl. (front fender removed, outer wheel housing removed)

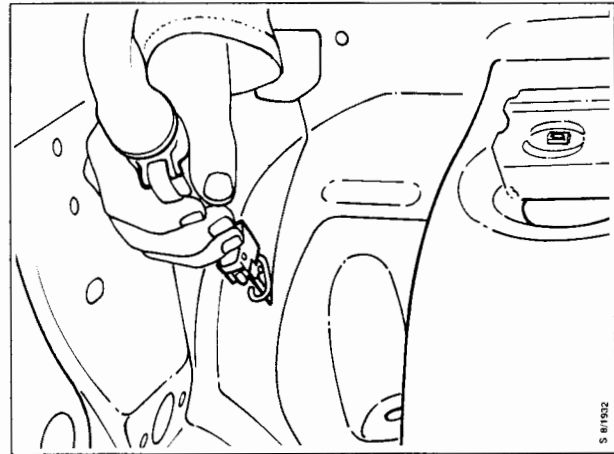
Exposure (all versions)

The work requires that the power train be removed first. See description in group 2:1 Basic Engine, section 201

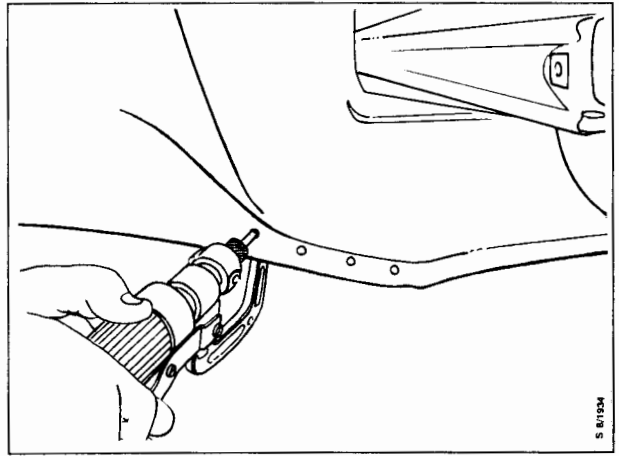
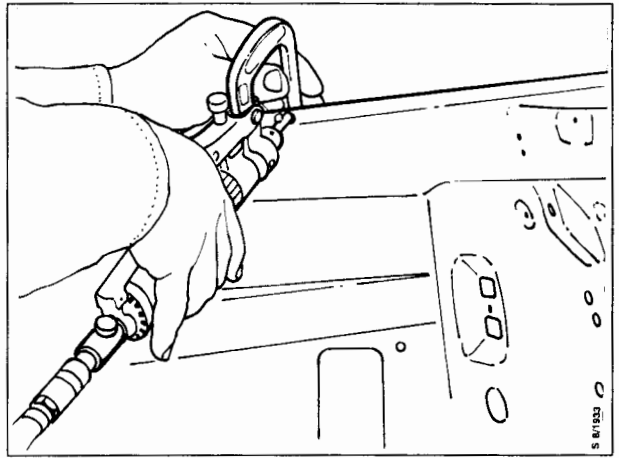
Regarding removal of parts, see engine compartment floor and follow the description there. In order to replace the cpl. wheel housing, it is also necessary to remove the front-wheel suspension and the ABS unit. The instrument panel must be taken out of the car. The work requires the use of an aligning bench.

Sheet-metal work

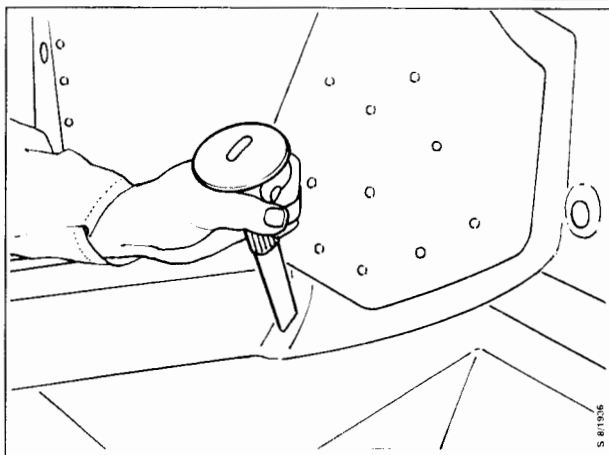
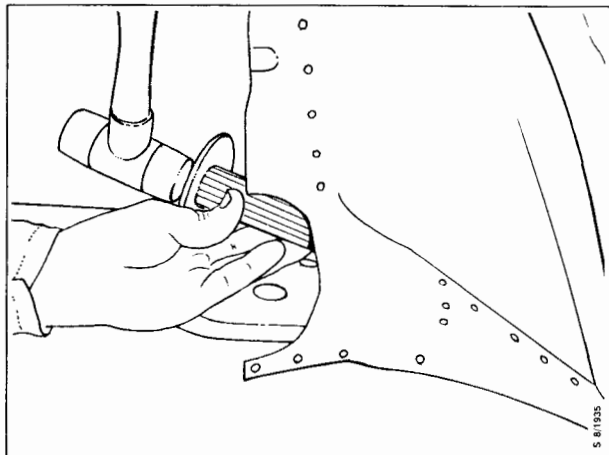
- 1 Rough-saw away the old wheel housing.



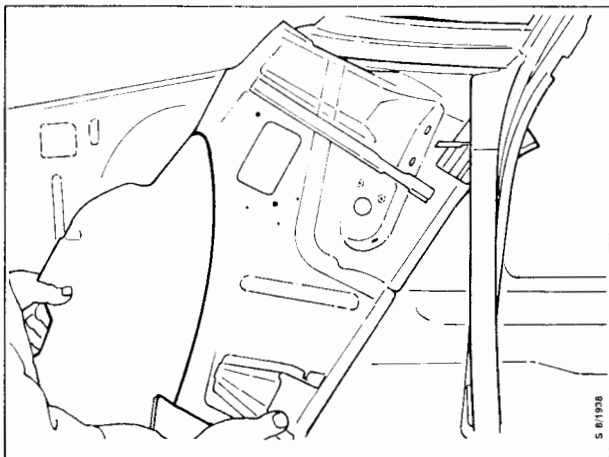
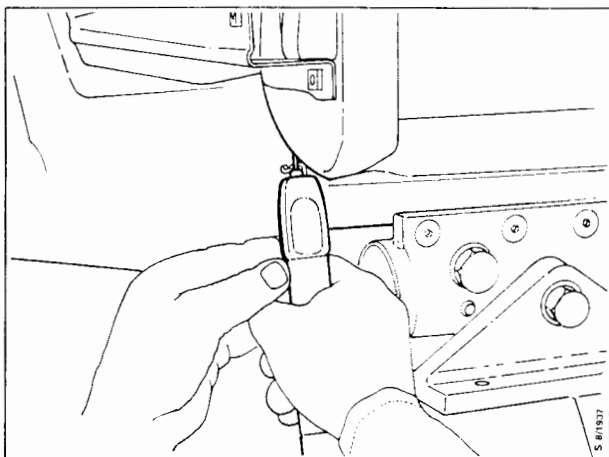
- 2 Drill out the spot welds at the anchorage of the wheel housing to the bulkhead, the door pillar and the windshield member as well as to the engine compartment floor.



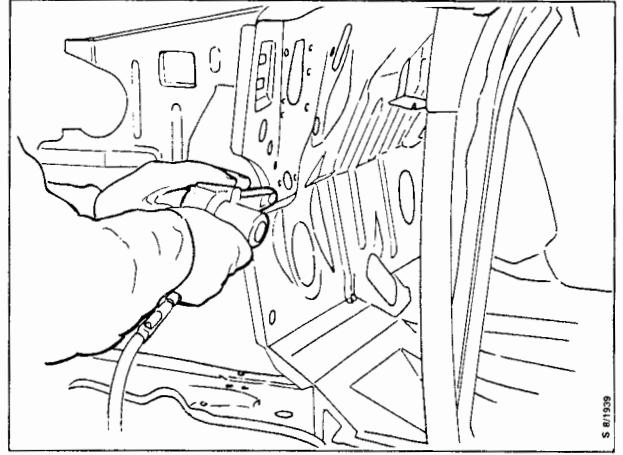
3 Separate the panels using a chisel and hammer.



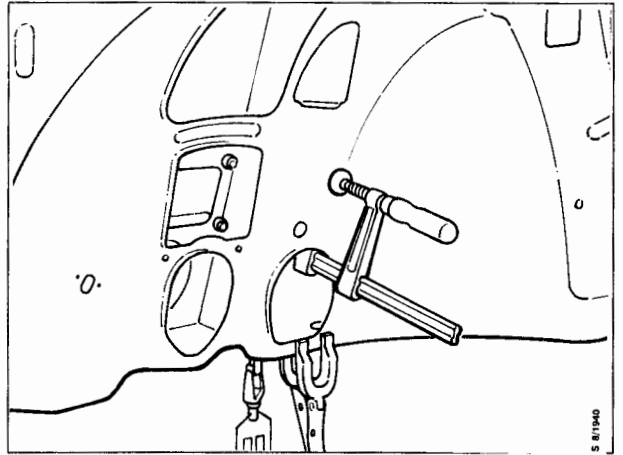
4 Saw a cut in the end of the sill to make it easier to detach the wheel housing from the body.



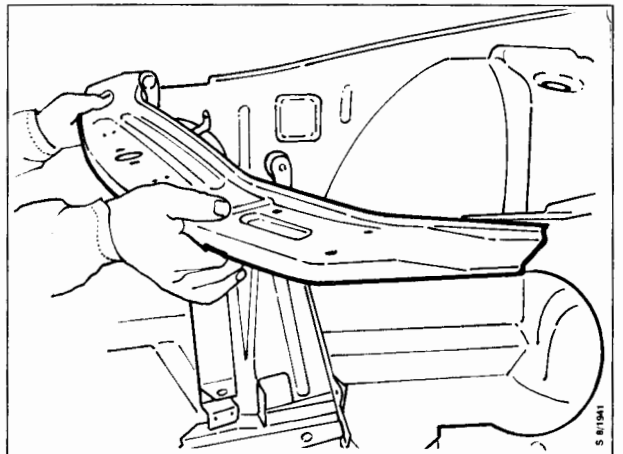
- 5 Sand clean all surfaces where welds are to be made. Punch holes for the plug welds that are to be made.



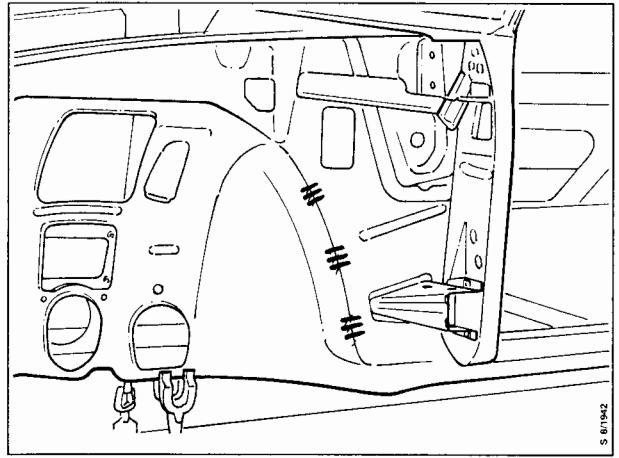
- 6 Take out the spare and sand off the paint where resistance welding is to be done. Apply welding primer to the spare and to the car.
- 7 Put up the wheel housing and try it on the car.



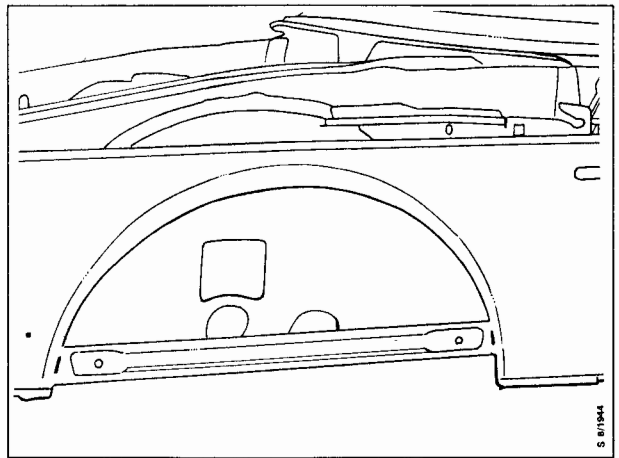
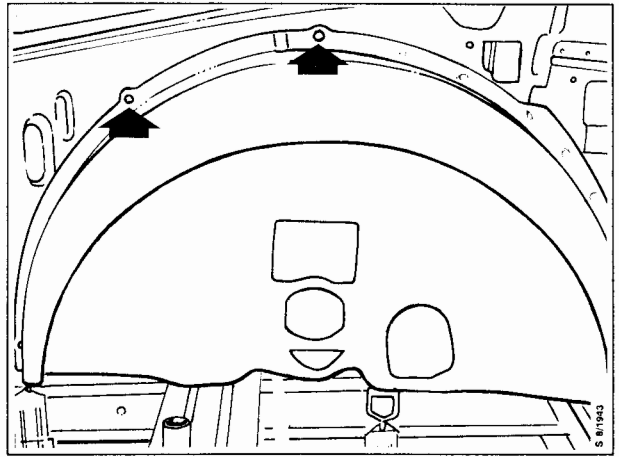
- 8 Fit the radiator member. Measure the position of the wheel housing with the aid of the aligning bench. Adjust the position if necessary.



9 Weld on the wheel housing with a couple of tacks to fix it during the fitting procedure.

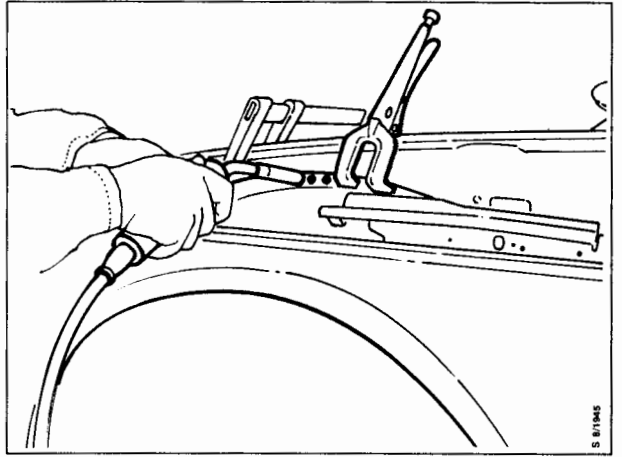


10 Punch holes in the outer wheel housing at those points where plug welding is to be done. Sand down the primer and apply welding primer to the outer wheel housing and the wheel housing wall. Put up the outer wheel housing with two screws and fit the fender so that its fit against the outer wheel housing can be checked. Put up the door and the hood and check the fit against them.

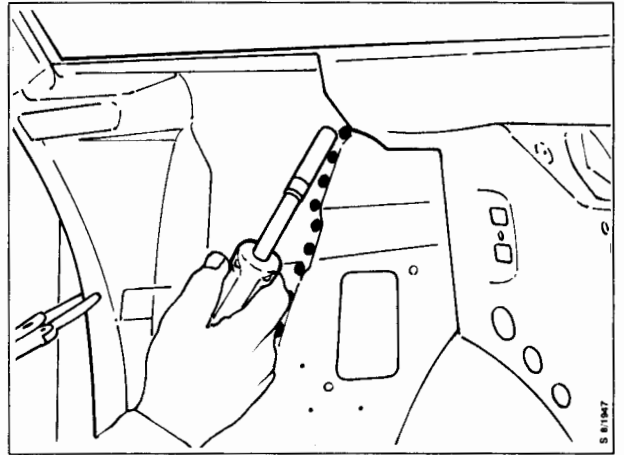
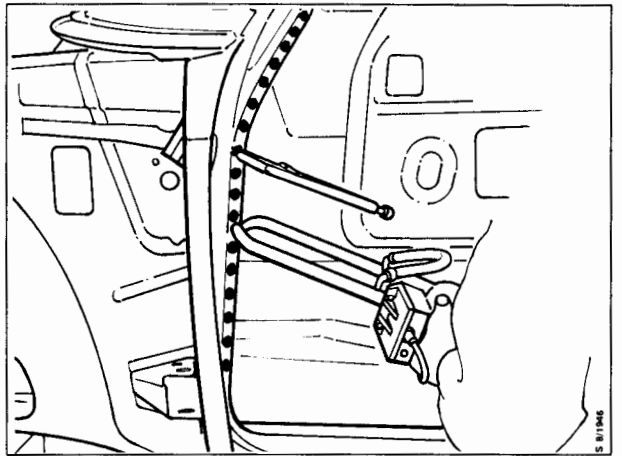


- ● ● Spot weld or plug weld
- ≡ ≡ ≡ Seam weld
- ≡≡≡≡≡≡≡≡≡≡ Continuous welds

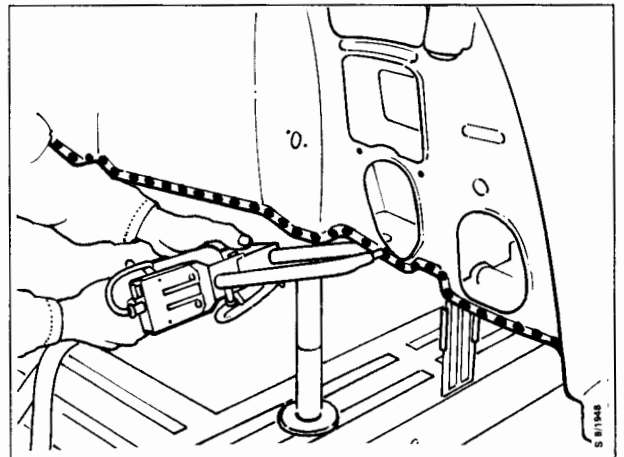
11 When the outer wheel housing fits well, it can be tacked in place before the fender is once again taken down.



12 Weld the wheel housing to the A pillar, the bulkhead and the engine room floor.



- ● ● Spot weld or plug weld
- ≡ ≡ ≡ Seam weld
- ≡≡≡≡≡≡≡≡≡≡ Continuous welds

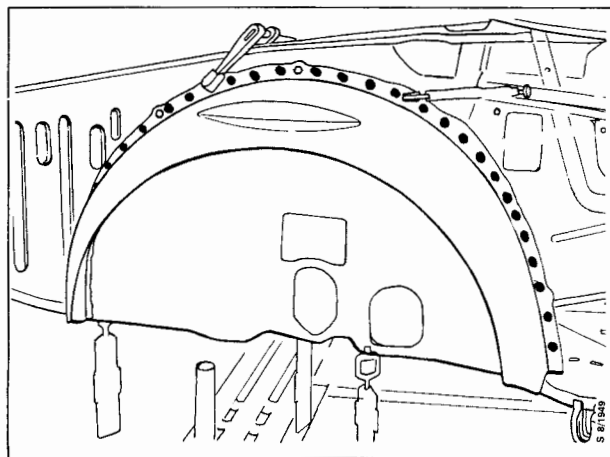


13 Plug-weld the outer wheel housing in place. Remove excess welding primer.

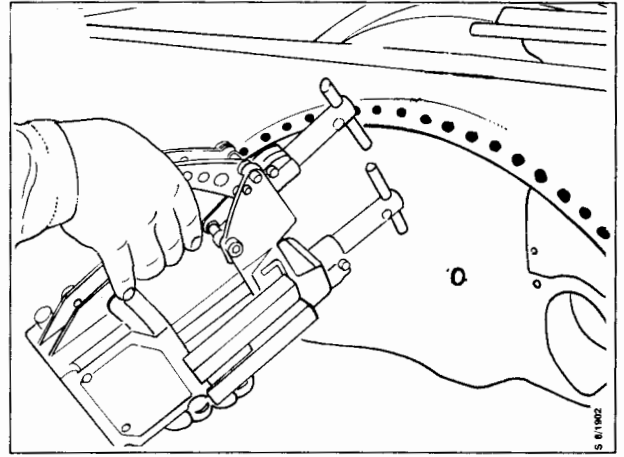
● ● ● Spot weld or plug weld

||||| Seam weld

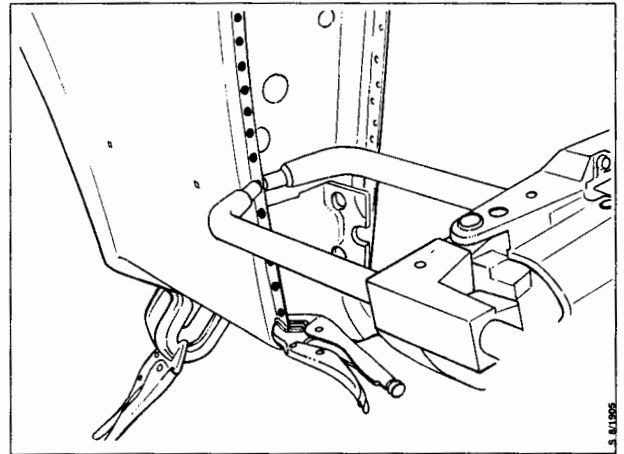
||||||||| Continuous welds



- 14 Put up the fender and spot-weld it at the front edge to the engine compartment floor and to the outer wheel housing.

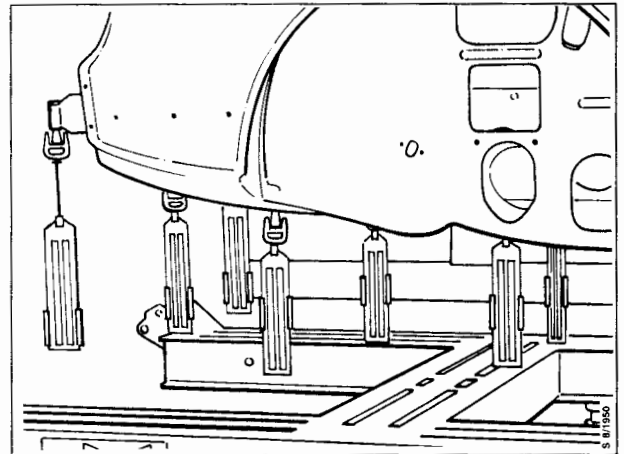


- 15 Take down the door.
16 Spot-weld the edge of the outer wheel housing to the fender and the rear edge of the fender to the A-pillar.

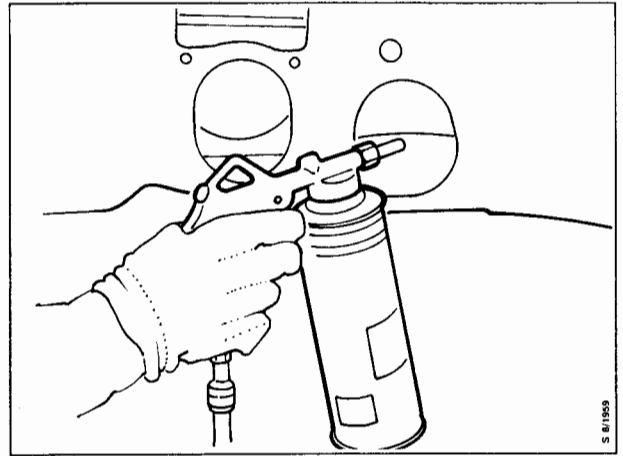
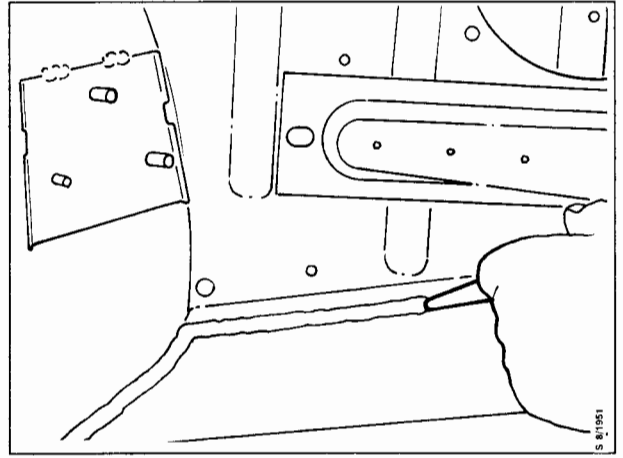


- 17 Measure the body and make sure that the dimensions are correct at all points.

- ● ● Spot weld or plug weld
- ≡ ≡ ≡ Seam weld
- ≡≡≡≡≡≡≡≡≡≡ Continuous welds



- 18 a Paint with primer, if necessary fill with plastic.
b Apply body putty at flanges and joints.
c Apply PVC compound substitute.
Anti-corrosion oil should be applied after the paint.



Replacement of front member

Exposure (all versions)

If the work is done in conjunction with replacement of the wheel housing, the power train have already been removed.

The front member can be replaced without the power train being taken out of the car.

The following parts must then be removed:

The hood and the hoses to the windshield washer

Bumper and bumper extension

Battery

Headlamps and direction indicators

Radiator member and radiator, electric wiring and oil cooler (if any)

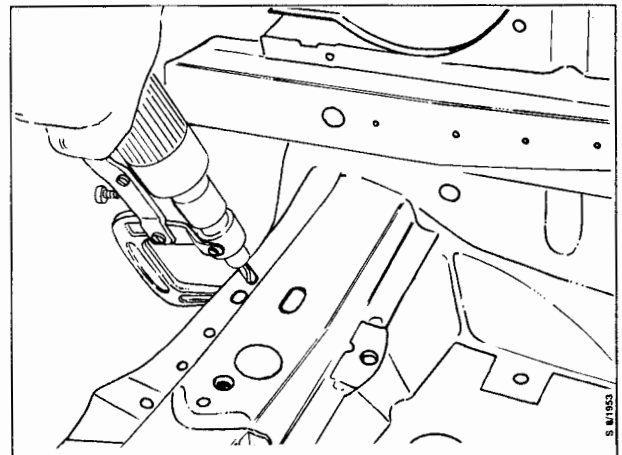
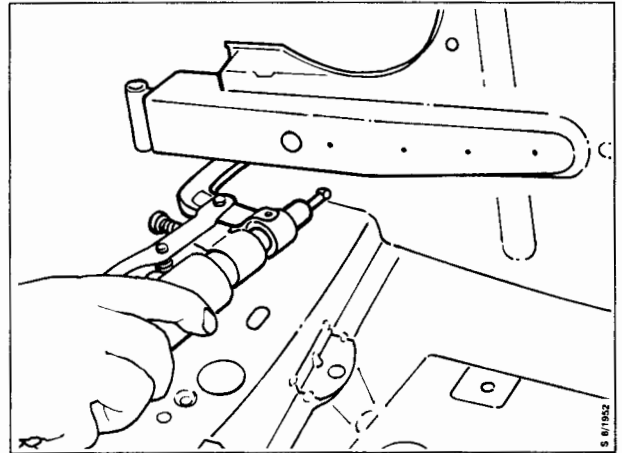
Front engine mount, block up the engine

Protection plate under engine.

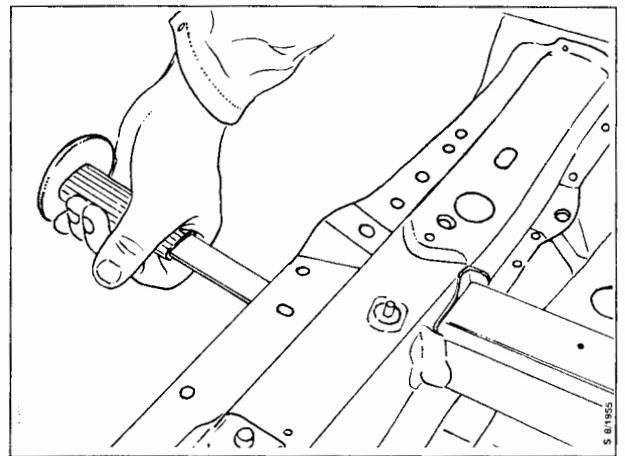
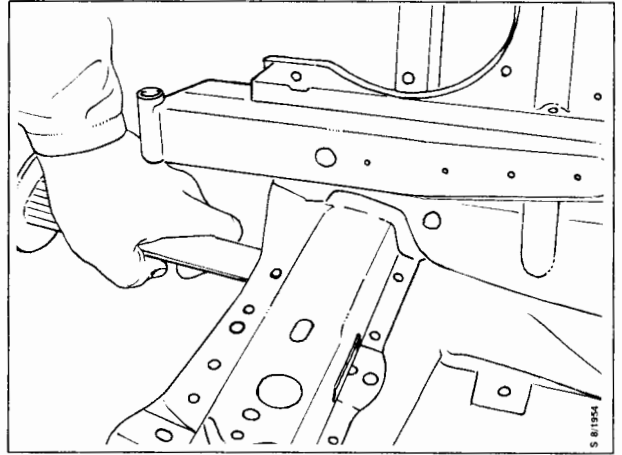
An aligning bench must be used in order to be able to install the engine member in the right position.

Sheet-metal work

- 1 Drill out the spot welds from underneath and from the side. Detach the member from the impact-absorbing member.



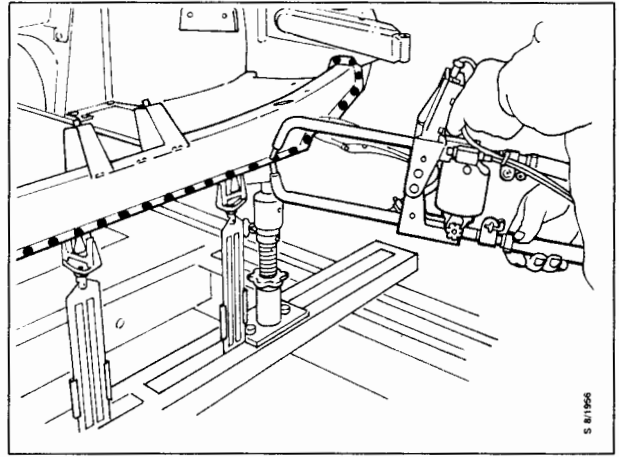
- 2 Chisel off the member using a hammer and chisel. Lift away the member.



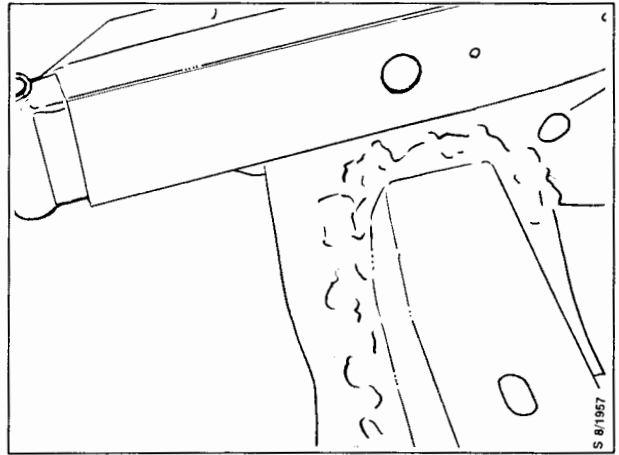
- 3 Straighten the edges with a hammer and anvil.
- 4 Sand down the primer on the spare and on the car. Apply welding primer.
- 5 Put on the new engine member together with the front engine compartment floor.

6 Measure and tack on the panels. Plug-weld or spot-weld and continuous-weld. Sand clean.

- 7 a Paint with primer, if necessary fill with plastic.
- b Apply body putty at flanges and joints.
- c Apply PVC compound substitute.
Anti-corrosion oil should be applied after the paint.



- ● ● Spot weld or plug weld
- |||| |||| |||| Seam weld
- |||||||||||||||| Continuous welds



Replacement of bumper brackets

An aligning bench must be used

Exposure (one side)

Remove the bumper and the bumper extension.

Remove the headlamp.

Remove the light cluster.

Remove the air filter.

Remove the carbon canister.

Remove the guide devices in the fender edge, EZK guide device and final stage.

Disconnect the wiring looms and fold them out of the way.

Sheet-metal work

- 1 Scrape away sealant so that the spot welds are visible.
- 2 Drill out the spot welds and trim away the old attachment.
- 3 Sand down the paint on the spare and on the car. Apply welding primer. Measure the spare.
- 4 Spot-weld the new part in place.
- 5 Grind down the spot welds, apply primer and sealant. Apply anticorrosion treatment.
- 6
 - a Paint with primer, if necessary fill with plastic.
 - b Apply body putty at flanges and joints.
 - c Apply PVC compound substitute.
Anti-corrosion oil should be applied after the paint.
- 7 Restore the car.



SAAB

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Trollhättan, Sweden



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