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# Workshop Manual

911

*Carrera 4*

The workshop manual is only for the internal use of the Porsche Dealer Organization.

© 1988 Dr. Ing. h.c. F. Porsche  
Aktiengesellschaft  
Technical Service Department  
D-7140 Ludwigsburg

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WKD 482520

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Cyl.

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	TI/ QI		No.	911 C2-C4	911	911 turbo	Remarks, Model, Also refer to...	Date
<b>1985</b>								
- Door Locks	Q		1/85		●	●	Grease	10.04.85
<b>1986</b>								
- Door Opener, Inside	Q	◆	1/86		●	●	Operating force reduced	18.04.86
- Ignition Keys Loose Porsche Coat of Arms	Q		2/86		●	●		09.05.86
- Lockable Tank Cap	Q		3/86		●		Targa and Convertible	09.05.86
- Door Door Outside Handle and Door Lock	Q		4/86		●	●	Operating force reduced	25.11.86
<b>1987</b>								
<b>1988</b>								
- Door Sealing	Q		1/88		●	●	Paint Drain Hole/ Rubber Grommet	30.05.88
- Door Door Retarder	Q		2/88		●	●	Similar to 928 S4	30.05.88
- Club Sport Carts Undercoating	Q		3/88		●		Standard PVC Under- coat	21.06.88
- Service Installation of Wind Deflectors (Spoilers)	T		1/88		●		Installation instructions- No.: 000.043.121.00	12.10.88
<b>1989</b>								
- Modifications on Doors and Hinge Pillars	T		1/89	●		●	Attach door contact switch lower down.	14.11.89
- Water Drain in Spare Wheel Well	T	◆	2/89	●			WK 02 66000	08.06.89
<b>1990</b>								
- Front fender assembly	T		1/90	●			2 spot welds to aid po- sitioning and assembly.	28.02.90
- Modified support rod on rear side panels	T	◆	2/90	●			Crack formation in area of tail lights	08.06.90

◆ = Conversion instructions or workshop campaign  
 ▽ = Brochure  
 ⊕ = Supplement or change for TI/QI



# SERVICE

Date  
 30.04.90    31.12.90  
 VKQPI

# Survey of Information Published in Technical Manual beginning in 1985

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	TI/ QI		No.	911 C2/C4	911	911 Turbo	Remarks, Model, Also refer to...	Date
<b>1985</b>								
- Front Seat Belts	Q		1/85		●	●	Washer	10.04.85
- Cabrio Top Locating Pins	Q		2/85		●		Loctite No. 270	10.04.85
- Sun Roof	Q		3/85		●	●	Noise/...QI-5/85	07.06.85
- Cabrio Top	Q		4/85		●		Noise/eccentric disc	07.06.85
- Hardtop-Installation Instructions	T	◆	2/85		●			02.07.85
- Sun Roof	Q	◆	5/85		●	●	1983-86 Models noise	29.11.85
- Scratched Rear Window Panel Cabriolet	Q		6/85		●		Polish	29.11.85
<b>1986</b>								
- Body Paint Finish	Q		1/86		●	●	Data plates	16.01.86
- Hardtop Modifications	T		1/86		●		Supplement for TI 2/85	10.04.86
- Convertible Top	T	∇	2/86		●		WKD 492 720 WKD 492 620	14.03.86
- Electrically Operated Convertible Top	Q		2/86		●		12-pin plug	13.08.86
- Power Windows Door Window Adjustment	Q		3/86		●		Targa and Convertible ...QI-3/87	10.10.86
- Sealing Jobs on Coupes, Targas and Convertibles	T	∇	3/86		●	●	WKD 493 820	30.12.86
<b>1987</b>								
- Convertible Convertible Top	Q	◆	1/87		●		Pulling in steel cable	20.02.87
- Convertible Rear Window	Q		2/87		●		1986-1987 Models/ scratches/screw	18.06.87
- Power Windows Window Lifting Stop	Q		3/87		●	●	Targa and Convertible ...QI-3/86	31.08.87
- Basic Adjustment on Electrically Operated Top	T	◆	1/87		●	●	Repair note	25.10.87
<b>1988</b>								
<b>1989</b>								
- Convertible and Speedster Top Waterproofing	T		1/89		●		Hood spray/600 ml 000.043.123.00	04.08.89
◆ = Conversion instructions or workshop campaign ∇ = Brochure ⊕ = Supplement or change for TI/QI								



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	TI/ QI	No.	911 C2-C4	911	911 turbo	Remarks, Model, Also refer to...	Date
<b>1990</b>							
- Cabriolet folding top	T ♦	1/90	●	●	●	Centre pillar abrasion point. Abrasion protection	16.02.90
- Safety belts, rear	T	2/90	●			Cap deformed by neat.	23.03.90
- Convertible and Speedster Top Waterproofing	T	3/90		●		Replaces T N° 1/89 of 04.08.89	15.05.90
- Airbag-System	T ▽	4/90	●		●	WKD 497 120	16.11.90

♦ = Conversion instructions or workshop campaign  
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# Survey of Information Published in Technical Manual beginning in 1985

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	TI/ QI		No.	911 C2/C4	911	911 Turbo	Remarks, Model, Also refer to...	Date
<b>1985</b>								
- Comfort Seats New Seat Generation	Q		1/85		●	●	1985 Model/correction	15.02.85
- Power Seat Backrest Control	Q		2/85		●	●	Flexible shaft / 5mm	22.10.85
<b>1986</b>								
- Seat Heating	Q		1/86		●	●	Operation	18.04.86
- Seat Heating Testing Information	Q	⊕	1/86		●	●		07.07.86
- Seat Heating Modified Operating Switch	Q	⊕	1/86		●	●		07.07.86
- Repairing Seat Heating	T	◆	1/86		●	●	Repair note	30.12.86
<b>1987</b>								
<b>1988</b>								
<b>1989</b>								
- Speedster Seat Heating/Power Window Relay	T		1/90		●		Speedster vehicles with power window relay.	18.12.89
<b>1990</b>								
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The workshop manual of the Carrera 4 also includes that for the Carrera 2. The Carrera 4 acts as the basis for description of the repairs in the manual. "Carrera 4" also appears on every page in the header line.

Deviating descriptions for repairs on the Carrera 2 follow those of the Carrera 4. These repair descriptions for both models are separated by a yellow sheet.

"Carrera 2" appears on all pages in the header line after the separating sheet. The page number starts with 100 as an additional distinction.

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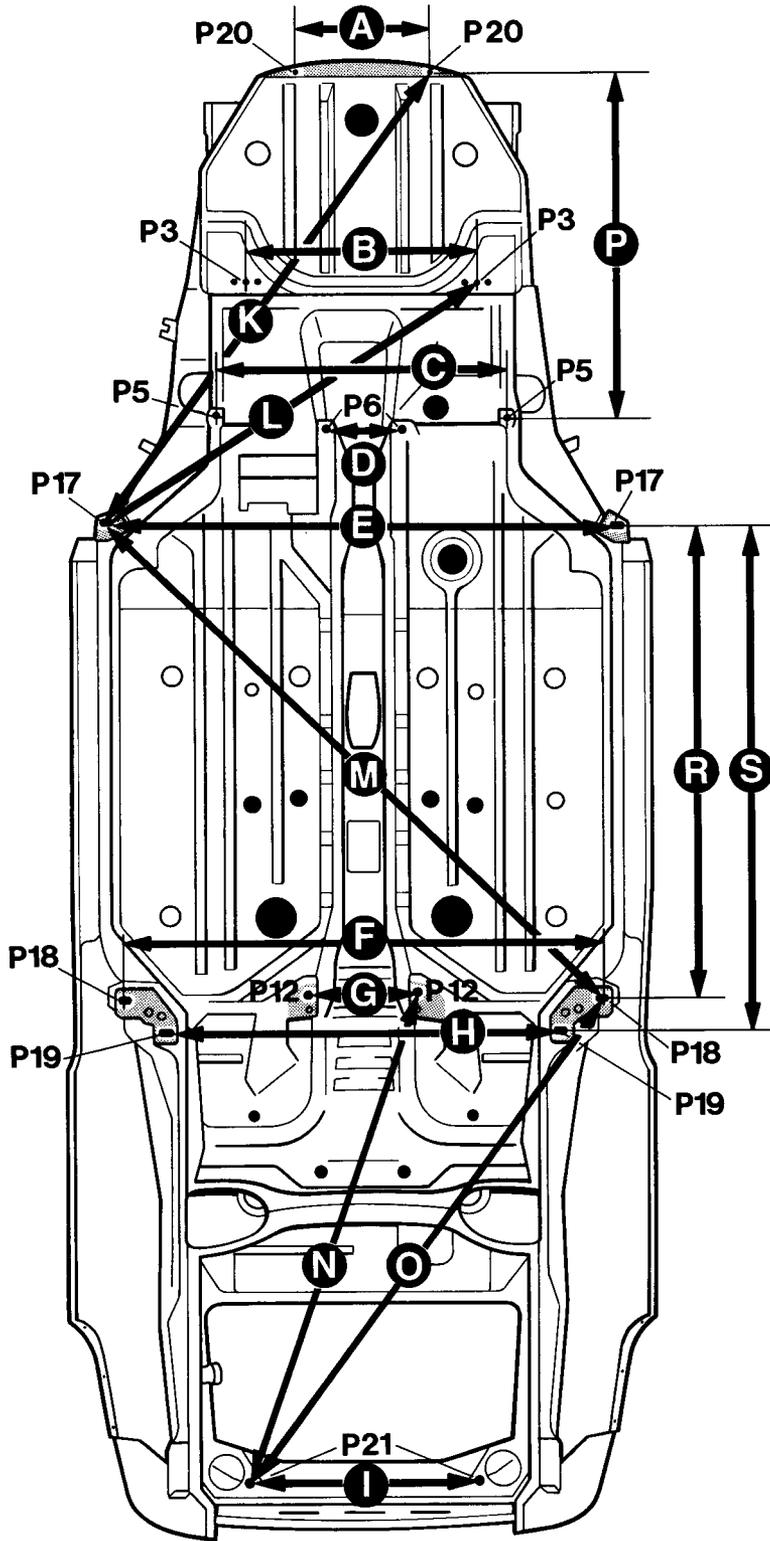
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**Repair check dimensions**

Dimensions for underbody



**Dimensions for floor assembly**

Dim.	Designation	mm
A	Point 20 Take up hole - front cover plate	440 ± 2
B	Point 3 Take up hole - side member, front axle	610 ± 1
C	Point 5 Take up hole - outer cross member, front axle	770 ± 2
D	Point 6 Take up hole - inner cross member, front axle	204 ± 2
E	Point 17 Take up hole - platform, jack front	1330 ± 1
F	Point 18 Take up hole - jack - rear	1236 ± 1
G	Point 12 Take up hole - transmission carrier	278 ± 1
H	Point 19 Take up hole - platform - rear	1018 ± 1
I	Point 21 Take up hole - engine mount inner	640 ± 1
K	Point 20 - Point 17	(1500 ± 3)
L	Point 3 - Point 17	1174 (1170)
M	Point 17 - Point 18	1788 ± 3
N	Point 12 - Point 21	1492 ± 3 (1482 ± 3)
O	Point 18 - Point 21	1696 ± 3 (1653 ± 3)
P	Point 20 - Point 5	914.5 (913)
R	Point 17 - Point 18	1245 ± 2
S	Point 17 - Point 19	1328 ± 2

All dimensions are measured from or to center of hole

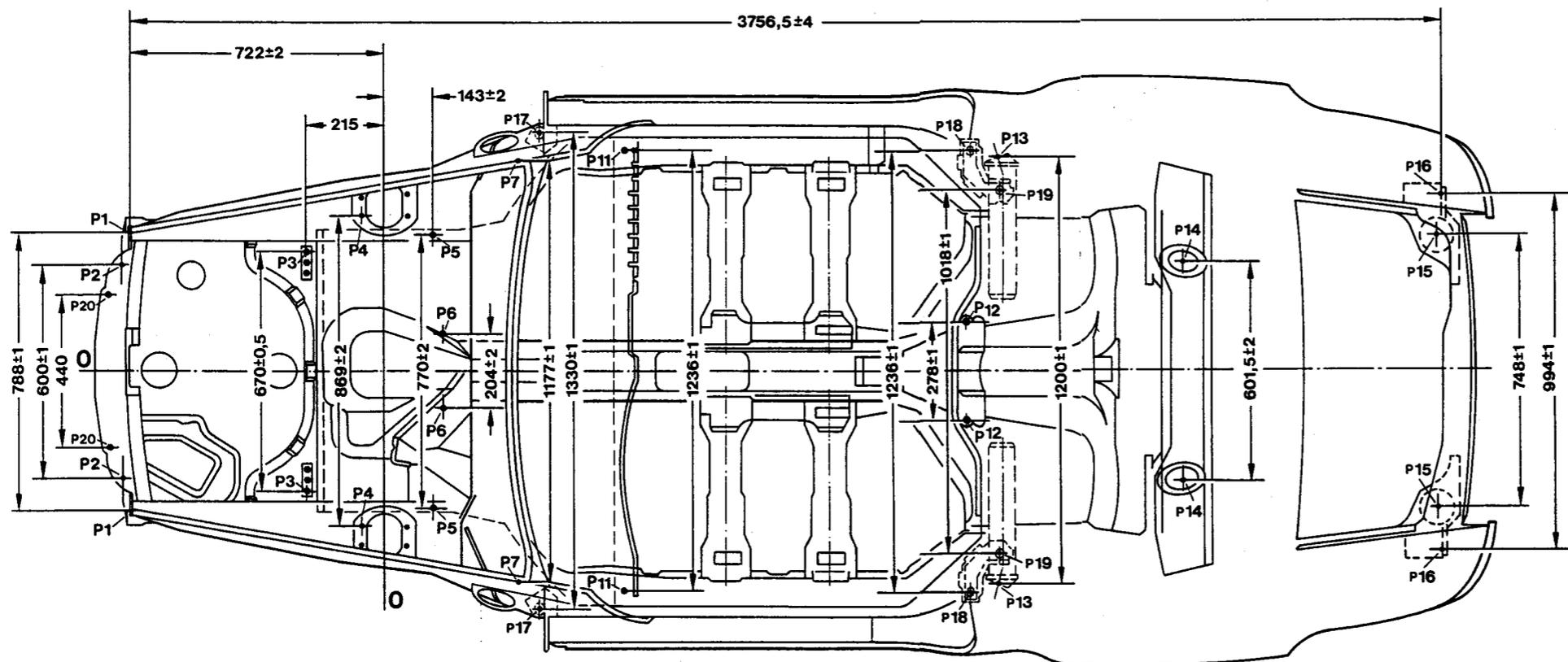
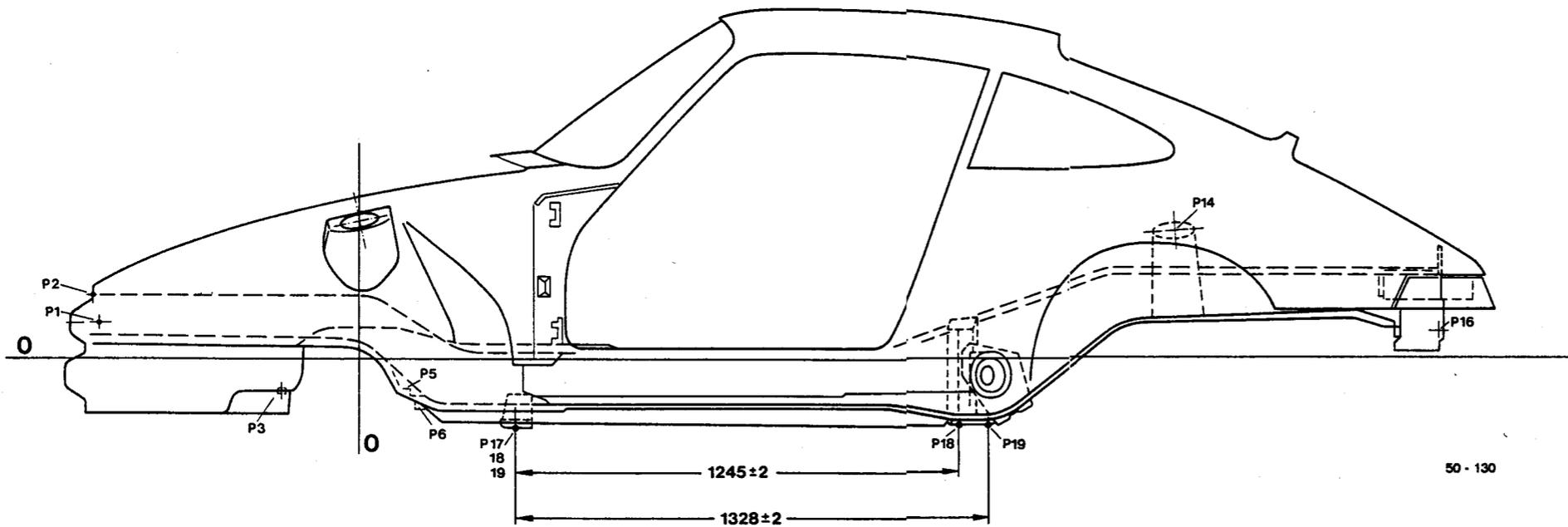
**Note**

The dimensions are measured directly and are therefore oblique dimensions.  
The dimensions in brackets are measured vertically.

**Attention**

The deviation between left and right must not exceed the prescribed tolerances for longitudinal dimensions.

Dimensions for assembly

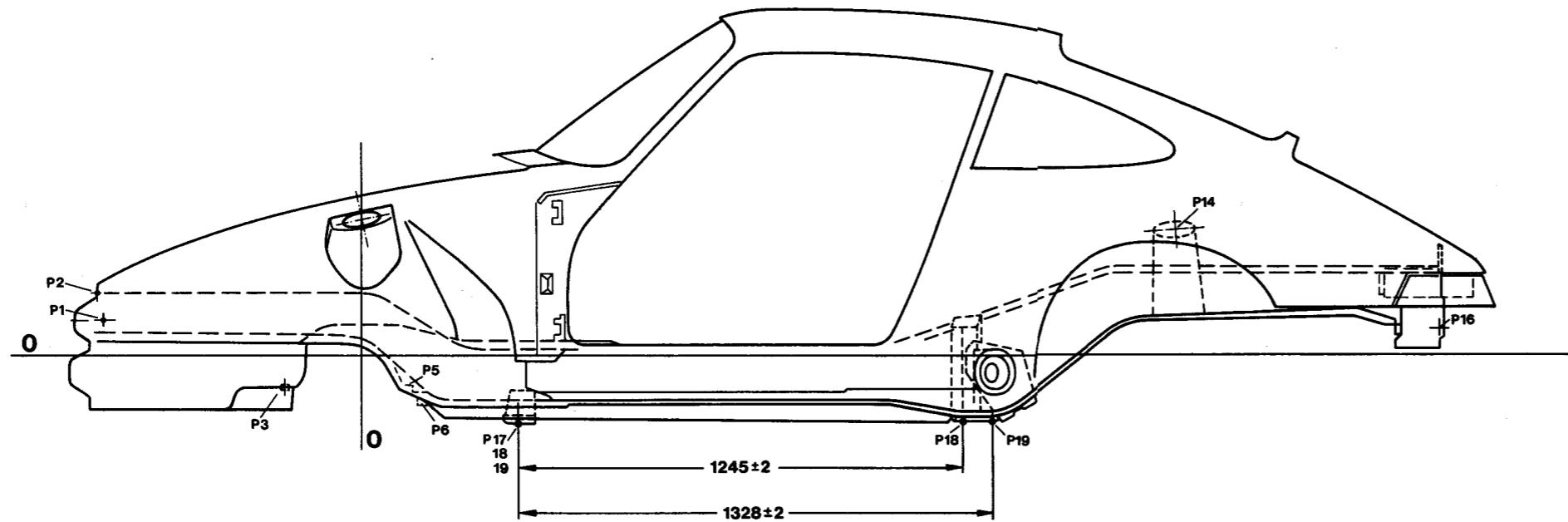


Point (left/right)	Description
1	Center bumper/impact absorbing tube, front
2	Mounting hole - final front section
3	Mount - FA side member
4	Mount FA spring strut
5	Mount - outer cross member FA
6	Mount - inner cross member FA
7	Mounting hole - wheel house
11	Mounting hole - switchboard
12	Mount - transmission cross member
13	Mount - outer cross tube RA
14	Mount - RA spring strut RA
15	Mount - engine bearing
16	Center of bumper/impact absorbing tube, rear
17	Jacking point - lifting platform, jack, front
18	Jacking point - jack, rear
19	Jacking point - lifting platform, rear
20	Hole - front final section

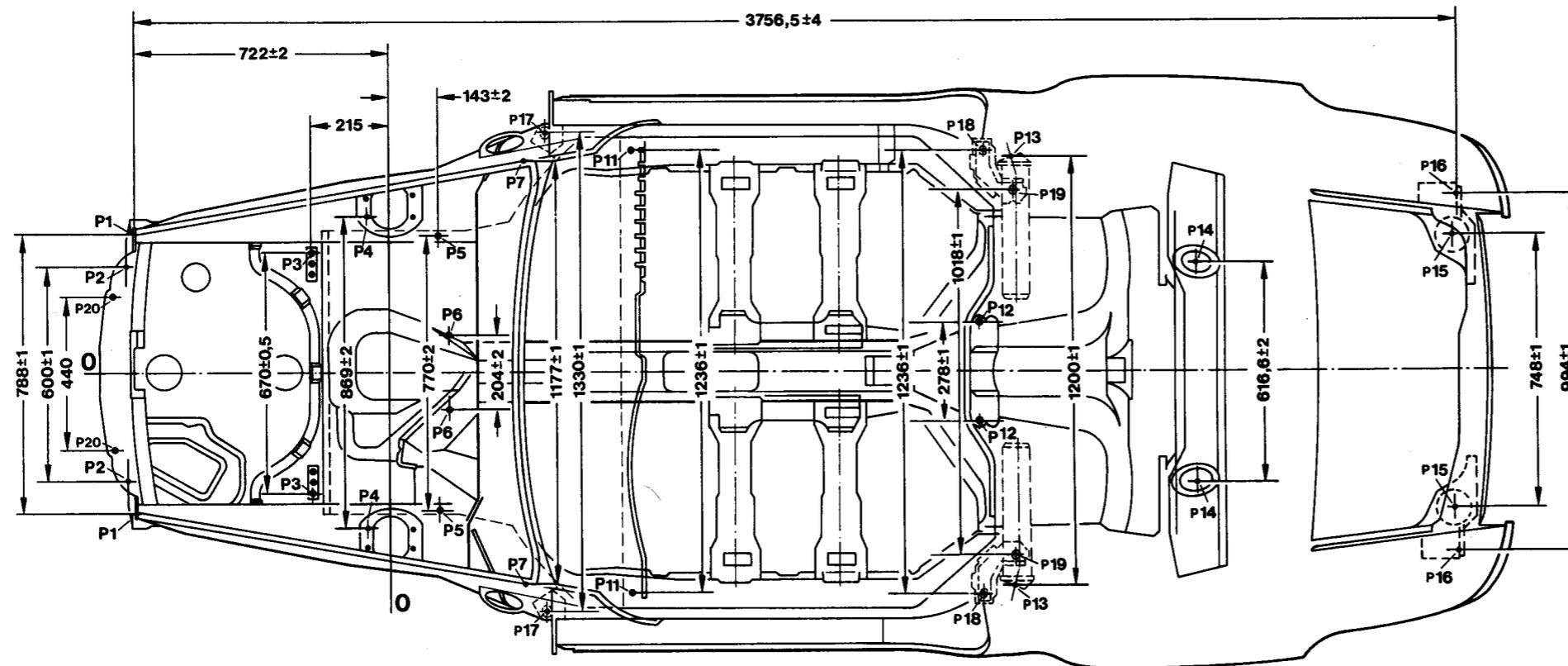
FA = Front axle  
RA = Rear axle

50 - 131

Dimensions for assembly - from Model 91 onward



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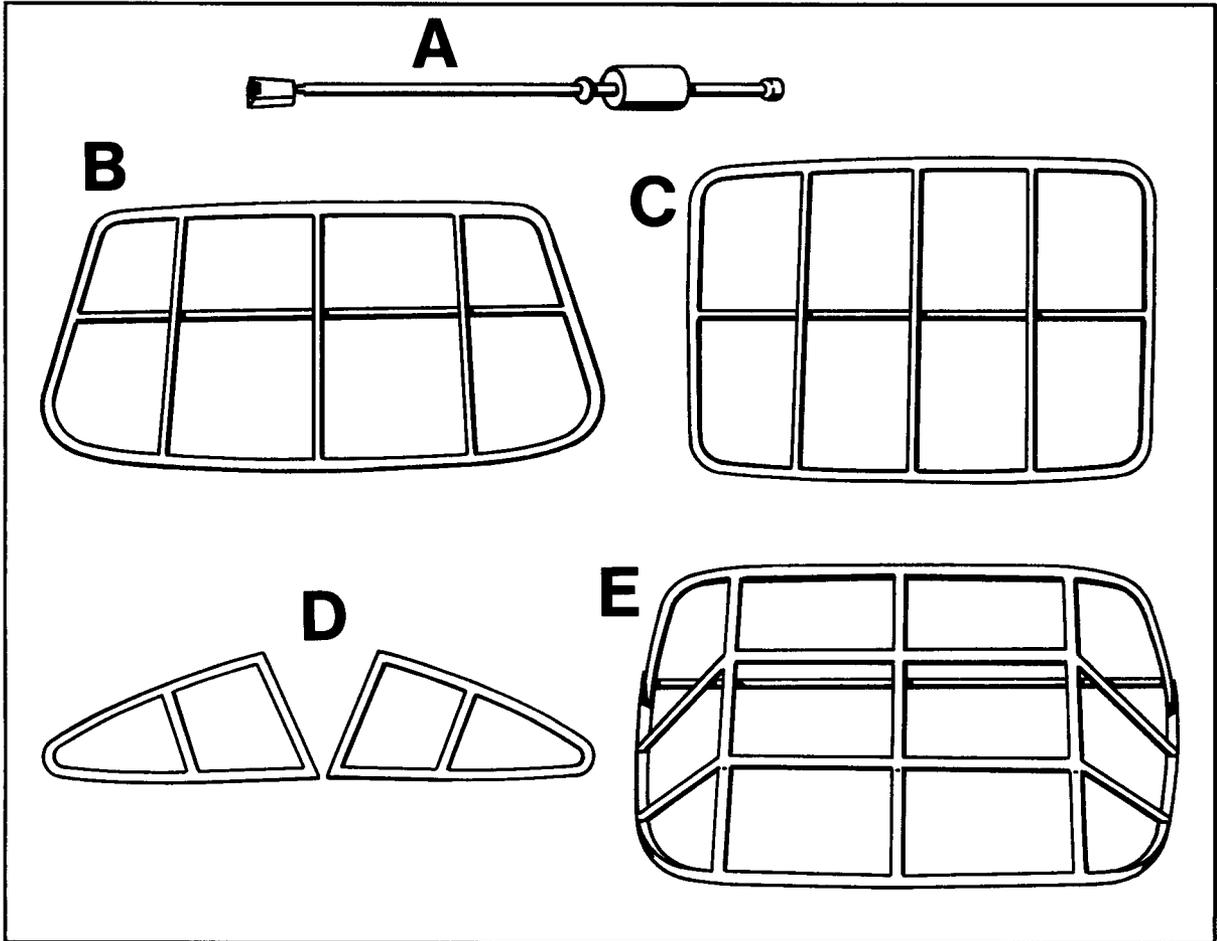
50-986

Point (left/right)	Description
1	Center bumper/impact absorbing tube, front
2	Mounting hole - final front section
3	Mount - FA side member
4	Mount FA spring strut
5	Mount - outer cross member FA
6	Mount - inner cross member FA
7	Mounting hole - wheel house
11	Mounting hole - switchboard
12	Mount - transmission cross member
13	Mount - outer cross tube RA
14	Mount - RA spring strut RA
15	Mount - engine bearing
16	Center of bumper/impact absorbing tube, rear
17	Jacking point - lifting platform, jack, front
18	Jacking point - jack, rear
19	Jacking point - lifting platform, rear
20	Hole - front final section

FA= Front axle  
RA=Rear axle

## Special Tools and Sheet Metal Machines for Repairs

### Special Tools:



307 - 50

A = P 290 (special tool for removing and installing door hinge pins)

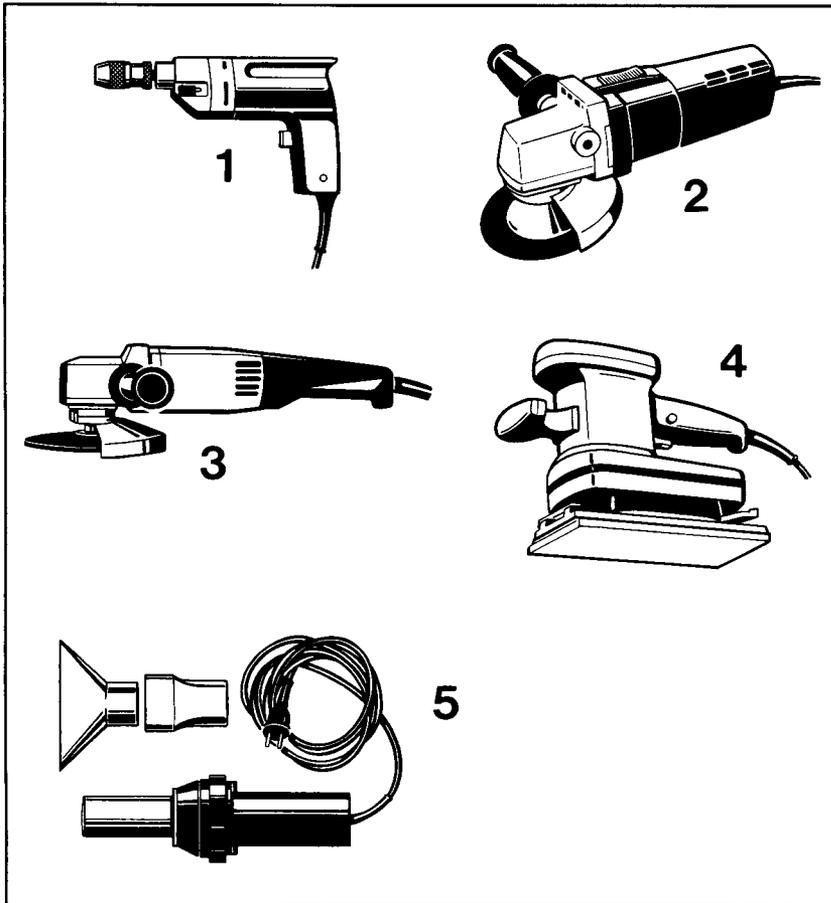
B = P 852 (gage for windshield)

C = P 853 (gage for rear window)

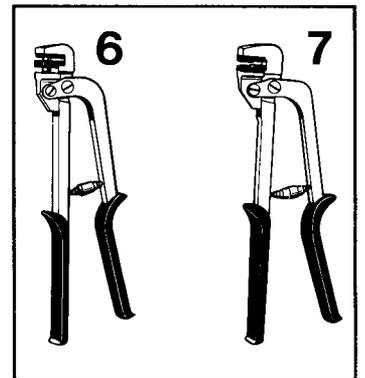
D = P 854 (gages for left and right rear side windows)

E = P 856 (gage for rear opening - Targa)

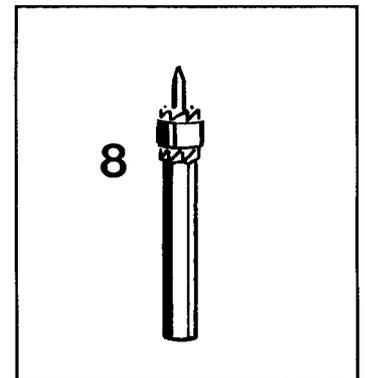
Sheet Metal Machines (Standard):



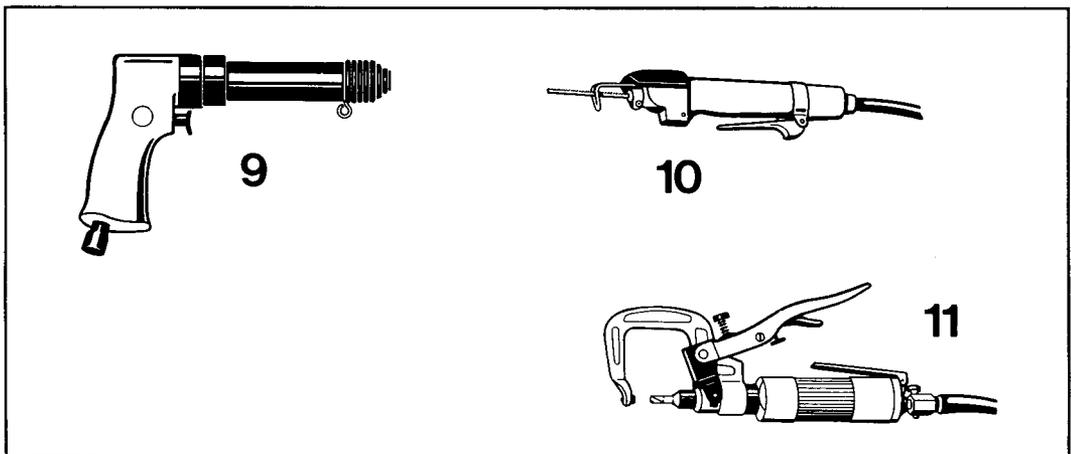
238 - 50



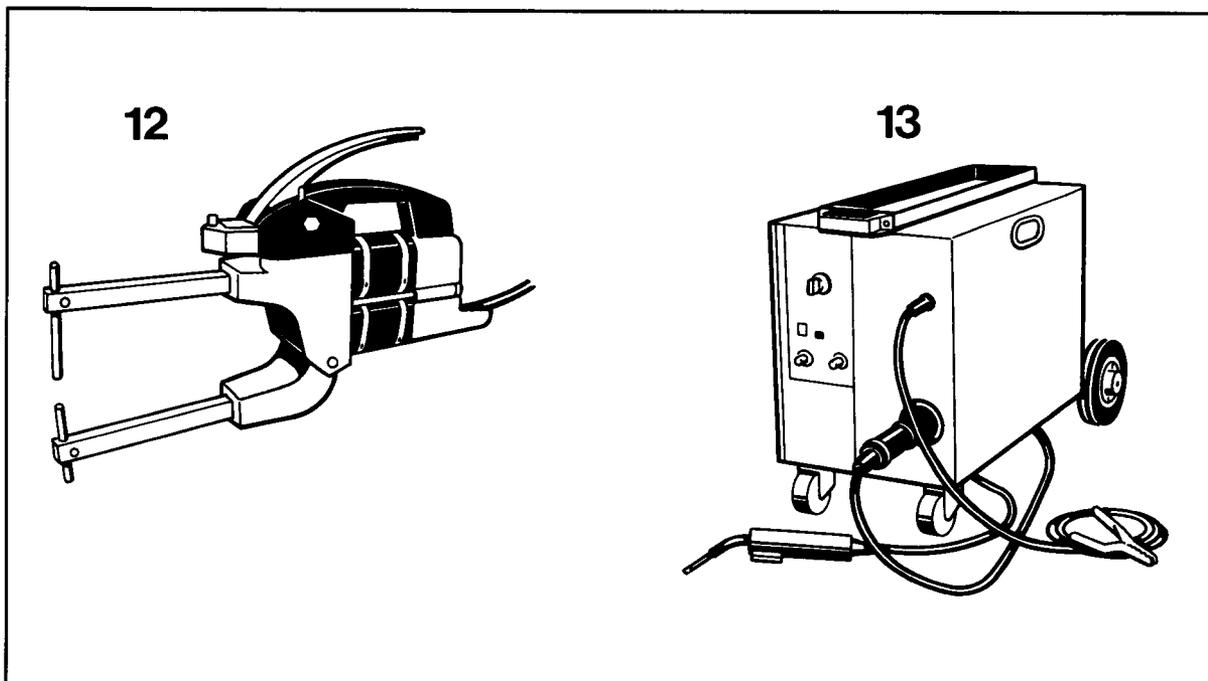
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**Sheet Metal Machines (Standard):**

237 -50

**Electric Tools:**

- 1 = Drill
- 2 = Right angle grinder, large
- 3 = Right angle grinder, small
- 4 = Grinder
- 5 = Hot air blower

**Mechanical Tools:**

- 6 = Punch
- 7 = Shouldering pliers

**Accessories:**

- 8 = Welding spot cutter (for drill)

**Pneumatic Tools:**

- 9 = Chisel
- 10 = Body saw
- 11 = Welding spot cutter

**Welding Tools:**

- 12 = Spot welding tong
- 13 = Inert gas welder

## Safety notes

### Observe the following safety notes when performing body repairs:

- Removal of components may change the gravity center of the vehicle. The vehicle may therefore have to be tied down by additional measures on the lifting platform.
- Rooms designated for body repairs may not be used to stock other vehicles without protection (risk of fire damage due to sparks, battery, paint and body glass damage).
- Be extremely careful when grinding or welding in the vicinity of the fuel tank and other parts of the fuel system. If necessary, remove any components affected.
- Do not weld, braze or solder any parts of the filled air conditioning system. This also applies to welding, brazing or soldering operations on the vehicle that may result in the risk of components of the air conditioning system warming up.
- When drying the vehicle following a respray, do not expose the vehicle to temperatures of max. 80°C for more than 2 hours.

To protect **electronic control units** against **excessive voltage** when using **electric welding equipment**, observe the following safety measures:

- Disconnect clamp from negative battery terminal and cover negative battery terminal.
- Connect ground clamp of the electric welding equipment directly and as closely as possible to the component to be welded. Make sure no electrically insulated parts are located between the ground clamp and the welding location.
- Do not touch electronic control units and electric lines with the ground clamp or with the welding electrode.

Safety precautions for **operations involving open flames or spark generation** (welding, grinding) in the vicinity of the **battery** or near the location of the **battery vent hose**:

- Remove battery and store it in a safe place
- Blow through vent hose using compressed air. Plug hose ends. (The vent hose is routed into the left-hand wheel housing via an elbow fitting at the front, above the battery)

### Handling of electronic control units after accident repairs

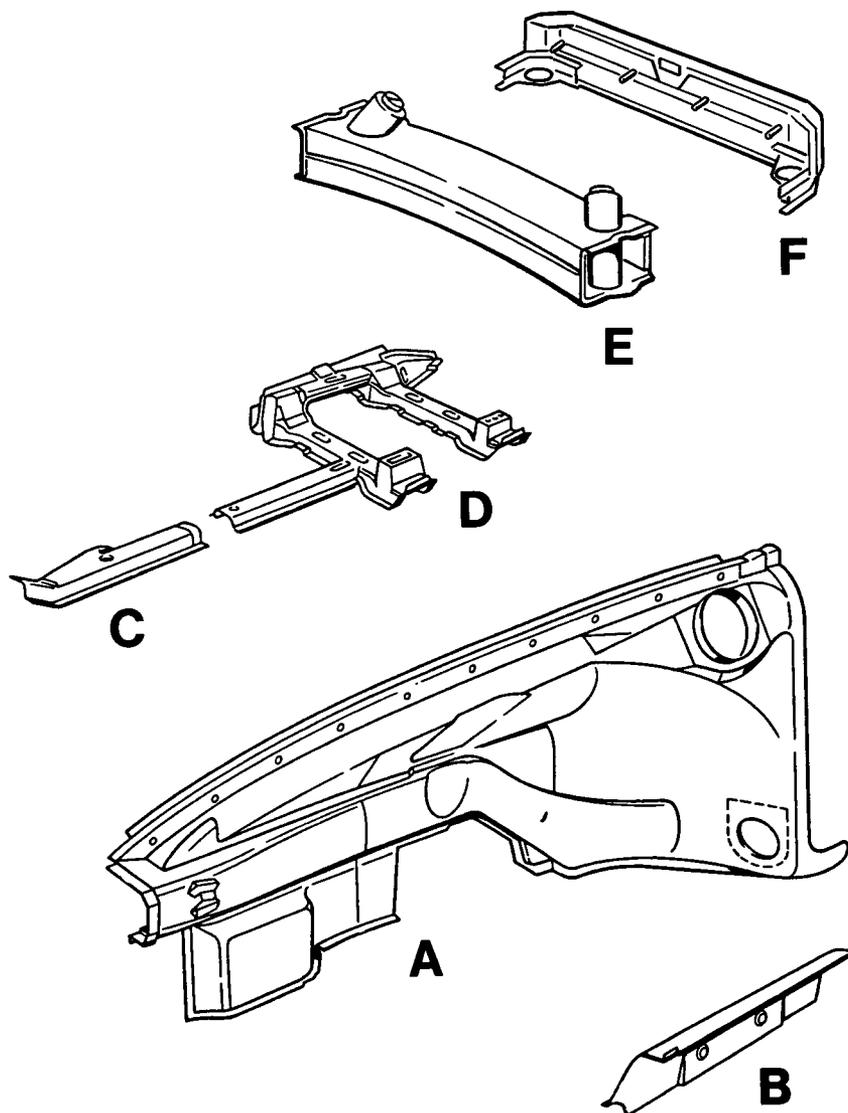
Replacement of electronic components following an accident is required if at least one of the following conditions is present:

- The housing is visibly deformed or damaged.
- The support surface or console is deformed (the unit does not show any outward signs of damage).
- The plug connection is damaged or corroded due to moisture.
- Functional check or self-diagnosis of the unit displays the following fault:  
**“Control unit faulty”.**

If electronic components, e.g. the ABS control unit, have been removed when repairs are being carried out and if they are to be reused afterwards, the operation of the components must be checked after reinstallation according to the respective specifications.

## HS steel body panels

The following body panels are made of high-strength steel (HS)!



A = Front wheel housing  
 B = Inner side member  
 C = Front floor section member

D = Seat base  
 E = Rear-axle crossmember  
 F = Crossmember with engine mount

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## **General remarks on HS steel body panels**

**Applicable to 911 Carrera 2, 911 Carrera 4, 911 Carrera RS, 911 Turbo models:**

The body panels made of high-strength steel (HS) help to increase the stiffness of the passenger compartment and thus provide additional passenger protection. In addition, the body panels retain their full fatigue strength, crash protection and corrosion resistance.

Crash tests have underlined the superior energy absorbing capacity of body panels made of high-strength steel. On the other hand, however, an increased force is required to bring the panels back into shape during straightening operations.

**Note:**

**Cracks may occur during straightening!**

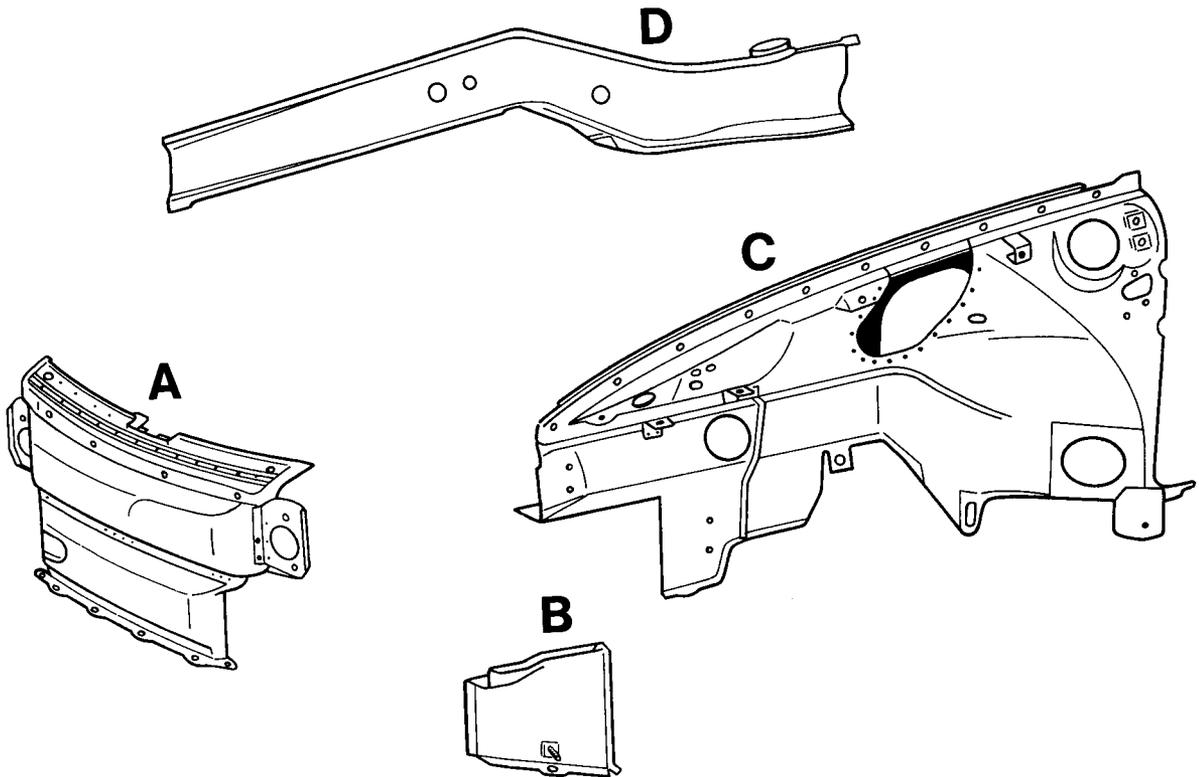
Tempering processes have no impact on the material structure. Welding therefore does not cause any loss of strength in the panel.

**Repair note:**

**If significant deformation in this type of body panels has occurred, they cannot be brought back into shape by straightening. Body repairs therefore require fitting of new panels and/or sectional repairs.**

## Partially replacing front section

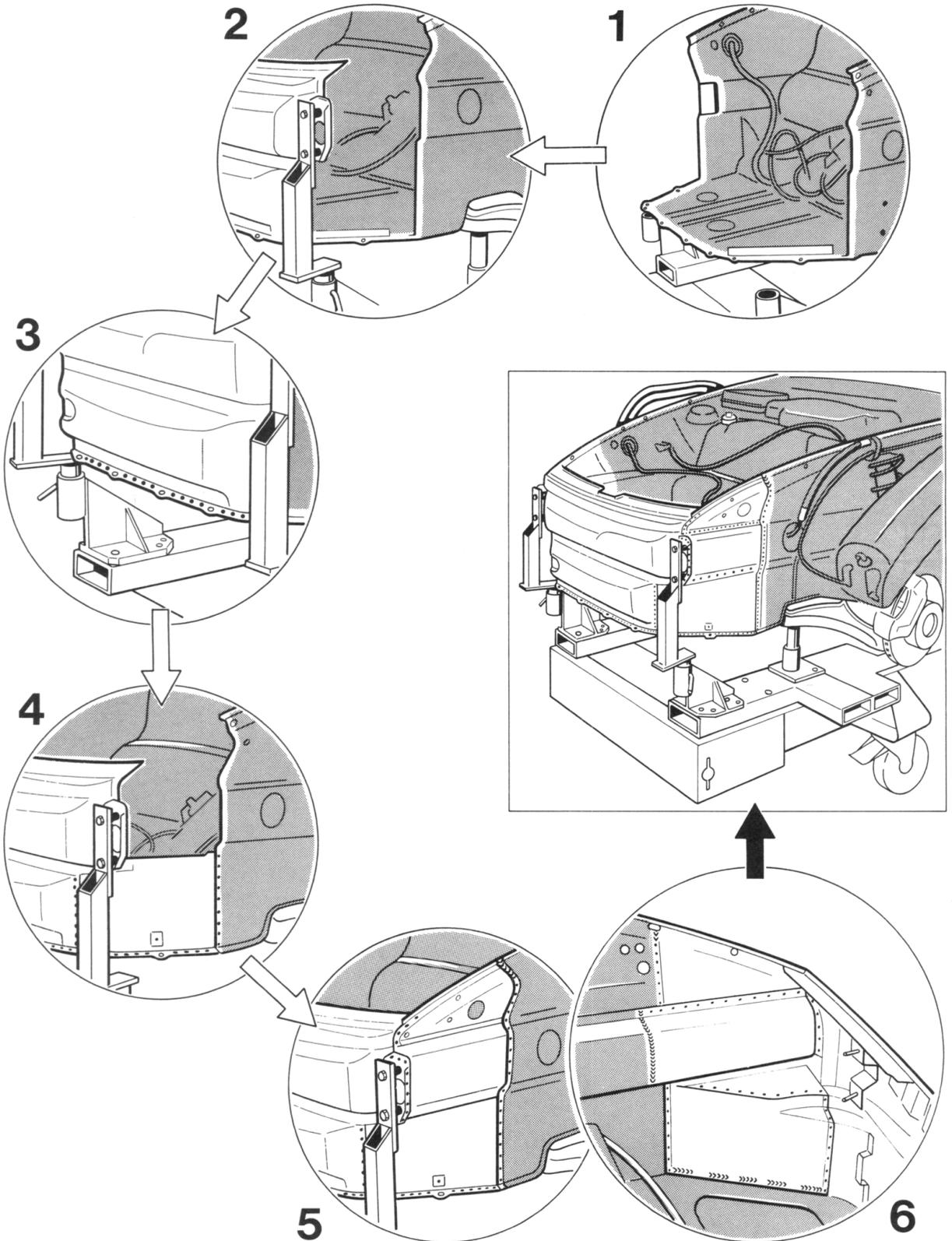
The following chassis parts are required for partial repair of the front section:



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- A End panel
- B Connection plate
- C Front wheel house
- D Front side member

Partially replacing front section



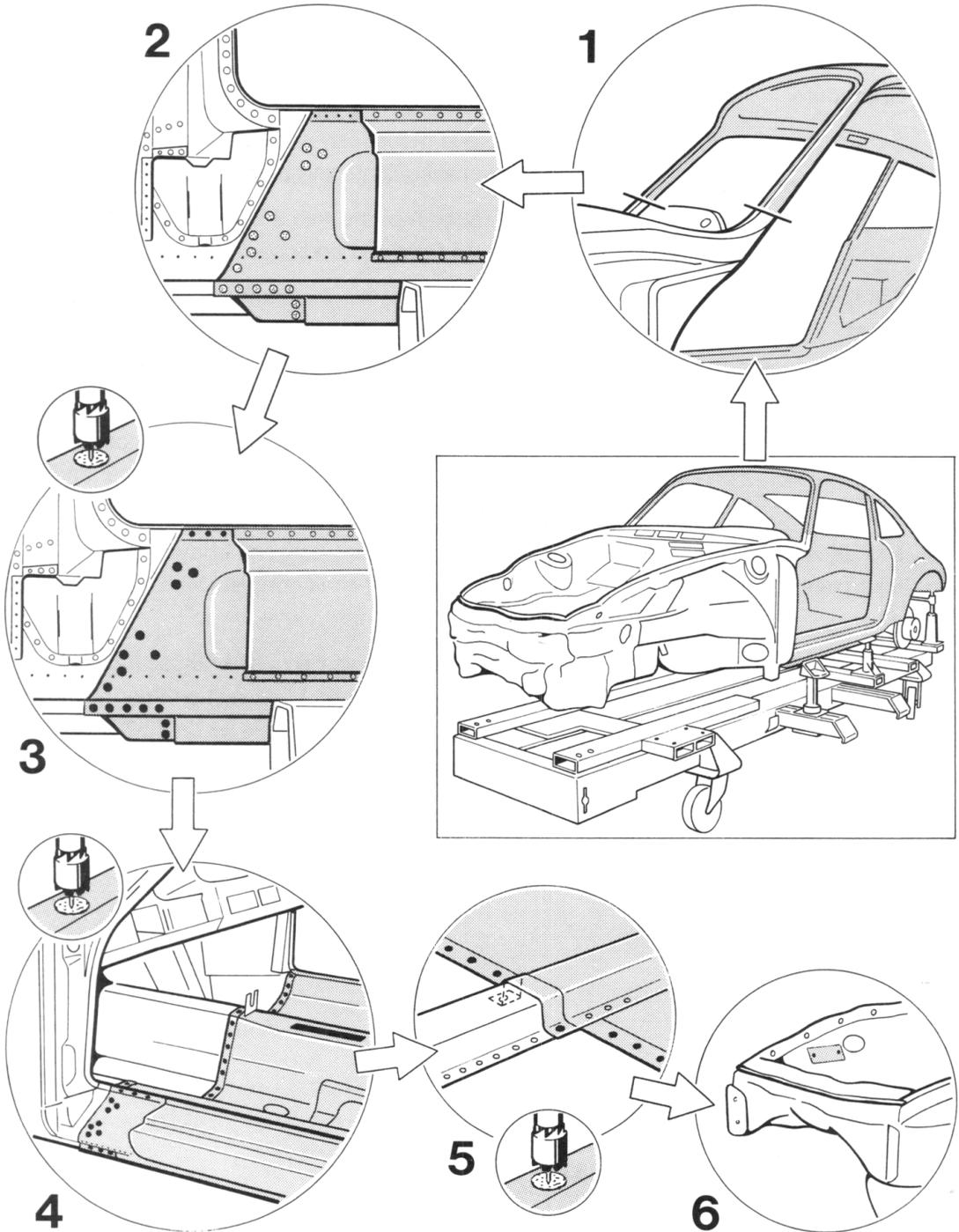
## Partially replacing front section

Replacing end panel and connection plate, partially replacing wheel house and side member.

No.	Procedure	Instructions
	Position vehicle on the alignment bench	Position vehicle, with units installed, on the rational straightening brackets and secure.
	Remove damaged parts from the chassis	Using chassis saw, weld-point miller and angled grinder, separate the damaged parts from the chassis.
1	Clean welding areas	Remove underseal from welding areas with hot-air blower or rotary brush.
2	Fasten end section to the straightening bracket	
3	Weld end section onto spare-wheel well	Align spare-wheel well with end section, secure with clamps and spot weld.
4	Weld in connection plate	Align connection plate, fasten to spare-wheel well, end section and wheel house with clamps and spot weld.
5	Weld in wheel house	Cut and align wheel house and side member. Offset wheel house to the outside and fasten to the chassis with clamps. Spot weld the wheel house to the end section. Using the saw, cut to fit the fender connection areas and butt weld.
6	Weld in side member and grind butt-weld joint smooth.	Align the side member with the wheel house in such a way that the ends connecting with the end sections form an offset to the seams of connection plate and wheel house. Butt weld side member and end sections. Spot weld side member, wheel house and end section. Grind butt-weld seams on side member smooth.

### Replacing Complete Front End of Car

#### Cutting Off Front End of Car Body



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## Replacing Complete Front End of Car

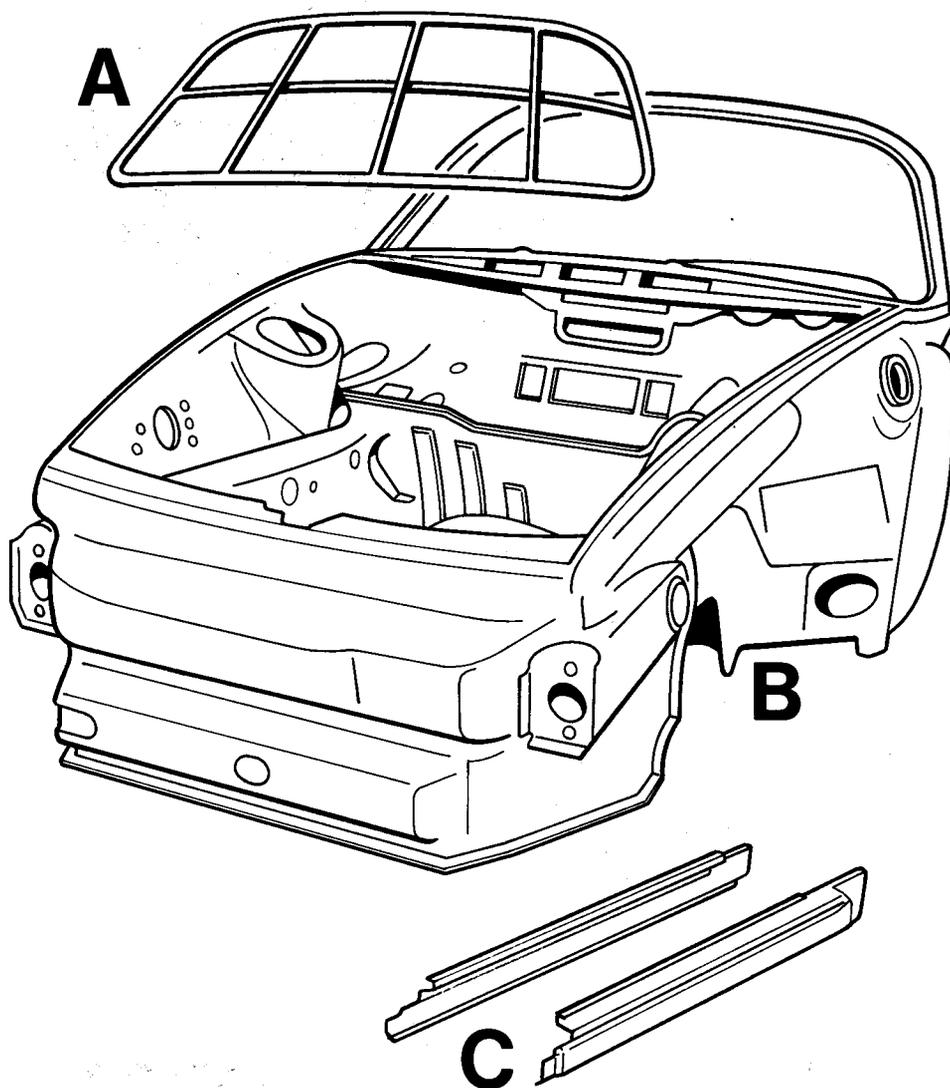
### Cutting Off Front End of Car Body

Remove all assemblies and attachments in and on the front end body section!

No.	Procedure	Instructions
	Set up car on straightening bench	Set up and mount car, with the rear-mounted units, on the rational straightening bracket set.
1	Cut through A-pillars	Cut through A-pillars with a body saw as close as possible to the front end body section.
2	Cut through entrance cover	Cut through outside of entrance cover up to the side member with a body saw and remove in area of side member to body and side member to front end body section spot welding connections.
3	Drill off welding spots of side member	Drill off welding spots between side member and body (inside and outside) as well as side member and front end body section with a welding spot cutter.
4	Drill off welding spots of floor plate assembly	Drill off welding spots between body floor plate and front end body section floor plate with a welding spot cutter.
5	Drill off welding spots of seat carrier	Drill off welding spots between body seat carrier and extension (on front end body section floor plate) with a welding spot cutter. Grind off inert gas welding seam between seat carrier and extension.
6	Remove data plate	Drill off rivets and remove data plate.

## Replacing Complete Front End of Car

The following body replacement parts and special tools are required for replacement of the complete "front end body section".



A = Special Tool P 852 (*gage for windshield opening in body*)

B = Front end body section

C = Entrance cover

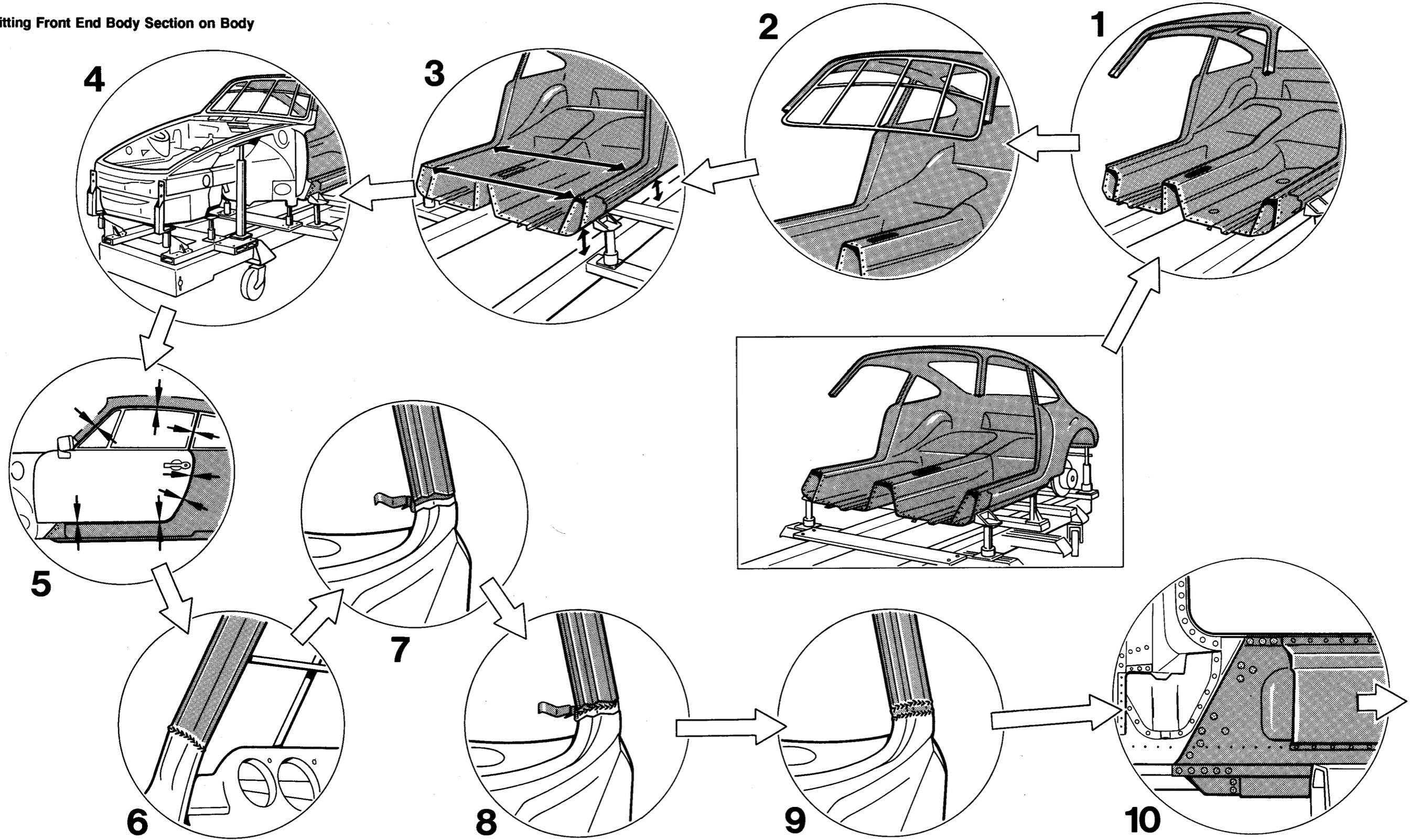
313 - 50

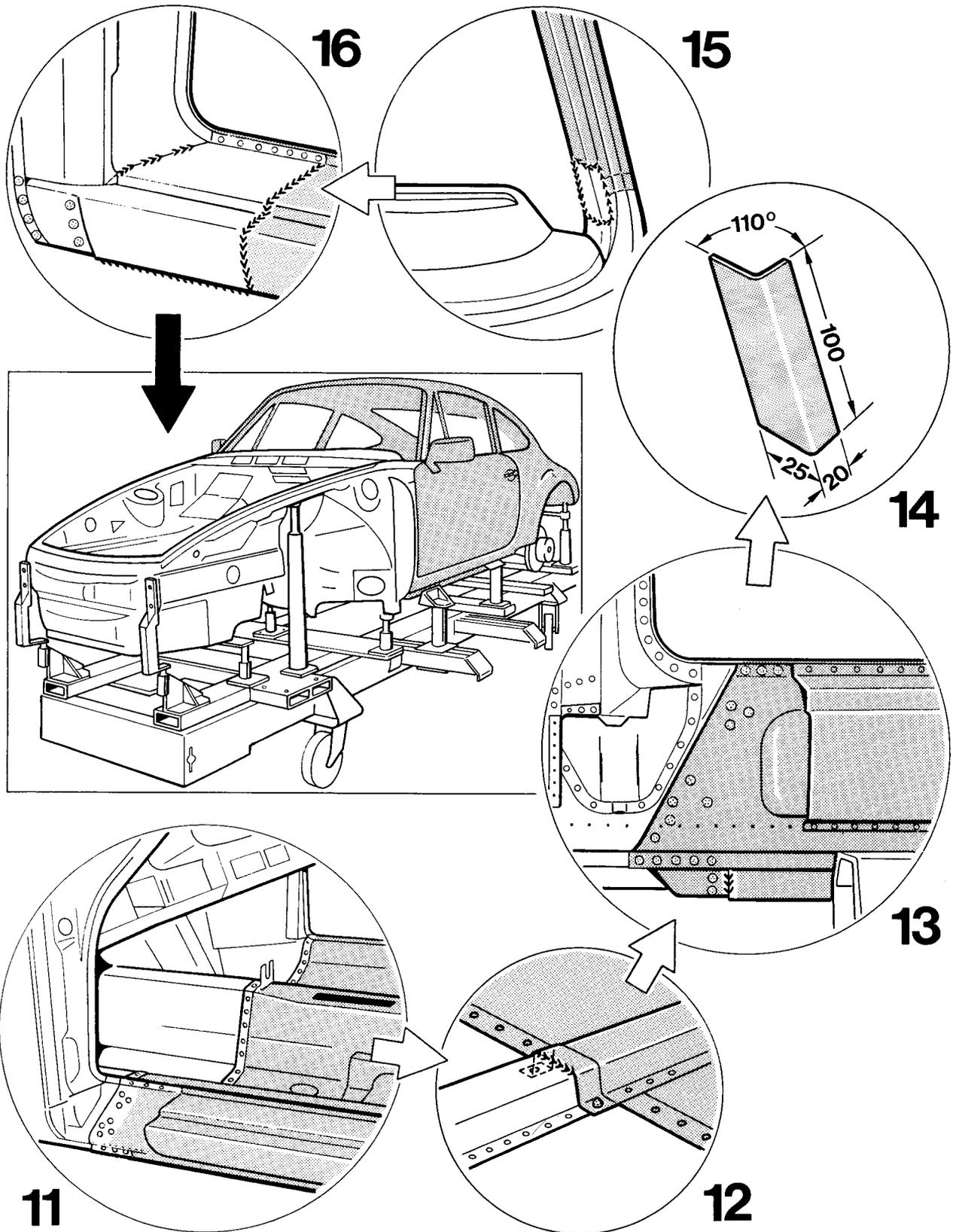
## Replacing Complete Front End of Car

Fitting Front End Body Section on Body

Replacing Complete Front End of Car

Fitting Front End Body Section on Body





315 - 50

## Replacing Complete Front End of Body

### Fitting Front End Body Section on Body

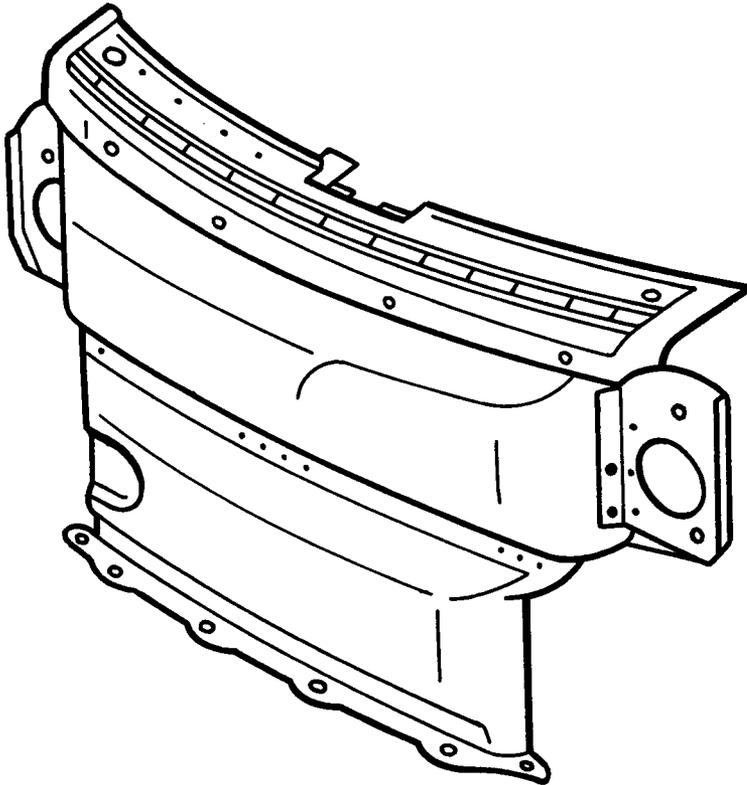
Remove factory-applied primer from all welding surfaces of the front end body section with a rotary brush!

No.	Procedure	Instructions
1	Clean welding surfaces of body	Clean welding surfaces on the body with a hot air blower or rotary brush to remove undercoating, paint, body cavity sealing compounds and residual cement.
2	Align A-pillars of body	Align A-pillars with help of Special Tool P 852 (gage for windshield opening in body) and prepare the mating surfaces for welding.
3	Align side members and floor plate of body	Align side members to be parallel to each other and parallel in height to the straightening bench. Prepare the entire floor plate assembly in the area of connection on the front end body section for welding.
4	Set up front end body section on straightening bench and fit on body	Set up front end body section on the straightening bench loosely. Place Special Tool P 852 in the body opening for the windshield. Fit front end body section on the body. Mount front end body section on the straightening brackets correctly.
5	Install doors to check total body contour with the front end body section	The gap between the door and entire body must be parallel all around. Remove doors again after checking.
6	Butt weld A-pillars in area of the door openings	Butt weld the joints between the A-pillar and body as well as A-pillar and front end body section in the door opening area with a solid welding seam from an inert gas welder, with Special Tool P 852 installed.
7	Open outside panels of A-pillars	Cut approx. 20 mm wide openings in the outside panels of A-pillars (body) and fold up outside panels to weld the inside panels.
8	Weld inside panels of A-pillars	Butt weld inside panels of A-pillars (body and front end body section) with a solid welding seam from an inert gas welder.

No.	Procedure	Instructions
9	Close and weld outside panels of A-pillars	Close, straighten and inert gas weld outside panels of A-pillars with solid welding seams. Butt weld body A-pillars and front end body section A-pillars with solid welding seams from an inert gas welder. Grind down welding seams and install Special Tool P 852 to check the body opening for the windshield.
10	Plug weld front end body section side members with body side members	Align front end body section side members inserted in the body side members. Plug weld front end body section side members and body side members with an inert gas welder.
11	Plug weld front end body section floor plate with body floor plate	Align overlapping area of the body floor plate and front end body section floor plate. Plug weld front end body section floor plate and body floor plate with an inert gas welder.
12	Plug and solid seam weld body seat carrier with front end body section extension	Plug weld left and right collar on cap-profile of the body seat carrier on the front end body section extension with an inert gas welder. Inert gas weld face of the body seat carrier on the front end body section extension with a solid welding seam.
13	Inert gas weld floor plate in area of side members front underneath	Inert gas weld body floor plate on front end body section floor plate in area of the side members from underneath with a solid welding seam.
14	Produce reinforcement brackets for A-pillars	Produce one each reinforcement bracket made of 1.25 mm thick, galvanized sheet metal for the inside of left and right A-pillars.
15	Solid seam weld reinforcement brackets on A-pillars all around	Inert gas weld the reinforcement brackets above the welding seams on the insides of the A-pillars with welding seams all around to strengthen the welding. Grind down welding seams.
16	Weld in entrance covers	Fit in and tack weld entrance covers. Spot weld entrance covers on side members at top. Plug weld entrance covers on fender end plates with an inert gas welder. Inert gas weld entrance covers on A-pillar connection plates with interrupted solid welding seams. Inert gas weld entrance covers on side members at bottom with interrupted solid welding seams. Butt weld entrance covers on body entrance covers with inert gas welding solid welding seams. Grind down welding seams.

## End part replacement

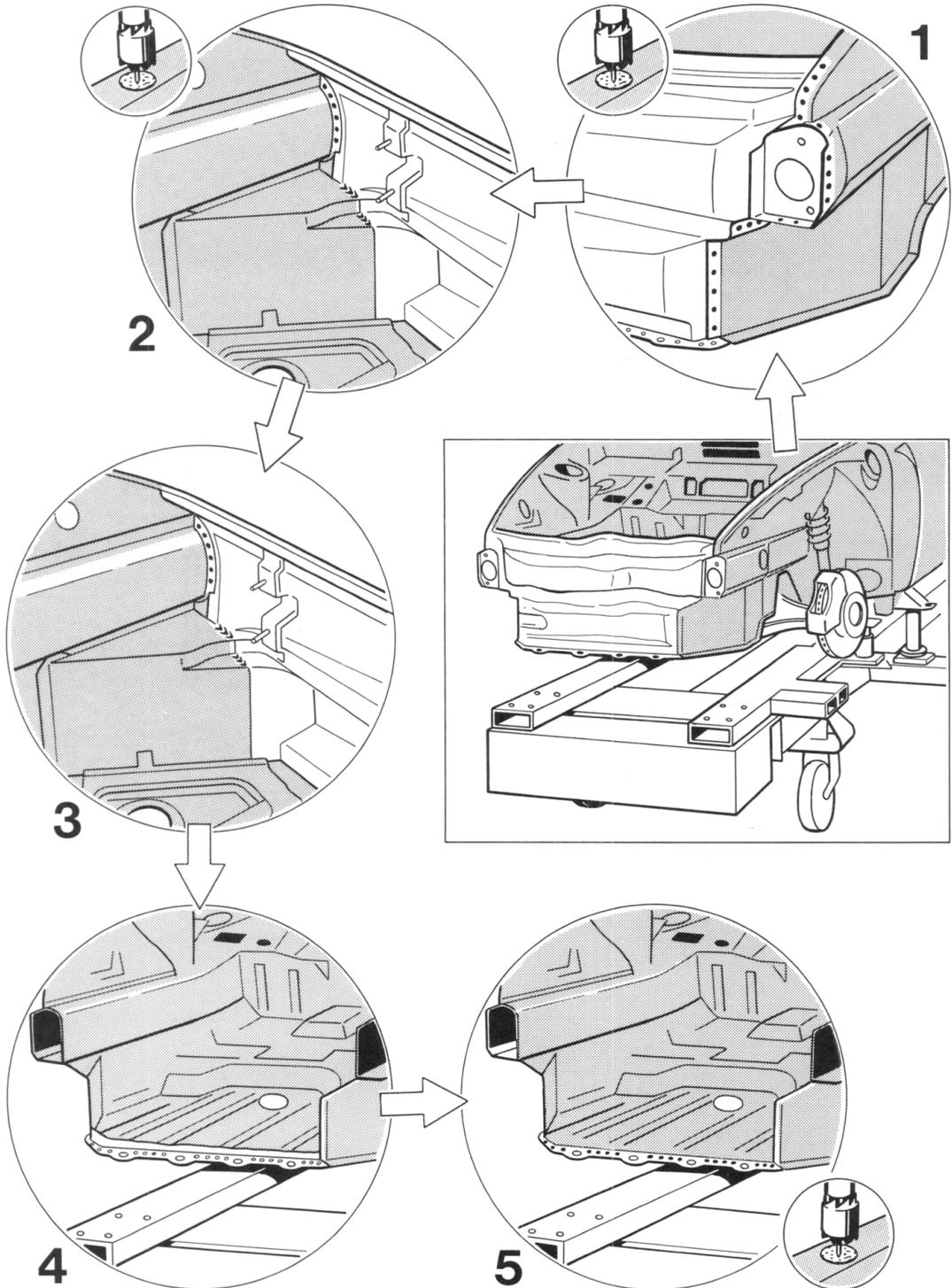
The following end part is required as a spare part for body repairs:



384 - 50

## End part replacement

Cut end part out of body



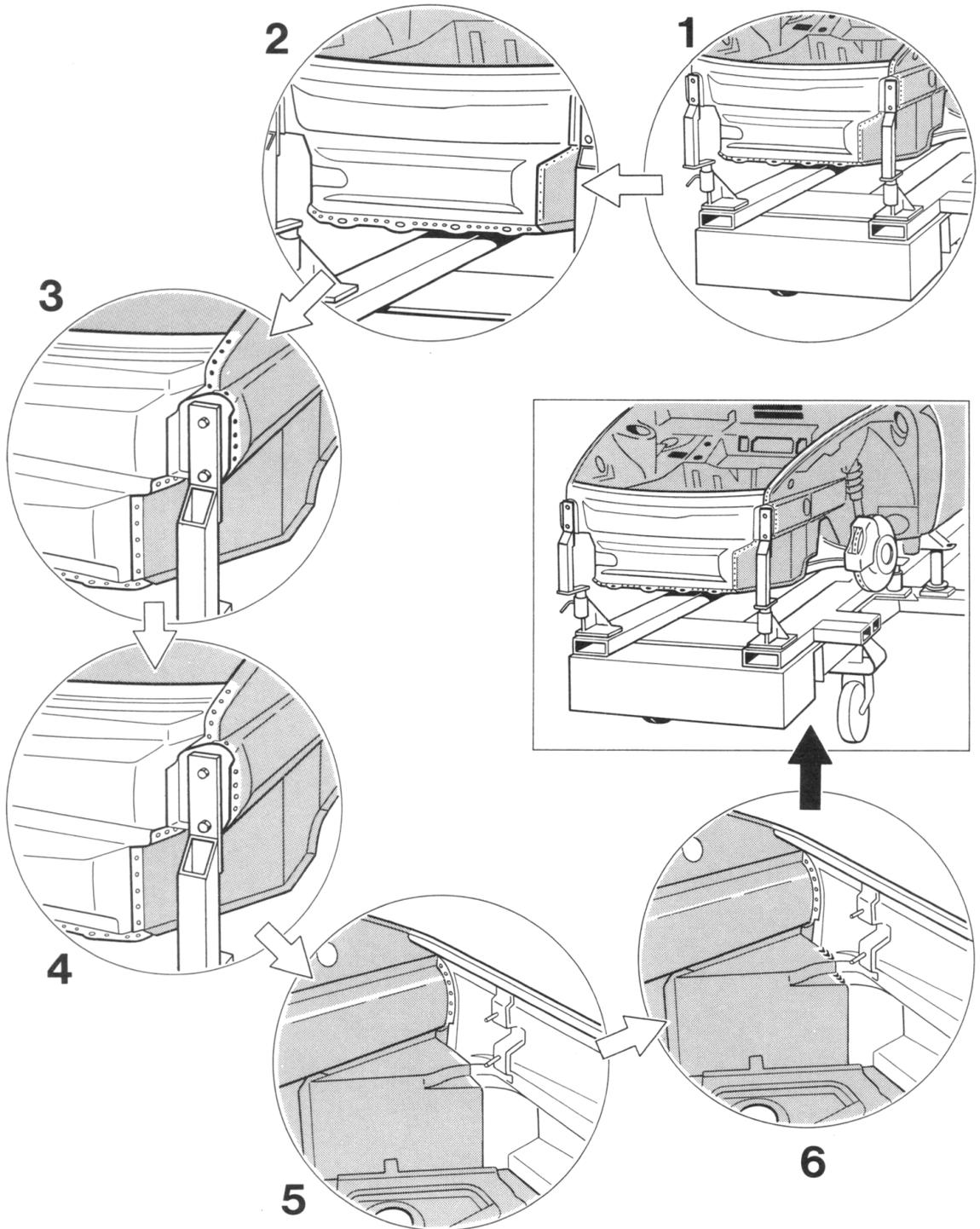
## End part replacement

### Cut end part out of body

No.	Work step	Instructions
	Place vehicle on the straightening bench	Place the vehicle with built-in assemblies on the rational straightening bracket set and secure.
1	Undo the spot weld joints of the end part to the wheel houses and the gusset plates	Undo the spot weld joints of the end part to the wheel houses and the gusset plates from outside using a spot weld milling cutter.
2	Undo the spot weld joints between end part/side member	Undo the spot weld joints of the end part to the side members from inside (trunk side) with the spot weld milling cutter.
3	Undo the weld joint between end part/gusset plates	Grind off the inert gas weld seams between the end part and gusset plates.
4	Cut out the end part above the spare wheel well	Cut off the end part above the spot weld joint between end part/spare wheel well with the bodywork saw and remove.
5	Undo the spot weld joint between end part/spare wheel well	Undo the spot weld joint of the end part to the spare wheel well from above with the spot weld milling cutter.

End part replacement

End part installation in the body



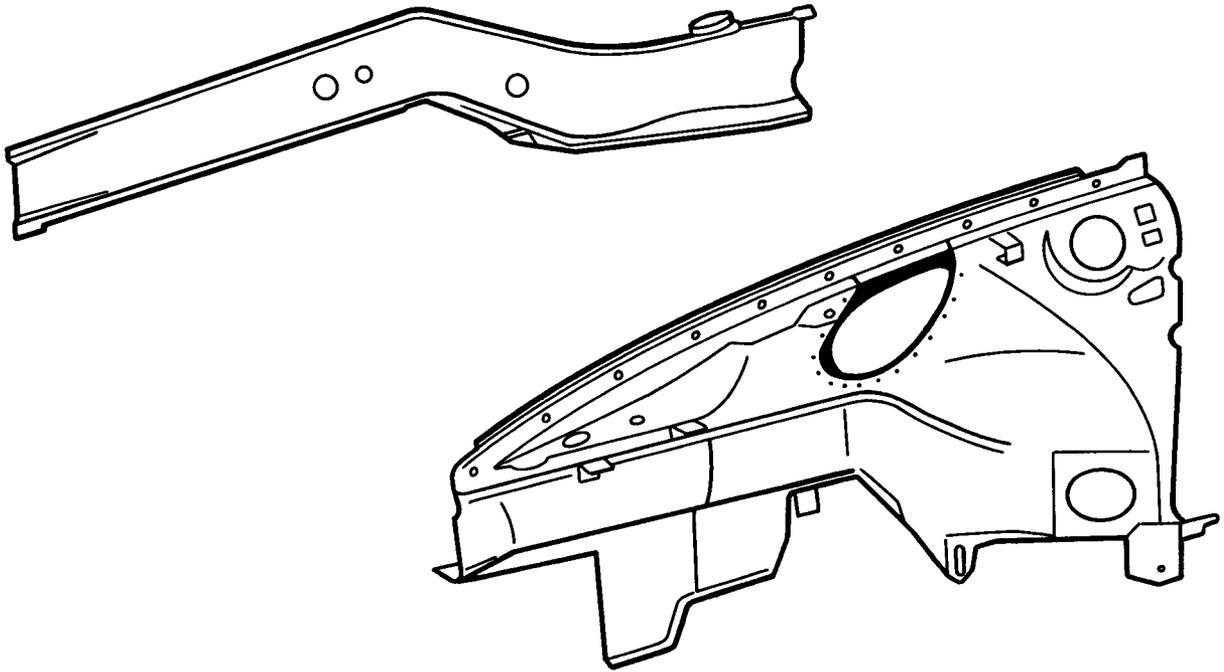
## End part replacement

### End part installation in the body

No.	Work step	Instructions
	Clean the welding areas	Clean underbody protection, paint etc. from the welding areas on the body using a hot-air blower or Roto- brush. Remove the primer coat applied at the works at the welding areas of the spare part (end part) with a Roto- brush.
1	Secure end part to the straightening brackets	Fit end part in the body and secure to the straightening brackets.
2	Spot weld the end part with the spare wheel well	Align the spare wheel well to the end part, secure with clamping tools and spot weld.
3	Plug weld the gusset plates with the end part	Align the gusset plates to the end part and plug weld with inert gas.
4	Plug weld the wheel houses with the end part	Align the wheel houses to the end part, secure with clamping tools and plug weld with inert gas
5	Plug weld side members with end part	Align the side members to the end part and plug weld with inert gas
6	Weld gusset plates with end part by means of inert gas shielded arc welding	Weld the gusset plates to the end parts ( <b>only at the horizontal joint surfaces</b> ) with full seam by means of inert gas shielded arc welding.

## Partial replacement of wheel house and side member

The following body spare parts are required for repairs:

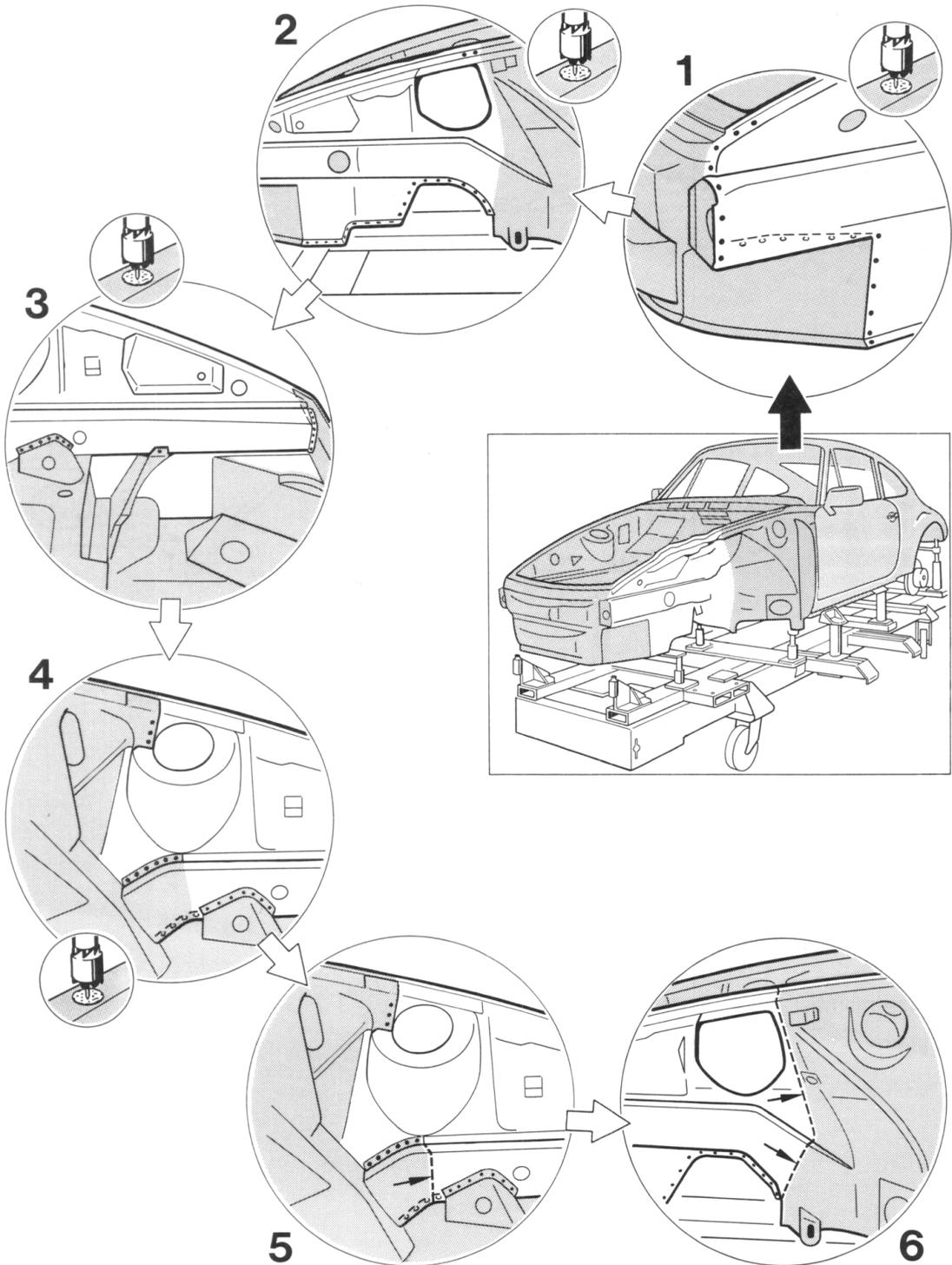


400 - 50

- A Wheel house, front
- B Side member, front

## Partial replacement of wheel house and side member

Cut wheel house and side member out of body



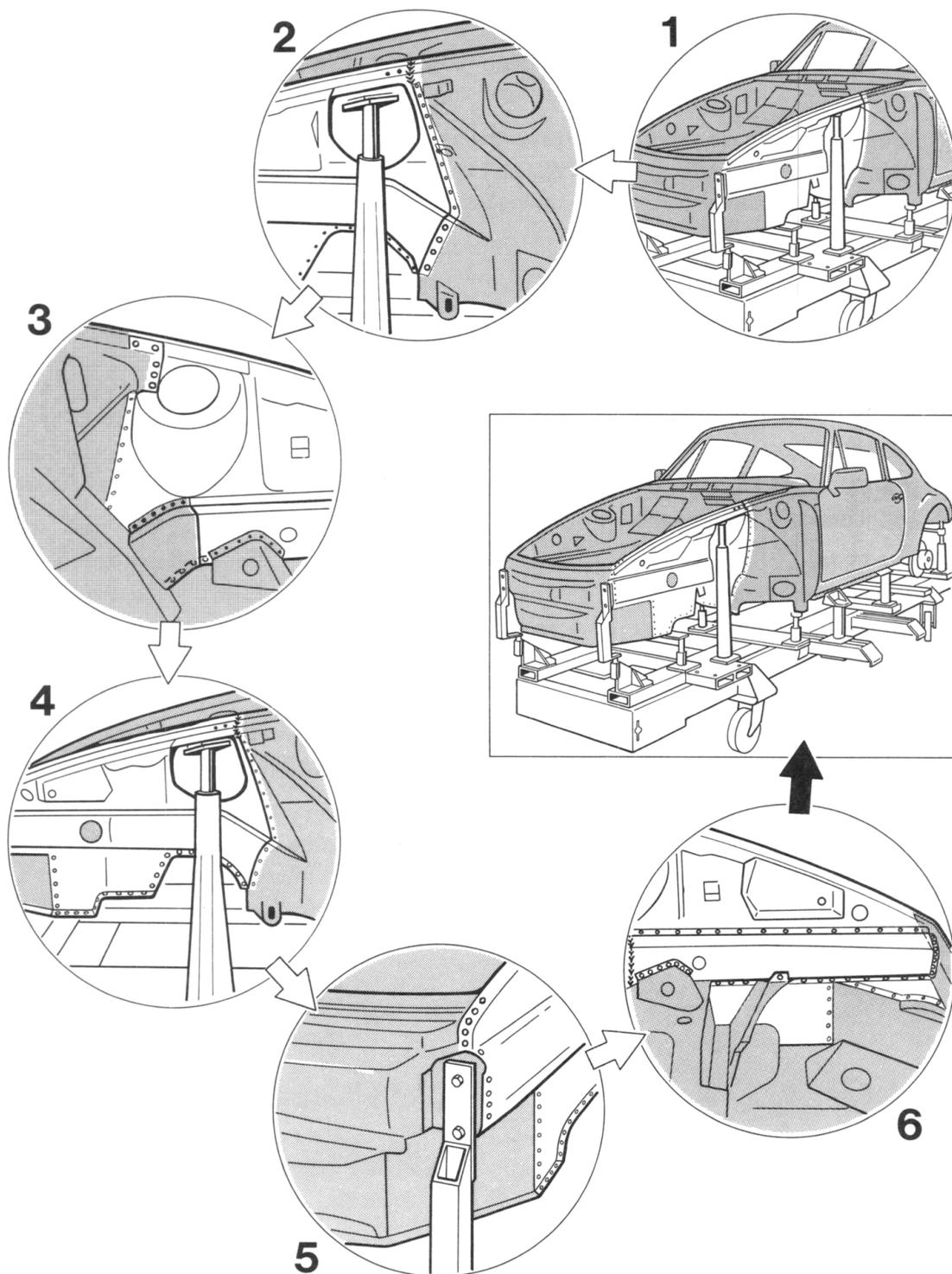
## Partial replacement of wheel house and side member

### Cut wheel house and side member out of body

No.	Work step	Instructions
	Place vehicle on straightening bench	Position vehicle with rear assemblies on the rational straightening bracket set and secure.
1	Undo the spot weld joints of the wheel house to the gusset plate and the end plate	Undo the spot weld joints of the wheel box to the gusset plate and end part from outside using a spot weld milling cutter.
2	Undo the spot weld joints of the wheel house to the spare wheel well, the bottom section at the front and to the support member	Undo the spot weld joints of the wheel house to the spare wheel well, the bottom section at the front and to the support member from outside using the spot weld milling cutter
3	Undo the spot weld joints of the side member to the end part, the cross member at the front and to the gusset plate	Undo the spot weld joints of the side member to the end part, the cross member at the front and the gusset plate from inside (trunk side) using the spot weld milling cutter.
4	Undo the spot weld joints side member/spring strut dome and spot weld joints support member/spring strut dome	Undo the spot weld joints of the side member to the spring strut dome and the spot weld joints of the support member to the spring strut dome from inside (trunk side) with the spot weld milling cutter.
5	Cut through side member	Cut through side member vertically approx. 10 mm behind the gusset plate using the bodywork saw.
6	Cut through wheel house	Cut through wheel house with the bodywork saw along the spring strut dome plate and remove. <b>Important: the support member must not be cut through.</b>

## Partial replacement of the wheel house and side member

Installing the wheel house and side member in the body



## Partial replacement of the wheel house and side member

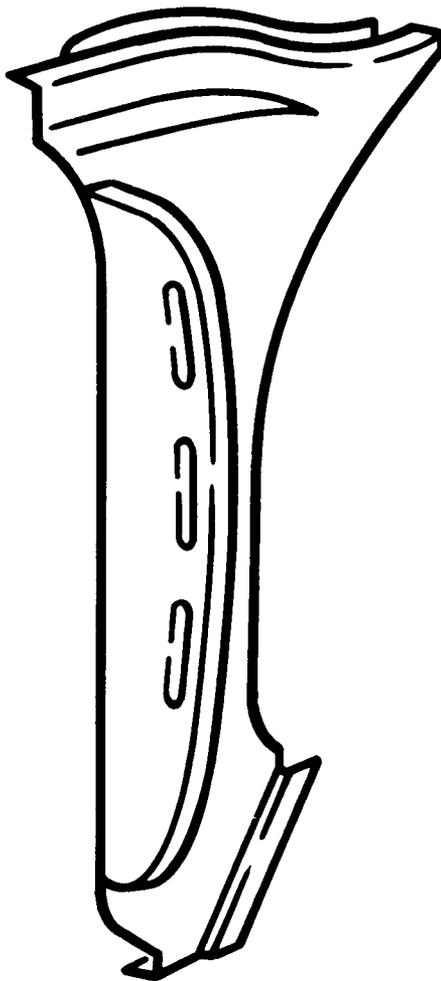
### Installing the wheel house and side member in the body

No.	Work step	Instructions
	Clean welding areas	Using a hot-air blower or Roto-brush, clean underbody protection, paint etc. from the welding areas on the body. Remove the primer coat applied at the works at the welding areas of the spare parts (wheel house, side member) using a Roto-brush.
	Fit the wheel house in the body	Put down the wheel house (spare part) to the outside and adapt to the wheel house bodywork so that it overlaps. Fit the wheel house flush in the area of the fender connection surface.
1	Secure the wheel house to the straightening bracket	Secure the wheel house to the straightening bracket. Tack-weld the wheel house to the connection parts of the wheel house body, gusset plate and end part with inert gas.
2	Weld the wheel house to the wheel house body	Butt-weld the wheel house in the area of the fender connection surfaces with a full weld. Spot weld the wheel house with the support member. Spot weld the wheel house between the support member and side member. Plug weld the wheel house with inert gas as from side member area.
3	Plug weld the support member with spring strut dome	Secure the support member on the spring strut dome with clamping tools and plug weld with inert gas.
4	Spot weld the wheel house with bottom section, spare wheel well and gusset plate	Align the bottom section, front, and spare wheel well to the wheel house, secure with clamping tools and spot weld. Align the gusset plate to the wheel house and spot weld.
5	Spot weld the wheel house with end part	Align the end part to the wheel house, secure with clamping tools and spot weld.

No.	Work step	Instructions
6	Weld in side member	Fit the side member to the wheel house so that the joint between the side member spare part/side member body produces an offset with the seam of the wheel house/wheel house spare part. Butt-weld side member spare part and side member body with full seam using inert gas. Spot weld the side member with wheel house. Plug weld the cross member/side member and gusset plate/side member with inert gas. Align the side member to the end part and plug weld with inert gas.
	Grind butt-welded seams	Grind the butt-welded seam of the side member and the butt-welded seam of the wheel house in the area of the fender connection surface.

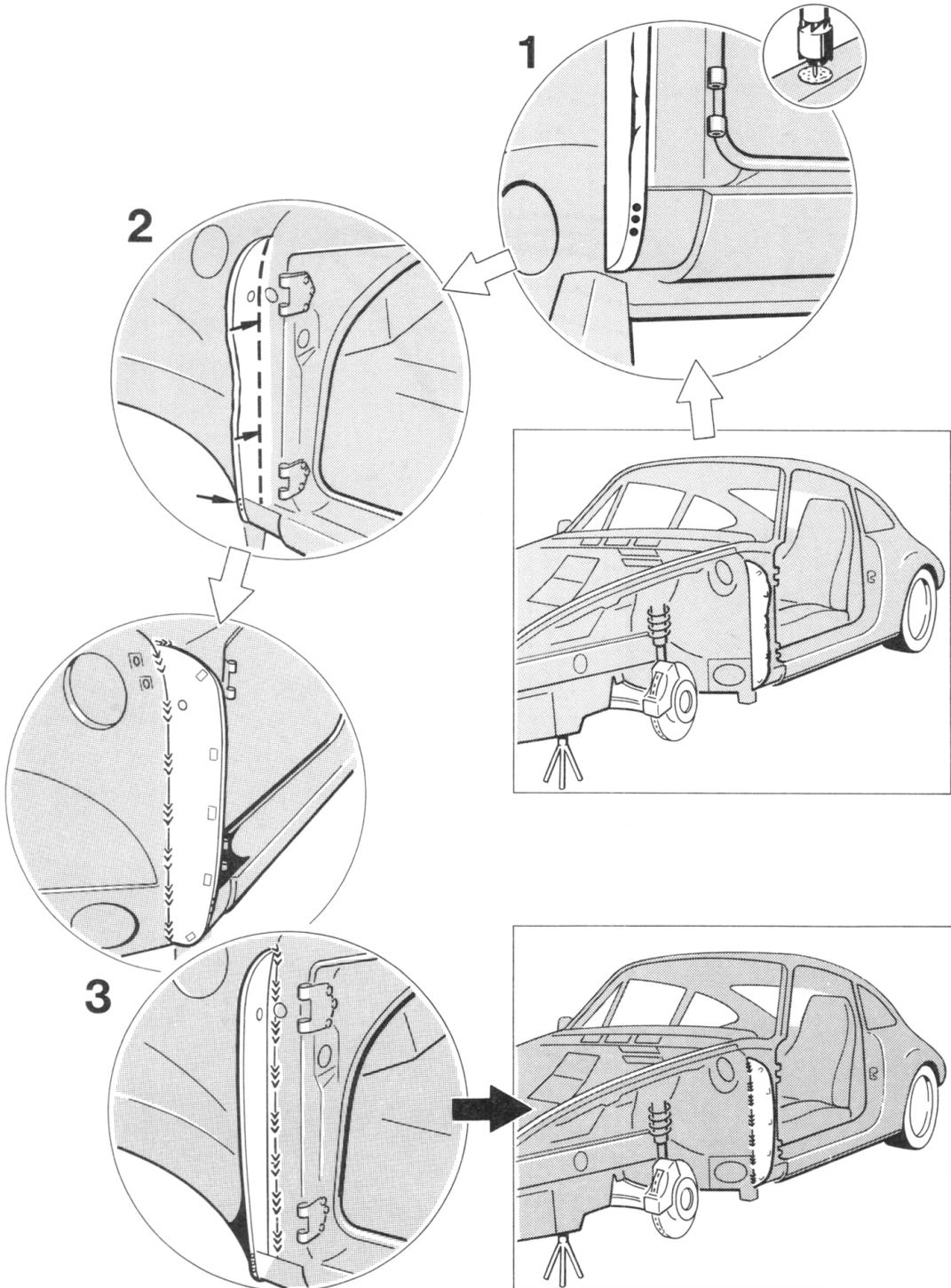
## Partial replacement of the fender connection plate

The following fender connection plate is required as a spare part of body repairs:



410 - 50

## Partial replacement of the fender connection plate



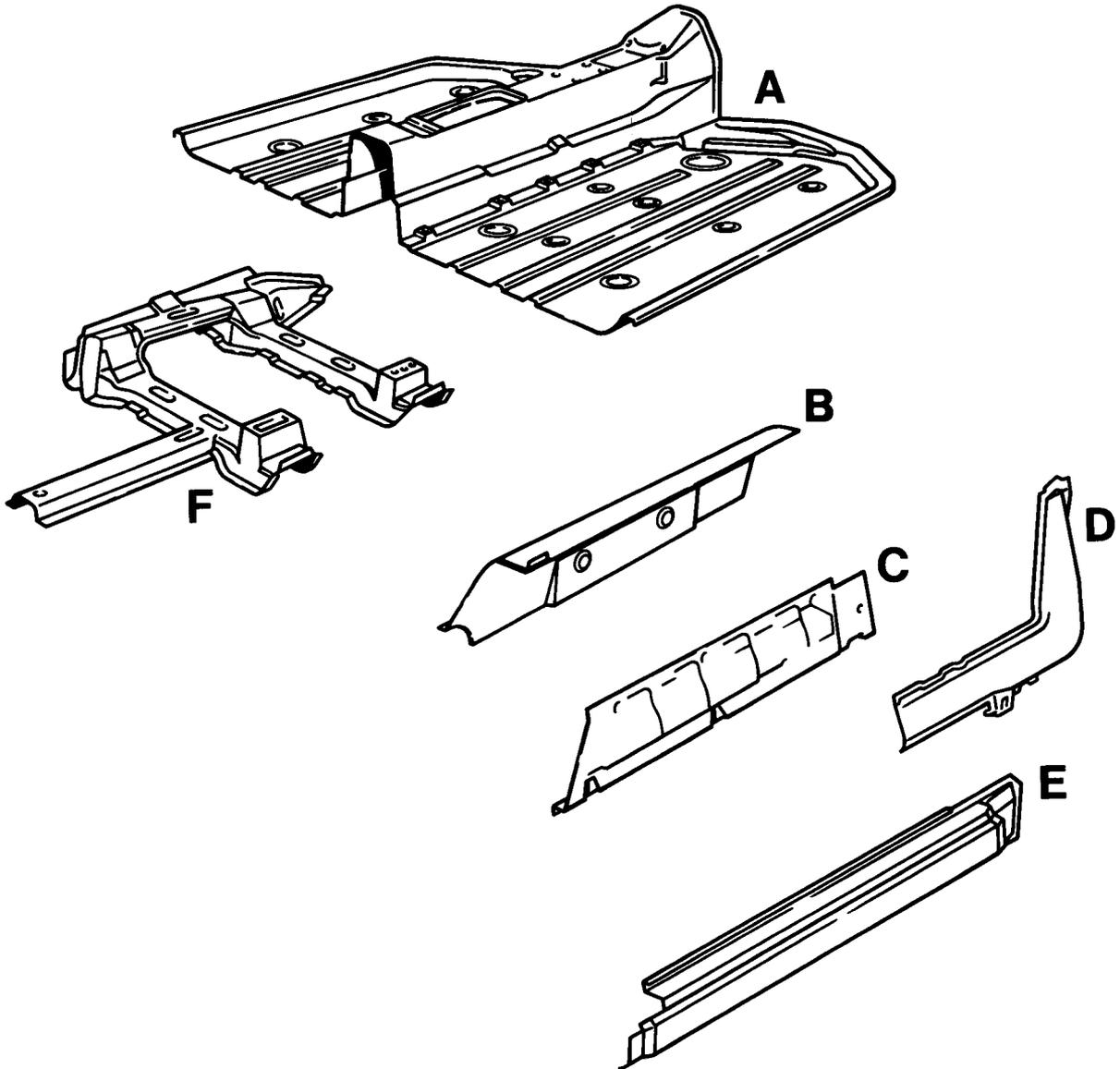
## Partial replacement of the fender connection plate

Repair work on the body in this area must be completed before replacement of the fender connection plate.

No.	Work step	Instructions
1	Undo the spot weld joints of the fender connection plate to the entrance sill	Undo the spot weld joints of the fender connection plate to the entrance sill using a spot weld milling cutter.
2	Cut off fender connection plate  Straighten and grind the separation area of the remaining fender connection plate on the body.	Remove the narrow web of the fender connection plate along the wheel house.
	Prepare and adapt the fender connection plate	Trim the wide web of the fender connection plate to approx. 20 mm and adapt to the wheel house. Drill the fender connection plate in the area of the entrance sill for plug welding. Remove the primer coat applied at the works at the welding areas of the fender connection plate using a Roto-brush.
3	Weld on the fender connection plate	Secure the fender connection plate to the wheel house on both sides with an interrupted full seam by means of inert gas shielded arc welding. Plug weld the fender connection plate and entrance sill with inert gas.

## Partially replacing door sill with side member and floor pan

The following body spare parts are required for this sectional repair:

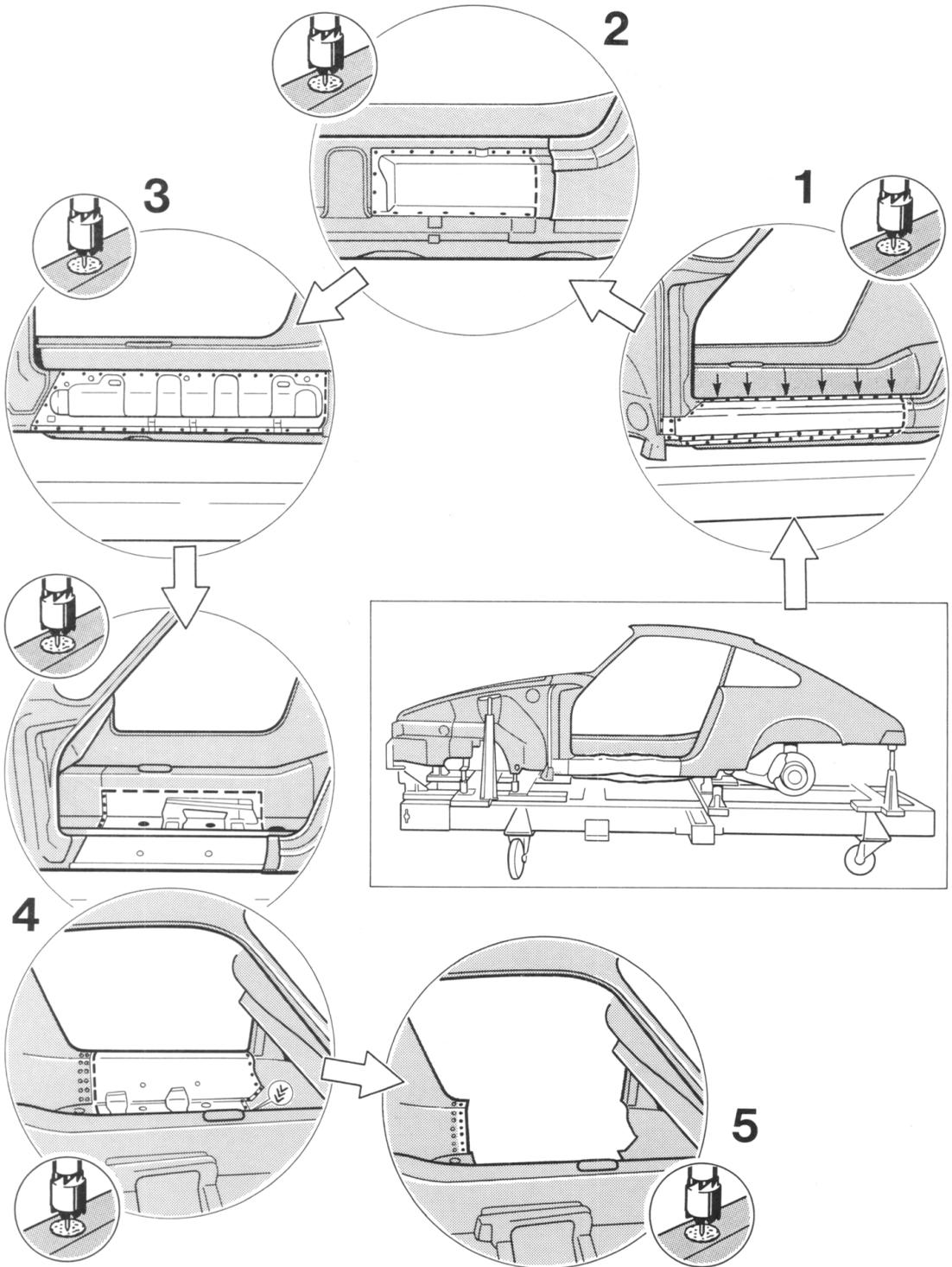


A = Floor pan  
 B = Side member, inner  
 C = Side member, outer

D = Gusset plate  
 E = Door sill  
 F = Seat base

Partially replacing door sill with side member and floor pan

Partially cutting door sill with side member and floor pan from body shell



## Replacing part of door sill complete with side member and floor panel

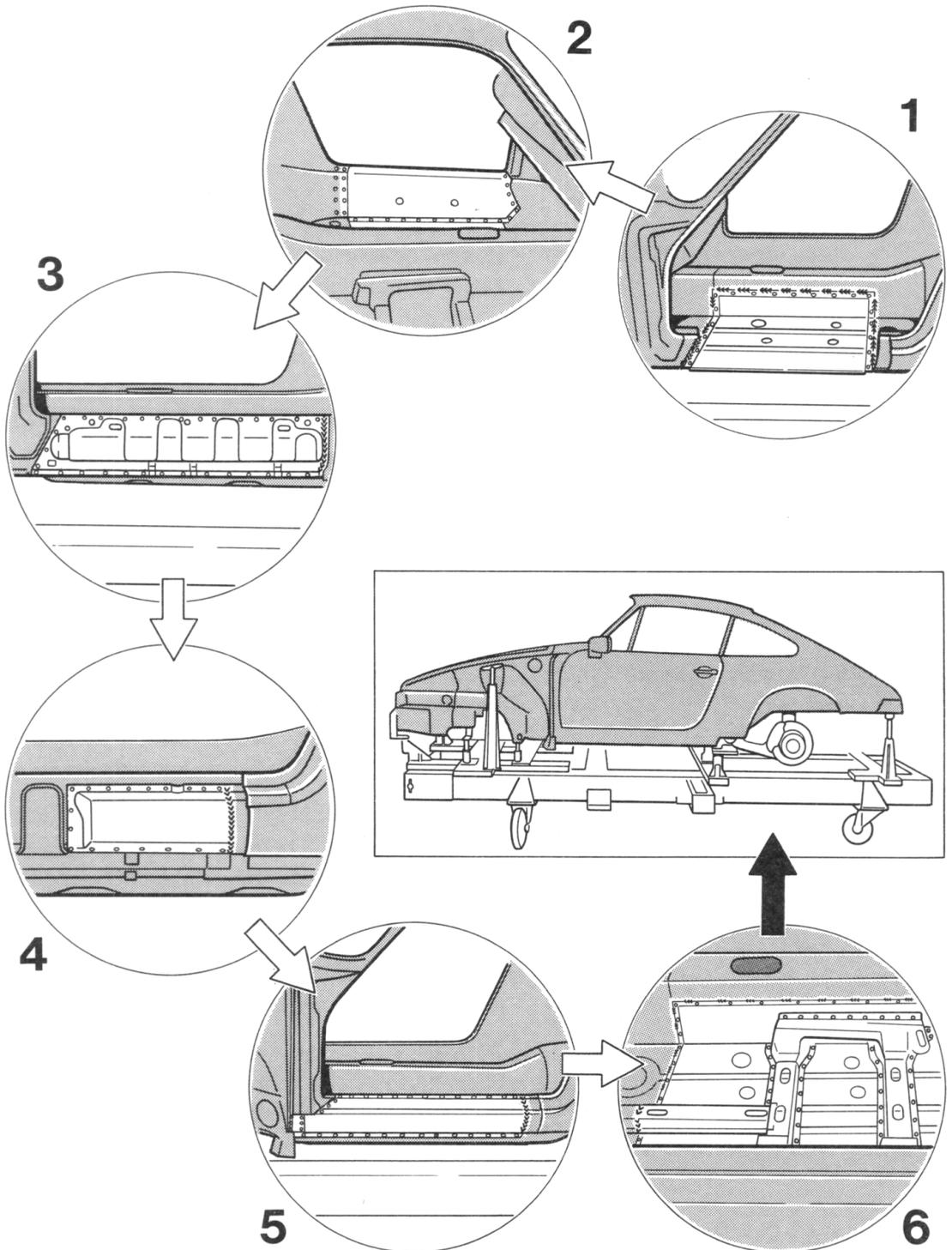
### Cutting part of door sill complete with side member and floor panel out of body

Remove all components and accessories, including the interior, from center body area as well as front fenders!

No.	Operation	Instructions
	Place vehicle on straightening equipment	Place vehicle onto attachment set – <b>not the economy set of straightening attachments.</b>
1	Cut through door sill and separate spotwelds	Using a body saw, cut through door sill ahead of rear quarter panel. Use a spotweld cutter to separate the spotwelds between the door sill and inside of side member, outside of side member, fender mating panel as well as closing panel.
2	Cut through gusset plate and separate spotwelds	Using a body saw, cut through gusset plate ahead of rear quarter panel. Use a spotweld cutter to cut spotwelds between gusset plate and inside of side member as well as quarter panel.
3	Cut through outside of side member and separate spotwelds	Using a body saw, cut through outside of side member ahead of rear quarter panel. Use a spotweld cutter to separate spotwelds between outside of side member and floor panel, inside of side member as well as front quarter panel.
4	Cut through inside of side member, floor panel and tunnel. Separate spotwelds	Cut through inside of side member ahead of rear side member, floor panel behind seat base and floor at tunnel, using a body saw. Grind away MIG seam between seat base and extension. Separate spotwelds between inside of side member and front part of side member, between floor panel center and front floor as well as between center of tunnel and front of tunnel using a spotweld cutter.
5	Separate spotwelds of inside of side member / rear of side member	Separate spotwelds between inside of side member and rear of side member, using a spotweld cutter. Take out remaining side member section.

## Replacing part of door sill complete with side member and floor panel

Fitting part of door sill complete with side member and floor panel into body



## Partially replacing door sill with side member and floor pan

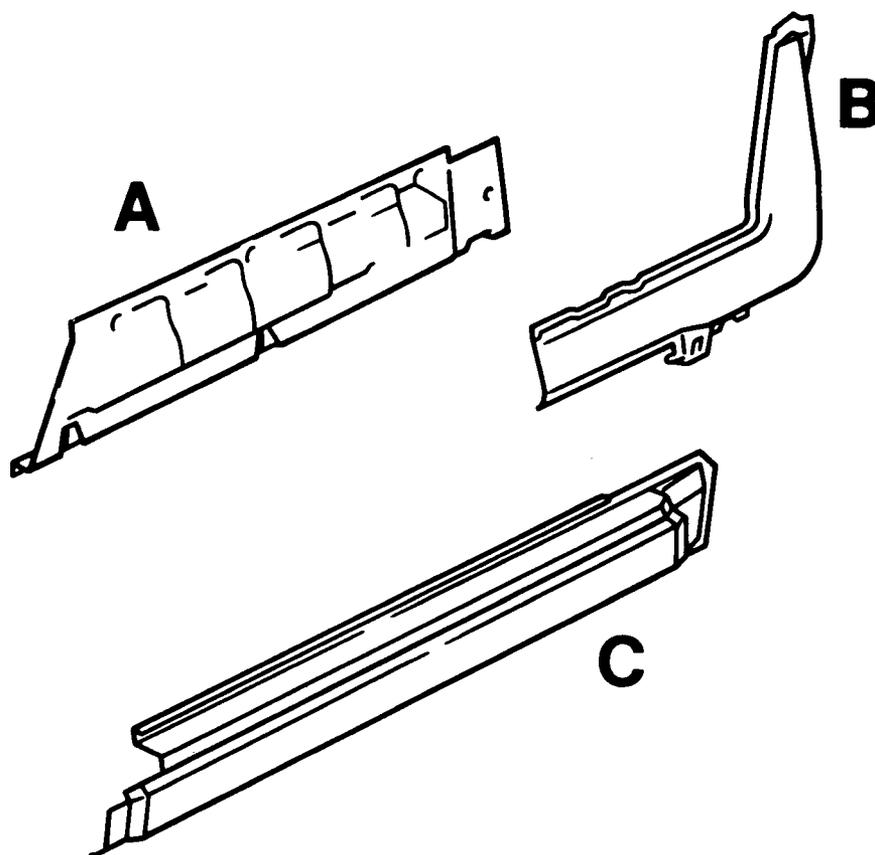
### Partially fitting door sill with side member and floor pan into body shell

No.	Procedure	Instructions
	Perform straightening operations and adjust body shell with straightening brackets	Perform all straightening operations on the body shell. Adjust body shell with straightening brackets. Fit door to check body contours. Make sure the gap between door and body is parallel throughout.
	Clean welding areas	Remove underbody sealant, paint etc. from welding areas using a hot air gun or rotary brush. Remove factory primer from welding areas of the new spare parts using a rotary brush.
	Trial-fit floor pan into body shell and prepare for welding	Fit spare floor pan into body shell so that it overlaps in the areas adjacent to the rear of the floor and the tunnel. Joggle spare floor pan in those areas to the inside. Drill spare floor pan for plug welding.
1	Weld floor pan to body shell	Locate floor pan using welding clamps. Plug weld spare floor pan to rear of floor pan, tunnel and front of floor pan using MIG welding equipment. MIG weld overlapping areas between spare floor pan and rear of floor pan, tunnel and front of floor pan, running an intermittent full weld.
	Prepare inner side member for fitting into body shell	Drill inner side member along the mating areas to the front side member and floor pan for plug welding.
2	Trial-fit inner side member into body shell and MIG weld	Fit inner side member into body shell and adjust according to body and seat base contours. Plug weld inner side member with front side member, rear side member and floor pan using MIG welding equipment.
	Trial-fit outer side member into body shell and prepare for fitting	Adjust spare outer side member to outer body-mounted side member until a smooth butt joint is achieved. Drill outer side member along the mating area of the front side section for plug welding.

No.	Procedure	Instructions
3	Weld in outer side member	Locate spare outer side member with suitable clamps and butt weld to outer body-mounted side member, running a full weld and using MIG welding equipment. Plug weld outer side member to front side member using MIG equipment. Spot weld outer side member to floor pan and inner side member.
4	Trial-fit gusset plate, prepare for fitting and weld in place	Trial-fit spare gusset plate to body-mounted gusset plate so that a butt joint is obtained. Drill gusset plate along the mating area to the outer side member for plug welding. Butt weld spare gusset plate to body-mounted gusset plate, running a full weld and using MIG equipment. Plug weld gusset plate to outer side member using MIG equipment.
	Trial-fit door sill into body shell and prepare for fitting	Trial-fit spare door sill to body-mounted door sill so that a butt joint is obtained. Drill door sill in the mating areas to the fender plate, closing plate and outer side member for plug welding.
5	Weld door sill in place	Fit door sill into body shell and adjust according to the door contours. Butt weld spare door sill to body-mounted door sill, running a full weld and using MIG equipment. Plug weld door sill to outer side member, fender plate and closing plate using MIG equipment. Spot weld door sill to inner side member and outer side member.
	Grind down butt weld	
6	Prepare seat base for fitting and weld in place	Drill seat base along the spot weld flanges for plug welding. Plug weld seat base to floor pan, tunnel and inner side member using MIG equipment. MIG weld seat base with extension, running an intermittent full weld.

## Replacing part of door sill complete with side member

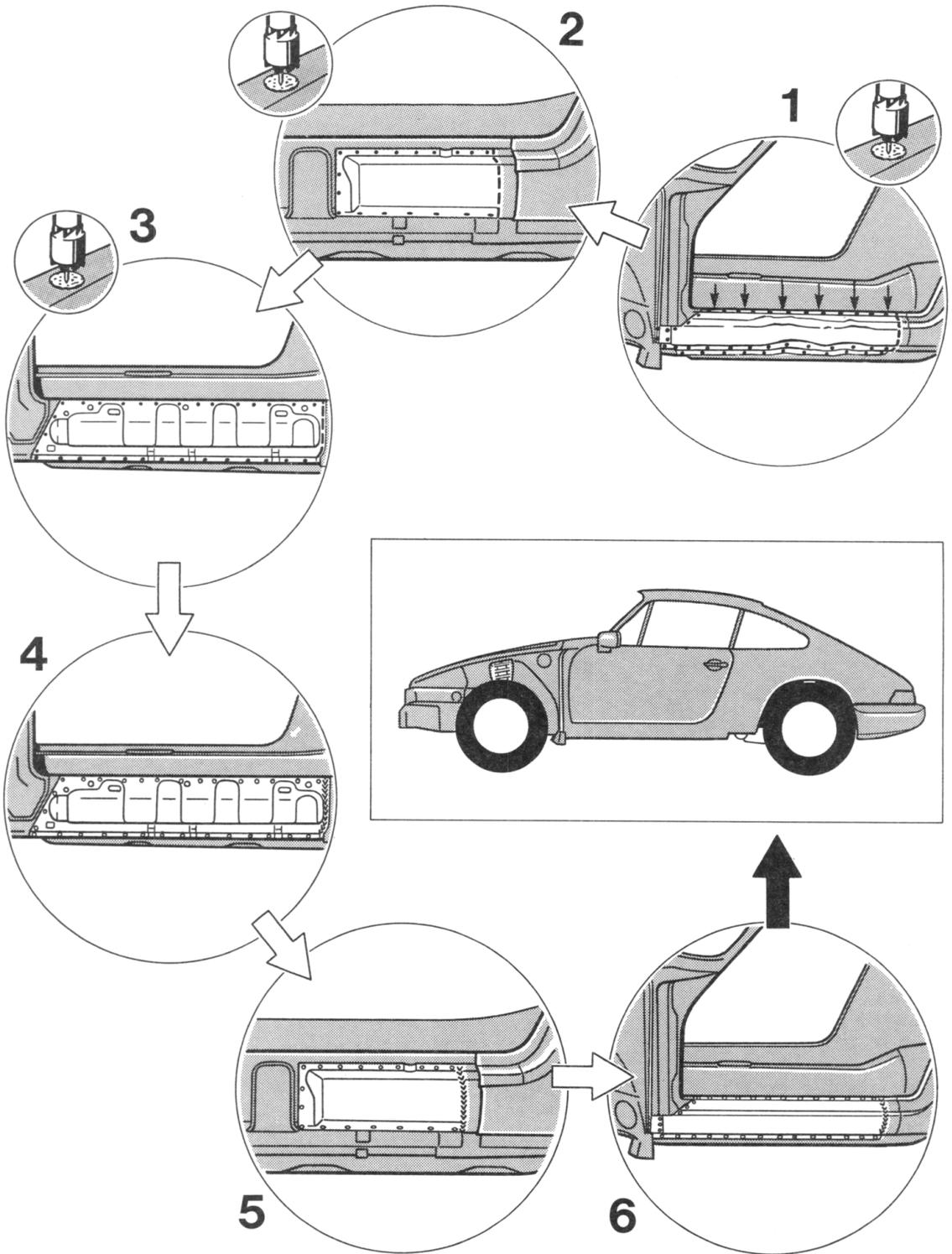
For this sectional repair, the following spare parts are required:



- A = Side member, outside
- B = Gusset plate
- C = Door sill

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Replacing part of door sill complete with side member



## Partially replacing door sill with side member

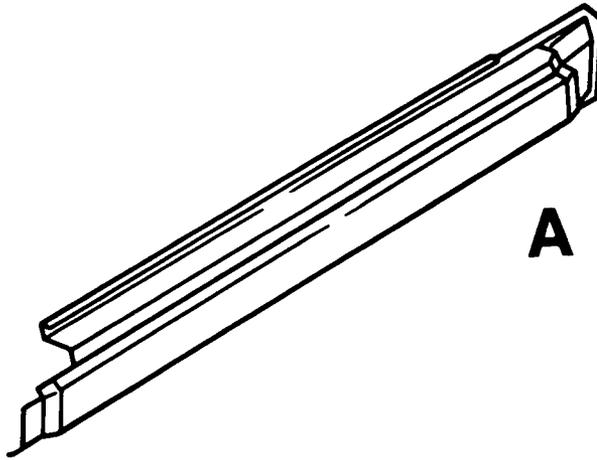
Remove components and interior in the center section of the body shell as well as the front fender area!

No.	Procedure	Instructions
1	Cut through door sill and separate spot welds	Cut door sill ahead of the rear side section using a body saw. Separate spot welds between door sill and inner side member, outer side member, fender plate and closing panel using a spotweld cutter.
2	Cut through gusset plate and separate spot welds	Cut gusset plate ahead of the rear side section using a body saw. Separate spot welds between gusset plate and side member as well as side section using a spot-weld cutter.
3	Cut through outer side member and separate spot welds	Cut side member ahead of the rear side section using a body saw. Separate spot welds between outer side member and floor pan, inner side member as well as front side section using a spotweld cutter.
	Clean welding areas	Remove underbody sealant, paint etc. from welding areas of the body shell using a hot air gun or rotary brush. Remove factory primer from welding areas of spare parts using a rotary brush.
	Trial-fit outer side member into body shell and prepare for fitting	Trial-fit outer spare side member to outer body-mounted side member so that a butt joint is obtained. Drill outer side member at the mating area to the front side section for plug welding.
4	Weld in outer side member	Locate spare outer side member with suitable clamps and butt weld to outer body-mounted welding side member, running a full weld and using MIG equipment. Plug weld outer side member with front side section using MIG equipment. Spot weld outer side member to floor pan and inner side member

No.	Procedure	Instructions
5	Trial-fit gusset plate, prepare for fitting and weld in place	Trial-fit spare gusset plate to body-mounted gusset plate so that a butt joint is obtained. Drill gusset plate at the mating area to the outer side member for plug welding. Butt weld spare gusset plate to body-mounted gusset plate, running a full weld and using MIG equipment. Plug weld gusset plate with outer side member using MIG equipment.
	Trial-fit door sill to body shell and prepare for fitting	Trial-fit spare door sill to body-mounted door sill so that a butt joint is obtained. Drill door sill along the mating areas for fender plate, closing plate and outer side member for plug welding.
6	Weld door sill in place	Fit door sill to body shell and adjust according to door contours. Butt weld spare door sill to body-mounted door sill running a full seam and using MIG equipment. Plug weld door sill to outer side member, fender plate and closing plate using MIG equipment. Spot weld door sill to inner side member and outer side member.
	Grind down butt weld	

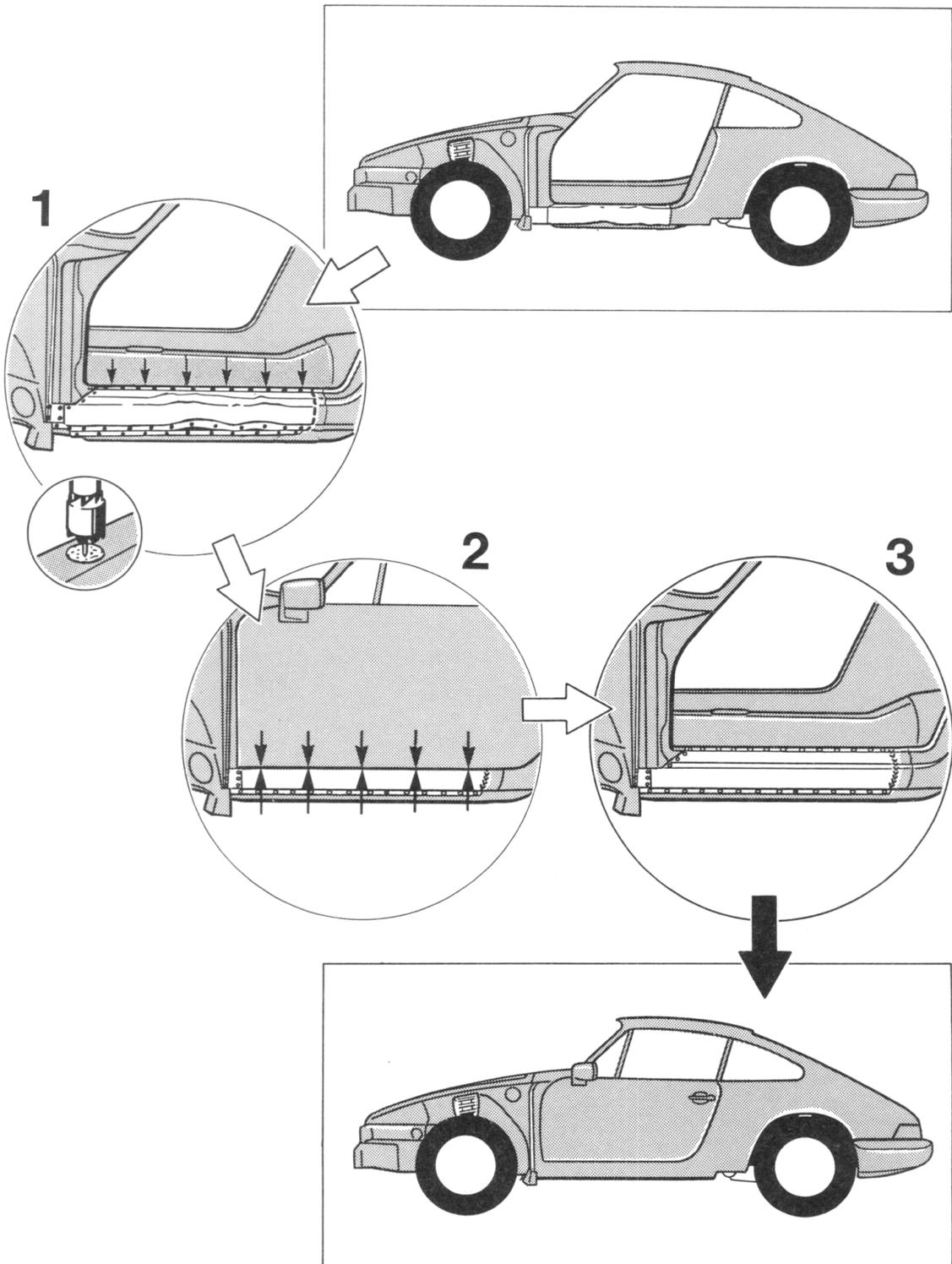
## Replacing door sill

The following body spare part is required for the "Replacing door sill" repair operation:



A = Door sill

## Replacing door sill



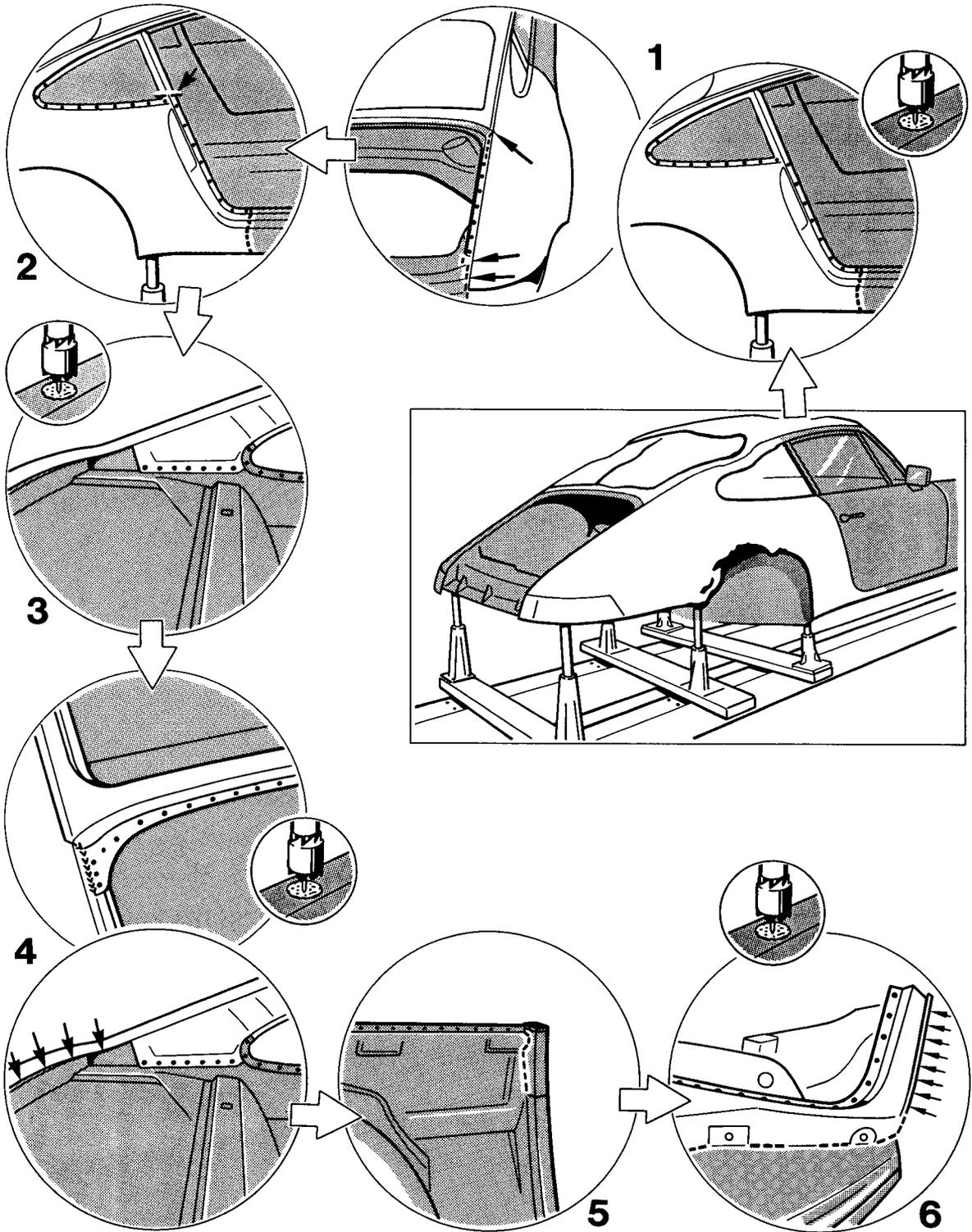
## Replacing door sill

Remove components and interior in the door sill as well as front fender areas!

No.	Procedure	Instructions
1	Cut through door sill and separate spot welds	Cut door sill ahead of the rear side section using a body saw. Separate spot welds between door sill and inner side member, outer side member, fender plate as well as closing plate using a spotweld cutter.
	Clean welding areas	Remove paint, underbody sealant etc. from welding areas of the body shell with a hot air gun or rotary brush. Remove factory primer from welding areas of spare part using a rotary brush.
2	Trial-fit door to body shell and prepare for fitting	Trial-fit spare door sill to body-mounted door sill so that a butt joint is obtained. Drill door sill at the mating areas to fender plate, closing plate and outer side member for plug welding. Fit door sill to body shell and adjust according to the door contours.
3	Weld in door sill	Butt weld spare door sill to body-mounted door sill, running a full weld and using MIG equipment. Plug weld door sill to outer side member, fender plate and closing plate using MIG equipment. Spot weld door sill to inner side member and outer side member.
	Grind down butt weld	

### Replacing the complete roof

#### Cutting roof panel and quarter panels from body



## Replacing the complete roof

### Cutting roof panel and quarter panels from body

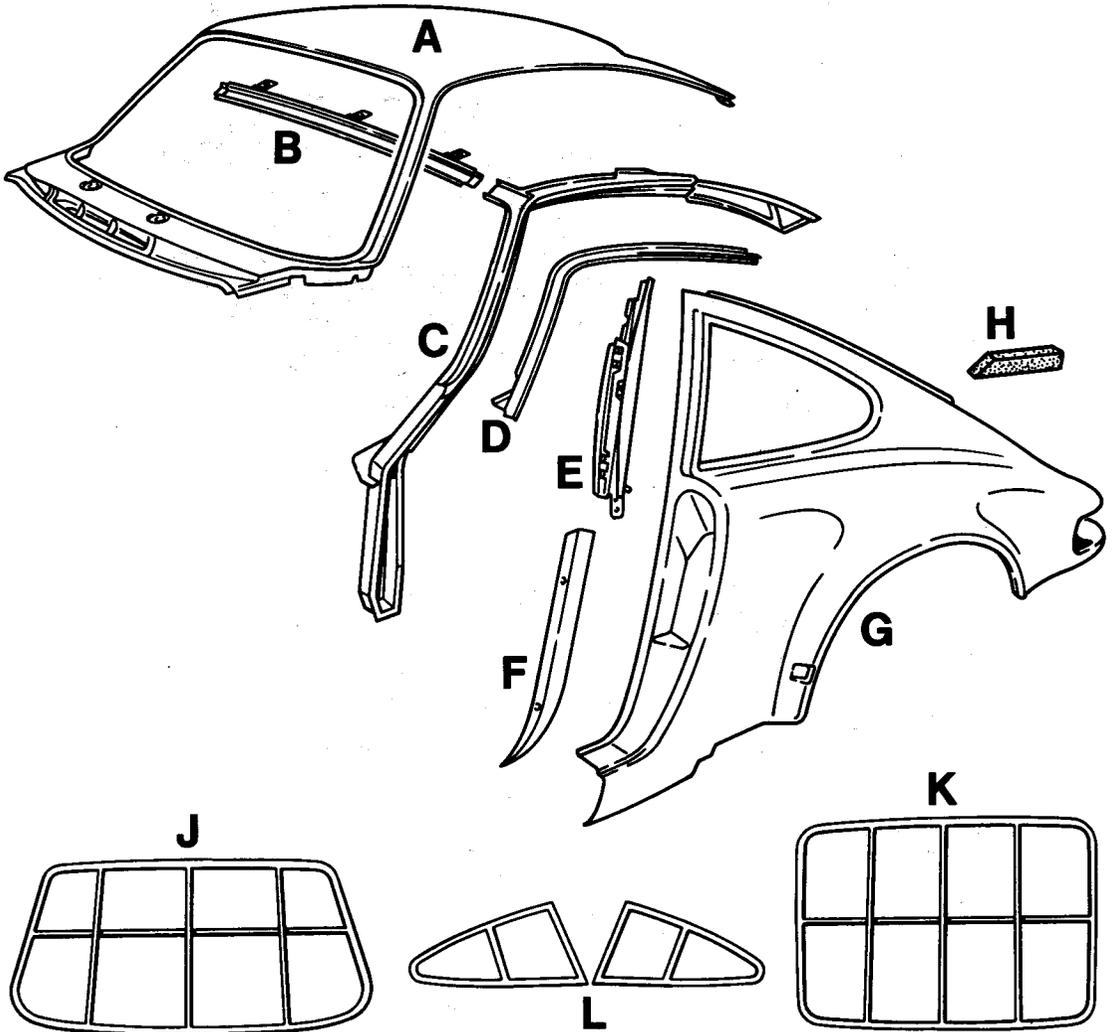
Remove assemblies and accessories as well as complete interior equipment including all body glass!

**Body straightening operations must be completed before the roof is replaced!**

No.	Operation	Instructions
	Set up vehicle on straightening equipment	Set up vehicle with fitted front-end assemblies on straightening attachments set and tighten vehicle.
1	Separate spotwelds at quarter panel	Separate spotwelds between quarter panel and inner side panel using a spotweld cutter. Separate MIG weld seams between quarter panel and door sill, roof sheet/inner side panel and crossmember.
	Separate brazed joint of guide tube	Separate brazed joint of guide tube for cover operating cable at quarter panel and lock pillar.
2	Cut through B-post	Cut through B-post along extension of bottom edge of rear side window using a body saber saw.
	Cut through A-post	Cut through A-Post using a body saber saw.
3	Separate spotwelds between roof rail/inner side panel	Separate spotwelds between roof rails and inner side panel with a spotweld cutter.
4	Separate spotwelds between roof and rear shelf panel	Separate spotwelds between roof and rear shelf panel using a spotweld cutter.
	Lift roof complete with quarter panels off the body	
5	Separate spotwelds of inner panel	Grind off MIG weld seams between inner side panel and inner panel (B-post).
6	Separate weld joints of cowl panel Separate flange joint of A-post/flange panel	Separate spotwelds between cowl panel and upper dashboard section using a spotweld cutter. Separate MIG weld joints between cowl panel and wheel arch. Separate flange joint between A-post and flange panel.

## Replacing the complete roof

The following body spare parts and special tools are required for the "Replacing the complete roof" repair operation:



- A = Outer roof sheet
- B = Transverse windshield section
- C = Roof rail
- D = Flange panel
- E = Inner panel B-post
- F = Enclosed angle

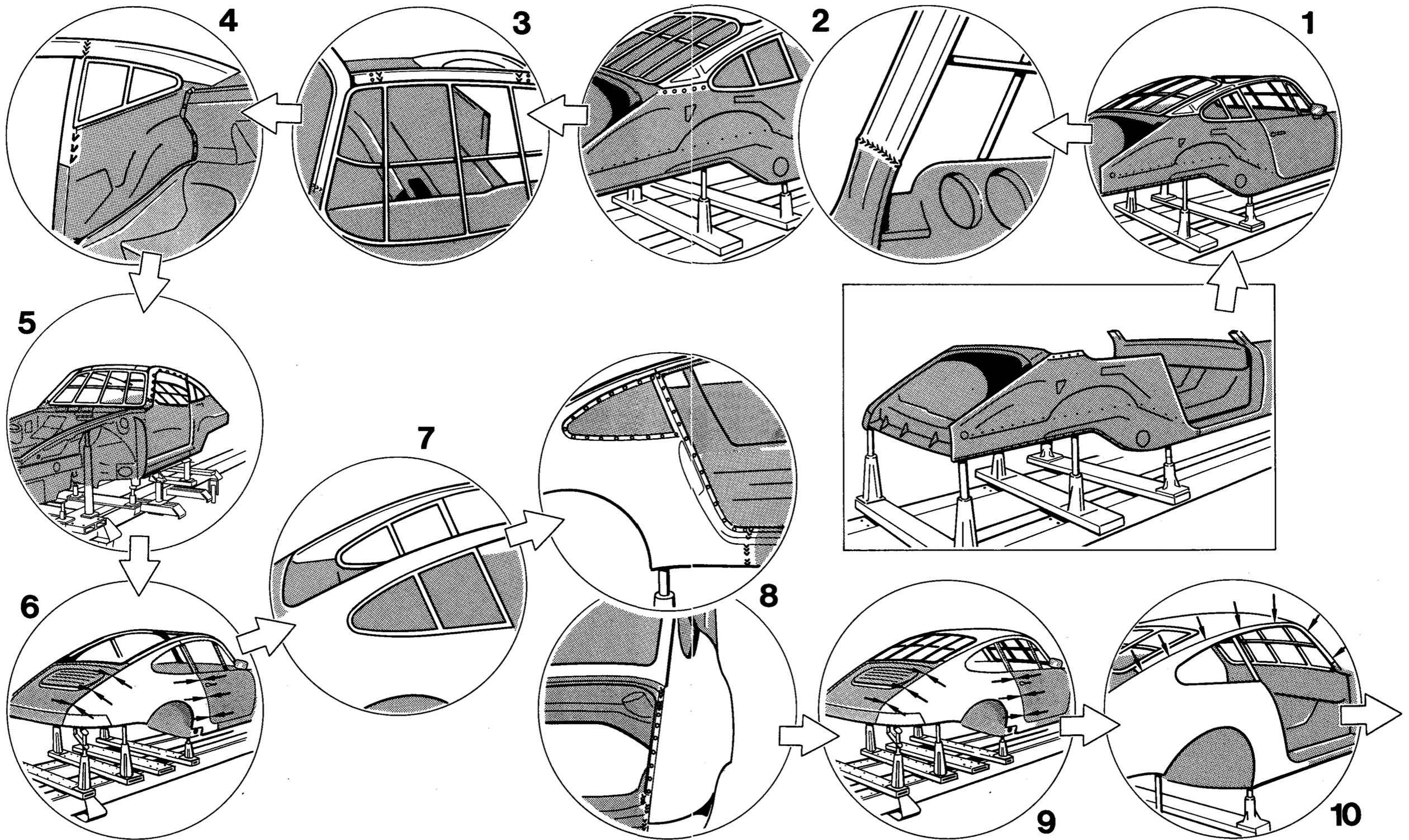
- G = Quarter panel
- H = Sealing
- J = Special Tool P 852
- K = Special Tool P 853
- L = Special Tool P 854

## Replacing the complete roof

Fitting roof and quarter panels to the body

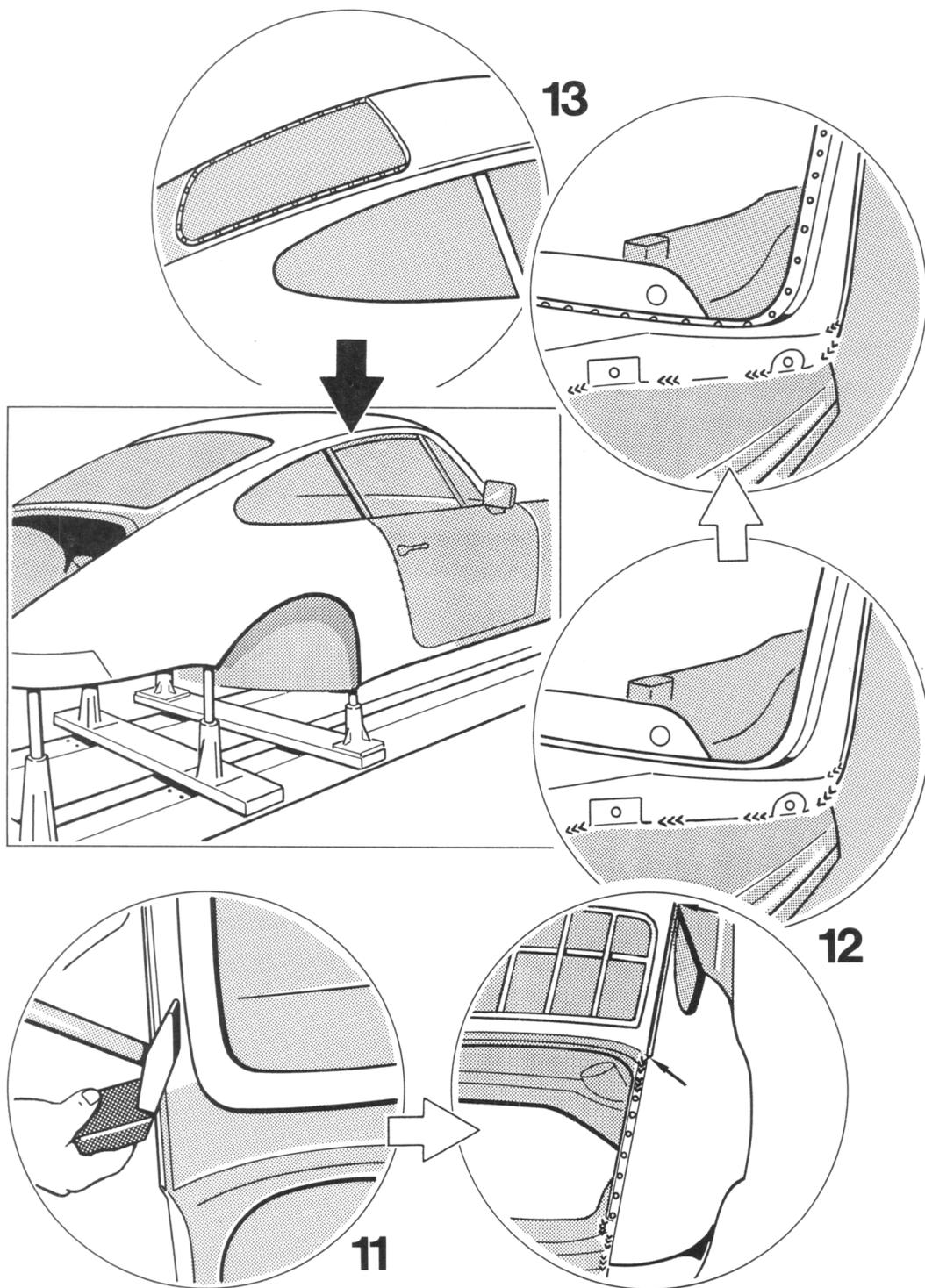
Replacing the complete roof

Fitting roof and quarter panels to the body



### Replacing the complete roof

#### Fitting roof and quarter panels to the body



## Replacing the complete roof

### Fitting roof and quarter panels to the body

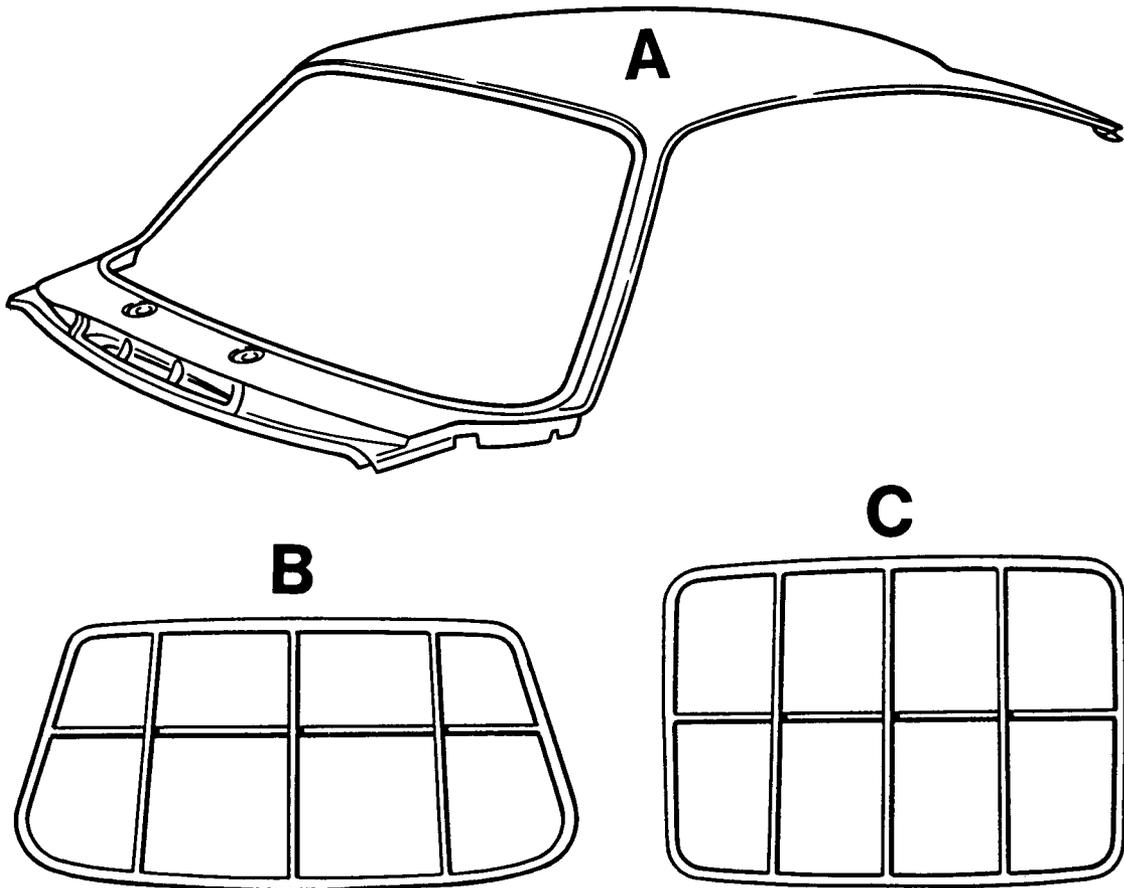
No.	Operation	Instructions
	Cleaning the welding areas	Use a hot air gun or rotary brush to clean remaining sealant, paint etc. from the welding areas of the body. Remove factory primer from welding areas of spare panels.
	Fit doors to body	
	Trial-fit roof rails and flange panels to body	Trial-fit roof rails and flange panels to body observing correct door contours.
1	Insert Special Tools P 852, P 853 and P 854	Insert Special Tools <b>P 852</b> (windshield gauge), <b>P 853</b> (rear window gauge) and <b>P 854</b> (rear side window gauges) into body apertures and clamp to spotweld flanges along with roof rails (using suitable clamping tools).
2	Weld roof rails to body	Weld roof rails to A-posts running a full seam. Spotweld roof rails to inner side panels.
3	Trial-fit windshield transverse section into body and spotweld into place.	Trial-fit windshield transverse section according to contours of Special Tool P 852 into the body, clamp in place with special clamps and apply spotwelds. MIG-weld windshield transverse section and roof rails running a series of intermittent weld seams.
4	Weld B-post inner panel to body	Trail-fit inner panels of B-posts to body and clamp in place with special clamps. MIG-weld B-post inner panels and roof rails running a full seam. MIG-weld B-post inner panels and inner side panels in the rear side window area running a full seam and MIG-weld other areas running an intermittent full seam.

No.	Operation	Instructions
5	Weld flange panels to body	Spotweld flange panels with roof rails using the door frame contours for reference. MIG-weld flange panels and A-posts running a full seam. MIG-weld flange panels to B-post inner panels and roof rails running a full seam.
	Remove all special tools and finish welding	Remove Special Tools P 852, P853 and P 854 and weld all areas that have not been accessible until now using MIG equipment.
6	Trial-fit quarter panels to body	Trial-fit quarter panels to body. Introduce guide rail for cover operating cable into side panel. Install doors and rear lids to check fit and body contours. Make sure the door-to-body gaps as well as the rear lid-to-body gaps are parallel throughout.
7	Insert Special Tools P 854	Insert Special Tools P 854 into body aperture for rear side window and attach to spotweld flange.
	Tack weld quarter panels using MIG equipment	Tack weld quarter panel to door sill, B-post, spotweld flange for rear side window, inner side panel and cross member using MIG equipment.
8	Spotweld and MIG weld quarter panels	Spotweld quarter panel to inner side panel, B-post and roof rail. MIG-weld quarter panel to door sill, roof rail (in B-post area) and cross member running an intermittent full seam.
	Trial-fit outer roof sheet to body	Adjust outer roof sheet according to spotweld flanges in the body apertures for the windshield and rear window. Make sure the body gaps between outer roof sheet and front and rear lid are parallel throughout.

No.	Operation	Instructions
9	Insert Special Tools P 852 and P 853	Insert Special Tools P 852 and P 853 into body apertures and clamp to spotweld flanges using suitable clamping tools.
	Tack weld outer roof sheet using MIG equipment	Tack weld outer roof sheet to spotweld flanges in the windshield and rear window areas from inside (passenger compartment) using MIG welding equipment.
10	Spotweld outer roof sheet	Spotweld outer roof sheet to roof rails, quarter panels, flange panels and rear parcel shelf.
		<b>Note:</b> <b>When spotwelding in the visible areas, insert a copper plate to avoid indentations at the spotwelds.</b>
11	Flange outer roof sheet	Trim a flange at outer roof sheet and roof rails along flange panels and quarter panels.
12	MIG-weld outer roof sheet	MIG-weld flange ends of roof outer sheet to C-posts and quarter panels running a full seam.
		MIG-weld outer roof sheet and B-posts running a full seam.
		MIG-weld outer roof sheet to A-posts and wheel arch running an intermittent full seam.
	Take out all special tools	
13	Spotweld flanges of spotweld joints	Spotweld flanges of spotweld joints of windshield and rear-window apertures in a continuous line.
	Brazing guide tube for cover operating cable	Brazing guide tube for cover operating cable to lock pillar (B-post).
	Spotweld angle plate to inner side panels	
	Grind down MIG weld seams	Grind down MIG weld seams of flange ends and B-post.
	Insert seals	Insert seals between quarter panels and inner side panels.

## Replacing part of roof

The following special tools and body spare panels are required for the "Replacing part of roof" operation:



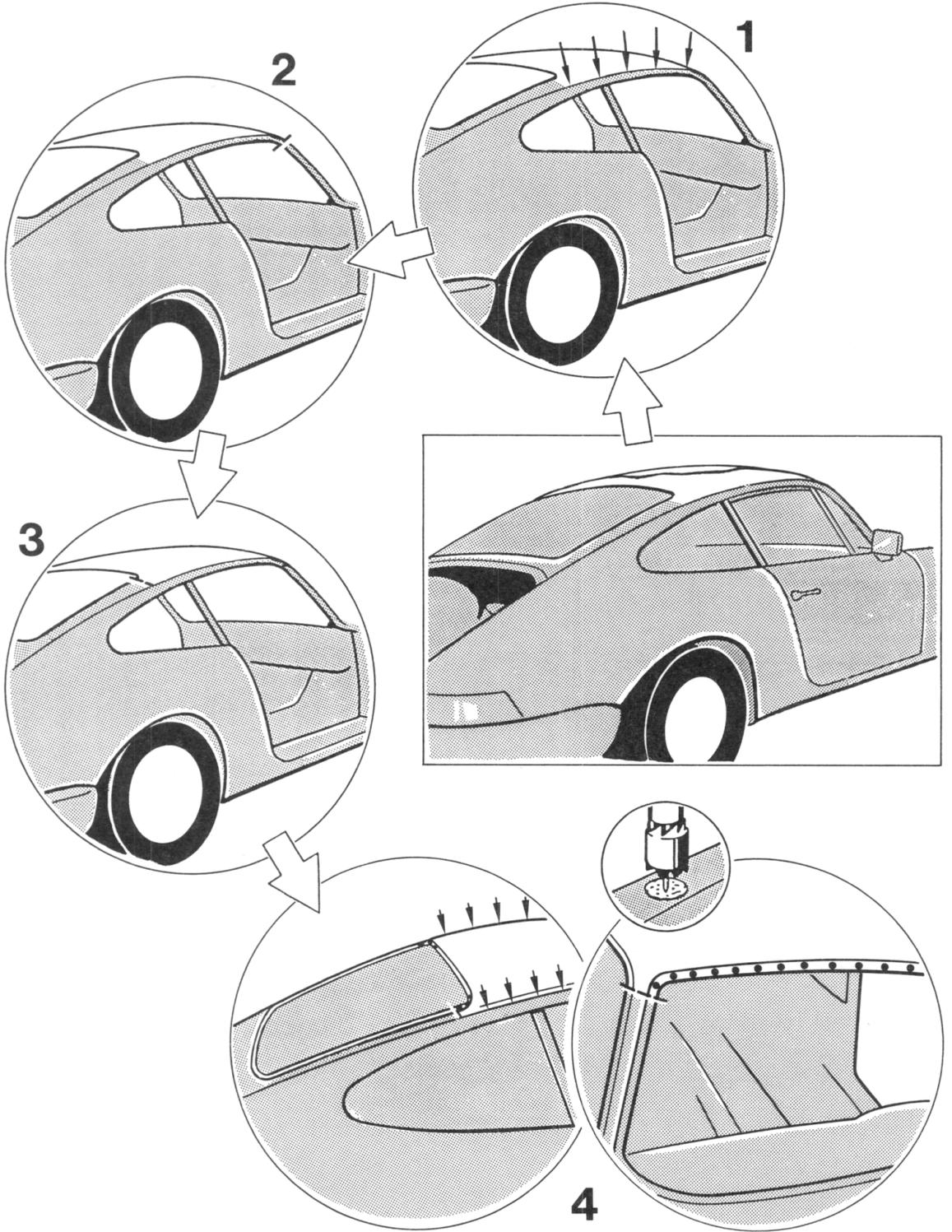
A = Outer roof sheet

B = Special Tool P 852

C = Special Tool P 853

Replacing part of roof

Cutting part of roof out of body



## Replacing part of roof

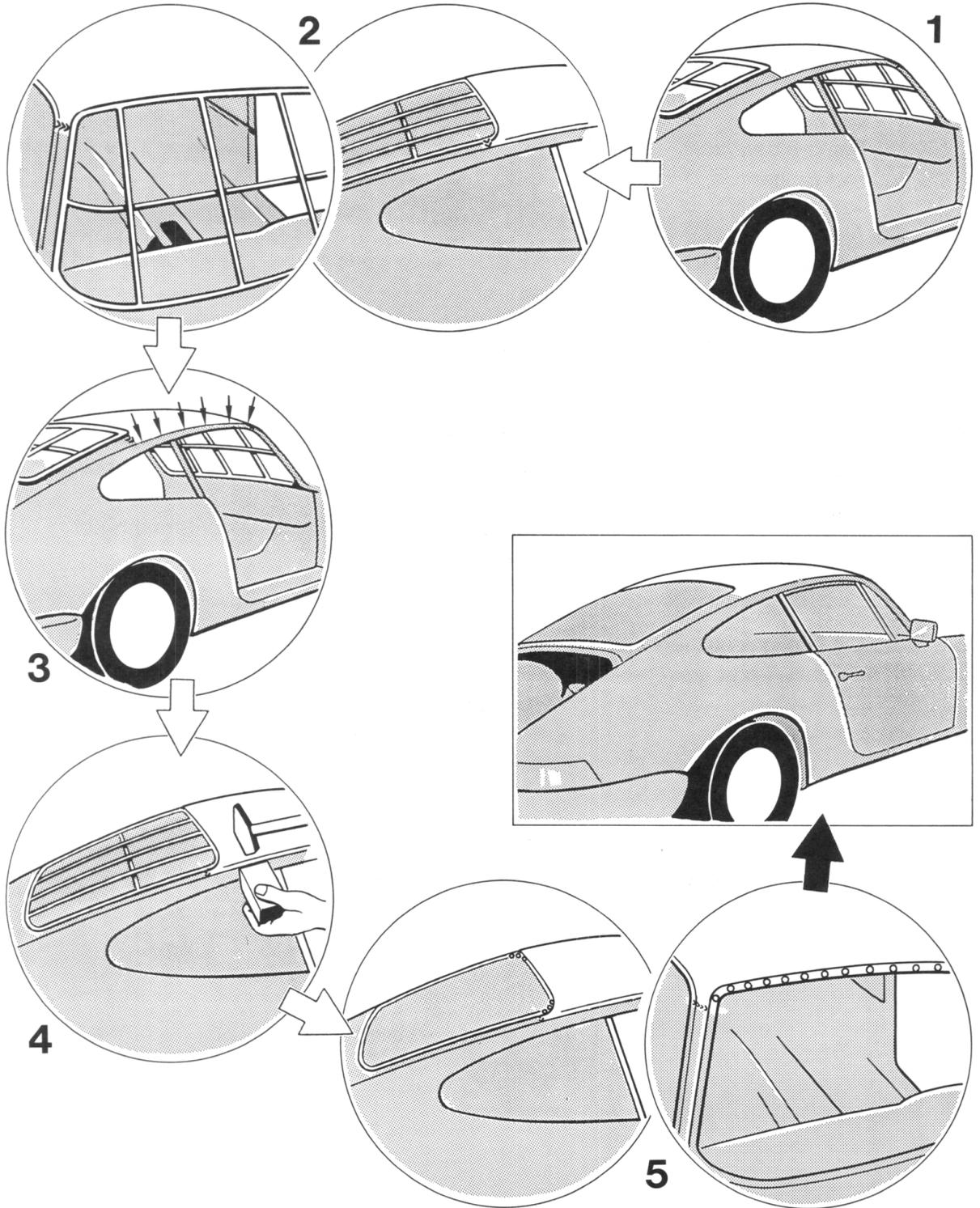
### Cut part of roof out of body

Removing interior including all body glass!

No.	Operation	Instructions
	Remove paint from roof flanges	Remove paint from roof flanges between A- and C-post using a rotary wire brush.
1	Separate flange joints	Separate flange joints between flange panels and roof rails as well as between quarter panels and roof rails. To separate the flanges, heat the flanges and bend them open.
2	Cut through outer roof sheet in A-post area	Cut through outer roof sheet as closely as possible to the windshield transverse section near the A-posts. <b>Caution:</b> <b>The roof rails must neither be cut through nor damaged.</b>
3	Cut through outer roof sheet in C-post area	Cut through outer roof sheet in the rear window aperture of the body near the C-posts. <b>Caution:</b> <b>The roof rails must neither be cut through nor damaged.</b>
4	Separate spotweld joints of the outer roof sheet	Separate spotweld joints between outer roof sheet and windshield transverse section, roof rails, flange panels and quarter panels using a spotweld cutter.

Replacing part of roof

Fitting part of roof into body



## Replacing part of roof

### Fitting part of roof into body

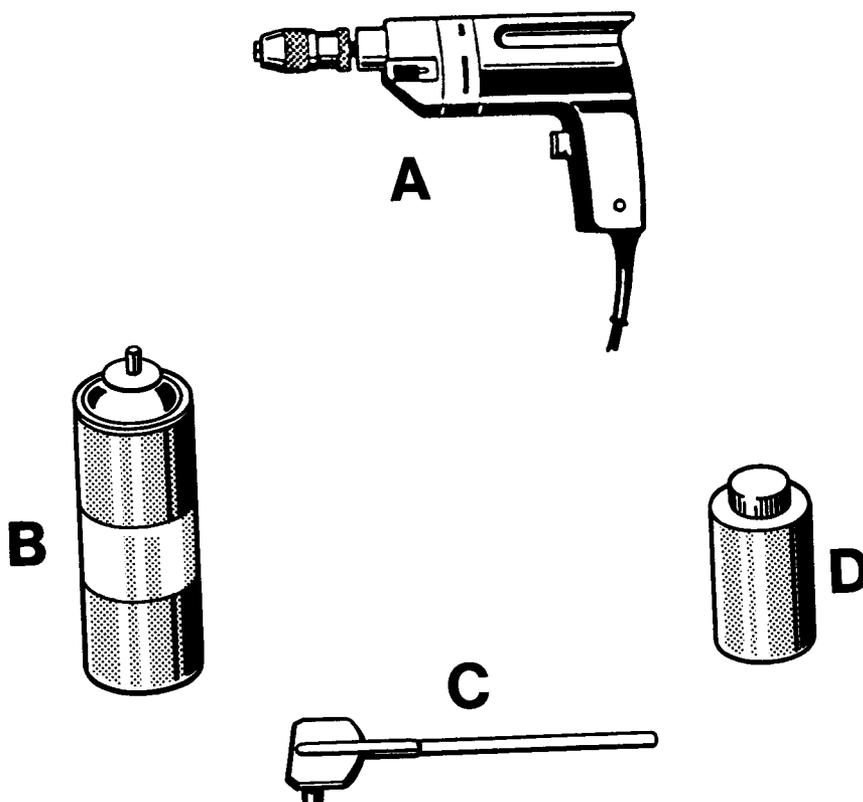
No.	Operation	Instructions
	Clean welding areas	Remove remaining sealant, paint etc. from welding areas of body using a hot air gun or a rotary wire brush. Remove factory primer from welding area of spare outer roof sheet.
	Trial-fit outer roof sheet into body	Trial-fit spare outer roof sheet into body making a butt joint.
1	Insert Special Tools P 852 and P 853	Insert Special Tools <b>P 852</b> (windshield gauge), <b>P 853</b> (rear window gauge) into body apertures and clamp to spotweld flanges using suitable clamps.
	Fit outer roof sheet	Clamp outer roof sheet to roof rails, flange panels and quarter panels using suitable clamping tools.
2	MIG-weld outer roof sheet	MIG-weld spare outer roof sheet to body outer roof sheet making a full butt joint.
	Tack-weld outer roof sheet using MIG equipment	Tack-weld outer roof sheet to spotweld flanges in the windshield and rear window areas from inside (passenger area) using MIG equipment.
3	Spotweld outer roof sheet	Spotweld outer roof sheet to roof rails, quarter panels and flange panels using spotweld equipment. <b>Note:</b> <b>When spotwelding in the visible areas, insert a copper plate to avoid indentations at the spotwelds.</b>

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No.	Operation	Instructions
4	Trim flange of outer roof sheet	Trim flange of roof outer sheet and roof rails along flange panels and quarter panels.
	Remove all special tools	
5	Spotweld all spotweld flanges	Spotweld all spotweld flanges of windshield and rear window body apertures.
	Finish welding outer roof sheet	Weld outer roof sheet in all A- and C-post areas that have so far been inaccessible running a full MIG seam.
	Grind down MIG weld seams	Grind down MIG weld seams at A- and C-posts.

## Removing cracking noises in the roof rail area

The following tools and materials are required to remove cracking noises:



1314-51

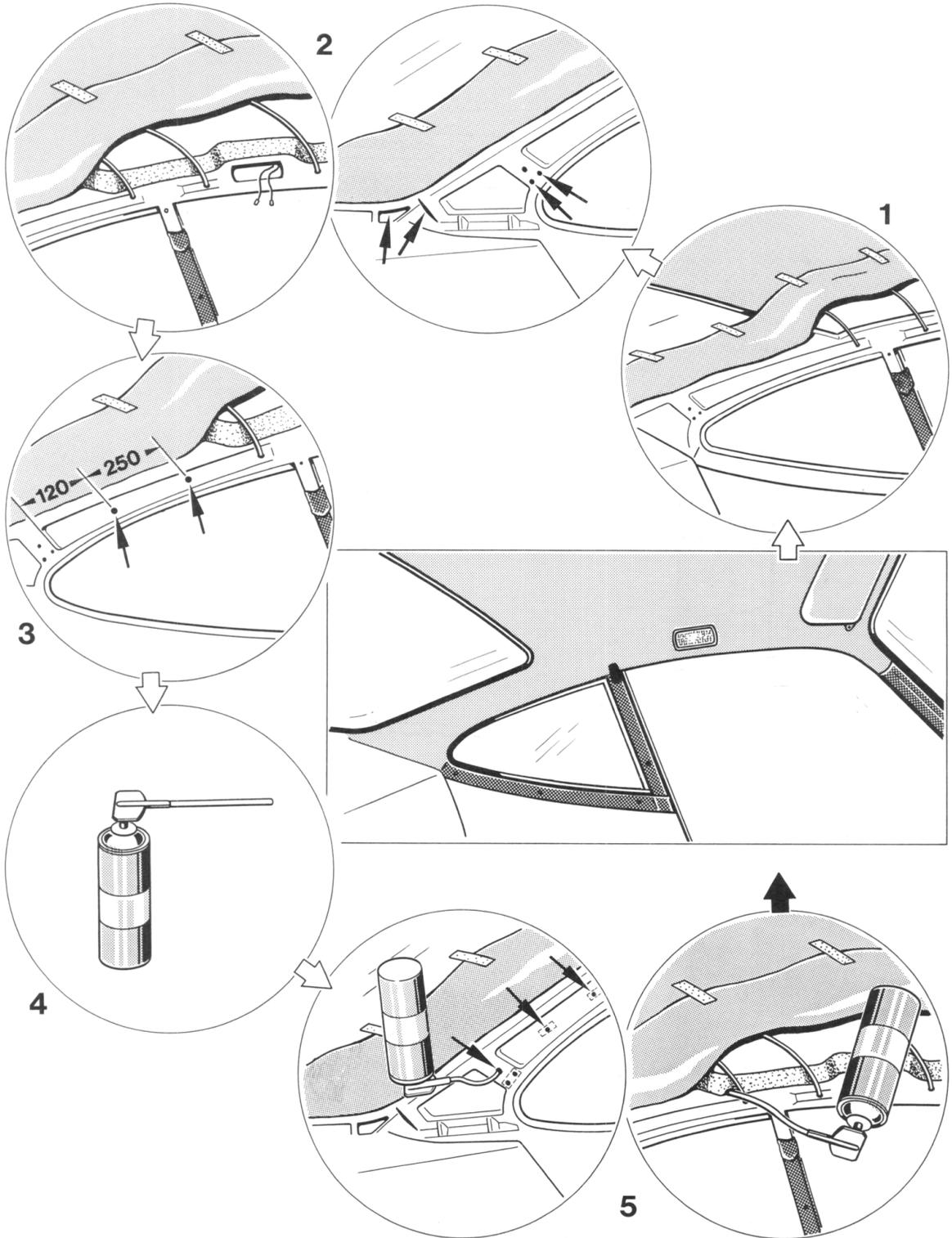
A = Power drill

B = Adhesive, commercially available (e.g. assembly foam "Montageschaum plus", supplied by Messrs. Quick-Mix, Osnabrück)

C = Filler tube

D = Cleaning solution

Removing cracking noises in the roof rail area



## Removing cracking noises in the roof rail area

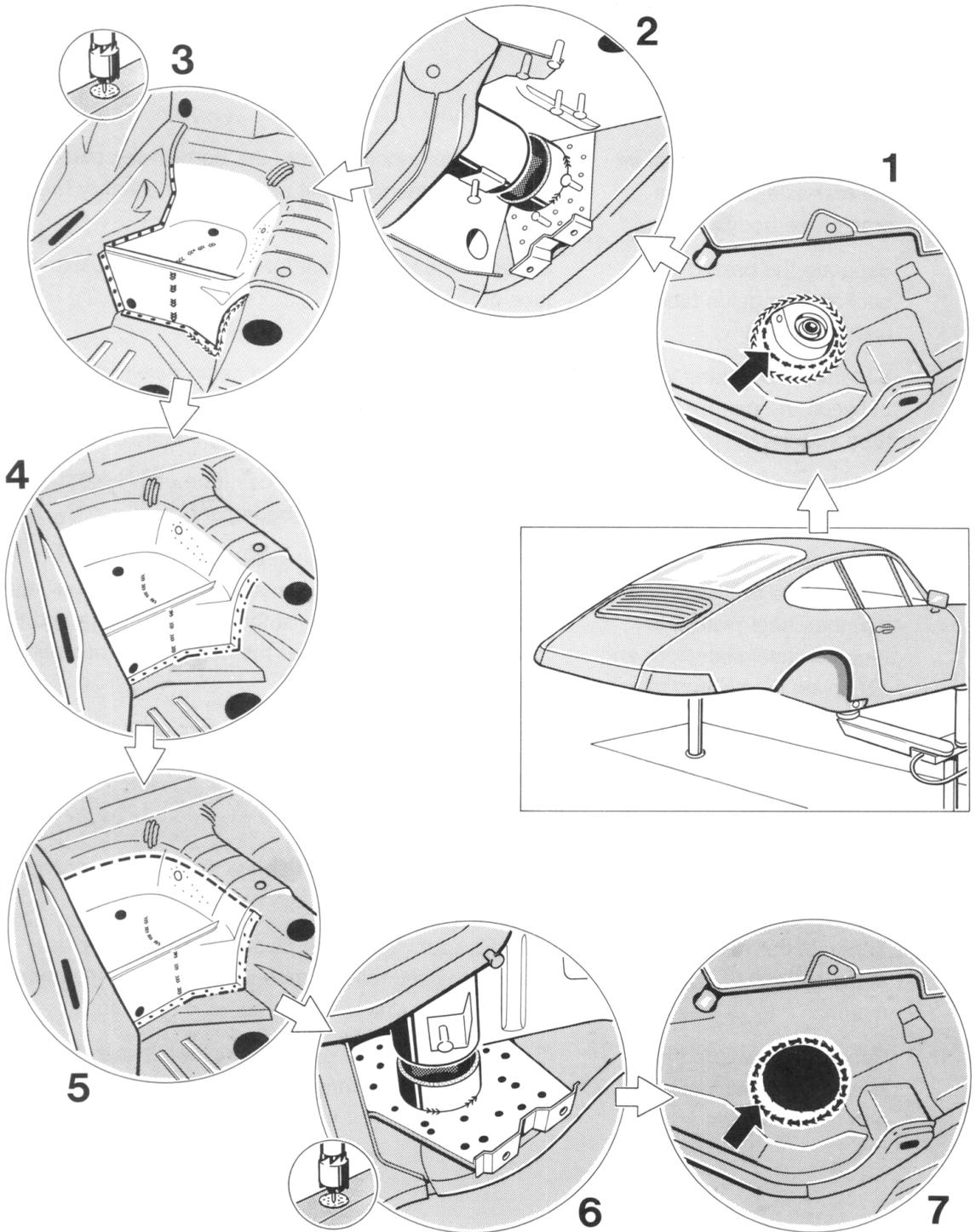
Remove rear side window, coat hook, interior light, sun visor, rear seat belt, rear wall trim panel and rear cover molding.

Detach door seal, B post trim and headlining trim as far as it is required, cover interior.

No.	Operation	Instructions
1	Fit headlining trim	Flap inner headlining trim upwards and attach to rear window and roof lining using adhesive tape.
2	Seal roof frame towards outer roof panel	Plug openings towards outer roof panel in lower rear area of roof frame, e.g. with rags. Cover holes in roof frame with adhesive tape. Cover opening between roof frame and outer roof panel all the way from the rear window to the A post, using adhesive tape.
3	Drill holes	Drill two 10 mm dia. holes into roof frame in rear window area according to dimensional specifications. <b>Caution: Take care not to damage the outer roof panel with the drill bit and vacuum off drilling swarf during the drilling operations.</b>
4	Prepare adhesive	Prepare adhesive to manufacturer's specifications.
5	Fill in adhesive	Place filler hose onto bonding cartridge. Hold bonding cartridge with outlet valve pointing down, insert filler hose into bore and fill in bonding material. Take filler hose out of bore and cover bore with adhesive tape. Repeat operation on other bores. The adhesive must be filled in between the roof frame and the outer roof panel all the way from the rear window to the A post.
	Refit removed parts	After the adhesive has cured, the covers can be removed from the body and the removed body parts kann be refitted.
		<p><b>Note</b></p> <p>Remove adhesive stains from paintwork and interior immediately with some cleaning solution!</p>

### Renewing the rear-axle cross tube

#### Cutting the rear-axle cross tube away from the body



## Renewing the rear-axle cross tube

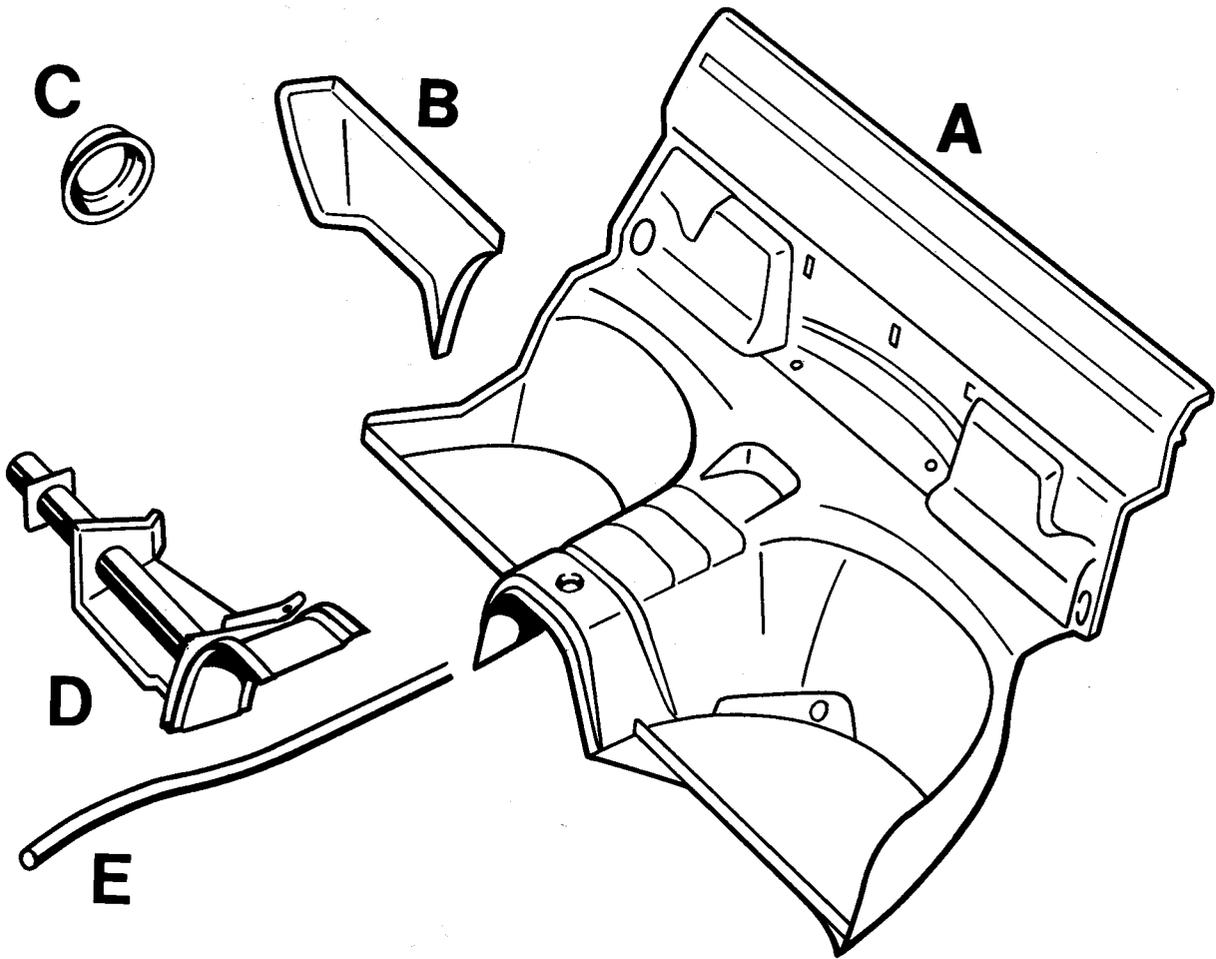
### Cutting the rear-axle cross tube away from the body

Remove all mechanical assemblies and attached items of equipment, and also the complete interior trim, in the rear-axle cross tube area.

No.	Procedure	Instructions
	Removing the underseal in the rear-axle cross tube area of the body	Remove the underseal from the body in the rear-axle cross tube area with a hit air blower or a rotary brush.
	Separate the brazed joint between the guide tube and the tunnel	Separate the brazed joint for the handbrake cable guide tube at the tunnel.
1	Separate the welded joint between the rear-axle cross tube and the reinforcement	Grind away the inert-gas weld seam between the rear-axle cross tube and the reinforcement.
2	Cut through the rear-axle cross tube	Cut through the rear-axle cross tube parallel to the anti-roll bar mount with a body panel saw.
3	Separate the spot-welded joints at the seat pan/side member, heel plate/side member, heel plate/floor and heel plate connecting member	Use a spot weld cutter to separate the spot-welded joints between the seat pan and the side member, the heel plate and the side member, the heel plate and the floor and the heel plate and the connecting member.
4	Separate the welded joints at the heel plate/floor and heel plate/connecting member/tunnel	Grind away the inert-gas weld seams between heel plate and floor and between heel plate, connecting member and tunnel.
5	Cut through the seat pan and the connecting member	Cut through the seat pan above the seat belt anchorage with a body panel saw, and remove it.
6	Separate the welded joints at the anti-roll bar mount/side member	Using a spot weld cutter, separate the spot welds between the anti-roll bar mount and the side member. Remove the remainder of the rear-axle cross tube.
7	Separate the welded joint between the reinforcement and the inner side section	Grind away the inert-gas weld seam between the reinforcement and the inner side section.

## Renewing the rear-axe cross tube

For the repair work "Renewing rear-axe cross tube", the following body replacement parts are needed:



A = Seat pan  
 B = Heel plate  
 C = Reinforcement

D = Rear-axe cross tube  
 with connecting member  
 E = Guide tube

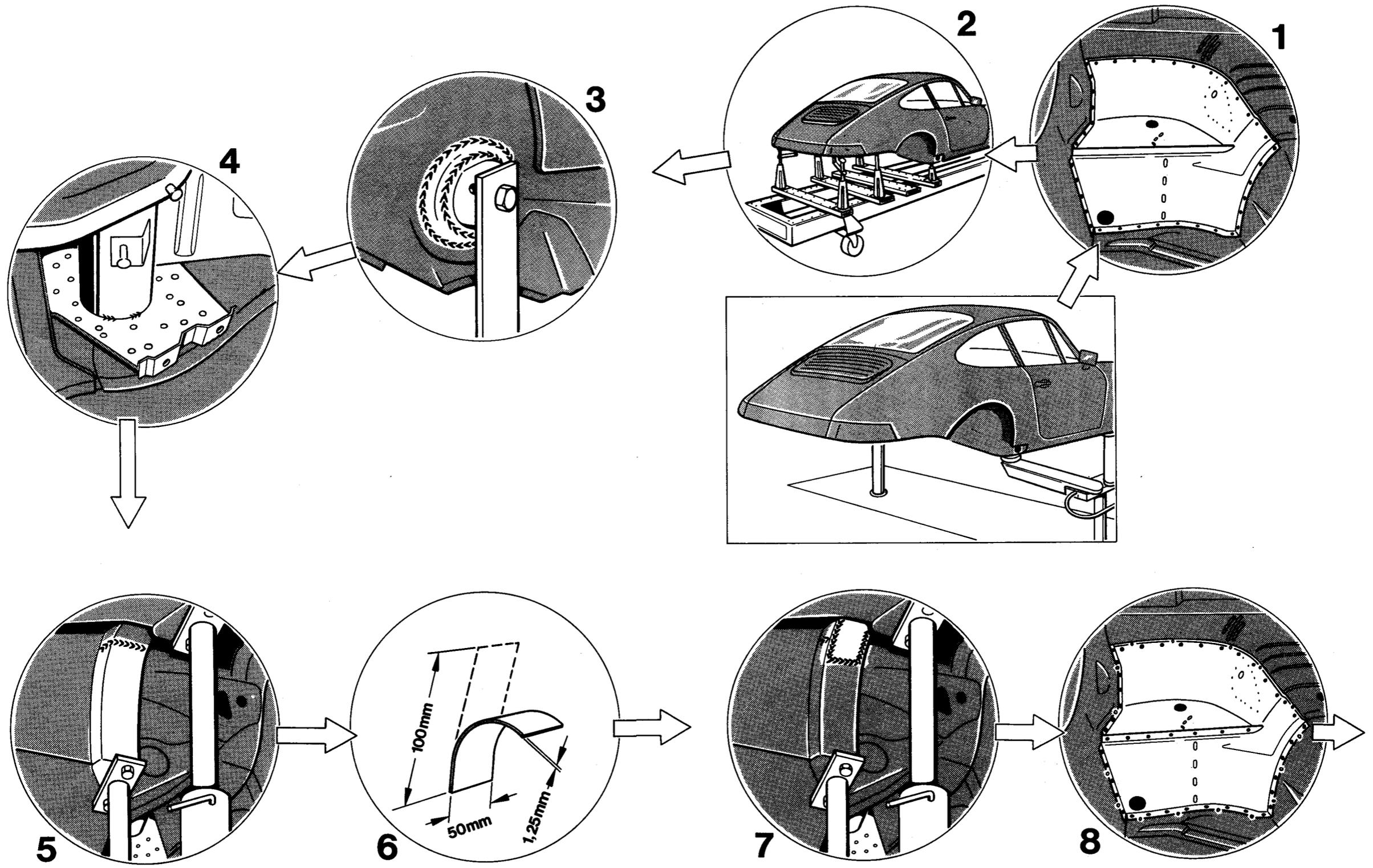
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## Renewing rear-axle cross tube

Inserting rear-axle cross tube into body

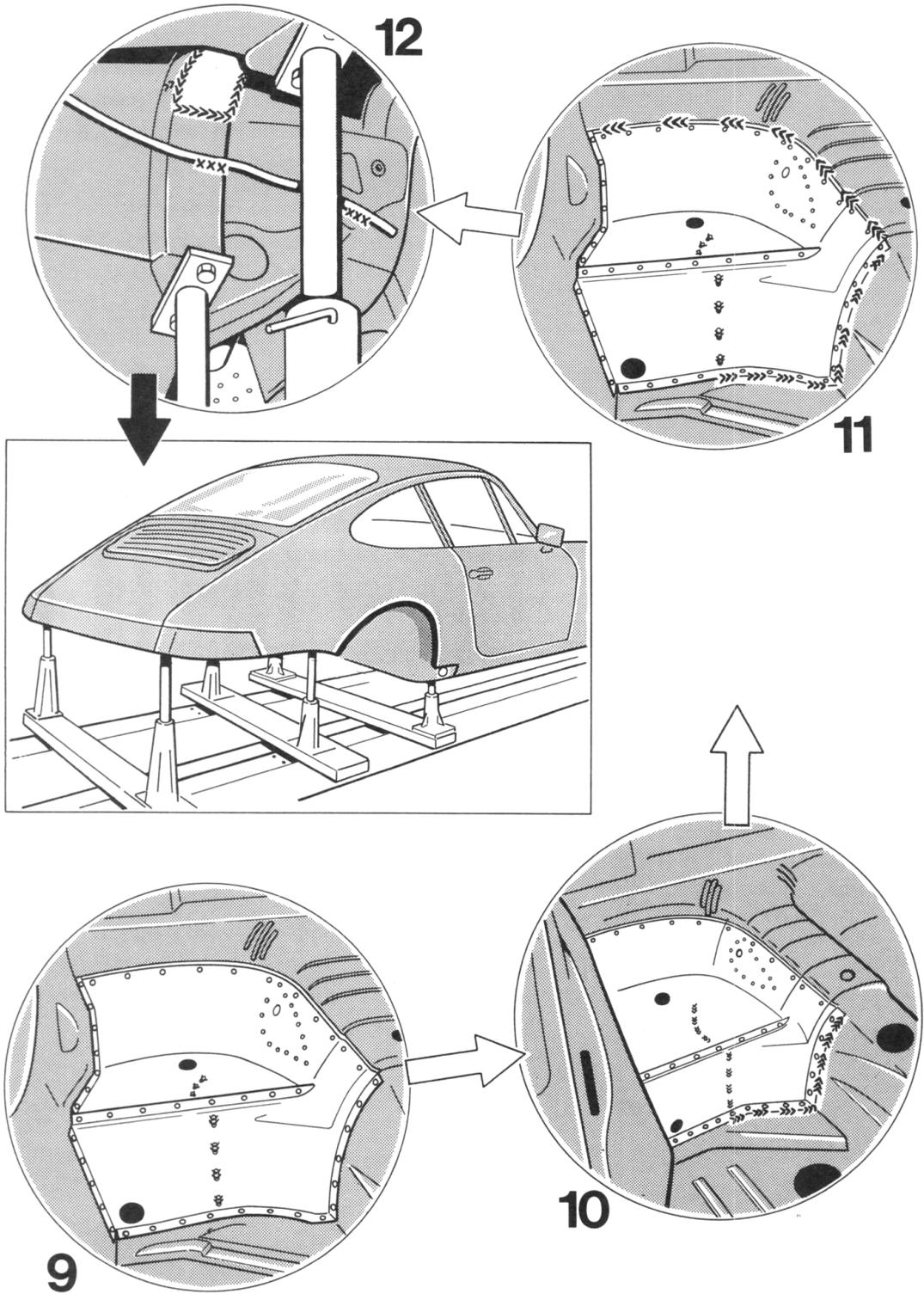
Renewing rear-axle cross tube

Inserting rear-axle cross tube into body



### Renewing rear-axe cross tube

#### Inserting rear-axe cross tube into body



## Renewing rear-axle cross tube

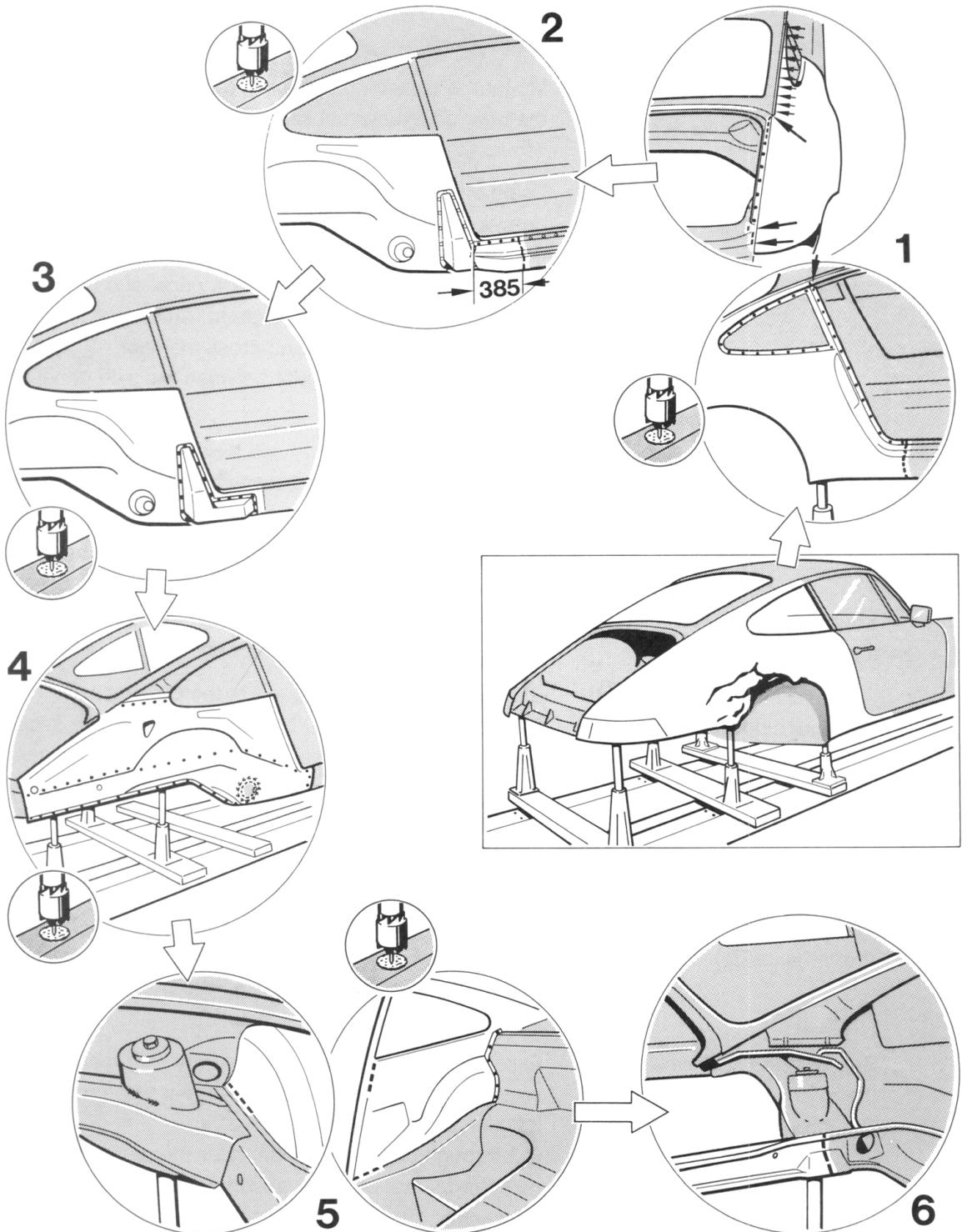
### Inserting rear-axle cross tube into body

No.	Procedure	Instructions
	Clean the weld areas	Clean the weld areas on the body with a hot air blower or rotary brush to remove underseal, paint etc. Remove factory primer coating from replacement parts at the weld areas with a rotary brush.
1	Fit the seat pan and heel plate into the body	Form a step on the outside of the body seat pan. Fit the replacement seat pan so that it overlaps the body seat pan. Fit the heel plate into the body. Drill out the heel plate at the connecting points to the side member, floor and tunnel for plug welding. Drill out the replacement seat pan at the connecting points to the side member and the body seat pan for plug welding.
2	Mount the car on the body alignment rig  Prepare the connecting member with rear-axle cross tube for insertion into the body, and fit to the body	Position the car on the aligning angles and secure it.  Butt the replacement connecting member up against the connecting member on the body. Use the aligning angle to position the connecting member correctly in the body. Drill out the anti-roll bar plate on the rear-axle cross tube at the connecting points with the side member, for plug welding. Insert the rear-axle cross tube with connecting member into the body and place the reinforcement in position.
3	Secure the rear-axle cross tube and connecting member with aligning angles  Weld the reinforcement to the inner side section and the rear-axle cross tube with a full seam	Using the inert gas method, weld the reinforcement to the inner side section and also to the rear-axle cross tube all round, so that a full seam is formed in each case.

No.	Procedure	Instructions
4	Plug weld the anti-roll bar mount at the rear-axle cross tube to the side member	Plug weld the anti-roll bar mount on the rear-axle cross tube to the side member using the inert gas method.
5	Weld the replacement connecting member to the connecting member on the body with a full seam	Butt-weld the replacement connecting member to the body connecting member from both sides with a full seam.
6	Make up a reinforcing plate for the connecting member	Make up a reinforcing plate for the connecting member measuring 50 mm x 100 mm, from 1.25 mm thick galvanized steel plate.
7	Weld the reinforcing plate to the connecting member with a full seam	To reinforce the welded joint, weld the reinforcing plate to the connecting member over the butt weld seam, so that a full seam is formed.
8	Tack weld the seat pan and heel plate	Insert the seat pan and heel plate into the body and tack weld into position by the inert gas method.
9	Spot and plug weld the seat pan and heel plate	Spot weld the seat pan and heel plate at the spot-weld flange. Plug weld the replacement seat pan with the side member, the body seat pan and the rear-axle cross tube by the inert gas method. Using the inert gas method, plug weld the seat pan to the rear-axle cross tube in the seat belt catch area. Using the inert gas method, plug weld the heel plate to the side member, the floor, the rear-axle cross tube and the connecting member.
10	Weld the heel plate with a non-continuous full seam, by the inert gas method	Weld the heel plate to the floor and the connecting member with a non-continuous full seam, using the inert gas method. Weld the heel plate to the tunnel and the connecting member with a non-continuous full seam, using the inert gas method.
11	Weld the seat pan with a non-continuous full seam, using the inert gas method.	Weld the replacement seat pan to the body seat pan with a non-continuous full seam, using the inert gas method.
12	Braze on the handbrake cable guide tube	Braze the handbrake cable guide tube to the tunnel, connecting member and rear-axle cross tube.

### Renewing side panel with inner side section and side member

Cutting rear body section out of body on one side



## Renewing side panel with inner side section and side member

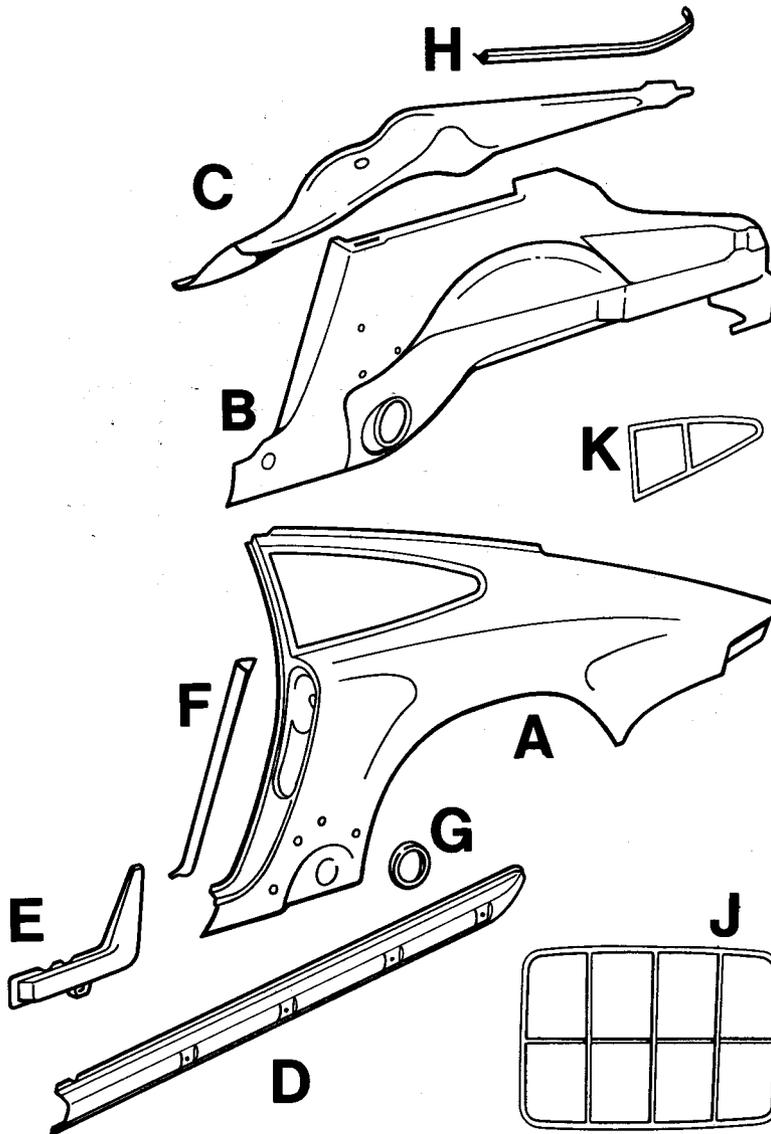
### Cutting rear body section out of body on one side

Remove all mechanical assemblies and attached equipment and also the complete interior trim including glass from the interior and exterior of the rear body section.

No.	Procedure	Instructions
	Mount car on body alignment rig	Mount the car with mechanical assemblies in place at the front on the correct set of alignment angles, and secure it.
1	Separate the welded joints at the side panel Separate the folded joint between side panel and roof	Using a spot weld cutter, separate the spot welds between the side panel and the inner side section, the B-post and the roof frame member. Separate the inert gas weld seams between the side panel and the door sill, roof frame (in the B-post area), outer roof panel/inner side section and cross-member. Cut through the folded joint between the side panel and the roof.
2	Cut through the door sills and separate the welded joints	Cut through the door sills with the body panel saw. Separate the spot welds between the door sill and the side member and the central side member with the spot weld cutter. Grind away the inert gas weld seams between the door sill and the gusset plate.
3	Separate the welded joints at the gusset plate	Separate the welded joints between the gusset plate and the inner side section and central side member.
4	Separate the welded joints at the inner side section (from the outside)	Bend up the angled surround at the B-post. Separate the spot welds between the inner side section and the side member, roof frame and central side member, using spot weld cutters. Grind away the inert gas weld seam between the reinforcement and the rear-axle cross tube.
5	Separate the welded joints at the inner side section (from the inside)	Separate the spot welds between the inner side section and the seat pan and the rear-window shelf with a spot weld cutter. Grind away the inert gas weld seams between the inner side section and the B-post and side member.
6	Separate the spot welds on the side member Cut through the side member	Separate the spot welds between the side member and cross-member, engine mount and rear-axle cross member with a spot weld cutter. Cut through the side member near the rear-axle cross-member (center of shock absorber mount) with the body panel saw.

## Renew the side panel with inner side section and side member

For the "Renewing side panel with inner side section and side member" repair, the following replacement body parts and special tools are needed:



A = Side panel  
 B = Inner side section  
 C = Side member  
 D = Door sill  
 E = Gusset plate

F = Angled surround  
 G = Reinforcement  
 H = Sectioned rail  
 J = Special tool P 853  
 K = Special tool P 854

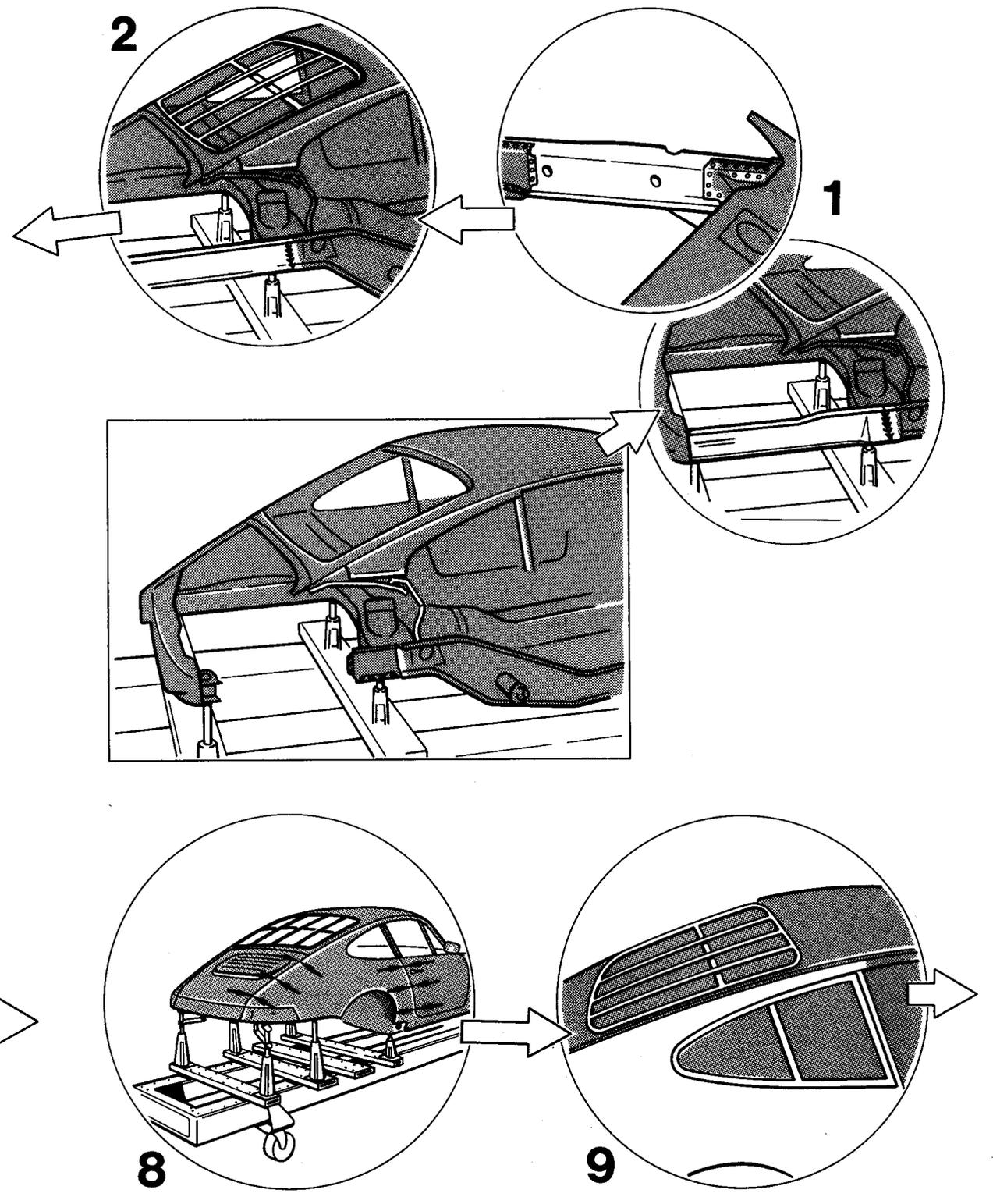
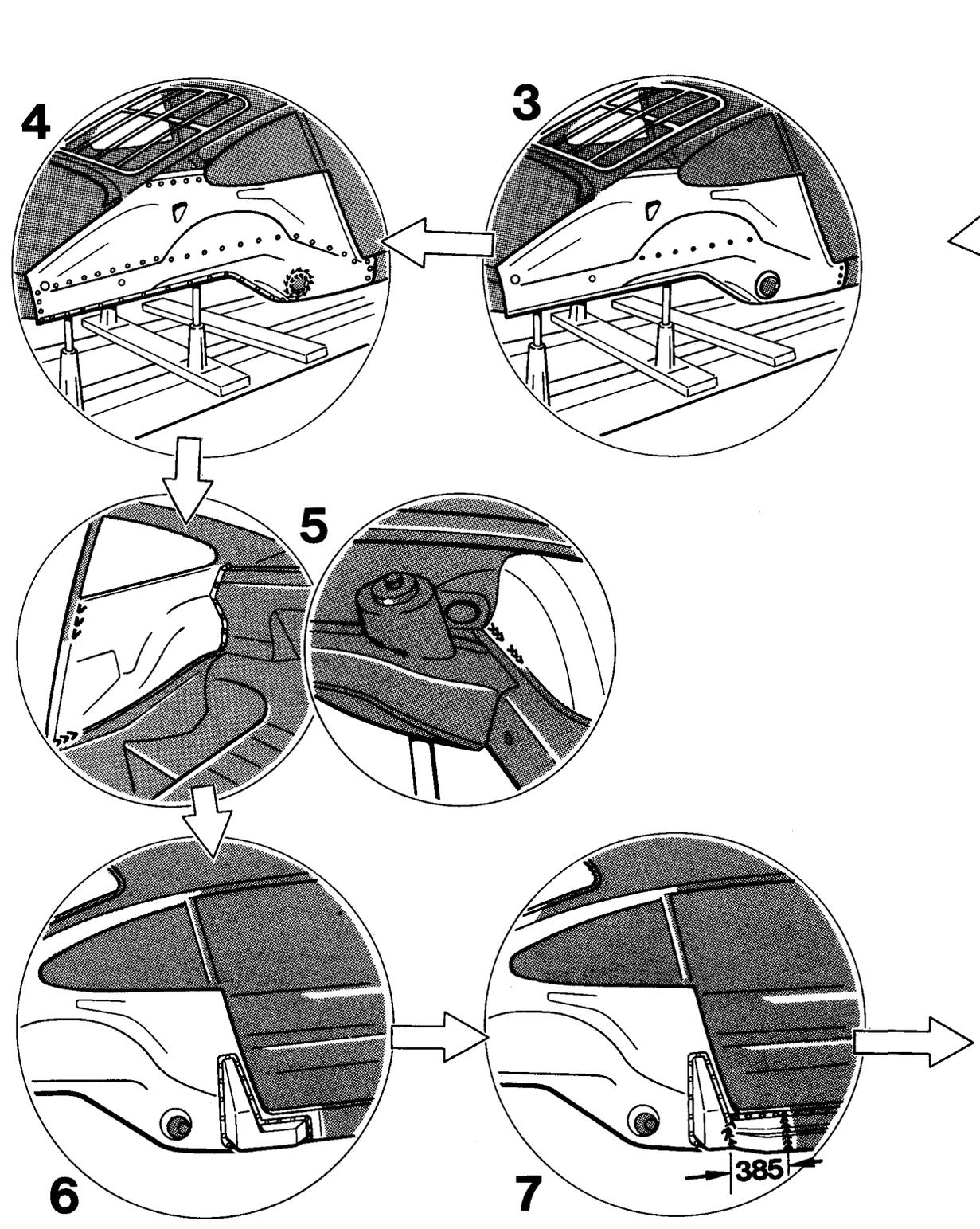
556 - 53

## Renewing side panel with inner side section and side member

Insert the rear body section into the body at one side

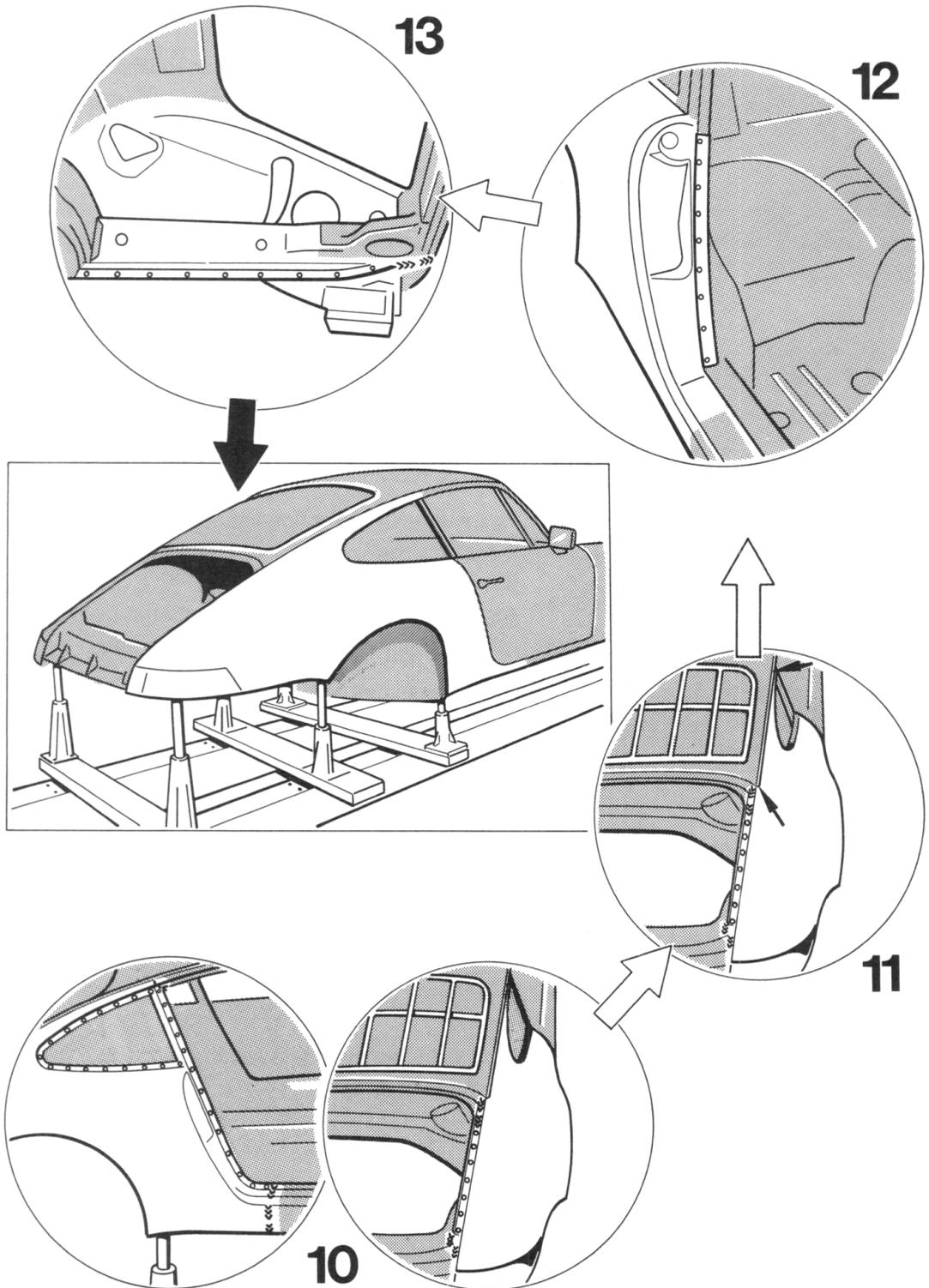
Renewing side panel with inner side section and side member

Insert the rear body section into the body at one side



### Renewing side panel with inner side section and side member

Insert the rear body section into the body at one side



## Renewing side panel with inner side section and side member

Insert the rear body section into the body at one side

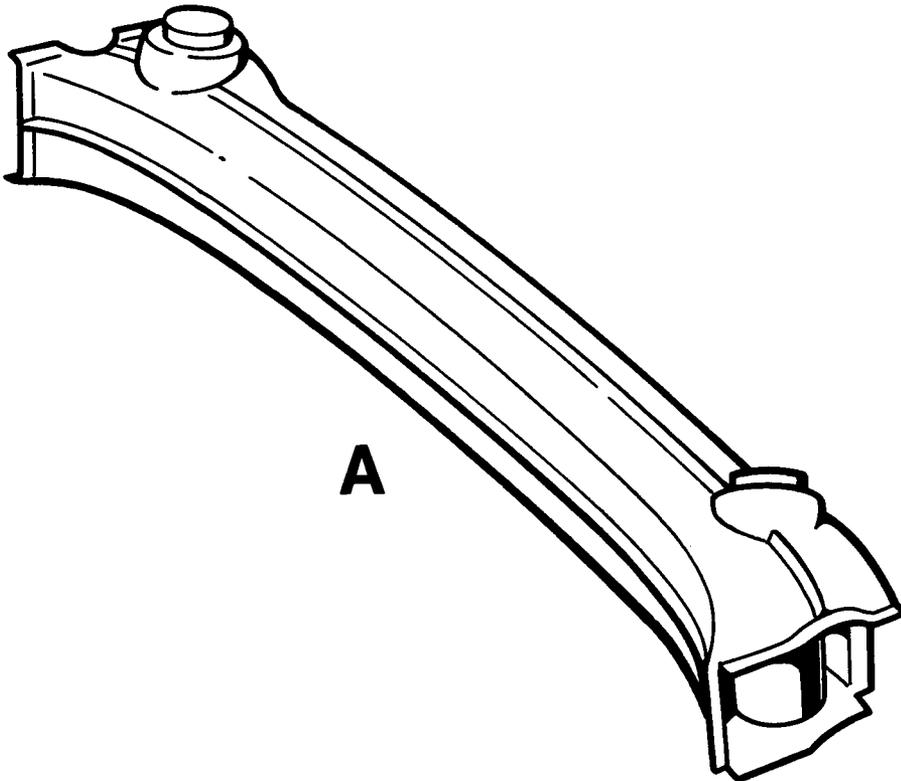
No.	Procedure	Instructions
	Clean the weld areas	Clean the body areas to be welded with a hot air blower or rotary brush to remove underseal, paint etc. Remove factory-applied primer with a rotary brush from the weld areas on the replacement parts.
1	Fit the side members into the body and weld in	Fit the side members into the body, secure with clamping tools and tack weld into position. Butt weld the replacement side member to the body side member with a full seam, using the inert gas method. Plug weld the side member to the cross-member, engine mount and rear-axle cross-member under inert gas.
2	Insert special tool P 853	Place special tool P 853 (rear window template) into body cutout for rear window and secure with clamps to the spot weld flange.
3	Fit inner side section into body and prepare for welding in	Fit the inner side section into the body. Drill out the inner side section ready for plug welding at points not accessible for spot welding. After inserting the side section into the body, place the reinforcement on the rear-axle cross tube.
4	Weld the inner side section into the body (from the outside)	Secure the inner side section with clamps and spot weld to the cross-member, side member (where accessible) and roof frame. Using the inert gas method, plug weld the inner side section to the central side member and at the areas of the side member not accessible for spot welding. Using inert gas, weld the reinforcement all round with a full seam to the inner side section and the rear-axle cross tube.
5	Weld the inner side section to the body (from the inside)	Using inert gas, weld the inner side section to the B-post and side member all round with a discontinuous seam. Plug weld the inner side section to the rear window shelf and seat pan.

No.	Procedure	Instructions
6	Fit the gusset plate, prepare for inserting and weld under inert gas	Fit the gusset plate to the inner side section and central side member. Drill out the gusset plate for plug welding. Plug weld the gusset plate to the inner side section and central side member under inert gas.
7	Fit and weld in the door sills	Fit the door sills to the body so that a butt joint is formed. Drill out the door sills for plug welding. Secure the door sills with clamps and tack weld into position under inert gas. Using the inert gas method, butt weld the replacement door sill to the body door sill, with a full seam. Spot weld the door sill to the side member and the central side member. Using inert gas, weld the door sill to the central side member and gusset plate, with a discontinuous full seam. Grind the inert gas weld seam.
	Weld half-mounts for impact tube or impact damper	Spot weld the impact tube and impact damper half-mounts and weld them under inert gas with a discontinuous full seam.
8	Fit side panel to body	Fit side panel to body. Install door and engine compartment lid to check body contours. Gaps between door and body and between rear lid and body must be parallel all round.
9	Insert special tool P 854	Place special tool P 854 (template for rear side window) in the rear side window body cutout and secure to spot weld flange with clamps.
	Tack weld side panel under inert gas	Using inert gas, tack weld the side panel to the door sill, B-post, rear side window spot-weld flange, inner side section and cross-member. Take out special tool P 854 (rear side window template).
10	Spot weld and inert-gas weld side panel	Spot weld the side panel to the inner side section, B-post and roof frame. Using the inert gas method, weld the side panel to the door sill, roof frame (in the B-post area), outer roof panel/inner side section and cross-member, with a discontinuous full seam.

No.	Procedure	Instructions
11	Fold roof over into side panel Weld the ends of the fold using inert gas.	Fold side panel edge over web on roof. Using inert gas, weld the side panel to the roof at the end of the fold in the B-post area, with a full seam. Using inert gas, weld the side panel to the roof at the end of the fold in the rear lid area, with a full seam. Take out special tool P 853 (rear window template). Grind the inert gas weld seams.
12	Spot weld the angled surround to the inner side section	
13	Spot and tack weld the sectioned rail to the side member	Spot weld the sectioned rail to the side member/inner side section spot weld flange on the inside, and tack weld under inert gas in the engine mount area.

## Renewing rear-axle cross-member

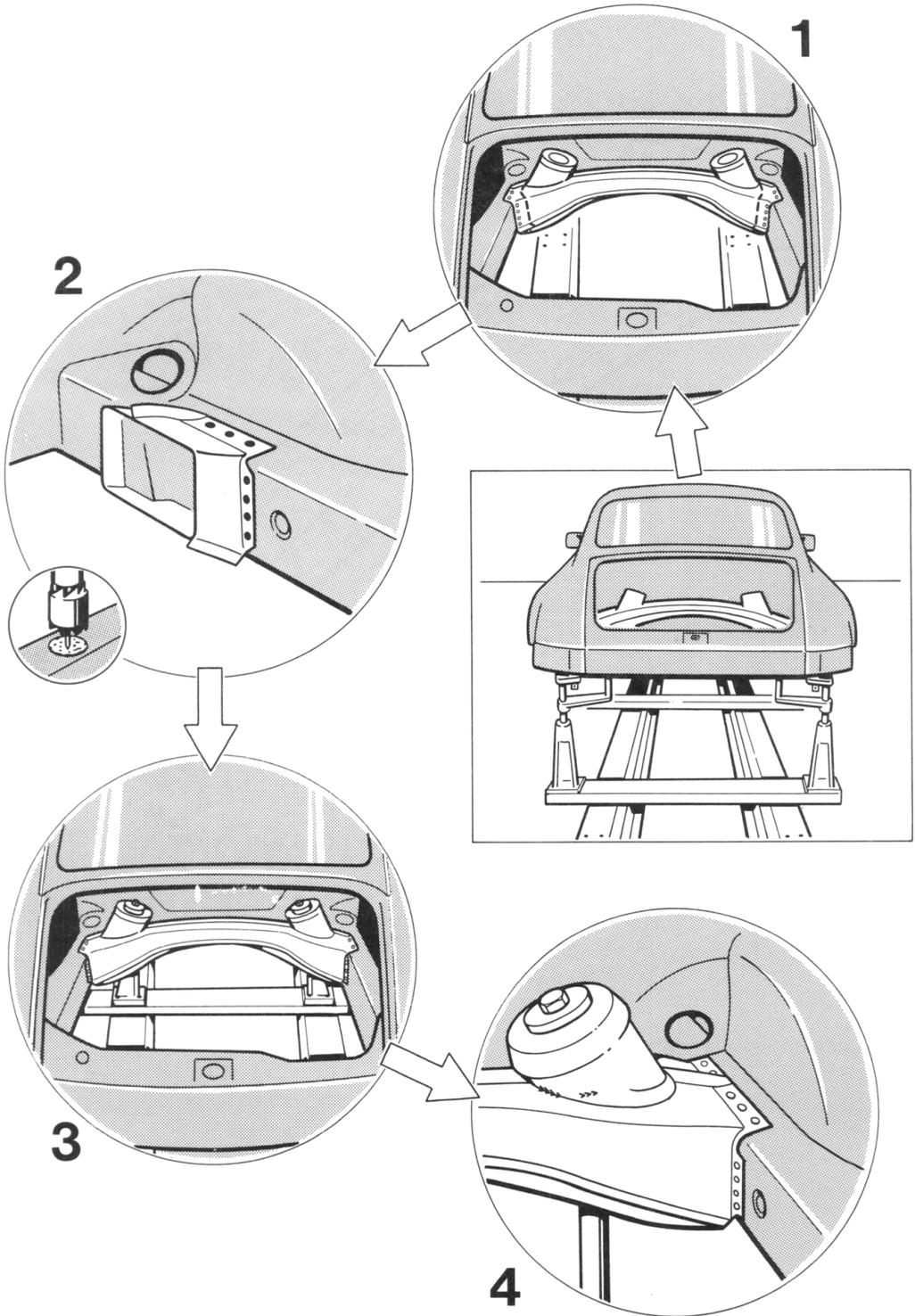
For the repair "Renewing rear-axle cross-member" the following replacement body parts are needed:



562 - 53

A = Rear-axle cross-member

Renewing rear-axle cross-member



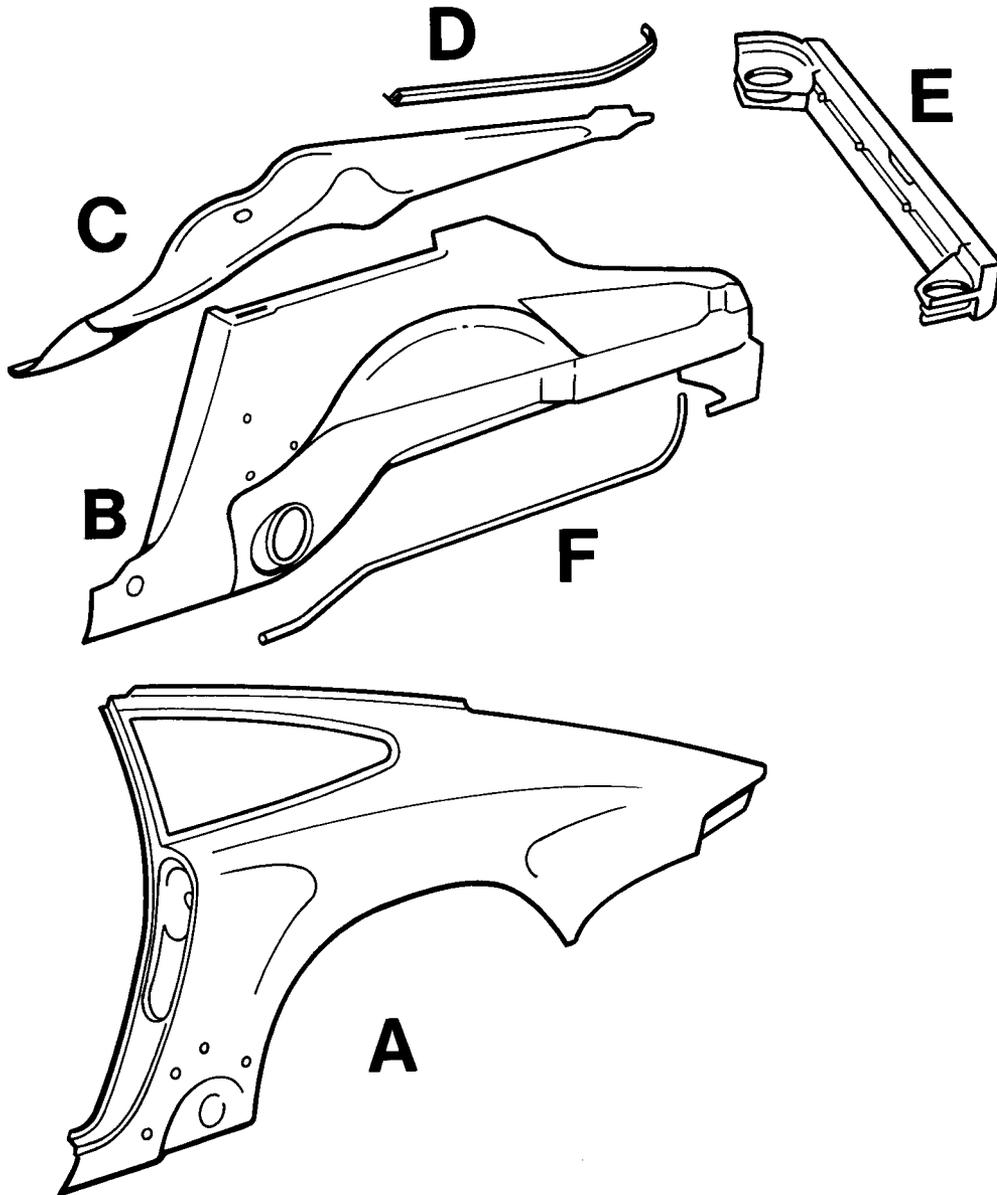
## Renewing rear-axle cross-member

Remove all mechanical assemblies and attached equipment on and in the rear section of the body.

No.	Procedure	Instructions
	Place the car on the body alignment rig	Mount the car, with mechanical equipment in position at the front of the body, on the correct set of alignment angles and secure it.
1	Cut through the rear-axle cross-member	Cut through the rear-axle cross-member parallel to the side members, using the body panel saw.
2	Separate the welded joints at the rear-axle cross-member/side member	Separate the spot welds between the rear-axle cross-member and the side members with the spot weld cutters.
	Clean the weld areas	Use a hot air blower or rotary brush to remove under-seal, paint etc. from the weld areas on the side members. Remove the factory-applied primer coating from the weld areas of the replacement parts with a rotary brush.
	Preparing the rear-axle cross-member for installation in the body	Drill out the rear-axle cross-member at the connecting points with the side members, ready for plug welding. At one side of the rear-axle cross-member, bend the upper spot welding flange up vertically.
3	Installing rear-axle cross-member in body	Insert the rear-axle cross-member into the body from below. Secure the rear-axle cross-member with aligning angles. Align the folded-up spot-welding flange with the side member.
4	Plug weld the rear-axle cross-member to the side members	Plug weld the rear-axle cross-member to the side members by the inert gas method.

## Partly renewing rear section of body

For the part-section repair "Partly renewing rear section of body" the following replacement body parts are needed:



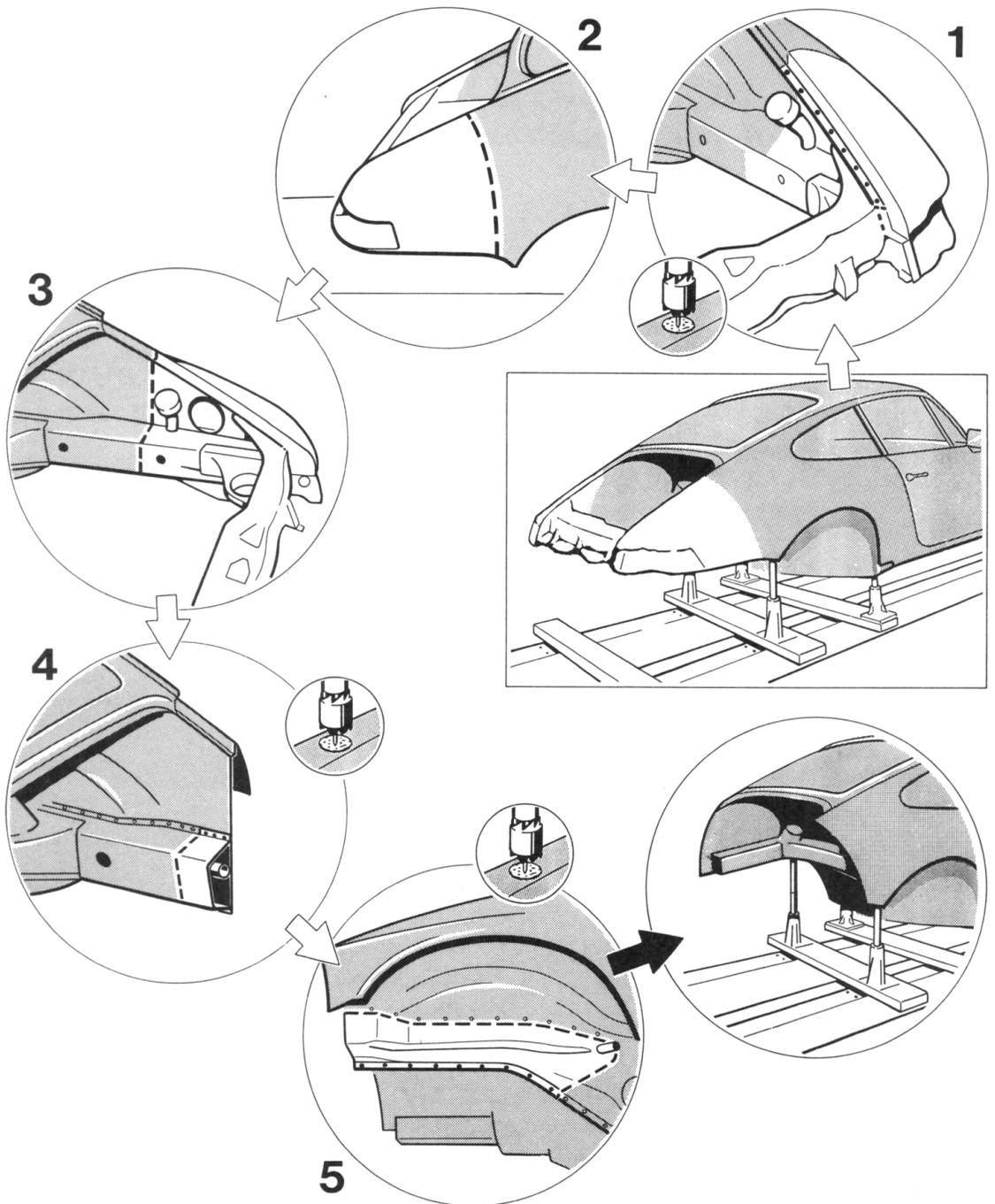
A = Side panel  
 B = Inner side section  
 C = Side member

D = Sectioned rail  
 E = Cross-member with engine mount  
 F = Guide tube for lid operating cable

## Partly renewing rear section of body

Renewing cross-member with engine mount, partly renewing side panels, inner side sections and side members

Cut the rear section partly away from the body



## Partly renewing rear section of body

### Renewing cross-member with engine mount, partly renewing side panels, inner side sections and side members

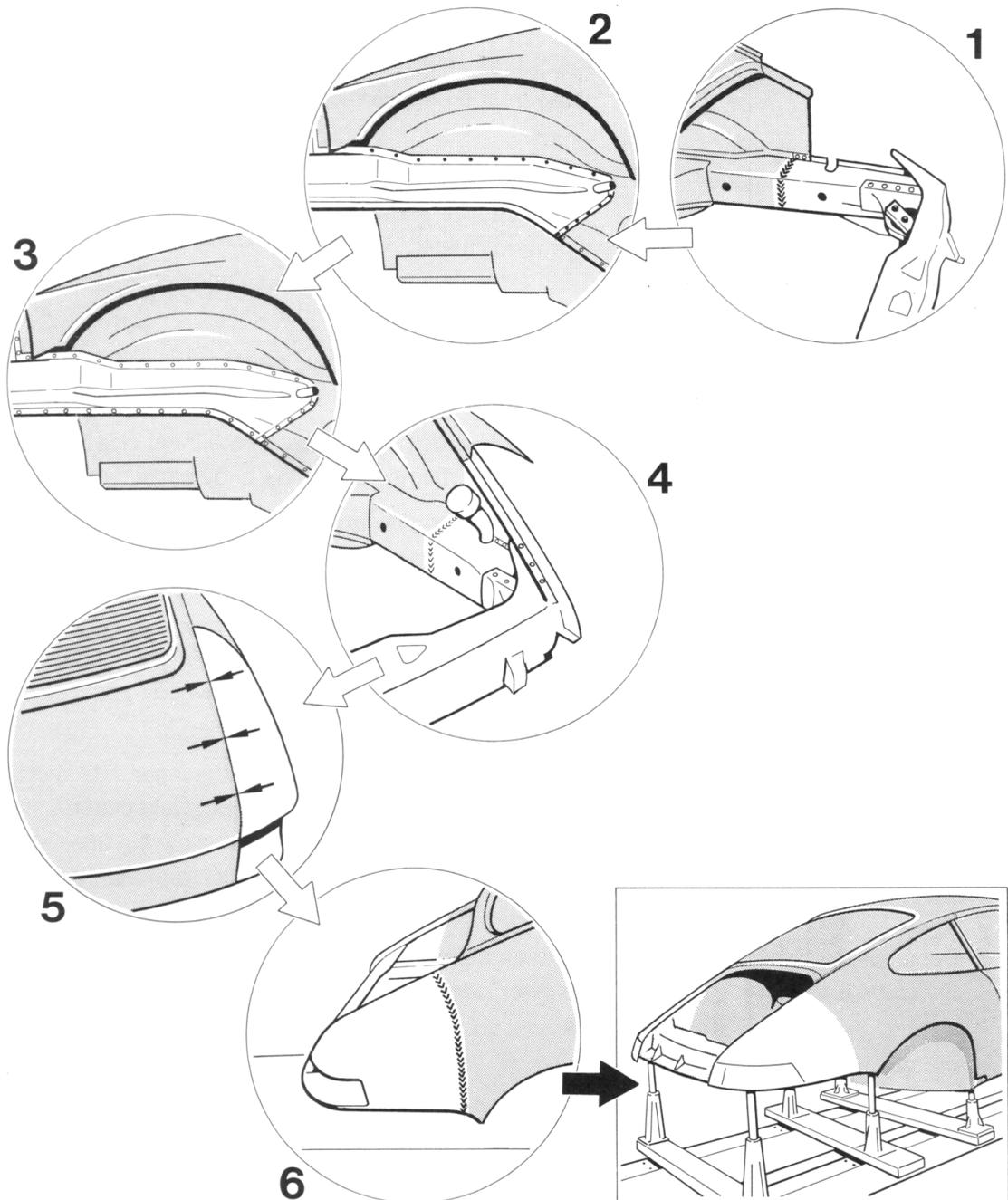
#### Partly renewing rear section of body

No.	Procedure	Instructions
	Place car on body alignment rig	Mount the car with mechanical assemblies in position at the front on the correct set of aligning angles, and secure it.
1	Separate the side panel welds in the damaged area	In the damaged body area, separate the spot welds between the side panels and the inner side sections with spot weld cutters. Grind away the inert-gas weld seams between the side panels and the cross-member.
2	Separate the side panels from the body	Cut away the damaged side panel areas with the body panel saw.
3	Cut away the inner side sections and the side members	Cut away the damaged areas of the inner side sections and the side members with the body panel saw.
4	Cut away the side members in a stepped pattern	<b>Cut away both side members so that the cut edges of the side members form a step in relation with the cut edges of the inner side sections.</b> Separate the spot welds between the side members and the inner side sections, using spot weld cutters. Cut away the side members with the body panel saw after they have been separated.
5	<b>Right side of car only:</b> Cut away the inner side section in the oil filler pipe area	Separate the spot welds between the inner side section and the lower side member with spot weld cutters. Cut through the inner side section below the upper spot welds between the inner side section and the side member, using the body panel saw.
	Separate the brazed joint for the guide tube	Separate the brazed joint for the lid cable guide tube on the inner side section and at the lock post.

## Partly renewing rear section of body

Renewing cross-member with engine mount, partly renewing side panels, inner side sections and side members

Partly insert the rear body section into the body



## Partly renewing rear section of body

### Renewing cross-member with engine mount, partly renewing side panels, inner side sections and side members

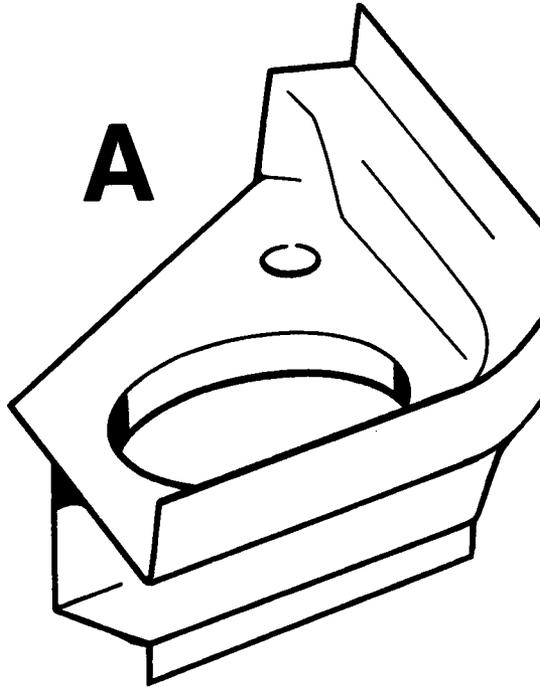
#### Partly insert the rear body section into the body

No.	Procedure	Instructions
	Clean the weld areas	Use a hot air blower or rotary brush to remove under-seal, paint etc. from the weld areas on the body. Remove factory-applied primer coating from the weld areas on the replacement parts with a rotary brush.
	Align cross-member with rig aligning angles	
1	Fit the side member to the body and weld in	Make a butt joint at the side member, secure it with clamping tools and tack weld into position under inert gas. Butt weld the replacement side member to the body side member under inert gas, with a full seam. Spot weld the side member to the cross-member and engine mount. Grind the butt weld seams on the side members.
2	Prepare inner side sections for installing in body	Fit the inner side members into the body. Flange the replacement inner side sections outwards and overlap them with the body inner side sections. In the side panel contact areas, make a butt joint with the inner side sections. <b>Right side of car only:</b> Drill out the inner side section in the upper side member and rear-axle cross-tube areas, ready for plug welding. <b>Left side of car only:</b> Drill out the inner side member in the side member section area, ready for plug welding.
3	Weld the inner side sections into the body	Secure the inner side sections with clamping tools and tack weld them into position under inert gas. Butt weld the inner side sections in the side panel contact areas with a full seam, under inert gas. <b>Right side of car only:</b> Plug weld the replacement inner side section to the body inner side section in the upper side member and rear-axle cross-tube areas, using inert gas. Spot weld the replacement inner side member to the body inner side member and the side member.

No.	Procedure	Instructions
4	<p>Spot weld cross-member with inner side sections</p> <p>Weld impact tube or impact damper half-mounts</p> <p>Grind the butt weld seams</p> <p>Braze on the lid cable guide tube</p>	<p><b>Left side of car only:</b> Spot weld the replacement inner side section with the body side section and the side member. Plug weld the inner side section in the side member section area under inert gas.</p> <p><b>Make an additional discontinuous full-seam inert gas weld at all spot and plug weld points between the replacement inner side sections and the body side sections.</b></p> <p>Spot weld the impact tube or impact damper half-mounts or weld by the inert gas method with a discontinuous full seam.</p> <p>Grind the butt weld seams on the inner side sections in the side panel contact areas.</p> <p>Insert the guide tube for the lid release cable and braze it to the lock post, inner side section and cross-member.</p>
5	<p>Fit the side panels into the body and tack weld</p>	<p>Fit the side panels to the body. Insert the rear lid to check the body contour. The gap between the rear lid and the body must be parallel all round.</p> <p>Tack weld the side panels into position under inert gas.</p>
6	<p>Spot and inert-gas welding of side panels</p> <p>Fit the sectioned rails and weld them to the side members</p> <p>Grind the butt weld seams on the side panels</p>	<p>Butt weld the replacement side panels to the body side panels under inert gas, with a fil seam.</p> <p>Spot weld the replacement side panels with the inner side panels.</p> <p>Using the inert gas method, weld the side panels to the cross-member with a discontinuous full seam.</p> <p>Fit the sectioned rails, spot weld them to the spot weld flanges on the side members/inner side sections and tack weld them in the engine mount areas.</p>

## Renewing engine mount

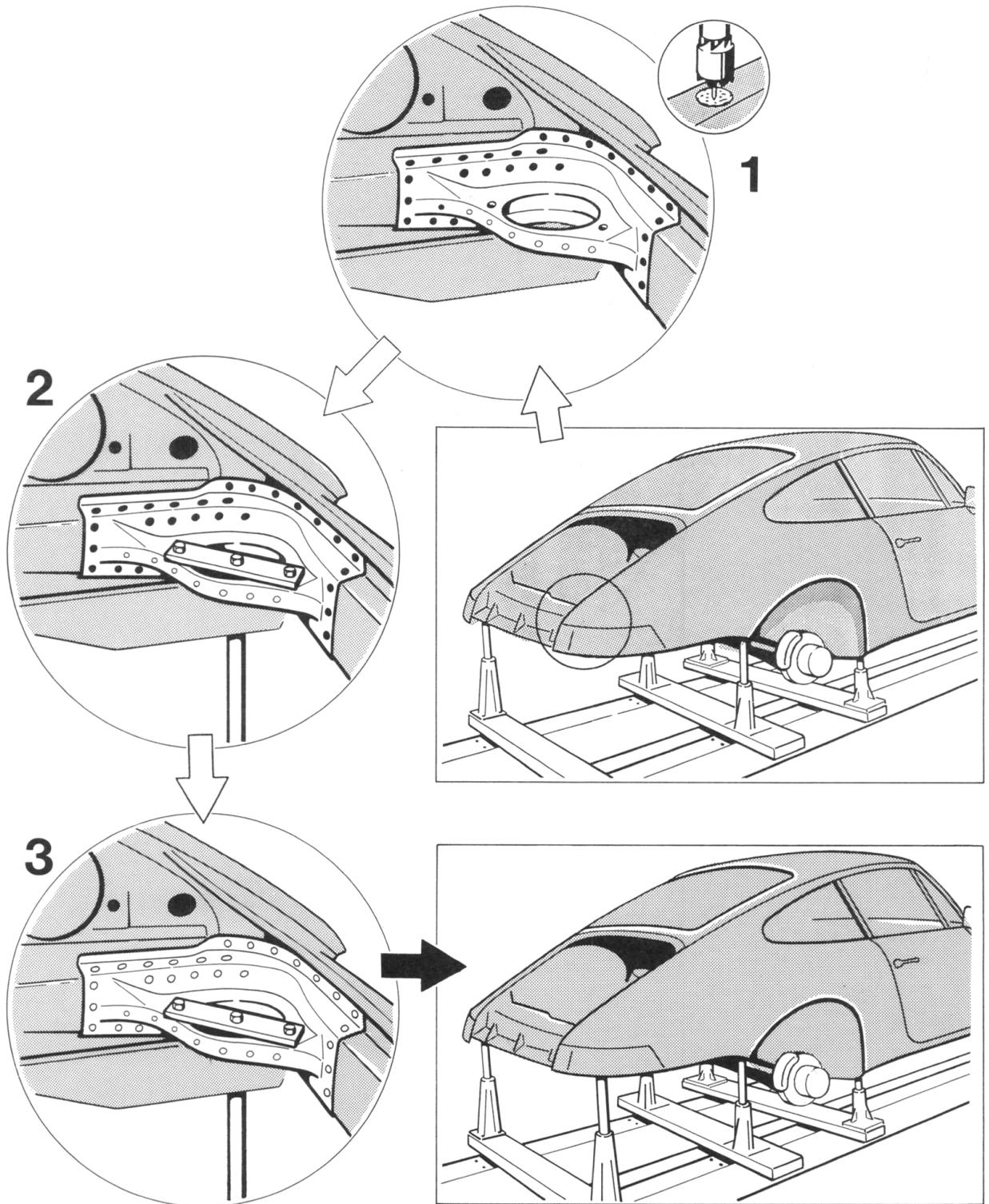
For the "Renewing engine mount" repair, the following replacement body parts are needed:



569 - 53

A = Engine mount

## Renewing engine mount



## Renewing engine mount

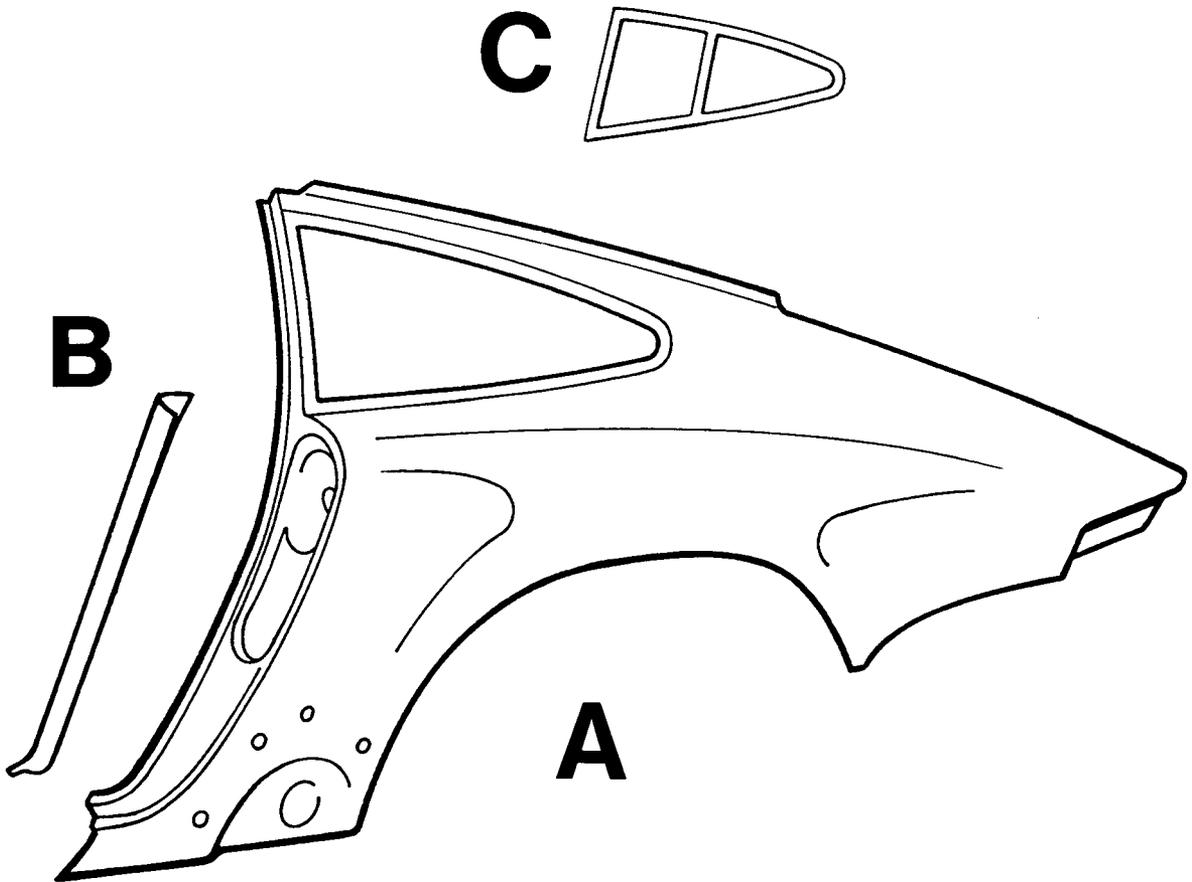
Body alignment work in this area must be carried out before the engine mount is renewed.

Remove engine and transmission assembly.

No.	Procedure	Instructions
	Place car on body alignment rig	Mount the car, with mechanical assemblies in place at the front, on the correct set of angles and secure it.
1	Separate the engine mount spot welds	Using a spot weld cutter, separate the spot welds between the engine mount and cross-member and between the engine mount and side member.
	Clean the weld areas	Remove underseal, paint etc. from the weld areas on the side members and cross-member with a hot air blower or rotary brush. Remove factory-applied primer coating from the weld areas on the replacement engine mount with a rotary brush.
2	Prepare engine mount for installation in body	Drill out the engine mount at the connecting points with the side member and cross-member, ready for plug welding. Fit the engine mount into the body. Align the engine mount with the rig aligning angle.
3	Plug weld the engine mount	Plug weld the engine mount to the side member and cross-member by the inert gas method.

## Partly renewing side panel

For the part-section repair "Partly renewing side panel" the following replacement body parts and special tools are required:

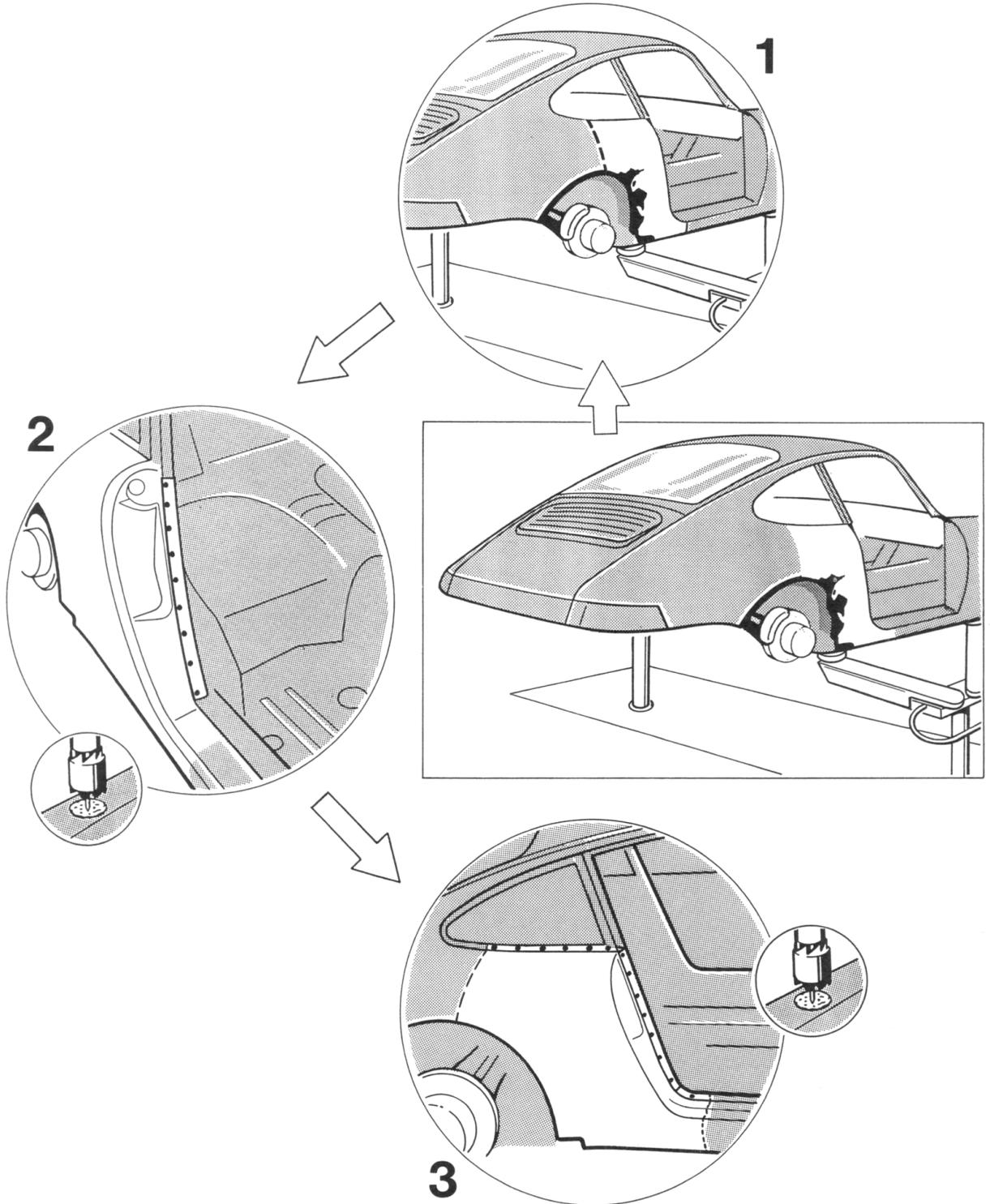


571 - 53

- A = Side panel
- B = Angled surround
- C = Special tool P 854

## Partly renewing side panel

Partly cut the side panel away from the body



## Partly renewing side panel

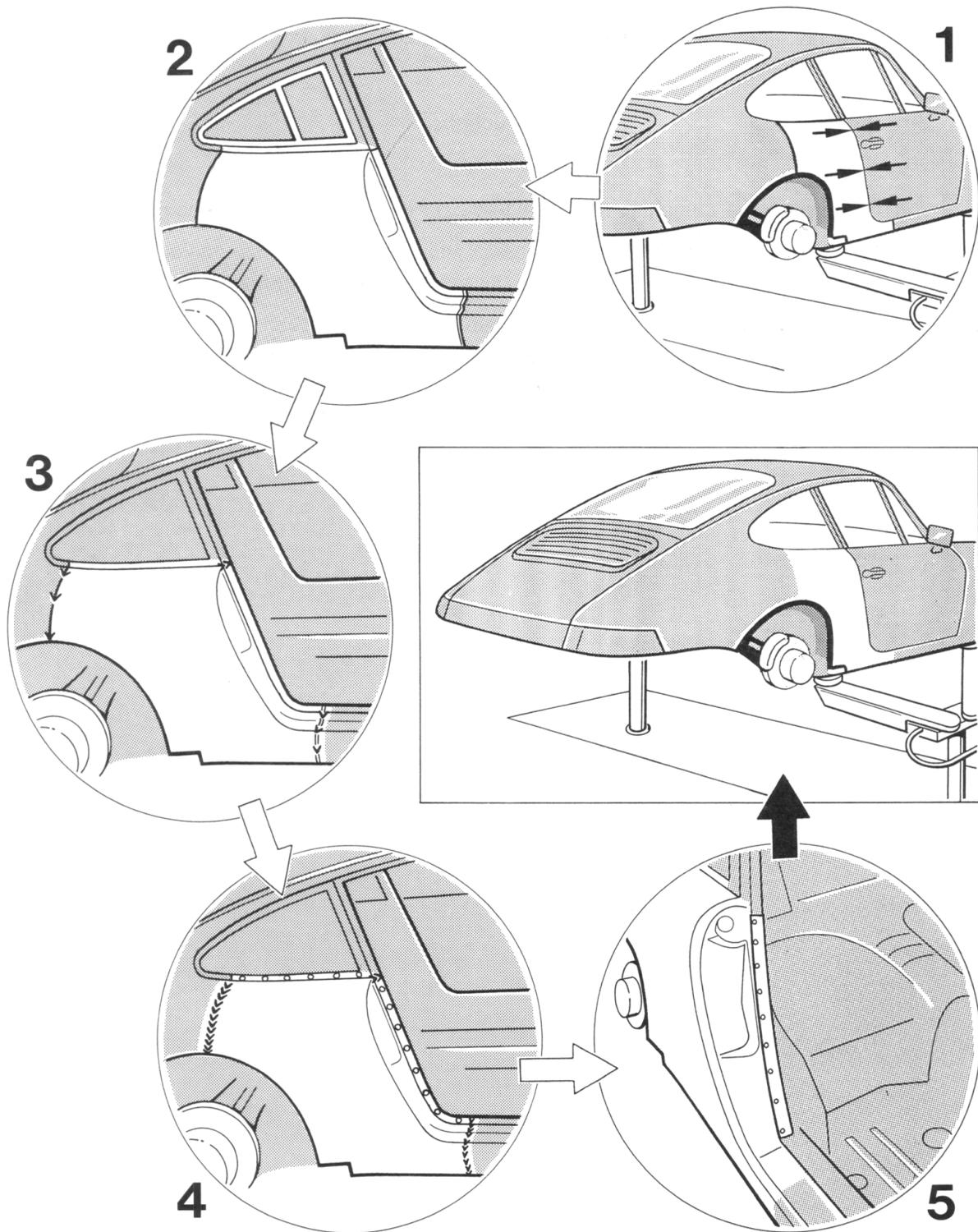
### Partly cut the side panel away from the body

Remove all attached equipment and the interior trim, including glass, from the side panel area.

No.	Procedure	Instructions
1	Cut through the side panel	Cut through the side panel with the body panel saw.
2	Separate the spot welds for the angled surround	Separate the spot welds between the angled surround and the side panel with a spot weld cutter.
3	Separate welds at side panel	Separate spot welds between side panel and inner side section and B-post with a spot weld cutter. Grind away inert gas weld seams between the side panel and the door sill and the inert gas weld seam between the side panel and the inner side section (in the B-post area).

Partly renewing side panel

Installing side panel in body



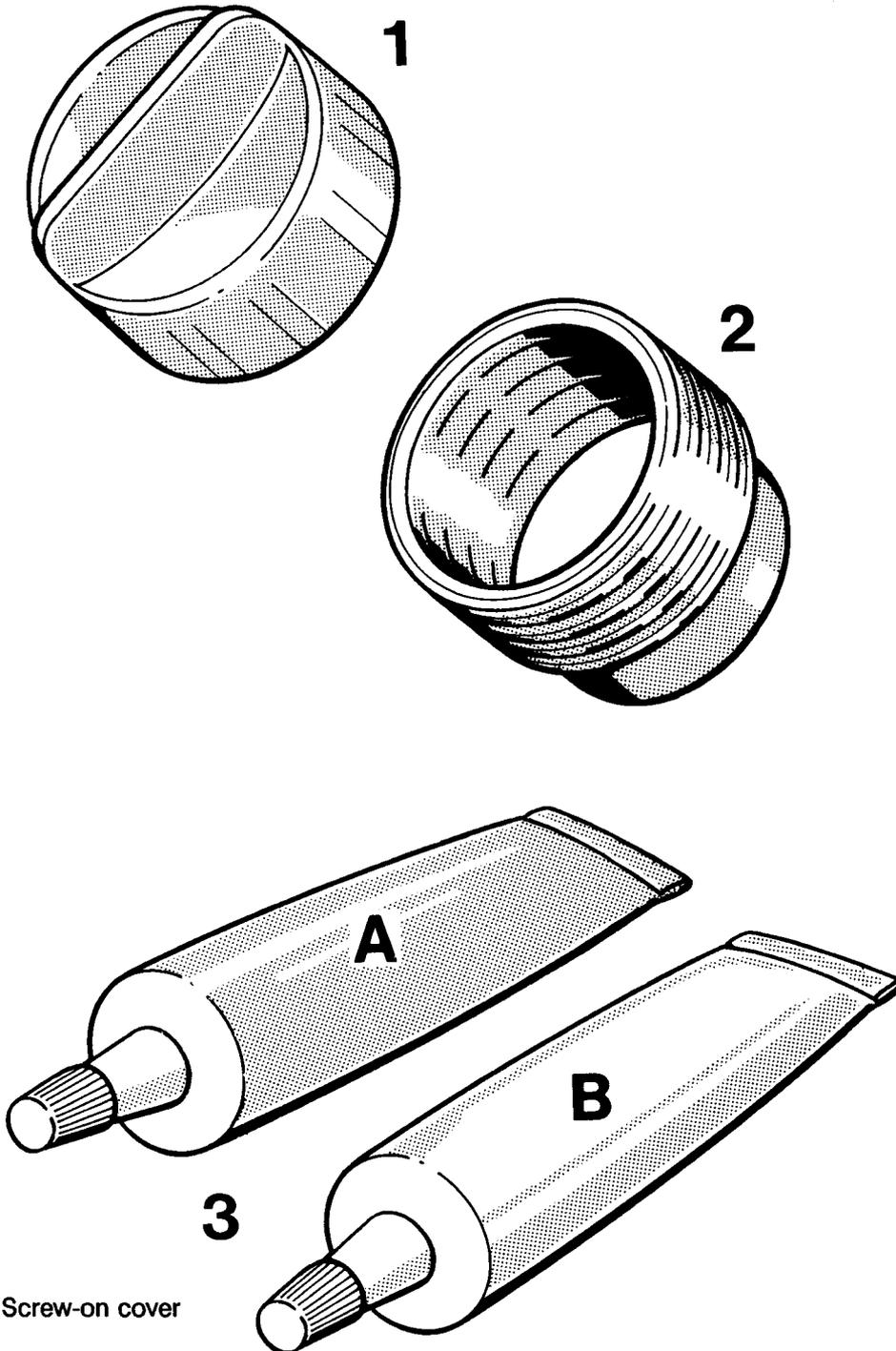
## Partly renewing side panel

### Installing side panel in body

No.	Procedure	Instructions
	Clean the weld areas	Use a hot air blower or rotary brusks to remove under-seal, paint etc. from weld areas on the body. Remove factory-applied primer coating from weld areas on the replacement parts with a rotary brush.
1	Fit the side panel into the body	Make a butt joint between the side panel and the body. Insert the door to check the body contour. The gap between door and body must be parallel all round.
2	Insert special tool P 854	Place special tool P 854 (rear side window template) into the body cutout for the rear side window, and secure to the spot weld flange with clamps.
3	Tack weld the side panel using inert gas	Using the inert gas method, tack weld the side panel to the door sill, inner side section (B-post area) and rear side window spot weld flange. Take out special tool P 854 (rear side window template).
4	Spot and inert-gas weld the side panel	Spot weld the side panel to the inner side section. Using the inert gas method, weld the side panel to the door sill and inner side section with a discontinuous full seam. Butt weld the replacement side panel to the body side panel under inert gas, with a full seam.
	Sand the inert-gas weld seams.	Grind the inert gas weld seams between the side panel and the door sill and the butt weld seam between the replacement side panel and the body side panel.
5	Spot weld the angled surround to the inner side section	

## Replacing threaded section of oil filler neck

The following body spare parts and adhesives are required for the "Replacing threaded section of oil filler neck" repair operation:

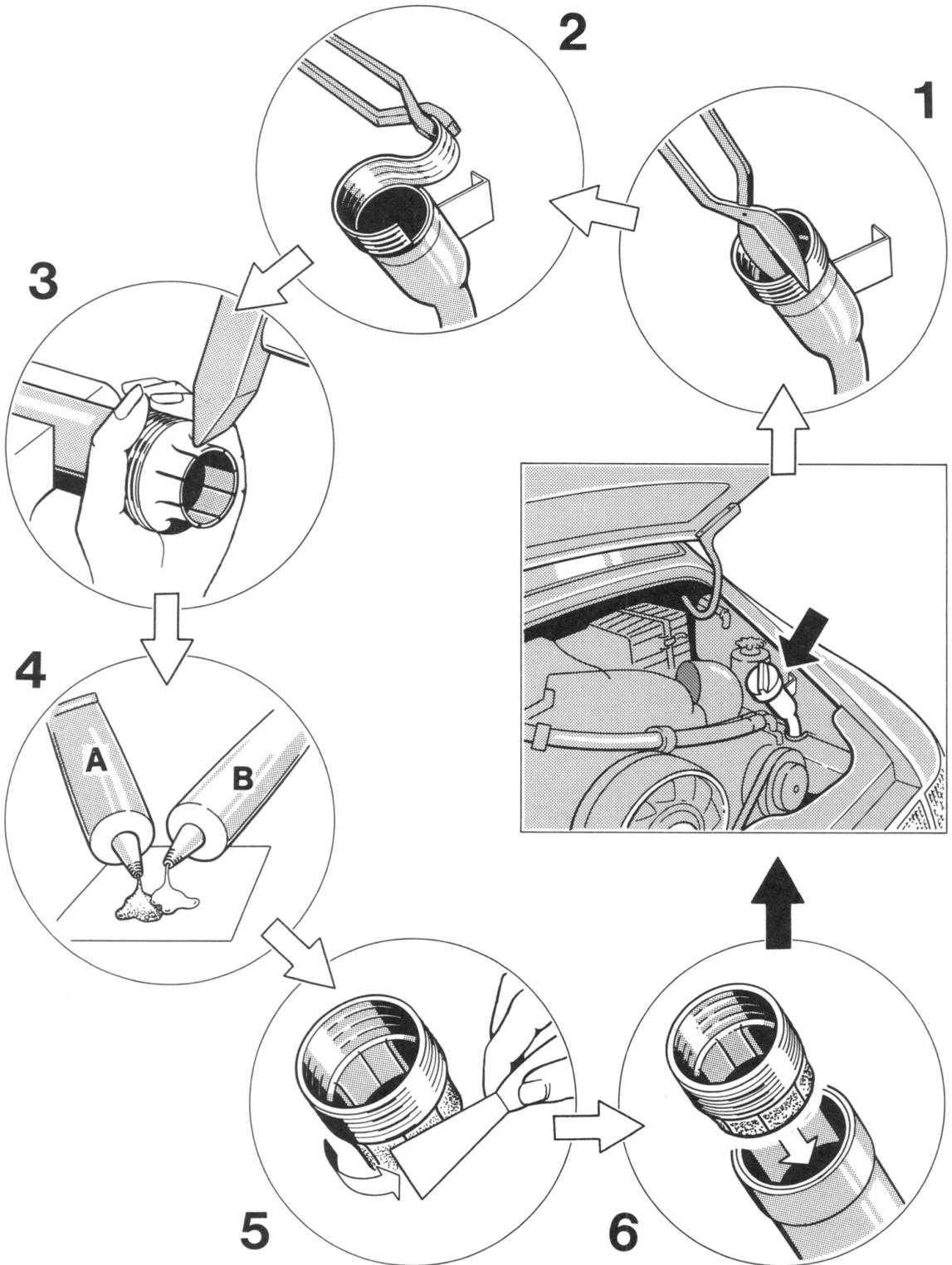


1 = Screw-on cover

2 = Threaded section

3 = Two-pack adhesive

Replacing threaded section of oil filler neck



## Replacing threaded section of oil filler neck

No.	Procedure	Instructions
	Plug the oil tube aperture	Plug aperture at oil tube in the oil filler neck using e.g. a cloth or a paper ball to prevent ingress of foreign matter.
1	Cut slots into threaded section	Using a sheetmetal cutter, cut threaded section up to the oil filler neck.
2	Tear off threaded section	Using a pair of pliers, tear off threaded section up to the oil filler neck. The brazed part of the threaded section (brazed sleeve) remains on the oil filler neck. Straighten and deburr oil filler neck.
3	Cut in and indent brazed sleeve	Cut in brazed sleeve of spare threaded section twelve times using a nibbler. Indent (taper) cut sleeve using a pipe section until it can be <b>inserted into</b> the oil filler neck.
	Clean threaded section and oil filler neck	Use cleaner (benzene) to remove grease, oil, dust etc. from bonding area of spare threaded section and oil filler neck.
4	Mix adhesive	Press out beads of equal length (approx. 3 cm long each) of adhesive components A and B ( <b>mixture ratio 1 : 1</b> ) and mix uniformly. <b>Note: Setting time is 2 hours!</b>
5	Apply adhesive on threaded section	Apply a thin coat of thoroughly mixed adhesive on the outside of the indented (tapered) sleeve of the threaded section.
6	Insert threaded section	Insert threaded section into oil filler neck and adjust. Apply remaining adhesive on the outside of the oil filler neck/thread transition area. Spread any adhesive that has squeezed out in the inner area between threaded section and oil filler neck.

## Adjusting upper lock section

### Adjusting safety catch above upper lock section of front lid for correct position

#### Operation check

After releasing the lid lock latch, the front lid must be held down by the safety catch.

The safety catch must engage into the retaining bracket of the closing section at its bottommost point.

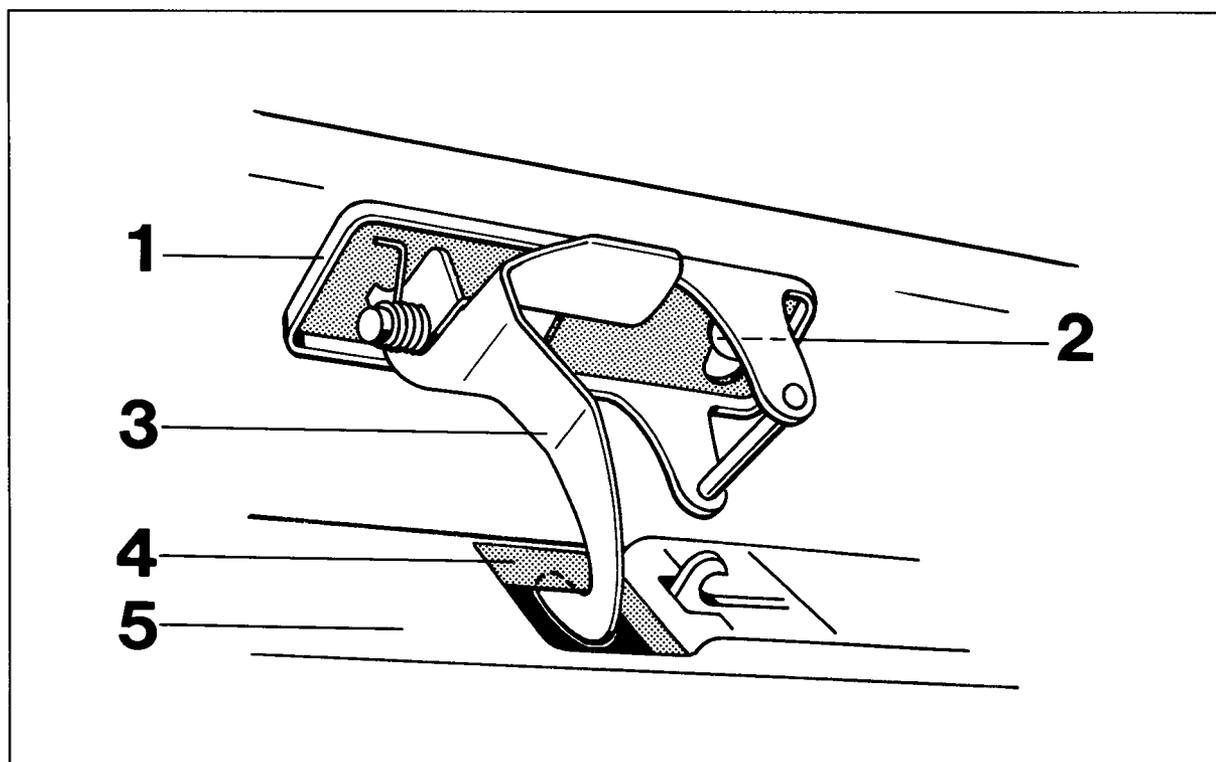
With the lid open, the return spring must pull back the safety catch to stop against the base-plate of the upper lock section.

#### Adjusting

Loosen mounting nut (2) of the upper lock section (1).

Adjust upper lock section at the slots in such a manner that the safety catch (3) slides down along the incline of the retaining bracket (4) when the lid is closed.

Tighten mounting nuts to 9.7 Nm (7 ftlb).



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1 = Upper lock section

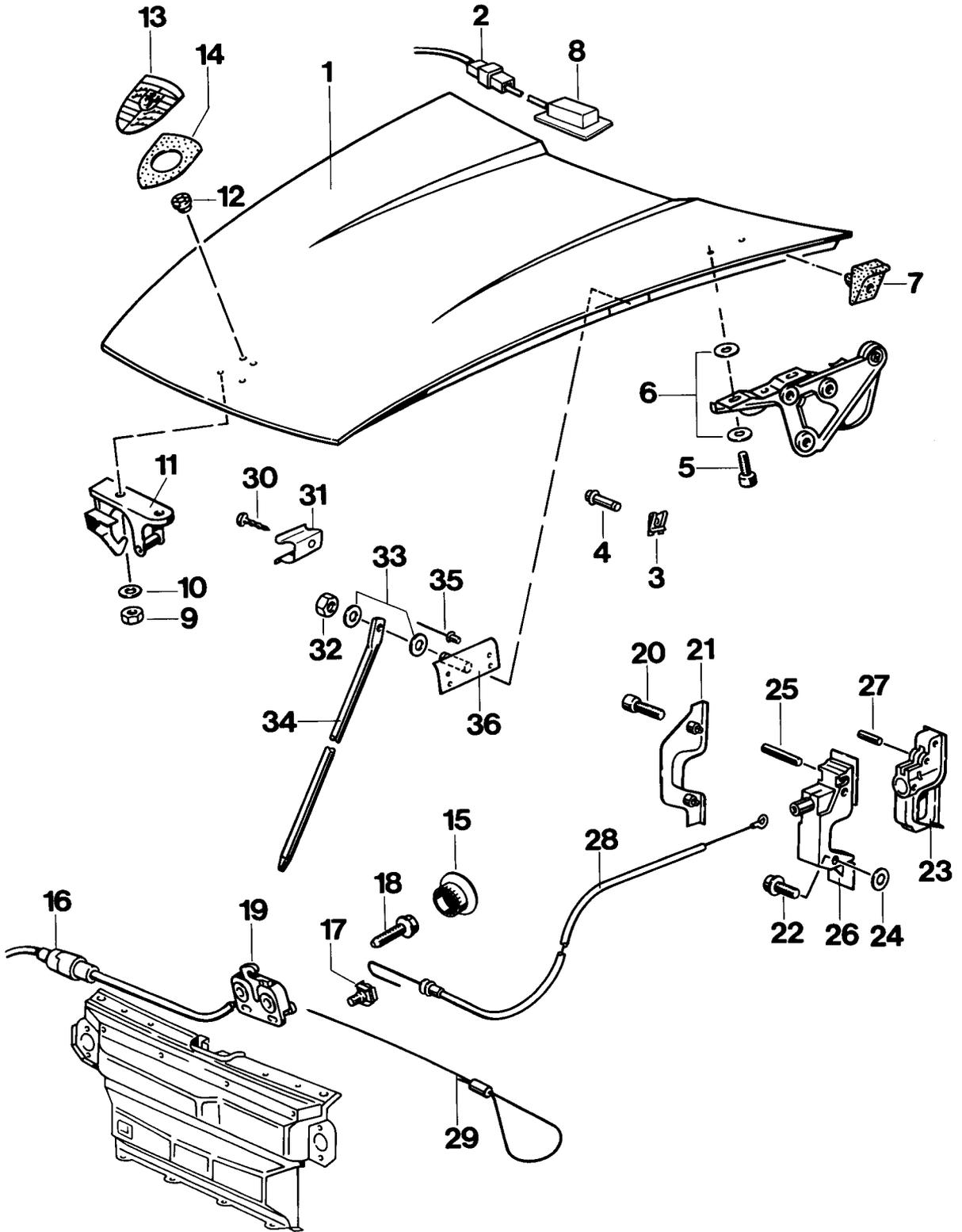
4 = Retaining bracket

2 = Mounting nut

5 = Closing section

3 = Safety catch

Dismantling and assembling front cover



## Dismantling and assembling front cover

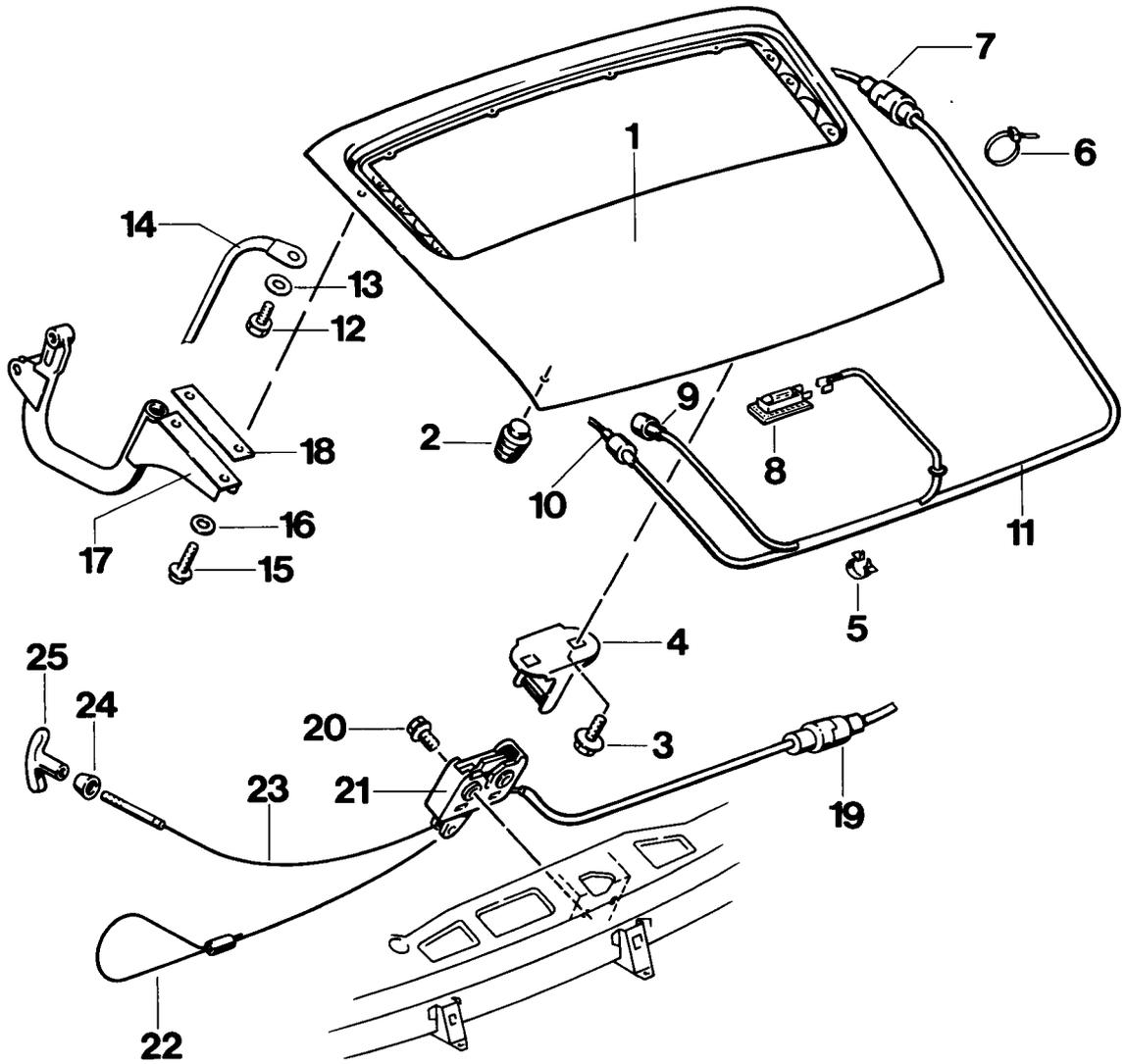
No.	Designation	Qty	Note:	
			Removal	Installation
1	Cover			adjust cover at hinges to match contours of cowl panel and fenders
2	Plug and wire	1	disconnect wiring plug for trunk light and remove wire from cable brackets at cover hinge	clip wire into wire bracket and reconnect plug
3	Retainer clips	2	remove retainer clips from retainer pins of gas springs	fit retainer clips
4	Stud	2	press off retainer pins of gas shocks	insert retainer pins of gas shocks
5	Pan-head screws M 8 x 22	4	undo cover mounting screws and remove from cover	place cover on hinges and install complete with washers and pan-head screws
6	Washer A 8.4			Note: When fitting the front cover, make sure the washers are placed correctly between the cover hinges and the cover
7	Bump stop	2	unclip bump stop rubber from cover	clip bump stop rubber back into place
8	Luggage compartment light	1	unclip luggage compartment light from cover and remove from cover complete with wiring	insert luggage compartment light wiring into cover and clip luggage compartment light into cover

No.	Designation	Qty.	Note:	
			Removal	Installation
9	Nut M 6	2	remove fastening nuts of upper cover lock section	fit lock upper section with correct washers and nuts
10	Washer	2		
11	Cover lock	1	lift upper lock section off the cover	
12	Tapping nut	2	remove fastening nuts of badge on cover	replace
13	Badge on cover	1		
14	Shim	1	take shim off the cover	place shim and badge into cover and tighten with nuts
15	Cover cap	2	unclip caps of mounting screws of lower cover lock section	clip cover caps into place
16	Plug	1	unclip wiring plug for lower lock section from bracket and disconnect plug	reconnect wiring plug for lower lock section and clip plug back into the bracket
17	Clamping bracket	1	undo clamping bracket and fastening screws of Bowden cable and emergency operating cable. Remove Bowden cable and emergency operating cable from lower lock section.	place Bowden cable and emergency operating cable into lower lock section, adjust complete assembly and tighten clamping bracket and fastening screws
18	Combination bolt M 6 x 30	2	remove fastening screws of lower cover lock section	

No.	Designation	Qty.	Note:	
			Removal	Installation
19	Lower cover lock section	1	remove lower lock section by lowering assembly out of vehicle	place lower lock section into vehicle from below and tighten using the combination bolts
	Bowden cable	1	disconnect Bowden cable from front closing panel	
20	Pan-head screw M 6 x 16	2	remove screws	
21	Covering	1	remove covering towards inside of vehicle	adjust covering and bolt in place with pan-head screws
22	Pan head screws M 6 x 15	2	remove screws	
23	Handle	1	pull handle complete with housing to the rear	put handle with housing into place, using the washers, and fit with pan-head screws
24	Washer A 6,4	2		
25	Roll pin 6 x 36	1	punch out roll pin and take handle out of housing	place handle into housing and locate roll pin
26	Housing	1		
27	Roll pin 4 x 18	1	punch roll pin out of handle and remove from Bowden cable complete with housing	push housing over Bowden cable. Place Bowden cable into handle and reinsert roll pin
28	Bowden cable	1	working from trunk, pull back Bowden cable	working from trunk, route Bowden cable back into passenger compartment
29	Emergency operating cable	1		

No.	Designation	Qty.	Note:	
			Removal	Installation
			<b>Only for Carrera RS</b>	
30	Sheetmetal screw B 2.9 x 6.5	1	undo sheetmetal screw	
31	Retaining bracket	1		drill retaining bracket from front cover frame to center of screw location – dimension 280 mm – and fit retaining bracket using a B 2.9 x 6.5 sheetmetal screw.
32	Nut M 6	1	remove nut	
33	Washer A 6.4	2		
34	Support	1		
35	Rivet 3.2 x 5.8 (aluminum)	4	drill out rivets	
36	Bracket	1	lift bracket off inside of cover frame	Adjust bracket from rear cover frame to center of screw-in stud – dimension 210 mm – drill and fit with 3.2 x 5.8 rivets

Dismantling and assembling rear cover



987-55

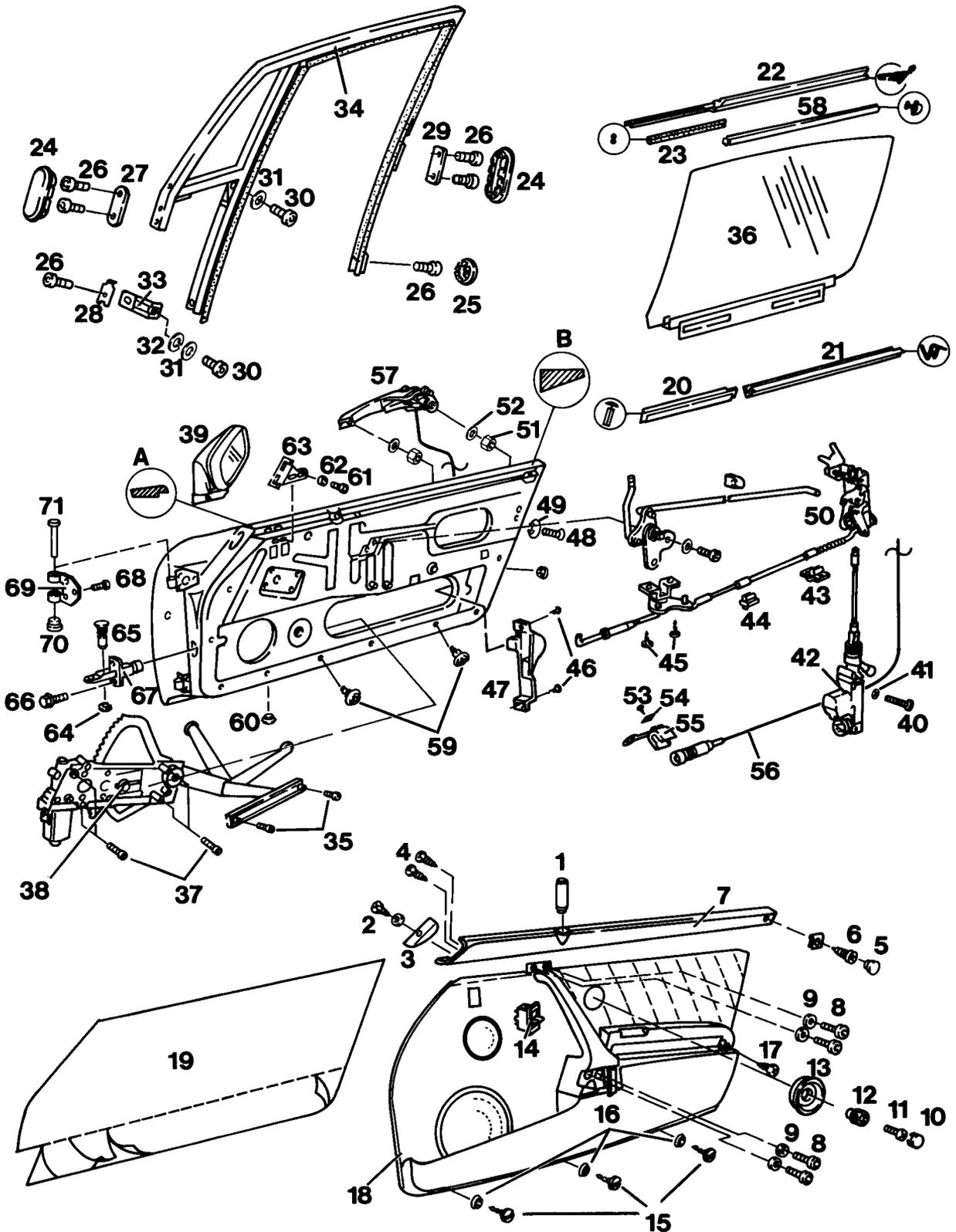
## Dismantling and assembling rear cover

No.	Designation	Qty.	Note:	
			Removal	Installation
1	Rear cover	1		adjust cover at hinges, lock components and rubber bump stops according to contours of center section and side sections
2	Rubber bump stop	2	remove rubber bump stop from cover	insert rubber bump stop into cover
3	Combination screw M 6 x 18	2	undo	
4	Upper lock section	1	lift upper lock section off the cover	using combination screws, fit upper lock section to cover
5	Wiring bracket	12	unclip wiring bracket	clip wiring bracket into place
6	Tie-wrap	1	remove tie-wrap from hinge	replace tie-wrap
7	Plug	1	remove plug in engine compartment from bracket and disconnect plug connection	reconnect plug and fit plug complete with bracket in engine compartment
8	Engine compartment light	1	unclip engine compartment light from cover and disconnect plug connection	reconnect plugs and clip engine compartment light into cover
9	Plug	1	disconnect plug for spoiler drive motor	reconnect plug for spoiler drive motor
10	Plug	1	unclip plug from cover and disconnect plug connection for spoiler limit switches	reconnect plug for spoiler limit switch and clip plug to cover
11	Wiring harness	1	remove wiring harness from vehicle	route wiring harness in the vehicle

No.	Designation	Qty.	Note:	
			Removal	Installation
12	Screw	1	undo ground strap fastening screw and remove from vehicle	fit fastening screw complete with washer and ground strap to cover
13	Washer	1		
14	Ground strap	1		
15	Pan-head screw M 6 x 16	4	remove fastening screws and lift cover off the vehicle	
16	Washer	4		place cover on hinges and tighten pan-head bolts with backings and washers in place
17	Hinge	2		
18	Backing	2		
19	Plug	1	unclip wiring plug to lower lock section from bracket and disconnect plug connector	
	Clamping bracket	1	undo clamping bracket and mounting screws of Bowden cable and emergency operating cable. Remove Bowden cable and emergency operating cable from lower cover lock section	
20	Combination screw M 6 x 35	2	remove fastening screws of lower cover lock section	reconnect plug to lower lock section and clip plug into place
21	Lower cover lock section	1	working from inside, remove lower cover lock section	
				insert Bowden and emergency operating cable into lower cover section. Position clamping bracket and tighten fastening screws
				insert lower cover lock section into vehicle and fit with combination screws

No.	Designation	Qty.	Note:	
			Removal	Installation
22	Emergency operating device	1		
23	Bowden cable	1		
24	Spacer sleeve	1		check, replace if defective
25	Handle	1		

Dismantling and assembling the door



No.	Designation	Qty.	Note:	
			Removal	Installation
1	Pushbutton	1		
2	Oval-head sheetmetal screw	1		
3	Cap	1		
4	Sheetmetal screw B 4.2 x 13	2		
5	Cap	1		
6	Sheetmetal screw B 3.5 x 13	1		
7	Cover strip	1	Remove and pull connector off coil body	
8	Pan head screw M 6 x 12	4		
9	Washer A 6.4	4		
10	Cap	1		
11	Oval-head screw, micro-seal type M 5 x 12	1		Replace
12	Rotary knob	1		
13	Cover bowl	1	Unbolt	
14	Switch for window regulator control	1	Open door window by 2/3. Pull switch out of door trim panel, pull off connector	
15	Sheetmetal screw B 4.2 x 22	4		
16	Washer for fabric protection	4		
17	Oval-head sheetmetal screw B 4.2 x 19	1		

No.	Designation	Qty.	Note:	
			Removal	Installation
18	Door trim panel	1	Press off at clips	
19	Adhesive sheet	1		
20	Piping	1		
21	Door gutter seal, inner	1		
22	Molding	1	Detach	
23	Sealing molding	1		
24	Oval cap 57 x 22 x 64	2		
25	Round cap 22 x 28 x 4.7	1		
26	Pan head screw, micro-seal type M 8 x 16	6		Replace. Before tightening the pan head screws, align and adjust door window frame
27	Backing plate	1		
28	Backing	1		
29	Backing plate	1		
30	Pan head screw M 6 x 12	2		Tighten along with pan head screws (26)
31	Washer A 6.4	2		
32	Spring washer	1		
33	Retaining bracket	1		
34	Door window frame	1	Pull out of door	Slide over door window and insert into door

No.	Designation	Qty.	Note:	
			Removal	Installation
35	Pan head screw, micro-seal type M 6 x 16	2		Replace. After fitting the door window frame, adjust door window and tighten pan head screws
36	Door window	1	Retract out of X-arm and take out of door	
37	Pan head screw, micro-seal type M 6 x 16	4		Replace
38	Power windows	1	Disconnect wiring loom connector and take power windows regulator as- sembly out of door	
39	Door mirror	1	Remove. Disconnect wiring connec- tor inside mirror and ex- tract wiring from mirror. Undo socket hex bolt and take off mirror	
40	Half-round headed screw	2		
41	Washer	2		
42	Gear element	1	Disengage at door lock and disconnect from wiring loom at connector	
43	Bracket	1		
44	Bracket	1		

No.	Designation	Qty.	Note:	
			Removal	Installation
45	Oval-head sheetmetal screw, micro-seal type B 3.5 x 13	2		Replace
46	Sheetmetal screw B 3.5 x 13	2		
47	Cover	1		
48	Oval-head screw, micro-seal type M 6 x 16	3		Replace
49	Hollow disc	3		
50	Door lock with bowden cable and return bracket	1		
51	Lock nut M 5	2		Replace
52	Washer A 5.3	2		
53	Sheetmetal screw 3.5 x 6.5	1		
54	Cage nut	1		
55	Lock	1		
56	Microswitch connector	1	Disconnect and expose	
57	Door outer handle	1	Take off with microswitch cable	
58	Door gutter seal	1		
59	Spreader nut	5	For door replacement only	
60	Valve	1	For door replacement only	
61	Pan head screw M 6 x 15	2		

No.	Designation	Qty.	Note:	
			Removal	Installation
62	Washer A 6.4	2		
63	Angle bracket	1		
64	Retainer clip	1		
65	Stud	1		
66	Hexagon head bolt M 6 x 12	2		
67	Door stay	1		
68	Bolt M 8 x 20	6	Observe installation position of adjusting washers	Observe installation position of adjusting washers
69	Hinge flaps	2		
70	Bushing	2		
71	Hinge bolt	2	Drive out only when replacing the door	Grease
A	Front weld-in panel (shop-made)	1		Only for spare doors
B	Rear weld-in panel (shop-made)	1		Only for spare doors

## **Adjusting height stop of door window**

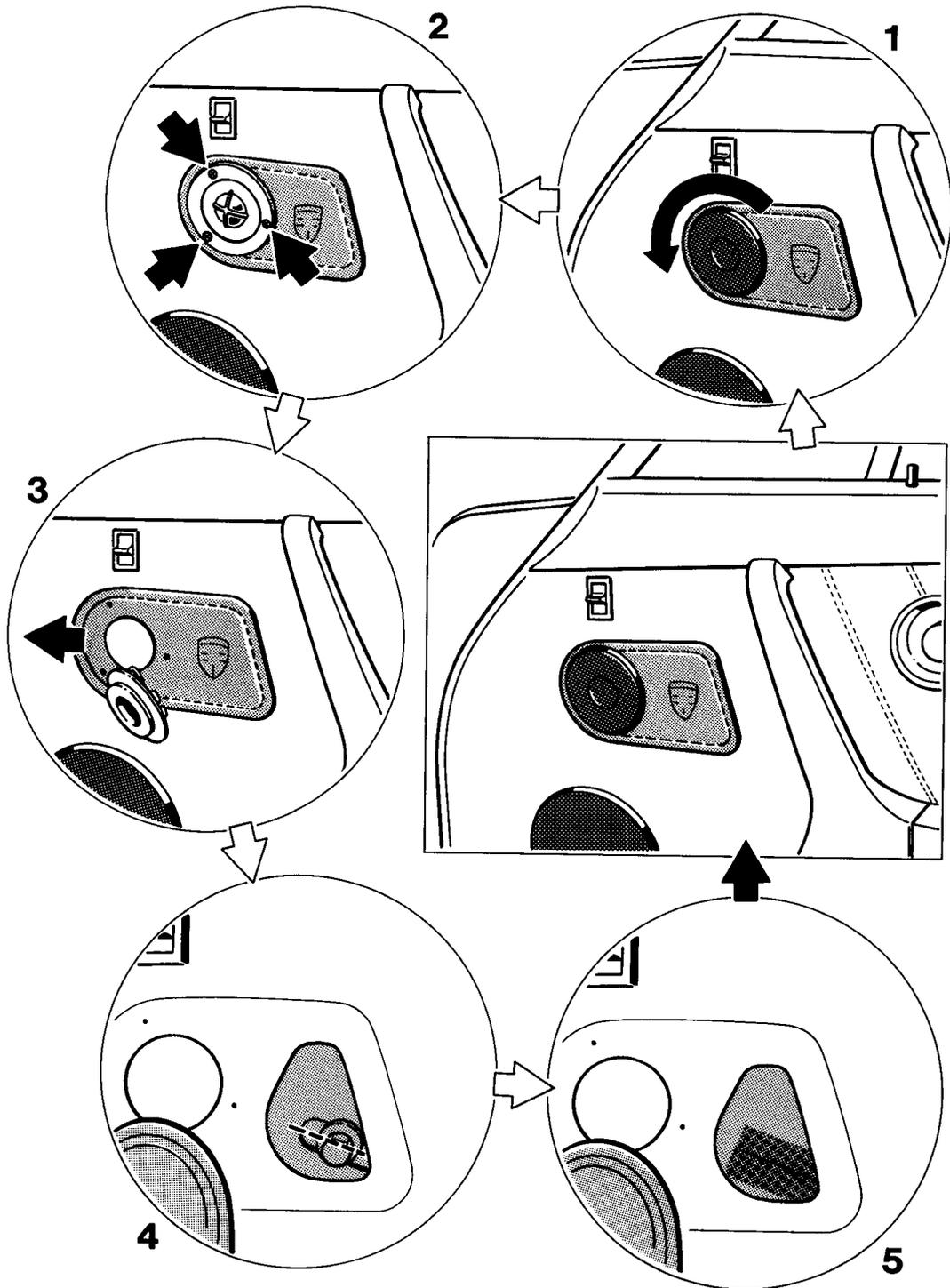
**Only for Targa and Cabriolet models**

**As of Model Year 1993**

### Adjusting height stop of door window

Only for Targa and Cabriolet models

As of Model Year 1993



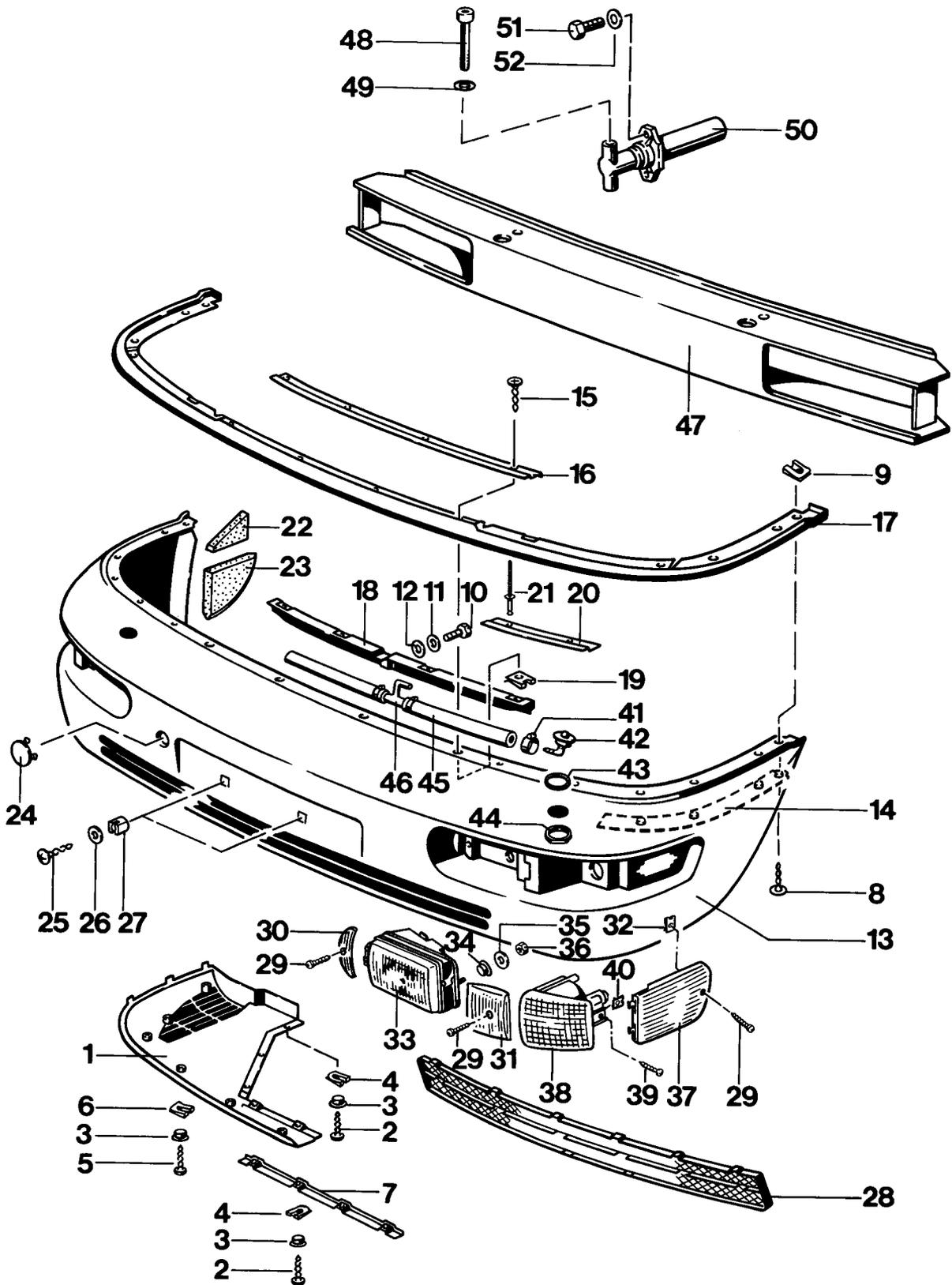
## Adjusting height stop of door window

Only for Targa and Cabriolet models

As of Model Year 1993

No.	Operation	Instructions
1	Remove speaker grille	Rotate the speaker grille of the tweeter manually and lift it off the speaker.
2	Remove speaker	Remove fastening screws of the tweeter and lift tweeter off the door trim panel.
3	Remove cover molding	Unclip cover molding from door trim panel by pulling it in forward direction.
4	Adjust height stop	<p>Cut out door water deflector sheet in height stop fastening screw area.</p> <p>Loosen fastening screw.</p> <p>Move height stop to the front in direction of travel – door window moves further up.</p> <p>Move height stop to the rear in direction of travel – door window moves further down.</p> <p>Refit fastening screw.</p>
5	Seal water deflector sheet in door	Seal cut-out water deflector sheet with waterproof adhesive tape. Refit cover molding, speaker and speaker grille.

### Removing and installing front spoiler and bumper



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No.	Description	Qty.	Note when:	
			Removing	Installing
			Remove wheel-house halves front left and right	Install wheel-house halves front left and right
1	Spoiler, lower	1		Make sure retaining lugs are fitted correctly when latching in
2	Self-tapping screw B 4.8 x 16	10		
3	Spacer	20		
4	Plate nut B 4.8	14		Adjust to middle of hole
5	Self-tapping screw B 4.2 x 16	14		
6	Plate nut B 4.2	14		Adjust to middle of hole
7	Retaining strip, lower	1		The recesses must point upwards
8	Self-tapp. screw B 4.8 x 22	8		
9	Plate nut B 4.8	8		Adjust to middle of hole
10	Hexagon head screw M 6 x 16	4		
11	Washer B 6.4	4		
12	Plastic washer 5.3 x 16 x 15	4		Check, replace if nec.
13	Spoiler, bumper	1	Separate lug connections for foglamps and turn-signal lamps Drill out fastening rivets in inserts for sealing strip (drill Ø 3 mm)	Reconnect plug connectors Fasten inserts for sealing strip with blind rivets (3.2 x 8). Assemble retaining strip, sealing strip and cover panel before installing in the vehicle
14	Retaining strip, lower	2		Spacers must point upwards
15	Self-tapp. screw B 4.8 x 19	4		
16	Cover rail	1		

No.	Description	Qty.	Note when:	
			Removing	Installing
17	Sealing strip	1		Must be level with fender and bumper spoiler
18	Retaining strip, upper	1		
19	Plate nut B 4.8	8		Adjust to middle of hole
20	Insert for sealing strip	2		
21	Mushroom head blind rivet, Al 3.2 x 8	4		
22	Seal, upper	2		Glue in (e.g. with adhesive sealant part No. 999.915.400.40)
23	Seal, lower	2		Glue in (e.g. with adhesive sealant part No. 999.915.400.40)
24	Cap for towing lug	1		Clip into bumper spoiler
25	Oval-head screw BZ 4.2 x 9.5	2		
26	Washer A 4.3	2		
27	Expansion nut B 4.2	2		Check, replace if necessary
28	Air-inlet grill	1	Do not damage retaining lugs on the bumper spoiler	Clip into retaining lugs carefully
29	Screw with washer B 4.2 x 22	2		
30	Cover panel	2		
31	Cover panel	2		
32	Plate nut	2		Adjust to middle of hole
33	Foglamp	2		Fit into bumper spoiler
34	Spacer	4		
35	Washer B 4	4		

No.	Description	Qty.	Note when:	
			Removing	Installing
36	Hexagon nut M 5	4		
37	Cover panel	2		Fit into bumper spoiler
38	Turn-signal lamp	2		Fit into bumper spoiler
39	Screw with washer	2		
40	Plate nut	2		Adjust to middle of hole
41	Hose clip	5		
42	Nozzle	2		Fit into bumper spoiler with screw, washer and nut
43	Disk	2		
44	Nut	2		
45	Hose	2		
46	Valve	1		
47	Bumper carrier	1		Check, replace if necessary
48	Fillister head screw M 12 x 110	2		
49	Washer A 13	2		
50	Impact-absorbing tube	2		Apply sealant (e.g. adhesive sealant part No. 999.915.400.40) to the seal before fitting to the flange
51	Hexagon head screw M 8 x 30			
52	Washer A 8.4			



## Removing and installing the tail panels and bumper

### Note

The following work steps must be performed before dismantling the tail panels:

- Remove lamp unit on right
- Disconnect plug-in connection for number plate lighting
- Remove exhaust gas end pipe
- Undo cable tie for number plate lighting

No.	Description	Qty.	Note When:	
			Removing	Installing
1	Pan-head tapping screw B 4.8 x 16 bk	4		
2	Spacer disk	4		Insert in the paneling at the side
3	Hexagon sheet metal screw B 4.8 x 19	6		
4	Washer A 5.3	6		
5	Fixing strip	2		
6	Pan-head tapping screw B 4.8 x 16 bk	2		
7	Spacer disk	2		Insert in the paneling at the side
8	Fillister-head screw M 12 x 110	2		
9	Washer A 13	2		
10	Eccentric screw	2		By turning the eccentric washer, it is possible to adapt the tail paneling to the bodywork contour

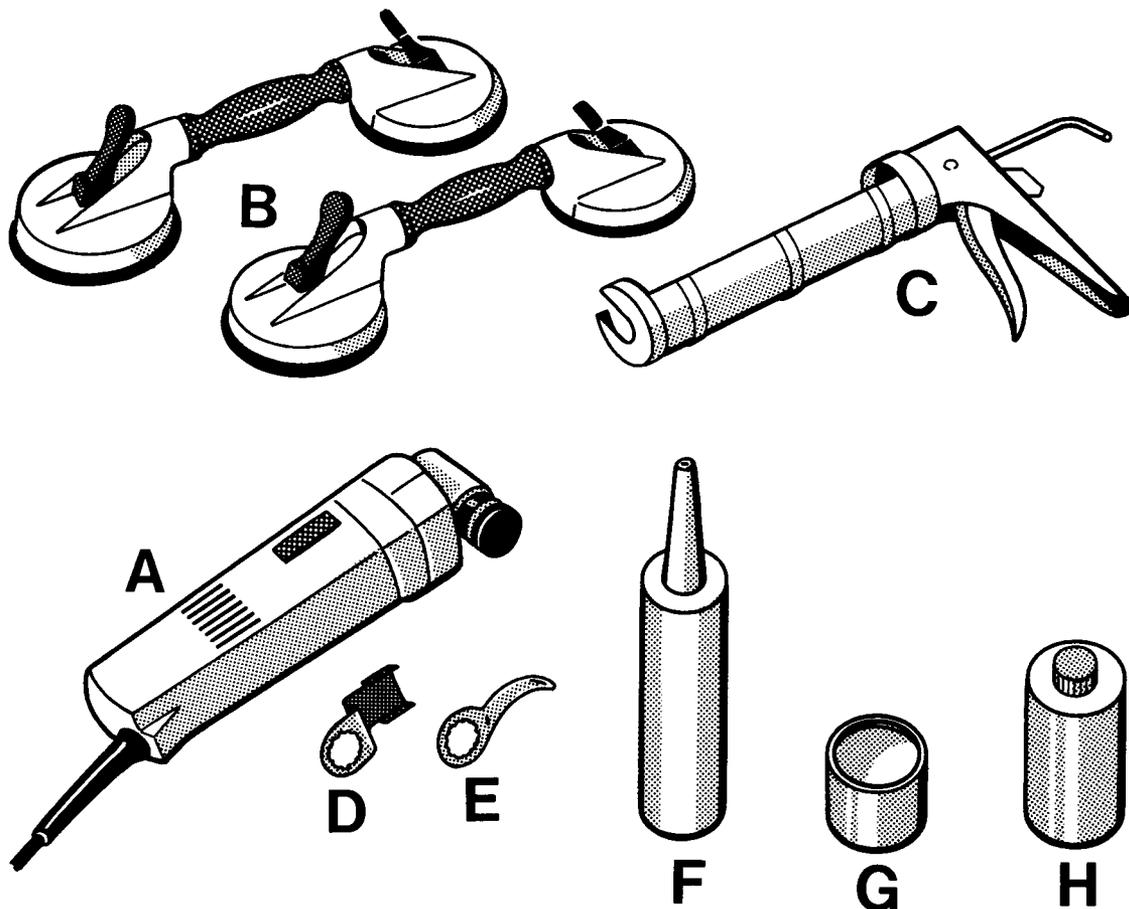
No.	Description	Qty.	Note when:	
			Removing	Installing
11	Pan-head tapping screw B 4.8 x 16	4		
12	Pan-head tapping screw B 4.8 x 16 bk	2		
13	Tail support	2		The height of the tail panel can be adjusted by moving the tail support
14	Holder	2		Screw together with reinforcement strip at bottom
15	Plate nut B 4.8	6		Adjust to hole center
16	Hexagon screw M 5 x 12	5		
17	Washer B 5.7	5		
18	Heat protection, center	1		Align to the contour of the tail paneling
19	Blind rivet, mushroom head Al 3.2 x 8	4	Drill out (Ø drill 3 mm)	
20	Bumper	1		Secure holding strip at top with blind rivets (3.2 x 8)
20A	USA variant bumper	1		
21	Spring clip	2	Remove	Fit onto bumper
22	Blind rivet, mushroom head Al 3.2 x 8	8	Drill out (Ø drill 3mm)	
23	Heat protection, side	2		
24	Hexagon nut M 5	8		
25	Fixing plate	2		

No.	Description	Qty.	Note when:	
			Removing	Installing
26	Fixing plate	2		
27	Panel, side	2		Secure heat protection, side, with blind rivets (3.2 x 8)
28	Fixing plate	2		
29	Panel, middle	1		Secure holding strip at top with blind rivet (3.2 x 8) Secure reinforcement strip at bottom with blind rivets (3.2 x 8)
29A	USA variant panel, center	1		
30	Blind rivet, mushroom head Al 3.2 x 8	5	Drill out (Ø drill 3 mm)	
31	Holding strip, top	1		
32	Blind rivet, mushroom head Al 3.2 x 8	5	Drill out (Ø drill 3 mm)	
33	Reinforcement strip, bottom	1		
34	Cover	1		Carefully clip into the panel, center
35	Oval head screw BZ 4.2 x 9,5	2		
35A	USA variant oval head screw BZ 4.2 x 9,5	4		
36	Washer A 4.3	2		
36A	USA variant washer A 4.3	4		
37	Expanding nut B4.2	2		Check, replace if necessary

No.	Description	Qty.	Note when:	
			Removing	Installing
37A	USA variant expanding nut B 4.2	4		Check, replace if necessary
38	Sheet metal screw	4		
39	Number plate light	2	Disconnect plug-in connection to wiring har- ness	Make plug-in connection to wiring harness
40	Expanding nut	4		Check, replace if neces- sary
41	Cable harness	1		Fix with holding clip
42	Holding clip	2	Carefully unclip	
43	Plate nut B 4.8	2		Adjust to hole center
44	Hexagon nut M 6	4		
45	Washer A 6.4	4		
46	Support tube	2		
47	Weatherstrip	2		Must be flush with fender and tail panel, side
48	Plate nut B 4.8	6		Adjust to hole center
49	Plate nut B 4.8	2		Adjust to hole center
50	Nut M 6	2		
51	Washer B 6.4	2		
52	Screw M 6 x 15	2		
53	Support tube	2		
54	Hexagon screw M 8 x 30	4		
55	Washer A 8.4			
56	Impact tube	2		
56A	USA variant impact absorber	2		

### Removing and installing windows

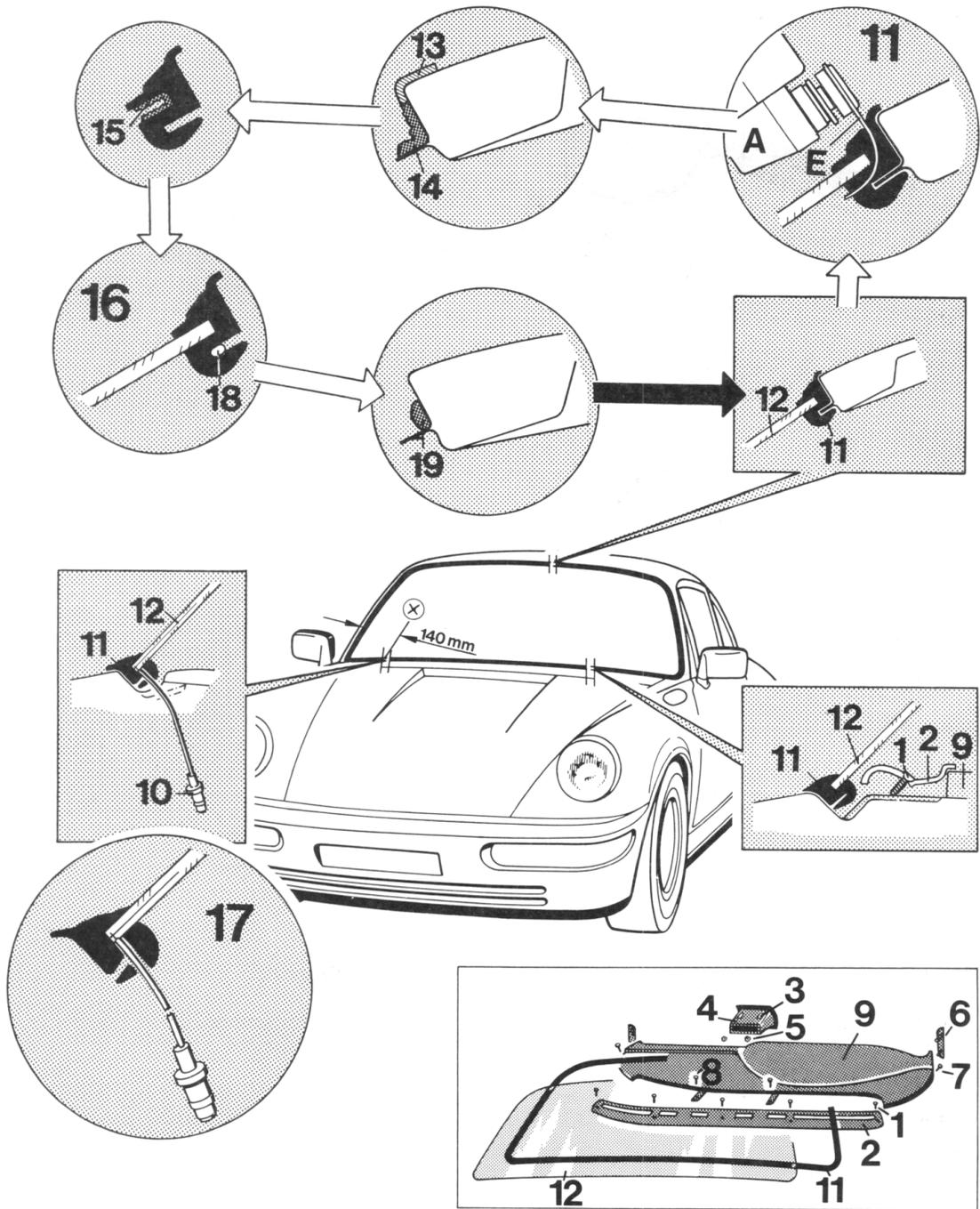
The following tools and materials are required for removing and installing the windshield, the rear side-windows and the rear window:



64 - 114

A	Cutter	VAG 1561	VW Werk AG
B	Double-suction cups	VAG 1344	CS equipment sales
C	Glue gun	VAG 1344/1	
D	Scraper	6.39.03.113.02.2	e.g. C & E FEIN GmbH & Co. Postfach 172 7000 Stuttgart 1
E	Angled blade	6.39.03.103.01.7	
F	Adhesive sealant	999.915.400.40	Porsche parts service
G	Body primer	999.915.487.40	
H	Cleaning solution	999.915.478.40	

Removing and installing the windshield



64-115

## Removing and installing the windshield

No.	Action	Procedure
	Remove the windshield wiper	Unscrew the hexagon nut, remove spring washer and wiper.
	Open the door window	Lower the door window.
	Remove internal mirror	Remove the interior mirror upwards from the fastening plate parallel to the window.
1	Remove defroster panel	Undo 5 countersunk self-tapping screws and remove the defroster panel.
2	- countersunk screws - defroster panel	
3	Remove the central nozzle	Press 2 fastening nuts downwards and pull out the central nozzle.
4	- fastening lugs - central nozzle	
5	Remove the upper part of the switchboard	Unscrew a hexagon nut from the threaded bolts for the central switchboard fastening on each side of the recess for the central nozzle. Remove 2 cover panels. Undo the self-tapping screws below the cover panels. Undo 2 self-tapping screws from the top of the switchboard fastening. Remove the upper part of the switchboard.
6	- hexagon nuts	
7	- cover panels	
8	- self-tapping screws	
9	- self-tapping screws - upper part of switchboard	
10	Pull off the windshield antenna plug	Disconnect the windshield antenna plug from the antenna amplifier. (The antenna amplifier is mounted in the - x - area on the body, under the upper part of the switchboard).
11	Cut through the rubber seal	Fit the angled blade (E) into the cutter (A). Sharpen the blade with a grinding stone with the cutter running. Insert the blade into the rubber seal, set the vibration controller to position 6 and cut through the rubber seal between windshield and body all round. <b>Note:</b> The windshield antenna cable in the - x - area must not be damaged.

No.	Action	Procedure
12	Remove the <i>windshield</i>	
	Remove any rubber from the body	
13	Stick <i>adhesive tape</i> to the body	To protect the paintwork, apply adhesive tape to the visible area of the body round the window cutout.
14	Cut away <i>adhesive sealant</i> on the body	Fit the scraper (D) to the cutter (A) and cut away the adhesive sealant on the body until a covering residual layer remains.
	Clean the body round the window cutout	Clean the body round the window cutout thoroughly with cleaning solution (H). <b>Note:</b> No cleaning solution may remain on the body.
	Apply a coat of primer to any damaged areas on the body	Apply body primer (G) to any lacquer damage round the window cutout which will not be visible.
	Cut away the adhesive sealant on the windshield ( <i>only if the windshield is undamaged</i> )	Cut away the adhesive sealant from the windshield with a fixed blade. A covering residual layer may remain. <b>Note:</b> If the vehicle is fitted with a <i>Sekuriflex</i> windshield, under no circumstances may the protective foil on the sealant side be damaged.
	Clean the windshield	Rub the windshield thoroughly with cleaning solution (H). <b>Note:</b> No cleaning solution may remain on the windshield.

No.	Action	Procedure
	Check the windshield for notches Inspect	the edge of the windshield all round for damage. If the windshield is damaged and has notches, this must not be reinstalled.
	Clean the <i>rubber seal</i>	Clean the window channel in the rubber seal with cleaning solution (H) <b>Note:</b> No cleaning solution may remain in the window channel.
	Perforate the rubber seal	Perforate the rubber seal in the area of the antenna cable for the cable to pass through (see Item 17).
15	Apply <i>adhesive sealant</i> into the window channel of the rubber seal	Insert a cartridge with adhesive sealant (F) into the glue gun (C) and apply the sealant all round the window channel of the rubber seal (you require approx. 85 mm adhesive sealant). <b>Note:</b> The windshield must be installed into the vehicle max. 4 hours after the adhesive is applied.
16	Mount the rubber seal onto the windshield	
17	Pull the antenna cable, including plug, through the hole in the rubber seal	
18	Lay <i>anassembly cord</i> into the rubber seal	Lay the assembly cord into the rubber seal to fit the windshield. The ends of the cord must cross over around the middle of the roof area.
	Position the double-suction cups to the outside of the windshield	
19	Apply <i>adhesive sealant</i> to the body	Using the glue gun (C), apply the adhesive sealant (F) to the body all round the area of the window cutout (approx. 70 ml adhesive sealant).

No.	Action	Procedure
	Mount the windshield into the body	Lay the preassembled, prepared windshield into the window cutout, align and press down with the double-suction cups (B). From inside the vehicle, fit the rubber seal by pulling the assembly cord against the fold in the body.
	Clean the window	Emergent adhesive sealant must be removed immediately and the window area cleaned with cleaning solution (H).
	Connect the windshield antenna plug to the antenna amplifier	
	Install the upper part of the switchboard	Switchboard fastening: 2 self-tapping screws at the top, one self-tapping screw each on the right-hand side and left-hand side, 2 hexagon nuts in the middle. Replace the left and right cover panels.
	Install the central nozzle	Press the fastening lugs downwards and slide the central nozzle into the recess on the switchboard.
	Install the defroster panel	Secure the defroster panel with 5 countersunk self-tapping screws.
	Fit the internal mirror	Slide the internal mirror into the fastening plate parallel to the windshield.
	Install the windshield wipers	Mount the windshield wipers, fit spring washers and secure with hexagon nuts.

**Note: Vehicles fitted with Airbag**

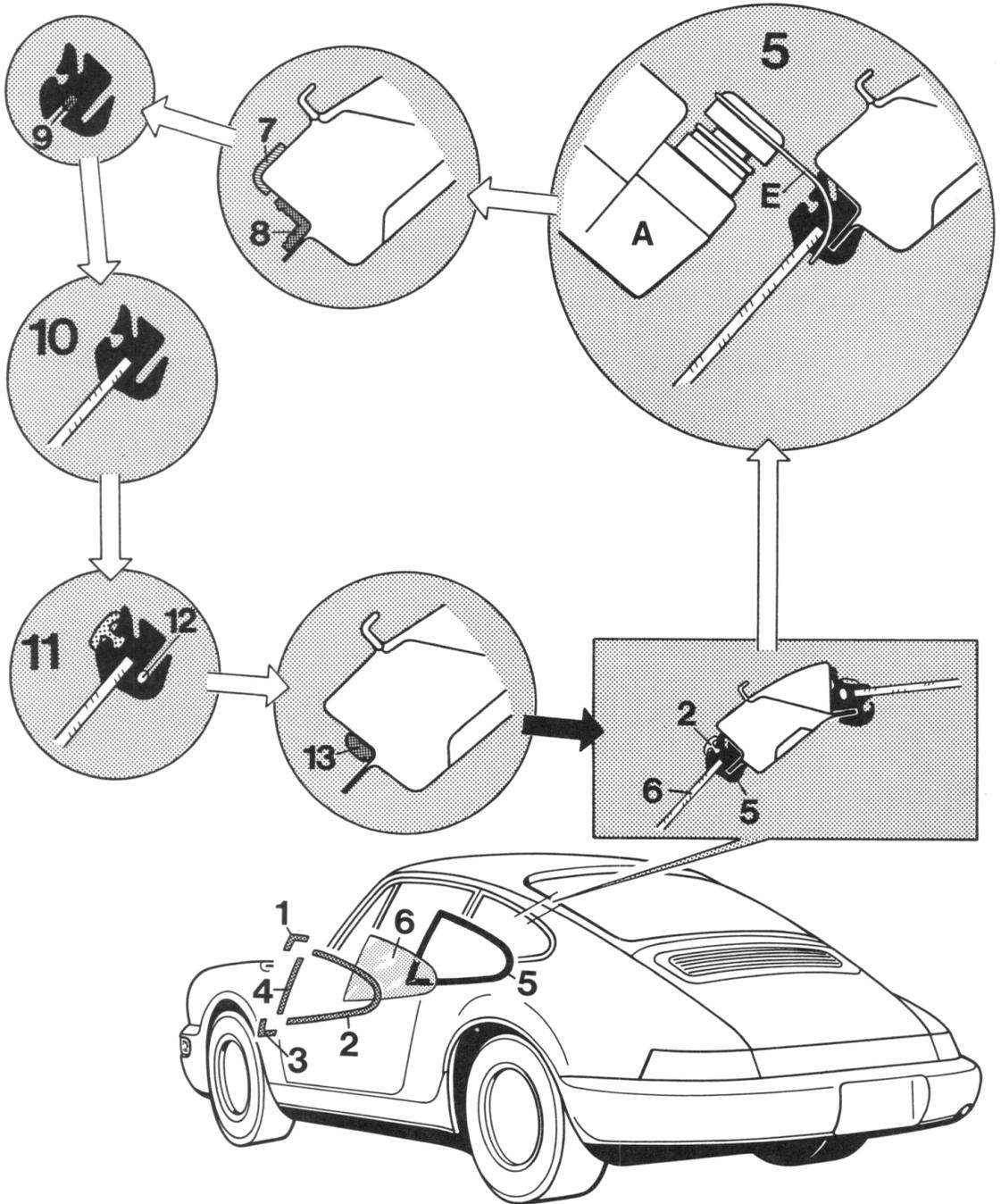
The following outline conditions must be observed to ensure that the bonded connection is adequately strong for vehicles with Airbag:

Hardening time	10 h
Temperature	at least 15°C
Relative humidity	at least 40%

Should the temperature or relative humidity be lower than these values, the hardening time is longer. These vehicles must not be put into operation before the hardening time has expired.

Vehicles without Airbag may be put into operation after the assembly work has been completed.

Removing and installing the rear side-window



## Removing and installing rear side-windows

No.	Action	Procedure
1 2 3 4	Remove the trim - <i>upper cover plate</i> - <i>rear trim</i> - <i>lower cover plate</i> - <i>front trim</i>	Using a wood or plastic spatula, ease the trim around the upper cover plate out of the rubber seal carefully. Lay a cloth between trim and rubber seal and remove the trim by pulling the cloth along the rubber seal.
5	Cut through the <i>rubber seal</i>	Fit the angled blade (E) into the cutter (A). Sharpen the blade with a grinding stone with the cutter running. Insert the blade into the rubber seal, set the vibration controller to position 6 and cut through the rubber seal between rear side- window and body all round.
6	Remove <i>rear side-window</i>  Remove any residual rubber from the body	
7	Stick <i>adhesive tape</i> to the body	To protect paintwork, cover the body in the visible area of the window cutout with adhesive tape.
8	Cut down <i>adhesive sealant</i> on the body  Clean the body around the window cutout	Fit the scraper (D) into the cutter (A) and cut down the adhesive sealant on the body until a covering residual layer remains.  Clean the body round the window cutout with cleaning solution (H). <b>Note:</b> No cleaning solution may remain on the body.

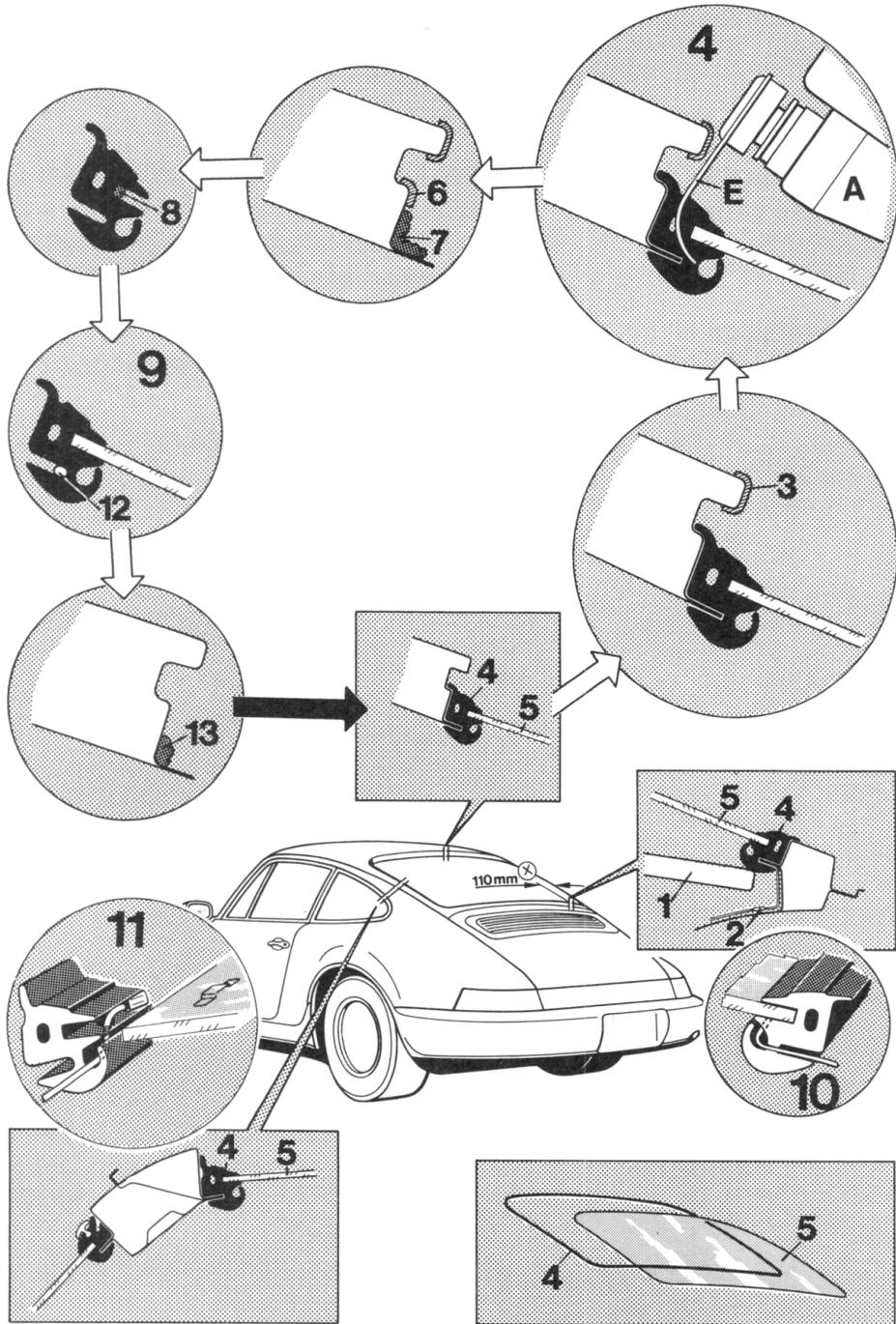
No.	Action	Procedure
	Apply coat of primer to damaged areas on the body	Apply body primer (G) to damaged covering lacquer in areas round the window cutout which will not be visible.
	Cut down the adhesive sealant on the rear side- window	Using a fixed blade, carefully remove the adhesive sealant round the rear side-window. A covering residual layer may remain.
	Clean the rear side-window	Rub down the rear side-window thoroughly with cleaning solution (H) <b>Note:</b> No cleaning solution may remain on the window.
	Clean the <i>rubber seal</i>	Clean the window channel in the rubber seal with cleaning solution (H) <b>Note:</b> No cleaning solution may remain in the window channel.
9	Apply <i>adhesive sealant</i> into the window channel of the rubber seal	Insert a cartridge with adhesive sealant (F) into the glue gun (C) and apply the sealant all round the window channel of the rubber seal. <b>Note:</b> The rear side-window must be installed in the vehicle max. 4 hours after the adhesive has been applied.
10	Mount the rubber seal round the rear side-window	
11	Mount the trim onto the rubber seal	Press the rear trim (2) into the rubber seal. Join the front trim (4) to the upper cover plate (1) and lower cover plate (3), press into the rubber seal, join to the rear seal (2) and finally press the complete trim into the rubber seal.
12	Lay an <i>assembly cord</i> into the rubber seal	

---

No.	Action	Procedure
13	Apply <i>adhesive sealant</i> to the body	Using the glue gun (C) apply adhesive sealant (F) to the body all round the window cutout.
	Install the rear side-window into the body	Position the assembled, prepared rear side-window into the body cutout, align and press down. From inside the vehicle, fit the rubber seal by pulling out the assembly cord against the fold in the body.
	Clean the window	Emerging adhesive sealant must be removed immediately and the respective area on the window cleaned with cleaning solution (H).

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Removing and installing the rear window



## Removing and installing the rear window

No.	Action	Procedure
	Remove the rear wiper	Lift the caps, unscrew the hexagon nut, remove screen washer and upper wiper arm. Remove the sleeve, unscrew the hexagon nut, take out spring washer and lower wiper arm.
	Open the door window	Lower the door window.
1	Remove the <i>rear wall panel</i>	Tilt the rear seat-back forwards. Undo the 4 self-tapping screws from the rear wall panel and slide the panel upwards out of the retainer.
2	Separate the <i>plug connection</i> for the rear-window defroster	The plug connection for the rear-window defroster is located under the rear wall panel in the area -x-
3	Cover body with <i>adhesive tape</i>	To protect the paintwork, apply adhesive tape to the upper roof area of the window cutout.
4	Cut through the <i>rubber seal</i>	Fit the angled blade (E) to the cutter (A). Sharpen the blade on a grinding stone with the cutter running. Insert the knife into the rubber seal, set the vibration control to position 6 and cut through the rubber seal between rear window and body all round. <b>Note:</b> Do not damage the wiring for the rear window in the - x - area (e.g. heating, high-mounted brake lights).
5	Remove the <i>rear window</i>	
	Pull the rubber seal away from the bodywork	
6	Fit <i>adhesive tape</i> to the body	To protect the paintwork, fit adhesive tape to the body in the visible area of the window cutout.
7	Cut down the <i>adhesive sealant</i> on the body	Fit the scraper (D) into the cutter and cut away the adhesive sealant on the body until a covering residual layer remains.

No.	Action	Procedure
	Clean the window cutout in the body	Clean the window cutout in the body thoroughly with cleaning solution (H). <b>Note:</b> No cleaning solution must be left on the body.
	Apply primer to any damaged areas on the body	Apply body primer (G) to any damaged areas in the cover lacquer round the window cutout which will not be visible.
	Separate the plug connection for the rear window wiring	Separate plug connections for the rear window wiring by disconnecting the flat plugs from the sockets at the rear window
	Cut down adhesive sealant on the rear window	Use a fixed blade to carefully cut down the adhesive sealant on the rear window. A covering residual layer of adhesive may remain.
	Clean the window	Rub the rear window thoroughly with cleaning solution (H). <b>Note:</b> No cleaning solution may remain on the rear window.
	Check the rear window for notches	Check all round the edge of the rear window for damage. If the rear window is damaged and has notches, this may <b>not</b> be reinstalled.
	Clean the <i>rubber seal</i>	Clean the window channel in the rubber seal with cleaning solution (H) <b>Note:</b> No cleaning solution may remain in the window channel.
	Perforate the rubber seal (body channel to the cable channel)	Perforate the rubber seal in the - x - area from the body channel to the cable channel for cables to pass through (rear-window defroster) (refer to Item 10).
	Perforate rubber seal (cable channel to the window channel)	Perforate the rubber seal from the cable channel to the window channel in the areas for cable connections to the rear-window defroster (refer to Item 11).
8	Apply <i>adhesive sealant</i> to the window channel of the rubber seal.	Fit a cartridge with adhesive sealant (F) into the glue gun (C) and apply all round the window channel of the rubber seal. <b>Note:</b> The rear window must be installed into the vehicle max. 4 hours after the adhesive has been applied.

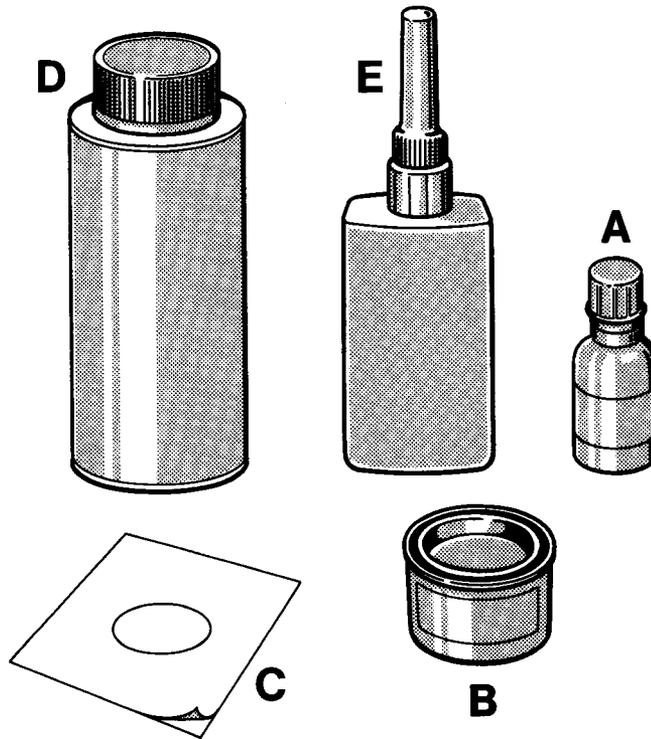
No.	Action	Procedure
9	Fit the rubber seal round the rear window	
10	Pull the cables for the rear-window defroster through the holes in the rubber seal  Lay the cable into the cable channel of the rubber seal according to the connections	Pull the cable through the holes from the body channel to the cable channel.
11	Connect the cable to the terminals for the rear-window defroster	Pull the cable through the holes from the cable channel to the window channel and join to the terminals for the rear-window defroster.
12	Lay the <i>assembly cord</i> into the rubber seal.  Position the double-suction cups to the outer side of the rear window	The ends of the cord must cross over around the bottom middle (area of the rear wall panel). In order to align the sealing lip along the roof, lay a second, thinner cord in this area of the rubber seal.
13	Apply <i>adhesive sealant</i> to the body  Install the rear window into the body  Clean the window	Using the glue gun (C) apply adhesive sealant all round the window cutout on the body.  Lay the rear window into the window cutout of the body, align and press down with the double-suction cup (B). From inside the vehicle, pull the rubber seal in position by pulling the assembly cord against the fold in the body . Align the sealing lip in the roof area by pulling out the second cord.  Any emergent adhesive sealant must be removed immediately and the area on the window cleaned with cleaning solution (H).

No.	Action	Procedure
	Restore the plug connections for the rear-window defroster	
	Install the rear wall panel	Slide the rear wall panel into the retainer from above and secure with 4 self-tapping screws. The self-tapping screws must have fabric washers. Tilt rear seat-backs upwards. Install rear wiper.
	Mount rubber sleeve,	Fit lower wiper arm, mount spring washer and secure with hexagon nut. Slide on the sleeve, fit other upper wiper arm, mount spring washer and secure with hexagon nut. Close cap .

---

## Bonding the interior rearview mirror in place

The following materials are required for bonding of the complete interior rearview mirror:



752 - 64

**A = Cleaning solution (000.043.157.00)\***

**B = Primer (000.043.158.00)\***

**C = Cover sheet (000.043.177.00)\***

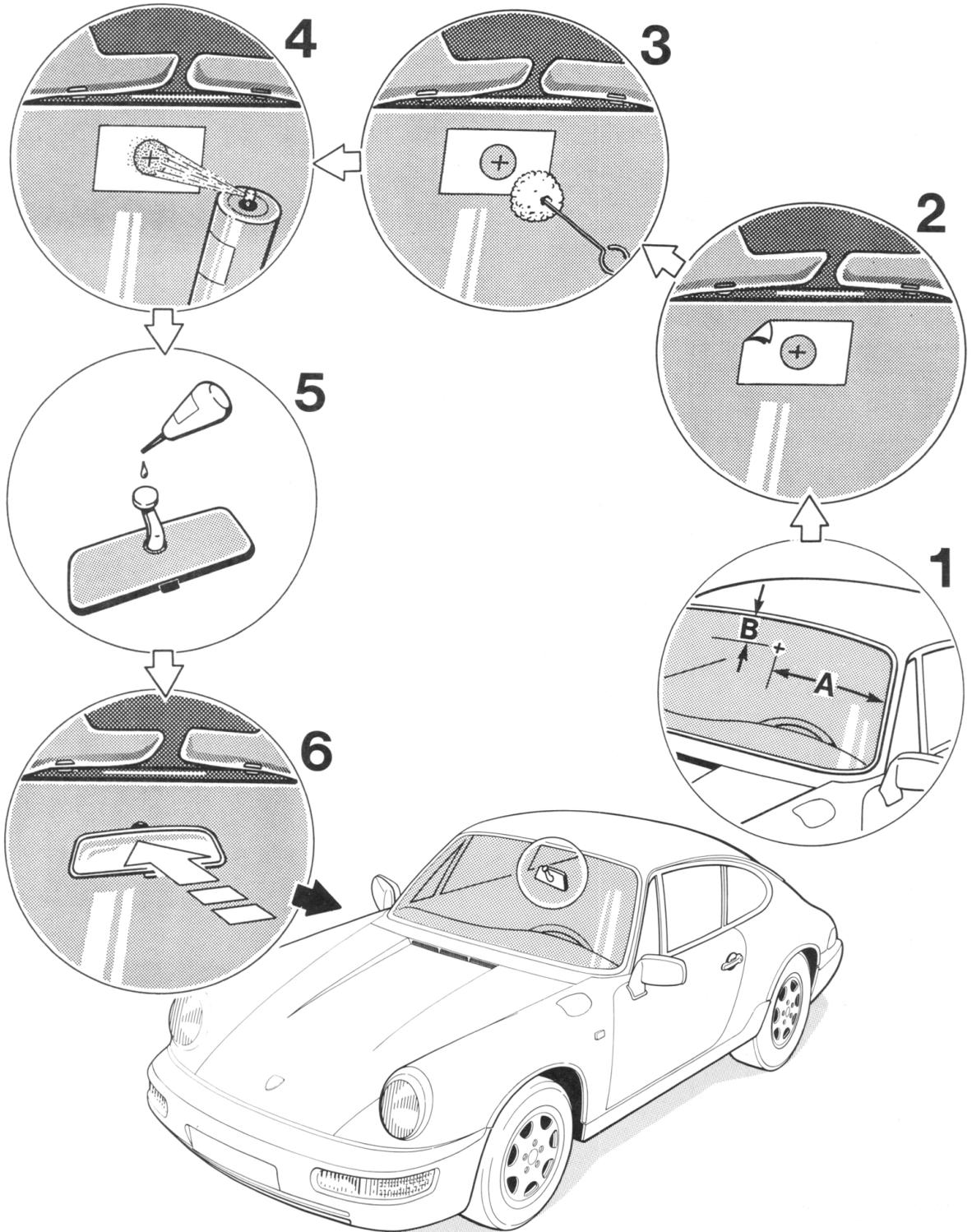
**D = Activator (000.043.052.00)\***

**E = Adhesive (000.043.051.00)\***

\* Porsche part no.

## Bonding the interior rearview mirror in place

### Bonding the fully assembled interior mirror to the windshield



## Bonding the interior rearview mirror in place

### Bonding the fully assembled interior mirror to the windshield

No.	Operation	Instructions
1	Mark position of interior rearview mirror	Mark position of adhesive plate on outside of windshield. <b>Dimension A = 575 mm</b> <b>Dimension B = 105 mm</b>
	Remove adhesive residue	Remove adhesive residue from windshield mechanically using a scraper. Remove adhesive residue from bonding plate of rearview mirror mechanically using a scraper.
	Roughen bonding plate of rearview mirror	Roughen bonding plate of rearview mirror mechanically using sanding paper.
	Clean bonding plate of rearview mirror	Clean bonding plate of rearview mirror using <b>cleaning solution (A)</b> .
	Clean bonding area of windshield	Clean bonding area of windshield using <b>cleaning solution (A)</b> .
2	Mask off bonding area of windshield	Mask off bonding area of windshield using <b>primer template (cover sheet C)</b> . The position mark of the interior rearview mirror must be visible in the middle of the primer template.
3	Prime bonding area of windshield	Apply a thin coat of <b>primer (B)</b> to the masked bonding area of the windshield.

**Caution: Allow a flash-off time of 15 to 20 minutes!**

No.	Operation	Instructions
4	Activate bonding area of windshield	Spray activator (D) onto bonding area of the windshield.
		<b>Caution: Allow a flash-off time of 2 minutes!</b>
	Remove primer template	
5	Apply adhesive to bonding plate	Apply a drop of <b>adhesive (E)</b> to the bonding plate of the rearview mirror.
6	Bond rearview mirror in place	Press bonding plate of rearview mirror against primered and activated windshield area.

**Note: Press mirror in place for approx. 40 – 50 sec.!**

**Note:**

**Bonding strength**

**60 % after 1 hour**

**100 % after 24 hours**

**Body paint colors model 1989 onward****Standard:**

Grand prix white	908
Black	700
Dark blue	347
Indian red	80K
Linen	60M
Apricot-beige	548
Murano green	22C

**Special:**

Silver metallic	980
Diamond-blue metallic	697
Dove-blue metallic	37B
Pebble-grey metallic	693
Slate metallic	22D
Velvet-red metallic	81L
Linen metallic	550
Pine-green metallic	22E
Cognac-brown metallic	40L
Salmon-silver metallic	81 K

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### Body paint colors model 1990 onward

#### Standard:

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Dove-blue metallic	37B
Pebble-grey metallic	693
Slate metallic	22D
Velvet-red metallic	81L
Linen metallic	550
Pine-green metallic	22E
Cognac-brown metallic	40L
marine blue metallic	35V

## Body Paint Colors Beginning With 1991 Models

### Standard Colors:

Grand Prix white	908
Black	700
Maritime blue	38B
Indian red	80K
Signal green	22S
Mint green	22R
Rubystone red	82N

### Special Colors:

Polar silver metallic	92 E
Polar silver metallic	92 M*
Horizon blue metallic	37 X
Cobalt blue metallic	37 U
Oakgreen metallic	22 L
Slate gray metallic	22 D
Slate grey metallic	23 F*
Coral red metallic	82 H
Black pearl effect	738
Midnight blue metallic	37 W
Midnight blue pearl effect	39 C*
Amethyst pearl effect	38 A
Amethyst pearl effect	83 K*
Amazon green pearl effect	37 Z
Amazon green pearl effect	39 A

\* = Water-base paints

Water base paints are applied exclusively by the manufacturer during production spraying. For repair of water-base paints, conventional respray paints matching the color of the original paint are used. I.e. the only prerequisite for resprays is that the correct respray paint is used (refer to Paint Manual, page L3 - 25). Color differences due to paint application do not occur.

## Body Paint Colors Beginning With 1992 Models

### Standard Colors:

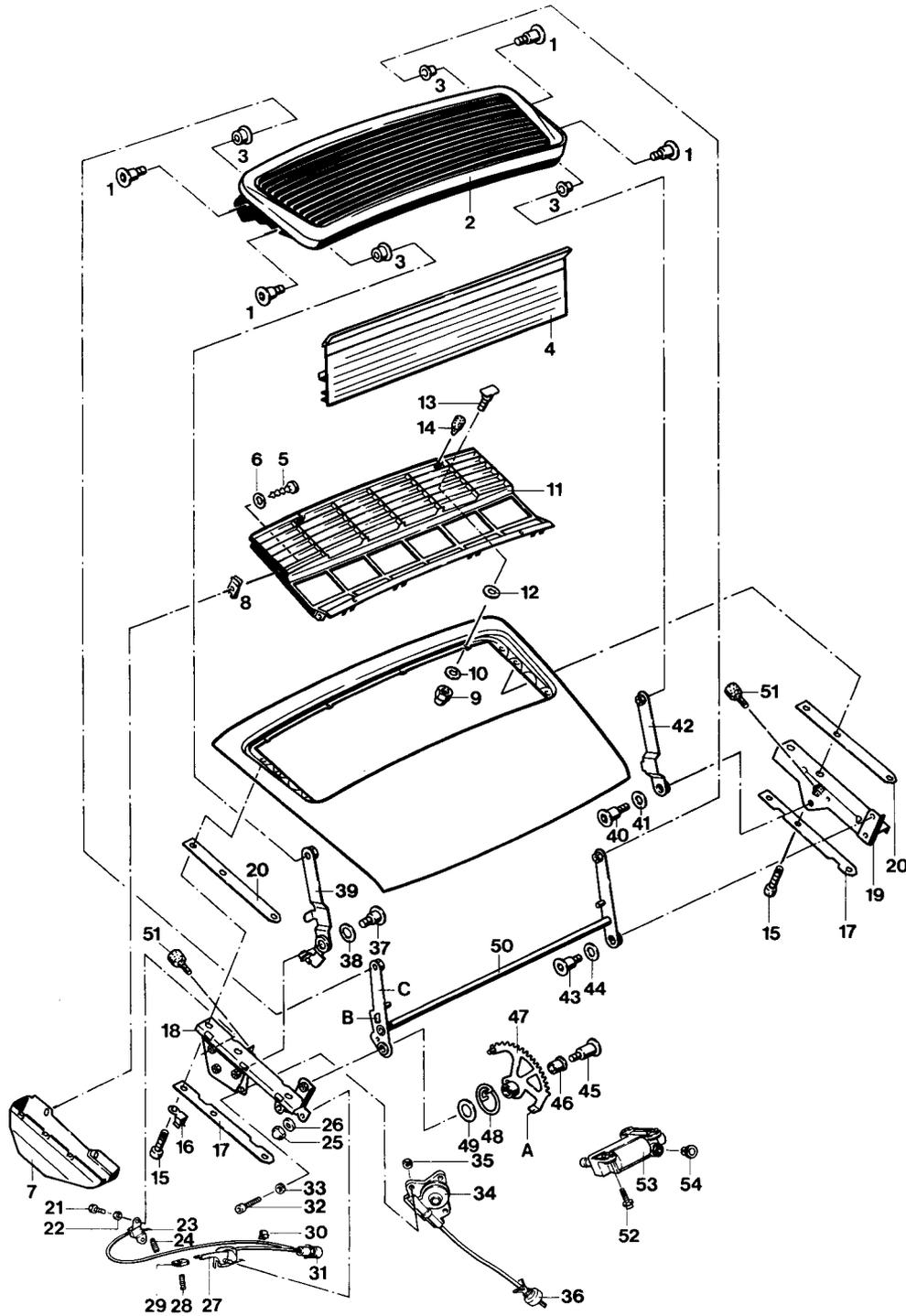
Grand Prix white	908
Black	700
Maritime blue	38B
Indian red	80K
Signal green	22S
Mint green	22R
Rubystone red	82N

### Special Colors:

Polar silver metallic	92 E
Polar silver metallic	92 M*
Horizon blue metallic	37 X
Cobalt blue metallic	37 U
Oakgreen metallic	22 L
Slate gray metallic	22 D
Slate grey metallic	23 F*
Coral red metallic	82 H
Black pearl effect	738
Midnight blue metallic	37 W
Midnight blue metallic	39C*
Amethyst pearl effect	38 A
Amethyst pearl effect	83 K*
Amazon green pearl effect	39 A

\* = Water-base paints

### Removing and Installing Rear Spoiler



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No.	Description	Qty.	Note When:	
			Removing	Installing
1	Shaft bolt, micro-encapsulated M 6 x 24	4		Replace
2	Rear spoiler	1		
3	Bearing sleeve 17 x 7 POM	4	Press out toward inside	
4	Rear wall	1		Insert between rear spoiler (2) and air inlet grill (11)
5	Oval hd. self-tapping screw B 4.2 x 9.5	2		
6	Washer A 4.3	2		
7	Cover	1		
8	Self-tapping nut B 4.2	2		
9	Capped nut M 5	8		
10	Washer A 5.3	8		
11	Air inlet grill	1		Align air inlet grill (11) to contour of the rear lid after installation
12	Washer 9 x 15 x 2	8		
13	Screw M 5 x 8 x 13.5	8		
14	Stop for rear spoiler	4		
15	Fillister head screw M 6 x 15	8		
16	Electric lead holder	1		
17	Liner	2		

No.	Description	Qty.	Note When:	
			Removing	Installing
18	Take-up plate	1		
19	Take-up plate	1		
20	Liner	6		The distance between the rear spoiler and rear lid can be adjusted by inserting liners (up to 3 on each side) between the take-up plates and rear lid.
21	Hexagon head screw M 5	2		
22	Washer A 5.3	2		
23	Microswitch	1		See adjusting rear spoiler
24	Stud	1		
25	Hexagon nut M 5	1		
26	Washer A 5.3	1		
27	Microswitch	1		See adjusting rear spoiler
28	Stud	1		
29	Plate nut	1		
30	Electric lead terminal	3		
31	Plug	1		Produce plug connection on wire harness
32	Fillister head screw M 6 x 12	3		
33	Washer A 6.4	3		

No.	Description	Qty.	Note When:	
			Removing	Installing
34	Gearbox	1		Teeth of gearbox (34) must engage in teeth of arced tooth element (47)
35	Hexgon nut BM 6	3		
36	Input shaft	1		Insert input shaft (36) with sleeve for gearbox motor (54) in gearbox motor (53)
37	Shaft bolt, micro-encapsulated M 6 x 19	1		Replace
38	Washer, black	1		
39	Lever	1		
40	Shaft bolt, micro-encapsulated M 6 x 19	1		Replace
41	Washer, black	1		
42	Lever	1		
43	Shaft bolt, micro-encapsulated M 6 x 17	1		Replace
44	Washer, black	1		
45	Shaft bolt, micro-encapsulated M 6 x 27	1		Replace
46	Bearing sleeve 16 x 18.5 POM	1		

No.	Description	Qty.	Note When:	
			Removing	Installing
47	Arced toothed element	1		Insert tab (A) of arced toothed element (47) in opening (B) of guide lever (C) on linkage (50)
48	Spring	1		
49	Washer, black	1		
50	Linkage	1		
51	Pad 5 x 10 x18.5	2		
52	Combination screw M 6 x 18	3		
53	Gearbox motor	1		
54	Sleeve for gearbox motor	1		
A	Tab on arced tooth element	1		
B	Opening in guide lever	1		
C	Guide lever on linkage	1		

## Adjusting Rear Spoiler

The rear spoiler running out and running in travel can be limited and therefore adjusted by determining the switching points of two micro-switches.

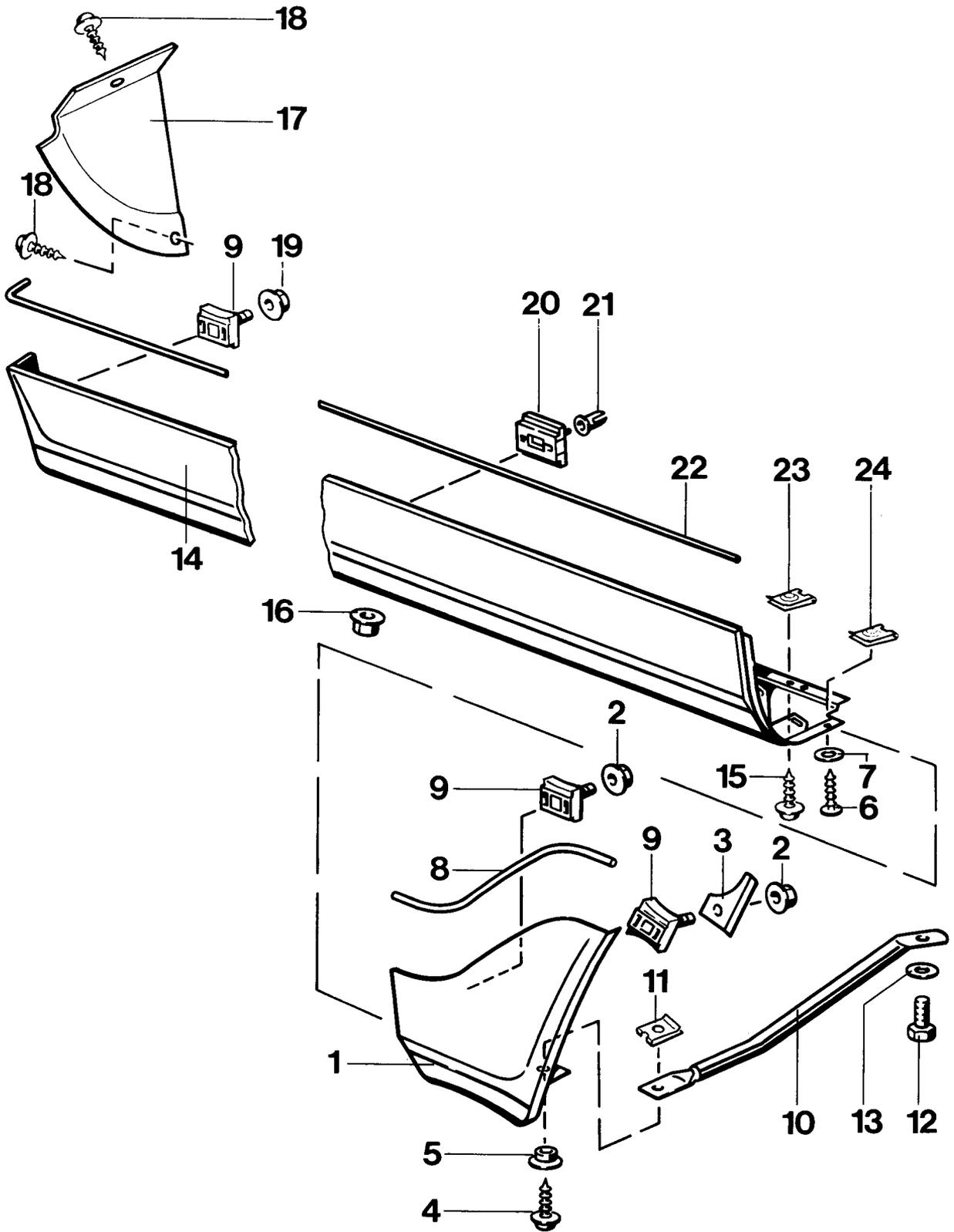
### Adjusting Micro-switch for Spoiler Running In

Operate the service switch to run in the spoiler until tab (A) of the arced tooth element (47) is disconnected in opening (B) of guide lever (C). Unscrew hexagon nut (25). Adjust the switching point of micro-switch (27) on stud (28). Tighten hexagon nut (25) again. Recheck adjustment by operating the service switch.

### Adjusting Micro-switch for Spoiler Running Out

Operate the service switch to run out the spoiler until lever (39) touches pad (51). Adjust the switching point of micro-switch (23) on stud (24). Recheck adjustment by operating the service switch.

### Removing and installing the sill cover

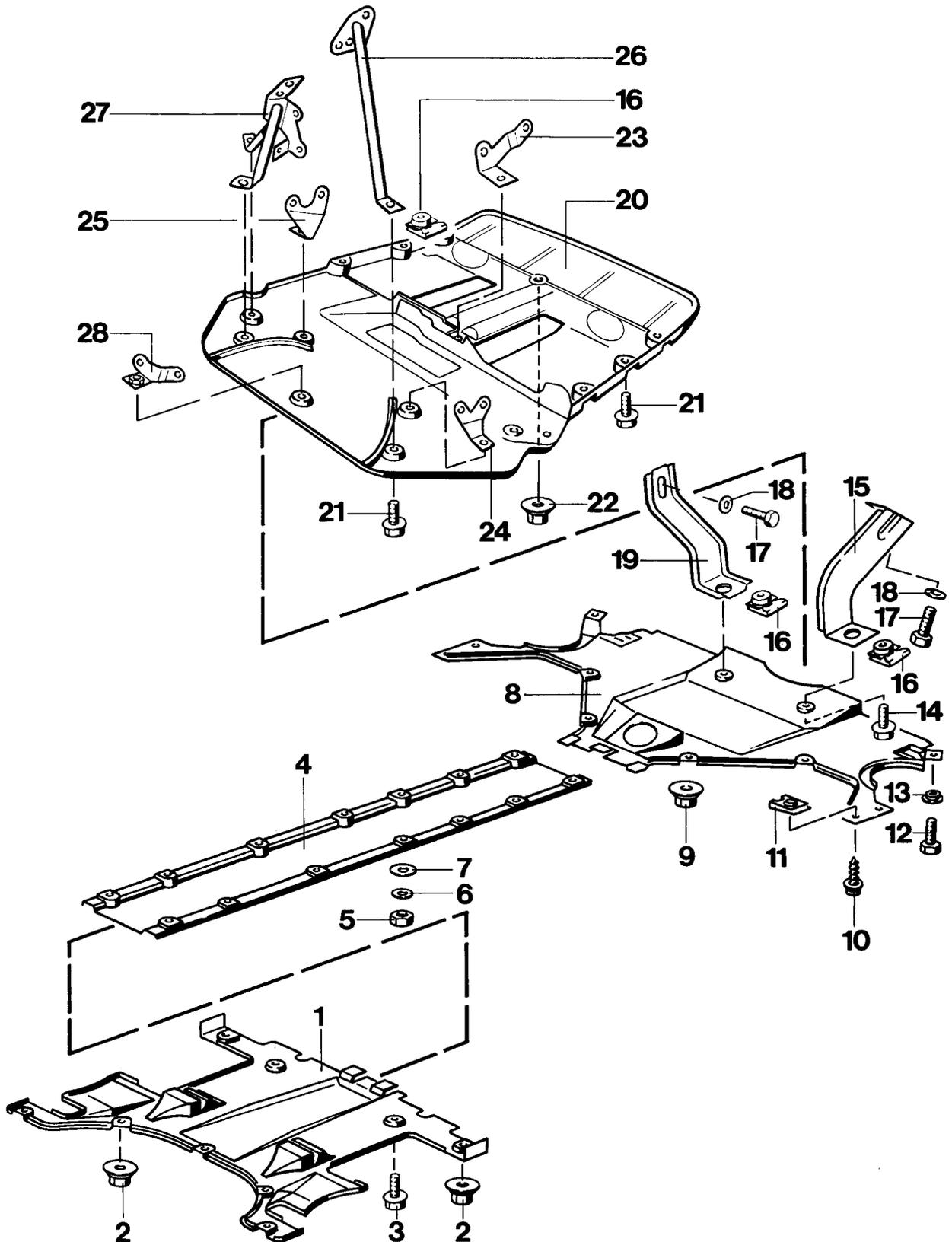


## Removing and installing the sill cover

No.	Description	Qty.	Note when:	
			Removing	Installing
1	Sill cover	2		
2	Plastic nut	4		Check, replace if necessary
3	Clamping piece	2		Ensure correct seating
4	Sheet metal screw with washer assembly 4.8 x 16	2		
5	Spacer disk	2		
6	Sheet metal screw 4.8 x 16	2		
7	Plain washer A 5.3	2		
8	Cover strip	2		Replace if necessary
9	Holder with self-tapping screw	4	Tension the holder by inserting a screwdriver and unclip with a second screwdriver	Clip in
10	Support	2		
11	Plate nut 4.8	2		Adjust to hole center
12	Hexagon screw M 6 x 16	2		
13	Plain washer B 6.4	2		
14	Sill cover	2	Unclip from grommet	
15	Sheet metal screw with washer assembly 4.8 x 16	4		
16	Plastic nut	8		Check, replace if necessary
17	Cap for sill cover	2		

No.	Description	Qty.	Note when:	
			Removing	Installing
18	Sheet metal screw with washer assembly 4.8 x 19	4		
19	Plastic nut	2		Check, replace if necessary
20	Clip	8	Tension the clips by inserting a screwdriver and unclip with a second screwdriver	Check, replace if necessary
21	Grommet	8		Check, replace if necessary
22	Cover strip	2		Check, replace if necessary
23	Plate nut 4.8	2		Check, replace if necessary
24	Plate nut 4.8	4		Check, replace if necessary

Removing and installing the underbody cladding



## Removing and installing the underbody cladding

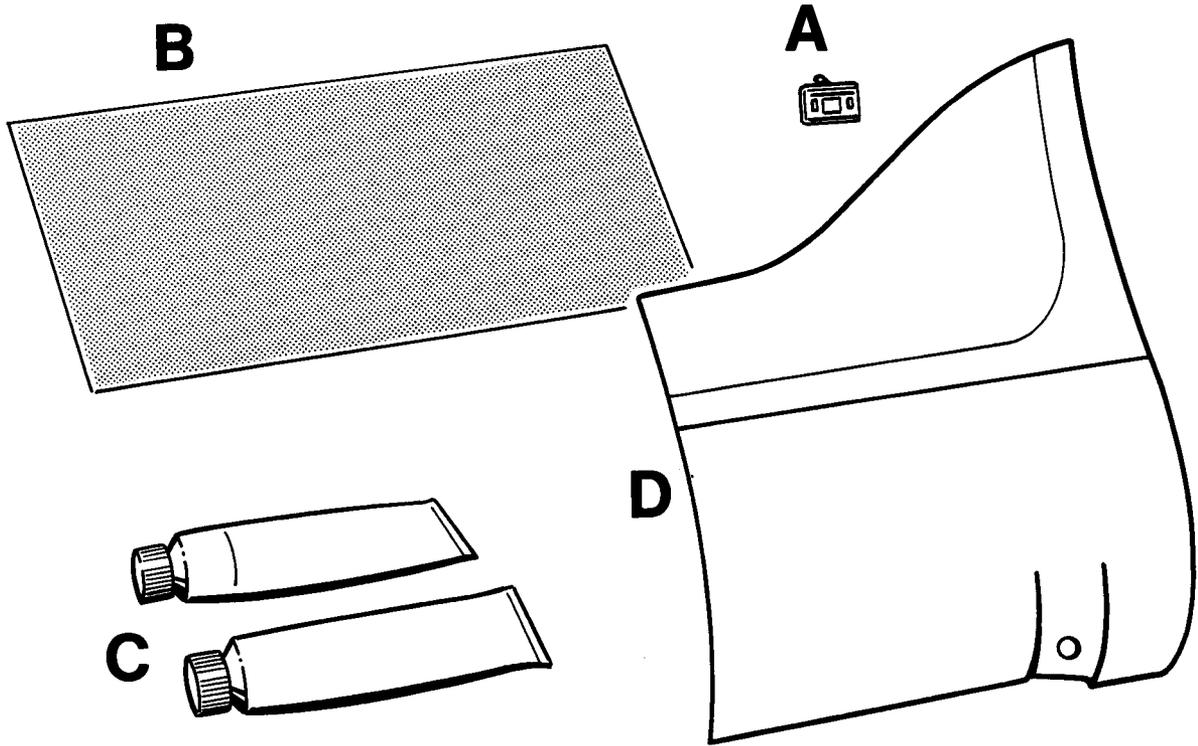
No.	Description	Qty.	Note when:	
			Removing	Installing
1	Underbody cladding, front	1		Fit together with underbody cladding, center
2	Plastic nut	7		Check, replace if necessary
3	Screw with washer assembly M 6 x 12	2		
4	Underbody cladding, center	1		Fit together with underbody cladding, transmission
5	Hexagon nut M 6	14		
6	Plain washer B 6.4	14		
7	Washer 9.5 x 22 x2	14		Check, replace if necessary
8	Underbody cladding, transmission	1		Secure at holder, left (15) and holder, right (19)
9	Platic nut	4		Check, replace if necessary
10	Screw with washer assembly 4.8 x 16	4		
11	Plate nut 4.8			Check, replace if necessary
12	Hexagon screw M 6 x 16	2		
13	Spacer disk	2		
14	Screw with washer assembly M 6 x 16	2		
15	Holder, left	1		Secure at gusset plate, rear axle transverse tube

No.	Description	Qty.	Note when:	
			Removing	Installing
16	Nut holder	2		Check, replace if necessary
17	Hexagon screw M 6 x 16	3		
18	Plain washer A 6.4	3		
19	Holder, right	1		Secure at gusset plate, rear axle transverse tube
20	Underbody cladding, engine	1		Secure at the holders 23 to 27 and with the mounting points on the engine encapsulation
21	Screw with washer assembly M 6 x 20	14		
22	Locking nut M 6 with fixed washer	1	Must not be used again after dismantling	Must be replaced by a new part for installation of the underbody cladding, engine
23	Holder on engine, front	1	Need not be removed for dismantling the underbody cladding, engine	
24	Holder on transmission, bottom left	1	Need not be removed for dismantling the underbody cladding, engine	
25	Holder on transmission, bottom right	1	Need not be removed for dismantling the underbody cladding, engine	
26	Holder on transmission, top left	1	Need not be removed for dismantling the underbody cladding, engine	

No.	Description	Qty.	Note when:	
			Removing	Installing
27	Holder on transmission, top right	1	Need not be removed for dismantling the underbody cladding, engine	
28	Holder on transmission, bottom center	1	Need not be removed for dismantling the underbody cladding, engine	

## Bonding retainer bracket to side member panel

For the "Bonding retainer bracket to side member panel" repair operation, the following parts and adhesives are required:



1075 - 66

A = Retainer bracket

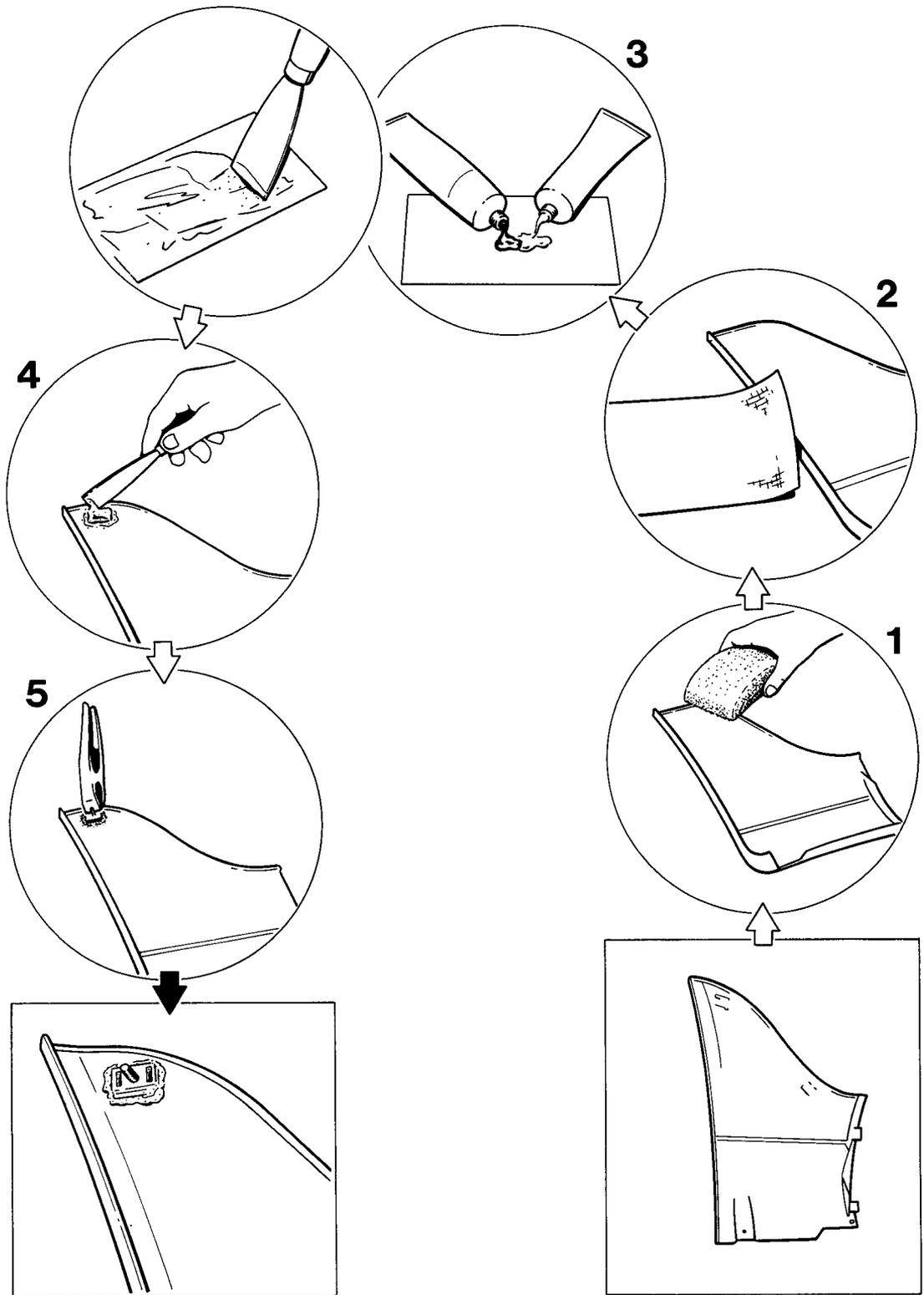
B = Emery paper

C = 2-pack adhesive (999.915.359.40)\*

D = Side member panel

\* = Porsche part no.

Bonding retainer bracket to side member panel



## Bonding retainer bracket to side member panel

No.	Operation	Instructions
1	Clean side member panel	Clean side member panel thoroughly with some water.
	Align retainer webs	Align broken-off retainer webs according to the contours. <b>Note: Do not remove the remains of the broken retainer webs!</b>
2	Coarsen bonding surfaces	Coarsen bonding surfaces in the area of the broken retainer webs of the side member panel (D) using some emery paper (B) with P 120 grit. Coarsen bonding surface of retainer bracket (A) with emery paper (B), P 120 grit.
	Clean bonding surfaces	Clean prepared bonding surfaces with some water.
3	Mix adhesive	Press equal lengths of beads of adhesive components A and B from tubes (length approx. 2 cm each, giving a <b>mixing ratio</b> of 1 : 1) and mix uniformly. <b>Caution: Curing time is approx. 8 minutes!</b>
4	Apply adhesive	Apply a thick layer of mixed adhesive onto the side member panel in the area of the broken retainer webs and on the retainer bracket.
5	Bond retainer brackets in place	Position retainer brackets in correct position with regard to body hole on side member panel and clamp in place for approx. 20 to 30 minutes using suitable clamps.

**Note: The side member panel may be refitted to the vehicle after approx. 2 hours!**

## Safety Precautions for Working on Cars with Airbag

Airbag units are pyrotechnical items of Danger Class T 1. Handling, transportation and storage are subjected to the legislation for explosives.

The mentioned legislative measures refer to the Federal Republic of Germany. Always conform with the pertinent legislation in other countries.

The beginning of work on pyrotechnical items must be reported to the Trade Supervisory Office (official authorities) 14 days in advance.

### Shipping

The shipment of airbag units may only take place in the officially approved packaging for transportation. Airbag units may not be transported together with other dangerous items.

Within a company transportation is only permitted in the trunk or cargo room of a vehicle with use of the above mentioned packaging for transportation. Transportation in the passenger compartment is forbidden.

### Storage

Storage of airbag units must be in conformance with the second ordinance of the legislation for explosives. According to this ordinance small amounts of substances and items may be stored at certain locations without a special storage permit. For pyrotechnical items of Danger Class T 1 this would be max. 20 kg (gross) in a workroom or max. 200 kg (gross) in a storeroom. Airbag units must be stored locked.

When storing airbag units it is very important to make sure that the padded sides face up (danger of injury from an ejected airbag unit in case of accidental ignition).

Airbag units may not be stored together with other products in danger classification (paint, etc.).

## Installation and Repairs

Testing and installing may only be carried out by qualified personnel.

The following precautionary measures are always mandatory prior to working on the airbag system as well as work on neighboring parts, where there is danger that power supplying parts could get too close to the airbag system.

1. Turn off ignition
2. Disconnect and cover battery ground pole.

After disconnecting the battery installation or repairs on the vehicle with use of a hammer or similar tools may first be begun **only after waiting time of 20 minutes\***. This is necessary to interrupt power supply of the airbag system and to guarantee that accidental ignition is not possible.

Installation of airbag units must commence immediately after removal from the location of storage. Under no circumstances may they be left unattended. Airbag units must be placed under lock immediately when installing procedures are interrupted.

Airbag units must never have contact with grease, oil, cleaning solutions or similar products.

Airbag units must never be subjected to temperatures above 90° C (195° F), not even briefly.

\* As of software level B 01, the waiting time is reduced to 5 minutes.

The software level may be called up with the System Tester.

Airbag units, crash sensors and control units, which have fallen from a height of more than 0.5 meter (1.5 feet), may no longer be installed.

Additional trim, labels or anything similar may not be installed on the steering wheel or in the area of the front passenger's airbag.

No modifications or changes may be made on the wiring and components of the airbag system.

The battery must always be disconnected before beginning with straightening and welding work with use of an electric welder.

If welding is required in the immediate vicinity of crash sensors and control, these parts must be removed first.

Airbag components may never be repaired; they must always be replaced.

### Note

Hands must always be washed thoroughly after touching triggered airbag units.

## Scrapping Airbag Units

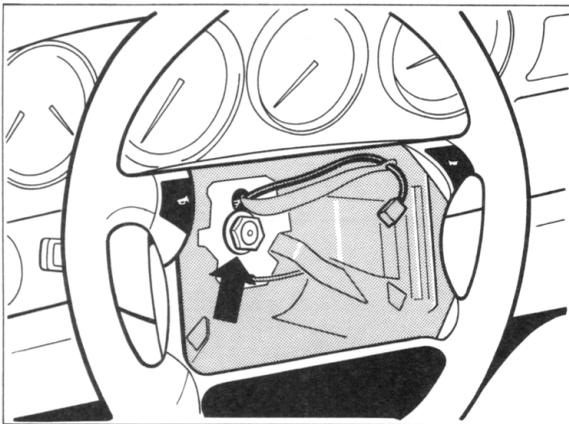
Non-ignited airbag units are potential danger and also an environmental hazard. Don not scrap non-ignited airbag units until they have been ignited electrically to render them harmless (see page 68 - 13).

If the airbag units cannot be ignited, return them to the Porsche company or the relevant importer in their original spare part shipment packing and by the same method of transport.

## Removing and Installing Airbag Steering Wheel

### Removing

1. Disconnect battery and cover pole or battery.
2. Remove driver's airbag unit (see page 68 - 4).
3. Unscrew and remove hexagon nut with the spring washer.



276-68

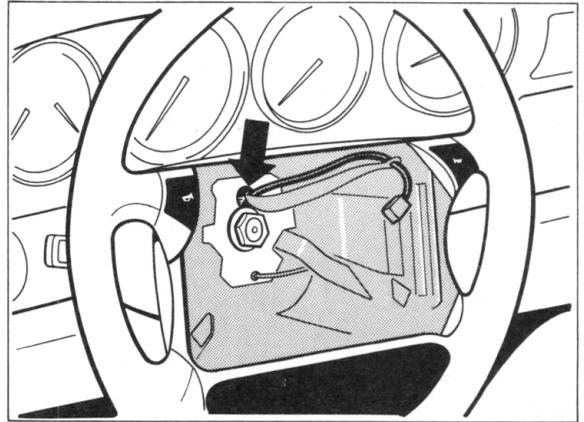
4. Mark position of steering wheel to steering shaft for reinstallation.

### Installing

1. Mount steering wheel in straight ahead position of the road wheels or according to the removal marks in such a manner, that the upper steering wheel spokes are horizontal.

### Note

Steering wheel must be mounted in such a manner that electric leads of the contact unit are not pinched.



276-68

2. Install hexagon nut with spring washer and tighten with 45 Nm (32.5 ft. lbs.).
3. Install driver's airbag unit.
4. Check function of horn.

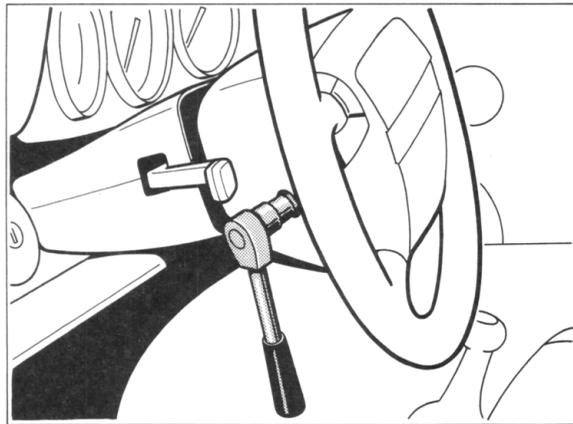
## Removing and Installing Airbag Components

### Removing and Installing Driver's Airbag Unit

1. Disconnect battery and cover pole or battery.
2. Unscrew two mounting screws with a Torx T 30 screwdriver socket.

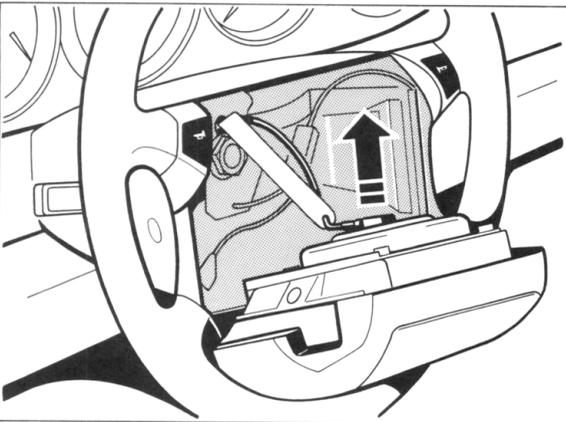
#### Note

Screws must be replaced each time they are loosened. Only use screws with a collar from 1990 models on.



273-68

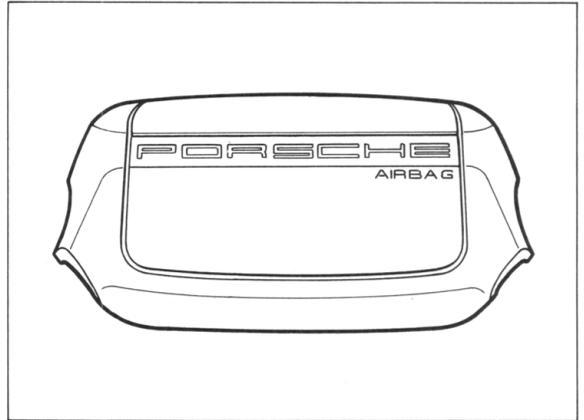
3. Disconnect plug.



274-68

#### Note

The airbag unit must always be laid aside in such a manner that the padded side faces up.



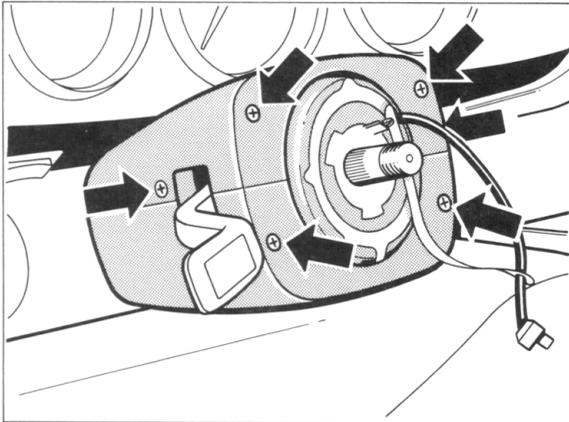
275-68

Airbag units must be placed under lock when removed for a long time. Confrom with the safety precautions.

Tightening torque for mounting screws:  
10 Nm (7 ft. lbs.).

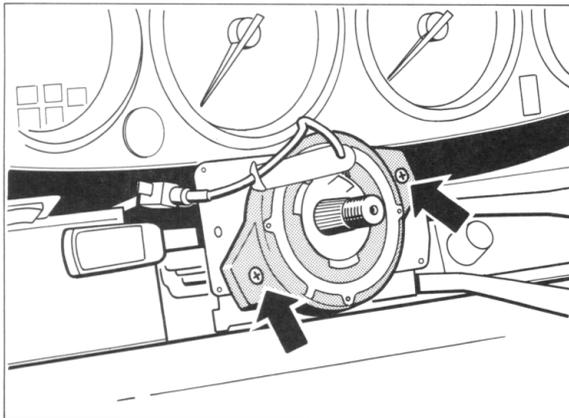
## Removing and Installing Contact Unit

1. Remove airbag steering wheel (see page 68 - 3).
2. Loosen and take off trim panel.



277-68

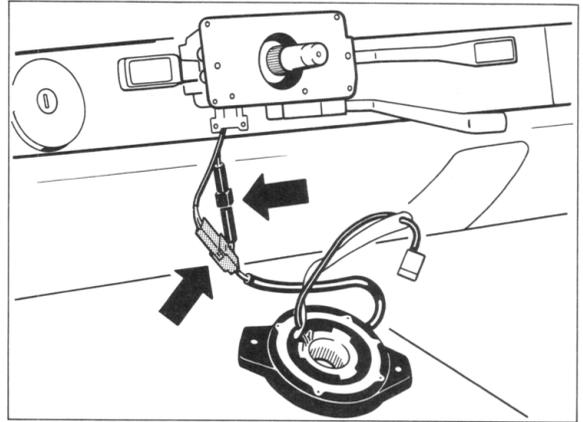
3. Unscrew mounting screws.



278-68

4. Take off contact unit and pull out connection leads.

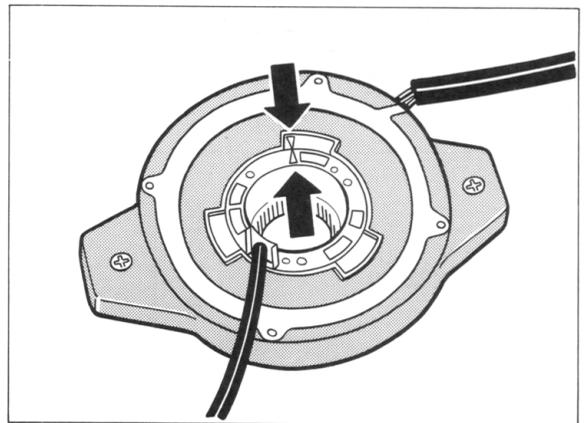
5. Disconnect plug.



279-68

### Note

Turn front wheels to straight ahead position and move the contact unit to center position (about 4 1/2 turns from left or right final stop) prior to installation of the contact unit. The precise center position is indicated by both arrows.



280-68

A new contact unit is arrested in center position. The arrest is removed only after installation of the contact unit.

## Removing and Installing Crash Sensors

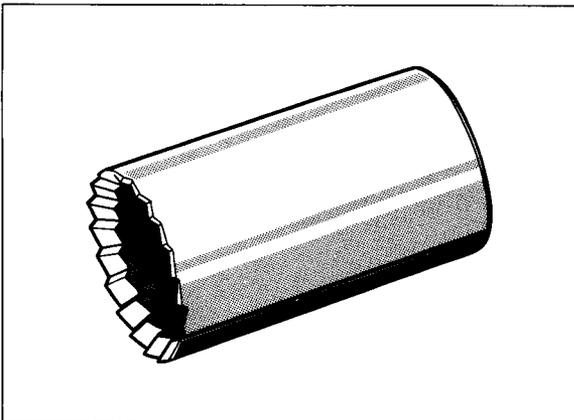
### Note

Crash sensors are mounted in the luggage compartment on left and right sides in front of the spring strut domes.

The installed position is given by installation.

Plugs are located at the left on the firewall and at right below the central electric board.

1. Disconnect battery and cover pole or battery.
2. Disconnect plug.
3. Unscrew shear-off nuts with Special Tool 9259.



281-68

Special Tool 9259

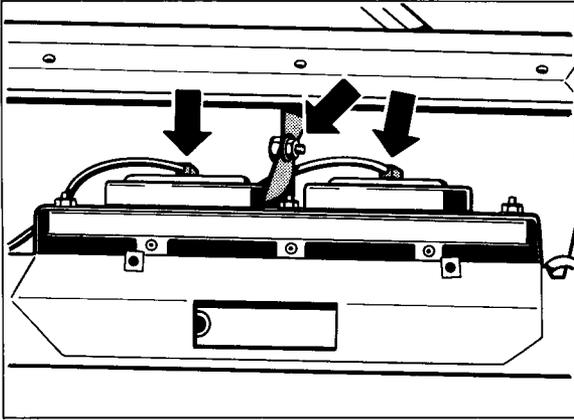
### Note

Use a 1/4 inch socket to tighten the shear-off nuts.

Mounting points on the body must show blank metal.

## Removing and Installing Passenger's Airbag Unit

1. Disconnect battery and cover pole or battery.
2. Remove glove box.
3. Pull off plugs on unit.



282-68

4. Unscrew M 8 mounting bolt.
5. Remove radio and holding frame.
6. Remove heater/air conditioner controls and holding frame.

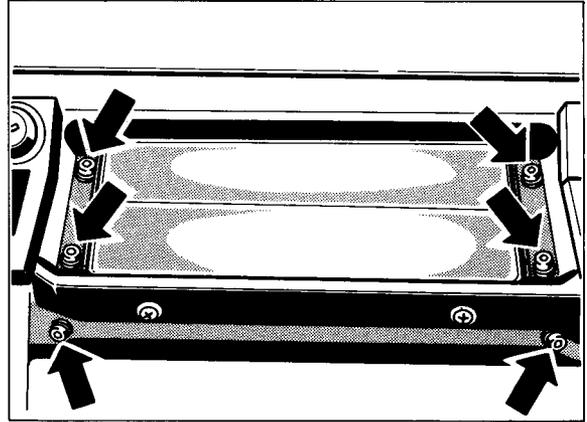
### Note

There is one each screw for the knee guard underneath the holding frames.

7. Remove ashtray.
8. Remove knee guard.
9. Remove bottom airbag flap (3 screws).

10. Remove top airbag flap (4 screws). Press flap forward after loosening the 4 screws and pull it out downward (flap is attached on a brace).

11. Unscrew mounting screws (5 mm hexagon socket).



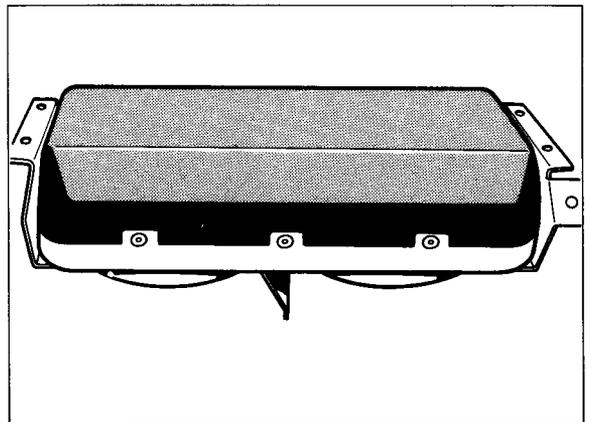
283-68

### Note

The hexagon socket head screws are micro-encapsulated. Use new screws for installation. **Tightening torque: 6 Nm (4.3 ft. lbs.).**

12. Remove airbag unit downward.

Always lay the airbag unit aside in such a manner that the airbag faces up.



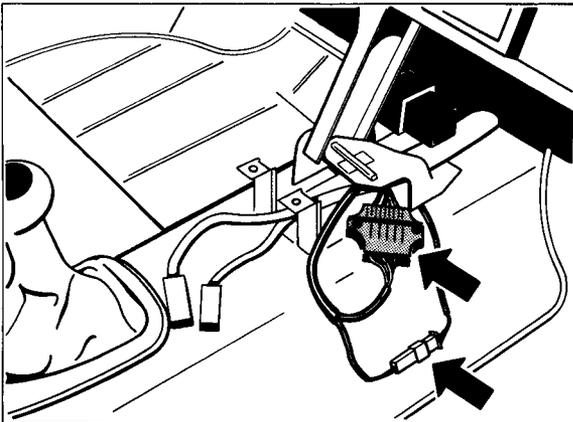
284-68

## Removing and installing control unit

### Note

The control unit is fitted to the transverse wall behind the center console.

1. Disconnect battery and cover terminal and battery, respectively.
2. Remove center console.
3. Remove glove compartment.
4. Remove Central Electrical System.
5. Disconnect connectors for left-hand front sensor, contact unit, right-hand front sensor, passenger airbag unit, 2-pin and 6-pin connectors for main wiring harness.



285-68

2-pin and 6-pin connectors below center console.

### Note

The 6-pin connector is locked by an orange clamp that is destroyed when the connector is removed. When reinserting the connector, lock the connector with a blue clamp.

6. Route connecting leads to front sensors back into passenger compartment.
7. Disconnect tie-wraps along harness.
8. Remove shear-off nuts with Special Tool 9259.
9. Remove hexagon nuts with socket key insert.

### Note

Fit shear-off nuts in a diagonal pattern.

10. Remove control unit complete with water protection cap.

### Note

The attachment points at the body must be cleaned down to bare metal.

To tighten the shear-off nuts, use a 1/4 inch socket head wrench.

The shear-off nuts are fitted without washers. The M6 hexagon head nuts are fitted with A 6.4 DIN 125 washers.

Tightening torque - M 6 nut: 10 Nm (7 ftlb)

## Checking Airbag System Operation

1. Functional check of airbag warning lamp.  
Turn on ignition. The airbag warning lamp must light up for approx. 5 seconds\*. If the warning lamp remains dim, check bulb and/or supply voltage.
2. Functional check of error memory.  
Turn on ignition and pull off fuse for instrument voltage supply for approx. 30 seconds. The airbag warning lamp must no longer indicate an error.  
Read off error and check if error code 58\*\* (warning lamp: short to UB or ground, error not present) is displayed.

### Note

The central warning lamp and the Fasten Seatbelt symbol (US models only) must light along with the airbag warning lamp if an error is stored in the error memory.

3. Erase error memory.
4. Make sure that no covers, decals or similar items are fitted at the steering wheel and in the passenger airbag area.
5. Check components visually for damage and modifications.
6. After checking the system, confirm the check in the appropriate fields of the warranty and service booklet.

\* As of manufacturing date June 11, 1992, the switchon time of the airbag warning lamp is reduced to approx. 2.5 sec.

\*\* As of software level B 01:30 (Airbag warning lamp: Signal implausible, not present).

## Center Console / Information about Axial and Lateral Acceleration Sensors

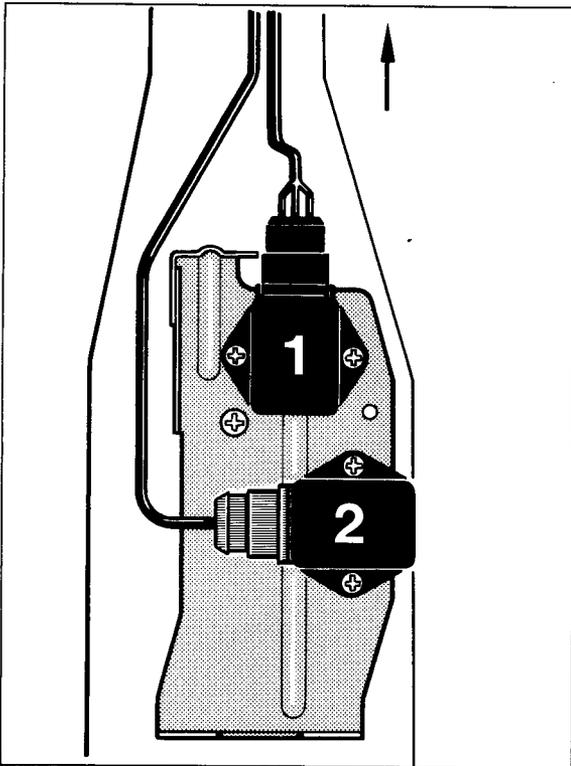
If applicable, conform with the following points when working near the center console.

### Location

The sensors are installed on a sheet metal console on the tunnel underneath the center console. These sensors are required for all wheel drive and antiblock systems.

1 - Lateral acceleration sensor

2 - Axial acceleration sensor



290-45

### Installation

Always conform with the following points when installing:

1. Park car on level ground (level floor).
2. Check levelness of the sheet metal console with a bubble level. Replace a bent sheet metal console.
3. Connecting leads must **not** be mixed up. Plug receptacles have different colors for identification.  
**Black** plug receptacle for the lateral acceleration sensor.  
**Gray** plug receptacle for the axial acceleration sensor.
4. Sensors must not be subjected to any type of extreme acceleration such as from throwing, falling or knocking.
5. Sensors must always be inspected after an accident. Sensors must be replaced if they are not within specifications.

### Checking

Checking is required to guarantee the following points.

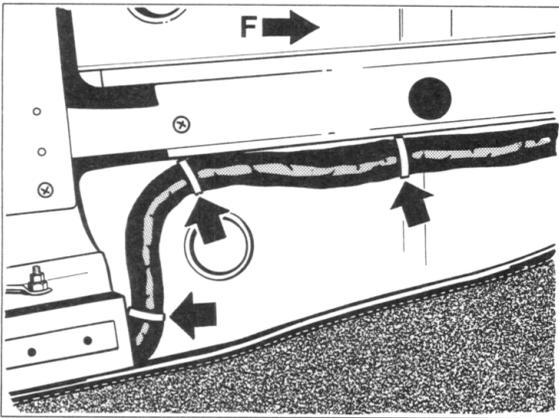
- Correct location (position) of sensors
- Function of sensors
- Electric leads (plugs) connected on the correct sensor (mix-up test)

Testing is described in Rep. Gr. 45 (Volume IV – Chassis).

## Right-hand front floor sound deadening

Starting with MY '92, a new floor sound deadener for the right-hand front side was introduced. Only the new floor sound deadening is henceforth supplied as a spare part. For this reason, the wiring harness must be rerouted on all vehicles made prior to MY '92.

1. Detach carpeting from sound deadening.
2. Remove sound deadening.
3. Remove tie-wrap.

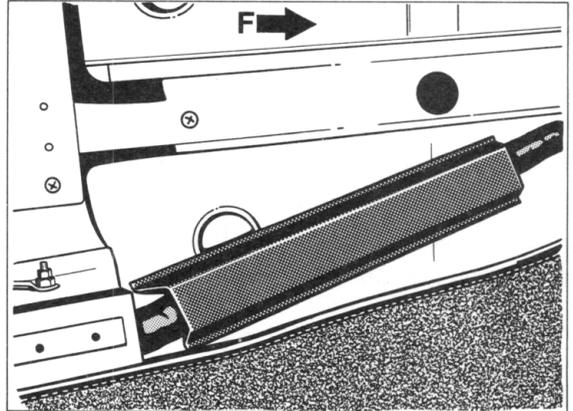


953-68

*F* = direction of travel

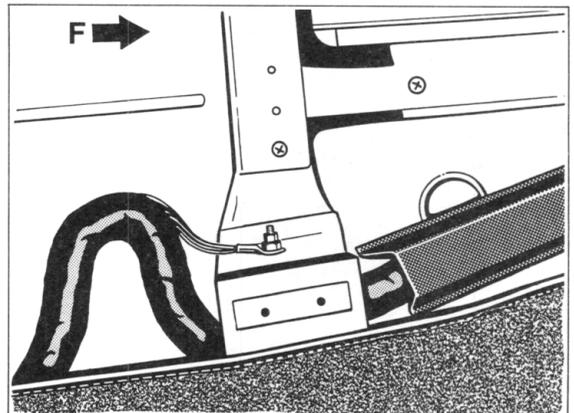
4. Route wiring harness diagonally.

5. Place wiring cover on wiring harness.



954-68

6. Route excess length of wiring harness below seat.



955-68

## Inspecting Seat Belts

### Checking Function

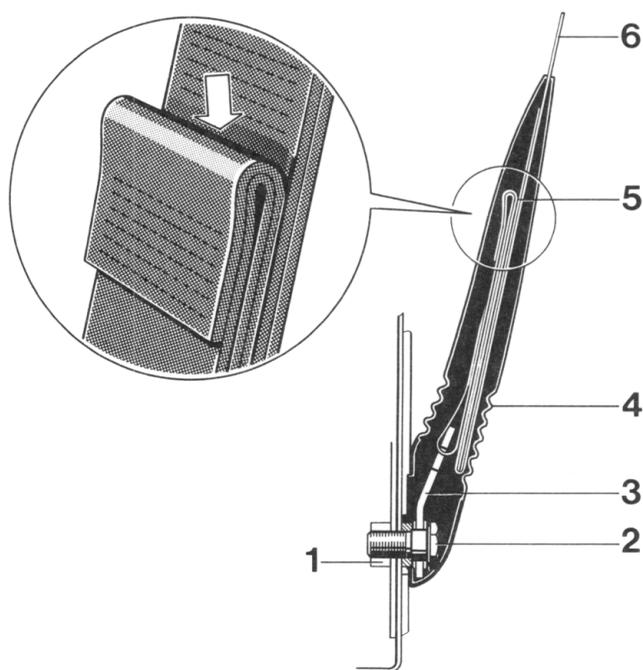
It must be possible to have the belt strap roll off of the automatic reel via the reversing fitting without hesitation when pulling the seat belt uniformly and the tongue of the seat belt must be heard engaging in the belt lock. The automatic reel must lock when the seat belt strap is pulled suddenly.

### Checking Condition

A visual inspection of the seat belt must not produce any damage or signs of wear on the belt strap. The seat belt must be replaced, if the belt strap is damaged in the form of cuts, fringing, torn seams, rubbing spots or similar conditions.

### Additional Checking for Seat Belts with Overload Indicators (Tear Seams) – Airbag Equipment

The tear seam on the belt strap above the holder must not be damaged in addition to the fact that these seat belts must have perfect function and condition. The tear seam serves as an overload indicator, which reports an overloaded condition and therefore the necessity to replace a seat belt.



- 1 = Anchorage point for holder
- 2 = Anchorage bolt
- 3 = Holder
- 4 = Plastic cap
- 5 = Indicator (tear seam)
- 6 = Belt strap

68-261

## **Correct disposal of airbag units**

Airbag units are pyrotechnic objects and can represent an environmental hazard on account of their character as explosion-risk bodies and because of the materials they contain.

For this reason, airbag units which have not yet been ignited, or complete vehicles containing such units must not be treated as "normal" waste or disposed of on any other final refuse dumps.

To avoid possible misuses, the airbag units must first be rendered harmless by electrical ignition, making sure that all the relevant precautions are complied with.

In the case of airbag units incapable of igniting or if ignition cannot be carried out in safety, the airbag units must in all cases be returned to Porsche or to the relevant importer in their original spare part packs and by the usual transport channels.

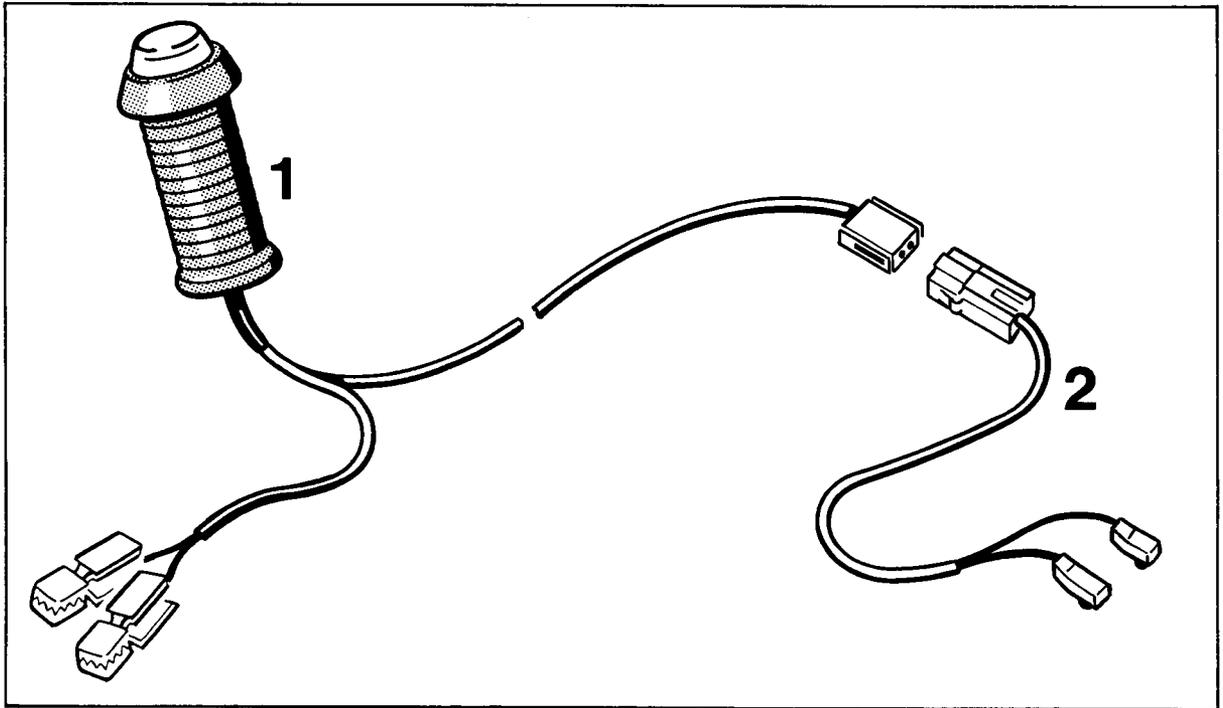
### **Note**

Any specific local or national regulations or legal verdicts which go beyond these instructions must be complied and given preference over these instructions.

## Safety measures

- Ignition and preparation should only be carried out by properly qualified personnel under the supervision of a second, responsible person.
- All other generally applicable accident prevention regulations must be complied with.
- Only ignite airbag units which are in original condition and properly installed.
- Ignite airbag units only in suitable open spaces.
- Use only the ignition equipment specifically intended for the purpose.
- First remove all loose objects from the airbag expansion area.
- Anyone likely to be affected should be warned about the noise in advance.
- Use the whole length of the ignition device's cable in order to maintain a safe distance from the airbag unit which is to be ignited.
- Do not connect the ignition device to the power source until everything else is ready.
- Position yourself and anyone else involved in front of the vehicle.
- Ignite the airbag unit with the vehicle's doors closed but the tailgate/trunk lid or side windows open.
- If ignition fails to occur, do not approach the vehicle until approx. 3 minutes have elapsed.
- Allow airbag units to cool down after ignition and observe them carefully.
- Avoid skin contact with airbag units which have been ignited.

## Tools



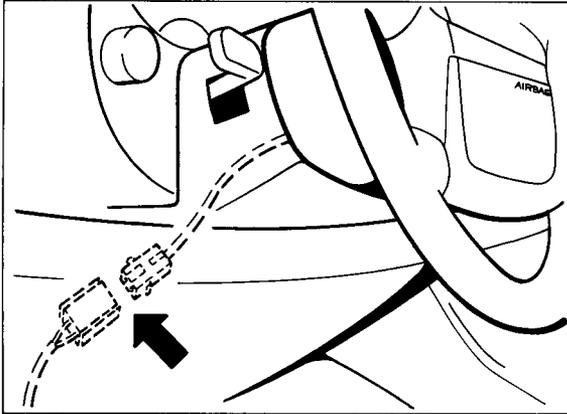
579-68

No.	Designation	Special tool	Order number	Explanation
1	Ignition device	9257*	000.721.925.70	
2	Ignition cable	9257/1*	000.721.925.71	Non-reusable part

\* Order as required

## Connecting the ignition device

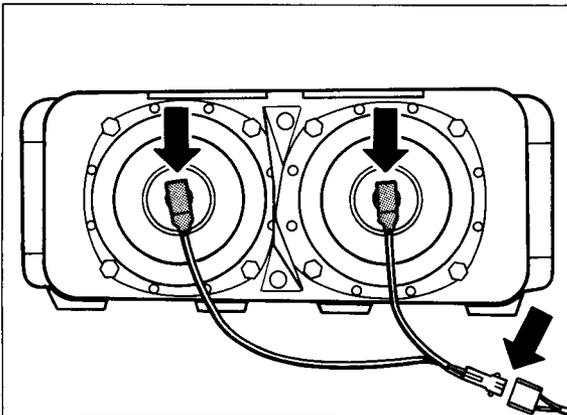
### Driver's side



580-68

Direct to 2-pin plug of contact unit  
(below steering column).

### Passenger's side

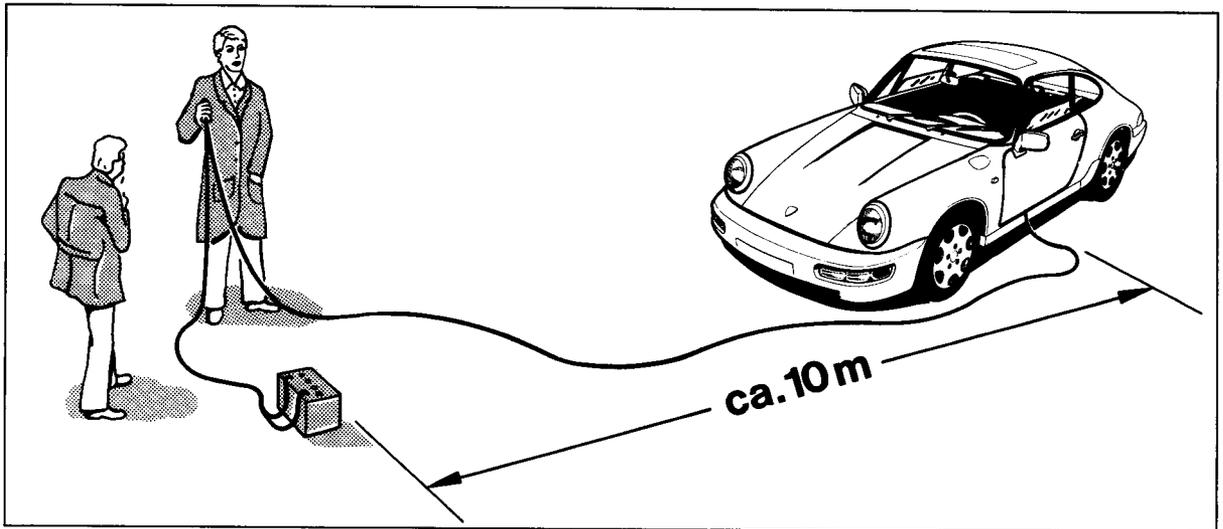


581-68

With ignition cable to both gas generators.

Run the ignition device out through the door  
gap to a point in front of the vehicle.

## Ignition



582b-68

Connect the ignition device to a car battery and operate the switch.

### Note

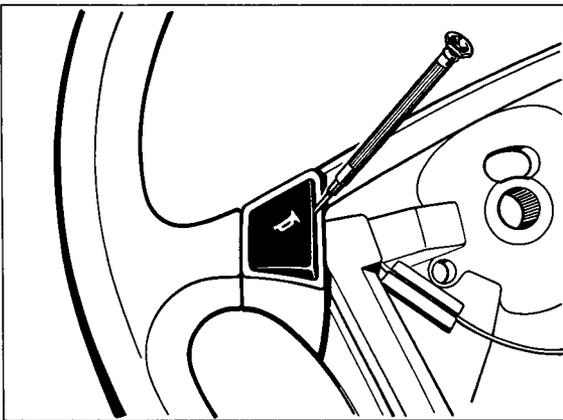
The driver's side and passenger's side airbag units must be ignited separately.

After igniting the passenger's side airbag unit, check that both gas generators have ignited (can be identified by both ignition cable plugs having melted).

## Repairing horn buttons on airbag steering wheel

### Removal

1. Remove airbag steering wheel (refer to page 68-3).
2. Lever out horn button with a small screwdriver.



718-68

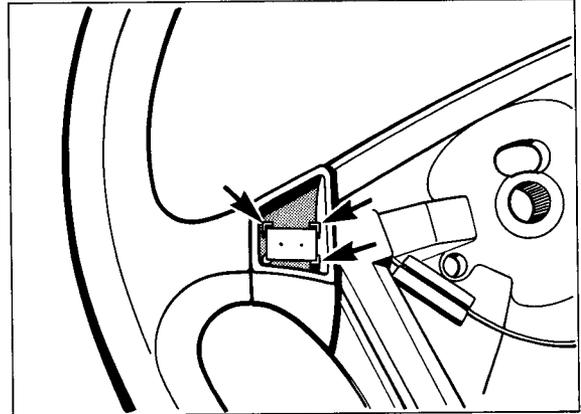
3. Take out contact spring.

### Installation

#### Note

The silver contact in the middle of the contact spring must point downwards.

4. Insert contact spring into the guides.



718-68

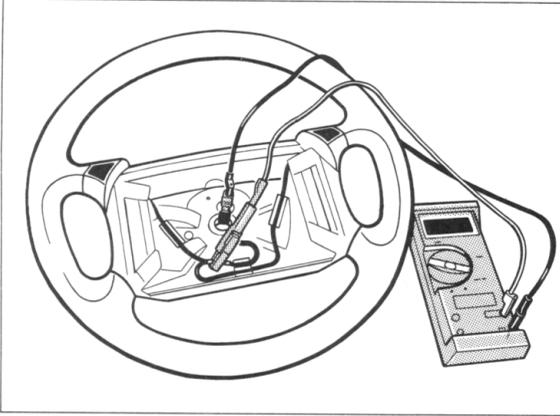
5. Engage horn button starting with the upper retaining lug, then press all the way in.

#### Note

Make sure all retaining lugs engage properly. When actuated, the horn button must spring back into its initial position lightly.

**Checking operation of the horn buttons.**

6. Connect ohmmeter to the connector and to the steering wheel housing.



720-68

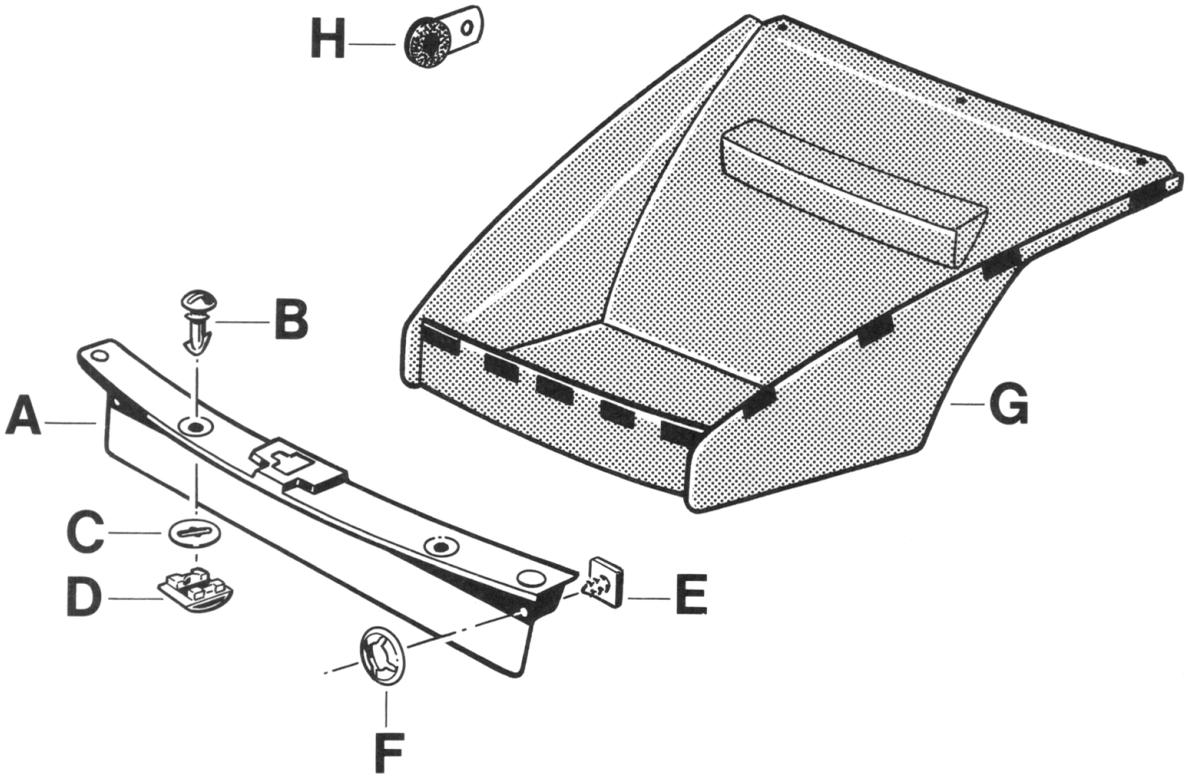
Display:  $\infty \Omega$

Press horn buttons one after another.

Display: 0 - 5  $\Omega$

### Replacing front cover rail and front compartment carpet

For the "Replacing front cover rail and front compartment carpet" repair operation, the following body spares are required:



1123 - 68

A = Cover rail

B = Mounting stud

C = Lock washer

D = Locking cam

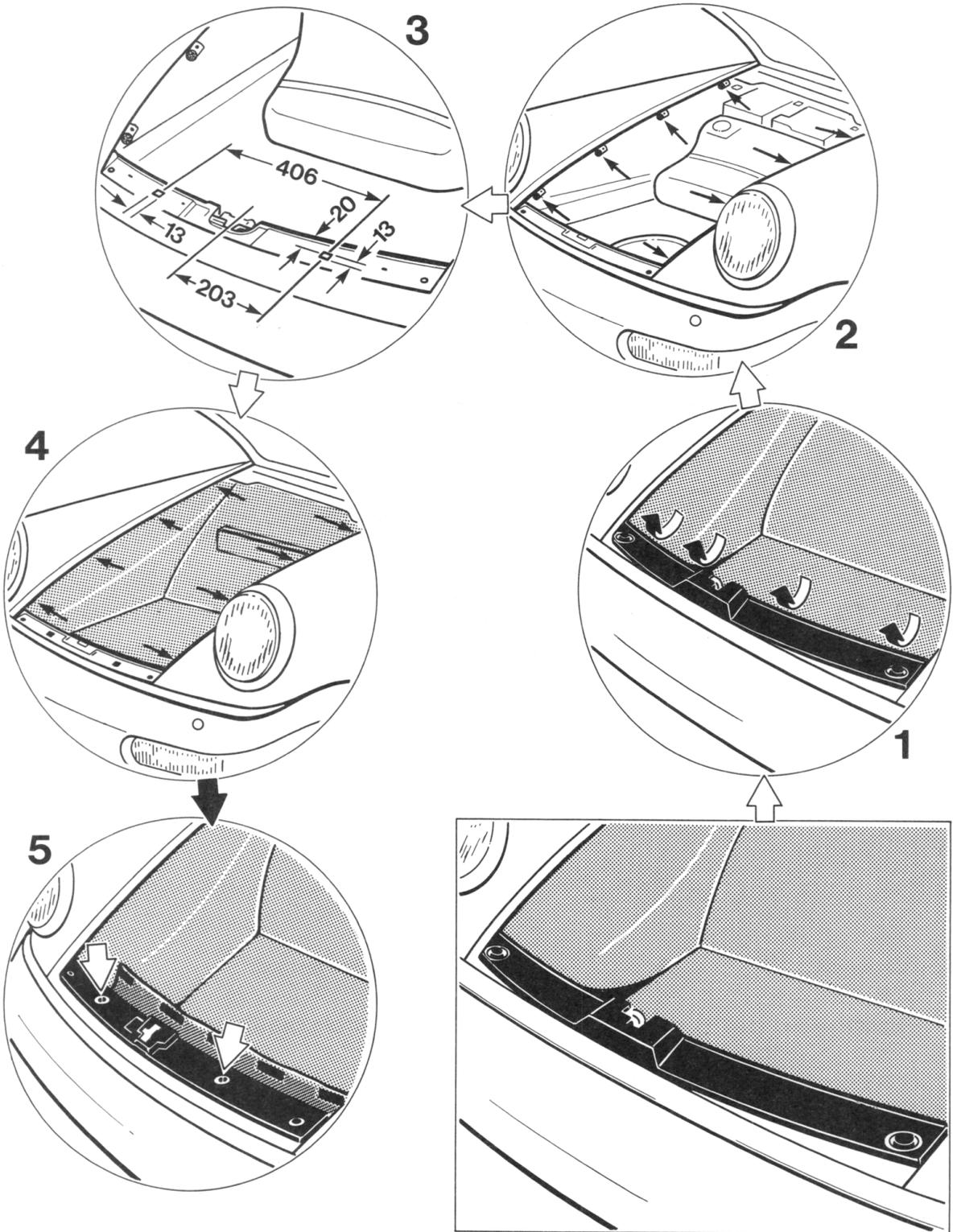
E = Velcro fastener

F = Clamping washer

G = Front compartment carpet

H = Backing pad

Replacing front cover rail and front compartment carpet



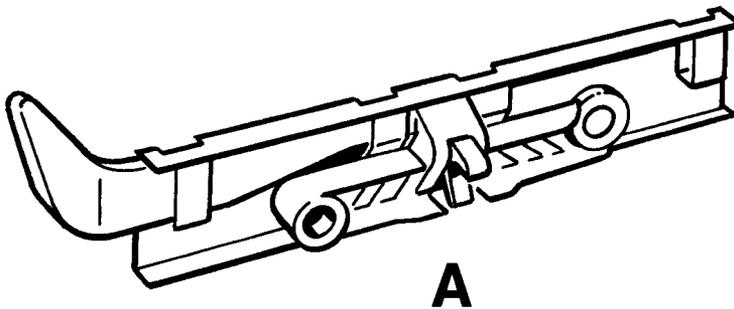
## Replacing front cover rail and front compartment carpet

No.	Operation	Instructions
1	Remove front cover	Unclip front compartment carpet from front cover rail. Unscrew mounting nuts of power pump cover. Remove clamping washers of front cover rail and lift front cover rail away from vehicle.
2	Remove front compartment carpet and backing pads	Unclip front compartment carpet along wheel wells and transverse wall. Unscrew backing pads along wheel wells complete with Tenax bottoms.
3	Drill and file out square holes	Draw up square holes according to dimensional sketch, drill and file to specifications using a square file.
4	Fit backing pads and front compartment carpet	Fit backing pads along wheel wells. Fasten front compartment carpet with Velcro fastener along wheel wells and clip into place at transverse wall.
5	Fit locking cam and cover rail	Clip locking cam into square holes of closing panel. Assemble cover rail with mounting studs, lock washers, Velcro fasteners and clamping washers. Place cover rail onto closing panel and latch with mounting studs. Fit front compartment carpet to Velcro fasteners of cover rail.

## Dismantling and assembling the glove compartment lid

### Removing and installing the support plate

The following spare part is required when the support plate is to be repaired

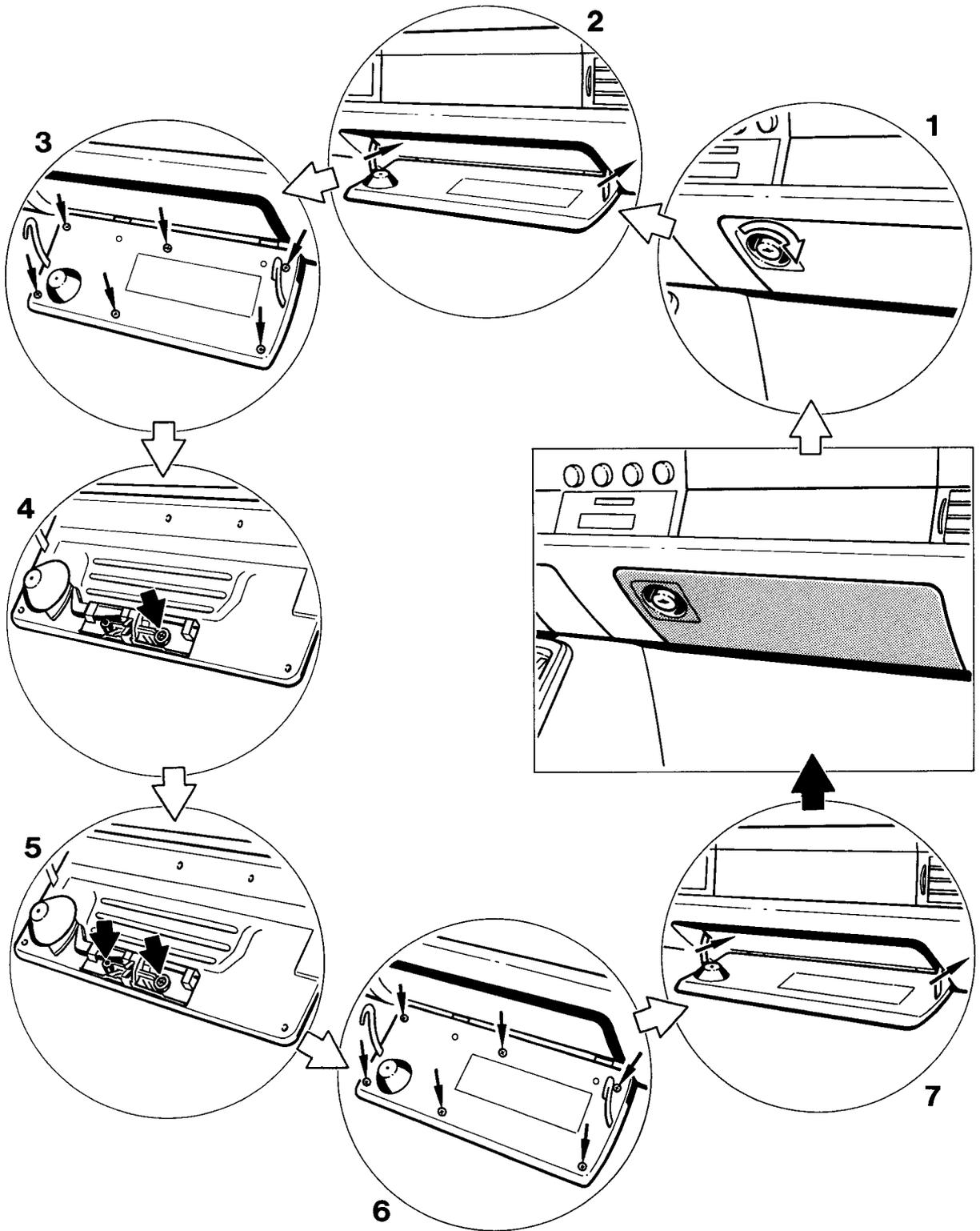


A = Support plate

2041-68

### Dismantling and assembling the glove compartment lid

#### Removing and installing the support plate



## Dismantling and assembling the glove compartment lid

### Removing and installing the support plate

No.	Operation	Instructions
1	Open glove compartment lid	Turn glove compartment lock to the right and open glove compartment lid.
2	Release catch	Apply light pressure to push both catches forward and release glove compartment lid from brackets from below.
3	Remove trim cover	Release crosshead screws of trim cover in glove compartment lid. Take off trim cover, lifting it off over the catches of the glove compartment lid.
4	Remove support plate	Screw out fastening screw of support plate. Take support plate off the glove compartment lid.
5	Fit support plate	Place support plate into glove compartment lid and assemble with crosshead screw. Adjust hole to threads to fit the trim cover.
6	Fit trim cover	Push trim cover of the catches and install glove compartment lid with crosshead screws.
7	Install catches	Apply light pressure to push both catches forward and engage into brackets. Close glove compartment lid.

## Diagnosis / Troubleshooting

The airbag system is continuously monitored by a diagnosis unit in the control unit. If a fault occurs, it is indicated by a warning lamp in the instrument cluster.

In the event of a fault, the central warning lamp and this warning lamp come on. In cars for the USA, the fasten seat belts symbol also lights up.

The airbag warning lamp comes on for approx. 5 seconds when the ignition is switched on, and then goes out. When the engine is started, the warning lamp again comes on for approx. 5 seconds.

Should the warning lamp come on again later, this indicates a fault in the airbag system. The fault can be read out with System Tester 9288 and flashing code tester 9268.

### Note:

The control unit needs approx. 70 seconds to identify all faults in the system, and the ignition must therefore be switched on for at least this time.

After a fault in the airbag system has been identified and rectified, **the fault memory must be erased.**

If any components are exchanged, this must be noted in the warranty and maintenance booklet. The document number should be attached in the free space provided. The document number is shown on an adhesive label which can be torn off the spare part.

Following an accident in which the airbag system was activated, the following components must be removed and renewed:

- control unit
- both front sensors
- contact unit
- both airbag units

If non-activated airbag units have to be removed, they must be ignited electrically before being disposed of (see Page 68 - 13).



**Note**

The fault code can show two types of fault:

- Fault still present
- Fault no longer present

Faults are stored as no longer present if they occur briefly while the ignition is switched on, but are no longer present when the ignition is switched off.

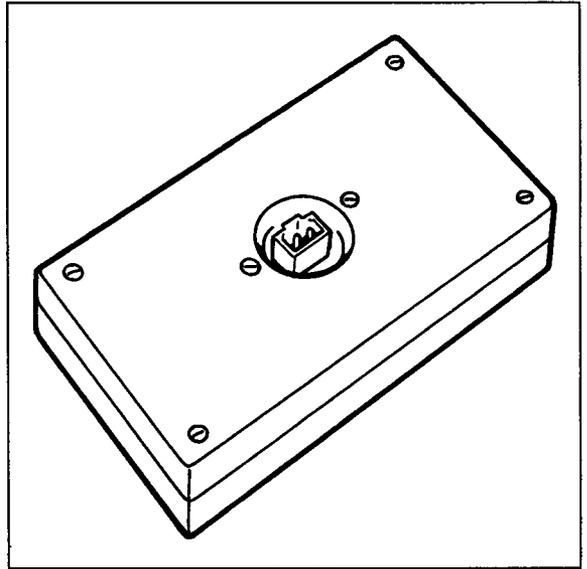
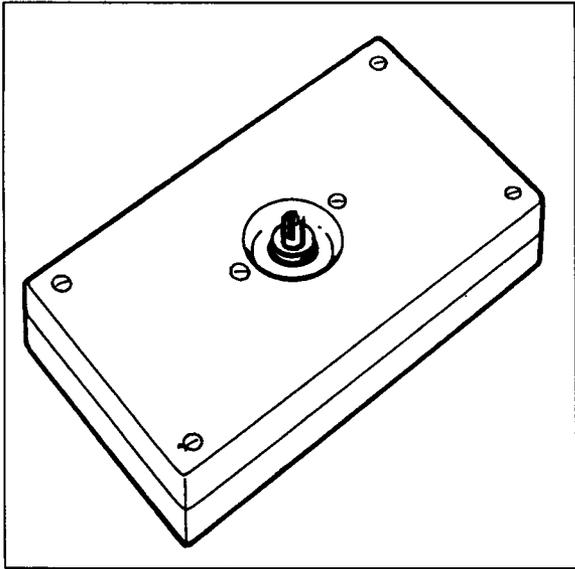
Faults still present are those which are permanent or remain present when the ignition is switched off.

Do not assume that the fault in the readout is actually present or clearly identifiable during the check.

The cause of a fault being memorized may for example be undesirable interference with the airbag system wiring while the ignition was switched on.

It is therefore important in the case of faults no longer present to determine the cause of the fault in order to prevent it from recurring and to avoid renewing parts unnecessarily. Check the entire length of the airbag system wiring for damage (wires no longer intact or trapped).

## Tools



Special tools 9516 and 9516/1 are used to check the ignition pill circuits.

If there is a fault in the ignition pill circuits, attach special tool 9516 in place of the airbag units, then erase the fault memory. Switch the ignition off and on again.

The fault can then be localized by means of the diagnosis unit in the control unit.

If the warning light no longer indicates a fault, the airbag unit is defective and must be renewed.

If the warning light again indicates a fault, this is to be sought in the control unit or the wiring.

A fault in ignition pill circuit 1 may also be caused by the contact unit. Disconnect the wiring from the contact unit and attach special tool 9516/1 in place of the contact unit. Erase the fault memory. Switch the ignition off and then on again. If the warning light no longer indicates a fault, the contact unit is defective; if the warning light again indicates a fault, this must be in the control unit or the wiring.

## Note

For safety reasons, never drive the vehicle with the special tools installed in place of the airbag units

## Fault Code Table

Fault Code	Fault Description
11	Crash sensor left: closed 1 time
12	Crash sensor left: closed several times
13	Crash sensor right: closed 1 time
14	Crash sensor right: closed several times
15	Crash sensor left: closed continuously*
16	Crash sensor right: closed continuously*
17	Crash sensor left: contact resistance against battery voltage
18	Crash sensor right: contact resistance against battery voltage
19	Crash sensor left: contact resistance against ground
20	Crash sensor right: contact resistance against ground
21	Crash sensor left: short against battery voltage
22	Crash sensor right: short against battery voltage
25	Crash sensor left: ground resistance excessive
26	Crash sensor right: ground resistance excessive
27	Crash sensor left: break in power supply lead**
28	Crash sensor right: break in power supply lead**
29	Crash sensor left: line resistance excessive
30	Crash sensor right: line resistance excessive
33	Ignition capacitor 1: capacity insufficient
34	Ignition capacitor 2: capacity insufficient
35	Ignition capacitor 1: contact resistance excessive
36	Ignition capacitor 2: contact resistance excessive
37	Ignition pill circuit 1: contact resistance against battery voltage
38	Ignition pill circuit 2: contact resistance against battery voltage

\* Fault Codes 15 and 16 also appear as fault Code 60 respectively 105. Replace crash sensor and cancel the fault memory. Repeat diagnosis. Replace control unit, if fault Code 60 respectively 105 appears again.

\*\* Fault code 27 or 28: fault code 25 or 26 will also appear.

Fault Code	Fault Description
39	Ignition pill circuit 3: contact resistance against battery voltage
40	Ignition pill circuit 1: short against battery voltage
41	Ignition pill circuit 2: short against battery voltage
42	Ignition pill circuit 3: short against battery voltage
43	Ignition pill circuit 1: contact resistance against ground
44	Ignition pill circuit 2: contact resistance against ground
45	Ignition pill circuit 3: contact resistance against ground
46	Ignition pill circuit 1: short against ground
47	Ignition pill circuit 2: short against ground
48	Ignition pill circuit 3: short against ground
49	Ignition pill circuit 1: break
50	Ignition pill circuit 2: break
51	Ignition pill circuit 3: break
52	Ignition pill circuit 1: resistance insufficient
53	Ignition pill circuit 2: resistance insufficient
54	Ignition pill circuit 3: resistance insufficient
55	Ignition pill circuit 1: resistance excessive
56	Ignition pill circuit 2: resistance excessive
57	Ignition pill circuit 3: resistance excessive
58	Warning lamp: short against battery voltage or ground
59	Warning lamp: break
60	Diagnosis unit: faulty
61	Firing order correct (after crash)
62	Ignition current correct (after crash)
65	Ignition pill current flows (after crash)
67 to 105	internal fault*
Ignition pill circuit 1: driver's airbag	
Ignition pill circuits 2 and 3: passenger's airbag	

\* When the airbag system is checked with the 9268 Tester, fault code 60 always appears in the event of an internal fault.

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Fault, Fault Code	Possible Causes, Elimination, Remarks
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**Note**

After any airbag system fault has been detected and rectified, the fault memory **must** be erased.

**Test point 1**

Left front sensor  
closed once  
Fault code 3 \_ 11

- Renew front sensor.

**Test point 2**

Left front sensor  
closed several times  
Fault code 3 \_ 12

- Renew front sensor.

**Test point 3**

Right front sensor  
closed once  
Fault code 3 \_ 13

- Renew front sensor.

**Test point 4**

Right front sensor  
closed several times  
Fault code 3 \_ 14

- Renew front sensor.

**Test point 5**

Left front sensor  
closed permanently  
Fault code 3 \_ 15

- Renew front sensor.

**Test point 6**

Right front sensor  
closed permanently  
Fault code 3 \_ 16

- Renew front sensor.

<b>Fault, Fault Code</b>	<b>Possible Causes, Elimination, Remarks</b>
<b>Test point 7</b> Left front sensor Contact resistance to U <sub>B</sub> Fault code 3 _ 17	<ul style="list-style-type: none"><li>- Check front sensor at plug connection with ohmmeter.<ol style="list-style-type: none"><li>1. Ohmmeter at terminal 1 and terminal 2 Display: 10 kΩ</li><li>2. Ohmmeter at terminal 2 and terminal 3 Display: 0...0.5 Ω If measured values are within tolerance, renew the control unit; if out of tolerance, renew the front sensor.</li></ol></li></ul>
<b>Test point 8</b> Right front sensor Contact resistance to U <sub>B</sub> Fault code 3 _ 18	<ul style="list-style-type: none"><li>- See test point 7</li></ul>
<b>Test point 9</b> Left front sensor Contact resistance against earth/ground Fault code 3 _ 19	<ul style="list-style-type: none"><li>- See test point 7</li></ul>
<b>Test point 10</b> Right front sensor Contact resistance against earth/ground Fault code 3 _ 20	<ul style="list-style-type: none"><li>- See test point 7</li></ul>
<b>Test point 11</b> Left front sensor Short-circuit to U <sub>B</sub> Fault code 3 _ 21	<ul style="list-style-type: none"><li>- See test point 7</li></ul>

Fault, Fault Code	Possible Causes, Elimination, Remarks
<b>Test point 12</b> Right front sensor Short-circuit to U <sub>B</sub> Fault code 3 _ 22	– See test point 7
<b>Test point 13</b> Left front sensor Earth/ground resistance too high Fault code 3 _ 25	– Check front sensor: plug contacts and plug connection must engage correctly. – Check front sensor with ohmmeter; see test point 7 – Check mounting points; the metal must be bright for good electrical contact.
<b>Test point 14</b> Right front sensor Earth/ground resistance too high Fault code 3 _ 26	– see test point 13
<b>Test point 15</b> Left front sensor Break in feed line Fault code 3 _ 27	– Check front sensor plug connection: plug contacts and plug connection must engage correctly. – Check front sensor mit ohmmeter (see test point 7). If no fault is detected at front sensor, renew the control unit.
<b>Test point 16</b> Right front sensor Break in feed line Fault code 3 _ 28	– see test point 15
<b>Test point 17</b> Left front sensor Line resistance too high Fault code 3 _ 29	– Check front sensor mit ohmmeter (see test point 7). If no fault is detected at the front sensor, renew the control unit.

<b>Fault, Fault Code</b>	<b>Possible Causes, Elimination, Remarks</b>
<b>Test point 18</b> Right front sensor Line resistance too high Fault code 3 _ 30	- See test point 17
<b>Test point 19</b> Ignition condenser 1 Capacitance too low Fault code 3 _ 33	- Renew the control unit.
<b>Test point 20</b> Ignition condenser 2 Capacitance too low Fault code 3 _ 34	- Renew the control unit.
<b>Test point 21</b> Ignition condenser 1 Contact resistance too high Fault code 3 _ 35	- Renew the control unit.
<b>Test point 22</b> Ignition condenser 2 Contact resistance too high Fault code 3 _ 36	- Renew the control unit.

**Fault, Fault Code****Possible Causes, Elimination, Remarks****Test point 23**

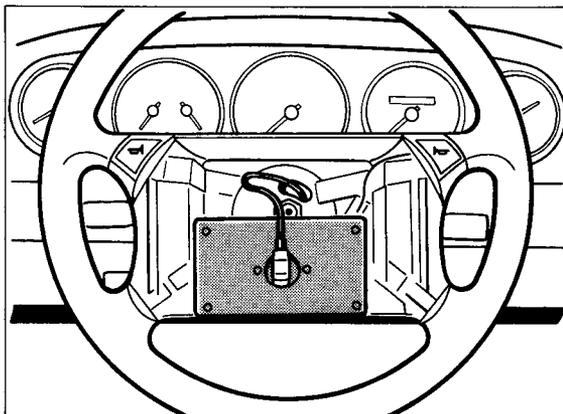
Ignition pill circuit 1

Contact resistance

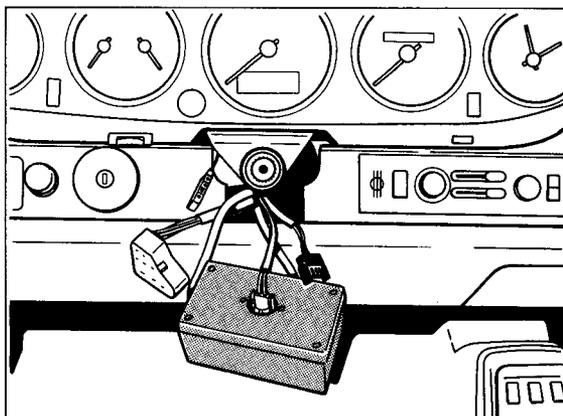
to U<sub>B</sub>

Fault code 3 \_ 37

1. Remove driver's airbag unit.
2. Attach special tool 9516 in place of the airbag unit.



3. Erase the fault memory.
4. Check whether fault is still present.
  - a) If fault is no longer present, renew the airbag unit.
  - b) If fault is still present, separate connections at contact unit and attach special tool 9516/1.



5. Erase the fault memory.
6. Check whether fault is still present.
  - a) If the fault is no longer present, renew the contact unit.
  - b) If the fault is still present, renew the control unit.

Fault, Fault Code	Possible Causes, Elimination, Remarks
	<b>Note</b>
	Ignition pill circuit 2 is the left of the two passenger-side airbag circuits, ignition pill circuit 3 the right circuit.
<b>Test point 24</b>	
Ignition pill circuit 2 Contact resistance to U <sub>B</sub> Fault code 3 _ 38	<ol style="list-style-type: none"> <li>1. Pull off plug at passenger-side airbag unit.</li> <li>2. Attach special tool 9516.</li> <li>3. Erase the fault memory.</li> <li>4. Check whether fault is still present.</li> </ol> <p>a) If fault is no longer present, renew passenger-side airbag.</p> <p>b) If fault is still present, renew the control unit.</p>
<b>Test point 25</b>	
Ignition pill circuit 3 Contact resistance to U <sub>B</sub> Fault code 3 _ 39	– see test point 24
<b>Test point 26</b>	
Ignition pill circuit 1 Short-circuit to U <sub>B</sub> Fault code 3 _ 40	– see test point 23
<b>Test point 27</b>	
Ignition pill circuit 2 Short-circuit to U <sub>B</sub> Fault code 3 _ 41	– see test point 24
<b>Test point 28</b>	
Ignition pill circuit 3 Short-circuit to U <sub>B</sub> Fault code 3 _ 42	– see test point 24

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Fault, Fault Code	Possible Causes, Elimination, Remarks
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**Test point 29**

Ignition pill circuit 1 Contact resistance to earth/ground Fault code 3 _ 43	– see test point 23
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**Test point 30**

Ignition pill circuit 2 Contact resistance to earth/ground Fault code 3 _ 44	– see test point 24
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**Test point 31**

Ignition pill circuit 3 Contact resistance to earth/ground Fault code 3 _ 45	– see test point 24
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**Test point 32**

Ignition pill circuit 1 Short-circuit to earth/ground Fault code 3 _ 46	– see test point 23
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**Test point 33**

Ignition pill circuit 2 Short-circuit to earth/ground Fault code 3 _ 47	– see test point 24
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**Test point 34**

Ignition pill circuit 3 Short-circuit to earth/ground Fault code 3 _ 48	– see test point 24
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**Fault, Fault Code****Possible Causes, Elimination, Remarks****Test point 35**

Ignition pill circuit 1

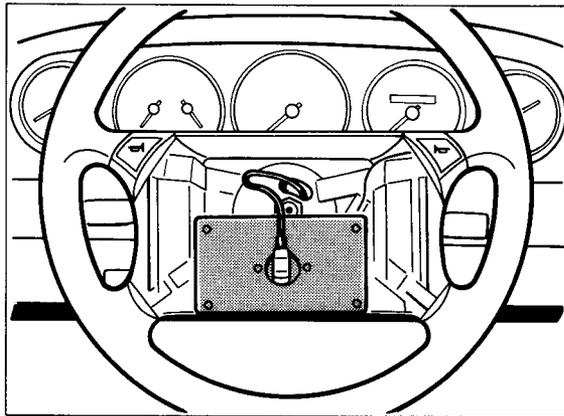
Break

Fault code 3 \_ 49

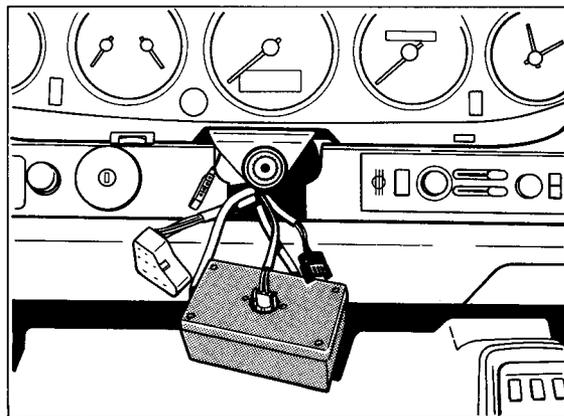
- Check that plug connection to airbag unit is correctly engaged.
- Check that plug connection to contact unit is correctly engaged.

If no fault is detected:

1. Remove driver's airbag unit.
2. Attach special tool 9516 in place of the airbag unit.



3. Erase the fault memory.
4. Check whether the fault is still present.
  - a) If the fault is no longer present, renew the airbag unit.
  - b) If the fault is still present, separate the plug connection to the contact unit and attach special tool 9516/1.



5. Erase the fault memory.

Fault, Fault Code	Possible Causes, Elimination, Remarks
<b>Test point 36</b> Ignition pill circuit 2 Break Fault code 3 _ 50	6. Check whether fault is still present. a) If the fault is no longer present, renew the steering contact unit. b) If the fault is still present, renew the control unit.  – Check that the plug connection to the airbag unit is correctly engaged.  If no fault is detected: 1. Pull off plug at passenger-side airbag unit. 2. Attach special tool 9516. 3. Erase the fault memory. 4. Check whether fault is still present. a) If the fault is no longer present, renew the passenger-side airbag unit. b) If the fault is still present, renew the control unit.
<b>Test point 37</b> Ignition pill circuit 3 Break Fault code 3 _ 51	– see test point 36
<b>Test point 38</b> Ignition pill circuit 1 Resistance too low Fault code 3 _ 52	– see test point 23
<b>Test point 39</b> Ignition pill circuit 2 Resistance too low Fault code 3 _ 53	– see test point 24

Fault, Fault Code	Possible Causes, Elimination, Remarks
<b>Test point 40</b> Ignition pill circuit 3 Resistance too low Fault code 3 _ 54	– see test point 24
<b>Test point 41</b> Ignition pill circuit 1 Resistance too high Fault code 3 _ 55	– see test point 23
<b>Test point 42</b> Ignition pill circuit 2 Resistance too high Fault code 3 _ 56	– see test point 24
<b>Test point 43</b> Ignition pill circuit 3 Resistance too high Fault code 3 _ 57	– see test point 24
<b>Test point 44</b> Warning lamp: short-circuit to U <sub>B</sub> or earth/ground Fault code 3 _ 58	– Check wiring for damage. – Check instrument cluster.
<b>Test point 45</b> Break in circuit at warning lamp Fault code 3 _ 59	– Check power supply fuse for instrument cluster – Check warning lamp and renew if necessary. – Check wiring for damage.

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Fault, Fault Code	Possible Causes, Elimination, Remarks
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**Test point 46**

Defective diagnosis unit  
Fault code 3 \_ 60

- Renew the control unit

**Test point 47**

Ignition sequence correct  
(after crash)  
Fault code 3\_61

- All airbag components must be renewed after the airbag has been activated.

**Test point 48**

Ignition current correct  
(after crash)  
Fault code 3 \_ 62

- see test point 47

**Test point 49**

Ignition pill current has  
flowed (after crash)  
Fault code 3 \_ 65

- see test point 47

**Test point 50**

Control unit defective  
Fault code 3 \_ 67

- Renew the control unit

**Note on test point 50**

With the 9288 System Tester, a fault code can be displayed in the range from 67 to 105.  
On the 9268 Tester, code 60 is always displayed if the fault is in the range from 67 to 105.

## Diagnosis / troubleshooting

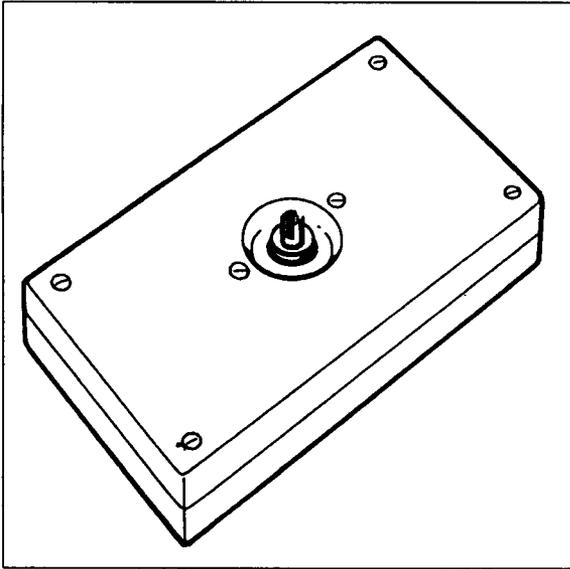
### As of software level B 01

As of software level B 01, the waiting time for assembly operations is changed from 20 minutes to 5 minutes (refer to page 68 - 2).

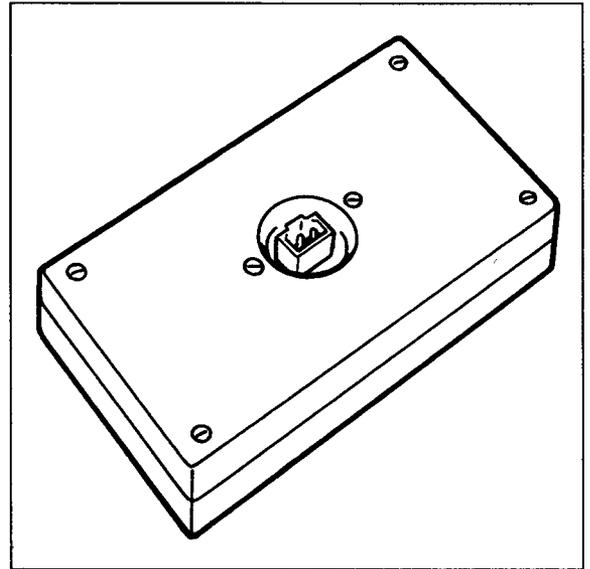
As of manufacturing date June 11, 1992, the switchon time of the airbag warning lamp is reduced from approx. 5 seconds to approx. 2.5 seconds.

If it is not possible to run a diagnosis with the System Tester, correct fault according to Group 03 of repair documents.

## Tools



560-68

*Special tool 9516*

561-68

*Special tool 9516/1*

Special tools 9516 and 9516/1 are used to check the ignition pill circuits.

If there is a fault in the ignition pill circuits, attach special tool 9516 in place of the airbag units, then erase the fault memory. Switch the ignition off and on again.

The fault can then be localized by means of the diagnosis unit in the control unit.

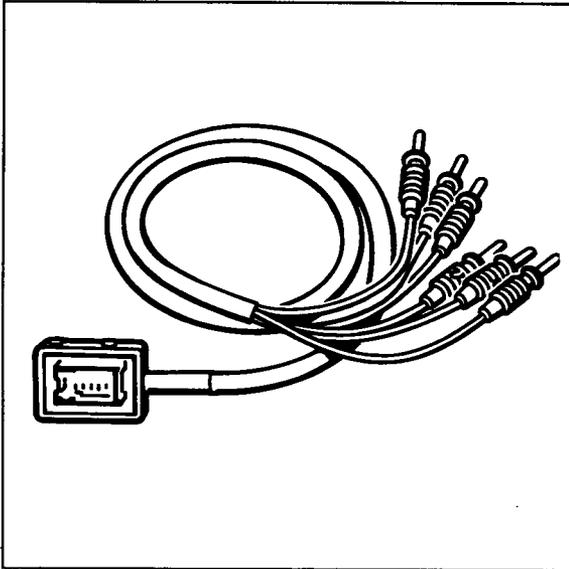
If the warning light no longer indicates a fault, the airbag unit is defective and must be renewed.

If the warning light again indicates a fault, this is to be sought in the control unit or the wiring.

A fault in ignition pill circuit 1 may also be caused by the contact unit. Disconnect the wiring from the contact unit and attach special tool 9516/1 in place of the contact unit. Erase the fault memory. Switch the ignition off and then on again. If the warning light no longer indicates a fault, the contact unit is defective; if the warning light again indicates a fault, this must be in the control unit or the wiring.

**Note**

**For safety reasons, never drive the vehicle with the special tools installed in place of the airbag units**



*Special Tool 9541*

1074-68

Special Tool 9541 is used to check the wiring of the airbag system. It is attached in place of the control unit. For safety reasons, the wiring to the ignition pills cannot be checked with this tool.

## 1. Fault memory

### Fault code table

Fault code	Designation of fault
10	Ignition circuits <ul style="list-style-type: none"> <li>– closed once</li> <li>– closed several times</li> <li>– permanently closed</li> <li>– contact resistance to U<sub>B</sub></li> <li>– contact resistance to ground</li> <li>– coupled 1/3 or 2/3</li> </ul>
11	Left front sensor – resistance too high
12	Right front sensor – resistance too high
21	Ignition pill circuit 1 – resistance too high / too low
22	Ignition pill circuit 2 – resistance too high / too low
23	Ignition pill circuit 3 – resistance too high / too low
30	Warning light airbag – Signal implausible
31	– Control unit defective
40 to 47	– Control unit defective
50 to 54	– Control unit defective
60 to 62	– Control unit defective
70	Crash entry – only if airbag has been triggered

Fault, Fault Code	Possible Causes, Elimination, Remarks
-------------------	---------------------------------------

**Note**

After an airbag system fault has been detected and rectified, the fault memory **must** be erased.

**Test point 1****Ignition circuits**

closed once

Fault code 10

- Replace both front impact sensors.
- Check wiring harness for squeezed sections or chafing and replace if required.

**Test point 2****Ignition circuits**

closed several times

Fault code 10

- Refer to test point 1.

**Test point 3****Ignition circuits**

closed permanently

Fault code 10

- Refer to test point 1.

**Test point 4****Ignition circuits**

Contact resistance

to U<sub>B</sub>

Fault code 10

- Check wiring harness to front impact sensors and ignition pills for squeezed sections and chafing. Replace if required.
- Using Special Tool 9541, check wiring to front impact sensors for short to positive terminal, replace if required.
- Check front impact sensors for short to positive terminal.
- If no fault can be detected at the front impact sensors and at the wiring, the control unit must be replaced.

**Test point 5****Ignition circuits**

Contact resistance

to ground

Fault code 10

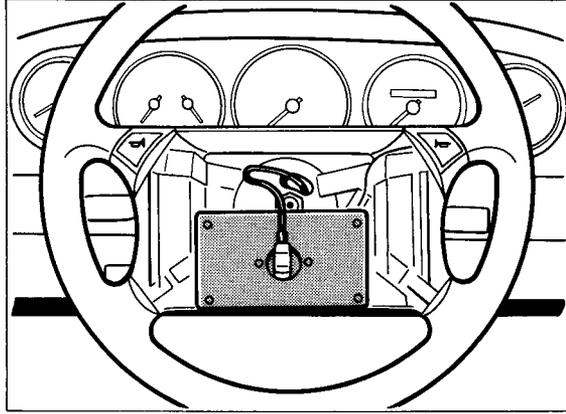
- Check wiring harness to front impact sensors and ignition pills for squeezed sections and chafing. Replace if required.
- Using Special Tool 9541, check wiring harness to front impact sensors for short to ground.
- Check front impact sensors for short to ground.
- If no fault can be detected at the front impact sensors and at the wiring harness, replace the control unit.

<b>Fault, Fault Code</b>	<b>Possible Causes, Elimination, Remarks</b>
<b>Test point 6</b> <b>Ignition circuits</b> Coupled 1/3 or 2/3 Fault code 10	<ul style="list-style-type: none"><li>– Check wiring harness and ignition pills for squeezed sections and chafing. Replace if required.</li><li>– If no fault can be detected, replace control unit.</li></ul>
<b>Test point 7</b> <b>Left front sensor</b> Resistance too high Fault code 11	<ul style="list-style-type: none"><li>– Using an ohmmeter, check front impact sensor at connector.<ol style="list-style-type: none"><li>1. Ohmmeter to terminals 1 and 2 Display: 10 k<math>\Omega</math></li><li>2. Ohmmeter to terminals 2 and 3 Display: 0...0.5 <math>\Omega</math></li></ol></li><li>– Check control unit wiring to front impact sensor connector with Special Tool 9541 and ohmmeter Display: 0...0.5 <math>\Omega</math></li><li>– If no fault is detected at the front impact sensor and at the wiring, replace control unit.</li></ul>
<b>Test point 8</b> <b>Right front sensor</b> Resistance too high Fault code 12	<ul style="list-style-type: none"><li>– refer to test point 7.</li></ul>

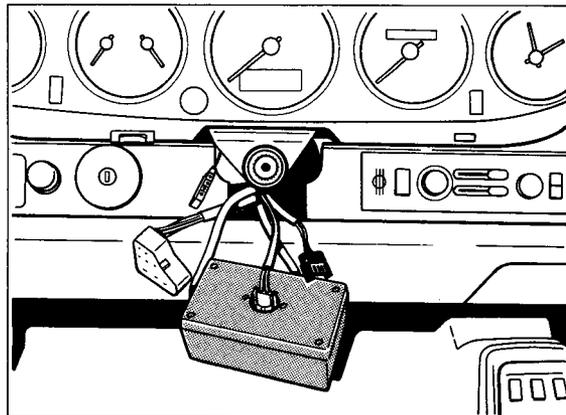
**Fault, Fault Code****Possible Causes, Elimination, Remarks****Test point 9****Ignition pill circuit 1**Resistance too high /  
too low

Fault code 21

1. Remove driver airbag – unit.
2. Attach Special Tool 9516 in place of airbag unit.



3. Erase fault memory.
4. Check if fault is still present.
  - a) Replace airbag unit if the fault is no longer present.
  - b) If the fault is still present, disconnect the contact unit wiring and attach Special Tool 9516/1.



5. Erase fault memory.
6. Check if fault is still present.
  - a) Replace contact unit if the fault is no longer displayed.
  - b) If the fault is still present, check wiring harness for squeezed sections and chafing. Replace if required.

Fault, Fault Code	Possible Causes, Elimination, Remarks
<b>Test point 10</b> <b>Ignition pill circuit 2</b> Resistance too high/too low Fault code 22	<p>c) If no fault is detected in the wiring harness, replace the control unit.</p> <p>Note</p> <p>Ignition pill circuit 2 at the passenger side airbag is the leftmost of the two circuits.</p> <ol style="list-style-type: none"> <li>1. Disconnect plug at passenger side airbag unit.</li> <li>2. Attach Special Tool 9516.</li> <li>3. Erase the fault memory.</li> <li>4. Check if fault is still present.               <ol style="list-style-type: none"> <li>a) If the fault is no longer present, replace passenger side airbag unit.</li> <li>b) If the fault is still present, check wiring harness for squeezed sections and chafing. Replace if required.</li> <li>c) If no fault is detected in the wiring harness, replace the control unit.</li> </ol> </li> </ol>
<b>Test point 11</b> <b>Ignition pill circuit 3</b> Resistance too high/too low Fault code 23	<p>Ignition pill circuit 3 at the passenger-side airbag is the rightmost of the two circuits.</p> <p>– refer to test point 10.</p>
<b>Test point 12</b> <b>Airbag warning light</b> Signal implausible Fault code 30	<p>– Check warning lamp, replace if required.</p> <p>– Check wire from control unit to instrument cluster or to diagnosis socket, respectively, for short to positive terminal.</p> <p>– Check instrument cluster.</p>
<b>Test point 13</b> <b>Control unit defective</b> Fault code ...	<p>– Replace control unit.</p> <p>Note</p> <p>This fault message may display several fault codes: 31, 40 to 47, 50 to 54 and 60 to 62.</p>

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Fault, Fault Code	Possible Causes, Elimination, Remarks
-------------------	---------------------------------------

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**Test point 14:****Unknown fault code**  
fault code xxx

- Check secondary ignition circuit.
- Erase fault memory.

## 2. Failure time

The Failure Time menu item displays the time elapsed since the first fault was stored in the fault memory.

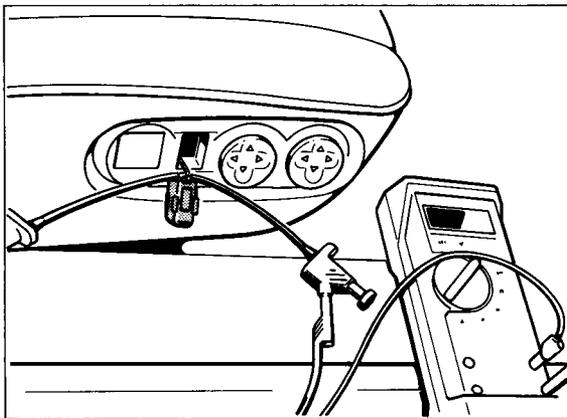
The maximum time that can be displayed is 99 hours and 59 minutes. If this time is exceeded, the ">" sign is displayed ahead of the hours.

## 3. Results

The Results menu item displays the crash data.

## Checking seat heating

1. Remove switch cover (4 screws).
2. Disengage seat heating switch and pull out switch (take care not to damage the wire).
3. Switch on ignition.
4. Connect voltmeter to term. 1 (positive) and term. 2 (negative).



1343 - 72

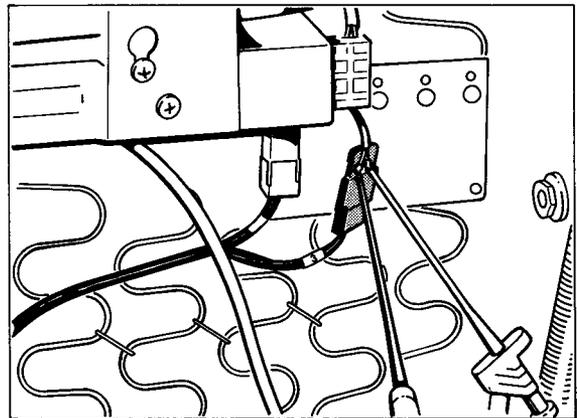
Display: approx. 5 V

### Note

If no voltage is displayed, check power supply according to wiring diagram.

5. Connect voltmeter to term. 2 (negative) and term. 3 (positive).  
Display, depending on potentiometer setting: approx. 2 - 3 V
6. Push tip switch into "on" position and keep it in this position.  
Display: approx. 5 V

7. Push tip switch into "off" position and keep it in this position.  
Display: approx. 0 V
8. Turn knurled wheel of potentiometer all the way up.  
Display: approx. 3 V
9. Turn knurled wheel of potentiometer all the way down. The voltage must then drop to approx. 2 V.
10. Remove seat and connect to Special Tool 9269.
11. Switch on seat heating and set to maximum heating output.
12. Measure voltage at 2-pin connector marked with digit 3.



1344 - 72

When the seat heating is switched on, the voltage oscillates between 0 V and approx. 12 V (clocked voltage).

**Checking resistance of heater elements****Note**

Use a digital ohmmeter for the measurements.

1. Disconnect connector marked with digit 3.
2. Zero out ohmmeter.
3. Connect ohmmeter on pin side.  
Display at 20° C ambient temperature:  
1.5 to 1.8  $\Omega$

## Calibrating controllable seat heating

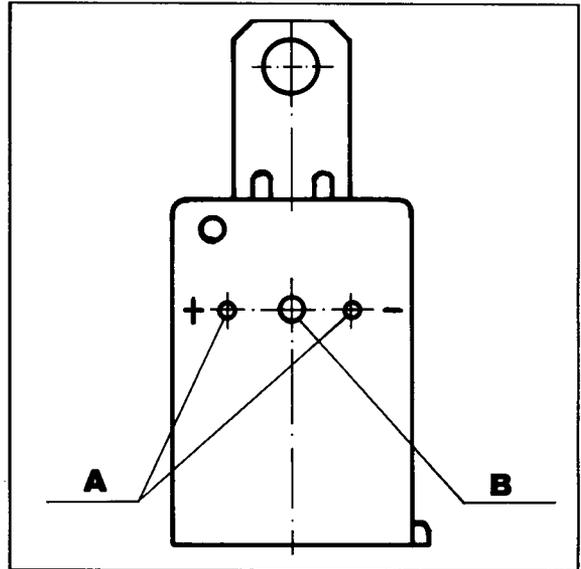
### Control units

#### Note

The seat heating must be calibrated after the control unit or heating elements have been replaced.

#### Installation position

At the bottom of the seat



165 - 72

*Control unit for seat heating with seat-position control*

A - measuring point (V)

B - calibration potentiometer

**Tools**

1. Digital-voltmeter with an internal resistance (Ri)  $\geq 1 \text{ M}\Omega$ .
2. Two measuring probes with a maximum diameter of 2 mm.
3. Thermometer (as recommended in the Workshop Handbook).
4. 2 mm wrench.
5. Two auxiliary cables to supply voltage to the removed seat (terminals 15 and 31). Use adapter cable 9269 for seat-position control.

**Calibration procedure**

1. Store the seat to be calibrated in the working area until it has assumed the ambient temperature.
  2. Provide power supply.
- Note**
- Do not switch on the seat heating. If switched on unintentionally, the seat must cool down until the heating elements have again adopted the ambient temperature.
3. Measure the ambient temperature and refer to the table for the relevant voltage value.
  4. Connect the voltmeter to the control unit (A).
  5. Set the voltage value on the calibration potentiometer (B) so that it corresponds to the appropriate value for the ambient temperature.

**Table**

Ambient temperature in °C	Voltage in V
0	1.50
2	1.55
4	1.60
6	1.65
8	1.70
10	1.75
12	1.80
14	1.85
16	1.90
18	1.95
20	2.00
22	2.05
24	2.10
26	2.15
28	2.20
30	2.25
32	2.30
34	2.35
36	2.40
38	2.45
40	2.50
42	2.55
44	2.60
46	2.65
48	2.70

**Functional check**

Switch on seat heating for approx. 10 sec. with maximum heating power. After switching off, measure the voltage at the control unit. The value measured now must be considerably higher.



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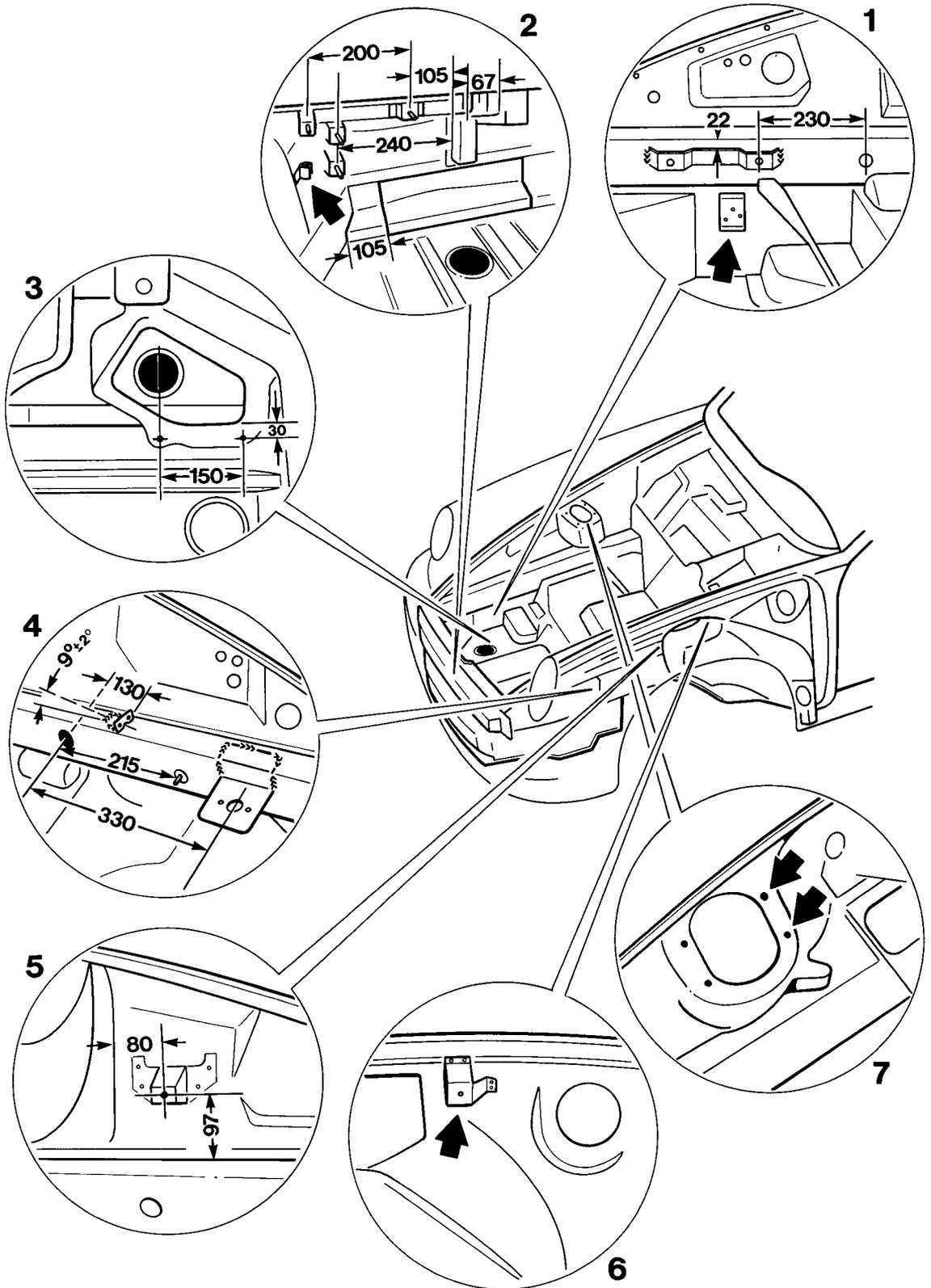
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## **Scope of conversion for 911 Carrera RS – Body-in-white**

**Instructions for conversion of 911 Carrera 2 body-in-white to 911 Carrera RS  
(Base and NGT versions)**

**The 911 Carrera 2 body-in-white is the basis for the body of the 911 Carrera RS**

Scope of conversion for 911 Carrera RS – Body-in-white



## Scope of conversion for 911 Carrera RS – Body-in-white

### Instructions for conversion of 911 Carrera 2 body-in-white to 911 Carrera RS (Base and NGT versions)

No.	Operation	Instructions
1	Remove bracket for lock control <b>Base version only:</b> Weld in bracket for ABS control unit	Using a spotweld cutter and angle grinder, separate weld joints of lock control bracket.  MIG-weld bracket for ABS control unit to front right-hand side member, running a full seam.
2	<b>Only base version:</b> Remove bracket for front cover. Weld in reinforcement for front closing section, trunk protection and bracket for pump cover	Using a spotweld cutter, separate spotwelds of bracket for front cover on side members. MIG-weld reinforcement for towing hook support, trunk protection and bracket for pump cover, running an intermittent full seam.
3	<b>Base version only:</b> Weld in auxiliary battery bracket	MIG-weld a welding nut (8 mm A/F) into the reinforcement for the battery bracket.
4	<b>Base version only:</b> Weld consoles and welded studs to side member	Weld consoles and welded studs for battery disconnecting point to side member.
5	Weld in bracket for intensive cleaning system	MIG-weld bracket for intensive cleaning system to wheel house, running a full seam.
6	<b>Base version only:</b> Remove bracket for water tank	Separate top water tank bracket from left-hand front wheel house, using a spotweld cutter.
7	Drill holes for spring strut tower to 10 mm dia.	Drill the two spring-strut tower holes in the top side-member overlap area to 10 mm dia.

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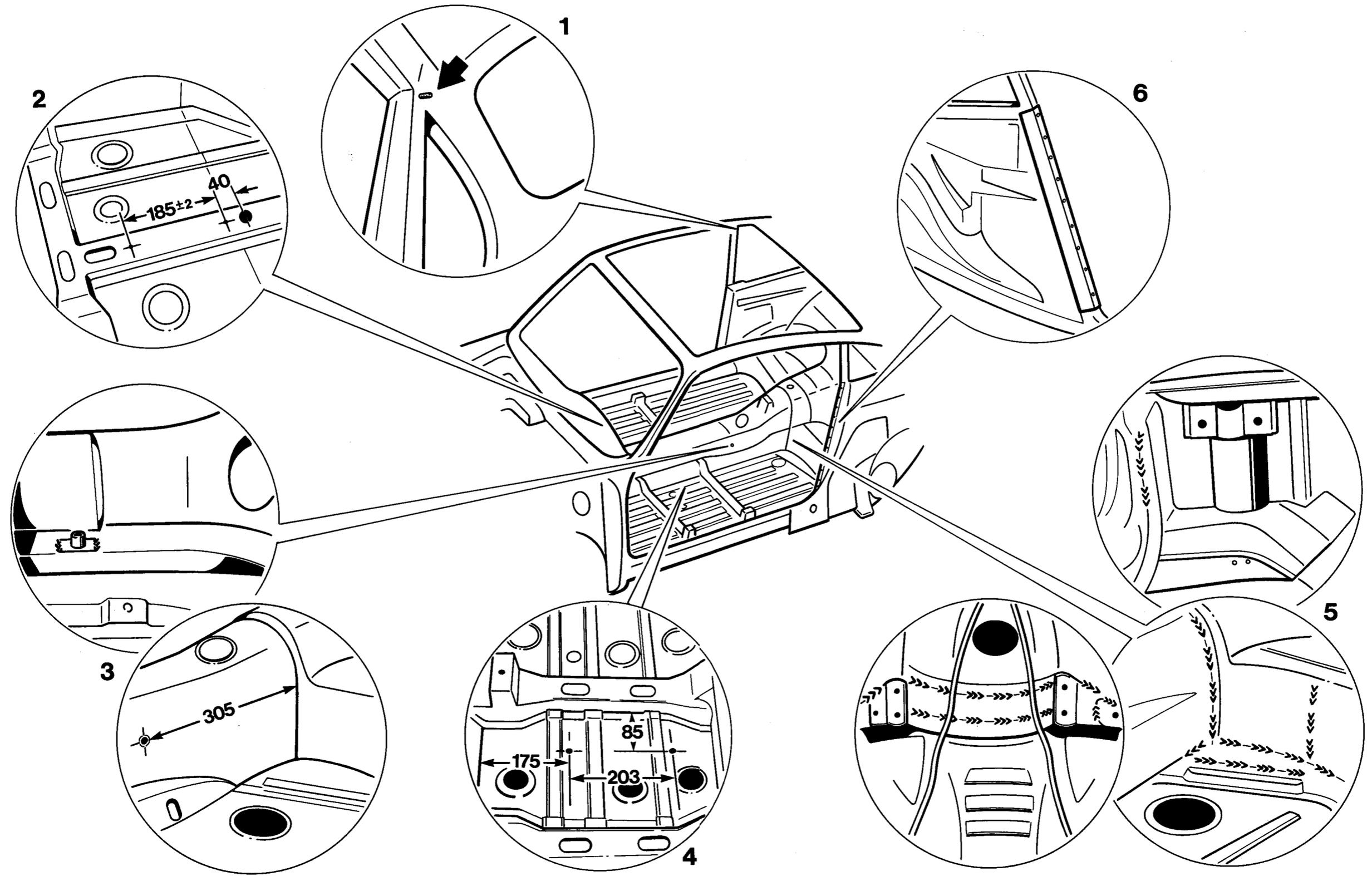
**Scope of conversion for 911 Carrera RS – Body-in-white**

**Instructions for conversion of 911 Carrera 2 body-in-white to 911 Carrera RS  
(Base and NGT versions)**

**The 911 Carrera 2 body-in-white is the basis for the body of the 911 Carrera RS**

## Scope of conversion for 911 Carrera RS – Body-in-white

Scope of conversion for 911 Carrera RS - Body-in-white



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## Scope of conversion for 911 Carrera RS – Body-in-white

### Instructions for conversion of 911 Carrera 2 body-in-white to 911 Carrera RS (Base and NGT versions)

No.	Operation	Instructions
1	<b>Base version only:</b> Remove weld-on bolts for coat hook mounting	Using an angle grinder, remove weld-on bolts for coat hook mounting from the B-post reinforcement.
2	<b>Base version only:</b> Insert M8 pop rivet nuts into floor section member	Drill two 11.0 mm dia. holes for fire extinguisher bracket into the passenger side of the floor section member and use a pop rivet nut gun to insert the M8 pop rivet nuts.
3	<b>Base version only:</b> Weld in lap belt mounting	Drill 13.0 mm dia. holes for lap belt mounting into tunnel. Insert lap belt mounting into tunnel and MIG-weld from outside along front sides of lap belt mounting, running a full seam.
4	Weld in crotch belt mounting	Drill 16.2 mm dia. holes for crotch belt mounting into floorpan. Insert crotch belt mounting into floorpan and MIG-weld from outside along front sides of crotch belt mounting, running a full seam.
5	Weld tunnel, floorpan with heel plate and rear end for safety	MIG-weld reinforcement of rear floorpan with heel plate and reinforcement for tunnel, tunnel with tunnel reinforcement and heel plate with seat well. <b>Safety welds:</b> <b>Length of welding seam = 25 mm</b> <b>Distance between seams = 25 mm</b> <b>Execution of seam = on both sides</b>
6	<b>Base version only:</b> Remove angular surround	Use a spotweld cutter to separate spotwelds of the angular surround.

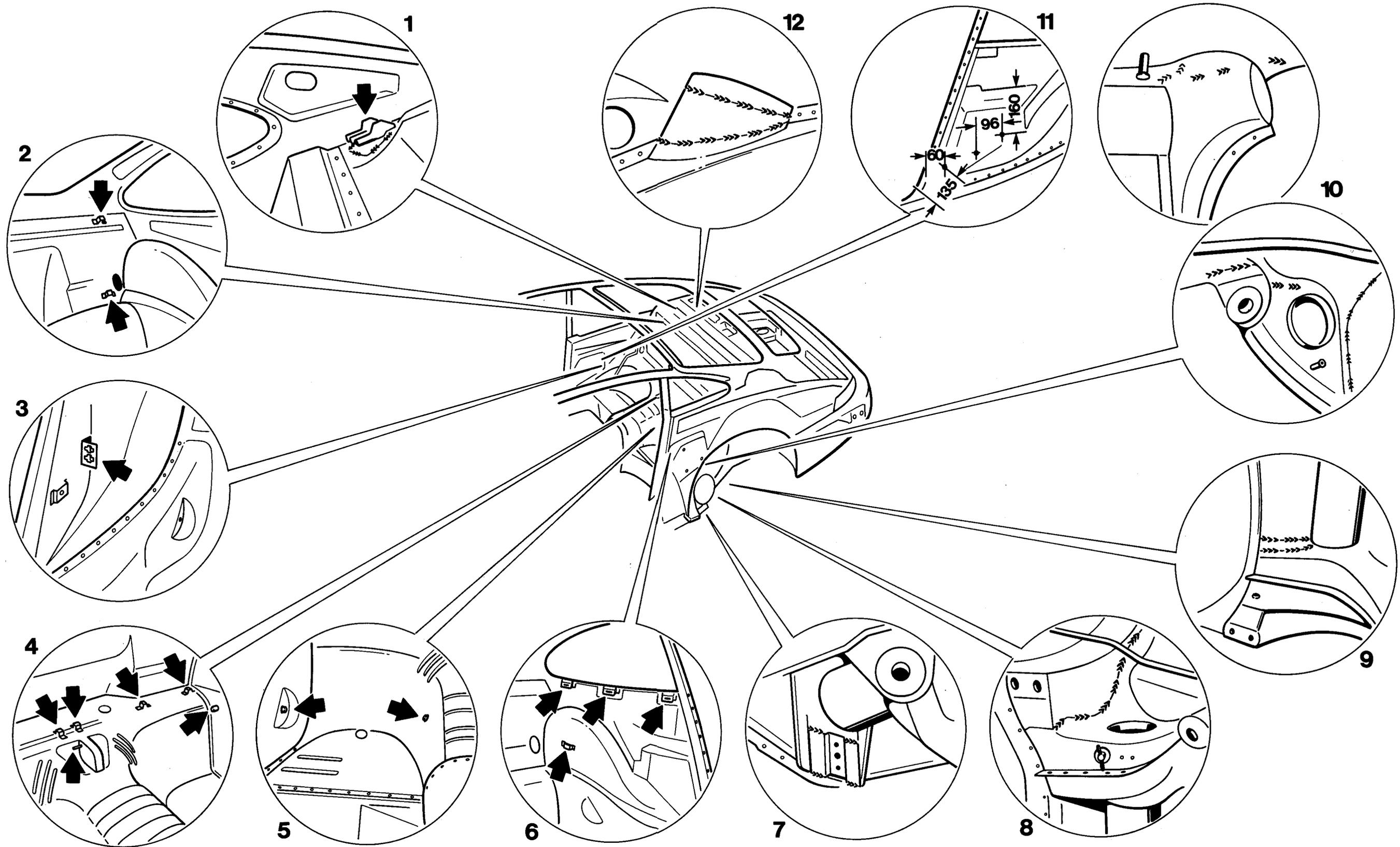
**Scope of conversion for 911 Carrera RS – Body-in-white**

**Instructions for conversion of 911 Carrera 2 body-in-white to 911 Carrera RS  
(Base and NGT versions)**

**The 911 Carrera 2 body-in-white is the basis for the body of the 911 Carrera RS**

## Scope of conversion for 911 Carrera RS – Body-in-white

Scope of conversion for 911 Carrera RS - Body-in-white



## Scope of conversion for 911 Carrera RS – Body-in-white

### Instructions for conversion of 911 Carrera 2 body-in-white to 911 Carrera RS (Base and NGT versions)

No.	Operation	Instructions
1	<b>Base version only:</b> Remove weld-on bolts for coat hook mounting	Using an angle grinder, remove weld-on bolts for coat hook mounting from the B-post reinforcement.
2	<b>Base version only:</b> Insert M8 pop rivet nuts into floor section member	Drill two 11.0 mm dia. holes for fire extinguisher bracket into the passenger side of the floor section member and use a pop rivet nut gun to insert the M8 pop rivet nuts.
3	<b>Base version only:</b> Weld in lap belt mounting	Drill 13.0 mm dia. holes for lap belt mounting into tunnel. Insert lap belt mounting into tunnel and MIG-weld from outside along front sides of lap belt mounting, running a full seam.
4	Weld in crotch belt mounting	Drill 16.2 mm dia. holes for crotch belt mounting into floorpan. Insert crotch belt mounting into floorpan and MIG-weld from outside along front sides of crotch belt mounting, running a full seam.
5	Weld tunnel, floorpan with heel plate and rear end for safety	MIG-weld reinforcement of rear floorpan with heel plate and reinforcement for tunnel, tunnel with tunnel reinforcement and heel plate with seat well. <b>Safety welds:</b> <b>Length of welding seam = 25 mm</b> <b>Distance between seams = 25 mm</b> <b>Execution of seam = on both sides</b>
6	<b>Base version only:</b> Remove angular surround	Use a spotweld cutter to separate spotwelds of the angular surround.

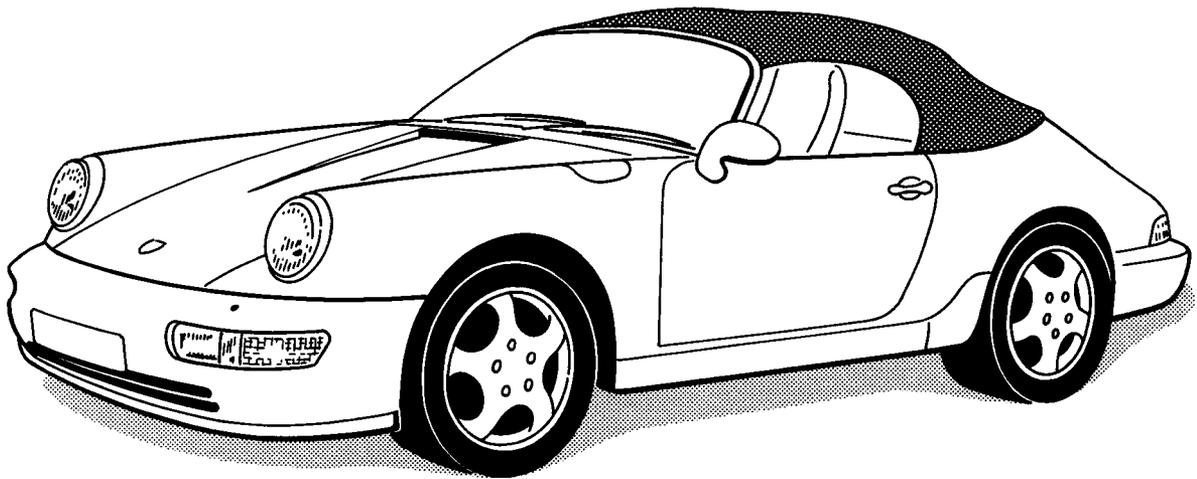
## Scope of conversion for 911 Carrera RS – Body-in-white

### Instructions for conversion of 911 Carrera 2 body-in-white to 911 Carrera RS (Base and NGT versions)

No.	Operation	Instructions
1	Remove locking devices at upper section of rear wall	Use an angle grinder to separate the welds between the locking devices and the upper section of the rear wall.
2	<b>Base version only:</b> Remove bracket for rear wall trim panel	Separate welds of rear wall trim panel brackets using a spotweld cutter.
3	<b>Base version only:</b> Remove bracket for connector	Separate spotwelds for connector bracket using a spotweld cutter.
4	Remove mounts and threaded bushings for spare seat backrests <b>Base version only:</b> Remove mounting pads for carpet	Separate weld for spare seat mount using an angle grinder. Cut threaded bushings for spare seat backrests at the side members using an angle grinder. Use a spotweld cutter to separate spotwelds between carpet mounting pads and seat pan.
5	Remove nuts for belt mounting from bearing cups and side members	Cut nuts for seat belt mounting in seat pan and side member area using an angle grinder. MIG-weld remaining holes.
6	<b>Base version only:</b> Remove brackets for rear finisher strips and rear side trim panels	Separate spotwelds of brackets for rear finisher strips and rear side trim panels with a spotweld cutter.
7	Weld in reinforcements for stabilizer consoles	MIG-weld reinforcements for stabilizer consoles running an intermittent full seam.

No.	Operation	Instructions
8	Weld inner bearing cups and connecting member for safety	MIG-weld inner bearing cups to connecting member. <b>Safety weld:</b> <b>Length of seam = 25 mm</b> <b>Distance between welding seams = 25 mm</b>
9	Weld rear-axle crosstube and heel plate for safety	MIG-weld rear-axle crosstube to kickplate. <b>Safety weld:</b> <b>Length of seam = 25 mm</b> <b>Distance between welding seams = 25 mm</b>
10	Weld in bearing cup stiffener	MIG-weld bearing cup stiffener to bearing cup and rear-axle crosstube, running an intermittent full seam.
11	<b>Base version only:</b> Weld mounting stud for seat belt cover	Weld two weld-on studs each for fitting of the seat belt cover to the rear quarter panels.
12	Weld rear-axle crossmember, shock absorber mounts and shock absorber supports for safety	MIG-weld rear-axle crossmember to shock absorber mounts and shock absorber supports, running a continuous seam. <b>Safety weld:</b> <b>Length of weld = 30 mm</b> <b>Distance between seams = 25 mm</b> <b>Execution of seam = continuous</b>

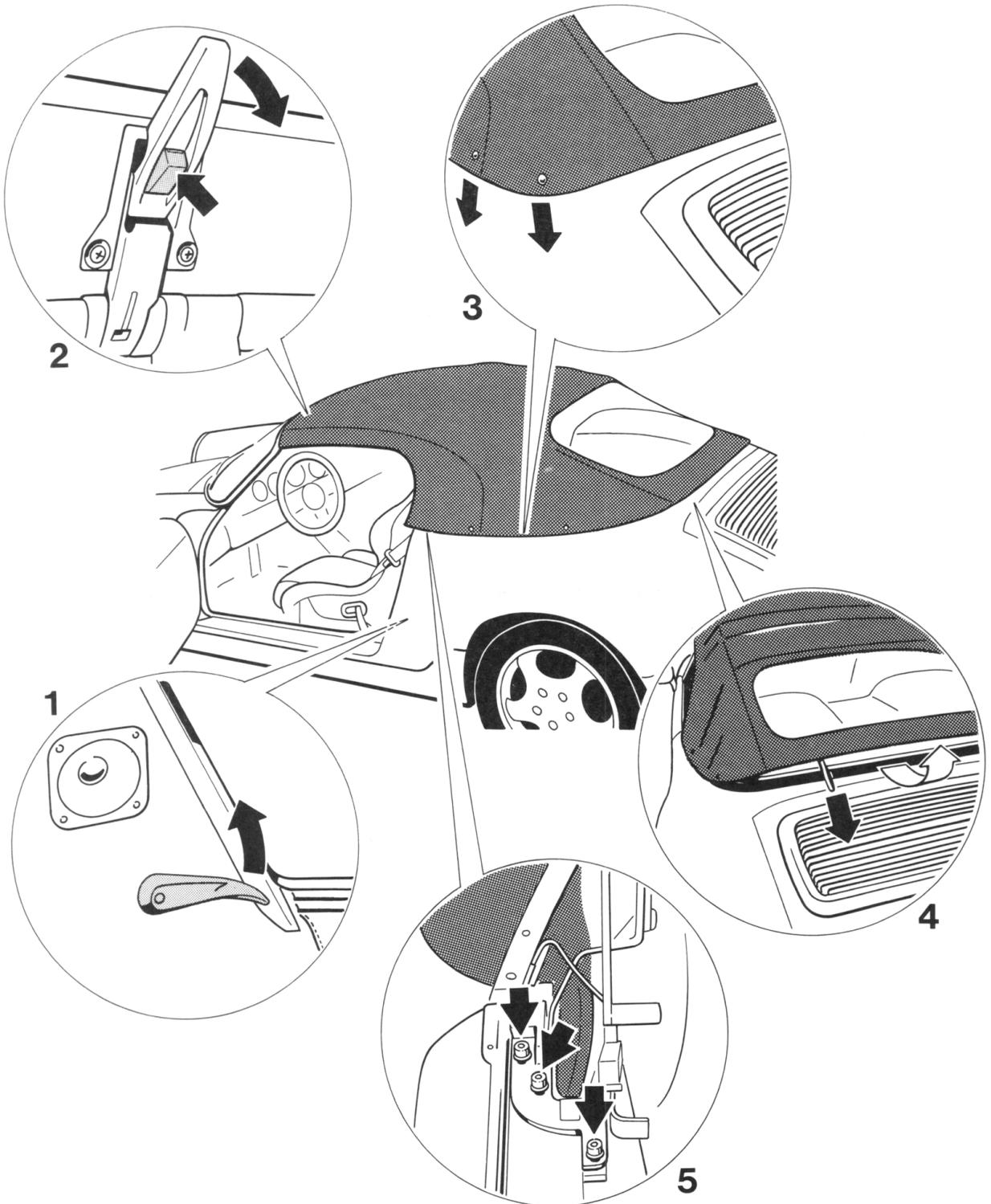
Removing and installing folding top



1804-61

## Removing and installing folding top

### Removing folding top



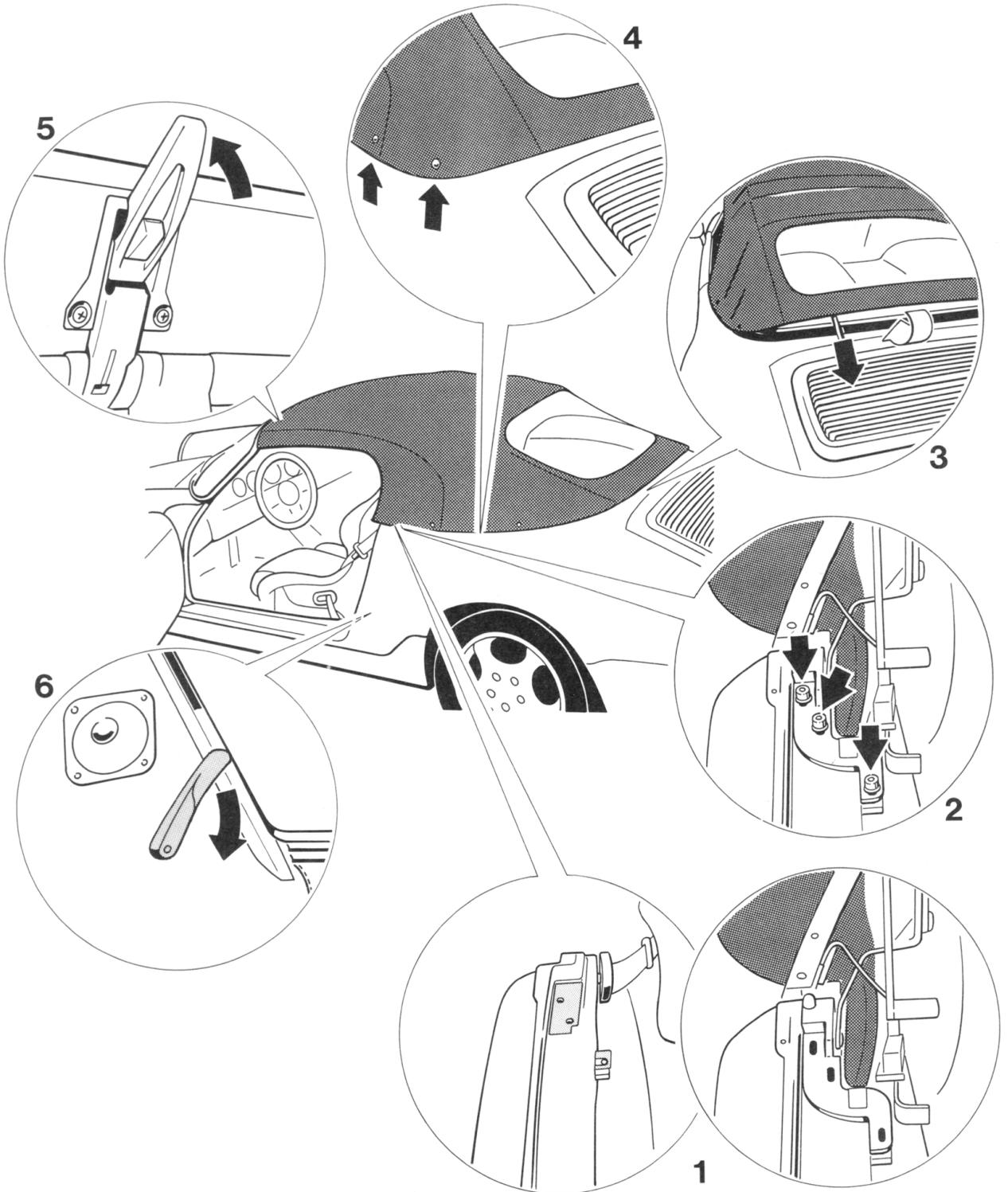
## Removing and installing folding top

### Removing folding top

No.	Operation	Instructions
	Open both doors	
1	Unlatch rear cover	Unlatch rear cover by pulling up the lever on the left-hand rear side trim panel.
2	Open locks	Flip down sun visors. Press red locking buttons of folding top locks along the soft top frame towards inside and open folding top locks completely.
3	Release side hooks	Raise rear cover slightly and release soft top side hooks from rear cover by moving them downward.
4	Release rear soft top sections	Pull out pull straps from below the rear cover. Pull soft top at pull cords towards rear and disengage from rear cover. Flip rear window section forward over the folding top. Raise rear cover with both hands.
5	Undo fastening screws	Undo fastening screws from folding top and lift folding top off the vehicle.

### Removing and installing folding top

#### Installing folding top

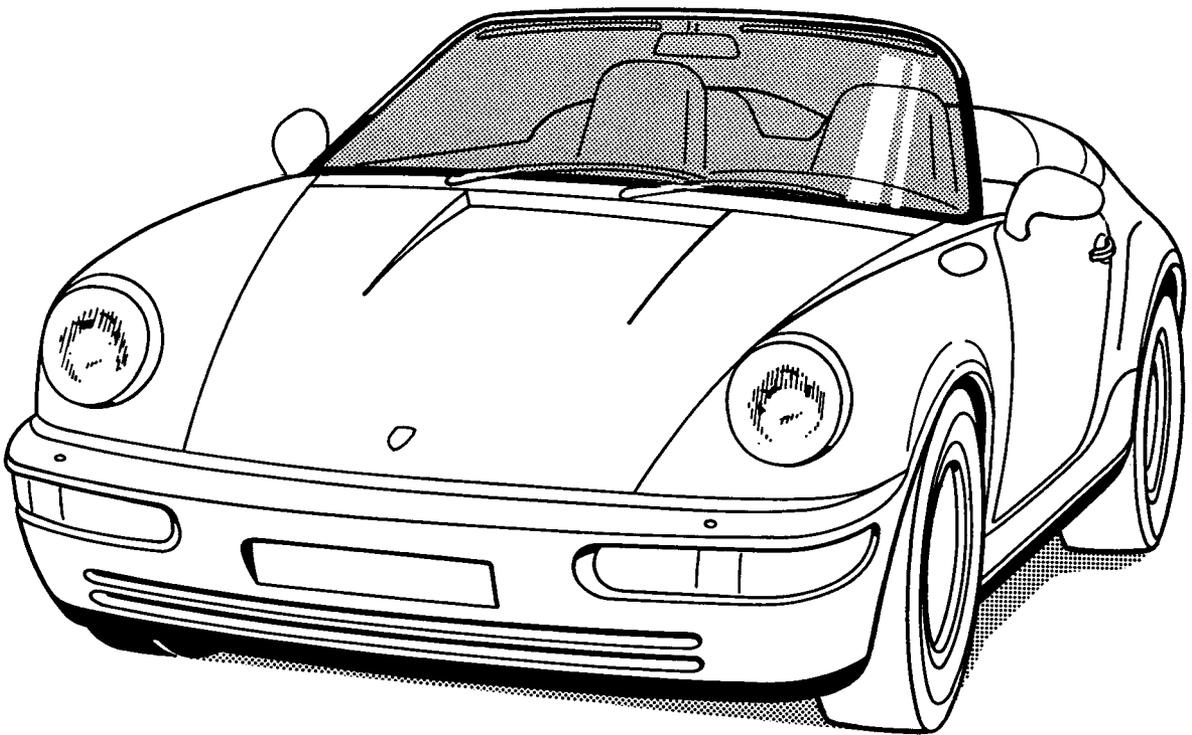


## Removing and installing folding top

### Installing folding top

No.	Operation	Instructions
1	Place soft top onto vehicle	Place folding top on mounting points of vehicle. To adjust the folding top height, place spacers under the soft top supports.
2	Fit soft top to vehicle	Fit soft top to soft top mounts of vehicle using M 8 x 20 pan-head screws and washers. They also provide fore/aft adjustment of the soft top. Tightening torque: 23 Nm (17 ftlb.).
3	Engage soft top at rear	Flip down rear cover, fold back rear window section over rear cover. Pull soft top rearwards at pull straps and engage into rear cover. Pull the pull straps under the rear cover.
4	Engage side hooks	Raise rear cover slightly and engage side hooks of soft top into rear cover.
5	Lock latches	Pull down soft top at handle cover, engage soft top locks and latch the locks.
6	Latch rear cover	Push down lever of rear side trim panel to latch the rear cover.

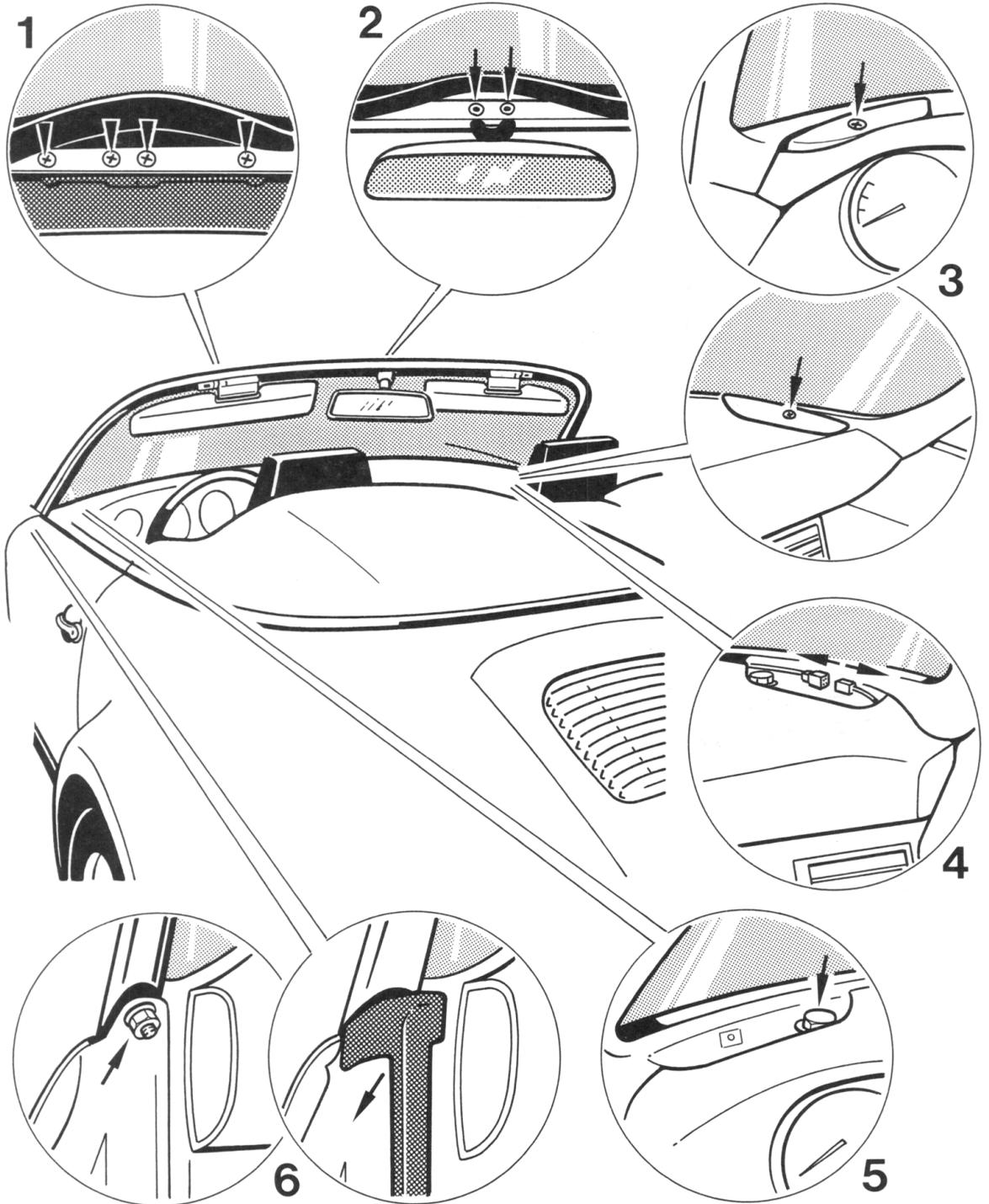
**Speedster – Removing and installing windshield**



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### Speedster – Removing and installing windshield

#### Removing windshield



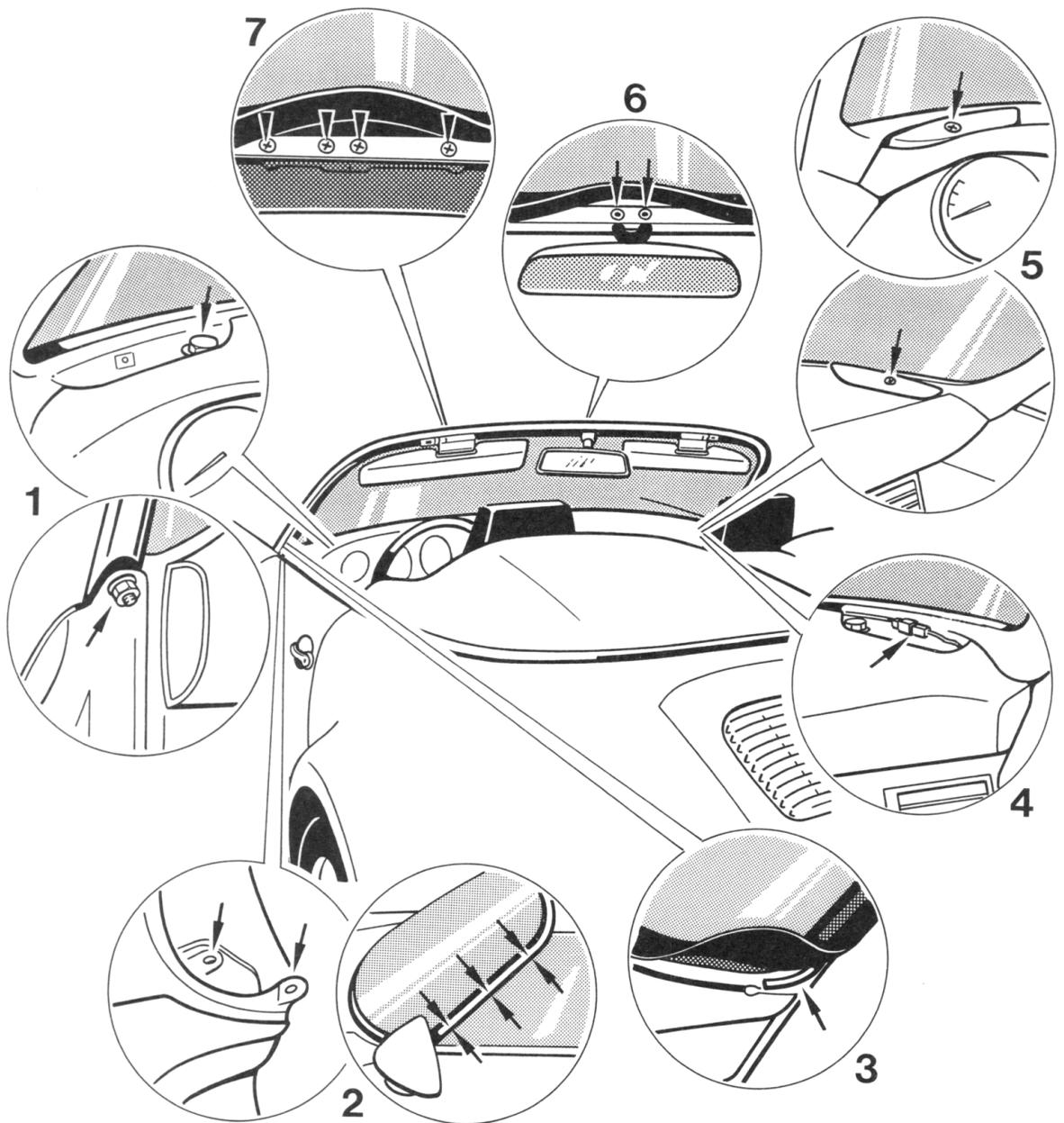
## Speedster – Removing and installing windshield

### Removing windshield

No.	Operation	Instructions
	Open soft top	
	Flip up windshield wiper arms	
1	Unscrew sliding block guides and sun visors	Pull windshield frame seal out of windshield frame section in the sliding block guide and sun visor areas and undo oval-head screws.
2	Unscrew interior rearview mirror	Pull windshield frame seal out of windshield frame section and undo hexagon head (Torx) screws.
3	Unscrew instrument panel trim covers	Undo fastening screws of instrument panel trim covers and take out trim covers.
4	Disconnect windshield antenna connector	Pull off wiring connector of windshield antenna.
5	Unscrew windshield mounts from instrument panel	Use Special Tool 9544 to unbolt M 10 x 20 mounting bolts from mounting locations in instrument panel.
6	Unbolt windshield mounts from A-pillars	Remove molded sections and door seals from A-pillars and undo M10 hexagon head nuts.
	Lift windshield off the vehicle	

### Speedster – Removing and installing windshield

#### Installing windshield



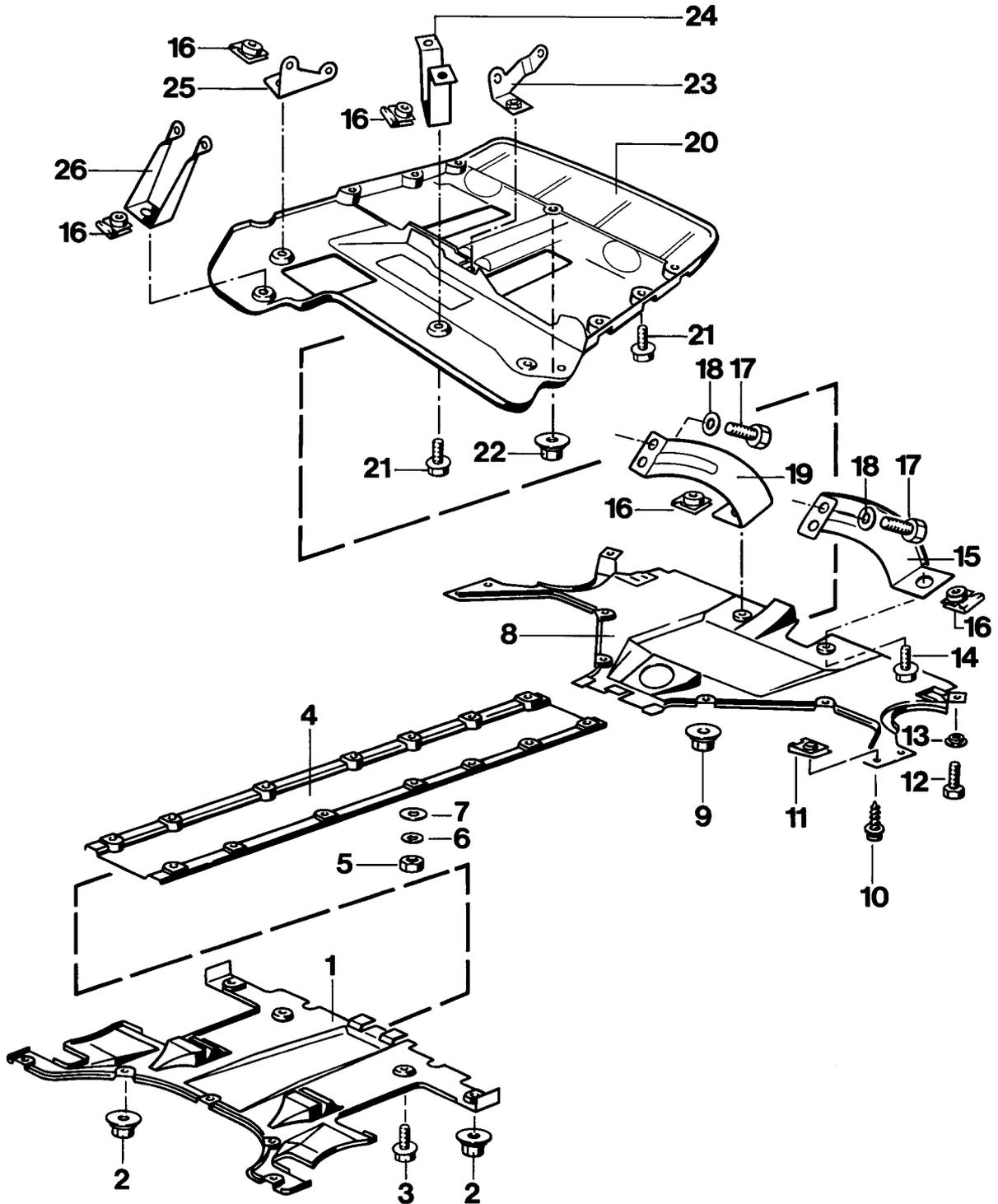
## Speedster – Removing and installing windshield

### Installing windshield

Check windshield frame seals before fitting the windshield, replace windshield seal if required.

No.	Operation	Instructions
1	Place windshield into position and tighten	Place center of windshield over spotweld flange and engage into mounts at A-pillars. Tighten windshield with M 10 x 20 hexagon head bolts complete with washers. Tightening torque: 25 Nm (18 ftlb.).
2	Adjust windshield	To align the windshield with the door windows by adjusting windshield height and inclination, insert spacing washers at the mounting points between the windshield frame and body.
3	Route drain hose	Route the drain hose of the windshield seal so that the water can flow off in the opening provided between fender and cowl panel.
4	Connect windshield antenna	Connect windshield antenna connector.
5	Screw trim covers to instrument panel	Adjust trim covers to instrument panel and fit with 4.2 x 22 hexagon head self-tapping screws.
6	Screw interior rearview mirror	Fit interior rearview mirror to windshield frame using Torx M 5 x 12 flat-head screws. Tightening torque: 5.6 Nm (4 ftlb.).
7	Screw sun visors and sliding block guides into place	Fit sun visors and sliding block guides with M 4 x 8 oval-head screws to windshield frame. Clip windshield frame seal into windshield frame. Flip down wiper arms and close soft top.

Removing and installing the underbody cladding – Tiptronic



## Removing and installing the underbody cladding – Tiptronic

No.	Designation	Qty.	Note:	
			Removal	Installation
1	Underbody cladding, front	1		Assemble with underbody cladding, middle
2	Plastic nut	7		Check, replace if necessary
3	Screw with washer assembly M 6 x 12	2		
4	Underbody cladding, middle	1		Assemble with underbody cladding, transmission
5	Hexagon nut M 6	14		
6	Plain washer B 6.4	14		
7	Washer 9.5 x 22 x2	14		Check, replace if necessary
8	Underbody cladding, transmission	1		Secure at holder, left (15) and holder, right (19)
9	Plastic nut	4		Check, replace if necessary
10	Screw with washer assembly 4.8 x 16	4		
11	Sheet-metal nut 4.8			Check, replace if necessary
12	Hexagon screw M 6 x 16	2		
13	Spacer disk	2		
14	Screw with washer assembly M 6 x 16	2		
15	Holder, left	1		Secure at gusset plate, rear axle transverse tube

No.	Designation	Qty.	Note:	
			Removal	Installation
16	Nut holder	2		Check, replace if necessary
17	Hexagon screw M 6 x 16	3		
18	Plain washer A 6.4	3		
19	Holder, right	1		Secure at gusset plate, rear axle transverse tube
20	Underbody cladding, engine	1		Secure at the holders 23 to 27 and with the mounting points on the engine encapsulation
21	Screw with washer assembly M 6 x 20	14		
22	Locking nut M 6 with fixed washer	1		Must be replaced by a new part for assembly of the underbody cladding, engine
23	Holder on engine, front	1	Need not be removed to dismantle the underbody cladding, engine	
24	Holder on transmission, bottom left	1	Need not be removed to dismantle the underbody cladding, engine	
25	Holder on transmission, bottom right	1	Need not be removed to dismantle the underbody cladding, engine	
26	Holder on differential	1	Need not be removed to dismantle the underbody cladding, engine	

