

PORSCHE

Technical Manual

Boxster

Technical Information

Repair

Contents:

Group 5
Body

Supplement Overview

Supplement	Edition	Topic	Article number
	05/1996	Basic edition	WKD483521
2	08/1996	General changes	WKD 483521.02
7	11/1996	General changes	WKD 483521.07
10	04/1997	Assembly instructions for hardtop assembly fixture	WKD 483521.10
12	07/1997	General remarks on the airbag	WKD 483521.12
14	08/1997	General changes	WKD 483521.14
15	08/1997	Folder separation Groups 5 and 6	WKD 483521.15
16	11/1997	General supplement	WKD 483521.16
18	01/1998	General remarks on the airbag	WKD 483521.18
20	03/1998	General supplement	WKD 483521.20
23	07/1998	Assembly instructions for hardtop assembly fixture	WKD 483521.23
25	02/1999	General supplement	WKD 483521.25
26	04/1999	General supplement	WKD 483521.26
29	07/1999	General supplement	WKD 483521.29
30	07/1999	Changes in model year 2000	WKD 483521.30
31	08/1999	Folder separation Groups 6 and 7	WKD 483521.31
32	09/1999	Removing and installing convertible-top roof liner	WKD 483521.32
36	12/1999	Removing and installing the side airbag unit	WKD 483521.36
37	05/00	General supplement	WKD 483521.37
38	07/2000	General supplement	WKD 483521.38
39	08/2000	Changes in model year 2001	WKD 483521.39
43	12/2000	Body repairs	WKD 483521.43

Table of Contents

0 Foreword

Foreword

Foreword

-1 page 1

Use

-2 page 1

Foreword

This manual contains Technical Information as well as instructions on repairs for Porsche vehicles. It is intended for the sole use of workshops belonging to Porsche AG.

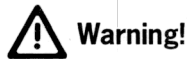
The descriptions form the basis for professional and correct maintenance and repair work. The content of the work procedures described is based on the level of training of a fitter who has completed vocational training and has a sound knowledge of the product. This level of knowledge is necessary in order to carry out the work described.

Warning notes

The warning notes and safety instructions are classified by the respective signalling word (Danger, Warning, Caution) beside the warning symbol.



Warns against death or very serious injury which will certainly occur if the instructions are not observed.



Warns against death or very serious injury which may occur if the instructions are not observed.



Warns against minor injury or damage to property if the instructions are not observed.

To prevent injury and restricted operating and traffic safety of the vehicle, or damage to the vehicle as the result of incorrect work, read these instructions carefully and observe them without fail.

It is not possible for Porsche AG to give a detailed evaluation of all danger situations for the persons carrying out the work. It is therefore imperative that all persons carrying out repair and maintenance work on Porsche vehicles use their specialist knowledge to ensure that their own safety is not at risk and the procedure chosen will not have any negative effects on the vehicle - especially with regard to safety.

It is therefore expressly specified that all work involved in the work procedures described should be carried out only in accordance with the valid guidelines and regulations of the local authorities responsible with respect to health and accident prevention and environmen-

tal protection, and in compliance with the legal requirements of individual countries.

Notes

Notes contain advisory information related to the work procedure which makes the fitter's work easier. The following pictogram indicates this information:



Note!

Contains advisory information which makes the work procedure easier.

Due to the continuous development and improvement of our vehicles, there may be discrepancies between the actual technical status of the vehicles and the work descriptions. Any existing deviations are corrected by means of supplements, and the scope of the descriptions is extended with supplements.

Porsche AG retains the right to implement changes at any time and without prior notice.

Use

The workshop documentation for the Boxster (986) model has the designation

-"Boxster (986)" Technical Manual- and contains Technical Information as well as instructions on repairs.

The integration of the technical information published in the "Boxster (986)" Technical Manual with the descriptive matter on repairs provides the user with a complex reference work that combines into one book associated or cross-referenced material of relevance to workshops and originating from various information media.

The "Boxster (986)" Technical Manual consists of 15 folders, subdivided into the following Groups

- ◆ 0 Entire vehicle - General
- ◆ 0 Diagnosis, 1 Engine, part 1 (up to Repair Group 45)
- ◆ 0 Diagnosis, 1 Engine, part 2 (as of Repair Group 69)
- ◆ 1 Engine, part 1 (up to Repair Group 13)
- ◆ 1 Engine, part 2 (as of Repair Group 15)
- ◆ 2 Fuel, exhaust, engine electronics
- ◆ 3 Transmission, manual transmission
- ◆ 3 Transmission, automatic transmission
- ◆ 4 Running gear
- ◆ 5 Body
- ◆ 6 Body equipment, exterior
- ◆ 7 Body equipment, interior
- ◆ 8 / 9 Air conditioning / Electrics
- ◆ 9 Circuit diagrams, part 1 (up to and including '99 model)
- ◆ 9 Circuit diagrams, part 2 (as of and including '00 model)

The two folders with Group 0 are to be regarded as one folder; i.e. file the "Technical Information" notices only in the folder "Group 0 Diagnosis, part 1" **-up to Repair Group 45-**.

The second folder Group 0 Engine, part 2 **-as of Repair Group 69-** includes the further Repair Groups belonging to Group 1.

The two folders with Group 1 are to be regarded as one folder; i.e. file the "Technical Information" only in front of the repair descriptions in the folder Group 1 – Engine, part 1 **-up to Repair Group 13-**.

The second folder Group 1 – Engine, part 2 **-as of Repair Group 15-** includes the further Repair Groups belonging to Group 1.

The two folders with Group 9 are to be regarded as one folder; i.e. file the "Technical Information" notices only in the folder Group 9 Circuit diagrams, part 1 **-up to '99 model-**.

The second folder Group 9 Engine, part 2 **-as of '00 model-** includes the further Repair Groups belonging to Group 9.

The "Boxster (986)" Technical Manual has the same structure in each folder, with the following breakdown for all Groups:

Title page: "Boxster (986)" Technical Manual

> Foreword

Title page: "Technical information"

> Table of contents, Technical information> Technical information

Title page: "Repair"

> Repair Groups: overview> Table of contents, repairs> General / technical data> Instructions on repairs

As can be seen from the breakdown, the published Technical Information is in the front part of each folder – numbered according to the Groups. The Table of Contents assigned to each Group will be periodically updated.

Following the Technical Information, separated by a title page, the instructions on repairs – assigned according to the Groups or broken down into Repair Groups – are included in the folders.

The instructions on repairs will be extended and updated by means of supplements.



Note!

Sheets that already exist in the "Boxster (986)" Technical Manual and are updated or revised and thereby exchanged by a supplement are designated in the footer with the supplement number corresponding to the current version: e.g. "Printed in Germany - 2,- 2000"



Note!

Due to a system modification in the Technical Literature production, the following procedures have changed in model year 2000!

- 1 - The previous record sheet in the folder "0-General" and the supplement contents sheet -red sheet- have been omitted. A supplement overview now appears separately in each folder. The new supplement contents sheet can be destroyed after the supplement is filed in the folder.

**Note!**

The supplement overview sheet is replaced with the relevant supplement in the corresponding folder and must no longer be maintained by hand.

- 2 - The page numbering in the new and the replaced chapters are no longer continuous. Each new chapter is now given an additional chapter number followed by the page number e.g.-2 Page 11 ⇒ Rep. Gr. 0; General
- 3 - The old page numbering still applies to existing chapters and those that are not replaced.

Group 0:	Entire vehicle – General	0
	Maintenance	03
Group 0:	Diagnosis	0
	Sales check	01
	On-board diagnosis	03
	DME diagnosis	24
	Tiptronic diagnosis	37
	ABS diagnosis	45
Group 0:	Diagnosis	0
	Airbag diagnosis	69
	Seat memory diagnosis	72
	Heating diagnosis	80
	Alarm system diagnosis	90
	PCM diagnosis	91
	ParkAssistent diagnosis	91
	HBA diagnosis	94
Group 1:	Engine	1
	Engine – Crankcase, suspension	10
	Engine – Crankshaft, pistons	13
Group 1:	Engine	1
	Engine – Cylinder head, valve drive	15
	Engine – Lubrication	17
	Engine – Cooling	19
Group 2:	Fuel, exhaust, engine electronics	2
	Fuel supply, control	20
	Exhaust system, turbocharging	21
	Fuel system, electronic injection	24
	Fuel system, K-Jetronic	25
	Exhaust system	26
	Starter, power supply, cruise control	27
	Ignition system	28
Group 3:	Transmission, manual transmission	3
	Clutch, control	30
	Manual transmission – Actuation, housing	34
	Manual transmission – Gears, shafts, int. gearsh.	35
	Final drive, differential, differential lock	39
Group 3:	Transmission, automatic transmission	3
	Torque converter	32
	Automatic transmission – Actuation, housing	37
	Automatic transmission – Gears, control	38
	Final drive, differential, differential lock	39

Group 4:	Running gear	4
	Front wheel suspension, drive shafts	40
	Rear wheel suspension, drive shafts	42
	Wheels, tires, suspension alignment	44
	Anti-Lock Brake System (ABS)	45
	Brakes – Brake mechanics	46
	Brakes – Hydraulics, regulator, booster	47
	Steering	48
Group 5:	Body	5
	Body front	50
	Body center, roof, frame	51
	Body rear	53
	Lids, flaps	55
	Door front, central locking system	57
Group 6:	Body equipment, exterior	6
	Sliding roof	60
	Convertible top, hardtop	61
	Bumpers	63
	Glazing, window control	64
	Exterior equipment	66
	Interior equipment	68
	Passenger protection	69
Group 7:	Body equipment, interior	7
	Linings, insulation	70
	Seat frames	72
	Seat upholsteries, covers	74
Group 8:	Air conditioning	8
	Heating	80
	Ventilation	85
	Air conditioning	87
	Auxiliary air conditioning system	88
Group 9	Electrics	9
	Instruments, alarm system	90
	Radio, telephone, on-board computer, navigation	91
	Windshield wiper and washer system	92
	Lights, lamps, switches exterior	94
	Lights, lamps, switches interior, theft protection	96
Group 9:	Circuit diagrams	9
	Wiring (up to and including the '99 model)	97
Group 9:	Circuit diagrams	9
	Wiring (from the '00 model)	97

Table of Contents

5 Body

5 Body

5	Safety instructions for body repair	5-1	page	1
	Safety instructions for disassembling components	5-1	page	1
	Safety instructions for air conditioning	5-1	page	1
	Safety instructions for fuel tank	5-1	page	1
	Safety instructions for paintwork, glass, upholstery, linings ...	5-1	page	2
	Safety instructions for airbag system	5-1	page	2
	Safety instructions for door	5-1	page	2
	Safety instructions for sliding roof	5-1	page	4
	Safety instructions for rear spoiler	5-1	page	4
	Safety instructions for rear window	5-1	page	4
	Safety instructions for windscreen	5-1	page	5
	Safety instructions for heat shields	5-1	page	6
	Safety instructions for cabriolet convertible top	5-1	page	6
	Safety instructions for roll-over protection system	5-1	page	7
	Safety instructions for plug location plan (body)	5-1	page	7
	Safety instructions for water drains (body)	5-1	page	7
	Safety instructions for welding	5-1	page	7
	Safety instructions for Teromix-6700 two-component adhesive	5-1	page	8
	Safety instructions for hydraulic system	5-1	page	8
	Safety instructions for hardtop	5-1	page	8
	Safety instructions for belt strap holder	5-1	page	9
5	General information and quality notes	5-2	page	1
	Electronic control modules	5-2	page	1
	– Protection against overvoltage	5-2	page	1
	– Replacing control modules	5-2	page	1
5	Tools and metalworking tools for body repairs	5-3		
5	Repair check dimensions	5-7		
5	Body parts of high-strength steel	5-15		
5	Diagram of safety passenger compartment	5-19		
5	Water drainage plan	5-21		
5	Plug location plan	5-23		
5	Body gap dimensions	5-33		
5	Diagram - key to symbols for welding work	5-37		
5	Seam seals	5-39	page	1
	Accessories	5-39	page	2
	– Front lid	5-39	page	2
	– Doors	5-39	page	3
	– Rear lid	5-39	page	3

5	Work sequence for accident repair ..	5-40	page	1
50	Body front			
505619	Removing and installing wheel housing liner	50-1		
505519	Removing and installing the wing	50-5		
501055	Replacing closing panel	50-11	page	1
	Cutting out closing panel and front floor panel	50-11	page	2
	Preparing closing panel and front floor panel for installation and fitting	50-11	page	4
	Welding in closing panel and front floor panel	50-11	page	6
	Tools and materials	50-11	page	7
507456	Replacing wheel housings and side members (sectional repair)	50-17	page	1
	Cutting out wheel housings and side members	50-17	page	2
	Preparing wheel housings and side members for installation and fitting	50-17	page	4
	Welding in wheel housings and side members	50-17	page	6
507455	Replacing wheel housing	50-23	page	1
	Removing wheel housing, lower shell and outer side member from the body	50-23	page	2
	Preparing wheel housing, lower shell and outer side member for installation and fitting	50-23	page	4
	Welding wheel housing, lower shell and outer side members into the body ..	50-23	page	6
	Tools and materials	50-23	page	7
509330	Cleaning front water drains	50-29		
501455	Replacing front wall	50-33	page	1
	Cutting out front wall	50-33	page	2
	Preparing front wall for installation and fitting	50-33	page	4
	Welding in front wall	50-33	page	6
	Tools and materials	50-33	page	7
51	Body centre, roof, frame			
519019	Removing and installing underbody cover	51-1		
514555	Replacing outer lower side member	51-5	page	1
	Separating outer lower side member	51-5	page	2
	Preparation for installation of lower side member and fitting	51-5	page	4
	Welding lower side member	51-5	page	6
	Tools and materials	51-5	page	7
518755	Replacing seat cross member	51-6	page	
	Cutting out seat cross member	51-6	page	2
	Preparation of seat cross member for installation and fitting	51-6	page	4
	Welding in seat cross member	51-6	page	6
	Tools and materials	51-6	page	7
53	Body rear			
536919	Removing and installing wheel housing liner .	53-1		
535555	Replacing side section	53-5		
539030	Cleaning rear water drains	53-15		

531655	Replacing end cross member	53-16	page	1
	Separating end cross member	53-16	page	2
	Preparing the rear end cross member for installation and inserting	53-16	page	4
	Inserting end cross member	53-16	page	6
532455	Replacing rear trunk floor panel	53-17	page	1
	Separating rear trunk floor panel	53-17	page	2
	Preparing the rear trunk floor panel for installation and inserting ..	53-17	page	4
	Inserting rear trunk floor panel	53-17	page	6
533655	Replacing rear cover panel	53-18	page	1
	Separating rear cover panel	53-18	page	2
	Preparing the rear cover panel for installation and inserting	53-18	page	4
	Inserting the rear cover panel	53-18	page	6
	Tools and materials	53-18	page	9
536855	Replacing rear wheel housing	53-19	page	1
	Cutting through rear wheel housing	53-19	page	2
	Preparing the rear wheel housing for installation and fitting	53-19	page	6
	Welding in rear wheel housing	53-19	page	8
	Tools and materials	53-19	page	11
55	Lids, flaps			
552219	Disassembling and assembling front lid	55-1		
559037	Disassembling and assembling rear lid	55-5	page	1
	Replacing the model logo	55-5	page	4
551037	Disassembling and assembling release for lid	55-11		
555737	Disassembling and assembling release for rear lid	55-17		
559119	Removing and installing lid hinge	55-18	page	1
558619	Removing and installing lower part of lid lock at rear	55-19	page	1
551037	Disassembling and assembling release for front lid- from model year 2001	55-20	page	1
	Disassembling release for front lid	55-20	page	2
	Assembling release for front lid	55-20	page	4
555737	Disassembling and assembling release for rear lid - from model year 2001	55-21	page	1
	Disassembling release for rear lid	55-21	page	2
	Assembling release for rear lid	55-21	page	4
551719	Removing and installing lower part of front lid lock - from model year 2001	55-22	page	1
	Removing and installing bowden cable for lock actuation	55-22	page	4
57	Door front, central locking system			
575119	Removing and installing door	57-1	page	1
575137	Disassembling and assembling door	57-5	page	1
	Disassembling door	57-5	page	2
	Assembling door	57-5	page	7
575137	Adjustment instructions for assembly of the door	57-6	page	1
	Diagram: sheetmetal clips and grommets	57-6	page	1
	Basic setting of door lock	57-6	page	1

	– Basic setting of the door lock before installation	57-6	page 2
	Standardising the system	57-6	page 2
	– Standardising the power windows	57-6	page 2
	– Blockage detection function	57-6	page 3
	– Precondition for operation of the power windows	57-6	page 3
	Fitting the door window in the clamping jaws	57-6	page 3
	Adjusting the door window angle in the vehicle's longitudinal direction	57-6	page 4
	Adjusting the door window height	57-6	page 4
	– Adjustment procedure:	57-6	page 4
	– Checking the adjustment	57-6	page 5
	Adjustment of the door window pressing force on the door seal at the top and sides	57-6	page 5
	– Adjustment procedure:	57-6	page 5
	– Checking the adjustment:	57-6	page 5
	Adjusting the lower stop of the power window unit	57-6	page 6
571137	Disassembling and assembling door handle	57-21	
575116	Setting the door	57-22	page 1

Safety instructions for body repair

Safety instructions for disassembling components



Change in centre of gravity of vehicle when parts are removed!

Danger of injury and damage to vehicle if the vehicle falls from the lifting platform!

- ***If the centre of gravity of the vehicle is changed as a result of removed components, the vehicle must be secured on the lifting platform!***

Safety instructions for air conditioning



Danger of fire due to the filled air-conditioning system heating up during welding and soldering work!

- ***No welding, soldering or hot-air heating may take place on parts of the filled air-conditioning system!***
- ***While drying after painting work, the temperature burden on the vehicle must not exceed two hours at a maximum temperature of 80 °C!***
- ***Make sure that parts of the air-conditioning system do not heat up during welding or soldering work on the vehicle!***

Safety instructions for fuel tank



Danger of fire due to fuel tank or fuel-carrying parts heating up during grinding and welding work!

- ***When carrying out grinding and welding work near the fuel tank or fuel-carrying parts, make sure that these parts do not heat up!***
- ***It is recommended to remove endangered parts!***
- ***Adjacent parts must be covered!***

Safety instructions for paintwork, glass, upholstery, linings

Caution!

Danger of fire and danger of damage to battery, paintwork and glass due to flying sparks during body repair!

- ***No other vehicles may be left unprotected in areas used for body repair!***

Safety instructions for airbag system

Warning!

Danger of injury if airbag units are triggered while ignition key is not removed!

- ***Always remove ignition key during body work, and do not commence adjustment work until a waiting period of at least 1 minute has elapsed!***
- ***The ground strap of the battery must be disconnected during work on the airbag system and alignment bench work within the framework of body repair!***

Warning!

Danger of injury if side airbag units in the door are triggered while ignition key is not removed!

- ***Always remove ignition key during body work, and do not commence adjustment work until a waiting period of at least 1 minute has elapsed!***
- ***The ground strap of the battery must be disconnected during work on the airbag system and alignment bench work within the framework of body repair!***

Safety instructions for door

Caution!

Danger of material damage if the door lock is installed incorrectly!

Malfunctions in the alarm system!

The door lock should be installed only when the actuating lever is in basic position!

 **Warning!**

Danger of injury if side airbag units in the door are triggered while ignition key is not removed!

Always remove ignition key during body work, and do not commence adjustment work until a waiting period of at least 1 minute has elapsed!

The ground strap of the battery must be disconnected during work on the airbag system and alignment bench work within the framework of body repair!

 **Caution!**

There is a danger of injury if fingers or hands are trapped by the door window when the comfort function is triggered: lower and raise door window!

- **When carrying out assembly work in the area of the connection piece (Item 3), the bottom part of the door handle (Item 4) and the door lock (Item 5), the fuse No. 1 in row D must be removed!**

 **Caution!**

Damage to plug connection lugs during door removal!

Damage to lugs when pulling the plug connection out of the A-pillar!

- **The locking element at the bottom part of the plug connection must be pulled out before the plug connection is disconnected!**

 **Caution!**

Damage to the bowden cable when removing door trim panel!

Damage by bending the bowden cable at the hook!

- **Pull the hook out of the end piece only after installation in the inner door release!**

Safety instructions for sliding roof

Caution!

Damage to water drainage channel and sliding roof mechanism when sliding roof panel is removed!

The rear water drainage channel or the sliding roof mechanism is damaged if the sliding/tilting roof trim is moved incorrectly!

- **The sliding roof panel must not be moved to the "Open" position when the sliding roof panel has been removed!**
- **In order to avoid damage to the guides of the sliding roof, the sliding/tilting roof panel (Item 4) must be moved without the use of force!**

Safety instructions for rear spoiler

Warning!

Danger of injury and danger of damage to hydraulic system if pressure is discharged suddenly!

The hydraulic system is under 30 bar pressure when the rear spoiler is extended!

- **No work must be carried out on the hydraulic system when the rear spoiler is extended!**

Warning!

Danger of injury and danger of damage to the vehicle if handling is modified when adjusting the additional wing!

The additional wing must be moved to the lowest position for use in public traffic!

Safety instructions for rear window

Caution!

Damage to surrounding section if rear window is removed incorrectly!

- **When cutting out the rear window, take care not to damage the surrounding section!**

 **Caution!**

Damage to rear window if curing time of adhesive is not observed!

- **The vehicle must not be used until the curing time has elapsed.**

In order to ensure that the bonded joint is sufficiently strong, the following boundary conditions must be adhered to:

- **Curing time: 3 hours**
- **Temperature: at least 10 °C**
- **Fixing time: approx. 1 hour**


 **Caution!**

Wire strand can crack and melt off during heating if pressure frame is fitted incorrectly!

Rear window can be destroyed if pressure frame is fitted incorrectly!

- **The pressure frame must be in contact on all sides!**

Safety instructions for windscreen

 **Warning!**

Danger of injury and danger of damage to windscreen if curing time of adhesive is not observed!

The vehicle must not be used until the curing time has elapsed.

In order to ensure that the bonded joint is sufficiently strong, the following boundary conditions must be adhered to:

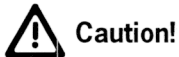
- **Curing time: 3 hours**
- **Temperature: at least 10 °C**
- **Fixing time: approx. 1 hour**

 **Caution!**

Danger of damage to surrounding section and to the label with the vehicle identification number if rear window is removed incorrectly!

- *When cutting out the rear window, ensure that the surrounding section and the label with the vehicle identification number are not damaged!*

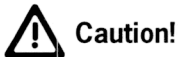
Safety instructions for heat shields



Danger of heat accumulation if deformed heat shields are assembled near the rear spoiler and rear bumper!

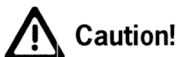
- *Damaged or distorted heat shields must be straightened or replaced!*

Safety instructions for cabriolet convertible top



Damage to tension bow seal if convertible top is actuated electrically in service position!

- *The convertible top must no longer be electrically moved in service position!*



Damage to convertible-top frame if not running synchronously during bleeding!

- *The hydraulic system can be bled only if the hydraulic cylinders are removed from the convertible-top supports and drive levers on both sides!*



Short circuit and burns on convertible top if wire strands are crossed!

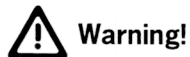
- *Wire strands must not be crossed!*



Damage to or destruction of convertible top in the case of electrical actuation when convertible top is removed!

- *The convertible top must no longer be electrically operated when the convertible-top support is detached!*

Safety instructions for roll-over protection system



Danger of injury if roll-over bar is actuated when roll-over bar module is being removed!

Remove the roll-over bar modules only after the roll-over bar has been extended (triggered)!

Safety instructions for plug location plan (body)



Danger of corrosion and of unwanted water penetration when removing plugs!

The body apertures are sealed with plugs in the factory, and must be resealed with the plugs provided following disassembly or repair work!

Safety instructions for water drains (body)



Water drainage hoses can be pushed out or pressed in by blowing them out of the body during cleaning!

- ***The water drainage hoses must be blown out carefully during cleaning using compressed air!***

Safety instructions for welding



Irritation to respiratory tracts from toxic zinc oxide emitted when welding galvanized steel!

- ***The work area must be well ventilated!***
- ***Smoke gases must be removed with a suitable extraction system! (Refer to Workshop Equipment Manual, Group 5).***

Safety instructions for Teromix-6700 two-component adhesive



Danger of damage to side section if binding time of adhesive is not observed!!

- ***The new part must be welded in within 30 minutes!***

Safety instructions for hydraulic system



Danger of damage to hydraulic system if hydraulic lines are bent, trapped or crushed during installation!

- ***Do not bend, trap or crush hydraulic lines during installation!***

Safety instructions for hardtop



Danger of crushing and trapping of components in the case of intervention in the hardtop mechanism!

- ***The hardtop must be raised evenly on both sides!***



Damage to the hardtop lining and windstop if the procedure is carried out incorrectly!

- ***The windstop must be removed before fitting the hardtop!***



Damage to the rivet connections of the hardtop body if the rear window is cut out incorrectly!

- ***When cutting out the rear window, make sure to cut close to the rear window!***

Safety instructions for belt strap holder



Danger of impact with the belt strap holders fitted on wheel!

- ***Pay attention to the two projecting belt strap holders when working on the vehicle!***



Damage to the adhesive when entering or leaving the vehicle during the hot-melt process and the cooling time!

Belt strap tension changes due to entering and leaving the vehicle!

- ***Do not enter or leave the vehicle during the hot-melt process and the cooling time!***

General information and quality notes

Electronic control modules



Note!

If electronic components, e.g. ABS control module, have been removed for repair work and are then reused, they must be given a functional check after installation in accordance with the existing specifications!

Protection against overvoltage

To protect electronic control units from overvoltage during electric arc welding, the following work regulations must be observed:

- ◆ When welding work is extensive, the electronic control units must be removed. Ensure that there are no electrically insulated parts between the earth connection and the welding point.
- ◆ Remove clamp from negative terminal of battery and cover negative terminal of battery.
- ◆ Connect the earth connection of the electric arc welding equipment as near as possible to the welding point on the part to be welded.
- ◆ Do not touch electronic control units or electric cables with the earth connection or the welding electrode.

Replacing control modules

The replacement of electronic control modules after an accident is necessary if at least one of the following conditions is met:

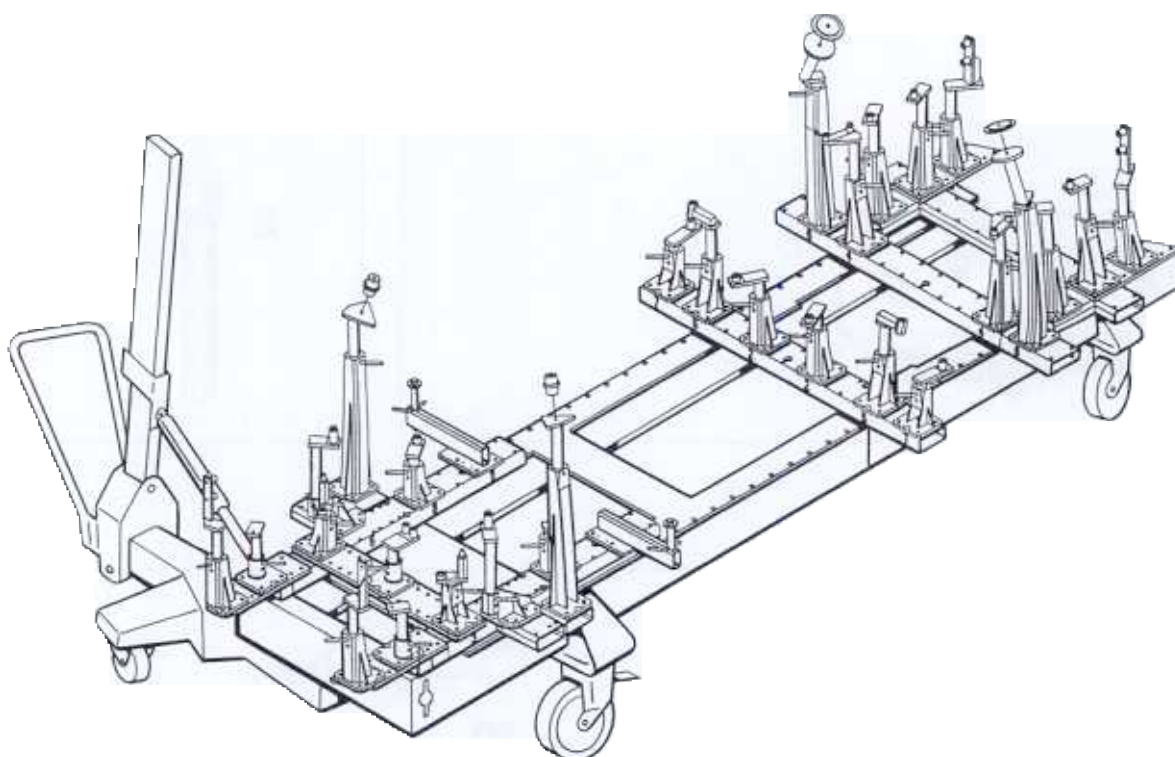
- The housing is noticeably deformed or damaged.
- The supporting surface or bracket is deformed (the unit shows no external damage).
- The plug connection is damaged or corroded by moisture.
- Functional checks on or self-diagnosis of the unit reveals the fault "Control module faulty".

5 Tools and metalworking tools for body repairs

Detailed and additional information about tools and equipment can be found in the "Workshop Equipment" manual.

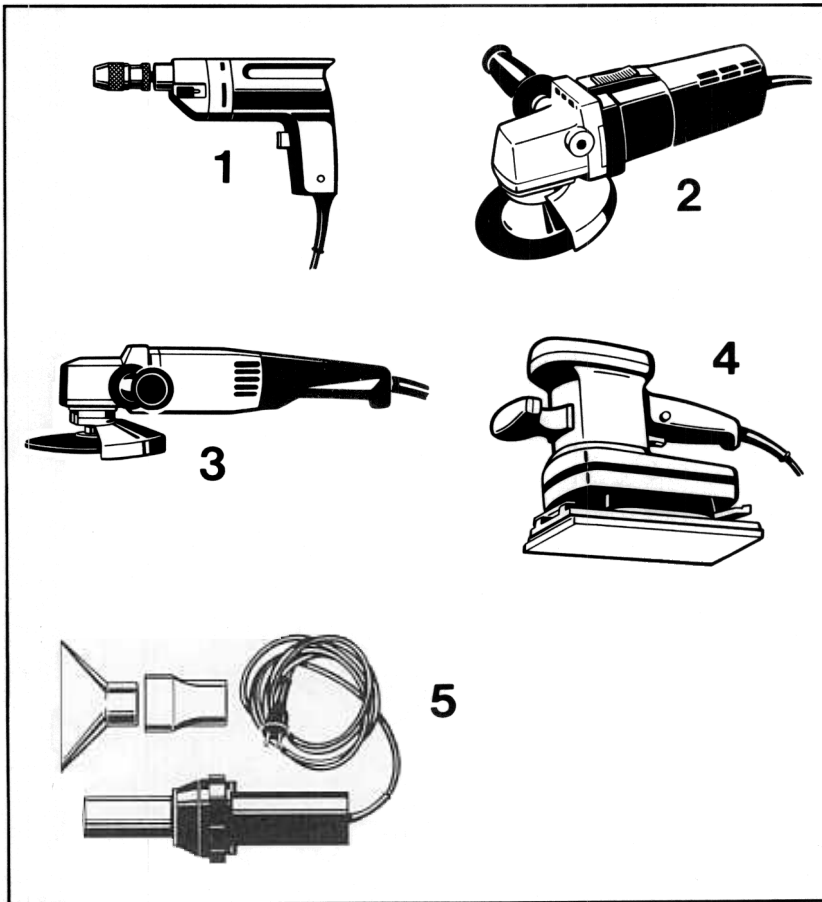
Straightening systems

e.g. Celette

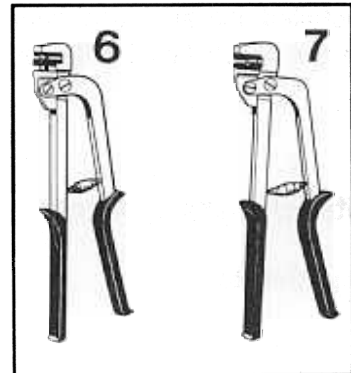


101 - 96

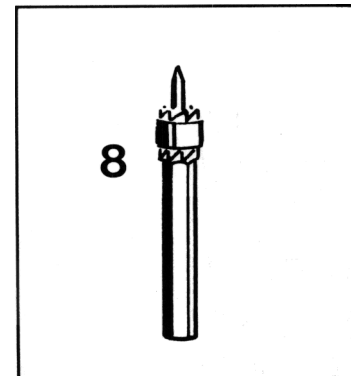
Metalworking tools



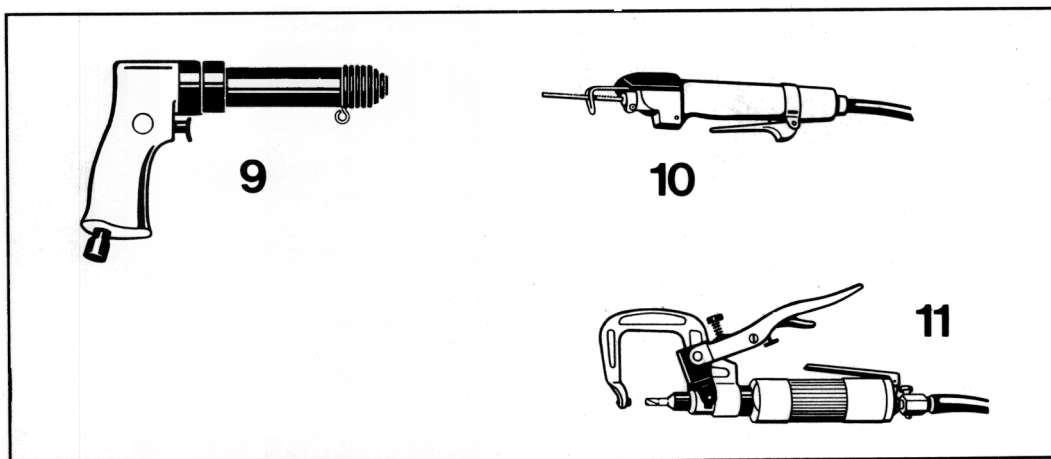
238 - 50



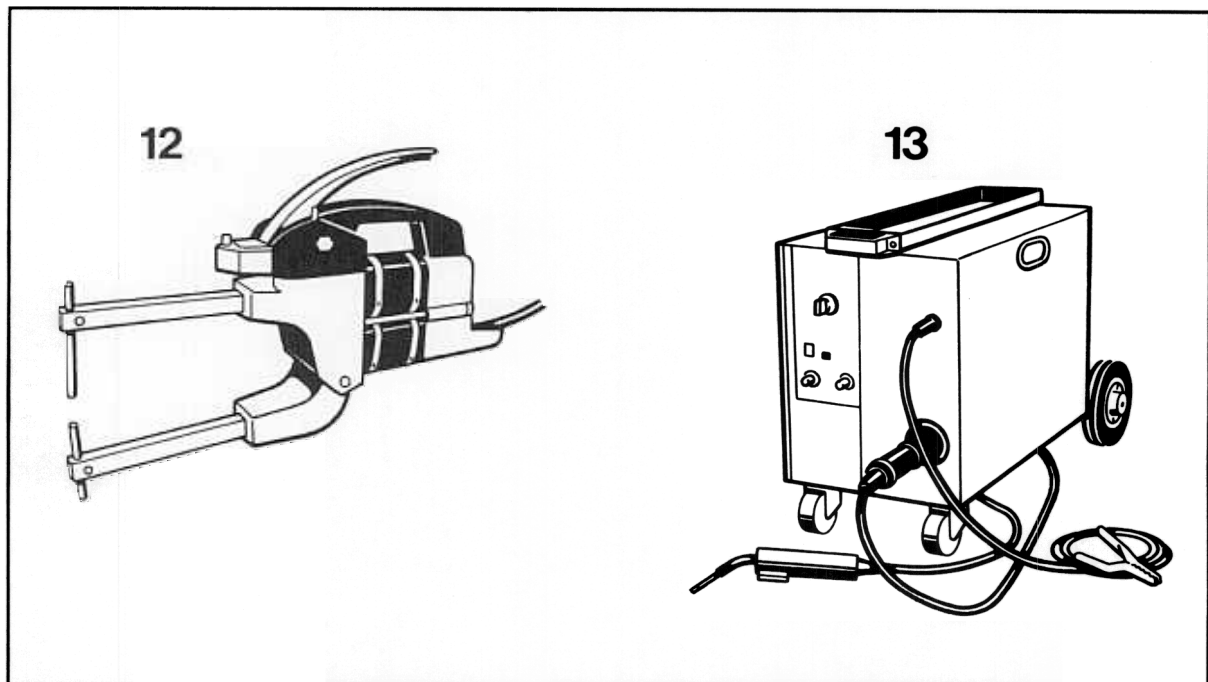
236 - 50



308 - 50



235 - 50

Metalworking tools**Electrical equipment:**

- 1 = Drill
- 2 = Angle grinder, large
- 2 = Angle grinder, small
- 4 = Sander
- 5 = Hot-air gun

Mechanical equipment:

- 6 = Hole punch
- 7 = Edge setter

Accessories:

- 8 = Spotweld cutter (for drill)

Compressed-air equipment:

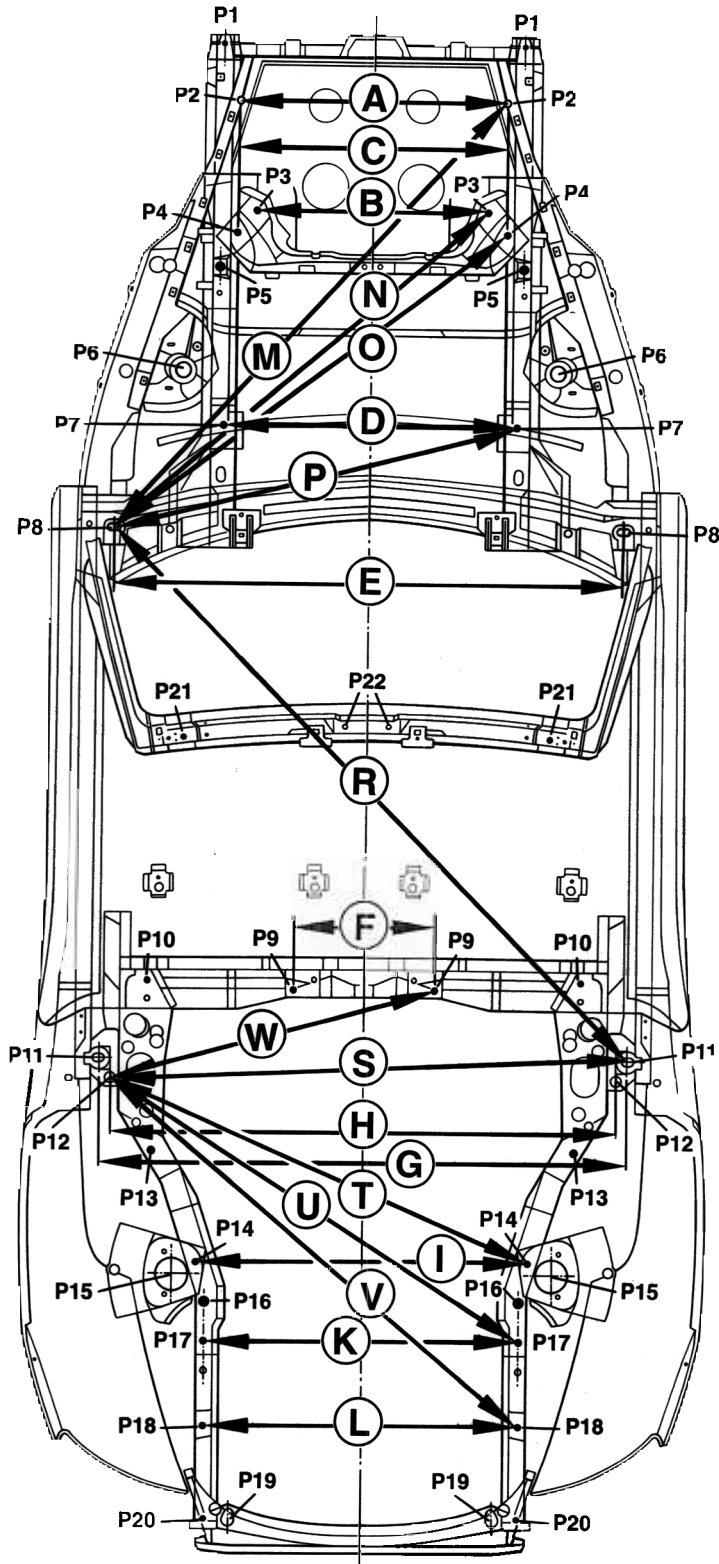
- 9 = Air chisel
- 10 = Body saw
- 11 = Spotweld cutter

Welding equipment:

- 12 = Spotwelder
- 13 = MIG welder

5 Repair check dimensions

Floor assembly dimensions



38 - 96

Floor assembly dimensions

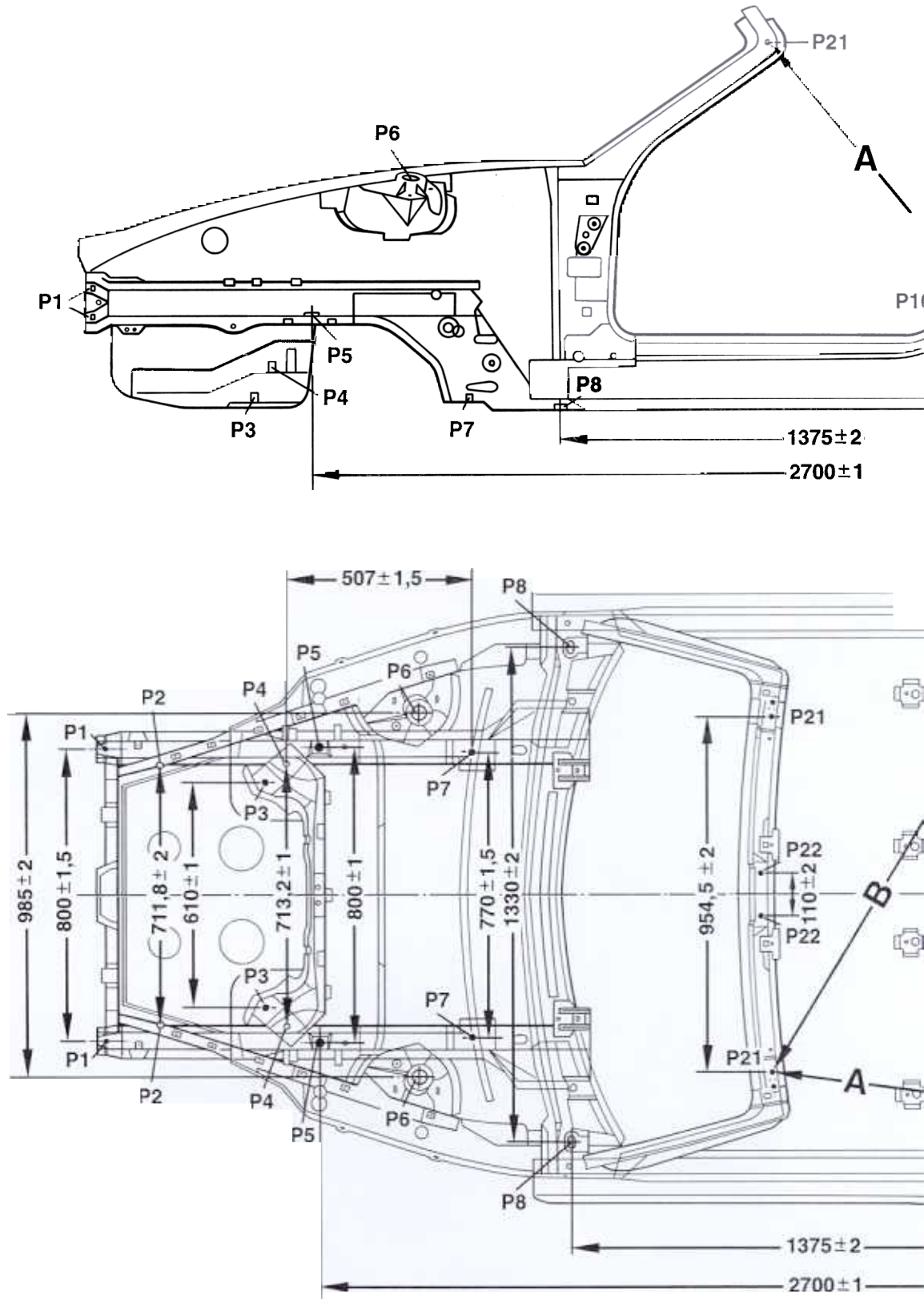
Dimension	Point	Designation	mm
A	P 2	Side bearer, spare-wheel well	711.8 ± 2
B	P 3	Front axle front, front, low	610. ± 1
C	P 4	Front axle front, rear, high	731.2 ± 1
D	P 7	Front axle front, rear	773.0 ± 1
E	P 8	Front jacking point for hoist or car jack	1330 ± 2
F	P 9	Engine mount	377 ± 2
G	P 11	Rear jacking point for hoist or car jack	1375 ± 2
H	P 12	Diagonal brace, front	1320 ± 2
	P 14	Rear axle, front	870 ± 2
K	P 17	Rear axle, rear	824 ± 2.5
	P 18	Diagonal brace, rear	824. ± 2
M	P 8 - P 2		1525.1 (1524.6)
N	P 8 - P 3		1279 (1278.9)
O	P 8 - P 4		1278.8 (1282.6)
P	P 8 - P 7		1084.1 (1083.8)
R	P 8 - P 11		1928.7 (1928.7)
S	P 11 - P 12		1348.8 (1348.6)
T	P 12 - P 14		1223.8 (1197.9)

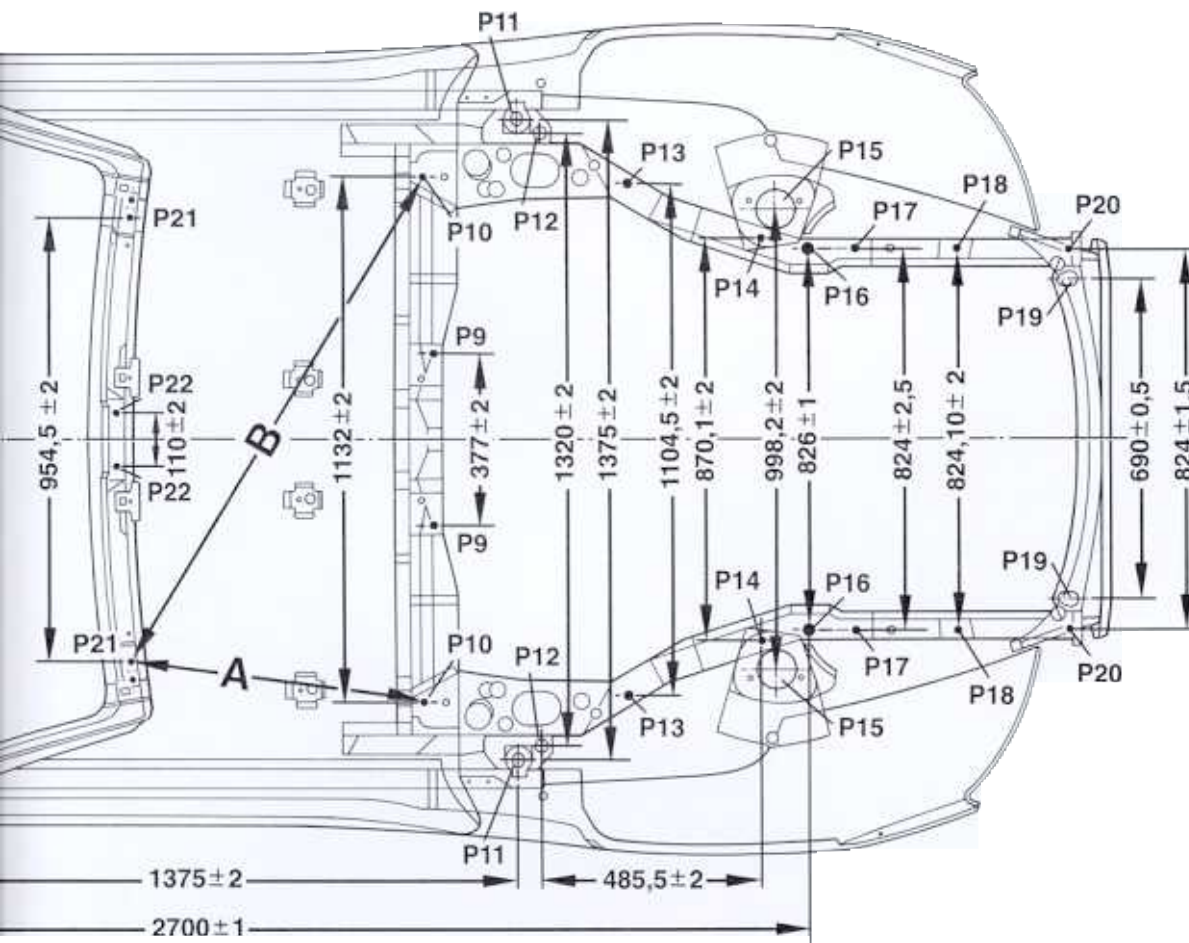
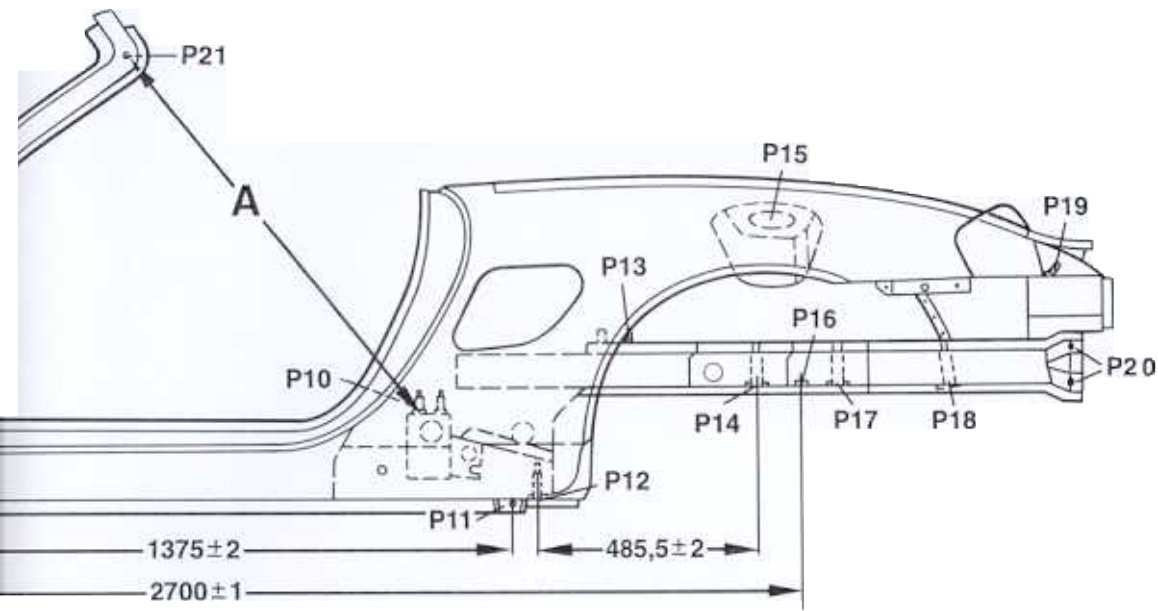
Dimension	Point	Designation	mm
U	P 12 - P 17		1299.2 (1274.9)
V	P 12 - P 18		1430.1 (1408.5)
W	P 12 - P 9		855.5 880.2)

Note

All dimensions are measured to the middle of the hole or screwed point. The dimensions are measured directly and, therefore, are oblique dimensions. Dimensions in brackets are measured horizontally.

Dimensions for set-up





Structure dimensions

Point L/R	Designation	Point L/R	Designation
	Impact absorber / pipe front screwed point (thread M8)	14	RA front screwed point (thread M14 x 1.5)
2	Bearer side spare-wheel well screwed point (thread M8)	15	Spring strut location hole rear
3	FA, front screwed point low (thread M12 x 1.5)	16	Rational location hole side member rear
4	FA, front screwed point high (thread M14 x 1.5)	17	RA rear screwed point (thread M10)
5	Rational location hole side member front	18	Diagonal brace rear screwed point (thread M10)
6	Spring strut location hole front	19	Guide rear spoiler screwed point (thread M6)
7	FA, rear screwed point (thread M14 x 1.5)	20	Impact absorber / pipe rear screwed point (thread M8)
8	Hoist/car jack front location hole	21	Convertible-top positioning screwed point (thread M6)
9	Engine mounting screwed point (thread M10)	22	Convertible-top lock screwed point (thread M6)
10	Roll-over bar screwed point front (thread M8)		
11	Hoist/car jack rear location hole	Dim. mm	Designation
12	Diagonal brace front screwed point (thread M10)	A 1010.2	Slant between P10 and P21 screwed point (thread M8)
13	Roll-over bar screwed point rear (thread M8)	B 1213.4	Diagonal between P10 and P21 screwed point (thread M8)
FA =	Front axle	RA =	Rear axle

Body parts of stronger sheet steel

The following body parts are made from stronger sheet steel!

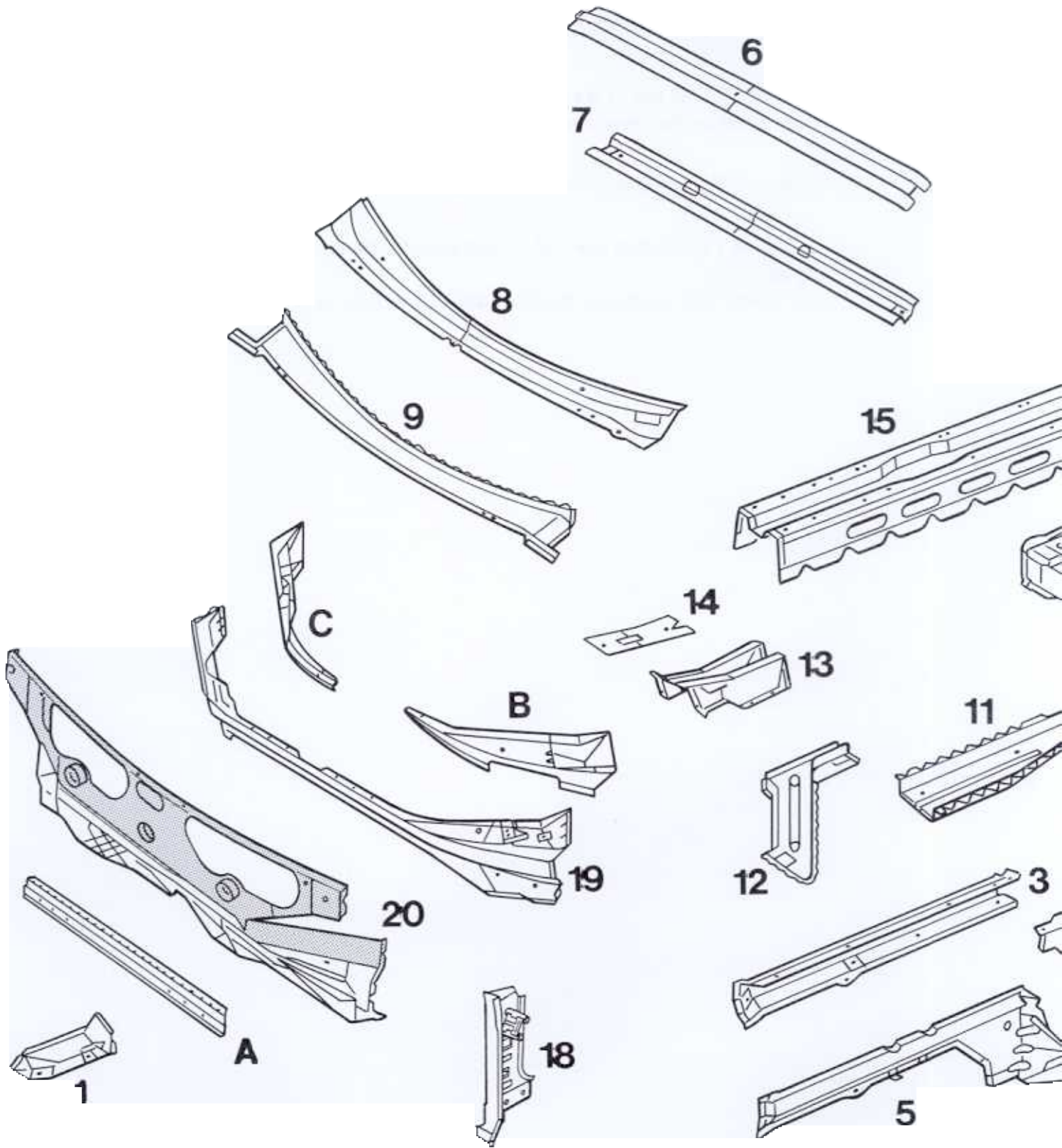
Body parts 20, 22 and 24 are welded together from plates of different material thicknesses and characteristics and are then deep drawn.

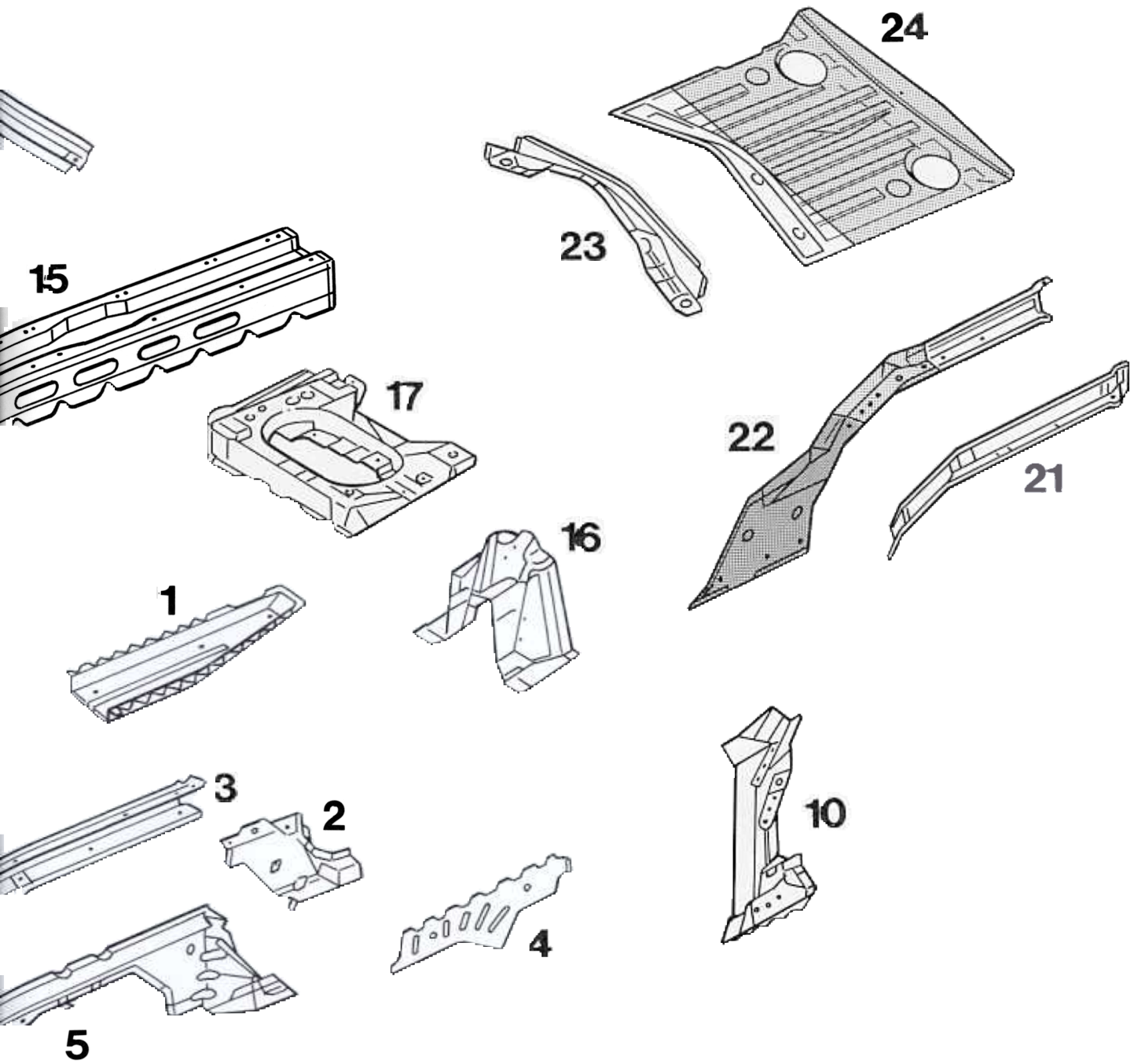
Body parts A, B and C possess extremely high tensile strength and are therefore not hot-dip galvanized.

Body parts 1 to 24 attain their final strength only after the production stage of cathodic immersion painting and drying.

This affects body repairs and, therefore, only "Original Porsche parts" shall be used for repair work.

Body parts of stronge sheet steel





Body parts of stronger sheet steel

No.	Designation	No.	Designation
	Bearer side at spare-wheel well left and right	16	Crash reinforcement rear
2	Connection bracket inner to side member front inner left and right	17	Seat support left and right
3	Side member front inner left and right	18	Hinge pillar left and right
4	Web plate outer side member front outer left and right	19	Cross member firewall inner
5	Side member front outer left and right	20	Firewall
6	Cowl panel frame top outer	21	Side member rear outer left and right
7	Cowl panel frame top inner	22	Side member rear inner left and right
8	Cowl panel frame bottom outer	23	Cross member rear axle
9	Cowl panel frame bottom inner	24	Base rear
10	A-pillar reinforcement left and right		
11	Side member floor front bottom left and right		Stronger sheet steel parts without galvanised surface
12	Bearer floor front top left and right	A =	Reinforcement cross member firewall front
13	Front crash support	B =	Reinforcement cross member firewall inner left
14	Closing part front crash support	C =	Reinforcement cross member firewall inner right
15	Tunnel reinforcement		

General remarks on the body parts of stronger sheet steel

Applicable to the Boxster type

Body parts of stronger sheet steel contribute to the strength of the passenger compartment and thus serve to protect the passengers. In addition, these body parts retain their fatigue strength, crash safety and corrosion resistance.

In terms of crash behaviour, body parts made from stronger sheet steel are distinguished for their higher energy absorption. But this also means that higher reshaping force must be applied in straightening work.

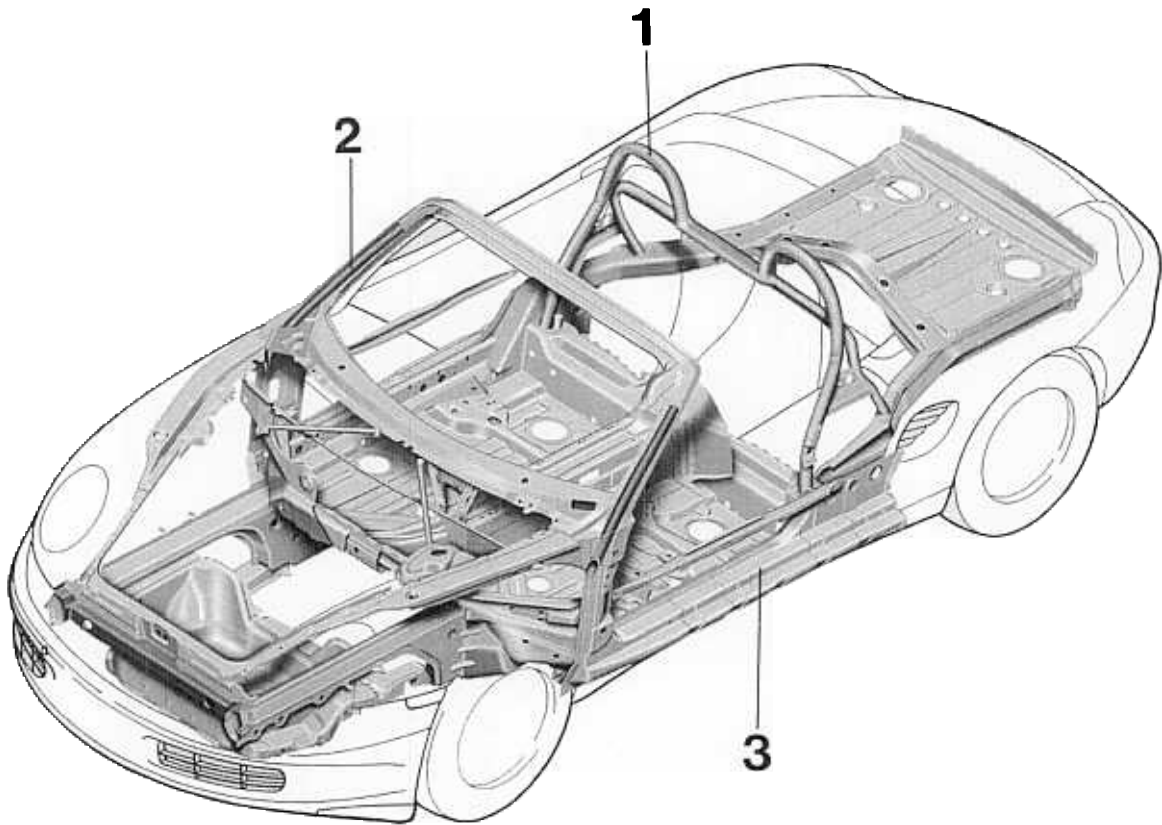
Welding work

Body parts of stronger sheet steel can be welded using the shielding-gas welding methods that are customary in workshops. The use of the oxyacetylene welding process is not permissible for body parts made from high-strength steel.

Repair note

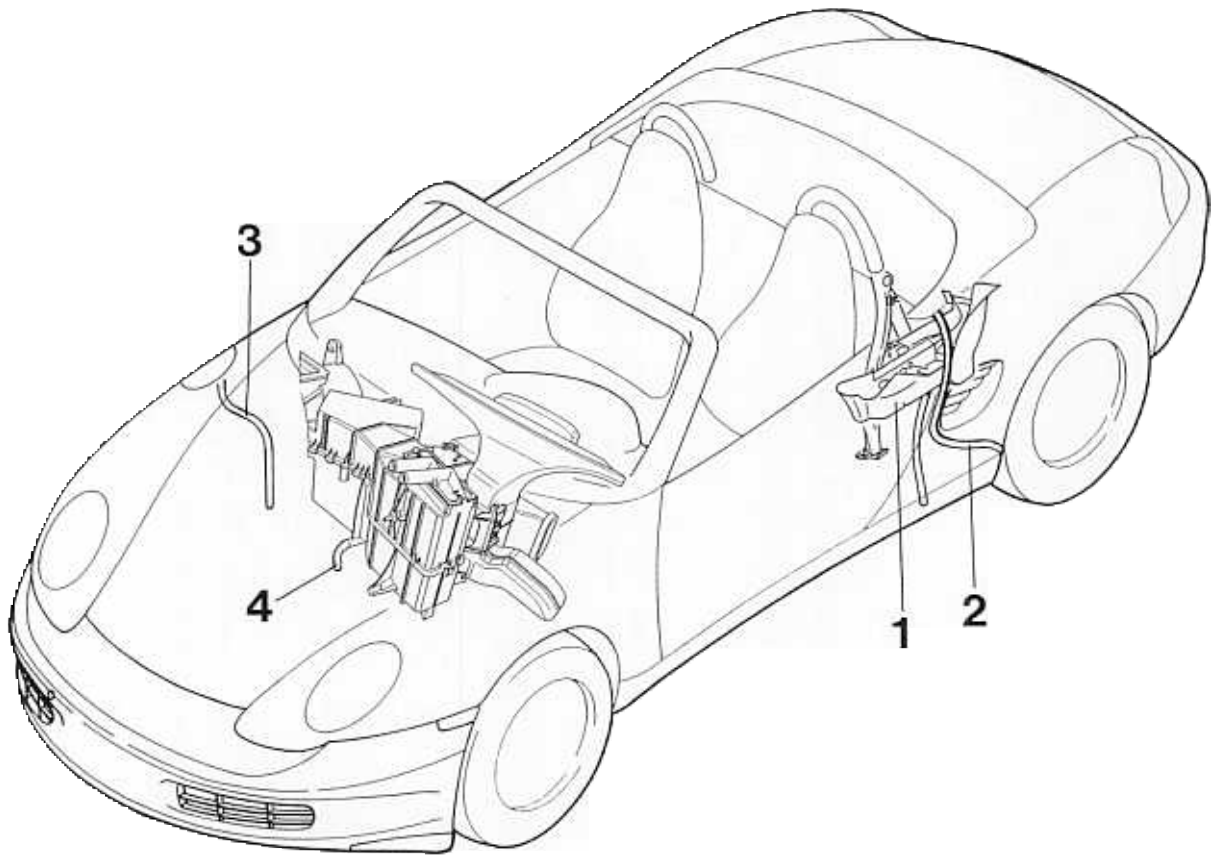
Body repairs by reshaping are not possible if these body parts are correspondingly deformed. Here, the repair must be made by the use of new parts or sectional repairs.

For this purpose, only "Original Porsche parts" or sections of "Original Porsche parts" may be used.

5 Diagram of safety passenger compartment

385 - 96

- 1 Roll-over bar
- 2 Reinforcing pipe in the A-pillar
- 3 Body is manufactured from stronger sheet steel

5 Diagram of water drainage plan

392 - 96

- 1 Water drainage : from the water tray
- 2 Water drainage : from leakage channel at front top rear-side panel
- 3 Water drainage : tank tray
- 4 Water drainage : from evaporator of heating and air-conditioning system

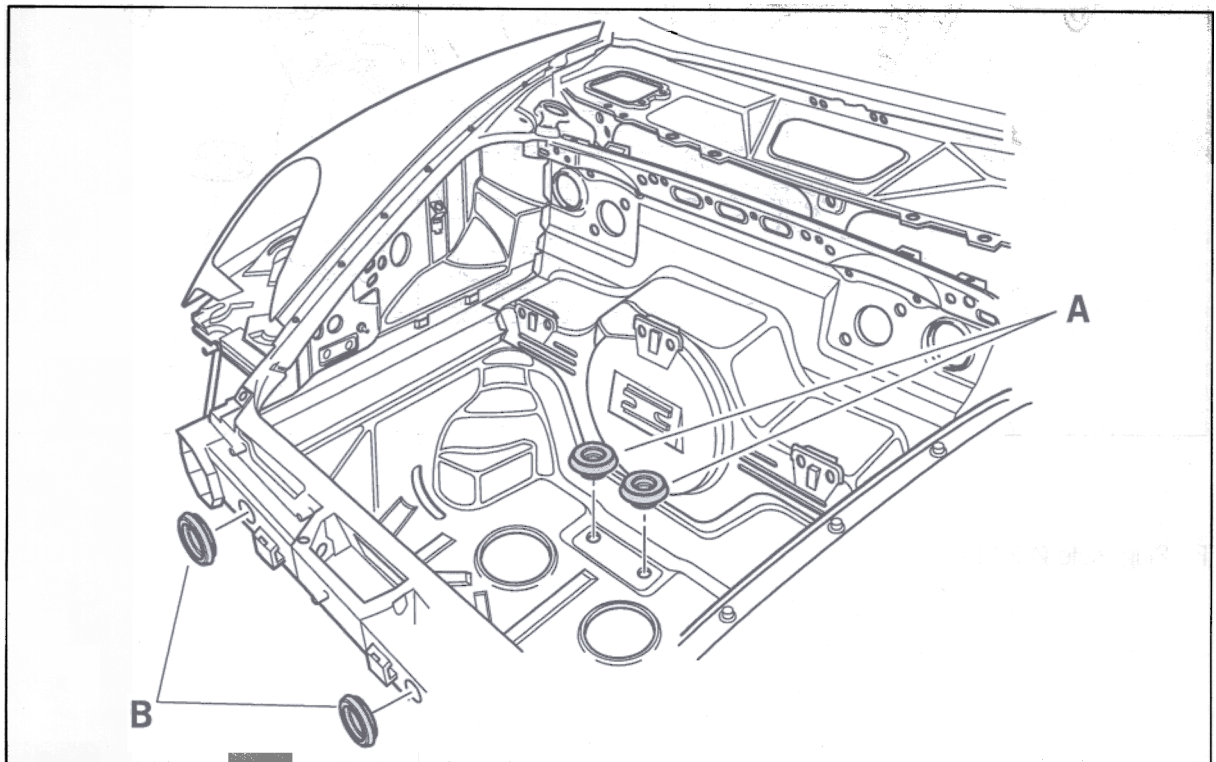
5 Diagram: Plug plan

Warning:

Water can enter and cause corrosion if plugs are removed.

- > The body openings closed by plugs at the factory must be closed with the proper plugs again after disassembly or repair work.

Front of vehicle, top

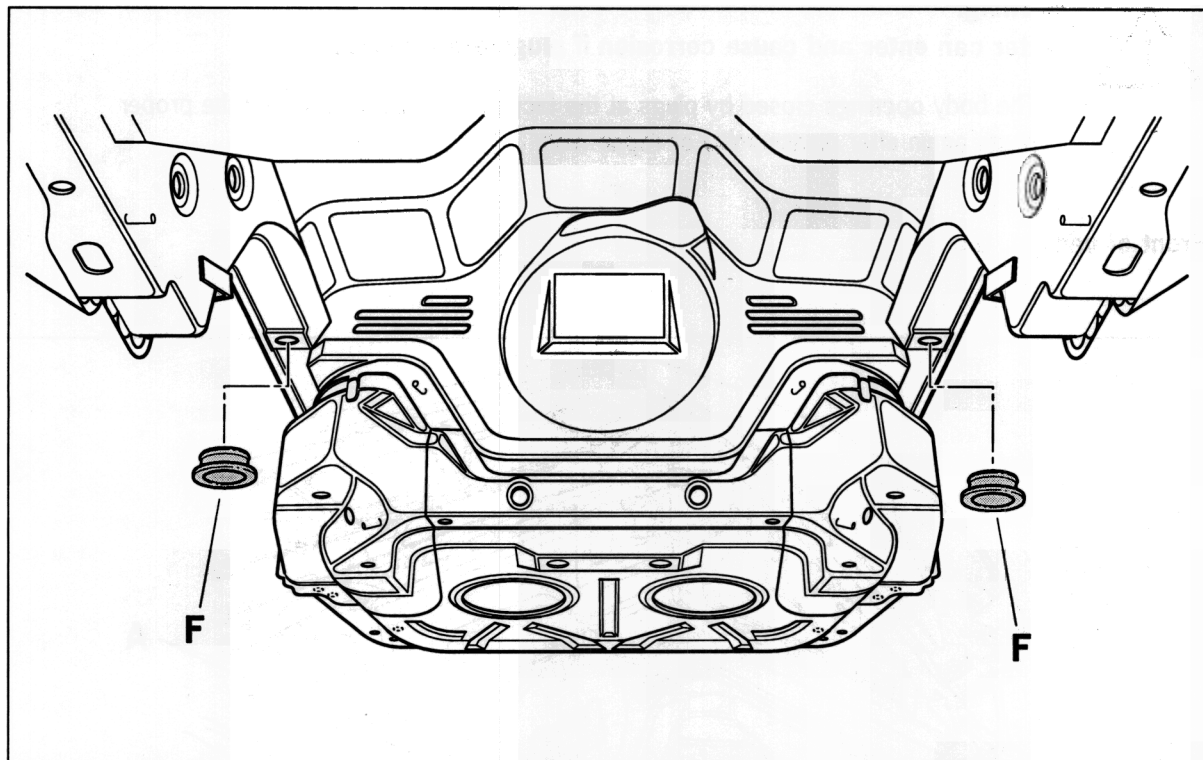


181_98

A : Rubber sleeve, hole \varnothing 20 mm

B : Rubber sleeve, hole \varnothing 30 mm

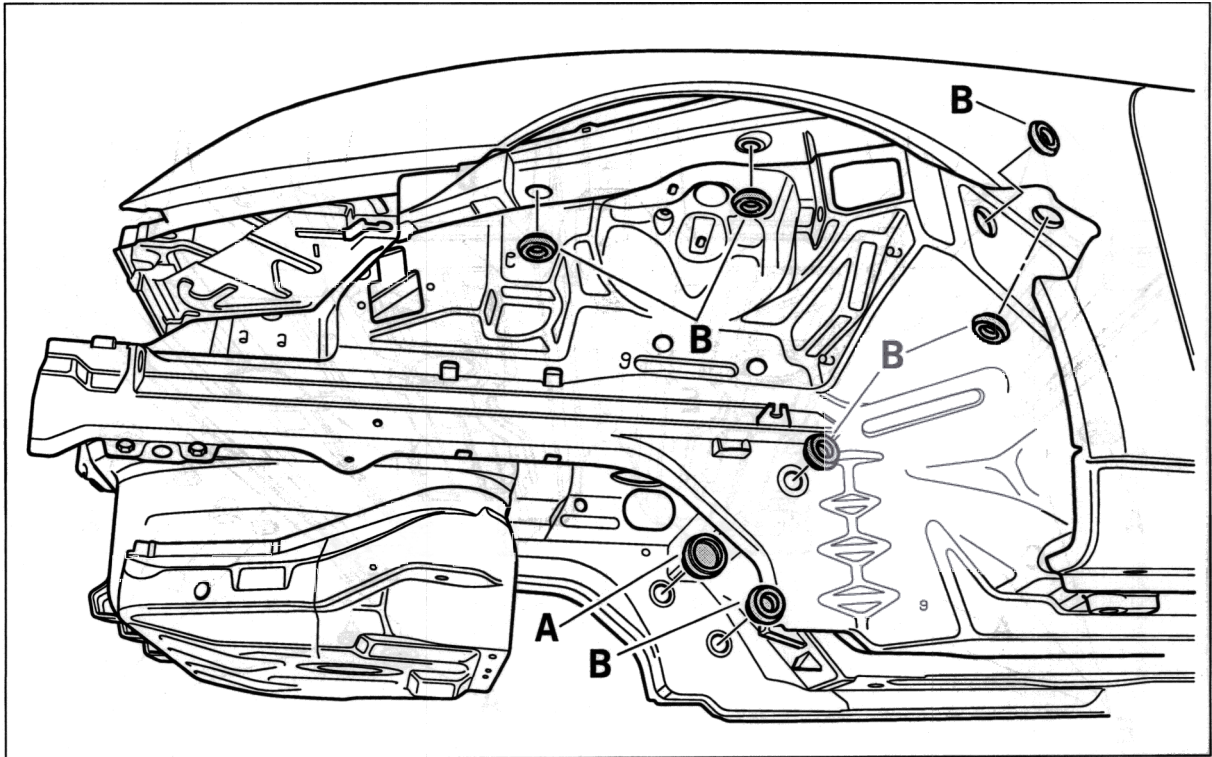
Front of vehicle, bottom



180_98

F : Plug, hole \varnothing 20 mm

Front of vehicle, at sides

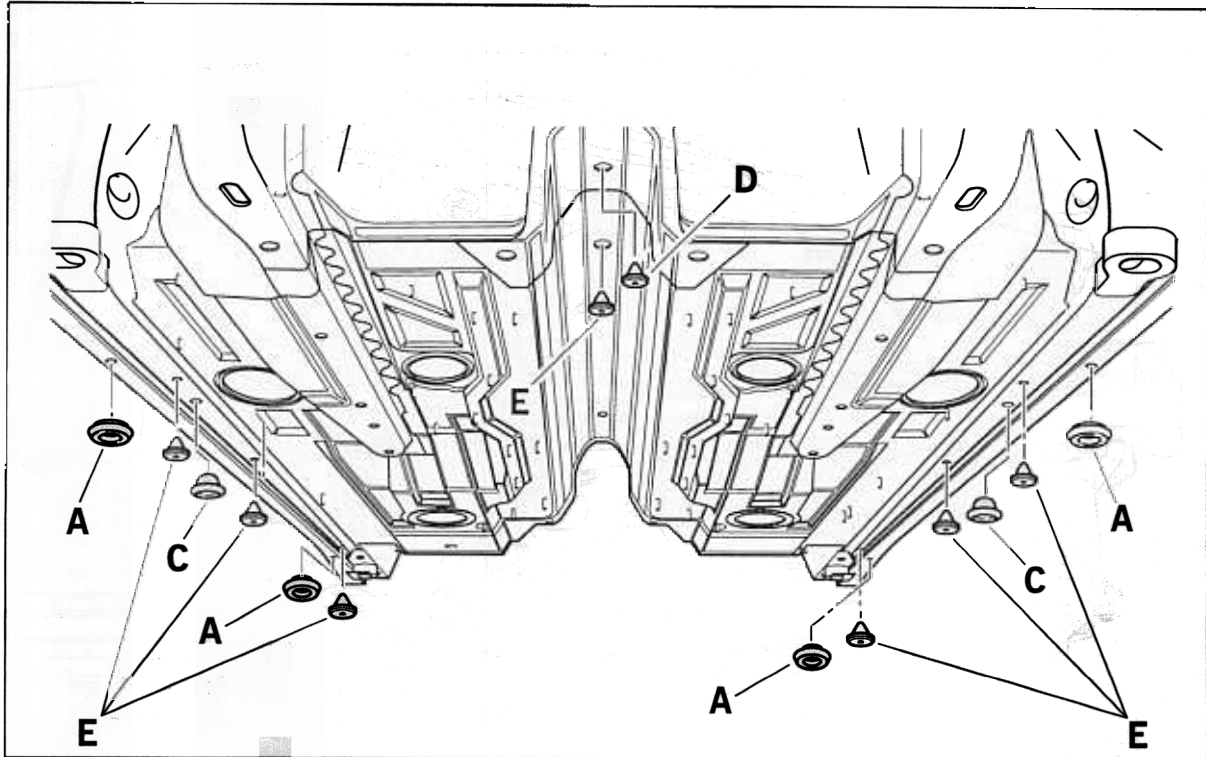


179_98

A : Rubber sleeve, hole \varnothing 20 mm

B : Rubber sleeve, hole \varnothing 30 mm

Lower side member and bottom of floor



170_98

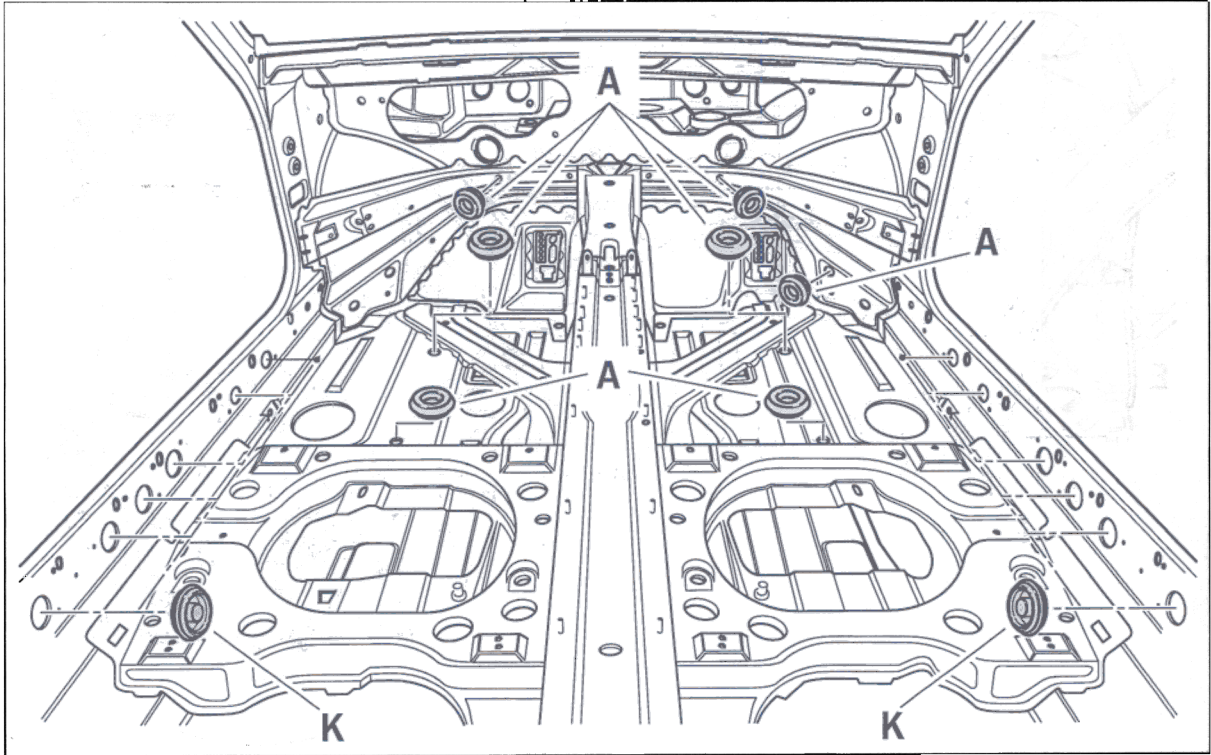
A : Rubber sleeve, hole \varnothing 20 mm

C : Plug, hole \varnothing 10 mm

D : Plug, hole \varnothing 10 mm

E : Plug, hole \varnothing 15 mm

Lower side member and top of floor

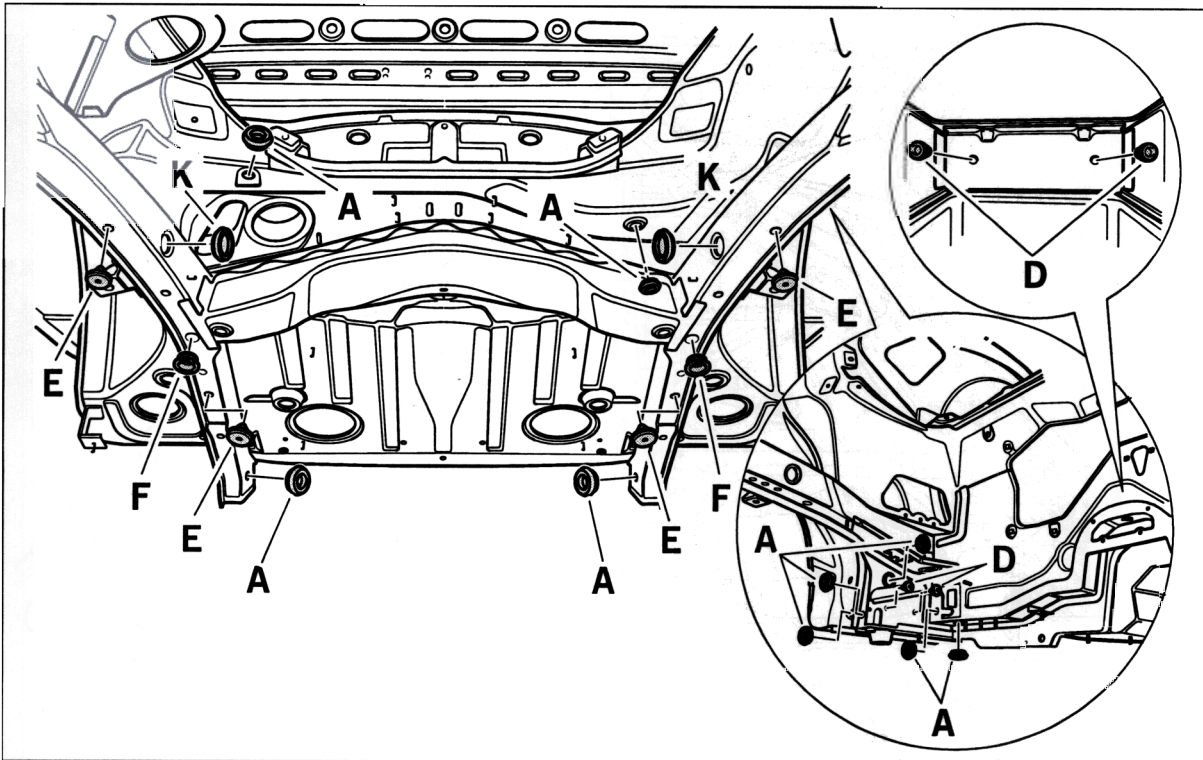


169_98

A : Plug, hole \varnothing 20 mm

K : Plug, hole \varnothing 30 mm

Rear of vehicle, bottom



172_98

A : Rubber sleeve, hole \varnothing 20 mm

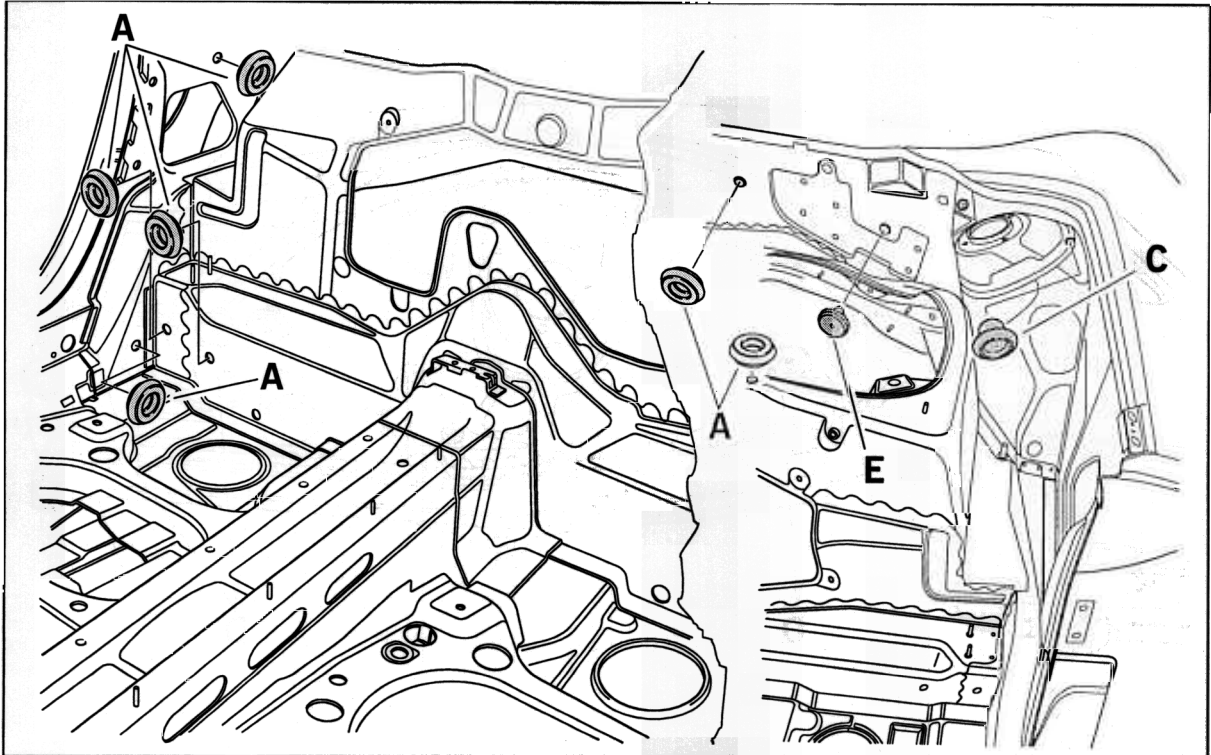
D : Plug, hole \varnothing 10 mm

E : Plug, hole \varnothing 15 mm

F : Plug, hole \varnothing 20 mm

K : Plug, hole \varnothing 30 mm

Rear of vehicle, top



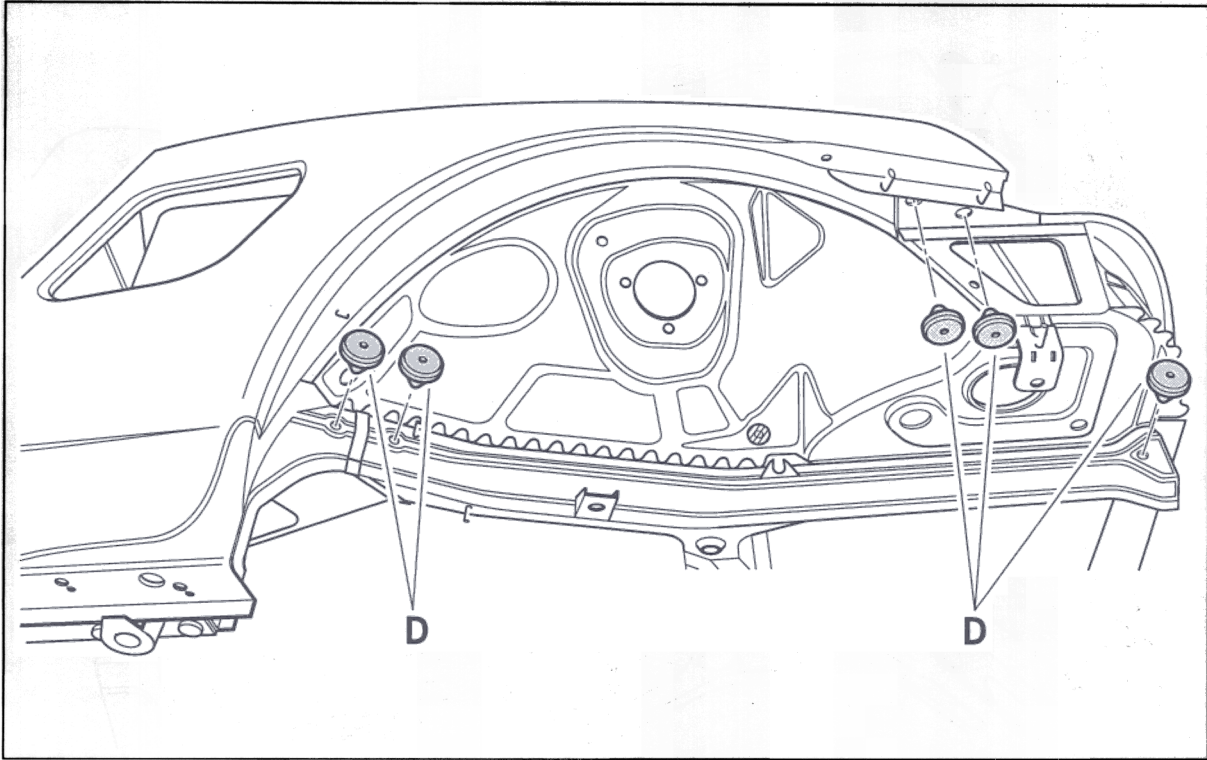
171_98

A : Rubber sleeve, hole \varnothing 20 mm

C : Plug, hole \varnothing 10 mm

E : Plug, hole \varnothing 15 mm

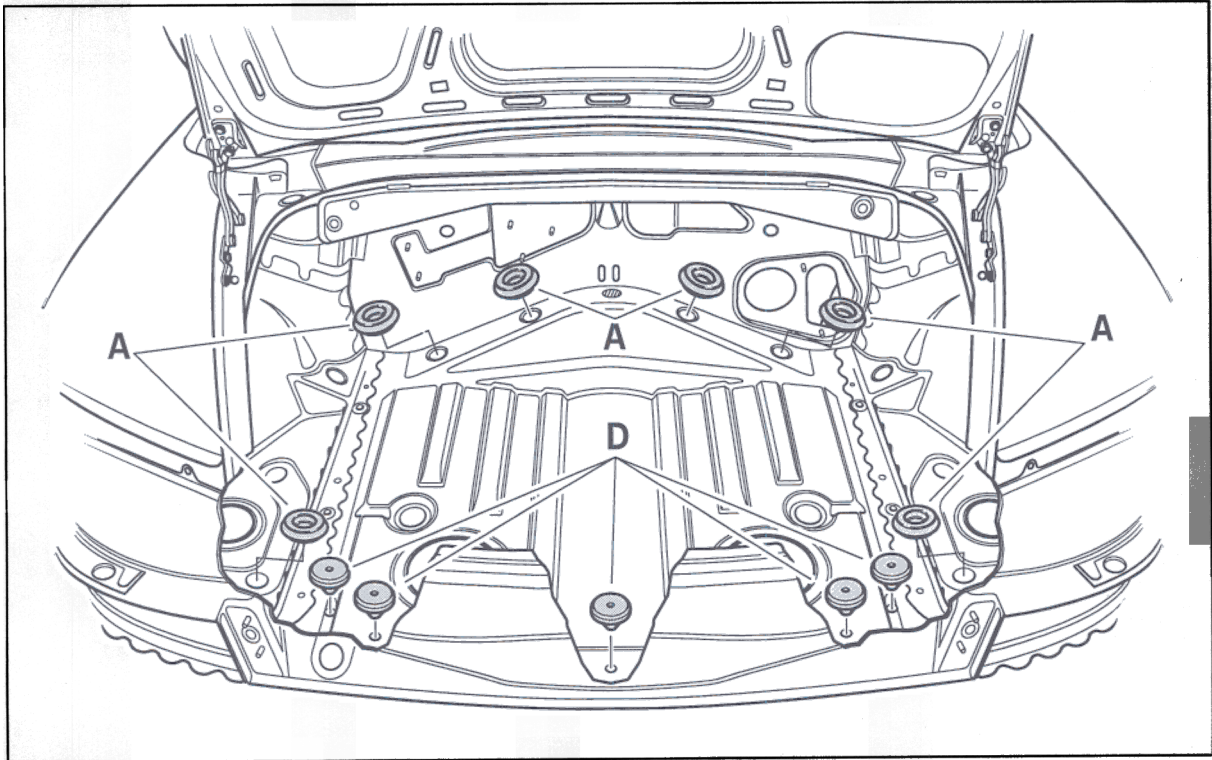
Rear of vehicle, at sides



174_98

D : Plug, hole Ø 10 mm

Rear of vehicle, luggage compartment



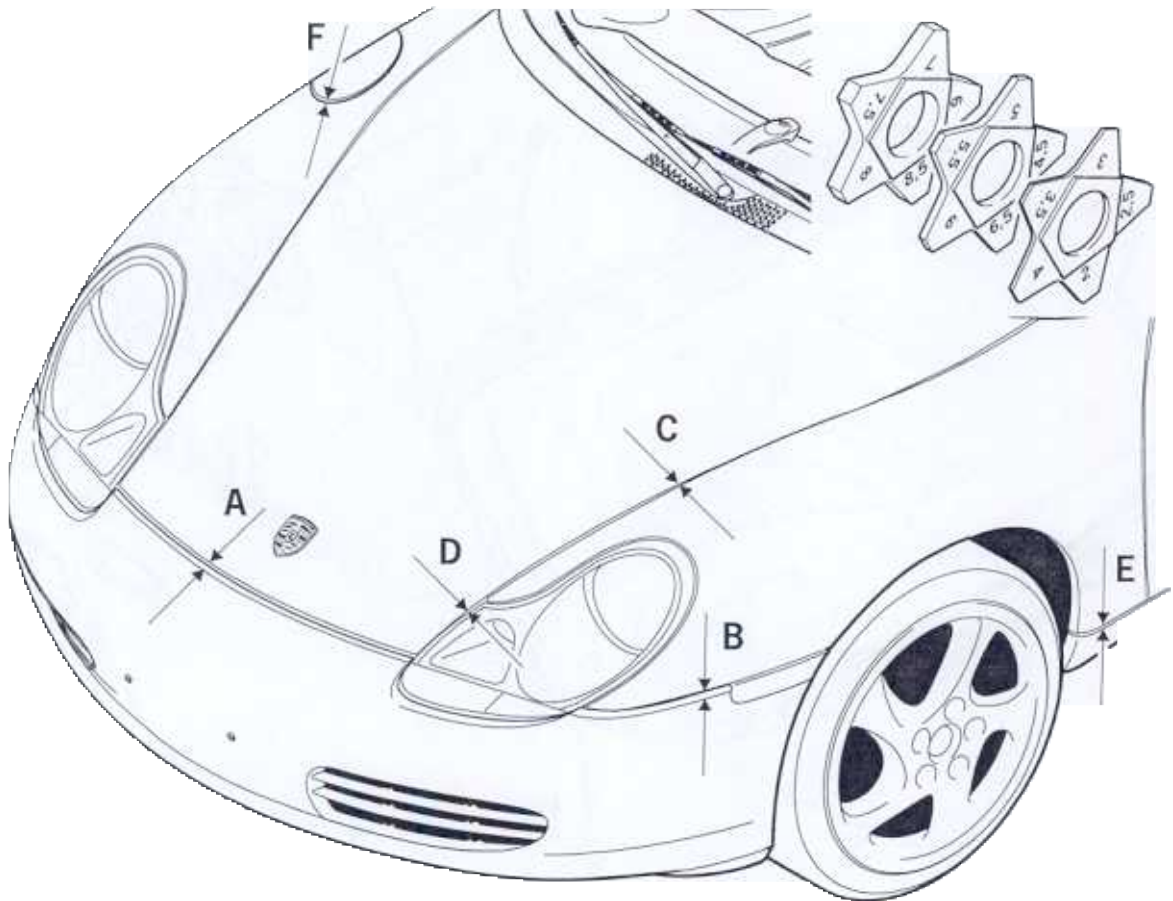
173_98

A : Rubber sleeve, hole \varnothing 20 mm

D : Plug, hole \varnothing 10 mm

5 Body gap dimensions

Body front



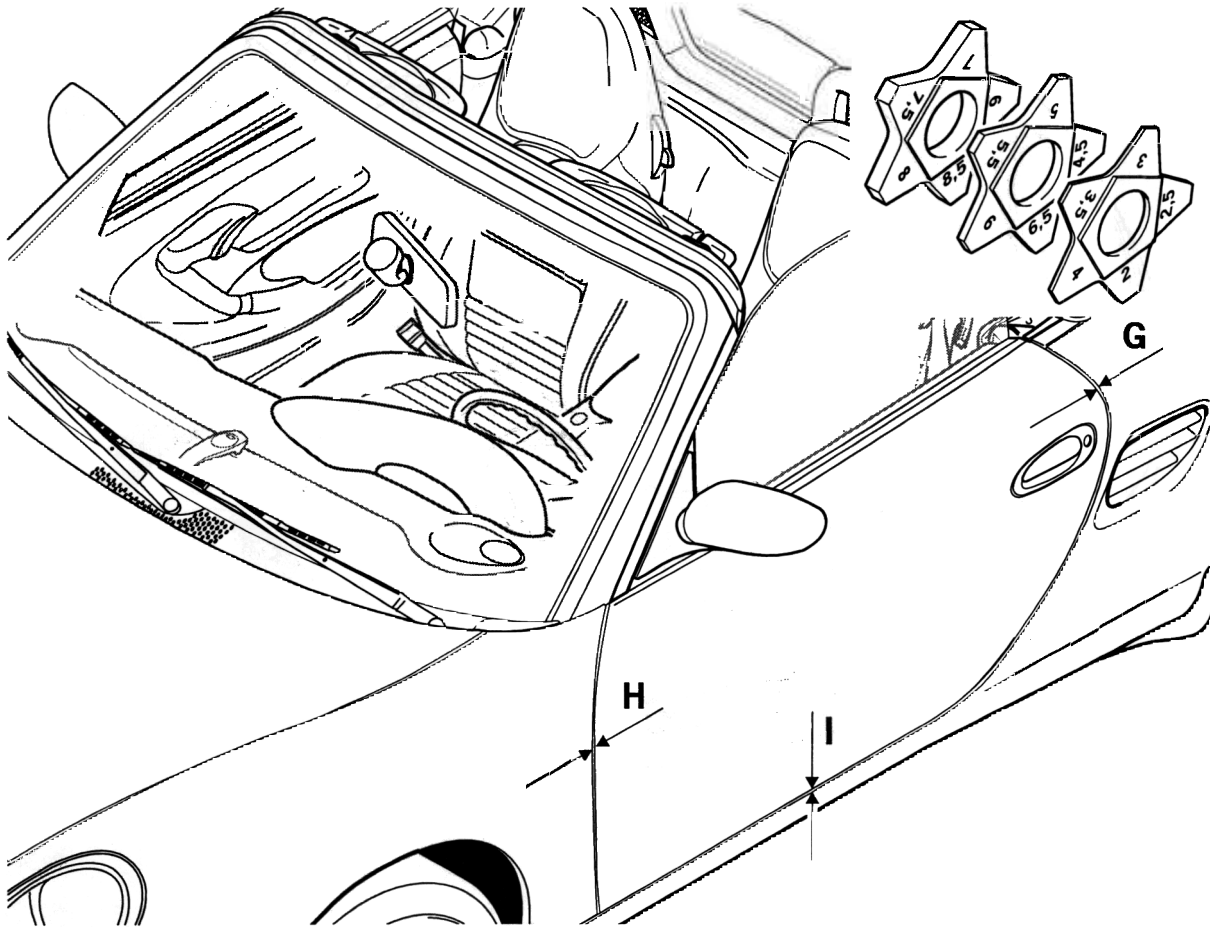
497_98

A = 6 mm**B = 3 mm****C = 4.5 mm****D = 4.5 mm****E = 4 mm****F = 3.5 mm**

Use star gauges to adjust or check the gap dimensions,
see Workshop Equipment Technical Manual, Chapter 2.4 No. 127 - 1

Body gap dimension

Body centre



496_98

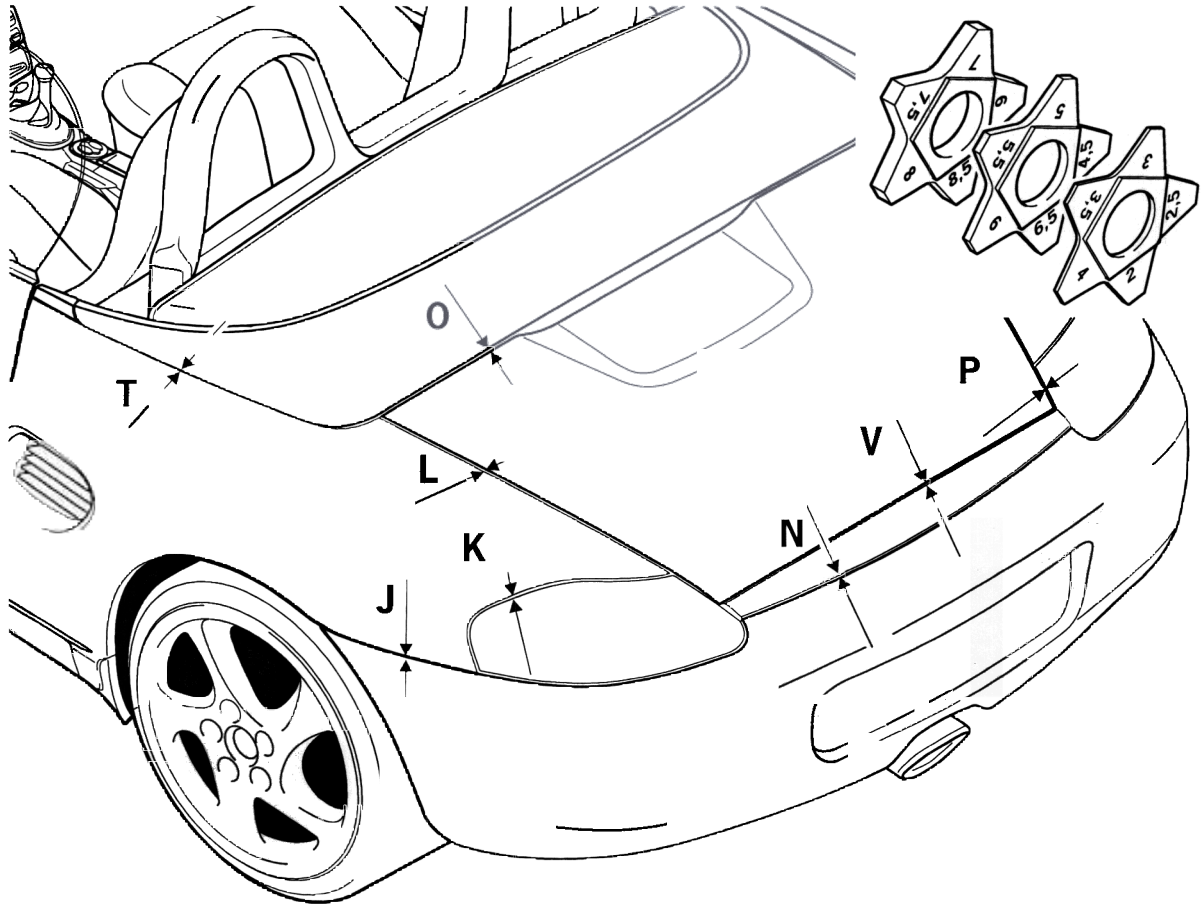
G = 4 mm

I = 4 mm

H = 5 mm

Body gap dimensions

Body rear



498_98

J = 3 mm

K = 3 mm

L = 4.5 mm

N = 3.5 mm

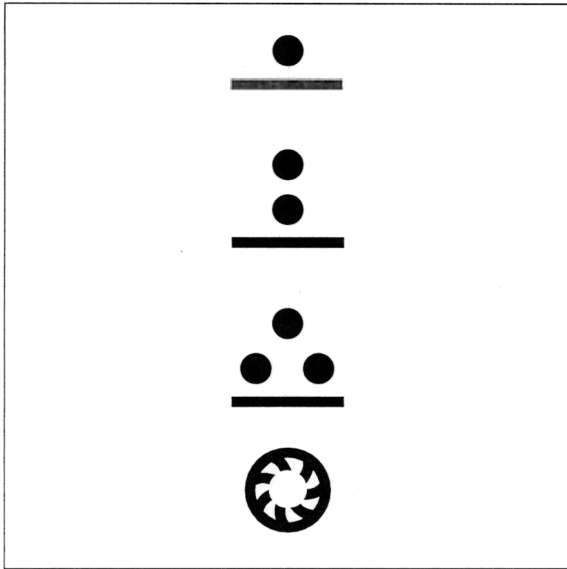
V = 5 mm

O = 6 mm

P = 4.5 mm

T = 4.5 mm

5 Diagram – key to symbols for welding work



434_98

Single-row spotweld seam

Resistance spotwelding

Double-row spotweld seam

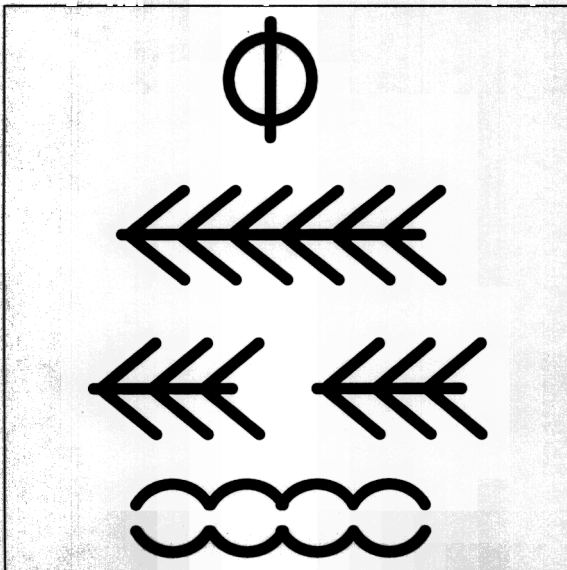
Resistance spotwelding

Offset double-row spotweld seam

Resistance spotwelding

Plug weld seam

Inert-gas arc welding (MAG process)



435_98

Stitch weld seam

Inert-gas arc welding (MAG process)

Continuous weld seam

Inert-gas arc welding (MAG process)

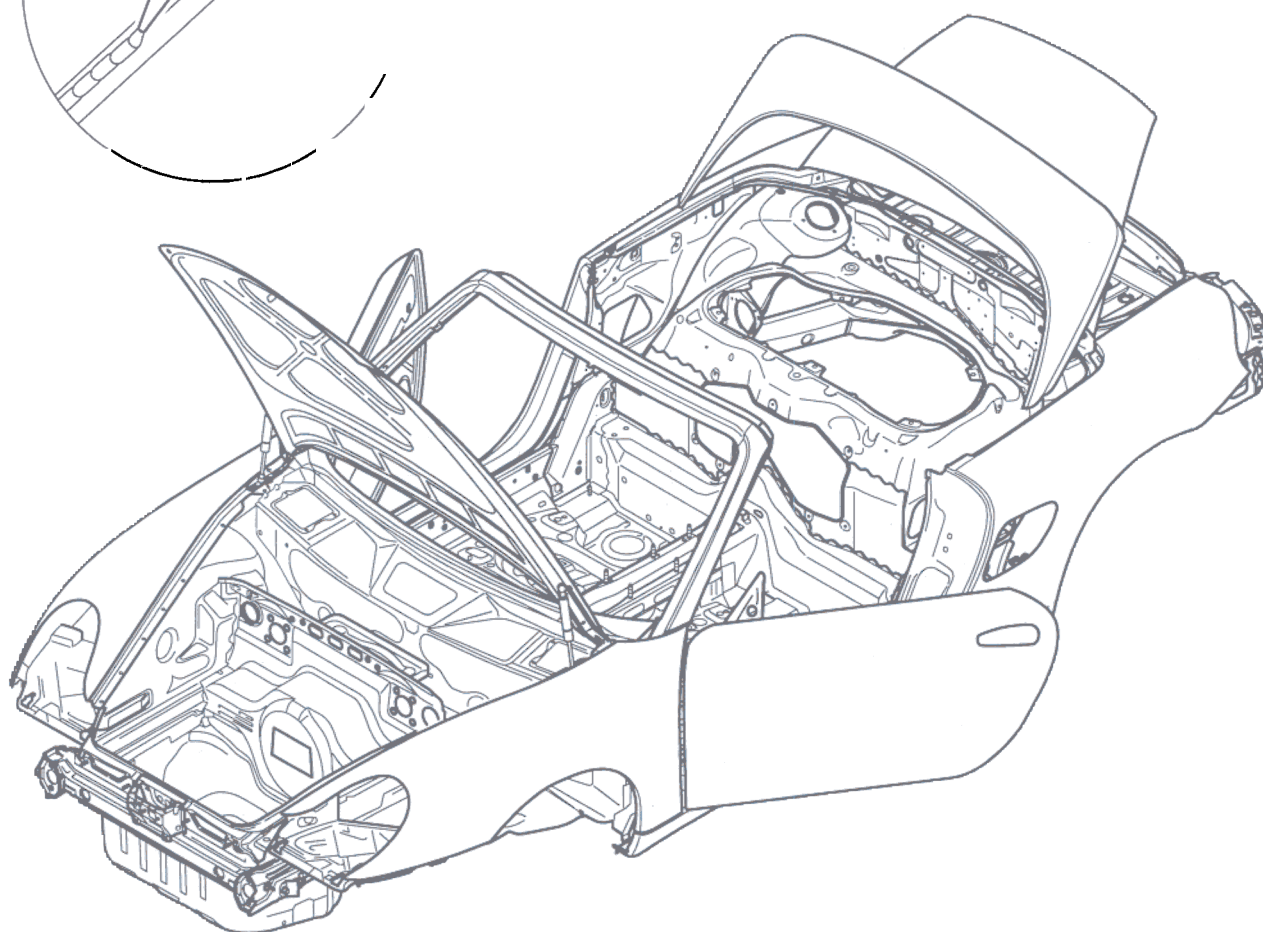
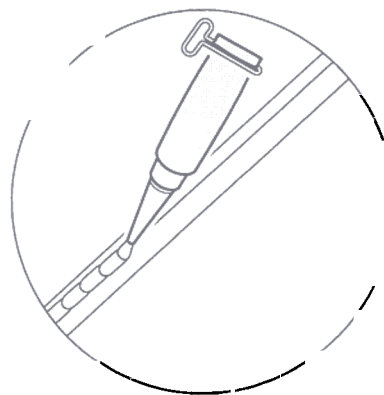
Discontinuous weld seam

Inert-gas arc welding (MAG process)

Brazing

Gas fusion welding

Seam seals



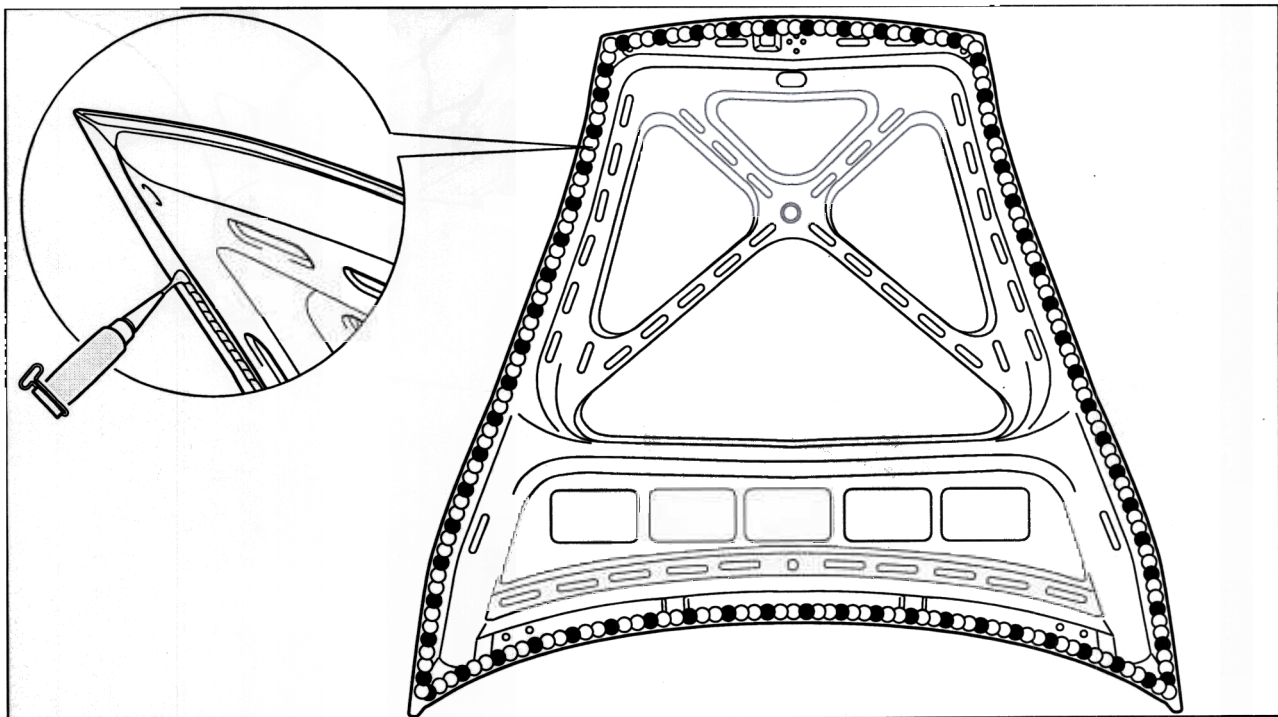
Accessories



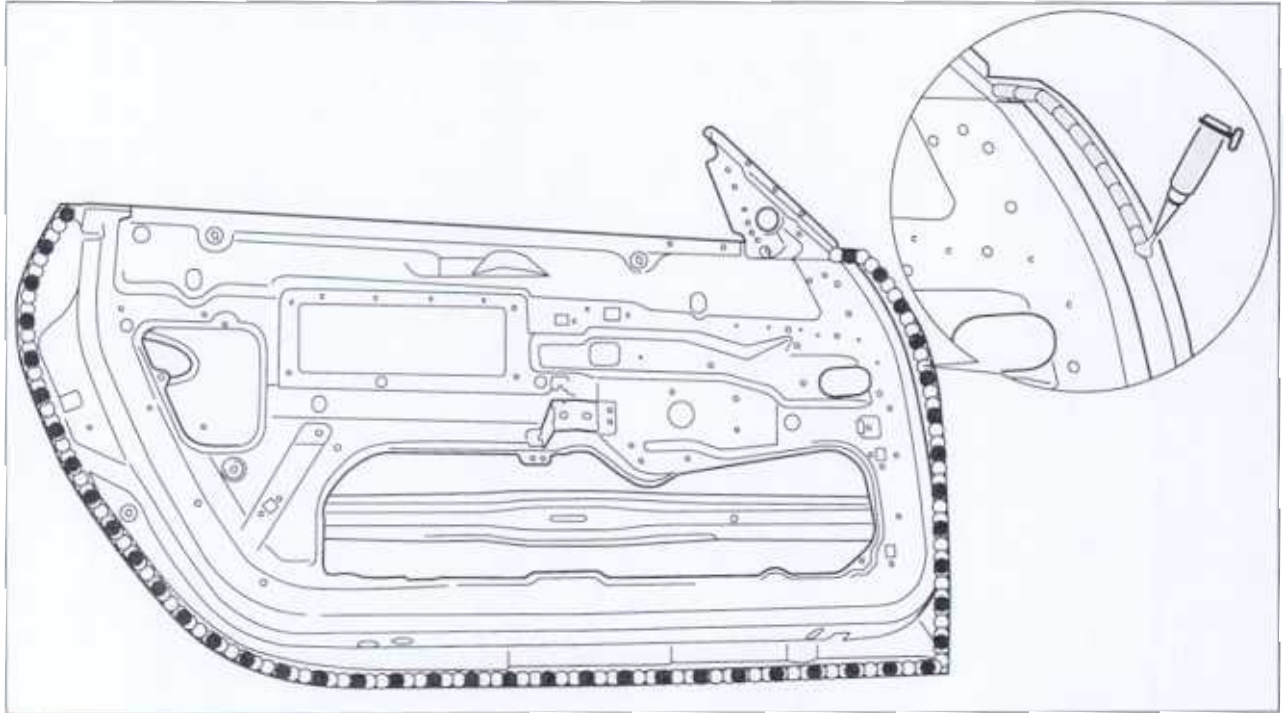
Note!

- ◆ Due to modifications to the spare part range, in the case of repair work, accessories must be sealed before assembly (painting) according to the following illustrations.
- ◆ The sealing material 000 043 204 38 can be applied directly to the accessories coated with KTL paint (cathodic dipbath coating).
- ◆ The seam seal can be painted over when it has reached approx. 70 % hardness (approx. 4 - 5 h at 20 °C, 50 % relative air humidity. Higher air humidity or dampening with water accelerates the hardening process).
- ◆ The hardening can be checked with a nail test. Press a finger nail gently into the hardened sealing mass; if this causes no damage to the sealing mass surface, the seam seal can be painted.

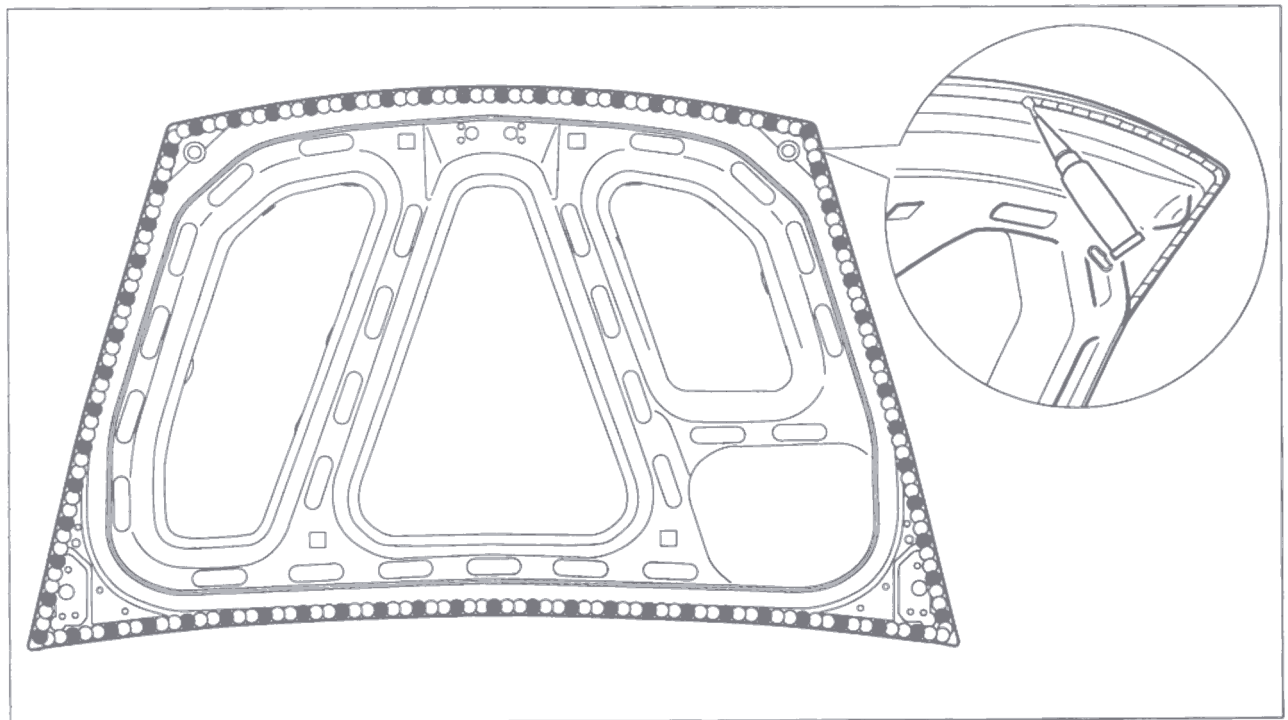
Front lid



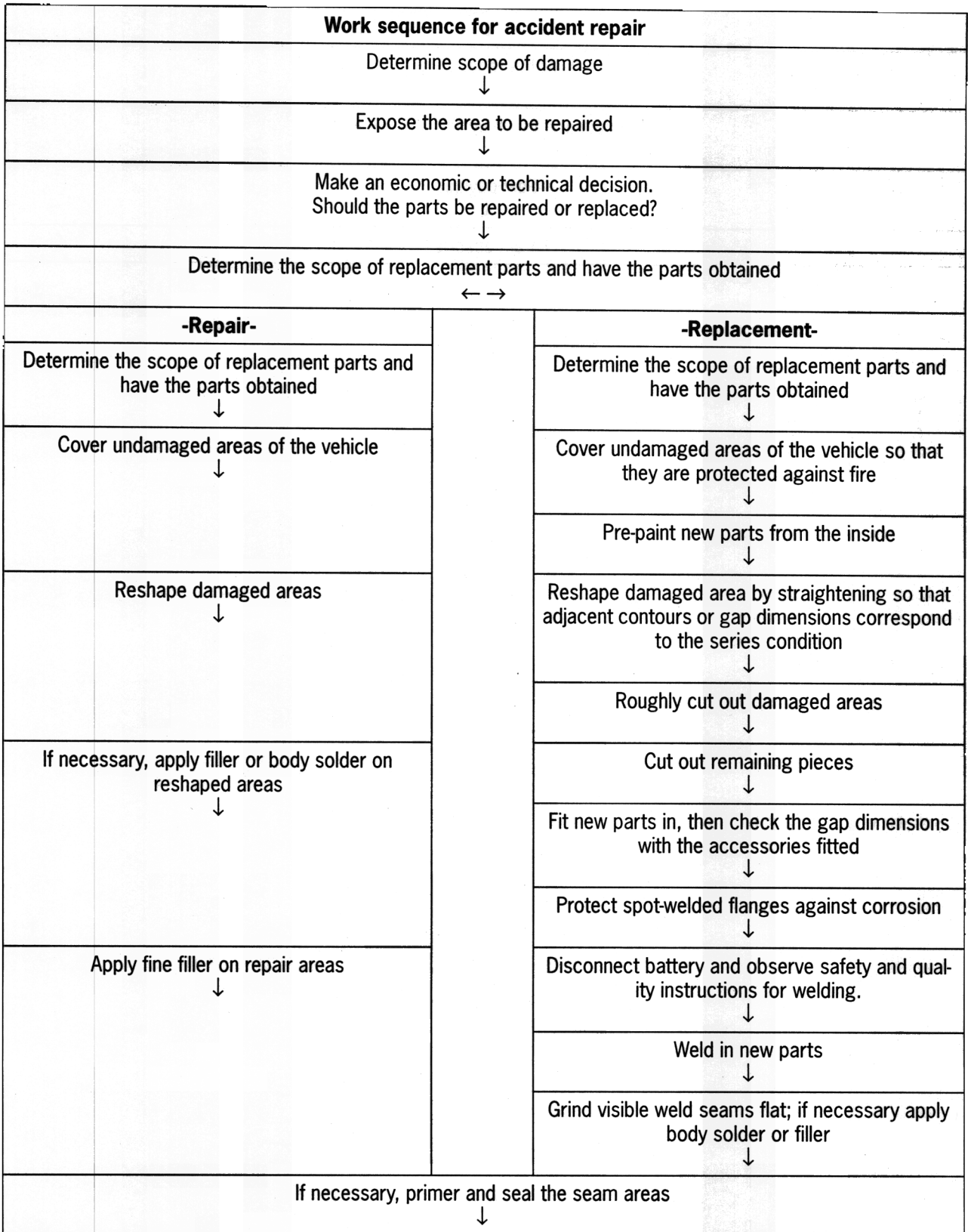
Doors



Rear lid

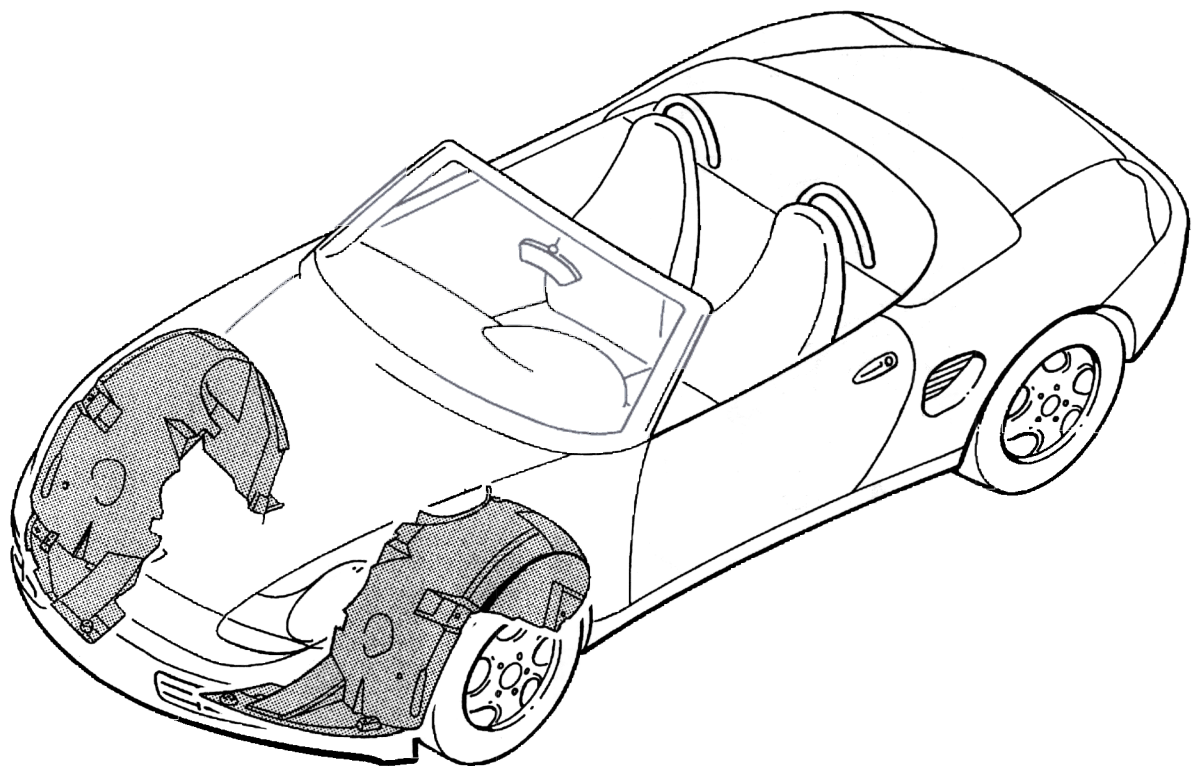


Work sequence for accident repair



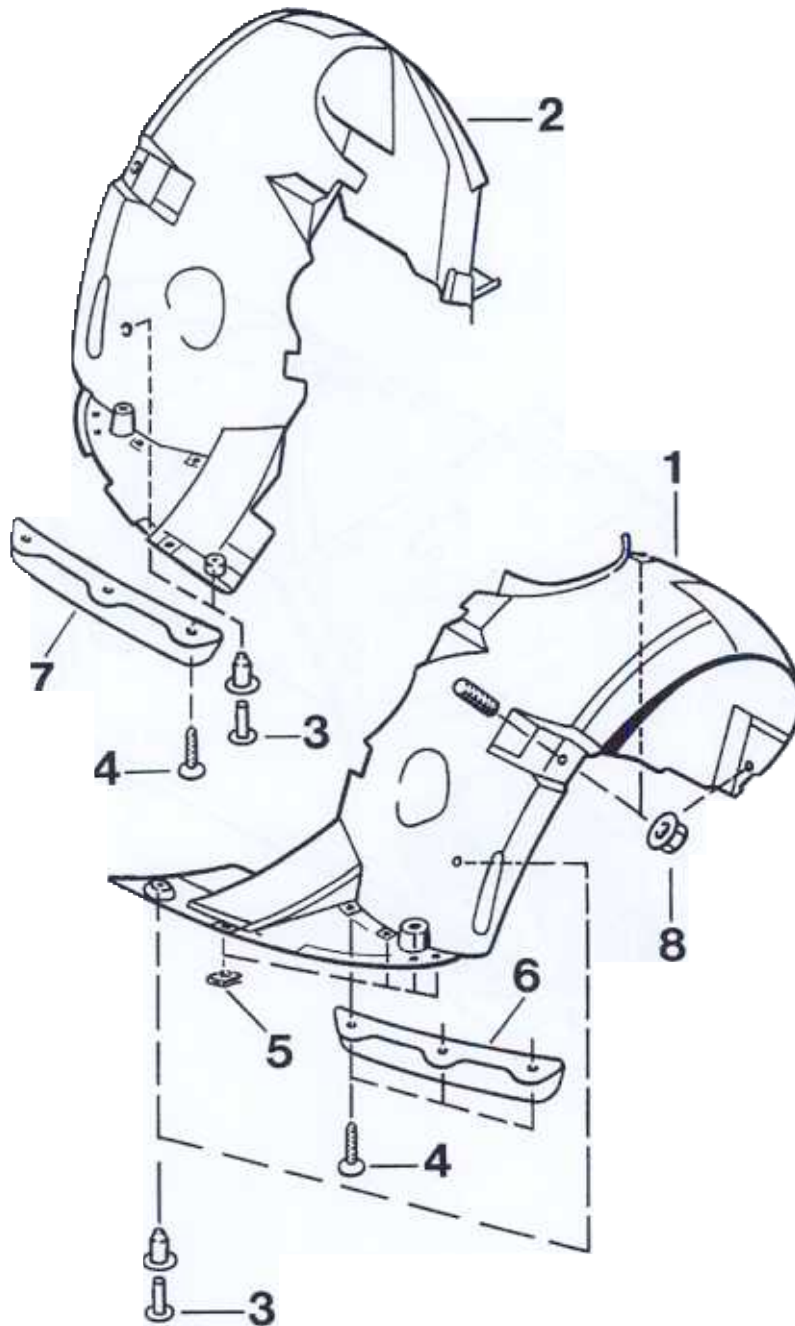
Work sequence for accident repair	
	If necessary, renew the stone impact protection ↓
	Paint the repaired area ↓
	If necessary, touch up the undersealing ↓
	Seal cavities ↓
	Fit accessories

50 56 19 Removing and installing wheel housing liner



127_96

Removing and installing wheel housing liner

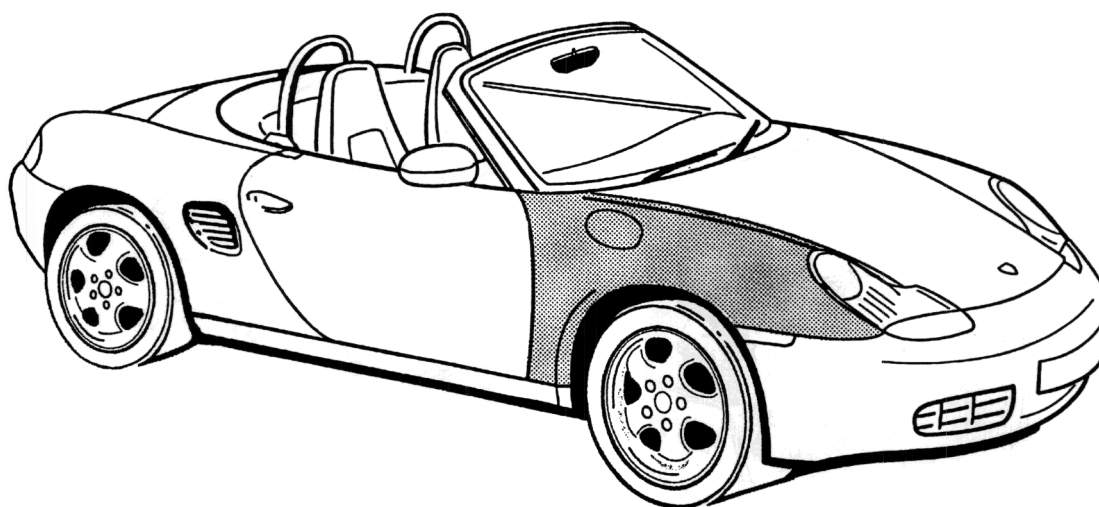


128_96

Removing and installing wheel housing liner

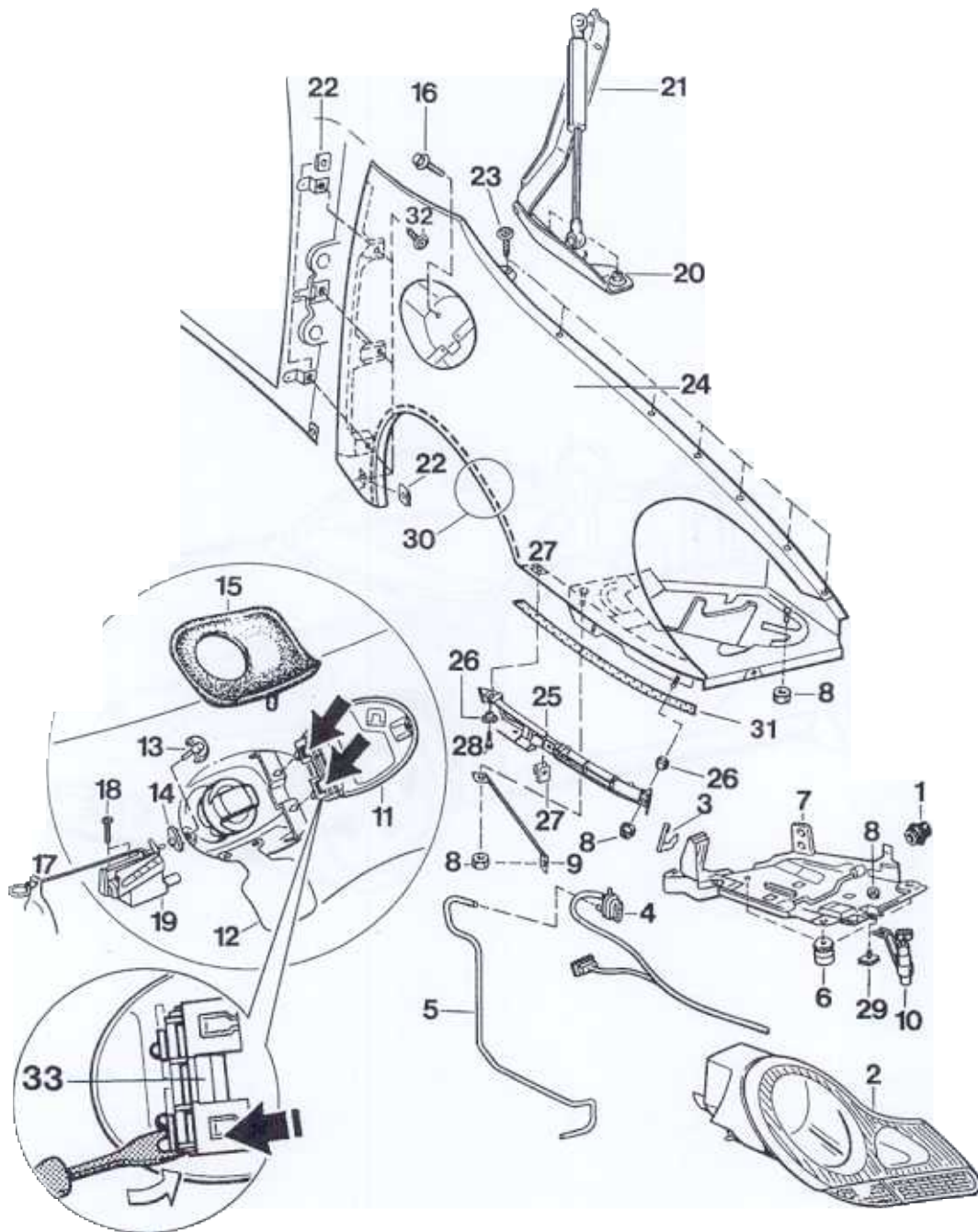
No.	Designation	Qty.	Removal	Note:	Installation
1	Front left wheel housing liner	1			
2	Front right wheel housing liner	1			
3	Expanding rivet st. 6.3	4			Check, replace if necessary
4	Combination screw B4.8 x 19	12			
5	Sheetmetal nut B4.8	12			Adjust to centre of hole.
6	Cover, left	1			
7	Cover, right	1			
8	Plastic nut T5 22 x 10	6			Check, replace if necessary

50 55 19 Removing and installing the wing



200 - 96

Removing and installing the wing



201a_96

Removing and installing the wing

Before removing the wing, it is necessary to remove the wheel, the wheel housing liner and the carbon canister.

N°	Désignation	Nbre	Dépose	Attention:	
					Repose
1	Rubber sleeve	1	Pull off		Press in
2	Main headlight (combination unit)	1	with a socket wrench (width across flats 5), disengage the main headlight and remove it to the front.		Insert the main headlight into the guides of the mounting plate and lock it with the socket wrench (width across flats 5)
3	Sliding piece	1	Pull off downwards		Press in upwards
4	Plug connection		Remove from the mounting plate by turning		
5	Vent hose	1	Pull off		Attach
6	Fastening element	3	Undo		
7	Mounting plate	1	Pull forwards and remove from the headlight recess		Insert the mounting plate into the holes provided for that purpose and press it back. Insert the main headlight into the mounting plate guides and lock in place with the socket wrench (width across flats 5). Adjust the mounting plate with the headlight in accordance with the wing contours and tighten the fastening elements.
8	Collar nut M6	5			
9	Strut				
10	Headlight cleaning element				

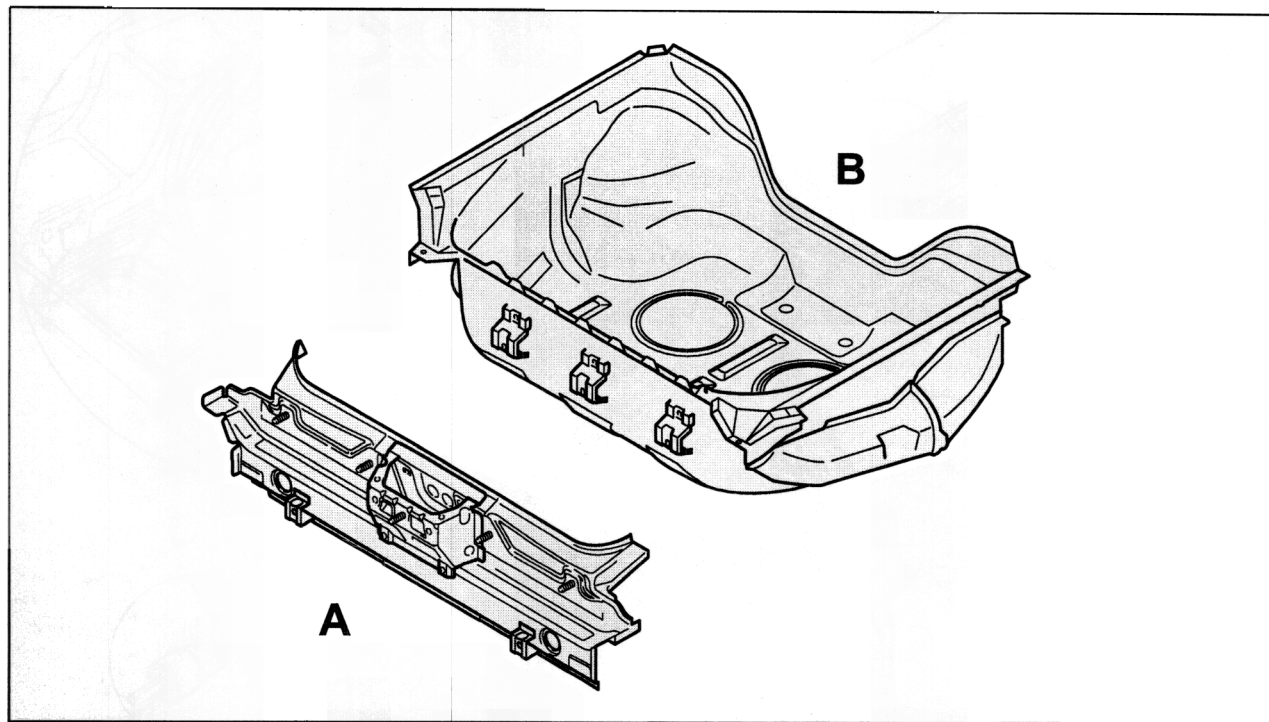
N°	Désignation	Nbre	Dépose	Attention:	
					Repose
11	Filler flap	1	Insert the screwdriver into the clip and press the fastening lug backwards. Pull off the filler flap.		Press in
12	Protective tabs	1	Pull off		
13	Rubber sleeve	1	Pull off		
14	Guide ring	1	Unclip		Clip in
15	Sleeve	1	Unclip		Clip in
16	Hexagon-head bolt M6 x 20	1	Undo		Screw in
17	Emergency cable	1	Detach		Attach
18	Sheetmetal screw B4.2 x 18	2	Undo		Screw in
19	Servo motor	1	Disconnect the electrical plug connection		Bolt the servo motor onto the sheetmetal bracket with the sheetmetal screws and connect the electrical plug connection
20	Combination screw M6 x 14	2	Undo		
21	Hinge	1	At the hinge, undo the combination screw by 2 - 3 turns		At the hinge, adjust the contour of the wing to the lid
22	Sheetmetal nut St6.3	11			
23	Sheetmetal screw St6.3	11			
24	Wing	1	Pull out downwards at the A-pillar and remove to the front		Insert the wing under the lid hinge and fit the sheetmetal screws. Adjust the contours and gaps to the doors and lid. Tighten the sheetmetal screws.
25	Rail	1	Undo		Fix and screw down

N°	Désignation	Nbre	Dépose	Attention: Repose
26	Spacer sleeve 4.8 x 19	4		
27	Sheetmetal nuts St4.8	2		
28	Sheetmetal screw 4.8 x 19	1		
29	Sliding piece	1		
30	PVC seam seal			When replacing the wing, put a PVC seam seal on the inside of the crimped seam of the wheel arch.
31	Adhesive tape	1		
32	Sheetmetal screw St.6.3 x 12	3		
33	Plastic hinge	1	Insert removal tool (refer to Workshop Equipment Manual, Chapter 2.4, No. 21) at the locking tabs at the left and right, and lift via the locking tabs. Shift the plastic hinge against the removal tool and remove from the tank flap (Item 11).	Position the plastic hinge on the tank flap (Item 11) and push on until it is felt to engage.

Replacing closing panel

Replacing closing panel and front floor panel

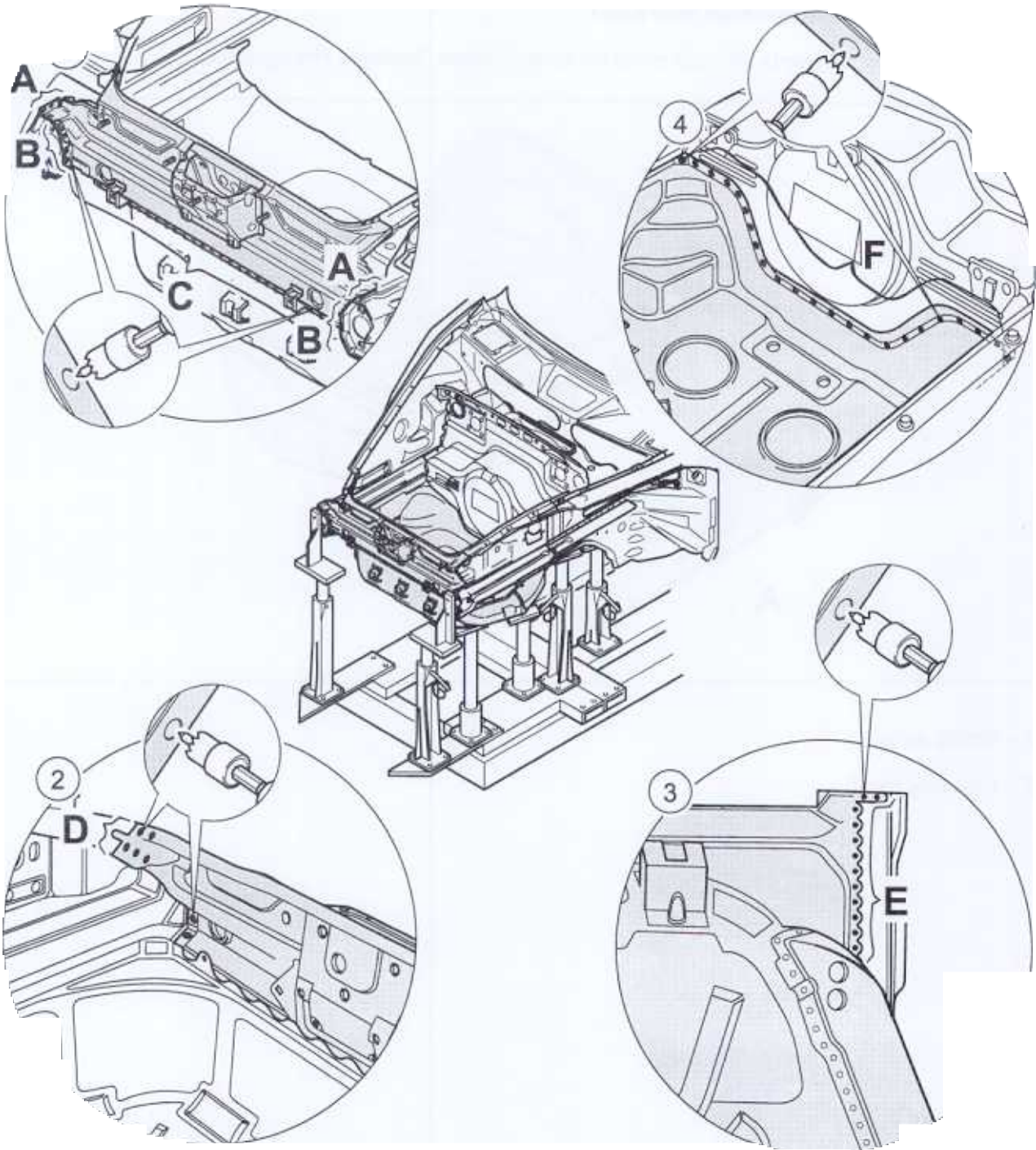
The following spare body parts are required for the sectional repair "Replacing closing panel":



A = closing panel

B = front floor panel

Cutting out the old carpet and front floor panel



 **Warning!**

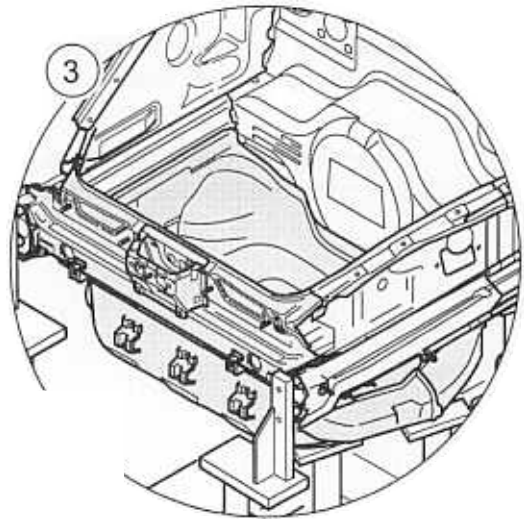
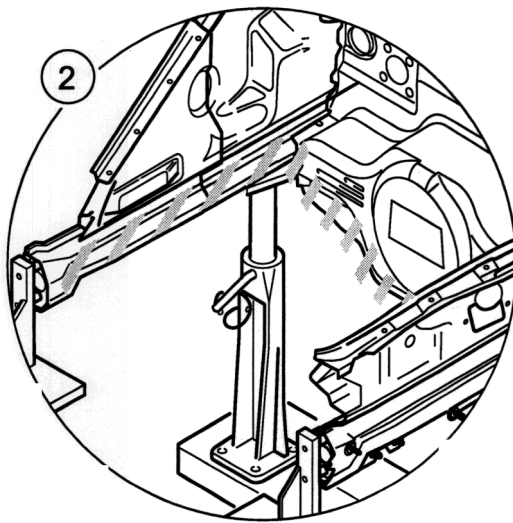
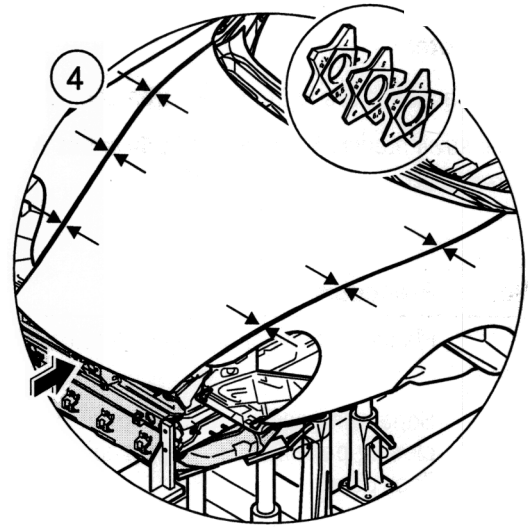
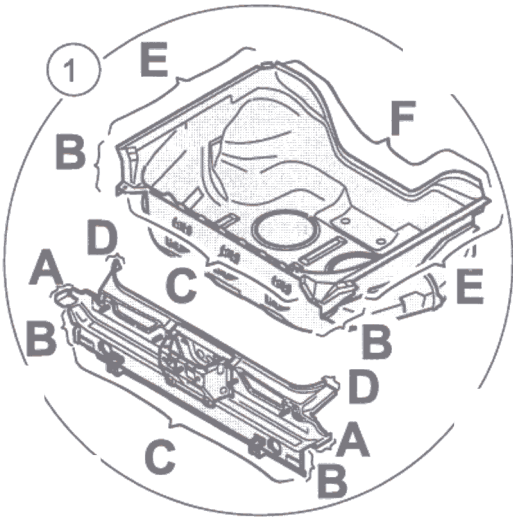
During body repairs, the following safety instructions and the general information and quality instructions must be followed. ⇒ Rep. Gr. 5; Safety instructions

 **Note!**

- ◆ *The accessories in the repair area should be removed, depending on the extent of the damage.*
- ◆ *All straightening work on the body in this area must have been completed before the damaged parts are removed.*

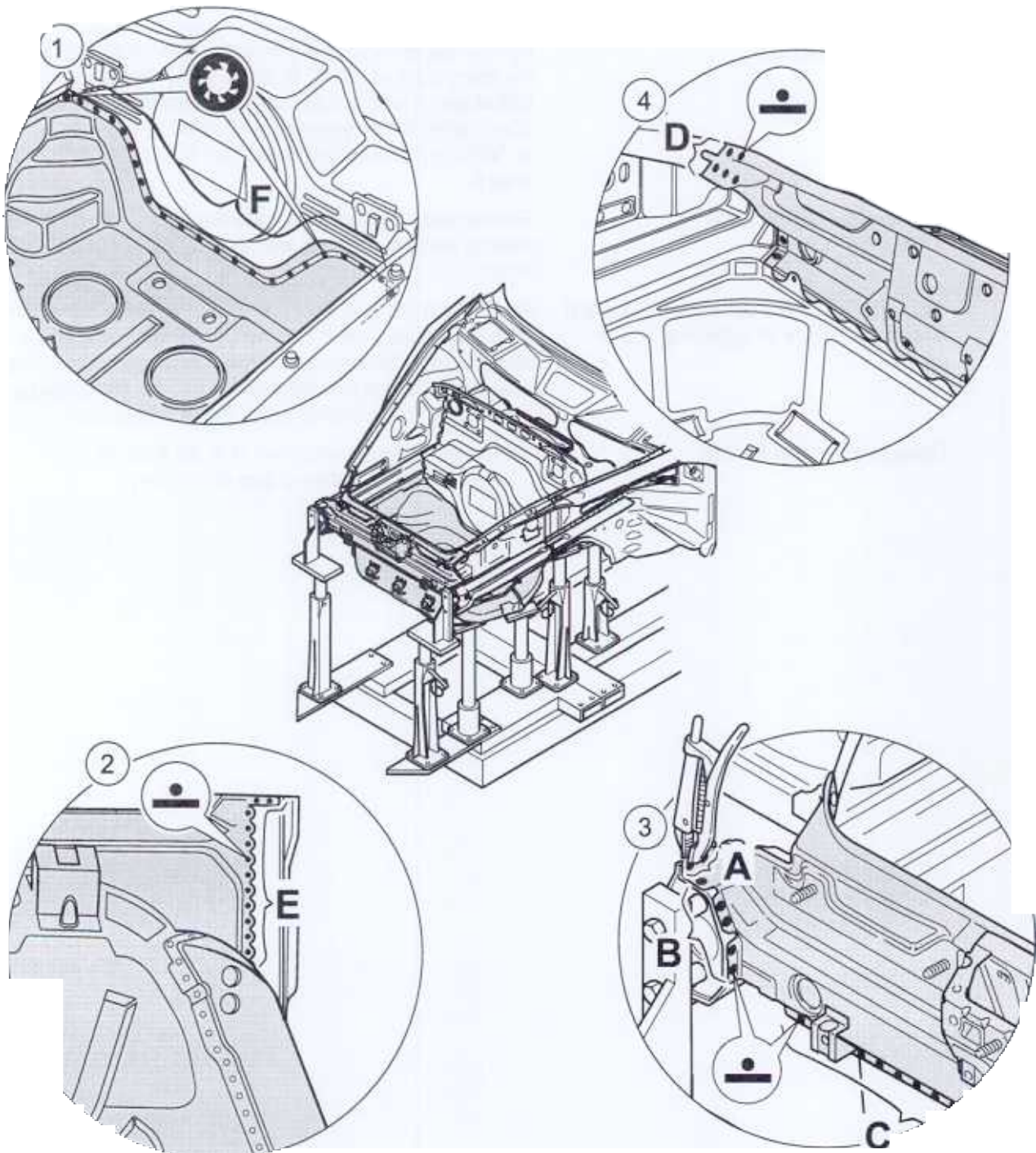
No.	Procedure	Instructions
	Placing vehicle on the alignment bench	Place the vehicle with the units installed at the rear onto the set of straightening attachments and fasten in place.
1	Separating spot-welded joints between the closing panel/side members and the front floor panel	Use the spotweld cutter to separate the spot-welded joints of the closing panel to the side members -A, B- and the front floor panel -C- from the outside.
2	Separating spot-welded joints between the closing panel/wheel housings	Separate the spot-welded joints of the closing panel to the wheel housings from the inside (luggage-compartment side) -D- with the spotweld cutter.
3	Separating spot-welded joints between the front floor panel/side members	Separate spot-welded joints of the front floor panel to the side members on the left and right -E- from the outside with the spotweld cutter.
4	Separating spot welds between the front floor panel and bulkhead.	Separate spot-welded joints of the front floor panel to the bulkhead at the middle -F- with the spotweld cutter.

Preparing closing panel and front floor panel for installation and fitting



No.	Procedure	Instructions
2	Cleaning the welding areas	Remove the factory-applied primer on the welding areas of the spare parts -A, B, C, D, E, F,- using the rotary brush. Drill or punch (with a hole punch) $\varnothing 7$ mm holes spaced 20mm apart for plug-welding with shielding gas. ⇒ "Welding in closing panel and front floor panel" in 50-11 page 6
3	Fitting the front floor panel in the body and fastening it on the straightening attachments.	Adjust the spare front floor panel to the side members and to the bulkhead. Fasten the spare front floor panel to the straightening attachment for the front-axle mount and diagonal brace. Fasten the side members to the straightening attachment for the impact pipes (impact dampers).
4	Fitting in wings and front lid	Fit the left and right wings and fit in the front lid. ⇒ Rep. Gr. 5; Illustration of gap dimensions

Welding closing panel front floor panel



No.	Procedure	Instructions
	Plug-welding front floor panel to the bulkhead under shielding gas	Plug-weld the front floor panel to the bulkhead -F- under shielding gas.
2	Plug-welding the front floor panel to the side members under shielding gas	Align the front floor panel with the side members on the left and right -E- and plug-weld under shielding gas.
3	Spot-welding the closing panel	Spot-weld the closing panel to the front floor panel -C- and the side members on the left and right -A, B- .
4	Spot-welding the closing panel to the front floor panel	Spot-weld the closing panels with to wheel housings on the left and right -D- .

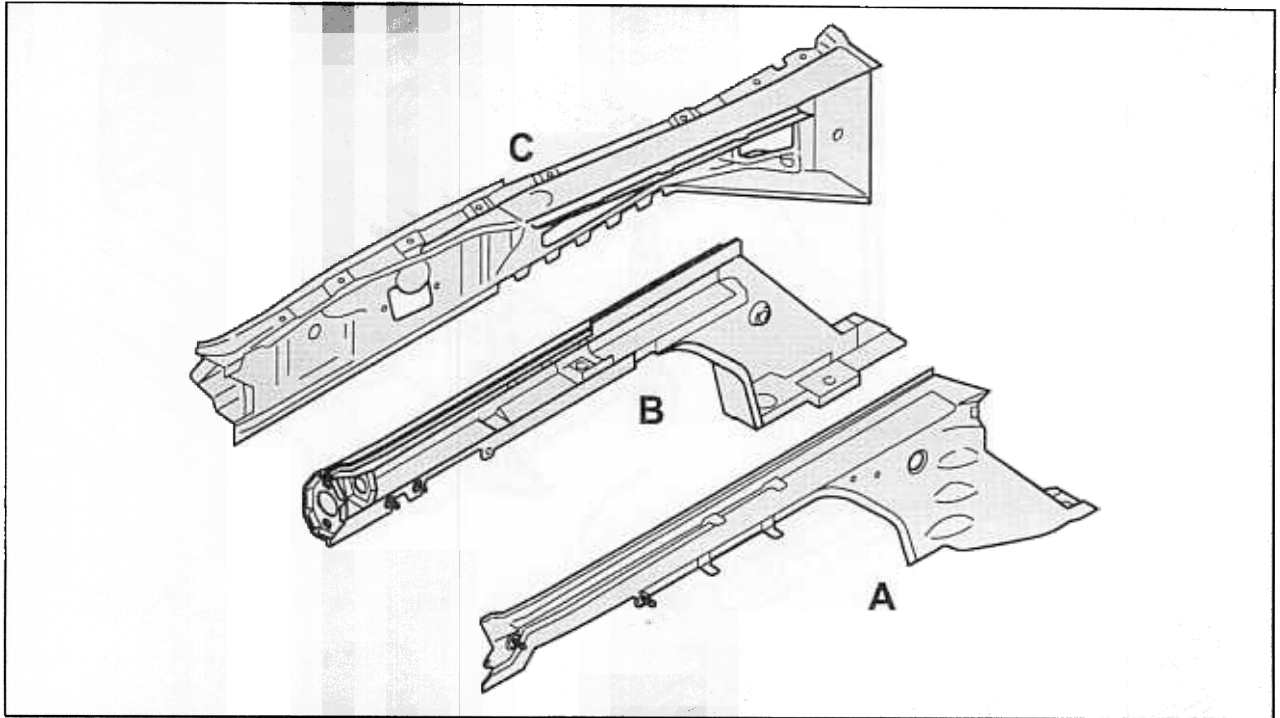
Tools and materials

Item	Designation of the special tool	Explanation
	Basic straightening attachments for 911 Carrera (996) Nr. 7250700	⇒ Rep. Gr. 3; Workshop Equipment Manual
2	Star gauges Nr. 127-1	⇒ Rep. Gr. 2.4; Workshop Equipment Manual
3	Shielding-gas welding device	⇒ Rep. Gr. 3; Workshop Equipment Manual
4	Multispot spotwelder	⇒ Rep. Gr. 3; Workshop Equipment Manual
5	Pneumatic body saw	⇒ Rep. Gr. 3; Workshop Equipment Manual
6	Angle grinder	⇒ Rep. Gr. 2.4; Workshop Equipment Manual
7	Oscillating body saw (special electrical cutter)	⇒ Rep. Gr. 3; Workshop Equipment Manual
8	Multispot spotweld cutter	⇒ Rep. Gr. 3; Workshop Equipment Manual
9	Hole punch	⇒ Rep. Gr. 2.4; Workshop Equipment Manual
10	Hot-air gun	⇒ Rep. Gr. 3; Workshop Equipment Manual
11	Rotary brush	⇒ Rep. Gr. 2.4; Workshop Equipment Manual
12	Spotweld cutter Ø7 mm, No. 129	⇒ Rep. Gr. 2.4; Workshop Equipment Manual

Replacing wheel housings and side members (sectional repair)

Partially replacing wheel housings and side members

The following spare body parts are required for the sectional repair "Partially replacing wheel housings and side members":

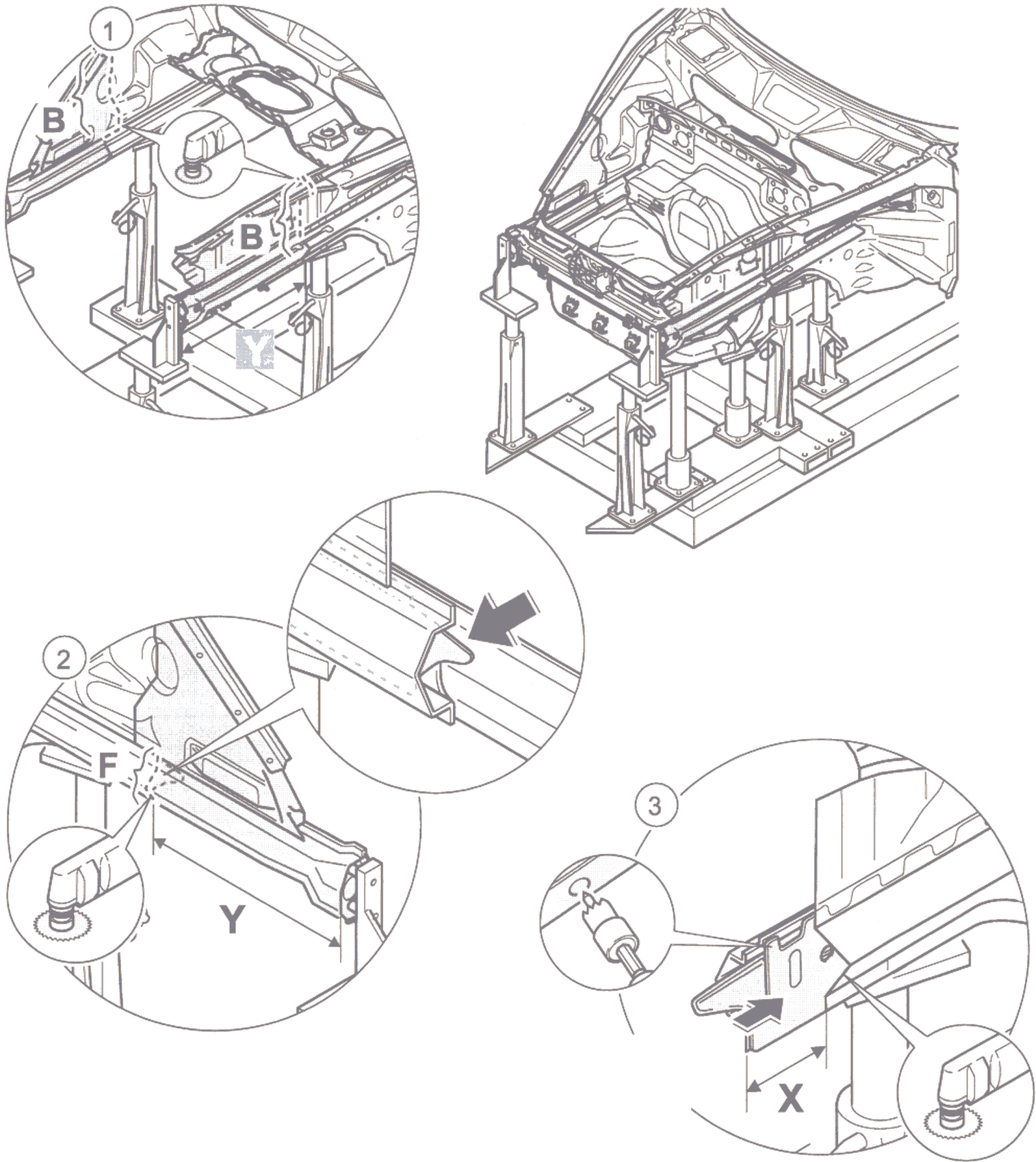


A = front outer side member

B = front inner side member

C = front wheel housing

Cutting out wheel housings and side members



 **Warning!**

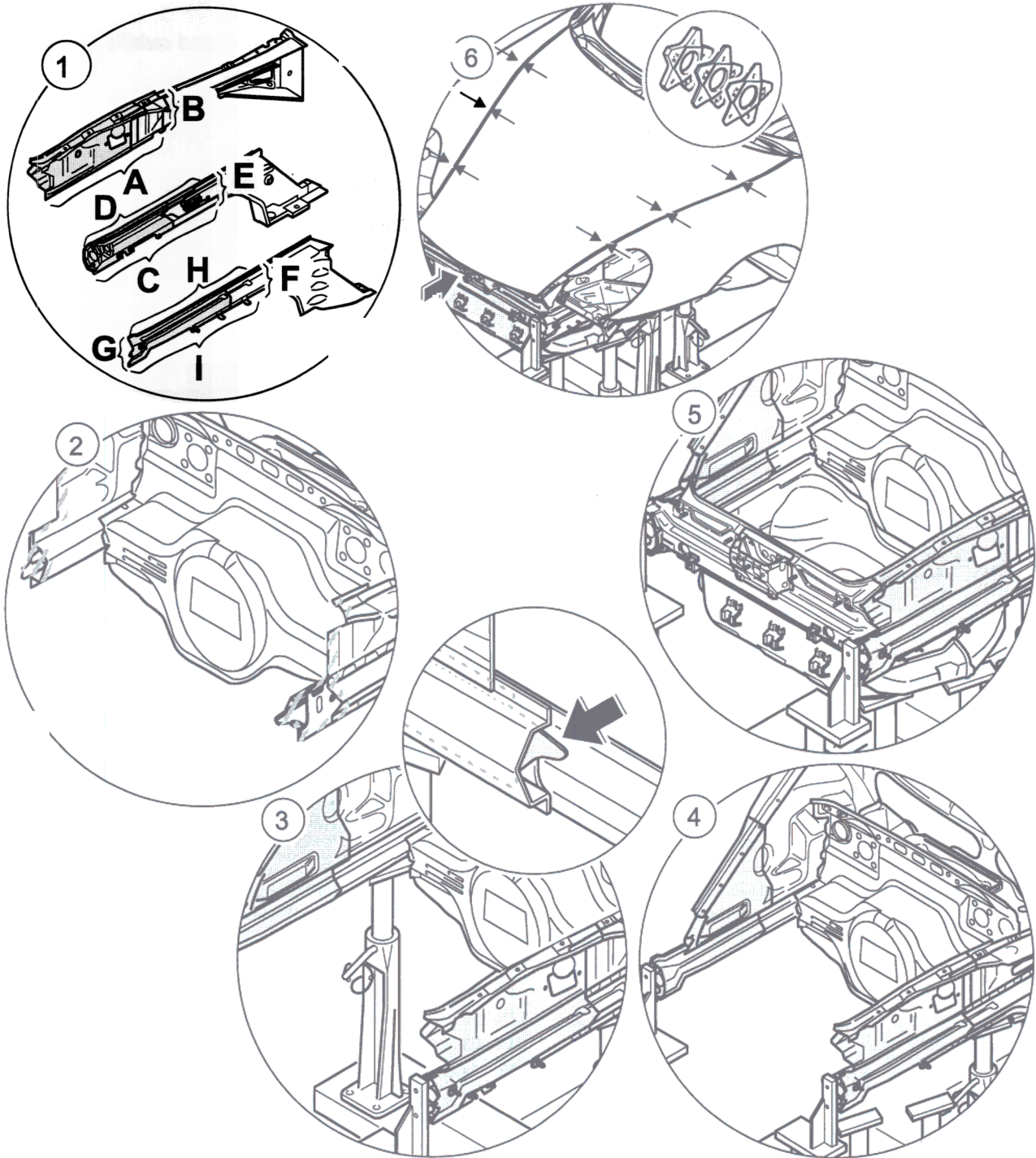
During body repairs, the following safety instructions and the general information and quality instructions must be followed. ⇒ Rep. Gr. 5; Safety instructions

 **Note!**

- ◆ *The accessories in the repair area should be removed, depending on the extent of the damage.*
- ◆ *All straightening work on the body in this area must have been completed before the damaged parts are removed.*

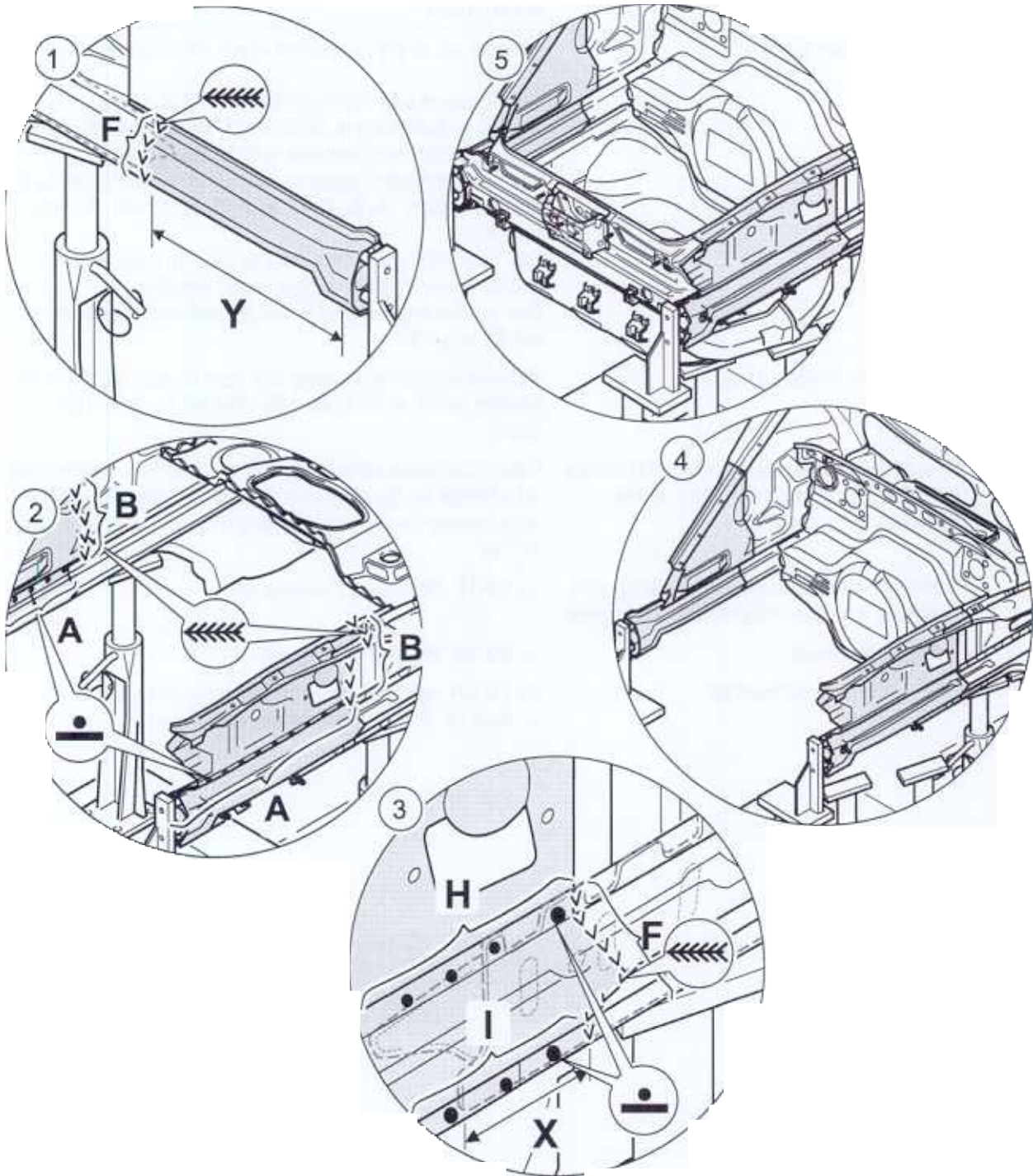
No.	Procedure	Instructions
	Placing vehicle on the alignment bench	Place the vehicle with the units mounted at the rear onto the set of straightening attachments and fasten it in position.
	Closing panel and front floor panel already cut out	⇒ 50-11 "Replacing closing panel"
	Front wall already cut out	⇒ 50-11 "Replacing closing panel"
1	Removing the wheel housings	Remove the damaged sections of the wheel housings -B- with the body saw. Position the cut within the specified dimension -Y = 580 mm- .
2	Cutting off inner side member	Note: Do not cut through the inner reinforcements -arrow- when cutting through the inner side members. Remove the damaged sections of the inner/outer side members -F- with the body saw. Position the cut -Y- within the specified dimension -580 mm- .
3	Cutting off outer side members and shortening to the offset to the wheel housings	Do not cut through the inner reinforcements -arrow- when cutting through the outer side members. Position the cut within the specified dimension -Y = 580 mm- . Shorten the side members with the body saw and the spot-weld cutter, so that there is an offset of -dimension X = 50 mm- between the inner/outer side members and the wheel housing.

Preparing wheel housings and side members for installation and fitting



No.	Procedure	Instructions
		<p>Transfer cut to the spare front wheel housings and then cut to size.</p> <p>Cut the spare side members to size with the body saw and then fit so that there is an offset of -dimension X = 50 mm- between the inner and outer side members.</p> <p>Remove the factory-applied primer on the welding areas of the spare parts -A, B, C, D, E, F, G, H, I,- with the rotary brush.</p> <p>Drill or punch (with a hole punch) $\varnothing 7$ mm holes spaced 20mm apart for plug-welding under shielding gas. \Rightarrow "Welding in wheel housings and side members" in 50-17 page 6</p>
2	Cleaning the welding areas	Remove underbody coating and paint layers, etc. from the welding areas of the body with a hot-air gun or rotary brush.
3	Fitting the side members and wheel housing in the body and fastening them on the straightening attachments.	Fasten the spare inner side member on the straightening attachment for the front-axle mount or on the straightening attachments for the impact pipes (impact absorbers) and fit it in.
4	Fitting the front floor panel in the body and fastening it on the straightening attachment.	\Rightarrow 50-11 "Replacing closing panel"
5	Fitting in front wall	\Rightarrow 50-33 "Replacing front wall"
6	Fitting in wings and front lid	Fit the left and right wings and fit in the front lid. \Rightarrow Rep. Gr. 5; Illustration of gap dimensions

Welding in wheel housings and side members



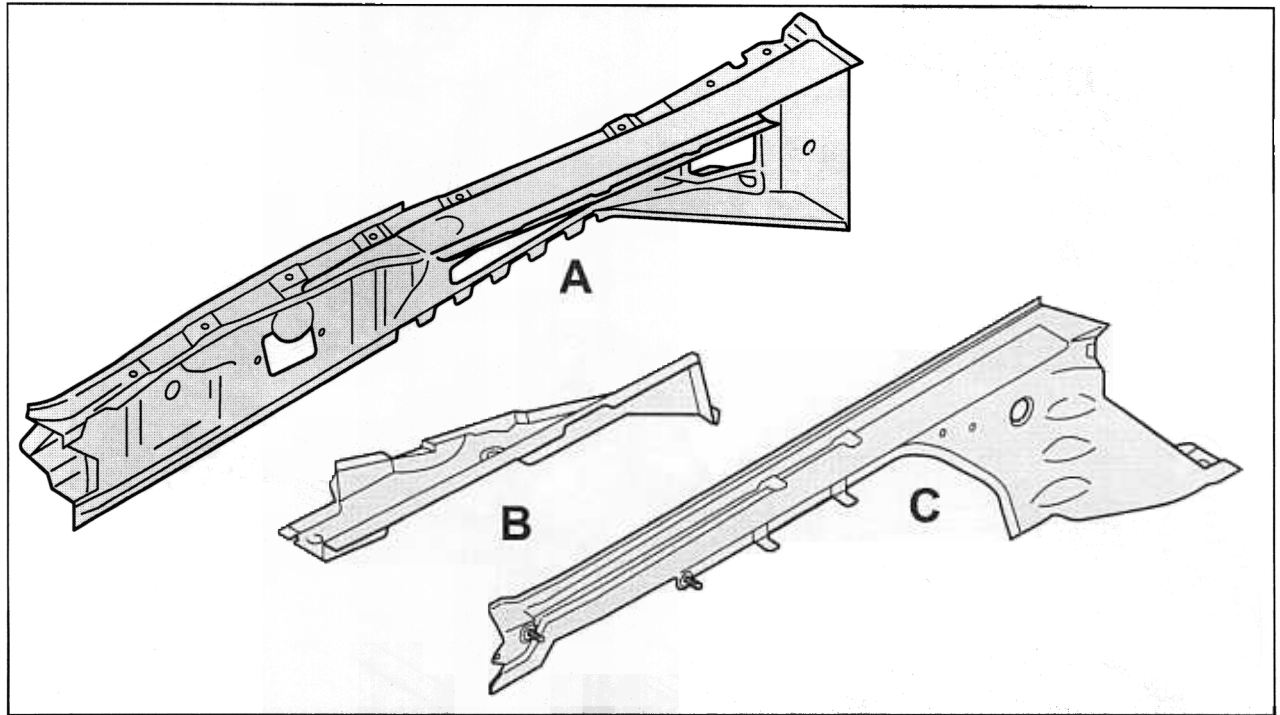
No.	Procedure	Instructions
	Welding in the inner side member.	Weld the inner side member with a full butt weld -F- under shielding gas.
2	Welding in wheel housings.	Spot-weld wheel housings and inner side members -A- . Weld the wheel housing from the outside with a full butt weld -B- under shielding gas.
3	Welding in the outer side member.	Spot-weld the outer side member to the inner side member -H, I- . Weld the outer side member with a full butt weld -F- under shielding gas.
4	Welding in front wall	⇒ chapter "Welding in front wall" in 50-33
5	Welding in closing panel and front floor panel	⇒ 50-11 "Replacing closing panel"

Item	Designation of the special tool	Explanation
	Basic straightening attachments for 911 Carrera (996) Nr. 7250700	⇒ Rep. Gr. 3; Workshop Equipment Manual
2	Star gauges Nr. 127-1	⇒ Rep. Gr. 2.4; Workshop Equipment Manual
3	Shielding-gas welding device	⇒ Rep. Gr. 3; Workshop Equipment Manual
4	Multispot spotwelder	⇒ Rep. Gr. 3; Workshop Equipment Manual
5	Pneumatic body saw	⇒ Rep. Gr. 3; Workshop Equipment Manual
6	Angle grinder	⇒ Rep. Gr. 2.4; Workshop Equipment Manual
7	Oscillating body saw (special electrical cutter)	⇒ Rep. Gr. 3; Workshop Equipment Manual
8	Multispot spotweld cutter	⇒ Rep. Gr. 3; Workshop Equipment Manual
9	Hole punch	⇒ Rep. Gr. 2.4; Workshop Equipment Manual
10	Hot-air gun	⇒ Rep. Gr. 3; Workshop Equipment Manual
11	Rotary brush	⇒ Rep. Gr. 2.4; Workshop Equipment Manual
12	Spot-weld cutter Ø7 mm Nr. 129	⇒ Rep. Gr. 2.4; Workshop Equipment Manual

Replacing wheel housing

Replacing wheel housing, bottom part and outer side member

The following spare body parts are required for the repair "Replacing wheel housings":

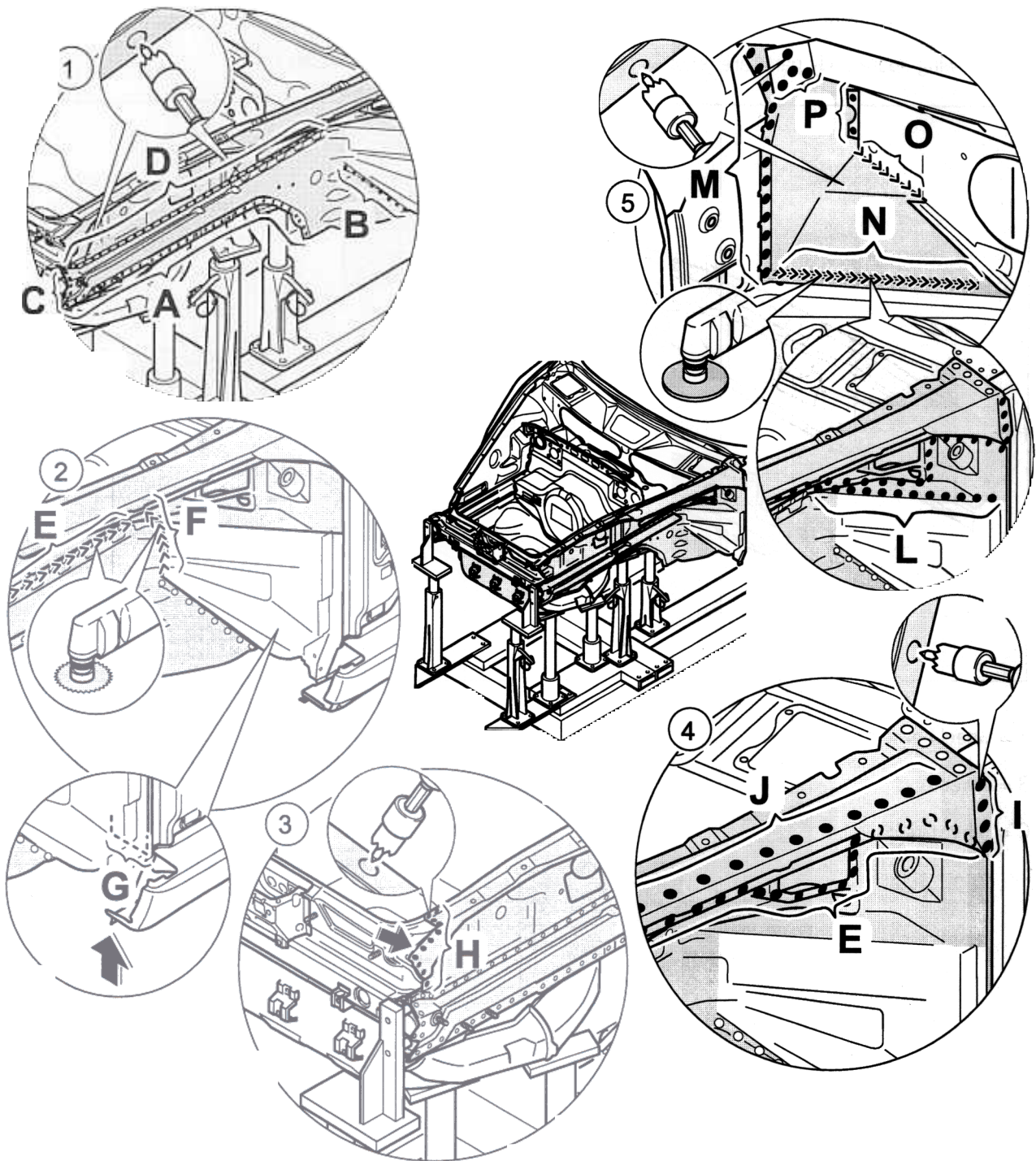


A = wheel housing

B = lower shell

C = outer side member

Removing wheel housing, lower shell and outer side member from the body



 **Warning!**

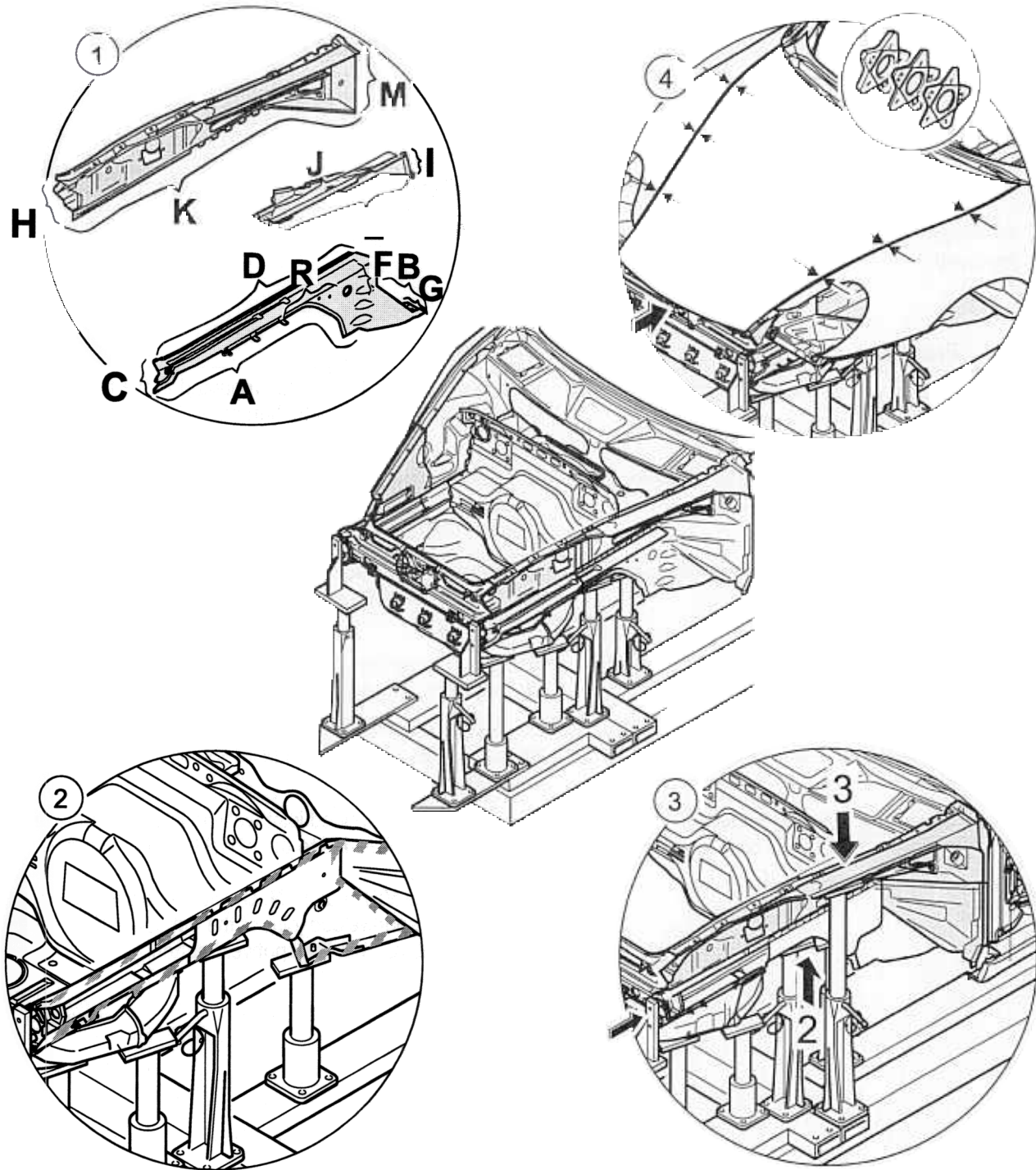
During body repairs, the following safety instructions and the general information and quality instructions must be followed. ⇒ Rep. Gr. 5; Safety instructions

 **Note!**

- ◆ *The accessories in the repair area should be removed, depending on the extent of the damage.*
- ◆ *All straightening work on the body in this area must have been completed before the damaged parts are removed.*

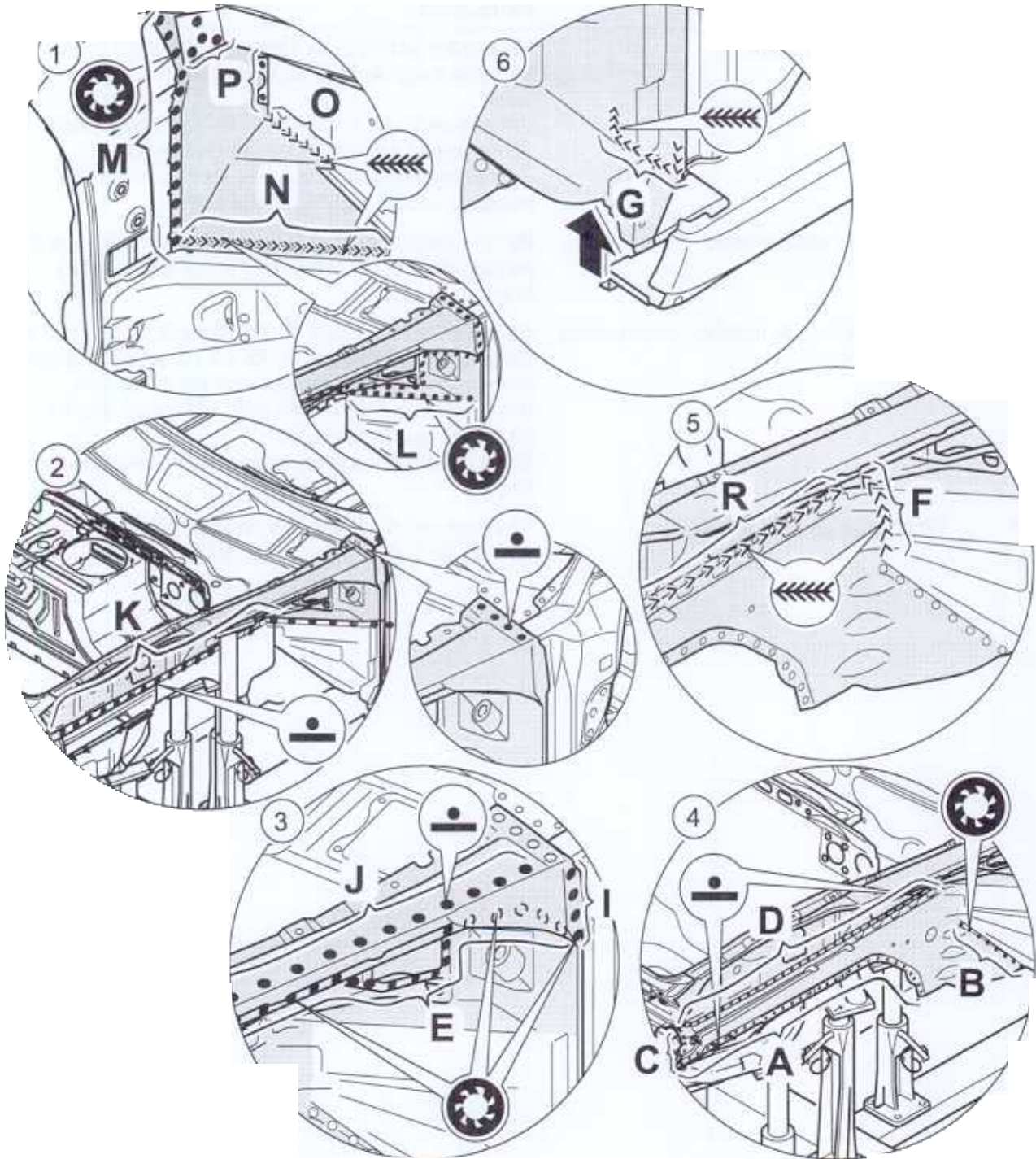
No.	Procedure	Instructions
	Placing vehicle on the alignment bench	Place the vehicle with the units mounted at the rear onto the set of straightening attachments and fasten it in position.
1	Separating the spot-welded joint between the outer/inner side members	Separate the spot-welded joints between the outer side member and inner side member -A, C, D- and the front wall -B- with the spotweld cutter.
2	Separating welds between outer side member and front wall	Grind open the MIG seams between outer side member -E- and the front wall -F- and the support shell on the floorpan -G- .
3	Separating the spot-welded joint between the wheel housing and closing panel	Separate the spot-welded joint of the wheel housing to the closing panel -H- using the spotweld cutter.
4	Separating spot-welded joint between lower shell/wheel housing and hinge pillar	Separate spot-welded joint of the lower shell to the wheel housing -J, E- and the hinge pillar -I- using the spotweld cutter.
5	Separating the spot-welded joint between the wheel housing/ A-pillar and transverse wall	Separate the spot-welded joint (vehicle interior) of the fire-wall -P- , hinge pillar -M- to the wheel housing with the spotweld cutter. Grind open the MIG seams -N, O- with the parting grinder. Separate the spot-welded joint of the outer wheel housing to the fire wall -L- with the spotweld cutter.

Preparing wheel housing, lower shell and outer side member for installation and fitting



No.	Procedure	Instructions
2	Cleaning the welding areas	Remove the factory-applied primer on the welding areas of the spare parts -A, B, C, D, E, F, G, H, I- using the rotary brush. Drill or punch (with a hole punch) $\varnothing 7$ mm holes spaced 20mm apart for plug-welding with shielding gas. ⇒ "Welding wheel housing, lower shell and outer side members into the body" in 50-23 page 6
3	Inserting outer side member, wheel housing into the body	Straightening attachment -2- for front-axle mount or on the straightening attachment -1- for the impact pipes (impact absorbers) must be screwed on for the fitting work. Insert wheel housing into the body and fasten onto the straightening attachment -3- . Insert spare outer side member onto the inner side member.
4	Fitting in wings and front lid	Fit the left and right wings and fit in the front lid. ⇒ Rep. Gr. 5; Illustration of gap dimensions

Welding wheel housing, lower shell and outer side members into the body



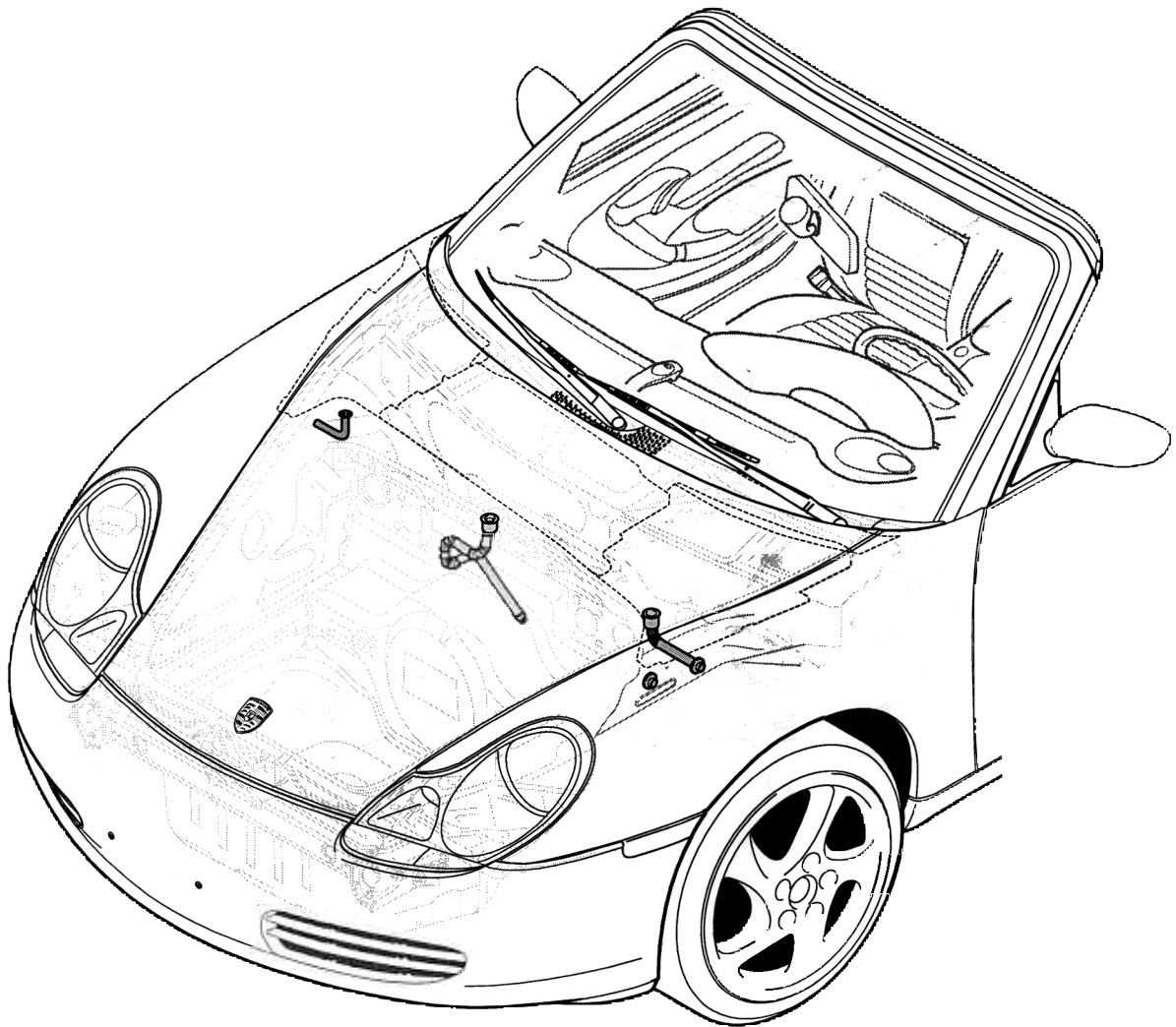
No.	Procedure	Instructions
	Plug-welding wheel housing/hinge pillar, front wall and cross member under shielding gas	Weld spare wheel housing with the fire wall -N, O , - with an interrupted full weld under shielding gas. Plug-weld the connection to the hinge pillar -M- and the fire wall -P, L- under shielding gas.
2	Spot-welding the wheel housing	Spot-weld the wheel housing to the outer side member -K- .
3	Welding the lower shell under shielding gas	Plug-weld the lower shell to the wheel housing -J, E, I- under shielding gas.
4	Welding outer side member under shielding gas and with spot welds	Spot-weld the outer side member with the inner side member -A, D, C- . Plug-weld the connection to the firewall -B- under shielding gas.
5	Welding inner/outer side members and front wall under shielding gas	Weld inner side member to outer side member -R- and the front wall -F- with an interrupted full weld under shielding gas.
6	Welding side member/support shell under shielding gas	Weld side members to the support shell -G- with a full weld under shielding gas.

Tools and materials

Item	Designation of the special tool	Explanation
	Basic straightening attachments for 911 Carrera (996) Nr. 7250700	⇒ Rep. Gr. 3; Workshop Equipment Manual
2	Star gauges Nr. 127-1	⇒ Rep. Gr. 2.4; Workshop Equipment Manual
4	Shielding-gas welding device	⇒ Rep. Gr. 3; Workshop Equipment Manual
5	Multispot spotwelder	⇒ Rep. Gr. 3; Workshop Equipment Manual
6	Pneumatic body saw	⇒ Rep. Gr. 3; Workshop Equipment Manual
7	Angle grinder	⇒ Rep. Gr. 3; Workshop Equipment Manual
8	Oscillating body saw (special electrical cutter)	⇒ Rep. Gr. 3; Workshop Equipment Manual
9	Multispot spotweld cutter	⇒ Rep. Gr. 3; Workshop Equipment Manual
10	Hole punch	⇒ Rep. Gr. 2.4; Workshop Equipment Manual
11	Hot-air gun	⇒ Rep. Gr. 3; Workshop Equipment Manual

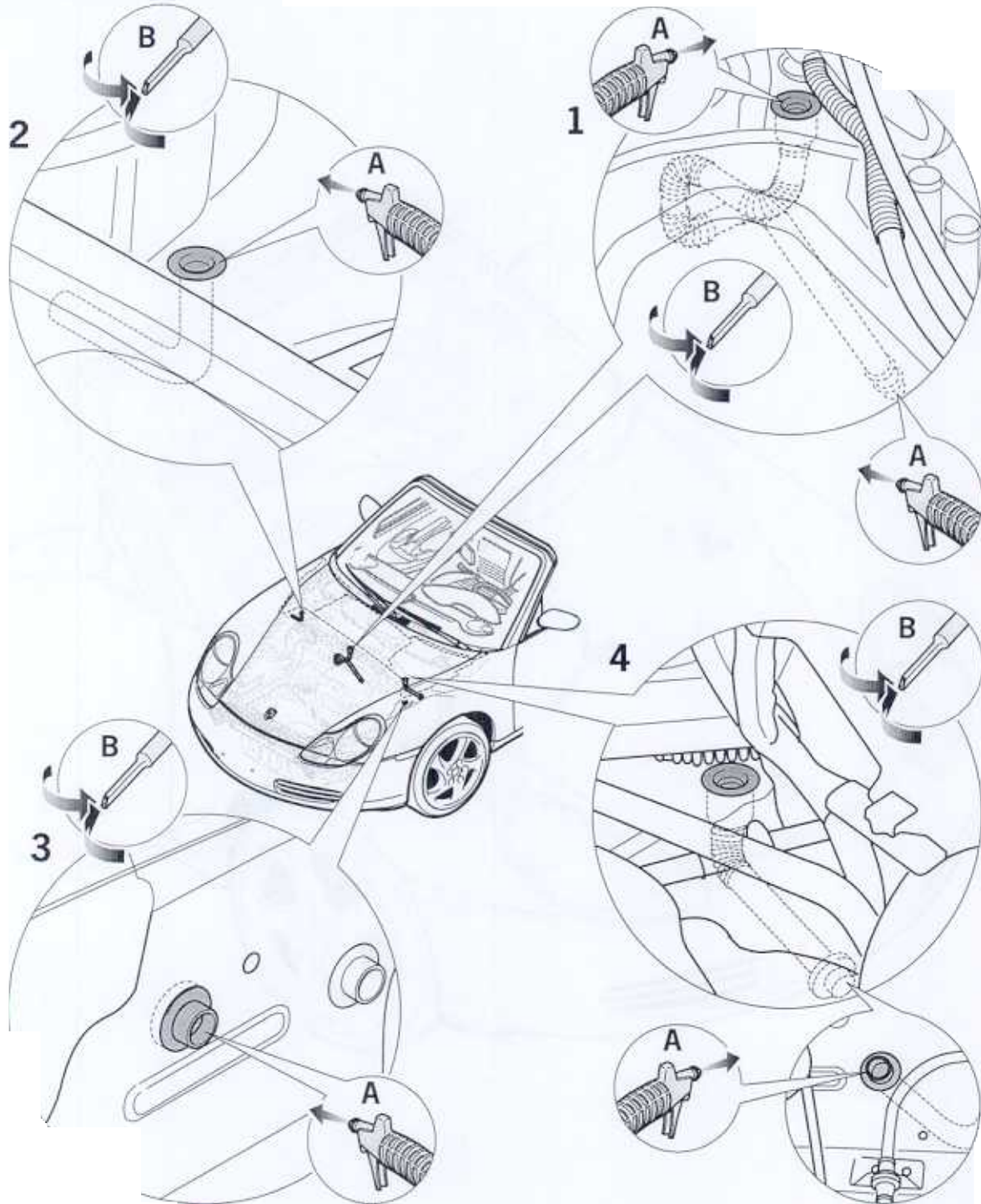
Item	Designation of the special tool	Explanation
	Rotary brush	⇒ Rep. Gr. 2.4; Workshop Equipment Manual
13	Spotweld cutter Ø7 mm, No. 129	⇒ Rep. Gr. 2.4; Workshop Equipment Manual

50 93 30 Cleaning front water drains



193_99

Cleaning front water drains



194_99

Cleaning front water drains

Remove the cowl panel cover to clean the water drains. See: Serv. No. 70 22



Warning:

Water drainage hoses can be pushed out or pressed in when blown out of the body!

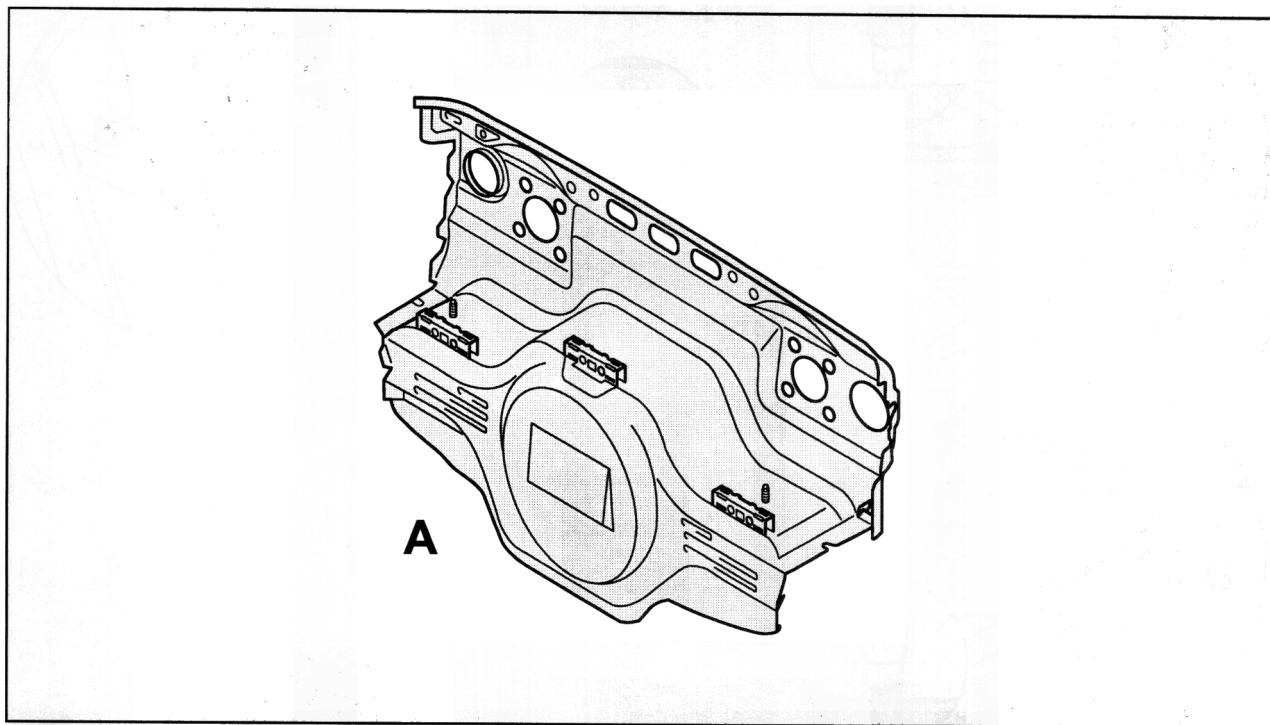
> The water drains in the front end should be blown out carefully with compressed air.

No.	Procedure	Instructions
	Blow out water drains on right side of front end.	Carefully blow out water drain from top (inset A) on right side of front end. Remove dirt particles from the radiator tank (inset B) with the vacuum cleaner.
2	Blow out water drains on right side of front end.	Carefully blow out water drain from top (inset A) on right side of front end. Remove dirt particles from the radiator tank (inset B) with the vacuum cleaner.
3	Blow out water drains on left side of front end.	Put vehicle onto lifting platform and carefully blow out the left water drain (inset A) from the outside of the wheel arch. Remove dirt particles from the radiator tank (inset B) with the vacuum cleaner.
4	Blow out water drains on left side of front end.	Put vehicle onto lifting platform and carefully blow out the left water drain (inset A) from the outside of the wheel arch. Remove dirt particles from the radiator tank (inset B) with the vacuum cleaner.

Install cowl panel cover see: Serv. No. 70 22

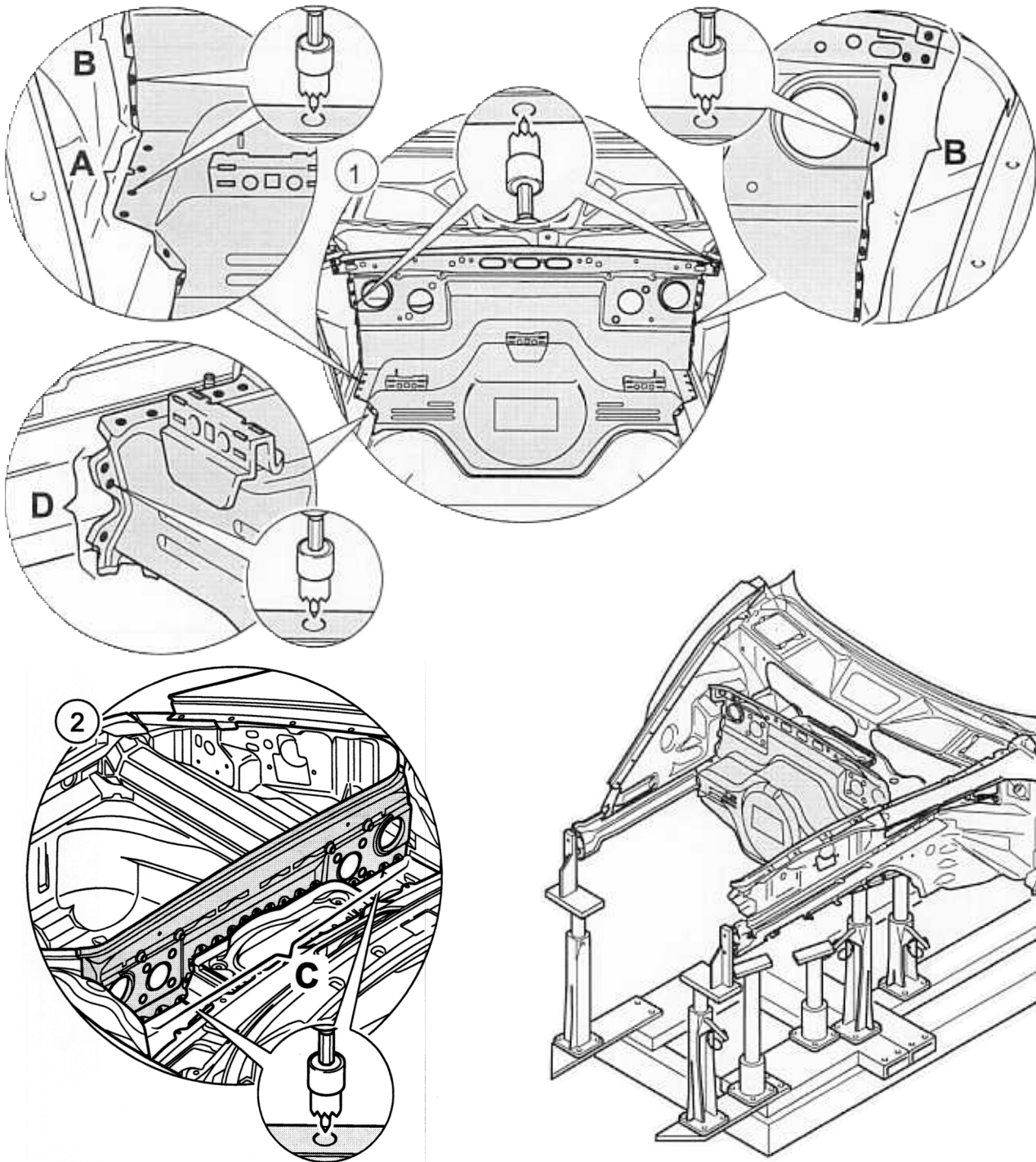
Replacing front wall

The following spare body parts are required for the repair "Replacing front wall":



A = front wall

Cutting out front wall



 **Warning!**

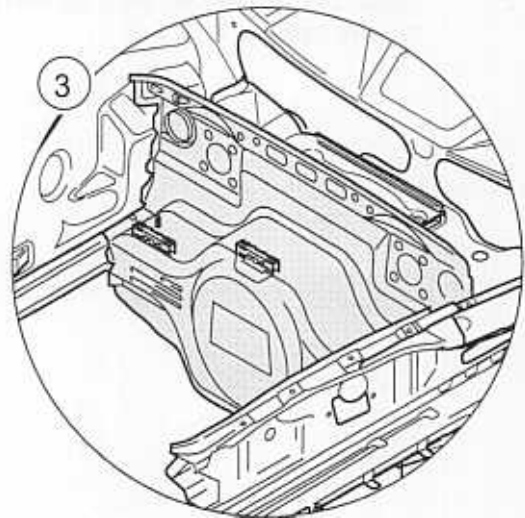
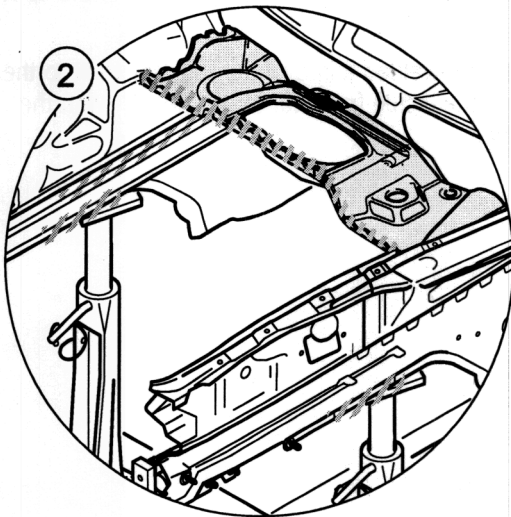
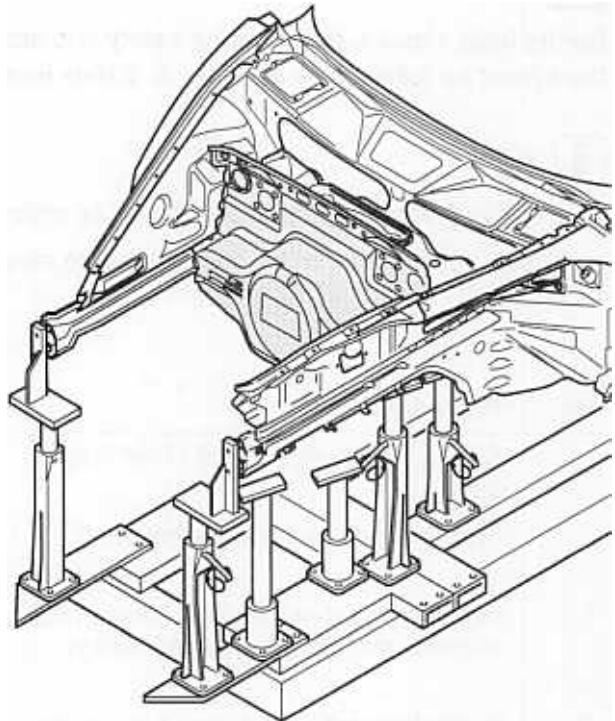
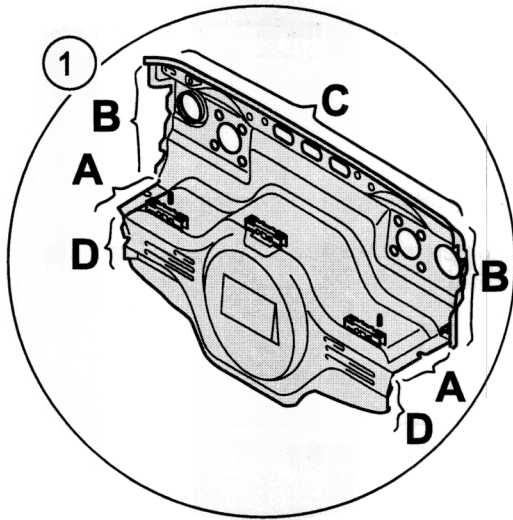
During body repairs, the following safety instructions and the general information and quality instructions must be followed. ⇒ Rep. Gr. 5; Safety instructions

 **Note!**

- ◆ The accessories in the repair area should be removed, depending on the extent of the damage.
- ◆ All straightening work on the body in this area must have been completed before the damaged parts are removed.

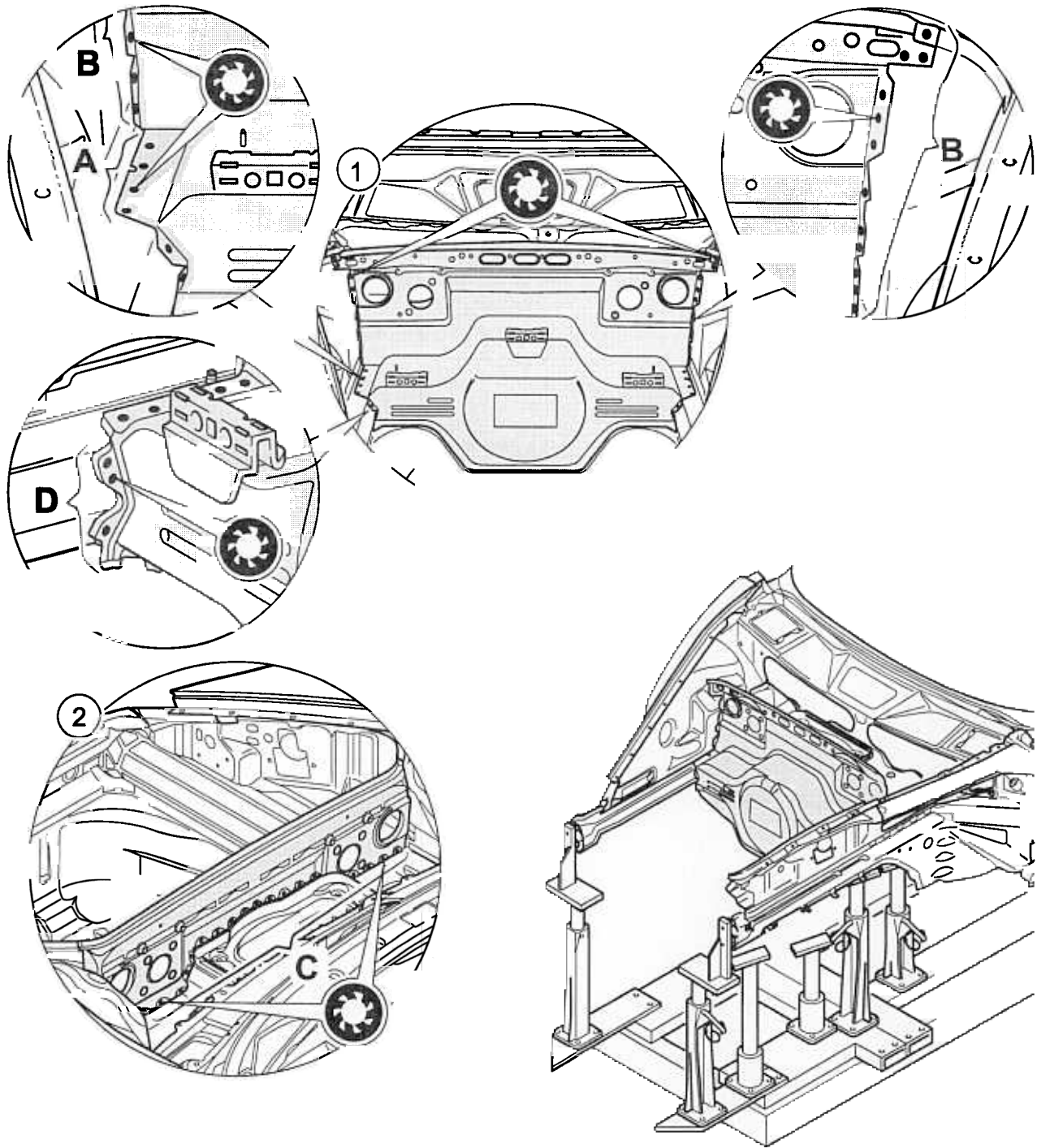
No.	Procedure	Instructions
	Cutting out closing panel and front floor panel	⇒ 50-11 "Replacing closing panel"
	Placing vehicle on the alignment bench	Place the vehicle with the units installed at the rear onto the set of straightening attachments and fasten in place.
1	Separating spot-welded joints between front wall/side members and wheel housings	Separate spot-welded joints of the front wall to the side members -A, D- and the wheel housings -B- with the spot-weld cutter.
2	Separating spot-welded joints between the radiator tank and front wall	Separate the spot-welded joints of the radiator tank to the front wall from the inside (radiator-tank side) -C- with the spotweld cutter.

Preparing front wall for installation and fitting



No.	Procedure	Instructions
2	Cleaning the welding areas	Remove the factory-applied primer on the welding areas of the spare parts -A, B, C, D,- using the rotary brush. Drill or punch (with a hole punch) $\varnothing 7$ mm holes spaced 20mm apart for plug-welding with shielding gas. ⇒ "Welding in front wall" in 50-33 page 6
3	Inserting the front wall into the body	Remove underbody coating and paint layers, etc. from the welding areas of the body with a hot-air gun or rotary brush. Adjust the spare front wall to the side members and the radiator tank. Fitting of the following parts ⇒ 50-11 "Replacing closing panel"

Welding in front wall

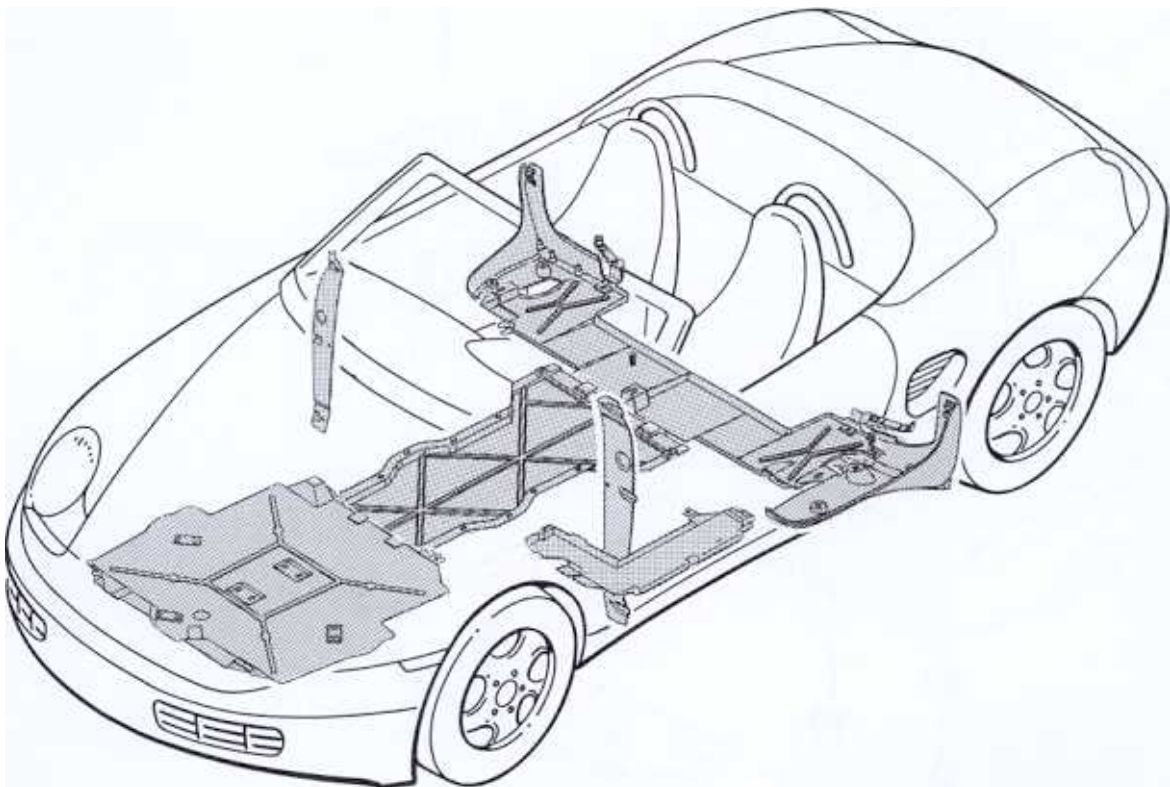


No.	Procedure	Instructions
	Plug-welding front wall/side members and wheel housings	Plug-weld the front wall to the side members -A, D- and to the wheel housing -B- under shielding gas.
2	Plug-welding radiator tank/front wall.	Plug-weld radiator tank to the front wall -C- on the left and right.

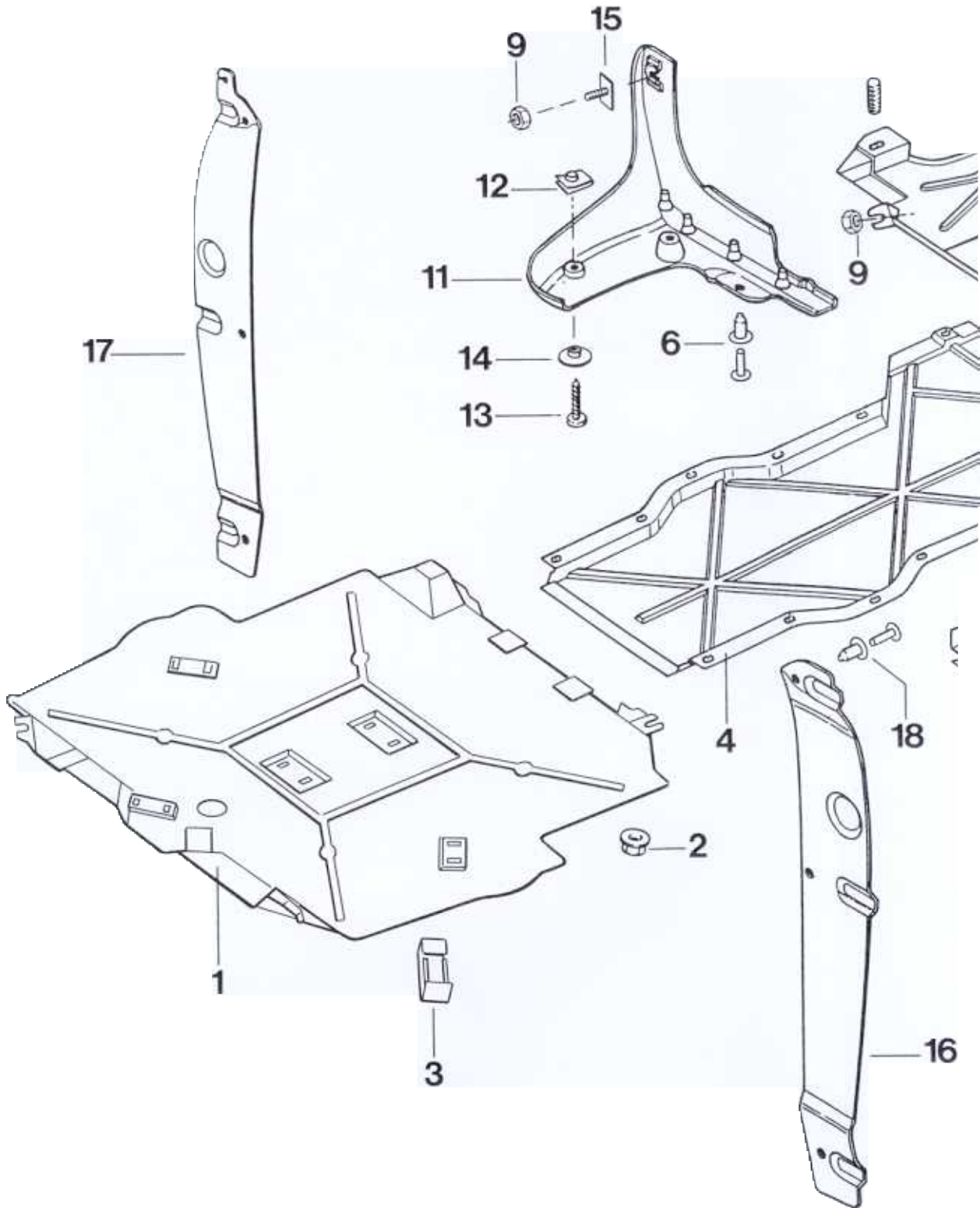
Tools and materials

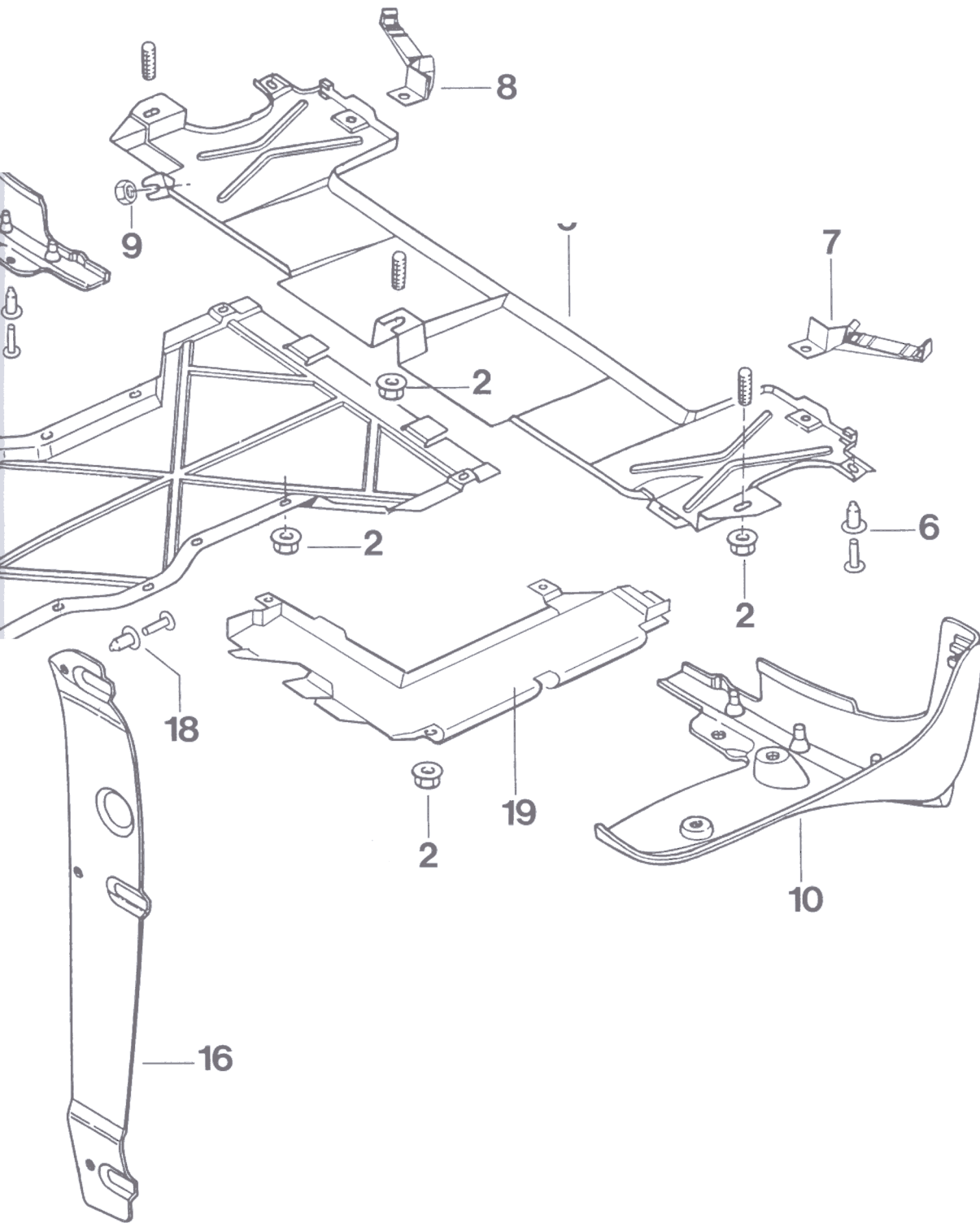
Item	Designation of the special tool	Explanation
	Basic straightening attachments for 911 Carrera (996) 7250700	⇒ Rep. Gr. 3; Workshop Equipment Manual
2	Star gauges 127-1	⇒ Rep. Gr. 2.4; Workshop Equipment Manual
3	Shielding-gas welding device	⇒ Rep. Gr. 3; Workshop Equipment Manual
4	Pneumatic body saw	⇒ Rep. Gr. 3; Workshop Equipment Manual
5	Angle grinder	⇒ Rep. Gr. 3; Workshop Equipment Manual
6	Oscillating body saw (special electrical cutter)	⇒ Rep. Gr. 3; Workshop Equipment Manual
7	Multispot spotweld cutter	⇒ Rep. Gr. 3; Workshop Equipment Manual
8	Hole punch	⇒ Rep. Gr. 2.4; Workshop Equipment Manual
9	Hot-air gun	⇒ Rep. Gr. 3; Workshop Equipment Manual
10	Rotary brush	⇒ Rep. Gr. 3; Workshop Equipment Manual
11	Spotweld cutter Ø 7 mm Nr. 129	⇒ Rep. Gr. 2.4; Workshop Equipment Manual

51 90 19 Removing and installing underbody cover



Removing and installing underbody cover



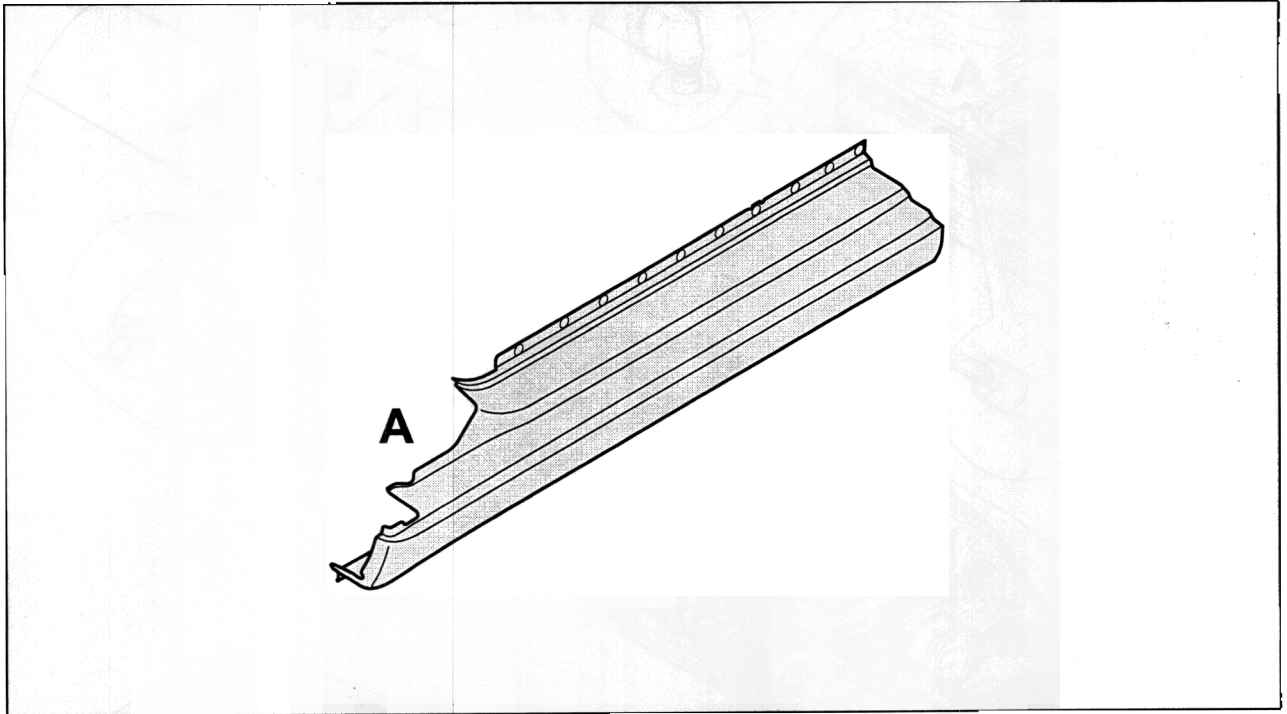


Removing and installing underbody cover

No.	Designation	Qty.	Removal	Note:	
				Installation	
	Underside panel front	1	Remove from underside panel middle to the front	Insert to the rear into underside panel middle	
2	Plastic nut T5/22 x 10	22			
3	Clip	6		Check, replace if necessary	
4	Underside panel middle	1	Remove from underside panel rear to the front	Insert to the rear into the underside panel rear	
5	Underside panel rear	1			
6	Expanding rivet St 6.3	4		Check, replace if necessary	
7	Left clip,	1	Unclip, loosen expanding rivet	Check, replace if necessary	
8	Right clip,	1	Unclip, loosen expanding rivet	Check, replace if necessary	
9	Hexagon nut M5	3			
10	Side cover left				
11	Side cover right	1			
12	Sheetmetal nut St 4.8	4			
13	Sheetmetal screw	4			
14	Spacer sleeve	4			
15	Threaded plate 10 x 20 M5 x 12	2	Loosen nut, press plate out inwards		
16	Masking panel left				
17	Masking panel right	1			
18	Expanding rivet D6	6		Check, replace if necessary	
19	Cover	1			

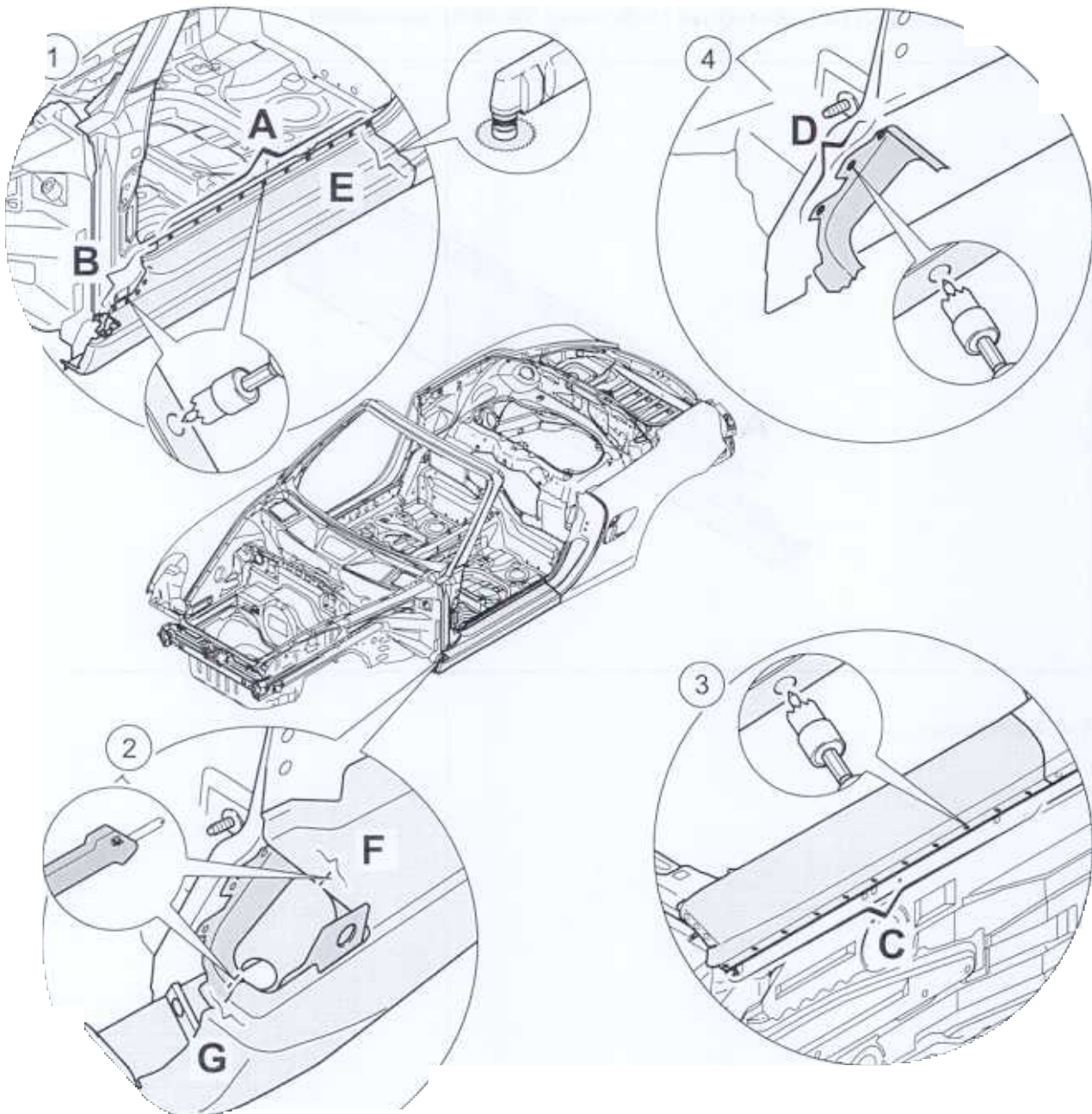
Replacing outer lower side member


The following spare body parts are required for the repair "Replacing side member"



A = Side member

Separating outer lower side membe



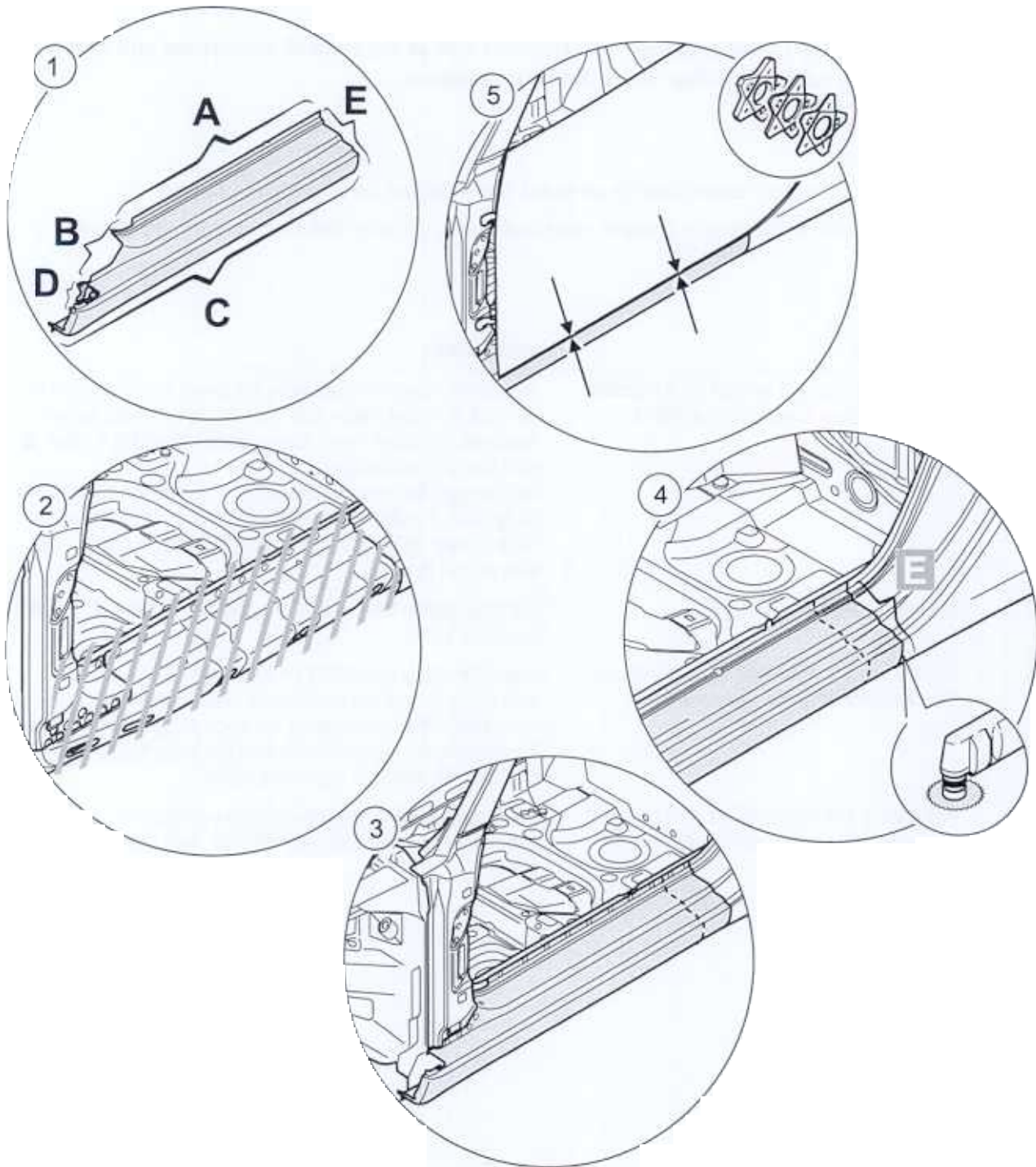
 **Warning!**

During body repairs, the following safety instructions as well as the general information and quality instructions must be followed. ⇒ Rep. Gr. 5; Safety instructions

 **Note!**

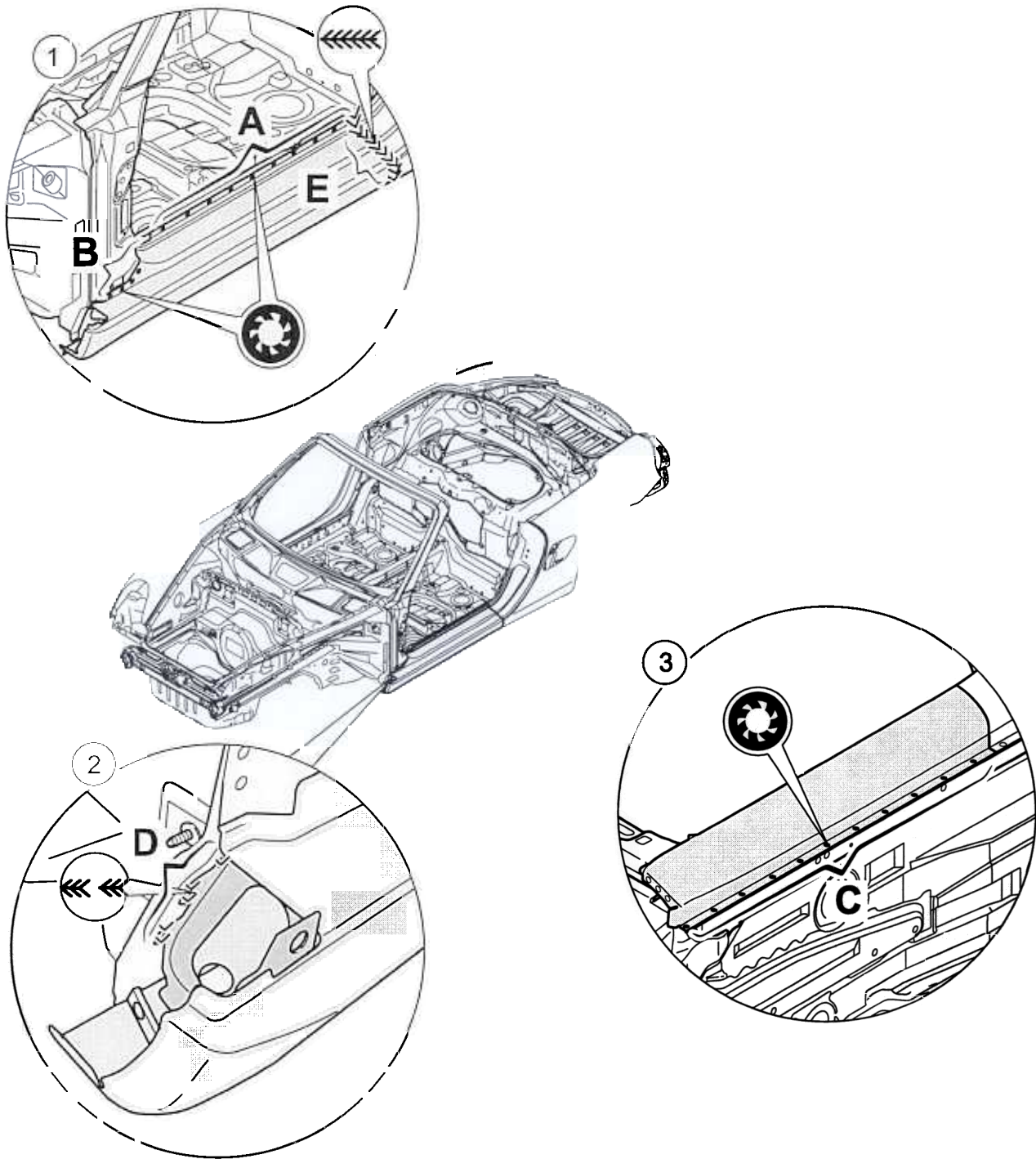
- ◆ *The accessories in the repair area should be removed, depending on the extent of the damage.*
- ◆ *All straightening work on the body in this area must have been completed before the damaged parts are removed.*

No.	Procedure	Instructions
	Separating the spot-welded joint between the outer/inner lower side members	The spot-welded joint between the outer lower side member and the inner lower side member -A- respectively. Separate the outer lower side member from the A-pillar -B- with the spotweld cutter. Cut through the connection to the side section -E- with the body saw. Position the cut so that the spare body part (outer lower side member) overlaps the side section by approx. 60 mm.
2	Sawing through the webplate	Cut through the webplate at the top and bottom -F, G- with the body saw.
3	Separating the spot-welded joint between the outer/inner lower side members	Separate the spot-welded joint between the outer lower side member and the inner lower side member -C- with the spot-weld cutter. Separating the spot-welded joint between the outer lower side member and the inner lower side member -C- with the spot-weld cutter.
4	Separating the spot-welded joint between the web plate/inner lower side member	Separate the spot-weld connection between the webplate and the inner lower side member -D- with the spot-weld cutter.

Preparation for installation of lower side member and fitting

No.	Procedure	Instructions
	Cleaning the welding areas	Remove the factory-applied primer on the welding areas of the spare parts -A, B, C, D, E- using the rotary brush.
2	Preparing spare parts	Remove underbody coating and paint layers, etc. from the welding areas of the body with a hot-air gun or rotary brush.
3	Inserting outer lower side member	Insert outer lower side member into the body.
4	Fitting lower side member separation point	Cut through the outer lower side member, overlapping at the separation point, flush with the side section -E- with the body saw.
5	Setting gap	Set gap between door and outer lower side member. ⇒ Rep. Gr. 5; Body gap dimensions.

Welding lower side member



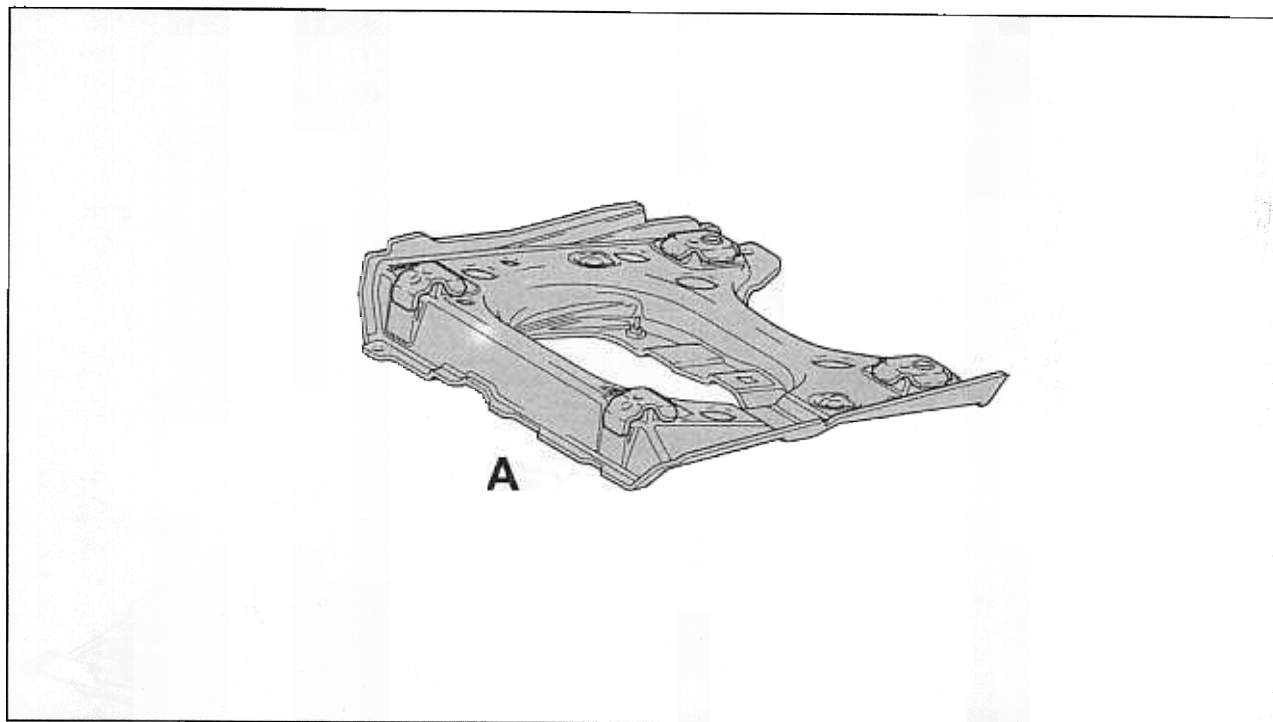
No.	Procedure	Instructions
	Welding outer/inner lower side member under shielding gas	Plug-weld the outer lower side member and the inner lower side member -A- as well as the connection to the B-pillar -B- under shielding gas. Weld the connection to the side section -E- with a continuous butt weld under shielding gas.
2	Welding the web plate under shielding gas	Weld the web plate and the inner lower side member together -D- with an interrupted full weld under shielding gas.
3	Welding outer/inner lower side member under shielding gas	Plug-weld the outer lower side member and the inner lower side member together -C- under shielding gas.

Tools and materials

Item	Designation of the special tool	Explanation
1	Star gauges No. 127-1	⇒ Rep. Gr. 2.4; Workshop Equipment Manual
2	MIG welder	⇒ Rep. Gr. 3; Workshop Equipment Manual
3	Pneumatic body saw	⇒ Rep. Gr. 3; Workshop Equipment Manual
4	Angle grinder	⇒ Rep. Gr. 3; Workshop Equipment Manual
5	Oscillating body saw (special electrical cutter)	⇒ Rep. Gr. 3; Workshop Equipment Manual
6	Multispot spot-weld cutter	⇒ Rep. Gr. 3; Workshop Equipment Manual
7	Hole punch	⇒ Rep. Gr. 2.4; Workshop Equipment Manual
8	Hot-air gun	⇒ Rep. Gr. 3; Workshop Equipment Manual
9	Rotary brush	⇒ Rep. Gr. 3; Workshop Equipment Manual
10	Spot-weld cutter Ø 7 mm No.129	⇒ Rep. Gr. 2.4; Workshop Equipment Manual

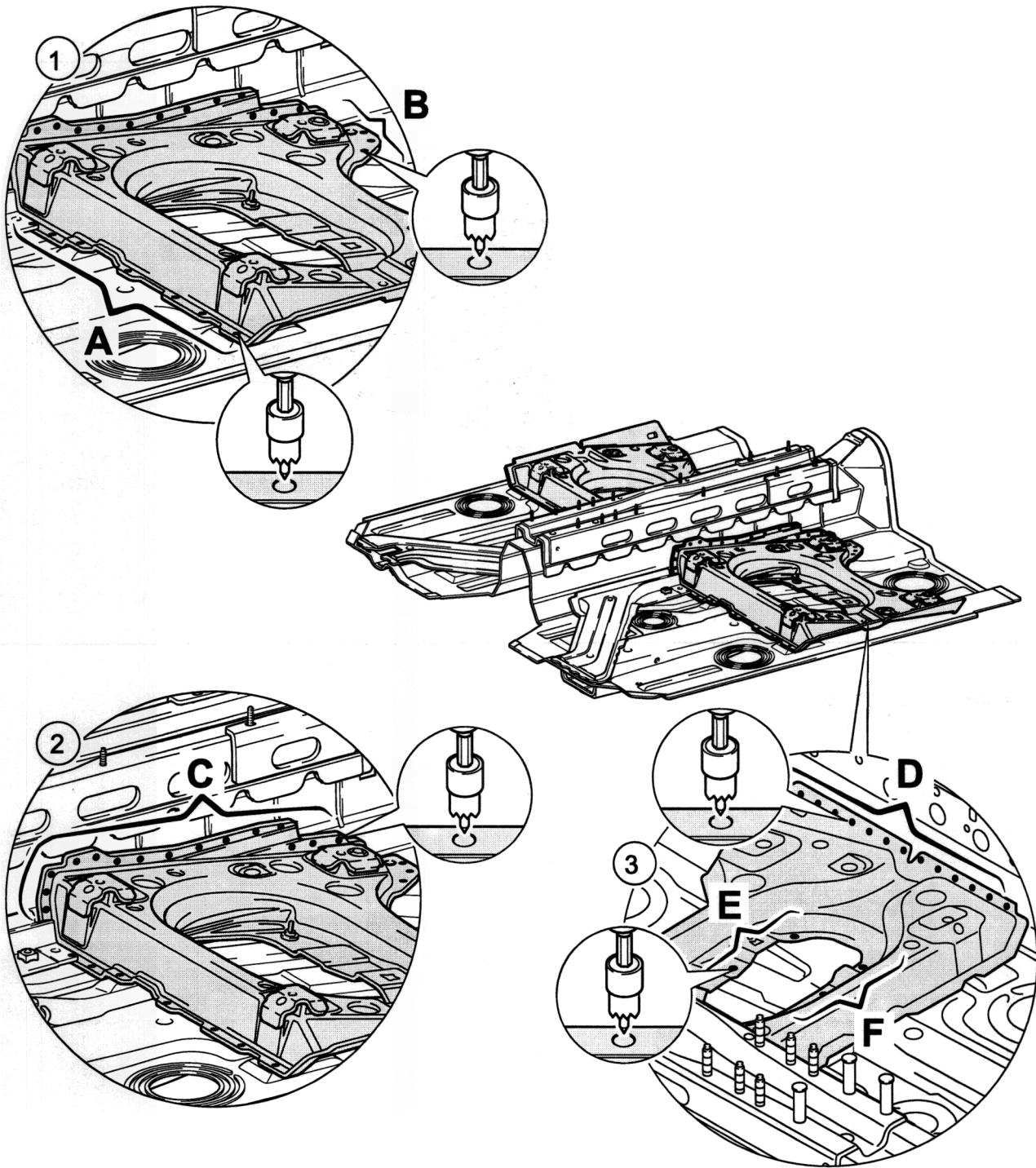
Replacing seat cross member

The following spare body parts are required for the repair "Replacing seat cross member":



A = seat cross member

Cutting out seat cross member



 **Warning!**

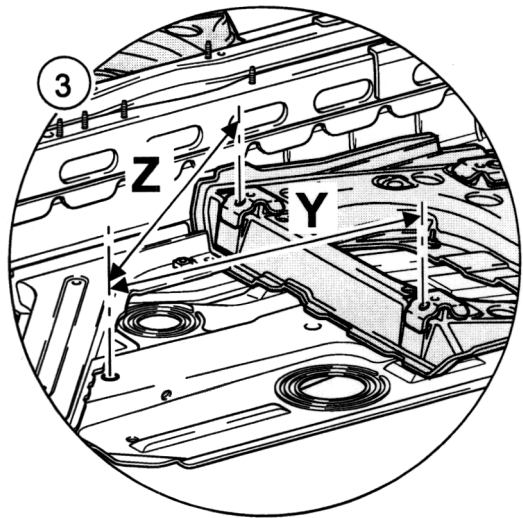
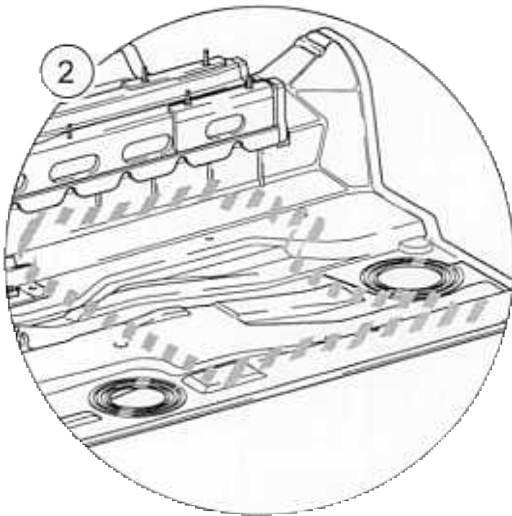
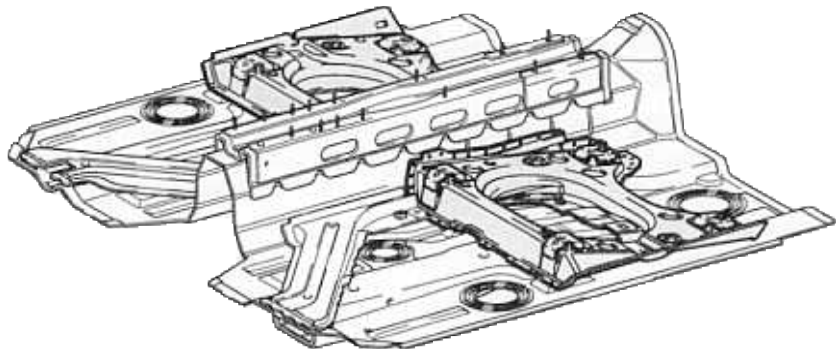
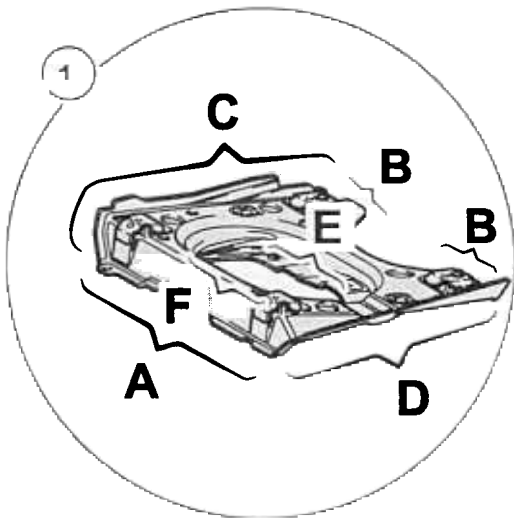
During body repairs, the following safety instructions and the general information and quality instructions must be followed. ⇒ Rep. Gr. 5; Safety instructions

 **Note!**

- ◆ *The accessories in the repair area should be removed, depending on the extent of the damage.*
- ◆ *All straightening work on the body in this area must have been completed before the damaged parts are removed.*

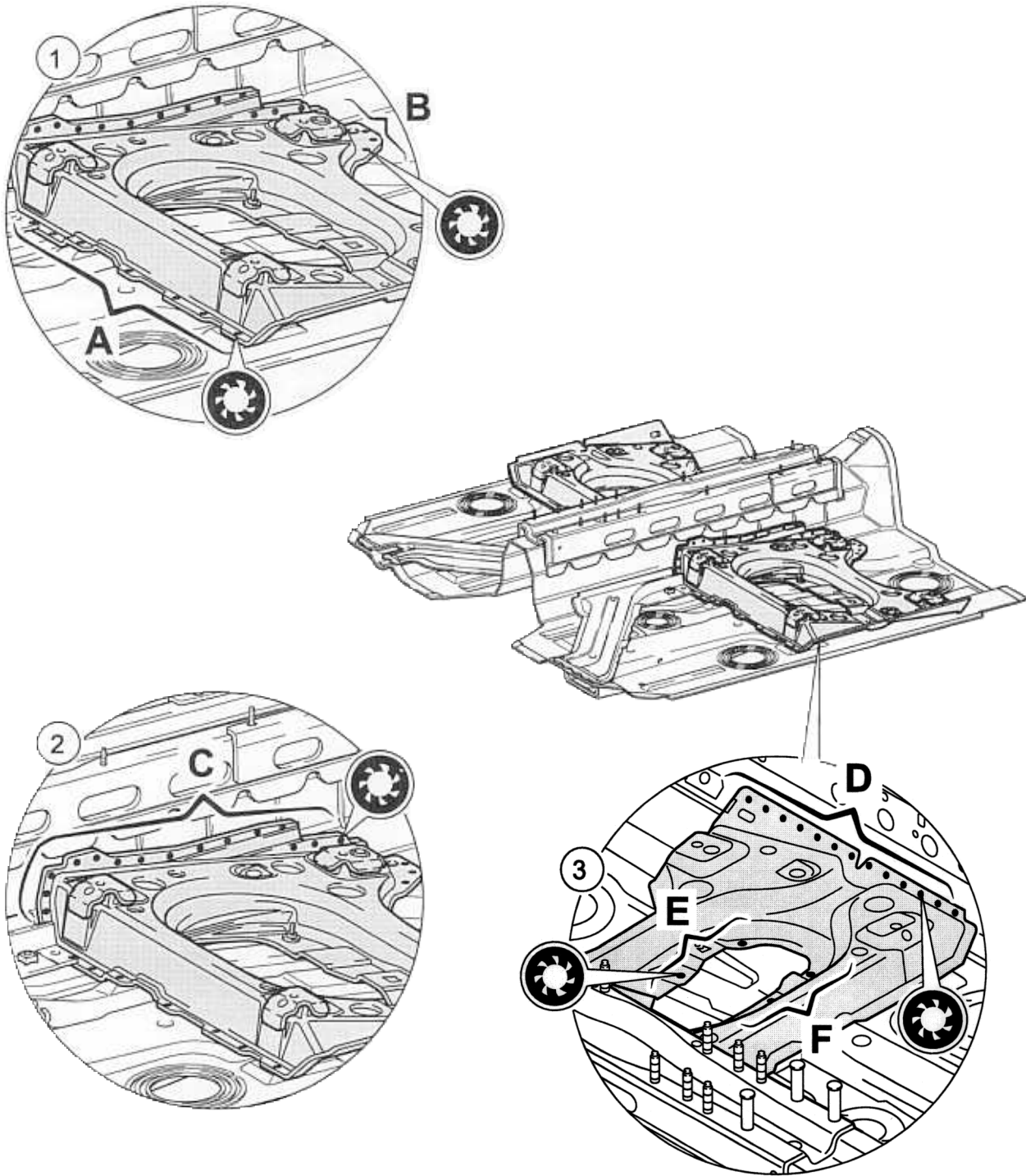
No.	Procedure	Instructions
	Separating spot-welded joints between the seat cross member and floorpan	Separate the spot-weld joints between the seat cross member and the floorpan -A, B- with the spot-weld cutter.
2	Separating spot-welded joints between the seat cross member and inner member	Separate the spot-weld joints -C- between the seat cross member and inner member with the spot-weld cutter.
3	Separating spot-welded joints between the seat cross member and inner member	Separate the spot-welded joints -D, E, F- between the seat cross member and inner lower side member with the spot-weld cutter.

Preparation of seat cross member for installation and fitting



No.	Procedure	Instructions
2	Cleaning the welding areas	Remove the factory-applied primer on the welding areas of the spare parts -A, B,- using the rotary brush. Drill or punch (with a hole punch) $\varnothing 7$ mm holes spaced 20mm apart for plug-welding with shielding gas. ⇒ "Welding in seat cross member" in 51-6 page 6
3	Measuring seat cross member	Measure the seat cross member at the front screwed points (hole center) forward to the hole edge of the reinforcement in the floorpan -dimension X = 405 mm- -dimension Y = 453 mm-

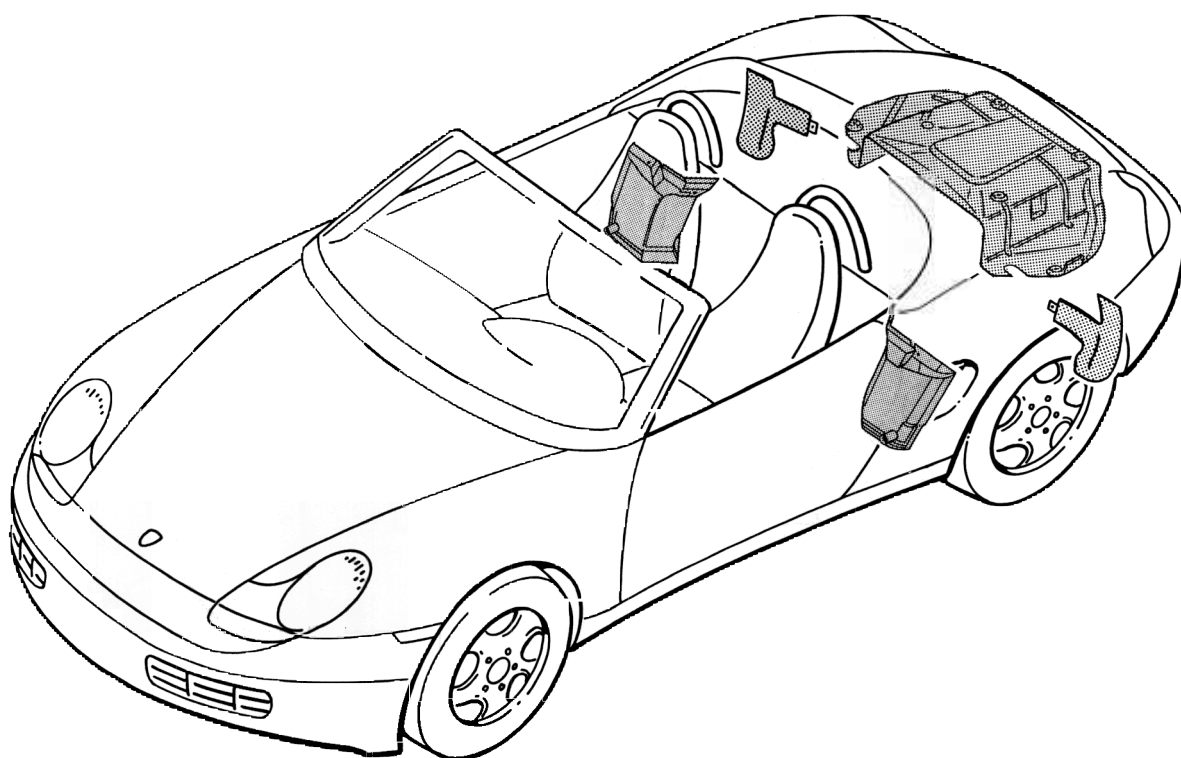
Welding in seat cross member



No.	Procedure	Instructions
	Plug-welding seat cross member under shielding gas	Plug-weld the seat cross member at the front and rear -A, B- under shielding gas.
2	Plug-welding seat cross member under shielding gas	Plug-weld the seat cross member at the sides -C- under shielding gas.
3	Plug-welding seat cross member under shielding gas	Plug-weld the seat cross member at the sides and middle -D, E, F- under shielding gas.

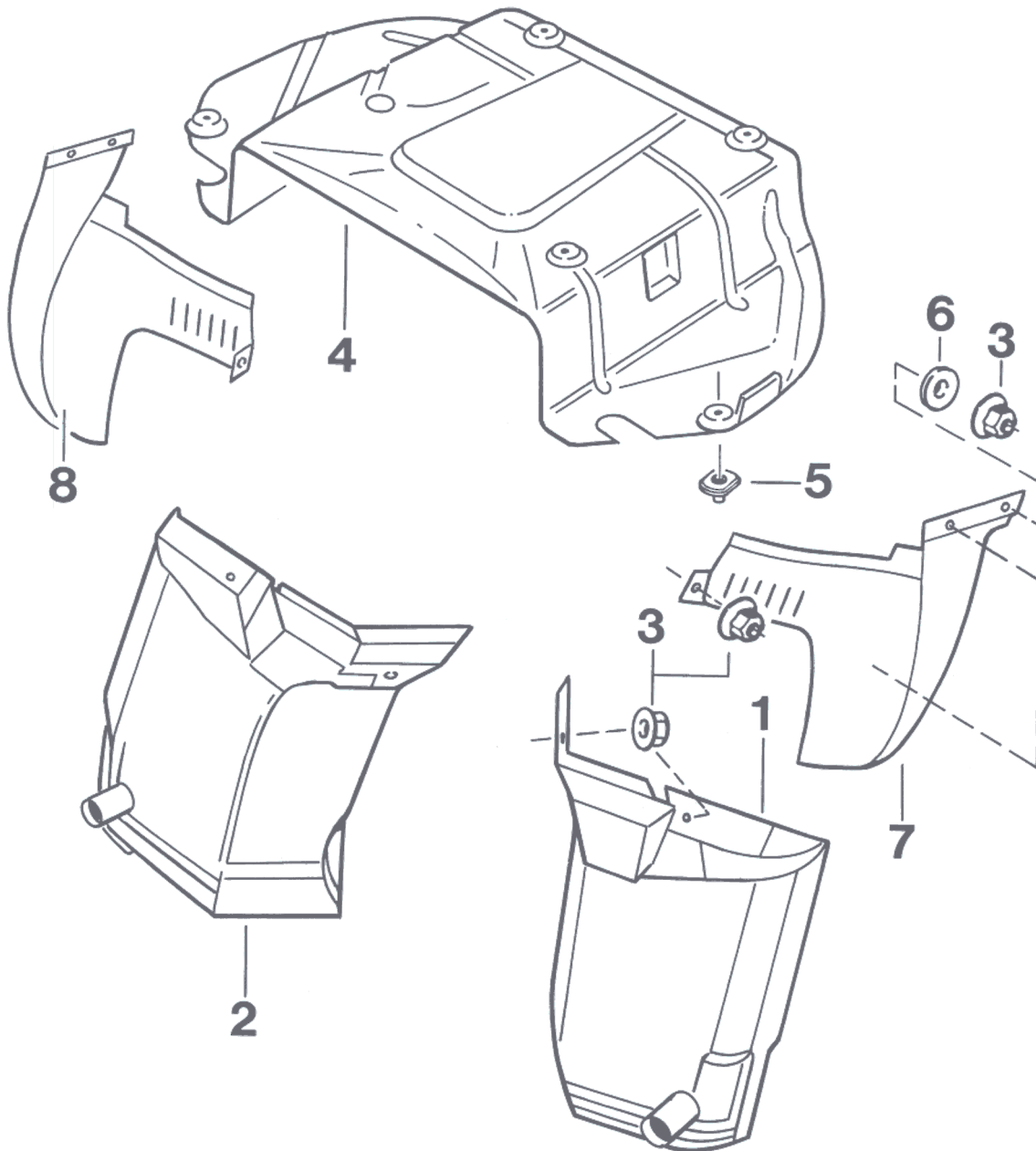
Tools and materials

Item	Designation of the special tool	Explanation
	MIG welder	⇒ Rep. Gr. 3; Workshop Equipment Manual
2	Angle grinder	⇒ Rep. Gr. 3; Workshop Equipment Manual
3	Multispot spotweld cutter	⇒ Rep. Gr. 3; Workshop Equipment Manual
4	Hole punch	⇒ Rep. Gr. 2.4; Workshop Equipment Manual
5	Hot-air gun	⇒ Rep. Gr. 3; Workshop Equipment Manual
6	Rotary brush	⇒ Rep. Gr. 3; Workshop Equipment Manual
7	Spot-weld cutter Ø7 mm Nr. 129	⇒ Rep. Gr. 2.4; Workshop Equipment Manual

53 69 19 Removing and installing wheel housing liner**Removing and installing wheel housing liners, wheel housing trim and heat protection**

125 - 96

Removing and installing wheel housing liners, wheel housing trim and heat protection

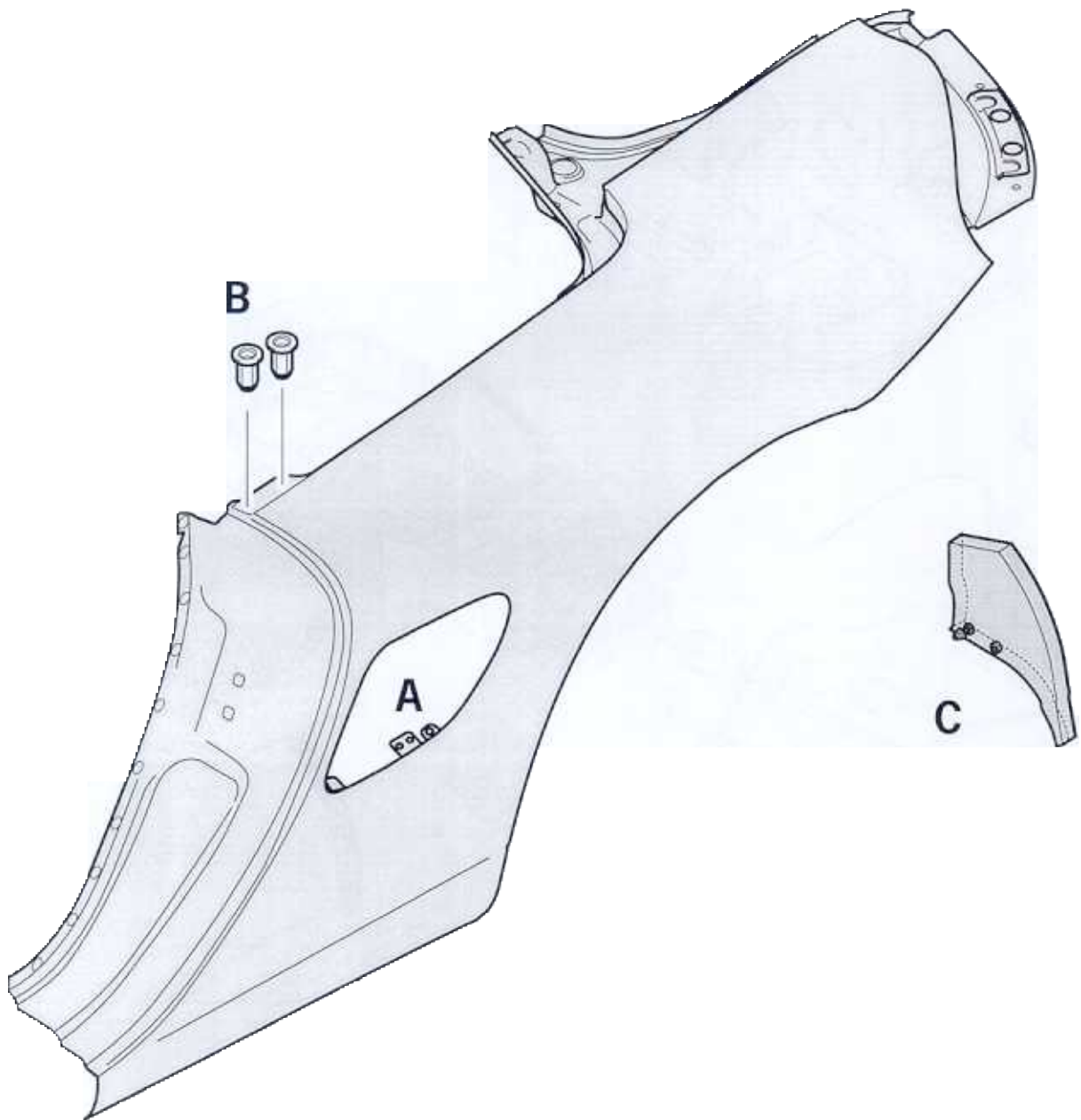


Removing and installing wheel housing liners, wheel housing trim and heat protection

No.	Designation	Qty.	Removal	Note:	
					Installation
The rear paneling must be detached on the left and right before the wheel housing trim can be removed!					
	Left wheel housing liner	1	Pull out downwards.		
2	Right wheel housing liner	1	Pull out downwards.		
3	Plastic nut T5.	12	Undo.		Test and replace if necessary.
4	Heat protection	1			
5	Hexagon nut	6			
6	Spacer sleeve 5.2 x 15	6			
7	Left wheel housing trim	1	Detach and pull out to the front.		Insert and screw into place.
8	Right wheel housing trim	1	Detach and pull out to the front.		Insert and screw into place.

53 55 55 Replacing side section

The following spare body parts are required for the repair "Replacing side section"

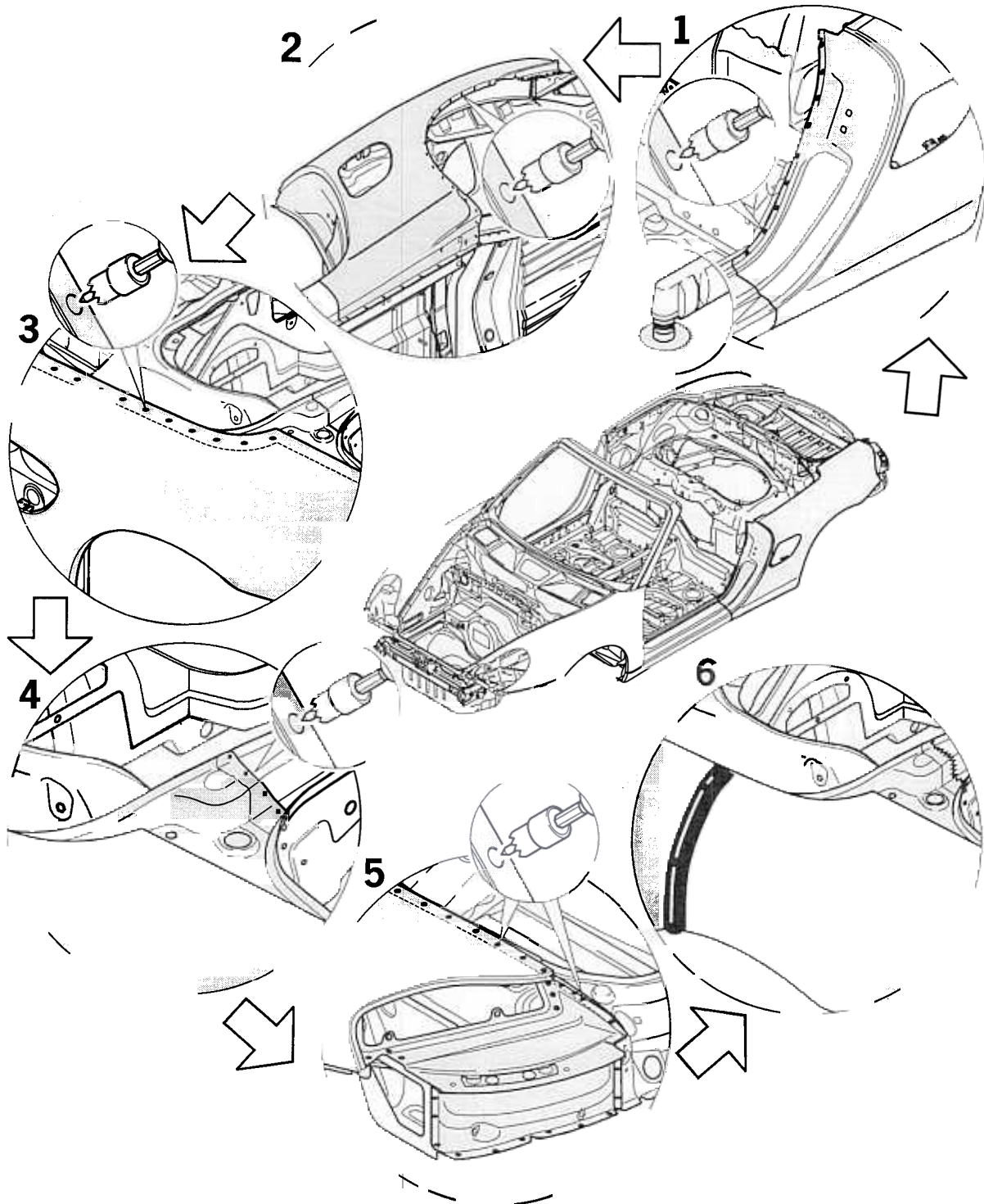


A side section

B insertion bushing

bulkhead element

Removing side section from the body



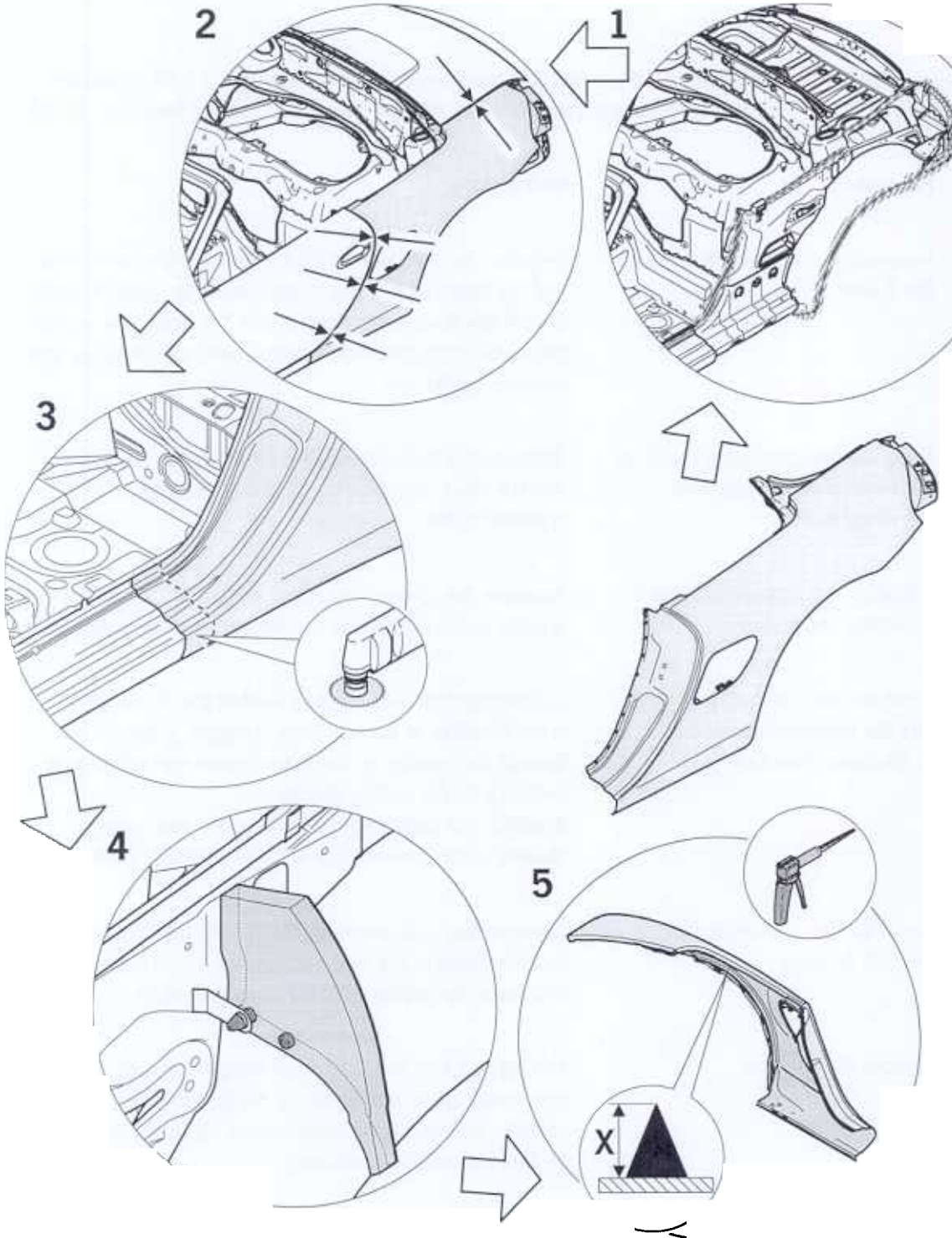
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Removing side section from the body

Remove convertible top Serv. No. 61 01, convertible top compartment lid Serv. No. 61 90, side-panel lining Serv. No. 70 75, engine compartment vent Serv. No. 66 56, release for front lid Serv. No. 55 10, rear spoiler Serv. No. 63 55

No.	Procedure	Instructions
	Separate the spot-welded joint on the B-pillar	Separate the spot-welded joint between the side section and the inside of the side section with the spotweld cutter. Cut off the lower side member with the body saw so that the spare body part (side section) overlaps the lower side member by 60 mm.
2	Separate the spot-welded joint on the lower side member and the wheel housing	Separate the spot-welded joint between the side section and the lower side member or wheel housing with the spotweld cutter.
3	Separate the spot-welded joint in the water channel	Separate the spot-welded joint between the water channel and the inside of the side section with the spotweld cutter.
4	Separate the shielding gas welds and the spot-welding joint to the cross member	Cut through the shielding gas weld of the overlapping cross member at the top using a parting grinder. Cut through the overlap on the lower connection to the side section with the parting grinder. Separate the spot-welded joint from the rear sealing channel to the gusset plate with the spotweld cutter.
5	Separate the spot-welded joint on the light housing	Separate the spot-welded joint between the light housing and the inside of the side section and the rear transverse lock panel connection with the spotweld cutter.
6	Remove side section	The side section is sealed from the light housing to the rear centre panel connection in the factory using a swollen sealant. This seal is destroyed when replacing the side section and must be replaced.

Inserting the side section into the body



2_99

Inserting the side section into the body



Warning:

Toxic zinc oxide is emitted when welding galvanized steel

- > The work area must be well ventilated and the smoke gases must be removed with a suitable extraction system.

No.	Procedure	Instructions
1	Clean welding and sealing areas	Remove underbody coating and paint layers from the welding areas on the body or sealing areas (inside of side section) using a hot-air gun or rotary brush. Remove the factory-applied primer from the welding areas of the spare parts.
2	Adapt the side section to the body	Adapt the side section to the body. Insert door, rear lid and convertible top compartment lid to check the body contour. Adjust the gap dimensions between the door, rear lid and convertible top compartment lid and the body. See: Serv. No. 5 Body gap dimensions
3	Fit side section separation points	Cut through both panels of the separation points at which the spare body part overlaps the lower side member using the body saw.
4	Fit bulkhead element	Clip bulkhead element into the angle piece of the body



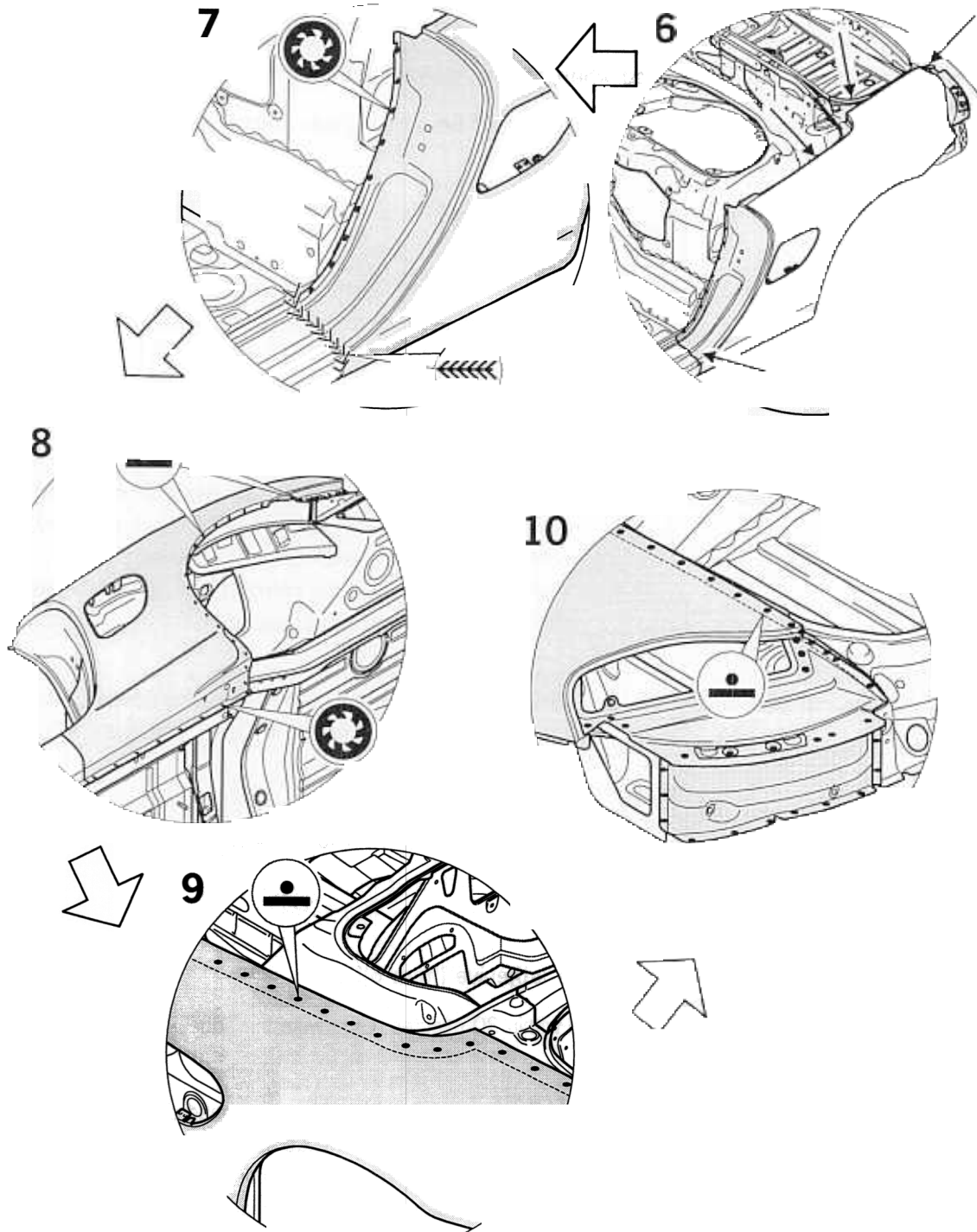
Warning:

Observe the working time of the adhesive (Item 6)!

- > The new part must be welded in within 30 minutes. Otherwise the adhesion of the adhesive is impaired.

5	Apply adhesive on the wheel arch up as far as the start of the side member and the water channel of the side section	Apply the adhesive as a triangular bead dimension "X" = approx. 8 mm on the inside of the side section, along the inner edge up as far as the start of the side member and on the underside of the water channel. Reference address: Teromix-6700 2-component adhesive and the Teromix processing nozzle Henkel Teroson GmbH Postfach 10 56 20 69 0 46 Heidelberg Hans-Bunte-Straße 4 Telephone (06221) 7040 Fax (06221) 704585
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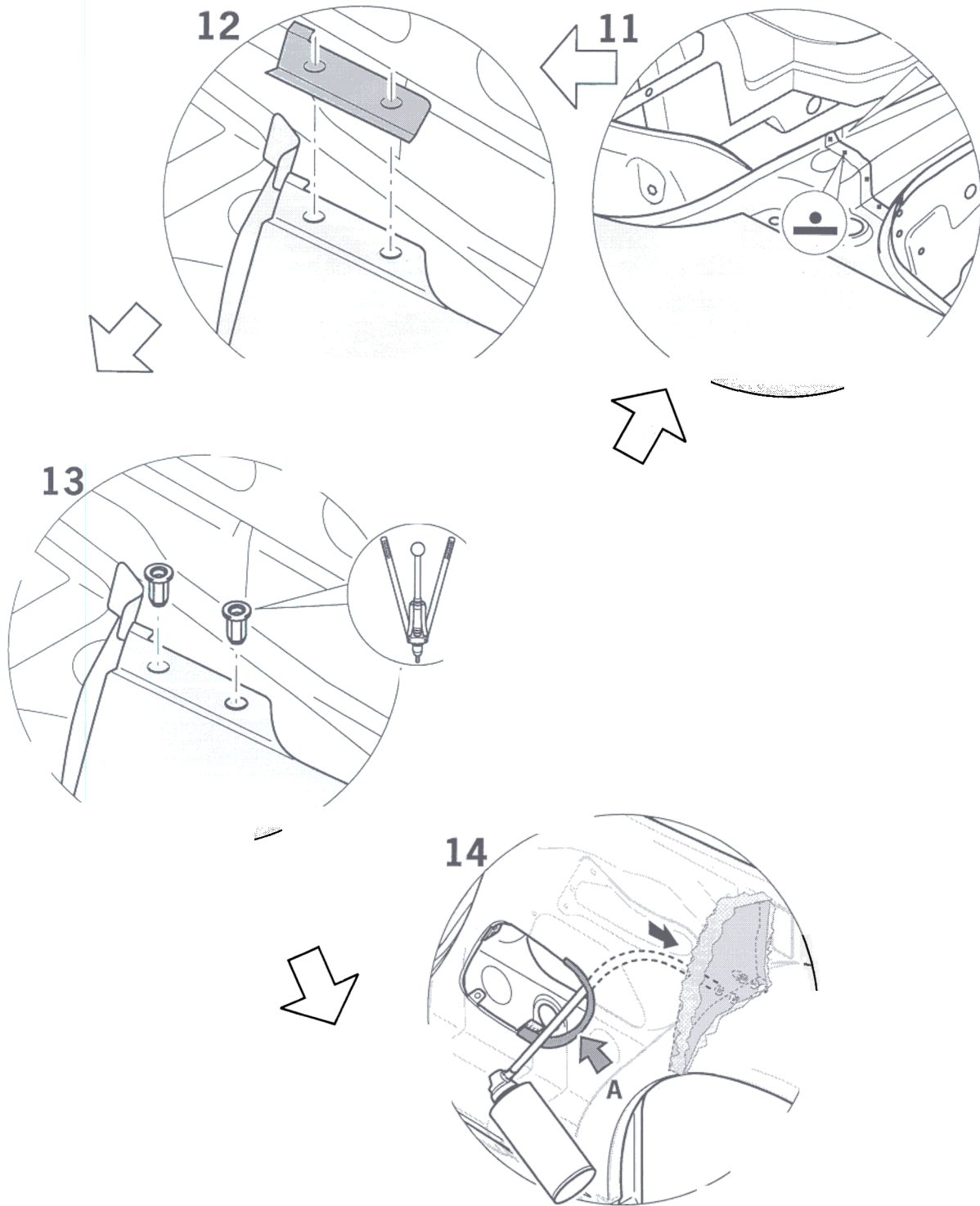
Inserting the side section into the body



Inserting the side section into the body

No.	Procedure	Instructions
6	Tack-weld side section under shielding gas	Insert side section into the body. Check the contours and gap dimensions. Tack-weld the side section under shielding gas at the separation point.
7	Weld the B-pillar under shielding gas	Plug-weld the B-pillar side section to the inside of the side section under shielding gas. Weld the side section to the lower side member connection with a continuous butt weld under shielding gas.
8	Spot-weld wheel arch and weld under shielding gas	Plug-weld underside of lower side member. Spot-weld wheel arch
9	Spot-weld water channel	Spot-weld inside of side section with the water channel
10	Spot-weld light housing	Spot-weld light housing with the connecting angle and the connection to the transverse lock panel. On the inside of the side section (small figure), make sure that the welding nuts are lined up with the hole pattern in the side section. Screw in M6 hexagon-head bolts to position. Spot-weld the connection with the side section.

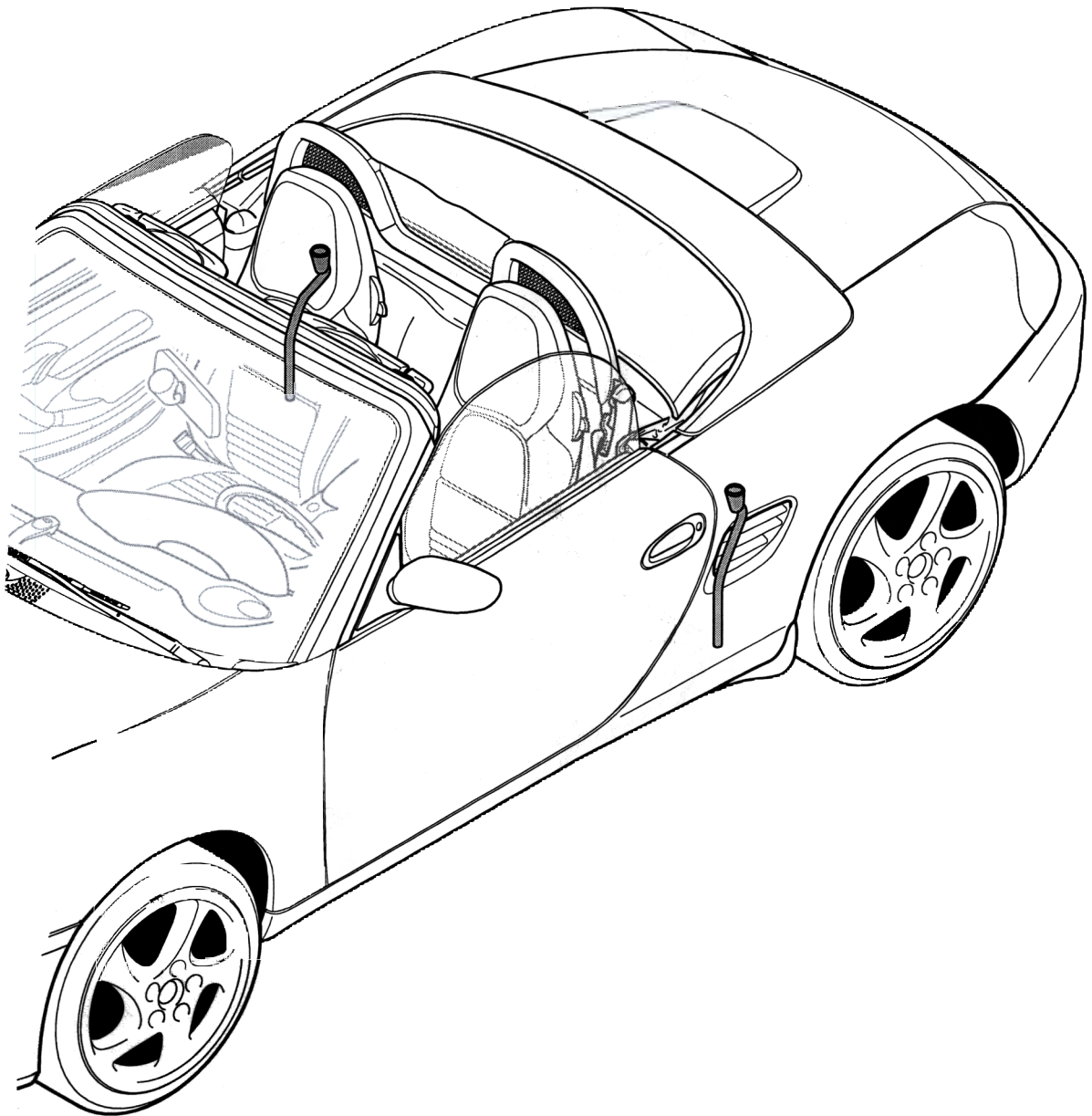
Inserting the side section into the body



197_99

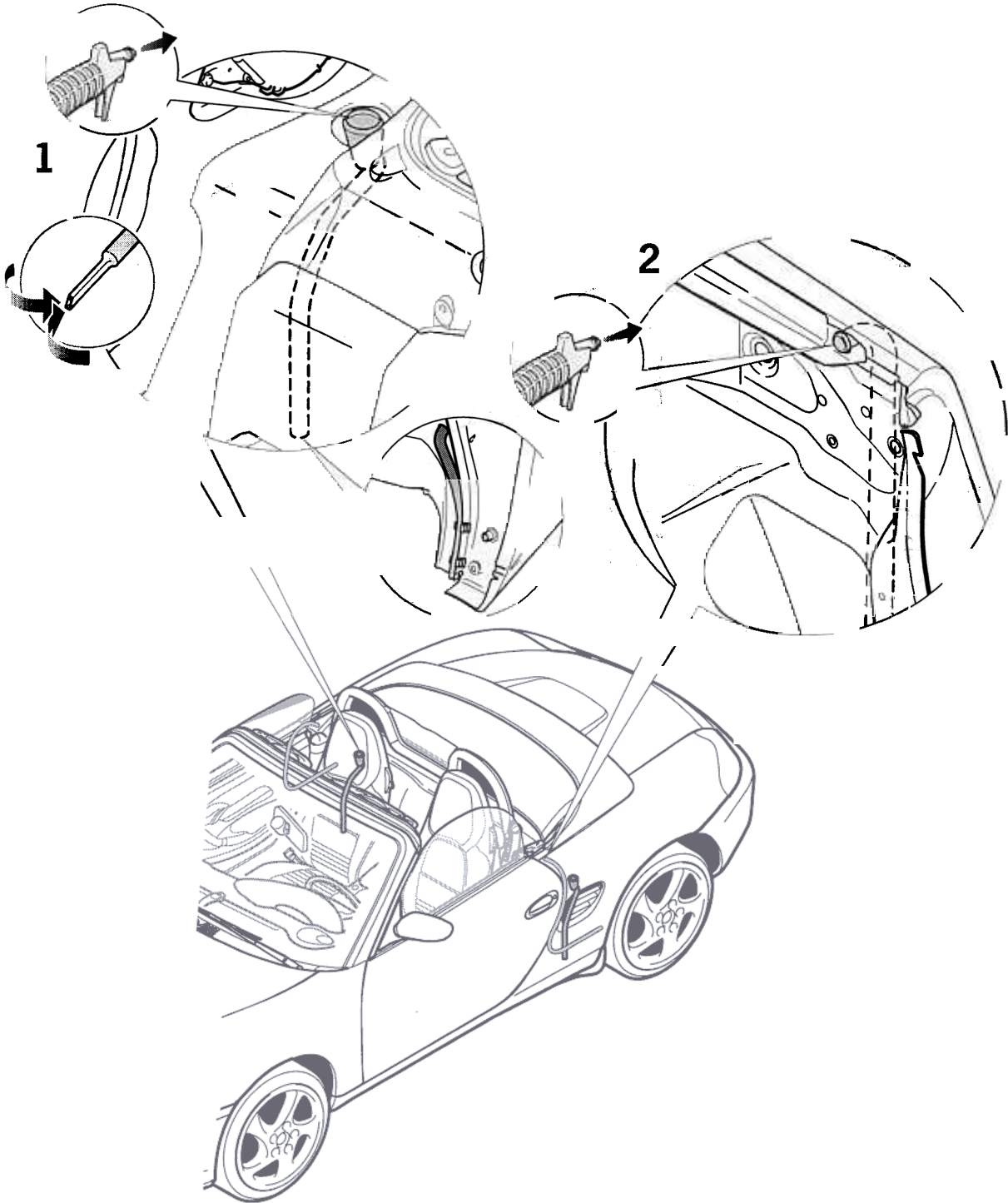
No.	Procedure	Instructions
11	Weld cross member under shielding gas	Weld the overlap of the cross member at the top and bottom with a stitch weld seam under shielding gas.
12	Mark bores for the insertion bushings	Cut the water channel as a template out of the removed side section as shown in Figure 12, put it on the spare body part (side section) and mark the bores for the insertion bushings. Bore a 9.0 mm mark in the water channel using a twist drill.
13	File off insertion bushings and insert	File off both bores to the hexagon of the insertion bushing using a needle-point file. Insert the insertion bushing using the blind rivet nut manual device. Blind rivet nut manual device: refer to Workshop Equipment Manual, Chapter 2.4, No. 125
14	Fill out bulkhead element with foam	Affix edge guard in the area (arrow A). Attach an extension hose with approx. 12 mm diameter and 400 mm long onto the connection of the bulkhead element. Push the Terostat instant foam (Article No. 147.09N) onto hose extension. Actuate the valve level of the can for 3 controlled doses, each for 3 seconds. Reference address: Henkel Teroson GmbH Postfach 10 56 20 69 0 46 Heidelberg Hans-Bunte-Straße 4 Telephone (06221) 7040 Fax (06221) 704585

53 93 30 Cleaning rear water drains



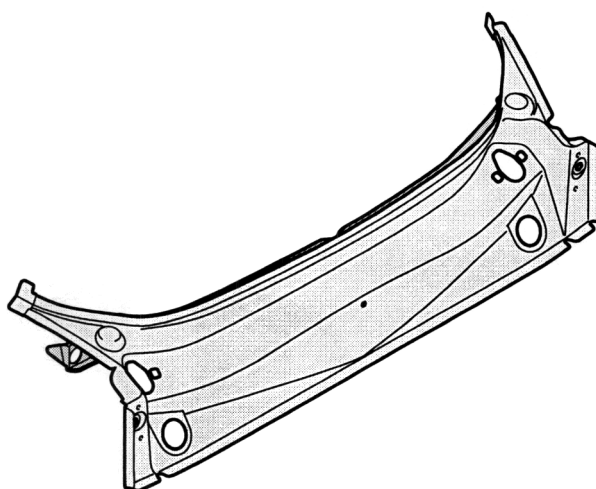
195_99

Cleaning rear water drains

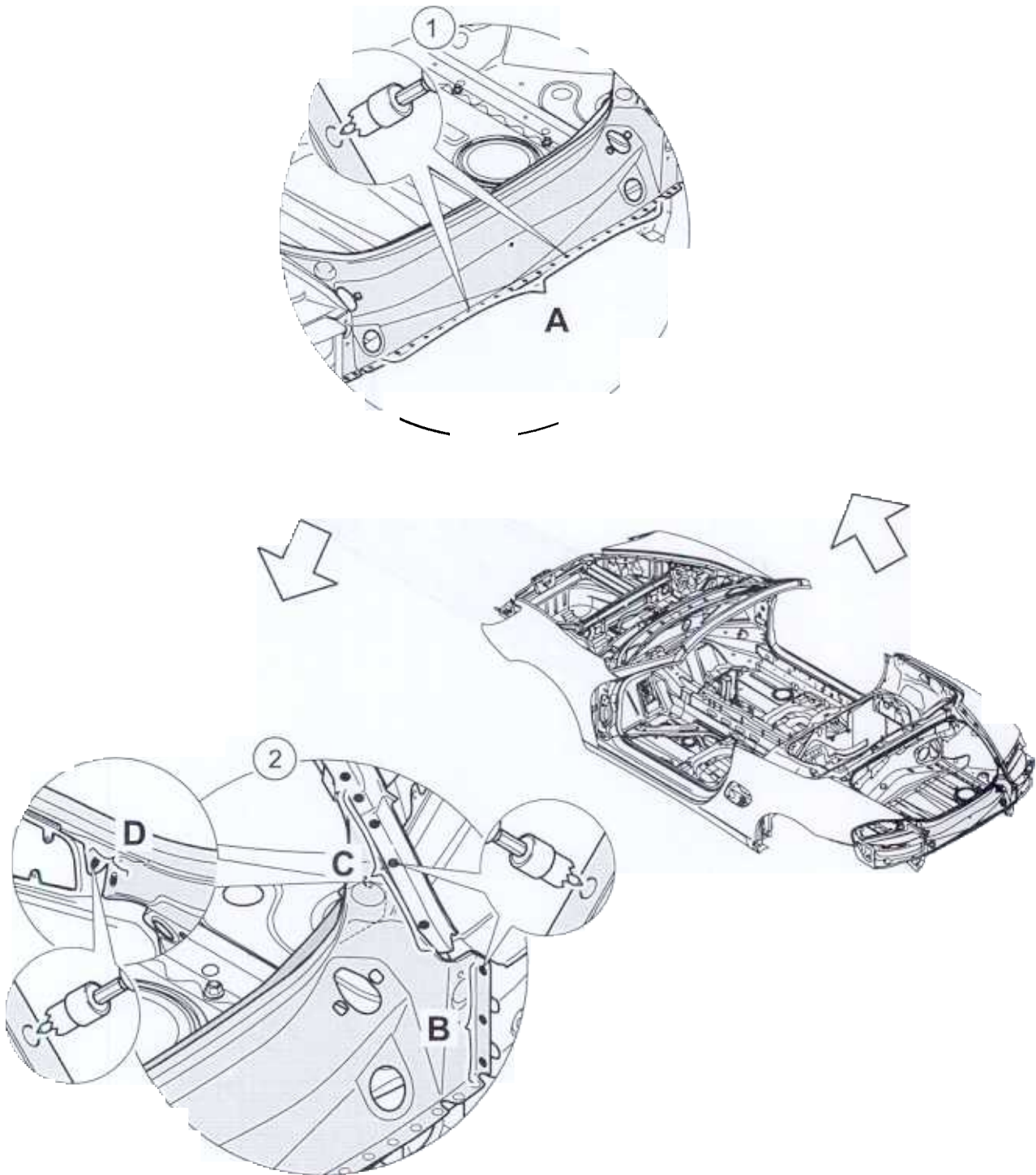



196_99

Replacing end cross member



Separating end cross member



 **Warning!**

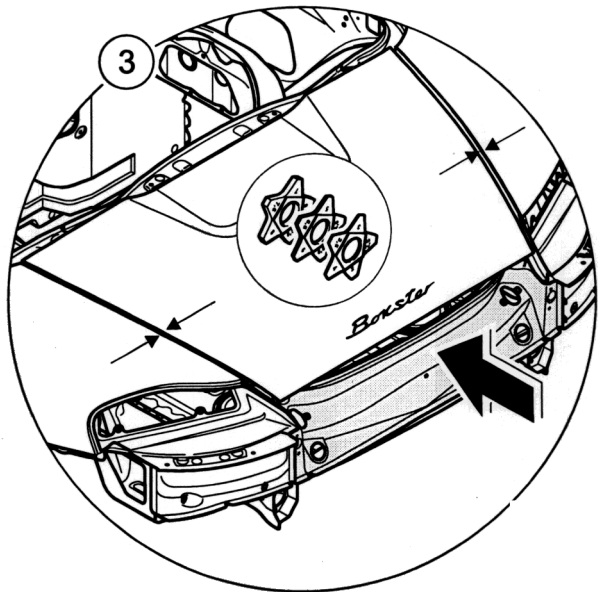
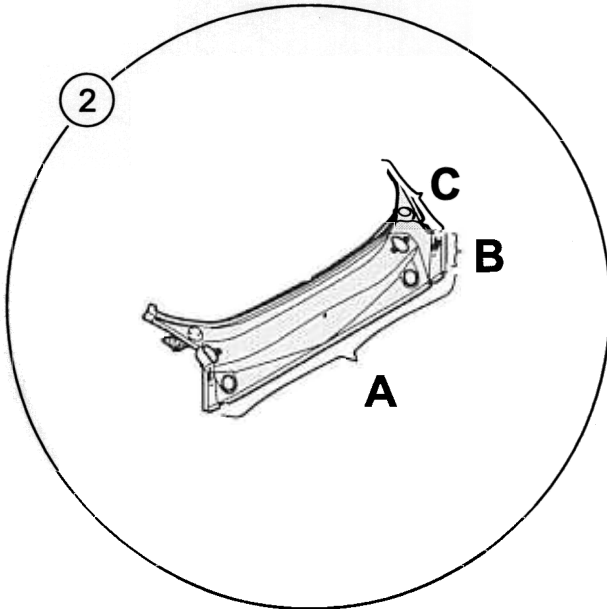
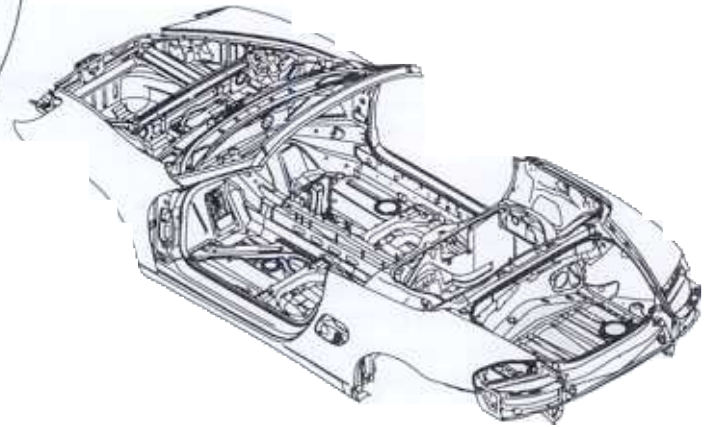
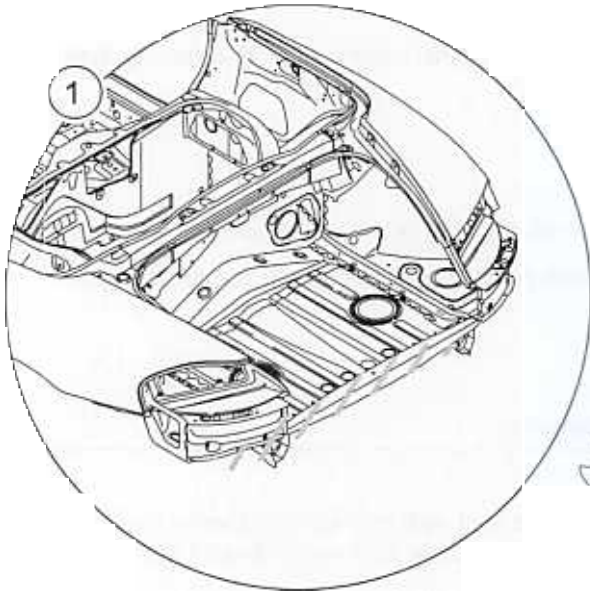
During body repairs, the following safety instructions and the general information and quality instructions must be followed. ⇒ Rep. Gr. 5; Safety instructions

 **Note!**

- ◆ The accessories in the repair area should be removed, depending on the extent of the damage.
- ◆ All straightening work on the body in this area must have been completed before the damaged parts are removed.

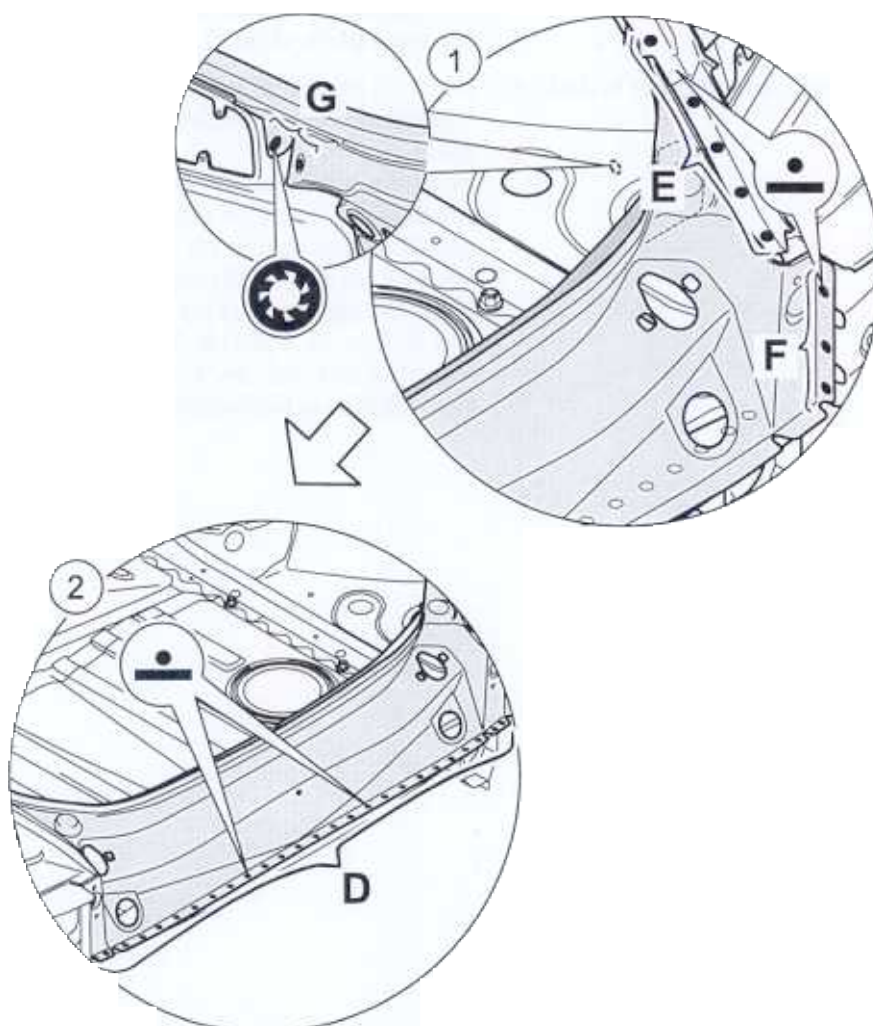
No.	Procedure	Instructions
	Removing the accessories in the repair area	
1	Separating the spot-weld connection between the end cross member and trunk floor panel	Separate the spot-weld connection between the end cross member and the trunk floor panel -A- with the spot-weld cutter.
2	Separating the spot-weld connection between the end cross member and the side section connection, the corner panel and the light housing	Separate the connection between the end cross member and the corner panel -D- , the inner side section connection -C- and the inner light housing -B- left and right with the spot-weld cutter.

Preparing the rear end cross member for installation and inserting



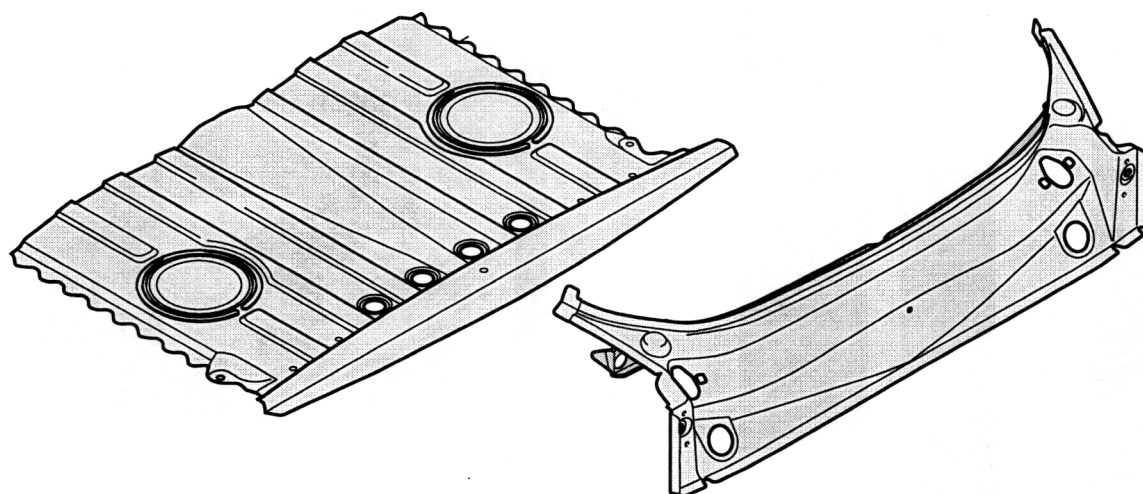
No.	Procedure	Instructions
	Cleaning the welding areas	Remove underbody coating and paint layers, etc. from the welding areas of the body with a hot-air gun or rotary brush.
2	Preparing spare parts	Remove the factory-applied primer on the welding areas of the spare parts -A, B, C,- using the rotary brush.
3	Inserting the end cross member in the body	Insert the trunk floor panel spare part overlapping the side member and the protruding trunk floor panel and fit into place. Insert the end cross member and fit into the side sections left and right. Install the rear lid, adjusting the contours and gap dimensions at the left and right in relation to the side sections. ⇒ Rep. Gr. 5; Body gap dimensions Install the lower part of the lid lock at the rear, ⇒ Rep. Gr. 558619; Removing and installing lower part of lid lock and check whether the upper part of the lock engages in the lower part of the lock.

Inserting end cross member

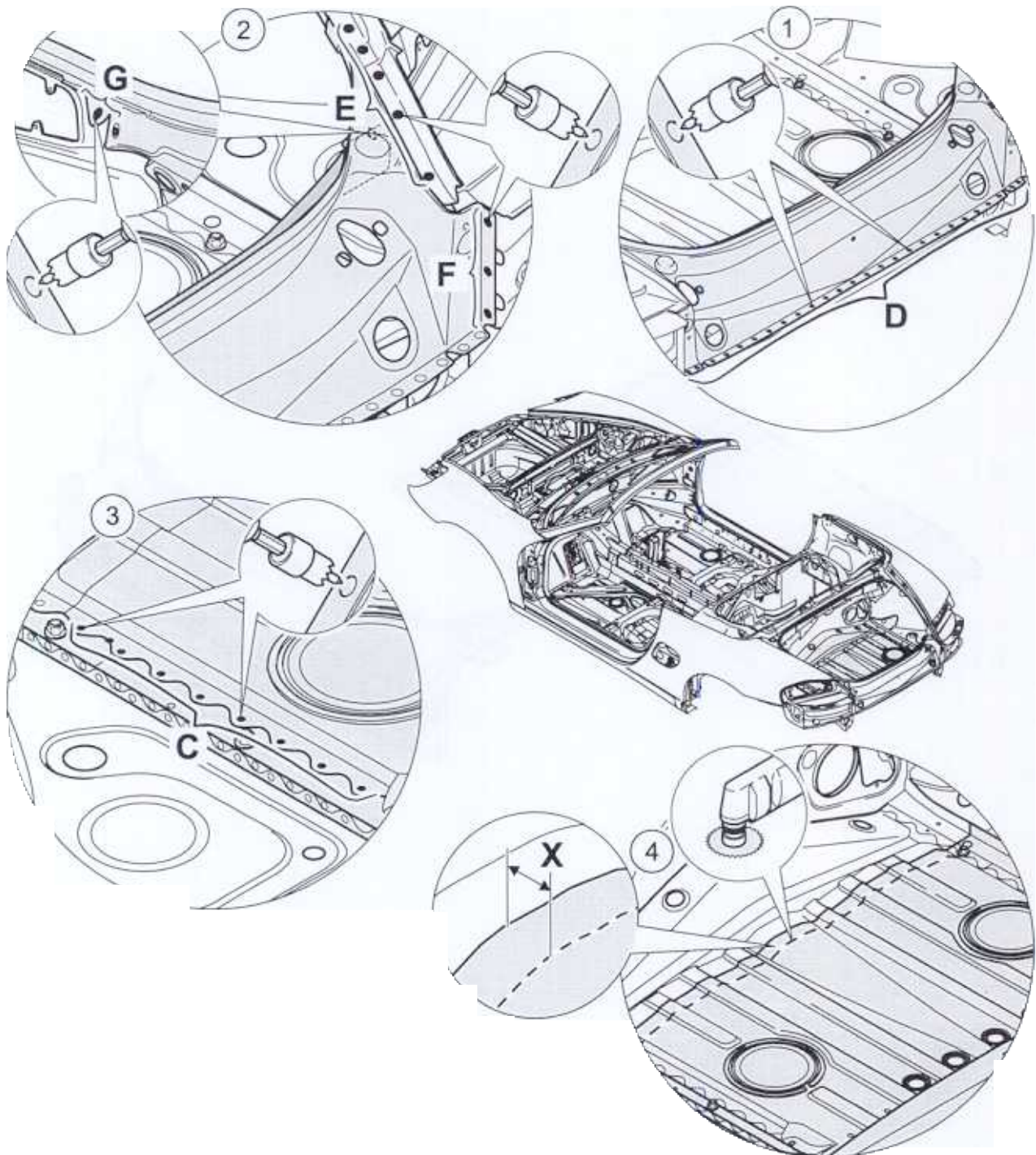


No.	Procedure	Instructions
	Spot-welding end cross member	Spot-weld the end cross member with the trunk floor panel -D- .
2	Spot-welding and welding under shielding gas the end cross member at the side	Spot-weld the connection at left and right to the corner panel -F- and to the inner side section -E- . Plug-weld the connection between the end cross member and the inner light housing -G- under shielding gas.

Replacing rear trunk floor panel



Separating rear trunk floor panel



 **Warning!**

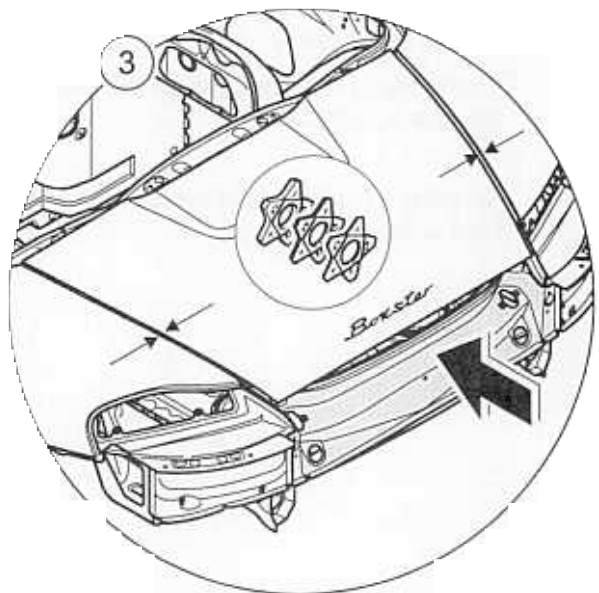
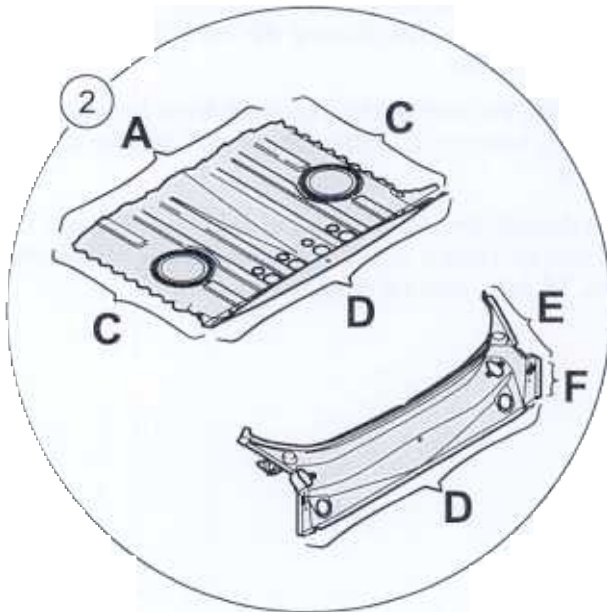
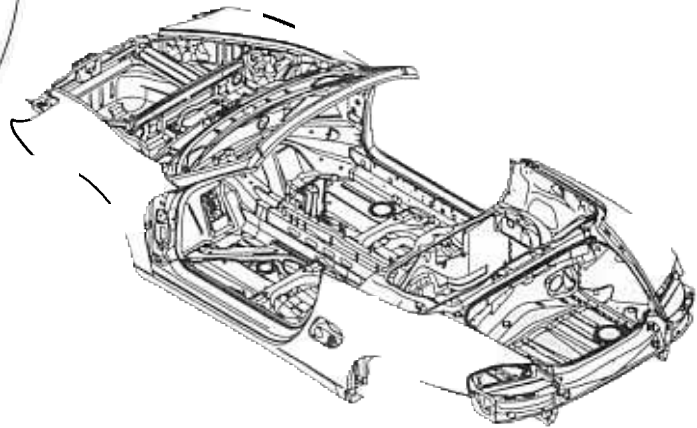
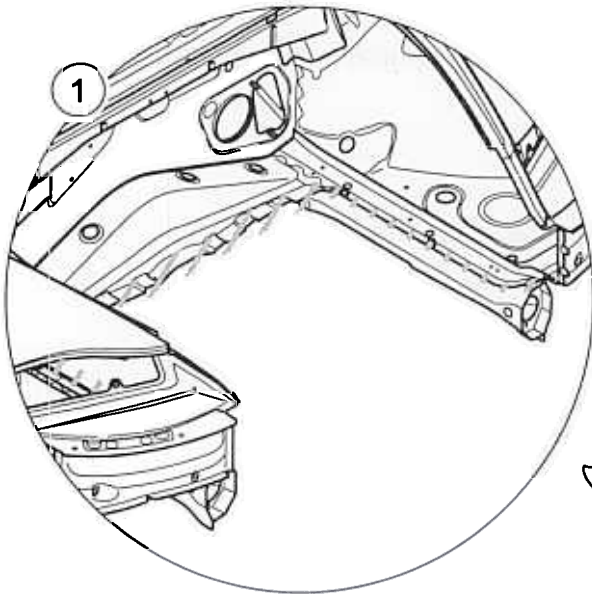
During body repairs, the following safety instructions and the general information and quality instructions must be followed. ⇒ Rep. Gr. 5; Safety instructions

 **Note!**

- ◆ The accessories in the repair area should be removed, depending on the extent of the damage.
- ◆ All straightening work on the body in this area must have been completed before the damaged parts are removed.

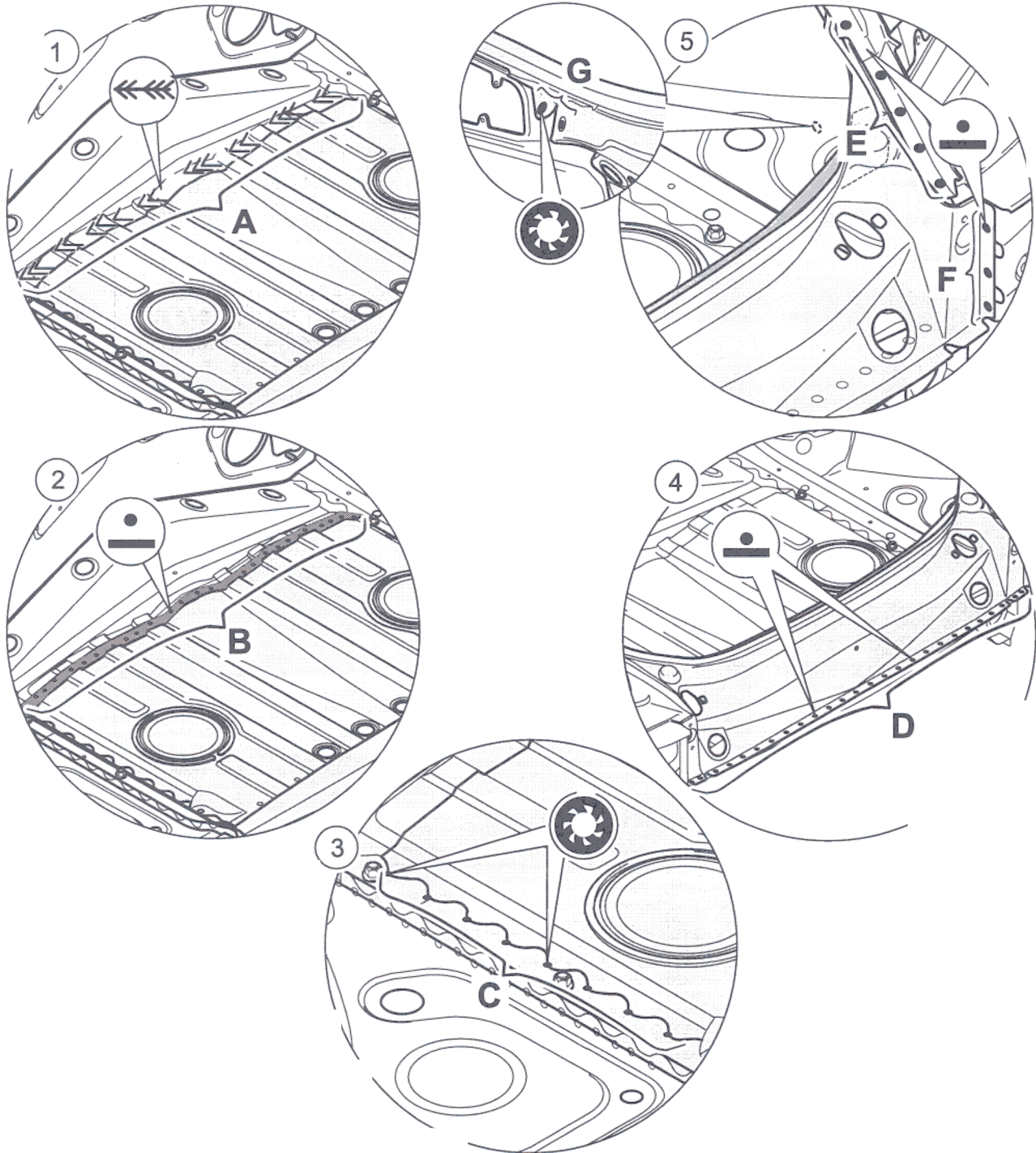
No.	Procedure	Instructions
	Removing the accessories in the repair area	
	Placing vehicle on the alignment bench	Place the vehicle with the units mounted at the front and rear onto the set of straightening attachments and fasten it in position.
1	Separating the spot-weld connection between the end cross member and trunk floor panel	Separate the spot-weld connection between the end cross member and the trunk floor panel -D- with the spot-weld cutter.
2	Separating the spot-weld connection between the end cross member and the side section connection, the corner panel and the light housing	Separate the connection between the end cross member and the corner panel -F- , the inner side section connection -E- and the inner light housing -G- left and right with the spot-weld cutter.
3	Separating spot welds between the trunk floor panel/side member	Separate the spot weld between the trunk floor panel and the side member -C- at the left and right with the spot-weld cutter.
4	Separating the trunk floor panel from the laser weld	Cut through the trunk floor panel in front of the laser weld (visible continuous weld in trunk floor panel) -dimension: X = 15 mm- with the body saw.

Preparing the rear trunk floor panel for installation and inserting



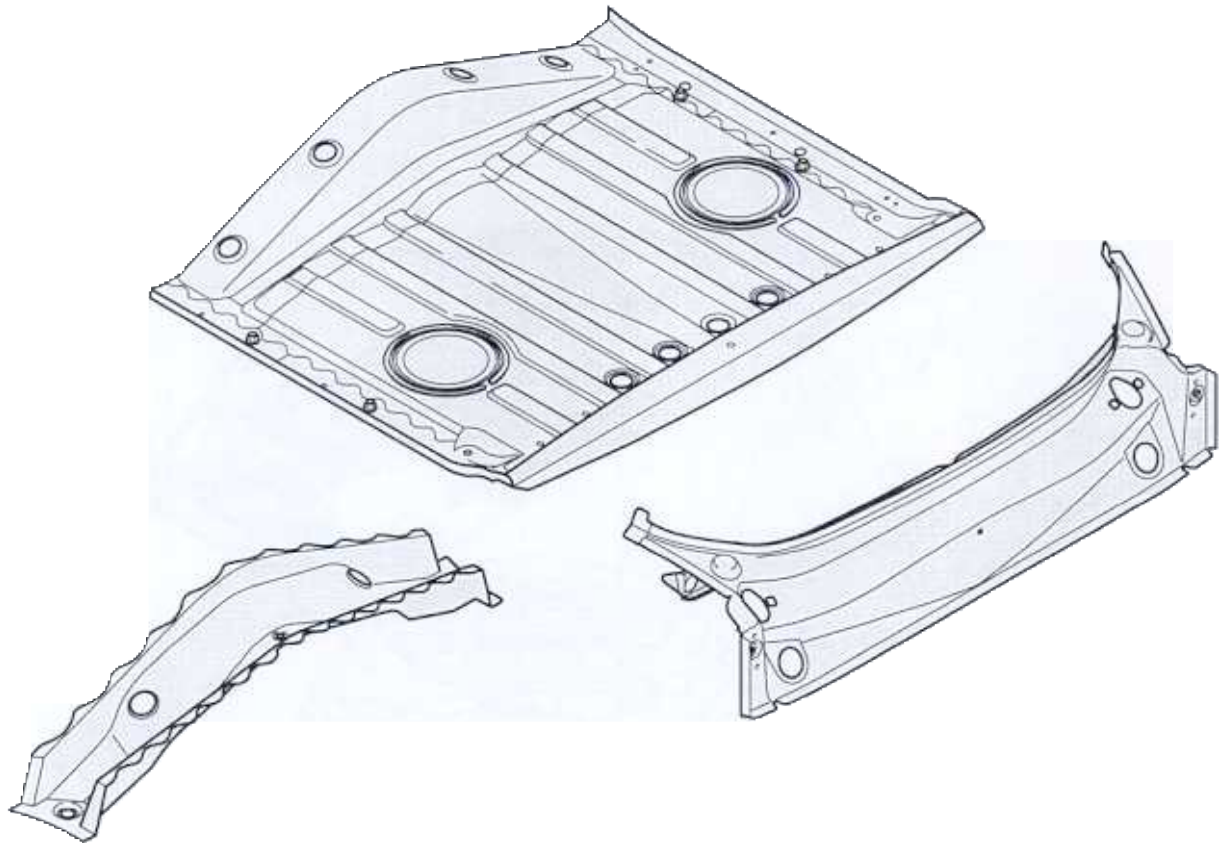
No.	Procedure	Instructions
	Cleaning the welding areas	Remove underbody coating and paint layers, etc. from the welding areas of the body with a hot-air gun or rotary brush.
2	Preparing spare parts	Remove the factory-applied primer on the welding areas of the spare parts -A, C, D, E, F- using the rotary brush.
3	Inserting the end cross member in the body	<p>Insert the trunk floor panel spare part overlapping the side member and the protruding trunk floor panel and fit into place.</p> <p>Insert the end cross member and fit into the side sections left and right. Install the rear lid, adjusting the contours and gap dimensions at the left and right in relation to the side sections. ⇒ Rep. Gr. 5; Body gap dimensions</p> <p>Install the lower part of the lid lock at the rear, ⇒ Rep. Gr. 558619; Removing and installing lower part of lid lock and check whether the upper part of the lock engages in the lower part of the lock.</p>

Inserting rear trunk floor panel

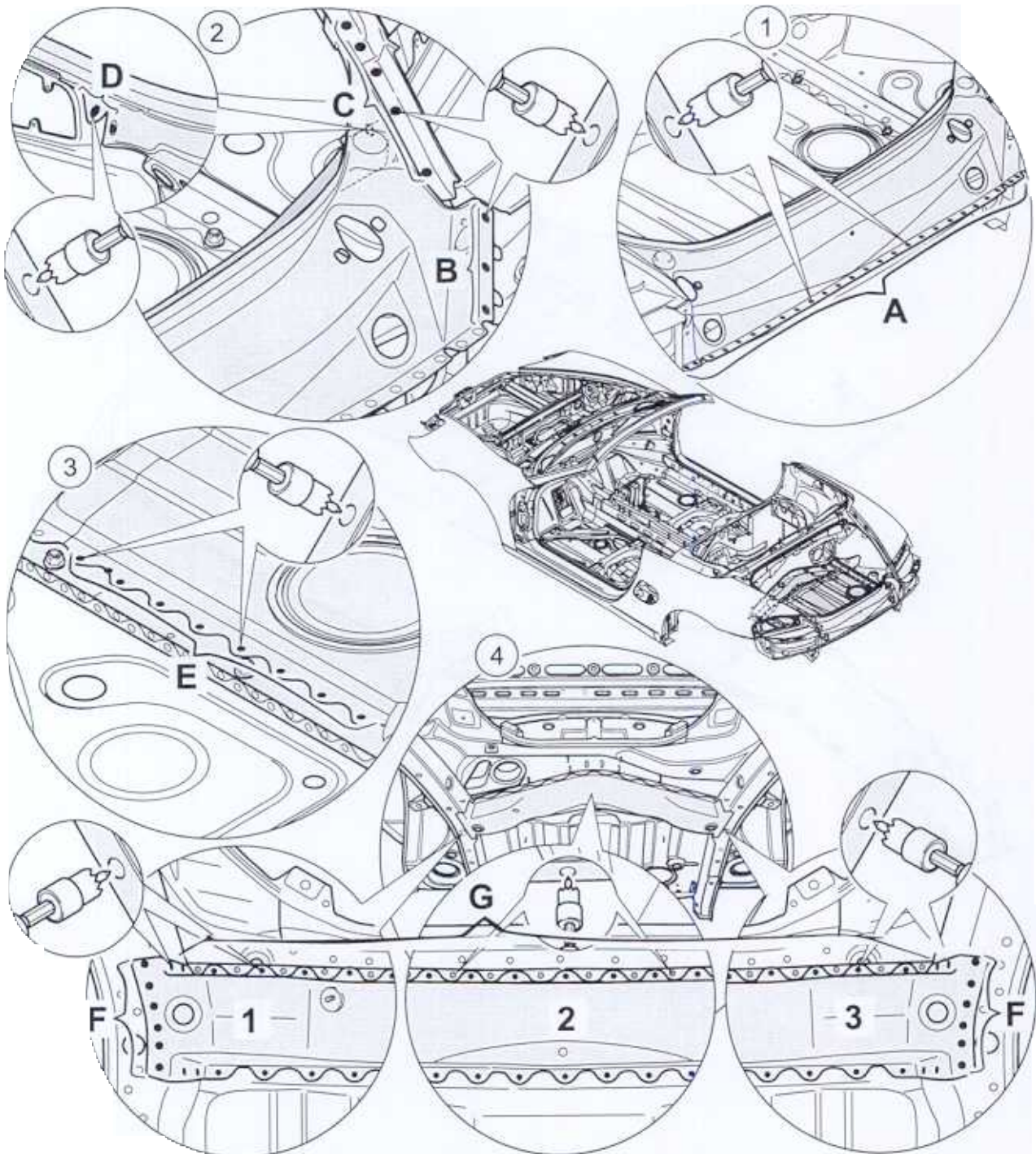


No.	Procedure	Instructions
	Welding the trunk floor panel under shielding gas	Weld the overlap of the trunk floor panel to the cross member intermittently -A- under shielding gas.
2	Spot-welding the trunk floor panel/cross member	Spot-weld the overlap of the trunk floor panel to the cross member -B- .
3	Plug-welding the trunk floor panel/side member under shielding gas	Plug-weld the trunk floor panel at the right and left to the side member -C- under shielding gas.
4	Spot-welding the rear closing panel/trunk floor panel	Spot-weld the rear closing panel to the trunk floor panel -D- .
5	Spot-welding and welding the closing panel under shielding gas	Spot-weld the connection at left and right to the corner panel -F- and to the inner side section -E- . Plug-weld the connection -G- between the closing panel and the inner light housing under shielding gas.

Replacing rear cover panel



Separating rear cover panel



 **Warning!**

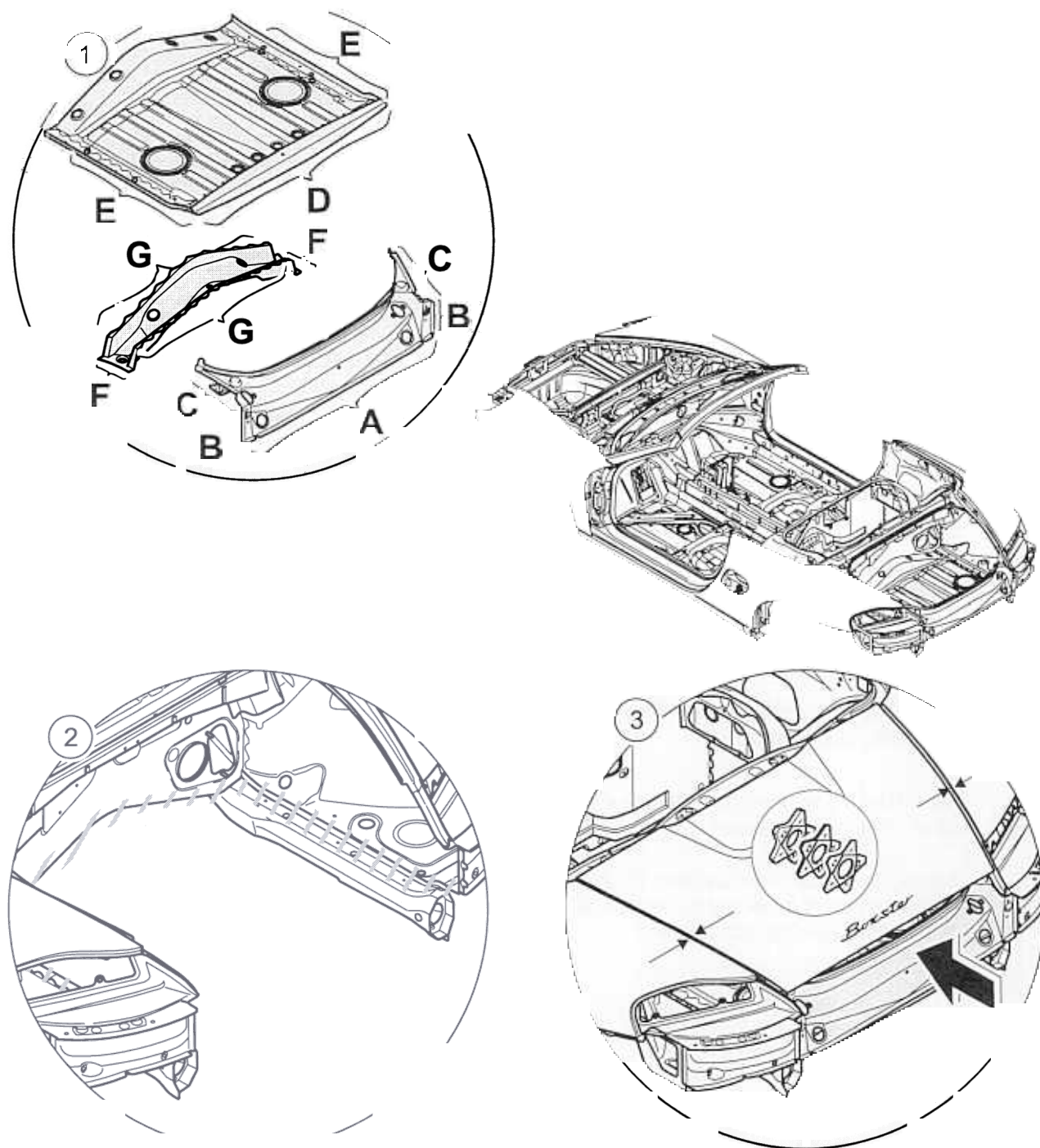
During body repairs, the following safety instructions and the general information and quality instructions must be followed. ⇒ Rep. Gr. 5; Safety instructions

 **Note!**

- ◆ *The accessories in the repair area should be removed, depending on the extent of the damage.*
- ◆ *All straightening work on this area of the body must have been completed before the damaged parts are removed!*

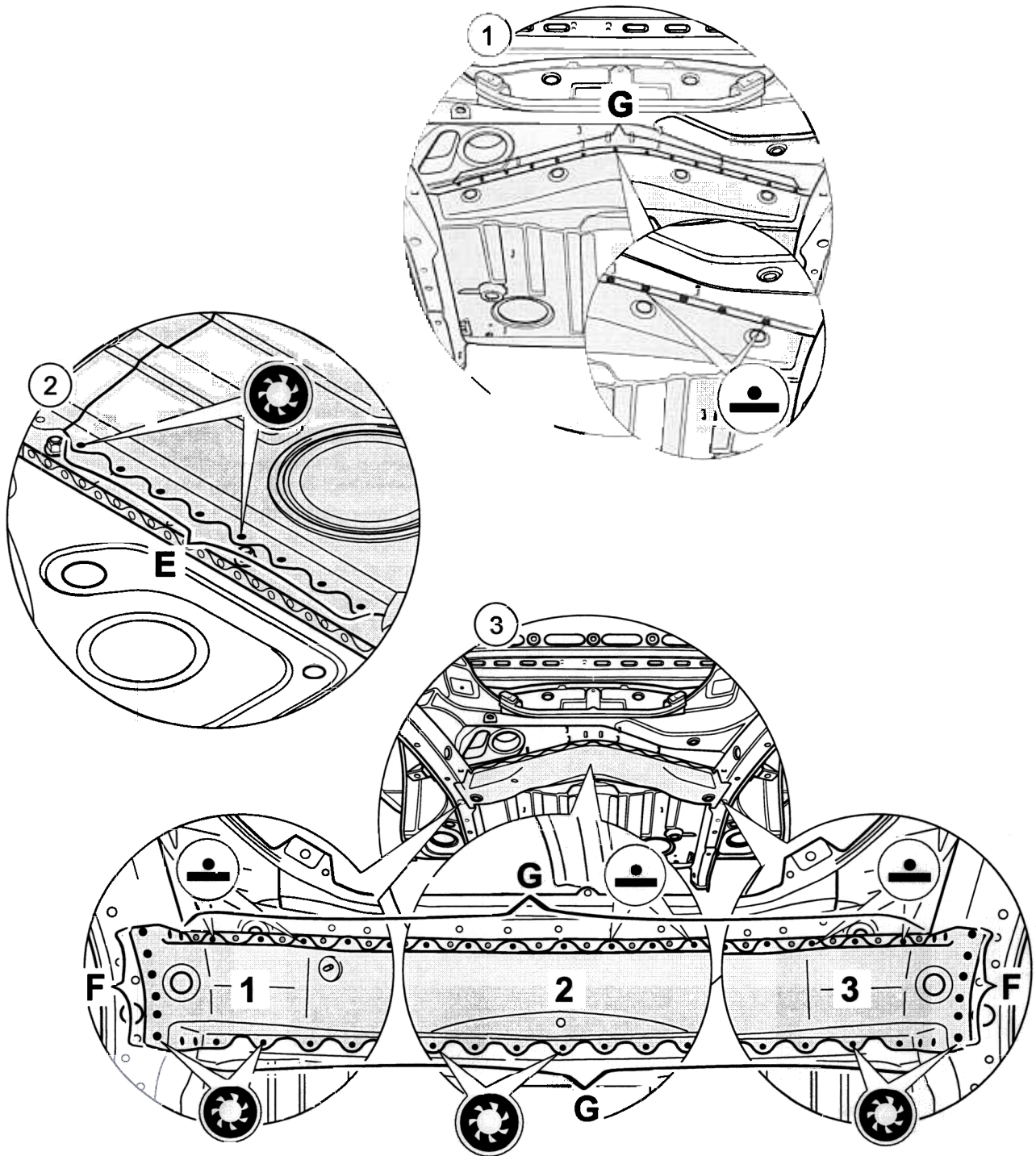
No.	Procedure	Instructions
	Removing the accessories in the repair area	
	Placing vehicle on the alignment bench	Place the vehicle with the units mounted at the front and rear onto the set of straightening attachments and fasten it in position.
	Separating the spot-weld connection between the end cross member and trunk floor panel	Separate the spot-weld connection between the end cross member and the trunk floor panel -A- with the spot-weld cutter.
2	Separating the spot-weld connection between the end cross member and the side section connection, the corner panel and the light housing	Separate the connection between the end cross member and the corner panel -B- , the inner side section connection -C- and the inner light housing -D- left and right with the spot-weld cutter.
3	Separating spot welds between the trunk floor panel/side member	Separate the spot weld between the trunk floor panel and the side member -E- at the left and right with the spot-weld cutter.
4	Separating the spot weld between the cover panel and the side member	Separate the spot-weld connection between the cover panel and the side members left and right -insets 1 and 3, F- with the spot-weld cutter.
	Separating the spot-weld between the trunk floor panel/cover panel and the rear panel of the convertible-top compartment	Separate the spot-weld connection between the trunk floor panel and the rear panel of the convertible-top compartment or of the trunk floor panel -insets 1,2,3, G- with the spot-weld cutter.

Preparing the rear cover panel for installation and inserting

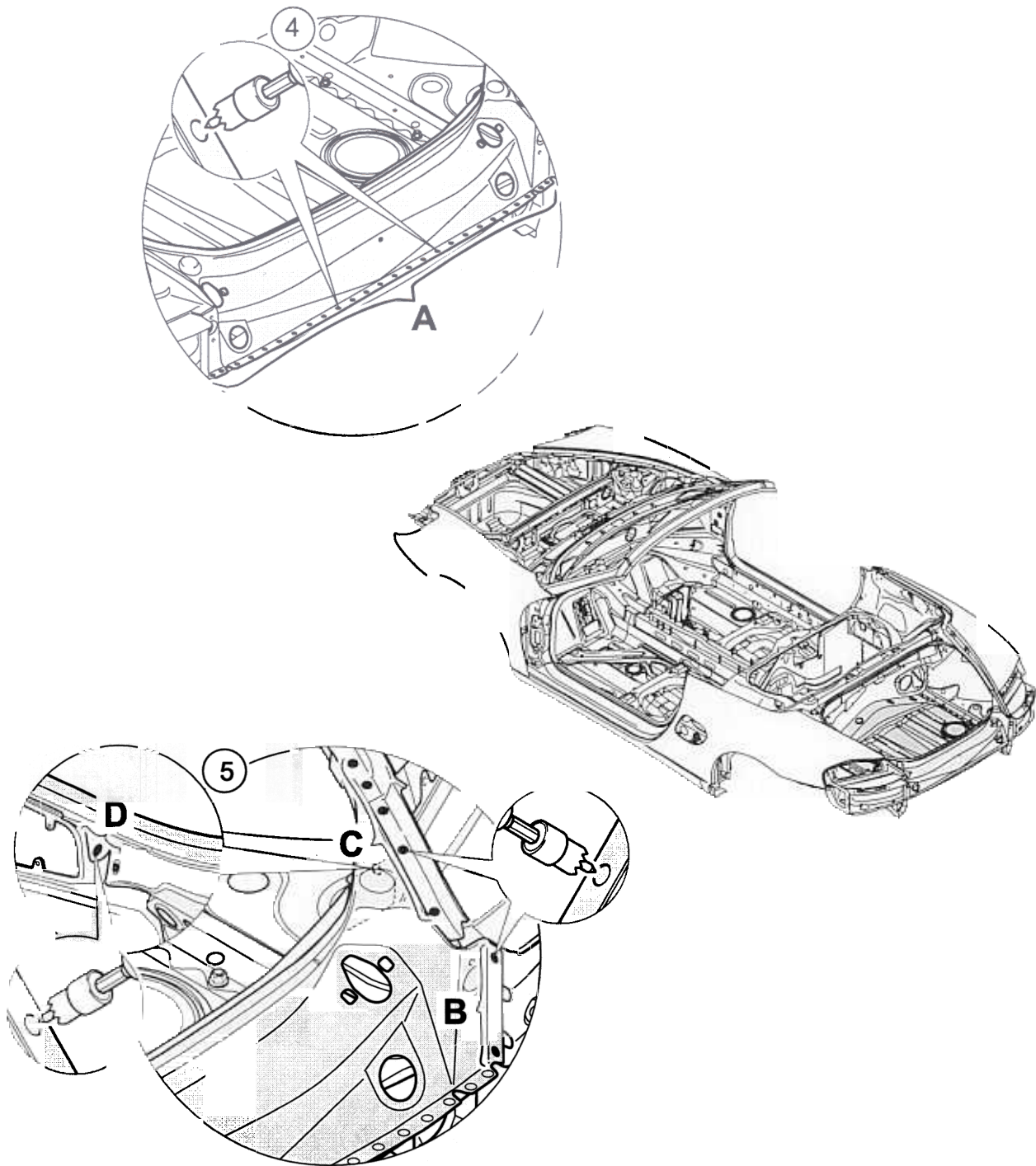


No.	Procedure	Instructions
	Preparing the spare parts for installation	Remove the factory-applied primer on the welding areas of the spare parts -A; B; C; D; E; F; G- using the rotary brush.
2	Cleaning the welding areas.	Remove underbody coating and paint layers, etc. from the welding areas of the body with a hot-air gun or rotary brush.
3	Inserting the cover panel, the trunk floor panel and the end cross member into the body and fitting into place.	<p>Insert the cover panel spare part at the rear panel of the convertible-top compartment and fit into place.</p> <p>Insert the trunk floor panel spare part at the side member and fit into place.</p> <p>Insert the end cross member and fit into place in the side sections left and right. Install the rear lid, adjusting the contours and gap dimensions at the left and right in relation to the side sections. ⇒ Rep. Gr. 5; Body gap dimensions</p> <p>Install the lower part of the lid lock at the rear ⇒ Rep. Gr. 558619; Removing and installing lower part of lid lock and check whether the upper part of the lock engages in the lower part of the lock.</p>

Inserting the rear cover panel



No.	Procedure	Instructions
	Spot-welding the trunk floor panel/rear panel of the convertible-top compartment	Spot-weld the trunk floor panel to the rear panel of the convertible-top compartment -G- .
2	Welding the trunk floor panel/side member under shielding gas	Plug-weld the trunk floor panel at the right and left to the side member -E- under shielding gas.
3	Spot-welding and welding the cover panel under shielding gas	Spot-weld the cover panel to the rear panel of the convertible-top compartment -insets 1, 2, 3, G- . Weld the cover panel to the trunk floor panel and the connection of the side member left and right -insets 1, 2, 3, G- under shielding gas.



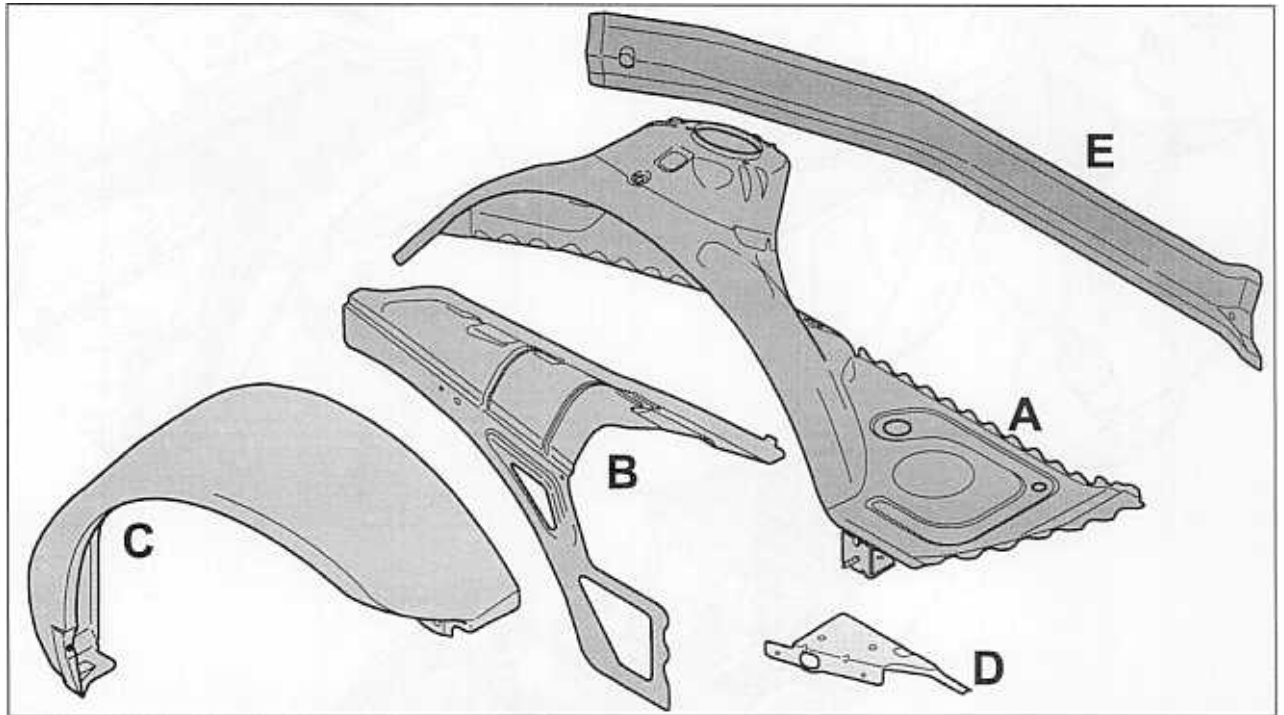
No.	Procedure	Instructions
4	Spot-welding the rear closing panel/trunk floor panel	Spot-weld the rear closing panel to the trunk floor panel -A- .
5	Spot-welding and welding the closing panel at the side under shielding gas	Spot-weld the connection at left and right to the corner panel -B- and to the side section -C- . Plug-weld the connection -D- between the closing panel and the inner light housing under shielding gas.

Tools and materials

Item	Designation of the special tool	Explanation
	Basic straightening attachments Boxster (986)	⇒ Rep. Gr. 3; Workshop Equipment Manual
2	Star gauges Nr.127-1	⇒ Rep. Gr. 2.4; Workshop Equipment Manual
3	MIG welder	⇒ Rep. Gr. 3; Workshop Equipment Manual
4	Multispot spot welder	⇒ Rep. Gr. 3; Workshop Equipment Manual
	Body saw	⇒ Rep. Gr. 3; Workshop Equipment Manual
6	Angle grinder	⇒ Rep. Gr. 3; Workshop Equipment Manual
7	Oscillating body saw (special electrical cutter)	⇒ Rep. Gr. 3; Workshop Equipment Manual
8	Multispot spot-weld cutter	⇒ Rep. Gr. 3; Workshop Equipment Manual
9	Hole punch	⇒ Rep. Gr. 2.4; Workshop Equipment Manual
10	Hot-air gun	⇒ Rep. Gr. 3; Workshop Equipment Manual
11	Rotary brush	⇒ Rep. Gr. 3; Workshop Equipment Manual
12	Spot-weld cutter Ø 7 mm Nr.129	⇒ Rep. Gr. 2.4; Workshop Equipment Manual

Replacing rear wheel housing

The following spare body parts are required for the repair "Replacing inner wheel housing":



A = wheel housing

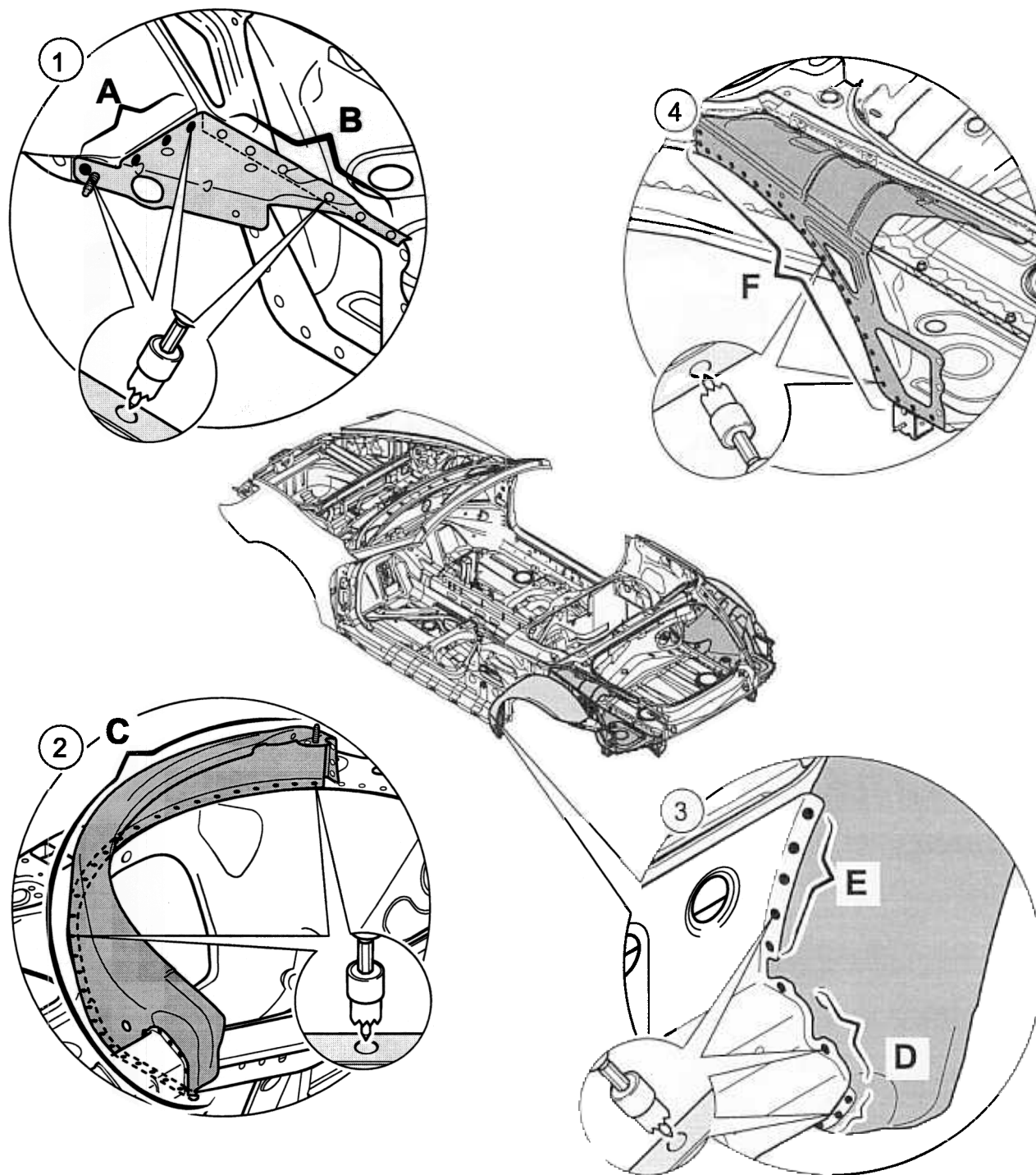
B = inner side section

C = outer wheel housing

D = closing part

E = outer side member

Cutting through rear wheel housing



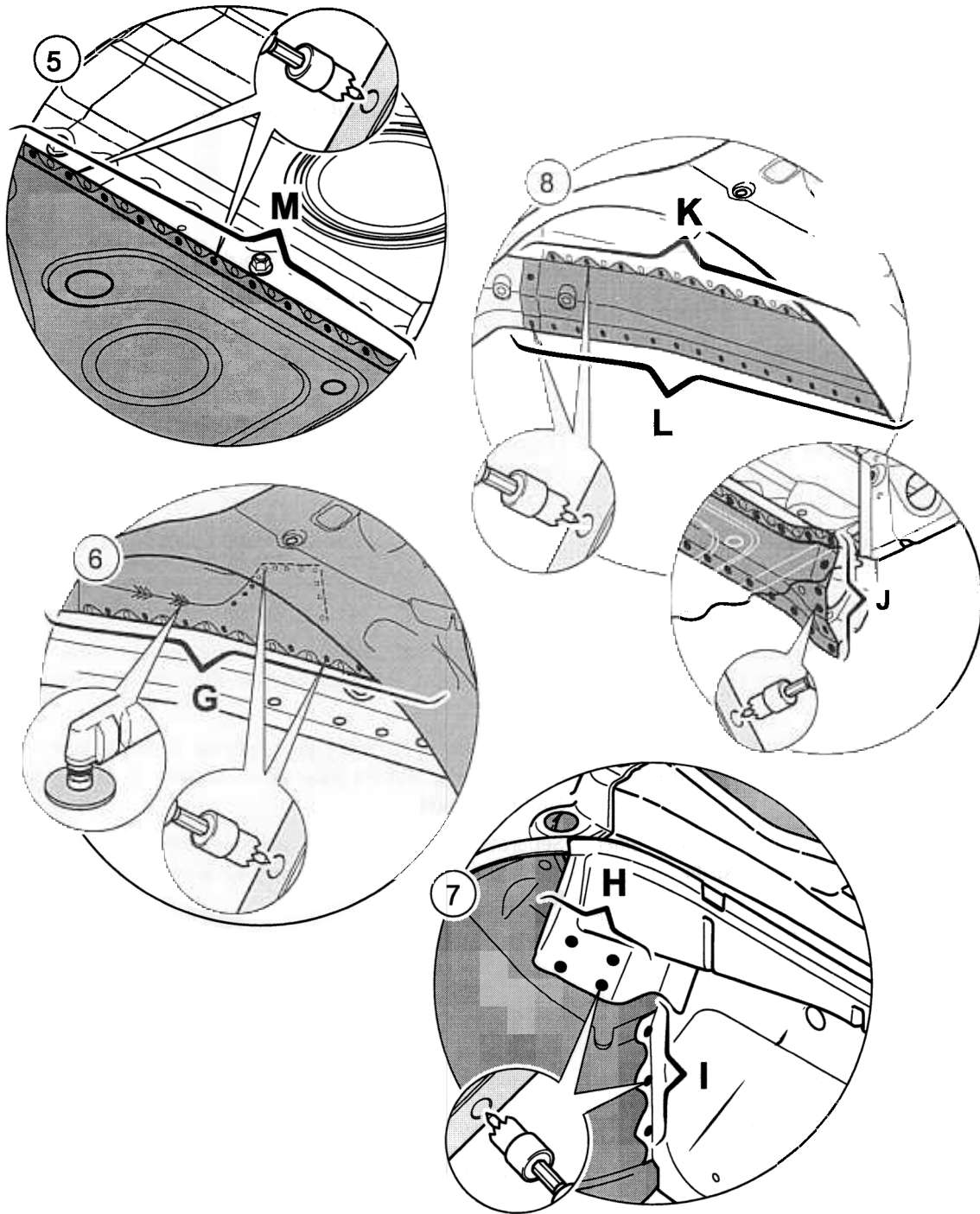
 **Warning!**

During body repairs, the following safety instructions and the general information and quality instructions must be followed. See: Serv. No.5

 **Note!**

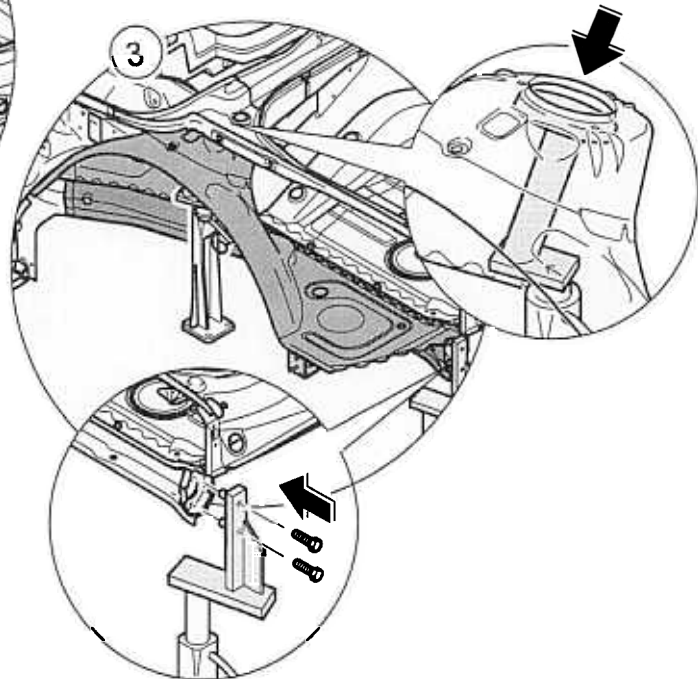
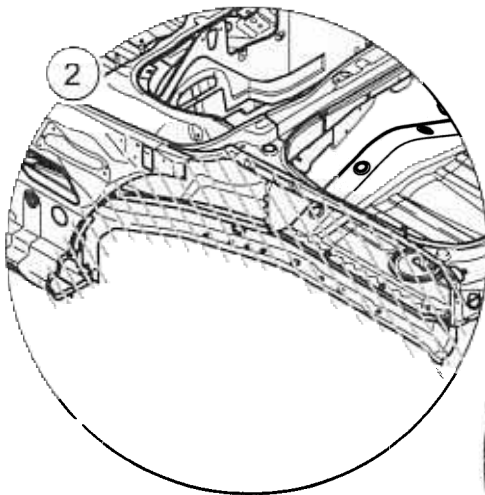
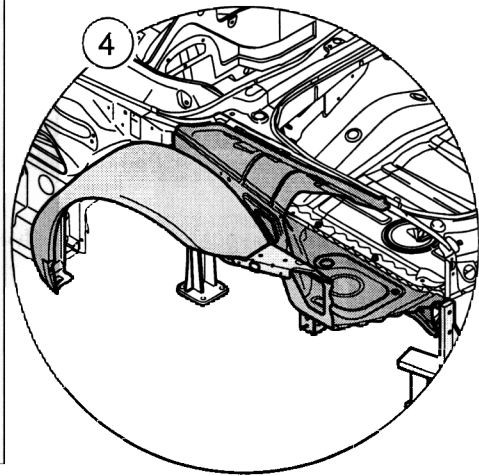
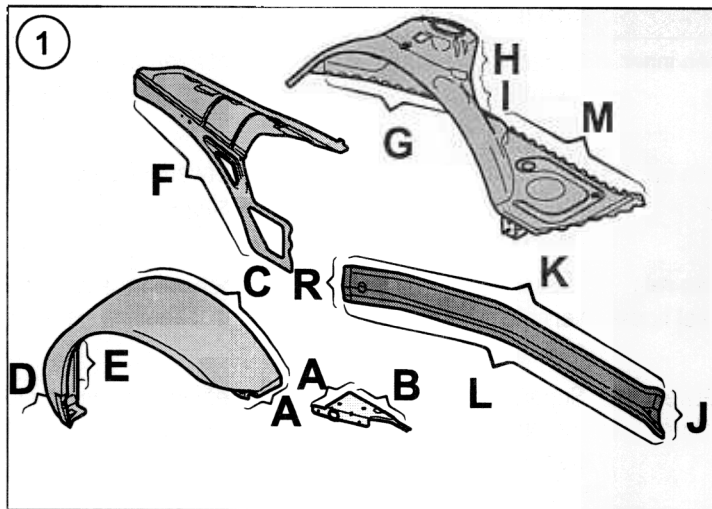
- ◆ *The accessories in the repair area should be removed, depending on the extent of the damage.*
- ◆ *All straightening work on this area of the body must have been completed before the damaged parts are removed!*

No.	Procedure	Instructions
	Placing vehicle on the alignment bench	Place the vehicle with the units mounted at the front and rear onto the set of straightening attachments and fasten it in position.
	Cutting through side section	⇒ Rep. Gr. 535555; Replacing side section
1	Separating spot-welded joint between lock plate/outer wheel housing	Separate the spot-weld connection between the lock plate and the outer wheel housing -A- with the spot-weld cutter.
2	Separating the spot-welded joint between outer wheel housing/inner side section	Separate the spot-welded joint between the outer wheel housing and the inner side section -B- with the spotweld cutter.
3	Separating the spot-welded joint between the inner side member panel and the outer wheel housing	Separate the spot-welded joint between the inner side member panel and the outer wheel housing -C, D- with the spotweld cutter.
4	Separating spot-welded joint between inner side section / inner wheel housing	Separate the spot-welded joint between the inner side section and the inner wheel housing -G- with the spotweld cutter.



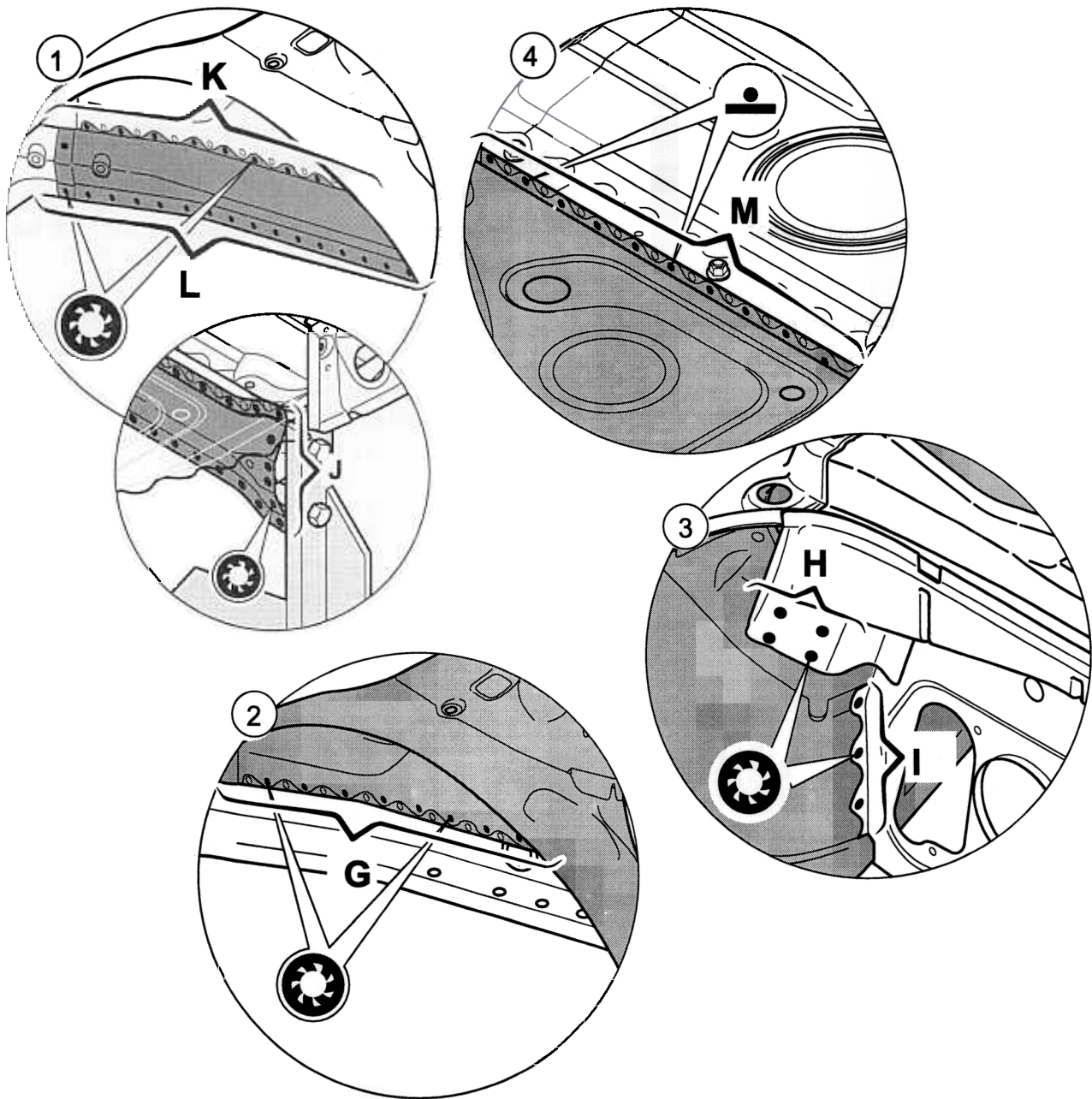
No.	Procedure	Instructions
	Separating spot-welded joint between inner side member / inner wheel housing	Separate the spot-welded joint between the inner side member and the inner wheel housing -M- with the spotweld cutter.
6	Separating spot-welded joint between inner side member / inner wheel housing	Separate the spot-welded joint between the inner side member and the inner wheel housing -G- with the spotweld cutter.
7	Separating spot-welded joint between rear wall convertible top rest / inner wheel housing	Separate the spot-welded joint between the rear wall convertible top rest and the inner wheel housing -H, I- with the spotweld cutter.
8	Separating the spot-welded joint between inner side member/outer side member	Separate the spot-welded joint between the inner side member and the outer side member -K, L, J- with the spotweld cutter.

Preparing the rear wheel housing for installation and fitting

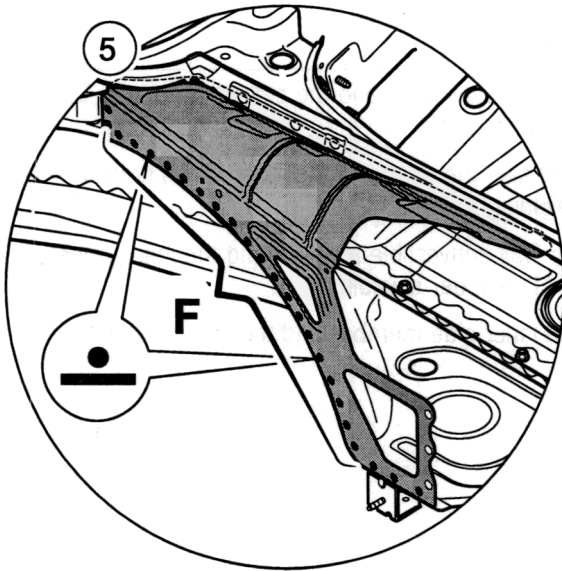


No.	Procedure	Instructions
		Remove the factory-applied primer on the welding areas of the spare parts -A, B, C, D, E, F, G, H, I, J, K, L, M- using the rotary brush. Drill or punch (with a hole punch) $\varnothing 7$ mm holes spaced 20mm apart for plug-welding with shielding gas. ⇒ 53-19 page 8
2	Cleaning the welding areas	Remove underbody coating and paint layers, etc. from the welding areas of the body with a hot-air gun or rotary brush.
3	Inserting inner wheel housing/inner side member into the body	Fasten spare inner wheel housing and inner side member onto the straightening attachment.
4	Inserting the spare parts into the body	Fit the spare outer side member, inner side section, outer wheel housing and the closing part.

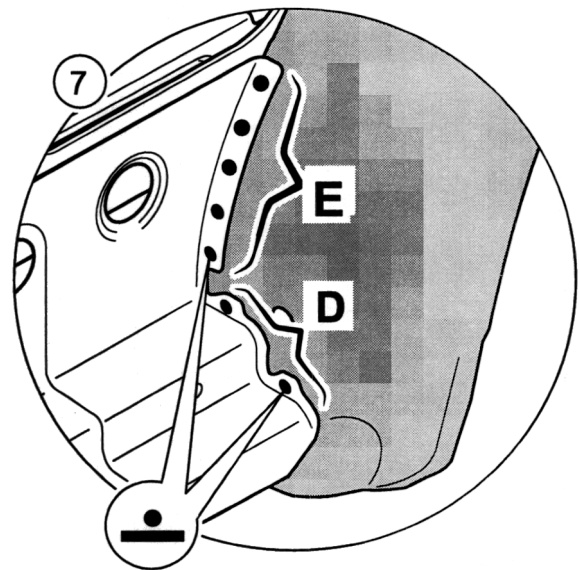
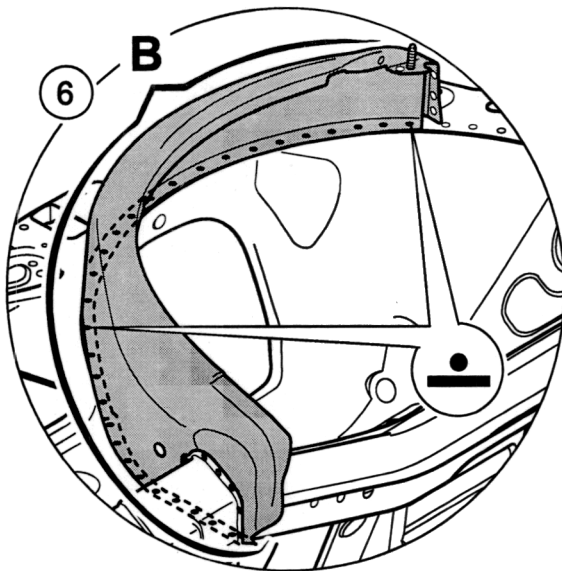
Welding in rear wheel housing



No.	Procedure	Instructions
	Welding inner side member/ side member under shielding gas.	Weld inner side member and the side member -K, L, J- under shielding gas.
2	Spot-welding inner wheel housing/outer side member	Weld inner side member and the inner wheel housing -G- under shielding gas.
3	Welding rear wall convertible top rest/inner wheel housing under shielding gas	Weld rear wall convertible top rest and the inner wheel housing -H, I- under shielding gas.
4	Spot-welding inner side member/inner wheel housing	Spot-weld inner side member and the inner wheel housing -M- .



A

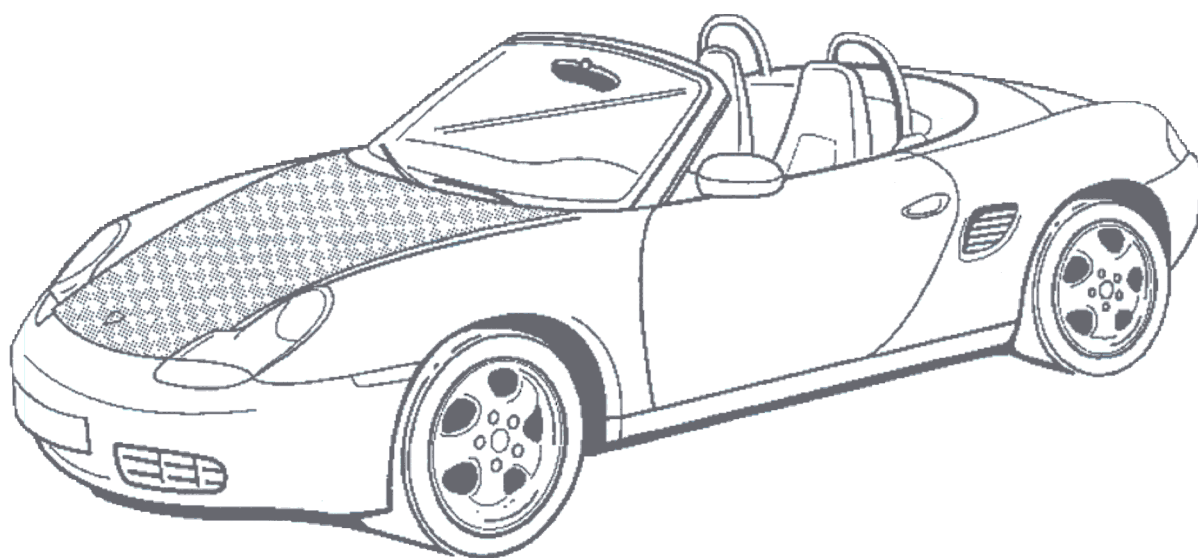


No.	Procedure	Instructions
	Spot-welding inner side section/inner wheel housing	Spot-weld inner side section to the inner wheel housing -F- .
6	Spot-welding outer wheel housing/inner side section	Spot-weld outer wheel housing to the inner side section -C- .
7	Spot-welding outer wheel housing/inner side member panel	Spot-weld outer wheel housing/inner side member panel -E, D- .
8	Spot-welding closing part/outer wheel housing	Spot-weld closing part to the outer wheel housing -A- .
	Inserting side section	⇒ Rep. Gr. 535555; Replacing side section

Tools and materials

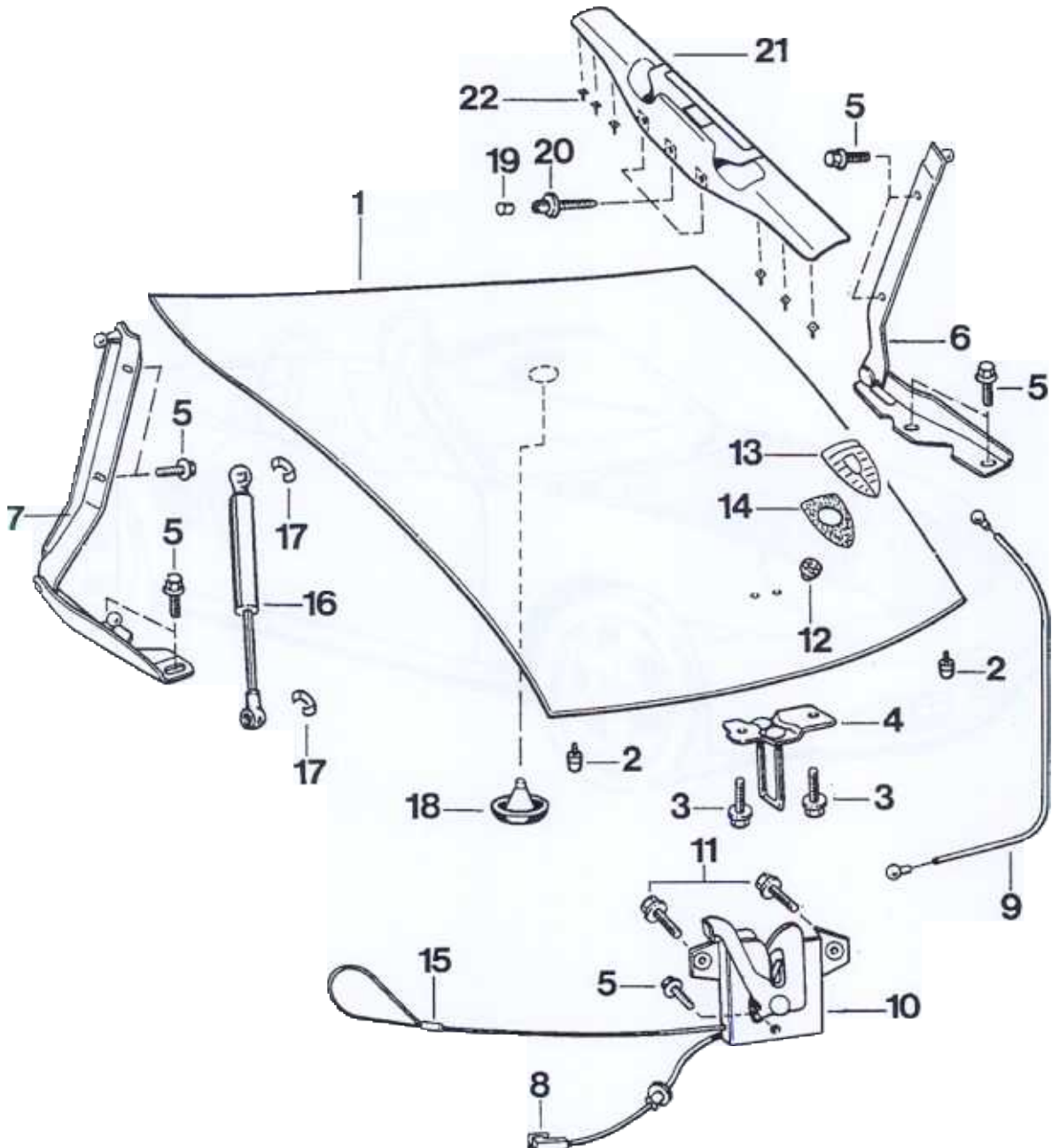
Item	Designation of the special tool	Explanation
	Basic straightening attachments Boxster 986	⇒ Rep. Gr. 3; Workshop Equipment Manual
2	Portal Boxster for straightening work in the interior	⇒ Rep. Gr. 3; Workshop Equipment Manual
3	Star gauges Nr. 127-1	⇒ Rep. Gr. 2.4; Workshop Equipment Manual
4	MIG welder	⇒ Rep. Gr. 3; Workshop Equipment Manual
5	Multispot spotwelder	⇒ Rep. Gr. 3; Workshop Equipment Manual
6	Pneumatic body saw	⇒ Rep. Gr. 3; Workshop Equipment Manual
7	Angle grinder	⇒ Rep. Gr. 3; Workshop Equipment Manual
8	Oscillating body saw (special electrical cutter)	⇒ Rep. Gr. 3; Workshop Equipment Manual
9	Multispot spotweld cutter	⇒ Rep. Gr. 3; Workshop Equipment Manual
10	Hole punch	⇒ Rep. Gr. 2.4; Workshop Equipment Manual
11	Hot-air gun	⇒ Rep. Gr. 3; Workshop Equipment Manual
12	Rotary brush	⇒ Rep. Gr. 3; Workshop Equipment Manual
13	Spot-weld cutter Ø7 mm Nr. 129	⇒ Rep. Gr. 2.4; Workshop Equipment Manual

55 22 37 Disassembling and assembling front lid



138 - 96

Disassembling and assembling front lid



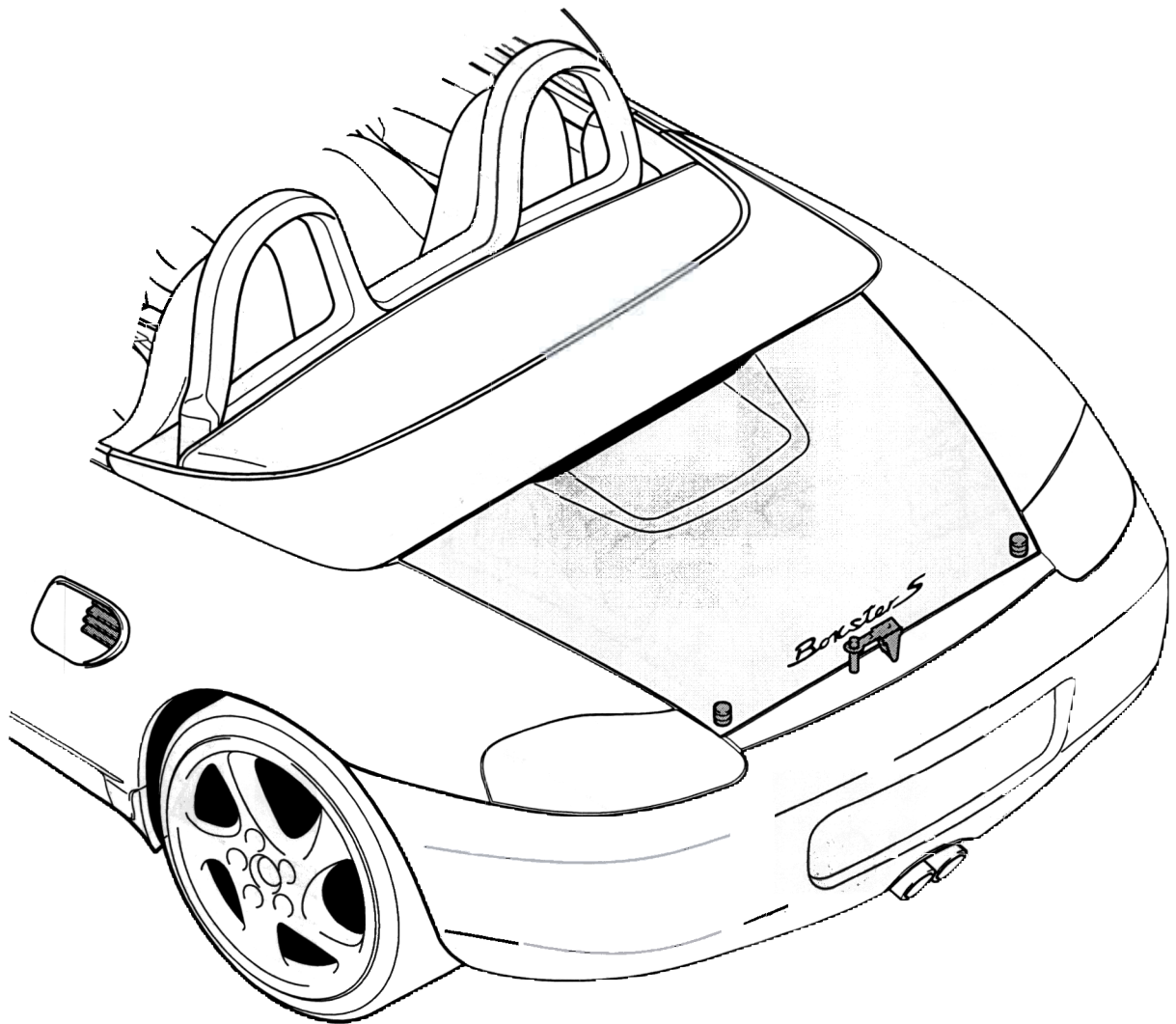
139 - 96

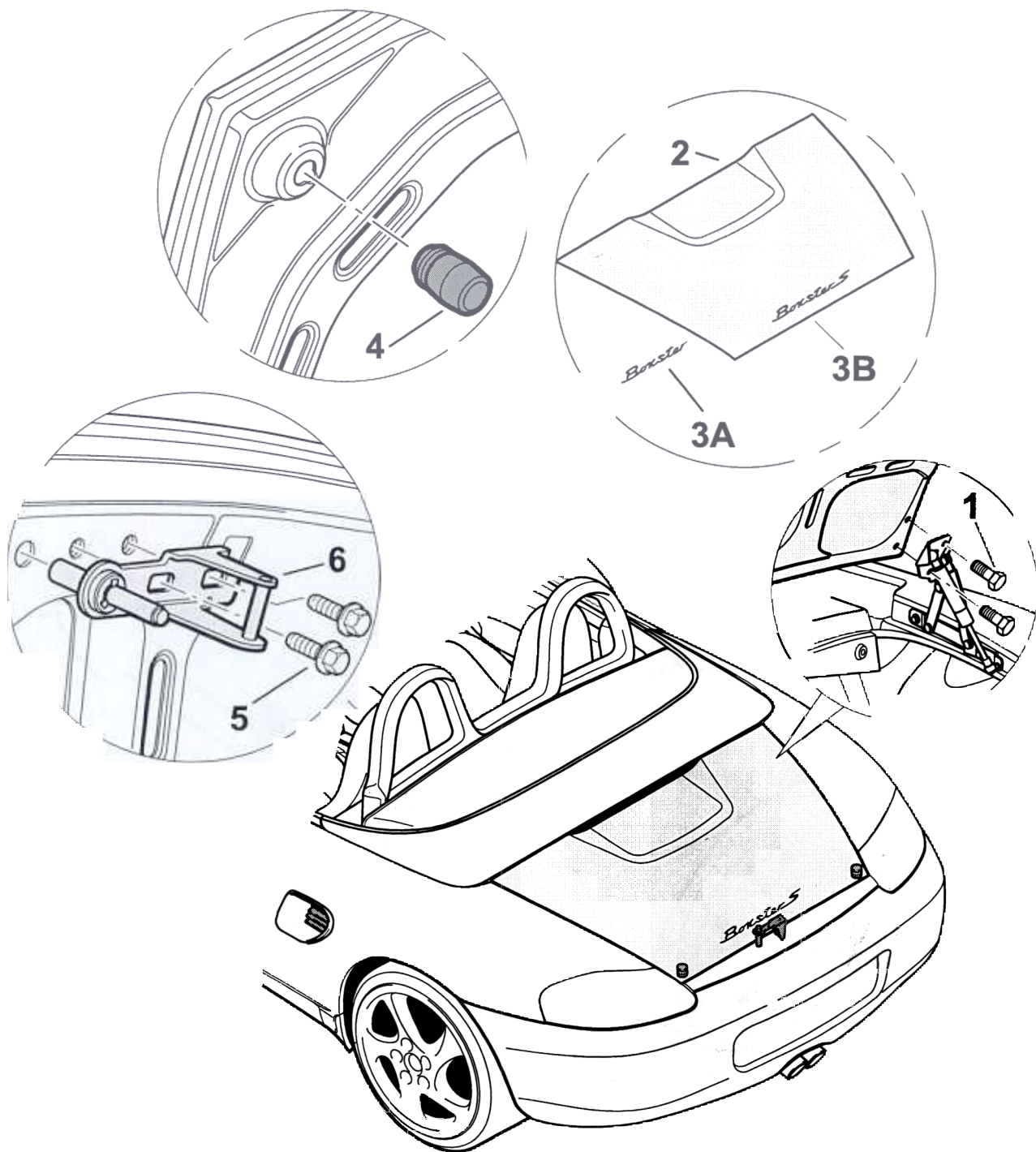
Disassembling and assembling front lid

No.	Designation	Qty.	Removal	Note:	
					Installation
1	Lid	1			Adjust lid to the hinges in accordance with the contours of the wings and the front spoiler.
2	Rubber buffer	2	Remove rubber buffers by turning them.		Screw in rubber buffers.
3	Combination screw M6 x 12	2			Tightening torque 10 Nm (7.5 ftlb.)
4	Upper part of lock	1	Remove upper part of lock from lid.		Fasten upper part of lock with the combination screws to the lid and adjust to the lower part of the lock.
5	Combination screw M6 x 14	10	Loosen fastening screws and remove lid from vehicle.		Lay lid on hinges and screw tight.
6	Hinge left	1	Loosen combination screws M6 x 14		Adjust to left side part according to lid contour.
7	Hinge right	1	Loosen combination screws M6 x 14		Adjust to right side part according to lid contour.
8	Plug connection	1	Disconnect cable-harness plug connection.		Insert cable-harness plug connection.
9	Bowden cable	1	Press Bowden cable out of holder.		Press Bowden cable into holder.
10	Lower part of lock	1			Fasten lock lower part with combination screws and adjust to lock upper part.
11	Combination screw M6 x 30	1	Undo		

No.	Designation	Qty.	Note:	
			Removal	Installation
12	Tapping nut	2	Unscrew fastening nut of lid badge.	Replace
13	Badge on lid	1	Remove base of lid badge.	Insert base and lid badge into the lid and fasten with tapping nut.
14	Base	1		
15	Emergency operation mechanism	1		
16	Pneumatic spring	2		
17	Catch	4	Press catch out.	Press catch in.
18	Rubber grommet	1		
19	Plug 8.0 x 11 x 7.2	3		
20	Hexagon socket screw M6 x 25	3	Loosen hexagon socket head screw by 4 to 5 turns.	Screw hexagon socket screw into the lower support by 2 to 3 turns.
21	Sill cover with handle liner	1	Remove 8.0 x 11 x 7.2 plug (Item 19), undo M6 x 25 hexagon socket screw by 4 to 5 turns. Lever the sill cover up and out of the lower support using a plastic spatula.	Position sill cover on the support and push on. Tighten M6 x 25 hexagon socket screws. Additional assembly notes on page 55-9
22	Plastic clip	6		Check and replace if necessary.

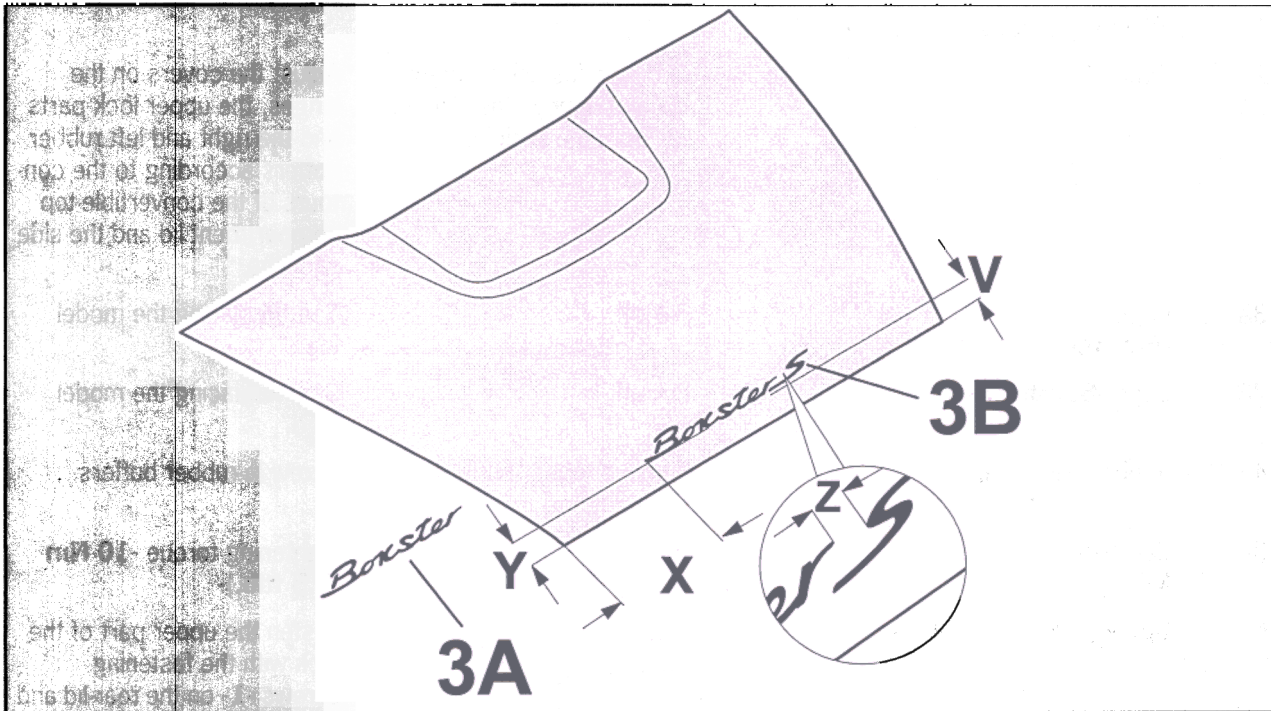
Disassembling and assembling rear lid





No.	Designation	Qty.	Removal	Installation
1	Fastening screws			
2	Rear lid		Undo the fastening screws -1- and remove the rear lid -2- from the vehicle.	Adjust the covers on the hinges, the upper lock parts and the right and left rubber buffers according to the contours of the convertible-top compartment lid and the side sections.
3A	Logo -Boxster-	1	Pull off.	See: Replacing the model logo.
3B	Logo -Boxster S-	1	Pull off.	See: Replacing the model logo.
4	Rubber buffer	2	Remove rubber buffers by turning them.	Screw in rubber buffers.
5	Combination screw M6 x 12	2	Unscrew.	Tightening torque -10 Nm (7.5 ftlb.)-
6	Upper part of the lock	1	Remove upper part of lock from lid.	Fasten the upper part of the lock with the fastening screws -1- on the rear lid and adjust in relation to the lower part of the lock.

Replacing the model logo



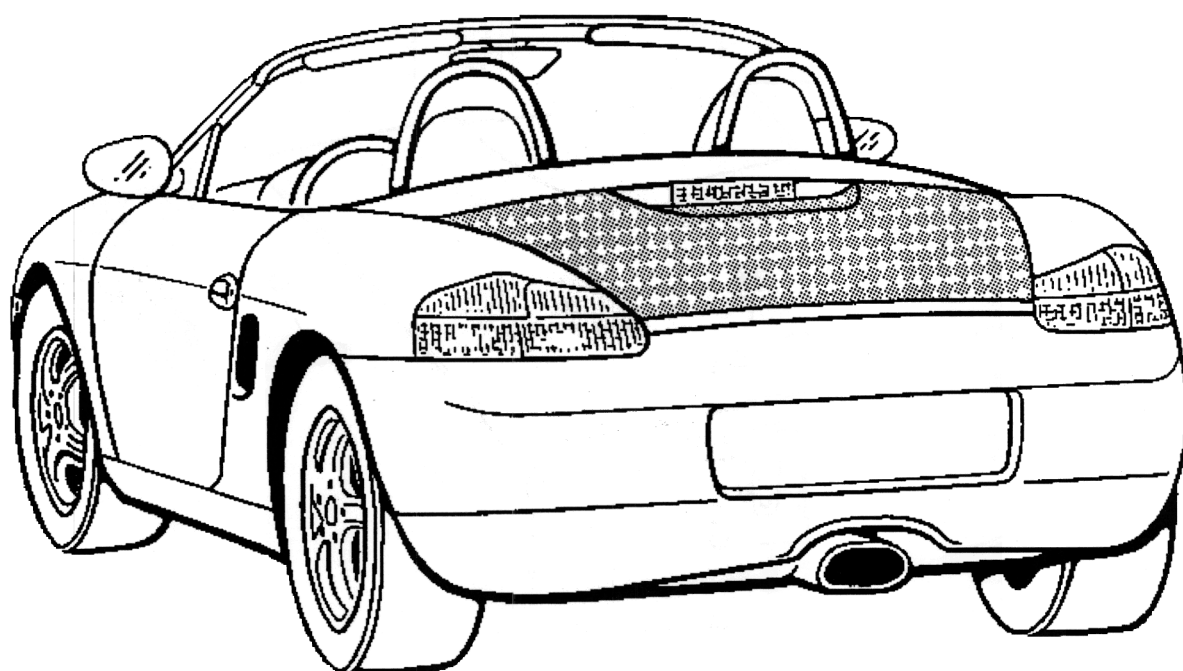
Measure the position of the logo with a measuring tape according to the model variant and affix it to the rear lid.

Logo Boxster -**3 A**- dimension -**X = 285 mm**- and -**Y = 45 mm**-

Logo Boxster -**3 A**- in connection with the letter S dimension -**X = 245 mm**- and -**Y = 45 mm**-

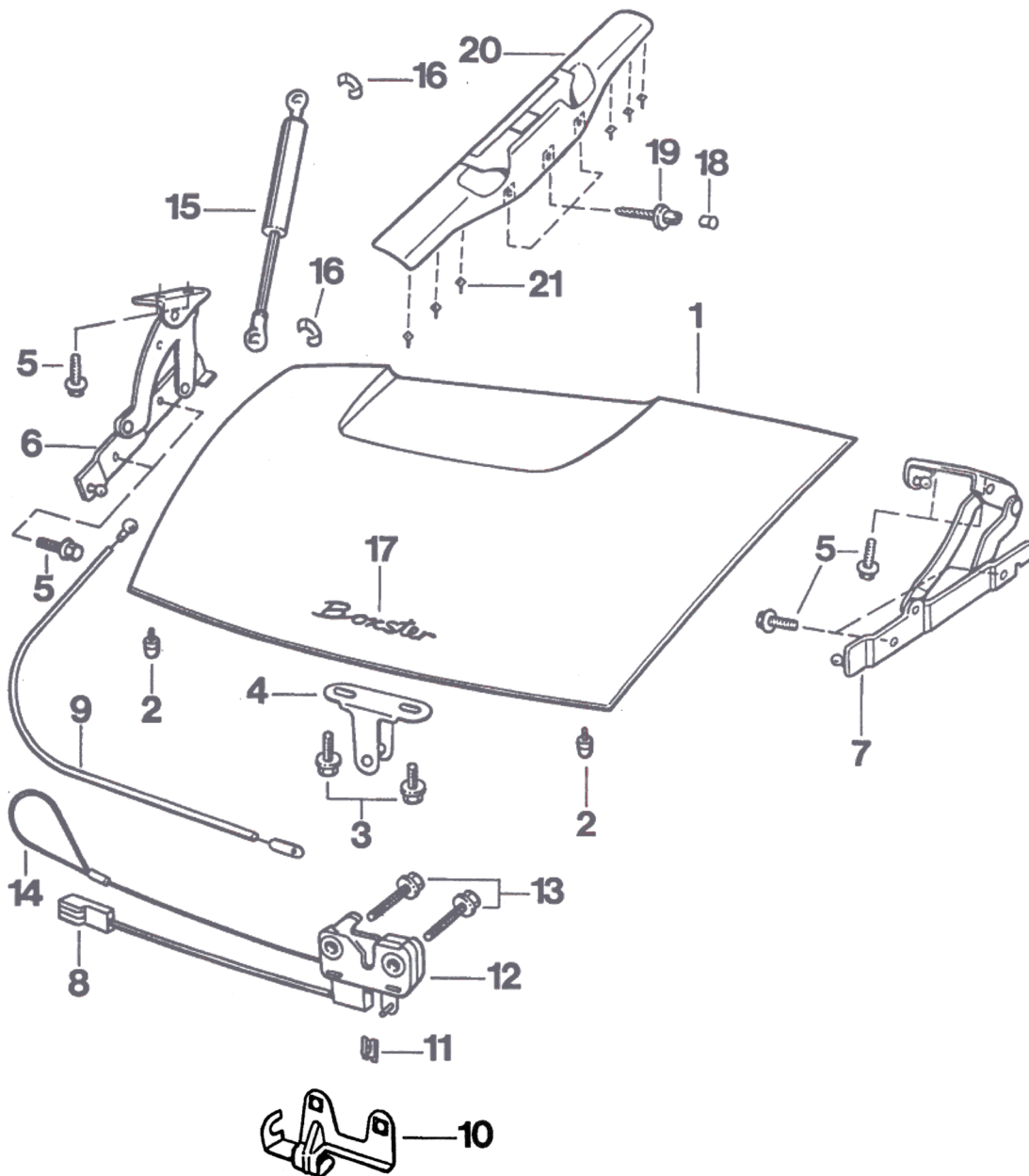
Logo S -**3 B**- dimension -**Z = 20 mm**- and -**V = 40 mm**-

55 90 37 Disassembling and assembling rear lid



140 - 96

Disassembling and assembling rear lid



141 - 96

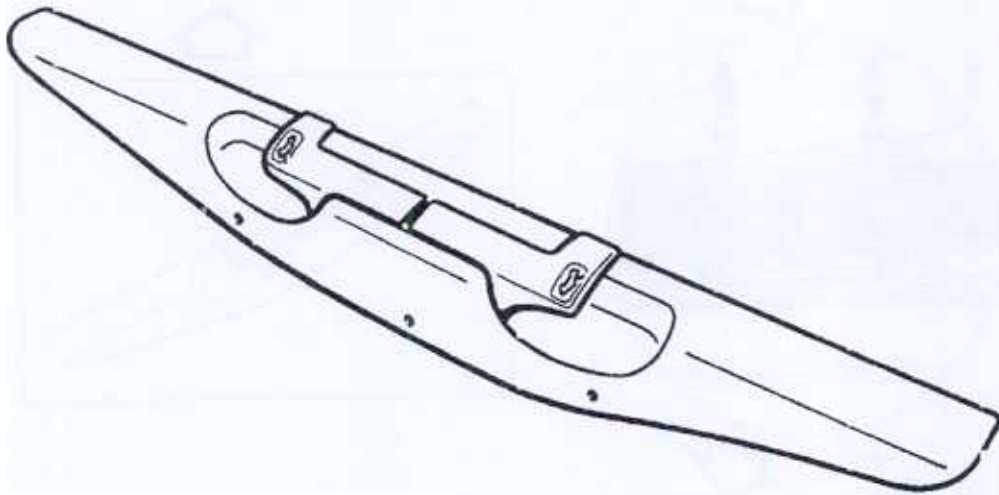
Disassembling and assembling rear lid

No.	Designation	Qty.	Removal	Note:	
					Installation
1	Rear lid	1			Adjust lid to the hinges, lock parts and rubber buffers in accordance with the contours of the convertible-top compartment lid and the side sections.
2	Rubber buffer	2	Remove rubber buffers by turning them.		Screw in rubber buffers.
3	Combination screw M6 x 12	2	Unscrew		Tightening torque 10 Nm (7.5 ftlb.)
4	Upper part of lock	1	Remove upper part of lock from lid.		Fasten upper part of lock to the lid with the combination screws and adjust to the lower part of lock.
5	Combination screw M6 x 14	8	Loosen fastening screws and remove lid from vehicle.		Lay lid on the hinges and screw tight.
6	Hinge left	1	Loosen combination screws M6 x 14.		Adjust to the left side section in accordance with lid contour.
7	Hinge right	1	Loosen combination screws M6 x 14.		Adjust to the right side section in accordance with lid contour.
8	Plug connection	1	Disconnect cable-harness plug connection.		Connect cable-harness plug connection.
9	Bowden cable	1	Press Bowden cable out of holder.		Press Bowden cable into holder.
10	Bracket	1			
11	Catch	1			
12	Lower part of lock	1			Screw lower part of lock together with bracket.

No.	Designation	Qty.	Removal	Note:	
					Installation
13	Combination screw M6 x 30	2	Loosen		Fasten lower part of lock with bracket and combination screws and adjust to lower part of lock.
14	Emergency operating mechanism	1			
15	Pneumatic spring	2			
16	Catch	4	Press catch out.		Press catch in.
17	Logo	1	Pull off.		Stick on.
18	Plug 8.0 x 11 x 7.2	3			
19	Hexagon socket head screw M6 x 25	3	Loosen hexagon socket head screw by 4 to 5 turns.		Screw hexagon socket screw into the lower support by 2 to 3 turns.
20	Sill cover with handle liner	1	Remove 8.0 x 11 x 7.2 plug (Item 18), undo M6 x 25 hexagon socket screw by 4 to 5 turns. Lever the sill cover up and out of the lower support using a plastic spatula.		Position sill cover on the support and push on. Tighten M6 x 25 hexagon socket screws. Additional assembly notes on page 55-15
21	Plastic clip	6			Check and replace if necessary

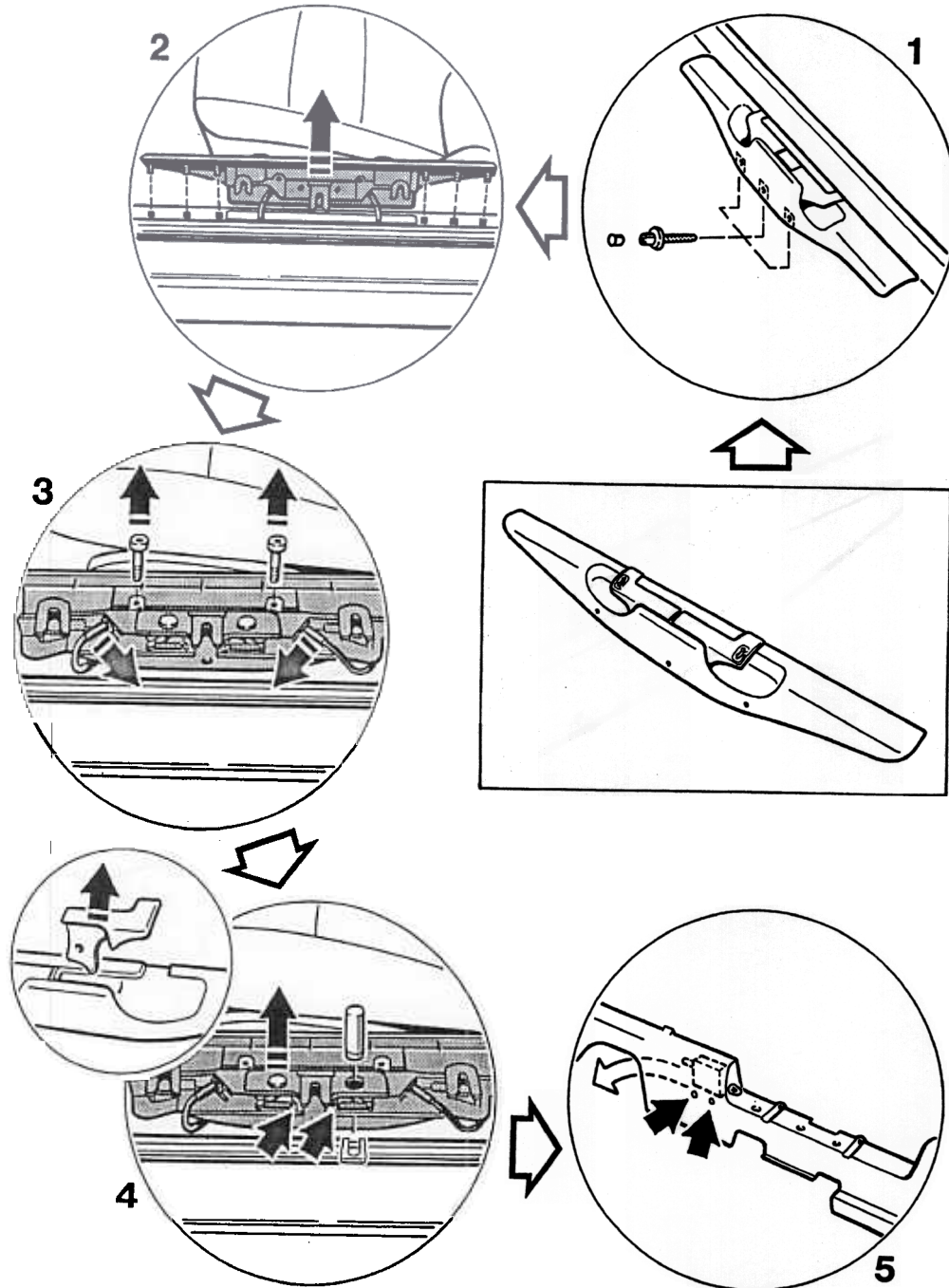


55 10 37 Disassembling and assembling release for front lid



1 - 97

Disassembling release for front lid

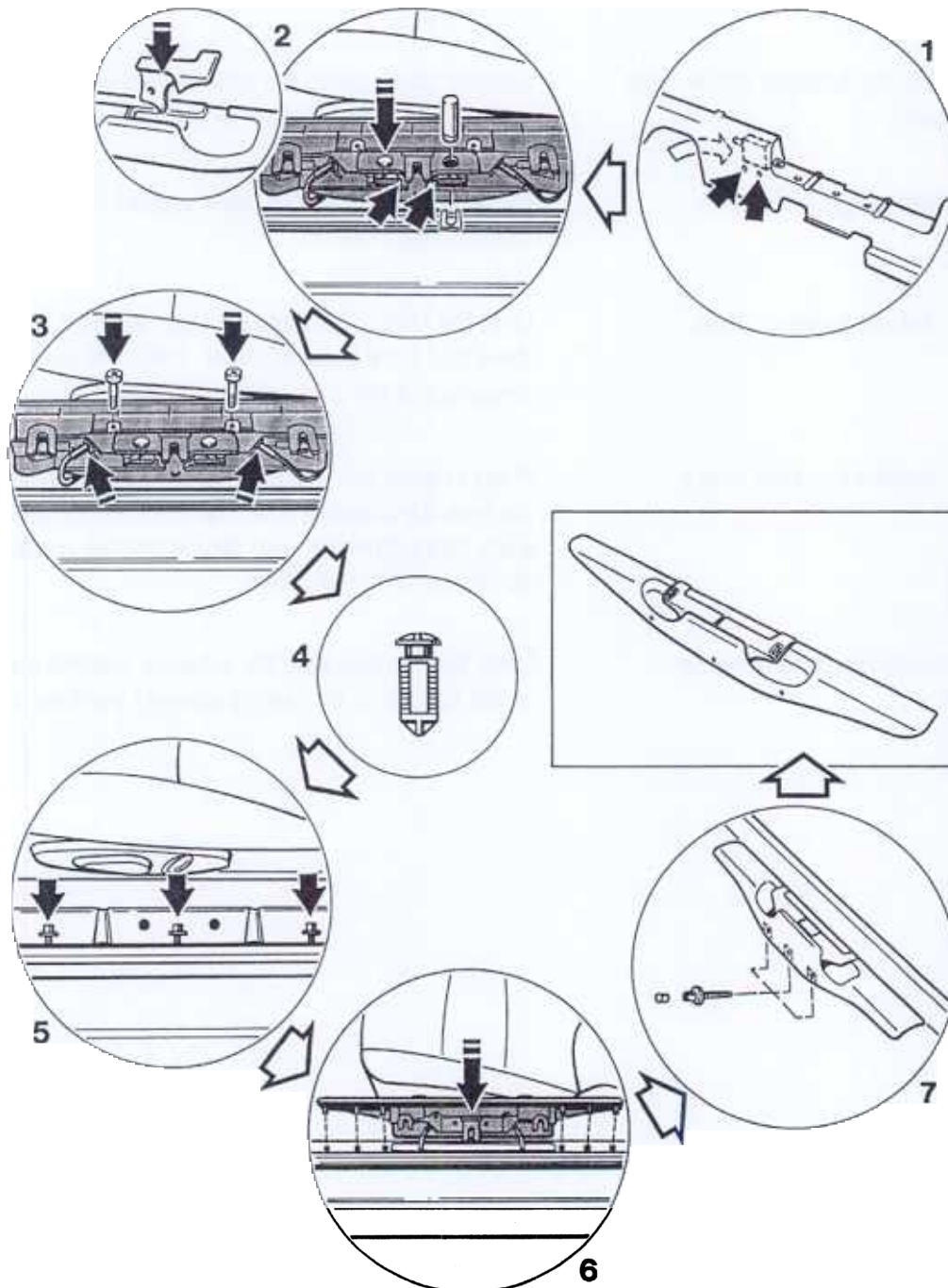


2 - 97

Disassembling release for front lid

No.	Procedure	Instructions
1	Undoing hexagon socket head bolts.	Remove plastic plugs and undo the M6 x 25 hexagon socket head bolts from the sill by approx. 4 to 5 turns.
2	Removing sill cover.	Lift up sill cover from the lower support using a plastic spatula and press out.
3	Undoing bowden cables.	Undo the M4 x 14 hexagon socket head bolt of the bowden cable in the actuating lever. Press the bowden cable sleeve out of the guide of the sill cover.
4	Undoing actuating levers.	Press retainer SLB 6 out of the 6 x 22 x 19 pin. Remove pin from the actuating lever and from the sill cover. Disengage spring from the door sill and pull the actuating lever up and out of the sill cover.
5	Undoing actuating element.	Undo Torx screws from the actuating element and pull out of the support to the rear; disconnect electrical connection.

Assembling release for front lid

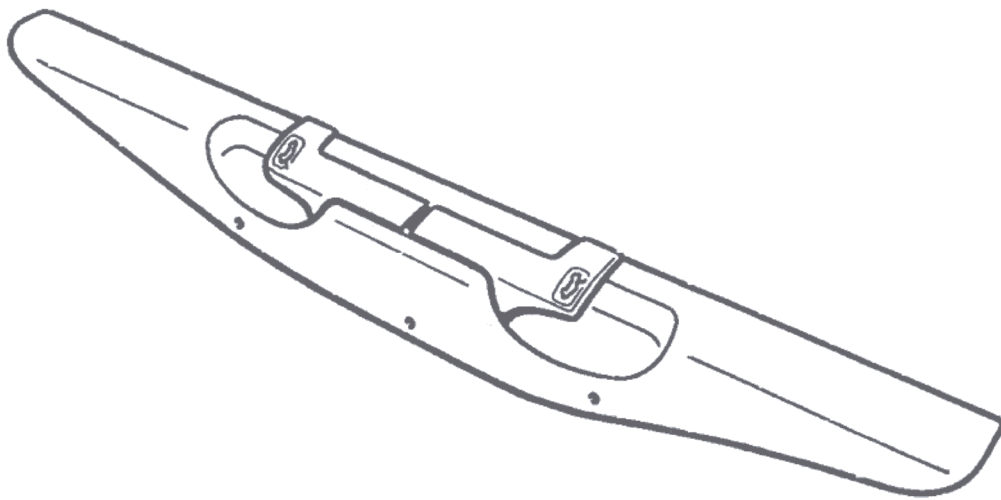


3 - 97

Assembling release for front lid

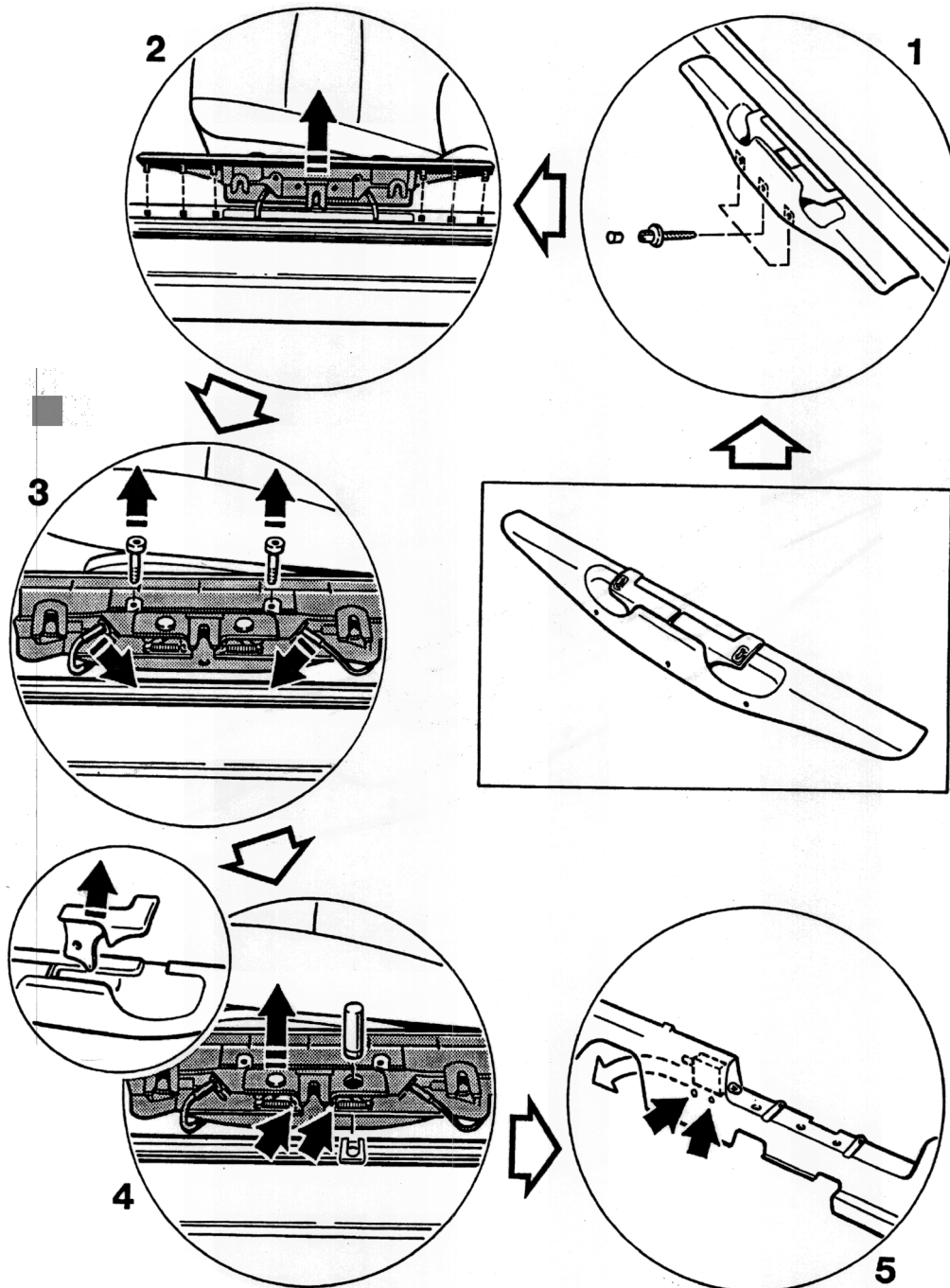
No.	Procedure	Instructions
	Fitting actuating element.	Insert the actuating element for lid release into the support from behind and position. Then fasten with the T20 x 15 Torx screws. Connect electrical plug connection.
2	Fitting actuating levers.	Position actuating lever in the sill cover, press in 6 x 22 x 19 pin and secure with the retainer SLB 6. Engage the tension spring 0.8 x 5.2 x 30 in the sill cover and the actuating lever.
3	Fitting bowden cables.	Position bowden cable in the actuating lever and fasten with the M4 x 14 hexagon socket head bolt. Press bowden cable sleeve into the guide of the sill cover.
4	Checking plastic clips.	Check plastic clips in the sill cover and replace them if necessary.
5	Screwing in hexagon socket head bolts.	The M6 x 25 hexagon socket head bolts in the support must not be screwed in by more than 3 to 4 turns.
6	Fitting sill cover.	Position the sill cover on the support and push it onto the support.
7	Tightening hexagon socket head screws.	Tighten the M6 x 25 hexagon socket head screws in the support through the holes in the sill cover. Press in the 8.0 x 11 x 7.2 plugs.

55 57 37 Disassembling and assembling release for rear lid



1 - 97

Disassembling and assembling release for rear lid

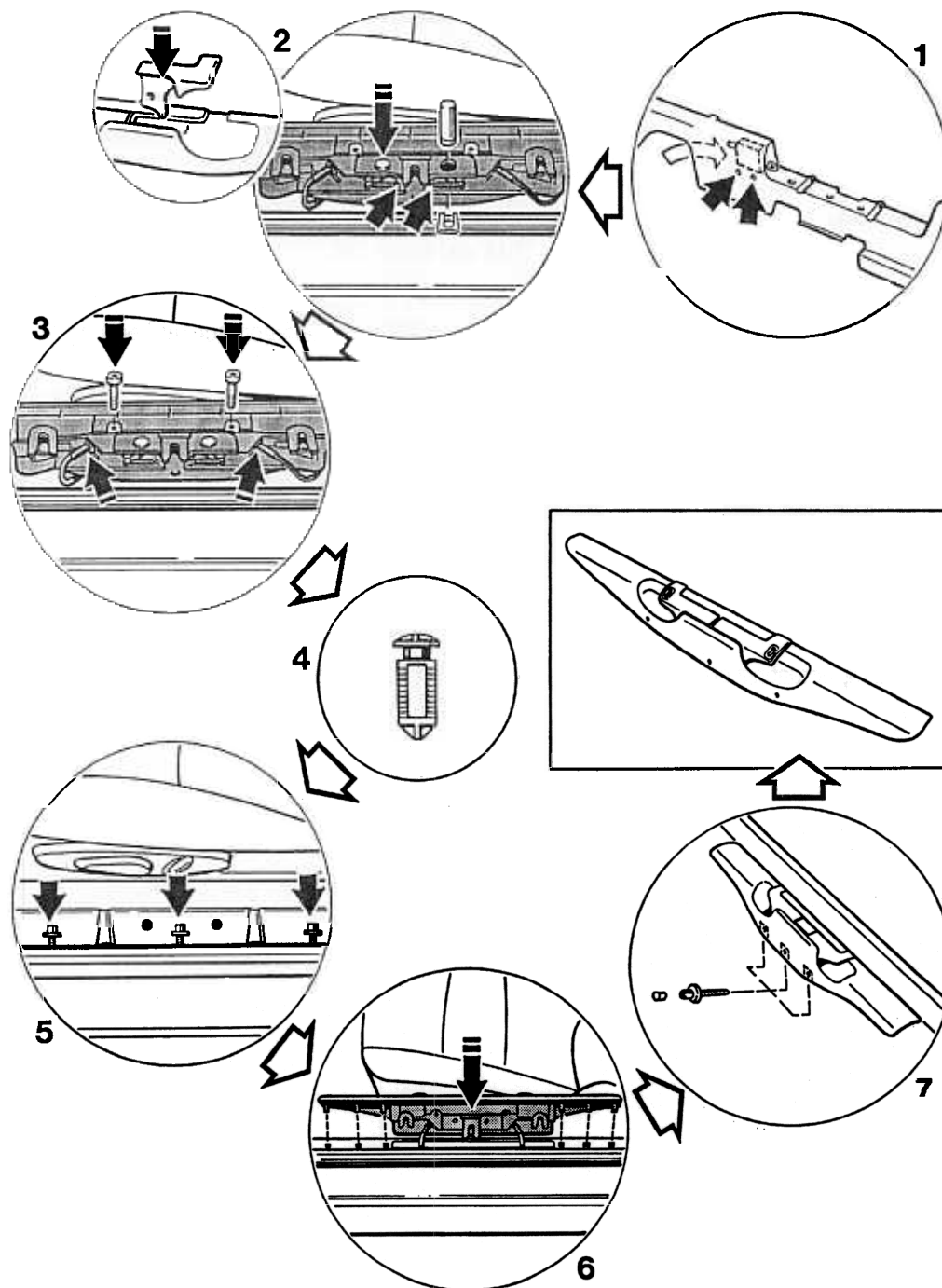


2-97

Disassembling release for rear lid

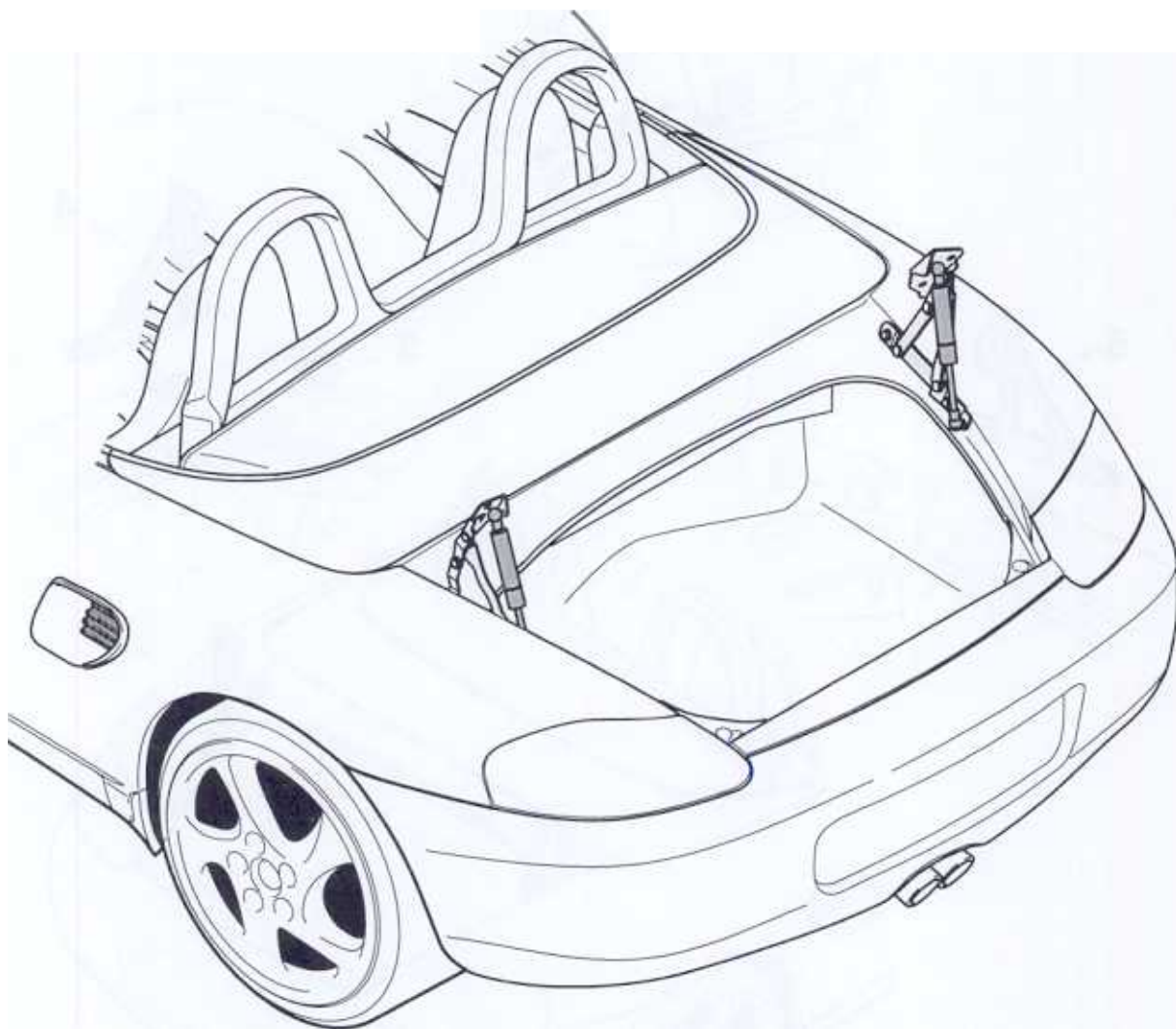
No.	Procedure	Instructions
1	Undoing hexagon socket head bolts.	Remove plastic plugs and undo the M6 x 25 hexagon socket head screws from the sill by approx. 4 - 5 turns.
2	Removing sill cover.	Lift up sill cover from the lower support using a plastic spatula and press out.
3	Undoing bowden cables.	Undo the M4 x 14 hexagon socket head bolt of the bowden cable in the actuating lever. Press the bowden cable sleeve out of the guide of the sill cover.
4	Undoing actuating levers.	Press retainer SLB 6 out of the 6 x 22 x 19 pin. Remove pin from the actuating lever and from the sill cover. Disengage spring from the sill cover and pull the actuating lever up and out of the sill cover.
5	Undoing actuating element.	Undo Torx screws from the actuating element and pull out of the support to the rear; disconnect electrical connection.

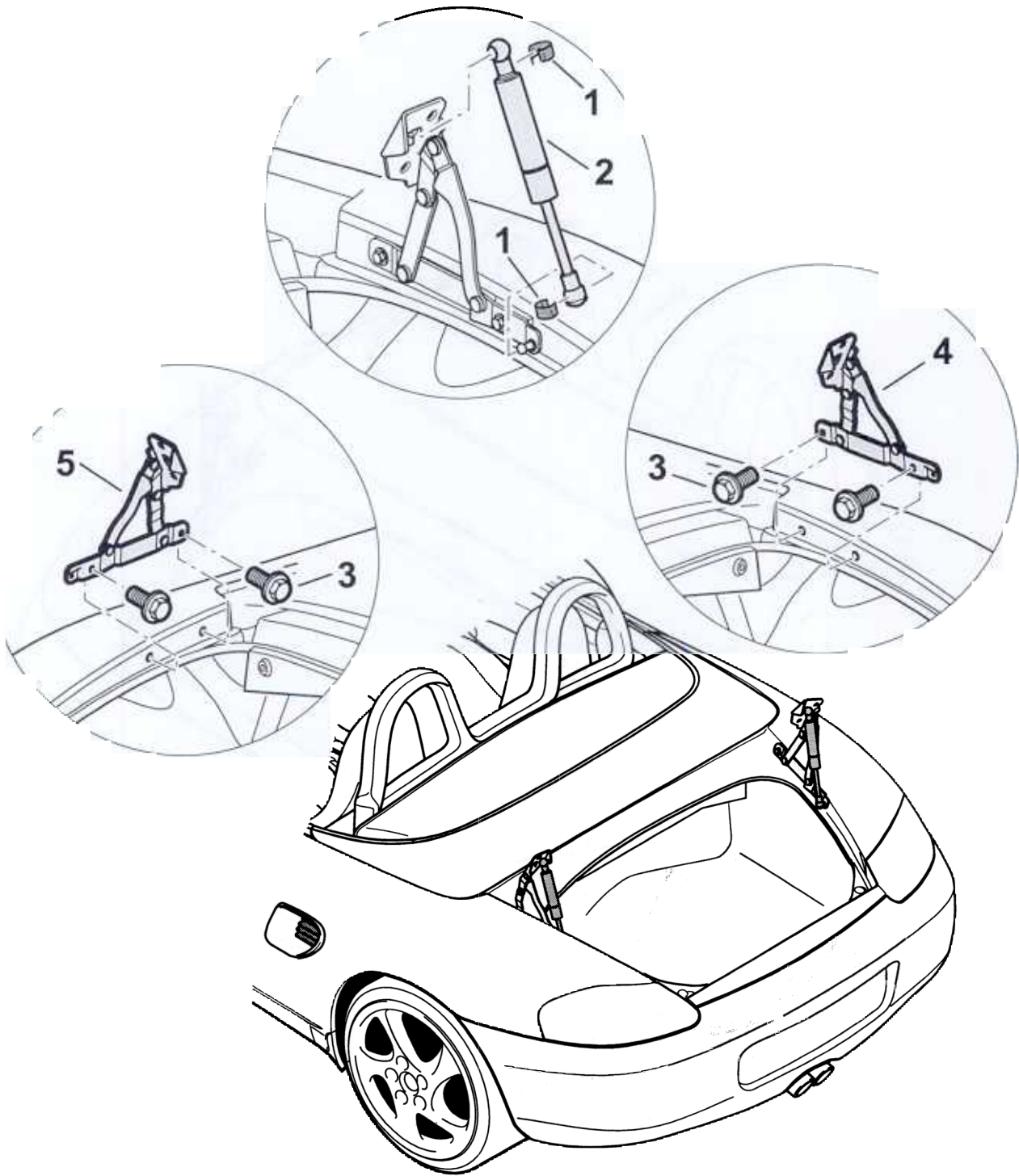
Assembling release for rear lid



3-97

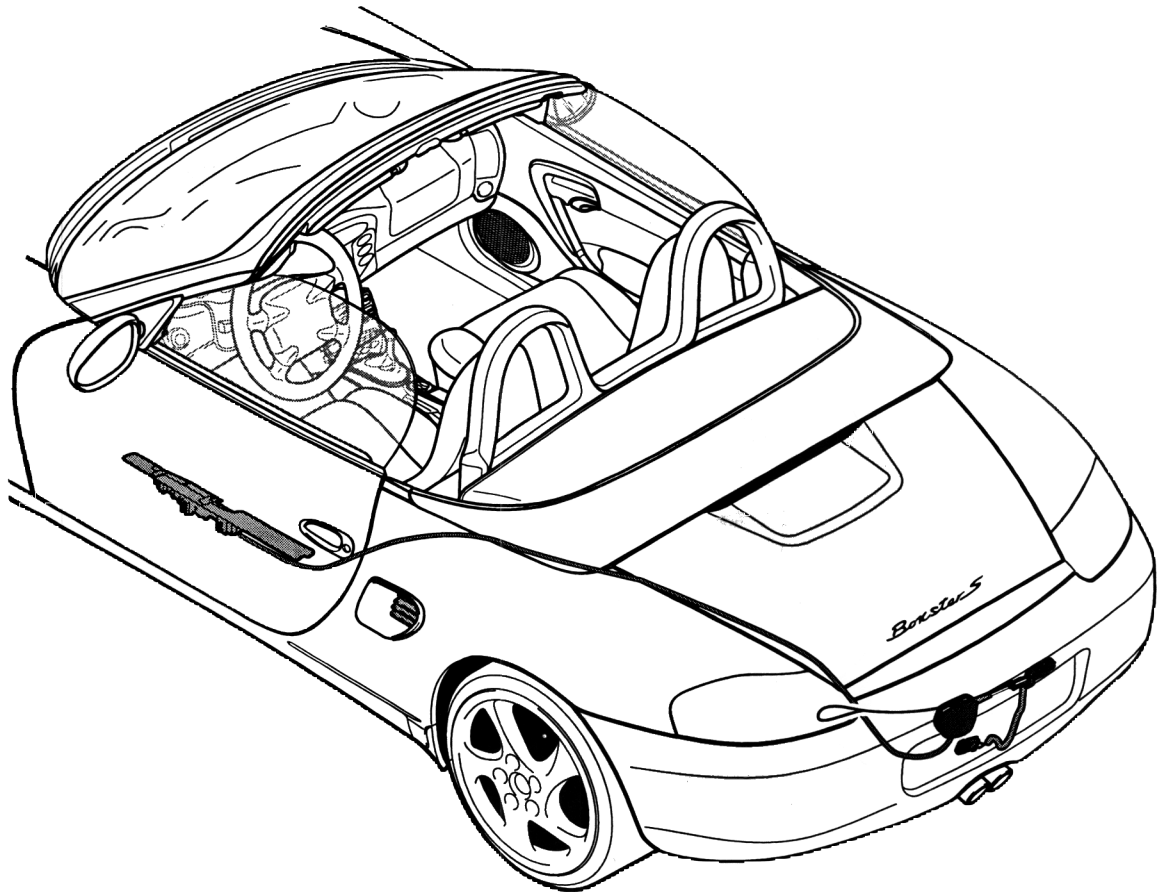
Removing and installing lid hinge

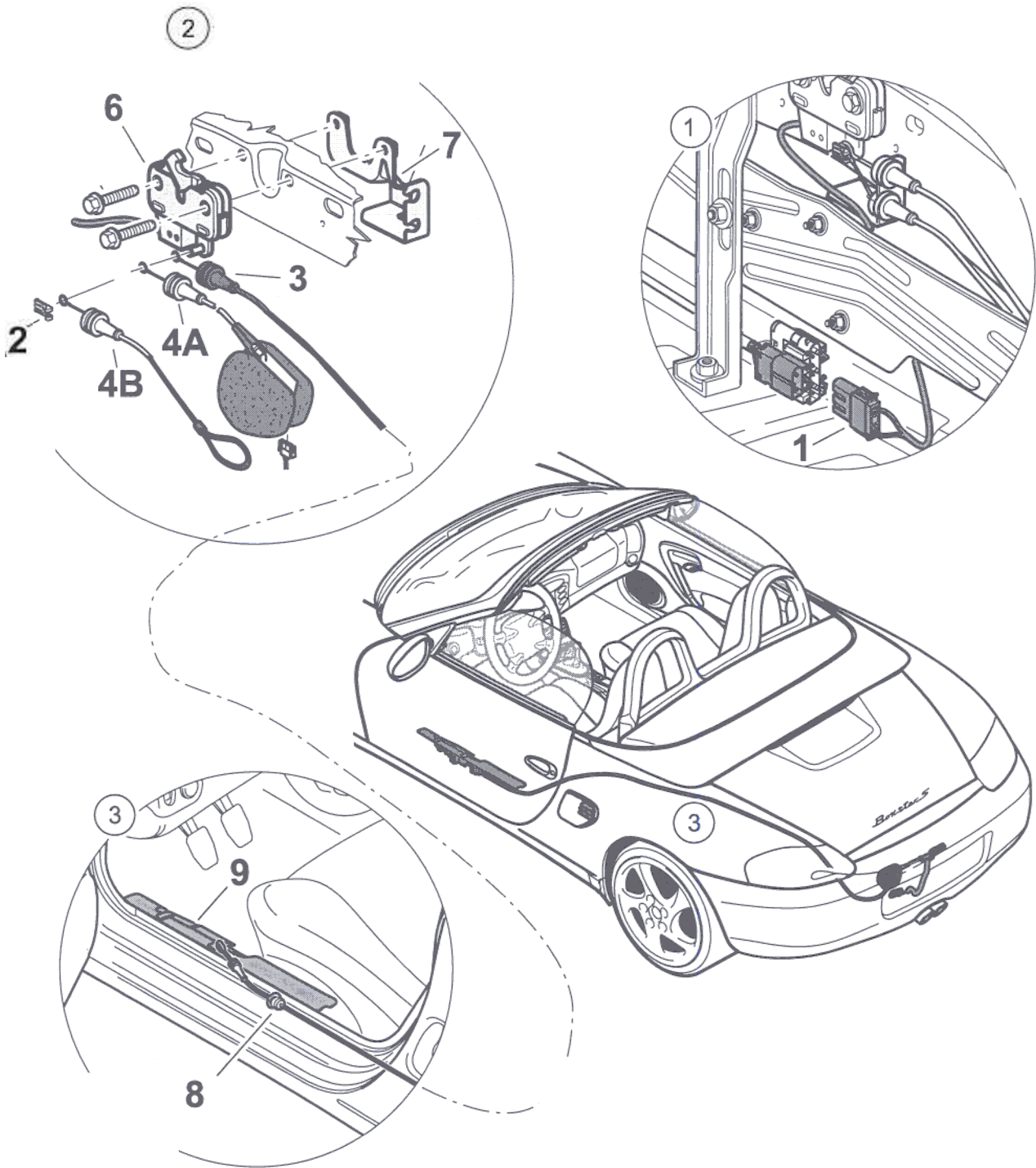




No.	Designation	Qty.	Removal	Installation
	Retainer			
	Pneumatic spring			
	Fastening screw			
	Hinge right		Undo fastening screw -3- .	Position right hinge -4- on the body and screw in place with the fastening screws -3- . Tightening torque: -10 Nm (7.5 ftlb.)-
5	Hinge left	1	Undo fastening screw -3- .	Position left hinge -5- on the body and screw in place with the fastening screws -3- . Tightening torque: -10 Nm (7.5 ftlb.)-

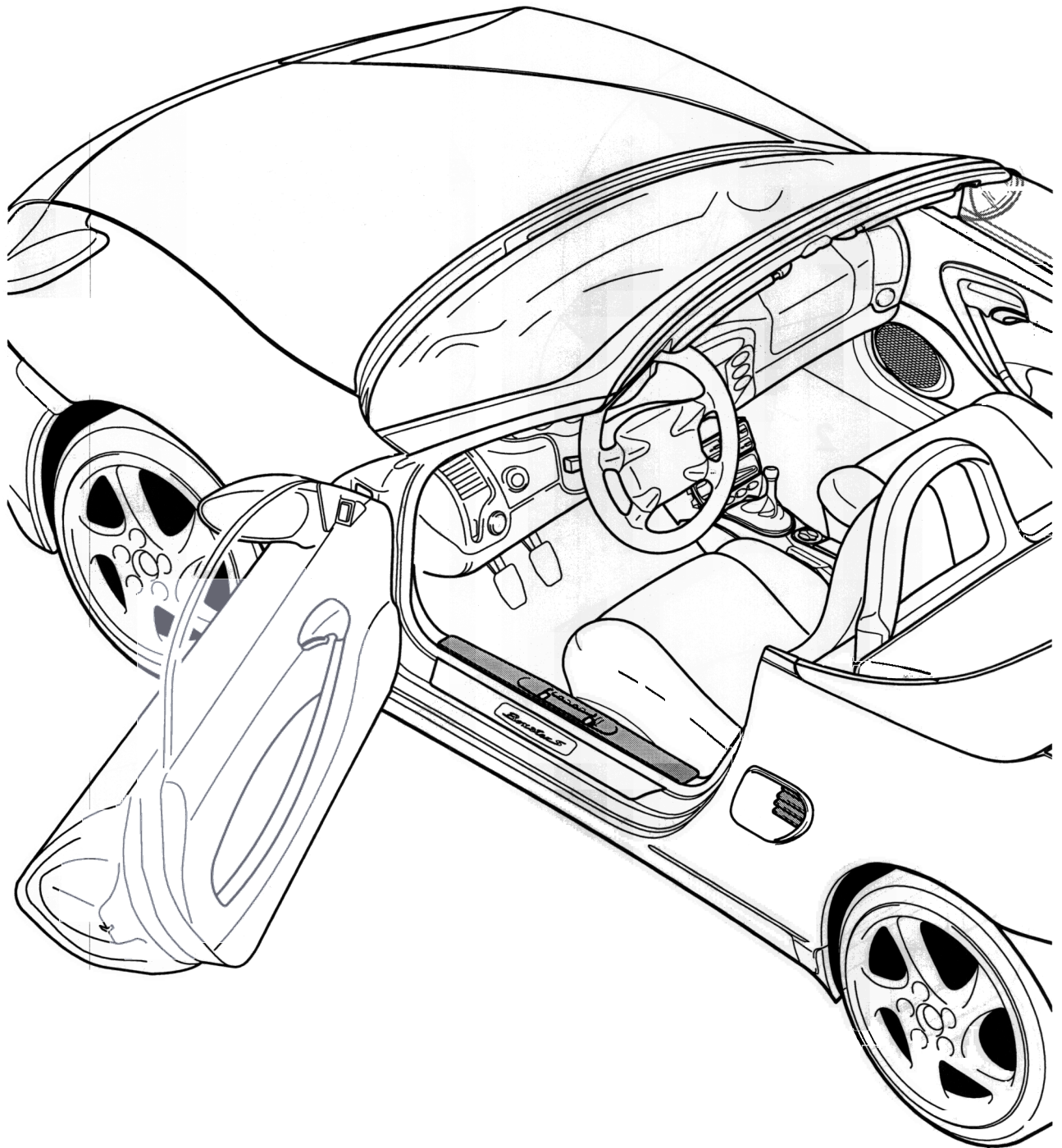
Removing and installing lower part of lid lock at rear



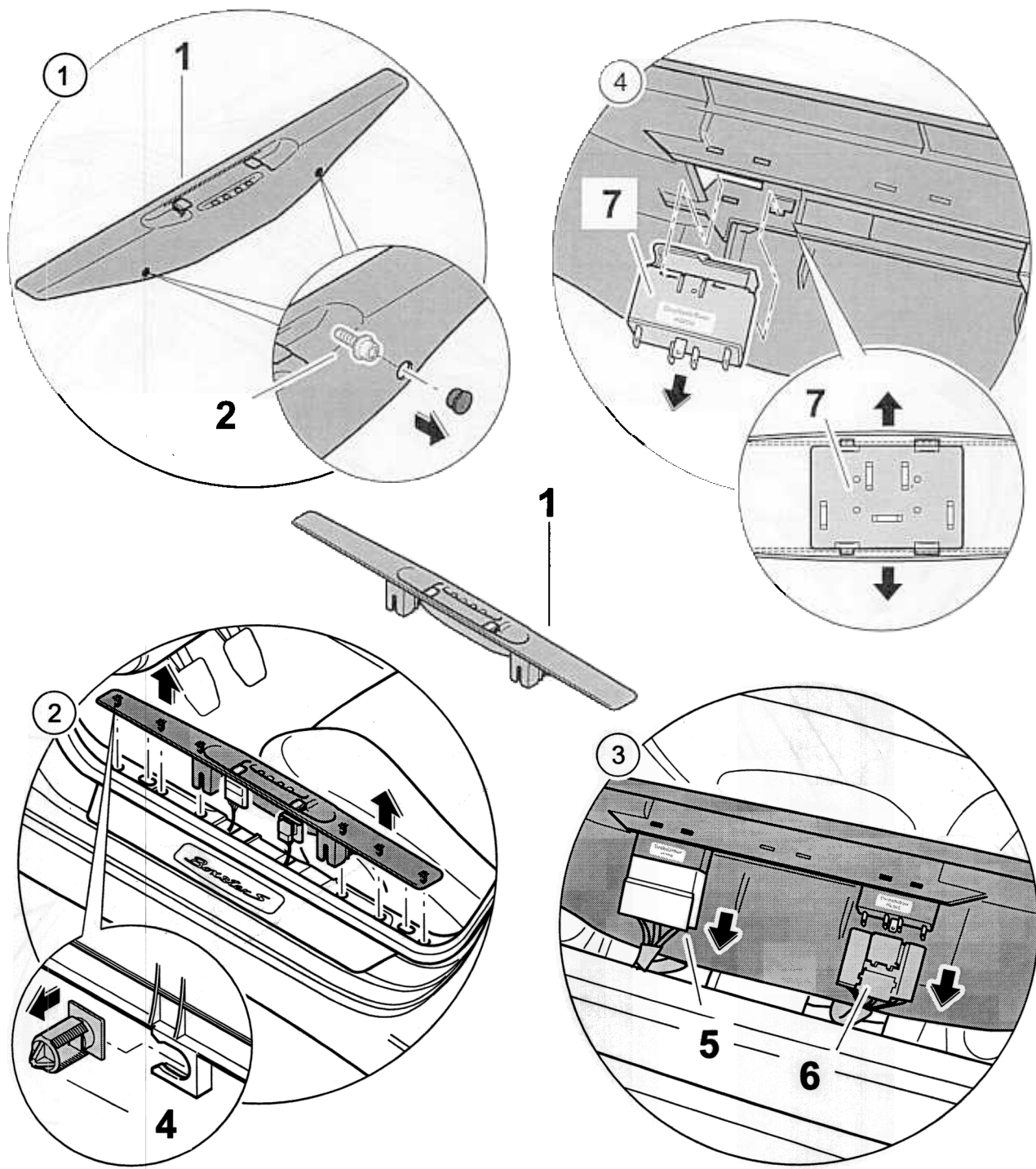


No.	Designation	Qty.	Removal	Installation
	Electrical plug connection, lower part of lock		Press the locking tabs on the left and right of the wiring harness plug connection -1- and disconnect.	Connect wiring harness plug connection -1- .
2	Retainer			
3	Bowden cable	1	Press the bowden cable -3- out of the upper holder -7- .	Press the bowden cable -3- in to the upper holder -7- .
4A	Bowden cable with servo motor unit	1	Press or pull the bowden cable with servo motor unit -4A- out of the holder -7- .	Press the bowden cable with servo motor unit -4A- in to the holder -7- .
4B	Bowden cable emergency operation	1	Press the bowden cable -4B- out of the lower holder -7- .	Press the bowden cable -4B- in to the lower holder -7- . -Note:- the bowden cable emergency operation is omitted as of version 4A bowden cable with servo motor unit
5	Fastening screws	2	Undo.	Screw the lower part of the lock -6- in place with the holder -7- and the fastening screws -5- . Tightening torque: -10 Nm (7.5 ftlb.)-
6	Lower part of lock	1		Screw lower part of lock in place on the holder -7- .
7	Holder	1		
8	Kick plate with gripper	1	⇒ Rep. Gr. 555737; Disassembling and assembling release for rear lid.	⇒ Rep. Gr. 555737; Disassembling and assembling release for rear lid.

Disassembling and assembling release for front lid- from model year 2001

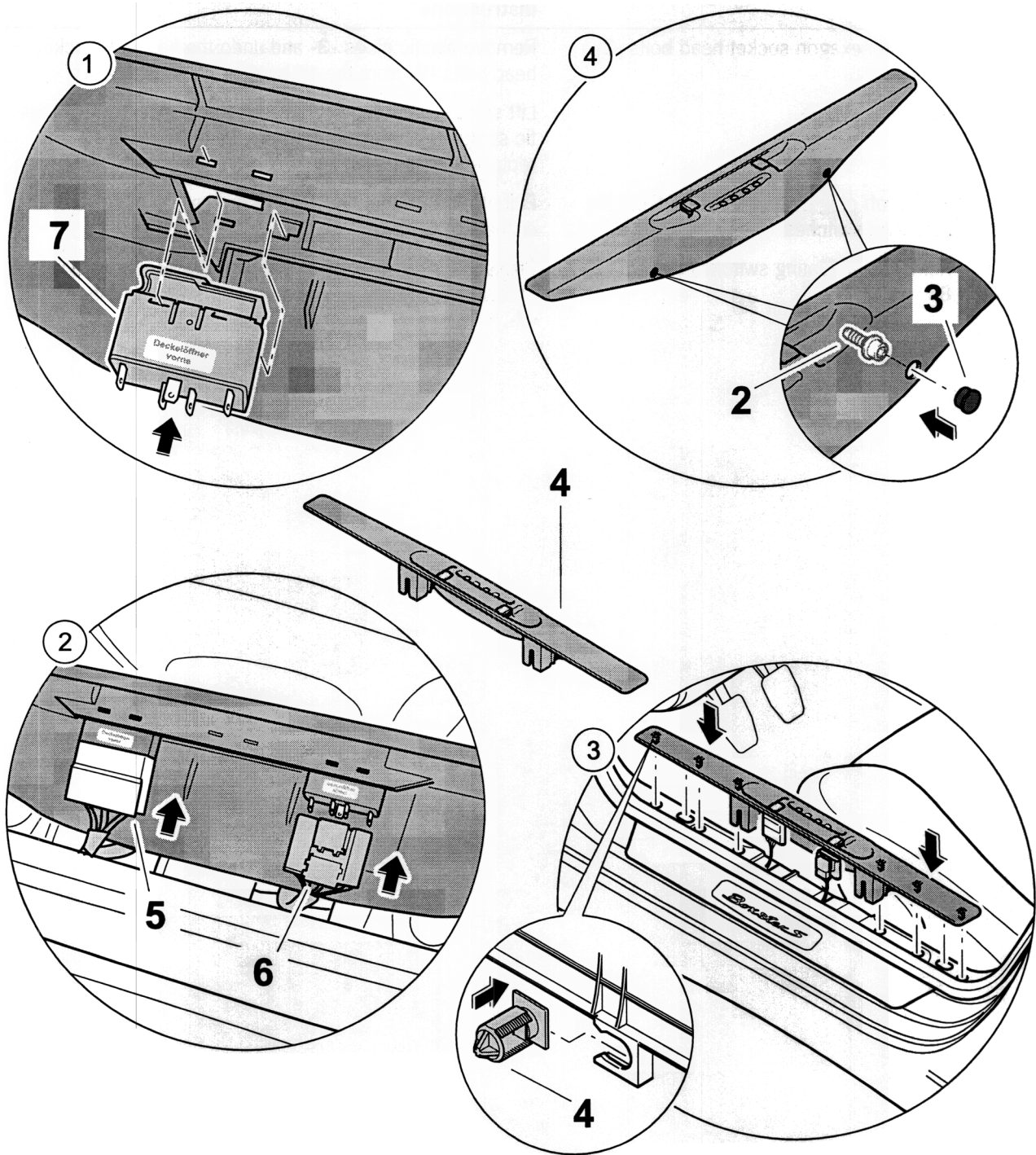


Disassembling release for front lid



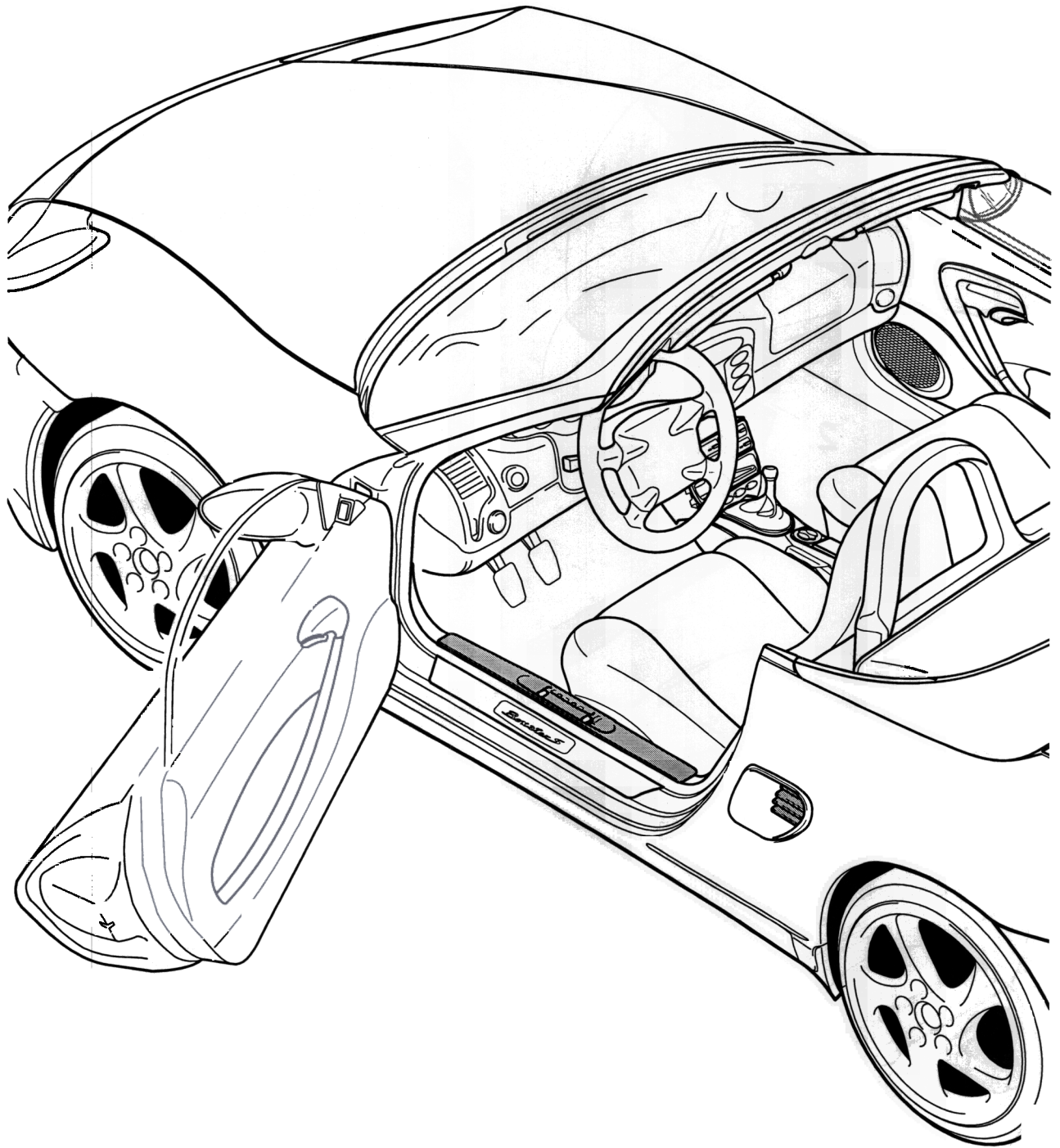
No.	Procedure	Instructions
	Undoing hexagon socket head bolts -2-	Remove plastic plugs -3- and undo the hexagon socket head bolts -2- from the sill by approx. 4 - 5 threads.
2	Removing sill -1-	Lift sill -1- upwards out of the bottom support with a plastic spatula and press out. Check fastening clips -4- , replace if necessary.
3	Pulling off plug connections -5, 6- of the actuating switches	Pull off plug connections -5, 6- on the actuating switches of the lids.
4	Removing actuating switches of front lid -7, 8-	Press the fastening ribs of the sill -arrows- outward with a screwdriver and unclip the actuating switch of the front lid -7- .

Assembling release for front lid

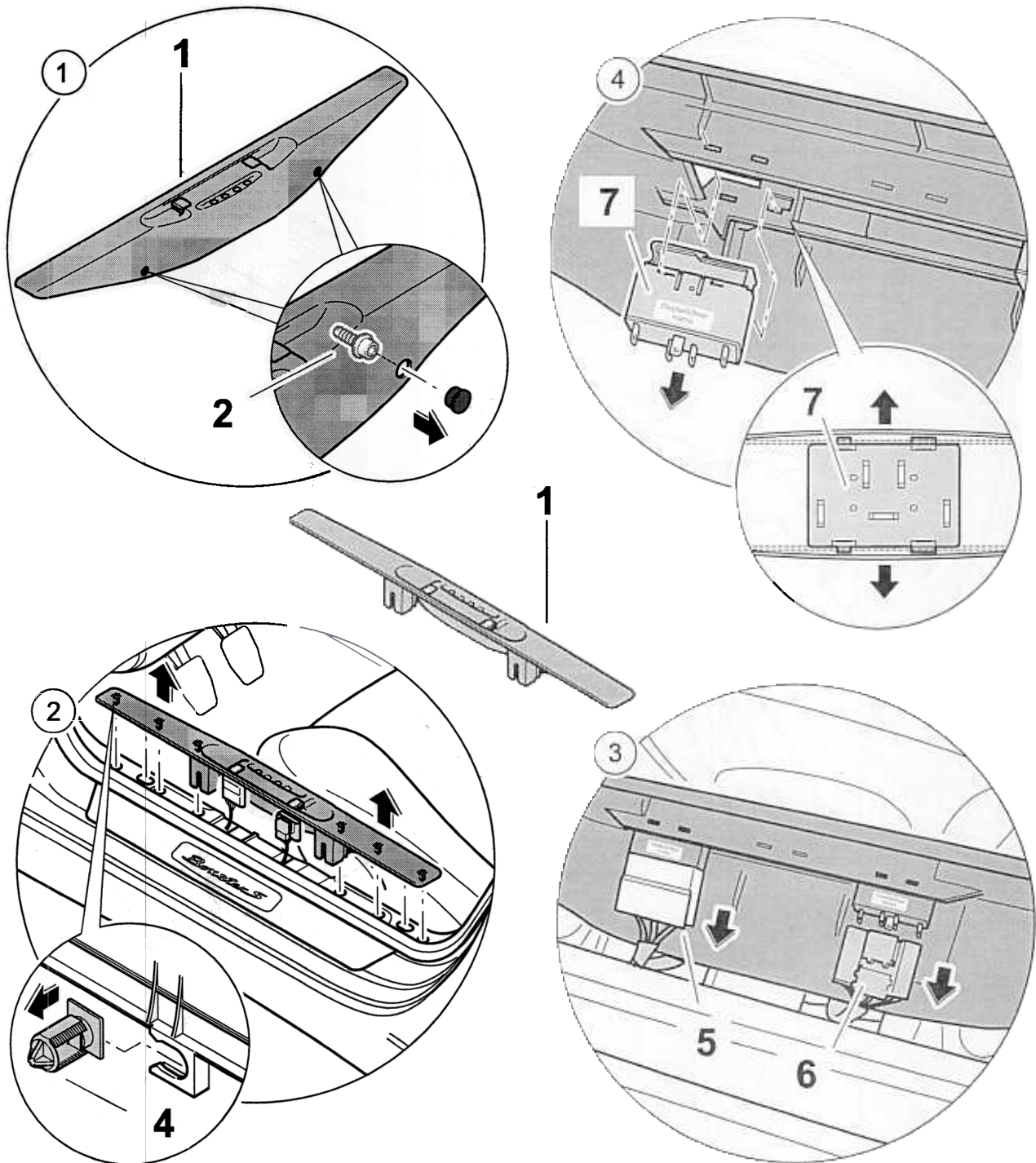


No.	Procedure	Instructions
	Installing actuating switch of front lid -7-	Clip locking tabs of the actuating switch of the front lid -7- into the fastening ribs of the sill.
2	Joining plug connections -5, 6- of the actuating switches	Push plug connections -5, 6- onto the actuating switches of the lids.
3	Attaching sill -1-	Clip in new fastening clips -4- if necessary. Insert sill -1- downward into the lower support and engage.
4	Tightening hexagon socket head bolts -2-	Screw in hexagon socket head bolts -2- of the sill by approx. 4 - 5 threads. Seal holes of the sill with plastic plugs -3- .

Disassembling and assembling release for rear lid - from model year 2001

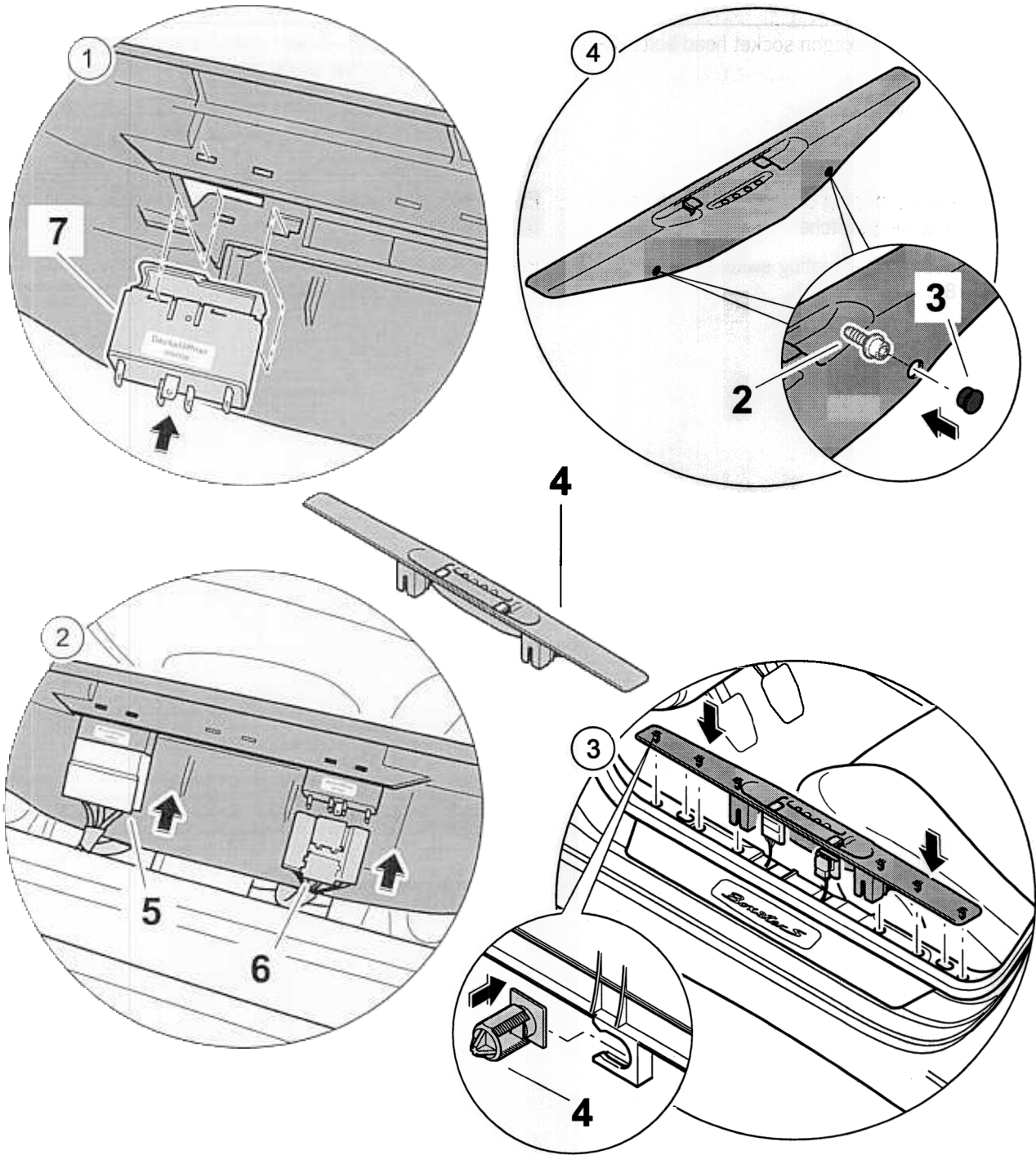


Disassembling release for rear lid



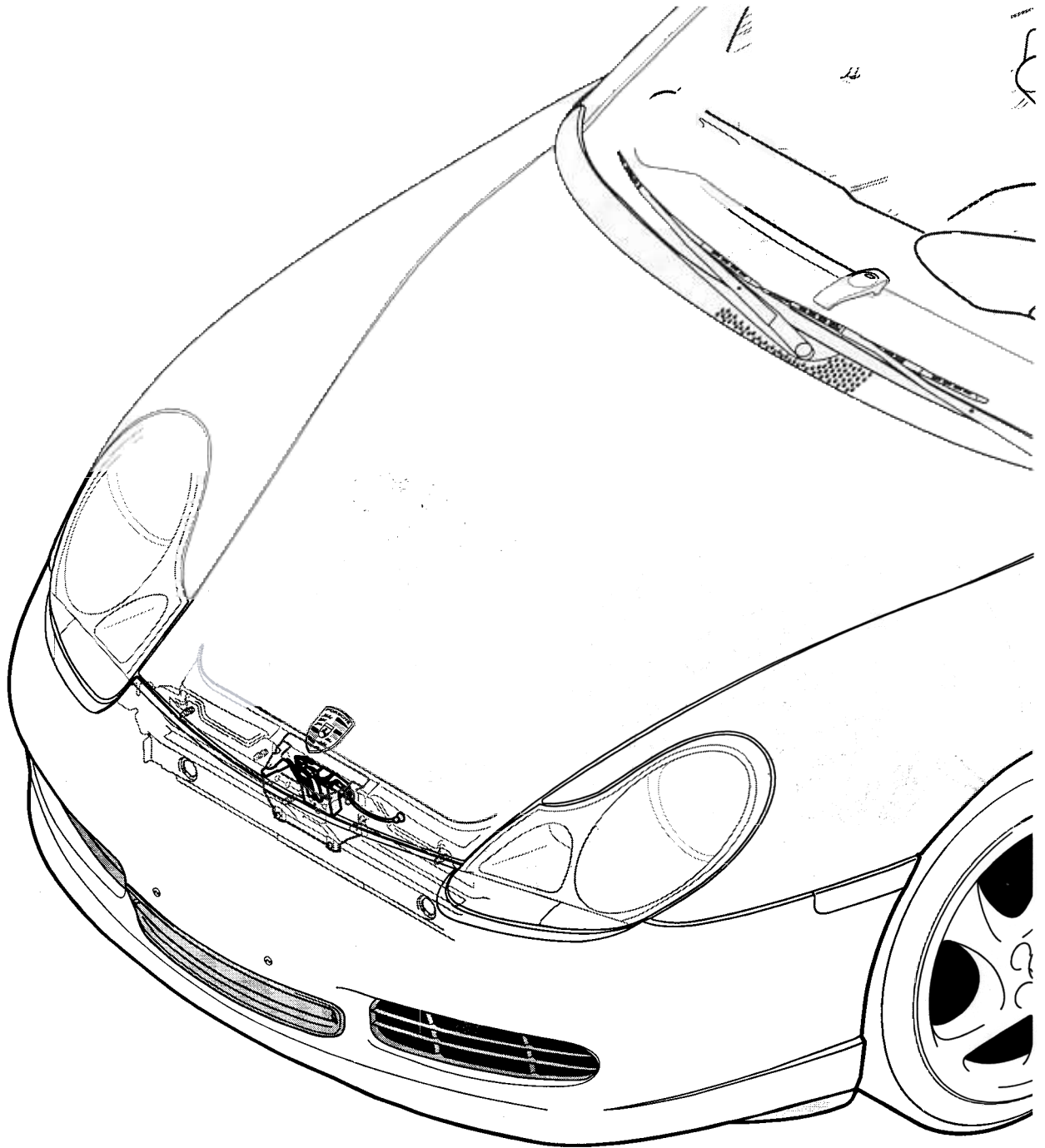
No.	Procedure	Instructions
	Undoing hexagon socket head bolts -2-	Remove plastic plugs -3- and undo the hexagon socket head bolts -2- from the sill by approx. 4 - 5 threads.
2	Removing sill -1-	Lift sill -1- upwards out of the bottom support with a plastic spatula and press out. Check fastening clips -4- , replace if necessary.
3	Pulling off plug connections -5, 6- of the actuating switches	Pull off plug connections -5, 6- on the actuating switches of the lids.
4	Removing actuating switches of rear lid -7, 8-	Press the fastening ribs of the sill -arrows- outward with a screwdriver and unclip the actuating switch of the rear lid -7- .

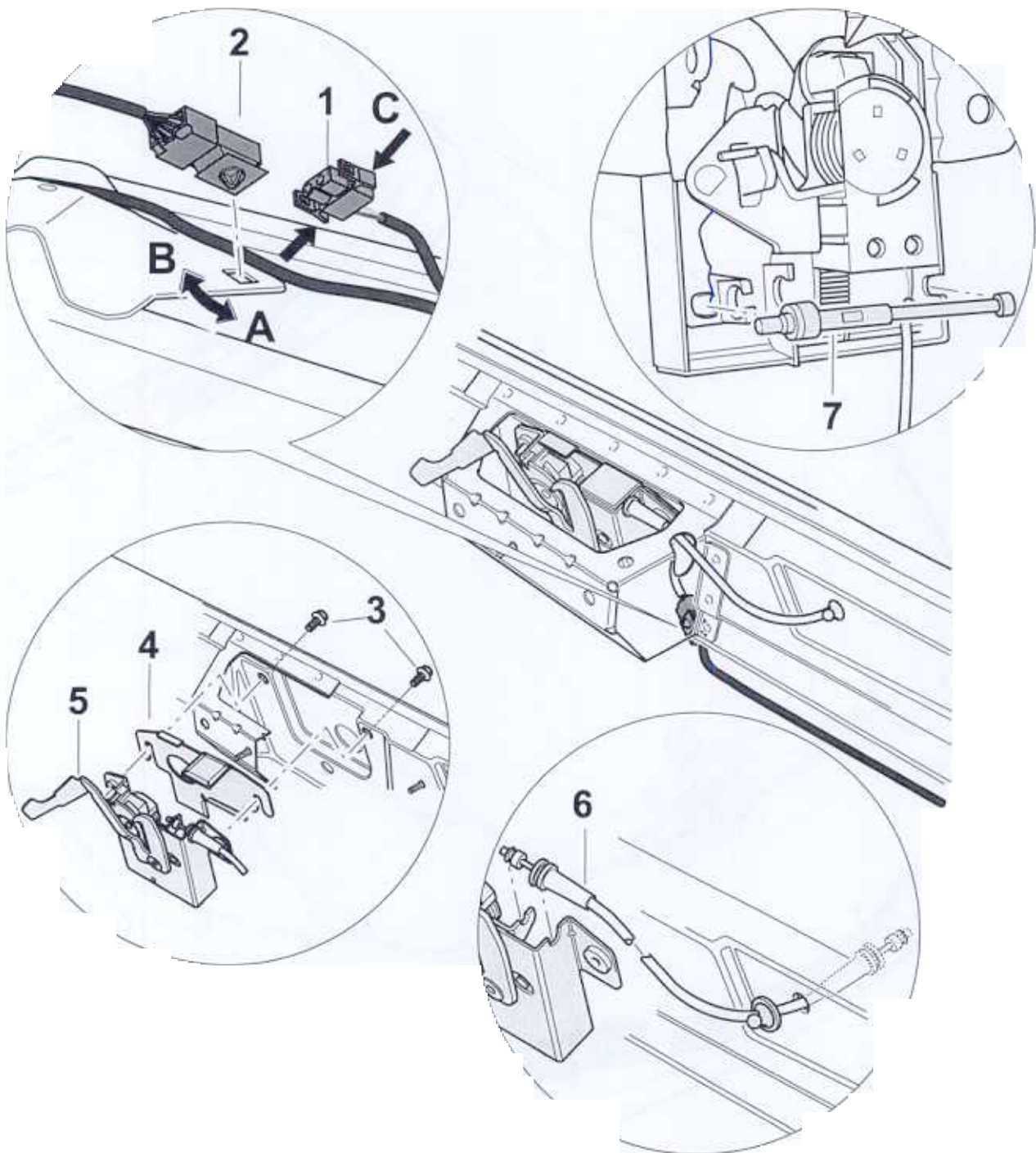
Assembling release for rear lid



No.	Procedure	Instructions
	Installing actuating switch of rear lid -7-	Clip locking tabs of the actuating switch of rear lid -7- into the fastening ribs of the sill.
2	Joining plug connections -5, 6- of the actuating switches	Push plug connections -5, 6- onto the actuating switches of the lids.
3	Attaching sill cover -1-	Clip in new fastening clips -4- if necessary. Insert sill -1- downward into the lower support and engage.
4	Tightening hexagon socket head bolts -2-	Screw in hexagon socket head bolts -2- of the sill by approx. 4 - 5 threads. Seal holes of the sill with plastic plugs -3- .

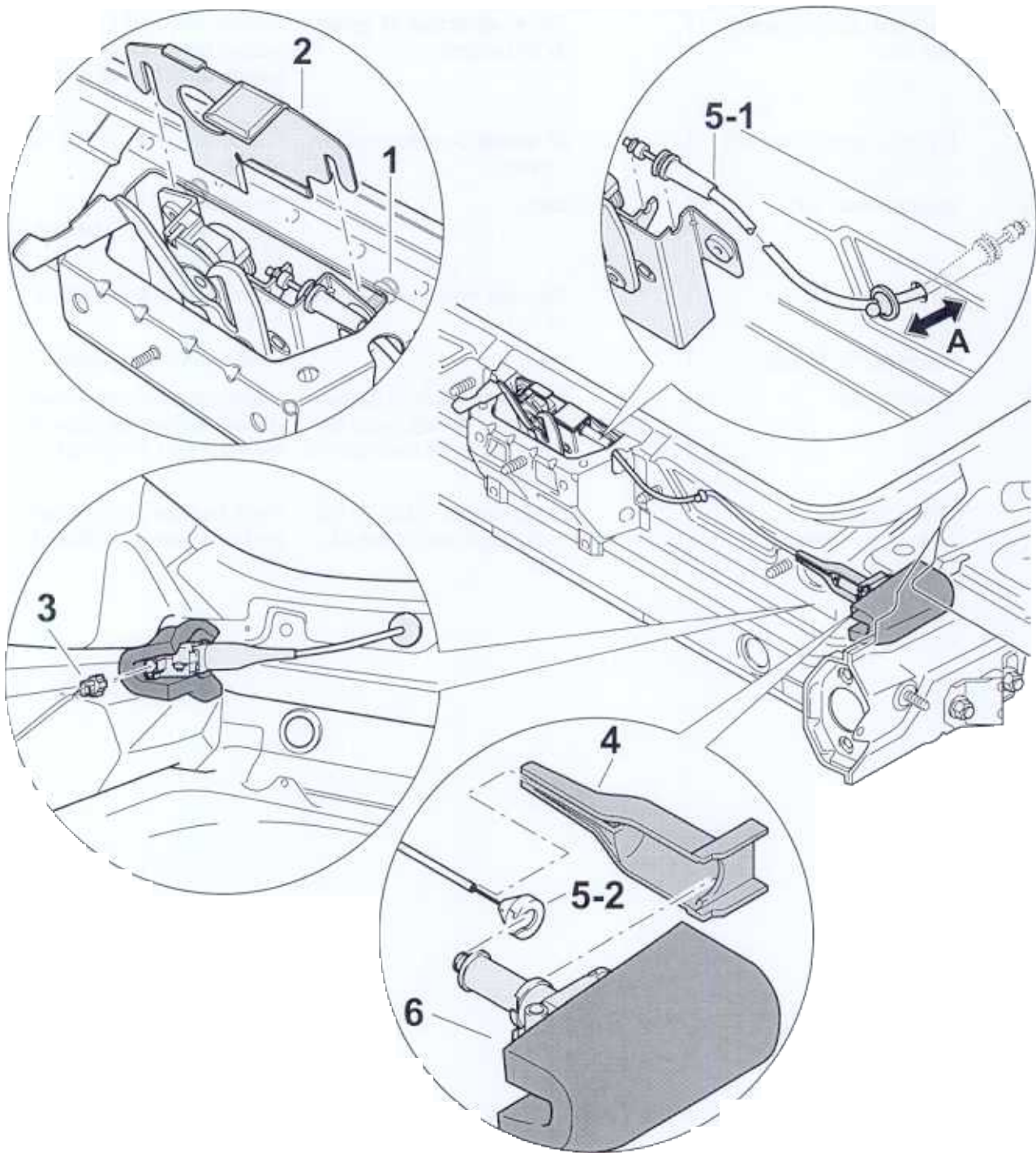
Removing and installing lower part of front lid lock - from model year 2001





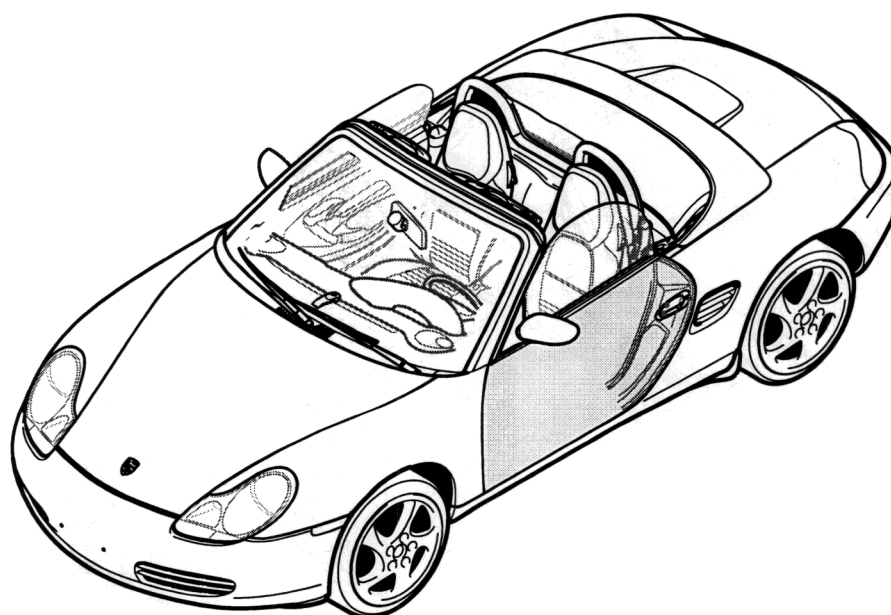
No.	Designation	Qty.	Removal	Installation
			Turn in -direction of arrow A- and extend.	Position electrical plug connection on the lock panel and turn in -direction of arrow B- .
2	Electrical plug connection	1	At -arrow C- , press and disconnect.	Plug in the electrical plug connection.
3	Hexagon-head bolt	2	Undo.	Screw in. Tightening torque: -10 Nm (7.5 ftlb.)-
4	Cover panel	1	Separate from lower part of lid lock.	Position on lower part of lid lock.
5	Lower part of lid lock	1	Undo.	Position on closing panel.
6	Bowden cable	1	Disengage nipple of the bowden cable -6- and press the cover out of the lower part of the lock.	Press in bowden cable cover -6- and engage the nipple in the lower part of the lock.
7	Bowden cable emergency release	1	Press bowden cable -7- out of the lower part of the lid lock.	Press bowden cable -7- into the lower part of the lid lock.

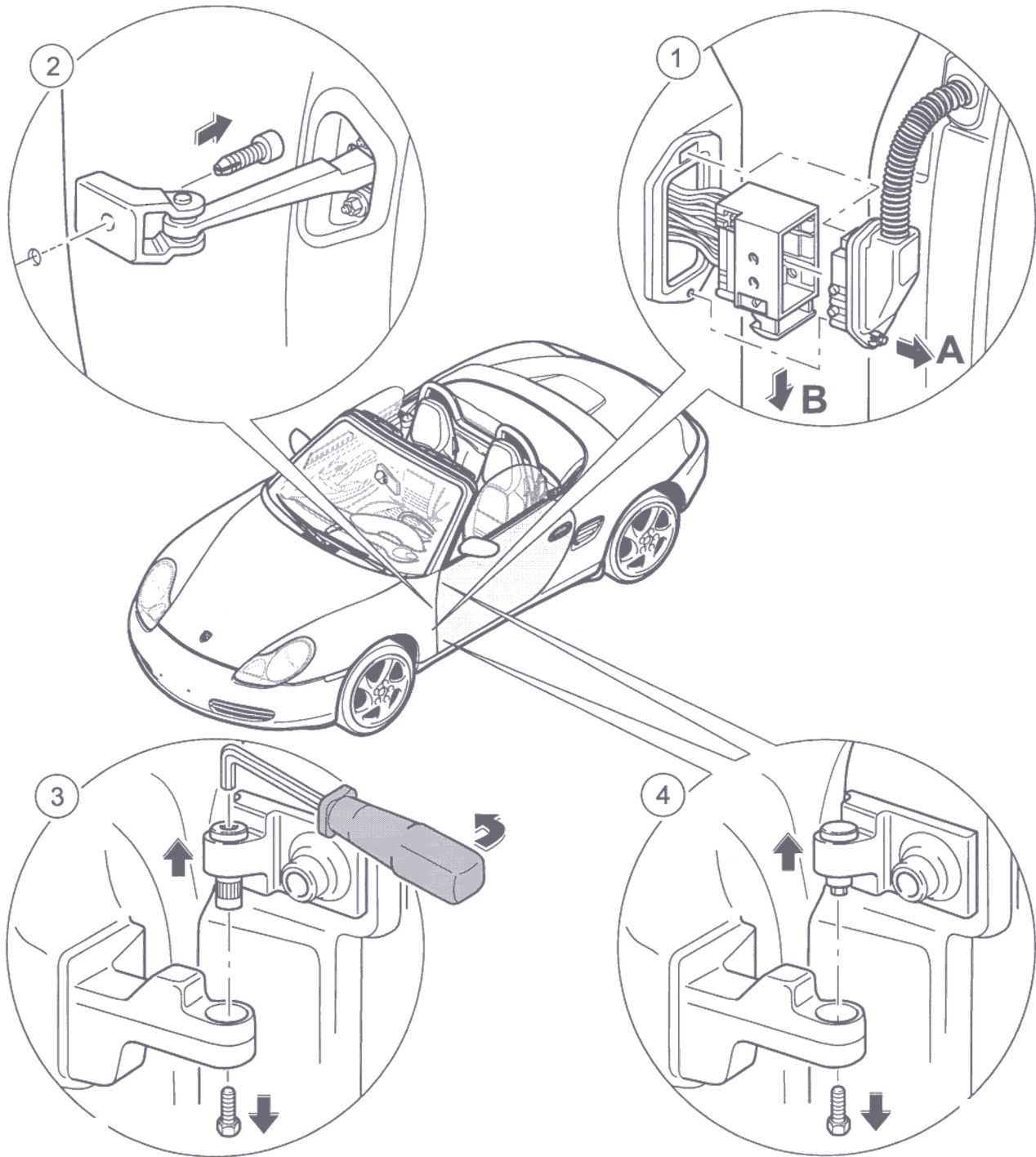
Removing and installing bowden cable for lock actuation



No.	Designation	Qty.	Removal	Installation
-	Hexagon-head bolt		Undo by 2 turns.	Tightening torque: -10 Nm (7.5 ftlb.)-
2	Cover panel	1	Lift out of the lower part of the lid lock.	Position on lower part of lid lock.
3	Electrical plug connection	1	Disconnect.	Connect.
4	Guide for bowden cable	1	Pull off.	Attach.
5-1	Bowden cable	1	Disengage nipple of bowden cable -5-1- and press the cover out of the lower part of the lock. Pull the rubber sleeve -arrow A- out of the closing panel.	Pull the rubber sleeve -arrow A- in through the opening of the closing panel. Press in bowden cable cover -5-1- and engage the nipple into the lower part of the lock.
6	Servo motor for lid opener	1	Extend bowden cable -5-2- out of the stamp of the servo motor.	Insert bowden cable -5-2- into the stamp of the servo motor.

Removing and installing door



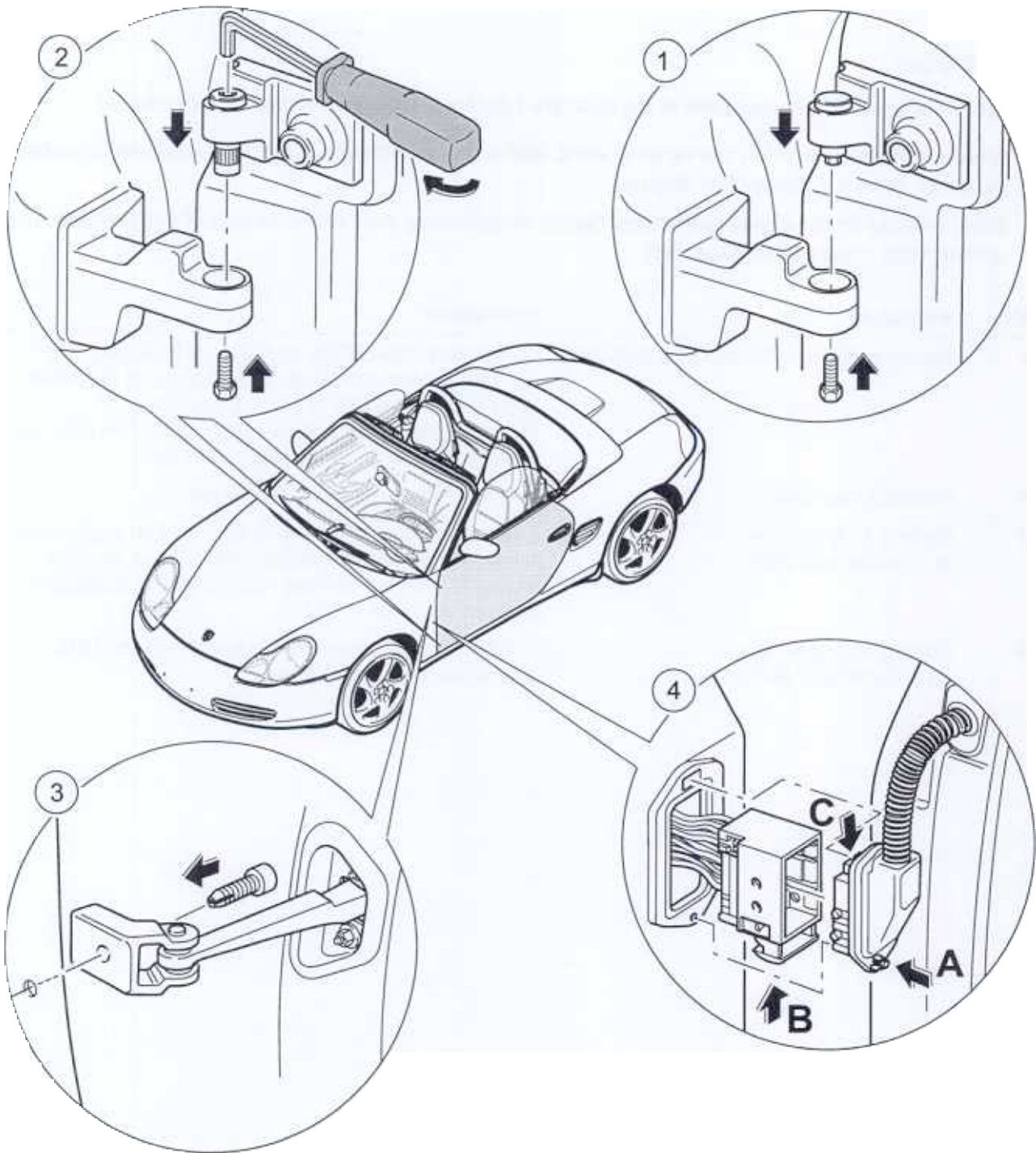


**Warning!**

Danger of injury if side airbag units in the door are triggered while ignition key is not removed

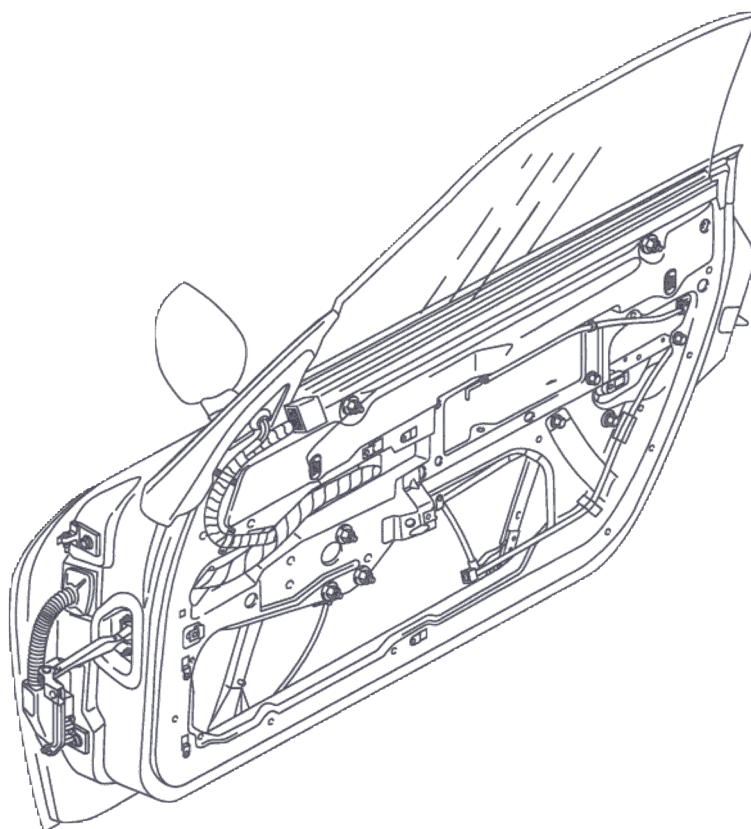
- ◆ **Always remove ignition key during body work, and do not commence adjustment work until a waiting period of at least 1 minute has elapsed!**
- ◆ **When working on the airbag system and during straightening work in the context of body repairs, the ground strap must be disconnected!**

No.	Procedure	Instructions
	Disconnecting the electrical plug connection	Loosen Torx screw (T20), push plug up by approx. 3 mm and then pull the whole plug connection out of the A-pillar. Important: locking tabs in the plug may break off! Pull out locking element at the bottom part of the plug connection and disconnect the plug connection.
2	Releasing door brake	Unscrew Torx screw on the door brake.
3	Undoing locking screw as of model year 2001	Insert special tool ⇒ No. 9666; Rep. Gr. 2.4; angle screwdriver in to the upper door hinge and counter. Unscrew locking screw from the lower door hinge and lift the door upwards out of the hinges.
4	Undoing locking screw up to model year 2000	Unscrew locking screw from the door hinge and lift the door upwards out of the hinges.



No.	Procedure	Instructions
	Engaging the door up to model year 2000	Engage the door in the door hinge from above and screw in the locking screw. Note: the locking screw is microencapsulated and must be replaced every time it is unscrewed. Tightening torque -10 Nm (7.5 ftlb.)-
2	Engaging the door as of model year 2001	Engage door in door hinge from above, screw in locking screw and tighten with -13 Nm- (9.5 ftlb.). Note: the locking screw is microencapsulated and must be replaced every time it is unscrewed. Use special tool ⇒ No. 9666; Rep. Gr. 2.4; angle screw-driver to counter.
3	Fitting door brake	Screw the door brake to the body with the fastening screw. Tightening torque: -23 Nm (17 ftlb.)-
4	Connecting electrical plug connection	Connect electrical plug connection. Attention: locking tabs in the plug can break off! Press in the securing latch of the plug connection -B- . Push the whole plug connection into the A-pillar. Press the plug down approx. 3 mm, so that the locking tab -C- engages in the retaining bracket. Then screw the Torx fastening screw (T20) tight. Tightening torque: -2.5 Nm (2 ftlb.)-

Disassembling and assembling door



Disassembling door

Warning!

Danger of injury if side airbag units in the door are triggered while ignition key is not removed!

- **Always remove ignition key during body work, and do not commence adjustment work until a waiting period of at least 1 minute has elapsed!**
- **The ground strap of the battery must be disconnected during work on the airbag system and alignment bench work within the framework of body repair!**

Caution!

Damage to the bowden cable when removing door trim panel!

Damage by bending the bowden cable at the hook!

- **Pull the hook out of the end piece only after installation in the inner door release!**

Caution!

Damage to plug connection lugs during door removal!

Damage to lugs when pulling the plug connection out of the A-pillar!

- **The locking element at the bottom part of the plug connection must be pulled out before the plug connection is disconnected!**

Caution!

Danger of material damage if the door lock is installed incorrectly!

Malfunctions in the alarm system!

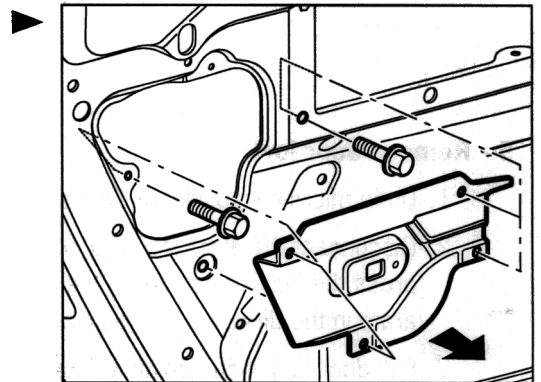
- **The door lock should be installed only when the actuating lever is in basic position!**

 **Note!**

- ◆ The door trim panels must be removed before removing the parts inside the door! ⇒ Rep. Gr. 705919; Removing and installing door trim panel
- ◆ Follow the special instructions on installation and adjustment for assembly of the door! ⇒ 57-6 "Adjustment instructions for assembly of the door"

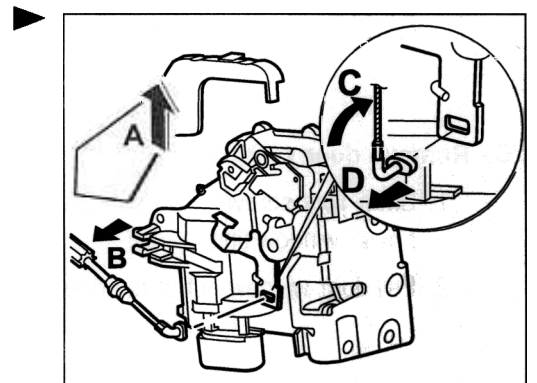
1 - Remove mount

- Undo the M6 x16 hexagon-head bolt and remove the mount.



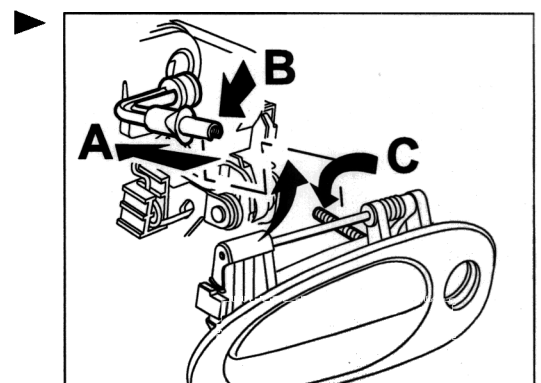
2 - Unclip and disengage the bowden cable

1. Disengage support frame -**arrow A**- upwards.
2. Unclip bowden cable -**arrow B**- from the door lock.
3. Swivel bowden cable by 90° -**arrow B**- and pull it out of the actuating lever -**arrow D**-.



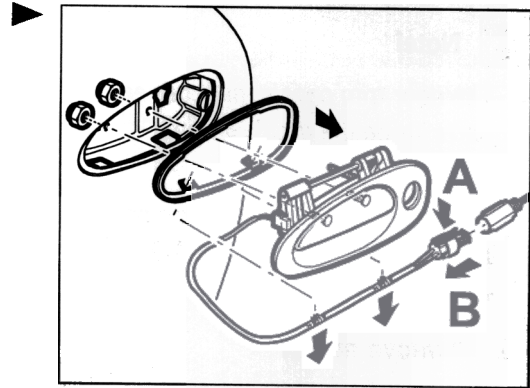
3 - Disconnect connection piece

1. Move connection piece -**A**-.
2. Press -**C**- downwards.
3. Press the connection piece -**B**- upwards and separate from each other.

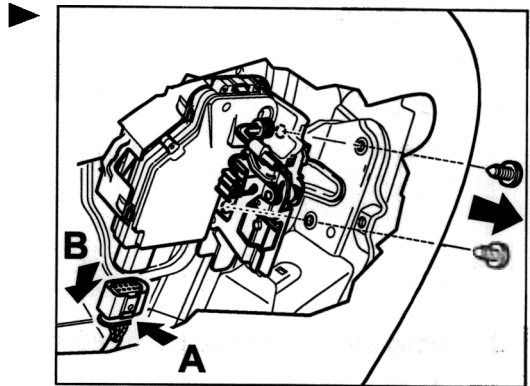


4 - Remove door handle and bottom part of door

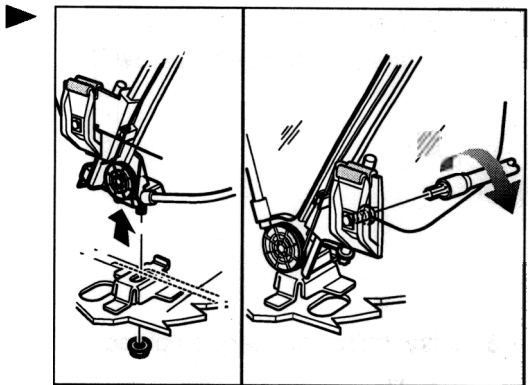
1. Remove collar nuts M6.
2. Separate bottom part of door handle from door handle and remove.
3. Press electrical plug connection off microswitch **-A-** and disconnect.
4. Unclip on the base of the electrical lead **-B-**.

**5 - Remove door lock**

1. Undo micro-encapsulated Torx screws T40 M8 x 14.
2. Disconnect the electrical plug connection. To do this, press the locking lug **-A-** on the plug connection and separate in the direction of the arrow **-B-**.
3. Pull door lock with actuating motor unit out of the door.

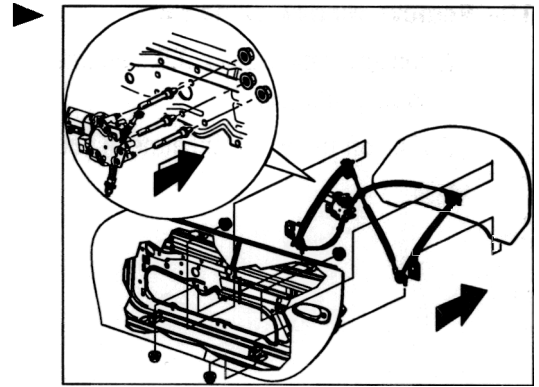
**6 - Remove door window**

1. Undo Torx screws T 30 on the clamping pieces of the power window unit.
2. Pull door window out of the door channel.

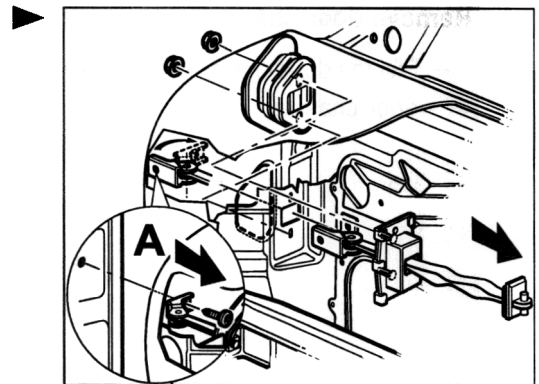


7 - Remove power window unit

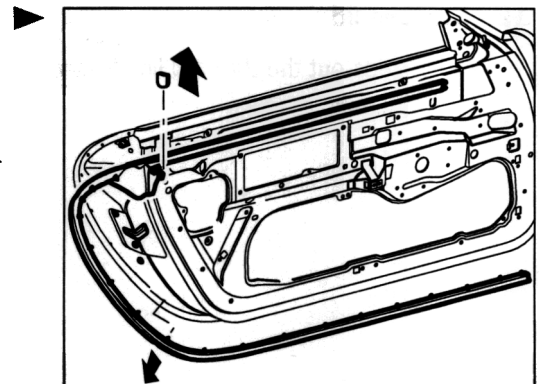
1. Disconnect the electrical plug connection.
2. Undo collar nuts M6 from the power window unit.
3. Pull the power window unit downward out of the door opening.

**8 - Remove door brake**

1. Unscrew Torx screw M8 -A- from the A-pillar
2. Remove collar nuts from the door brake.
3. Pull out the door brake towards the inside.
4. Remove the seal.

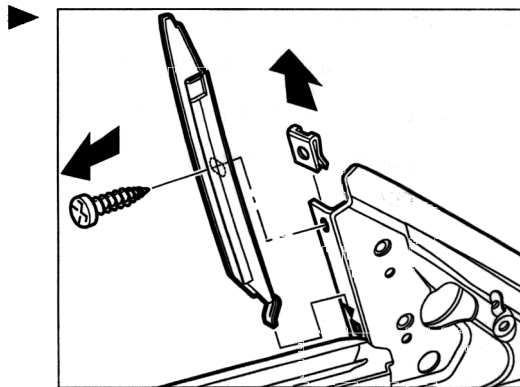
**9 - Remove door seal on outside**

1. Press out clip -A- with a plastic spatula.
2. Pull off door seal on the outside.
3. Carefully pull the seal out of the clips along the door contour.

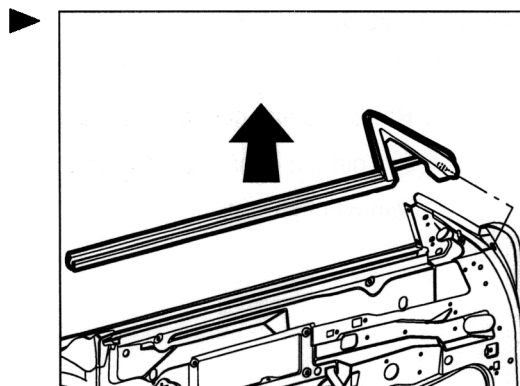


10 - Remove window guide rail

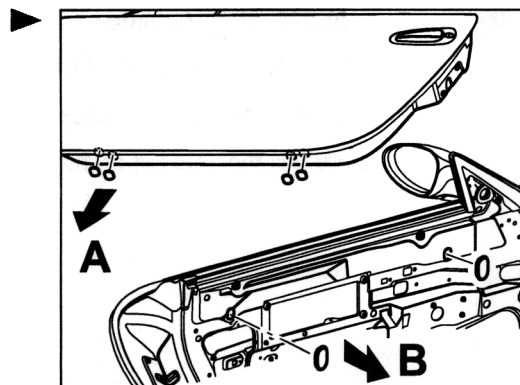
1. Unscrew the B3.5 x 9.5 sheetmetal screw from the window guide rail.
2. Pull off the B 3.5 sheetmetal nut.

**11 - Remove door channel seal on inside**

- Pull the door channel seal on the inside off the bead of the door channel.

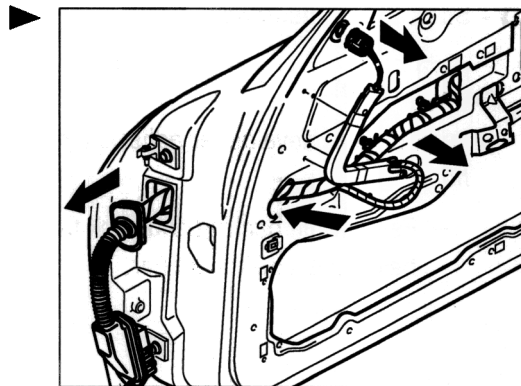
**12 - Remove lid**

- Press out the 24 x 40 lid -A- and the 20 x 28 lid -B- with a plastic spatula.

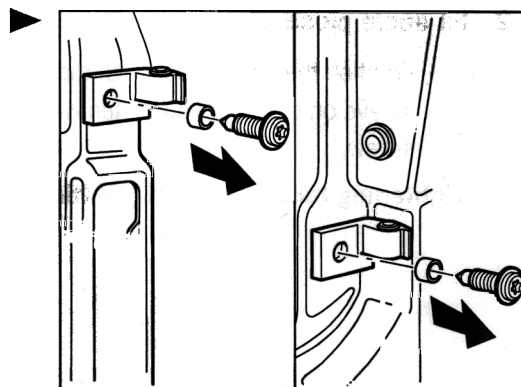


13 - Remove wiring harness

1. Unclip the electrical wiring along the inner door panel.
2. Pull wiring harness out of the door in the **-direction of the arrow-**.

**14 - Remove angle piece**

- Unscrew T 45 M8 x 33 Torx screw from the angle piece and the 12 x 8 x 7 centring sleeve.

**Assembling door****⚠ Warning!**

Danger of injury if side airbag units in the door are triggered while ignition key is not removed!

- ***Always remove ignition key during body work, and do not commence adjustment work until a waiting period of at least 1 minute has elapsed!***
- ***The ground strap of the battery must be disconnected during work on the airbag system and alignment bench work within the framework of body repair!***

📄 Note!

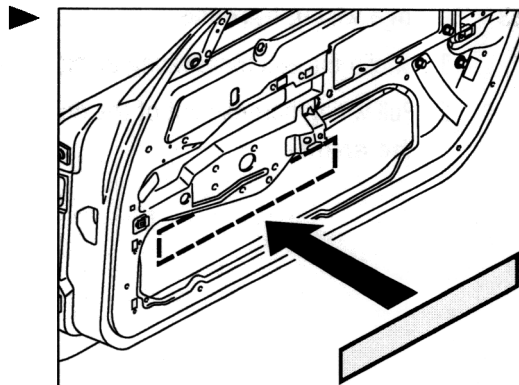
Follow the special instructions on installation and adjustment for assembly of the door!

1 - Stick in the insulation



In order to achieve better adhesion, heat the insulation using a hot-air gun!

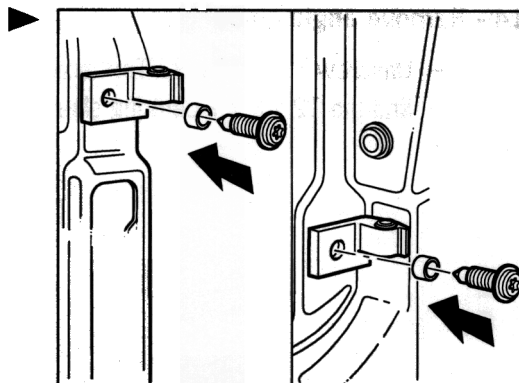
- Peel off the backing and stick the insulation into the door below the side-impact bar.



2 - Fit angle piece

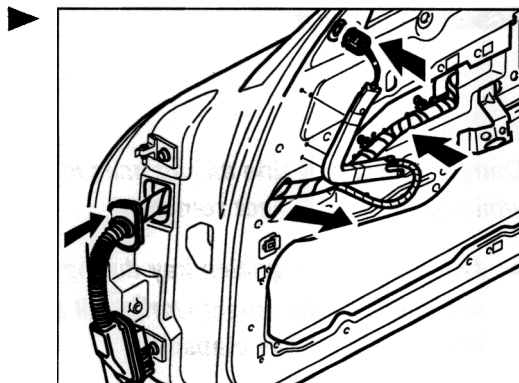
- Position the angle piece with the 12 x 8 x 7 centring sleeve on the door and fasten with the T 45 M8 x 33 Torx screw.

Tightening torque: 23 Nm (17 ftlb.)



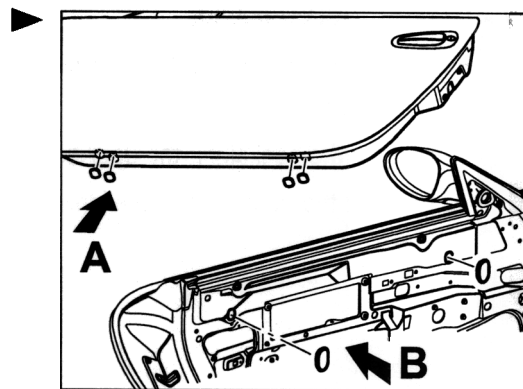
3 - Fit wiring harness

1. Insert wiring harness into the door in the **-direction of the arrow-**.
2. Clip in the electrical wiring along the inner door panel.

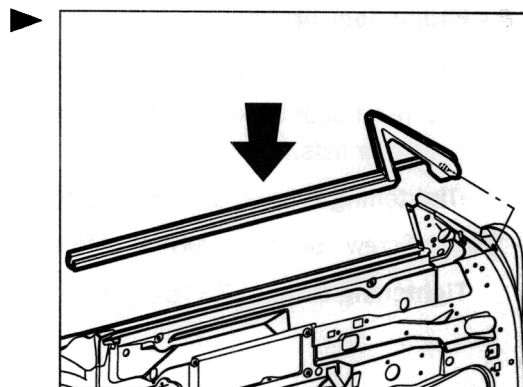


4 - Fit lid

- Press in the 24 x 40 lid **-A-** and the 20 x 28 lid **-B-**.

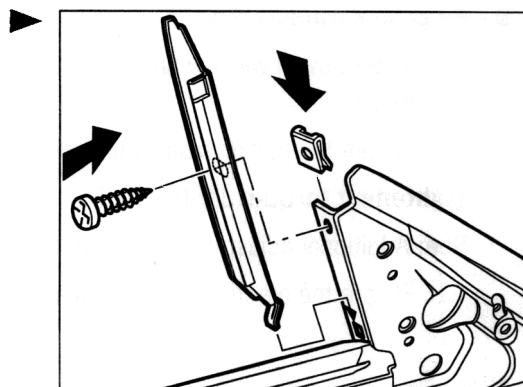
**5 - Fit door channel seal on inside**

- Position the door channel seal on the inside **-arrow-** in the bead of the door channel and press it on.

**6 - Fit window guide rail**

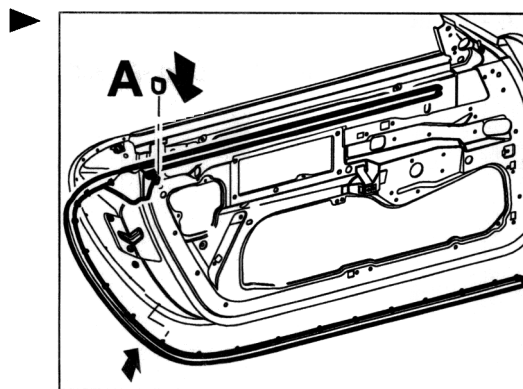
1. Push on the B 3.5 sheetmetal nut.
2. Position the window guide rail and fasten it with the B3.5 x 9.5 sheetmetal screw.

Tightening torque: 1.4 Nm (1 ftlb.)



7 - Fit door seal on outside

- Position door seal on the outside at the top edge of the door and push it on.
- 1. Clip in the seal along the door contour.
- 2. Fasten the door seal on the inner door panel with the clip **-A-**.

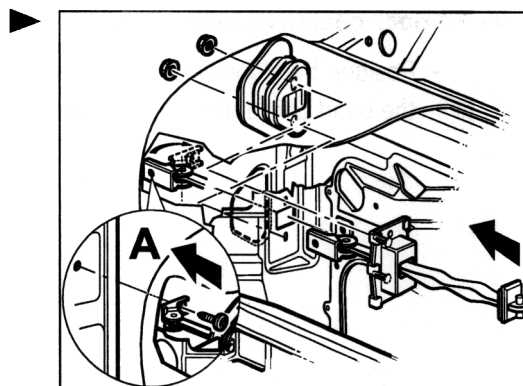
**8 - Fitting door brake**

1. Position the seal.
2. Insert door brake from the inside and fasten it with the collar nuts.

Tightening torque: 10 Nm (7.5 ftlb.)

1. Screw Torx screw M8 **-A-** onto the A-pillar.

Tightening torque: 23 Nm (17 ftlb.)

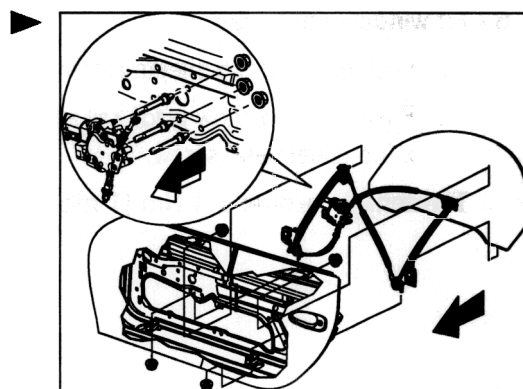
**9 - Fit power window unit**

1. Insert power window unit into the door opening from below.
2. Fasten the power window unit with the M6 collar nuts.

Tightening torque: 10 Nm (7.5 ftlb.)

See: Additional adjustment instructions for the power window.

1. Plug in the electrical plug connection.



10 - Fit door window

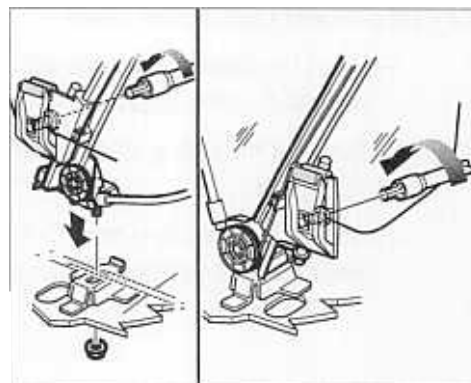
1. Insert door window into the door channel and position it in the front and rear clamping pieces of the power window unit.

 **Note!**

- ◆ The bottom edge of the window must rest on the screw during adjustment!
- ◆ Observe additional instructions for adjusting the door window!

1. Tighten the T 30 Torx screw.

Tightening torque: 8.5 ± 1.5 Nm (6.0 ± 1.0 ftlb.)

**11 - Fit door lock**

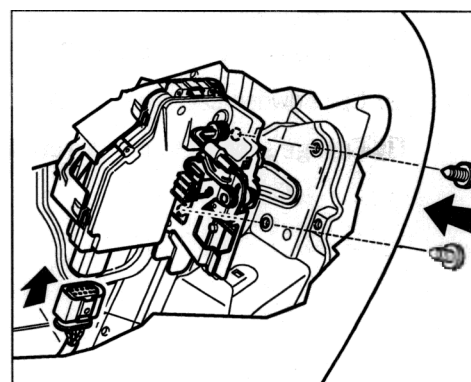
 **Note!**

- ◆ The actuating lever must be locked in basic position before installation!
- ◆ Observe additional instructions for adjusting the door lock!

1. Insert door lock with actuating motor unit into the door and fasten with the micro-encapsulated T40 M8 x 14 Torx screw.

Tightening torque: 20 +2 Nm (15.0 + 1.5 ftlb.)

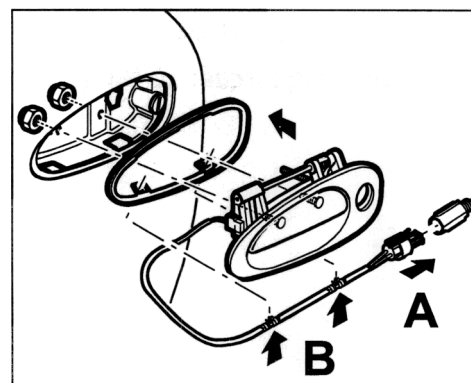
1. Plug in the electrical plug connection.

**12 - Fit connection piece**

1. Clip in the electrical lead -B- on the base.
2. Insert door handle and position the bottom part of the door handle on the door handle from inside. Tighten with the collar nuts M 6.

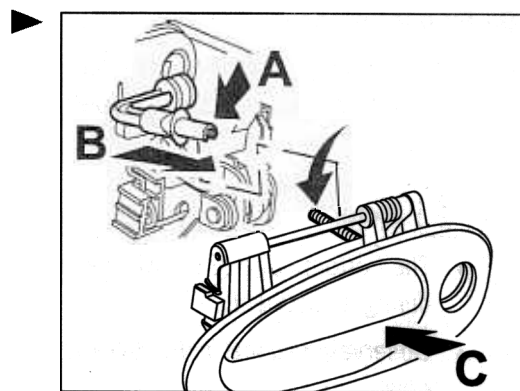
Tightening torque: 10 Nm (7.5 ftlb.)

1. Connect electrical plug connection -A-.

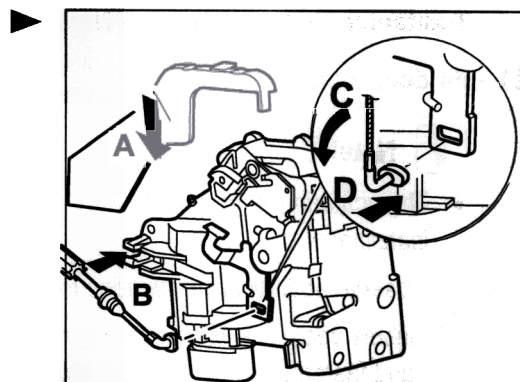


13 - Disconnect connection piece

1. Insert the connection piece into the actuating shaft -**arrow A**- without play.
2. Push out the sliding piece -**arrow B**- until it can be heard to engage.
3. Actuate the handle -**arrow C**- to ensure that the handle and door lock function without play.

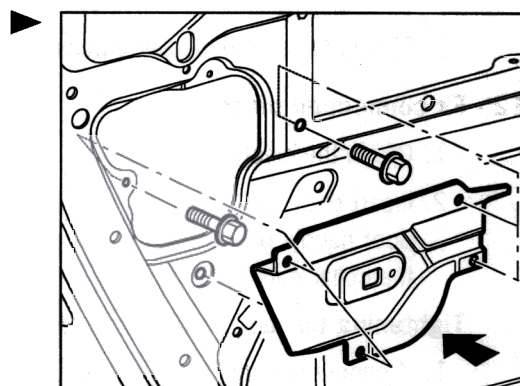
**14 - Fit bowden cable**

1. Insert bowden cable into the actuating lever -**arrow D**- and rotate by 90° -**arrow C**-.
2. Clip bowden cable into the door lock -**arrow B**-.
3. Engage support frame -**arrow A**- on the door lock.

**15 - Fit mount**

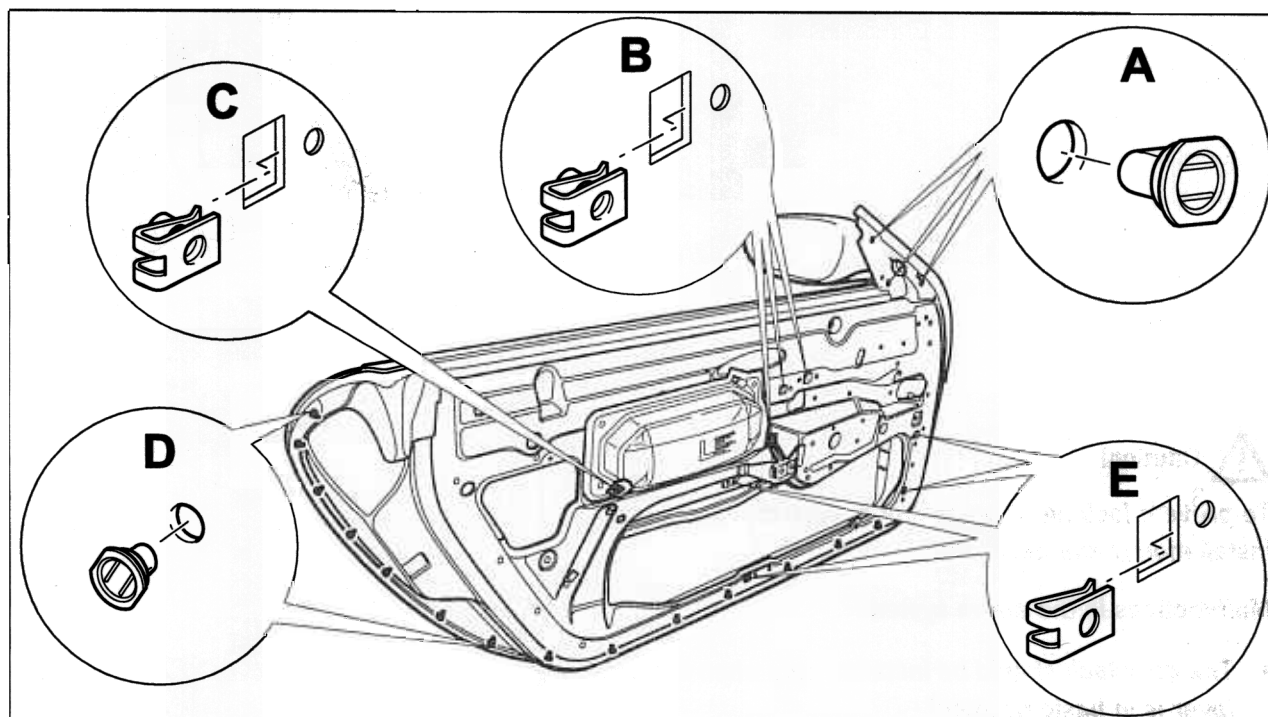
- Position the mount in the door and fasten it with the M6 x 16 hexagon-head bolt.

Tightening torque: 10 Nm (7.5 ftlb.)



Adjustment instructions for assembly of the door

Diagram: sheetmetal clips and grommets



- A - Grommet
- B - M6 sheetmetal clip
- C - M5 sheetmetal clip
- D - Grommet
- E - Sheetmetal clip St 3.8

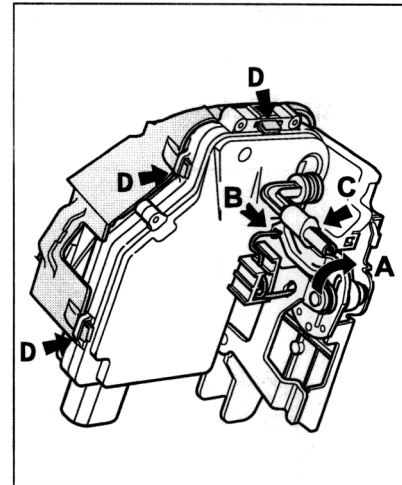
Basic setting of door lock

Warning!

Danger of injury if side airbag units in the door are triggered while ignition key is not removed!

- **Always remove ignition key during body work, and do not commence adjustment work until a waiting period of at least 1 minute has elapsed!**
- **The ground strap of the battery must be disconnected during work on the airbag system and alignment bench work within the framework of body repair!**

Basic setting of the door lock before installation



Caution!

To prevent locking or unlocking actuation, or incorrect installation of the door lock!

Malfunctions in the alarm system!

- **The door lock should be installed only when the actuating lever is in basic position!**
 1. Swivel out the actuating lever **-A-** in an upward direction.
 2. Lift the spring and simultaneously lower the spring hook of the actuating lever until it engages in the locking spring **-B-**.



Note!

Greater force is necessary to actuate the door handle after installation of the door lock as the locking spring audibly disengages.



Note!

Make sure that the lugs of the support frame are correctly locked when assembling the door lock to protect against theft **-arrows: D-**.

Standardising the system

Standardising the power windows

The system must be re-standardised after an interruption in the power supply to the power window electronics in the door. The position values for the short-stroke lowering function, position-controlled lowering function in the case of convertible top actuation and ena-

bling for "automatic start-up of window closing" (one-touch function) are redefined. The standardisation process is initiated by continuous actuation of the operating button **Raise window**.

- Hold down the button **Raise window** until the window is closed and is switched off by the blockage detection function of the power windows.

Blockage detection function



Note!

If the window drive encounters resistance during the door window movement, the motor is switched off after a delay of 500 ms.

Precondition for operation of the power windows

- Ignition switched on.
- Ignition key should not be removed from the steering lock with the ignition switched off.
- The door is opened for the first time after switching off the ignition.
- Door opened.

Fitting the door window in the clamping jaws

1. Insert the door window through the door channel into the clamping jaws of the front and rear drivers.
2. Position the door window corner flush with the driver at front.

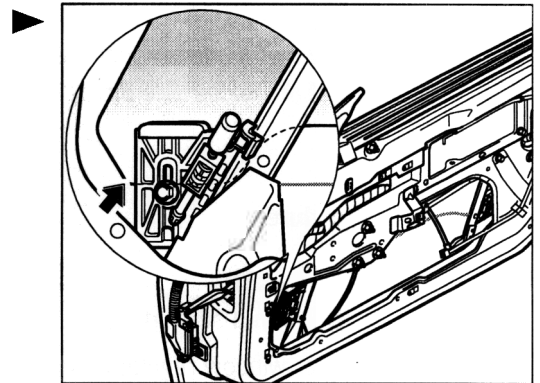


Note!

The bottom edge of the window must rest on the screw during adjustment.

3. Tighten the clamping jaws after completing the adjustment.

Tightening torque: 8.5 Nm (6.5 ftlb).



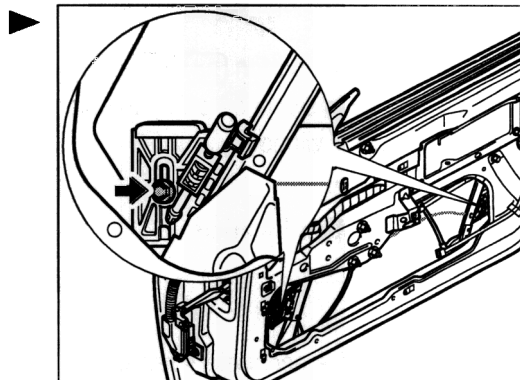
Adjusting the door window angle in the vehicle's longitudinal direction

Driver

1. Adjust to equalise the angle of the door window on the clamping jaws of the driver (upwards or downwards).

Adjustment range 10 mm

2. Tighten the clamping jaw after completing the adjustment

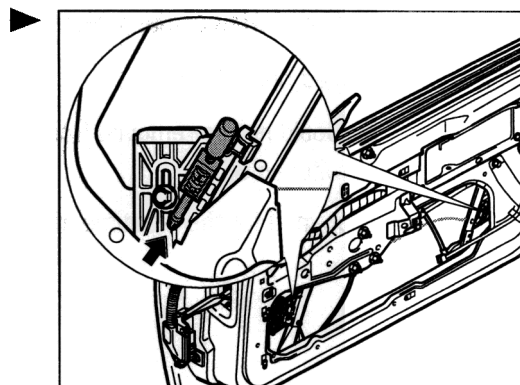


Adjusting the door window height

1. Adjust the upper limit stops of the drivers by screwing the Torx screw T30 in or out with socket E6 in or against the direction of travel.

Adjustment range approx. 15 mm

2. Adjust the drivers so that they meet the upper limit stops at the same time.



Note!

The adjusting screws of the drivers for the upper limit stops for the door window height are accessible through 2 holes at the bottom of the door.

Adjustment procedure:

1. Open the doors
2. Lock door lock with a screwdriver.
3. Move the power window regulator into its upper position.
4. Adjust door window height at the drivers so that the door window evenly projects approx. 2 mm above the roof strip.

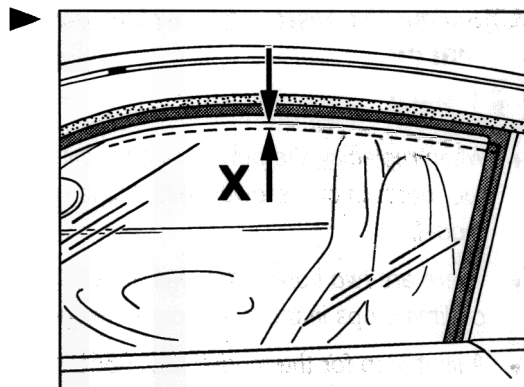
Checking the adjustment

1. Close the doors.
2. Use a wax marker to mark the door window along the roof strip.
3. Actuate the door handle until the window lowering function is activated.

Adjustment valve for window lowering function approx. 13 mm

 **Note!**

The wax marking along the door window should be uniformly approx. 4 mm.

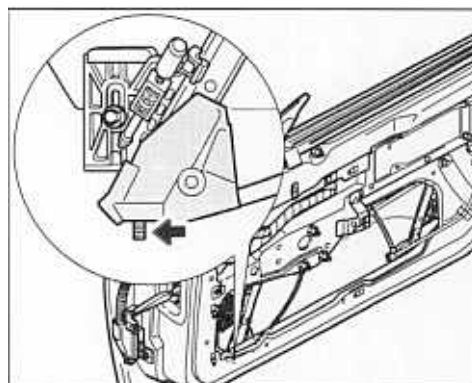


Adjustment of the door window pressing force on the door seal at the top and sides

1. Move the power window unit rails by approx. 10 mm outwards or inwards.

 **Note!**

The adjusting nuts of the power window unit rails for the pressing force of the door window upper edge against the convertible top are accessible through two holes at the bottom of the door.

**Adjustment procedure:**

1. Open the doors.
2. Move the power window regulator into its upper position and undo the combination nuts M 6 of the power window rails.
3. Adjust the power window unit so that the upper edge of the door window is sufficiently pressed against the door seal at the side

Tightening torque: 10 Nm (7.5 ftlb.)

Checking the adjustment:

Clamp a sheet of paper between the door window and door seal.

 **Note!**

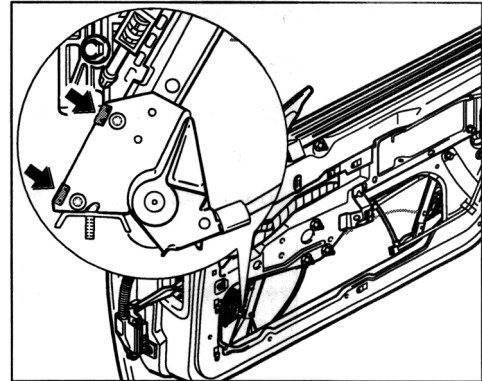
It must not be possible to pull out the sheet of paper.

Adjusting the lower stop of the power window unit

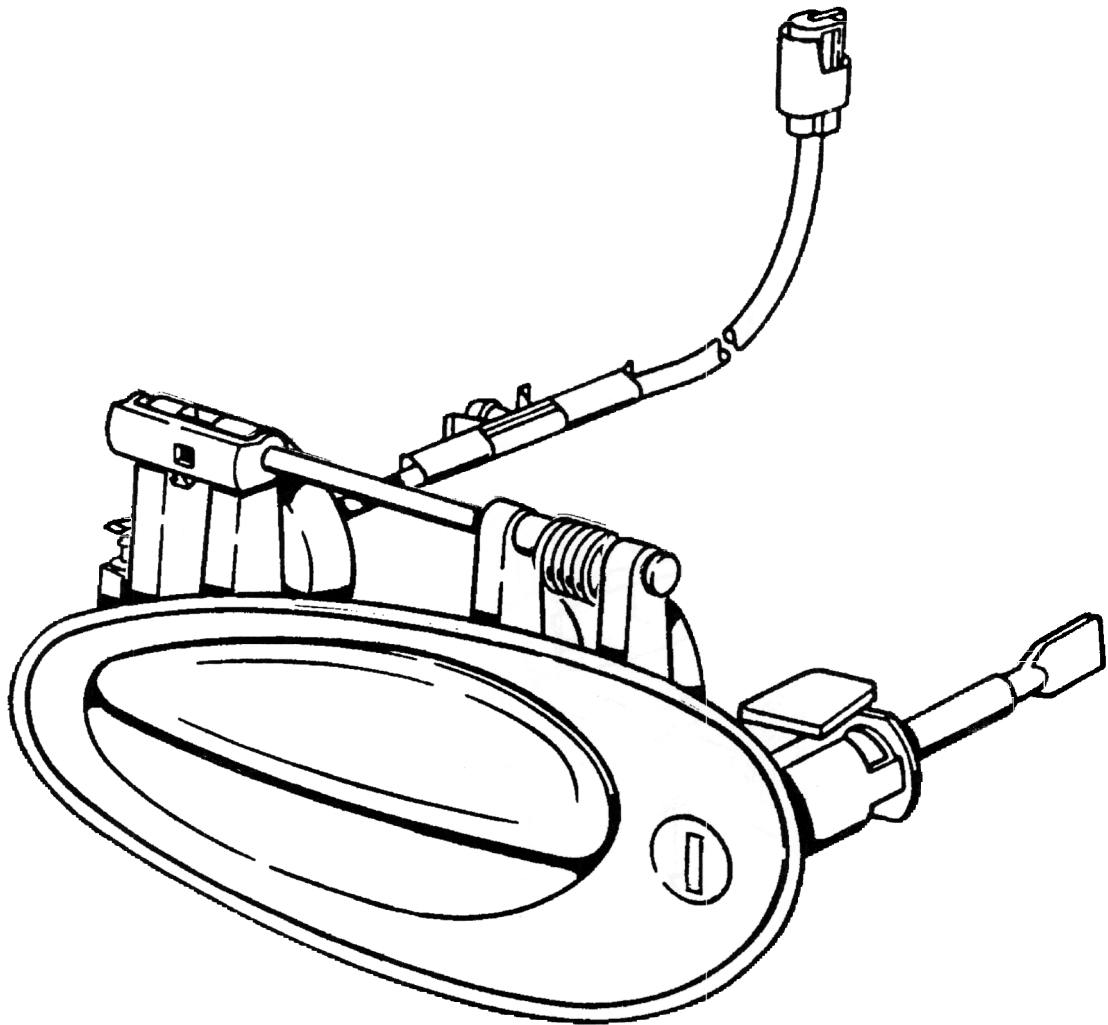


Note!

- ◆ When replacing the power window unit, make sure that the correct position of the lower limit stop is selected for the respective model.
- ◆ There are two bores lying one above the other with the screwed-on limit stops in the front power window unit rail.
- ◆ A limit stop for the model 986, 986S must not be removed.

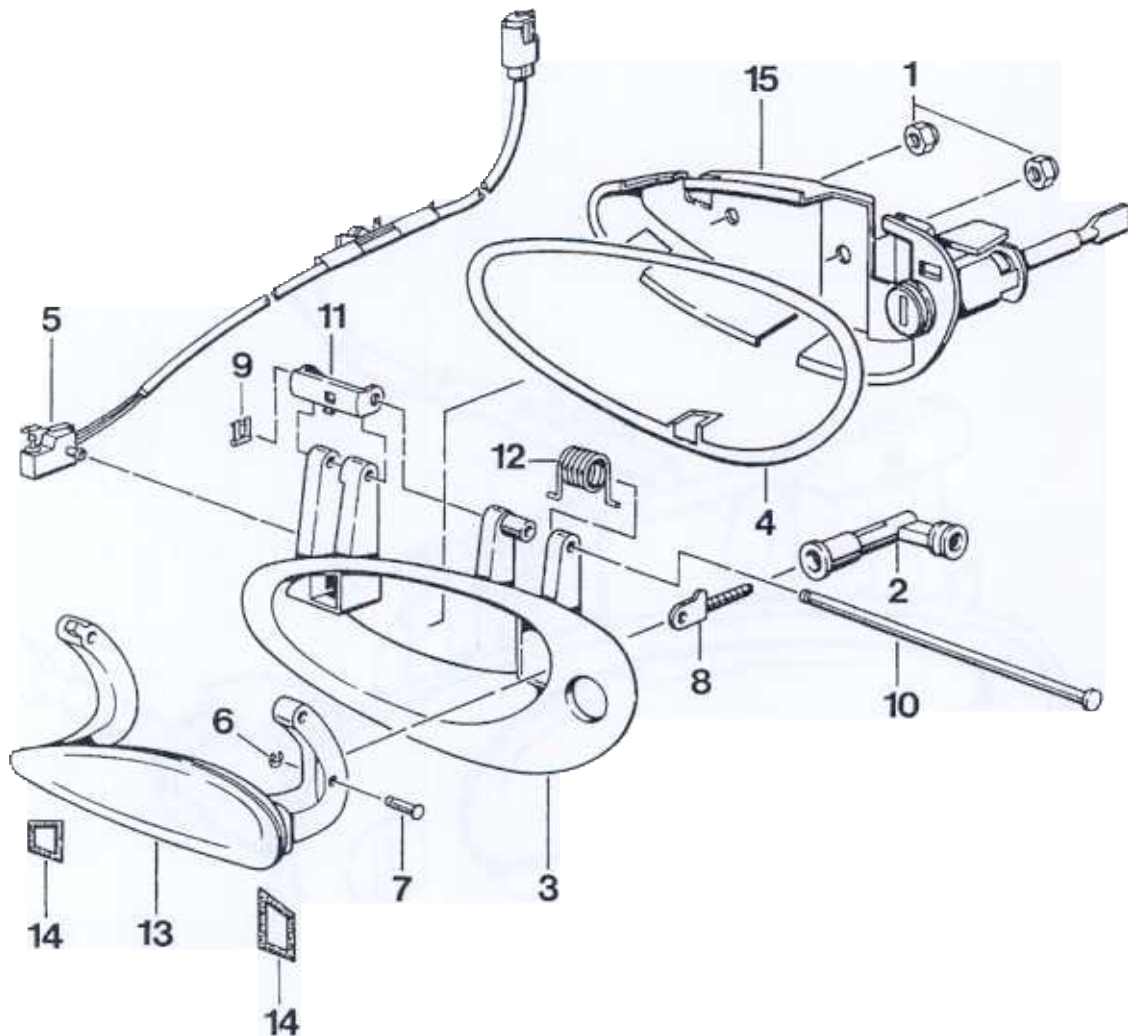


57 11 37 Disassembling and assembling door handle



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Disassembling and assembling door handle



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Disassembling and assembling door handle

**Warning:**

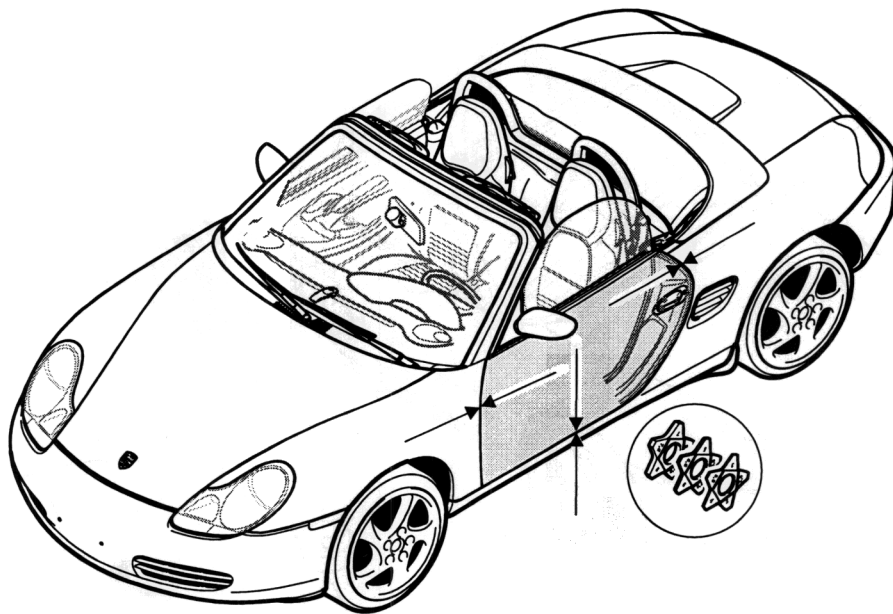
There is a risk of fingers or hands being trapped by the door window.

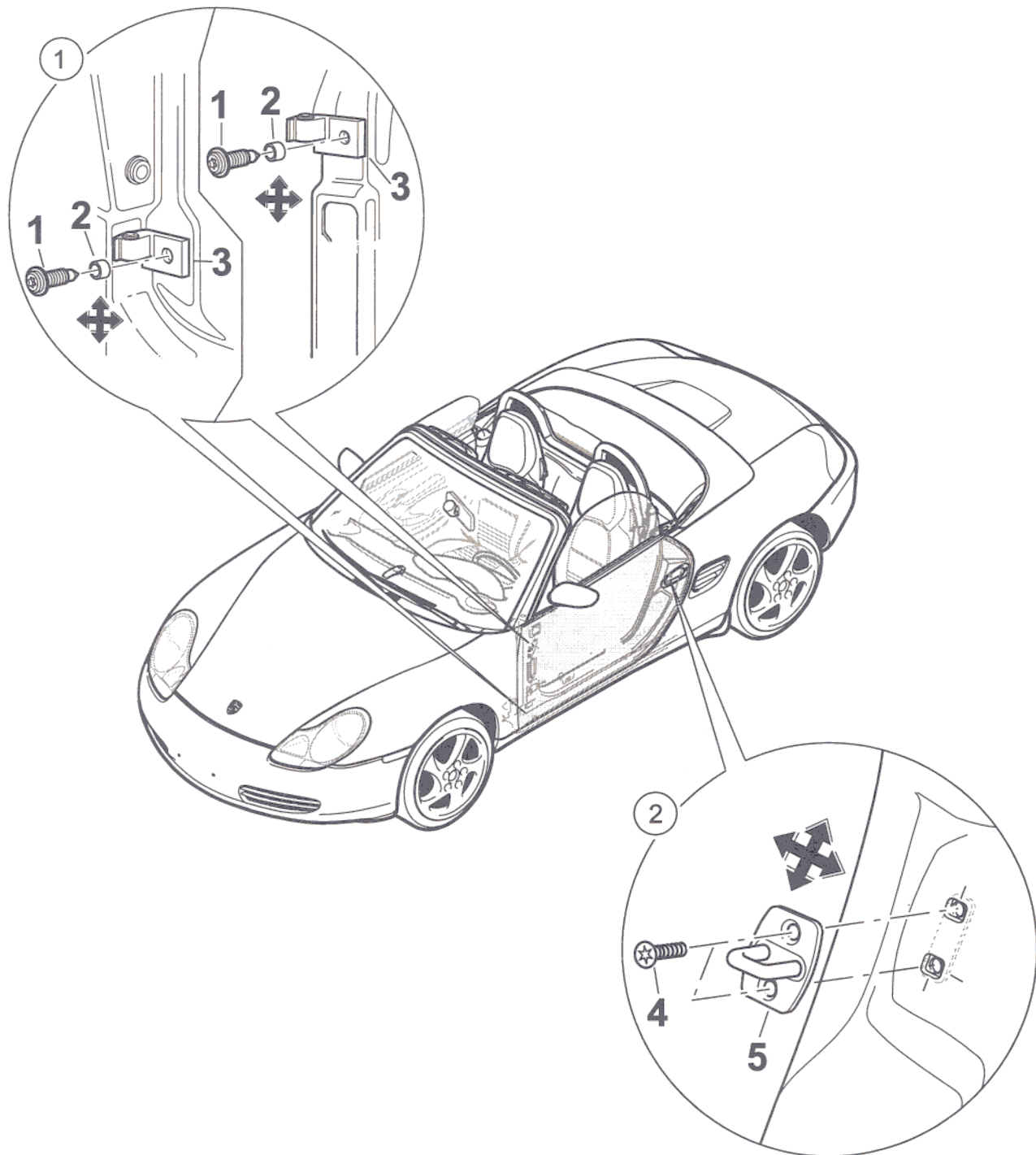
> When carrying out assembly work in the area of the connection piece (Item 3), the bottom part of the door handle (Item 4) and the door lock (Item 5), always make sure that fuse No. 1 in row D is removed. The door lock has the comfort function "Lower and raise door window", which can be initiated as a result of assembly work.

No.	Designation	Qty.	Removal	Note: Installation
1	M 6 collar nut	2	Undo	
2	Connection piece	1	Shift sliding piece of the connection piece and unclip actuating shaft (Item 8)	
3	Handle liner	1	Pull out handle liner downward at an angle	
4	Base	1	Unclip	Clip in
5	Micro switch	1	Unclip	Clip in
6	Circlip	1	Press out	Press in
7	Pin			
8	Actuating shaft	1	Pull pin (Item 7) out of the handle (Item 13) and remove actuating shaft	Position actuating shaft on the handle (Item 13). Insert pin (Item 7) and secure pin with the circlip (Item 6).
9	S retainer			
10	Pin rod	1		Replace
1	Eccentric			
12	Return spring			

No.	Designation	Qty.	Removal	Note: Installation
13	Handle	1	Pull pin rod (Item 10) out of the handle liner (Item 3) and separate handle from the handle liner	Position return spring (Item 12), eccentric (Item 11) and handle on the handle liner (Item 3), insert the pin rod (Item 10) and secure retainer (Item 9)
14	Buffer	2	Pull off	Replace
15	Door handle bottom part	1		

Setting the door





No.	Procedure	Instructions
2	Setting the door at rear	<p>Undo fastening screw -1-. Set the contour in relation to the wing and the side member by shifting the angle pieces -3- in their vertical and horizontal positions. ⇒ Rep. Gr. 5; Body gap dimensions The setting range can be extended by removing the centring sleeve -2-.</p> <p>Undo fastening screw -4-. Set the contour in relation to the rear wing and the side member by shifting the latch striker -5- in its vertical and horizontal position. ⇒ Rep. Gr. 5; Body gap dimensions</p>