



# Passenger Car Seats

## Design • Function • Care • Complaints

Service Technology Guide



Mercedes-Benz

# Passenger Car Seats

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Service Technology Guide

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Dear Reader,

In recent years, the variety of seats in Mercedes-Benz passenger cars has increased continuously. Furthermore, due to the high level of networking between mechanical, electrical and pneumatic components, the effect of external influences and the effect of subjective customer sensations, vehicle seats represent a complex vehicle system.

From feedback received from our service operations we have discovered that the existing media, such as the Introduction into Service manuals, Star Diagnosis, WIS and TIPS, are not sufficient to practically equip you, the **service adviser** or **mechanic** to meet this challenge.

For this reason, we have compiled a guide containing the most important aids for your work as a service adviser or mechanic with the assistance of specialists from service (product support and diagnosis) and development and with support from experienced mechanics from various service operations. This guide is not intended to replace the existing media; it merely links and supplements the existing information at important points. The Workshop Information System (WIS) and TIPS documents are available as usual as a source of basic documentation.

The guide is intended to be a practical medium providing you with all the essentials necessary for quick and effective diagnosis during reception and in the workshop, and for successful repairs.

We hope that this publication will be actively employed and will be able to contribute significantly to the success of your work.

Yours, Bernd-Rüdiger Heinisch

Daimler AG  
After-Sales-Technik Interieur (GSP/TPI)

### Note

All information was correct as of the copy deadline in August 2007 and may therefore vary from more up-to-date sources.

## Knowledge base

### Seat components

The picture below provides an overview of the many components incorporated in a modern seat from Mercedes-Benz (example shows a dynamic seat from model 221).



**Design of dynamic seat (driver seat, model 221)**

P91.10-3209-00

- |  |   |
|--|---|
| 1 Seat frame   | 13 Seat cushion padding                       |
| 2 Backrest frame   | 14 Backrest padding                           |
| 3 Electric wiring harness  | 15 MCS/DS inserts/seat cushion module carrier |
| 4 Dynamic seat control unit  | 16 MCS/DS inserts/backrest module carrier     |
| 5 Seat control unit bracket  | 17 Seat cushion cover                         |
| 6 Head restraint drive   | 18 Backrest cover                             |
| 7 Seat belt buckle with pyrotechnical emergency tensioning retractor | 19 Rear seat-back lining (backrest)           |
| 8 Sidebag unit   | 20 Head restraint with guides                 |
| 9 Seat cushion ventilation motor group                               | 21 Rear entertainment                         |
| 10 Backrest ventilation motor group                                  | 22 Stowage compartment with fire extinguisher |
| 11 Blower regulator  | 23 Seat trim                                  |
| 12 Backrest frame sides  |   |

## Components

The picture below shows the composition of the upholstery structure using the dynamic seat of model 221 as an example.

The seat upholstery is made up of layers and materials which perform the following tasks:

- The backrest padding and seat cushion padding serve to pad and shape the seat and also act as an intermediate seat layer to improve seat comfort. The spacer fabric ensures that the air circulates properly on vehicles with active ventilation.
- The cut foam primarily serves to improve both the break-in characteristics and surface softness of the seat.
- The PES non-woven cloth also provides added softness and break-in comfort.
- The cushion cover is the final layer of the upholstery structure and serves as a design element.



**Dynamic seat (model 221)**

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- 1 Backrest padding
- 2 Cushion padding
- 3 Spacer fabric

- 4 Cut foam
- 5 PES non-woven cloth with or without seat heater
- 6 Cushion cover



## Seat cover types

### Basic variants

The seat cover types are subdivided into the following four basic variants:

- Fabric covers
- Alcantara covers (textile fabric)
- Imitation leather covers
- Genuine leather covers

The seat covers can be ordered in various color combinations and material variants e.g. fabric combined with genuine leather or imitation leather combined with Alcantara (with both materials in different colors).

The availability of the different cover and color variants depends on the vehicle model and equipment/line.

Examples of the different surfaces and leather grains are shown in enlarged format on the following page to illustrate the differences between the seat cover materials.

#### **i** Note

See the equipment matrix in the "Care and cleaning" chapter for information about the various seat cover equipment variants in the different vehicle models and for care and cleaning tips.



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**Fabric**



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**Imitation leather**



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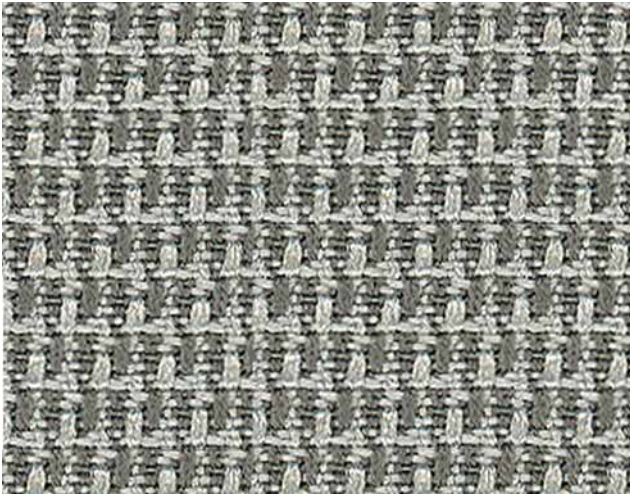
**Alcantara (textile fabric)**



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**Genuine leather**

Surfaces and grain types



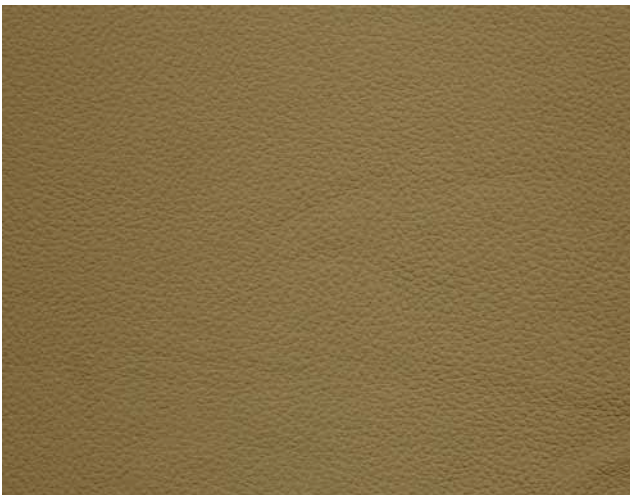
P91.00-2229-00

***Cube fabric***



P91.00-2230-00

***Alcantara (textile fabric)***



P91.00-2231-00

***Artico leather (imitation leather)***



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***Catania leather (genuine leather)***



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***Nappa Exclusive leather (genuine leather)***



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***Lugano leather (genuine leather)***

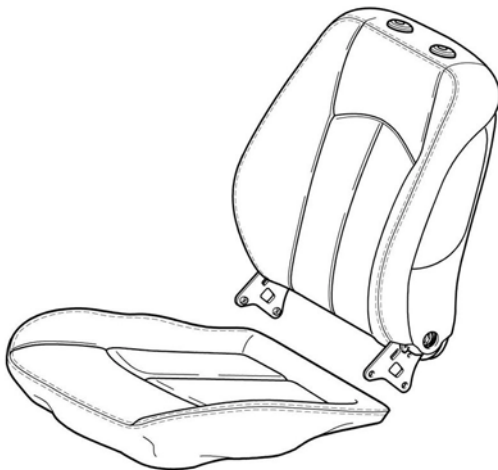
## Seat cover types

### Seams and attachment patterns

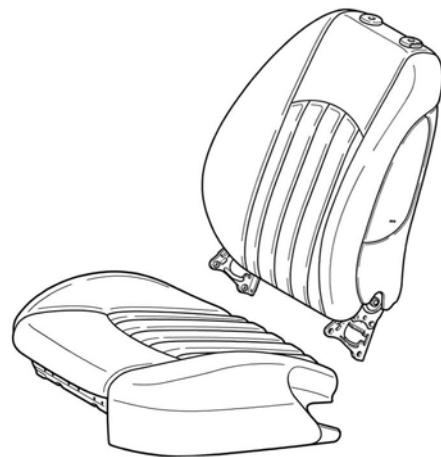
The following pictures show a small selection of the range of upholstery seam variants installed throughout the different Mercedes-Benz model series.

Seat covers are generally differentiated based on whether they primarily feature vertical upholstery seams or horizontal upholstery seams.

The range of different variants is supplemented by additional decorative seams which are through-sewn into the seat cover in a fluted style e.g. on model 219 (top right picture).



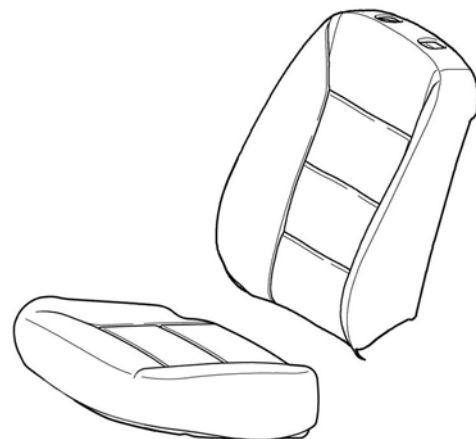
*Example of vertical attachment*



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*Example of horizontal attachment*



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### Leather processing

By choosing a vehicle with leather-covered seats, the customer has opted for a high quality, exclusive product. Leather is a natural product. Every leather covering is unique:

- Leather is a hard-wearing and durable natural product.
- It has unmistakable, distinctive characteristics.
- It is soft to the touch, warm and protective.
- It is breathable, hygienic and ecologically sound.

In order to meet present market requirements, automotive leather is also adapted to current trends. Along with dark and subtle colors, brighter colors are also currently popular.

By combining traditional leather production methods with the latest technology, it is today possible to achieve exceptional quality and environmental compatibility throughout the value chain. The choice of cattle hides is influenced by important factors. These include the breed, climate, species, age and whether the cattle are kept on pasture or in barns.

The process of creating a finished leather cover from a cattle hide takes several days. The hides are first graded after the tanning process. Tanning is the process whereby a raw hide is made into leather. The hide structure is stabilized and made resistant by adding tanning agents. It is especially important for automotive leather to be highly resilient because it is must be able to withstand extreme temperature fluctuations and usage.

The classification process after tanning determines at an early stage how the leather will be used e.g. whether it will be processed into natural leather or corrected-grain leather.

To ensure that the high Mercedes-Benz quality standards are met, all cattle hides are subjected to an intensive quality check after each step of the leather production process. In addition, all Mercedes-Benz leather covers are dyed through.

## Leather covers

### Leather – quality zones

The finished leather is then sent to the cutting plant for the individual pre-cut parts to be produced. Strict requirements apply to the finished product during the cutting process. The natural characteristics of the hide (e.g. grain, growth marks, insect bites) are used to classify the leather into different zones based on a catalog of leather characteristics. This classification and the seat cover zones defined by the operating departments form the basis of the cutting process. The seat is divided into areas based on their visibility on a scale ranging from directly visible to not directly visible.

#### Quality zone A

These are the directly visible areas. The different natural characteristics must not be conspicuous at a distance of 50 cm.

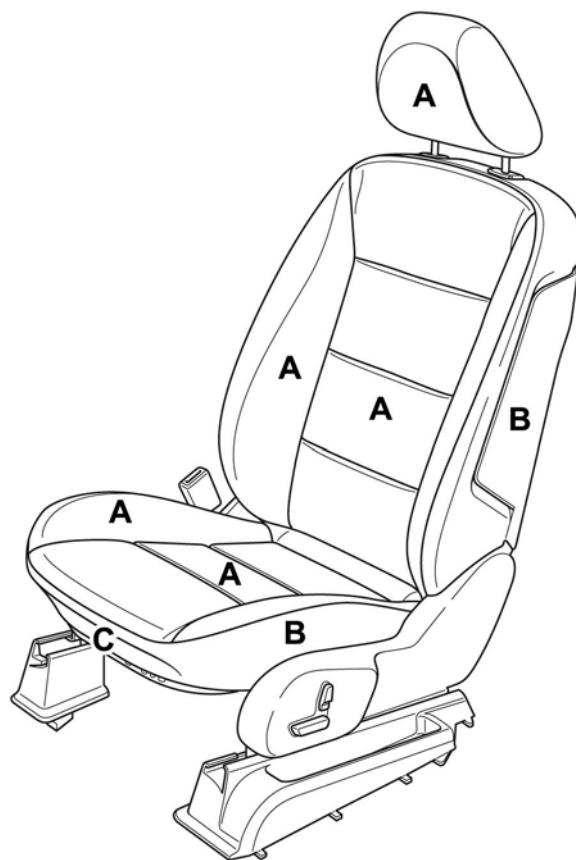
#### Quality zone B

These are the areas which are only visible to a limited extent and the visible areas where the leather parts are perforated. The natural characteristics must not be conspicuous during normal vehicle usage.

#### Quality zone C

These are the areas which are not directly visible.

The pre-cut leather parts are manually processed into covers in the sewing works and then upholstered into complete seats.



**Seat quality zones**

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## Leather seats in use – Complaints

There are differences in seat design within model series. For example, the seats will have a different appearance depending on the seat shape, attachment patterns and vehicle mileage. It is therefore important to consider every customer complaint individually.

### Usage

The appearance of a seat is significantly influenced by how the individual seat is used by the customer. This means that there can be obvious visual differences between areas subject to heavy usage (e.g. entrance area) and areas subject to lighter usage (e.g. rear seats).

### Soiling

The manner in which seat covers become soiled is dependent on a range of factors e.g. clothing, usage, seat shape, color. For example, light-colored covers are more difficult to look after. The original seat appearance can be retained in the long-term by regular cleaning and maintenance. See the "Care and cleaning" chapter for more detailed information and tips.

### Abrasion

Abrasion of the leather surface can be caused in different ways:

- High mechanical load
- Sharp objects
- Usage of cleaning agents **not** approved by Mercedes-Benz and incorrect cleaning methods.

(See "Care and cleaning" chapter.)

### Creases

Ambient conditions such as air humidity and temperature can have an effect on the appearance of the leather. Furthermore, the naturalness and exclusivity of the leather in the seat cover is emphasized on various models by means of a loose-fitting visual appearance combined with added fullness. This means that complaints about creases might be received due to the subjective perception of the customer.

Remedial actions for specific model series are described in the corresponding TIPS documents.

Please observe the notes in the "Upholstery" chapter to prevent creases due to faulty upholstery in the event of repair.

## General

### Upholstery process for seat covers

For the following description of the process for fitting and removing seat covers, the various vehicle models have been divided into groups according to the seat design and the attachment process used.

**i** Note

When performing repairs, the relevant work instructions from WIS which apply to all model series must be observed.

Mercedes-Benz seat cover groups		
Group 1	Group 2	Group 3
Seats with cut foam	Seats without cut foam	Seats without cut foam
Seat design with upholstery clips	Seat design with upholstery clips or upholstery wires	Seat design with upholstery rails
Model 216, 221, 230	Model 164, 171, 203, 204, 209, 211, 219, 251	Model 169, 245

### Cut foam

The cut foam is a layer of padding of approx. 1 to 2 cm thickness which is additionally placed on the backrest or seat cushion padding.



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**Cut foam**

## Upholstery wires and upholstery clips

The seat bolsters and seat cover are attached/connected to each other at defined points during the upholstery process.

This attachment process prevents the seat cover from slipping out of place on the padding and causing unsightly creases.

Usually, upholstery wires are clipped into the relevant upholstery clips to attach the cover in place.

There are two variants of this system:

The first variant involves clips or upholstery wires that are embedded into the foam padding.

The other variant involves upholstery wires or clips that are attached to the seat cover.

## Upholstery rails

On model 169 and 245, upholstery rails on the seat cushion cover are used instead of upholstery wires to attach the seat cushion.

### Notes

#### **Clips and upholstery wires**

If clips or upholstery wires remain undamaged when a seat cover is removed, these must be reused.

#### **Bent upholstery wires**

The upholstery wires must be bent back to their original shape based on the attachment pattern.

#### **Wire pockets and wire pocket selection**

Wire pockets are used to guide the upholstery wires precisely. If the seat cover is too loose, the upholstery wires must be guided through the thin wire pockets and not through the wide wire pockets.

#### **Stitched flag**

The stitched flags must be laid out so that every single stitched flag points in the same direction, inwards or outwards.



## Group 1

### Work description for Mercedes-Benz group 1

#### Fitting a seat cover on a driver seat




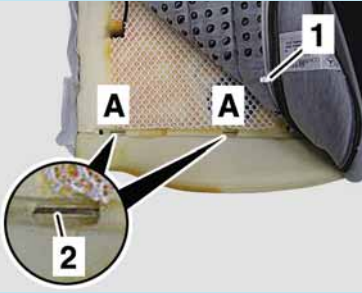
Procedure	Picture	Remarks
Insert upholstery wires in wire pockets and attach at marked crosses.		Picture shows reverse of seat cover.
When attaching the seat cover to the cut foam, ensure that the cut foam does not overlap.		<b>OK!</b> Cut foam does not overlap.
		<b>⚠ Not OK!</b> Cut foam overlaps.
<b>Special case, model 216</b> The upper upholstery wire must be attached very precisely. Otherwise, the seat cover cannot be put on accurately and will become creased.		
<b>Special case, model 216</b> At the top area of the backrest, a piece of Paratex non-woven cloth must be placed on the rubberized hair mat. Otherwise, the seat cover cannot be pulled over the top of the backrest.		




Procedure	Picture	Remarks
<p><b>Special case, model 216, 230</b></p> <p>In the area of the belt outlet, the cut foam must sit cleanly under the seat cover.</p>		<p><b>OK!</b></p> <p>Cut foam sits cleanly under seat cover.</p>
		<p><b>⚠ Not OK!</b></p> <p>Cut foam does not sit cleanly under seat cover.</p>
<p><b>Special case, model 216, 230</b></p> <p>The seat cover is carefully pressed between the two metal plates using a finishing tool.</p>		
<p>The procedure for attaching the seat cushion cover is the same as for the backrest.</p>		<p><b>OK!</b></p> <p>Cut foam does not overlap.</p>
		<p><b>⚠ Not OK!</b></p> <p>Cut foam overlaps.</p>

## Group 2

### Work description for Mercedes-Benz group 2

#### Fitting a seat cover on a driver seat

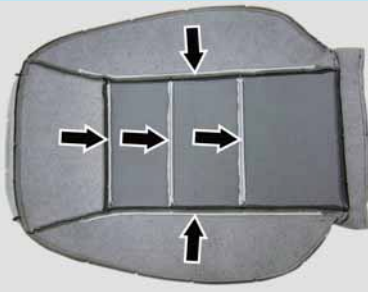


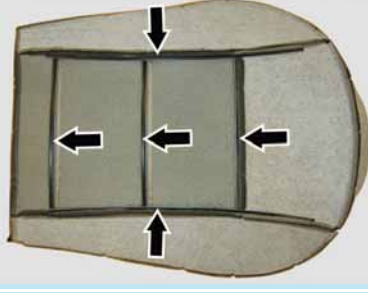

Procedure	Picture	Remarks
<p>The upholstery wires must be inserted into the wire pockets.</p>		
<p><b>Special case, model 204, 209</b></p> <p>If there is a retaining flap at the end of the wire pocket, the upholstery wire must also be routed through this.</p>		<p><b>i Note</b></p> <p>The retaining flap keeps the respective corner of the seat cover in the specified position.</p>
<p>The seat cover is attached to the clips embedded in the padding.</p>		
<p><b>Special case, model 209, 219</b></p> <p>On these model series, the upholstery wires are embedded in the backrest foam and the upholstery clips are attached to the seat cover. The seat cover must be attached at the points where the wire in the padding is visible.</p>		<p>A Attachment point</p> <p>1 Clip</p> <p>2 Upholstery wire</p>

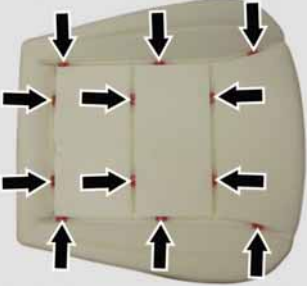

Procedure	Picture	Remarks
<p><b>Special case, model 171</b></p> <p>In the top area of the backrest, all seat cover retaining flaps must be guided through the opening to the rear. All retaining flaps must be hooked into the respective brackets.</p>		
<p>The smaller flap is hooked into the corresponding hook at the top of the backrest directly from the front.</p>		<p>There is a dual retaining flap on the seat cover on both the left and right sides of the opening. These flaps must be attached in the correct order.</p>
<p>The larger flap is hooked through the opening into the same hook from behind.</p>		<p>The larger flaps pulls the cover tight in the top area of the backrest and also prevents the smaller flap from slipping out.</p>

## Group 3

### Work description for Mercedes-Benz group 3

#### Fitting a seat cover on a driver seat

Procedure	Picture	Remarks
<p>Guide the upholstery wires into the wire pockets of the seat cover for the backrest.</p>		<p>Picture shows reverse of seat cover. Upholstery wires (arrows)</p>
<p><b>Special case, model 169/245</b> The clips are embedded into the backrest on both of these vehicle models.</p>		
<p>Embedded clip</p>		
<p>Plastic rails are incorporated into the seat cushion cover for attachment purposes.</p>		<p>Upholstery rails (arrows)</p>
<p>Plastic rails for attachment</p>		

Procedure	Picture	Remarks
Cushion foam with embedded clips		Embedded clips (arrows)
Embedded cushion clip		

## Seat covers

**The most frequent complaints about seat cover soiling are caused by the following:**

- Stains from foodstuffs
- Abrasion of covers due to incorrect care and cleaning agents
- No or irregular care of seat covers
- Clothing dyes rubbing off on to the seat
- Wear due to high mileage

### **Remedy in case of soiling**

Seat covers that have been soiled by external sources must not be replaced because this type of soiling can be prevented by regular and correct care and cleaning.

When using care products, it is important to ensure that the seat is not soaked in the product. The quantity of care product used must be such that only the seat surface comes into contact with the product. If not, stains, discoloration and even mold may occur.

### **Care and cleaning in summer**

Particularly in the summer months, seat covers are subjected high stress due to solar radiation and heat. We therefore recommend particularly intensive cleaning and maintenance of seat covers before and after summer.

## General information

Workshop staff and especially the customer can help to maintain the leather in its original condition for as long as possible by following a range of preventive measures.

In general, it is essential for the seats to be professionally cleaned on a regular basis. The type of cleaning always depends on the type of covers and the customer usage behavior.

Furthermore, external influences such as clothing dyes rubbing off onto the seats determine the level of care needed. Intensive and regular cleaning is particularly important on vehicles with light-colored seat covers.

Vehicle occupants should avoid wearing dark jeans which are not dyed through to help maintain the seat appearance in the long term. Wet items of clothing or towels should not be placed on seat covers.

When applying creams or lotions to parts of the body which could come into contact with the seat covers, allow these to work into the skin first before entering the vehicle.

Avoid eating in the vehicle where possible to reduce the risk of staining the seat covers.

Sharp or unwieldy objects such as belts or purses/wallets should not come into contact with seat covers.

Generally, loose dirt must always be removed from seat covers before they are cleaned. This means that dust particles should be removed with a duster or vacuum cleaner because the surface of the cover could otherwise be damaged by the cleaning process and when the cleaning agent is rubbed into the cover.

Exact cleaning intervals are not specified because the intervals depend on individual customer usage.

### **i** Note

Always prevent stains from drying out by cleaning them up immediately.

If a stain dries out, it may no longer be possible to remove it with the cleaning methods listed here.



## Cleaning agents

### Recommended by Mercedes-Benz

Mercedes-Benz recommends the following two cleaning agents for cleaning and maintaining the seat covers on all of its passenger car model series:

- Textile upholstery cleaner
- Leather care foam

#### **i** Note

It is best to clean textile upholstery with a mild solution of water/dishwashing detergent or, alternatively, with textile upholstery cleaner.



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**Textile upholstery cleaner**

Each of the cleaning and care products can only be used on particular materials. See the "Equipment matrix" in this chapter to find out which product is suitable for which material.

#### **i** Note

See the Electronic Parts Catalog (EPC) for the current replacement part numbers of both cleaning products. They can be ordered via the Global Logistics Center (GLC).



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**Leather care foam**

### Use of cleaning agents

Before cleaning seats, any loose dirt should always be removed from the seats and the seats should be vacuumed.

### Fabric upholstery

Seats with fabric upholstery must be regularly brushed off and vacuumed.

Dirt and stains should be removed immediately whenever possible. Dry dirt, e.g. dust, ash and similar, should be removed with a vacuum cleaner and brush.

It is best to clean fabric upholstery using a microfiber cloth soaked in a mild solution of water/dishwashing detergent. The upholstery should be rubbed gently and not too vigorously. The fabric cover may otherwise be damaged. It is important to treat complete sections of the covers, e.g. an entire seat cushion side or the entire cushion surface, otherwise visible edges will be left behind. The seat should then be left to dry for 24 hours.

Alternatively, textile upholstery cleaner can also be used to clean fabric upholstery. In this case, it is particularly important to clean entire areas otherwise visible edges will be left behind. After cleaning, the foam must be removed with clean water.

The cleaning results depend on the nature and age of the soiling.

### Imitation leather and Alcantara

A mild solution of water/dishwashing detergent is recommended for cleaning imitation leather and Alcantara. Never use aggressive cleaning agents such as bathroom or kitchen cleaning products. A cotton or microfiber cloth should be moistened with the mild solution of water/dishwashing detergent. The imitation leather or Alcantara cover can then be cleaned with this cloth.

### Leather upholstery

Leather upholstery must be regularly cleaned and maintained by wiping it with a damp cloth and then drying.

To remove any residual soiling, apply Mercedes-Benz leather care foam to the entire seat and then work it in gently after it has dried.

Leather can become electrostatically charged.

To prevent this, it is necessary to treat it regularly with Mercedes-Benz leather care foam.

Perforated leather must not get wet on the reverse side otherwise the color may rub off; therefore clean carefully and in particular dry well.

Through contact with fur seat covers or items of clothing that may release dyes (e.g. suede) the leather upholstery may discolor. These stains cannot be removed. With fur seat covers, place a layer of fabric in-between to prevent contact stains on the leather upholstery.

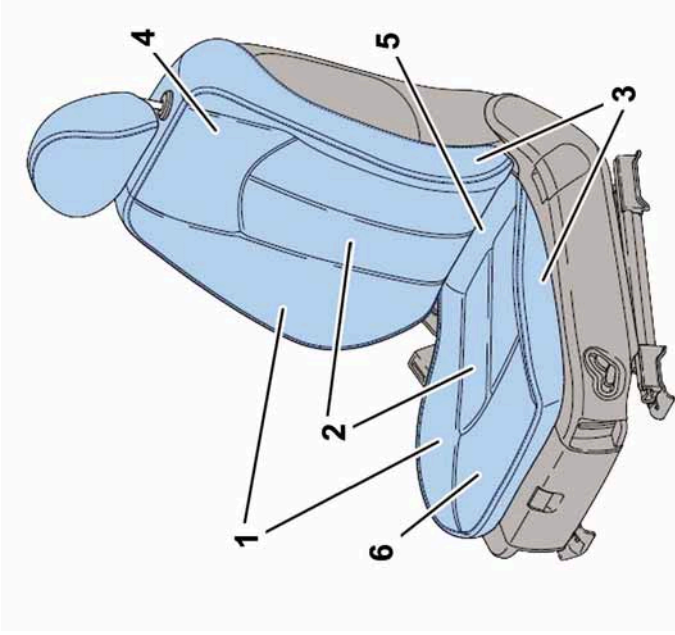
### **i** Note on fabric upholstery

It is not always possible to remove stains from fabric upholstery without visible edges forming. In such cases, the individual seat fluting, the entire part or the entire area must be cleaned uniformly. Several cleaning steps may be necessary.

Mercedes-Benz

**Seat cover components (model 211)**

- 1 Side bolsters
- 2 Seat center panels
- 3 Seat rims
- 4 Upper beaded section
- 5 Rear beaded section
- 6 Front beaded section



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Equipment matrix

Model series/ model	Equipment designation	Seat cover	Material	Cleaning agent/remedy
169/245	Fabric	Entire seat cover	PES fabric	Mild solution of water/dishwashing detergent or textile upholstery cleaner
		Seat center panel	PES fabric	Mild solution of water/dishwashing detergent or textile upholstery cleaner
	Fabric/imitation leather:	Side bolsters	PVC imitation leather	Mild water/dishwashing detergent solution



Model series/ model	Equipment designation	Seat cover	Material	Cleaning agent/remedy
	Artico leather	Entire seat cover	PVC imitation leather	Mild water/dishwashing detergent solution
	Leather	Entire seat cover	Genuine leather	Leather care foam
W/S 203	CLASSIC fabric	Entire seat cover	PES/WO fabric	Mild solution of water/dishwashing detergent or textile upholstery cleaner
	ELEGANCE fabric	Entire seat cover	PES/WO fabric	Mild solution of water/dishwashing detergent or textile upholstery cleaner
	ELEGANCE Twin leather/Artico	Entire seat cover	PVC imitation leather	Mild water/dishwashing detergent solution
	ELEGANCE leather	Entire seat cover	Genuine leather	Leather care foam
	AVANTGARDE Twin fabric	Seat center panel	PES/WO fabric	Mild solution of water/dishwashing detergent or textile upholstery cleaner
		Side bolsters	PVC imitation leather	Mild water/dishwashing detergent solution
	AVANTGARDE Twin leather/Artico	Entire seat cover	PVC imitation leather	Mild water/dishwashing detergent solution
	AVANTGARDE leather	Entire seat cover	Genuine leather	Leather care foam

## Equipment matrix

Model series/ model	Equipment designation	Seat cover	Material	Cleaning agent/remedy
W/S 203	SPORT Twin leather/Artico	Entire seat cover	PVC imitation leather	Mild water/dishwashing detergent solution
	SPORT leather	Entire seat cover	Genuine leather	Leather care foam
CL 203	Fabric	Entire seat cover	PES/WO fabric	Mild solution of water/dishwashing detergent or textile upholstery cleaner
	Artico	Entire seat cover	PVC imitation leather	Mild water/dishwashing detergent solution
	Leather	Entire seat cover	Genuine leather	Leather care foam
W/S 204	CLASSIC fabric	Seat center panel	PES fabric	Mild solution of water/dishwashing detergent or textile upholstery cleaner
		Side bolsters	PES/WO fabric	Mild solution of water/dishwashing detergent or textile upholstery cleaner
	CLASSIC Artico	Entire seat cover	PVC imitation leather	Mild water/dishwashing detergent solution
	ELEGANCE fabric	Entire seat cover	PES/WO fabric	Mild solution of water/dishwashing detergent or textile upholstery cleaner
	ELEGANCE leather	Entire seat cover	Genuine leather	Leather care foam



Model series/ model	Equipment designation	Seat cover	Material	Cleaning agent/remedy
	AVANTGARDE Twin fabric	Seat center panel	PES/WO fabric	Mild solution of water/dishwashing detergent or textile upholstery cleaner
		Side bolsters	PVC imitation leather	Mild water/dishwashing detergent solution
	AVANTGARDE Twin leather/Artico (USA)	Entire seat cover	PVC imitation leather	Mild water/dishwashing detergent solution
		Entire seat cover	Genuine leather	Leather care foam
C/A 209	SPORT leather	Entire seat cover	Genuine leather	Leather care foam
		Entire seat cover	PES/WO fabric	Mild solution of water/dishwashing detergent or textile upholstery cleaner
	ELEGANCE leather	Entire seat cover	Genuine leather	Leather care foam
		Entire seat cover	PES/WO fabric	Mild solution of water/dishwashing detergent or textile upholstery cleaner
	AVANTGARDE Twin fabric	Seat center panel	PES/WO fabric	Mild solution of water/dishwashing detergent or textile upholstery cleaner
		Side bolsters	PVC imitation leather	Mild water/dishwashing detergent solution
	AVANTGARDE Twin leather/Artico	Entire seat cover	PVC imitation leather	Mild water/dishwashing detergent solution
		Entire seat cover	Genuine leather	Leather care foam

## Equipment matrix

Model series/ model	Equipment designation	Seat cover	Material	Cleaning agent/remedy
C/A 209	Climate	Entire seat cover	Genuine leather	Leather care foam
211	CLASSIC fabric	Entire seat cover	PES/WO fabric	Mild solution of water/dishwashing detergent or textile upholstery cleaner
		Entire seat cover	PES/WO fabric	Mild solution of water/dishwashing detergent or textile upholstery cleaner
	ELEGANCE fabric	Entire seat cover	PES/WO fabric	Mild solution of water/dishwashing detergent or textile upholstery cleaner
	AVANTGARDE fabric	Seat center panel	PES/WO fabric	Mild solution of water/dishwashing detergent or textile upholstery cleaner
		Side bolsters	PVC imitation leather	Mild water/dishwashing detergent solution
	Artico leather	Entire seat cover	PVC imitation leather	Mild water/dishwashing detergent solution
	CLASSIC leather	Entire seat cover	Genuine leather	Leather care foam
	ELEGANCE leather	Entire seat cover	Genuine leather	Leather care foam
	Nappa leather	Entire seat cover	Genuine leather	Leather care foam
219	Lugano leather	Entire seat cover	Genuine leather	Leather care foam

Model series/ model	Equipment designation	Seat cover	Material	Cleaning agent/remedy
	AVANTGARDE fabric	Seat center panel	PES/WO fabric	Mild solution of water/dishwashing detergent or textile upholstery cleaner
		Side bolsters	Genuine leather	Leather care foam
171	Nappa leather	Entire seat cover	Genuine leather	Leather care foam
		Entire seat cover	PES/WO fabric	Mild solution of water/dishwashing detergent or textile upholstery cleaner
	Leather	Entire seat cover	Genuine leather	Leather care foam
		Entire seat cover	Genuine leather	Leather care foam
230	Fabric	Entire seat cover	PES/WO fabric	Mild solution of water/dishwashing detergent or textile upholstery cleaner
		Entire seat cover	Genuine leather	Leather care foam
	CLASSIC leather	Entire seat cover	Genuine leather	Leather care foam
221	Exclusive leather	Entire seat cover	Genuine leather	Leather care foam
		Entire seat cover	Genuine leather	Leather care foam



## Equipment matrix

Model series/ model	Equipment designation	Seat cover	Material	Cleaning agent/remedy
221	Fabric	Entire seat cover	PES/WO fabric	Mild solution of water/dishwashing detergent or textile upholstery cleaner
	Exclusive leather	Entire seat cover	Genuine leather	Leather care foam
216	Leather	Entire seat cover	Genuine leather	Leather care foam
	Exclusive leather	Entire seat cover	Genuine leather	Leather care foam
164/251	Fabric/imitation leather:	Seat center panel	PES fabric	Mild solution of water/dishwashing detergent or textile upholstery cleaner
		Side bolsters	PVC imitation leather	Mild water/dishwashing detergent solution
	Artico leather	Entire seat cover	PVC imitation leather	Mild water/dishwashing detergent solution
		Seat center panel	Alcantara	Mild water/dishwashing detergent solution
	SPORT	Side bolsters	PVC imitation leather	Mild water/dishwashing detergent solution
		Entire seat cover	Genuine leather	Leather care foam



Model series / model	Equipment designation	Seat cover	Material	Cleaning agent/remedy
	Nappa leather	Entire seat cover	Genuine leather	Leather care foam

## Comfort systems

### Multicontour seat (SA)

The multicontour seat allows passengers to adapt the comfort of the seat to their orthopedic needs and wishes.

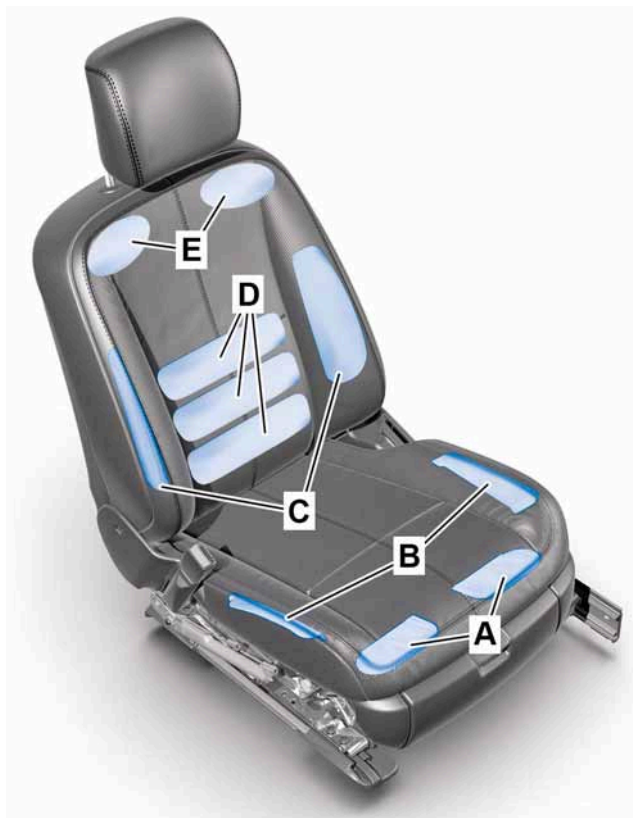
Several individually adjustable air cushions are installed in the multicontour seat for this purpose. Individual adjustment of the contour and surface hardness of the backrest and seat cushion is made possible by admitting air to or releasing air from the respective integrated air cushions.



P91.12-3150-00

#### Location of rear seat air cushions

- F Side area of backrest
- G Lumbar area of backrest



P91.10-3213-00

#### Location of front seat air cushions

- A Upper leg area of seat cushion (up to 12/2006)
- B Side area of seat cushion
- C Side area of backrest
- D Lumbar area
- E Shoulder area of backrest

The air cushions are located in the upper leg area, in the side areas of the seat cushion and in the shoulder area, lumbar area and side area of the backrest. Air cushion adjustment requests are read by a control unit and are then implemented in the air cushions by means of pneumatic valves. Compressed air is supplied by a pneumatic pump located in the trunk or load compartment of the vehicle. On vehicles without an automatic readjustment function for the compressed air supply, the air pressure must be manually readjusted by the customer.

### Dynamic seat (SA)

The dynamic seat is a development of the multicon-tour seat and features the same number of air cham-bers for adjusting the backrest/seat cushion contour and seat cushion length. Seat cushion depth can only be adjusted on vehicles that are not equipped with electric seat cushion fore/aft adjustment as standard.

The seat offers an additional function for further enhancing driving pleasure and ride comfort by auto-matically adapting the air pressure in the air cushions at the sides of the backrest. This means that, when cornering, the air pressure in the air cushions located on the outside of the curve is dynamically increased to improve lateral support.

### Lumbar support

In model 230, the air cushions located in the area of the lumbar vertebrae of the passenger can be made to pulse by admitting air to/releasing air from them. This provides added relief to the back muscles and intervertebral disks of the passenger.

In models 216 and 221, additional air cushions are integrated in the seats for the massage function. These cushions do not affect the actual contour of the seat in the lumbar area.

Some vehicles are equipped with a manual lumbar support to support the spinal column of the passenger. On these vehicles, the desired backrest contour is set using an adjustment wheel or adjust-ment lever.

### Massage

To prevent the passenger's back from becoming tense on long trips, the dynamic seat is equipped with a massage function.

The massage function operates using seven air cush-ions positioned one above the other. These cushions are successively filled with air which is held in the respective cushions for a period of time and then released.

On the front seats, two massage programs are avail-able. It is also possible to select between two levels of intensity for each program.

- Rolling massage (gentle)
- Rolling massage (strong)
- Up/down massage (gentle)
- Up/down massage (strong)



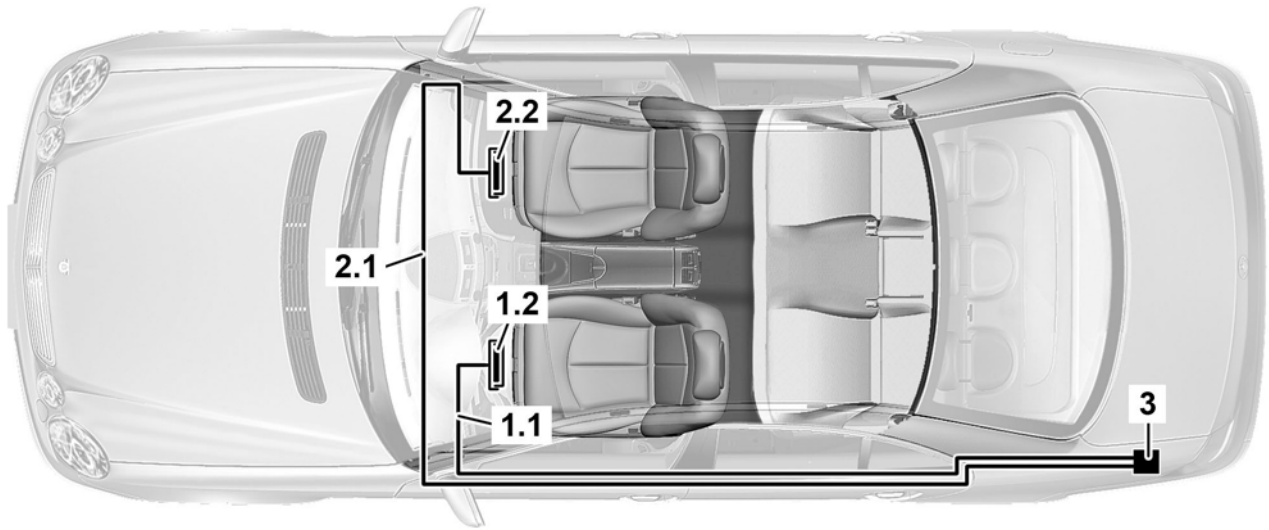
P91.10-3214-00

**Location of front seat massage inserts**

*H* Massage inserts

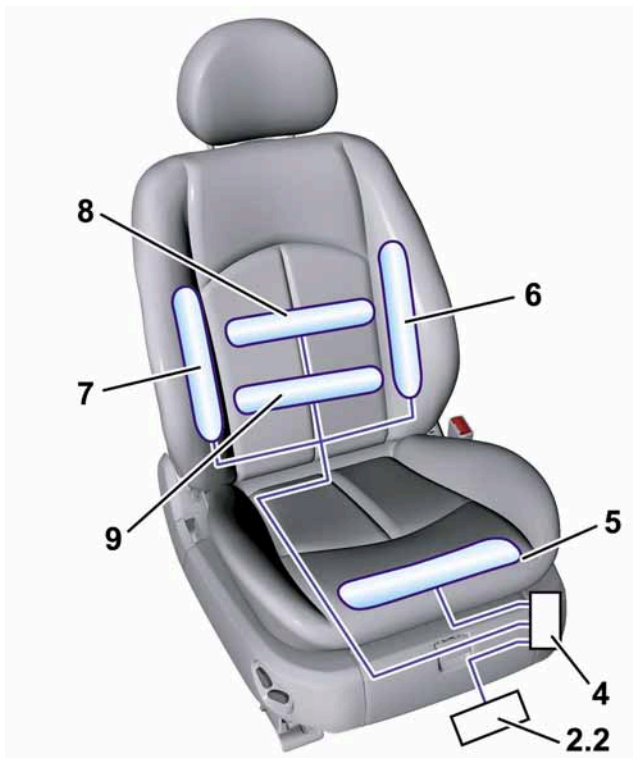
## Comfort systems

### Location of components for pneumatic comfort system in seat



P91.00-2240-00

### Location of components for multicontour seat (MCS) in model series 211 and 219 (with code 404, 405)



P91.10-3215-00

**Front passenger seat (MCS)**



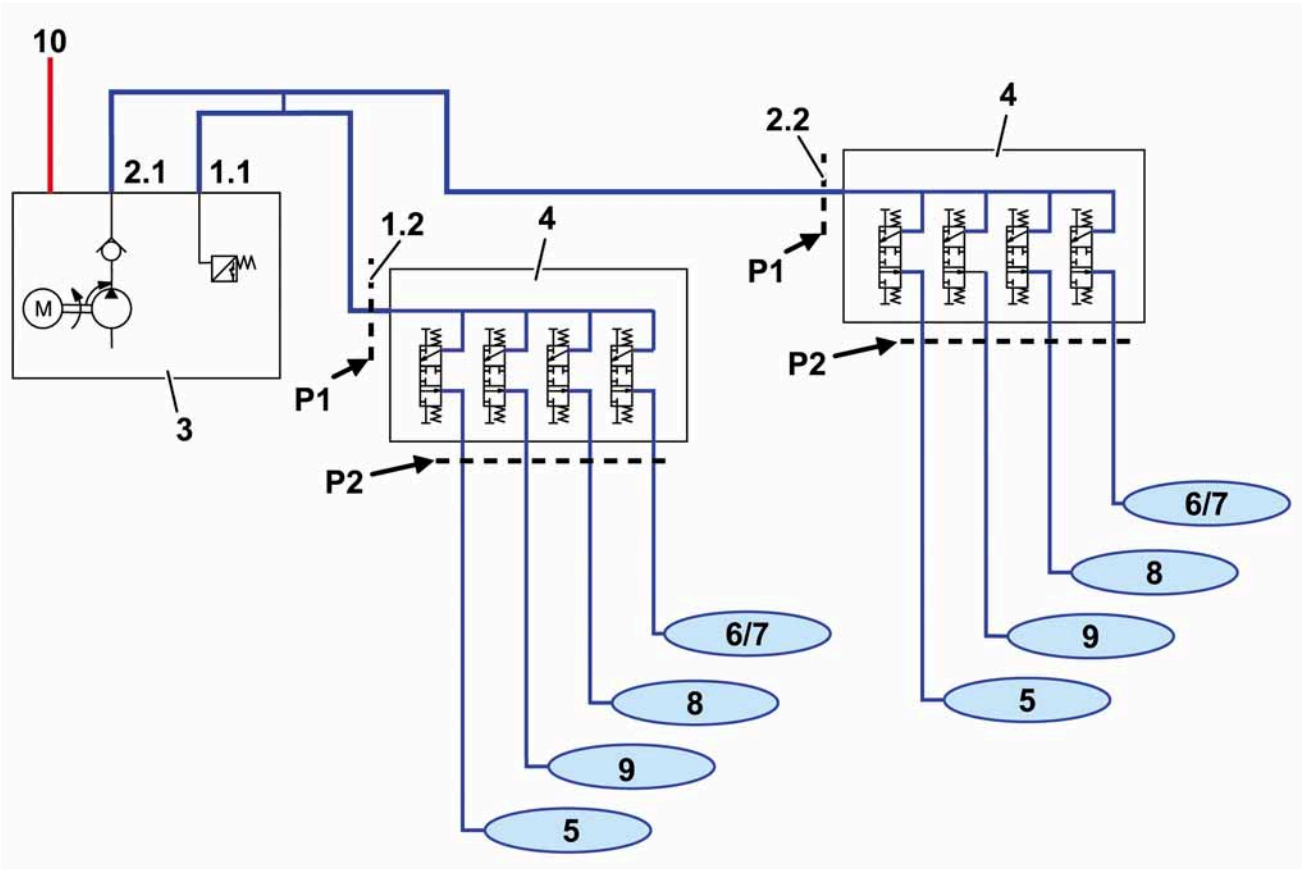
P91.10-3216-00

**Driver seat (MCS)**

- 1.1 Left MCS line
- 1.2 Left MCS seat separation point
- 2.1 Right MCS line
- 2.2 Right MCS seat separation point
- 3 MCS pump
- 4 Control valve

- 5 Front air cushion insert
- 6 Left air cushion insert
- 7 Right air cushion insert
- 8 Upper center air cushion insert
- 9 Lower center air cushion insert

Pneumatic diagram for pneumatic comfort system in seat



P91.10-3217-00

**Pneumatic diagram for multicontour seat (MCS) in model series 211 and 219 (with code 404, 405)**

- |                                     |  |
|-------------------------------------|--|
| 1.1 Left MCS line                   | 7 Right air cushion insert                                     |
| 1.2 Left MCS seat separation point  | 8 Upper center air cushion insert                              |
| 2.1 Right MCS line                  | 9 Lower center air cushion insert                              |
| 2.2 Right MCS seat separation point | 10 12 V on-board electrical system power supply                |
| 3 MCS pump                          | P1 Pressure supply inlet test point<br>(seat separation point) |
| 4 Control valve                     | P2 Control valve test point<br>(control valve)                 |
| 5 Front air cushion insert          |  |
| 6 Left air cushion insert           |  |

## Noises, general

### Seat noises

Seat noises depend on:

- The individual seat position and
- The way each customer gets into and sits in the vehicle.

### Seat position

In order to analyze the complaint, retain the original seat position, cushion angle and backrest position of the customer. This is the only way the noise complained of can be identified.

Tip: If possible, store the settings in the memory.

### Noise analysis

The noise analysis should be performed together with the customer. The customer may perceive a different noise to the mechanic in question.

### Procedure for noises in seat substructure

Noises often arise from basic distortions. Before working on parts of a seat cushion or the seat adjustment mechanism, release the seat connection and move the seat through its entire travel once. Then reconnect the seat connection. Most complaints will be eliminated by releasing and then reconnecting the seat.

### Remedial action

If noises are still present once any basic distortions have been eliminated, search for a potential cause in the published documents (TIPS, AR, AF, SI).

### Felts and lubricants

Always use the felts and lubricants specified in the documents. These have been approved by Mercedes-Benz and offer a long-term solution. Use the specified part numbers because using a different felt could cause additional noises or the felt may wear more quickly and cause noises at a later stage.

If no part numbers are specified, the materials in the noise kit (see next page) can be used.

### Contacting the Market Performance Center (MPC)

If no remedy can be found for a particular noise, send a TIPS case enquiry to the MPC.

### Fixed-First-Visit (FFV) ratio

Once the component affected is removed, carry out all known measures to deal with noise and solve the problem simply (stick on felt, grease, etc.) in order to avoid follow-up repairs in line with the FFV targets and to increase customer satisfaction. See the "Combined Fixed-First-Visit measures" subchapter on page 40 for more information on the definition of the FFV ratio.

**Noise kit with felt overview**

The Mercedes-Benz "Noise kit" has been developed especially for Mercedes-Benz workshops and is intended to effectively eliminate creaking, squeaking and cracking noises.

The lubricants were created especially for Mercedes-Benz vehicles and offer the following advantages over conventional lubricants:

- Usage temperature from -40°C to +140°C
- Compatible with all "interior" materials (e.g. plastics, seals, (non-ferrous) metals, leather)
- Optimal long-term lubrication
- Resistant to other environmental influences (dirt, moisture, dust, etc.)
- Non-toxic
- Lubricants available worldwide











P58.00-2086-00

Noise kit

**i Note**

The noise kit can be ordered via the Global Logistics Center (GLC).  
Order no.: A 000 580 03 50

**Noise Damping Service Kit**

	<p><b>Filz • Felt • Feture</b></p> <p>A 000 983 17 10 (10 x 1 mm) A 000 983 71 10 (15 x 1 mm)</p>		<p><b>Filz • Felt • Feture</b></p> <p>A 000 983 89 10 (70 x 3 mm)</p>
	<p><b>Filz • Felt • Feture</b></p> <p>A 001 983 51 10 (25 x 2 mm) A 001 983 23 10 (40 x 2 mm) A 115 828 08 97 (500 x 50 x 2 mm) Bogenformat mm / presented on strips mm / surbande papier mm</p>		<p><b>Filz • Felt • Feture</b></p> <p>A 168 983 00 92 (25 x 60 x 4 mm)</p>
	<p><b>Filz • Felt • Feture</b></p> <p>A 000 983 12 92 (1500 x 2 mm)</p>		<p><b>Filz • Felt • Feture</b></p> <p>A 001 983 52 10 (70 x 6 mm)</p>
	<p><b>Filz • Felt • Feture (Polyester • polyester • polyester)</b></p> <p>A 001 983 40 10 (70 x 55 x 2,2 mm) A 001 983 50 10 (70 x 55 x 2,2 mm)</p>		<p><b>Imprägnierter Schaum • Impregnated Foam • Mousse imprégnée</b></p> <p>A 003 983 54 85 (10 x 30 x 2000 mm) Dicke / thickness / épaisseur x Breite / width / largeur x Länge / length / longueur</p>

P58.00-2087-00

Felt overview in lid of noise kit



## Combined Fixed-First-Visit measures

### Background: Fixed-First-Visit (FFV) for seats

Combinations of measures have been defined for seats to prevent follow-up repairs in the long term. These are packages of technical measures which optimize the FFV ratio by producing successful repairs. The measures are intended to prevent the need future follow-up repairs. Both the remedy for the particular complaint (Tips, AR, AF, SI) and the defined packages of measures must always be implemented.

The aim is to reduce follow-up repairs. This increases customer satisfaction.

To achieve customer satisfaction, it is essential that good quality, long-term repair results are achieved and that repeat workshops visits are reduced.

### Definition

Follow-up repairs are identified based on warranty and goodwill claims in VEGA.

The following criteria are used:

- One VIN, numerous workshop visits
- Damage codes (SSL) for initial and follow-up repair from same SSL group. There are currently approx. 100 SSL groups.
- Time (T) between repairs is less than or equal to 365 days
- In the event of workshop changes, the follow-up repairs are assigned to the workshop which caused them

### FFV ratio

**The FFV ratio is the ratio of initial warranty and goodwill (GuK) repairs to the overall number of warranty and goodwill repairs.**

## Combined Fixed-First-Visit measures

Customer complaints about design group 91.10 Front seats					Implement the relevant measures from the WIS literature, AR, AF etc. as well as the associated packages of measures from TIPS.	TIPS packages (described on following pages)	
Model	Backrest	Cushion	Seat adjustment	Entire seat		Package number	Document title
203		X	X		+	Package 1	Noises from seat adjuster / cushion frame
211		X	X				
219		X	X				
203	X				+	Package 2	Noises from backrest frame
209	X						
211	X						
219	X						
164			X		+	Package 3	Seat adjustment nonfunctional, seat heaters and/or active ventilation nonfunctional, SRS indicator lamp on, electric head restraint adjustment nonfunctional
251			X				
221	X	X	X	X	+	Package 4	Noises when opening valuables compartment/stowage compartment
171	X				+	Package 5	Noises from backrest frame
169	X				+	Package 6	Noises from backrest
245	X						
169		X	X		+	Package 7	Noises and lateral play at seat adjuster and cushion frame
245		X	X				

## Combined Fixed-First-Visit measures

### **i** Chapter note

This chapter is intended to give you a rough overview of the TIPS documents currently available. See the respective document for detailed descriptions of the remedial actions and the current part numbers, which are not published here. You can find these under the specified design group or symptom.

### Package 1: Noises from seat adjuster/cushion frame

**Validity:** model 203, 211, 219

**Design group:** 91.10 Front seats

**Complaint:**

Noises from area of seat adjuster or cushion frame.

**Symptoms:**

Cracking, grunting, metallic, knocking and/or creaking noises etc.

**Cause:**

The cushion frame brackets in vehicles produced before 31.06.06 develop a burr as the vehicle mileage increases which can cause the described noise complaint (see picture).



**Cushion frame bracket with signs of wear**

P91.10-3231-00

### Package 2: Noises from backrest frame

**Validity:** model 203, 209, 211, 219

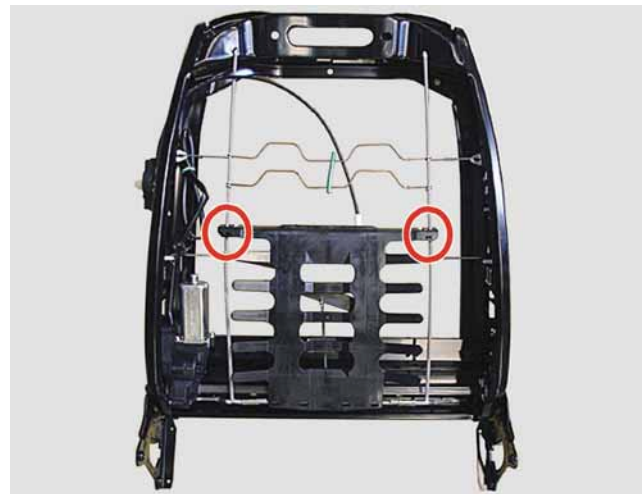
**Design group:** 91.10 Front seats

**Complaint:**

Noise complaints in backrest frame of driver/front passenger seat during load change.

**i Note**

These remedial actions must also be implemented whenever work is performed on the backrest frame (91 O13) or backrest cover (91 A15, 91 N15). The measures must always be performed if the backrest frame is exposed to avoid follow-up repairs.

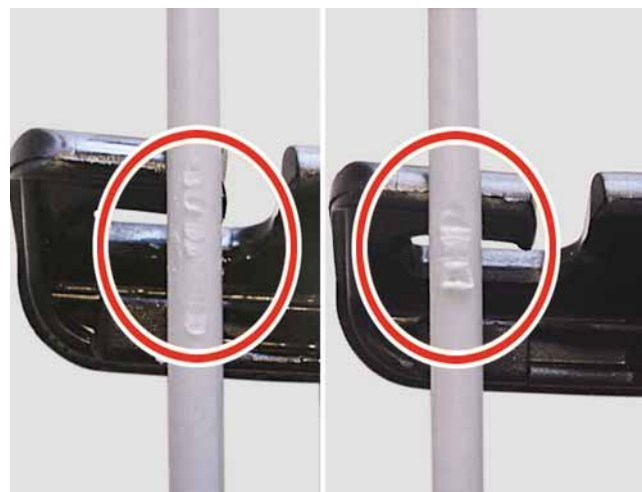


P91.00-2241-00

**Interface between guide wires and lumbar support frame**

**Cause:**

- At low temperatures, natural vibrations of the lumbar support frame can result in damage to the guide wire when a person sits down in the seat.
- On vehicles produced up to 09.2005, the Pulmaflex mat rubs against the attachment points on the backrest frame. There are two attachment points on both the left and right side of the backrest frame.
- On model 203.7 and 209, relative movements can result in noise complaints from the lower area of the backrest.



P91.00-2242-00

**Damaged guide wires**

## Combined Fixed-First-Visit measures

### Package 3: Seat adjustment nonfunctional, seat heaters and/or active ventilation nonfunctional, SRS indicator lamp on, electric head restraint adjustment nonfunctional

**Validity:** model 164.1, 251 and 164.8 up to VIN 143335.

**Design group:** 91.10

**Complaint:**

- The SRS indicator lamp in the instrument panel lights up
- Seat adjustment nonfunctional
- Seat heaters and/or active ventilation nonfunctional
- Electric head restraint adjustment nonfunctional

**Symptoms:**

Seat cannot be adjusted forwards, backwards, up or down. Electric head restraint cannot be adjusted. SRS indicator lamp lights up. Seat adjustment function error. Seat heater nonfunctional. "Seat function error" appears in the display.

**Cause:**

The seat wiring harness in the height adjuster may be damaged as a result of incorrect routing.

### Paket 4: Noises from valuables/stowage compartment lock

**Validity:** model 221

**Design group:** 91.10

**Complaint:**

Noises when opening and closing the valuables/stowage compartment on the seat.

**Symptoms:**

Cracking, grunting, knocking or creaking noises etc.

**Cause:**

Lock is sluggish.

**Note**

These remedial measures must be performed whenever other work is performed on the seat, even if the customer does not directly complain about this problem. Preventive treatment of the lock is intended to avoid follow-up repairs in the future.



**Valuables/stowage compartment**

P91.10-3218-00

### Package 5: Noises from backrest

**Validity:** model 171.4

**Design group:** 91.10

**Complaint:**

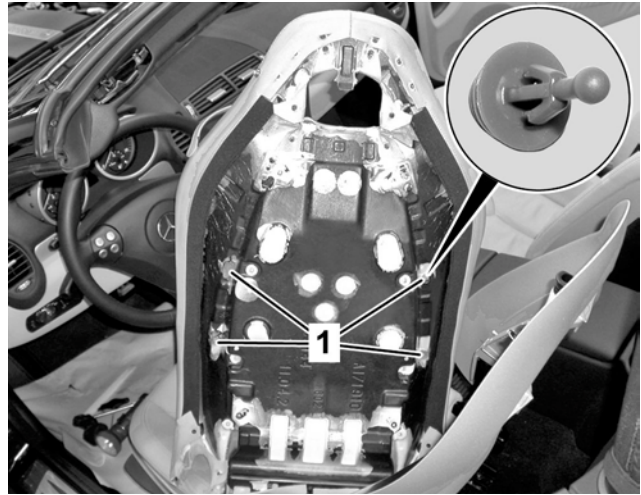
Noises from backrest

**Symptoms:**

Cracking or creaking noises etc.

**Cause:**

The red side attachment clips between the padding carrier and the backrest frame are broken. As a result, the side bolsters of the padding carrier are no longer fixed to the backrest frame.



1 Position of clips

P91.10-3219-00

### Package 6: Noises from backrest

**Validity:** model 169, 245

**Design group:** 91.10

**Complaint:**

The customer complains of noises in the backrest.

**Symptoms:**

Cracking, knocking or creaking noises etc.

**Causes:**

- The seat heater cable can chafe on the rubberized hair mat (all vehicles produced up to 19.7.06 may be affected.)
- The felt on the head restraint paddle can slip out of place and cause noises (all vehicles can be affected).
- The felt on the clips to the Pulmaflex mat are missing or have slipped out of place (all AVANTGARDE or ELEGANCE vehicles may be affected.)

## Combined Fixed-First-Visit measures

### Package 7: Noises and lateral play at cushion frame or at seat adjuster

**Validity:** model 169 up to VIN #148889,  
245 up to VIN # 005018

**Design group:** 91.10

**Complaint:**

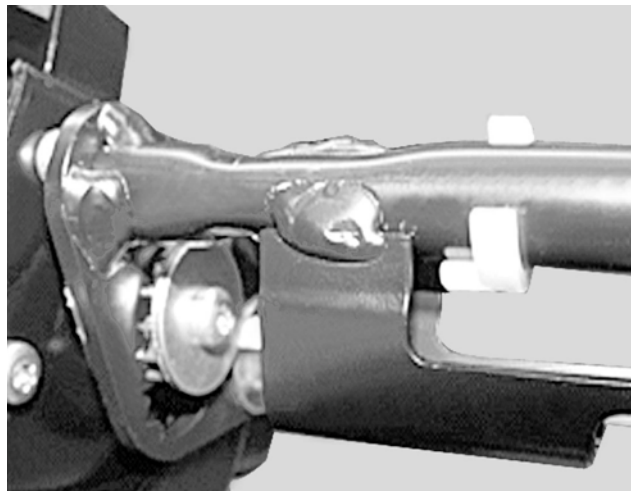
Noises from the cushion frame or seat adjuster.

**Symptoms:**

Cracking, grunting, knocking or creaking noises etc.

**Cause:**

Relative movements can lead to noises and play.



P91.10-3220-00

*Installed clip spacer ring*

**i** Chapter note

This chapter is intended to give you a rough overview of the TIPS documents currently available. See the respective document for detailed descriptions of the remedial actions and the current part numbers, which are not published here. You can find these under the specified design group or symptom.

**Noise from front seat during load change****Validity: model 203****Design group: 91.10 Front seats****Complaint:**

Noise from front seats during load change.

**Symptoms:**

Cracking, grunting or creaking noises etc.

**Cause:**

Inclination adjustment shaft in the area of the bearing brackets without antifriction agent.

**i** Note

Do not replace seat adjustment, only work on vehicles which are the subject of complaint.



## Noises

### Noises at front seats

**Validity:** model 124, 126, 129, 140, 163, 168, 169, 170, 171, 201, 202, 203, 208, 209, 210, 211, 215, 219, 220

**Design group:** 91.10

**Complaint:**

Noises at front seats.

**Symptoms:**

Cracking, grunting, metallic, knocking, whirring and/or creaking noises etc.

**Cause:**

Different noise sources to be localized individually in each case of complaint at contact points or surfaces on moving components of the seat adjustment mechanism under load.

**i Note**

The front seat must not be removed and disassembled in every case to eliminate noise complaints.

### Front seat folding backrest is stiff, sticks and causes noises

**Validity:**

203.7 up to #A959476

209.3 up to #F222147

209.4 up to #F223439

**Design group:** 91.10

**Complaint:**

Complaint about sluggish, jamming backrest on folding front seat. In some cases the backrest makes noises.

**Symptoms:**

Seat adjustment mechanism is sluggish.

Cracking or creaking noises etc.

**Cause:**

Release hook sticks or has excessive resistance.

### Noises from height adjuster during load change and on rough roads

**Validity:** model 164, 251 OK VIN: #220830

**Design group:** 91.10

**Complaint:**

Creaking noise from area of crossmember of height adjuster during load change and on rough roads. Both partially electric and fully electric seats are affected.

**Symptoms:**

Cracking or creaking noises etc.

**Cause:**

Inaccurate positioning of the felt on the transverse pipe (door side).



P91.10-3221-00

*Transverse pipe*

### Noises when electric seat fore/aft adjuster is operated

**Validity:** model 171 with electric seat adjustment (with code 275, 241, 242)

**Design group:** 91.10

**Complaint:**

Noises when electric seat adjuster is operated, caused by deformation of flexible shaft.

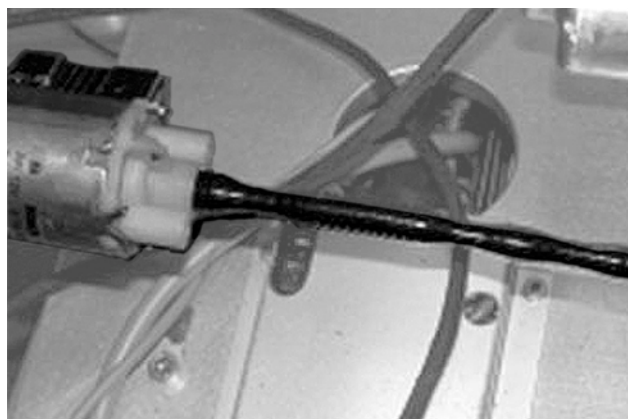
Generally, the electric seat adjuster does not need to be replaced due to this complaint. This measure must only be implemented if the flexible shaft between motor and transmission is visibly deformed and still engaged on both sides (the seat has **not** been moved on one side only).

**Symptoms:**

Noises.

**Cause:**

Damage to flexible shaft between motor and transmission of seat fore/aft adjuster.



P91.10-3222-00

*Flexible shaft at motor end*

## Noises

### Noises from seat rail for seat fore/aft adjustment

**Validity:** model 221

**Design group:** 91.10

**Complaint:**

Cracking noises from the seat rail for seat fore/aft adjustment on the tunnel side of the front seats. This complaint can arise especially on rough roads.

**Symptoms:**

Cracking noises etc.

**Cause:**

Contact between upper and lower rail at rear end of seat rail for seat fore/aft adjustment.

### Play/noises in electric seat adjustment or error messages from WSS sensors

**Validity:** model 164, 211, 219, 251  
(with USA country code)

**Design group:** 91.29

**Complaint:**

- The customer complains of play or noises in the electric seat adjustment
- SRS indicator lamp lights up
- Fault messages from WSS sensors

**Symptoms:**

Cracking, creaking, metallic noises or a fault message.

**Cause:**

- Broken or damaged bushing in seat adjuster causes play or noises during load change.

- Broken or damaged bushing in seat adjuster causes play and possibly an SRS fault message.
- Various fault codes



*Damaged bushing*

P91.10-3223-00

### Noises from seat cushion on multicontour seats and dynamic seats

**Validity:** model 211, 219 (with code 404 and 405, 433 and 434)

**Design group:** 91.25

**Complaint:**

On multicontour or dynamic seats, the driver complains about noises from the seat cushion area.

**Symptoms:**

Cracking noises etc.

**Cause:**

The multicontour or dynamic seat insert in the seat cushion is not encased in nonwoven fabric and can cause noises at the interfaces between the padding and cover.

### Complaint concerning noises from DS/MCS pump

**Validity:** model 221.0, 221.1 (with code 406, 409 and 432)

**Design group:** 91.25

**Complaint:**

The customer complains that the DS/MCS pump is too loud.

**Symptoms:**

Cracking, whirring, metallic noises etc.

**Cause:**

The predecessor DS/MCS pump was perceived as too loud by some customers. The new pump with optimized flow behavior is quieter.

## Noises

### Noises from rear backrest (on rough roads)

**Validity: model 203**

**Design group: 91.12**

**Complaint:**

Rear backrest lock rattles on rough roads. Both the one-piece (1/1) and the split (1/3 - 2/3) backrests are affected.

**Symptoms:**

Cracking noises etc.

**Cause:**

Relative movements on rough roads cause slight backrest offset in the direction of travel.

### During operation of the active seat cushion ventilation, the fans in the rear seat cushions make rattling or grinding noises.

**Validity: model 221.0, 221.1 as of VIN 000001 up to VIN 126227 (with code 223/224 or 402)**

**Design group: 91.30**

**Complaint:**

During operation of the active seat cushion ventilation, the fans in the rear seat cushions make rattling or grinding noises.

**Symptoms:**

Rattling, grinding or whirring noises etc.

**Cause:**

Collision between fan wheel and cushion shell during use.

### Noises from head restraint CAK

**Validity:** model 203, 211, 219, 221  
(up to week 41/2006)

**Design group:** 91.16

**Complaint:**

Creaking noises from CAK module in head restraint.

**Symptoms:**

Cracking or creaking noises etc.

**Cause:**

The plastic housings of the six pins in the CAK module are too big. This tolerance results in noises.

## Creases

### Creasing on driver/front passenger seat cushion cover

**Validity:** model 221 as of VIN 221.###-1A-045196 **Cause:**

**Design group:** 91.18

The loose style of the seat covers in model 221 appears unusual to the customer who may then make a complaint.

**Complaint:**

The driver/front passenger seat cushion covers in model series 221 become creased or are wavy.

**Symptoms:**

Creasing

### Creasing and waviness on driver, front passenger cushion cover

**Validity:** model 221.###-1A- up to 045196

**Cause:**

**Design group:** 91.10

Cushion covers lie loosely on upholstery and are wavy. This is an intentional design which aims to improve the perceived quality and break-in comfort. Slight creasing is desirable.

**Complaint:**

Wavy seat cushion covers.

**Symptoms:**

Creasing, seat cover works loose

**Rear cover creases**

**Validity:** model 211 (with code 807) up to week 44/06

**Design group:** 91.12

**Complaint:**

Creases in rear covers on vehicles as of model year 8/07.

On vehicles with Artico leather (with code 140), only the rear backrests (1/1) are affected.

On vehicles with Classic leather (with code 820) and Elegance equipment, the rear backrests (1/1) and the rear cushions (1/1) are affected.

**Symptoms:**

Creasing.

**Cause:**

Deviations in tolerance when sewing covers.



P91.12-3151-00

*Location of wire pockets in rear bench seat*

**Creases and waviness in rear seat cushion cover**

**Validity:** model 221

**Design group:** 91.12

**Complaint:**

The rear seat cushion covers become creased or are wavy.

**Symptoms:**

Creasing.

**Cause:**

The loose style of the seat covers in model 221 appears unusual to the customer who may then make a complaint.



## Malfunctions

### Lateral play in seat cushion noticeable when cornering

**Validity:** model 169, 245 (with code 221 or 222)

**Design group:** 91.10

**Complaint:**

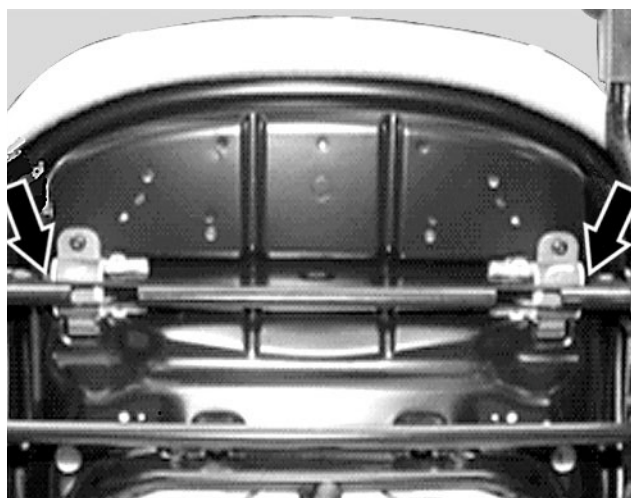
There is lateral play in the seat shells of both front seats. The seat feels loose during cornering because of this play. A cracking noise can also be heard when the seat cushion shell moves.

**Symptoms:**

Cracking or knocking noises etc.  
Insufficient lateral support provided by seat.

**Cause:**

The front bearing shells (cam clips) of the seat cushion shell allow the seat cushion a certain amount of play. The cracking noise occurs between the plastic bearing and cross-connection pipe.



P91.10-3225-00

*Position of cam clips*

### Easy entry/exit feature of seat fore/aft adjustment nonfunctional

**Validity:** model 164, 171, 203, 209, 211, 219, 230, 251

**Design group:** 91.10

**Complaint:**

The customer complains about the absence of the seat fore/aft adjustment function of the easy entry/exit feature. The steering wheel moves to allow better entry and exit without seat fore/aft adjustment.

**Symptoms:**

Function error.

**Causes:**

Possibility 1: On vehicles produced up to 31.5.05, replacing the instrument cluster can cause the seat fore/aft adjustment function of the easy/entry exit feature to cease operating.

Possibility 2: On vehicles produced as of 1.6.05, the seat fore/aft adjustment function of the easy entry/exit feature has been discontinued in series production due to technical modifications. It can no longer be ordered by customers.

Models 164 and 251 are an exception to this. On these models the function was discontinued in series production as of January 2006.

**"Pulse" LED flashing****Validity:** model 211, 219**Design group:** 91.10**Complaint:**

The customer complains of insufficient power of the pneumatic pump for dynamic seat control (FDS) and a flashing "Pulse" LED.

**Symptoms:**

Dynamic seat nonfunctional.

**Cause:**

Overload.

*PULSE switch*

P91.10-3226-00

**C-pillar catch on rear seat stiff****Validity:** model 169 as of VIN 005873**Design group:** 91.12**Complaint:**

Backrest requires a great deal of effort to lock.

**Symptoms:**

Backrest can only be locked with difficulty or not at all.

**Cause:**

The striker does not meet the opening in the backrest frame centrally and does not collide with the housing of the C-pillar catch.

## Malfunctions

### The backrest of the second seat row cannot be unlocked

**Validity: model 164.8**

**Cause:**

**Design group: 91.12**

Broken coupling bar in pull mechanism

**Complaint:**

The backrest of the second seat row cannot be unlocked.

**Symptoms:**

The backrest is sluggish or cannot be adjusted forwards.

### Backrest of second seat row cannot be locked or cannot be released from the lug on the third seat row.

**Validity: model 164.8**

**Cause:**

**Design group: 91.12**

The Bowden cable has jumped out of the fixing and the cover serving as a catch is no longer clipped in.

**Complaint:**

Backrest of second seat row cannot be locked or cannot be released from the lug on the third seat row.

**Symptoms:**

The backrest is sluggish or cannot be adjusted forwards.

## Backrest (MCS) air cushion control valve switch broken

**Validity:** model 169, 203, 209, 245  
(up to week 38/06)

**Design group:** 9 1.25

**Complaint:**

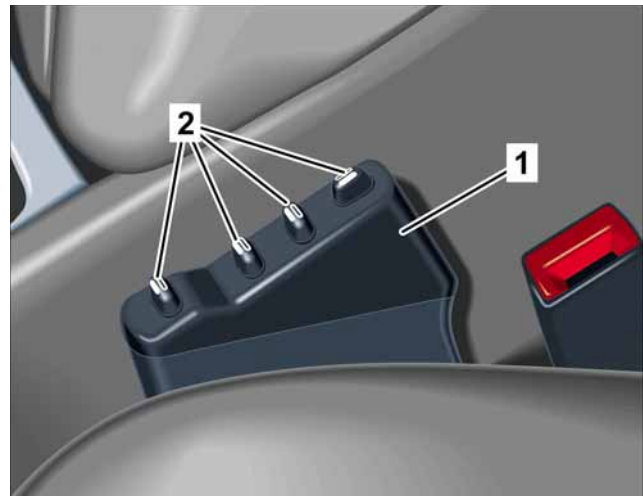
Multicontour seat backrest control valve switch broken.

**Symptoms:**

.Multicontour seat nonfunctional.

**Cause:**

Damage due to external force, incorrect operation.



P91.10-3227-00

**Shown on model 203**

- 1 Multicontour seat control valve
- 2 Control valve switch

## Malfunctions

### Partially electric seat adjustment switch breaks

**Validity:** model 211, 219 (without code 275, 241, 242), vehicles produced as of 1.07.04

**Design group:** 91.29

**Complaint:**

Switch broken and/or partially electric seat adjustment nonfunctional.

**Symptoms:**

Partially electric seat adjustment nonfunctional.

**Cause:**

Damage to switch. Accidentally kicking the switch can cause it to break e.g. when loading roof box or attaching bicycle carrier with driver door open and feet on rocker panel.



P91.10-3228-00

*Partially electric seat adjustment switch*

### Heated seats not operating.

**Validity:** model 171 (with code 873), vehicles produced up to 04/07

**Design group:** 91.30

**Complaint:**

Seat heater nonfunctional.

**Symptoms:**

Seat heater nonfunctional.

**Cause:**

The seat heating leads at the door side of the seat cushion break as a result of frequent entry/exit.



P91.10-3229-00

- 1 Seat cushion center panel heating element
- 2 Seat cushion side panel heating element
- 3 Main connector
- 4 Secondary connector

**DS inserts do not inflate completely****Validity:** model 211, 219**Design group:** 91.10**Complaint:**

The customer complains that the inserts for the dynamic function do not inflate completely.

**Symptoms:**

Dynamic seat nonfunctional.

**Cause:**

Overloaded DS pump.



P91.10-3230-00

*DS pump***Manual readjustment of multicontour seat (codes 404, 405)****Validity:** model 164, 169, 203, 209, 211, 219, 245, 251 (with code 404, 405)**Cause:**

Dictated by design (production configuration).

**Design group:** 91.25**Complaint:**

Pressure loss in air cushions when driving for an extended period. The customer has to readjust manually.

**Symptoms:**

.Multicontour seat nonfunctional.

## Air pressure

### Repair of pressure lines (dynamic seat, multicontour seat)

**Validity:** All models with dynamic seat or multicontour seat (with code 404/405, 433/434)

**Design group:** 91.25

**Complaint:**

- Dynamic seat nonfunctional
- Multicontour seat nonfunctional
- Pneumatic pump nonfunctional
- Pressure loss in pressurized system

**Symptoms:**

Dynamic seat or multicontour seat nonfunctional.

**Cause:**

Pressure lines kinked or chafed through.

Control unit/fault code		
Control unit	Fault codes	Fault text
PSE pneumatic controller unit (model 230, 215, 220)	B 1438 (012)	The safety time has been exceeded for the following pneumatic branch: multicontour backrest.
	B 1438 (013)	Continuous shutoff of multicontour backrest: The safety time was exceeded 5 times.
PFDS dynamic seat pump (model 220)	9250	Pressure build-up not possible due to a leak.
	9251	Pressure loss was detected due to leakage.
PFDS dynamic seat pump (model 211)	9250	Pressure build-up not possible due to a leak.
	9251	Pressure loss was detected due to leakage.



**Electrostatic charge on seats****Validity:**

Model 124, 126, 129, 140, 163, 168, 169, 170, 171, 201, 202, 203, 208, 209, 210, 211, 215, 219, 220, 230, 463

**Design group: 91.00****Complaint:**

Electrostatic charge on seats.

**Symptoms:**

Electrostatic charge.

**Cause:**

Electrostatic charging may occur at low relative air humidity if electric non-conductors rub against each other or are separated. Shoes with insulating plastic or rubber soles increase this effect. This charging cannot be prevented but its effects can be reduced by means of various measures. A vehicle-to-road ground strap will not remedy the problem. Passengers themselves can, however, become charged, especially if the vehicle is fitted with MB fabric or leather-upholstered seats or if the passengers are wearing clothing which causes electrostatic charging.

**Pilling (fiber burls) on seat covers****Validity:**

All models with fabric covers

**Design group: 91.18****Complaint:**

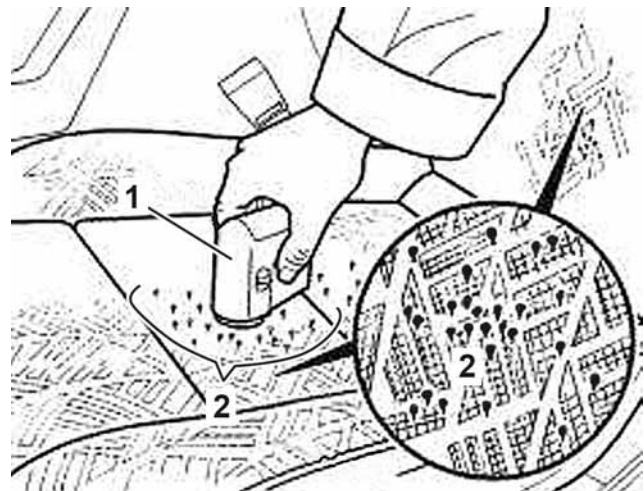
Pilling formation (small fiber knobs) on the seat cover fabric.

**Symptoms:**

Pilling formation.

**Cause:**

Fibers detach from the clothing of passengers (external-source pilling) and/or from the fabric of the seat cover (inherent pilling) and form small fiber burls on the surface as a result of sliding motion.



P91.00-2243-00

- 1 Wool razor
- 2 Fiber burls



## Seat cover

### Yellowing of armrest and seat covers in 2nd seat row (1/3 seat) except on vehicles with leather upholstery

**Validity:** model 164.120/122/175/186 up to VIN 022 197 (except code U61)

**Design group:** 91.18

**Complaint:**

Yellowing of armrest and seat covers of 2nd seat row. Yellowing of the seat covers can occur on the 1/3 seat on the left side of the backrest and seat cushion padding.

**Symptoms:**

Staining.

**Cause:**

Amines diffuse out of the foam padding, e.g. through seams, and cause a reaction with the upper paint layer of the PVC of adjacent components (e.g. armrest). This causes yellowing. This reaction only occurs in the dark.



P91.12-3154-00

**Armrest yellowing**

### Threads on cushion covers (code 807)

**Validity:** model 211 model year 2007 with (code 807 or 140)

**Design group:** 91.18

**Complaint:**

The customer complains about long, light-colored threads from the covers of model year 2007 (with code 807). It is primarily the rear seat bench that is affected. However, thread formation may also occur to a lesser degree at the front seats. Imitation leather covers (with code 140) in Artico Twin leather are affected.

**Symptoms:**

Thread formation.

**Cause:**

- A change of material for the inlays in the rear seat covers leads to loose threads.
- A change in the diameter of the perforations in the imitation leather cover material leads to loose threads.

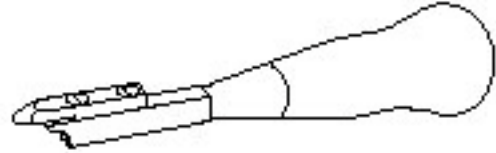


P91.00-2244-00

**Thread formation**

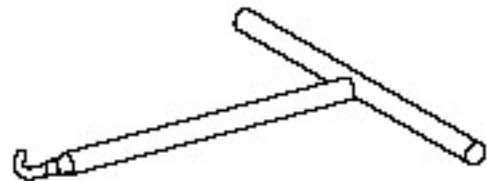
**Press-in tool**

<b>Valid for</b>	Model 170, 202, 208
<b>Use</b>	Press-in tool for repair work on driver/rear seats for safe installation of plastic clips (A140 988 37 78)
<b>DC number</b>	W202 589 08 63 00
<b>FG</b>	91
<b>Set</b>	K



**Removal and installation tool**

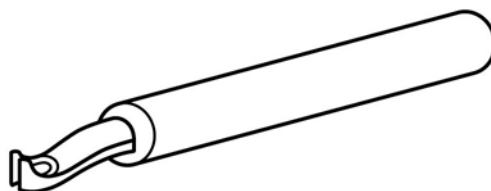
<b>Valid for</b>	Model 168, 208, 209, 211, 230, 639 Model 202 as of 1.08.96 with code (404, 405)
<b>Use</b>	Remove/install upholstery clips and springs on front seat backrest
<b>DC number</b>	W116 589 01 62 00
<b>FG</b>	68/91
<b>Set</b>	B



## Seat frame/seat inflators

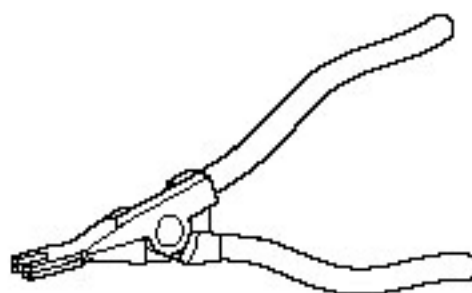
### Assembly tool

<b>Valid for</b>	216.3
<b>Use</b>	Assembly tool for hooking/unhooking cable on backrest lock
<b>DC number</b>	W216 589 00 59 00
<b>FG</b>	91
<b>Set</b>	B



### Pliers

<b>Valid for</b>	Models 211, 219
<b>Use</b>	Pliers to separate the pneumatic line connections.
<b>DC number</b>	W000 589 04 37 00
<b>FG</b>	91
<b>Set</b>	B



<b>CAK</b>	<b>PES</b>
Crash active head restraints	Polyester
<b>DAS</b>	<b>PES/WO</b>
Diagnosis Assistance System	Polyester/wool
<b>EPC</b>	<b>PFDS</b>
Electronic Parts Catalog	Pneumatic pump for dynamic seat
<b>FDS</b>	<b>PSE</b>
Dynamic seat	Pneumatic controller unit
<b>FFV</b>	<b>PVC</b>
Fixed-First-Visit	Polyvinyl chloride
<b>VIN</b>	<b>SA</b>
Vehicle Identification Number	Special equipment
<b>GLC</b>	<b>SRS</b>
Global Logistics Center	Supplemental Restraint System
<b>MCS</b>	<b>SWZ</b>
Multicontour seat	Special tools
	<b>TIPS</b>
	Technical Info Pool Service
	<b>WIS</b>
	Workshop Information System
	<b>WSS</b>
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