



Mercedes-Benz



# Technical Assistance for Proper Casualty Rescue from the Mercedes-Benz S-Class (Model 220)

**Training information**

**DaimlerChrysler AG  
May 2005**



Mercedes-Benz

Proper Casualty Rescue  
Mercedes-Benz S-Class (Model 220)

# Vehicle overview





# Vehicle design

## ◆ Crash test





# Vehicle design

## ◆ Crash test





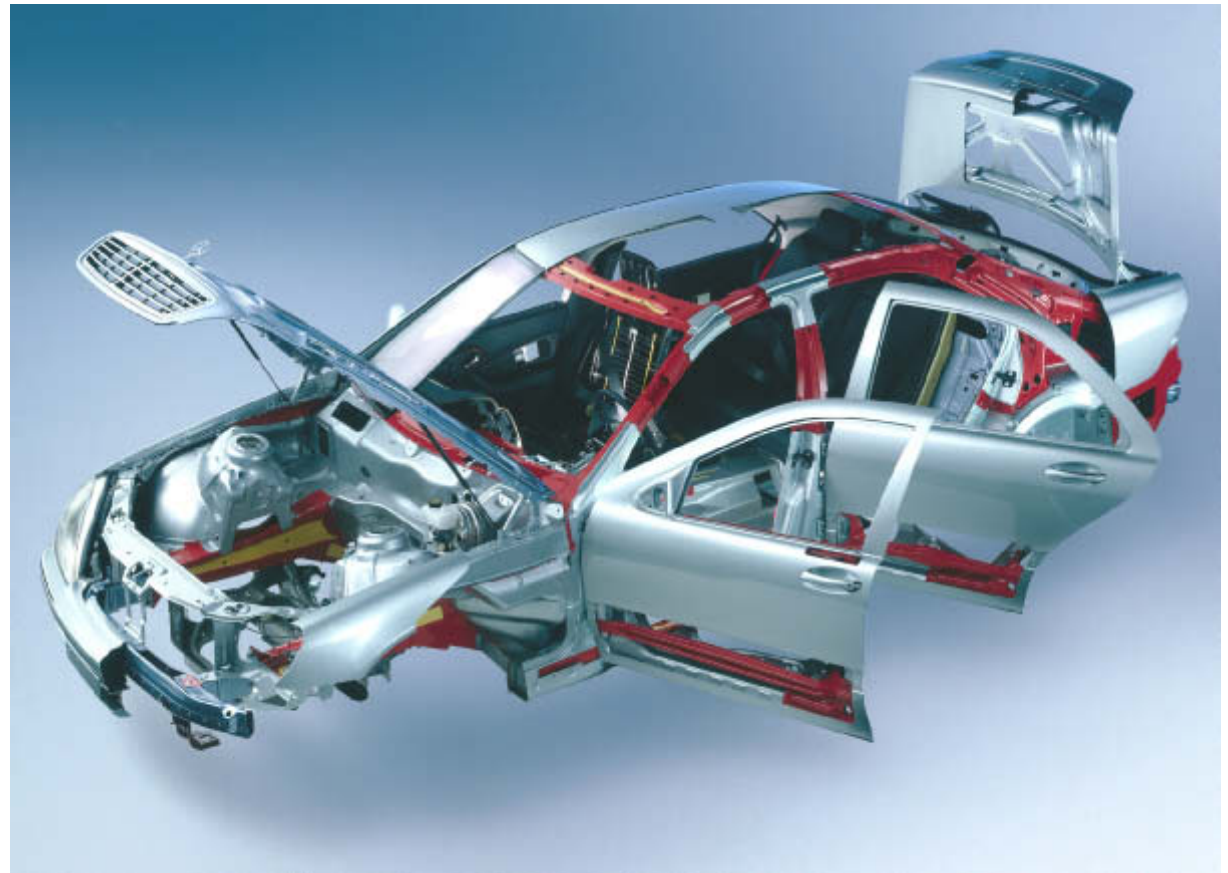


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Proper Casualty Rescue  
Mercedes-Benz S-Class (Model 220)

# Vehicle design

## ◆ Body structure





# Vehicle design

## ◆ Body support structure

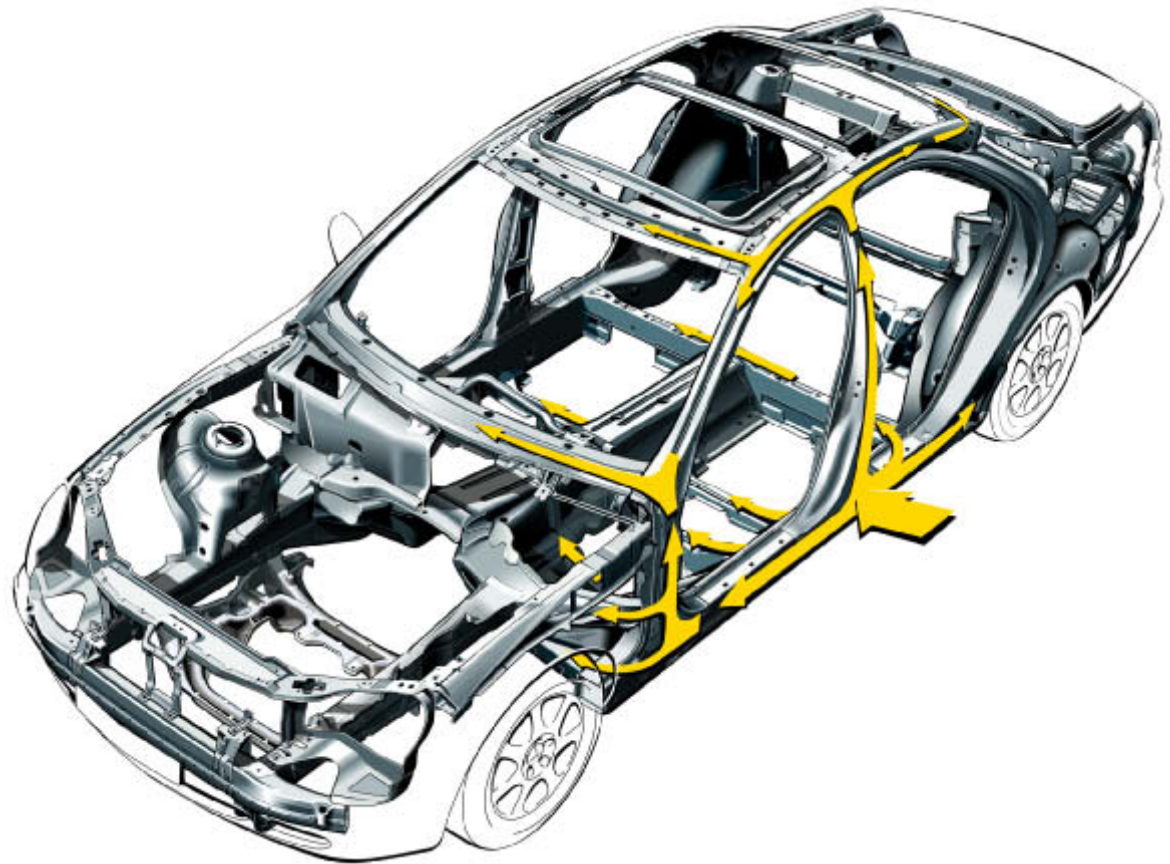






# Vehicle design

- ◆ **Application of force**  
**Body support**  
**structure with force**  
**lines in a side-on**  
**collision**







# Materials

## ◆ Windows

- As standard equipment: windshield made of laminated safety glass, rear window and side windows made of single-pane safety glass
- As special equipment: all windows made of laminated safety glass
- Windshield and rear window are bonded in
- The type of glass can be identified from the inscription printed on the window!





# Materials

## ◆ Windows

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# Safety systems

## ◆ Airbags

- Driver/front passenger airbag
- Sidebags in the front and rear doors
- Windowbags in the headliner



- ⚠ Compressed gas generators in the C-pillar







# Vehicle electrical/electronic systems

## ◆ Nothing works without electricity

The following control and comfort functions are operated electrically:

- Power windows
- Seat adjustment
- Steering column adjustment
- Easy entry/exit feature
- Outside mirror adjustment
- Sliding roof

**i** Use the electrical systems as necessary to aid the rescue before disconnecting the battery







# Vehicle electrical/electronic systems

## ◆ Vehicle access and engine start via KEYLESS GO

Access and drive authorization is issued via a transmitter card which is recognized by the KEYLESS GO antennas in the vehicle.





# Fire brigade procedure

- The "6 phases" of proper casualty rescue
  - 1 Securing the area**
  - 2 Assessing the situation**
  - 3 Initial opening**
  - 4 Treatment opening**
  - 5 Rescue opening**
  - 6 All necessary follow-up work**



# Fire brigade procedure

- Further rescue principles
- The internal rescuer checks the interior compartment for airbags (SRS/SPS) and reports which airbags have deployed and which have not
- Know the safe distances (30-60-90); 30 cm from sidebags/kneebags, 60 cm from the driver's front airbag, 90 cm from the front passenger's front airbag
- According to the manufacturer there is no longer any danger of an airbag deploying after the battery is disconnected, because the time until which the entire system is without power is significantly less than 1 minute.
- The vehicle is left standing or lying where it is.
- The internal rescuer (person reporting the accident or rescue crewman) is responsible for tending to any casualties until rescued from the vehicle.
- Rescue tools: Kendrick Extrication Device or spineboard; scoop stretcher/vacuum mattress



# Fire brigade procedure

## 1. Securing of the area by the fire brigade or the police







# Fire brigade procedure

## 2. Assessment/condition and location of casualties





# Fire brigade procedure

## 2. Assessment/securing the vehicle

- **Wedging the vehicle**





# Fire brigade procedure

## 3. Initial opening/glass handling







# Fire brigade procedure

## 3. Initial opening/initial access

 **Maintaining the casualty's vital functions**







# Fire brigade procedure

## 3. Initial opening/battery handling

- The hazard warning system is switched on
- Electrical systems are used as necessary to aid the rescue
- The seat belts are cut
- The ignition is switched off



The battery in the S-Class is located in the right side of the trunk



# Fire brigade procedure

## 3. Initial opening/scanning for airbags

- The inner paneling on the C-pillars is removed



1 Compressed gas generator in the C-pillar



2 Deployed driver airbag

3 Deployed front passenger airbag



# Fire brigade procedure

## 4. Treatment opening

- Removal of the driver door, starting here at the hinge side






# Fire brigade procedure

## 5. Rescue opening

### General rules:

- **Cut at locations**
    1. where the situation demands
    2. where it is safe
    3. where there are the greatest chances of success according to the cutting gear used
-  **Do not cut in the vicinity of gas generators and seat belt height adjusters**

### Recommended cut location







# Fire brigade procedure

## 5. Rescue opening

- Cut through the C-pillar below the bottom edge of the roof
- ⚠ Pay attention to the compressed gas generator!

Recommended cut location





# Fire brigade procedure

## 5. Rescue opening

- Remove the roof
- The casualty can now be rescued from the vehicle





# Fire brigade procedure

## 6. All necessary follow-up work

- Clean the site of any leaked operating fluids
- Render assistance to the vehicle recovery crew
- Hand over the accident site to the police
- Remove the equipment used to secure the accident site





# Epilogue

The information above is based on the currentstate of the art.

The pictures were taken during the training course "Technical Assistance: Proper Casualty Rescue" at DaimlerChrysler's Sindelfingen Works Fire Brigade.

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