FIA Foundation
for the Automobile and Society

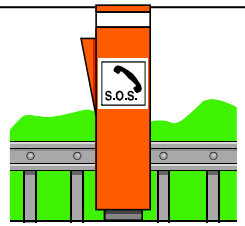
# ADAC accident research:

## *Response teams' instant access to selective information saves lives:*

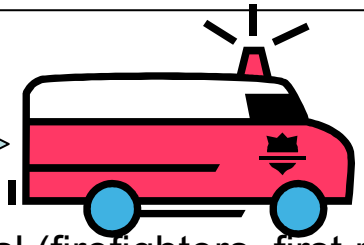
## *ADAC on-board rescue sheet*

# Emergency response chain – the chronology of rescue

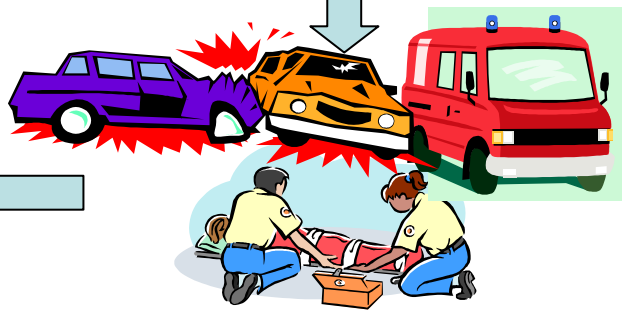
Crash at 0mins



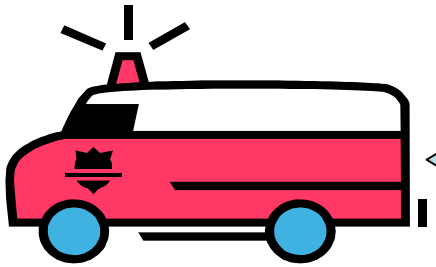

Alert
after 10mins



Arrival (firefighters, first responders)
after 20mins



Neutralisation of scene hazards,
primary care and release of patient
40mins post-crash



Patient management /
hospital transfer starting
at 40mins post-crash

Hand-over to hospital
after 60mins

- Best practice on emergency response requires first responders to deliver traumatised patients to a hospital within one hour (**Golden Hour**) to minimise mortality.
- Within the Golden Hour, the emergency response chain allocates **20 minutes** for technical rescue operations.

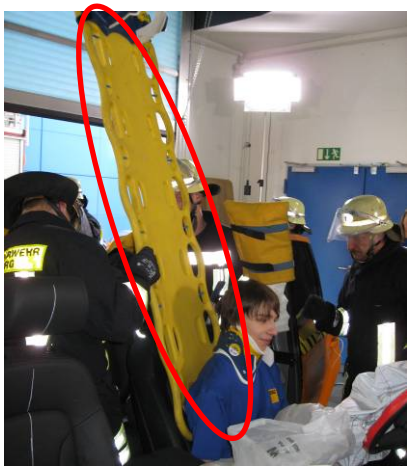
# Patient-focussed rescue

Patient-focussed rescue is "…the fastest possible extrication of victims considering injury patterns" [1]

- Emergency physician's diagnosis (including tentative diagnosis) defines the rescue approach (e.g. suspected spine injury)!
- Preventing additional injury during the rescue operation must always be a prime consideration (e.g.: spine twist ➔ paraplegia, removal of glass ➔ cuts, extracting patient with force ➔ fractures)
- Victims should never be "extracted with force" from the vehicle (e.g. through windows, door opening etc.) unless for **rapid release rescue** (warranted e.g. for resuscitation)

Dashboard lift to enlarge footwell and free trapped legs

Roof removal to optimise in-vehicle patient care and allow in-line extrication



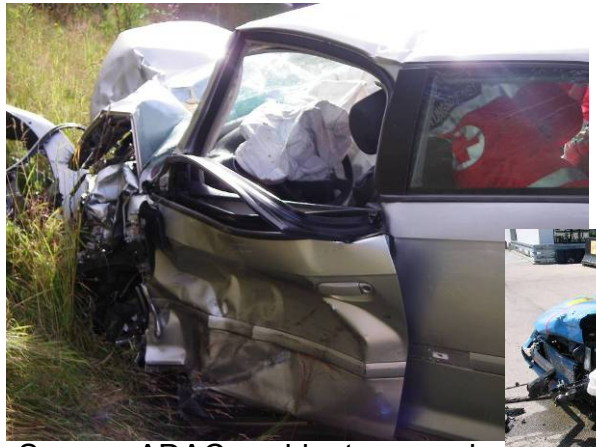
Long spine board for patient stabilisation

[1] Source: Technische Hilfeleistung bei Pkw-Unfällen (Technical Rescue Response to Car Accidents), ecomed Sicherheit, 2008

# Cabin stability: a blessing for passengers – a curse for emergency response teams

Year of manufacture 1995

1987



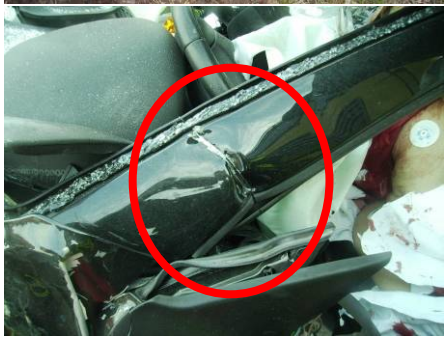
Year of manufacture 2005

2007

Source: ADAC accident research

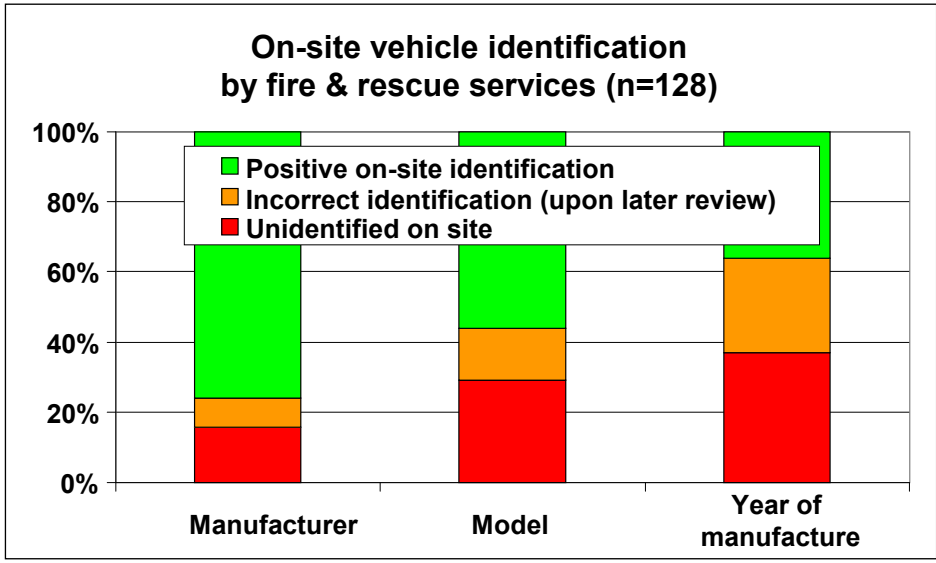
- Stable cabins are vital for surviving severe accidents
- Higher structural vehicle stability complicates technical rescue
- In 19% of the severe accidents documented by ADAC air rescue technical rescue is a problem
- The newer a vehicle, the longer technical rescue may take
- The “Golden Hour” (first hour post crash) promises good chances of survival for road casualties

# Current operational rescue problems



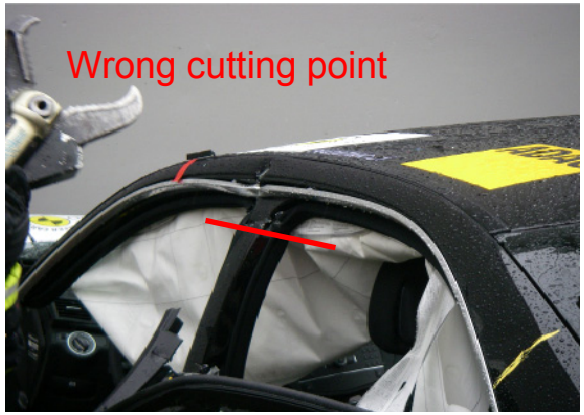
Source: ADAC accident research

- **Cutting**
  - 26% of problems with conventional rescue cutters are due to insufficient cutting force
    Reason: high-strength steel and other cabin reinforcing elements
  - 33% of rescue cutter problems are due to insufficient shear angle
    Reason: modern vehicles have wider roof pillars
- **Spreading**
  - 72% of problems with rams are due to difficulties locating suitable purchase points (for removing trapped victims)
- **Vehicle identification**
  - First responders fail to positively identify a vehicle and have no reference to their emergency response guides
  - For 64% of the vehicles, first responders do not recognise the year of manufacture

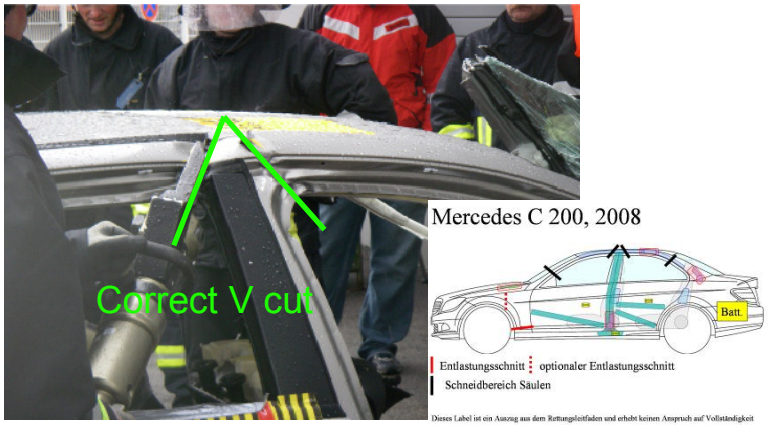


# Solution:
# Rely on information to save time: on-board rescue sheet

## Operations without rescue information




## Operations with rescue information

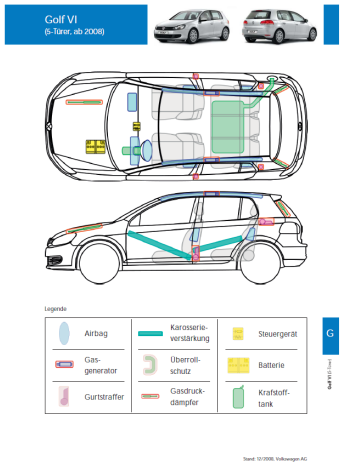



- ADAC response team survey:
  - 2 response teams operating independently
    Team 1: without rescue information
    Team 2: with OB rescue sheet
- Result:
  - Team 1:(no OB rescue sheet)
    Delayed by cabin scan,
    wrong cutting lines,
    no battery localisation
  - Team 2: (with OB rescue sheet)
    Number of airbags known
    V-shape cuts in high-strength steel
    No dangerous cuts in airbag generator risk zone
- **Time** to **access** the victim was **nearly halved** by removing the roof (10min instead of 18min)
- **30%** time-saving on the **total rescue operation** (6-9min)!

Source on-board rescue sheet : Moditech, cutting point marks: Mercedes Benz emergency response guide for passenger cars

# ADAC solution “3 steps to safety”

**Print OB rescue sheet**




**Attach to sun visor on driver‘s side**

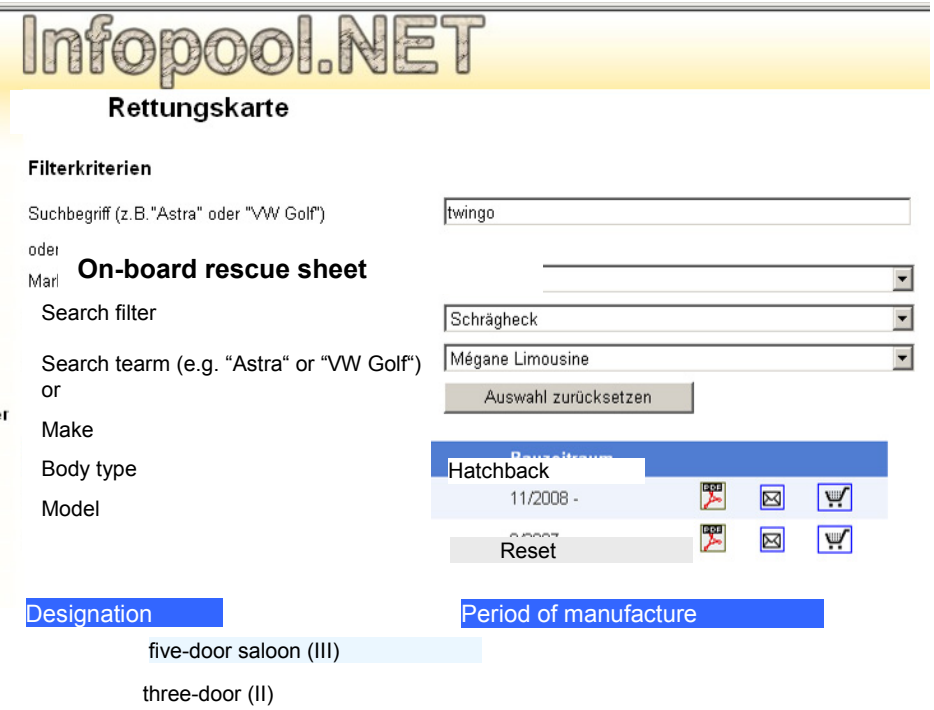

**Attach ADAC rescue sticker to windscreen**

Solution by ADAC accident research:

1. **Standardised rescue sheet:**
   At the initiative of ADAC, manufacturers and importers have provided standard OB rescue sheets since 2009 at:
   www.rescuesheet.info
2. **Hardcopy rescue sheet:**
   Best interim solution pending ratification of electronic data transfer (approx. 2020). Uniform practice of keeping on-board rescue sheet behind driver’s sun visor and attaching the ADAC rescue sticker to the windscreen
3. **Digital rescue sheet:**
   **2 options for implementation :**
   a. Computerised rescue sheets search based on **licence plate** number by fire and rescue services
   b. 2012+: **eCall** roll-out for new vehicles*

*eCall market penetration expected for 2020

# Towards the digital on-board rescue sheet




**ADAC initiative :**

Idea:

Provide **fast on-site access to non-commercial database** containing information for all makes

Step 1:

Approach manufacturers to release data (manufacturers’ documents)

Step 2:

Build rescue sheet database for fast download of relevant rescue sheet

Step 3:

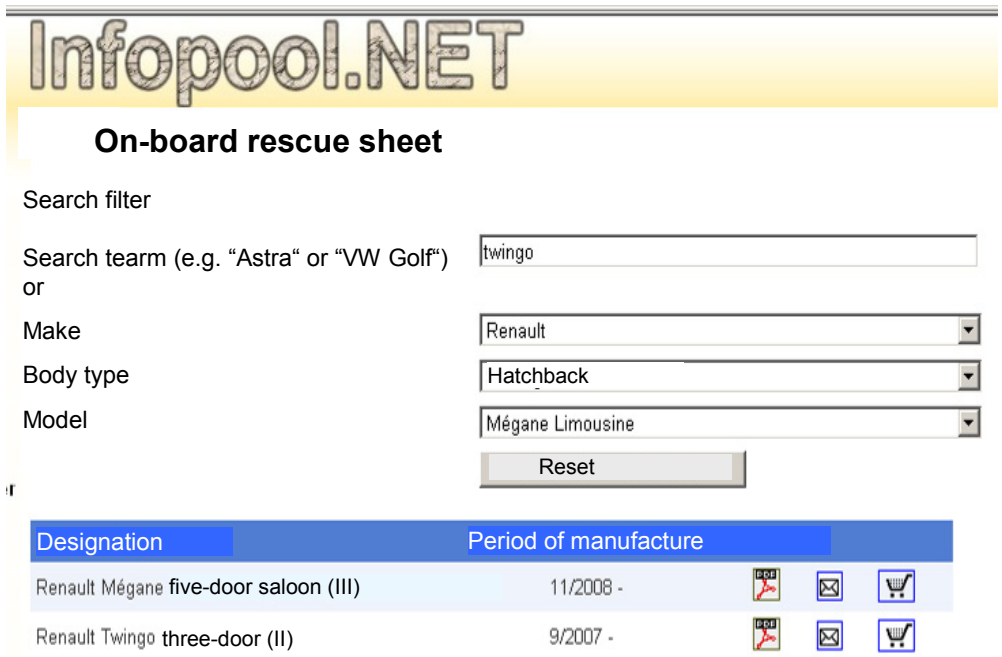
Interface rescue sheet database with Federal Motor Transport Authority (KBA) data transfer facility (search by licence plate number)

Step 4:

Integrate database in dispatch software (rescue control centres) or fire brigade information systems (on-site)

**Aim: Fast access to rescue sheet at the rescue scene**

# Towards the digital on-board rescue sheet




**Database implementation:**

Save all **released** manufacturer on-board rescue sheets **as individual sheets**

Define rescue sheet identifiers*:

- **manufacturer**
- **model**
- **body type**
- **number of doors**
- **YOM**

*minimum data required to trace rescue sheet

Combine database, on-site search and vehicle data transfer (VIN or licence plate) to permit download of relevant rescue sheet/vehicle information at the rescue scene

Rescue control centres / response teams will be able to use this feature subject to data release by manufacturers

# Towards the digital on-board rescue sheet

Infopool.NET

**On-board rescue sheet**

Search filter

1. Make
2. Body type
3. Model

Renault

Hatchback

Mégane Limousine

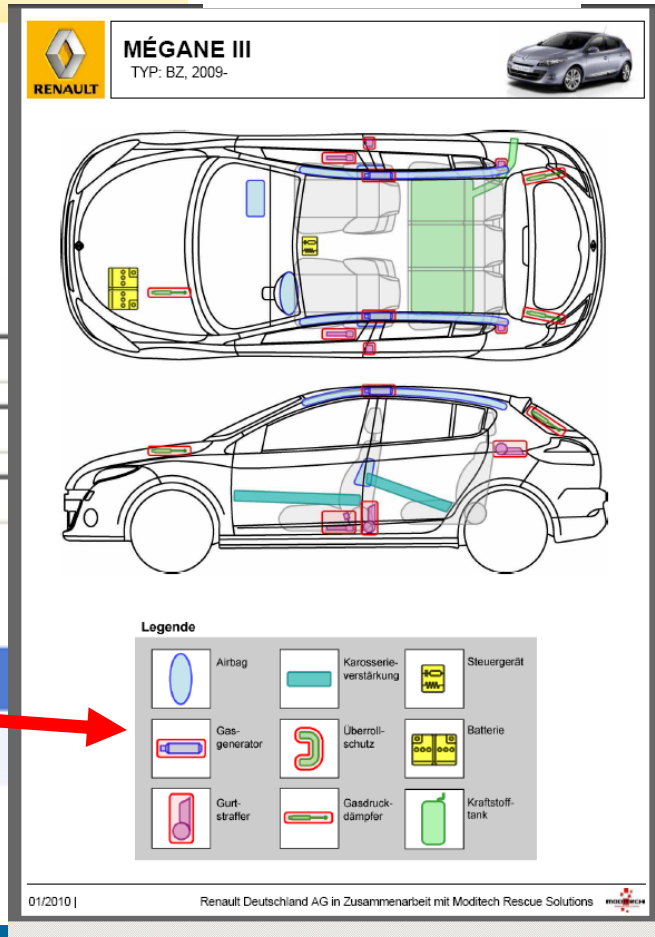
Reset

| Designation | Period of manufacture |
|---|---|
| Renault Mégane five-door saloon (III) | 11/2008 - |

Search result

Click to download rescue sheet

Example:

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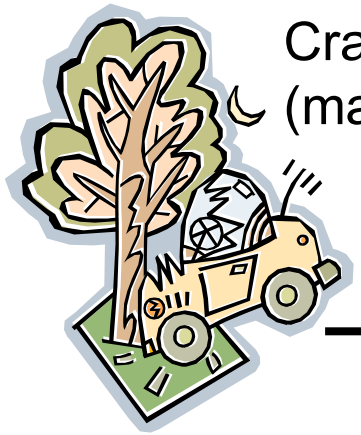
# Outlook



Crash alert
(manual or eCall)

**Rescue control centre**

rescue sheet

colour-coded*

**Fire brigade**

**VIN / licence plate decoder**

**Rescue sheet data base**

**Situation**

Rescue sheet database for 90% of the market (software implementation in place)

Response teams are able to run search by licence plate number

Manufacturer data not yet fully released

**Prospect:**

**Search by licence plate number / VIN transfer will allow response teams to identify the vehicle (prior to call-out) and obtain the matching rescue sheet**

* identifying potential hazard zones

# What vehicle manufacturers can do

- provide relevant rescue information for each airbag-equipped vehicle model at least in English on a standardised A4 rescue sheet (cf. German template)
- on this rescue sheet, indicate the recommended cutting points to facilitate cutting high-strength steel structures and prevent cutting into airbag gas generators
- indicate the purchase points in which to place hydraulic rams etc. for spreading footwells
- make the model-specific rescue sheet available on the Internet and/or through their authorised dealers
- deliver new vehicles with the rescue sheet in place behind the driver's sun visor

# What political decision-makers can do

- define harmonised standards for rescue technology and rescue tactics
- require car manufacturers to make model-specific rescue sheets available in a central database where, in an emergency, rescue control centres from all over Europe can download the specific sheets for any type of vehicle and send them to the rescuers on-site
- require fire and rescue services to check their technical equipment and upgrade their hardware if it does not comply with the state of the art
- require rescue control centres and fire brigades to have an IT infrastructure adequate for electronic data transmission

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