

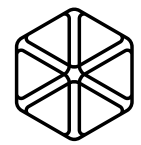


BLIKSUND

Crash Recovery System

Certified Instructor Program 2022

Notes



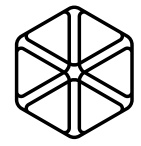
BLIKSUND CRS



**CERTIFIED
INSTRUCTOR
PROGRAM
2022 - 2023**

After following the CIP training, the participants will be able to:

- Name and use the latest changes of and in the CRS system
- Apply the CRS system in further training activities for the remaining professional cycle of their own organization and colleagues
- Apply current knowledge about safety systems constructions and drive systems in vehicles in daily practice.



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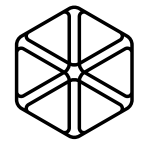


PROGRAM

CIP 2022 -2023

1. Introduce and learning questions
2. Updates CRS system
3. Added vehicles
4. Operate CRS
5. Case
6. Vehicle developments
7. Practical assignment: Story Tell
8. Practice safely
9. Practical assignment:
 1. CRS Magnet Plates
 2. VR App
10. Evaluation



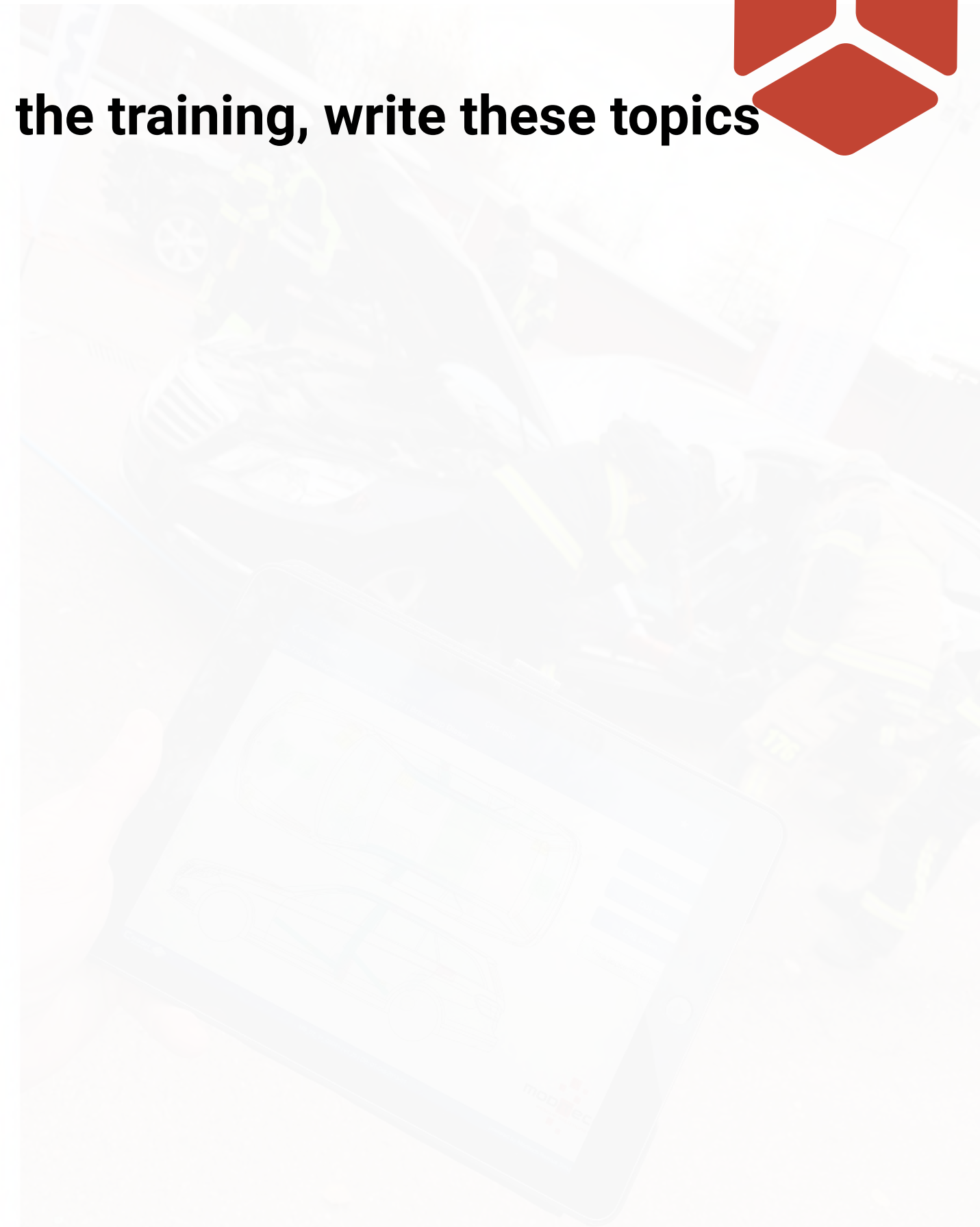


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INTRODUCE AND LEARNING QUESTIONS

Align the matters one wants to see covered in the training, write these topics down and embed them in the lesson.

What specific questions are there about using the Crash Recovery System?

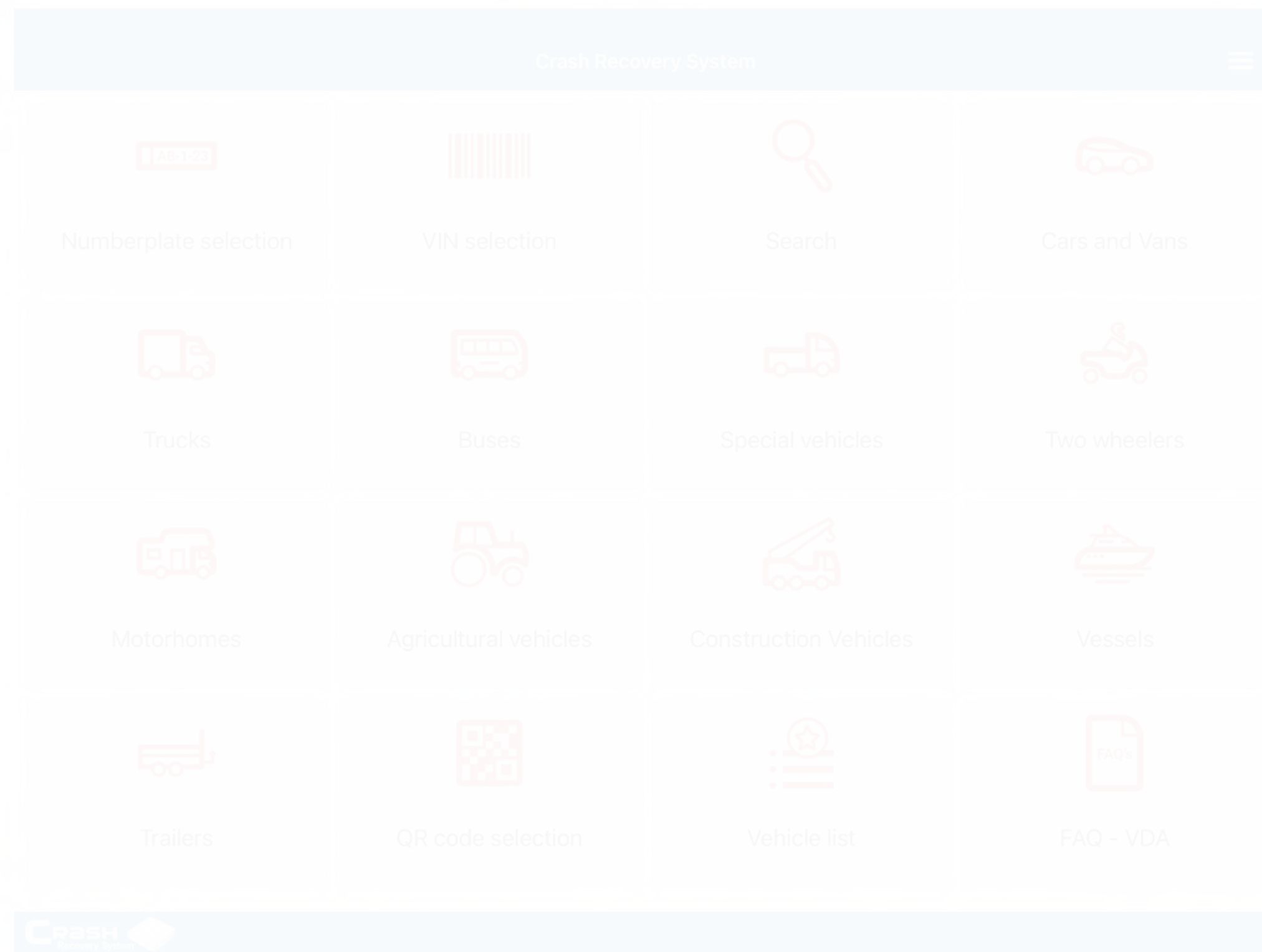


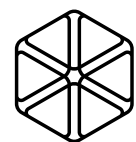


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UPDATES CRS SYSTEM





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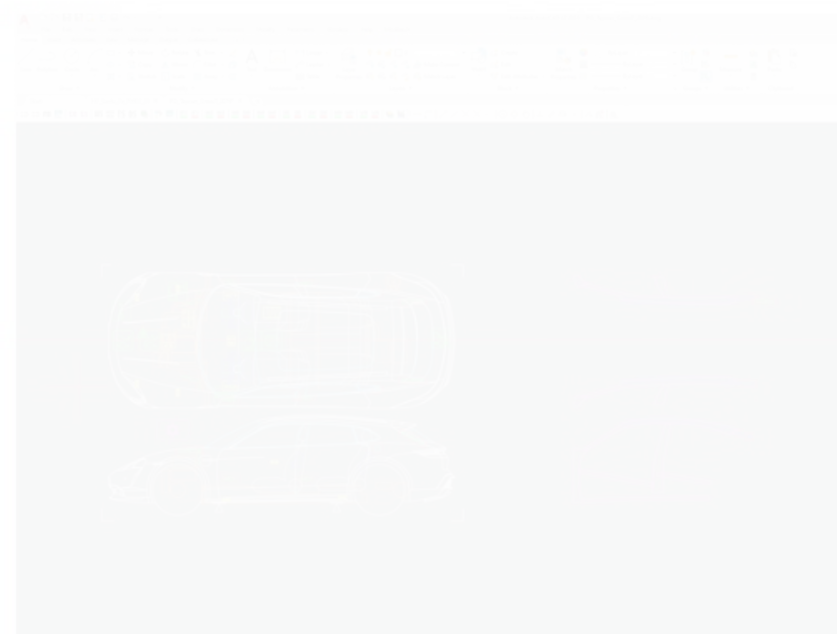


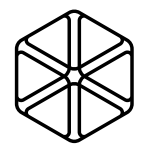
A GLIMPSE BEHIND THE SCENES

After collecting all relevant safety information about the vehicle for the emergency services, we can start drawing the model in AutoCad. The contours of the top and side views of the vehicle are plotted. Then, layer by layer, the components are added in the correct location.

Photos are taken of the vehicle, which in almost all cases is physically present on-site, to provide information about the various components with supporting photographic material.

The information, the drawings and the photographic material are finally collected into one interactive Rescusheet as you know it. The CRS-ID for the Rescue Sheet is linked to a registration number, chassis number and QR code so that the vehicle can be searched for in several ways in the Crash Recovery System. Now that the Rescuesheet is ready, it will be included in the next CRS database.





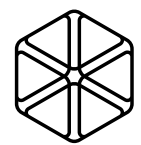
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CRS SMARTPORT EDITION

With the CRS SmartPort Edition, the port and vessel crew can request the correct information about the vehicle in advance via the numberplate or manually via make, model and type.





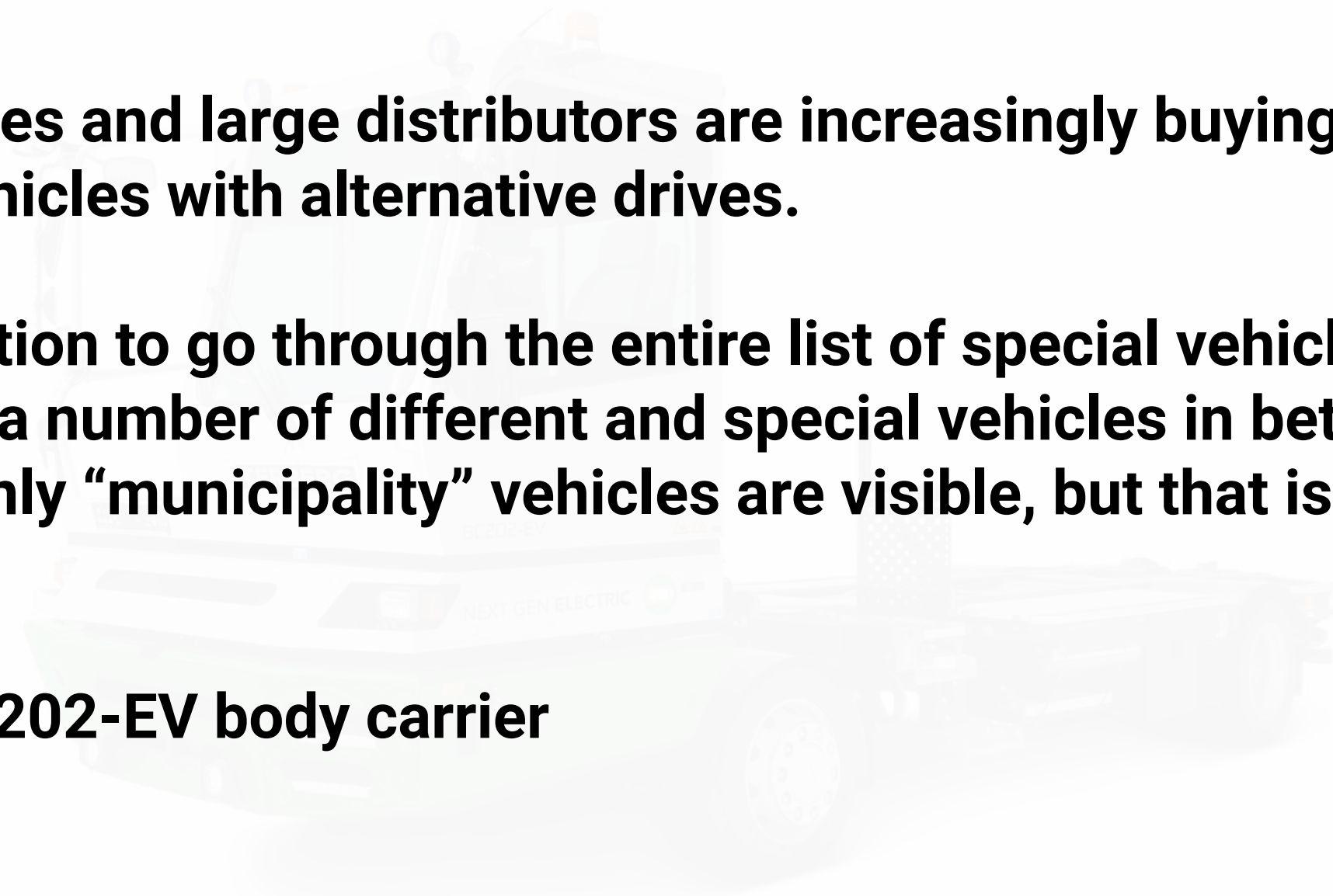
SPECIAL VEHICLES

The first models were added with the database update at the beginning of April 2020.

Cities, municipalities and large distributors are increasingly buying small multifunctional vehicles with alternative drives.

Here it is the intention to go through the entire list of special vehicles, because there are a number of different and special vehicles in between. So it seems that only “municipality” vehicles are visible, but that is not the case.

Photo: Terberg BC202-EV body carrier



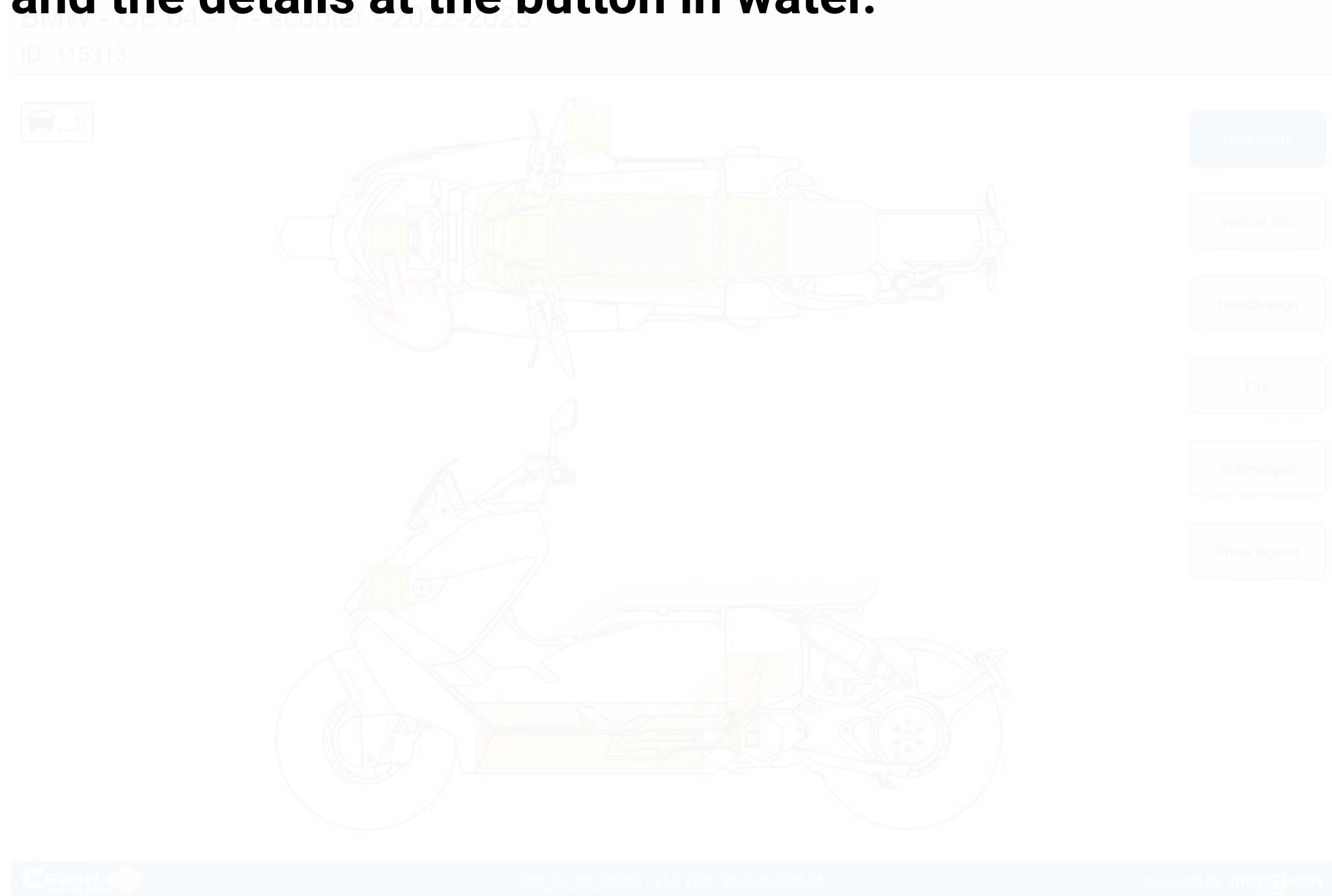


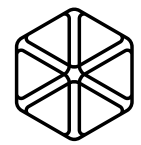
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TWO-WHEELERS

Ask the question to look up a motorcycle and ask the battery type, the deactivation and the details at the button in water.

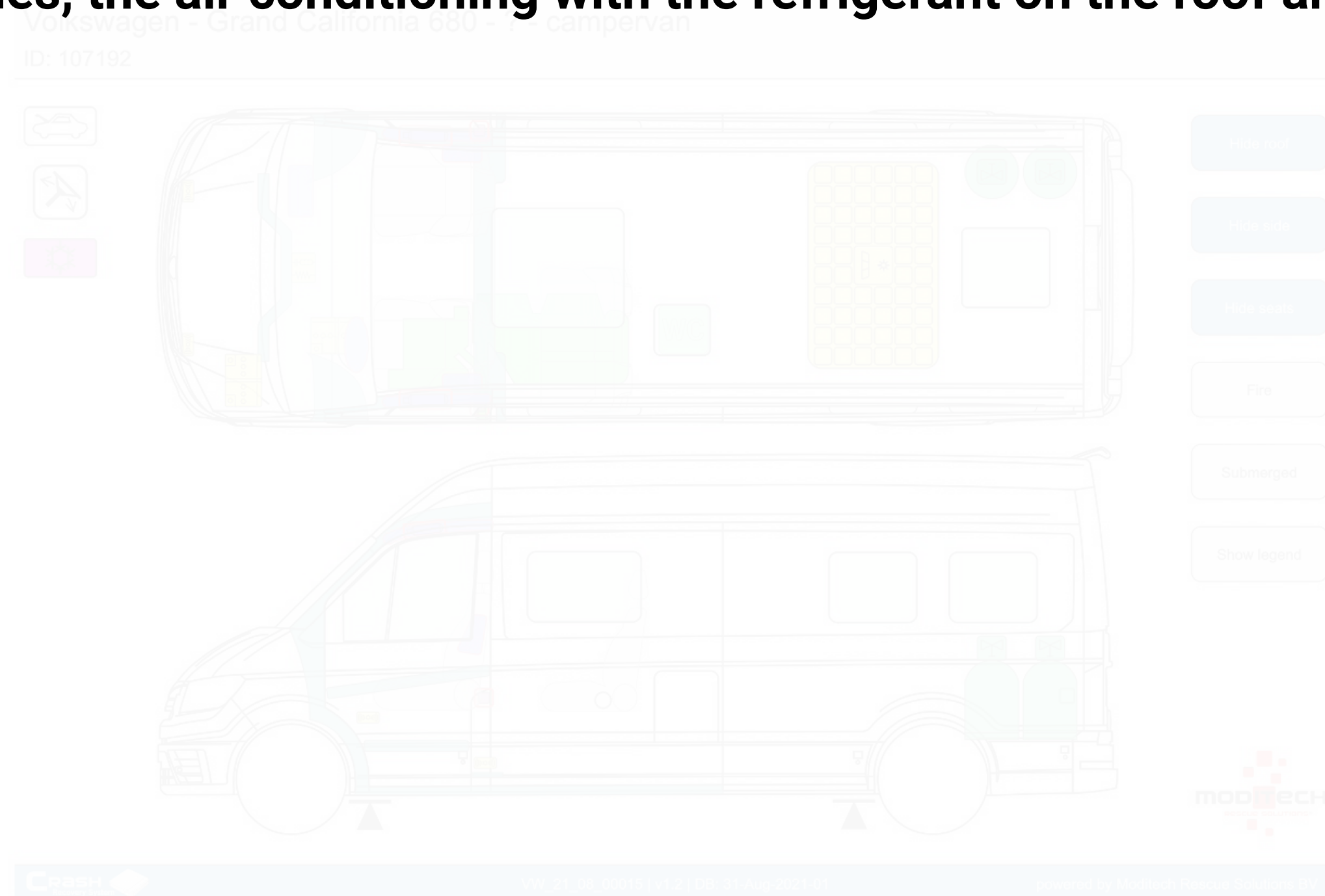


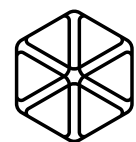


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MOTOR HOMES

A few important things are clearly visible on this screenshot: location of the gas bottles, the air conditioning with the refrigerant on the roof and the solar panel.





AGRICULTURAL VEHICLES

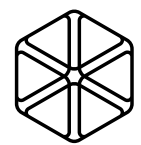
Agricultural vehicles in the CRS

We recently added the first agricultural vehicle, the Alltrec 4810T. This universal machinery carrier can be used for different tasks, depending on the machinery mounted. The various machinery, such as lawnmower, weeder or sweeper/brush machine, are attached to the front of the vehicle. The Alltrec 4810T is mainly used for green space maintenance in cities and parks.

The Alltrec 4810T is fully electrically powered, with the front wheels providing the drive and the rear wheels the steering. The 48-volt Lithium-iron-phosphate (LiFePO₄) battery pack is available in a 20 kWh or 30 kWh version. The battery pack is located in a sealed steel container in the centre of the vehicle. Using both batteries, it is possible to work a full day with the vehicle, depending on the job.

For emergency responders, there is a service/emergency switch on the steering column to cut the power to the vehicle completely in case of emergency. When the vehicle comes to a stop, the handbrake is automatically applied.

In some cases, this agricultural vehicle can be traced via the registration number. When this vehicle is involved in an accident or fire situation, emergency responders can always retrieve the information manually in the CRS via make and model in the agricultural vehicle category. We will be adding more agricultural vehicles to the CRS in the coming months, so be sure to stay up-to-date.



BLIKSUND CRS

AGRICULTURAL VEHICLES



CRASH

[← Agricultural vehicles](#)[CRS Rescuesheet](#)

[★](#)[↺](#)[📄](#)

Alltrec - 4810T - Electric - tool carrier - 2020-2021
ID: 104219

Service/Emergency disconnect switch



Hide roof

Hide side

Hide seats

Deactivation

Fire

Submerged

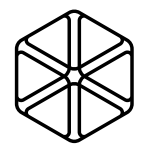
Show legend



CRASH

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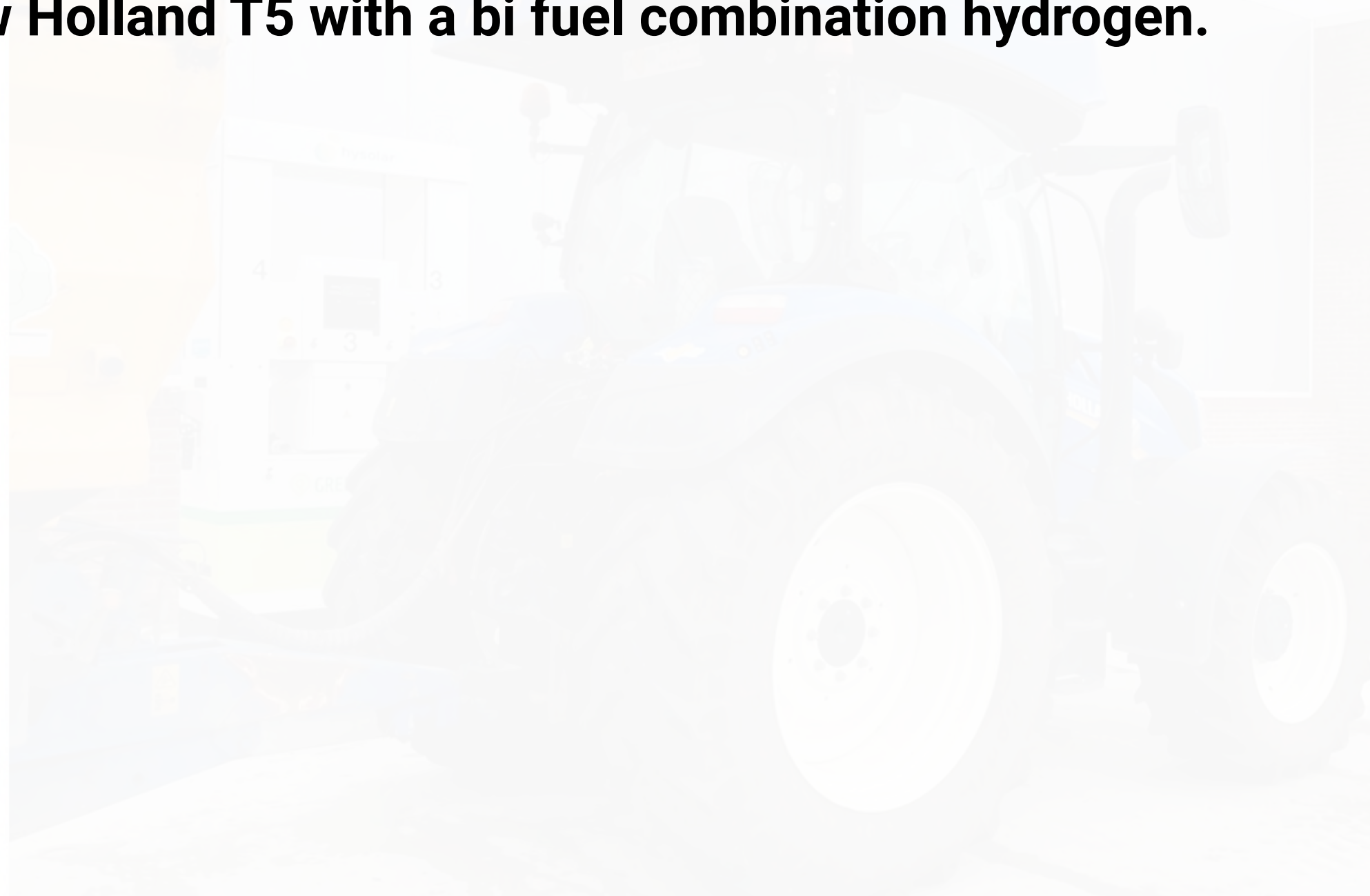
powered by Modutech Rescue Solutions BV

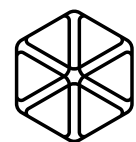


BLIKSUND CRS

AGRICULTURAL VEHICLES

The registration and number plate requirement from 1-1-2022 for agricultural vehicles has ensured that these vehicles can also be found in the CRS. The database will continue to expand in the coming years. Here the New Holland T5 with a bi fuel combination hydrogen.





CONSTRUCTION VEHICLES

Discuss with the participants the different ways to secure this vehicle. Using the deactivation button, have them look up all the steps.

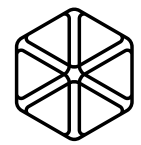
CRS Preview: Construction Vehicles

Sustainable work and CO2 reduction are highly topical themes in the construction sector. Contributing to lower emissions is an important goal, whereby emissions should preferably be reduced to zero by 2030 and building sites should be completely emission-free. The recent increase in the use of zero-emission equipment by construction companies working towards a clean and sustainable fleet is already a big step in this direction. These include electrically powered excavators or hydrogen powered cranes that do not emit nitrogen.

New categoryFor Moditech, this development is reason to add a new category to the Crash Recovery System; **Construction Vehicles**. Behind the scenes, we are working hard on several alternative-powered construction vehicles that will be added to this category in the coming months through the monthly Database Update.

Doosan DX165W electricThis multi-purpose wheeled electric excavator will be the first construction vehicle to be incorporated into the CRS. The ECE (Electric Construction Equipment) converted Doosan can work a full day on a single charge of the Smart Energy Pack, regardless of weather conditions. This replaceable battery can also be used as a fully self-sufficient point for supplying construction power. The expectation is that vehicles from other suppliers such as Liebherr will also be added to the CRS soon.

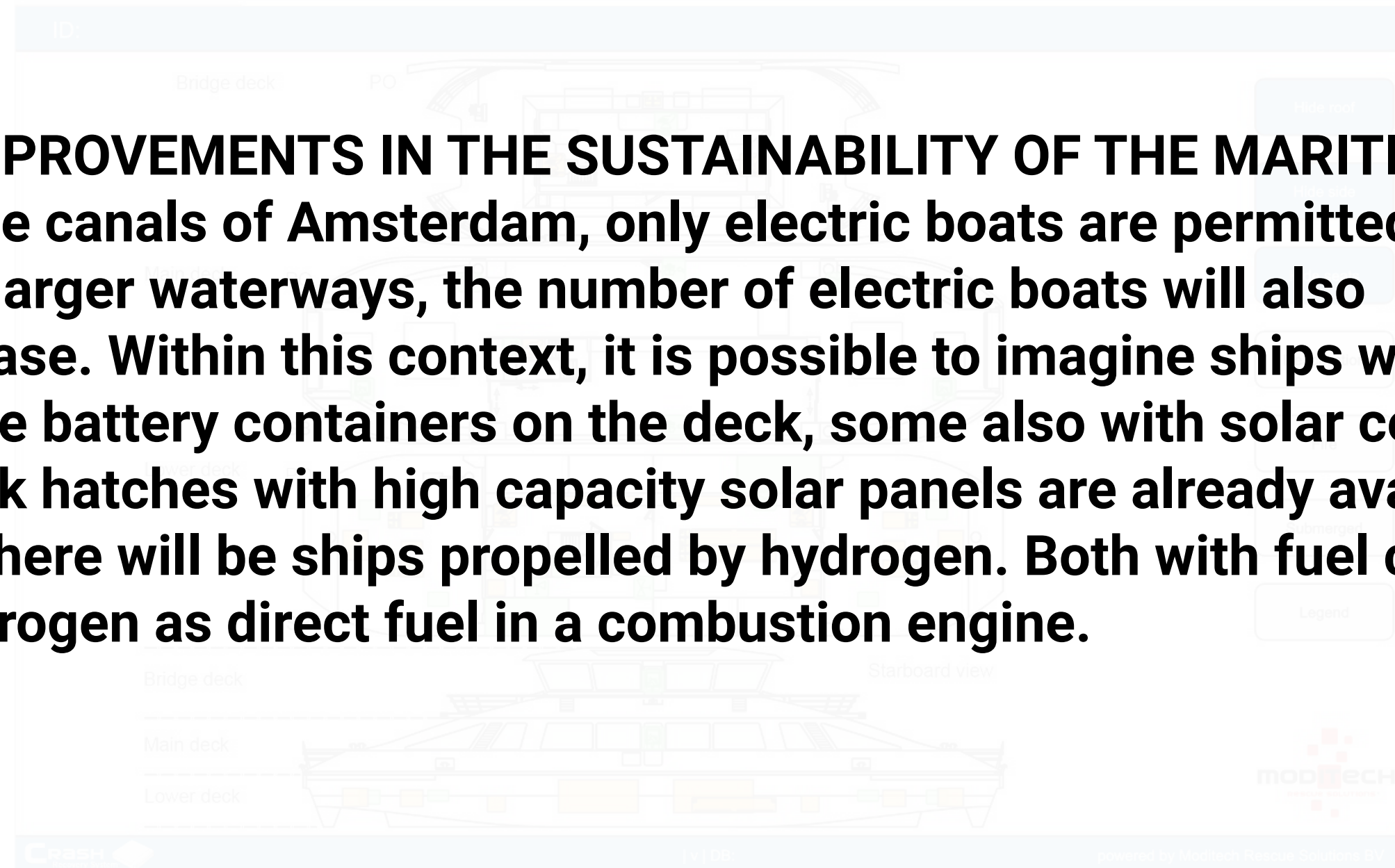
Information for first respondersIn addition to manual and licence plate selection, the Doosan DX165W electric will also be retrievable by scanning a QR code, a very fast and effective way for first responders to obtain crucial vehicle information. Since the Doosan is an electrically powered vehicle, the deactivation procedure offered by the CRS is an important component. Components such as the emergency release switch and high voltage cables are shown in the interactive drawing of the vehicle.

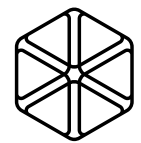


VESSELS

Vessels in the CRS

FURTHER IMPROVEMENTS IN THE SUSTAINABILITY OF THE MARITIME SECTORIn the canals of Amsterdam, only electric boats are permitted now. On the larger waterways, the number of electric boats will also rapidly increase. Within this context, it is possible to imagine ships with exchangeable battery containers on the deck, some also with solar cells. The first deck hatches with high capacity solar panels are already available. In addition, there will be ships propelled by hydrogen. Both with fuel cells and with hydrogen as direct fuel in a combustion engine.





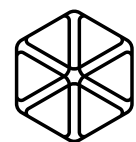
ELECTRIC CLASSIC CARS IN THE CRS

Electric classic cars in the CRS

Car manufacturers are increasingly focusing on electric models in the production of new cars. This is logical, because the EU has made it clear that internal combustion engines in new cars will be banned from 2035. However, it is not only new cars that have an electric drive train. A recent trend is the conversion of classic cars into CO2-neutral vehicles, which are therefore ready for a clean future.

Dangers The demand for the electrification of classic cars is increasing. So there will be more and more such vehicles on the road. We are all fairly used to the lack of engine noise in a Tesla, but no engine noise in an old Volkswagen Beetle or Porsche 911 will take some getting used to. In the event of an accident, it will not be immediately clear to first responders that a vehicle is equipped with an alternative drive. All the more important is the information about the location and deactivation of safety components from the Crash Recovery System.

Crash Recovery System A number of electrified classic cars from the Netherlands is already included in the Crash Recovery System. A Citroën 2CV in 4 different versions, a Citroën DS, a Range Rover, a Saab 95, a Volkswagen Beetle and a Volkswagen Transporter. It is expected that many more will follow. The electric classic cars can be queried by number plate search and manually by brand, model and year of construction.



INNOVATIVE ELECTRIC CITY BUS EBUSCO 3.0

Innovative electric city bus Ebusco 3.0

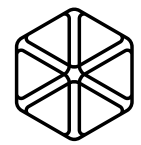
The upcoming January database update will feature a true innovation in the electric bus industry, because that's what the Ebusco 3.0 can be called. This new bus by Ebusco is a breakthrough in the pursuit of sustainable public transport. Not only by using composite materials in the bus body, but also by focusing the design on passenger and driver comfort. In addition, the concept also contributes to a safer and healthier world.

InnovationNot limited by a past focused on fossil fuels, Ebusco has a pioneering and unique approach to the development of electric buses. A multifunctional team of experts has developed an innovative all-electric bus with the 3.0, crowned by winning the Automotive Innovation Award in the commercial vehicle category.

The use of composites such as carbon fibre for its advanced lightweight frame has resulted in a weight reduction of 33% compared to conventional steel and aluminium buses, which has a beneficial effect on the driving range (575 km). In addition, the complete battery pack of the Ebusco 3.0 is located under the bus instead of at the top of the bus as we were used to with electric buses. According to Ebusco, the bus delivers approximately one kg of CO2 reduction per kilometre driven.

On the roadThe first Ebusco 3.0 buses were delivered in December 2021 and are now on the road in Munich (Germany). Furthermore, last month Ebusco received an order for 39 Ebusco 3.0 buses for urban and regional transport in the Gooi en Vecht region from Transdev Netherlands, which will be delivered in 2022.

Crash Recovery SystemThe 3.0 can be found in the CRS as of next month. For first responders, points of attention are the deactivation of the drive system and the dangers of the use of carbon fibre and composites in this bus. Due to the fact that the battery pack is placed under the bus, it is important to take a good look at where the jacking points are located. The CRS provides this crucial information and also shows the location of the safety components so that precautions can be taken.



DAF CF ELECTRIC

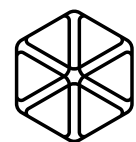
DAF CF electric dustcarts in the CRS

DAF is at the forefront of the development and sale of fully electric trucks. The first examples of the CF Electric were already operationally deployed in 2018 in a field test for Dutch and German customers, after which the second generation went on the market. The deployment of electric dustcarts is another new high point.

PropulsionThe electric collection vehicles are built on a 3-axis DAF CF truck chassis with a terrain weight of 28 tonnes and a steered trailing axle. The electric motor has a capacity of 210 kW and a 2,000 Nm coupling. The motor is supplied with electricity by a battery pack with a gross capacity of 170 kWh. Their driving range is about 100 kilometres on one battery charge.

Assistance & CRSBoth versions of the electric dustcarts (side loader and crane vehicle) are included in the June update of the Crash Recovery System. For technical assistance, it is important for the drive system to be deactivated in the event of an accident with these electric dustcarts. In lorries, unlike other vehicles, the emergency decoupling switch plays a role in deactivation. However, the vehicle retains its voltage for 15 minutes!





HYDROGEN VEHICLES

Safety consequences of hydrogen vehicles

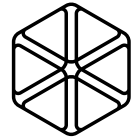
Hydrogen cars are still quite rare in the Netherlands, almost 300 are currently registered. That number is expected to increase to 15,000 by 2025 and possibly to 300,000 by 2030 (source Shell.nl). Although the number of hydrogen vehicles is still low and the chance of an accident is still limited, it has occurred.

Hydrogen cars include many safety provisions. In the passenger area and the engine compartment, measurements are constantly being made in order to detect any hydrogen gas leak. Hydrogen is odourless, so inbuilt technical devices are necessary to spot a leak. If the vehicle measures an internal leak, it turns itself off.

Accidents with hydrogen vehicles At present, most hydrogen vehicles are exploited by companies seeking to visibly show off their ambitious “green credentials”. However, there are also already a few individuals with vehicles of this kind, and for them it is less important to be recognizable. That makes being able to look up the registration number in the CRS essential! There you will find all the relevant information on the vehicle, including how to deactivate it, as described in detail by the manufacturer. From the outside, aside from the stickers, a hydrogen vehicle cannot really be distinguished from an ordinary vehicle. For example, the vehicle only has one fuel tank opening, which resembles that of a CNG filling adapter, but labelled “hydrogen”. So it is very important to gather information in advance!

A great challenge for the person providing assistance is that almost all the parts of a hydrogen vehicle are neatly hidden away behind panels and protective plates. The hydrogen tanks are concealed under the vehicle in the base plate, backseat and boot. If you look hard under the vehicle, you will probably be able to make out the discharge pipes of the safety vents, but you do have to have a technical eye for that. Under the bonnet you will probably quickly recognize the orange electrical cables. Since a hydrogen vehicle directly generates electricity for propulsion, the high voltage batteries are not very large. These batteries are only intended for the storage of braking energy (regeneration) and for the short term provision of extra power when accelerating, after which the fuel cell immediately increases production of power.

Hydrogen is very flammable Damage to the hydrogen tank can, of course, occur after an accident. The measurement of hydrogen is very difficult due to the high rate of ascent. Nevertheless, precautionary measures are still very important!



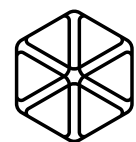
ISO-17840

**NEW
SYMBOLS**

Here is a working form to compare the old and new symbols, walking through them together by handing them out on paper. Discuss the differences.

NEW ISO-SYMBOLS			NEW ISO-SYMBOLS		
Old symbol	New symbol	Symbol description	Old symbol	New symbol	Symbol description
		Device to shut down power to vehicle			Remove smart key/ starter key
		Fuse box disabling high voltage			Emergency disconnect (Cut cable)
		High voltage device that disconnects high voltage			High voltage device that disconnects high voltage
		Low voltage device that disconnects high voltage			Low voltage device that disconnects high voltage
		Low voltage device that disconnects high voltage			Low voltage device that disconnects high voltage
		High voltage component			High voltage power cable
		Special battery access			Fuel cell component
		Air tank			Pedestrian protection active system
		Emergency exit right hand			Emergency exit left hand
		Break to obtain access			Emergency door opener

NEW ISO-SYMBOLS			NEW ISO-SYMBOLS		
Old symbol	New symbol	Symbol description	Old symbol	New symbol	Symbol description
		Fuel tank content Diesel			Fuel tank content gasoline/ethanol
		Tank content oil (e.g. hybrid oil technology)			Gas tank with gas type indication (CNG)
		Manual gas shut-off valve with gas type indication (CNG)			Automatic gas overpressure safety valve with gas type indication (CNG)
		Gas tank with gas type indication (LPG)			Manual gas shut-off valve with gas type indication (LPG)
		Automatic gas overpressure safety valve with gas type indication (LPG)			Gas tank with gas type indication (DMG)
		Manual gas shut-off valve with gas type indication (DMG)			Automatic gas overpressure safety valve with gas type indication (DMG)
		Gas tank with gas type indication (LNG)			Manual gas shut-off valve with gas type indication (LNG)
		Automatic gas overpressure safety valve with gas type indication (LNG)			Gas low (gasoline)
		Gas tank with gas type indication (H2)			Manual gas shut-off valve with gas type indication (H2)
		Automatic hydrogen overpressure safety valve with gas type indication (H2)			Gas low (H2)



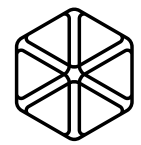
MANUAL SELECTION PROCEDURE

Manual selection procedure CRS

With some regularity accidents occur involving vehicles that have not yet been registered. The vehicle is then not retrievable in the Crash Recovery System using licence plate selection (if available in the user's country) by first responders on site. Fortunately, the manual selection procedure always offers the possibility of retrieving the vehicle information of the correct vehicle.

Not registered There are several recent examples where emergency services have been required to assist vehicles that are not yet registered. For example, a potential buyer test-driving a car was involved in an accident with a tractor (both can be queried in the CRS if available in the user's country), or a mechanic taking a car for a spin to see if he had done his job properly. The spontaneous combustion of an electric car in a showroom or a bus in a shed are also situations that occurred with unregistered vehicles where emergency services were needed.

Manual selection of vehicles In such situations, manual selection in the Crash Recovery System is an excellent method for quickly obtaining the correct vehicle information. By selecting a vehicle category and then choosing the make, model and year, the Rescue Sheet of the relevant vehicle is displayed. The CRS now assists in an effective and safe release process and supports first responders in choosing the best and safest methods.



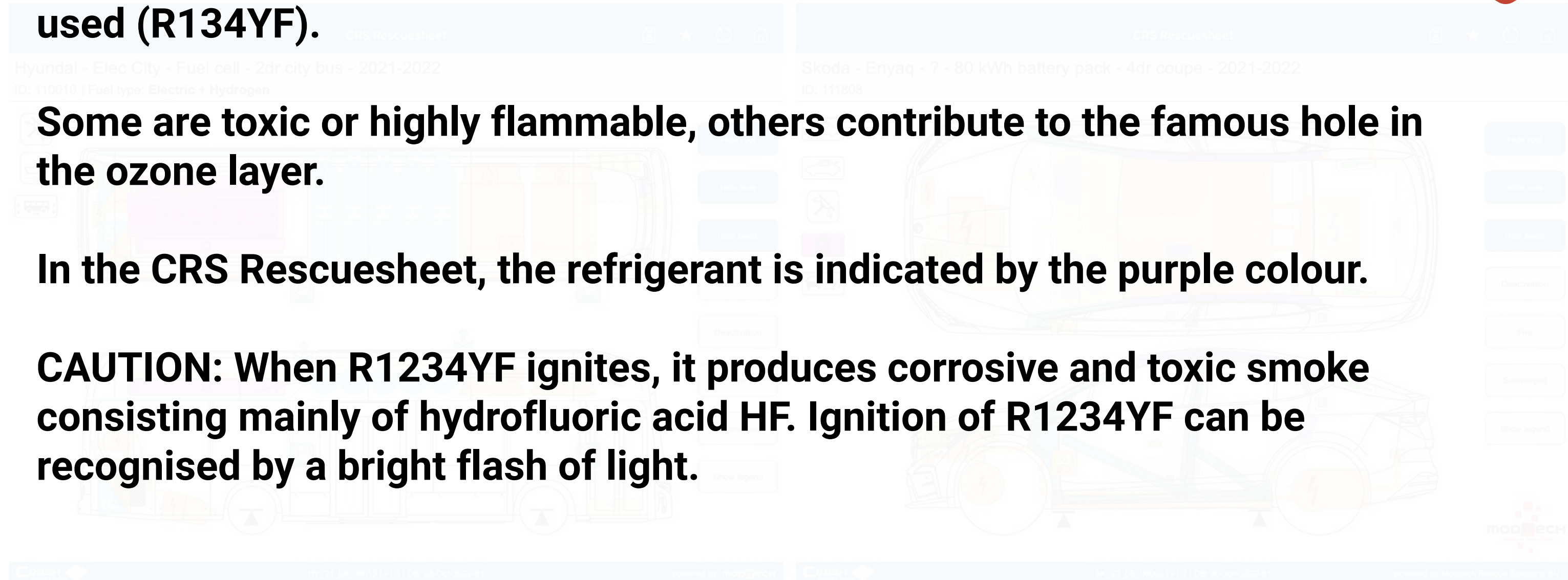
AIRCO LOCATIONS

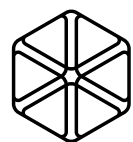
Location of air conditioners is indicated. Name the risk of the refrigerants used (R134YF).

Some are toxic or highly flammable, others contribute to the famous hole in the ozone layer.

In the CRS Rescuesheet, the refrigerant is indicated by the purple colour.

CAUTION: When R1234YF ignites, it produces corrosive and toxic smoke consisting mainly of hydrofluoric acid HF. Ignition of R1234YF can be recognised by a bright flash of light.

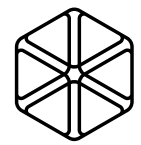




LIQUIDS

The quantities of liquids are and will not be in the CRS. For the use of common peasant sense, it is good to know that sometimes we are talking about hefty quantities. This may be important in an incident where a vehicle leaks various liquids.

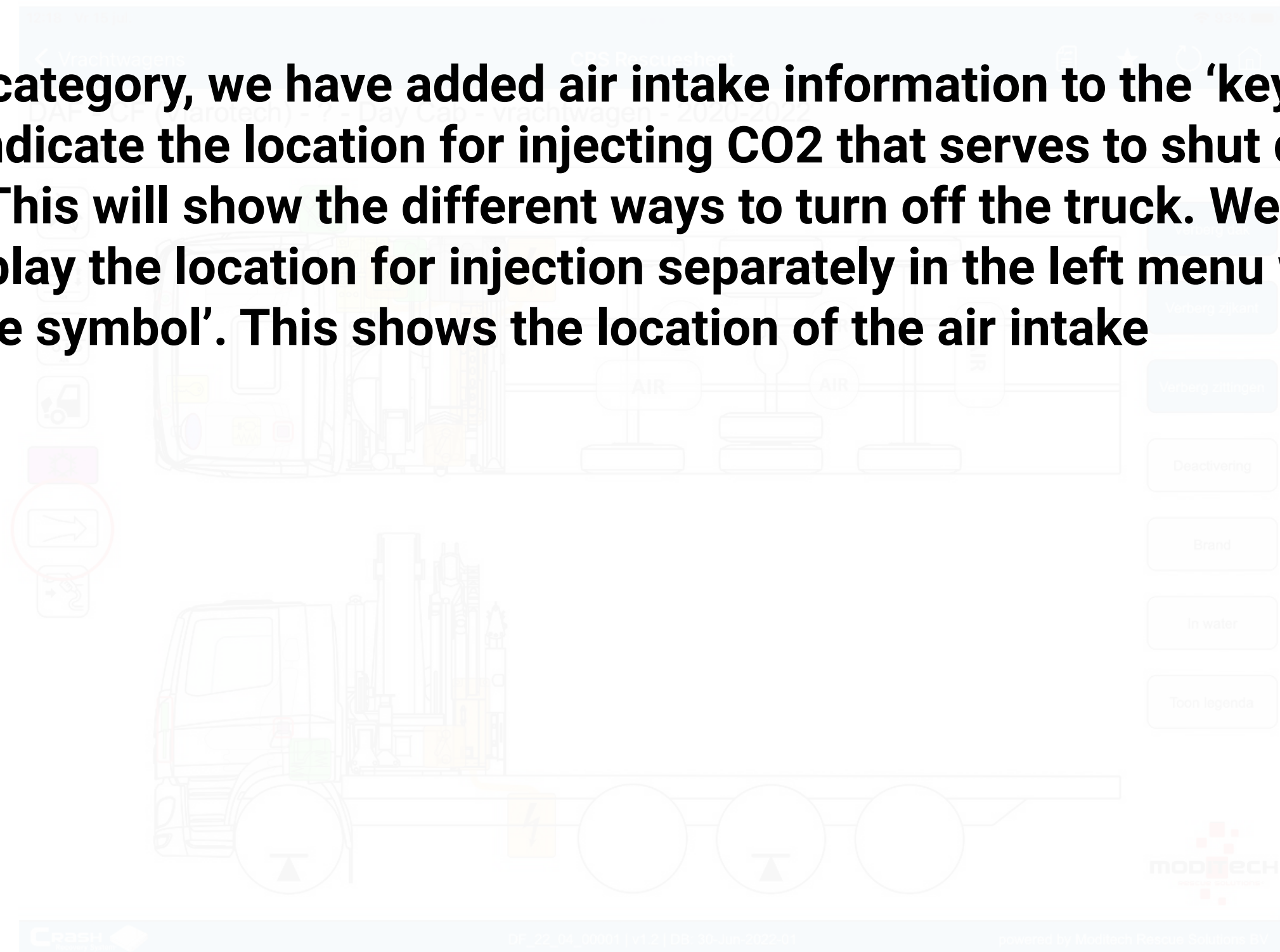
MB Actros	250-1500 L	25 L	43 L	R134a 900 gr	30-75 L
VDL Citea	350 L	45 L	19,5 L	R134a 4900 gr	25 L
Audi Q7 E-tron	75 L	6.1 L	13 L	R1234yf 835 ±15 gr	24,0 L
Volvo XC40 Recharge	48 L	5,2 L	-	R1234yf 480 ±20 gr	(14,5 L)
BMW X7 M5.0i	83 L	13,6 L	10,5 L	R1234yf 550/800 ±10 gr	(21,5 L)
John Deere	463-513 L	41 L	18 L	-	26,2 L
HD Livewire	-	0,72	0,32 transmission	-	-

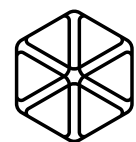


AIR INTAKE

Air intake

In the truck category, we have added air intake information to the 'key symbol' to indicate the location for injecting CO2 that serves to shut down the engine. This will show the different ways to turn off the truck. We are going to display the location for injection separately in the left menu with the 'air intake symbol'. This shows the location of the air intake



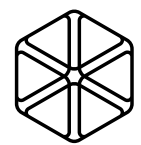


BLIKSUND CRS

CHARGE CABLE CONNECTION

Vehicles with an electric or plug-in hybrid drive are regularly parked at a charging point for charging the high-voltage battery. Different situations have already occurred where emergency services want to disconnect these vehicles from the charging cable. In almost all vehicles, the charging cables are locked on both the vehicle side and the charging station side. Very effective against theft but a challenge for emergency services. With the new CRS symbol 'charging cable', we are going to provide information on releasing the charging cable through the normal procedure, as well as the emergency procedure.

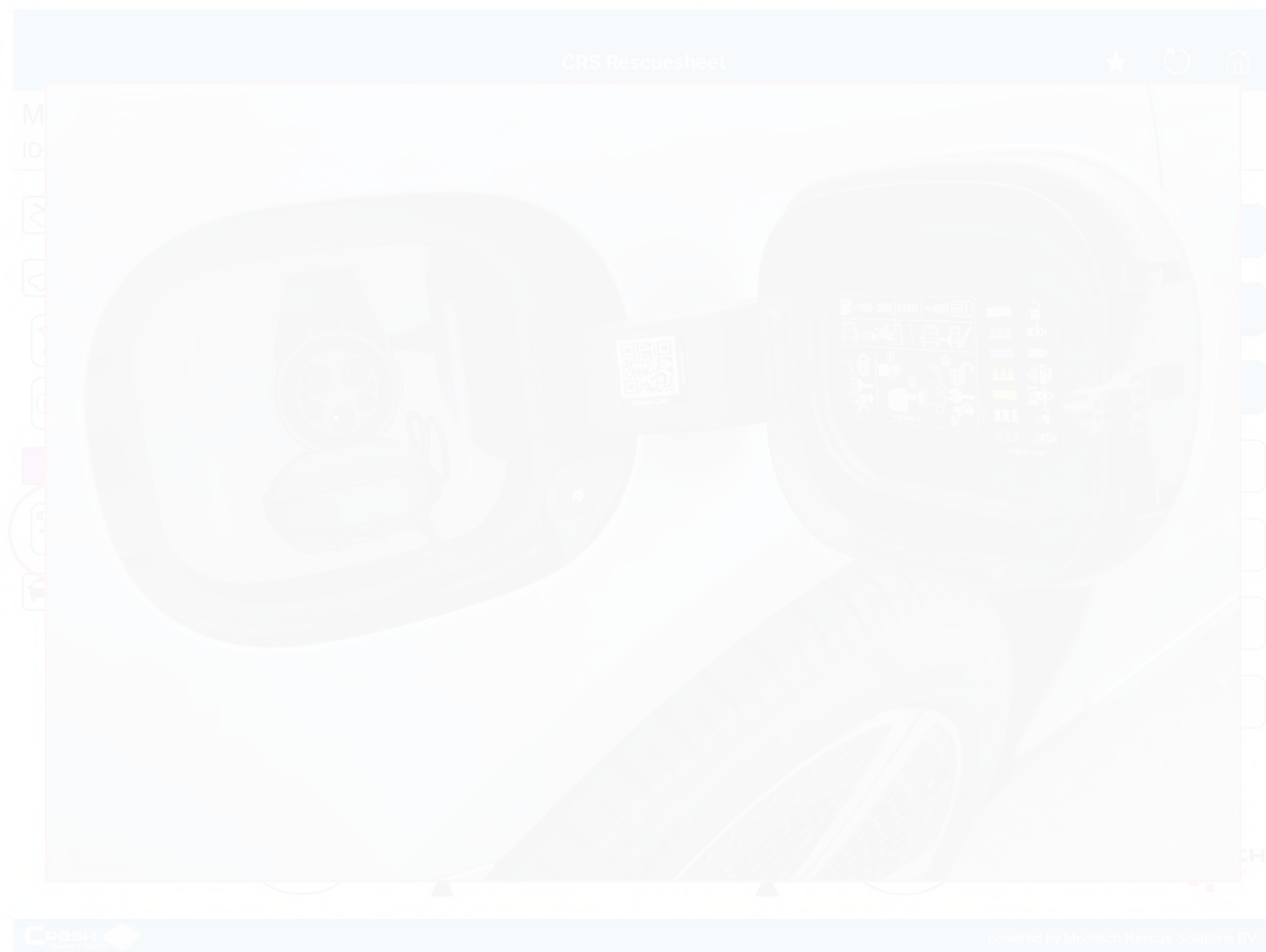


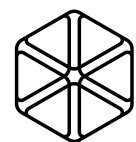


BLIKSUND CRS



CHARGE CABLE CONNECTION



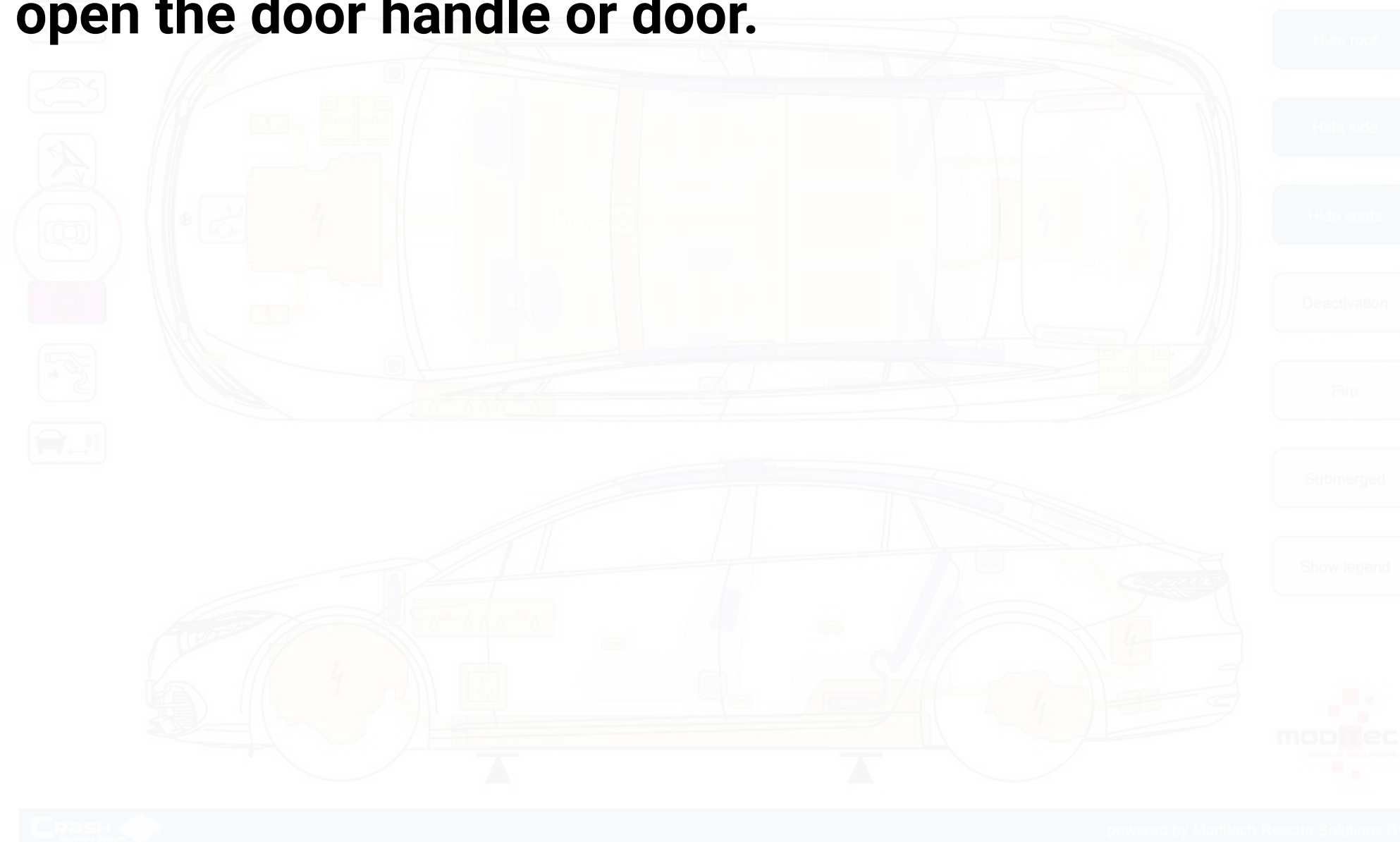


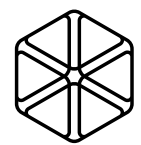
BLIKSUND CRS

ELECTRIC DOOR HANDLES

Electric door handles

Today's vehicles are increasingly getting door handles that retract into the bodywork while driving. For emergency services, these handles often pose a challenge. With this new symbol, we are going to show the emergency procedure to open the door handle or door.





BLIKSUND CRS

ELECTRIC DOOR HANDLES





BLIKSUND CRS

PANORAMIC

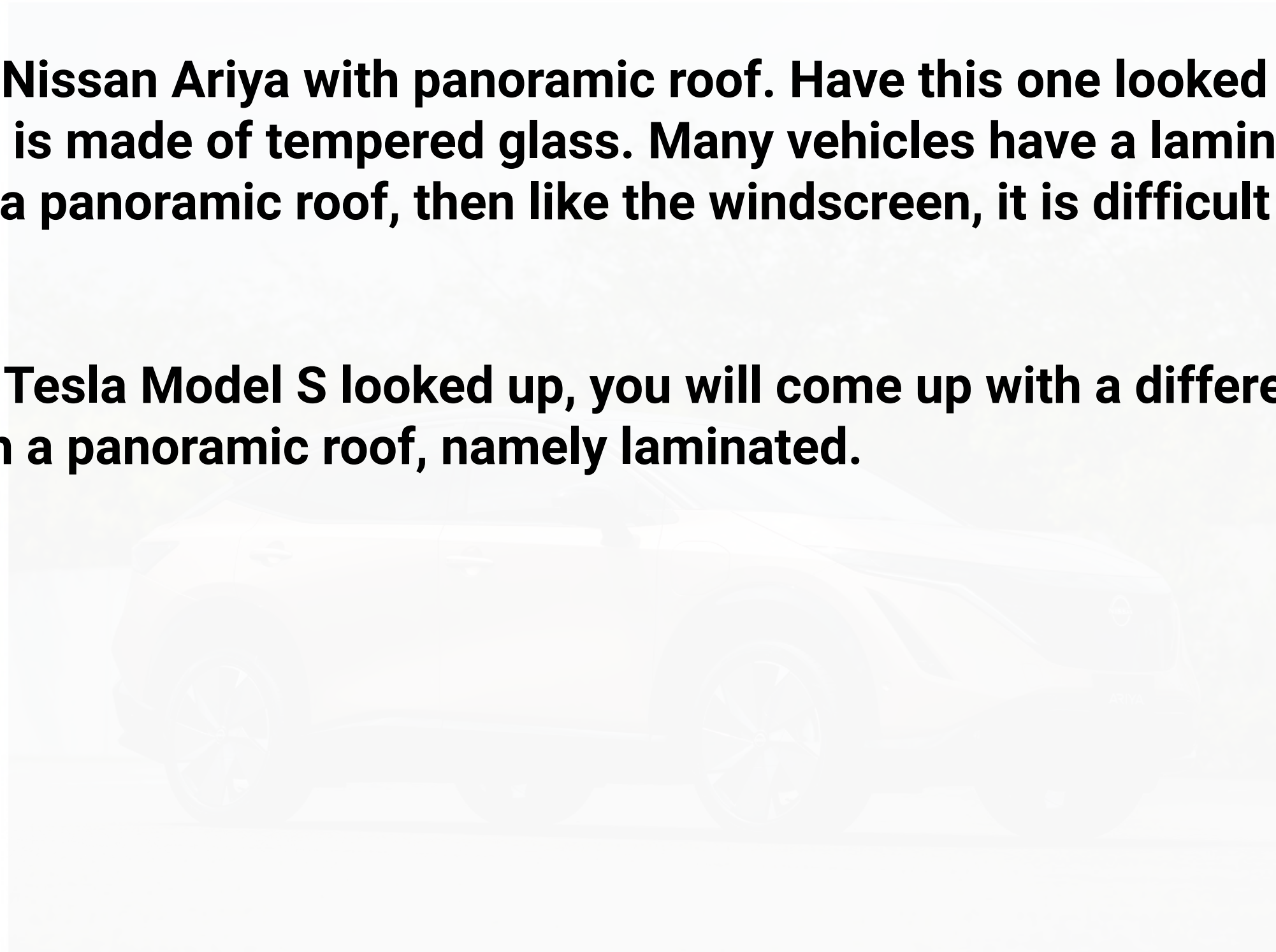
ROOF

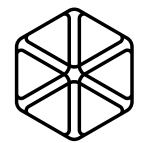
NISSAN ARIYA

Ask participants what material the panoramic material is made of.

Pictured is a Nissan Ariya with panoramic roof. Have this one looked up in the CRS. It is made of tempered glass. Many vehicles have a laminated window with a panoramic roof, then like the windscreen, it is difficult to remove.

If you have a Tesla Model S looked up, you will come up with a different outcome with a panoramic roof, namely laminated.





VEHICLE SELECTION BASED ON SOLAR ROOF

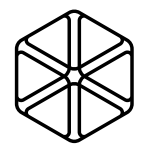
Vehicle selection based on Solar Roof

Traffic and the transport network are changing considerably due to the advance of electric vehicles. These vehicles require a sustainable electricity source, such as, for example, the now familiar charging station. Less known, but certainly on the rise, is the Solar Roof, or in other words, solar panels integrated in the roof that charge the battery when the vehicle is being driven and when it is stationary.

Various manufacturers, research institutes and innovative parties have for a number of years been extensively testing solar cells and solar modules on vehicles. These are a solution for solar energy in traffic, not only for plug-in charging, but also even on the vehicle body itself. The solar panels capture the sunlight, which is then stored as electricity in the starter battery as well as in the high-voltage battery and provides for extra electric range. This should lead to lower costs for the user, fewer plug-ins at charging stations and reduced CO2 emissions.

In practice The Toyota Prius Plug-in was the first passenger car in the world with a solar panel system that charges the car battery. After one day of charging in the sun, the solar panels can add approximately six kilometres extra range to the battery. After charging for 48 hours, the battery is fully charged and the car can be driven approximately 40–50 kilometres. Toyota is not the only brand that is working on solar panel roofs on cars. Tesla also has advanced plans to equip the next generation of cars with solar panels, but Hyundai is already ahead of Tesla. The South Koreans namely already offer the brand new IONIQ 5 with an option for a solar panel roof.

Solar panels are also used on a regular basis on campers, such as, for example, the Volkswagen Grand California campers that were added to the CRS



BLIKSUND CRS



CASUS ACCIDENT

Off course passenger car drives diesel tank of truck open

An Opel Ampera passenger car and a lorry combination collided.

Due to an unknown cause, the Opel Ampera ended up on the wrong side of the road. The truck driver saw this happen and pulled out all the stops to avoid a head-on collision with the oncoming car. As a result, the truck hit the car not head-on but with the left side, hitting the front wheel, the diesel tank and also the rear wheel full.

The Ampera lost its left front wheel due to the confrontation, became uncontrollable and came to a stop on the verge. The driver was helped out of her electric vehicle by the fire brigade and was examined by ambulance personnel.

A second ambulance, which had also been called for the incident, returned to the station without success. The check revealed that the woman had not sustained any injuries and the driver was also unhurt.

From the opened diesel tank of the truck, hundreds of litres of diesel oil flowed onto the road surface. The driver of a Skoda, driving behind the woman in the Ampera, could no longer avoid the broken front wheel of the car and drove over it, causing so much damage that further driving was impossible.



CASUS ACCIDENT

Before the training, you can ask the following questions for this case study:

1. Was the Ampèra automatically switched off due to the HV cables being loose (possibly switched off by the interlock). If not then to question 2

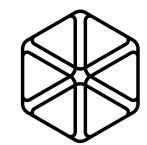
The HV interlock system is a low-voltage circuit which is either incorporated into the HV cable or lies in parallel on it. For example, it is also included in a service plug, if you want to remove the plug, you first lift the handle and in doing so you already directly break the HV interlock system, causing the high-voltage relays to immediately disconnect the high voltage.

2. Was the airbag activated. If not then to question 3

3. What actions can the fire brigade take now to deactivate the vehicle?

Commander's response to this incident:

- The orange cable at the left front wheel was still fully intact. Only covers/fender parts were gone.**
- No airbags had deployed.**
- The fire brigade deactivated the vehicle by removing the service plug under the rear seat.**
- The start/stop button was accessible but did not give sufficient confidence that the vehicle was deactivated, so the service plug was removed, following the procedure in the CRS.**



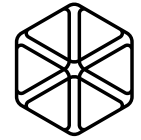
BLIKSUND CRS

CASUS ACCIDENT



HW-Fotografie© 2022



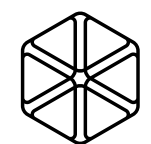


CASUS
ACCIDENT
PHEV

Collision between an Opel Adam and a Mitsubishi Outlander PHEV, the Opel had relatively minor damage, but the Mitsubishi suffered. In the collision, the airbags of both vehicles deployed, this automatically disabled the high-voltage part of the Mitsubishi.

What if this did not happen automatically? Look up the vehicle in the CRS. What steps should we go through?

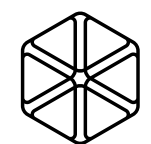
Even in modern vehicles, you can still suffer serious injuries. Here, the dashboard inside was so deformed and sharp that the driver suffered arterial bleeding to his lower leg.



BLIKSUND CRS

CASUS
ACCIDENT
PHEV



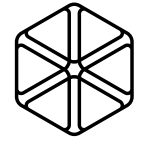


BLIKSUND CRS



CASUS ACCIDENT PHEV





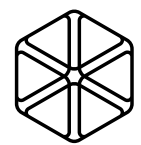
BLIKSUND CRS

CASUS
CABRIO

Head-on collision between an Audi A7 and an MB CLK. In this accident, the roof had to be removed from the MB CLK. This MB CLK has an electrically operated folding roof. As we anticipated this, we did not disconnect the battery. At first, the roof still would not open, which was because the cover plate in the boot was not in place due to the luggage present. Once the luggage was removed, we closed the boot lid again and were able to open the roof electrically, as well as close it again after the SO was removed.

It is important to know what kind of systems there can be in a car, and together we can find a solution.



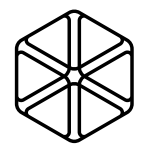


BLIKSUND CRS



CASUS
CABRIO

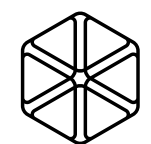




BLIKSUND CRS

CASUS
CABRIO





BLIKSUND CRS



CASUS
CABRIO





CASUS
SUBMERGED
CAR

Car submerged.

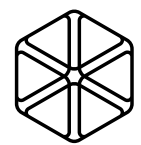
Being pulled onto the side by fire service's own large crane. The vehicle has suffered a side collision and on the right side the side airbags have deployed.

Ask the participants, what do they see here and what does this mean for deployment?

You see the lights flashing like a carnival, cause is water in the system. Is there a chance that airbags could also spontaneously deploy here now? The answer is : yes, water and power are bad combinations.

What matters here now is the visible short circuit in the vehicle's lights. So you can't trust the airbag system either!

When the divers dock the vehicle, the crane operators unhook it, the police search the car and hand it over to the salvage company, it is important to mention that airbags MAY go off due to water!

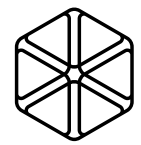


BLIKSUND CRS



CASUS
SUBMERGED
CAR





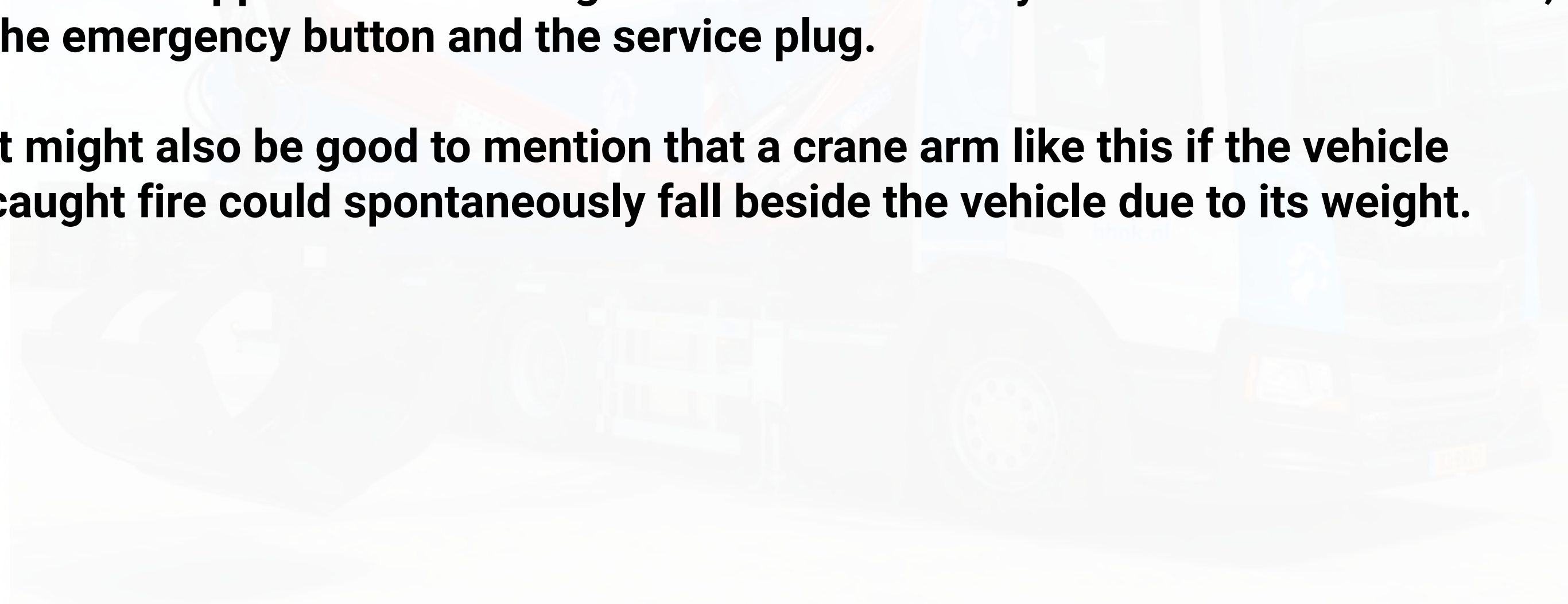
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ELECTRIC CRANE

Have participants look up by registration number: 83-BRL-7

Here it is important to mention that the drive may be an internal combustion engine and the registration number if you look it up in another system like the CRS (e.g. the RDW) you will not see any information about the crane's electrical application. Here again there are two ways to deactivate the crane, the emergency button and the service plug.

It might also be good to mention that a crane arm like this if the vehicle caught fire could spontaneously fall beside the vehicle due to its weight.





AIRBAGS

Ask the question which airbags stand out here?

Mercedes S class

The centre airbag on the driver's seat to prevent injury between the front two occupants in a side impact.

The airbag for the rear occupants. Consideration for number 4, the injury attendant.

The new Mercedes-Benz S-Class has once again set new standards in terms of vehicle safety. When we started the Crash Recovery System in the year 2000, the oldest vehicle added to our database was a Mercedes. At the time, this was the only model with an airbag, the criterion for our database. Looking at the various airbags in this new S-Class, Mercedes maintains its position as a forerunner in occupant safety features. As standard, the new S-Class features frontal airbags in the front seats, curtain airbags and a front and rear side airbag. There is also a central airbag in the front driver's seat. Optional are seatbelt airbags and frontal airbags for the rear passengers.



BLIKSUND CRS

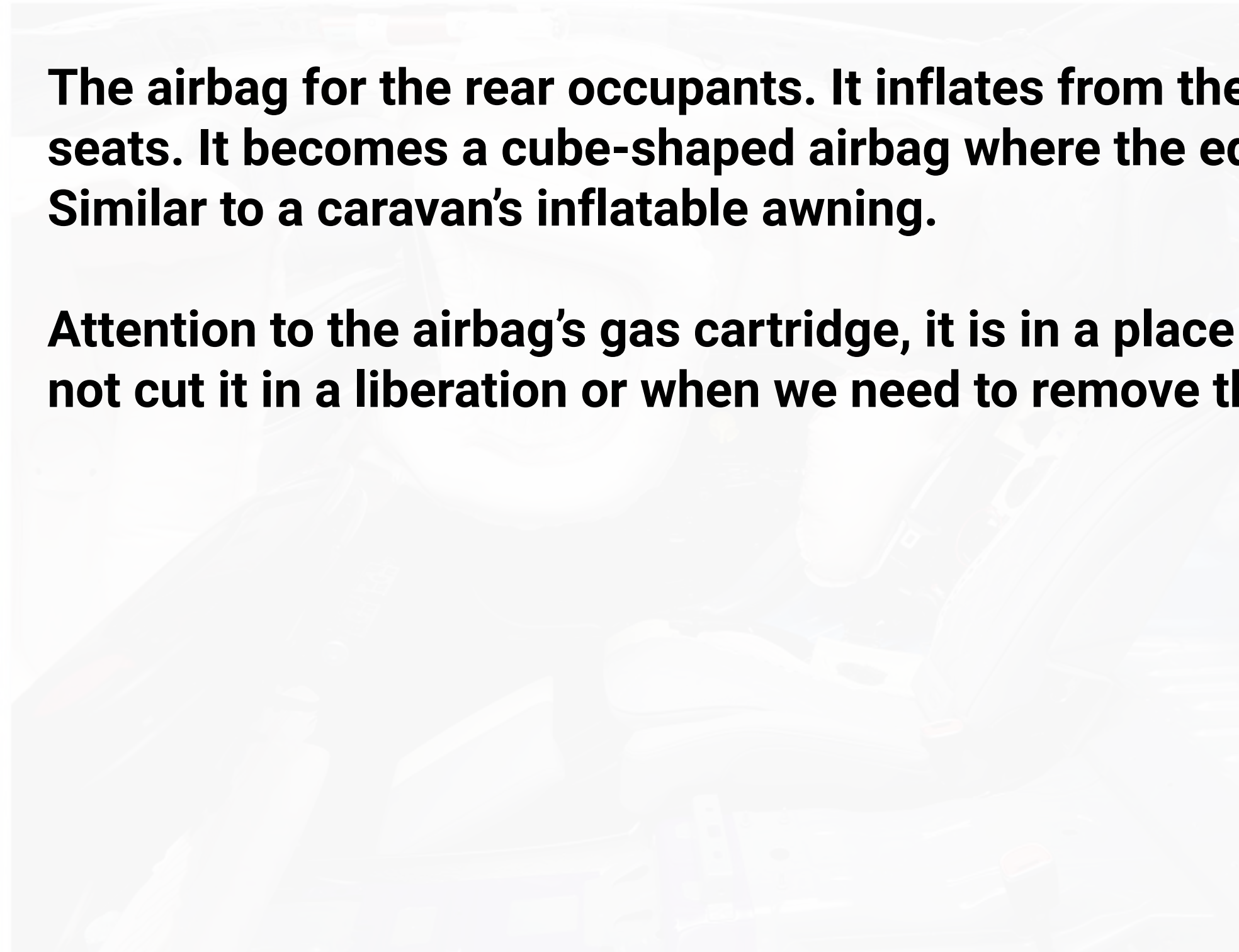


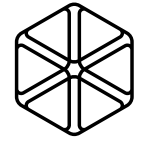
PASSENGER AIRBAGS

Mercedes S class

The airbag for the rear occupants. It inflates from the back of the front seats. It becomes a cube-shaped airbag where the edges are inflated. Similar to a caravan's inflatable awning.

Attention to the airbag's gas cartridge, it is in a place where we will basically not cut it in a liberation or when we need to remove the seatback.

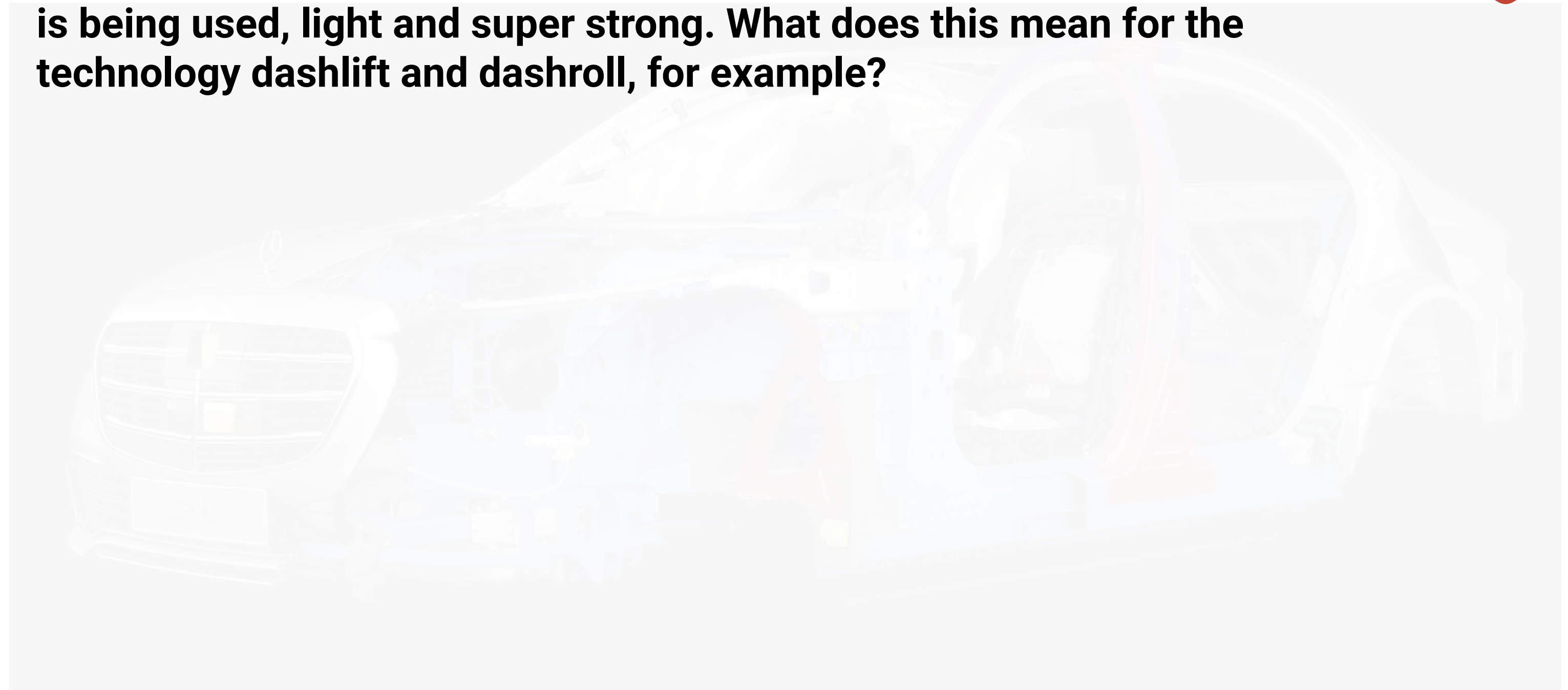


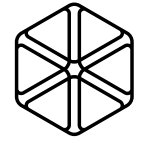


BLIKSUND CRS

VEHICLE DEVELOPMENTS

The first photo is a detail photo of the front, more and more cast aluminium is being used, light and super strong. What does this mean for the technology dashlift and dashroll, for example?

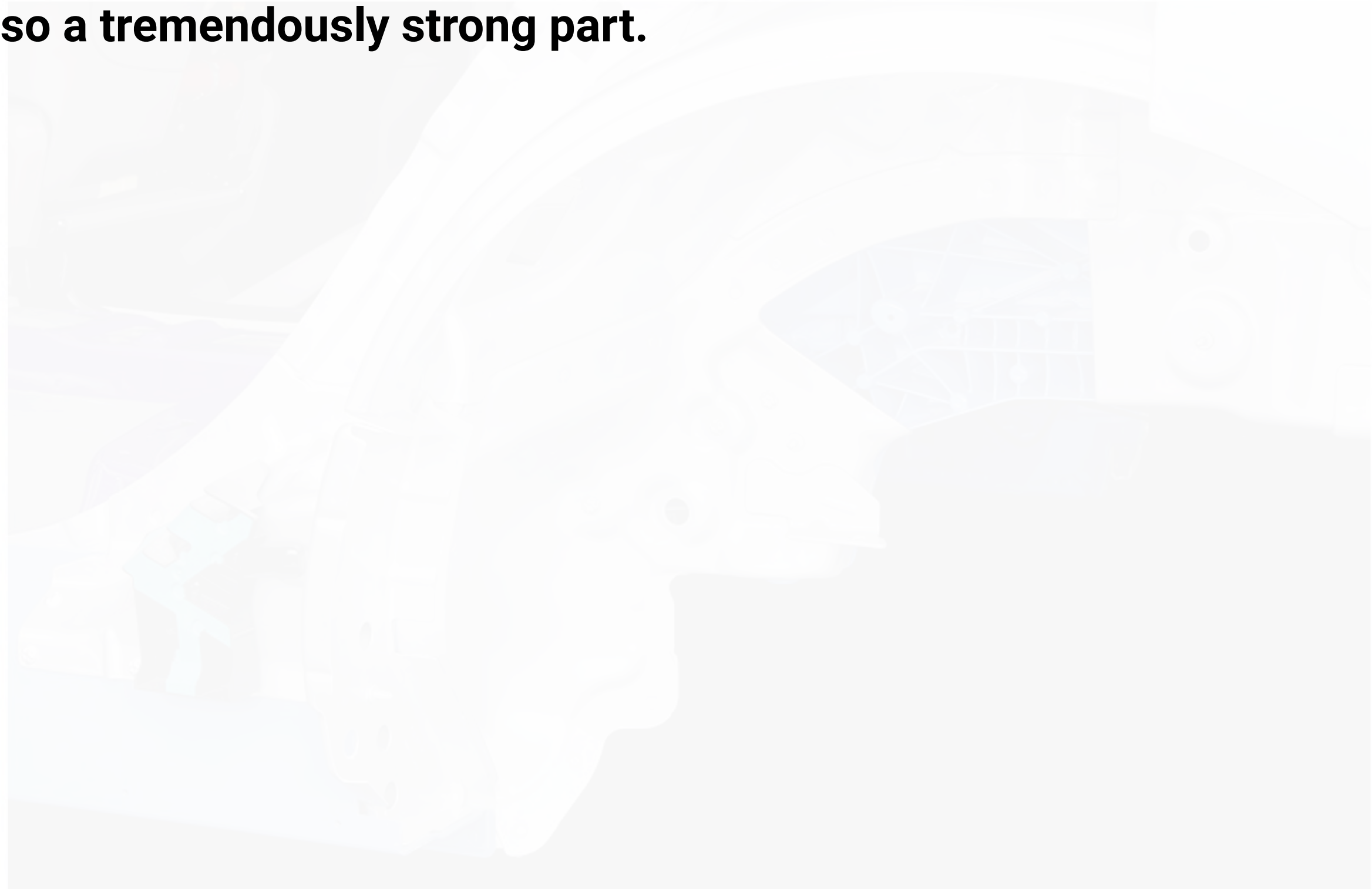


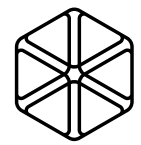


BLIKSUND CRS

VEHICLE DEVELOPMENTS

The second picture is of the rear wheel arch with the use of cast aluminium, this is also a tremendously strong part.

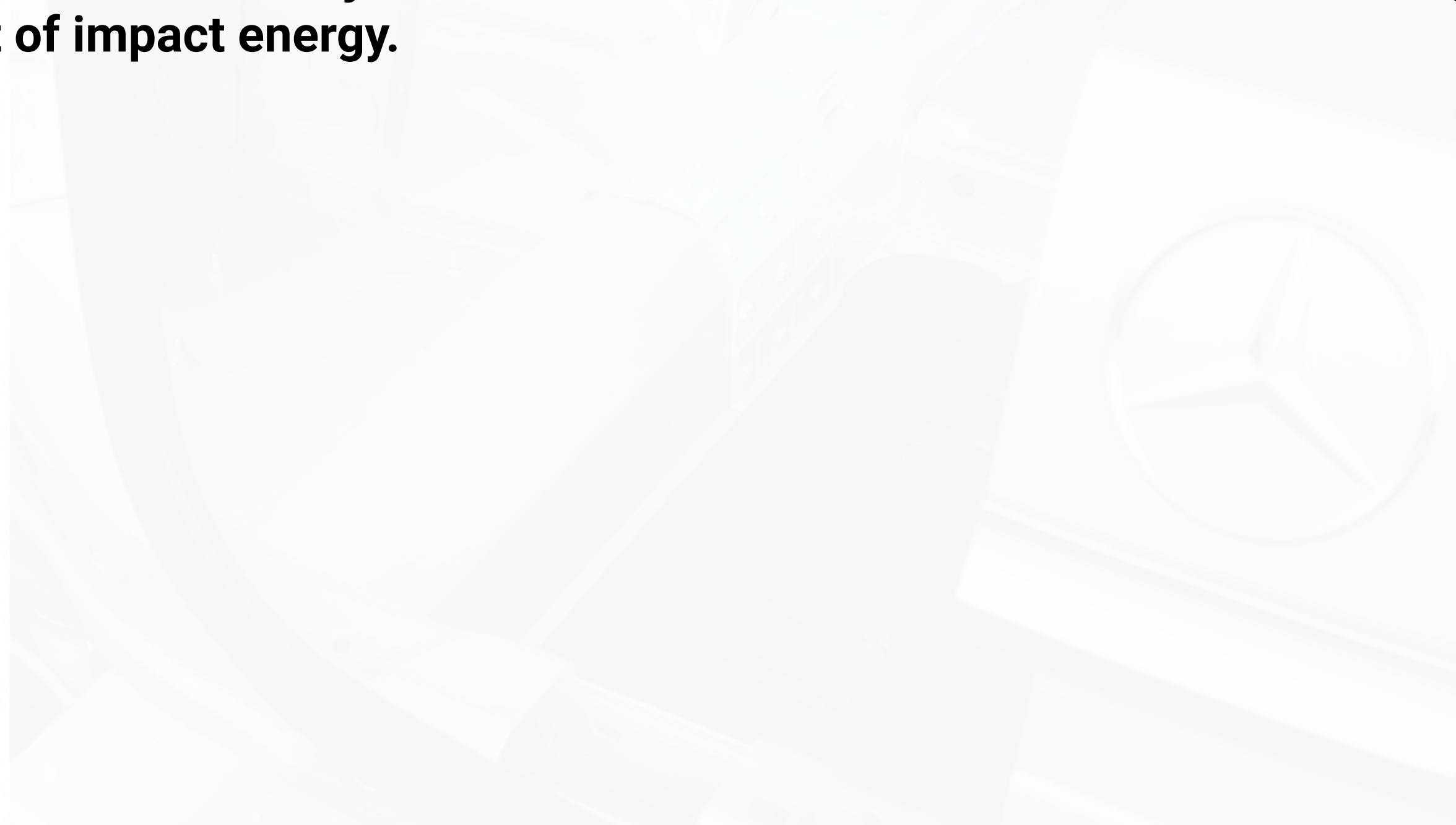




BLIKSUND CRS

VEHICLE DEVELOPMENTS

The third photo is a detail photo of the boot, there we see a beam that transfers forces from the rear bumper to the chassis. On the transition from light to darker blue are joints that can shear where these can absorb a huge amount of impact energy.





BLIKSUND CRS

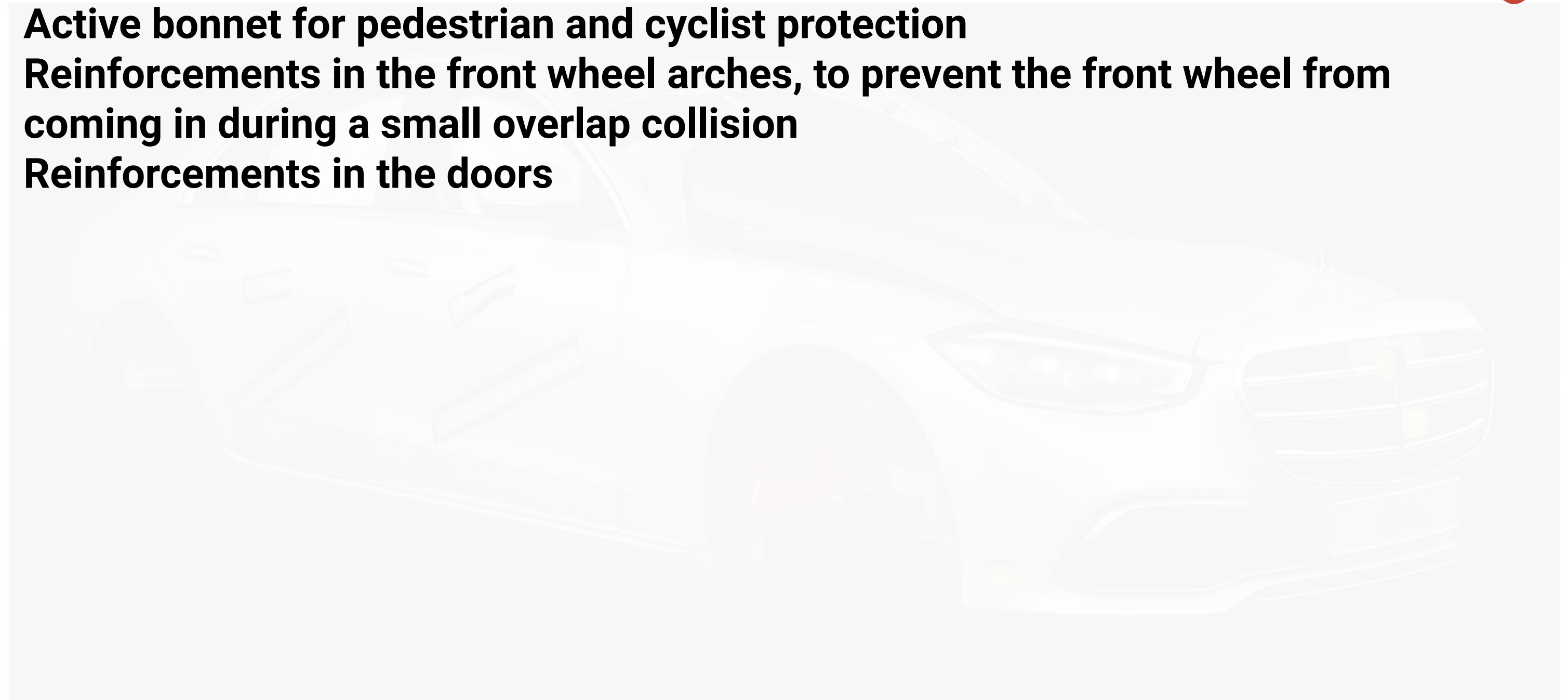
VEHICLE DEVELOPMENTS

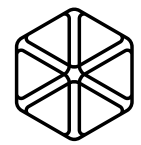
This picture focuses on:

Active bonnet for pedestrian and cyclist protection

Reinforcements in the front wheel arches, to prevent the front wheel from coming in during a small overlap collision

Reinforcements in the doors





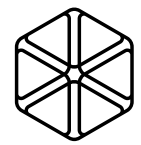
VEHICLE DEVELOPMENTS

Fire extinguishing system

MERCEDES-BENZ INERTING-SYSTEM

The Mercedes-Benz includes even more innovative safety systems. For example, this vehicle has an extinguishing system fitted in the CLS and AMG GT Class 2018. The extinguishing system is fitted in the engine compartment. The Mercedes Inerting System prevents explosive fire spread. The reason for Mercedes-Benz to develop the system is the presence of the refrigerant R1234YF in the A/C system. R1234YF gas is highly flammable and can escape after an accident by damaging the A/C system whereby, due to the heat of the engine and exhaust system, it can ignite explosively.

CAUTION: Upon ignition of R1234YF, it produces caustic and toxic smoke consisting mainly of hydrofluoric acid HF. Ignition of R1234YF can be recognised by a bright flash of light.

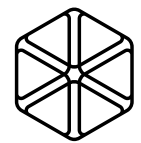


BLIKSUND CRS

THE FUTURE? E-HIGHWAY

Siemens Mobility has the so-called eHighway system under development. In short, this amounts to a motorway with overhead wires, allowing freight traffic to cross the road without exhaust gas. It sounds as simple as it is logical. Yet it has so far only been implemented on a trial basis. What are we waiting for?





THE FUTURE? DRIVING ON AIR

A car that runs on air pressure instead of fuel or electricity - the concept in itself is not new. What is new is the idea of Italian inventor Vito Truglia. A decade ago, he asked himself the question: what if you could convert petrol, diesel and gas engines so that existing cars could run on air? Much development and partnerships later (including with the Italian branch of TVR, in which Truglia is involved), the Dutch SolutionAir today presents a driving prototype in the form of this Renault van. The principle is simple: instead of moving the pistons in the engine through fuel and ignition, you use compressed air. The van carries three gas tanks totalling 600 litres, which should allow it to travel up to 600 kilometres. 'Refuelling'? That takes, at a special station, about four minutes.

HOW DOES IT WORK? The tanks are filled with air (the aforementioned station can pump in up to 1,000 bar; today it has about 120 bar, enough for a few rides up and down). That air is then fed to the cylinders, but because it is stone cold due to compression, it is first heated so the engine does not freeze. This heating is also done by air pressure. The engine has changed from a four-stroke to a two-stroke. So air goes out and straight back in under high pressure, with no compression stroke in between. It turns only about 800 to 1,200 rpm. No more than that is necessary, as the energy density is much higher when running on air than on fuel. Truglia's prototype uses the existing engine block and transmission; only the head, crankshaft and piston rings are different, and of course the necessary hardware and software around it. Also added are valves that equalise air pressure to allow piston movement. The turbo? That's gone.



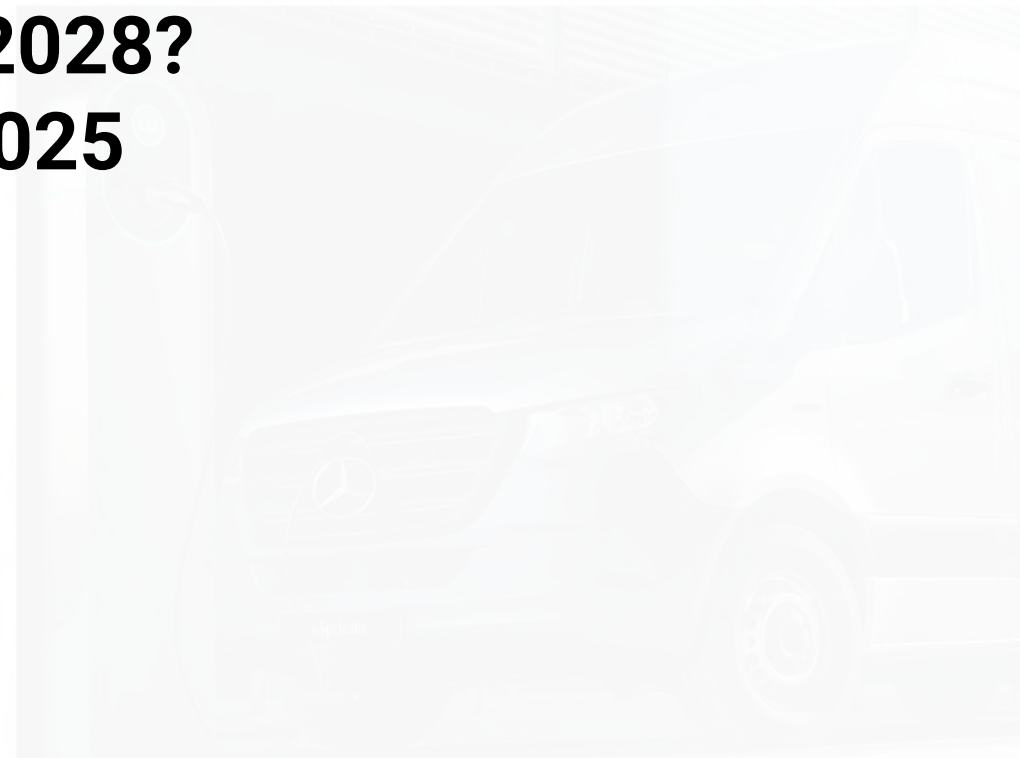
**DEVELOPMENTS
CONTINUE ...**

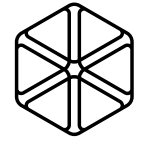
Truck: Nikola

Company cars mandatory electric from 2028?

Business lease cars fully electric from 2025

CRS image MAN e-TGM

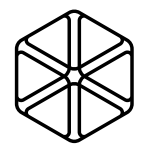




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QUESTIONS?



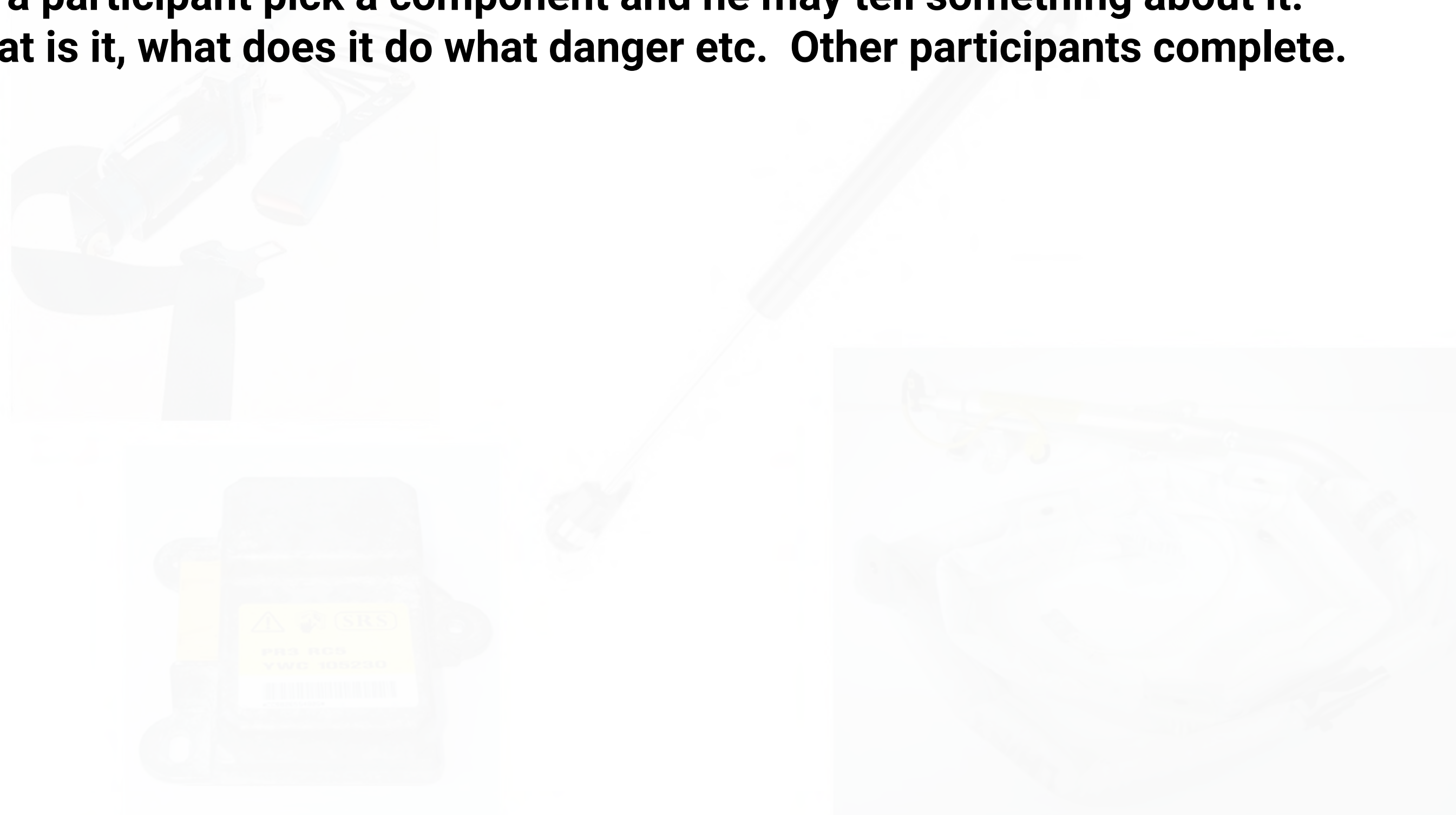


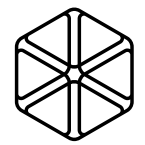
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PRACTICAL ASSIGNMENT

We start with the various components.

**Let a participant pick a component and he may tell something about it.
What is it, what does it do what danger etc. Other participants complete.**



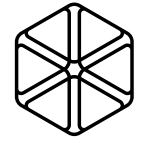


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BRAKE



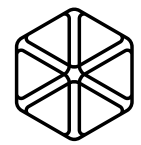


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AFTERNOON PROGRAM

- Safe practice
- Practical assignment:
 1. CRS-Magnetic Plates
 2. VR-App
- Evaluation





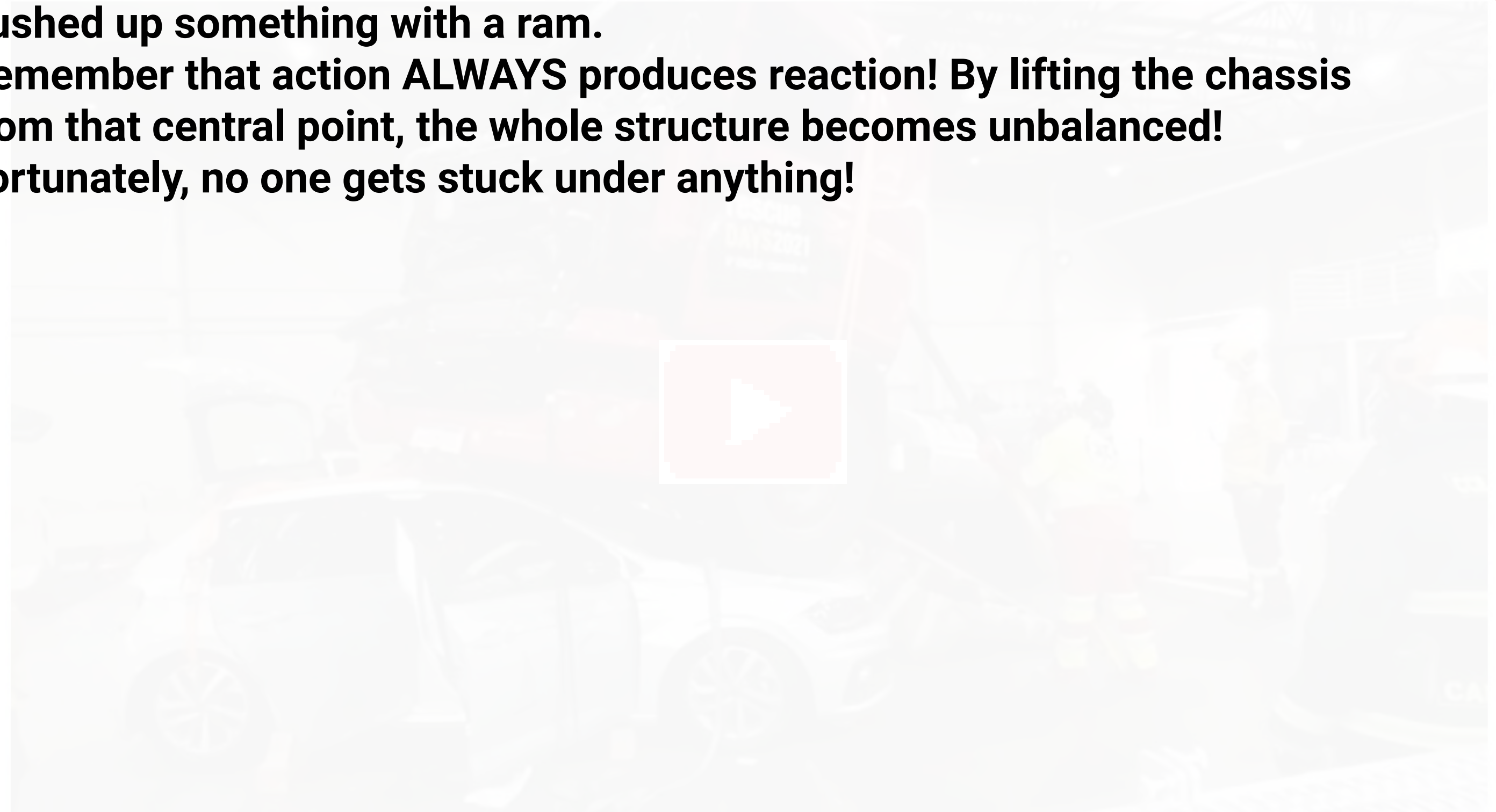
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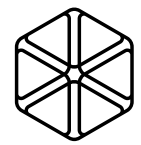
SAFE PRACTICE

The video shows a training session during Rescue Days, here a truck is pushed up something with a ram.

Remember that action ALWAYS produces reaction! By lifting the chassis from that central point, the whole structure becomes unbalanced!

Fortunately, no one gets stuck under anything!

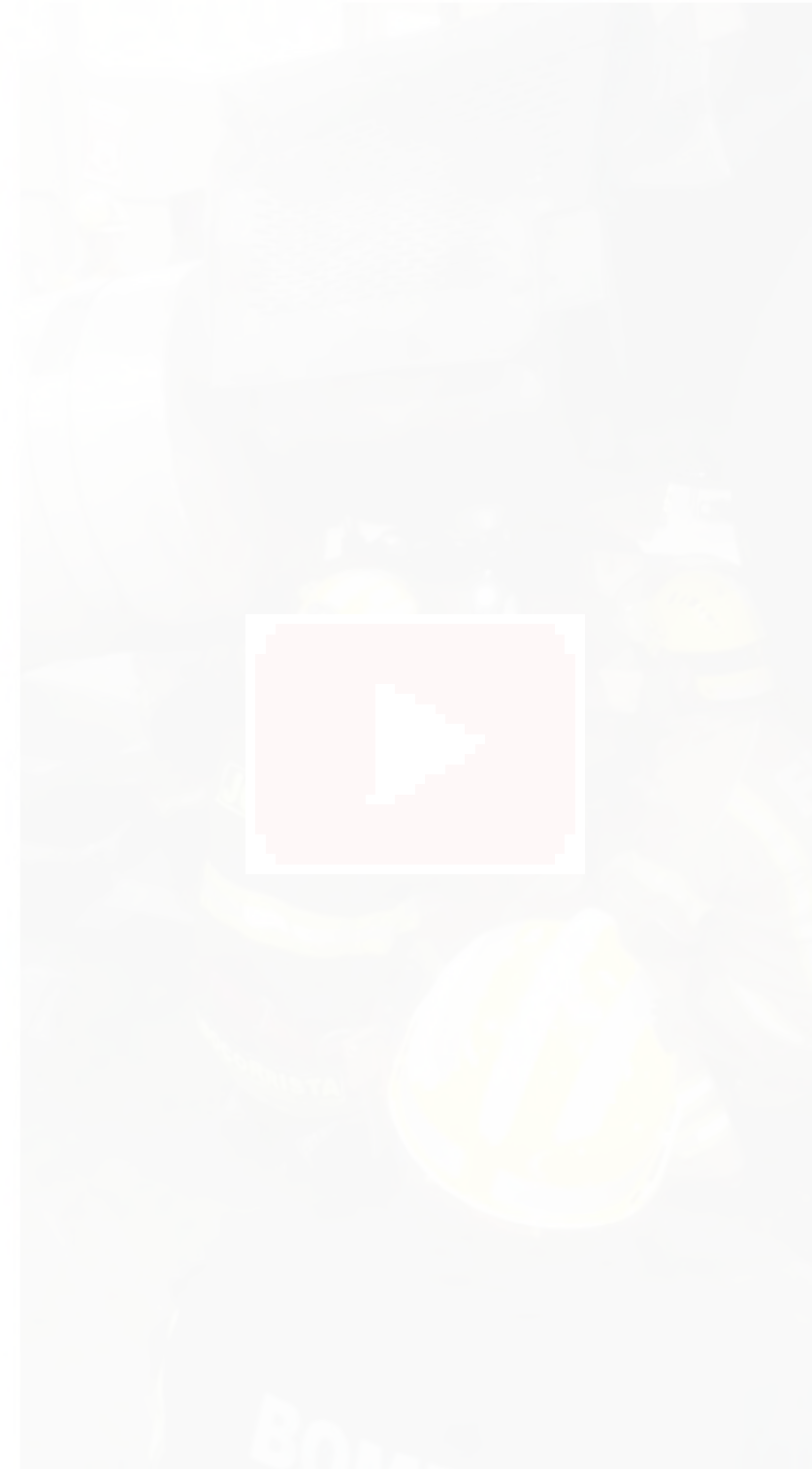


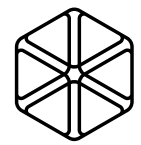


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SAFE PRACTICE

Here the view from the other side, lifting centrally under the chassis.





BLIKSUND CRS

SAFE PRACTICE

Always assume that the vehicle is under power, even when it is silent!





BLIKSUND CRS

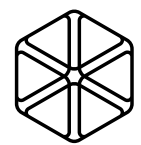
SAFE PRACTICE

In this video, a scissor jaw breaks, on an older and not heavy vehicle. The broken scissor jaw flies away, the need for PPE and the use of hard protective plates once again confirmed here!

The cause is most likely not in this latest cutting action, but in damage to the scissor jaw during an earlier cut. When the scissor jaw has suffered a butch or damage, there is a chance that it will fail in a later action because a hairline crack may have developed from that butch.

Breakage of the scissor jaws occurs with ALL makes and types of rescue tools, so be careful with the scissors, cut with caution and avoid cutting into bolts and nuts, cut carefully with hinges, twist away from the scissors, never cut into springs, reaction rods or tow hooks, avoid weighted (boron) cage structures if possible, check tools regularly for damage.

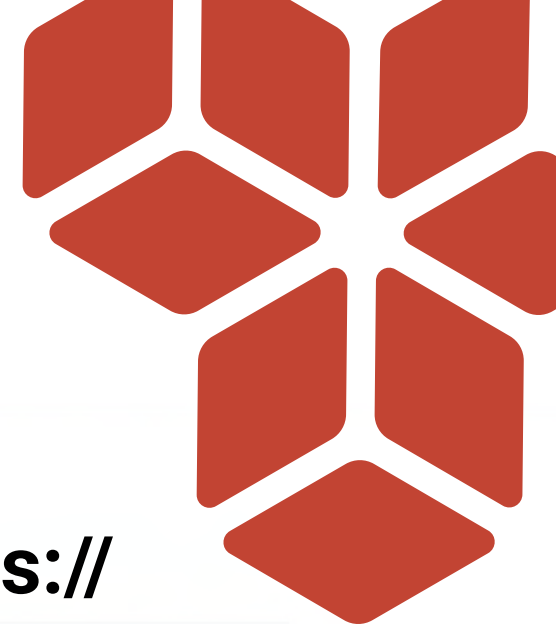
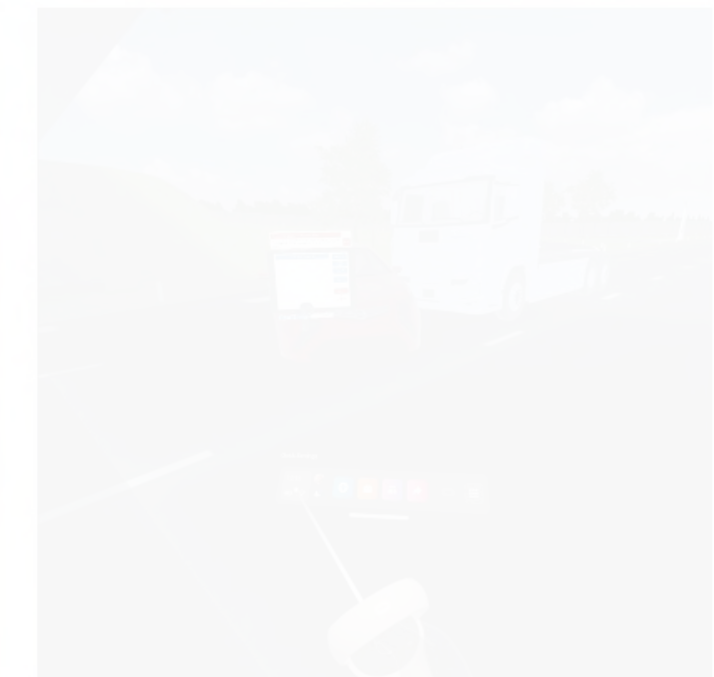


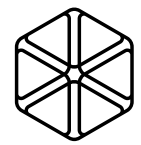


BLIKSUND CRS

MODITECH VR APP

The VR App can be downloaded for free on the Moditech website; <https://www.moditech.com/nl/support/software-downloads/>





PRACTICAL ASSIGNMENT SYMBOLS

(45 min)

Divide the participants into 4 groups

Based on texts, pictures and information about a vehicle, the participants will fill in a CRS image themselves. It is the intention that the participants only place the most important matters and the parts in the CRS printout where the information needed for assistance is needed.

This takes about 25 minutes. After this, the groups can compare with each other, as an instructor you guide this discussion for about 20 minutes. Talk about the parts that have been placed in the vehicle as a point of attention. Dig into the risks that exist for the rescuer and why it is important for the CRS to show them.