

The CIP is a training programme for the regional THV instructors. This long-running programme supports the instructors in using the CRS system, both for operational deployment and for training safely with vehicles.

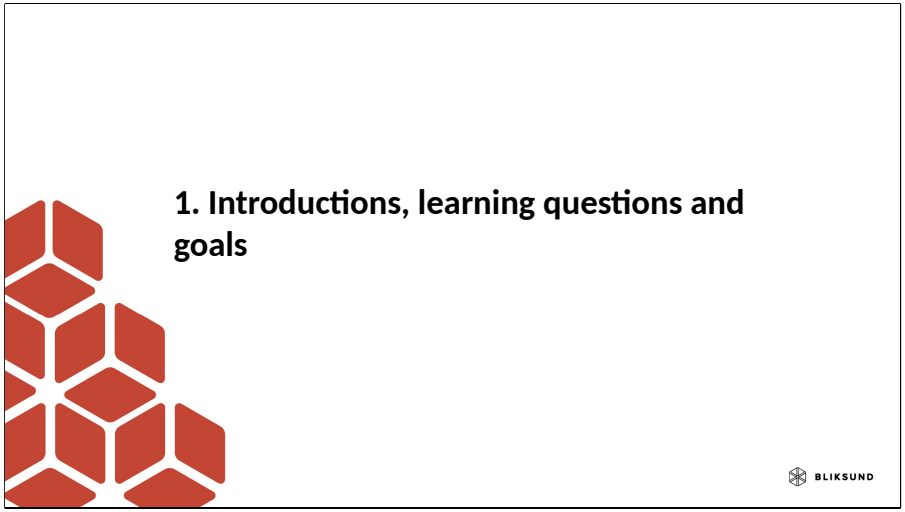
CIP Programme 2024-2025

1. Introductions, learning goals and questions
2. Acquisition of Moditech by Bliksund
3. New in the Crash Recovery System
4. Roadmap including these upcoming new vehicles
5. Special features and exceptions 1
6. Practice assignments: Real-life cases
7. Publications / news flashes
8. Practice assignments: CRS General
9. Special features and exceptions 2



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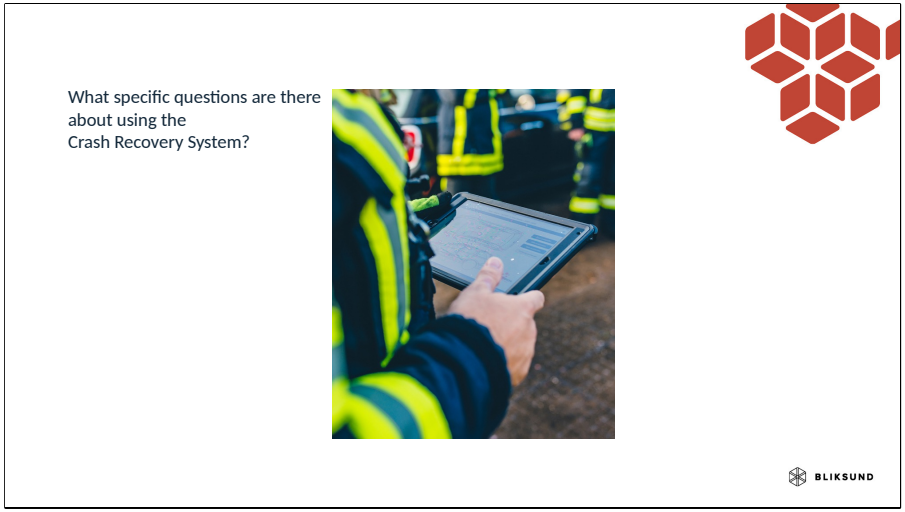
Briefly name the different chapters we will be covering.



Introductions

Get to know each other and gauge the group's knowledge and learning questions for this training.

Write the learning questions on a flip chart or board and make sure they are addressed during the presentation. At the end of the presentation, check back against these learning questions: have all the questions been covered?

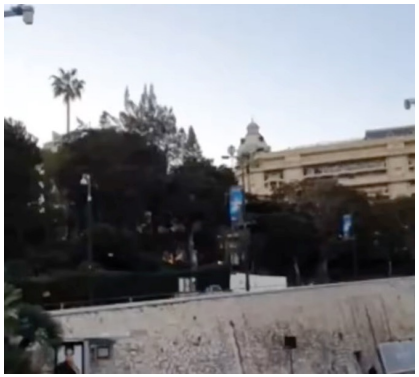


Introductions

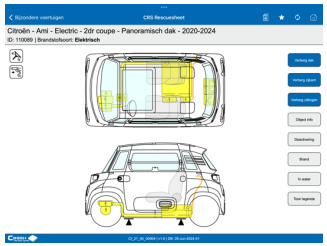
Get to know each other and gauge the group's knowledge and learning questions for this training.

Write the learning questions on a flip chart or board and make sure they are addressed during the presentation. At the end of the presentation, check back against these learning questions: have all the questions been covered?

Unusual incidents



Special vehicles:
Citroën AMI / Opel Rocks-e



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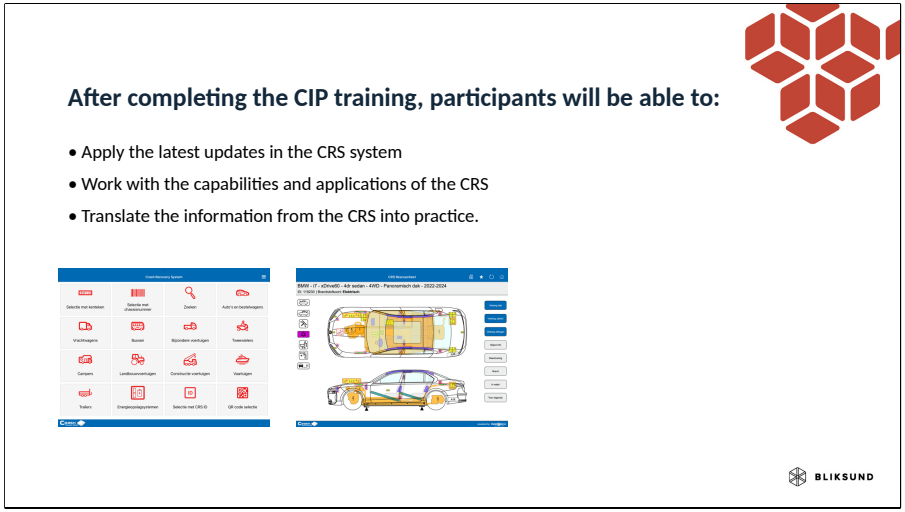
Unusual incidents

Gezocht..zeer forse man..vlechtjes en blauw witte broek





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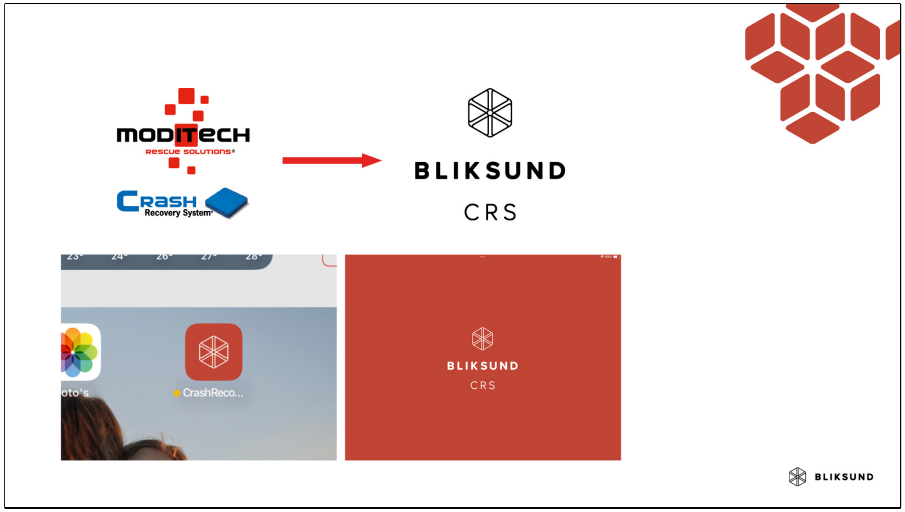


Name the practice goals of the CIP.

Mention that this presentation will also be made available to the CIP participants and can be downloaded from the website www.moditech.com under training downloads (participants can each create their own password for this).

We will work with all the capabilities the CRS offers; deactivation, along with a number of special features in the system, will be covered in detail in this session.

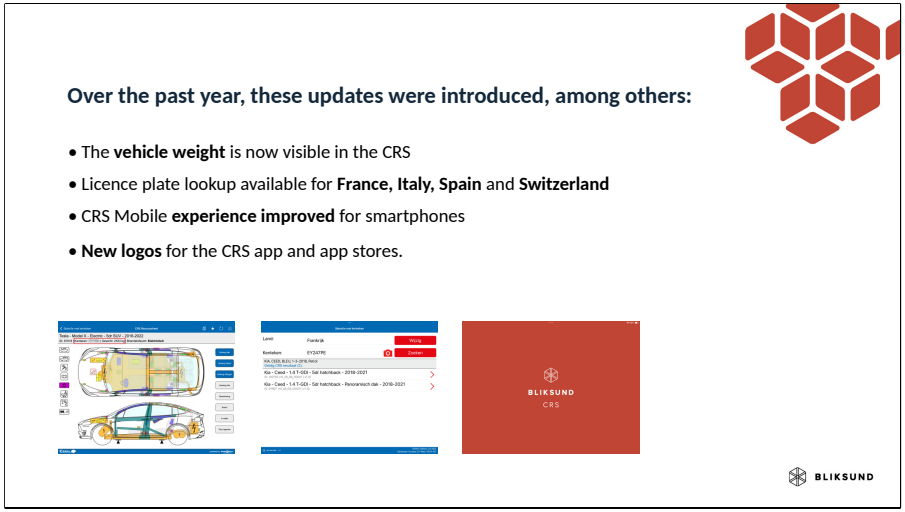
2. Acquisition of Moditech by Bliksund



Discuss the acquisition of Moditech by Bliksund and the opportunities this will create. The CRS will continue to operate from the Netherlands, and the organisation itself has changed only slightly. The logo has changed, however.

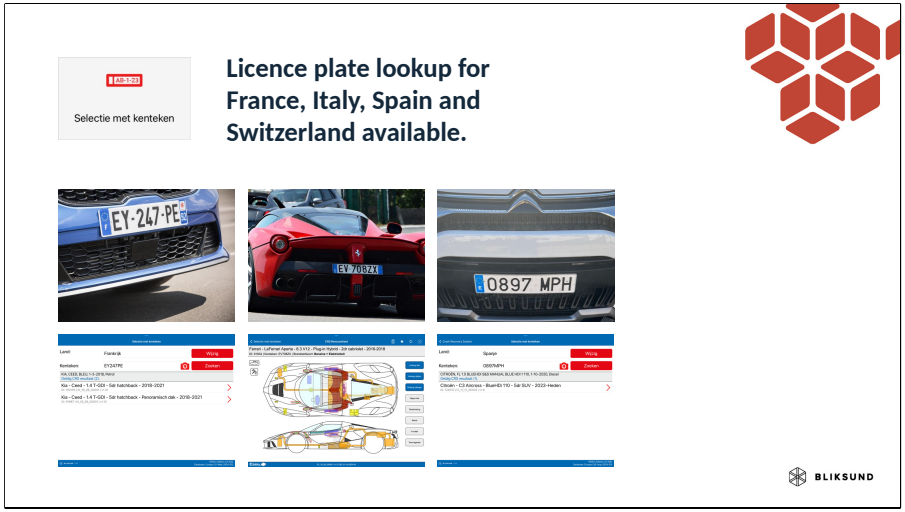
IncidentShare, GRID and Bliksund EWA (Emergency Worker Assistant)


3. New in the
Crash Recovery System
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In this slide we discuss the following updates in the Crash Recovery System:

First of all, following the acquisition by Bliksund, the Crash Recovery System has been given a new logo. Keep this in mind when launching the app from your desktop or home screen. In addition, changes have been made to enable licence plate lookup for new countries (we will practise with this today). Several countries are about to become available for licence plate lookup in the CRS, with France being the first. As soon as the upcoming app update is available, we will announce it via our newsletter and social media channels.



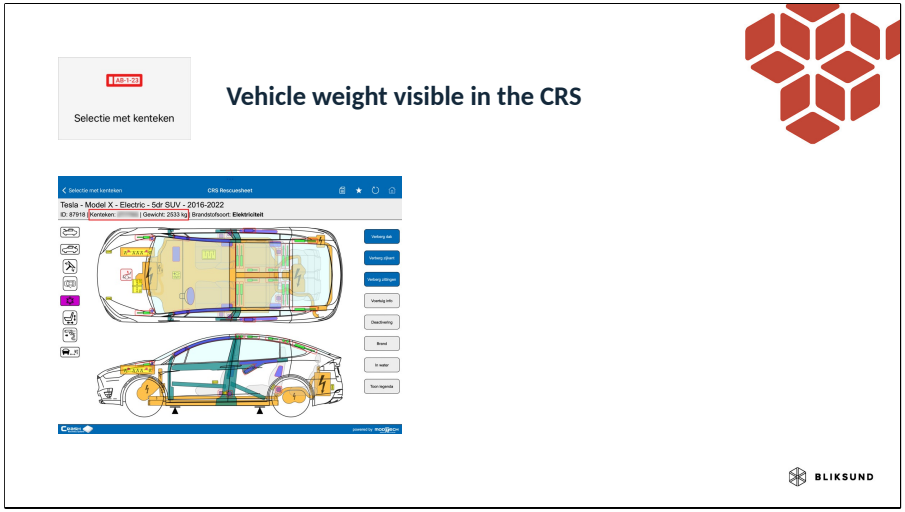
We are more than happy to make it much easier for first responders in countries where licence plate lookup in the Crash Recovery System is not yet possible to quickly and easily look up the right vehicle.

Thanks to a number of technical changes, licence plate lookup has been made possible for new countries. After installing the latest Crash Recovery System app update (since June 2024), the selection procedure with licence plate lookup is now also available in France (a CRS Full Edition licence is required). This means that vehicles with a French licence plate can now be looked up.

In the Selection by licence plate screen, the licence plate of the vehicle concerned can be typed in, or scanned using the device's camera. Thanks to our Vehicle Identification Service (VIS), the licence plate is forwarded to the correct data provider, which ideally results in a single search result.

Explain which settings need to be adjusted on the tablet for this.

Assignment: Have participants also look up these three licence plates in the CRS.



Since the CRS software update of December 2023, the weight will also be visible in the Rescue Sheet (if registered with the data provider) when a vehicle is looked up via vehicle selection by licence plate or chassis number.

For first responders at the scene of an accident, knowing the weight of a vehicle can be very useful for various reasons. For example, if a vehicle is in the water, they can quickly and easily determine which crane should be used to lift the vehicle out of the water. Information about the weight can also be very useful for roadside assistance and recovery services.

After the software update, the weight of the vehicle will be visible in the blue title bar of the Rescue Sheet. By adding weight as extra information to the Crash Recovery System, we expect to help first responders, roadside assistance and recovery services act even more safely and efficiently!

4. Roadmap new vehicles

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A selection from the full list of newly added vehicles.

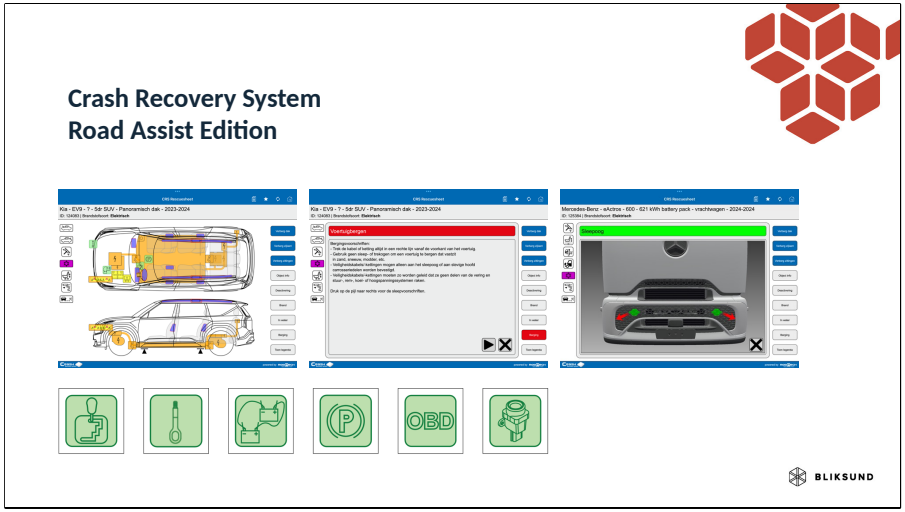
Mention that the current vehicles can be found via the following link:
https://www.moditech.com/nl/nieuws/nieuwe-voertuigen-voor-de-crs-database-in-2024/

In recent years, simply changing the year was enough; next year the path will be different again due to the name change to Bliksund.



On the left, the list of available Chinese car brands; on the right, an overview of even more existing Chinese brands. We are getting more and more of them in Europe… not all brands shown on this sheet are or will become available. It is an image to give an idea of all the vehicles out there.


5. Special features and exceptions 1
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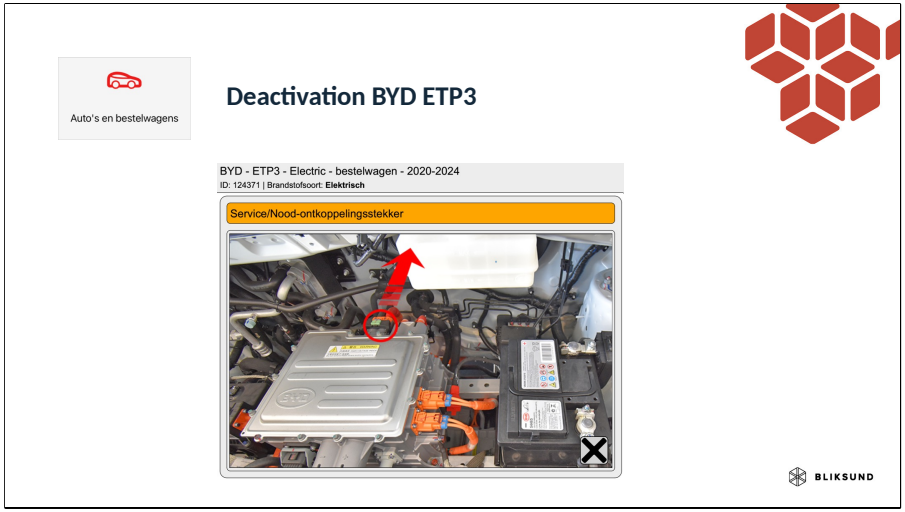
Road Assist Edition
Due to the growing number of vehicles equipped with modern vehicle technology and/or alternative propulsion, not only first responders but also recovery services benefit from specific vehicle information that enables them to act quickly and safely. The Road Assist Edition of the Crash Recovery System contains all relevant information for recovery and towing services, including deactivation information for modern propulsion systems.

Road Assist components
The CRS Road Assist Edition contains specific components that are important for recovery services. The interactive top and side views show all relevant components (displayed in green), such as the towing eye, on-board diagnostics system, jump-start points, inertia switch, fuse box, the procedure for mechanically releasing the automatic transmission and the (electric) parking brake, all in one overview.

In the case of a hybrid or electric vehicle, the recovery operator is immediately informed of deactivation procedures after selecting the vehicle. Additional information is easily accessible by clicking on the

various parts in the vehicle image. By clicking the 'Recovery' button, extra (manufacturer) information is visible (if available), including online PDF documentation.

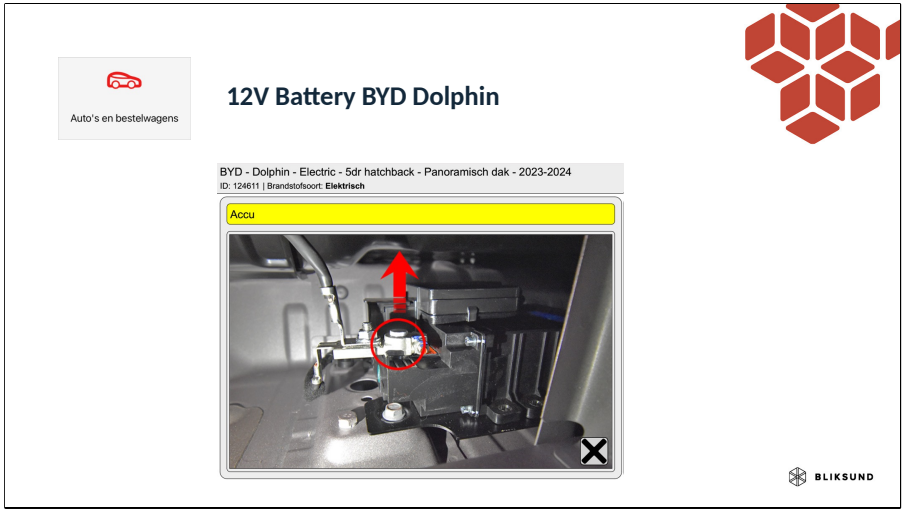
Want to try the CRS Road Assist Edition?
Request a free 30-day trial or an Online Demo.



Deactivation

Assignment: look up the BYD ETP3 Electric 2020-2024 and follow the deactivation procedure

Eventually there is an option to disconnect a plug connection. Do this as prescribed, wearing the 1000V gloves. Disconnecting a plug connection can sometimes feel counterintuitive, because we keep telling people not to touch orange cabling. However, this is the method prescribed here by the manufacturer BYD.



Assignment: look up the BYD – Dolphin – Electric – 5dr hatchback – panoramic roof – 2023-2024:

Discuss the following points:

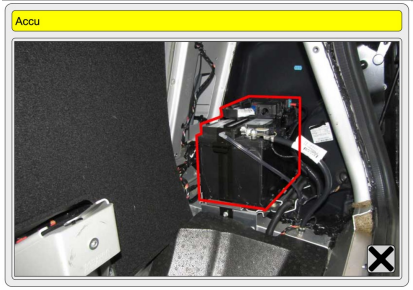
- Removing the roof and seats on the tablet, otherwise you cannot reach the 12V battery underneath
- The 12V battery is an integral part of the larger 400V battery pack. It may seem strange to work on a 400 V HV pack, but that is not actually the case: the component is the 12V battery!

Auto's en bestelwagens

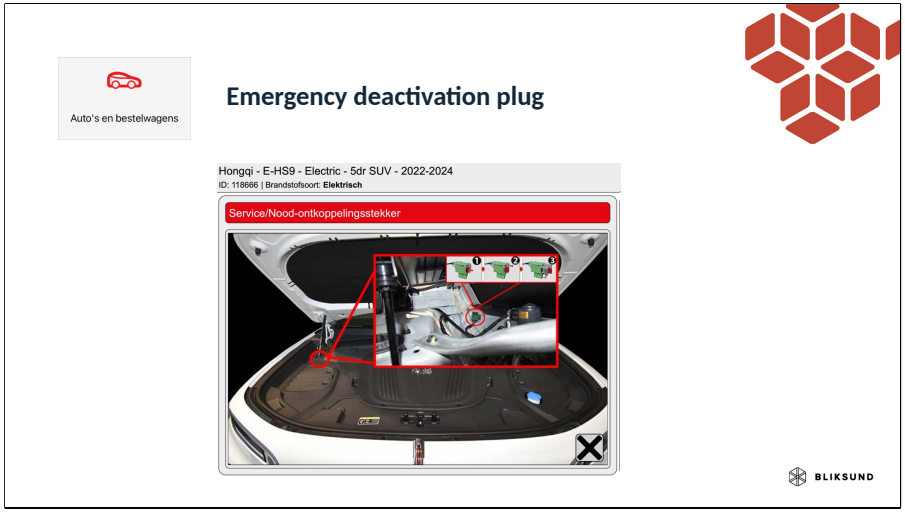
12V Battery LEVC TX

LEVC - TX eCity - 1.5 - Plug-in hybrid - 4dr MPV - 2017-2024

ID: 91281 | Brandstofsoort: **Benzine + Elektrisch**



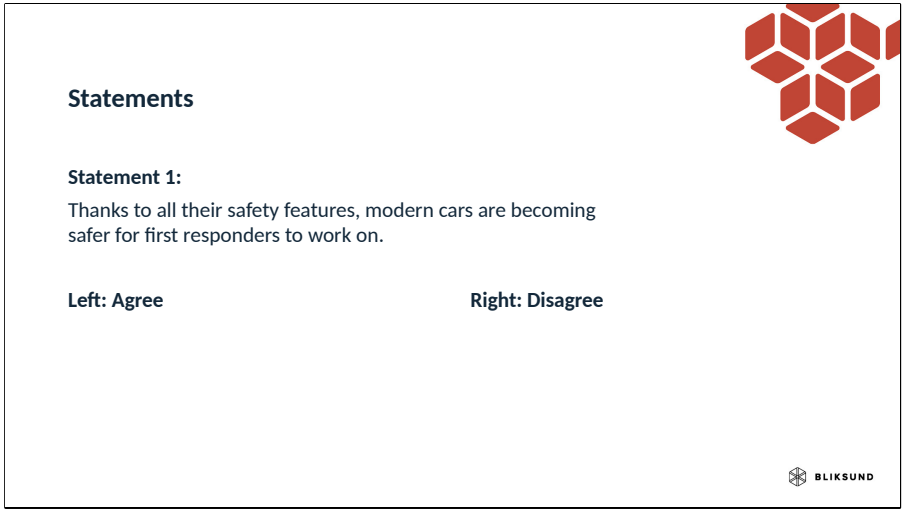
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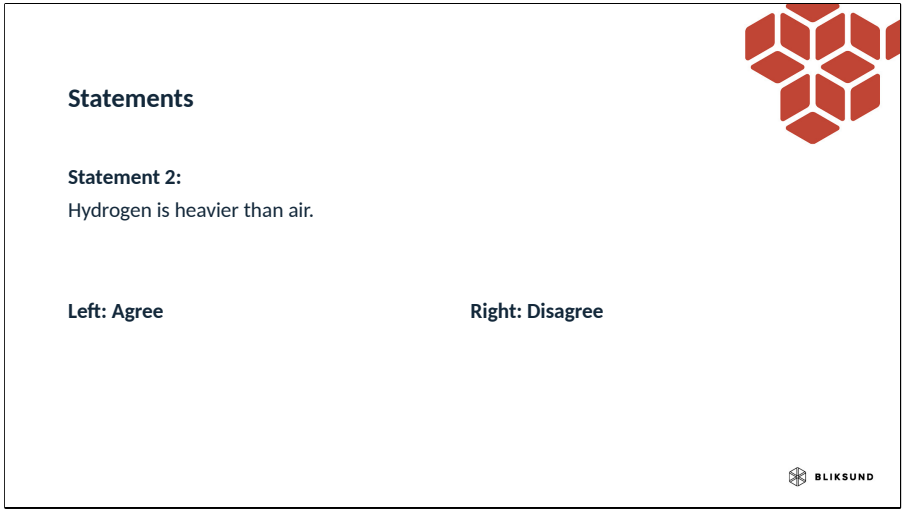
Assignment: look up the Hongqi – E-HS9 – Electric – 5dr SUV – 2022-2024:

What needs to be done to disconnect the emergency deactivation plug?

In the workshop it took almost fifteen minutes to get to the deactivation plug, even though its location was known. Never underestimate how long things take to carry out!



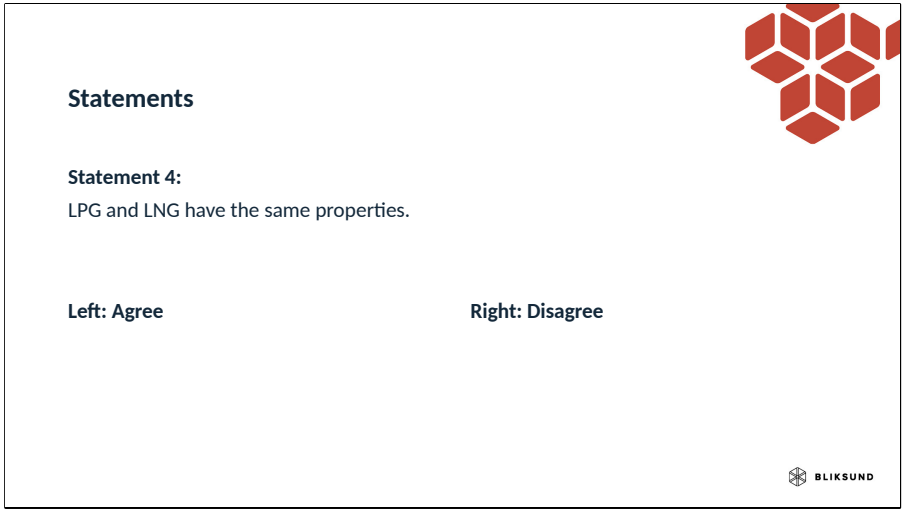
Ask participants why they made this choice; it is a discussion, there is no right or wrong. Guide the outcomes. Above all, there is a lot of vehicle information available in the CRS; it is no longer possible to keep track of it all from memory.



No, H2 or hydrogen is about 12 times lighter than air

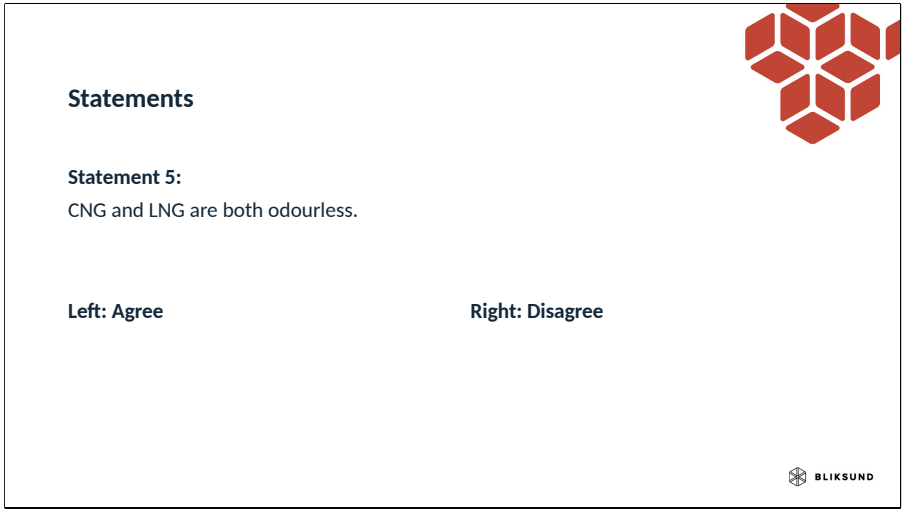


No, AdBlue, a cleaning agent injected into the exhaust of a diesel engine to clean the particulate filters, is non-flammable.

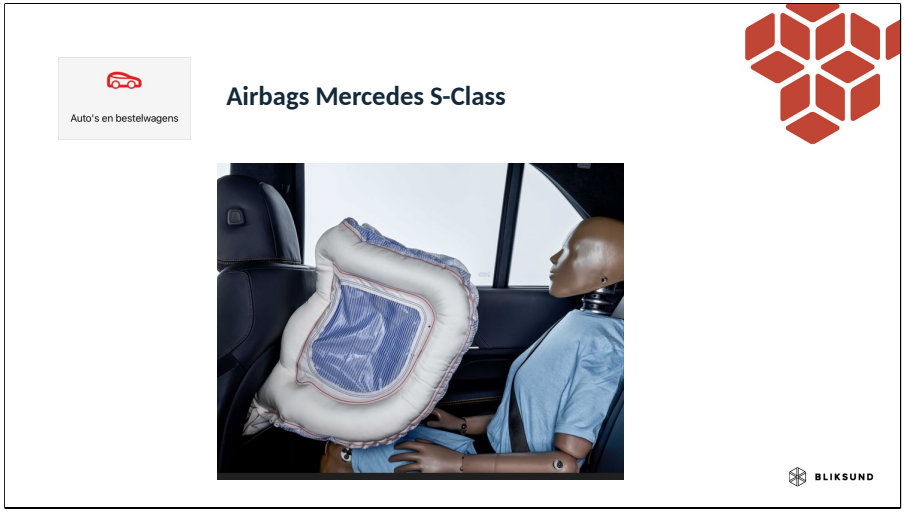


LPG is about twice as heavy as air (depending on the season, the weight changes due to the mixing ratio of propane and butane)

In its liquid phase LNG is heavier than air, but in the event of a leak it evaporates into natural gas and is lighter than air (methane = 0.97)



CNG has the gas odour, LNG does not



Assignment: look up the Mercedes-Benz S-Class – S 63 AMG e – Plug-in Hybrid – 4 dr sedan – panoramic roof 2023-2024 and ask how many airbags are present and which special features are visible in the image?

These are:
- Steering wheel and knee airbag driver
- Front passenger airbag
- 2 curtain airbags
- 2 side airbags front seats
- 1 centre airbag driver
- 2 frontal airbags for the rear passengers
- 2 seat belt airbags rear seat
- 2 side airbags rear seat
- 2 anti-submarining airbags (optional) on the rear seat

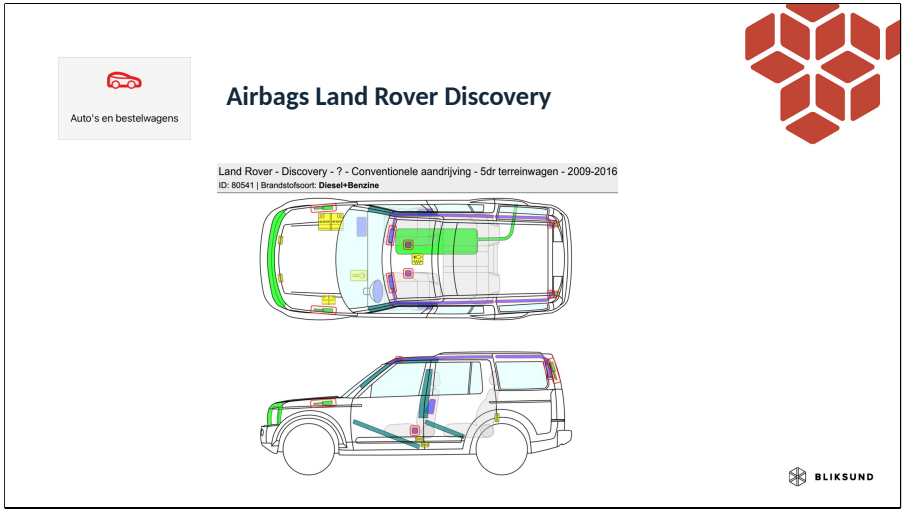
- 16 airbags in total including options



Assignment: look up the Ford – Tourneo Custom Kombi – 2.0 EcoBlue – passenger van – 2023-2024

What stands out about the airbags in this vehicle?

Three special features are visible:
- An airbag is mounted behind the sun visor, so NOT in the dashboard. We also know this airbag location from the Citroen C4 Cactus (optionally have participants look that one up too).
- There is a centre airbag on the driver's seat
- The curtain airbag has to cover such a long distance that two gas generators have been fitted for it.

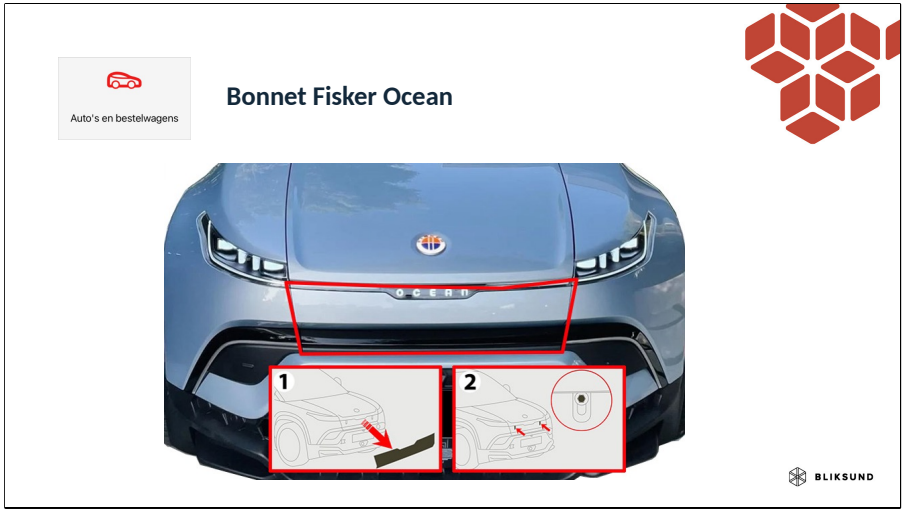


Assignment: look up the Land Rover - ? – Discovery – Conventional drive – 5dr off-road vehicle – 2009-2016:

What stands out about the airbags here?

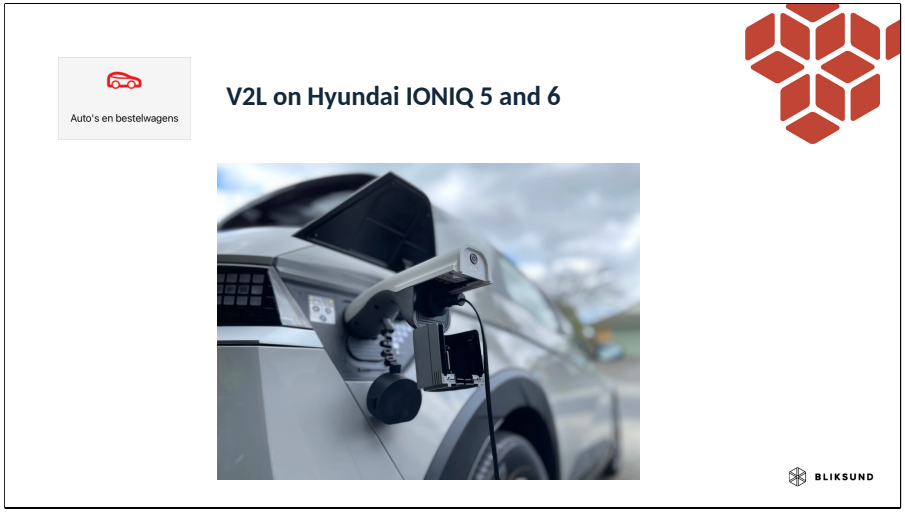
- One curtain airbag is made up of two parts, for the 3rd seating row and for the front. Be careful when removing or folding the roof forward: the gas generators are positioned crosswise at the front.

What does the green plate at the front mean? This is a magnesium reinforcement, light and very strong, but in a burning vehicle it will produce oxyhydrogen gas and sparks when we start extinguishing. In the event of fire, too, the advice is to check the CRS for the vehicle if possible.

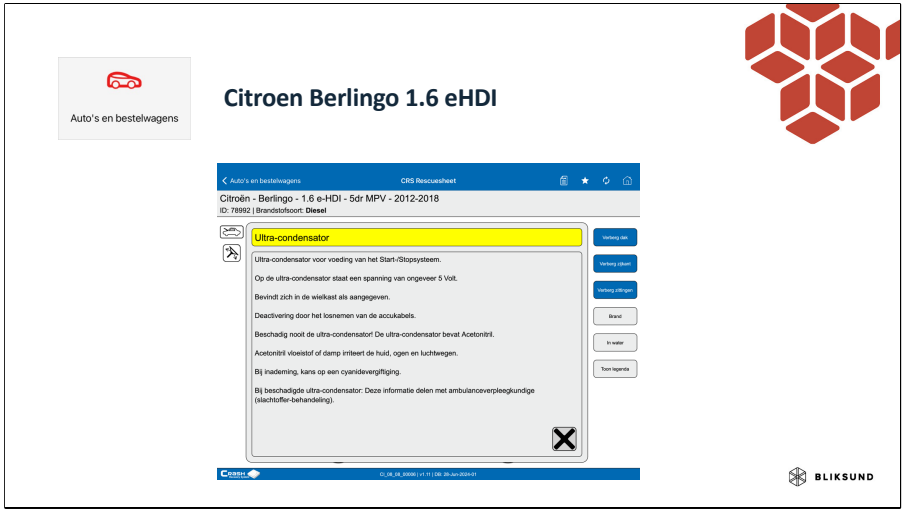


Assignment: look up the Fisker – Ocean - ? – 5dr SUV – Solar panel roof – 2023-2024

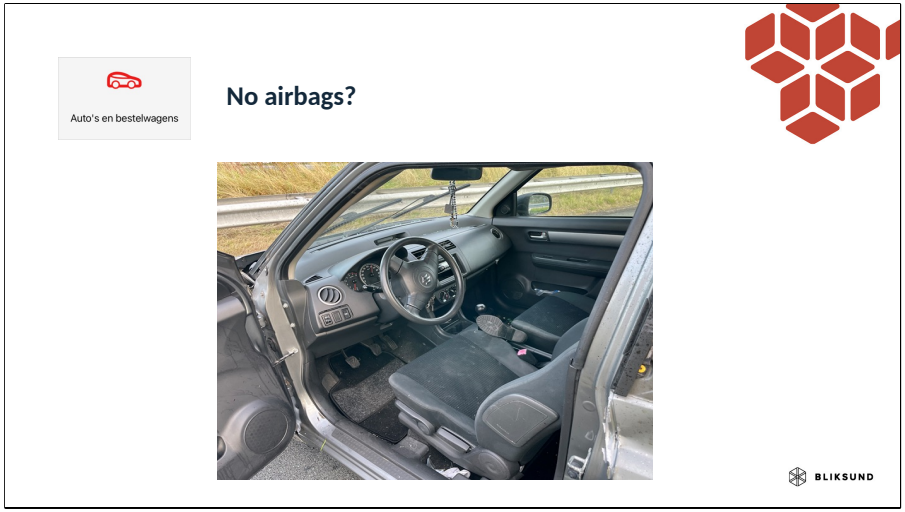
On this car you cannot open the bonnet without removing the grille and then unlocking the bonnet using two Torx screws



Hyundai Ioniq 5 and 6: Have a 230V outlet on the charging plug to connect something to: Vehicle-to-Load (V2L)



What is a risk of a dash roll / dash lift technique on this vehicle: (cutting into the ultra/supercapacitor)



2024: a single-vehicle collision on the A4 near Delft, a Suzuki Swift crashed into the crash barrier at high speed. Yet another example of no airbags being deployed, which you would expect with this impact? It is not always entirely clear why no airbags were deployed here.

6. Practice assignments: Real-life cases

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2024: a rear-end collision in a traffic jam on the A12 near Zoetermeer.

The situation is as follows: the MB - C 350 e - Plug in Hybrid - 5dr - estate 2015 – 2018 has driven into the back of another vehicle (99-GNL-9) and no airbags have been deployed, but the vehicle has deactivated itself. Show the left video a few times.

Assignment: look up this vehicle and ask what might have happened?

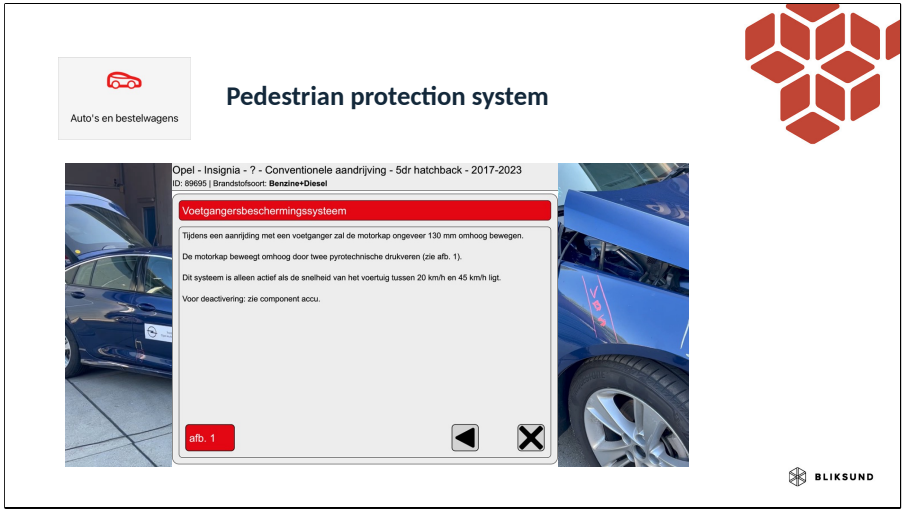
Then show the second photo and ask what people think now in this situation?

The vehicle is equipped with a pedestrian protection system. Look up the pedestrian protection system and view the image. Explain that the black cap marked with the red circle contains a pyrotechnic pin that pops out. Activating the PPS also deactivates the high-voltage battery, just as happens with airbags and

seat belt pretensioners.

What does the pedestrian protection system information actually tell us? (the system is activated between 25 and 45 km per hour; airbags have deployed, and these deploy from 30 km per hour, so the speed was probably not very high.

At the very beginning you can see the Safetyplug in the vehicle; what was the colour code shown by the LEDs? Flashing green LEDs, which means there is NO connection with the vehicle. So, apart from everything else, the Safetyplug now has no connection with or influence on the vehicle!



Here is a video (which we also used in last year's training) that nicely shows the activation of the pedestrian protection system.

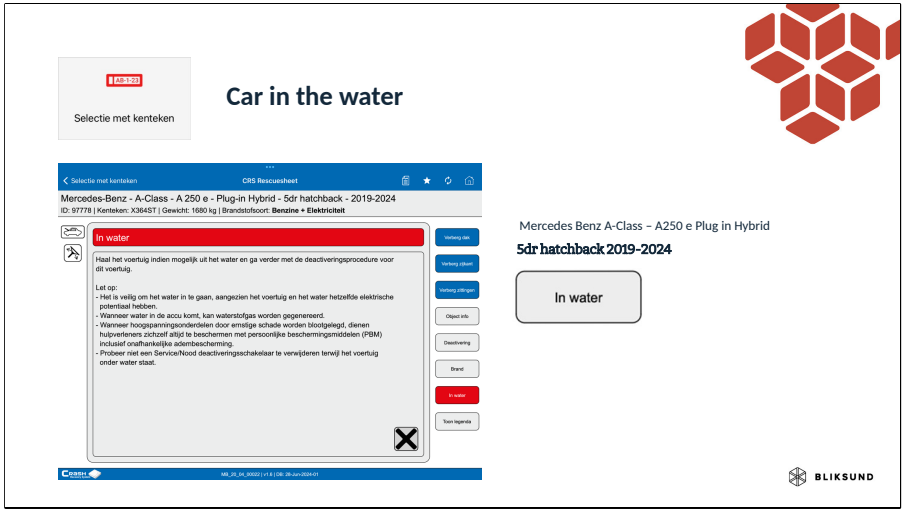


Here are two examples of the impact on the vehicle where cyclists were hit by a car with NO pedestrian protection system. In the left photo, note the dent in the A-pillar, the deformation of the bonnets and the windscreen damage. In both cases the cyclists were seriously injured.



Assignment: look up the Land Rover – Discovery Sport - ? – 48V Mild Hybrid – 5 dr SUV – Panoramic roof – 2019-2024. What are the special features of this vehicle?

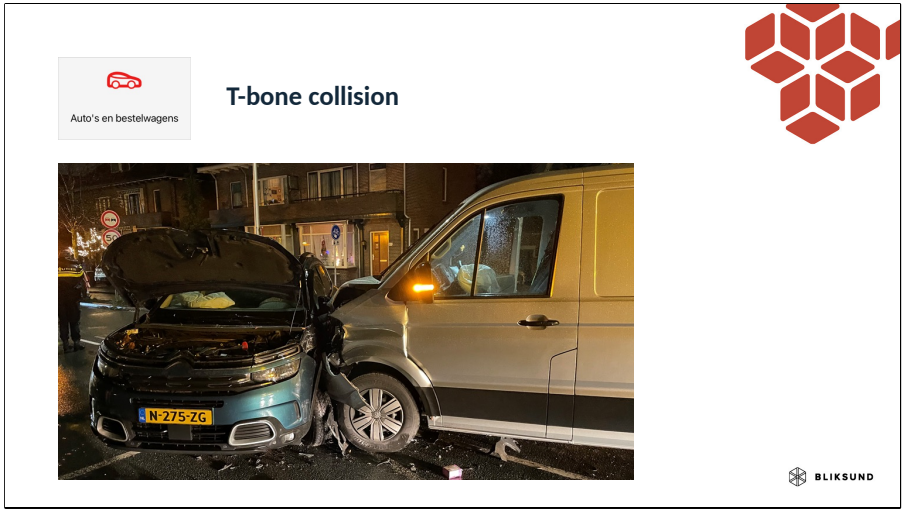
- In this version, a pedestrian protection system is fitted under the bonnet. Activation possible between 25 and 45 km/h. The bonnet is pushed up by the airbag alone.
- There are 7 seats, but how many seat belt pretensioners are fitted? There are eight: the driver's seat has two. Not every vehicle has a pretensioner at every seat, yet this one even has them in the third row.
- The mild hybrid system is located under the driver's seat; how can you deactivate it? (by disconnecting the 12V battery terminals)
- When you search for this vehicle via the ? you get two options, namely petrol (with 1 fuel tank) and the diesel version, including the AdBlue tank. If the fuel type has not been determined, the petrol version will also show an AdBlue tank that is not actually present.



2024: Car in the water in Delft.

Assignment: look up this vehicle and discuss:

Determine what the risks are with this vehicle in this situation.
Will we, and can we, deactivate this vehicle, and how would we do that?
Is there a chance that the water is live due to the battery?
What does the CRS indicate for this vehicle under the button: in water?



2024: T-bone collision (side impact) in Pijnacker, two people slightly injured.

A Citroen - C5 Aircross - b225 Hybrid – Plug in Hybrid – 5dr SUV - Panoramic roof – 2019 – present

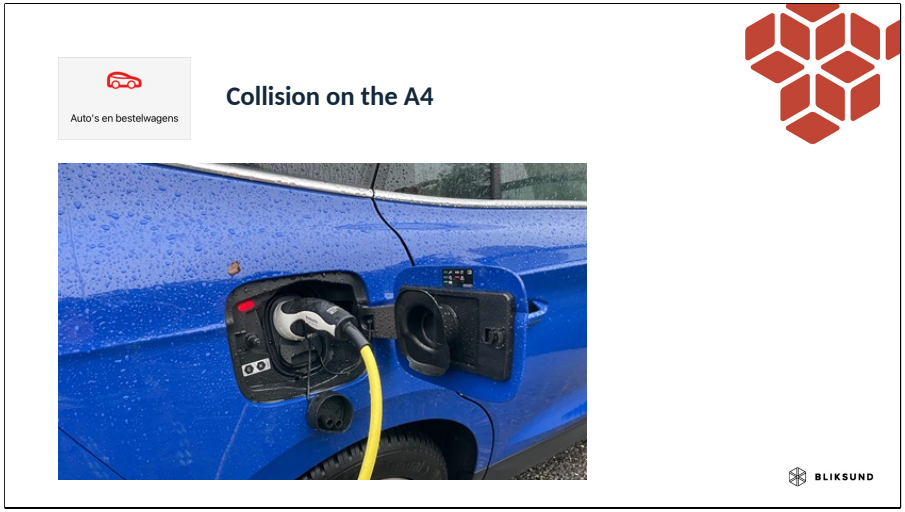
Volkswagen Crafter 2.0 TDI – van – 2017 – 2024

What can you tell about these vehicles?
- In both vehicles all airbags have been deployed
- The Citroen is a hybrid > what can you expect regarding the status of the Li-ion battery?

- Side impacts are always risky for the occupants

What are the points of attention when you look at this accident? What is the weight of the C5? (1845 kg)

How will we make these vehicles safe?



2024: Collision on the A4 near Delft

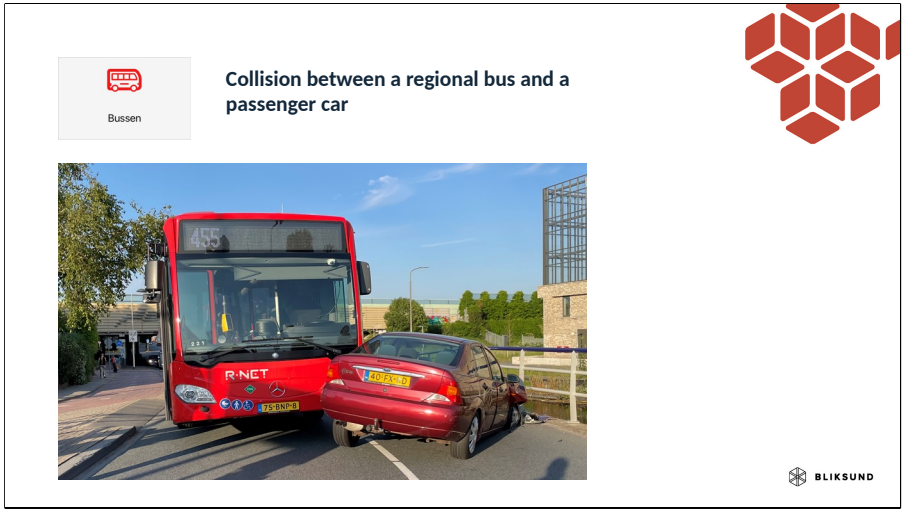
Which vehicles are involved? (Lynk & Co 01 / Opel Corsa / Skoda Enyaq iV)

Two electric vehicles; the Lynk & Co has barely any visible damage. The Opel is heavily damaged and the Skoda Enyaq iV has suffered a severe rear impact.

How will we make this situation safe? What has visibly been done here? What has the Skoda already taken care of itself with the safety system?

Due to the rear impact, the Skoda itself did NOTHING with the high-voltage drivetrain. After all, no airbags were deployed.
The crew of the fire engine inserted the charging plug; what is the effect of that? (this action is NO guarantee that the vehicle can no longer roll!)
The fire engine crew then also removed the service / emergency disconnect switch under the

bonnet. This had the desired effect!

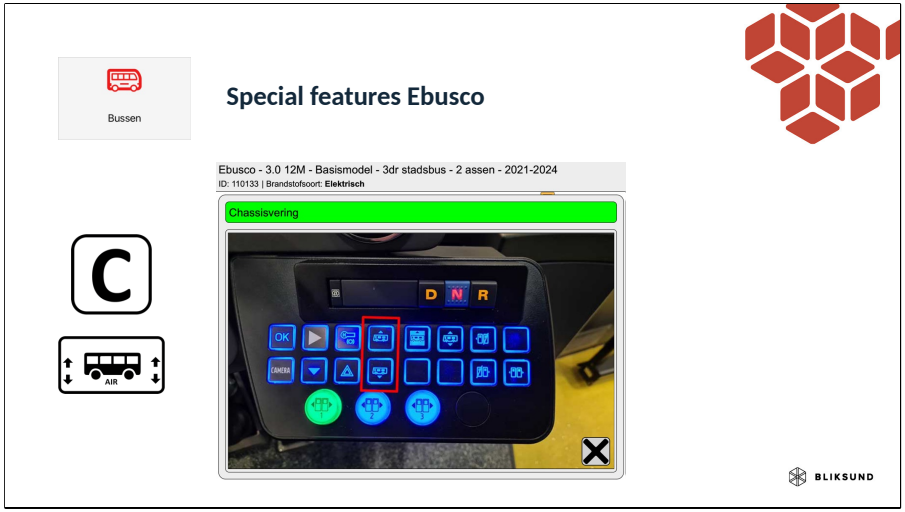


1 June 2024: a collision between a regional bus and a passenger car in Delft. One person slightly injured in the Ford Focus from 2000. You must make this situation safe / leave it safe and hand it over to the police and the recovery service. What problems do you run into?

Look up both vehicles via the licence plate; what are the points of attention for these vehicles?

MB Citaro NGT Hybrid 7.7 48V Mild 2019:
CNG cylinders on the roof
No liquid fuel tank
48 Volt mild hybrid system (ultracapacitor > risk of cyanide poisoning)

Ford Focus from 2000:
- Airbags, seat belt pretensioners

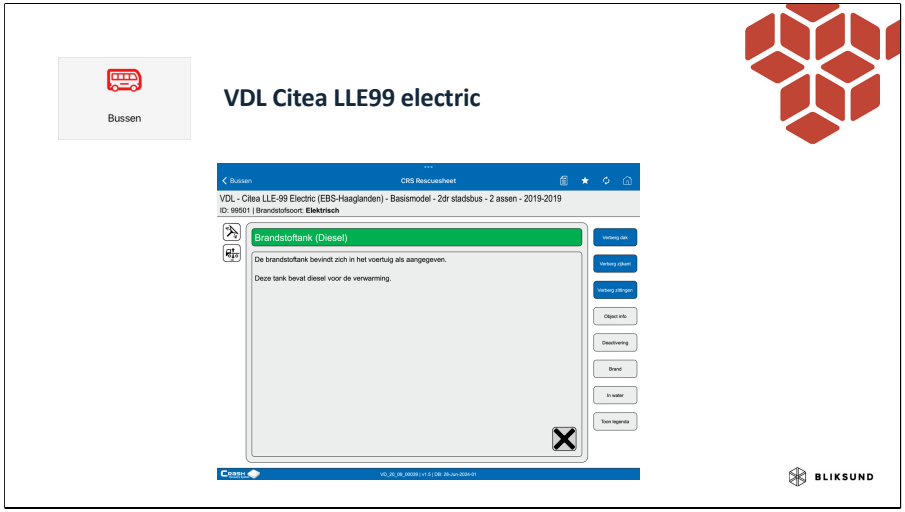


Assignment: look up the Ebusco 3.0 12 – Base model – 3dr city bus – 2 axles – 2021-2024

What is special about this vehicle? It has a carbon body; the second photo shows this via the window pillars, but the entire body is made of carbon. What are the risks of this?

You can cut and saw carbon, but use the correct PPE and clean the suits after the operation. Grinding carbon is strongly discouraged because of the spread of carbon fibres!

Also cover the option of operating the air suspension; emphasise that with a casualty under the vehicle, operating the air suspension can be an option, but think about emergency cribbing first! This is to prevent the vehicle from unintentionally lowering (kneeling).



What is a deviation in the CRS image for this fully electric bus?

There is a small fuel tank for heating the bus; electric heating would cost a significant part of the battery capacity and therefore of the range.

7. Publications / news flashes



Following many other vehicle manufacturers, Wrightbus has also chosen to partner with Bliksund (formerly Moditech). Bliksund and the British bus manufacturer, which is fully committed to sustainability with the production of fully electric, hybrid and hydrogen buses, recently signed an intensive partnership that benefits both parties.

The government organisation Transport for London had already announced that all buses operating in the London area must be included in the Crash Recovery System, a necessity Wrightbus also recognises.

Thanks to the partnership, all comprehensive safety information from Wrightbus, such as the locations of important components and deactivation procedures, will be available to first responders in the interactive Rescue Sheets of the Crash Recovery System.

The first Wrightbus has already been added to the Buses category of the CRS database. It is the fully

electric StreetDeck Electroliner double-decker. Naturally, more buses with alternative propulsion from the Wrightbus range are planned to be added to the CRS database.

Moditech Rescue Solutions - Hydrogen0001



WattHub, a charging hub for the entire region
Rotterdam, 8 December 2022 - On the AVRI site, located on the A15 near the Geldermalsen exit, a unique and innovative fast-charging hub for heavy equipment and lorries will soon be built. Van Oord, Dura Vermeer, Ploegam and Betuwewind are jointly developing this world first under the name WattHub. Preparations for the charging hub start in February; it will be operational at the end of April. The charging hub is located beneath the wind turbines and between the solar panels and will of course be supplied with sustainable power from Betuwewind.

The reason for this charging hub is the Tiel-Waardenburg dike reinforcement project, carried out by Van Oord, Dura Vermeer and Ploegam, working together for this occasion in the Mekante Diek consortium. The ambition is to carry out the dike reinforcement entirely emission-free. Fast-charging hubs like this for heavy equipment and lorries do not yet exist, which is why the companies joined forces to develop one themselves.

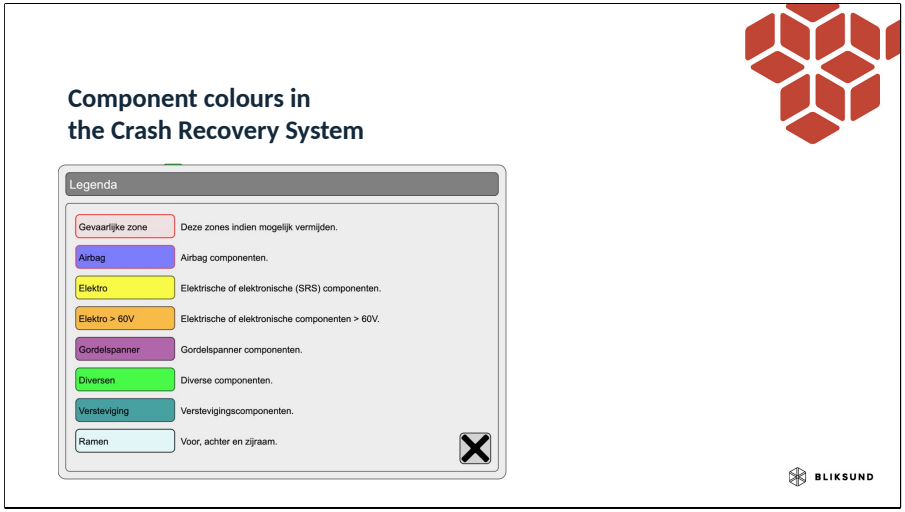
And not only the project, but the entire region can benefit from this initiative. The charging hub has more capacity than the project requires. This extra capacity can be used by companies with similar

charging needs from and for this region. Many businesses in the region cannot get a heavier grid connection from the grid operator, which makes electrifying their vehicles and equipment difficult. The charging hub thus offers a solution for businesses, allowing them to invest in sustainable equipment and realise their sustainability ambitions.

World's first fast-charging hub for heavy equipment
The charging hub will be the world's first public charging hub developed specifically for lorries and heavy equipment. With 39 charging points and a scheduling system, there is always sufficient charging capacity and the certainty of being able to charge in the reserved time slot. In addition, the charging hub will have a charging capacity of up to 600 kW per charging point, a charging speed not yet used anywhere else in the Netherlands.

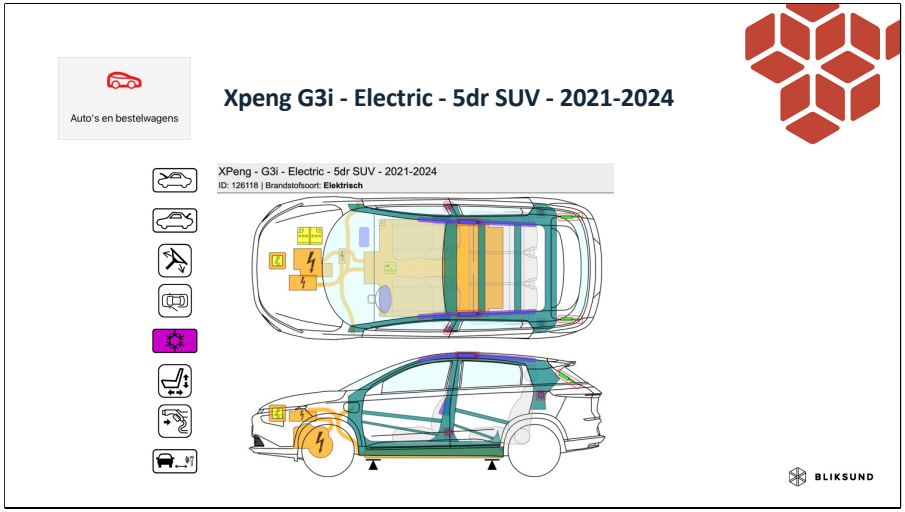
8. Practice assignments: CRS General

BLIKSUND



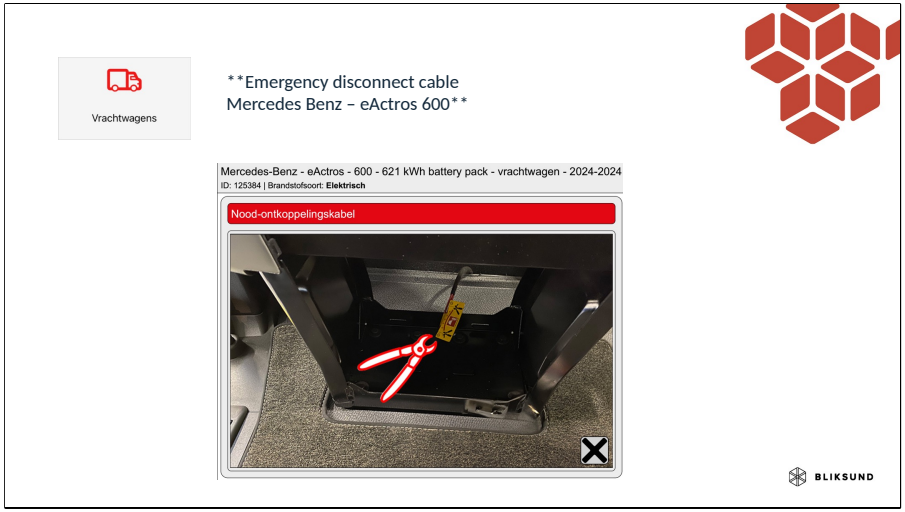
Various colours are used in the CRS, and these correspond to the symbols. This lets you see at a glance what a component is for.

If you don't know something, press the symbol; you will go deeper and deeper into the system, usually followed by a text or a photo of the part. If you cannot reach the part, remove the roof, the side or the seats of the vehicle concerned.



Assignment: look up the Xpeng G3i – Electric – 5dr SUV – 2021-2024

Ask what information can be obtained from the 8 buttons?



Assignment: look up the Mercedes Benz – eActros – 600 – 621 kWh battery pack

Determine how the vehicle should be deactivated?

- Deactivation is done, among other things, by cutting a cut loop behind both seats in the cab.



Reinforcements

Photos from left to right
AMG GT A-pillar / AMG GT C-pillar / BMW 740 A-pillar

Have participants look up these vehicles: which pillars could we possibly cut and what does that mean?

Which other vehicles have a heavily reinforced A-pillar?



Assignment: individually, within a few minutes, write down on a sheet of paper as many risks as possible that are relevant when extinguishing a car fire. Then discuss:

Heat, smoke and soot (PPE and occupational hygiene)
Exploding tyres, airbags, gas struts, bumper dampers, seat belt pretensioners
Batteries venting, smoke gases exploding
Leaking fuel tanks, LPG / CNG / H2 / LNG tank venting
Vehicles moving spontaneously due to starting and short circuits
Spattering of light-alloy parts and rims

Point out the good example in these photos: a safe distance nicely maintained with the stream by using its throw range!

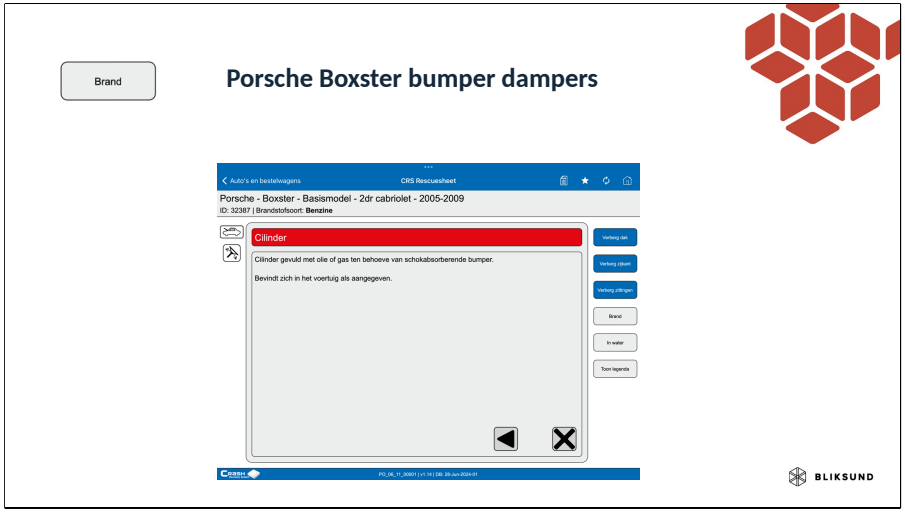


All kinds of risks pictured, clockwise from top left: a natural gas bus, light alloy with water, smoke and heat, watch out for the tyres!, a woman who drives a burning car to a fire station, two photos of parts that have shot through the roof and the pillar.

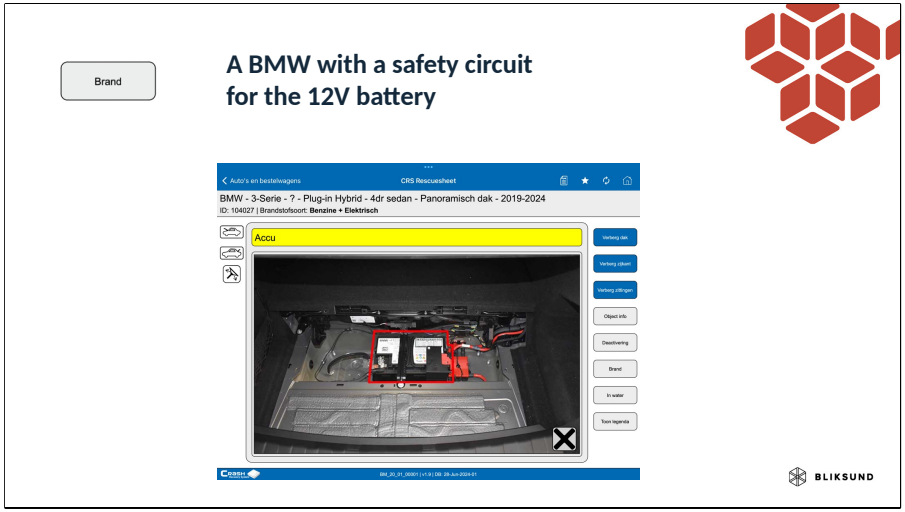
Woman drives burning car to fire station
Monday 1 January 2024
A woman whose car caught fire last night thought it would be a good idea to drive past the fire station in Almelo. However, there were no firefighters there, as they had been called out to another fire in Almelo.

Damage to fire station
The Vriezenveen fire brigade was urgently alerted to extinguish the fire. Meanwhile, an aerial ladder truck with two firefighters returned from the fire elsewhere in Almelo. On arrival at the station in Almelo, they saw that the station doors were already deforming from the heat of the car fire. The

woman had parked her car close to the station, probably so that firefighters could easily reach it.
The two returning firefighters quickly drove the fire engines still in the station outside and cooled the doors of the fire station.
When the Vriezenveen fire brigade arrived, the car fire was extinguished.
The car was completely destroyed and the doors of the Almelo fire station were thus damaged by the heat. Nobody was injured.



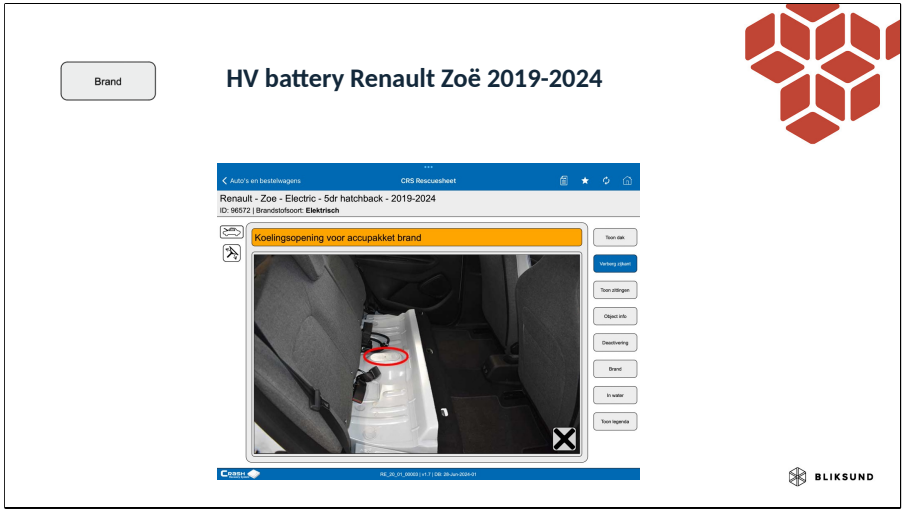
Porsche Boxster base model 2005-2006 bumper dampers



BMW with a safety circuit for the 12V battery that disconnects the starter cable on SRS activation.

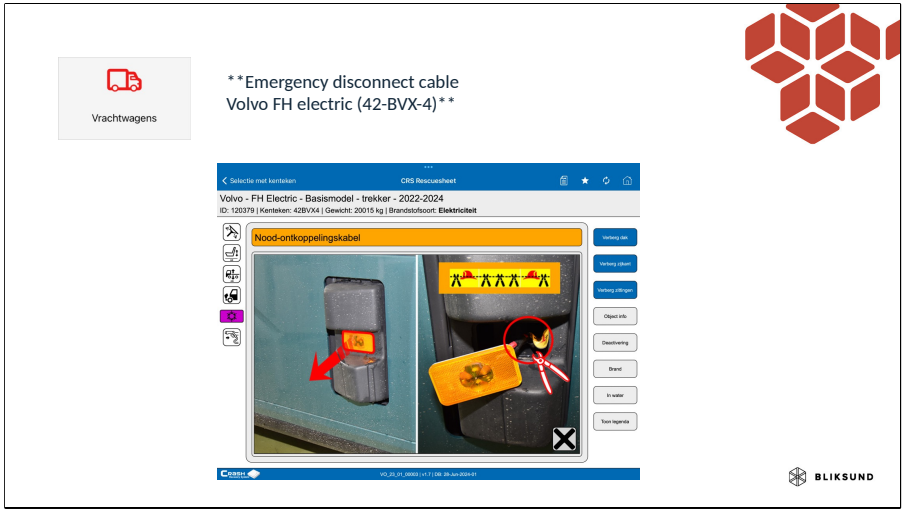
What is the advantage of disconnecting the starter cable?

What remains active in this vehicle: everything on 12V, so windows, locks, e-Call, lighting etc.



Question: how do you access the high-voltage battery on this vehicle?

Via the cooling opening, for a battery pack fire



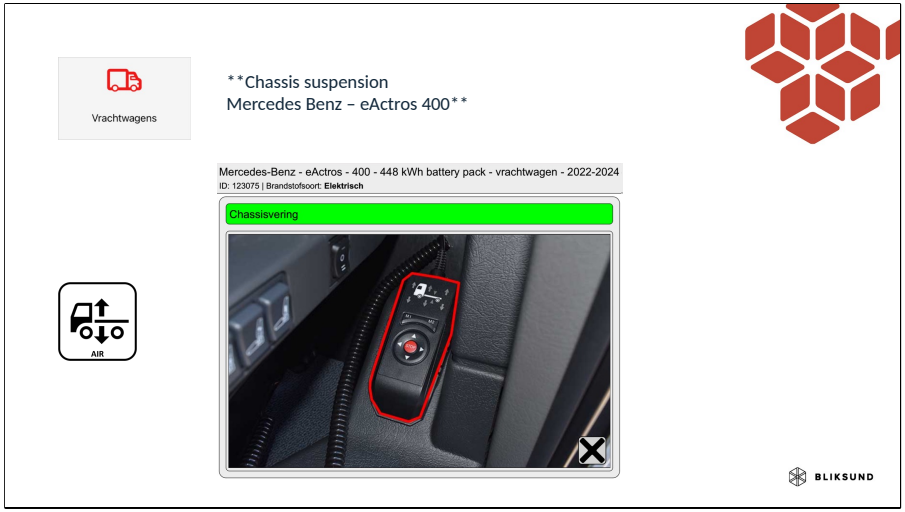
Question: where is an easily accessible cut loop located?

for deactivation, a cut loop in the indicator light



Assignment: look up the Mercedes Benz – eEconic – Electric – lorry – 2022-2024.

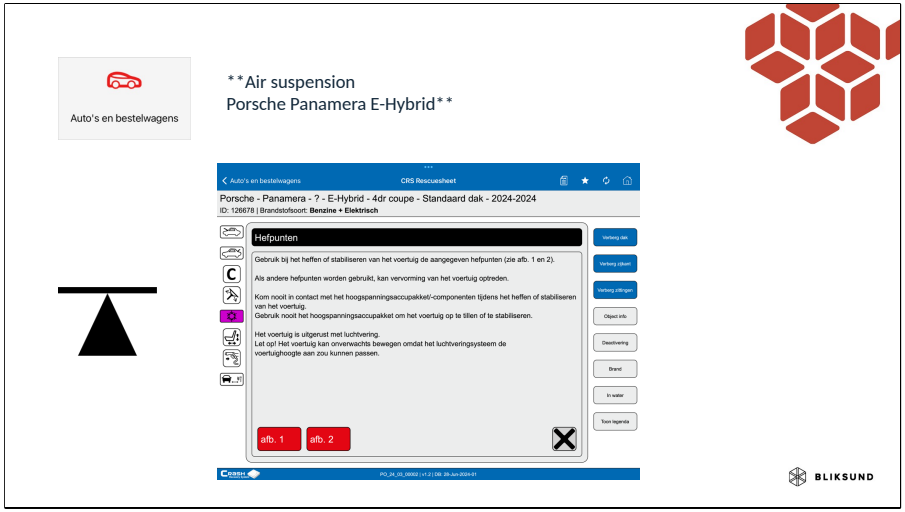
What is different about this deactivation, or what might actually be very handy about it? (the deactivation cable is very easy to reach behind the cab)



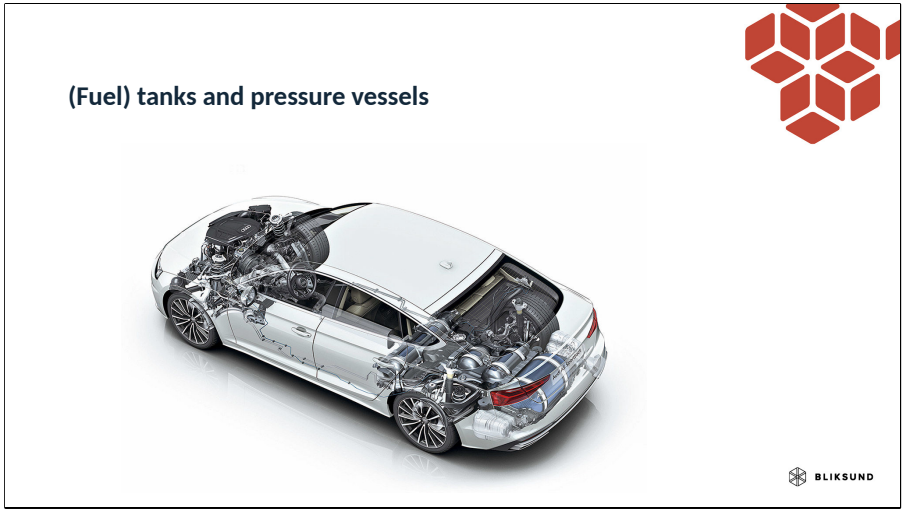
Assignment: look up the Mercedes Benz - eActros – 400 – 448 kWh battery pack - lorry – 2022-2024:

Go through the deactivation: what problem do you run into when you want to disconnect the 24V batteries? (you will first have to tilt the cab)

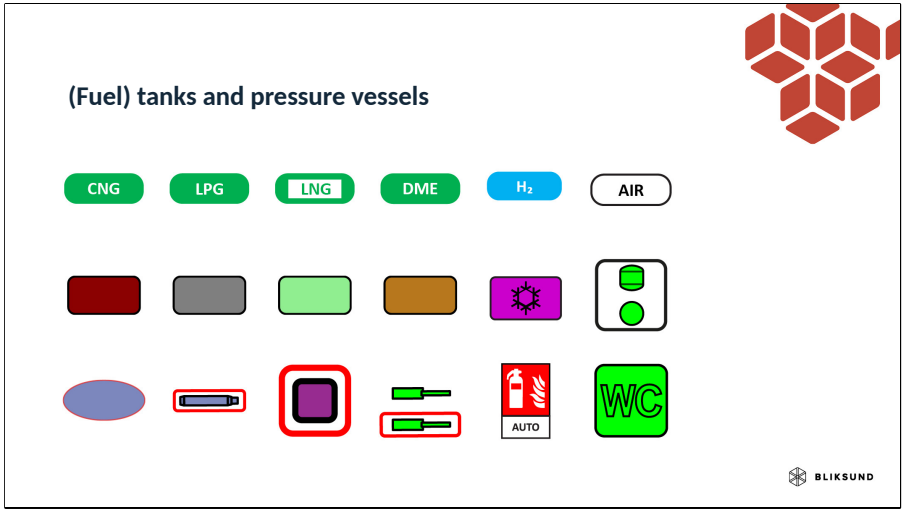
After deactivation, it is good to look at the air suspension / chassis suspension; only operate it if necessary and if you really know what you are doing. Watch out for the two memory buttons! You cannot see what they do; possibly a lower loading level??



Assignment: look up the Porsche Panamera E-Hybrid 2024:



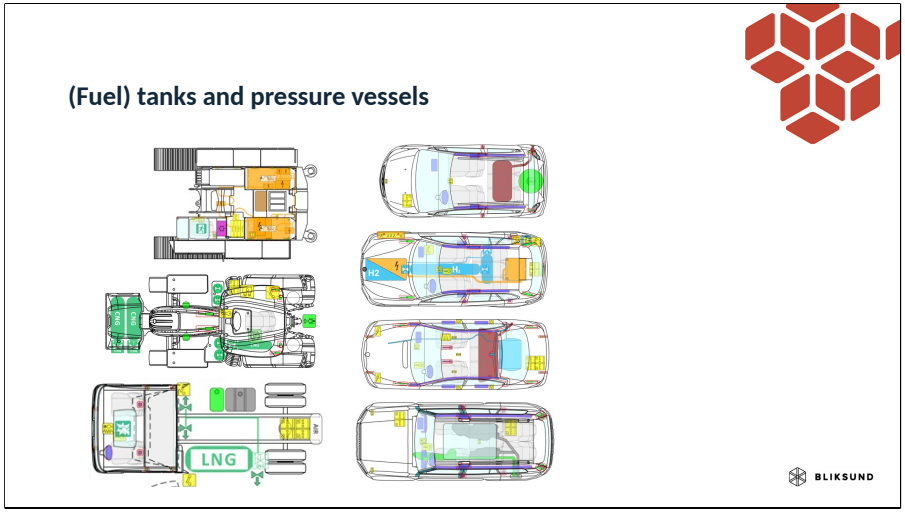
Assignment: (in pairs) describe the different types of tanks and pressure vessels (gas and liquids) used in the CRS, put them on a list and add a type of vehicle (make and model) in which you came across that tank.



As an example, below is a list of the different tanks:

- Airbag gas generators
- Petrol tank (passenger cars)
- Diesel tank (all types of vehicles)
- AdBlue tank (only in combination with diesel)
- CNG cylinder (all types of vehicles, for example the VW Caddy 2.0 EcoFuel van 2010-2015)
- LNG tank (lorries)
- Propane / butane cylinders (motorhomes)
- H2 cylinder (all types of vehicles)
- H2 cryogenic cylinder (only on the BMW Hydrogen 7 – 760i – 4dr – sedan – 2007-2010)
- LPG tank (passenger vehicles)
- Air tank (brake air and air suspension) (mainly lorries, but also passenger vehicles)
- Hydraulic tank (construction vehicles)

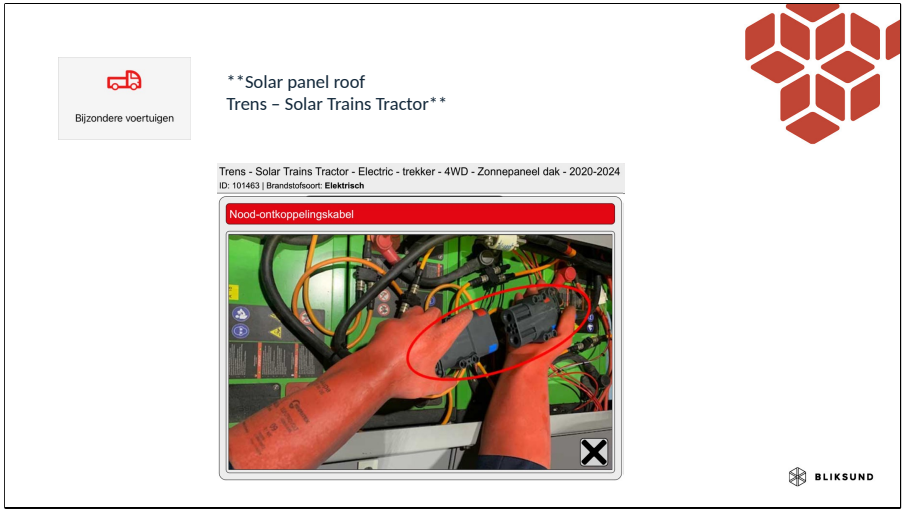
- Nitrogen accumulators (agricultural vehicles)
- Toilet tanks (motorhomes and coaches)
- Fire extinguisher (Liebherr LRH 200)



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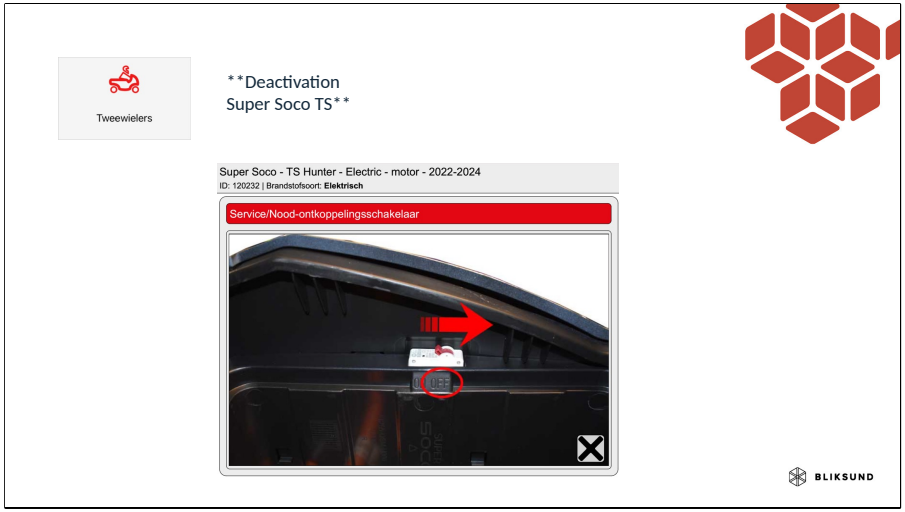
- Fire extinguisher (Liebherr LRH 200)


9. Special features and exceptions 2
BLIKSUND



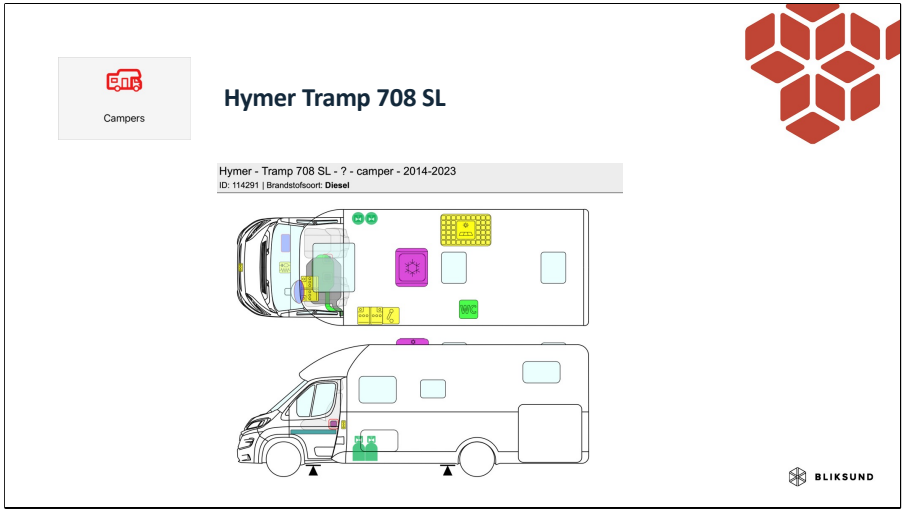
Assignment: look up the Trens – Solar Trains Tractor – Electric – tractor unit – 4WD – Solar panel roof – 2020-2024

Follow the entire deactivation procedure; the main point here is interpreting what is shown. For example, the 12V battery cannot be reached and the positive and negative cables must be cut. CAUTION: they run right next to each other, do NOT cut them at the same time! The large plug for further deactivating the battery may only be disconnected wearing the 1000V gloves!



Assignment: look up the Super Soco TS Hunter Electric motorcycle; what is visible here as deactivation?

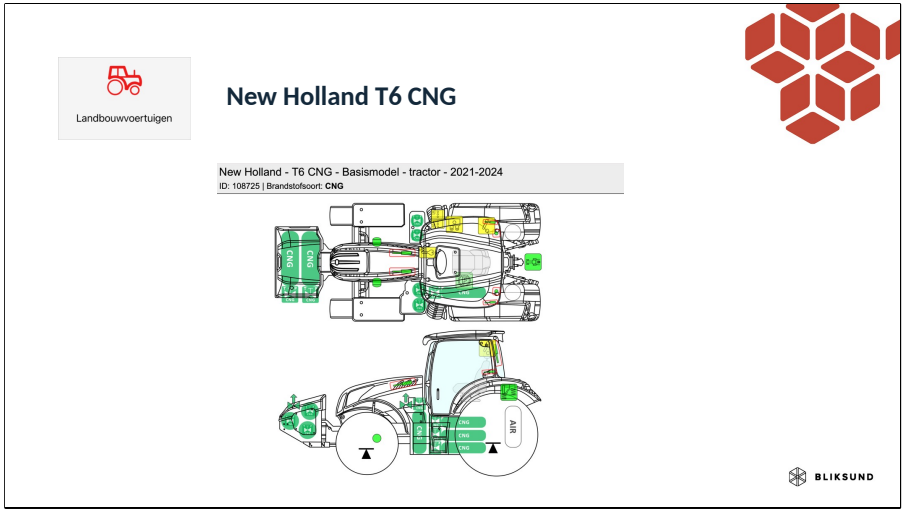
- The deactivation switch looks like a toggle switch from a household fuse box.



Assignment: look up the Hymer – Tramp 708 SL - ? – motorhome – 2014-2023

What are the special features of this vehicle?

- Solar panel
- Air conditioning in the living area
- Gas cylinders on board
- Power supply



Assignment: look up the New Holland – T6 CNG – Base model – tractor – 2021-2024

How many cylinders does this vehicle have on board? (10)

What other risks and safety features does this vehicle have when it is fully on fire? (The nitrogen accumulators (2), the gas struts (6) but certainly also the tyres (at least 4) can/will explode in a fire.

The CNG cylinders are fitted with a thermal fuse and will start venting at 110 degrees. Each cylinder also has a pressure relief valve that will release the pressure as well. Tricky, but when this vehicle is cooled, there is a chance you keep the thermal fuses wet so that they cannot do their job. If the CNG cylinders vent directly towards a tyre, keep a safe distance!



Assignment: have participants look up this mini excavator.

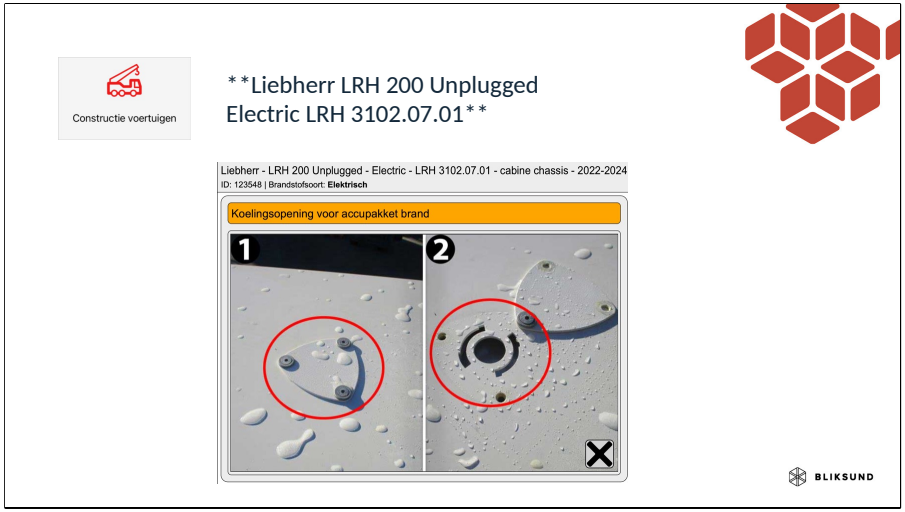
Then have them look up the hydraulic tank. The photo in the CRS shows a symbol that the CRS does not use, so general knowledge always remains necessary!

Does anyone happen to know the flash point of hydraulic oil? And what we use to extinguish it?
- For HydraMax HLP 46 it is 212 degrees (a hydraulic oil based on mineral oil). That is fairly high, but in a fire hydraulic oil is also very flammable; extinguish with foam, of course.

Also look at how the vehicle should be deactivated:

**Limach E27.1
Productive & efficient**
The E27.1 is the flagship of the Limach excavators. With an operating weight of 2,990 kg the machine is

stable in use. The battery pack has a capacity of 30 – 50 kWh and is supplied with a 9.9 kWh battery charger at 400 V. This machine is the emission-free solution for sustainable projects.



Have participants look up the Liebherr – LRH 200 Unplugged – Electric LRH 3102,07,02 cab chassis - 2022-2024:

Also a construction vehicle, but of a very different size!

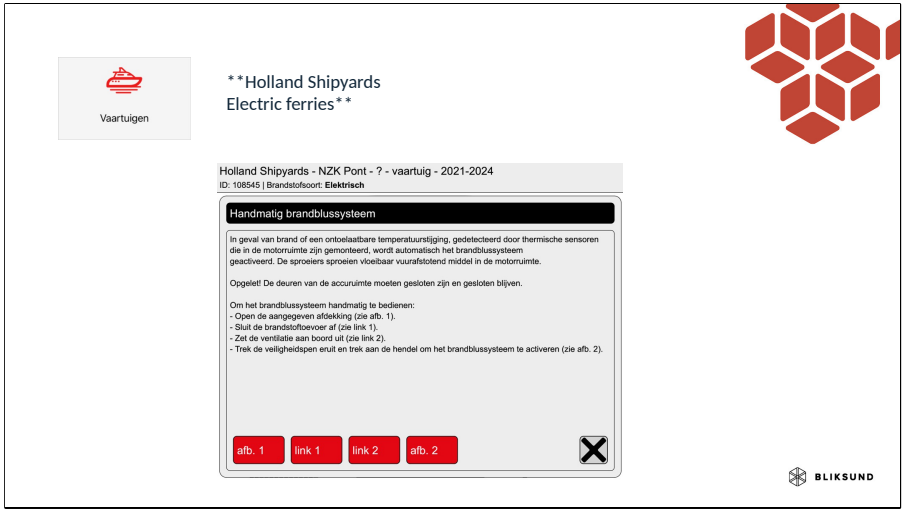
Look at the deactivation: in what different ways can the system be switched off?

Also look at how you could cool the battery pack if necessary: can you get water onto the battery pack? (but first think carefully about whether this option is still usable)



Assignment: look up the JCB Teletruk industrial forklifts.

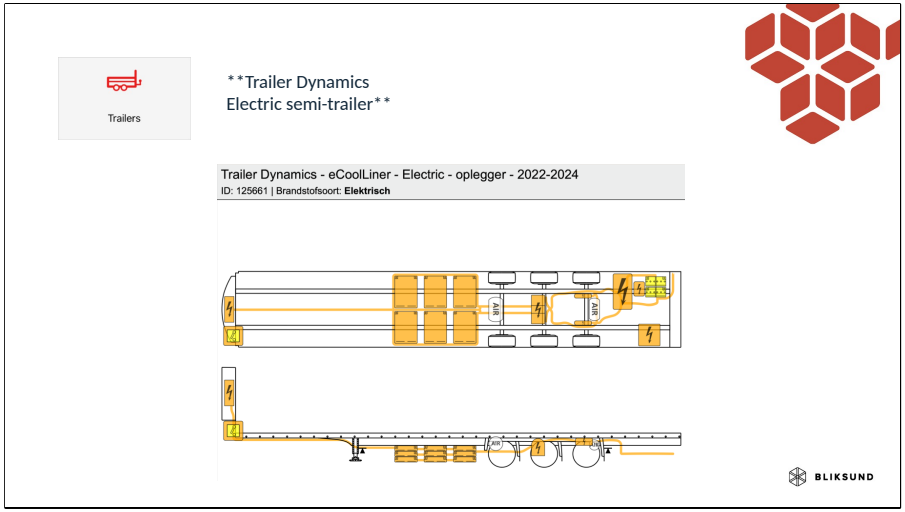
- What stands out about this vehicle? There is no 12V battery; the entire system runs on the forklift's 80V lead-acid battery,
- The battery is a lead-acid battery; for a forklift, the weight of the battery also serves as a counterweight,
- How is the vehicle deactivated? By disconnecting the plug; the same action is carried out when charging.



The Vessels tile contains 3 ships, the Amsterdam ferries. Look these up and select the question mark.

Here you see extra information when you click on the fire extinguisher; there are a number of photos in the system showing how to operate it. The CRS lends itself to such explicit information per selected vehicle.

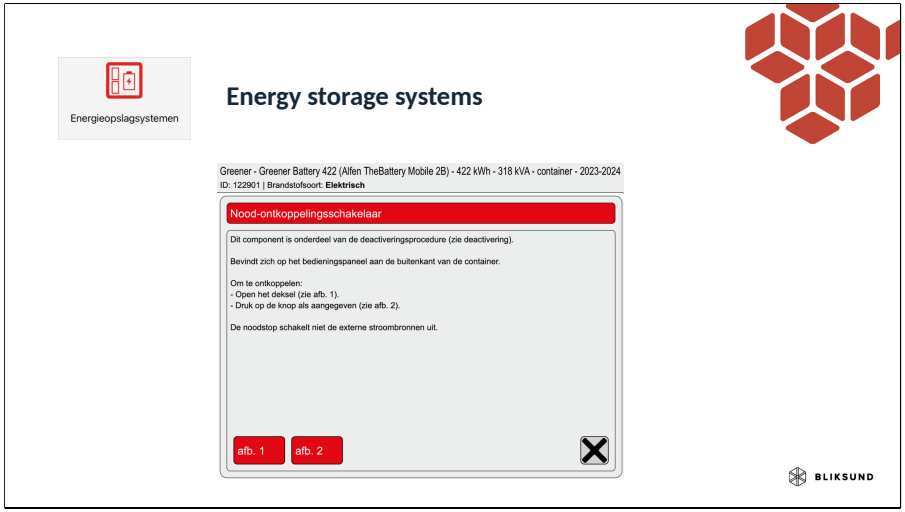
For the attentive participant: the "in water" button is not shown here, as that is impossible for the fire brigade to carry out.



Assignment: look up the Trailer Dynamics – eCoolLiner – Electric – semi-trailer – 2022-2024; what is the function of this system?

Trailer Dynamics, a self-propelled trailer, to improve the range of electric trucks. Deactivation is possible via a trailer plug at the front. Alternatively, there is a point at the rear.

Ask how this trailer is deactivated in an incident? (this has to be done manually, there is no SRS control unit) Which actions are possible?



The Energy storage systems tile will be further filled in 2024/2025 with all kinds of energy storage systems:
VDL e-PU500 kWh
VDL e-PU20 ft
VDL e-PU60 kWh
VDL e-PU10 ft

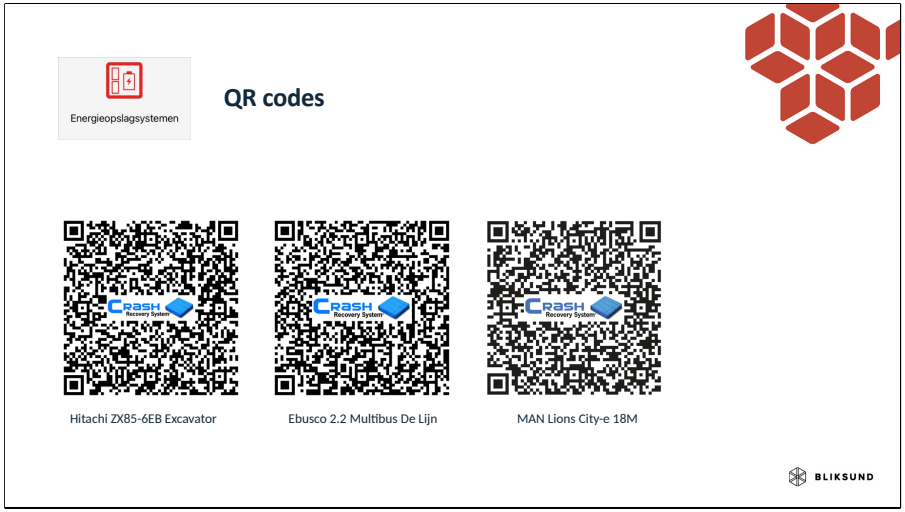
Dens Hydrozie Fuel Tanks
Dens Hydrozine Generator
Dens Battery Packs
Dens Powerhub

Assignment: look up this ESS, the Greener – Greener Battery (Alfen TheBattery Mobile 2B) 422kWh – 318kVA – 2023-

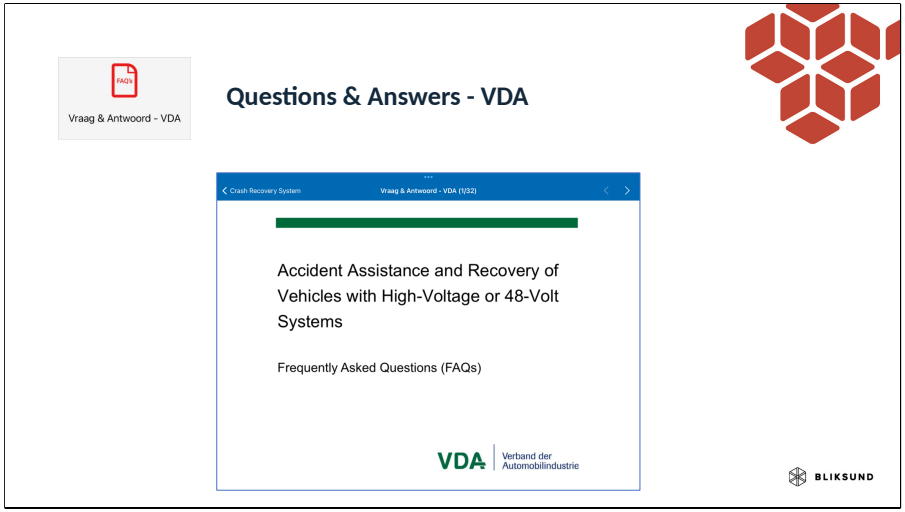
2024

The second printout: point out that there is a direct telephone number in the text; use it in an incident.

The third printout: be aware that when the battery is switched off via the emergency stop, the supply from the public grid, or from the grid of the company where it is installed, is NOT switched off!



Participants can scan the QR codes and use them to look up the vehicles.



This document is not intended for use during an operation, but rather as background information; take a look through it.

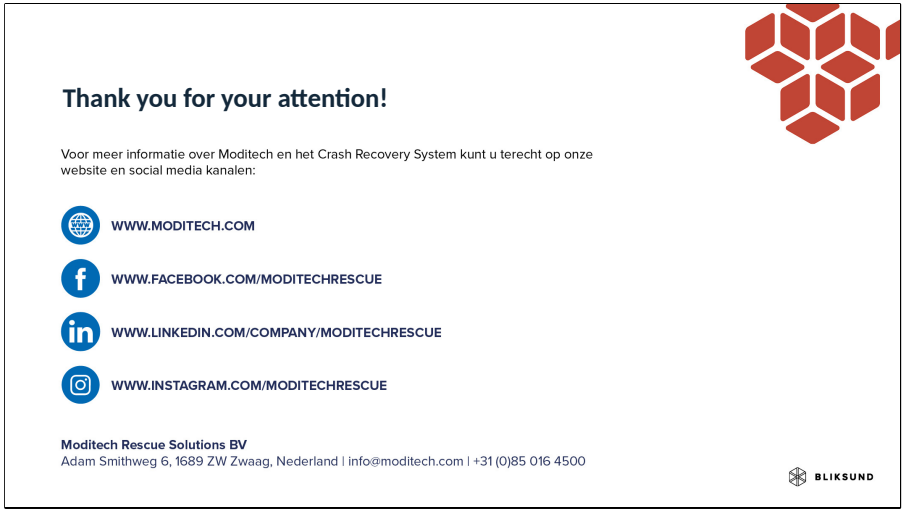


It is certainly not yet permitted on Dutch roads (or in Dutch airspace) for the time being, but who knows, it may happen one day.

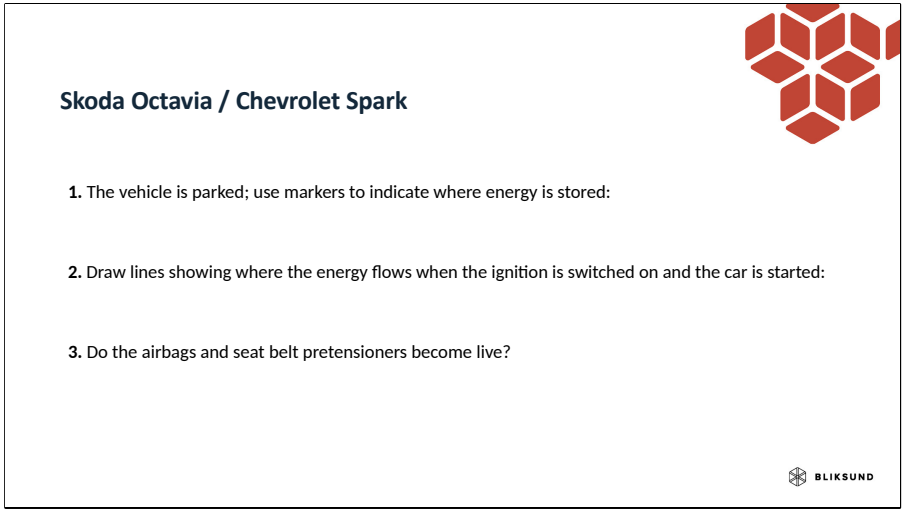
The Dutch PAL-V Liberty
AeroHT (subsidiary of Xpeng) Voyager X2
Mercedes-Benz SF-20 flying car concept
China's EHang has been given permission in China to build flying cars (VTOLs) on a large scale.
Hyundai (already building a factory for this type of vehicle in the US)
Porsche in partnership with Boeing: a flying car



Evaluate the training and ask for ideas for the next session.



Update content



CRS assignments: ask the questions as on the slides; the explanation is in the notes. Have participants use the markers.

1:

- 12V battery, fuel tank, seat belt pretensioners, airbag gas generators

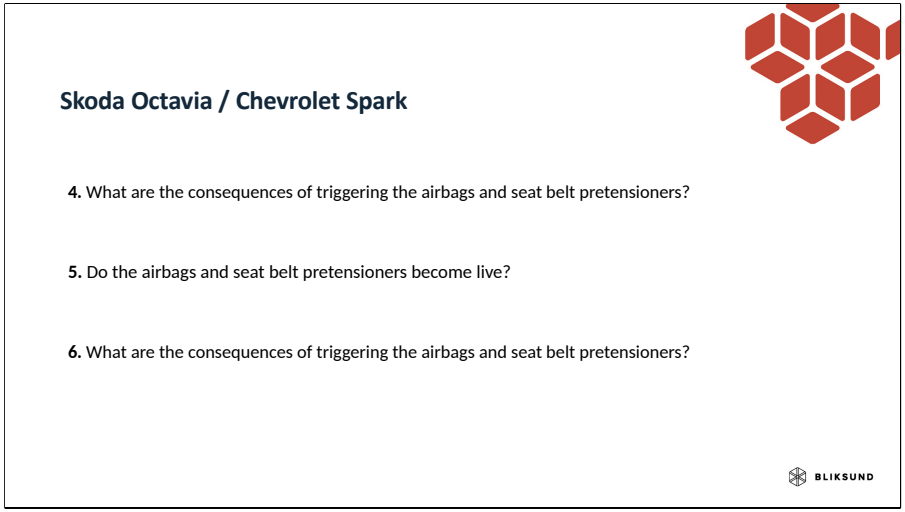
2:

- from the CNG tank and petrol tank to the engine

- from the 12V battery to the SRS control unit and the crash sensors

- possibly the lighting, dashboard, radio, electric windows and seats, etc.

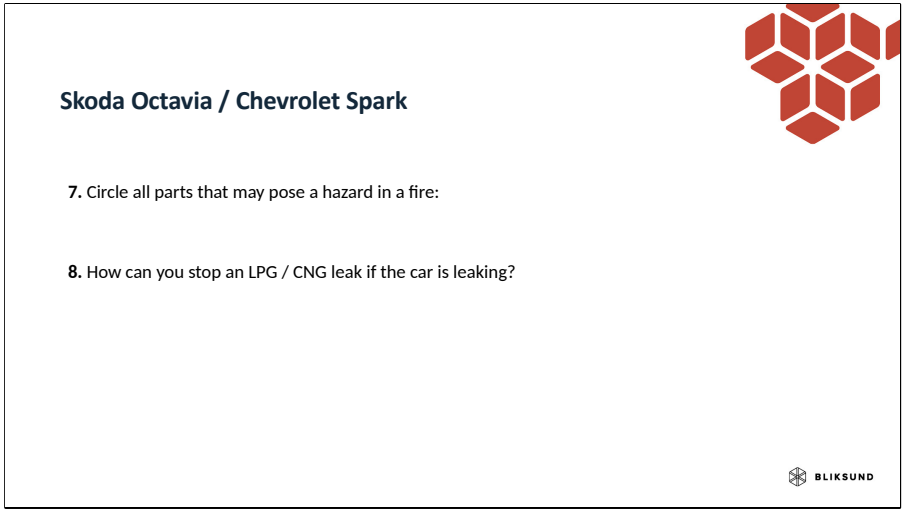
3: No, that only happens when an impact is detected by the sensors and the SRS control unit



4: The power supply to the fuel pump and the solenoid valve of the CNG tank is cut off

5: No, that only happens when an impact is detected by the sensors and the SRS control unit

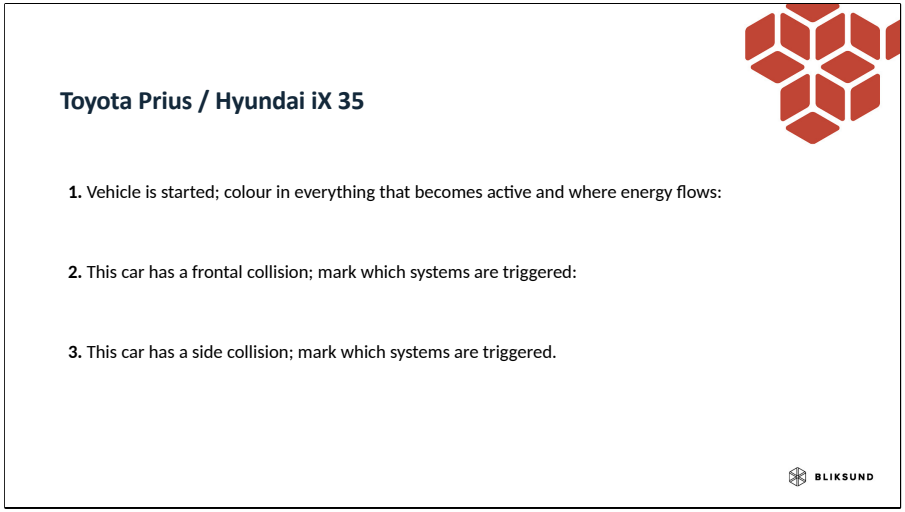
6: The power supply to the fuel pump and the solenoid valve of the CNG tank is cut off



7: Fuel tanks, airbag gas generators, gas struts, pedestrian protection system

8: > With the ignition on: start by switching off the ignition, possibly disconnect the 12V battery

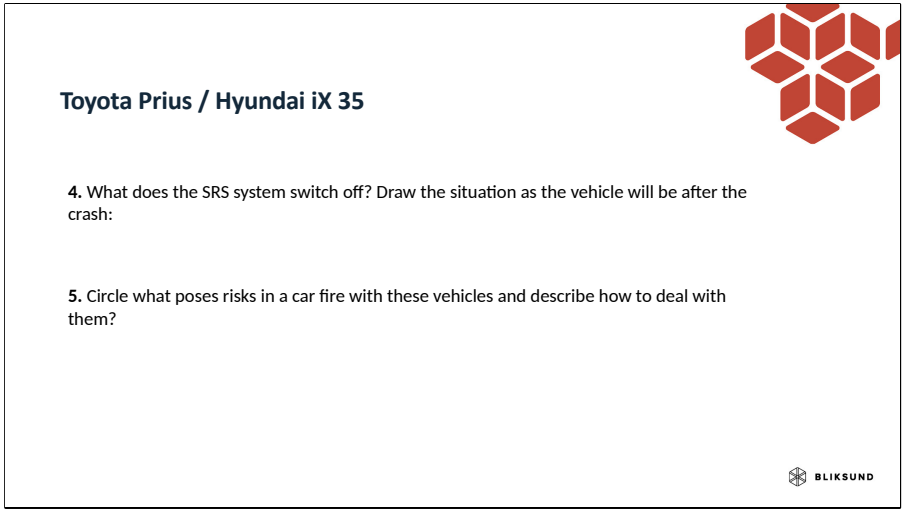
> With the ignition off: look up the safety valve component and close it manually



1: So from the high-voltage part to the electric motor; the power supply from the 12V battery to the SRS (not to the airbags) but to the sensors, lighting, e-call, electric windows etc. The fuel pump becomes active and the solenoid valves of the cylinders open

2: Frontal airbags (not the curtain airbags or side airbags) but the seat belt pretensioners, the e-call on the Toyota, not on the Hyundai, which did not have it at the time,

3: Curtain airbags, side airbags, not the seat belt pretensioners; the fuel pump and the solenoid valves are closed, the HV part is switched off



4: The fuel pump and the solenoid valves are switched off and closed. The HV part is switched off

5: All parts containing energy: seat belt pretensioners, airbags, tyres, fuel tank, gas struts, vehicle may start moving by itself, smoke, battery acid,

Crash Recovery System
Number plate practise list

Austria			
BP 70795	Volkswagen Touran	CRS-ID: 86731
W 9996TX	Ford Mondeo	CRS-ID: 96565
Denmark			
DE79016	KIA EV6	CRS-ID: 108223
BS82091	Hyundai i30	CRS-ID: 34495
Finland			
YII877	Scania P-Series	CRS-ID: 77018
VZE423	Skoda Octavia CNG	CRS-ID: 81957
France			
FP272JS	Porsche Taycan Turbo	CRS-ID: 104377
EY247PE	Kia Ceed GDI	CRS-ID: 100155
Italy			
FB741TR	Lamborghini Aventador	CRS-ID: 86738
EV708ZX	Ferrari LaFerrari Aperta	CRS-ID: 91834
Netherlands			
TJG-59-H	Doosan DX165W-5	CRS-ID: 110735
T-92-GBG	New Holland T7 tractor	CRS-ID: 114404

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Crash Recovery System
Number plate practise list

Norway		
EL 23263	Tesla Model S	CRS-ID: 81834
EL 32620	BMW i3	CRS-ID: 81325
Spain		
0897 MPH	Citroën C3 Aircross	CRS-ID: 124510
6298 KSN	Skoda Kodiaq	CRS-ID: 106261
Sweden		
PRE 366	Mercedes-Benz CLS	CRS-ID: 79993
BJF 444	Volvo 7700 CNG Bus	CRS-ID: 111465
Swiss		
BL182232	Mazda 3	CRS-ID: 80719
ZH951043	Ford E-Transit	CRS-ID: 112764
United Kingdom		
PK56 UOM	Volkswagen Eos	CRS-ID: 42334
HV13 YNU	Renault Zoe	CRS-ID: 80039
United States of America		
CE93FX FL	Ford, Edge 3.5	CRS-ID: 75748
CORVWGN PA	Chevrolet Corvette	CRS-ID: 81510

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