MODITECH
RESCUE SOLUTIONS®

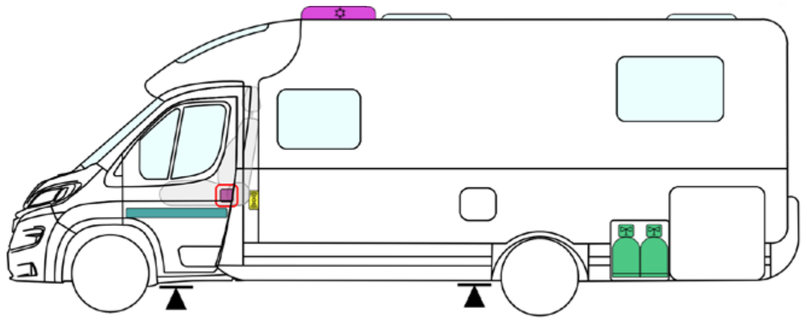
NOTES

Training

CHANGES AND NEW FEATURES IN THE CRS

Mobile information system
for the fast and safe
evacuation of people
from vehicle crashes.

Android iOS Windows



CRASH Recovery System®

CONTENTS

Briefly explain the chapters, the explanation itself is in the chapters.

1. Align the learning questions
2. Changes and new features in the CRS
3. Operating the CRS
4. CRS application and case studies
5. Practical tips for practical exercises
6. Evaluation

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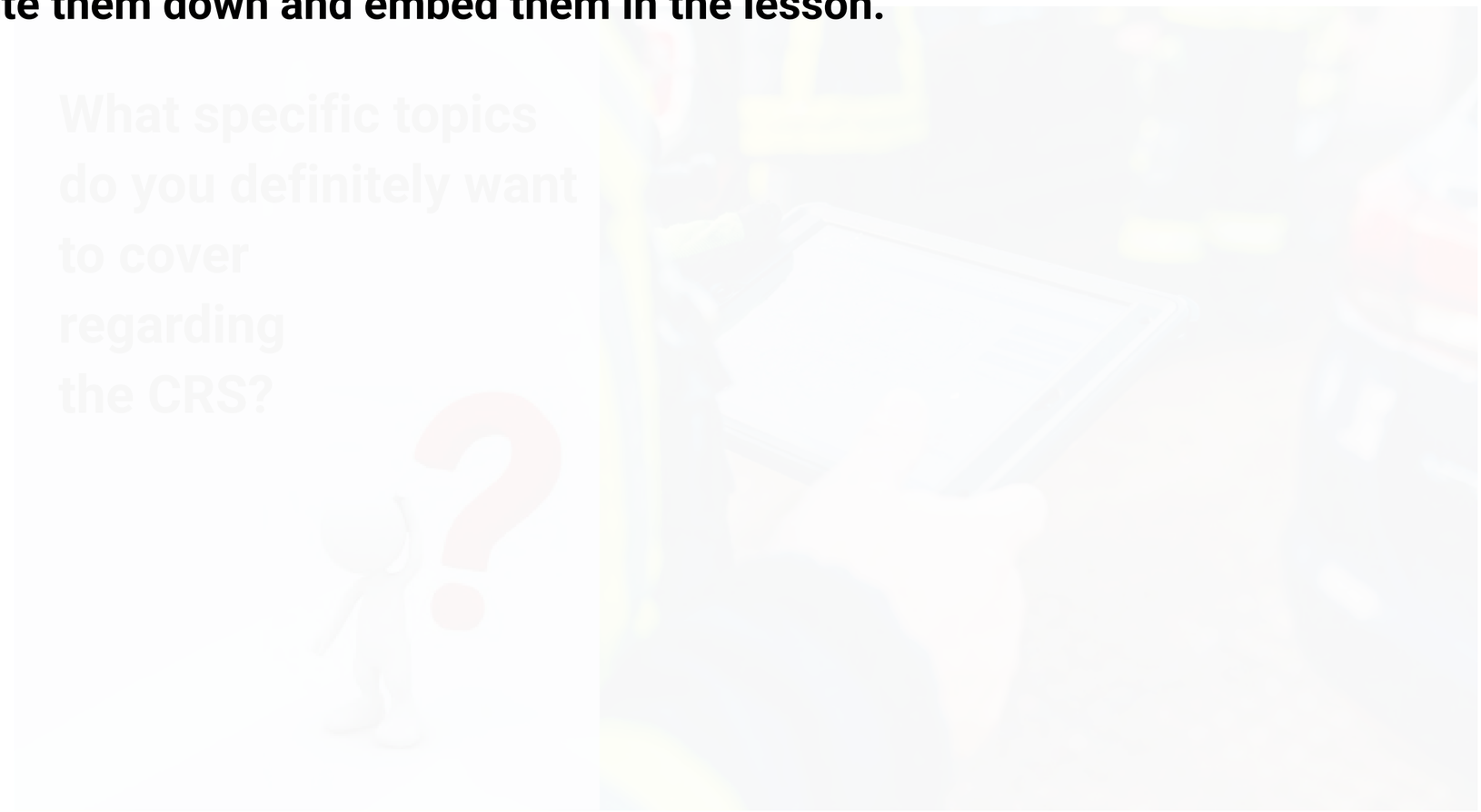
ALIGN THE LEARNING QUESTIONS

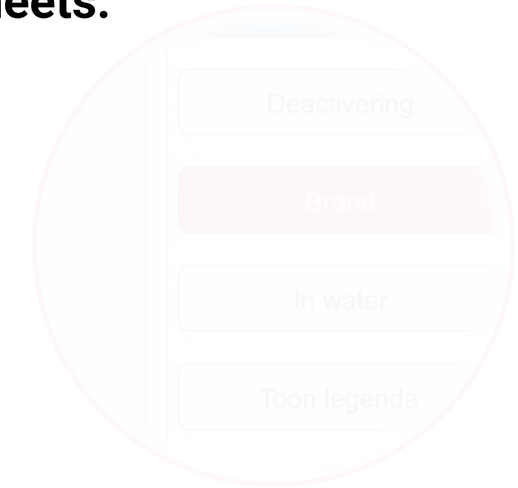
Align the topics people want to see covered in the training, write them down and embed them in the lesson.



CHANGES AND NEW FEATURES IN THE CRS

CHANGES AND NEW FEATURES IN THE CRS

Highlighting new developments; will be explained in more detail in later sheets.



FIRE button

Added in March 2020

The FIRE button brings together specific information relevant during accidents involving alternatively powered vehicles in a situation involving fire.

IN WATER button

Added in March 2020

The IN WATER button brings together specific information relevant during accidents involving alternatively powered vehicles in a situation involving submersion in water.

New (ISO) symbols

To be added 4th quarter 2020

We will replace the currently used symbols in the CRS in the 4th quarter of this year for all alternatively powered vehicles with the symbols prescribed in ISO standards.

CHANGES AND NEW FEATURES IN THE CRS

CHANGES AND NEW FEATURES IN THE CRS

QR codes

Select by scanning QR Code

Manufacturers who put QR Codes on their vehicles as stickers can now be looked up in the CRS by scanning the QR Code, starting with Mercedes.

OCR

Optical Character Recognition

It is now possible to scan the registration number with a tablet for an instant match with the correct vehicle.

3D

Is in development for EV vehicles

We are working on adding all new alternatively powered vehicles in 3D format
that will be available alongside the 2D version.

CHANGES AND NEW FEATURES IN THE CRS

Cloud version

Crash Recovery System

We are working on a ‘cloud’ version of the Crash Recovery System. For regions that can facilitate this, all data is thus in the cloud and is always up-to-date and available in real time.

WHAT'S THIS?

As a joke in the meantime, what's this? At the click of a mouse, the picture turns half a turn and a car on water is visible.

Ask a control question here; when an electric vehicle enters the water, can we safely launch divers or surface swimmers?
The answer is YES, the battery cells do not transfer more current to the water than they hold themselves. The largest cells are now 7.2V. The voltage drops rapidly and is almost impossible to measure after 15 minutes.

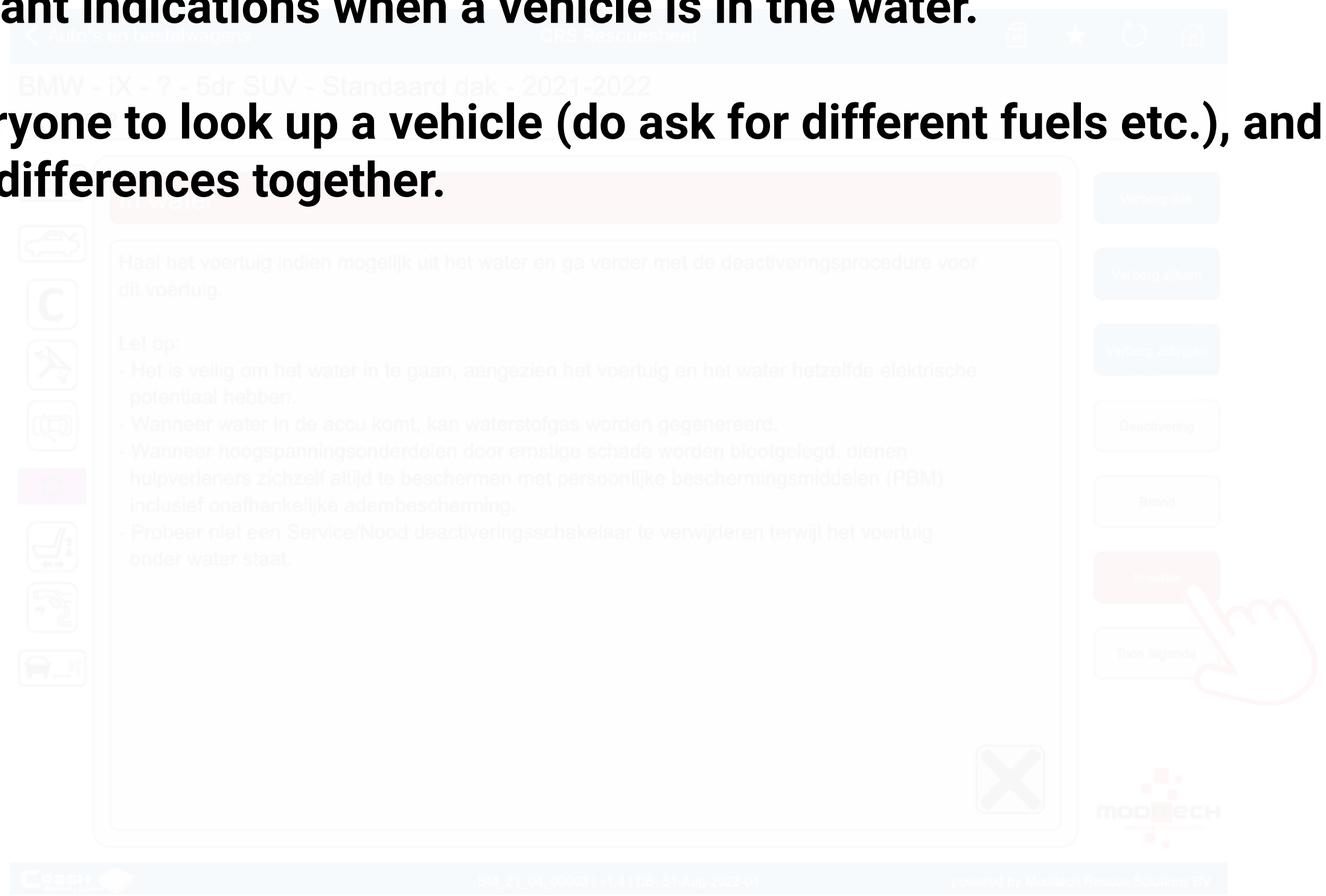
This is the bridge to the new button; In water

WHAT'S THIS?

IN WATER BUTTON

This button has been visible since the early March update. It provides the most important indications when a vehicle is in the water.

Instruct everyone to look up a vehicle (do ask for different fuels etc.), and discuss the differences together.



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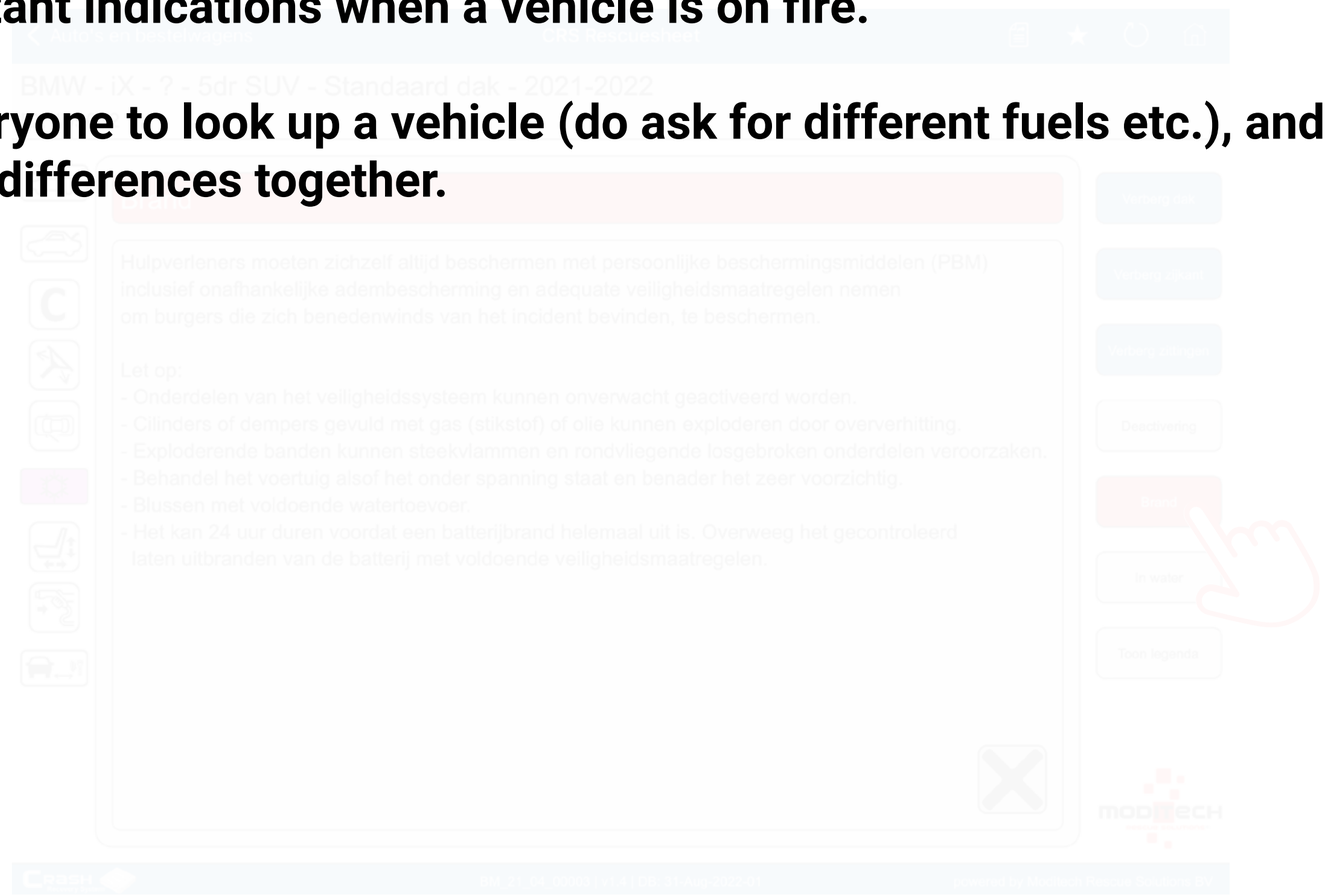


ISO STANDARD & NEW SYMBOLS

Expected in the fourth quarter, the new standard in ISO colours. This happens not only in the Netherlands, but worldwide. The symbols will be largely the same for these cards, however, some will also be changed.

This example concerns the Honda e, available from 2020. The colours have become a bit bolder and there is also more text in the symbols.

Ask what differences are visible in this screenshot.

Ask participants to look up the Honda e.

FROM 2D TO 3D

Instructor has a demonstrator with the 3D version.

1. In 2021, parallel to the 2D drawings, we will implement new alternative-powered models, also in 3D.
2. The user can choose which display form to use.

SPECIAL VEHICLES

The first models were added with the early April 2020 database update.

2F: Cities, municipalities and large distributors are increasingly buying small multi-purpose vehicles with alternative drives. In the coming months, we will integrate these vehicles with alternative drives into the CRS database. We expect to add new models from this category to our database in March.

An unusual vehicle on the road not yet in our database? Let us know and we'll look into adding them. We look forward to your feedback!

Crash Recovery System: Know what's inside – See what to do

CAMPERS

This slide is intended to be common sense

First, look up registration number 22-PNV-6. What vehicle comes up? An Iveco Daily passenger van (camper).

Next, the CRS provides the image of this Iveco passenger van.
Then lastly the real vehicle comes into the picture. What does it mean when you get a registration number of a burning vehicle on the road?

So this vehicle may have people sleeping in it, it may have gas cylinders, multiple batteries, etc.
`

QR CODE SELECTION

The QR code is used by MB, among others. Every vehicle that comes in from MB for a periodic motor vehicle test is given this sticker. It is attached to the inside of the fuel valve and the inner sides of the B-pillars.

The large picture is a video (duration 22 seconds) showing its use in combination with the QR code selection tool on the tablet.

Hand out a sheet with a QR code and let the trainees experience it for themselves.

Optical Character Recognition

OCR

Optical Character Recognition:

Using the tablet's camera, the tablet automatically scans the letters and numbers of the registration plate and immediately makes the correct selection in the Crash Recovery System.

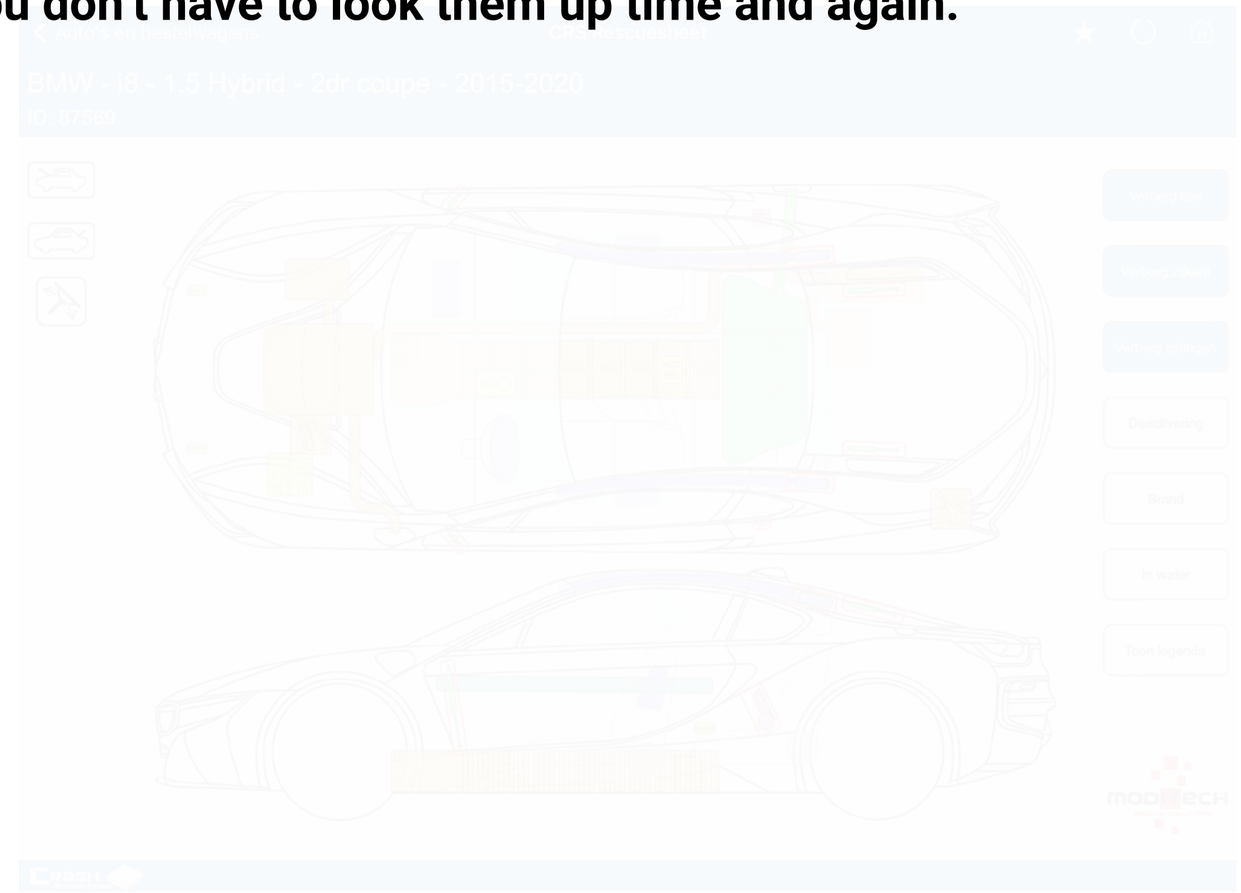
OPERATING THE CRS

OPERATING THE CRS

- Explain how a vehicle list is created, now have participants do this with each vehicle looked up in the following slides. Later, questions can be asked about these vehicles from the list.
- Check if it is possible to look up a vehicle by make and type or directly with a registration number. Explain that not all registration plates from other countries can be looked up.
- Browse back through the system
- What are the FAQs?
- Explain that there are updates every month; do they do them manually themselves?
  Or is it done remotely?

CREATING A VEHICLE LIST

Explain how to create a vehicle list. So that in case of a multi-vehicle accident, you don’t have to look them up time and again.



CREATING A VEHICLE LIST

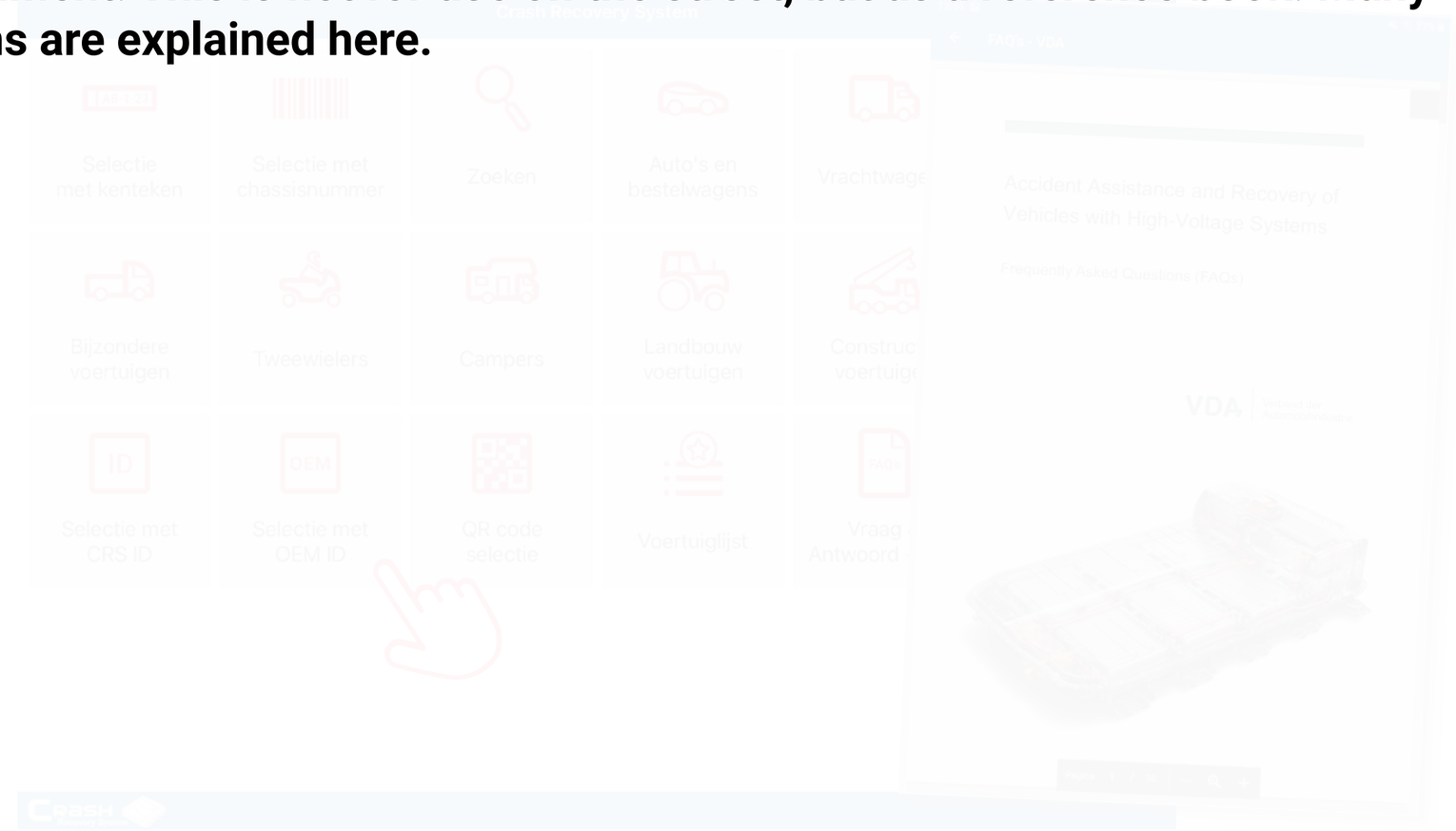
CREATING A VEHICLE LIST

IMPROVED NAVIGATION STRUCTURE

Explain and let participants browse the updated structure themselves.

FAQS - VDA

From the home screen, the FAQs - VDA button will take you to a 30-page document. This is not for use on the street, but as a reference book. Many terms are explained here.



UPDATE

Monthly CRS updates are coming, usually at the end of the month.

Explain to participants where the update can be started on the tablet.

Who depends on the policy of the safety regions? Most tablets are deployed and updated remotely by the Operational Preparedness Department (names may vary by region).

On a CRS screen, you can always see which version is currently on your tablet. The date is shown at the bottom right.

Please note that some regions have turned off the option of individually checking for updates and manage this remotely.

SEARCH BY MAKE, TYPE OR REGISTRATION NUMBER

We currently have registration plate searches in the Netherlands, Great Britain, Sweden, Norway, Denmark, America and Canada.

In addition, licence plate searches are possible in Belgium, Germany and Switzerland, but only for emergency responders from that country. This option will not be released to users outside those countries. We are currently working on registration number searches for Finland and Austria.

I expect these countries to offer the option publicly. Finally, it is worth mentioning here that we now also have the possibility (software update in early March) to retrieve VIN numbers in the Netherlands. The notification from the RDW (Dutch Vehicle Authority) has been expanded to include this information. This selection is even more accurate than registration plate searches. With this, you never have duplicate results because the model years overlap slightly. This is mainly in preparation for the e-Call message containing the VIN number.

APPLYING CRS & CASE STUDIES

EVS IN A FIRE

Here is an example from the BMW garage where two BMW i3s are on fire. The flames have a type of flow effect that makes it a very different fire from an ordinary burning vehicle. You don't have to show the video in full, the first 30-40 seconds are the most important.

Requesting a registration number may not be possible here - if they are new vehicles there are no registration numbers on them, local familiarity and the name on the façade can help you a lot in any case.

EXPLORE ACCIDENT

Heavy crash involving a Tesla Model X, no visible injuries in this film.

Assignment; give no details, start the film (lasts 2 min 19) and ask groups of 2 people to use the film as an image in an exploration.

- **What make and type of vehicle(s) is involved? (Tesla Model X 2016-2020)**
- **What are the risks? (Is there any possibility of current in the vehicle? No airbags came out)**
- **What has been damaged? (The battery pack itself is still intact, only the rear axle is off)**
- **What steps should be taken? As a precautionary measure, is it also blocked, since it is a 4x4? Because the airbags deployed, the HV battery was disconnected.**
- **What equipment is required (vehicles or knowledge)? In principle, a TS crew should be able to solve this, otherwise call in an HV.**
- **What will be transferred to the recovery company/VOA (Dutch Traffic Accident Investigation)? Recovery company pays attention to battery pack, possibly separate placement in salvaged vehicle storage.**

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EXPLORE ACCIDENT

CRASH
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EXPLORE ACCIDENT

As you can see in the film, the car has been severed behind the HV battery, airbags have been deployed, so there should be no voltage after the HV relay. If in doubt, the car can still be deactivated using the CRS.

PIAGGIO PORTER ELECTRIC

This vehicle actually falls into the van group; what stands out here? What kind of batteries are they and how do you disable this vehicle?

These are "old-fashioned" lead-acid batteries, the pack is 100 volts. So after a severe collision, it is possible that quite a lot of battery acid will leak. When a vehicle like this is on the cargo side and a cell boils dry, it gives off a sharp stench. H2S and H2 gas will be measurable. H2S is not measurable with the ExOx meter, but gives readings on the CO meter. For exact conversion of these values, ask the AGS.

BMW 7 SERIES
PLUG-IN HYBRID

BMW 745e with carbon parts, this sheet emphasises the importance of the attention screen which first becomes visible when a vehicle is looked up. The attention screen is often quickly clicked through once people have read that it is a hybrid vehicle. You then forgets the rest of the text.

SCANIA ACCIDENT

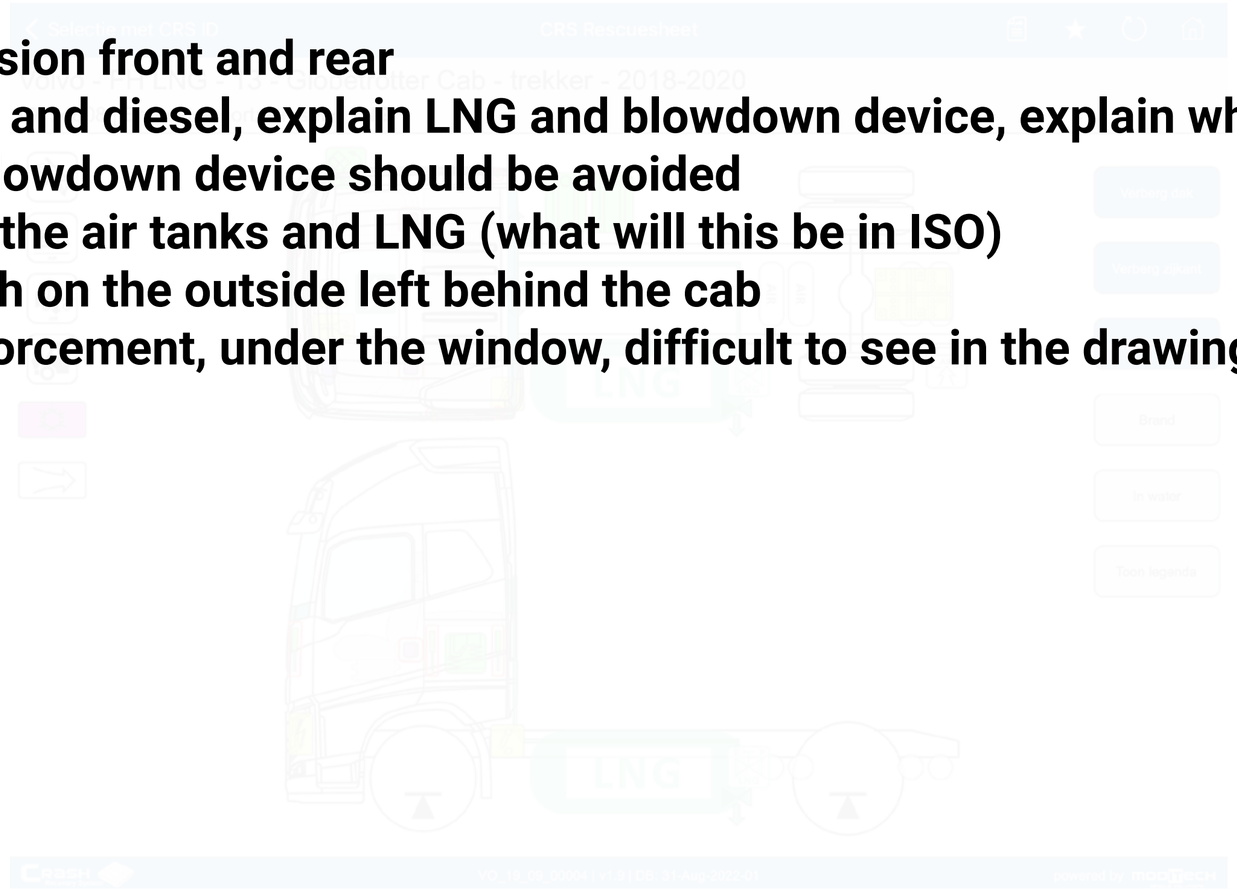
This Scania went off the road, ask what should attract attention here? The two LNG tanks should immediately stand out.

It is a Scania tractor unit using LNG, the next slide deals with a Volvo using LNG.

VOLVO FH LNG

Discuss:

- **Air suspension front and rear**
- **Fuels: LNG and diesel, explain LNG and blowdown device, explain why water on blowdown device should be avoided**
- **Colours of the air tanks and LNG (what will this be in ISO)**
- **Main switch on the outside left behind the cab**
- **Front reinforcement, under the window, difficult to see in the drawing**



EXPLORE ACCIDENT

Exploring using the CRS is important, but this situation makes it difficult. Clicking through reveals arrows:

1. Front registration plate? Not visible!
2. Rear registration plate? That one is from the trailer! The tractor unit's registration plate may be visible at the back.
3. Fuel tanks visible? Perhaps a diesel tank is visible on the right, but then an LNG tank could also possibly be present, in which case it is Bi-Fuel! Very difficult to judge in this situation.
4. Indications on the flank of the cab, these can give information about the type.
5. It may be possible to approach the driver; ask him questions, not only about cargo, passengers, but also consider fuels.
6. LNG blow-off line visible?
7. CNG cylinders visible? These can have all kinds of colours, then it might be a bi-fuel, diesel blend, or just an LNG vehicle after all.

Hybrid tractor units are not really there yet (Tesla already has an electric tractor in America), but with rigids, hybrid and electric vehicles are already common.

In short, exploring is NECESSARY!

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SEARCH FOR:

Give the instruction to look up this vehicle, do NOT say which group it is in. This vehicle is located under trucks, might it actually fit better under operating equipment?

How is this vehicle de-activated?
What is the pressure in the hydrogen cylinders?
At what temperature will the safety valve open?

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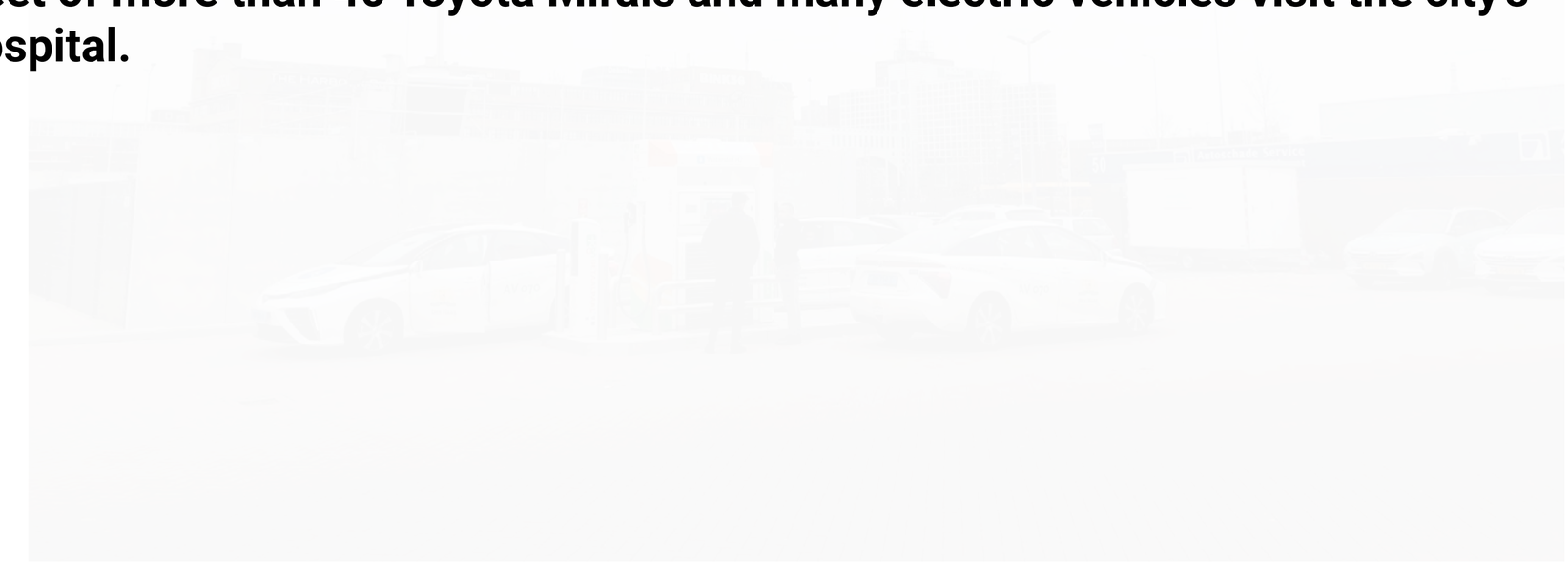
BP BINCKHORST, THE HAGUE

Hydrogen still seems like a futuristic fuel. Yet H2 vehicles can already be found in many places. Here is an H2 island on a weekday at BP filling station.

There are 3 Toyota Mirais at the pump and two H2 vehicles at the gate. Two H2 vehicles are parked in the background. Here, the local authority drives a fleet of more than 40 Toyota Mirais and many electric vehicles visit the city's hospital.



VOLVO FL 6
CREW CAB

Explaining that if this is a fire engine, for example, then the fuel and air tanks may not be where shown on the drawing.

See also the cabin reinforcements.

Here it also applies that although the chassis is listed as a tractor unit, it can also have a different superstructure.

BYD K9C SCHIPHOL

Discuss:

- **Where are the batteries?**
- **What type of battery is used? (Lithium iron phosphate)**
- **How many emergency deactivation options are there? There are several; how many emergency switches are there and what is an additional safety feature that becomes visible?**
- **Where are these switches located? See next slide.**

It is an electric bus; what could possibly be going on if smoke is coming from under the vehicle at the back? (Note there is a diesel tank and block heater!)

BYD K9C
SCHIPHOL

SETRA S 515 HD

Discuss:

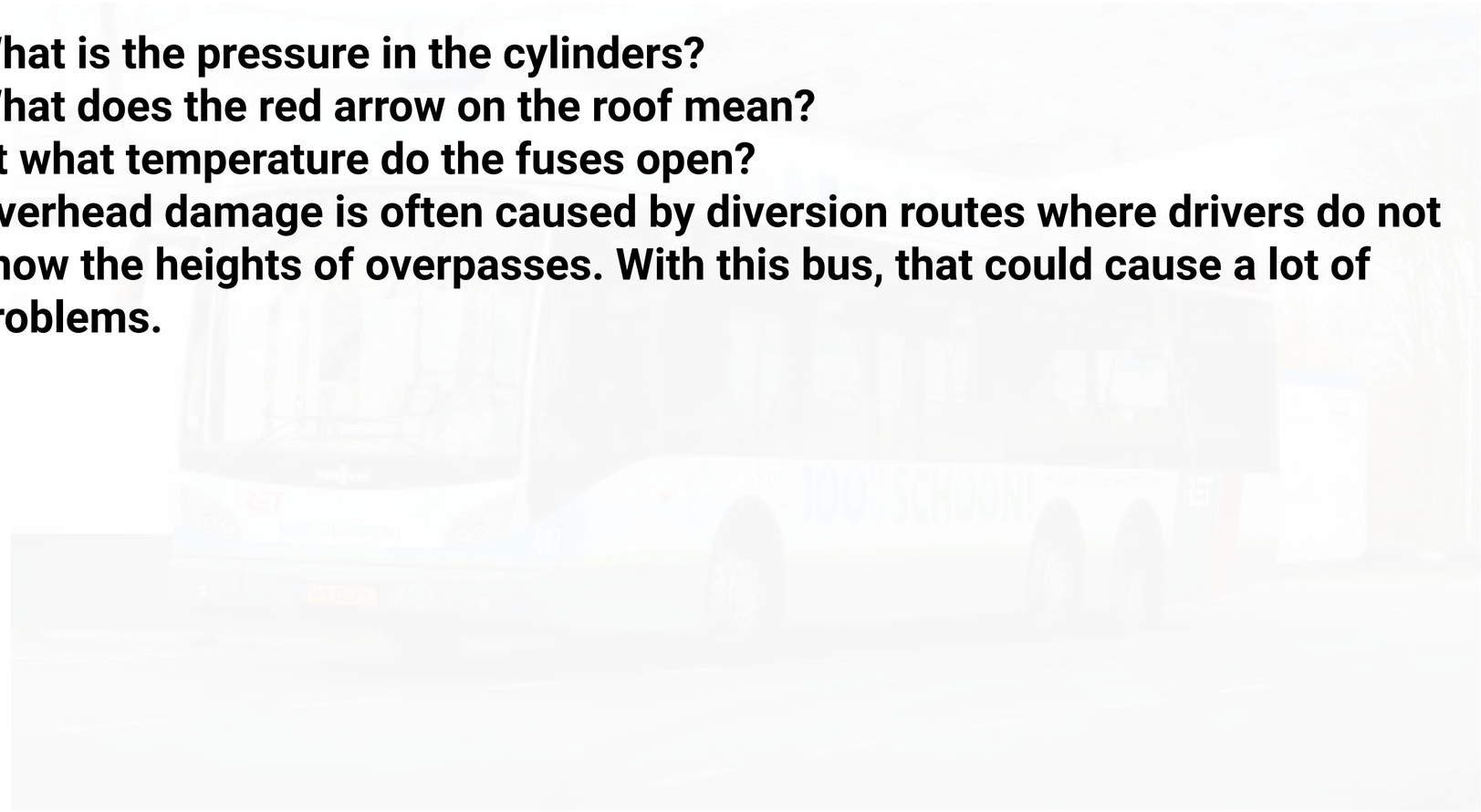
- **What is frequently present and why? (Gas springs for the luggage compartment valves)**
- **What should be considered when there is smoke in the bus and the passengers and driver are outside? (There is a sleeping area for the driver just in front of the rear axle.)**

SETRA S 515 HD

VAN HOOL
A330 FUEL CELL

Discuss:

- **What is the pressure in the cylinders?**
- **What does the red arrow on the roof mean?**
- **At what temperature do the fuses open?**
- **Overhead damage is often caused by diversion routes where drivers do not know the heights of overpasses. With this bus, that could cause a lot of problems.**



VAN HOOL
A330 FUEL CELL

SWITCH-OFF PROCEDURES

Switch-off procedures are increasingly being added to the CRS in urban and regional transport. For example, there are 6 options here; this bus is prepared for assistance. Even more operations possible.

The last picture with the green lamp is special, but also quite nice; when the green lamp is on, the HV voltage is deactivated!

SWITCH-OFF PROCEDURES

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MB CITARO G NGT HYBRID

Discuss:

- **What is the yellow component at the back and what are its risks? (Ultra-condenser, risk of cyanide poisoning)**
- **What do the little triangles near the axles under the bus mean? (Lifting points; can you not lift anywhere else then?) It can be done, but you will have to explore carefully; you cannot use the base plate as lifting points indiscriminately.**
- **What safety devices are there for the fuel? (Overpressure and fuses 110˚C)**
- **What is the blow-off direction of the natural gas?**
- **How many escape hatches are there?**
- **Are there side windows as an emergency exit?**

MB CITARO
G NGT HYBRID

BLOW-OFF DIRECTION

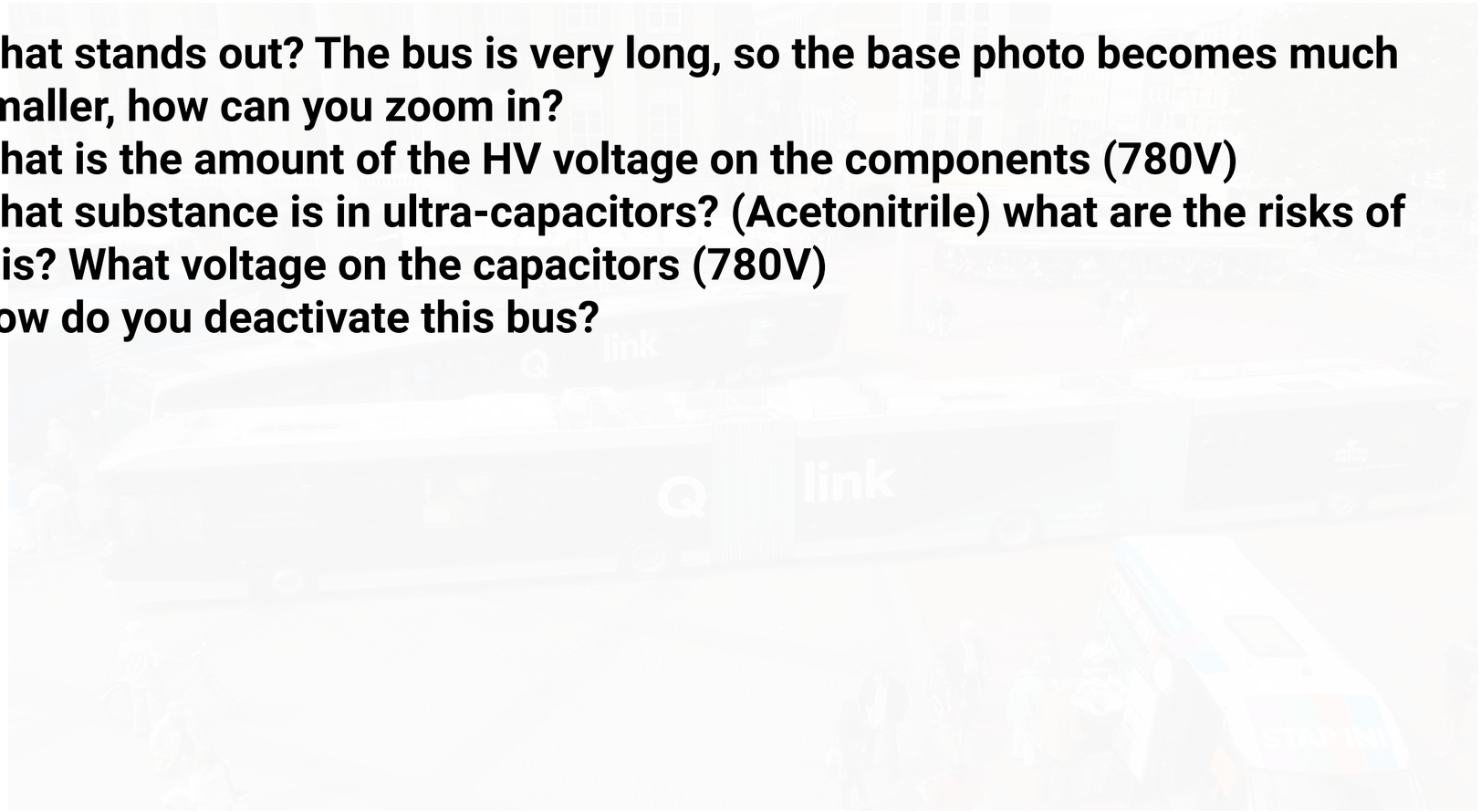
In this video, you can see a sudden burst of flame from the CNG package blowing towards the crew. It is therefore important to know some explicit hazards of the vehicles in operation in public transport; these buses may frequently operate in the catchment area where you work.

Also factor into your decision whether the stakes outweigh the risks you may face.

HESS LIGHTRAM3 BASIC MODEL

Discuss:

- **What stands out? The bus is very long, so the base photo becomes much smaller, how can you zoom in?**
- **What is the amount of the HV voltage on the components (780V)**
- **What substance is in ultra-capacitors? (Acetonitrile) what are the risks of this? What voltage on the capacitors (780V)**
- **How do you deactivate this bus?**



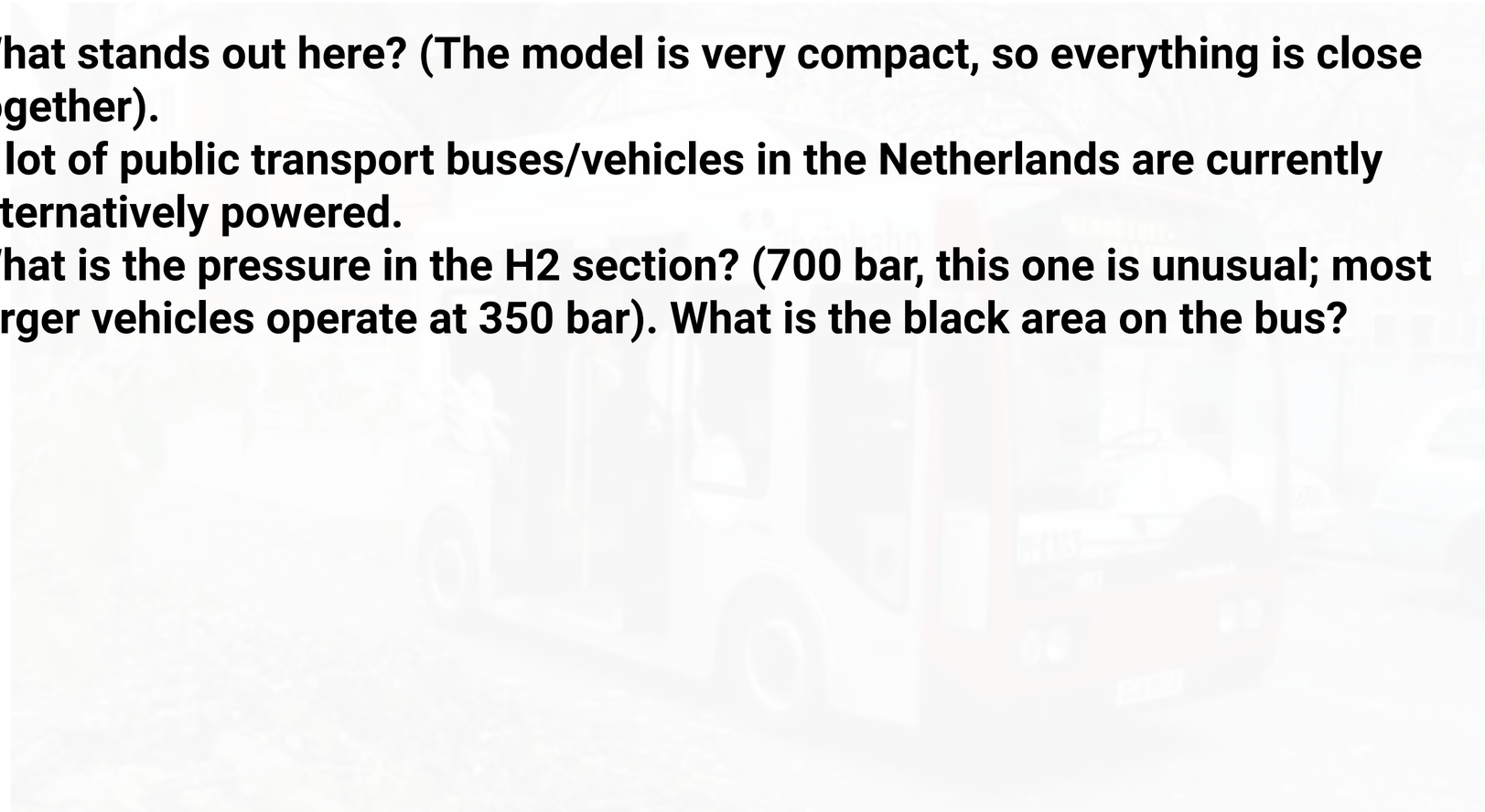
HESS
LIGHTRAM3
BASIC MODEL

HESS LIGHTRAM3 BASIC MODEL

TECNOBUS GULLIVER FUEL CELL

Discuss:

- **What stands out here? (The model is very compact, so everything is close together).**
- **A lot of public transport buses/vehicles in the Netherlands are currently alternatively powered.**
- **What is the pressure in the H2 section? (700 bar, this one is unusual; most larger vehicles operate at 350 bar). What is the black area on the bus?**



TECNOBUS GULLIVER FUEL CELL

OPEL CORSA-E
BASIC MODEL

First photo is the screenshot of the Opel Corsa-e and then the cross-section. On the CRS image, the side view looks like the battery covers the entire bottom plate. The top view clearly shows the H-shape; then compare the CRS cross-sectional drawing. Looking closely at the drawings is important.

Ask if it is possible to indicate from the first image the options for deactivating this vehicle.

The full steps are also made visible with screenshots here.

OPEL CORSA-E
BASIC MODEL

OPEL CORSA-E
BASIC MODEL

INCIDENT

Here are a few pictures of an incident from Denmark with a 2017-2020 Kia Niro PHEV. February 2020. This car caught fire. The vehicle was placed in a water tank to control the battery pack as a result. The battery pack in question is a Li-Ion Polymer battery pack. See CRS printout.

Place in a water immersion container?
Here, however, it is important to note that this is a Li-Ion pack. If this were not the case, immersion would be a costly and unnecessary action.

This is because NiMH batteries have no thermal runaway and so putting them in a water tank doesn't make sense. Analysis should be: car with a Li-ion package? If yes: battery pack involved in the fire? Only then does a water tank make sense. To do otherwise is to unnecessarily destroy a potentially intact pack, which sometimes has a residual value of 10,000 to 15,000 euros (Tesla, for example).

We need to be careful that not every vehicle is placed in an immersion container by default.

INCIDENT

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INCIDENT

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PRECAUTION

February 2020. In this case study by salvage company Vreugdenhil BV of Den Hoorn near The Hague, a Tesla 3 was taken away in the salvage container after a crash. This closed container is equipped with an extendable platform on which a vehicle with a suspected battery pack can be removed to a safe storage location.

In this collision, coolant was released and the battery was possibly damaged. The vehicle was then placed as a precaution in the container, which is equipped with an aerosol extinguishing system. Vreugdenhil additionally has a storage space where the car cannot possibly ignite adjacent vehicles in case of fire.

SPECIALS

Let the ABB Department monitor the vehicle and perform a security check via registration number search. What does the CRS give in response? Volkswagen Touareg armoured vehicle, white, 7/12/2009 Diesel. What is visible on the CRS image?
The armour is, logically, NOT made visible.

Unrecognisable armoured vehicles of the various security services can be entered in the CRS, however, as with the Touareg example, you will see the “standard” car image, WITHOUT armour.

The registration number of the King’s car is not even findable, the system does not catch that, in fact the registration number AA-86 is not long enough to enter. If you do need some information about the vehicle, search for the Audi A8 L.

TIPS FOR PRACTICAL EXERCISES

These scenarios will be handed out to the participants; only the highlights are discussed.

HOLIDAY STRESS

French company EP Tender has come up with a power bank for electric vehicles to increase their range.

Companies are coming up with creative solutions for increased range. The average distance a car is used per day is 29 kilometres each way. So in principle, batteries do not always have to be that big.

EVALUATION

Ask about the experiences of this lesson, also ask what they would like to see covered next year?

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THANK YOU

For more information about Moditech and the Crash Recovery System, please visit our website and social media channels:

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WWW.FACEBOOK.COM/MODITECHRESCUE

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