
ISO KICK-OFF MEETING 3 AND 4 FEBRUARI 2015 Brussels

CTIF Commission for Extrication and New Technology
Tom Van Esbroeck Chairman
Kurt Vollmacher Project Leader



Agenda



Agenda

Meeting day 1

1. *Opening and introduction (9.00)*
2. *Roll call of participants*
3. **Presentation of agenda and program**
4. **Presentations related to the new standards subjects**

10.40/11.00: Break

12.00/12.30: Q&A

12.30/13.30: Lunch, at the hotel

Agenda

5. Visit and workshop/demonstration (13.30)

13.30: Departure to Brussels Fire and Rescue Department (bus)

Workshop/demonstration on using rescue sheet and training manual:

- demonstration extrication
- workshop on extrication tools

- demonstration Volvo Hybrid and LNG truck
- demonstration Renault Zoe
- demonstration Hyundai FCV

17.00: Return to hotel and end of day 1

18.45: Departure in the lobby of the hotel to the place of dinner

Agenda

Meeting day 2

6. Presentations and discussions related to the future ISO 17840 standard parts (9.00)

6.1. Part 4, Propulsion energy identification

10.30/10.50: Break

6.2. Part 3, Rescue and training manuals

12.30/13.30: Lunch, at the hotel

6.3. Part 2, Rescue sheet for busses, coaches and heavy commercial vehicles

7. Summary and next actions

8. Closure of the meeting (15.30)

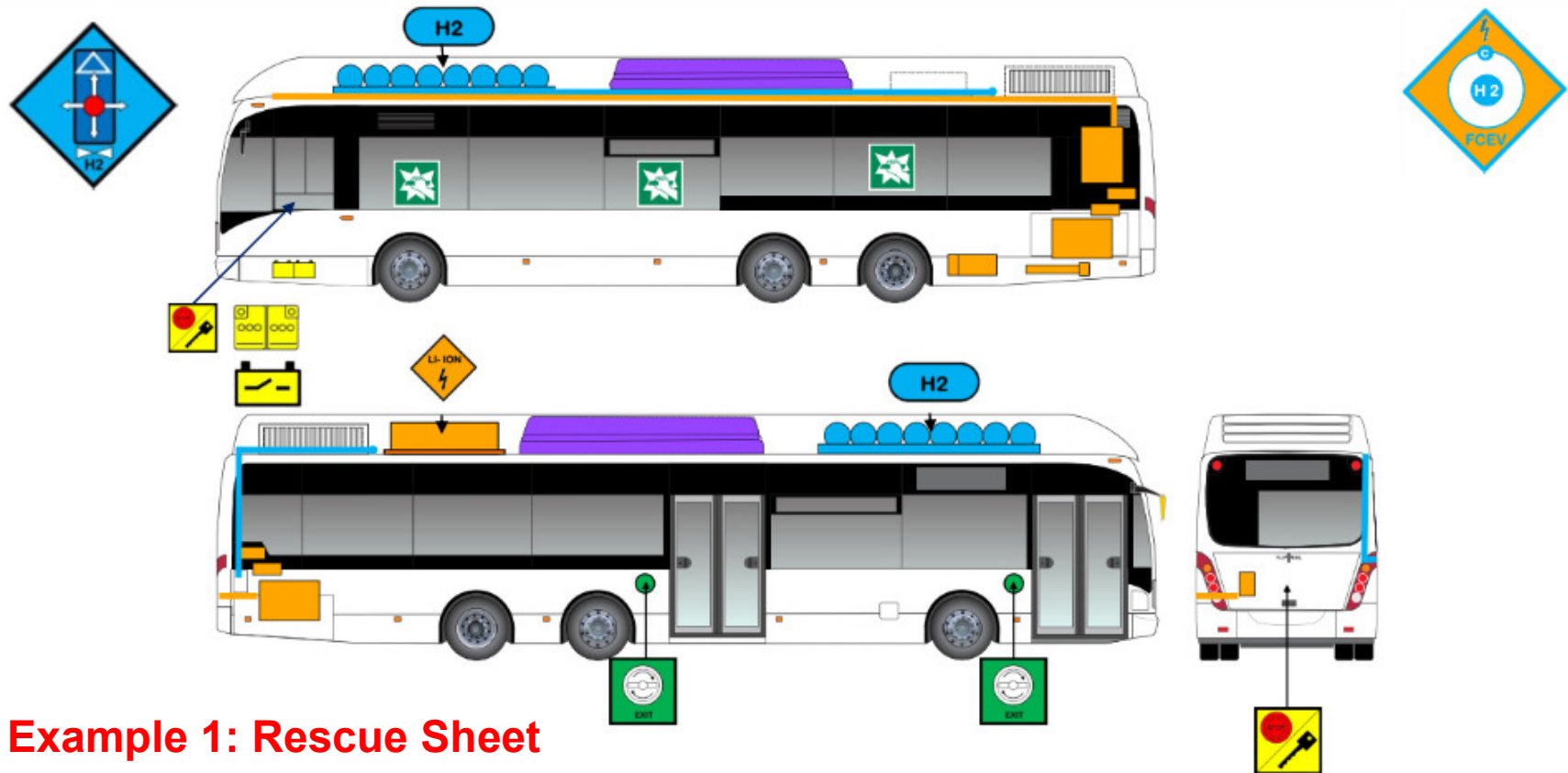
Different Parts of NWIP proposed by CTIF

These different proposals belong to the same important subject:” ***Crucial Information for first and second responders***” :



















- **Part 1** : *Rescue sheet: approved*
 - **Part 2** : Rescue sheet for busses, coaches and heavy commercial vehicles
 - **Part 3** : Rescue and training manuals
 - **Part 4** : Drive line signs (propulsion energy identification)
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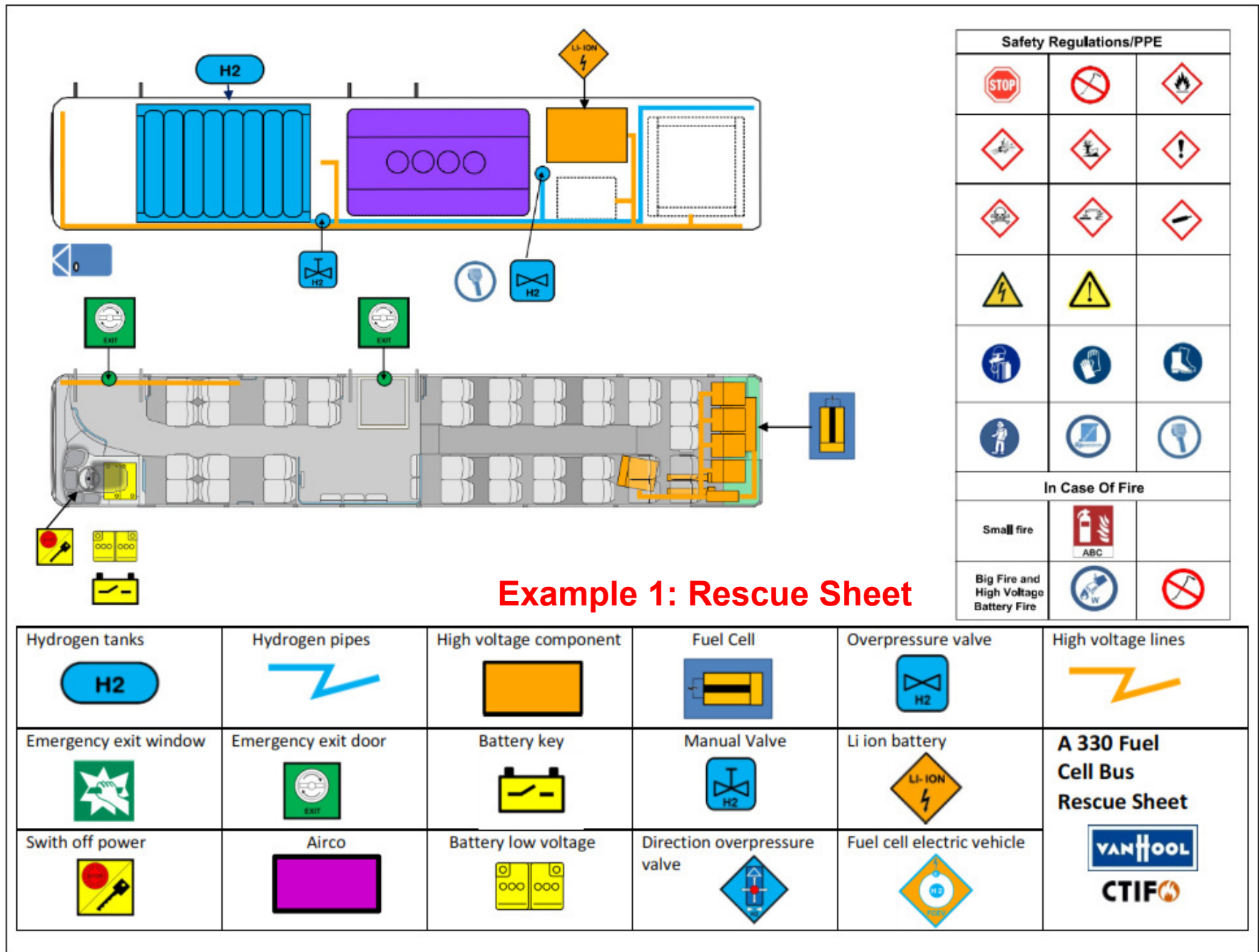
Part 2: Rescue sheet for busses, coaches and heavy commercial vehicles





Example 1: Rescue Sheet

Hydrogen tanks 	Hydrogen pipes 	High voltage component 	Fuel Cell 	Overpressure valve 	High voltage lines 
Emergency exit window 	Emergency exit door 	Battery key 	Manual Valve 	Li ion battery 	A 330 Fuel Cell Bus Rescue Sheet  
Swit off power 	Airco 	Battery low voltage 	Direction overpressure valve 	Fuel cell electric vehicle 	

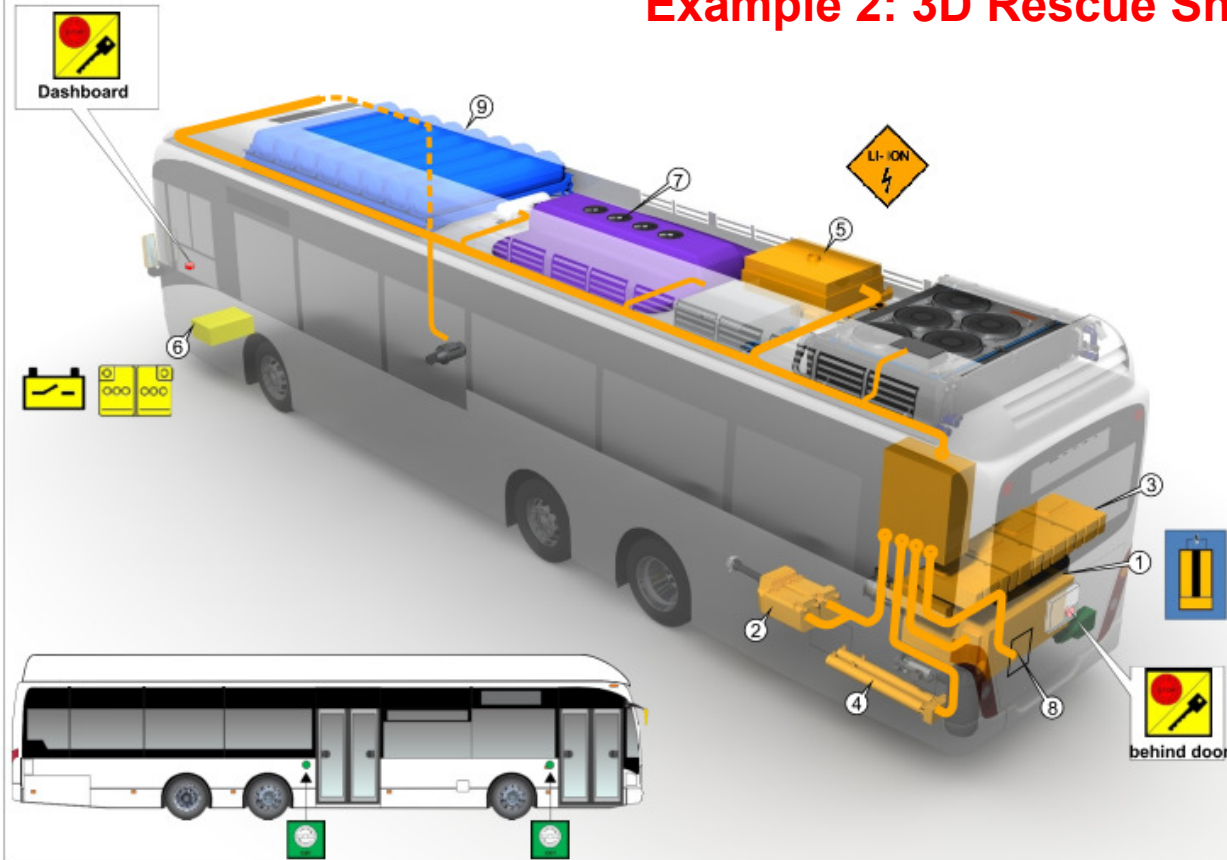


Example 1: Rescue Sheet

Safety Regulations/PPE		
In Case Of Fire		
Small fire		
Big Fire and High Voltage Battery Fire		

Hydrogen tanks 	Hydrogen pipes 	High voltage component 	Fuel Cell 	Overpressure valve 	High voltage lines
Emergency exit window 	Emergency exit door 	Battery key 	Manual Valve 	Li ion battery 	A 330 Fuel Cell Bus Rescue Sheet
Switoh power 	Airco 	Battery low voltage 	Direction overpressure valve 	Fuel cell electric vehicle 	

Example 2: 3D Rescue Sheet



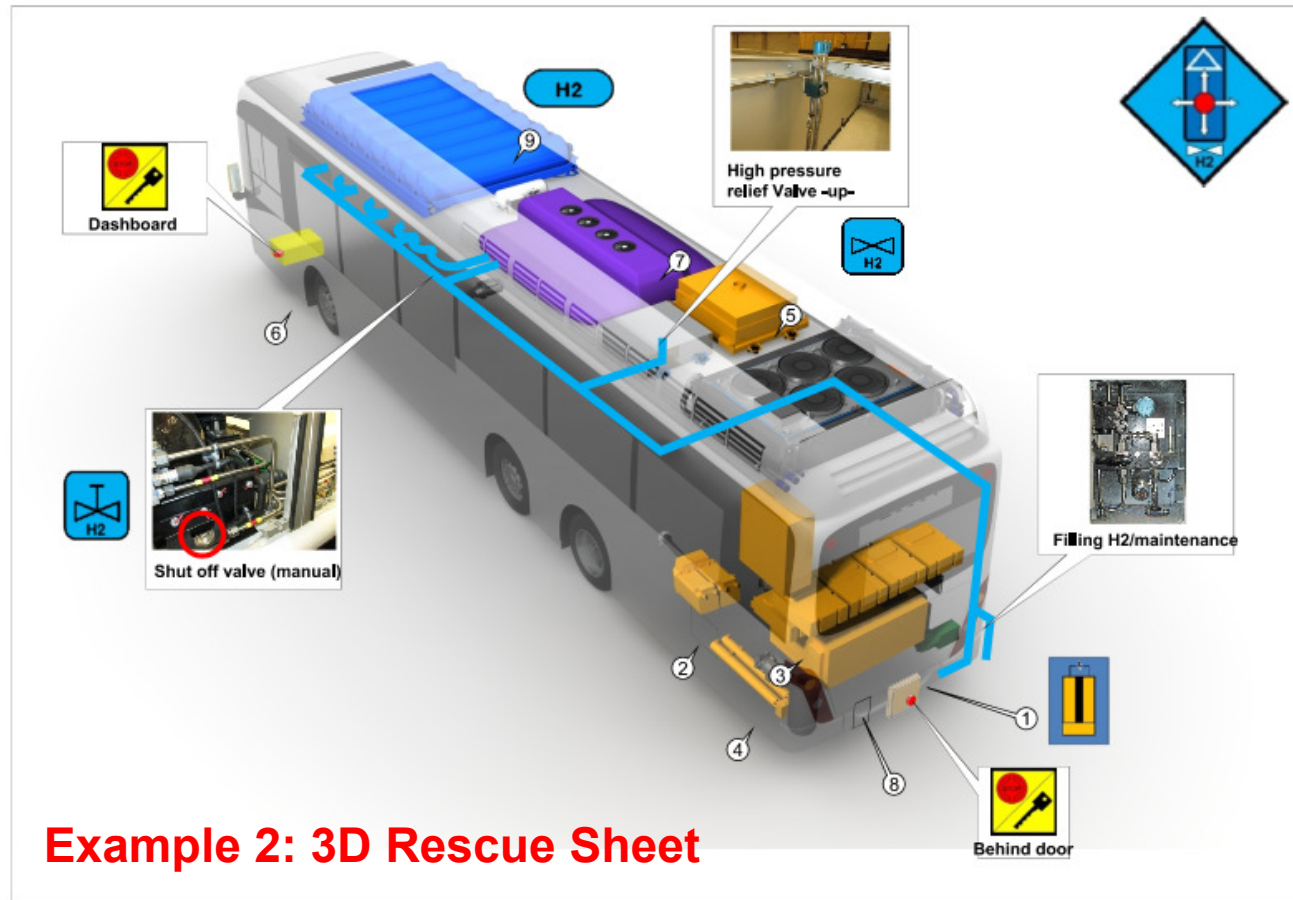
Safety Regulations/PPE		
In Case Of Fire		
Small fire		
Big Fire and High Voltage Battery Fire		

Hydrogen reservoir 8x205L, ±350 bar	Lithium-ion battery Highvoltage 600V -100A	Component High voltage	1. Fuel Cell	4. Brake resistors	7. Airconditioning
High voltage lines	Fuel Cell	Switch off motor/High voltage	2. Traction engines	5. Li Ion Battery	8. Night Charging
Battery key	Low voltage battery	Emergency exit	3. Inverters	6. Low voltage battery	9. Hydrogen reservoir
RESCUE SHEET High Voltage lines					

A330 Fuel Cell bus

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S7043



Example 2: 3D Rescue Sheet

Safety Regulations/PPE		
In Case Of Fire		
Small fire		
Big Fire and High Voltage Battery Fire		

Hydrogen reservoir 8x205l, ±350 bar	High pressure relief valve -up-	Shut off valve (manual)	1. Fuel Cell	4. Brake resistors	7. Airconditioning
Hydrogen lines-	Fuel Cell	Switch off motor/High voltage	2. Traction engines	5. Li Ion Battery	8. Night Charging
			3. Inverters	6. Low voltage battery	9. Hydrogen reservoir
RESCUE SHEET Hydrogen lines					

A330 Fuel Cell bus

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Part 3: Rescue and training manuals



Rescue and training manual vehicle

Training manual vehicle

- Information about : car, truck, bus (*tram, train, airplane,..*)
- Always with the 9 same recognizable chapters
- Structured (as a fireman thinks)
- We offer a template to the manufactures with:
 - Needed symbols and signs
 - Information what to fill in in each chapter

1. Recognition: type/fuel

2. Structure /overview important parts/ access to them

3. Disable direct hazards: safety regulations/ PPE

4. Access to the occupants

5. Dangers of gases, liquids, solid substance: safety regulations/PPE

6. Dangers in case of fire: safety regulations/PPE

7. Dangers in case of water submersion: safety regulations/PPE

8. Vehicle immobilization, lifting and stabilization

9. Information for towing

Rescue and training manual vehicle (and others)

Proposal: Draft version not for public spreading intended as proposal!

TRAINING MANUAL BUS
AG 300 Hybrid
Hybrid bus

! Draft version not for public spreading intended as proposal !

Client: VVM De Lijn

Constructor: Vanhool

1. Recognition / type/fuel:

The AG 300 Hybrid is a bus which powered on the one hand by a diesel engine and on the other by an electric motor. The power source of the electric motor is a super capacitor.

See training manual super capacitor

Recognition hybrid bus:
There are stickers placed on the bus.

On the back of the bus, the sticker is placed under the window.

Proposal: Draft version not for public spreading intended as proposal!

TRAINING MANUAL TRAIN LOCO HAULED VEHICLE
M6 DD
type BX

! Draft only as proposal, (not validated) not for distribution !

Constructor: Bombardier

1. Recognition / type / fuel:

The M6 double deck cab car Bx is a loco hauled vehicle (trailer car). Its high voltage and pneumatic air supply is delivered by a coupled locomotive. This energy is distributed to the vehicle by means of the static converter (CV) and the air supply piping. To isolate the vehicle, the high voltage supply from the complete vehicle should be switched off. This should be done according to the local safety procedures of the operator SNCB/NMBS.

Warning: The isolation circuit breaker in the electrical cabinet is not shutting down the High Voltage supply at the inter vehicle cabling (in case the pantograph of the loco is not down) !!

Identification M6 Bx vehicles: At the front and at the sidewall labels are identifying the car.

Number range 65001 - 65064 Number range 50 88 80 72 001 - 50 88 80 72 064

M6 DD vehicles have at the upper deck curved windows, do not mix with M5 Double Deck vehicles (straight windows)

RESCUE AND TRAINING MANUAL
CHEVY VOLT
PLUG IN HYBRID ELECTRIC VEHICLE

Manufacturer: General Motors

Version: Draft 01/03/2014

1. Recognition/Type/fuel

The Chevrolet Volt is an Extended Range Electric Vehicle (E-REV) that uses an electric propulsion system to drive the vehicle. Stored electrical energy is used in electric mode to propel the vehicle. The vehicle operates up to 64 kilometers (km) or 40 miles (mi) until the LI-ION battery has reached a low state of charge. Once the stored electrical energy is reduced, the vehicle automatically enters extended-range mode. The gasoline engine drives the generator which provides electricity for vehicle propulsion.

Vehicle Identification
The Chevrolet Volt badging is one method of identifying the vehicle. The vehicle's logo is located on the right front and left front fenders as well as the deck lid.

Vehicle Identification (continued)
A unique Liquid Crystal Display (LCD) instrument panel cluster assists in identifying the Chevrolet V

CTIF



Proposal: Draft version not for public spreading intended as proposal!

Training manual
Volvo FE hybrid truck

! Draft version not for public spreading !

Manufacturer: Volvo Group Truck Operations Ghent

1. Recognition / type/fuel:

The FE HYBRID is a truck which powered on the one hand by a diesel engine, and on the other by an electric motor. The power source of the electric motor is a Li-Ion battery.

See training manual battery

Typical distinguishing features:

Typical battery/cab structure

Proposal: Draft version not for public spreading intended as proposal!

Training manual : Aircraft
Airbus A320

Constructor: Airbus

Operator: Brussels Airlines

1. Recognition / Type / Fuel

The A320 is a subsonic, medium range, civil transport aircraft.

The aircraft has 2 high bypass turbofan engines, mounted under the wings.

The cockpit is arranged for a 2 member crew. It also has place for 2 observers.

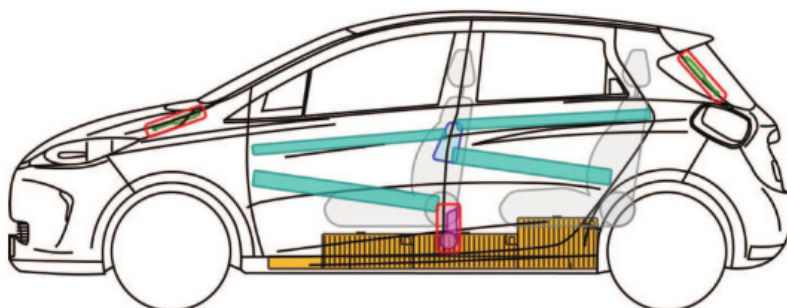
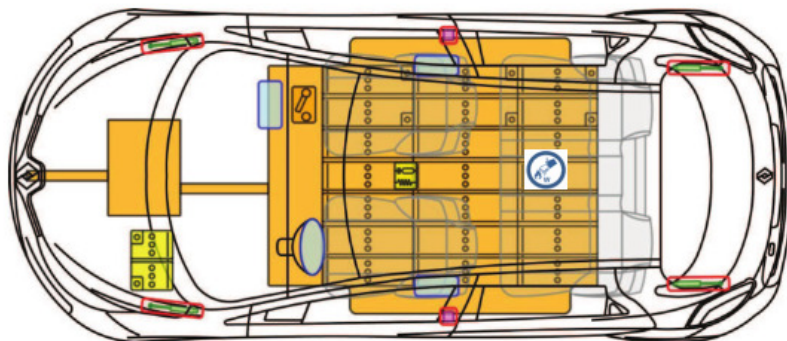
The passenger seating layout may be varied to suit operating requirements. The certificated maximum is 180 seats.

Operator

Engine #1 Seats



ZOE Z.E.
TYP: AG, 2013-



Legend

	Airbag		Body reinforcement		Control unit		High voltage battery
	Gas generator		Rollover protection		Battery		High voltage line/component
	Belt tensioner		Gas damper		Fuel tank		Joint

1. Recognition/type/fuel



No exhaust pipe
No petrol filling flap

3 Disable direct hazards/safety regulations/ PPE



Do not cut or pull off the earth straps

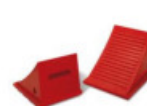


6 Dangers in case of fire/safety regulations/PPE



Lithium-ion 400V battery
large amounts of water needed
to extinguish battery

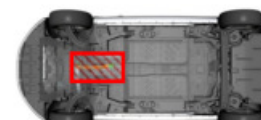
7 Guidelines concerning immobilisation/stabilisation/lifting



Ø 5 meter

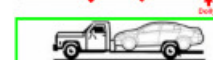


~~READY~~




Prohibited stabilization point

8 Information for towing-services

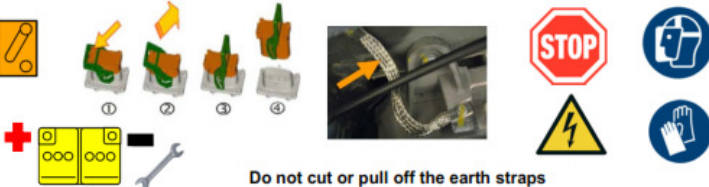


Quick rescue information

1. Recognition/type/fuel




3 Disable direct hazards/safety regulations/ PPE




Do not cut or pull off the earth straps

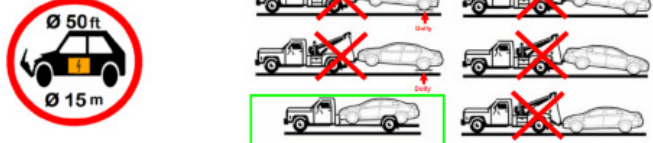
6 Dangers in case of fire/safety regulations/PPE



8 Guidelines concerning immobilisation/stabilisation/lifting



9 Information for towing-services



Detailed rescue and training information

INFORMATION FOR FIRST AND SECOND RESPONDERS
RESCUE AND TRAINING MANUAL VEHICLE

RENAULT ZOE

FULL ELECTRIC VEHICLE



CONTENT

1. Recognition/type/fuel	Page 3
2. Structure/overview important vehicle parts/access to them	Page 7
3. Disable direct hazards/safety regulations/ PPE	Page 12
4. Access to the occupants	Page 19
5. Dangers/contents stored liquids/gasses/solids/ PPE	Page 21
6. Dangers in case of fire/safety regulations/PPE	Page 24
7. Dangers in case of water submersion/safety regulations/PPE	Page 27
8. Guidelines concerning immobilisation/stabilisation/lifting	Page 29
9. Information for towing-services	Page 30
10. Explanation used symbols	Page 37

Note:
First responders: Fire Fighters, Police, Medical personal, EMT
Second responders: Towing and maintenance personnel

2



Rescue and training manual for a battery in a vehicle

This template training manual is developed to give specialized information about the batteries build in a **hybrid, full electric and fuel-cell vehicle**, to **rescue workers/towing and maintenance.**

INFORMATION FOR FIRST AND SECOND RESPONDERS
RESCUE AND TRAINING MANUAL

HIGH VOLTAGE (HV) LITHIUM-ION BATTERIES

IN AN HYBRID (HEV), PLUG-IN HYBRID (PHEV) , FULL ELECTRIC VEHICLE (EV)
AND FUEL CELL ELECTRIC VEHICLE (FCEV)



CONTENT

1. GENERAL INFORMATION	Page 3.
2. HAZARD ASSOCIATED WITH LEAKING Lithium-Ion BATTERIES	Page 6.
3. Hazards Associated with a Lithium-Ion Battery Fire	Page 7.
4. Environmental Aspects	Page 9.
5. Specific requirements for packaging, storage and transportation of damaged Lithium-Ion batteries and batteries at end of life.	Page 10.
6. Explanation Used Symbols	Page 12.

Note:
First responders: Fire Fighters, Police, Medical personal, Emergency Medical Transporters.
Second responders: Towing and maintenance personnel,...

**Always 6
recognizable
chapters**

The training manual template should be **completed** by the battery supplier in consultation with the vehicle manufacturer for this specific model and type.

Rescue and training manual for a battery in a vehicle

Template Rescue and Training Manual Battery version 05/12/2014

**INFORMATION FOR FIRST AND SECOND RESPONDERS
RESCUE AND TRAINING MANUAL
HIGH VOLTAGE (HV) LITHIUM-ION BATTERIES**

**IN AN HYBRID (HEV), PLUG-IN HYBRID (PHEV), FULL ELECTRIC VEHICLE (FEV)
AND FUEL CELL ELECTRIC VEHICLE (FCEV)**

BRAND/TYPE OF VEHICLE

Manufacturer vehicle : XXX
Info in case of emergency: XXX

1. GENERAL INFORMATION

1.1 Picture and information:

Image: minimum 1 MB
Scanned image: minimum 300 DPI

High voltage battery	Type of Li-ion battery	Info
1. High Voltage Battery Type: (e.g. LI ION)	XXX	xxx Volt (nom consisting of connected in circuit. XXX kg.

DATA

Type of battery
Location
Chemicals
Response in absence of Fire
Response to spillage
Neutralisation
Response to a fire
Use of water / no water
Gaseous emissions
Storage & Transport

Maximum of info /
Pictograms: ISO/GHS
NFPA

2. HAZARD ASSOCIATED WITH LEAKING LITHIUM-ION BATTERIES

Under conditions of use, the battery does not present any risk of exposure to its content.

2.1 Inhalation in non-fire situations

The electrolyte used in the Li-ion battery cells contains a volatile flammable organic solvent and a corrosive substance.

- **Inhalation:** High vapour concentrations may cause respiratory tract irritation.
- **Eye contact:** Eye contact may cause severe irritation and possibly a burning sensation or corneal tissue injury.
- **Skin contact:** skin contact may cause irritation. Prolonged contact with electrolyte mixture may result in more severe irritation.
- **Ingestion:** swallowing electrolyte mixture may cause gastrointestinal tract burns. May cause nausea and vomiting.








2.2 Recommended Personal Protective Equipment:



Use personal protective equipment. Avoid contact with skin and eyes. Ventilate the area. Position yourself in the wind direction. The information below refers to exposure to the substances contained in the battery.

- **Respiratory track protection**
Protective mask for acidic vapours or Self Contained Breathing Apparatus (SCBA) or Air-purifying respirator equipped with acid gas cartridge
- **Hand protection**
Neoprene or nitrile gloves (EN 374) or equivalent.
- **Eye protection**
Safety glasses with side-shields conforming to EN166, or face shield equivalent.
- **Skin and body protection**
Boots, apron, long sleeved clothing.

Absorption/neutralisation see chapter 4: **Environmental aspects**

Symbols to be used in the rescue and training manuals

	Airbag <i>ISO/DIS 17840</i> Blue R/G/B: 77/77/255 Red R/G/B: 255/0/0
	Automatic rollover protection system <i>ISO/DIS 17840</i> Red R/G/B: 255/0/0 Lime R/G/B: 0/255/0 Black
	Seat belt pretensioner <i>ISO/DIS 17840</i> Purple R/G/B: 152/43/143 Red R/G/B: 255/0/0
	Stored gas inflator <i>ISO/DIS 17840</i> Blue R/G/B: 77/77/255 Red R/G/B: 255/0/0 Black
	Pedestrian protection active system <i>ISO/DIS 17840</i> Red R/G/B: 255/0/0 Black
	Gas strut Preloaded spring <i>ISO/DIS 17840</i> Red R/G/B: 255/0/0 Lime R/G/B: 0/255/0 Black
	High strength zone <i>ISO/DIS 17840</i> Sea Green R/G/B: 22/124/199, Black

	Fuel Cell Electric Vehicle: electric vehicle powered by a hydrogen fuel cell. Symbol description: H2 hydrogen atom/high voltage symbol The stored hydrogen is compressed. (C= compressed) Colors: Orange: R/G/B: 255/165/0 Blue: R/G/B: 0/176/240 White Text: Arial rounded MT Bold
	Electric Vehicle: electric vehicle with power grid-connector to recharge battery. Symbol description: High voltage/plug in symbol. Colors: Orange R/G/B: 255/165/0 Black Text: Arial rounded MT Bold

	Use water to extinguish
	Do not break open
	Use heat Camera
	Danger electricity/electric shock
	Wear safety boots
	Wear safety gloves
	Wear protective clothing
	Wear face shield
	Wear protective mask



	Wear breathing apparatus
	Disassembly only allowed by qualified persons
	NFPA 704 Hazard Identification System (To be filled in)
	Explosive
	Flammable
	Corrosives
	Caution harmful
	Acute toxicity
	Environmental hazard

Part 4: Drive line signs (propulsion energy identification)



The proposed signs

- Are using existing pictures (e.g. fuel pump);
- Are made from the perspective of a firefighter;
- Are using common names (HEV, PHEV, EV...);
- Are made to maximum inform the fire fighter/rescue worker just using 1 sign (e.g. Fuel-Cell Electric Vehicle);







- orange: high voltage; 
- blue: hydrogen; 
- **H₂**: hydrogen;
- **FCEV**: Fuel Cell Electric Vehicle);
- **C**: compressed hydrogen;



- Are usable for trucks, busses, cars,...;
- **The location of the signs has yet to be determined.**

Uniform standard on colours

The colors are mostly common used in vehicle indication.

	blue R/G/B: 0/176/240: Hydrogen;
	Green R/G/B: 0/176/80: Gas;
	Yellow R/G/B: 255/255/0: Low voltage;
	Orange R/G/B: 255/165/0: High voltage;
	Gray R/G/B: 127/127/127: Diesel;
	Red R/G/B: 161/37/3: Gasoline;
	Green R/G/B: 80/224/22: Bio Diesel.

These colors are also usable for:

- Highlight content by coloring pipe/tank/reservoir in rescue information;
 - Coloring symbols to be used in rescue information;
 - Coloring specific components of the vehicle (e.g.: orange = high voltage);
 - Coloring indication specific fuel stations/pumps...
-

The proposed signs



Gasoline-powered vehicle.



Diesel-powered vehicle.



Bio diesel-powered vehicle.



Bio diesel-powered vehicle
with for example 85% ethanol.



Hybrid Electric Vehicle
and Diesel



Plug In Hybrid Electric Vehicle
And Diesel

The proposed signs



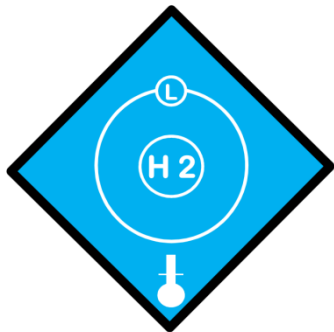
Plug In Hybrid Electric Vehicle
and Gasoline



Electric Vehicle



Fuel Cell Electric Vehicle



Hydrogen powered vehicle
(liquefied)



Hydrogen powered vehicle



LPG (liquefied petroleum gas)

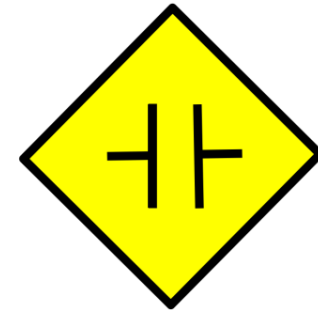
The proposed signs



LNG (liquefied natural gas)



CNG (compressed natural gas)



Super capacitor low-voltage



Diesel powered vehicle
with super capacitor



Gasoline/LPG powered vehicle



Super capacitor high-voltage

Information

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