

Post-Crash Rescue Information

Rescue Sheet and Rescue Guide

Technical Bulletin

Implementation November 2024

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PREFACE

During the test preparation, vehicle manufacturers are encouraged to liaise with the laboratory and to check that they are satisfied with the way cars are set up for testing. Where a manufacturer feels that a particular item should be altered, they should ask the laboratory staff to make any necessary changes. Manufacturers are forbidden from making changes to any parameter that will influence the test, such as dummy positioning, vehicle setting, laboratory environment etc.

It is the responsibility of the test laboratory to ensure that any requested changes satisfy the requirements of Euro NCAP. Where a disagreement exists between the laboratory and manufacturer, the Euro NCAP secretariat should be informed immediately to pass final judgment. Where the laboratory staff suspect that a manufacturer has interfered with any of the set-up, the manufacturer's representative should be warned that they are not allowed to do so themselves. They should also be informed that if another incident occurs, they will be asked to leave the test site.

Where there is a recurrence of the problem, the manufacturer's representative will be told to leave the test site and the Euro NCAP secretariat should be immediately informed. Any such incident may be reported to the manufacturer and the person concerned may not be allowed to attend further Euro NCAP tests.

DISCLAIMER: Euro NCAP has taken all reasonable care to ensure that the information published in this protocol is accurate and reflects the technical decisions taken by the organisation. In the unlikely event that this protocol contains a typographical error or any other inaccuracy, Euro NCAP reserves the right to make corrections and determine the assessment and subsequent result of the affected requirement(s).

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1 INTRODUCTION

The purpose of this document is to specify and illustrate how to design the content and layout for a Rescue Sheet in accordance with ISO 17840 standard (Part 2, Part 3 and Part 4). Following these instructions, the rescue sheet will be compliant with present Euro NCAP requirements.

Examples included (labelled “EXAMPLE” in the text) can come from official rescue sheets or they can be made up to illustrate a point and present best practice solutions. No rights can be derived from these examples.

The purpose of the Rescue Sheet format is to use the least amount of text as possible in order to make their understanding as easy as possible and overcome language barriers. The rescue sheet (ISO 17840 Part 2) is ‘quick information’ for the first responders on the accident scene.

The ISO 17840 Part 3 Emergency Response Guide (ERG) gives ‘in-depth information’ by adding text in addition to the pictures or the pictograms from the Rescue Sheet. The ERG contains crucial and in-depth information linked to the Rescue Sheet to inform, train, and develop rescue procedures by first responders. The headings and contents of the Rescue Sheet and the ERG information are aligned with each other, i.e. the ERG information works as an extension to the Rescue Sheet.

Both ERG and the Rescue Sheet follow a flowchart of the main actions to take by first and second responders, arriving at the accident scene or performing towing and other activities afterwards.

In addition to the ISO requirements, there is a need to identify the energy storage on the vehicles. This is done by using the labels as defined in the EN regulation (EN 16942 Standard 2016, following the EU directive 2014/94/EU).

In this technical bulletin the requirements for energy disabling labels attached to vehicle components mentioned in the rescue sheet and ERG are illustrated.

In order to assist Euro NCAP with the handling of the large number of rescue sheets now required from 2023 onwards for each model assessed, the correct file naming of each sheet when submitted by the OEM is explained near the end of this document.

(OEMs should note that the rescue sheet examples used in this document are used to highlight one specific requirement and other items contained within the example sheet may not be fully ISO 17840 compliant).

2 GENERAL RECOMMENDATIONS

It is recommended to use the least amount of text possible, and instead use the pictograms defined in ISO 17840 – Part 2, Part 3 and Part 4. This way, the information is straightforward for the first responders, and the effort to edit versions in all the different languages will be less.

- Always use pictograms coming from ISO 17840-Part 2, Part 3 and Part 4. Seek expert advice if you are uncertain about which pictogram to use.
- Ensure the quality of the picture / drawings / photos / pictograms are following the General Recommendations in ISO 3864-1. This is to make certain that the document is readable and easy to understand.
- Important information must be emphasized:
 - Hazards/Danger: **Red border** RGB: 255/0/0, text in black capital letters or lower case.
 - Recommendation: **Green border** RGB: 0/176/80, text in black capital letters or lower case.



Hazards / Danger

Recommendation

2.1 Colour Codes from ISO

Pictograms are made with specific shape, pattern but also colour. The use of each colour and its RGB code is defined by ISO 17840. To understand and classify the parts, equipment, and dangers at first glance, it is important that the ISO colour codes are respected.

2.2 Pictograms from ISO 17840

For ISO 17840 Part 1, Part 2 and Part 3 (used in the legend), it is possible to buy the full package of pictograms (in vector and high-resolution bitmaps) from the SIS site:

<https://www.sis.se/en/bcker/rescue-sheets-and-emergency-response-guides-for-road-vehicles/>

The propulsion energy labels (diamond form) in ISO 17840 Part 4 are all made by a combination of symbols that are defined in ISO 7000. Each symbol has a registration number and ISO 17840 Part 4 defines which symbol(s) need to be used for each propulsion energy.

All the ISO 7000 symbols can be found at www.iso.org/obp, click “graphical symbols” and enter the number of the desired symbol. Symbols in vector format can be purchased and downloaded directly.

2.3 Translations

ISO 17840 Part 1, Part 2, Part 3 and Part 4 define the format of the rescue sheet and the pictograms to be used. The standard also specifies the name of the part represented by these pictograms.

Even if the idea is to use as little text as possible, there is a need to translate the rescue sheet in different languages. For this, the members of the Euro NCAP and ISO Rescue working groups also provided recommended translation of the pictograms present in the Legend, see Appendix.

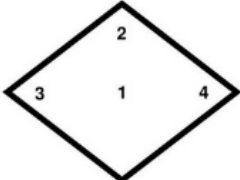
A separate file “Annex to TB030 – Translation of pictograms and headers for ISO_17840” can be downloaded from the Euro NCAP website. This file will be updated regularly.

3 PROPULSION ENERGY IDENTIFICATION AND ENERGY STORAGE IDENTIFICATION

3.1 Propulsion Energy Identification According to ISO 17840

This section explains the label construction to inform about the fuel and/or energy used for propulsion of a heavy commercial vehicle.

These symbols for propulsion energy identification are defined in ISO 17840 – Part 4.

	1. First energy source
	2. Second energy source
	3. Density towards air
	4. Stored state










LABEL	DESCRIPTION
	Electric Vehicle
	Hybrid Electric Vehicle on fuel of liquid group 1 (Diesel, XTL)
	Hybrid Electric Vehicle on fuel of liquid group 2 (Gasoline, Ethanol,)
	Vehicle on Hydrogen Fuel Cell Electric Vehicle
	Vehicle on CNG
	Vehicle on DME
	Vehicle on LNG (Also Bio LNG)
	Vehicle on fuel of liquid group 1
	Vehicle on fuel of liquid group 2

Table 3-1 Example combinations of labels

3.2 Energy Storage Identification According to EN 16942

Labelling for consumers: EN 16942:2016 must **NOT be confused** with ISO 17840 – Part 4 information for first and second responders.

New labels have been defined by EN 16942:2016 'Fuels – Identification of vehicle compatibility – Graphical expression for consumer information', which was published by CEN in 2016. The standard was developed by the CEN Technical Committee 441 'Fuel labelling', whose Secretariat is held by the Dutch Standardization Institute (NEN), in cooperation with Commission services and societal stakeholders, and is based on a broad consensus, aiming to ensure the easiest possible use by the highest number of people.

The purpose of the standard is to lay down harmonised identifiers for marketed liquid and gaseous fuels due to their increasing number and complexity. It sets requirements to complement information needs of users regarding vehicles that are placed on the market.





			
Petrol-type fuels	FAME containing diesel-type fuels	Paraffinic diesel fuel	Gas

Figure 3-1 Fuel labelling for consumers as defined by EN 16942:2016

What is of first interest for first responders is to easily and promptly identify the energy propulsion of the vehicle and the location of its storage. For this reason, it is required that the labels defined in section 3.2 are located on each of the storage devices. This item is defined in more detail in section 7.

3.3 Examples from the Field

3.3.1 Examples for ISO-Propulsion Energy Identification



3.3.2 Example for EN-Energy Storage Identification



4 HOW TO CREATE A RESCUE SHEET

4.1 General Information

The purpose of the Rescue Sheet is to use as less text as possible in order to make their understanding as easy as possible and overcome language barriers. The rescue sheet (ISO 17840 Part 2) is “quick information” for the first responders on the accident scene.

The Rescue Sheet with additional information **must not exceed 4 pages** (including the front page).

4.2 Layout and Content Rescue Sheet Front Page

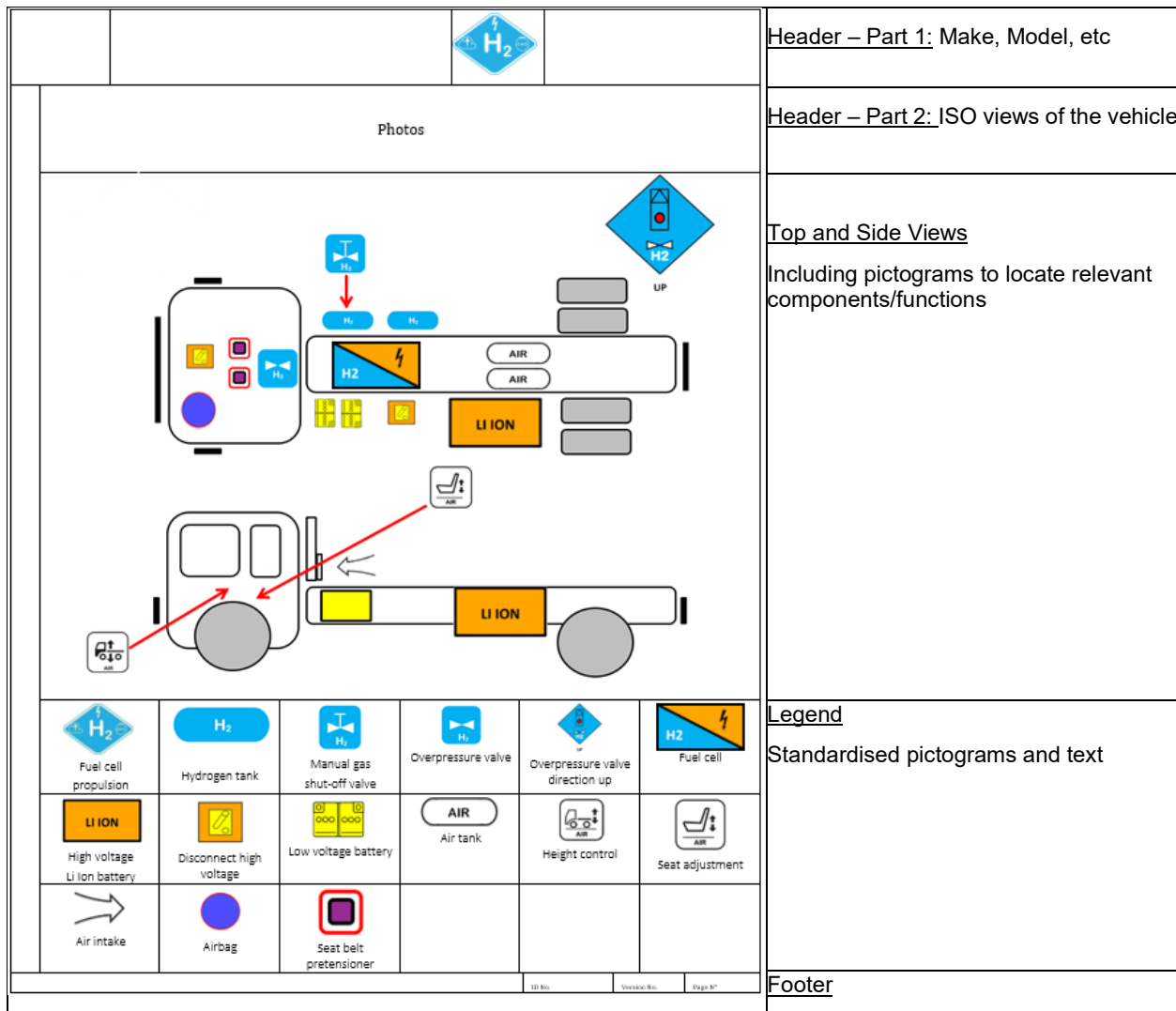


Figure 4-1 Example rescue sheet – Front page

4.2.1 Header – Part 1

This Header should include:

- Make and model name are listed, even if the logo shows the brand in full letters.
- Do not forget to check the name of the model is not different in one specific country.
- List all body types of the model covered by this rescue sheet.
- ISO propulsion energy identification according to ISO 17840 - Part 4. Use the correct and approved symbol only.
- Use one of these pictograms, or leave blank:



- Never put the 2 pictograms at the same time. The purpose of this pictogram is to inform that the RHD rescue sheet contains significant differences from the LHD version and therefore two distinct Rescue Sheets are needed. In most of the vehicles this distinction is not needed. Therefore, the pictogram should not be used if there is no Rescue Sheet for the other hand of drive.

4.2.2 Header – Part 2

Ensure the quality of the (colour) image is minimum 300 DPI and the size of the pictures is large enough to be able to distinguish the details for a responder trying to identify the vehicle to ensure this is the correct Rescue Sheet.

- ISO 17840-part 2 standard asks for two pictures, not less, not more.
- The image can be a photo of the real commercial vehicle, or a digital, virtual representation of the commercial vehicle model



Figure 4-2 Example photos of the vehicle; Source: Kurt Vollmacher

4.2.3 Top and Side Views

- It is mandatory that any vehicle outline diagrams are shown with black lines.
- It is recommended that a simple vehicle outline drawing is used rather than a modified picture/graphic of the vehicle.
- In the top view, the outline of the dashboard/facia and steering wheel must be present. If airbags are also shown in the side view these dashboard/facia outlines must also be present.
- The outline (very basic transparent drawing) of the seats shall be shown in the top and side views.
- It is recommended to represent the different types of airbag with an appropriate size and form in the undeployed state.
- Use only the pictograms as shown in the legend: from ISO 17840 Part 3.
- The technology of the HV battery shall be stated (e.g., Li-Ion or Ni-MH), to help even more the first responders (shown in the example below with an arrow and text box). The battery voltage (in V) is to be mentioned, as it may affect the intervention strategy.
- Do not deform (stretch) existing symbols but draw realistic adapted components (e.g., HV battery).
- Do not show unnecessary components, lines, ... like from a blueprint of a vehicle.

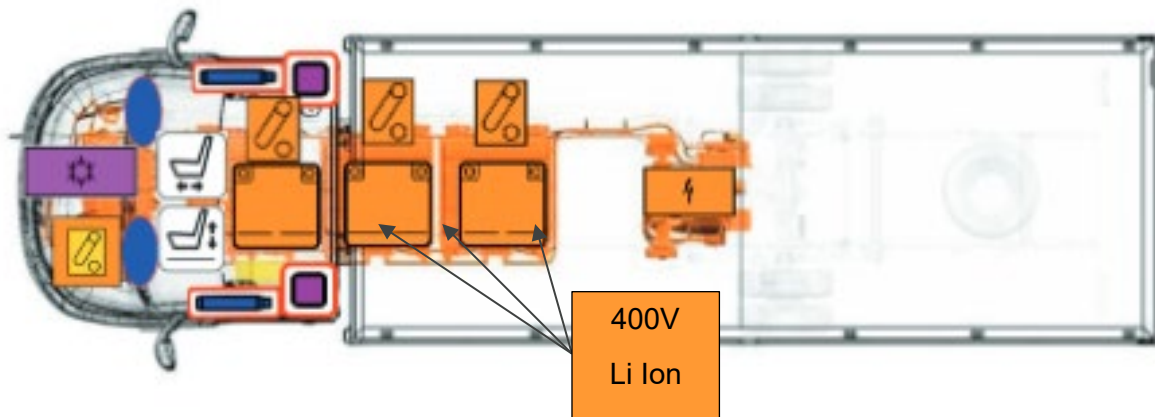


Figure 4-3 Example pictogram

- The HV voltage & battery type (in this order) must be indicated with an arrow pointing towards the battery pictogram and a text box using the same colour code as the pictogram. This requirement is also applicable for low voltage batteries (from 24V to 60V).
- Flash may be omitted in case of space constraints on some of the smaller HV component pictograms, and also does not need to be shown on both top and side views, one view is enough.
- Do not show unnecessary components. However, dashboard/facia outline and steering wheel contour are useful to understand the equipment pictograms, therefore they must be present in the top view.

4.2.3.1 Double Frame Rectangle

To highlight specific items, you can combine the double frame rectangle with the reference to the chapter number together with its colour code.

It is also permitted by ISO 17840 Part 1 to show this double frame rectangle on the vehicle perspective view in the Header Part 2. However, Euro NCAP recommends using the top or side views. It is recommended to use this double frame rectangle for any new equipment, or unusual location of equipment that the first responders may not be used to seeing in the vehicles.

Use the double frame rectangle with the reference to the chapter number together with its colour code:



Figure 4-4 Example use of the double frame rectangle

4.2.3.2 Contact Shut Off to Deactivate HV System

In order to represent the instruction to use the engine/motor ON/OFF button to deactivate the HV system some manufacturers use the “low voltage disconnect high voltage device” pictogram. However, Euro NCAP does not recommend using this pictogram on the first page for a simple ON/OFF button as some first responders may search for a dedicated device.

(The Illustration below uses a passenger vehicle, but it is applicable to commercial vehicles).

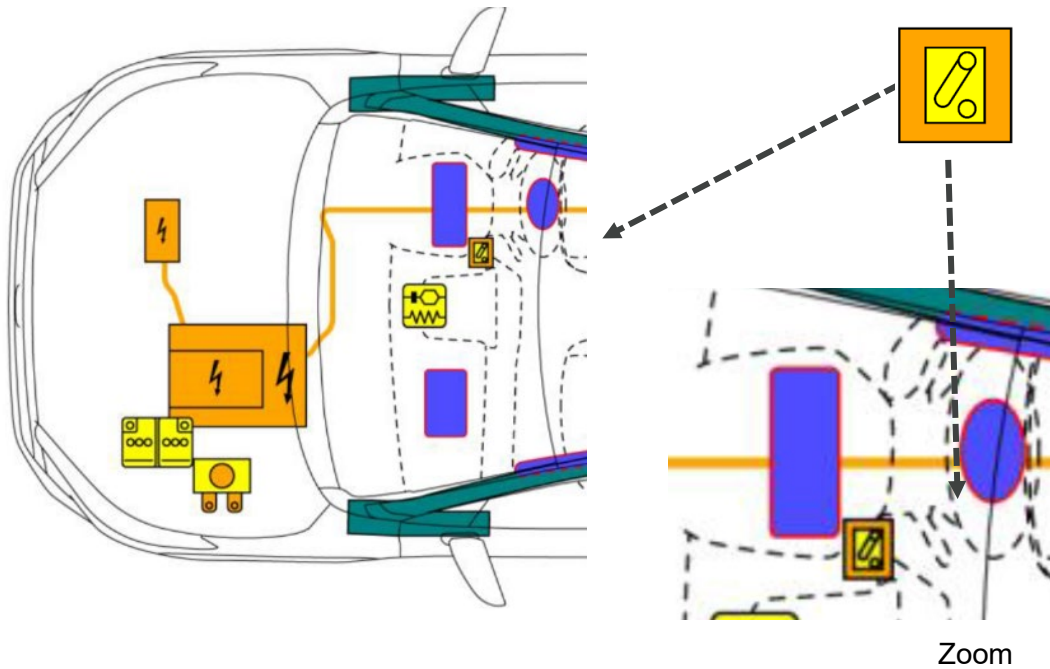


Figure 4-5 Example illustration of Contact shut off to deactivate HV system

Also, this pictogram should not be present in chapter 3 if there is no specific disabling device present:

<Main Procedure>

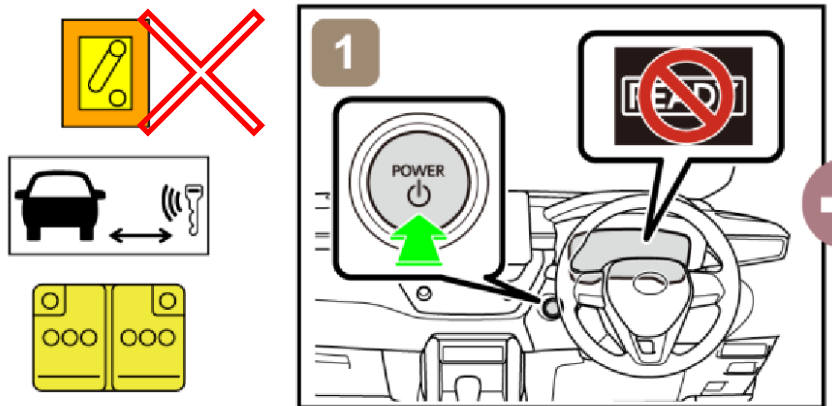


Figure 4-6 Pictogram should not be used if there is no specific disabling device present

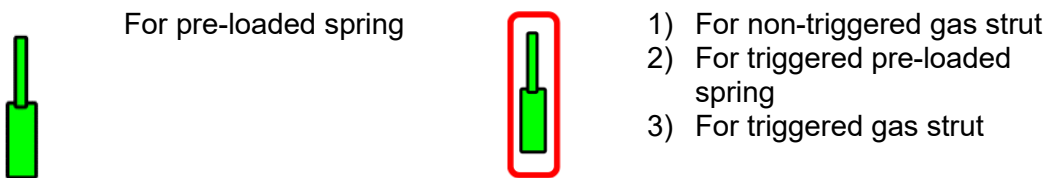
4.2.3.3 Gas Strut

The Red colour code has been initially reserved for actively triggered equipment only (e.g., via pyrotechnic) as shown in Table 1. However, gas struts have traditionally been displayed in the Rescue Sheets with a red contoured pictogram and first responders are used to see this equipment displayed in this way.

Initially, before ISO 17840 creation, the red contour was used to distinguished between a pre-loaded spring and a gas-strut. This distinction was considered crucial because in case of fire the gas strut can be a real danger compared to a pre-loaded spring.

For this reason, the ISO Working Group has decided to change the definition of the red colour code, in order to keep the red contour for any gas strut in the ISO 17840 Part 1 new version.

Check the following:



4.2.4 Legend

The legend is a dynamic legend where only the pictograms used on the rescue sheet will have to be displayed below:

		Battery low voltage		Power shutdown		Seat belt pretensioner		CNG manual shut-off valve
		Air intake		Diesel fuel tank		CNG auto overpressure safety valve		Air tank
		Steering wheel tilting		CNG gas tank		Gas strut / preloaded spring		Seat air adj. by air system
		LNG manual shut-off valve		LNG auto overpressure safety valve		LNG gas tank		Gas pressure direction

Figure 4-7 Example Legend

4.2.5 Footer

The footer should contain:

- The document I.D. number is included. (This I.D. number can be the OEM internal file reference number).
- The total number of pages of the Rescue Sheet must be listed in the footer.

5 ADDITIONAL PAGES LAYOUT AND CONTENT FOR THE RESCUE SHEET

Additional information is organised in Chapters. The illustration below lists the relevant headers with colours. The RGB colours are imposed by ISO 17840 – Part 3. The Rescue Sheet with additional information should not exceed 4 pages (including the front page). 5 pages when justified is also acceptable.

1. Identification / recognition
2. Immobilisation / stabilisation / lifting
3. Disable direct hazards / safety regulations
4. Access to the occupants
5. Stored energy / liquids / gases / solids
6. In case of fire
7. In case of submersion
8. Towing / transportation / storage
9. Important additional information
10. Explanation of pictograms used

Figure 5-1 List of chapter headers with colours

If there is no specific information to give in one chapter, then the header of the chapter does not need to be displayed. But the next chapter will keep the chapter number as displayed above. There is no renumbering. However, if a hazard is applicable to several chapters, the general principle is that it should be repeated under each chapter.

Euro NCAP expects that for Battery, Hybrid and Plug-in Hybrid Electric Vehicles (BEV, HEV and PHEV), hydrogen, fuel cell, Compressed and Liquefied Natural Gas (CNG and LNG), Liquefied Petroleum Gas (LPG) or other alternative powered vehicles almost all chapters must be completed. Even for a traditional Internal Combustion Engines (ICE) e.g. diesel or gasoline vehicle, some information is relevant to be presented in the Rescue Sheet, such as:

- 48 volt battery (mild hybrid)
- New type of technology (beside propulsion)
- New type of active or passive safety technology/items
- Special constructions / materials that has been used
- New types of access to the vehicle
- New types of communication V2X, etc.

Remember that the ISO 17840 Emergency Response Guide is made to be used as a direct link with the ISO 17840 Rescue Sheet to give further in-depth information. The combination of the two documents is always needed.

It is recommended that each of the additional pages contain a small header with make, model, type and validity.

5.1 Chapter 1 – Identification / Recognition

1. Identification / recognition

When applicable, please start with the following warning (for Electrified vehicles):

LACK OF ENGINE NOISE DOES NOT MEAN VEHICLE IS OFF: SILENT MOVEMENT OR INSTANT RESTART CAPABILITY EXISTS UNTIL VEHICLE IS FULLY SHUT DOWN. WEAR APPROPRIATE PPE.

Focus on the following key points:

- General safety remarks are needed to approach safely the vehicle and give the possibility to identify/recognise safely the vehicle model
- All relevant information with applicable symbols/drawings/pictures/photos for the full identification of the vehicle. Information concerning symbols, model name, etc. on the vehicle, such as brand logo, model logo
- Information to identify the propulsion system:
 - Information of what to identify under the bonnet
 - Information of what to identify on the dashboard
 - Specific information to recognise this vehicle (e.g., hybrid, EV, FCEV, or other identification)
 - Specific Rechargeable Energy Storage System (REESS) or alternative propulsion fluid / energy source
 - Identification of the type of battery: chemistry family, voltage class, location in vehicle
 - Drawing of the commercial vehicle with the ISO 17840 part 4 pictograms

5.1.1 Chapter 1 – Example

1. Identification / recognition



Source: IVECO



Energy storage
device



Vehicle propulsion
energy

Figure 5-2 Example of identification / recognition

5.2 Chapter 2 – Immobilisation / Stabilisation / Lifting

2. Immobilisation / stabilisation / lifting

Show relevant information for immobilisation and/or stabilisation actions on/around the vehicle

- Provide images/illustrations of these elements,
- Identify appropriate vehicle specific stabilisation-lifting points,
- Identify prohibited vehicle specific stabilisation-lifting points.

It is recommended to separate the two main items, as follows:

A. IMMOBILISE THE VEHICLE

Generally, recommend to:

- Block the wheels
- Set the parking brake
- Use pictures to show parking brake

B. LIFTING POINTS

Use the titles above (A and B) to be consistent with other Rescue Sheets.

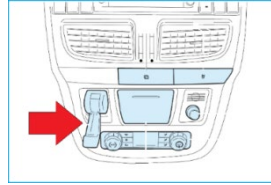
5.2.1 Chapter 2 – Example

2. Immobilisation / stabilisation / lifting

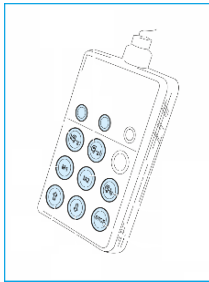
A. IMMOBILISE THE VEHICLE.

1 Chock wheels

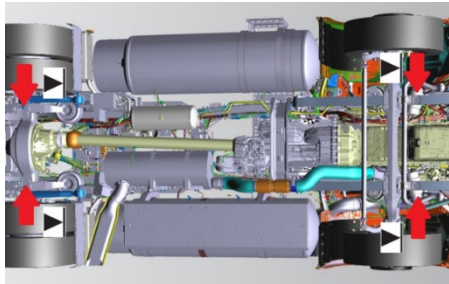
2 Put vehicle in neutral and set up parking brake



B. LIFTING POINTS



Use remote controller (inside the cab close to driver seat) to discharge the air from pneumatic suspensions



Use these lifting points if needed

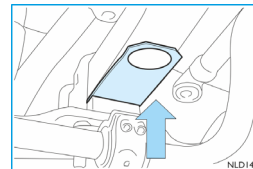
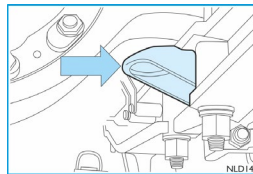




Figure 5-3 Example of Immobilisation / Stabilisation / Lifting

5.3 Chapter 3 – Disable Direct Hazards / Safety Regulations

3. Disable direct hazards / safety regulations

Focus on the following key points:

- Use as little text as possible to avoid language difficulties. Extensive use of the pictograms from ISO 17840 – Part 3 is recommended. These pictograms can be on the left side of the page to symbolise the actions to take and where to do them (see example on next page).
- It is important as well to define if the disabling process needs to be done with PPE, or not. Extra care should be taken of the correct use of the following pictograms (ISO 17840 – Part 3):

	Disconnect High Voltage Device (HVD) To identify HVD that disconnect the high voltage <u>where appropriate PPE is needed for the action</u>		Disconnect High Voltage Device (HVD)* To identify the low voltage device that disconnect the high voltage <u>(No PPE required)</u>
---	---	---	--

* the ON/OFF button or the key switch cannot be represented as well by this symbol as shown in the example on the next page.

- Generally, there are some main actions and then some different alternatives for the hazard disabling. To avoid confusion, clearly identify MAIN and ALTERNATIVE disabling methods, as follows:
 - MAIN DISABLING METHOD
 - ALTERNATIVE DISABLING METHOD(S)
 - ACCESS

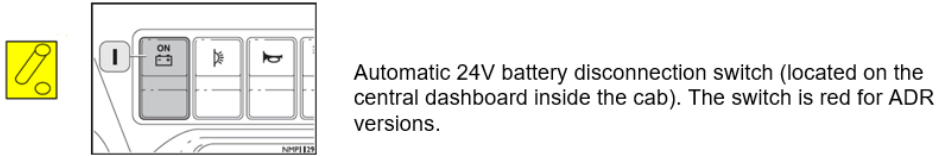
Use the text above to be consistent with other rescue sheets.

- Recommended content for this Chapter includes:
 - How to eliminate immediate danger, which safety requirements are needed
 - Including “preferred” procedure and “alternative” procedure(s) for disabling direct hazards (e.g., disabling high voltage or shutting off gas pressure)
 - Procedure when EV / PHEV are connected on charging
 - Illustrate “specific type” of disconnections, with necessary information

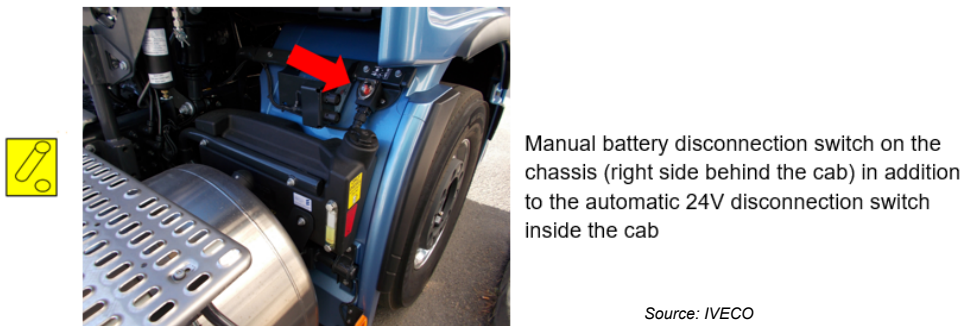
5.3.1 Chapter 3 – Example

3. Disable direct hazards / safety regulations

MAIN DISABLING METHOD



In case of ADR version an additional command may be available (optional):



Source: IVECO

ALTERNATIVE DISABLE METHODS

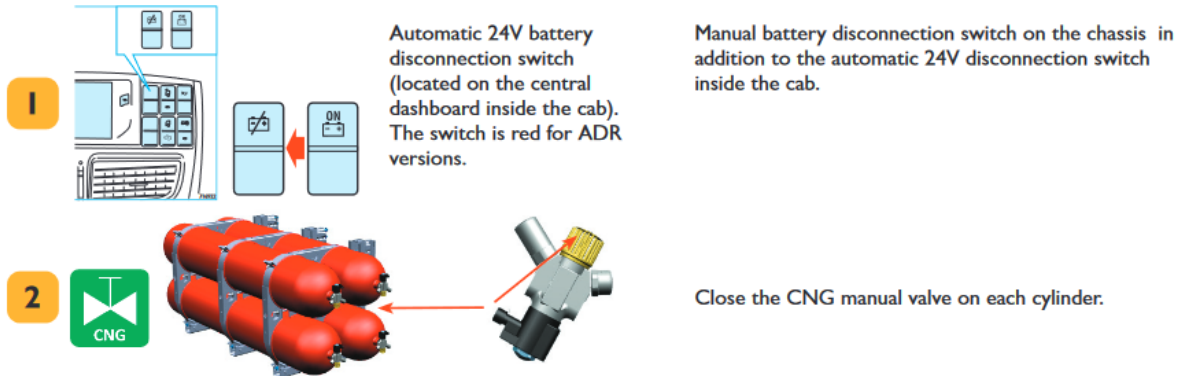


Figure 5-4 Example of main disabling method

5.4 Chapter 4 – Access to the Occupants

4. Access to the occupants

Focus on the following key points:

- Identify glass types (all windows): Laminated and Tempered glass

It is also possible to add information in this chapter in case the vehicle has specific or distinct features, that are not present or located in the same place as most other similar vehicles, or that are not operated in the usual way. For this reason, in addition to 1), information could be included, such as:

- Seat adjustment (electric/mechanical)
- Steering column adjustment
- Door latches/command
- Vehicle body: Ways of access
- Metal structure, vehicle drawing
- Special compartments (e.g., rest compartment)
- Height adjustment mechanism of vehicle chassis
- Beds, sleeping places

5.4.1 Chapter 4 – Example

4. Access to the occupants

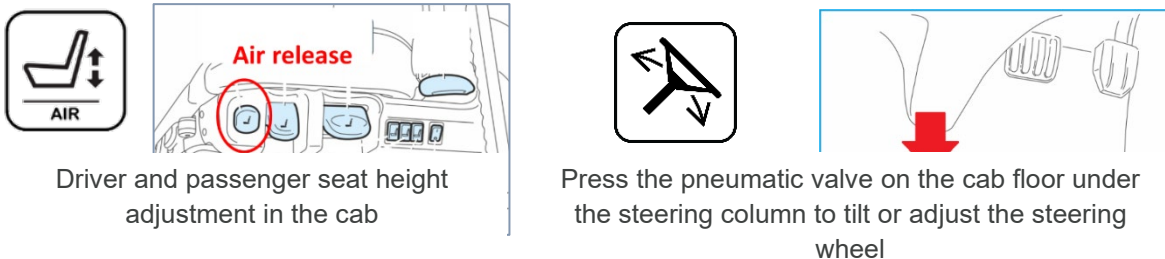


Figure 5-5 Example of Access to the Occupants

5.5 Chapter 5 – Stored Energy / Liquids / Gases / Solids

5. Stored energy / liquids / gases / solids

Primarily use pictograms here. A more detailed table will be available in the ERG, so it is not needed in the Rescue Sheet.



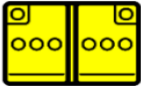









List of stored energy/ liquids/Gases/Solids with mention of the dangers with the use of ISO 17840 pictograms:

- Batteries with mention of voltage.
- Propulsion fuel tank with mention of content in litre.
- Propulsion gas tanks with mention of content in litre.
- Solar cells with mention of voltage.
- Carbon / Magnesium / Titanium used in vehicle.
- Dangers when broken/leaks/dust (e.g., Carbon fibres).
- HV battery pack coolant.
- Specific air-conditioning coolant.
- Do not mention braking fluids, motor oil, etc. if they do not present any specific hazard.

For specific materials mentioned above, the location must be displayed on the front page with a double frame rectangle and the reference to this chapter (see also Double Frame Rectangle). Mention also the type of Aircon coolant

5.5.1 Chapter 5 – Example

5. Stored energy / liquids / gases / solids

		Full body
		48 V
		400V
		700 bar
		50 l
		0,9 l



	When coolant leaks from the battery pack, it can become unstable with risk of thermal runaway. Check battery pack temperature with thermal imaging camera.	
---	--	---

Figure 5-6 Example of Stored Energy / Liquids / Gases / Solids

5.6 Chapter 6 – In Case of Fire

6. In case of fire

Focus on the following key points:

- Again, mainly use pictograms here.
- Extinguish method: recommendations specific for this type/model (e.g.)
 - Vehicle manufacturers should not recommend only one unique specialised extinguishing method/equipment that may not be available to all rescue services across Europe.
 - How to put water into the HV battery (e.g., Fireman access, direction of jet of water for better efficiency, dedicated actions when using specialised extinguishing method/equipment ...);
 - Clear warning if it is not recommended to apply a certain methodology to extinguish fire (e.g., not to put the vehicle into container with water).
- Hazards specific for this type/model.
- Hazards also after fire (e.g., Carbon Fibres, reignition).
 - Recommendations specific for this model e.g., venting direction of the CNG, LNG, LPG or H2 or of the HV battery, if any.

5.6.1 Chapter 6 – Example













Electric Powered	<div style="border: 2px solid red; padding: 5px;"> <p>6. In case of fire</p> <div style="border: 2px solid green; padding: 5px; margin-bottom: 5px;">  <p style="text-align: center;">USE LARGE AMOUNTS OF WATER</p> </div> <div style="display: flex; justify-content: space-around; align-items: center;">      </div> <div style="border: 2px solid red; padding: 5px; margin-top: 5px;">   <p style="text-align: center;">BATTERY RE-IGNITION!</p> </div> </div>
CNG Powered	<div style="border: 2px solid red; padding: 5px;"> <p>6. In case of fire</p> <p>Temperature Pressure Release Device (TPRD) opens at 110°C (loud hissing noise) 90 seconds before all CNG gas is released from a tank</p> <div style="display: flex; justify-content: space-between; align-items: center;">   </div> <div style="border: 2px solid red; padding: 5px; margin-top: 10px;">  <p style="text-align: center;">NEVER PUT WATER ON TPRD</p>  </div> </div>

Figure 5-7 Examples of In Case of Fire

Example of additional information to warn about the gas strut behaviour in case of fire:

The graphic is titled "6. In case of fire" in a red header. It contains several safety instructions and warnings:

- A blue circular icon of a water hose with the text "Use large amount of water".
- A row of five red diamond-shaped hazard icons: fire, health hazard, skull and crossbones, explosion, and environment.
- A white box with "IR" and wavy lines, and a yellow triangular warning sign with an exclamation mark, followed by the text "BATTERY RE-IGNITION!".
- A bullet point: "■ Gas Strut/ Preloaded spring".
- A red-bordered box containing a green gas strut icon and the text "Risk of missile effect of hood and tailgate".
- An overhead view of a car chassis with four green gas strut icons located at the front and rear.

Figure 5-8 Example of additional information about gas strut behaviour

5.7 Chapter 7 – In Case of Submersion

7. In case of submersion

Focus on the following key points:

- In most cases, a reference to Chapter 3 will suffice.
- Where specific functions exist in the vehicle, addition information can be presented here, such as:
 - What to do in case of immersion in water, the specific dangers.
 - Which procedure to follow concerning e.g. high voltage.

5.7.1 Chapter 7 – Example

7. In case of submersion

Wear appropriate PPE. Remove the vehicle from the water and continue with normal high voltage (see chapter 3). Vehicles submersion in salt water should be handled with a greater potential risk of a HV battery fire.

Tilt the vehicle to one side to allow water to drain out of the vehicle and the high voltage battery.

Figure 5-9 Example of In Case of Submersion

5.8 Chapter 8 – Towing / Transportation / Storage

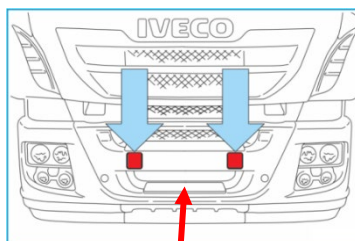
8. Towing / transportation / storage

This section is specially made for second responders like towing services, garage technicians, etc. Focus on the following key points:

- Present the location of the towing hook tool, and where to secure this tool in the vehicle (front and rear)
 - Towing/transportation method specific for this type/model or general.
 - Storage method specific for this type/model or general.
 - Hazards and recommendations specific for this type/model or general.

5.8.1 Chapter 8 – Example

8. Towing / transportation / storage



Place towing hook

STORE AT SAFE DISTANCE FROM OTHER VEHICLES!



BATTERY RE-IGNITION!

Figure 5-10 Example of Towing / Transportation / Storage

5.9 Chapter 9 – Important Additional Information

9. Important additional information

Standard information that can be displayed here is:

- Contact information manufacturer.
- Link to ERG (effective working link).

In addition, this chapter can be used to share more details about new to market technology, such as the deployed state of a new airbag system (centre or roof airbag for instance).

- Attention can be drawn to the first responders using a double frame rectangle and the reference to this chapter (or to Chapter 3) that will be displayed on the front page (see also page 11).

5.10 Chapter 10 – Explanation of Pictograms Used

10. Explanation of pictograms used

When there is enough space to fit this chapter inside the Rescue Sheet, it is good practice to insert a table with all the pictograms that are not yet presented in the legend displayed in the 1st page.

Otherwise, if not possible, insert the link to the ISO 17840 ERG where they can be displayed and defined











	Warning high voltage		Environmental hazard
	Danger of almost invisible hydrogen flames.		Flammable
	Explosive		Corrosive
	Use water to extinguish		Toxic
	General warning		Use IR camera

Figure 5-11 Example of Explanation of Pictograms Used

6 HOW TO CREATE AN EMERGENCY RESPONSE GUIDE (ERG)

The rules already defined in the Chapter Rescue Sheet are also applicable for ERG. They will not be repeated.

The ERG contains in-depth information linked to the Rescue Sheet:

- To inform if something not clear or well understood on the rescue sheet.
- To train first and second responders.
- To develop incident procedures by first and second responders.

The headings/contents of the Rescue Sheet and the ERG information must be aligned with each other, i.e. the ERG information works as an extension to the Rescue Sheet.

Some OEMs have decided that the Service Plug is not to be used to deactivate the HV in case of an accident. This is something to clearly mention in ERG, when it is the case (for example having a dedicated section starting with “For Service Maintenance only”).

6.1 Emergency Response Guide – Front Page

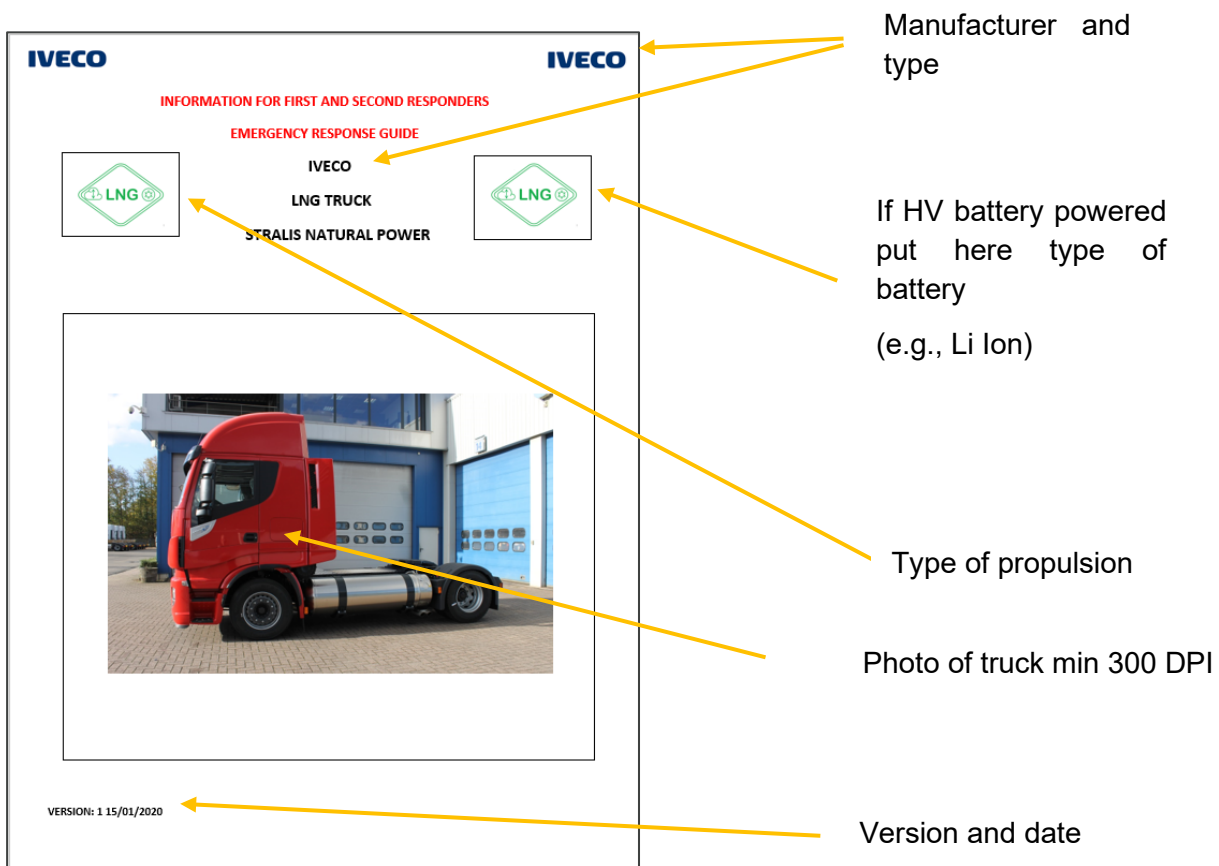


Figure 6-1 Example of Emergency Response Guide – Front Page

6.2 Emergency Response Guide – Contents

Overview of headings (RGB colours see ISO 17840 part 2, 3).

CONTENTS

0. Rescue Sheet	Page
1. Identification / recognition	Page
2. Immobilization / stabilization / lifting	Page
3. Disable direct hazards / safety regulations	Page
4. Access to the occupants	Page
5. Stored energy / liquids / gases / solids	Page
6. In case of fire	Page
7. In case of submersion	Page
8. Towing/transportation / storage	Page
9. Important additional information	Page
10. Explanation pictograms used	Page

Specific chapter in ERG

Source ISO 17840

Headings with page number filled in

Source ISO 17840

6.3 Emergency Response Guide – Chapter 0

This is chapter 0 that is meant to identify which vehicle model and thus to which rescue sheets this ERG is applicable.

Expected information: Only the first page of each Rescue Sheet or just a list, if there are too many vehicles to which this ERG is applicable.

6.4 Emergency Response Guide – Following Chapters

For each chapter, add the following key points from the ones already described in the Rescue Sheet Chapter:

- Use pictograms/drawings/pictures of the rescue sheet you have made but now given in dept information/explanation.
- These pictograms can be on the left side of the page to symbolise the actions to take and where to do them.

1. Identification / recognition

When applicable, please start with the following warning (for Electrified vehicles):

LACK OF ENGINE NOISE DOES NOT MEAN VEHICLE IS OFF: SILENT MOVEMENT OR INSTANT RESTART CAPABILITY EXISTS UNTIL VEHICLE IS FULLY SHUT DOWN. WEAR APPROPRIATE PPE.

3. Disable direct hazards / safety regulations

In addition from the TB042 rescue sheet section:

Provide detailed images of “specific type” hazards disabling, with necessary information.

- Procedure when vehicle is connected on charging.
- Provide detailed images of “specific type”, with necessary information
- How to close valves different valves.
- Provide detailed images of “specific type”, with necessary information.

4. Access to the occupants

In addition from the TB042 rescue sheet section:

- Detailed vehicle drawing with.
 - Structure
 - Thickness structure
 - Used materials structure
 - Key structure points

5. Stored energy / liquids / gases / solids

In addition from the TB042 rescue sheet section:

- List of stored energy / liquids/ gases / solids with mention of the dangers with the use of ISO 17840 pictograms:
 - Oil tanks - state capacity in litres

6. In case of fire

In addition from the TB042 rescue sheet section:

- Recommended content for this chapter includes:
 - How to eliminate immediate danger (s), which safety requirements are needed
 - Hazards specific for this type/model
 - Dangers of inhalation
- Automatic fire suppression system: when and how it works
- Treatment of wastewater
- For specific materials mentioned above, the location must be displayed on the front page with a double frame rectangle and the reference to this chapter (see also double frame rectangle)

9. Important additional information

Additional information about new and uncommon technology provided in the vehicle that has a consequence for rescue operations, e.g., LNG or hydrogen installation.

This is very important to mention, so the responder can be trained **BEFORE** and not confronted on the scene of the incident.

10. Explanation pictograms used

Explanation of all the pictograms used in the ERG.

7 GENERAL RECOMMENDATIONS

As already explained at the beginning of this document, the energy stored in the vehicle, or used to propel the vehicle is a key parameter for first responders.

For this reason, Euro NCAP requires / rewards the heavy vehicles that display the ISO 17840 Part 4 labels (diamond shape label), as well as EN 16942 Standard 2016 labels, on their vehicle, in all the specified locations.

Some labels are already imposed by Regulation, but not for all the energy and not all the locations. Euro NCAP specifies their requirement in this chapter.

As “good practice”, it can be referred to the CTIF – ISO 17840 Information packages, downloadable on the CTIF homepage. <https://ctif.org/commissions-and-groups/iso-17840-first-worldwide-firefighters-standard>.

7.1 Propulsion Energy Identification Labels

This section covers where the labels from ISO 17840 Part 4 must be placed and their dimensions.

7.1.1 Label Location

The location of the labels is chosen in such a way that the propulsion energy can be recognised at most from all sides.

For this reason, the required locations are:

- front,
- back
- and both sides

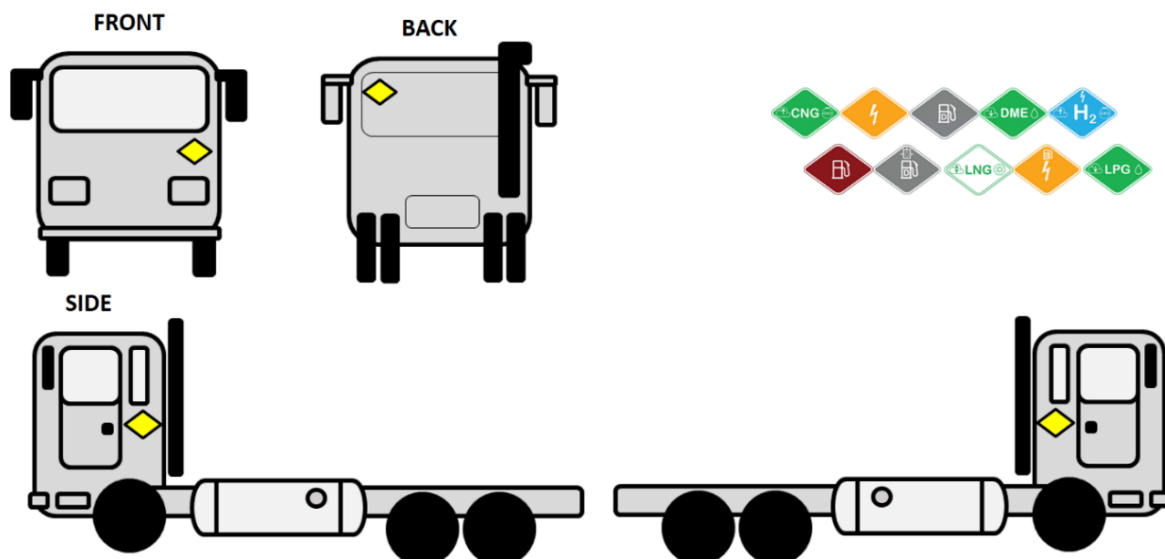


Figure 7-1 Example for one type of energy propulsion

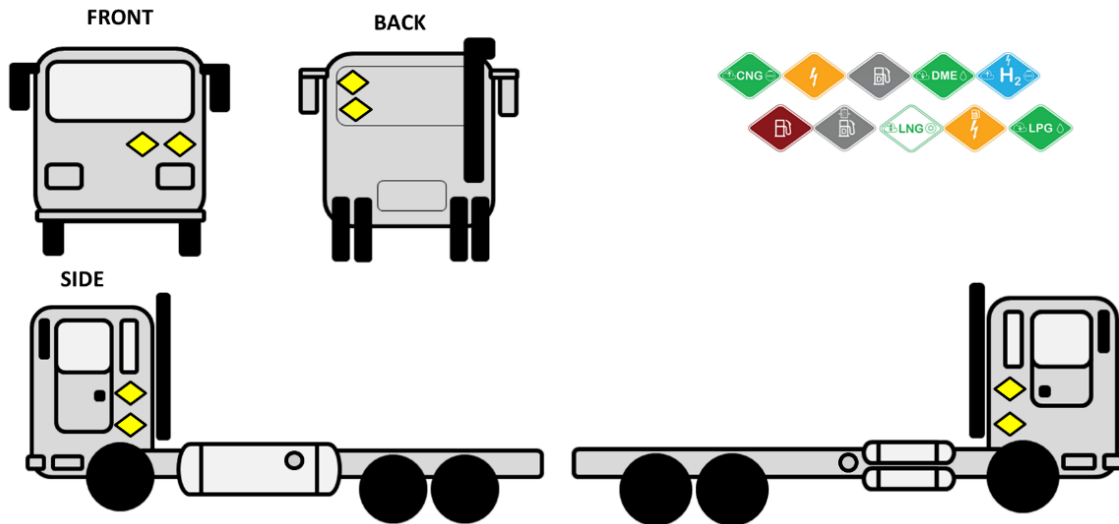


Figure 7-2 Two types of propulsion energy

7.1.2 Label Dimensions

The dimension required are the ones already used in all the UN Regulations:

- Sticker width: minimum 110 mm
- Sticker height minimum: 80 mm
- If larger, the proportion 1.4 must always be satisfied

7.1.3 Retro Reflective Characteristics

When creating a label, you should follow Regulation N 104 of the Economic Commission for Europe of the United Nations (UN/ECE) — Uniform provisions concerning the approval of retro-reflective markings for vehicles of category M, N and O, where class E should be applied. (see [https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A42014X0314\(02\)](https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A42014X0314(02))).

7.1.4 Labels to Use

Use only combinations conform to ISO 17840 part 4, of which examples are shown below:










LABEL	DESCRIPTION	REMARKS
	Electric Vehicle	Only class B voltage Not for mild hybrid (12V, 48V)
	Hybrid Electric Vehicle on fuel of liquid group 2 (Gasoline, Ethanol,)	Only class B voltage Not for mild hybrid (12V, 48V)
	Hybrid Electric Vehicle on fuel of liquid group 1 (Diesel, XTL)	Only class B voltage Not for mild hybrid (12V, 48V)
	Vehicle on Hydrogen Fuel Cell Electric Vehicle	
	Vehicle on CNG	
	Vehicle on DME	
	Vehicle on LNG (Also Bio LNG)	
	Vehicle on fuel of liquid group 1	Diesel/bio Diesel, XTL, Paraffine And also in combination with mild hybrid (12V, 48V)
	Vehicle on fuel of liquid group 1	Gasoline, Ethanol And also in combination with mild hybrid (12V, 48V)

Table 7-1 Example combinations of labels

7.2 Energy Storage Identification Labels

This section covers where the labels from EN 16942 must be placed and their dimensions.

7.2.1 Label Location

The labels are to be placed on all the energy storage devices, as well as on the covers whenever the energy storage device is mounted behind.

7.2.2 Label Dimension

For round labels as well as square & lozenge shape labels, the minimum height of the sticker is 80 mm.

7.2.3 Labels to Use

Use only the labels as defined in the European legislation EN 16942 Standard 2016, following the EU directive 2014/94/EU.








Fuel category		Labelling EN 16942:2016
Petrol type fuel	>5% Ethanol	
	>10% Ethanol	
	>85% Ethanol	
Diesel type of fuel	>7% Biodiesel	
	>10% Biodiesel	
	>20% Biodiesel	
	>30% Biodiesel	
	>100% Biodiesel	
Paraffinic diesel fuel		
Gaseous fuels	Hydrogen fuel	
	Compressed Natural Gas	
	Liquefied Petroleum Gas	
	Liquefied Natural Gas	

Table 7-2 Labels to use

8 NAMING OF RESCUE SHEET

The OEM must ensure that the filename of a rescue sheet and the vehicle picture follows the exact Euro NCAP naming convention in order for it to be accepted and automatically uploaded to the Euro Rescue App. A simple Excel file naming tool with drop down menus is available for download from the Euro NCAP website: www.euroncap.com/en/for-engineers/supporting-information/ . This file can be used as a guide to generate the correct filename when using the drop down menus to describe the particular model covered by the rescue sheet.

For the exact process to apply please refer to TB030.