INTERNATIONAL STANDARD

ISO 17840-1

Second edition
2022-02

Road vehicles — Information for first and second responders —

Part 1: Rescue sheet for passenger cars and light commercial vehicles

Véhicules routiers — Information pour les premiers et seconds intervenants —

Partie 1: Fiche de secours pour véhicules particuliers et pour véhicules utilitaires légers

Reference number
ISO 17840-1:2022(E)

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Published in Switzerland

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Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular, the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see www.iso.org/patents).

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation of the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT), see www.iso.org/iso/foreword.html.

This document was prepared by Technical Committee ISO/TC 22 *Road vehicles*, Subcommittee SC 36, *Safety and impact testing*.

This second edition cancels and replaces the first edition (ISO 17840-1:2015), which has been technically revised.

The main changes are as follows:

— replacing the pictograms with a reference to the pictograms in ISO 17840-3:2019, Annex B;

— removing the fixed legend of pictograms on front page of rescue sheet with a legend consisting of the pictograms used in the respective rescue sheet, or optionally providing the legend in an alternative way in an electronic application;

— replacing Annex E with Annex C providing specified headings for additional page(s) of rescue sheet, linking to emergency response guide information according to ISO 17840-3;

— addition of provision for communication of the propulsion identification according to ISO 17840-4 in the rescue sheet.

A list of all parts in the ISO 17840 series can be found on the ISO website.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

Introduction

This document provides necessary and useful information about a vehicle involved in an accident to support the rescue team (or first responders) extricating the occupants as fast and as safely as possible. The information is provided to ensure that rescue teams are aware of special design elements and position of components to be considered.

Information used for training, where the rescue teams have time to go into the details and learn the generic approach and where to find and how to read the specific information that will be needed in case of an accident are not in the scope of this document.

This document has been created in order to cover the following types of vehicle propulsion:

— conventional powertrains (diesel, gasoline);

— liquefied petroleum gas (LPG);

— compressed natural gas (CNG);

— electric;

— hybrid electric;

— fuel cell electric.

NOTE 1 A full set of pictograms for use in the rescue sheet is provided in ISO 17840-3.

NOTE 2 The template for structuring in-depth rescue information is given in ISO 17840-3.

NOTE 3 Information related to propulsion energy identification is given in ISO 17840-4.

Road vehicles — Information for first and second responders —

Part 1: Rescue sheet for passenger cars and light commercial vehicles

1 Scope

This document defines the contents and the layout of the rescue sheet providing necessary and useful information about a vehicle involved in an accident to support the rescue team extricating the occupants as fast and as safe as possible.

This document is applicable to passenger cars and light commercial vehicles according to ISO 3833.

The identification of the vehicle and of the model through a database using the license plate, the VIN number, an automatic emergency call system (e.g. eCall) or other identifiers (e.g. bar code or QR code) is not covered by this document.

The rescue process or the process of handling the rescue sheets is not covered by this document.

This document does not cover information related to education and training for rescue teams.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 17840-3:2019, *Road vehicles — Information for first and second responders — Part 3: Emergency response guide template*

ISO 17840-4, *Road vehicles — Information for first and second responders — Part 4: Propulsion energy identification*

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

ISO and IEC maintain terminology databases for use in standardization at the following addresses:

— ISO Online browsing platform: available at https://www.iso.org/obp

— IEC Electropedia: available at https://www.electropedia.org/

3.1
airbag
airbag assembly
airbag module consisting of at least an inflator and a bag for all airbag applications

Note 1 to entry: Applications include, for example, front airbag, seat-mounted side airbag, knee airbag, inflatable curtain, inflatable seat belt, airbag as part of *pedestrian protection active system* (3.14).

3.2
stored gas inflator
airbag inflator
device to create the gas (e.g. pyrotechnic), or storage for gas, used to inflate *airbags* (3.1) or other protection devices

Note 1 to entry: The term is used when necessary in conjunction with protection systems where the inflator is not an integrated part of the *airbag assembly* (3.1), e.g. for inflatable curtain, knee airbag, or *pedestrian protection active system* (3.14).

3.3
low-voltage battery
LV battery
power source for the *low-voltage system* (3.13)

Note 1 to entry: The voltage of the low-voltage battery can be for example 12 V, 24 V or 48 V.

3.4
compressed natural gas
CNG
natural gas which has been compressed and stored for use as a vehicle fuel

[SOURCE: ISO 15500-1:2015, 3.2]

3.5
fuel tank
tank containing liquid fuel (e.g. gasoline or diesel) under normal atmospheric pressure

3.6
gas tank
tank containing pressurised gas (e.g. CNG or LPG)

3.7
gas strut
pressurised device designed to actuate hatch, hood, door, trunk lid, or active head restraints

Note 1 to entry: This device can be of danger when directly cut during an extrication or put into pressure during a fire.

Note 2 to entry: This device can be triggered by the SRS control unit.

3.8
preloaded spring
mechanically compressed device designed to actuate hatch, hood, door, trunk lid, or active head restraints

Note 1 to entry: This device can be of danger when directly cut during an extrication.

Note 2 to entry: This device can be triggered by the SRS control unit.

3.9
high-voltage system
HV system
class B voltage system
classification of an electric component or circuit with a maximum working voltage of (>30 and ≤1 000) V a.c. (rms) or (>60 and ≤1 500) V d.c. respectively

[SOURCE: ISO 6469-4:2015, 3.18, modified — The terms "high-voltage system" and "HV system" have been added.]

3.9.1
high-voltage battery
HV battery
traction battery for vehicle *high-voltage system* (3.9)

Note 1 to entry: The traction system can consist of one or several batteries also referred to as HV battery pack(s).

3.9.2
fuse box disabling high voltage
box containing fuses or devices for disabling the vehicle *high-voltage system* (3.9)

3.9.3
high-voltage disconnect
HV disconnect
feature for disabling the vehicle *high-voltage system* (3.9.)

Note 1 to entry: High-voltage disconnect can be a service plug or other features specified by the vehicle manufacturer.

3.9.4
high-voltage power cable
high-voltage component
HV power cable
HV component
cable or component for vehicle *high-voltage system* (3.9)

3.10
left-hand drive
LHD
left position of the steering wheel in the vehicle

3.11
right-hand drive
RHD
right position of the steering wheel in the vehicle

3.12
liquefied petroleum gas
LPG
mixture of light hydrocarbons, gaseous under normal atmospheric conditions which can be liquefied by increased pressure or decreased temperature, the main components of which are propane, propane, butane, and butane isomers

[SOURCE: ISO 20826:2006, 3.12]

3.13
low-voltage system
LV system
class A voltage system
classification of an electric component or circuit with a maximum working voltage of ≤30 V a.c. (rms) or ≤60 V d.c. respectively

[SOURCE: ISO 6469-4:2015, 3.17]

3.14
pedestrian protection active system
protection system designed to actively (e.g. pyrotechnically) deploy parts of the vehicle in order to mitigate the injury outcome in case of a collision with a pedestrian

3.15
pictogram
graphical composition that may include a symbol plus other graphic elements, such as a border, background pattern, or colour that is intended to convey specific information

[SOURCE: ISO 11014:2009, 3.10]

3.16
reinforcement
component in the vehicle architecture intended to absorb energy or strengthen the structure that can influence the rescue process

3.17
roof cutting point
preferred area at which the roof can be cut

3.18
safety valve
shut-off valve, pressure relief device, etc. on the *gas tank* (3.6)

3.19
seat belt pretensioner
mechanism to pretension the seat belt in an impact, included in the seat belt retractor or mounted to buckle or lap-belt anchor point

3.20
SRS control unit
supplementary restraint system control unit
control unit used for the decision of triggering the supplementary restraint systems

3.21
ultra-capacitor HV
high-voltage source of energy that can be used in addition to the conventional *low-voltage battery* (3.3) or the *high-voltage battery* (3.9.1)

3.22
ultra-capacitor LV
low-voltage source of energy that can be used in addition to the conventional *low-voltage battery* (3.3) or the *high-voltage battery* (3.9.1)

3.23
emergency response guide
ERG
specific information allowing responders to take the appropriate actions in an emergency situation with regard to a certain technology or design principles

Note 1 to entry: The ERG describes first and/or second response operations, and related warnings and cautions, for a specific vehicle model, to a family of similar vehicle models, or to a certain type of vehicle technology in general.

4 Pictograms for components to be considered

4.1 Colour coding principles

Colour codes according to Table 1 are applied in this document.

Table 1 — Colour coding principles

Colour	RGB code[a]	Components/functions
Yellow	RGB: 255,255,0	Low voltage (class A voltage) electrical system/components, including SRS control unit
Orange	RGB: 255,165,0	High voltage (class B voltage) electrical system/components
Blue	RGB: 77,77,255	Occupant protection system, e.g. airbags
Purple	RGB: 152,43,143	Seat belt pretensioner
Red	RGB: 255,0,0	Surrounding colour for triggered systems e.g. airbag, airbag assembly, stored gas inflator, a triggered preloaded spring / gas strut, or a non-triggered gas strut
Lime green	RGB: 0,255,0	Gas, liquid and pre-tensioned spring components
Sea green	RGB: 0,128,128	High strength zones
Grey	RGB: 127,127,127	Liquid group 1 (diesel, bio diesel, ...) tank/lines
Dark red	RGB: 139,0,0	Liquid group 2 (petrol/gasoline, ethanol, ...) tank/lines
Green	RGB: 0,176,80	Gas tank/lines (generic)
White	RGB: 255,255,255	Cryogen gas group (LNG, ...) tank/lines
Light blue	RGB: 0,176,240	Hydrogen tank/lines
Purple	RGB: 204,0,204	Air-condition components/lines
Brown	RGB: 183,120,29	Oil tank/lines
White	RGB: 255,255,255	Air tank

[a] RGB colour components as expressed in terms of digital 8-bit per channel (from 0 to 255).

NOTE RGB colour components are also given in ISO 17840-3 for the respective pictogram.

4.2 Pictogram for rescue sheet application

Components/functions/dangers to be considered during the rescue procedure are represented by dedicated pictograms. These pictograms are used:

— to indicate the location of the respective components/functions in the vehicle, in conjunction with the rescue sheet illustration; and

— to communicate a specific function or danger, for use under the rescue sheet additional pages headings and ERG headings.

Applicable pictograms from ISO 17840-3:2019, Annex B shall be used. The principles in ISO 3864-1 should be followed to ensure that pictograms have the appropriate quality to be readable and understood.

It is possible to combine vehicle variants using liquid group 1 and 2 (as shown in Table 1) in the same rescue sheet. In this case, the propulsion energy labels for both fuels shall be presented and the liquid group 2 colour scheme shall be used in the vehicle views.

All technologies (for propulsion, safety, material, etc.) that are not directly mentioned in this document should be treated as close as possible to the known/mentioned technologies.

5 Layout and contents of a rescue sheet

5.1 General requirements

As applicable, all information of relevance for the rescuing actions shall be shown in the rescue sheet.

All components and functions that may expose the vehicle occupants or the rescue personnel to risks during the rescue process (including e.g. cutting of the vehicle) shall be identified and shown in the

