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Road vehicles — Standardized access to automotive repair and maintenance information (RMI) —

Part 6: L-Category vehicle specific RMI use cases and requirements

Véhicules routiers — Normalisation de l'accès aux informations relatives à la réparation et à la maintenance pour l'automobile (RMI) —

Partie 6: Exigences et cas d'usage RMI spécifiques aux véhicules de catégorie L



Reference number
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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.

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This document was prepared by the European Committee for Standardization (CEN) Technical Committee CEN/TC 301, *Road vehicles* in collaboration with ISO/TC 22, *Road vehicles*, Subcommittee SC 31, *Data communication*, in accordance with the Agreement on technical cooperation between ISO and CEN (Vienna Agreement).

A list of parts in the ISO 18541 series can be found on the ISO website.

This corrected version of ISO 18541-6:2018 incorporates the following corrections:

— Figure 9 has been replaced with the correct figure.

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Introduction

This document includes the requirements to be fulfilled by Repair and Maintenance Information (RMI) systems as applied by Reference [6].

This mandate relates to the EC type-approval system for vehicles falling into the scopes of Reference [9], Reference [7] and Reference [8] and, in particular, to requirements for access to vehicle repair and maintenance information by independent operators.

The purpose of Reference [6] is to develop a standard or set of standards which specify the requirements to provide "standardized access to repair and maintenance information (RMI)" for independent operators.

This document covers the access to repair and maintenance information for L-category vehicles (two-wheel or three-wheel vehicles and quadricycles) based on Reference [11] and related delegated and implementing acts.

The information included in this document derives from the legislative requirements on European level in the field of repair and maintenance information and related security requirements and can be referenced by legislation in other countries.

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Road vehicles — Standardized access to automotive repair and maintenance information (RMI) —

Part 6:
L-Category vehicle specific RMI use cases and requirements

1 Scope

This document contains all elements (definitions, use cases, technical requirements, functional user interfaces requirements and conformance test cases) applicable for the standardized access to repair and maintenance information for two-wheeled and three-wheeled vehicles and quadricycles (L-category vehicles)

The development of this document has been based on ISO 18541-1, ISO 18541-2, ISO 18541-3 and ISO 18541-4. This document constitutes an adaptation of standardized access to RMI prescriptions for passenger cars to L-category vehicles keeping the objectives and principles of the mandate M/421 from the European commission.

This document references the usage of a Digital Annex of standardized search terms for RMI. The provision of such a Digital Annex will follow the process described in ISO 18542.

CEN will nominate a Registration Authority according to ISO 18542 for the creation and maintenance of an appropriate Digital Annex.

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 18541-1:2014, *Road vehicles — Standardized access to automotive repair and maintenance information (RMI) — Part 1: General information and use case definition*

ISO 18541-2:2014, *Road vehicles — Standardized access to automotive repair and maintenance information (RMI) — Part 2: Technical requirements*

ISO 18541-3:2014, *Road vehicles — Standardized access to automotive repair and maintenance information (RMI) — Part 3: Functional user interface requirements*

ISO 18541-4:2015, *Road vehicles — Standardized access to automotive repair and maintenance information (RMI) — Part 4: Conformance test*

ISO 22900-2, *Road vehicles — Modular vehicle communication interface (MVCI) — Part 2: Diagnostic protocol data unit application programming interface (D-PDU API)*

SAE J2534-1[1)], *Recommended Practice for Pass-Thru Vehicle Programming*

SAE J2534-2[1)], *Optional Pass-Thru Features*

1) http://store.sae.org/

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3 Terms, definitions and abbreviated terms

3.1 Terms and definitions

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

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

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

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

3.1.1
access levels
one of the levels of access to RMI

Note 1 to entry: Two access levels are defined by this document: an access to RMI relevant to security and another one to RMI not relevant to security.

EXAMPLE One can consider an access to RMI relevant to security and another one to RMI not relevant to security. They represent two different access levels.

3.1.2
accessories
supplementary features and components selected by a vehicle owner to enhance safety, performance, comfort, etc. and whose fitting does not impact the vehicle approval

3.1.3
alternate fuel
type of fuel that is either gaseous at atmospheric temperature and pressure or substantially non-mineral oil derived

3.1.4
alternative fuels retrofit systems
engine systems mounted on an already registered *vehicle* (3.1.54) for the purpose of operation with alternative fuels

3.1.5
alternative fuels system manufacturer
manufacturer (3.1.29) of an engine system operating with an alternative fuel

3.1.6
appropriate software level
applicable software version for the individual *vehicle* (3.1.54)

3.1.7
authorized repairer
AR
provider of repair and maintenance services for motor vehicles operating within the distribution system set up by a supplier of motor vehicles

Note 1 to entry: See Reference [10].

3.1.8
base vehicle
type-approved motor vehicle used at the initial stage of a multi-stage type-approval process

Note 1 to entry: A base vehicle may be a complete or an *incomplete vehicle* (3.1.18).

3.1.9
certificate
electronic document which uses a digital signature to bind a public key with an identity

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3.1.10
complete vehicle
vehicle (3.1.54) which needs not to be completed in order to meet the relevant technical requirements for type-approval in the European Union

Note 1 to entry: Adopted from Reference [11].

Note 2 to entry: Requirements for European type-approval may be in Reference [11] or in any of the delegated or implementing acts adopted pursuant to this Regulation where those acts make express provision for so doing.

3.1.11
completed vehicle
vehicle (3.1.54), resulting from the process of multi-stage type-approval, which meets the relevant technical requirements for type-approval in the European Union

Note 1 to entry: A completed vehicle is also a *complete vehicle* (3.1.10).

Note 2 to entry: Adopted from Reference [11].

Note 3 to entry: Requirements for European type-approval may be in Reference [11] or in any of the delegated or implementing acts adopted pursuant to this Regulation where those acts make express provision for so doing.

3.1.12
component
device subject to the requirements for type-approval in the European Union or any of the delegated or implementing acts adopted pursuant to this Regulation, which is intended to be part of a *vehicle* (3.1.54) and which can be type-approved independently of a vehicle in accordance with this Regulation and the delegated or implementing acts adopted pursuant to this Regulation where those acts make express provision for so doing

Note 1 to entry: Adopted from Reference [11].

Note 2 to entry: Requirements for European type-approval may be in Reference [11] or in any of the delegated or implementing acts adopted pursuant to this Regulation where those acts make express provision for so doing.

3.1.13
detailed diagnosis
diagnostic process that identifies, with precision, potential malfunction causes

Note 1 to entry: A precise diagnosis may be achieved in several steps, whereby the user may be requested to perform test actions on the vehicle or to enter symptoms.

3.1.14
diagnostic information
description of an error or symptom and a list of potential causes or hints for further investigation to the same level and content as provided to AR

3.1.15
diagnostic trouble code
DTC
numeric or alphanumeric identifier which identifies or labels a malfunction[SOURCE: Reference [12], modified]

3.1.16
electronic maintenance history
digital *information package* (3.1.23) with virtual stamps that confirms the execution of the prescribed maintenance actions according to the VM's schedule

3.1.17
final manufacturer
manufacturer (3.1.29) responsible for the type approval of a *complete vehicle* (3.1.10) or *completed vehicle* (3.1.11) in a multi-stage type-approval

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3.1.18
incomplete vehicle
vehicle (3.1.54) which undergoes at least one further stage of completion in order to meet the relevant technical requirements for type-approval in the European Union

Note 1 to entry: Adopted from Reference [11].

Note 2 to entry: The technical requirements for type-approval in the European Union may be in Reference [11] or in any of the delegated or implementing acts adopted pursuant to this Regulation where those acts make express provision for so doing.

3.1.19
independent operator
IO
undertakings other than authorized dealers and repairers which are directly or indirectly involved in the repair and maintenance of motor vehicles, in particular repairers, *manufacturers* (3.1.29) or distributors of repair equipment, tools or spare parts, publishers of technical information, automobile clubs, roadside assistance operators, operators offering inspection and testing services, operators offering training for installers, manufacturers and repairers of equipment for alternative fuel vehicles

Note 1 to entry: Undertaking is to be understood as the company or legal entity.

3.1.20
IO approval
process by which, upon payment of a reasonable and proportionate fee, the CAB sanctions or approves a legitimate commercial enterprise to engage in security-related RMI activities

3.1.21
IO authorization
process based on the inspection performed by the CAB that assesses an individual employee of an approved IO company is entitled to be given access to security-related RMI and to be provided with a securehardware token containing a personal digital certificate and a PIN issued by a designated Trust Center

Note 1 to entry: As part of this authorization, the individual employee will be allocated, upon payment of a (reasonable and proportionate) fee, a secure hardware token containing a personal digital *certificate* (3.1.9) and a PIN that will be supplied by the Trust Centre.

3.1.22
IO legal representative
natural person empowered to legally represent the IO in all aspects of the access to vehicle RMI

3.1.23
information package
collection of information provided by the *MA RMI system* (3.1.30) in response to a specific request

3.1.24
information type
category, group or set of information

EXAMPLE *Workshop procedures* (3.1.57) (for body repair, temporary repair, periodic technical inspection), wiring diagrams, *technical service bulletins* (3.1.52), recall information and maintenance information.

3.1.25
integrated diagnostics
process which interprets via an integrated application the memory content of ECUs and provides a diagnostic and repair recommendation

Note 1 to entry: Diagnostic application and *MA RMI system* (3.1.30) cooperate online, so technical information is provided during the diagnostics process and used for the diagnostic steps.

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3.1.26
IO employee
natural person employed by the *IO* (3.1.19)

3.1.27
maintenance history
history of the performed, prescribed actions for maintaining a *vehicle* (3.1.54)

EXAMPLE Oil changes and other periodic maintenance.

3.1.28
maintenance schedule
prescribed sequence of maintenance actions for a *vehicle* (3.1.54) following the requirements of the *manufacturer* (3.1.29)

3.1.29
manufacturer
MA
any natural or legal person who is responsible to the approval authority for all aspects of the type-approval or authorisation process, for ensuring conformity of production and who is also responsible for market surveillance concerns for the *vehicles* (3.1.54), systems, *components* (3.1.12) and *separate technical units* (3.1.49) produced, whether or not the natural or legal person is directly involved in all stages of the design and construction of the vehicle, system, component or separate technical unit which is the subject of the approval process[SOURCE: Reference [11], modified]

3.1.30
manufacturer repair and maintenance information system
MA RMI system
information system by which the *manufacturer* (3.1.29) provides access to RMI through a website

3.1.31
multi-stage vehicle
complete vehicle (3.1.10) manufactured and type-approved in two or more stages by usually different *manufacturers* (3.1.29) per stage

3.1.32
on-board diagnostics
OBD
system on board of a *vehicle* (3.1.54) or engine which has the capability of detecting malfunctions, and, if applicable, of indicating their occurrence by means of an alert system, of identifying the likely area of the malfunctions by means of information stored in computer memory, and/or communicating that information off-board

3.1.33
p-code
standardized DTC for powertrain errors

Note 1 to entry: According to ISO 15031-6.

3.1.34
partnered accessories
accessories (3.1.2) which have been tested, quality assured and certified by the *MA* (3.1.29) and for which the MA assumes product liability

3.1.35
potential repair descriptions
list of potential causes and possible actions recommended to fix a problem

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3.1.36
product identifier
manufacturer (3.1.29)-specific code or number to identify a system, *component* (3.1.12) or *separate technical unit* (3.1.49)

Note 1 to entry: Vehicle manufacturers identify their product by the *vehicle identification number (VIN)* (3.1.56).

3.1.37
product features
features of a specific *vehicle* (3.1.54) that may be used for navigation through the *MA RMI system* (3.1.30)

EXAMPLE Model name (CBR1000RR), model code (SC59), model year, ccm (1 000) engine type (two stroke cycle, four stroke cycle, etc.), transmission type (manual/automatic/CVT), final drive type (chain, shaft drive, belt, etc.).

3.1.38
product structure
inter-related set of units and sub-units in which a *vehicle* (3.1.54) can be divided

Note 1 to entry: The product structure is *manufacturer* (3.1.29)-specific.

3.1.39
periodic technical inspection service
PTI service
particular procedure for testing a *vehicle* (3.1.54) during a PTI

EXAMPLE Procedure for testing brake lights.

3.1.40
recall
process where a *MA* (3.1.29) notifies all owners of a specific *vehicle* (3.1.54) of a condition or defect that could affect safety, safe operation or environmental issues of the vehicle

3.1.41
redistributor
IO offering RMI within their own internal (closed) network

EXAMPLE RAC, ADAC, garage networks.

3.1.42
remanufacturing
process of overhauling an engine, major assembly or *component* (3.1.12), to return the engine, major assembly or component to the *MA* (3.1.29) original specification

3.1.43
repair and maintenance information
RMI
all information required for diagnosis, servicing, inspection, periodic monitoring, repair, re-programming or re-initialising of a *vehicle* (3.1.54) and which *manufacturers* (3.1.29) provide to their authorized dealers and repairers, including all subsequent amendments and supplements to such information

Note 1 to entry: That information includes all information required for fitting of parts and equipment on vehicles.

[SOURCE: Reference [11], modified]

3.1.44
republisher
IO who publishes RMI to an external network using the RMI of the *MA* (3.1.29)

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3.1.45
security framework
set of processes, roles and technical devices for access to security-related RMI recommended by the EC Forum on Vehicle RMI to the EC as mandated in Reference [11]

Note 1 to entry: The framework is based on the approval and authorization of *independent operators* (3.1.19) by certified entities to access *security-related RMI* (3.1.46) at the *MA RMI system* (3.1.30). The physical access to the MA RMI system for security-related RMI is bound to a digital *certificate* (3.1.9).

3.1.46
security-related RMI
RMI subject to protection measures in the *security framework* (3.1.45)

3.1.47
security repair and maintenance information
SERMI
de-facto association founded by *IO* (3.1.19) and *MA* (3.1.29) organisations to act as the owner for the process and scheme defined in the *EC Forum for Access to Vehicle RMI, Report on Access to security-related RMI, version 1.1*

3.1.48
selection methods
possible methods to select RMI

EXAMPLE Searches for a term in the document titles, *information type* (3.1.24), document ID or other criteria.

3.1.49
separate technical unit
device subject to the relevant technical requirements for type-approval in the European Union or any of the delegated or implementing acts adopted pursuant to this Regulation and intended to be part of a *vehicle* (3.1.54), which may be type-approved separately, but only in relation to one or more specified types of vehicle, where those acts make express provision for so doing

Note 1 to entry: Adopted from Reference [11].

Note 2 to entry: The technical requirements for type-approval in the European Union may be in Reference [11] or in any of the delegated or implementing acts adopted pursuant to this Regulation where those acts make express provision for so doing.

3.1.50
standardized non-proprietary VCI functionality
current standards for communication with a *vehicle* (3.1.54)

EXAMPLE ISO 22900-2 and SAE J2534–1/-2.

3.1.51
system
assembly of devices combined to perform one or more specific functions in a *vehicle* (3.1.54) and which is subject to the requirements of the European Union or any of the delegated or implementing acts adopted pursuant to this regulation

Note 1 to entry: Adopted from Reference [11].

Note 2 to entry: The technical requirements for type-approval in the European Union may be in Reference [11] or in any of the delegated or implementing acts adopted pursuant to this Regulation where those acts make express provision for so doing.

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3.1.52
technical service bulletin
TSB
bulletin issued by the *manufacturer* (3.1.29) detailing a fix for a known concern

Note 1 to entry: The bulletin is for informational purposes only.

3.1.53
temporary repair procedure
temporary solution to a problem that is usually made available to roadside services

EXAMPLE Change the brake light.

3.1.54
vehicle
any vehicle falling under the categories L1 to L7

3.1.55
vehicle communication interface functionality
VCI functionality
set of functions to provide communication between vehicle systems and a software application for diagnostics or reprogramming according to the technical requirements specified in this document

3.1.56
vehicle identification number
VIN
unique 17 characters serial number, given by the vehicle *manufacturer* (3.1.29) to identify individual motor vehicles

3.1.57
workshop procedure
information provided by a *manufacturer* (3.1.29) describing a specific repair and maintenance

EXAMPLE Repair procedures, working advices or other instructions.

3.2 Abbreviated terms

API	application programming interface
AR	authorized repairer
BP	basic principle
CAB	conformity assessment body
CSP	certificate status protocol
DB	database
DLC	data link cable
DLL	dynamic link library
D-PDU	diagnostic – protocol data unit
DTC	diagnostic trouble code
DVD	optical disc storage media format
ECU	electronic control unit

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