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Part 1:
General information and use case definition

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

Partie 1: Informations générales et définitions de cas d'usage

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ISO copyright office
CP 401 • Ch. de Blandonnet 8
CH-1214 Vernier, Geneva
Phone: +41 22 749 01 11
Fax: +41 22 749 09 47
Email: copyright@iso.org
Website: www.iso.org

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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 31, *data communication*.

This second edition cancels and replaces the first edition (ISO 18541-1:2014), which has been technically revised.

The main changes compared to the previous edition are as follows:

— Security-related RMI according to SERMI scheme moved to normative Annex A;

— Correction of errors and improvement of formulations in the entire document.

A list of all parts in the ISO 18541 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

The series of standards ISO 18541 includes the requirements to be fulfilled by Repair and Maintenance Information (RMI) systems as applied by the European Commission — Enterprise and Industry Directorate-General, Consumer goods — Automotive industry EC mandate M/421[4], dated Brussels, 21 January 2008.

This mandate relates to the EC type-approval system for vehicles falling into the scopes of Directives 70/156/EEC (replaced by 2007/46/EC [7]), 2002/24/EC (replaced by (EU) 168/2013 [5]) and 2003/37/EC (replaced by (EU) 167/2013 [6]) and, in particular, to requirements for access to vehicle repair and maintenance information by independent operators.

The purpose of the EC Mandate M/421 is to develop a standard or set of standards which specify the requirements to provide standardized access to automotive repair and maintenance information (RMI) for independent operators.

The series of standards ISO 18541 only covers access to automotive repair and maintenance information for light passenger and commercial vehicles (see NOTE 1) and heavy-duty vehicles (see NOTE 2) based on Directive 2007/46/EC [7] and for two-or three-wheel vehicles and quadricycles based on regulation (EU) 168/2013 [5].

The information included in the series of standards ISO 18541 derives from the legislative requirements on European level in the field of RMI and related security requirements and can be referenced by legislation in other countries.

NOTE 1 Regulation (EC) No 715/2007 of the European Parliament and of the Council of 20 June 2007 on type-approval of motor vehicles with respect to emissions from light passenger and commercial vehicles (Euro 5 and Euro 6) and on access to vehicle repair and maintenance information and Commission Regulation (EC) No 692/2008 of 18 July 2008 implementing and amending Regulation (EC) No 715/2007 of the European Parliament and of the Council on type-approval of motor vehicles with respect to emissions from light passenger and commercial vehicles (Euro 5 and Euro 6) and on access to vehicle repair and maintenance information and amending Commission Regulation (EU) No 566/2011 of 8 June 2011 amending Regulation (EC) No 715/2007 of the European Parliament and of the Council and Commission Regulation (EC) No 692/2008 as regards access to vehicle repair and maintenance information.

NOTE 2 Regulation (EC) No 595/2009 of the European Parliament and of the Council of 18 June 2009 on type-approval of motor vehicles with respect to emissions from heavy duty vehicles (Euro VI) and on access to vehicle repair and maintenance information, Commission Regulation (EU) No 582/2011 of 25 May 2011 implementing and amending Regulation (EC) No 595/2009 of the European Parliament and of the Council with respect to emissions from heavy duty vehicles (Euro VI), and Commission Regulation (EU) No 64/2012 of 23 January 2012 amending Regulation (EU) No 582/2011 2011 implementing and amending Regulation (EC) No 595/2009 of the European Parliament and of the Council with respect to emissions from heavy duty vehicles (Euro VI).

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

Part 1: General information and use case definition

1 Scope

This document provides a general overview and structure of each part of ISO 18541. This document also describes the use cases applicable to the standardized access to automotive RMI. The use cases address real world scenarios (e.g. servicing vehicles) regarding the information access necessary to perform vehicle roadside assistance, inspection, diagnosis, repair and maintenance, including the updating and replacement of Electronic Control Units (ECU).

Furthermore, this document defines requirements for granting access to security-related RMI in Annex A following the SERMI scheme.

The RMI systems used by personnel to perform the services consist of:

— a web-based system, which provides access to RMI needed to perform the service(s);

— contact information for specific RMI;

— a security framework to protect access to security-related RMI (vehicle theft protection measures).

This document is applicable to light passenger vehicle and light commercial vehicles.

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

ISO 9594-8:2017, *Information technology — Open Systems Interconnection — Part 8: The Directory: Public key and attribute certificate frameworks*

SERMI scheme — Scheme for accreditation, approval and authorization to access security-related repair and maintenance information (created by the SERMI de-facto association); source: http://www.vehiclesermi.eu/

3 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:

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

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

3.1
access level
level of access to *RMI* (3.37) which is either related to security or not related to security

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

3.2
accessories
supplementary features and components selected by a vehicle owner to enhance safety, performance, comfort, etc. and whose fitting does not impact on the vehicle approval

3.3
alternate fuel
type of fuel that is either gaseous at atmospheric temperature and pressure or substantially non-mineral oil derived

Note 1 to entry: Adopted from Regulation (EC) 715/2007 [14].

3.4
alternate fuels retrofit systems
engine systems mounted on an already registered vehicle for the purpose of operation with *alternative fuels* (3.3)

3.5
alternative fuels system manufacturer
manufacturer of an engine system operating with an *alternative fuel* (3.3)

3.6
appropriate software level
applicable software version for the individual vehicle

3.7
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 Regulation (EC) 461/2010 Article 1 (1)(c) [9].

3.8
certificate
electronic document which uses a digital signature to bind a public key with an identity

3.9
converted vehicle
factory-produced vehicle which has been altered by the addition, deletion, substitution or modification of the body, chassis or essential parts that resembles, but is no longer identical to, the original vehicle for a special purpose e.g. to act as rescue vehicle or taxicab

3.10
detailed diagnosis
diagnostic process that identifies, with precision, potential malfunction causes

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

3.11
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 the *AR* (3.7)

3.12
diagnostic trouble code
DTC
numeric or alphanumeric identifier which identifies or labels a malfunction

Note 1 to entry: Adopted from United Nations *Global Technical Regulation* (3.14) No.°5 [15].

3.13
electronic maintenance history
digital information package with virtual stamps that confirms the execution of the prescribed maintenance actions according to the VM's schedule

3.14
global technical regulation
GTR
World-Wide Harmonized On-Board Diagnostics Global Technical Regulation No.°5

Note 1 to entry: See reference [15].

3.15
independent operator
IO
company or legal entity other than authorized dealers and repairers who is directly or indirectly involved in the repair and maintenance of motor vehicles

EXAMPLE Repairers, manufacturers 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.

3.16
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* (3.40) activities

3.17
IO authorization
process by which, upon payment of a reasonable and proportionate fee, the CAB assesses that an individual employee of an approved *IO* (3.15) complies with the requirements specified in this document and is entitled to be given access to *security-related RMI* (3.40)

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 and a PIN that will be supplied by the trust centre

3.18
IO commercial re-user
entity that is acting as a *redistributor* (3.35) or a *republisher* (3.38)

3.19
IO legal representative
natural person empowered to legally represent the *IO* (3.15) in all aspects of the access to vehicle *RMI* (3.37)

3.20
information package
collection of information provided by the *VM's RMI system* (3.48) in response to a specific request

3.21
information type
category, group or set of information

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

3.22
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 *VM RMI systems* (3.48) cooperate online, so technical information is provided during the diagnostics process and used for the diagnostic steps.

3.23
IO employee
natural person employed by the *IO* (3.15)

3.24
light commercial vehicle
motor vehicle intended for the transport of goods or passengers with a maximum mass not exceeding 3,5 tonnes

3.25
light passenger vehicle
vehicle according to category M1 (≦8 passenger seats except driver seat) in the United Nations Economic and Social Council World Forum for Harmonization of Vehicle Regulations (WP.29) TRANS/WP.29/78/Rev.2.

3.26
maintenance history
history of the performed, prescribed actions for maintaining a vehicle

EXAMPLE Oil changes and other periodic maintenance.

3.27
maintenance schedule
prescribed sequence of maintenance actions for a vehicle following the requirements of the manufacturer

3.28
on-board diagnostics
OBD
system on board a vehicle or engine which can detect malfunctions and, if applicable, of indicating their occurrence by means of an alert system, identifying the likely area of the malfunctions by means of information stored in computer memory, and/or communicating that information off-board

Note 1 to entry: Module 'A' of GTR No.°5[15] concerns the whole vehicle. By referring to that module, the OBD definition is understood as not being restricted to emissions.

3.29
partnered accessories
accessories which have been tested, quality assured and certified by the *VM* (3.47) and for which the VM assumes product liability

3.30
potential repair descriptions
list of potential causes and possible actions recommended to fix a problem

3.31
product features
features of a specific vehicle that may be used for navigation through the *VM RMI system* (3.48)

EXAMPLE Engine type (petrol/diesel), transmission type (manual/automatic).

3.32
product structure
inter-related set of units and sub-units in which a vehicle can be divided

Note 1 to entry: The product structure is VM specific.

3.33
periodic technical inspection service
PTI service
particular procedure for testing a vehicle during a PTI

EXAMPLE Procedure for testing brake lights.

3.34
recall
process whereby a *VM* (3.47) notifies all owners of a specific vehicle of a condition or defect that could affect safety, safe operation or environmental issues of that vehicle

3.35
redistributor
IO (3.15) offering *RMI* (3.37) within their own internal (closed) network

EXAMPLE RAC, ADAC, garage networks.

3.36
remanufacturing
process of overhauling an engine, major assembly or component, to return the engine, major assembly or component to the *VM*'s (3.47) original specification

3.37
repair and maintenance information
RMI
all information required for diagnosis, servicing, inspection, periodic monitoring, repair, re-programming or re-initialising of the vehicle and which the manufacturers provide for their authorized dealers and repairers, including all subsequent amendments and supplements to such information

Note 1 to entry: This information includes all information required for fitting parts or equipment on vehicles.

Note 2 to entry: Adapted from Regulation (EC) 715/2007 [14].

3.38
republisher
IO (3.15) who publishes *RMI* (3.37) to an external network using the RMI of the *VM* (3.47)

3.39
security framework
set of processes, roles and technical devices for access to *security-related RMI* (3.40)

Note 1 to entry: The framework is based on the approval and authorization of IOs to access security-related RMI at the VM RMI system. The physical access to the VM RMI system for security-related RMI is bound to a digital certificate.

Note 2 to entry: See Annex A for requirements for granting access to security-related information according to the SERMI scheme.

3.40
security-related RMI
RMI (3.36) related to vehicle theft protection measures

3.41
selection methods
possible methods of selecting *RMI* (3.37)

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

3.42
standardized non-proprietary VCI functionality
current standards for communication with a vehicle

EXAMPLE ISO 22900-2, SAE J2534–1/2.

3.43
technical service bulletin
TSB
bulletin issued by the manufacturer detailing a fix for a known concern

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

3.44
temporary repair procedure
temporary solution to a problem that is usually available at roadside services

EXAMPLE Closing the roof of a convertible.

3.45
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 requirements specified in ISO 18541-2

3.46
vehicle identification number
VIN
unique 17-character serial number given by the *VM* (3.47) to identify individual motor vehicles

3.47
vehicle manufacturer
VM
person or body who is responsible to the approval authority for all aspects of the type approval or authorization process and for ensuring conformity of production of a vehicle

Note 1 to entry: It is not essential that the person or body be directly involved in all stages of the construction of the vehicle, system, component or separate technical unit which is the subject of the approval process.

Note 2 to entry: Adapted from Directive 2007/46/EC [7].

3.48
vehicle manufacturer repair and maintenance information system
VM RMI system
information system by which the *VM* (3.47) provides access to *RMI* (3.37) through a website

3.49
workshop procedure
information provided by a *VM* (3.47) describing specific repair and maintenance

EXAMPLE Repair procedures, working advice or other instructions.

4 Abbreviated terms

AR	authorized repairer
BP	basic principle
CAB	conformity assessment body
DRP	direct re-publisher
DTC	diagnostic trouble code
ECU	electronic control unit
GTR	global technical regulations
GUI	graphical user interface
HMI	human machine interface
IO	independent operator
IR	independent repairer
MI	malfunction indicator
OBD	on-board diagnostic
PIN	personal identification number
PTI	periodic technical inspection
PTT	pass-thru tool
RMI	repair and maintenance information
SERMI	forum for access to security-related vehicle repair and maintenance information
TSB	technical service bulletin
VCI	vehicle communication interface
VIN	vehicle identification number
VM	vehicle manufacturer

5 Document overview and structure

The ISO 18541 document set provides an implementer with all documents and references required to support the implementation of the requirements related to standardized access to automotive RMI in accordance with the requirements set forth in EC mandate M/421.

— ISO 18541-1: *General information and use case definition*

This document provides an overview of the document set and structure along with the use case definitions for light passenger and commercial vehicles and a common set of resources (definitions, references) for use by all subsequent parts. The standardized access to Automotive RMI shall be implemented by the VMs in their RMI systems.