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

Part 1:
General information and use case definition

Véhicules routiers — Standardisation des accès aux informations de réparation et de maintenance pour l'automobile (RMI) —

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

ICS 43.040.15; 43.180

ISO/CEN PARALLEL PROCESSING

This draft has been developed within the European Committee for Standardization (CEN), and processed under the **CEN-lead** mode of collaboration as defined in the Vienna Agreement.

This draft is hereby submitted to the ISO member bodies and to the CEN member bodies for a parallel five-month enquiry.

Should this draft be accepted, a final draft, established on the basis of comments received, will be submitted to a parallel two-month approval vote in ISO and formal vote in CEN.

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Foreword

This document (TC 301 WI 301023.7) has been prepared by Technical Committee CEN/TC 301 "Road vehicles", the secretariat of which is held by AFNOR.

This document is currently submitted to the CEN Enquiry.

This document has been prepared under a mandate given to CEN by the European Commission and the European Free Trade Association, and supports essential requirements of EC Directive(s).

Introduction

This set of standards 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 [1]

"MANDATE TO THE EUROPEAN STANDARDIZATION ORGANISATIONS FOR STANDARDIZATION IN THE FIELD OF VEHICLE OBD, REPAIR AND MAINTENANCE INFORMATION"

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 [1], 2002/24/EC [2] and 2003/37/EC [3] and, in particular, to requirements for access to vehicle repair and maintenance information by independent operators.

This standard only covers the access to automotive repair and maintenance information[1] based on Directive 70/156/EEC [1]. The Directive 70/156/EEC [1] is replaced by 2007/46/EC [4].

The purpose of the EC Mandate M/421 [1] 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.

The information included in this part of the standard derives from the legislative requirements on European level in the field of repair and maintenance information and related security requirements.

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[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 [5] 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 [6].

1 Scope

This part of the standard includes "General Information" which provides a general overview and structure about each part of the standard. It also specifies "Use Cases" related to Repair and Maintenance Information (RMI) systems in order to standardize the access to RMI for independent operators.

The TC 301 WI 301023.7 standard is structured into four parts:

— Part 1: General information and use case definition

— Part 2: Technical requirements

— Part 3: Functional user interface requirements

— Part 4: Conformance test

This part of the standard describes the use cases applicable to the standardized access to RMI. The use cases address real world scenarios when e.g. servicing vehicles in regard to information access necessary to perform vehicle roadside assistance, inspection, diagnostic symptom analysis, repair and maintenance, including re-programming and re-calibration of Electronic Control Units (ECU).

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);

— a diagnostic system, which provides the capability to access the status of the vehicle's electronic systems with diagnosis capability and to assist in customer's vehicle symptom analysis and repair. This equipment may be comprised of a PC-compatible diagnostic application, a VCI which connects the vehicle electronic systems with the PC;

— a security framework to protect access to security related RMI;

Reading part 1 of this standard will provide an overview about the entire standard and how it applies to the automotive industry.

This part of TC 301 WI 301023.7 is applicable to light passenger and commercial vehicles (EURO 5 and EURO 6) as defined in regulation (EC) 715 /2007. Art. 2 [5].

2 Normative references

The following referenced documents are indispensable for the application 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 15031-6, *Road vehicles — Communication between vehicle and external test equipment for emissions-related diagnostics — Part 6: Diagnostic Trouble Code Definitions*

ISO 22900 (all parts), *Road vehicles — Modular vehicle communication interface (MVCI)*

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

SAE J2534-2, *Optional Pass-Thru Features*

3 Terms, definitions, symbols and abbreviated terms

3.1 Terms and definitions

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

3.1.1
Access levels
at least two levels in the VM RMI system are provided: relevant, and not relevant, to security.

3.1.2
Alternate fuels retrofit systems
are retrofit systems which use materials or substances that can be used as fuels, other than conventional fuels. Conventional fuels include: fossil fuels (petroleum (oil), coal, propane, and natural gas). Some well-known alternative fuels include biodiesel, bioalcohol (methanol, ethanol, and butanol), electricity chemically stored (batteries) or created (fuel cells), hydrogen, non-fossil methane, non-fossil natural gas, vegetable oil and other biomass sources.

3.1.3
Alternative fuels system manufacturer
manufacturers of fuel systems designed to be capable of running on at least one type of fuel that is either gaseous at atmospheric temperature and pressure, or substantially non-mineral oil derived.

3.1.4
Appropriate software level
the required software version for the individual vehicle.

3.1.5
Authorized Repairer
AR
is part of the distribution and service network of a vehicle manufacturer.

3.1.6
Certificate
contains a user´s digital identity information.

3.1.7
Converted vehicle
is a 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.

3.1.8
Diagnostic information
a 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.

3.1.9
Diagnostic trouble code
DTC
an alphanumeric identifier for a fault condition identified by the On-Board Diagnostic system. There are other words in use for this term, e.g. fault codes, error codes.

3.1.10
Direct re-publisher
//TODO: definition to be submitted as public enquiry voting comment by Independent Operators.

3.1.11
Electronic service history
is a digital information package according to the VM's schedule with virtual stamps to confirm the execution of the prescribed maintenance actions.

3.1.12
Global technical regulation
GTR
is the World-Wide Harmonized On-Board Diagnostics Global Technical Regulation.

3.1.13
Independent Operator
IO
means 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 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.

3.1.14
Information package
is a collection of information provided by the VM RMI system in response to a specific request.

3.1.15
Information type
different information categories like technical data, repair descriptions, workshop procedures, service information, required special tools, wiring diagrams.

3.1.16
Integrated diagnostics
the VM RMI system interprets via an integrated application the memory content of ECUs and gives a diagnostic and repair recommendation. Diagnostic application and VM RMI system cooperate online, so technical information is provided during the diagnostics process and used for the diagnostic steps

3.1.17
OBD
on-board diagnostics system means a system in the vehicle which has the capability of identifying the likely area of malfunction by means of fault codes stored in a computer memory. The OBD system is not restricted to emissions-related components and systems but covers all aspects of a vehicle subject to type-approval within the scope of the Regulations 715/2007 [5] and 692/2008 [6].

3.1.18
Partnered accessories
accessories which have been tested, quality assured and certified by the VM and for which the VM assumes product liability.

3.1.19
Potential repair descriptions
a list of potential causes and possible actions recommended to fix a problem.

3.1.20
Precise diagnosis
the VM system gives a detailed diagnostic to identify potential problem causes. This can be done through many steps, whereby the user may be requested to perform test actions on the vehicle or to enter symptoms.

3.1.21
Product features
features of a specific vehicle e.g. type of gearbox, air conditioning etc. May be used for navigation through the VM RMI system.

3.1.22
Product structure
the vehicle is divided in units like engine or chassis. These units are further sub-divided into units like engine block, oil pan, etc. The product structure is VM-specific and the navigation follows these divisions.

3.1.23
P-code
standardized DTC for powertrain errors according to ISO 15031-6.

3.1.24
Periodic Technical Inspection service
PTI service
procedure for testing a vehicle within the scope of a PTI (e.g. test of the brake lights).

3.1.25
Recall
takes place when a VM notifies all owners of a specific vehicle of a condition or defect that could affect safety or safe operation of the vehicle. Work dictated by a recall is completed at no charge for the vehicle owner.

3.1.26
Re-distributor
IO offering RMI within their own internal (closed) network e.g. RAC, ADAC, garage networks.

3.1.27
Remanufacturing
a process of overhauling an engine, major assembly or component, to return the engine, major assembly or component to the VM original specification.

3.1.28
Re-publisher
an IO offering RMI in an external (open) network.

3.1.29
Security framework
the 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 the Regulations 715/2007 [5] and 692/2008 [6]. The framework is based on the approval and authorization of independent operators by certified entities 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.

3.1.30
Security related
referring to components of the vehicle dealing with theft protection, access to the vehicle, vehicle parameters and emissions.

3.1.31
Selection methods
the user could for instance request for a term in document titles of a single type or select information by document ID or other criteria.

3.1.32
Service history
the service history allows a repairer to track the executed prescribed actions for servicing a vehicle e.g. oil changes and other periodic maintenance.

3.1.33
Service schedule
a prescribed sequence of maintenance actions for a vehicle following the requirements of the manufacturer.

3.1.34
Standardized non-proprietary VCI functionality
current standards for communication with a vehicle: SAE J2534-1/-2, ISO 22900-2.

3.1.35
Technical Service Bulletin
TSB
a bulletin issued by the manufacturer detailing a fix for a known concern; the bulletin is for informational purposes only.

3.1.36
Temporary fix
is a temporary solution to a problem that is usually made available to roadside services, e.g. close the roof of a convertible.

3.1.37
Temporary repair procedure
Equivalent to temporary fix.

3.1.38
Vehicle Identification Number
VIN
a unique 17 characters serial number, given by the VM to identify individual motor vehicles.

3.1.39
Vehicle Communication Interface functionality
VCI functionality
set of functions to provide communication between vehicle systems and a software application for diagnostics or re-programming complying with SAE J2534-1 / -2 (using a device known as PTT, Pass-thru-Tool) or ISO 22900-2 (using a MVCI, Modular Vehicle Communication Interface).

3.1.40
Vehicle Manufacturer
VM
means the 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. 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 (according to Directive 2007/46/EC [4]).

3.1.41
Vehicle Manufacturer Repair and Maintenance Information system
VM RMI system
Website provided by the VM offering access to vehicle repair and maintenance information to independent operators.

3.1.42
Workshop procedure
information provided by a VM describing a specific repair and maintenance, e.g. repair procedures, working advices or other instructions.

3.2 Abbreviated terms

AR	Authorized Repairer
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
PTI	Periodic Technical Inspection
PTT	Pass-Thru Tool
RMI	Repair and Maintenance Information
TSB	Technical Service Bulletin
VCI	Vehicle Communication Interface
VIN	Vehicle Identification Number
VM	Vehicle Manufacturer

4 Document overview and structure

The TC 301 WI 301023.7 document set provides an implementer with all documents and references required to support the implementation of the requirements related to standardized access to automotive repair and maintenance information in accordance with the requirements set forth in EC mandate M/421 [1].

⎯ TC 301 WI 301023.7-1: General information and use case definitions
This part provides an overview of the document set and structure along with the use case definitions 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.

⎯ TC 301 WI 301023.7-2: Technical requirements
This part specifies all technical requirements related to a VM RMI system. These requirements will reflect the deriving needs from the use cases as specified in part 1.

The following are examples (not a complete list):

⎯ Vehicle Identification requirements,

— Product Information Structure and Navigational Pathway requirements,

— Diagnostic Configuration Scenarios and Communication Interface requirements,

— Security Access related requirements,

— Re-programming requirements,

— TC 301 WI 301023.7-3: Functional user interface requirements
This part specifies all functional user interface requirements related to a VM RMI system. These requirements will reflect the deriving needs from the use cases as specified in part 1.

The following are examples (not a complete list):

— How a user performs login and authenticates himself,

— How a user specifies the vehicle make, vehicle model, model year, etc. This can be achieved by VIN entry or optionally selection of product features,

— How a user navigates through the product information structure,

— How a user specifies RMI search criteria from a list of standardized terms across all vehicle manufacturers;

— TC 301 WI 301023.7-4: Conformance test
This part specifies conformance test cases for a self-conformance test by the provider of the VM RMI system. The conformance test cases will follow the use case definition of part 1 as well as the requirements stated in parts 2 and 3.
The purpose of this part of the standard is to provide information to the VM RMI system provider to build and test the VM RMI system against the conformance test cases. This final step in the development process of the VM RMI system is an enabler for all providers that their VM RMI system meets a high degree of functional requirements expected by the end user.