



SLOVENSKI STANDARD

SIST EN 16652-2:2019

01-december-2019

Oprema in pribor za utekočinjeni naftni plin (UNP) - Delavnice za motorna vozila na UNP - 2. del: Usposabljanje in usposobljenost osebja

LPG equipment and accessories - Automotive LPG vehicles workshops - Part 2: Personnel competence and training

Flüssiggas-Geräte und Ausrüstungsteile - Werkstätten für Autogasfahrzeuge - Teil 2: Sachkunde und Ausbildung des Personals

Équipements GPL et leurs accessoires - Ateliers pour véhicules automobiles fonctionnant au GPL - Partie 2 : Compétences et formation du personnel

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Ta slovenski standard je istoveten z: EN 16652-2:2019

ICS:

03.100.30	Vodenje ljudi	Management of human resources
23.020.20	Posode in vsebniki, montirani na vozila	Vessels and containers mounted on vehicles
43.180	Diagnostična, vrževalna in preskusna oprema	Diagnostic, maintenance and test equipment

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EUROPEAN STANDARD

EN 16652-2

NORME EUROPÉENNE

EUROPÄISCHE NORM

June 2019

ICS 43.060.40; 43.180

English Version

LPG equipment and accessories - Automotive LPG vehicles workshops - Part 2: Personnel competence and training

Équipements GPL et leurs accessoires - Ateliers pour véhicules automobiles fonctionnant au GPL - Partie 2 : Compétences et formation du personnel

Flüssiggas-Geräte und Ausrüstungsteile - Werkstätten für Autogasfahrzeuge - Teil 2: Sachkunde und Ausbildung des Personals

This European Standard was approved by CEN on 29 April 2019.

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European foreword

This document (EN 16652-2:2019) has been prepared by Technical Committee CEN/TC 286 “Liquefied petroleum gas equipment and accessories”, the secretariat of which is held by NSAI.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by December 2019, and conflicting national standards shall be withdrawn at the latest by December 2019.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN shall not be held responsible for identifying any or all such patent rights.

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EN 16652-2:2019 (E)**Introduction**

This document does not purport to address all of the safety problems, if any, associated with its use. It is the responsibility of the user to establish appropriate health and safety practices and to ensure compliance with any national regulatory obligations.

Users should perform their own full risk assessment to address all safety problems and regulatory obligations.

Automotive LPG systems used for propulsion, if not properly installed, maintained and repaired, can generate hazard or non-compliance situations versus directives, national law or applicable standards.

It is therefore essential that personnel dealing with such systems are competent to carry out the activities associated with installation, maintenance and repair of Automotive LPG systems.

Protection of the environment is a key political issue in Europe and elsewhere. For CEN/TC 286 this is covered in CEN/TS 16765 [4] *LPG equipment and accessories — Environmental considerations for CEN/TC 286 standards*, and this Technical Specification should be read in conjunction with this standard.

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1 Scope

This document defines the competence profiles and establishes procedures for assessing the competence of persons who carry out the installation, repairing and maintaining of automotive LPG systems in workshops covered in EN 16652-1 [2].

The requirements of this document do not apply to “Car manufacturer network repairers” (see 3.8) when performing the activities of repairing, servicing and maintenance of vehicles from manufacturers for which they are authorized and duly trained.

2 Normative references

There are no normative references in this document.

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:

- IEC Electropedia: available at <http://www.electropedia.org/>
- ISO Online browsing platform: available at <http://www.iso.org/obp>

3.1 assessment

process of judging a person's competence for a defined activity

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3.2 liquefied petroleum gas (LPG)

low pressure liquefied gas composed of one or more light hydrocarbons which are assigned to UN 1011, UN 1075, UN 1965, UN 1969 or UN 1978 only and which consists mainly of propane, propene, butane, butane isomers, butene with traces of other hydrocarbon gases

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Note 1 to entry: For automotive LPG specification, see EN 589 [1].

3.3 training body

organization able to deliver training courses on specific subject according to local regulation, if applicable

3.4 authorized certification body

certification body that performs competence assessment and issues/awards certificates proving the competence of persons, according to local regulation

3.5 competence

demonstrated ability to apply knowledge and skills in a defined activity

3.6 skills

proven ability to use knowledge, know-how, personal, social and/or methodological abilities, to complete tasks and solve problems in work or study situations, in professional and personal development

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3.7

abilities

capability to apply knowledge and use know-how to carry out tasks and solve problems

3.8

car manufacturer network repairer

provider of repair and maintenance services for vehicles whose personnel has been trained by the manufacturer of vehicles using automotive LPG systems

3.9

installation

mounting of specific equipment for the use of LPG in the propulsion system of a vehicle

4 Requirements for competence profiles

4.1 General

Skills are described in terms of responsibility and autonomy and can be as cognitive (involving the use of logical, intuitive and creative thinking) or practical (involving manual dexterity and the use of methods, materials, tools and instruments).

Abilities are cognitive (involving the use of logical, intuitive and creative thinking) or practical (involving manual dexterity and the use of methods, materials and tools).

4.2 Operators

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The operator is the person executing the retrofitting of vehicles and repairing, maintaining and servicing of LPG-fuelled vehicles under the supervision of the responsible technician.

NOTE Operators are still subject to national legislation requirements.
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The minimum skills, abilities and knowledge for operators are contained in Table 1.

Table 1 — Skills abilities and knowledge of operators

Technical/professional skills	Abilities	Knowledge
Operators shall able to	Relevant abilities to every skill	Relevant knowledge to every skill
1) Under technician supervision, perform the assigned tasks to install/retrofit, repair and maintain automotive LPG systems	a) To know how to perform the assigned tasks for the automotive LPG system with the appropriate tools and equipment b) To apply monitoring techniques under technician supervision c) To check equipment and tools used for routine maintenance d) To check conformity of system components	— Steps involved in installation, repair and maintenance of Automotive LPG systems and components — Diagnostic procedures and related tools — Use of diagnostic equipment and tools — Use of measurement tools — Monitoring procedures and techniques

Technical/professional skills	Abilities	Knowledge
	<p>e) To fix possible malfunctions in the automotive LPG systems based on customer complaints, under instructions from technician</p> <p>f) To collaborate with technician to identify the non-compliance causes and propose corrective actions</p>	<ul style="list-style-type: none"> — Procedures and techniques for failure detection — Risks related to incorrectly performed work or system issues on the vehicle
<p>2) Ensure the proper execution of the performed tasks and checking of the system functionality</p>	<p>a) To apply inspection techniques for vehicles</p> <p>b) To understand data and datasheets</p> <p>c) To perform leak testing of system fuel supply</p>	<ul style="list-style-type: none"> — Measurement and control tools — Diagnostic tools and techniques — Leakage testing techniques for LPG systems
<p>3) Comply with the internal procedures of the workshop and the instructions given by the technical documents of the system retrofit manufacturers and the vehicle manufacturer</p>	<p>a) To know how to use all formats of documentation (e.g. manuals, diagrams, drawings, procedures, materials list and specific instructions for the different activities)</p> <p>b) To know how to operate tools to perform specific tasks</p> <p>c) To know how to operate diagnostic tools</p>	<ul style="list-style-type: none"> — Engine and fuel systems principles, mechanisms and working parameters — Types and characteristics of the main components of fuel systems — The use of diagnostic software and hardware
<p>4) Comply with the laws and applicable regulations for workshop operations (installation, preventive maintenance and repair), including health and safety at work</p>	<p>a) To know how the law applies to single tasks and working areas</p> <p>b) To take into account measures of prevention and protection for the environment and health and safety at work</p> <p>c) To know how to recognize the components suitability and conformity</p>	<p>Basic elements of:</p> <ul style="list-style-type: none"> — applicable regulations and standards — LPG properties and characteristics — safe handling of LPG — specific risks to the health and safety at work and methods of prevention and protection

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Technical/professional skills	Abilities	Knowledge
		(especially the risk of explosion) <ul style="list-style-type: none"> — specific risks for the environment and prevention and protection methods, — technical rules concerning the approval of vehicles, components and systems — operating procedures of the relevant bodies
5) Ensure the proper disposal of replaced parts and end-of-life materials	a) To recycle materials b) To handle dangerous materials properly. c) To prevent risk for people and for the environment	Basic elements of: <ul style="list-style-type: none"> — applicable regulations and standards (e.g. 2000/53/EC) [5] — procedures for disposal and recycling

4.3 Technicians

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A technician is a person supervising the execution of the activities of retrofitting of vehicles and repairing, maintaining and servicing of LPG-fuelled vehicles, as well as assessing the compliance of materials and components used and ensuring the fulfilment of the applicable standards and regulations.

NOTE Technicians are still subject to national legislation requirements.

In addition to the minimum skills, abilities and knowledge for the operator, the following skills, abilities and knowledge contained in Table 2 are required for technicians.

Table 2 — Additional skills, abilities and knowledge of Technicians

Technical/professional skills	Abilities	Knowledge
Technicians shall be able to	Relevant abilities to every skill	Relevant knowledge to every skill
1) Plan and manage the activities of installation/retrofitting, repair and maintenance of automotive LPG systems, providing instructions, directions and information to the operators	<p>a) To apply standard operating procedures</p> <p>b) To prepare documentation, materials, equipment and tools for the different activities</p>	<p>— Planning, scheduling and timing</p> <p>— Processes, work cycles for the workshop and each step of installation, repair and maintenance of Automotive LPG systems</p> <p>— Warehouse management procedures (stock management, warehousing and material handling)</p>
2) Apply the relevant regulations and standards to the operations including safety, and take decisions accordingly	<p>a) To identify the applicable regulations and standards for automotive LPG systems and working areas</p> <p>b) To check that operators have the necessary competences and knowledge on applicable regulations, standards, procedures, contractual terms, risks associated with the task to be performed</p> <p>c) To check the prevention and protection measures for the environment and health and safety at work</p> <p>d) To assess suitability and conformity of the components based on vehicle approval requirements</p> <p>e) To interact with the responsible body for the control and testing activities, if applicable</p>	<p>Full awareness of:</p> <p>— applicable regulations and standards LPG properties and characteristics</p> <p>— safe handling of LPG</p> <p>— specific risks to the health and safety at work and methods of prevention and protection (especially the risk of explosion)</p> <p>— specific risks for the environment and prevention and protection methods,</p> <p>— technical rules concerning the approval of vehicles, components and systems</p> <p>— operating procedures of the relevant bodies</p>