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OF THE PEOPLE'S REPUBLIC OF CHINA

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Replacing QC/T 247-2002

**Technology requirements for fuel-gas system for LPG
vehicles**

液化石油气汽车燃气系统技术条件

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Table of Contents

Announcement	3
Foreword	9
1 Scope	11
2 Normative references	11
3 Terms and definitions.....	12
4 Technical requirements.....	13

Annex:

References, names and dates of implementation of 42 automotive industry standards

No.	Standard reference	Standard name	Standard reference being substituted	Date of implementation
250	QC/T 776-2017	Motor caravan	QC/T 776-2007	2017-07-01
251	QC/T 1051-2017	Coach car		2017-07-01
252	QC/T 1052-2017	Communication vehicle		2017-07-01
253	QC/T 1053-2017	Concrete spraying vehicle		2017-07-01
254	QC/T 1054-2017	Tunnel cleaning vehicle		2017-07-01
255	QC/T 1055-2017	Drainage and rescue vehicle		2017-07-01
256	QC/T 218-2017	Technical specifications for steering column upper combined switch of automobile	QC/T 218-1996	2017-07-01
257	QC/T 1056-2017	Technical requirements and test methods for automotive dual clutch automatic transmission assembly		2017-07-01
258	QC/T 245-2017	Technical specifications for isolated plant of compressed-natural-gas (CNG) automobile	QC/T 245-2002	2017-07-01
259	QC/T 247-2017	Technical specifications for isolated plant of liquefied petroleum gas	QC/T 247-2002	2017-07-01
260	QC/T 1057-2017	Car snow chains		2017-07-01
261	QC/T 1058-2017	Car fingerprint identification device		2017-07-01

273	QC/T 1060-2017	Automotive hexagonal flower flange bolts		2017-07-01
274	QC/T 1061-2017	Road transport lightweight fuel tank vehicle anti-overflow system		2017-07-01
275	QC/T 1062-2017	Road transport lightweight fuel tank vehicle unloading valve		2017-07-01
276	QC/T 1063-2017	Road transport lightweight fuel tank vehicle oil and gas recovery components		2017-07-01
277	QC/T 1064-2017	Road transport flammable liquid dangerous goods tank vehicle - breathing valve		2017-07-01
278	QC/T 1065-2017	Road transport flammable liquid dangerous goods tank vehicle - manhole cover		2017-07-01
279	QC/T 789-2017	Performance requirements and bench test methods of automobile electric vortex retarder assembly	QC/T 789-2007	2017-07-01
280	QC/T 316-2017	Bench test methods of fatigue strength for automobile service brake	QC/T 316-1999	2017-07-01
281	QC/T 201-2017	Nylon pipe joint size for automobile air brake	QC/T 201-1995	2017-07-01
282	QC/T 1066-2017	Performance requirements of cable assembly for vehicle parking brakes and bench test method		2017-07-01

Foreword

This standard was drafted in accordance with the rules given in GB/T 1.1-2009 "Directives for standardization - Part 1: Structure and drafting of standards".

This standard non-equivalently adopts the relevant provisions of the European Economic Commission of the United Nations ECFE R67 "Unified requirements on the approval of LPG special devices and motor vehicles equipped with LPG special devices" (effective from 2000-08-04).

This standard replaces QC/T 247-2002 "Technical specifications for isolated plant of liquefied petroleum gas".

As compared with QC/T 247-2002, the main changes in this standard are as follows:

- In the normative references, DELETE the standards SY 7548, QC/T 672, QC/T 675; ADD the standards GB 19159, GB 20912, QC/T 745, QC/T 769, QC/T 809, QC/T 917, GB/T 5653, GB 7258, GB 19239.
- ADD the terms and definitions for "fuel-gas system, leakage alarm device".
- In the General requirements, ADD the requirements that "the connection interface of fuel-gas system's components shall meet the requirements of GB/T 5653; the installation of gas system's components on vehicles shall meet the requirements of GB 7258, GB/T 19239 and other standards".
- MODIFY the technical requirements of "4.2.1 / 4.2.2 Components contained in fuel-gas system for LPG vehicles".
- ADD the technical requirements for such components as "4.3.1 Filling receptacle; 4.3.3 Liquid level meter; 4.3.7 LPG pipeline; 4.3.9 Leakage alarm device; 4.3.10 Harness assembly; 4.3.12 Fuel transfer switch".
- MODIFY the technical requirements for such components as "original 4.3.1 / current 4.3.2 Vehicle gas cylinders and vehicle gas cylinder accessories; original 4.3.5 / current 4.3.4 Stop valve; original 4.3.6 / current 4.3.5 Evaporative regulator".
- DELETE the technical requirements for such components as the "the original 4.3.2 Electric, pneumatic and hydraulically driven components; the original 4.3.3 Pressure sensor; the original 4.3.8 Fuel selection system and electrical wiring harness".

This standard was proposed by and shall be under the jurisdiction of the National Automotive Standardization Technical Committee (SAC/TC 114).

Technology requirements for fuel-gas system for LPG vehicles

1 Scope

This standard specifies the definition and technical requirements for fuel-gas system (hereinafter referred to as gas systems) for LPG vehicles.

This standard applies to the fuel-gas systems that use liquefied petroleum gas (hereinafter referred to as LPG) for automobiles that meets the requirements of GB 19159 and has a rated working pressure of 2.2 MPa.

2 Normative references

The following documents are essential to the application of this document. For the dated documents, only the versions with the dates indicated are applicable to this document; for the undated documents, only the latest version (including all the amendments) are applicable to this standard.

GB/T 17895 Natural gas vehicle and liquefied petroleum gas vehicle - Vocabulary

GB 17259 Steel cylinders for the liquefied petroleum gas for vehicles

GB 18299 Automotive LPG steel cylinder multivalve

GB/T 18364 Filling receptacle of LPG vehicle

GB 19159 Automotive liquefied petroleum gases

GB 19239 Mounting requirements of special equipment for gas vehicle

GB 20912 Vaporizer/pressure regulator of LPG vehicle

GB/T 5653 Flared couplings - Specification

GB 7258 Safety specifications for power-driven vehicles operating on roads

QC/T 625 Metallic coatings and conversion coatings for automobiles

QC/T 673 Solenoid valve of LPG vehicles

QC/T 745 Rubber pipelines for liquefied petroleum gas vehicles

4 Technical requirements

4.1 General requirements

4.1.1 The gas system shall be manufactured in accordance with the product drawings and other technical documents approved by the prescribed procedures; meanwhile it shall comply with the provisions of this standard.

4.1.2 The working environment temperature range that the gas system shall be able to adapt is as follows:

- a) Installed in the engine compartment, -40 °C ~ 120 °C;
- b) Install in other parts, -40 °C ~ 85 °C.

4.1.3 Components in the gas system whose normal performance and safety functions are affected by LPG fuel characteristics, high pressure or vibration, need to meet GB 17259, GB 18299, GB/T 18364, GB 20912, QC/T 673, QC/T 745, QC/T 769, QC/T 809, QC/T 917 and other standards on relevant parts and components.

4.1.4 The connection interface of gas system components shall meet the requirements of GB/T 5653; the installation of gas system components on vehicles shall meet the requirements of GB 7258, GB 19239 and other standards.

4.1.5 Of the gas system components, the materials in contact with LPG shall be compatible with LPG. If the metal material used is ferrous metal, it shall take anticorrosive measures such as electroplating, chemical treatment or painting. The coating and chemical treatment layer shall conform to QC/T 625.

4.2 System requirements

4.2.1 The fuel-gas system for LPG vehicles shall include at least the following components.

- a) Filling receptacle;
- b) Gas cylinders for vehicles;
- c) Gas cylinder accessories for vehicles;
- d) Level gauge;
- e) Stop valve;
- f) Solenoid valve;

q) Speed sensor.

4.2.3 In one of the following cases, the gas system shall be able to automatically cut off the supply of LPG.

- a) The ignition switch is not turned on;
- b) The engine is not running;
- c) The fuel line is broken, falling off, etc.

4.3 Component requirements

4.3.1 Filling receptacle

At least one filling receptacle shall be installed on a CNG vehicle. The dust cover on the filling receptacle shall be easily fixed on the vehicle. The filling receptacle shall meet the requirements of GB/T 18364.

4.3.2 Gas cylinders for vehicles and gas cylinder accessories for vehicles

4.3.2.1 The gas cylinder shall be equipped with the following accessories: limited filling valve, level gauge, safety valve, over-flow valve, electromagnetic network, etc. They may be separate or combined into an integrated valve.

4.3.2.2 If necessary, the following accessories can be equipped: fuel pump, fuel pump wire bushing, pressure relief device, check valve equipped inside the gas cylinder.

4.3.2.3 The pressure relief device shall be installed on the LPG vessel or in the LPG vessel; meanwhile the fuel shall be in a gaseous position.

4.3.2.4 The over-flow valve shall have the function of resetting after over-flow protection.

4.3.2.5 When the fuel is at the minimum level and the engine is still running, the heat dissipation of the fuel pump shall not cause the pressure relief valve to open.

4.3.3 Level gauge

The liquid level sensing mechanism of the liquid level gauge in the gas cylinder and the liquid level display part outside the gas cylinder shall be non-contact type.

4.3.4 Stop valve

When two or more gas cylinders are installed, it shall set a shut-off valve between the gas cylinders and the evaporative pressure regulator. The stop

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