AS 2746—2008

Australian Standard®

Working areas for gas-fuelled vehicles

This Australian Standard® was prepared by Committee ME-046, Gas Fuel Systems for Vehicle Engines. It was approved on behalf of the Council of Standards Australia on 17 September 2008.
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The following are represented on Committee ME-046:

- Australian Automobile Association
- Australian Chamber of Commerce and Industry
- Australian Industrial Truck Association
- Department for Administrative and Information Services, SA
- Department for Transport, Energy and Infrastructure, SA
- Department of Natural Resources and Mines, Qld
- Energy Safety, WA
- Federal Chamber of Automotive Industries
- Gas Association of New Zealand
- International Association for Natural Gas Vehicles
- Land Transport Safety Authority, New Zealand
- LPG Association of New Zealand
- LPG Australia
- Motor Trade Association, New Zealand
- Motor Traders Association of NSW
- Motor Trades Association of Australia
- Roads and Traffic Authority of NSW
- TAFE NSW
- Victorian Police

Additional Interests:

- Auckland University
- Australian Bus and Coach Association
- Gas Utilities

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Standards Australia wishes to acknowledge the participation of the expert individuals that contributed to the development of this Standard through their representation on the Committee and through the public comment period.

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Working areas for gas-fuelled vehicles

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PREFACE

This Standard was prepared by the Joint Standards Australia/Standards New Zealand Committee ME-046, Gas Fuel Systems for Vehicle Engines, to supersede AS 2746—1999, *Working areas for gas-fuelled vehicles*. After consultation with stakeholders in both countries, Standards Australia and Standards New Zealand decided to develop this Standard as an Australian Standard rather than an Australian/New Zealand Standard.

The principal change in this edition of the Standard is the introduction of workshop safety requirements when dealing with Liquefied Natural Gas (LNG) fuelled engines. The layout and content have been restructured to facilitate the introduction of requirements for working areas containing LNG fuelled vehicles.

This edition introduces a new Appendix E that exclusively deals with LNG fuel unloading methods as an addition to the requirements for CNG and LP Gas. This edition also includes a new requirement for the correct disposal and destruction of Gas Compliance Plates once a vehicle is scrapped.

The Foreword sets out certain fundamental considerations that are the basis from which this Standard was developed.

The terms ‘normative’ and ‘informative’ have been used in this Standard to define the application of the appendix to which they apply. A ‘normative’ appendix is an integral part of a Standard, whereas an ‘informative’ appendix is only for information and guidance.

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FOREWORD

PRESUMPTIONS

This Standard is based on the following presumptions:

(a) The gas fuel system of a vehicle, provided that it is in good repair and leak free, is considered not to constitute any special hazard in a normal garage or working area. Where repair work is carried out on items excluding the gas fuel system the vehicle can be treated in the same manner as any other vehicle.

(b) Because of the sequence prescribed for installation procedures and intermediate checks, gas escapes in an installation premises will be relatively minor, both in rate and duration. Standards such as AS 1668.2 and various occupational health regulations, specify ventilation rates for automotive workshops that are considerably higher than for basic human comfort. This higher rate is considered to be adequate to disperse and dilute any normal escapes of gas, and is the rate specified in this Standard.

(c) The different densities of NG and LP Gas are considered to have no effect on the required airflow rates for adequate ventilation, but where LP Gas is present the positioning of the ventilation provisions requires care, having regard to gas density being heavier than air which may gravitate to low areas. NG as a vapour is lighter than air and will rise; however, if the origin of the release is LNG, which is stored under cryogenic conditions, this may be heavier than air for a brief period, due to the extremely low temperature at which it is stored.

(d) At times it may be necessary to unload gas from a fuel container, e.g. to replace a service valve or fitting, in which case the potential for a considerable gas escape is much greater. Care is necessary to ensure safe dispersal, not only in regard to procedures, but also to the general operating area. In no circumstances is this procedure to be attempted inside a workshop.

(e) Where a vehicle that has been in service is found to have a gas escape, it cannot be allowed indoors while the escape continues.

FIRE SAFETY

Fire safety is a critical aspect of this Standard and as such incorporates a section detailing requirements for firefighting equipment.

The fire characteristics of gases, particularly LNG, differ radically from those of solids and liquids, so that conventional firefighting methods and equipment may not be useful and in some situations be counter-productive. The provision of inappropriate equipment not only represents a misdirection of effort, but more seriously a false sense of security can be generated, leading personnel to place themselves in danger.

Essential to the consideration of safety in a gaseous fire is that uncontrolled drifting vapour is very mobile; unlike liquids or solids it may travel to an ignition source. Once gas has escaped, dissipation before reaching an ignition source is essential for safety.

Separation distances and the control and elimination of possible ignition sources are vital.

Nearby fires that radiate heat are not important considerations for LNG containers. The insulation of the container will provide adequate protection for anything but the most intense fire. An LP Gas container can tolerate a certain amount of radiated heat influx, but the level is not high. Heating the container will result in an initial discharge through a safety valve or total failure of the container in extreme circumstances.

STANDARDS AUSTRALIA

Australian Standard
Working areas for gas-fuelled vehicles

SECTION 1 SCOPE AND GENERAL

1.1 SCOPE

This Standard sets out requirements for the premises, and procedures for the following types of work or activity associated with gas-fuelled vehicles:

(a) Converting and equipping vehicles to use gas such as liquefied petroleum gas (LP Gas), or natural gas (CNG and LNG) as an engine fuel.

(b) Maintenance, servicing and repairs to the gas fuel system, e.g. adjustment, maintenance and replacement of gas system componentry.

(c) Routine motor vehicle maintenance not involving the gas fuel system, e.g. lubrication, brake repair or wheel alignment, body or windscreen repairs, engine tuning.

NOTE: The operations described in Items (a) or (b) above are undertaken in a specialist gas working area, whereas Item (c) would apply to general service workshops not having any specific requirements for working with gaseous engine fuels.

1.2 OBJECTIVE

The objective of this Standard is to provide constructors, installers, servicing personnel and regulators with the requirements for working areas for gas-fuelled vehicles in order to ensure work on the vehicles is carried out in a safe manner.

1.3 NEW DESIGNS AND INNOVATIONS

Any alternative materials, equipment, designs, methods of assembly or procedures, which do not comply with specific requirements of this Standard or are not mentioned in it but which give equivalent results to those specified, may be acceptable to the Regulatory Authority.

NOTE: Regulatory Authority information is provided in Appendix A.

1.4 REFERENCED DOCUMENTS

The following Standards are referred to in this Standard:

AS

1210	Pressure vessels
1319	Safety signs for the occupational environment
1668	The use of ventilation and airconditioning in buildings
1668.2	Part 2: Ventilation design for indoor air contaminant control
1851	Maintenance of fire protection systems and equipment
2337	Gas cylinder test stations
2337.1	Part 1: General requirements, inspections and tests—Gas cylinders
2441	Installation of fire hose reels