Australian Standard™

Working areas for gas-fuelled vehicles

This Australian Standard was prepared by Committee ME/46, Gas Fuel Systems for Vehicle Engines. It was approved on behalf of the Council of Standards Australia on 16 November 1998 and published on 5 January 1999.

The following interests are represented on Committee ME/46:

Australian Automobile Association
Australian Chamber of Commerce and Industry
Australian Gas Association
Australian Liquefied Petroleum Gas Association
Box Hill Institute of TAFE
Department for Administrative and Information Services, S.A.
Department of Mines and Energy, Qld
Department of Primary Industries and Energy (Commonwealth)
Department of Transport, S.A.
Department of Urban Services, A.C.T.
Federal Chamber of Automotive Industries
Gas Association of New Zealand
Institution of Engineers Australia
Insurance Council of Australia
Land Transport Safety Authority New Zealand
LPG Association of New Zealand
Metal Trades Industry Association of Australia
Motor Traders Association of New South Wales
Motor Trade Association, New Zealand
Motor Trades Association of Australia
Office of Energy, W.A.
Vic Roads
Victoria Police
WorkCover New South Wales
Work Health Authority, N.T.

Additional interests participating in preparation of Standard:

Auckland University
Australian Bus and Coach Association
Gas Utilities

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PREFACE

This Standard was prepared by the Joint Standards Australia/Standards New Zealand Committee ME/46, Gas Fuel Systems for Vehicle Engines to supersede AS 2746—1985, *Working areas and workshops for gas-fuelled vehicles* (*known as the SAA Gas Vehicles Workshops Code*).

It was a consensus of the Joint Committee to prepare this Standard as an Australian Standard only.

This new edition of the Standard is the result of a comprehensive review and rearrangement to improve clarity. Apart from editorial changes and clarification of intent the principal areas of change from the previous edition are as follows:

(a) Incorporation of detailed requirements for CNG.

(b) Clarification of the type of work that may be undertaken in working areas.

(c) Reduction in the minimum floor area for a single vehicle.

(d) The term ‘dumping’ as a means of LP Gas fuel unloading has been retitled ‘venting’ and that Appendix expanded.

(e) An Appendix has been added to address CNG fuel unloading.

(f) Ventilation requirements for service pits have been reviewed and the dilution volume decreased. The review was based on the philosophy that a catastrophic failure of a container or a leakage rate sufficient to trigger the excess flow valve were not credible events.

A credible leakage rate was considered to be the flow from an untightened line fitting which would be visible and isolated within one minute, with discharge into a service pit of 11.25 m^3 volume. This flow was considered to be less than 2.7 mL/sec of liquid phase LP Gas.

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.

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FOREWORD

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, Part 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 CNG 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.

(d) At times it may be necessary to unload gas from a cylinder or container e.g. to replace a cylinder or 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.

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S E C T I O N 1 S C O P E A N D G E N E R A L

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 compressed natural gas (CNG) 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. Under such conditions a State regulatory authority can give advice on the procedure for approval.

NOTE: Regulating agency information is provided in Appendix A.

1.4 REFERENCED DOCUMENTS The following Standards are referred to in this Standard:

AS
1668 The use of mechanical ventilation and air-conditioning in buildings
1668.2 Part 2: Mechanical ventilation for acceptable indoor-air quality

2337 Gas cylinder test stations
2337.1 Part 1: General requirements, inspections and tests—Gas cylinders

2430 Classification of hazardous areas
2430.1 Part 1: Explosive gas atmospheres

4332 The storage and handling of gases in cylinders

AS/NZS
1425 LP Gas fuel systems for vehicle engines

1596 Storage and handling of LP Gas

2430 Classification of hazardous areas
2430.3.4 Part 3.4: Examples of area classification—Flammable gases

2739 Natural gas (CNG) fuel systems for vehicle engines