

Australian Standard™

Gas cylinder test stations

Part 2: LP Gas fuel vessels for automotive use



This Australian Standard was prepared by Committee ME-002, Gas Cylinders. It was approved on behalf of the Council of Standards Australia on 9 March 2004. This Standard was published on 30 April 2004.

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Australasian Institute of Engineer Surveyors
Australian Chamber of Commerce and Industry
Australian Liquefied Petroleum Gas Association
Certification Bodies (Australia)
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STANDARDS AUSTRALIA

RECONFIRMATION

OF

AS 2337.2—2004

Gas cylinder test stations

Part 2: LP Gas fuel vessels for automotive use

RECONFIRMATION NOTICE

Technical Committee ME-002 has reviewed the content of this publication and in accordance with Standards Australia procedures for reconfirmation, it has been determined that the publication is still valid and does not require change.

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NOTES

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PREFACE

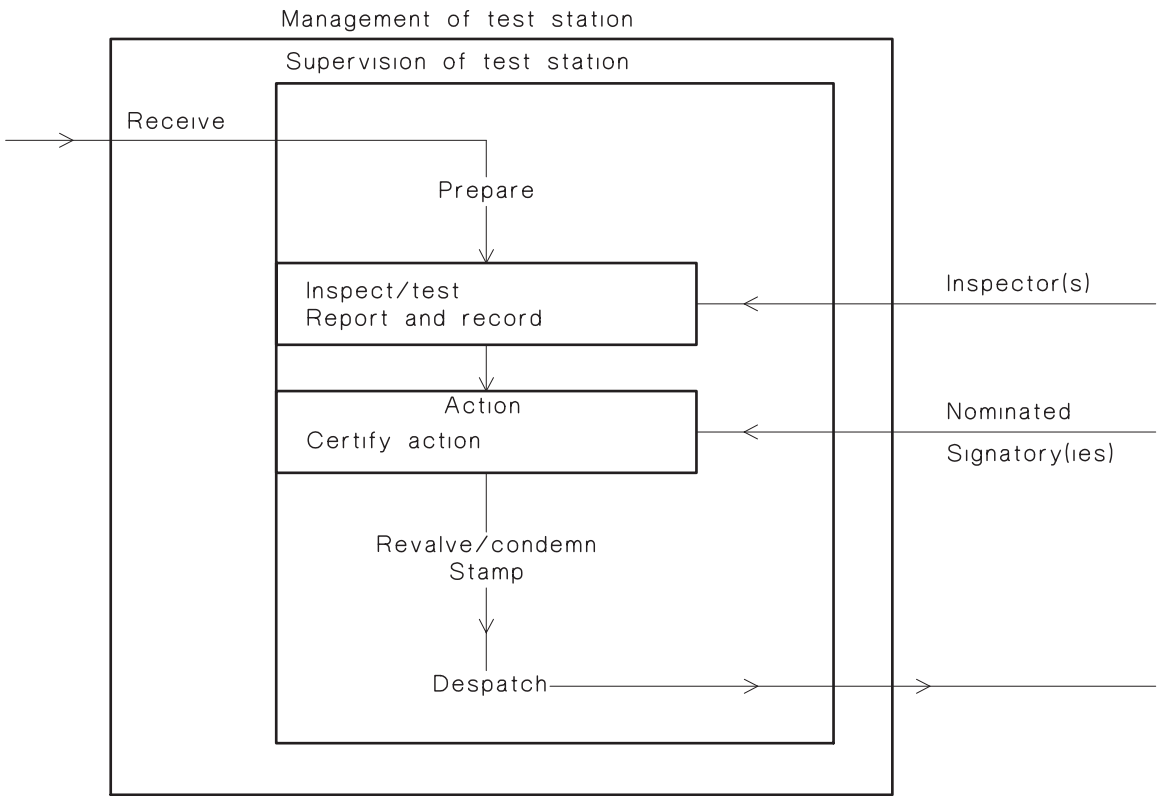
This Standard was prepared by the Australian members of Joint Australian/New Zealand Standards Committee ME-002, Gas Cylinders to supersede AS 2337.2—1990. After consultation with stakeholders in both countries, Standards Australia and Standards New Zealand decided to develop this Standard as an Australian Standard, rather than an Australian/New Zealand Standard.

This Standard incorporates Amendment No. 1 (September 2004). The changes required by the Amendment are indicated in the text by a marginal bar and amendment number against the clause, note, table, figure or part thereof affected.

The objective of this Standard is to provide the related industries with requirements and procedures for gas cylinder test stations to carry out initial and periodic inspection and testing of LP Gas fuel vessels for automotive use.

The division of functions within a test station has caused some difficulties where the titles of personnel do not match their position within the organization in which the test station operates. It is necessary to cater for different types of organization, from one person to a large operation with activities other than testing.

The diagram given below may help explain the process.



NOTE: The boxes show minimum tasks that may be taken up by the nominated person where this will not interfere with their primary responsibility.

A certificated gas cylinder test station scheme is operated by the appropriate Certification Organizations in Australia. Certification Organizations carry out the initial assessment and periodic audits.

From 1995 there has been, and will continue to be, a phasing out of State and Territory regulatory authorities approving and verifying compressed gas cylinder design and testing and a phasing in of competent bodies or persons to undertake this task.

This edition of the Standard removes references to ‘approval’ with regard to State and Territorial regulatory authorities. Gas cylinder test stations will be given certificates of conformity with the appropriate Standard instead of approval. These changes align with the changes that have taken place within AS 2030.1, *The verification, filling, inspection, testing and maintenance of cylinders for storage and transport of compressed gases*, Part 1: *Cylinders for compressed gases other than acetylene*.

In the previous edition of this Standard, it was permissible for vessels to be inspected while on the vehicle. It was not always possible to adequately view all external and internal surfaces. This edition makes it mandatory to remove vessels prior to inspection (see Clause 4.1).

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.

IT SHOULD BE NOTED THAT COMPLIANCE WITH THIS STANDARD MAY NOT NECESSARILY FULFIL ALL LEGAL REQUIREMENTS.

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STANDARDS AUSTRALIA

Australian Standard
Gas cylinder test stations**Part 2: LP Gas fuel vessels for automotive use**

SECTION 1 SCOPE AND GENERAL

1.1 SCOPE

This Standard set outs requirements and procedures for a gas cylinder test station to carry out initial and periodic inspection and testing of LP Gas fuel vessels for automotive use, which are not greater than 500 kg water capacity. It also specifies requirements for test stations to obtain a certificate of conformity.

This Standard requires that all test station inspections and stampings are carried out in Australia.

This Standard does not preclude other tests which may be required to evaluate the integrity of the vessel.

1.2 APPLICATION

The gas cylinder test station shall have personnel, procedures and equipment in accordance with the requirements of Section 3.

This Standard applies to fixed containers complying with the requirements of AS 2030.1 and vessels manufactured to AS 1210 or AS/NZS 3509 normally filled on vehicles, whether LP Gas or propane.

This Standard does not apply to removable containers. These cylinders shall be inspected according to AS 2337.1.

1.3 REFERENCED DOCUMENTS

The following documents are referred to in this Standard:

AS	
1210	Pressure vessels
1674	Safety in welding and allied processes
1674.1	Part 1: Fire precautions
2030	The verification, filling, inspection, testing and maintenance of cylinders for storage and transport of compressed gases
2030.1	Part 1: Cylinders for compressed gases other than acetylene
2062	Non-destructive testing—Penetrant testing of products and components
2337	Gas cylinder test stations
2337.1	Part 1: General requirements, inspections, and tests—Gas cylinders
2381	Electrical equipment for explosive atmospheres—Selection, installation and maintenance
2381.7	Part 7: Intrinsic safety i

AS	
2473	Valves for compressed gas cylinders (threaded outlet)
2613	Safety devices for gas cylinders
2746	Working areas for gas-fuelled vehicles
MP 48	Certificated gas cylinder test stations
AS/NZS	
1425	LP Gas fuel systems for vehicle engines
1596	The storage and handling of LP Gas
3509	LP Gas fuel vessels for automotive use

1.4 DEFINITIONS

For the purpose of this Standard, the definitions given in AS/NZS 1425, AS 2030.1 those below and in Table 6.1 apply.

1.4.1 Agencies

Federal, State and Territory agencies that are responsible for activities relating to LP Gas vehicles.

NOTE: Agency information is given in Appendix G.

1.4.2 Appurtenance

Any attachment to a fuel vessel shell or end which is not a fitting.

1.4.3 Defects

Table 6.1 provides definitions of specific defects with the illustrations and recommended treatment.

1.4.4 Fitting

A valve, fill limiter or contents gauging device.

1.4.5 Fixed container

A container which is permanently fixed to a vehicle and which is always filled 'in-situ'.

1.4.6 Nominated signatory

A person nominated as a signatory on the certificate of conformity.

1.4.7 Removable container

A container which is designed to be removed from the equipment for refuelling, usually in exchange for a full container.

1.4.8 Shall

Indicates that a statement is mandatory.

1.4.9 Should

Indicates a recommendation.

1.4.10 Test station

The combination of nominated personnel, equipment and procedures, in accordance with the requirements of this Standard. Test stations should be listed in MP 48.

1.4.11 Certification Organization

An organization accredited by a recognized body to grant certificates of conformity to gas cylinder test stations in Australia.

1.5 TEST STATION COMPLIANCE

The terms of the certificate of conformity shall require the owner(s) of a registered test station to enter into a specific undertaking with the Certification Organization and uphold the conditions of that undertaking.

At any time, a test station shall be able to satisfy the Certification Organization that it is competent and complies with the requirements of this Standard.

The Certification Organization shall, upon successful certification, issue a certificate of conformity, which specifies the nominated personnel.

The certificate of conformity shall be kept in the premises or be carried with the testing equipment.

Before a certificate of conformity is granted, the Certification Organization shall allocate a unique test station number to the test station. The test station shall use this number in its test station stamp.

Failure to comply with the requirements and procedures of this Standard may result in the suspension or withdrawal of the certificate of conformity. If the test station ceases to operate for any reason, including suspension, the certificate shall immediately be returned to the issuing body. The issuing body should inform Standards Australia so that MP 48 can be amended.

SECTION 2 CLASSIFICATION OF TEST STATION OPERATIONS

2.1 GENERAL

Test stations shall operate only within the limits of the certificate of conformity issued in writing by the Certification Organization.

As the certificate of conformity is subject to revision, any changes to the limits shall be valid only if given in writing by the Certification Organization. Such changes shall be incorporated into the certificate of conformity whenever a new certificate is issued.

2.2 MODES OF OPERATION

Test stations are classified in three main modes of operations as follows:

- (a) Static test station, which is located at a permanent address.
- (b) Mobile test station, which may be either of the following:
 - (i) Vehicle-based station, which shall be capable of carrying out the same range of testing as a static test station and which is linked to a permanent address for record purposes only.
 - (ii) Portable station, which is linked to a permanent address for record purposes, and which is restricted to external visual examination for the commissioning new cylinders in accordance with the external examination requirements specified in Section 5 and 6.

Records and reports for mobile stations shall be maintained at the address shown on the test station certificate of conformity, regardless of where the tests are actually conducted.

- (c) Integrated gas cylinder test stations (IGCTS), which are attached to a cylinder/vessel manufacturer's plant. Requirements for IGCTS are set out in Appendix A.

The function of an IGCTS is to ensure that all new vessels which are released from the plant, comply with the vessel design, and pass the type test, manufacturing tests and inspections that are required by the vessel design specification, and are then stamped with the test station mark.

An IGCTS shall ensure that the manufacturing and test records are maintained for at least 20 years.

SECTION 3 PERSONNEL, PROCEDURES AND BASIC EQUIPMENT

3.1 MANAGEMENT AND PERSONNEL

3.1.1 General

Each certificated test station shall have personnel for the following roles:

- (a) Test station manager (see Clause 3.1.2).
- (b) Nominated signatories (see Clause 3.1.3).
- (c) Inspectors (see Clause 3.1.4).

The manager and the nominated signatory(ies) shall be assessed by the Certification Organization, and shall be listed on the Certificate of Conformity or otherwise certified. The number of personnel should be appropriate to the amount of inspection work carried out and the extent of other duties for which each person is responsible.

Details of the personnel roles are in Clauses 3.1.2 to 3.1.4.

NOTE: Where a large number of operations are involved, e.g. cylinder and vessel manufacture, a suitable inspection and testing scheme and adequate supervision may permit use of competent operators as inspectors. In certain circumstances, one person may be nominated for several roles, and this is a common practice.

Where a person accepted by the Certification Organization as complying with one or more of the positions specified in Clauses 3.1.2 and 3.1.3 transfer to another test station, continued acceptance by the Certification Organization will be agreed only where all of the following are complied with:

- (i) The positions are equivalent.
- (ii) The test stations carry out equivalent inspection and testing.
- (iii) The Certification Organization was notified and it acknowledged the transfer in writing.

3.1.2 Test station manager

The manager shall be qualified for the position, as indicated by previous relevant experience and technical qualification. The manager shall—

- (a) ensure the test station operates within the scope of the certification, and within the limits of competence of personnel and supervisors;
- (b) ensure that all requirements specified in relevant Standards are complied with;
- (c) be knowledgeable (in detail) of the hazards, procedures, and equipment associated with LP Gas vessels;
- (d) be familiar with the general requirements (as required by the Certificate of Conformity) of Standards and regulations for LP Gas vessels and vessels inspected and tested by the test station;
- (e) not be impaired in the execution of responsibilities by other duties extraneous to the operation of the test station.
- (f) be named on the test station's certificate of conformity, subject to any subsequent change authorized in writing by the Certification Organization.

3.1.3 Nominated signatory

A nominated signatory shall make technical judgements on the condition of vessels on the evidence made available by the inspector, and shall accept or reject each vessel inspected and report on that action.

The nominated signatory shall be familiar with the detailed requirements (as required by the Certificate of Conformity) of Standards and regulations for vessels inspected and tested by the test station. Nominated signatories are the only people authorized to sign test reports and be listed on the Certificate of Conformity (subject to any subsequent change authorized in writing by the Certification Organization).

A signatory shall have eyesight, either unassisted or assisted by spectacles capable of reading a row of letters of sufficiently fine print (Jaeger No.2 or finer) at a nominal distance of 300 mm.

3.1.4 Inspector

An inspector shall gather the evidence from each vessel. This evidence is intended to be recorded as gathered, but not necessarily entered directly into a test report. The manager or nominated signatory or some other person may enter the gathered evidence into any test report from the inspection record. The nominated signatory will need to review the gathered evidence to decide on the appropriate action.

Inspectors shall have eyesight, either unassisted or assisted by spectacles, capable of reading a row of letters of sufficiently fine print (Jaeger No.2 or finer) at a nominal distance of 300 mm.

The inspector shall be trained by the manager or nominated signatory or both to be—

- (a) competent to differentiate between acceptable and unacceptable vessels as appropriate (in all aspects of testing undertaken by the test station);
- (b) aware of the hazards associated with inspecting of vessels as appropriate; and
- (c) familiar with inspection procedures.

3.1.5 Other personnel

Other persons may be engaged in non-inspection activities, such as preparation, handling, and completion of procedures after inspection and testing. Such persons shall be made aware by the manager of the hazards associated with the tasks they perform.

3.1.6 Mobile test stations

The inspector shall be a nominated signatory or shall be accompanied by a nominated signatory, so that the technical judgements can be made at the place of inspection.

3.2 OPERATIONS AND PROCEDURES

The following requirements apply:

- (a) The manager shall ensure that the equipment, procedures and current reference standards shall be maintained as required by the Certificate of Conformity. The Certification Organization shall be made aware by the manager, in writing, of any changes to equipment, procedures or nominated signatories.

NOTE: Failure to do so may result in the test station's Certificate of Conformity being suspended or cancelled.

- (b) Data as necessary for inspecting and testing shall be available.

NOTE: Data is deemed to be available by reference to Standards held by the test stations or by reference to other suitable sources, not necessarily held by the test station.

- (c) A system of written records of all vessels tested, all final reports issued, and all calibration reports on equipment shall be established and maintained. Calibration reports shall be kept at least until the test station is next assessed.
 - (d) Signed and dated station procedures shall be established, made available to personnel and implemented. The procedures shall be documented, shall comprise general methods and sequences of operations, and shall be followed in the operation of the test station. They shall include the following:
 - (i) Identification and segregation of vessels at various stages of testing.
 - (ii) Recording of inspection and test results on a worksheet at the time the tests are made and transfer of these to final test reports where appropriate.
 - (iii) Rounding off numerical readings in a consistent manner, and as specified in the marking Clause of the appropriate specification.
 - (iv) Devalving of vessels in a safe manner, as specified in Clause 4.4.
 - (v) Safe disposal of gas contents (see Appendix C).
 - (vi) Rendering failed vessels unserviceable (see Clause 7.3).
- NOTE: Such procedures are intended to ensure that errors are minimized.
- (e) For safety reasons, the permission of the vessel owner shall be obtained to perform the tests herein specified and advice from the owner shall be obtained concerning the contents of the vessel.

3.3 WORKPLACE AND EQUIPMENT

3.3.1 Workplace

Working conditions for the test area shall be conducive to accurate and safe inspection and testing of vessels. The whole test station area shall comply with the following requirements:

- (a) The principal operation shall be the inspection and testing of vessels, as appropriate, and no other operation shall interfere with that operation.

NOTE: Inspection of vessels may be combined with filling operations, or vessel manufacturing operations provided that suitable procedures are followed.
- (b) There shall be adequate lighting.
- (c) There shall be adequate ventilation.
- (d) There shall be adequate space for the number of operators and the number of units handled.
- (e) The test area shall be clean and, where hydrostatic testing is carried out, shall be well drained.

Mobile tests stations shall comply with this Clause where practicable.

3.3.2 Basic equipment

The minimum equipment for a test station inspecting and testing for routine requalification of vessels shall include the following:

- (a) Reference documents AS 2030.1 and MP 48, and this Standard, maintained up to date. Where additional Standards are held they also shall be up to date. A test station carrying out initial inspection and stamping of a vessel shall hold the manufacturing specification for that vessel.

NOTE: MP 48 lists only those test stations certified prior to its publication. For post publication information, contact Standards Australia.
- (b) Procedures for the vessels to be inspected and tested.