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LEAD-ACID STARTER BATTERIES

STANDARDS ASSOCIATION OF AUSTRALIA
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The following interests are represented on Committee EL/5:

Australian Automobile Association
Australia Electrical and Electronic Manufacturers Association
Australian Federation of Consumer Organizations
Australian Lead Development Association
Confederation of Australian Industry
Department of Housing and Construction
Department of Defence
Electricity Supply Association of Australia
Federal Chamber of Automotive Industries
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AUSTRALIAN STANDARD

LEAD-ACID STARTER BATTERIES

AS 2149– 1985

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PREFACE

This edition of this standard was prepared by the Association's Committee on Accumulators to supersede AS 2149—1980.

The revision was necessary primarily because of the technical advance made in the chemistry and construction of lead-acid batteries. During the last few years the Category Y battery, commonly known as the 'maintenance free' battery and sometimes referred to as a sealed battery, has become a large portion of the Australian market and the 1980 edition of the standard did not cater for this category. The committee has endeavoured to cover the full range of sealed (inaccessible electrolyte) and unsealed (accessible electrolyte) automotive battery types having constrained and unconstrained electrolyte.

This standard differs from the previous edition in many respects. Numerous technical changes have been made throughout the standard and an important change has been the rated capacity marked on the battery. Previously this capacity was stated in ampere hours, whereas it is now to be referred to as the rated reserve capacity and is stated in minutes. This rating refers to the time a constant 25-ampere discharge current can be maintained to an end-voltage of 1.75 V per cell.

A new terminal layout (Plan H) has been added to the 12 V batteries and this is recommended as the preferred layout. However a Commonwealth Government task force is currently investigating the auto parts industry and the standardization of the terminals may well depend on the findings of the task force.

Field rechargeability, which is meant to cover discharged batteries left standing for long periods, was considered for inclusion but the value of such a requirement and the associated test is yet to be determined. Consideration will be given to its inclusion at the next revision.

Because of the extra tests added and the major changes made in the existing test methods, it is recommended that the application of this standard should not be made on a compulsory basis before 12 months after the date of publication.

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LEAD-ACID STARTER BATTERIES

SECTION 1. SCOPE AND GENERAL

1.1 SCOPE. This standard specifies requirements for lead-acid accumulator batteries with a rated voltage of 6 V or 12 V, used primarily as a source of starting and ignition current for internal combustion engines and also for the auxiliary installations of internal combustion engine vehicles. These batteries are commonly called 'starter batteries' and are hereinafter referred to as 'batteries'.

This standard does not apply to motor cycle batteries or to batteries used for other purposes such as the starting of railcar internal combustion engines or the lighting of omnibuses.

NOTE: Batteries have been classified on the basis of whether or not the periodic addition of water is required. The categories are as follows:

(a) Category X—batteries which under normal conditions require the periodic addition of water.

(b) Category Y—batteries which, when used in their recommended application, do not require periodic water additions under normal conditions.

(Category Y is commonly referred to as 'maintenance free'.)

1.2 APPLICATION. A battery shall be deemed to comply with this standard only if it complies with all the relevant requirements of this Section and with the appropriate requirements and tests of the following Sections:

Section 2—Design and Construction

Section 3—Performance Requirements

Section 4—Marking

Section 5—Assessment of Compliance with this Standard

1.3 DESIGNATION.

1.3.1 General. Batteries shall be designated on the basis of size, performance and terminal layout. Designations of batteries covered by this standard are given in Clause 2.1.

1.3.2 Method of designation. Designation of a battery shall be by three digits and an upper case letter. The first and second digits shall represent the size group, the third digit the size subgroup, and the letter the terminal layout. The allocation of the digits and letters shall be in accordance with column 2 of Table 2.1. Details are as follows:

(a) Size group (first and second digits).

(i) First digit—identifies the battery terminal voltage:

A. For a 6-volt battery ..... 2.

B. For a 12-volt battery ..... 3, 4, 5 or 6.

(ii) Second digit—identifies the overall dimensions. The digits allocated are 0, 1, 3, 4, 6, 7, 8 or 9.

(b) Size subgroup (third digit). Indicates the degree of rated cold cranking current or rated reserve capacity within the size group. The digits allocated are 1, 2 or 3.

(c) Terminal layout (letter). Identifies the plan of the terminal layout in accordance with Fig. 2.1. The letters allocated are A to H.

Example: A battery designated 42H is as follows:

4 = size group 4, i.e. 12 V

6 = overall dimensions, i.e. length 238 mm to 249 mm, width 168 mm to 174 mm and height 204 mm to 235 mm.

2 = size subgroup, i.e. rated cold cranking current 280 A and rated reserve capacity 75 min.

H = terminal layout, i.e. Plan H of Fig. 2.2.

1.4 REFERENCED DOCUMENTS. The following standards are referred to in this standard:

AS 1006	Solid Stem General Purpose Thermometers
AS 1042	Direct Acting Indicating Electrical Measuring Instruments and Their Accessories
AS 1216	Classification, Hazard Identification and Information Systems for Dangerous Goods
AS 1320	Separators for Lead-acid Starter Batteries
AS 1852(50)	International Electrotechnical Vocabulary—Electrochemistry and Electrometallurgy
AS 2562	Hydrometers—Portable Syringe-type for Lead-acid Batteries
AS 2668	Water for Use in Secondary Batteries
AS 2669	Sulphuric Acid for Use in Lead-acid Batteries
AS K185	Colours for Specific Purposes

1.5 DEFINITIONS. For the purpose of this standard, the definition given in AS 1852(50) and the following apply:

1.5.1 Charge acceptance—current which a new and unused battery can accept under specified conditions.

1.5.2 Conserved-charged battery—battery that when supplied contains only a small quantity of electrolyte, mainly absorbed within the plates and separators. The plates are in a charged condition and the battery is activated by the addition of further electrolyte.