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Australian Standard 2149—1978

LEAD-ACID STARTER BATTERIES

[Title allocated by Defence Cataloguing Authority:
BATTERY, STORAGE (LEAD-ACID STARTER BATTERIES)]



STANDARDS ASSOCIATION OF AUSTRALIA
Incorporated by Royal Charter



THE FOLLOWING SCIENTIFIC, INDUSTRIAL, CONSUMER AND GOVERNMENTAL organizations and departments were officially represented on the committee entrusted with the preparation of this standard:

Associated Chambers of Manufactures of Australia
Australian Automobile Association
Australian Federation of Consumer Organizations
Australian Lead Development Association
Department of Construction
Department of Defence
Electricity Supply Association of Australia
Federal Chamber of Automotive Industries
Railways of Australia Committee
Society of Automotive Engineers—Australasia
Telecom Australia

This standard, prepared by Committee EL/5, Accumulators, was approved on behalf of the Council of the Standards Association of Australia on 17 January 1978, and was published on 1 March 1978.

To keep abreast of progress in industry, Australian standards are regularly reviewed. Suggestions for improvements to published standards, addressed to the head office of the Association, are welcomed.

This standard was issued in draft form for public review as DR 77011.

28 MAY 1978

May 1978

STANDARDS ASSOCIATION OF AUSTRALIA
Incorporated by Royal Charter

CORRIGENDUM
to
AS 2149—1978
LEAD-ACID STARTER BATTERIES

SUMMARY: The following section of the standard is covered by this correction slip: Fig. 2.

PREFACE

This standard was prepared by the Association's Committee on Accumulators. It is intended to supersede AS D2—1968 12 months after publication.

During the preparation of this standard close consideration was given to the adoption of the requirements of IEC 95-1; however, it was finally decided to adopt only some of the requirements from that standard as it was noted that the IEC requirements were in the process of being revised and it would be inappropriate to adopt all of them at this stage. The deviations from IEC in this standard are similar to deviations adopted in national standards published in U.S.A. and South Africa and are likely to be accepted by IEC in due course.

In this edition, *for the first time*, a battery reference system has been introduced to cover over 95 percent of the Australian market for batteries. Batteries falling within this system are required to be identified with the appropriate reference, and to be within specified dimensional and performance criteria. It is hoped that manufacturers of vehicles will restrict themselves to using these batteries in all new vehicle designs and hence remove the need for the continuation of production of little used types.

The other major change is a new requirement that batteries be rated both at the 20-hour capacity (as required by AS D2) and with the current output of the battery over a 3-minute period. This change was seen by the committee as a prelude to the eventual abandonment of the marking of batteries with the 20-hour rating which was considered to have little significance. The other main changes from the requirements of AS D2 are as follows:

- Electrolyte density has been specified as $1260 \pm 10 \text{ kg/m}^3$ at 25°C to take account of Australian conditions.
- The high discharge rate test is conducted at -7°C , also in the light of Australian conditions.
- Motor cycle batteries have been excluded.
- Separators are now required to comply with AS 1320.
- Provision for the marking of the date of sale and the identification of the positive terminal have been made mandatory.
- All batteries are now required to satisfy a reserve capacity test.
- The vibration test is conducted in conjunction with an air pressure test to detect the existence of any inter-cell leaks or cracks.

This standard requires reference to the following Australian standards:

AUSTRALIAN STANDARD SPECIFICATION

**LEAD-ACID
STARTER BATTERIES**

AS 2149 — 1978

First published (as AS D2)	1958
Revised	1968
Revised and issued as AS 2149	1978

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- AS 1320 Separators for Lead-acid Starter Batteries
- AS 1852(50) International Electrotechnical Vocabulary — Electrochemistry and Electrometallurgy
- AS C59 Water for Use in Secondary Batteries of the Enclosed Cell Type
- AS C60 Sulphuric Acid for Use in Secondary Batteries
- AS D23 Containers and Cell Covers for Lead-acid Batteries of the Automobile Type
- AS K185 Colours for Specific Purposes.

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STANDARDS ASSOCIATION OF AUSTRALIA

Australian Standard Specification for LEAD-ACID STARTER BATTERIES

1 SCOPE. This specification applies to 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 specification 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.

2 OBJECT. The object of this standard is to specify —

- (a) characteristics of batteries;
- (b) minimum levels for the construction and design of batteries;
- (c) tests for proving characteristics of batteries.

3 DEFINITIONS. For the purpose of this specification, the following definitions, in addition to those listed in AS 1852*(50), apply:

3.1 Fully charged battery — a battery in which the density of the electrolyte and the voltage across the terminals do not vary appreciably between three consecutive hourly readings taken while the battery is being charged at the current specified by the manufacturer, the density readings being corrected to the same temperature.

3.2 Rated capacity — the number of ampere hours a battery is capable of delivering during a continuous uniform discharge over a period of 20 h, at a current in amperes numerically equal to 5 percent of the 20-hour capacity, from the fully charged state to when the voltage measured across the battery terminals falls to 5.25 V for a 6-volt battery or to 10.50 V for a 12-volt battery, and corrected for an average electrolyte temperature of 25°C. The rated capacity is represented by the symbol C_{20} .

3.3 Rated current — the constant current in amperes which a battery is capable of delivering during a continuous uniform discharge over a

* AS 1852(50), International Electrotechnical Vocabulary: Electrochemistry and Electrometallurgy.