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BATTERY CHARGERS FOR LEAD-ACID BATTERIES—HOUSEHOLD TYPE

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This Australian Standard was prepared by Committee EL/5, Secondary Batteries. It was approved on behalf of the Council of the Standards Association of Australia on 4 August 1988 and published on 3 October 1988.

The following interests are represented on Committee EL/5:

Australian Automobile Association

Australian Automotive Aftermarket Association

Australian Electrical and Electronic Manufacturers Association

Australian Federation of Consumer Organizations

Australian Lead Development Association

Confederation of Australian Industry

Department of Administrative Services—Australian Construction Services

Department of Defence

Electricity Supply Association of Australia

Federal Chamber of Automotive Industries

Railways of Australia Committee

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AUSTRALIAN STANDARD

BATTERY CHARGERS FOR LEAD-ACID BATTERIES--HOUSEHOLD TYPE

AS 2401—1988

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PREFACE

This Standard was prepared by the Association's Committee on Secondary Batteries to supersede AS 2401—1980, *Household battery chargers*. It applies to household battery chargers intended for charging lead-acid batteries of the automotive type, and their derivatives.

The electrical safety requirements for household battery chargers are not included herein, but are specified in AS 3193, *Approval and test specification for transformer type battery chargers*.

Consideration has been given to the charging conditions which influence battery service life. The requirements stipulated are intended to ensure optimum battery life. Since the ripple content of a battery charger's d.c. output is an important factor in battery service life, a ripple current requirement has been stipulated.

This Standard differs from the previous edition in the following respects:

(a) Marking requirements are included.

(b) Output leads are required to be connected internally.

(c) A carrying handle is required for chargers weighing in excess of 2.5 kg.

(d) A maximum temperature of 55 °C is stipulated for all parts expected to be handled.

(e) A maximum output voltage of 14.5 +0, −0.3 V is stipulated.

(f) Test methods for the determination of ripple, output characteristic and maximum temperature are changed.

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SECTION 1 SCOPE AND GENERAL

1.1 SCOPE. This Standard specifies requirements for transformer type battery chargers intended for household or similar use for charging—

(a) lead-acid batteries of the automotive type complying with AS 2149; and

(b) lead-acid batteries for electric vehicles, golf buggies and semi-traction purposes and having a nominal output of 6 V or 12 V.

The Standard is restricted to chargers having an input rating not greater than 2.5 kV.A.

This Standard does not apply to float-charging type battery chargers or to battery chargers embodied in appliances not intended to provide an accessible output.

1.2 REFERENCED DOCUMENTS. The documents below are referred to in this Standard.

AS
1042 Direct-acting indicating electrical measuring instruments and their accessories

1044 Limits of electromagnetic interference for electrical appliances and equipment

1939 Classification of degrees of protection provided by enclosures for electrical equipment

2149 Lead-acid starter batteries

2202 Code of practice for the provision of warranties/guarantees for household goods

3100 Approval and test specification—General requirements for electrical materials and equipment

3193 Approval and test specification for transformer-type battery chargers

1.3 DEFINITIONS. For the purpose of this Standard, the definitions below apply.

1.3.1 Battery charger (charger)—a device which when connected to a low or medium voltage mains supply provides a d.c. supply source suitable for charging lead-acid batteries.

1.3.2 Percentage ripple current—the ripple current expressed as a percentage of the mean current.

1.3.3 Rated charging voltage—the d.c. charging voltage of the charger as given on the nameplate. This may be the nominal voltage of the battery to be charged.

1.3.4 Rated charging current—the d.c. charging current of the charger as given on the nameplate.

1.3.5 Regulated charger—a charger which automatically controls the charging voltage and current in accordance with the battery requirements.

1.3.6 Ripple current—the square root of the difference between the square of the r.m.s. current and the square of the mean current.

1.3.7 Voltage limited charger—a charger in which the voltage applied to a battery cannot exceed a predetermined maximum value. Voltage limited chargers may also be of the regulated type.

1.4 SAFETY REQUIREMENTS. This Standard does not include the electrical safety requirements which must be observed to secure approval for connection or sale of household battery chargers. Household battery chargers shall, in addition to complying with this Standard, comply with the appropriate requirements of AS 3193.

1.5 MARKING. In addition to complying with the marking requirements of AS 3193, the battery charger shall be legibly and durably marked with the following:

(a) 'WARNING—HAZARD OF EXPLOSIVE GAS MIXTURE'.

(b) If the charger does not comply with AS 1939 with a degree of protection IP23 'NOT SUITABLE FOR EXPOSURE TO WEATHER OR DAMP CONDITIONS'.

NOTE: Manufacturers who place the number of this Australian Standard on products, on packaging or on literature related thereto should ensure that the products are manufactured to comply with the Standard.

Attention is particularly drawn to the scheme for independent assurance provided by the StandardsMark which is a registered certification trade mark owned by the Standards Association of Australia and which is available for use with suitable Australian Standards.

The presence of the StandardsMark on or in relation to a product is an assurance that the goods have been produced under a system of supervision, control and testing applied during manufacture and including periodical inspections at the manufacturer's works in accordance with the certification mark scheme of the SAA.

The StandardsMark can be used only by manufacturers licensed under the certification mark scheme operated by the SAA, and only when accompanied by the number of the relevant Australian Standard. It will usually be a requirement that the words 'Manufactured to Australian Standard' accompany the number of the Standard and enclose the Mark as shown below; however, this is a matter for negotiation with the Association.

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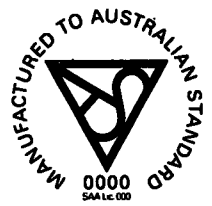

1.6 INSTRUCTIONS FOR USE AND CARE. The charger shall be supplied with instructions, in English,