Australian Standard®

Electricity generating sets—Transportable (Up to 25 kW)

[Title allocated by Defence Cataloguing Authority: GENERATOR SETS, DIESEL OR GASOLINE ENGINE (Up to 25 kW) NSC 6115]

This Australian Standard was prepared by Committee EL/9, Rotating Electrical Machinery. It was approved on behalf of the Council of Standards Australia on 16 March 1989 and published on 12 May 1989.

The following interests are represented on Committee EL/9:

Australian British Chamber of Commerce
Australian Electrical and Electronic Manufacturers' Association
Bureau of Steel Manufacturers of Australia
Confederation of Australian Industry
Department of Defence
Electricity Supply Association of Australia
The Institution of Engineers, Australia

Additional interests participating in preparation of Standard:

Department of Industrial Relations and Employment, N.S.W.
Manufacturers and Suppliers of Generating Sets
Natural Disasters Organisation
Telecom Australia

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First published as AS 2790 — 1985.
Second edition 1989.

Incorporating:
Amdt 1—1989

PUBLISHED BY STANDARDS AUSTRALIA
(STANDARDS ASSOCIATION OF AUSTRALIA)
1 THE CRESCENT, HOMEBUSH, NSW 2140

ISBN 0 7262 5641 2

PREFACE

This Standard was prepared by Standards Australia's Committee on Rotating Electrical Machinery to supersede AS 2790 — 1985.

This edition was undertaken for the following reasons:

(a) To provide for fitting of current-operated (core balance) earth leakage protection (see Clause 6.1.9).

(b) To revise references to AS 1501 (which was superseded in 1985 by AS 2789.1 to AS 2789.6), and to ISO 3046/1 (to which AS 2789.1 is technically identical). (See Clause 7.)

(c) To make reference to AS 3010.1 — 1987 (see Appendix B).

It should be noted that terminology is changing, both internationally and in Australia. While this Standard refers to 'current-operated (core balance) earth leakage devices', IEC Report 755 (1983) refers to 'residual current operated protective devices', commonly known as RCDs. It is likely that the term 'residual current device (current operated earth leakage device)' will be introduced in any revision of AS 3190 (see Appendix C).

CONTENTS

STANDARDS AUSTRALIA

Australian Standard

Electricity generating sets—Transportable (Up to 25 kW)

1 SCOPE. This Standard specifies requirements for self-contained transportable electricity generating sets (hereinafter referred to as 'generating sets') driven by internal combustion engines and intended to provide an independent 50 Hz a.c. supply, of low or medium voltage, single-phase or three-phase, and with outputs up to 25 kW. They may be portable, transportable, or mobile.

The requirements apply to auxiliary power circuits of electric arc welding machines (see AS 1966.2) but not to their main welding circuits.

This Standard does not apply to generating sets intended solely for charging batteries.

For electrical safety requirements, this Standard shall be read in conjunction with AS 3100.

NOTES:

1. A generating set may include a *separate* extra-low voltage d.c. output, e.g. 12 V, for battery-charging purposes.
2. The terms 'extra-low voltage', 'low voltage', and 'medium voltage' are as defined in AS 3000 and AS 3100.
3. Generating sets complying with this Standard are not normally suitable for operation in parallel with other sets or with reticulated supply (even where such is permissible) because of the lack of controls and instrumentation.
4. Appendix A lists information which should be supplied with enquiries and orders for generating sets, and Appendix B makes recommendations on the use of generating sets.

2 REFERENCED DOCUMENTS. The documents referred to in this Standard are listed in Appendix C.

3 DEFINITIONS. For the purpose of this Standard the definitions below apply.

3.1 Self-contained electricity generating set—an assembly intended for the production of 50 Hz electrical energy consisting of internal combustion engine, a.c. generator, fuel tank, cooling system, starting system, controls, safeguards and electrical output connection facilities and intended for use without fixing or anchorage.

3.2 Transportable generating set—a generating set which can be moved from place to place by one or more persons, by mechanical means, or by means of its own wheels, tracks or skids.

3.3 Independent supply—a supply being the only source of electrical energy to the load.

4 COMPLIANCE WITH STATUTORY REQUIREMENTS. In addition to complying with this Standard, a generating set may be required to comply with various regulations, e.g. for fuel storage and containers, engine exhaust emissions, noise emission, and radio, television and telecommunications interference.

5 SERVICE CONDITIONS. A generating set complying with this Standard shall be suitable for use under the following service conditions:

(a) *Ambient temperature*.

(i) Maximum average over 1 h . . . . . 50°C.

(ii) Maximum average over 24 h . . . 35°C.

(iii) Minimum . . . . . –5°C.

NOTE: Ambient temperature is defined in Appendix D. It should be recognized that much higher temperatures can exist inside certain enclosures.

(b) *Exposure to solar radiation*. 1.1 kW/m^2 maximum on horizontal surface for 1 h.

(c) *Altitude*. Up to 1000 m above sea level.

(d) *Protection against the weather*. Either—

(i) *for undercover or weather-protected usage*—having no inherent protection against rain; or

(ii) *for outdoor use*—without further protection from the weather. (See Clause 8.3.)

(e) *Fuels and lubricants*. Commercially available fuels and lubricants.

6 SAFETY

6.1 Electrical safety.

6.1.1 *Design, construction and materials*. The design, construction, materials, equipment and components used, and the workmanship involved, shall comply with AS 3100, Clauses 3.1 to 3.5.

6.1.2 *Identification of conductors*. Conductors shall be identified as specified in AS 3100, Clause 3.8. Conductors which are connected, directly or indirectly, to the frame (see Clause 6.1.8 herein) shall be considered to be earthing conductors *whether or not* the frame is intended for deliberate connection with earth.

6.1.3 *Overload protection*. Overload protection shall be by means of circuit breaker(s) or fuse(s), by inherent circuit regulation, by stalling the engine (for generating sets up to 15 kW), or by other suitable means. Fuses shall comply with AS 3100, Clause 3.6.

6.1.4 *Switching in output circuits*. Switching in output circuits shall be provided by either—

(a) a main switch; or

(b) individual switches for each output facility.

A circuit-breaker (see Clause 6.1.3) shall be acceptable as a main switch.

Each switch shall comply with AS 3100, Clause 3.8.

6.1.5 *Arrangement of live parts, conductors and cables*. Live parts shall be arranged to comply with AS 3100, Clause 4.1.