

Specification for

Transformer rectifier units

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Foreword

This British Standard is intended to be used in conjunction with individual specifications for particular designs of rectification equipment.

Reference is made in this standard to the following British Standards:

BS 2G 100, *General requirements for electrical equipment and indicating instruments for aircraft.*

- *Part 1: Identification, declarations and construction;*
- *Part 2: Environmental and operating conditions;*
- *Part 2: Section 2. Radio interference;*
- *Part 3: Characteristics of aircraft electrical systems.*

BS 3G 100, *General requirements for equipment in aircraft.*

- *Part 2: All equipment. Section 3. Environmental conditions. Subsection 3.1. Vibration.*

BS G 178, *Crimped joints for aircraft electrical cables and wires.*

BS SP 20, *Panel type air filter elements for use with internal combustion engines and compressors on aircraft.*

BS 205, *Glossary of terms used in electrical engineering.*

BS 410, *Test sieves.*

BS 3489, *Sound level meters (industrial grade).*

Reference should also be made to:

BS 2135, *Capacitors for radio interference suppression.*

BS 3494, *Recommendations on semiconductor devices.*

BS 3934, *Dimensions of semiconductor devices.*

BS 9300, *Semiconductor devices of assessed quality: General data and method of test.*

NOTE The values in metric units are to be regarded as the standard. The conversions to imperial units are approximate. Accurate conversions should be based on the tables in BS 350, “*Conversion factors and tables*”. Information concerning SI units is given in PD 5686 “*The use of SI units*”.

A British Standard does not purport to include all the necessary provisions of a contract. Users of British Standards are responsible for their correct application.

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Summary of pages

This document comprises a front cover, an inside front cover, pages i and ii, pages 1 to 9 and a back cover.

This standard has been updated (see copyright date) and may have had amendments incorporated. This will be indicated in the amendment table on the inside front cover.

Amendments issued since publication

Amd. No.	Date	Comments

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1 General

1.1 Scope

This British Standard deals with the general design and test requirements of transformer rectifier units for use in aircraft.

1.2 Definitions

For the purposes of this British Standard the definitions in BS 205 and the following apply:

transformer rectifier unit

a device for converting aircraft main and auxiliary a.c. power supplies to d.c. It includes rectifiers, transformers and associated control and protection equipment

1.3 General construction

1.3.1 The design and construction of the unit shall comply with the relevant requirements of BS 2G 100-1 and of the individual specification.

1.3.2 Unless otherwise required by the individual specification, the design and construction of the unit shall be such that it is suitable for operation at altitudes up to 13 700 m (45 000 ft), and over an ambient temperature range of -55°C to $+70^{\circ}\text{C}$.

1.4 Arrangement and construction

1.4.1 Mounting attitude. There should preferably be no limitation in the performance of the unit in respect of the attitude in which it may be mounted. Any such limitation shall be declared.

1.4.2 Mounting arrangement. The mounting arrangements for the unit shall be such that, under the specified conditions of vibration, acceleration and temperature variation, its satisfactory operation is not affected.

1.4.3 Interchangeability. Units bearing the same type number shall be completely interchangeable with respect to installation and performance.

1.4.4 Endurance. The design and construction of the unit should be such that it is suitable for 1 000 hours' operation at maximum operating temperature, and for a life of 30 000 hours at 25°C for static parts and 3 000 hours for rotating parts.

1.4.5 Internal electrical connections. Units shall be designed to operate from a fully insulated system, i.e. all electrical circuits shall be insulated from the frame. In primary three-phase star connected arrangements the neutral point shall be brought out to an insulated terminal, unless otherwise required by the individual specification. Provision shall be made for bonding the case of the unit to the aircraft structure.

1.4.6 Maximum operating temperature. The maximum temperature of the external surface of the unit, whilst in operation at the specified conditions, shall be declared.

1.4.7 Overheating. The unit shall embody an overheat sensing device.

1.4.8 Current measurement. Provision should preferably be made for the incorporation of an ammeter shunt for the current measurement.

1.5 Terminals

1.5.1 Screwed terminals, having Unified threads unless otherwise agreed by the Design Authority, shall be provided for external connections. They shall accommodate an approved¹⁾ type of cable terminal end, crimped in accordance with the requirements of BS G 178 and of adequate rating for the current to be carried, and shall be designed in accordance with the requirements of BS 2G 100-1. The main d.c. output terminals should preferably be of different sizes.

1.5.2 The terminals shall be clearly and indelibly marked to identify the associated windings. The input terminals shall be identified by the letters A, B, C, and the output terminals shall be suitably identified.

¹⁾ For equipment for British civil and military aircraft, the Approving Authorities are the Air Registration Board and the Ministry of Technology respectively (through a design authority approved by them).