

Specification for
D.C. generators

UDC 629.7.06:621.313.2 – 8

Confirmed
January 2009

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Foreword

This revision of BS G 134:1951, has been prepared as part of a programme of work to bring the Aerospace Series of British Standards for rotating machines up to date in relation to present-day and probable future requirements, and in relation to experience gained in working on earlier issues of these standards.

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, declaration and construction — Part 2: Environmental and operating conditions — Section 2: Radio interference — Part 3: Characteristics of aircraft electrical systems.*

BS 3G 100, *General requirements for aircraft equipment — Part 2: All equipment.*

BS 3G 100-3, *Environmental conditions — Section 3.1: Vibration — Section 3.2: Temperature-pressure requirements¹⁾.*

BS G 102, *General requirements for rotating electrical machinery¹⁾.*

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

NOTE Information regarding metric (SI) units is given in BS 350, “Conversion factors and tables”, and 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.

Compliance with a British Standard does not of itself confer immunity from legal obligations.

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.

This British Standard, having been approved by the Aerospace Industry Standards Committee, was published under the authority of the Executive Board of the Institution on 23 October 1970

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The following BSI references relate to the work on this standard:
Committee reference ACE/42
Draft for comment 67/28210

ISBN 0 580 06044 6

¹⁾ In course of preparation.

Amendments issued since publication

Amd. No.	Date	Comments

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1 General

1.1 Scope

This British Standard applies to generators for aircraft d.c. power supply. It is intended to be read in conjunction with the relevant parts of BS 2G 100 or BS 3G 100, and BS G 102.

1.2 Design and construction

1.2.1 Unless otherwise stated the design and construction of the machine shall comply with the relevant requirements of BS 2G 100 or BS 3G 100, and BS G 102.

1.2.2 The design aim should be to achieve 3 000 (aircraft) hours operation of the machine before maintenance is necessary.

1.3 Standard voltage

The terminal voltage shall be compatible with the requirements of BS 2G 100-3.

1.4 Cooling arrangements

1.4.1 The cooling arrangements shall be as agreed between the manufacturer and the purchaser.

1.4.2 Cooling connections shall comply with the requirements of BS G 102.

1.5 Mounting and drive

The mounting and drive of the machine shall comply with the requirements of BS G 102.

1.6 Electrical connection

1.6.1 The electrical connections shall comply with the requirements of BS 2G 100-1.

1.6.2 Terminals shall be provided for both positive and negative leads and also for the open end of the excitation winding and other connections as specified.

1.6.3 Provision may be made in the terminal box for changes in the direction of rotation. When this is done a clear and permanent indication shall be provided in the terminal box, showing the correct connections to suit the two directions of rotation.

1.7 Radio interference suppression

If specified in the relevant individual specification, provision shall be made for internal suppression, or alternatively the machine shall be provided with attachments suitable for screened cable connections.

1.8 Rating and overload requirements

1.8.1 The manufacturer shall declare the continuous rated output of the machine under declared conditions of speed, altitude and cooling, as required by the design specification.

1.8.2 Following normal rated-load operation at steady temperature conditions, the generator shall be capable of:

- 1) maintaining 125 % rated-load current at rated voltage and 125 % of minimum speed for a period of 5 minutes;
- 2) producing at least 200 % rated current for 5 seconds.

1.9 Efficiency

The manufacturer shall declare the power required to drive the machine at rated voltage and current over the speed range when at stabilized temperature conditions with cooling at rated air flow appropriate to sea level conditions, and when being controlled by the appropriate voltage regulator.

1.10 Excitation

1.10.1 The excitation system shall be independent of any external electrical supply and shall be capable of initial build up without reference to any other supply. Supplementary excitation may be employed by agreement between the manufacturer and the purchaser.

1.10.2 To assist in limiting radio noise any windings connected in series with the armature should preferably be disposed symmetrically in the armature circuit.

1.11 Overspeed

Consideration should be given to the highest speed at which the machine could be driven, in the applications for which it is intended, if all overspeed protection devices fail. If this speed is more than 120 % of the maximum rated speed, the machine shall be designed either to withstand the highest speed or to fail at a lower speed of not less than 120 % of the maximum rated speed and to contain all its parts within the machine frame after failure, without detriment to its mounting. The containment requirements and the necessary proving tests shall be agreed between the manufacturer and the user.