BRITISH STANDARD AEROSPACE SERIES

BS 2G 134: 1970

Specification for

D.C. generators

UDC 629.7.06:621.313.2 – 8

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 requirements*[1)].

BS G 102, *General requirements for rotating electrical machinery*[1)].

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

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

Contents

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.

1.12 Environmental conditions

1.12.1 The machine shall comply with the requirements of the stated British Standards in respect of:

1) *vibration*, to BS 3G 100-2.3.1;

2) *acceleration*, to BS 2G 100-2;

3) *temperature-pressure*, to BS 3G 100-2.3.2;

4) *radio interference suppression*, to BS 2G 100-2;

5) *compass safe distance*, to BS 2G 100-2.

1.12.2 When it is supplied with oil, the machine shall also be subjected to a fire test to ensure that it will not propagate or maintain a fire. The test shall be as required by the design specification.

1.12.3 The design of the machine shall be such that, when required and when part of an explosion-proof installation, it will not invalidate the explosion-proof qualities of the installation.

1.12.4 If required by the individual specification, the machine shall also comply with the requirements of **2.3.17**, **2.3.20**, **2.3.21**, and **2.3.22** of this British Standard in respect of resistance to mould growth, salt corrosion, dust and sand, and contaminating fluids.

1.13 Declaration of performance

In addition to the declarations required by BS 2G 100-1, the following information shall be provided by the manufacturer in regard to the machine:

1) continuous rated output under declared conditions of speed, altitude and cooling;

2) power required to drive the machine under the conditions specified in **1.8**;

3) polar moment of inertia.

1.14 Nameplate

1.14.1 A nameplate, and a modification plate which shall bear the serial number, shall be mounted on the body of the machine.

1.14.2 The following information shall be marked on the nameplate:

1) the number of this British Standard;

2) the manufacturer's name or identification;

3) serial number;

4) type (or part) number;

5) voltage;

6) speed range;

7) rated current;

8) direction of rotation;

9) stores reference or codification number, when applicable.

1.14.3 The modification plate shall provide for ten modification references.

2 Tests

2.1 General

Tests shall be made to prove compliance with all requirements of this British Standard. The tests required are as follows, and the results obtained shall be recorded.

1) *Type tests*. The type tests detailed in **2.3** shall be made on each type of machine. More than one machine may be used for the type tests, provided that the tests prescribed in **2.3.2**, **2.3.3**, **2.3.4**, **2.3.5**, **2.3.8.1**, **2.3.8.2**, **2.3.9**,**2.3.10** and **2.3.11** shall be performed on one machine. Every machine used for type test purposes shall previously have passed tests equivalent to the production routine tests.

2) *Production routine tests*. The production routine tests detailed in **2.4** shall be made on every machine manufactured in conformity to this British Standard.

3) *Production quality tests*. The production quality tests detailed in **2.5** shall be made on batch sample or samples.

2.2 Test conditions

Unless otherwise specified the tests shall be made at a temperature of 20 ± 5 °C, any departure from this temperature being recorded. The manufacturer shall declare the method of measurement of temperature rise.

2.3 Type tests

2.3.1 Weight, centre of gravity and rotor inertia. The weight of the machine, the distance of the centre of gravity of the machine from the mounting flange, and the polar moment of inertia of the rotor shall be determined.

2.3.2 Initial check. Brushes when fitted shall be bedded over the full arc for at least 80 % of their axial width and the brush spring pressures shall be measured.

2.3.3 Cold resistance of windings. The cold resistance of all windings shall be measured at room temperature and corrected to 20 °C.

2.3.4 Commutation. As applicable, the commutation of the machine shall be assessed by the method recommended in BS G 102.

2.3.5 Magnetization characteristics

2.3.5.1 *Open circuit magnetization characteristics.* A curve showing open circuit voltage against varying field current shall be plotted, the speed being maintained constant at minimum rated speed.

2.3.5.2 *Load excitation characteristics.* A family of curves showing the variation of excitation current and driving torque with speed throughout the speed range at rated voltage shall be plotted for values of load current from no-load to 1.25 rated-load.

2.3.6 Ripple voltage. The ripple voltage shall not exceed 4.5 V peak to peak at the generator terminals when the generator is supplying rated-load current to a non-inductive resistance load.

NOTE Feeder cables can significantly affect the value of ripple current.

2.3.7 Brush performance at altitude

2.3.7.1 These tests are applicable only to machines with brushes and with commutators and are primarily intended to check brush performance.

The temperature, pressure and maximum humidity in the altitude chamber shall be those obtaining at the maximum rated altitude for the machine, under International Standard Atmosphere (ISA) conditions.

Tests shall be performed at 90 % maximum speed with the coolant flow appropriate to the altitude condition.

2.3.7.2 The machine shall be run at rated-load for 100 h in ten cycles of 10 h nominal duration, each cycle being preceded by a 2 h ground level run. If agreed by the Approving Authority, the results of appropriate development tests may be submitted in lieu of, or as part of, evidence that the machine satisfactorily fulfills this test.

2.3.7.3 The machine shall be run on no-load at rated voltage for 10 hours at ground level followed by 10 hours at the maximum altitude rating of the machine. If glazing occurs under these conditions, the minimum load to prevent glazing shall be determined and declared.

2.3.7.4 For air-cooled machines records shall be made of the following measurements. Equivalent measurements shall be made for machines with other forms of cooling.

1) terminal voltage;
2) load current;
3) air pressure drop across machine;
4) outlet air pressure;
5) inlet air temperature;
6) mass flow of air;
7) inlet dew point;
8) temperature of the hottest brush taken at intervals of not more than one hour, measured by a thermocouple embedded in the brush;
9) initial length of each brush;
10) length of each brush at end of each run.

2.3.8 Temperature

2.3.8.1 Temperature tests shall be made at rated minimum and maximum speeds at ground level conditions. During these runs the load current shall be maintained at rated full load value and the voltage shall be maintained at the rated value by field control. The machine shall be complete with any covers normally fitted and the rated quantity of coolant shall be passed through the machine. The runs shall be continued for a period of one hour after steady temperature conditions have been reached.

2.3.8.2 Whilst maintaining the same conditions, an additional test shall be made to confirm compliance with **1.8.2** 1). The machine shall be run at 125 % rated minimum speed with load current maintained at rated full load value for a period of one hour after steady temperature conditions have been reached. The load shall be increased to 125 % rated full load value for 5 minutes, during which rated voltage shall be maintained.

2.3.8.3 A series of tests shall be performed to confirm the declared ratings in **1.8.1**, as required by the design specification.

2.3.8.4 During the tests records shall be made of the following:

1) output voltage and current;
2) excitation current and voltage;
3) speed;
4) quality of commutation;
5) mass flow rate, inlet and outlet temperatures and inlet and outlet pressures of coolant;
6) all other relevant temperatures, including the ambient temperature; winding temperatures shall be measured by change of resistance method when practicable.

2.3.9 Temperature (shortened standard test). For the purpose of standardizing a test for subsequent production machines, the machine shall be run from cold, without coolant, for a period of 10 minutes at a minimum speed, with load adjusted to produce a final temperature in the critical components within 5 °C of that recorded in the corresponding test specified in **2.3.8.1**, care being taken where practicable to ensure adequate lubrication of the bearings. This load shall be recorded.

The results recorded shall be the average of three machines.

2.3.10 Insulation resistance. While the windings are still hot from the tests in **2.3.9**, the machine shall be subjected to an insulation resistance test in accordance with BS 2G 100-2, except that the resistance between live parts and the frame shall not be less than 2 MΩ when measured at 250 V d.c. and with suppression capacitors disconnected.

2.3.11 Overspeed. Immediately after the test in **2.3.10** and while still hot, the machine shall be run for 3 minutes at 120 % of its maximum rated speed or at such higher speed as may be agreed between the manufacturer and the user (see **1.11**). The machine shall be stripped and examined, and there shall be no signs of relevant movement of the rotating parts, nor damage to the stator or rotor. The balance of the rotor shall also be checked for compliance with the requirements of BS G 102.

2.3.12 Containment (as applicable). The machine shall be subjected to a test to ensure that it complies with the requirements for containment specified in **1.11**.

2.3.13 Endurance, overload and radio interference suppression

2.3.13.1 As applicable and practicable, parts liable to wear shall be measured, the ambient temperature being recorded.

2.3.13.2 No maintenance or adjustments of any kind shall be performed on the machine in the course of this test, except that, if necessary, new brushes may be fitted. The time taken to bed new brushes shall not constitute a part of the test, but a record shall be kept of wear of the brushes.

2.3.13.3 The machine shall be run at 90 % of maximum speed under rated cooling conditions for 1 000 hours in cycles of 10 hours to 20 hours duration with sufficient shut-down time between cycles to allow the machine to cool to room temperature. For the first 100 hours of the test the machine shall be run at rated-load, except that during the last cycle and not less than 5 hours before the end of the last cycle, an overload test shall be made under the conditions specified in **1.28** 1). At the end of the cycle the machine shall be tested for compliance with **1.8.2** 2). For the remainder of the test the load may be reduced to 75 % rated-load, in accordance with the requirements of BS 2G 100-2.

2.3.13.4 At the conclusion of these endurance and overload tests, the machine shall be tested at minimum, average and maximum speeds and load in accordance with the provisions of BS 2G 100-2.2, in respect of freedom from radio interference.

2.3.13.5 At the conclusion of the test, the minimum insulation resistance after 1 000 hours run, measured at 250 V d.c., shall be 100 kΩ. The machine shall be cleaned, without replacement of any part, after which the insulation resistance shall not be less than 1 MΩ. Failure to attain this value shall be investigated and a record made of any action necessary to achieve it.

2.3.13.6 Finally, the machine shall be stripped and examined for faults. The dimensions of parts liable to wear shall be checked against those obtained as a result of the check specified in **2.3.13.1**, the ambient temperature being recorded.

2.3.14 Vibration. The machine shall function satisfactorily when subjected to the vibration test specified in BS 3G 100-2.3.1, appropriate to the performance grading declared by the manufacturer.

2.3.15 Acceleration. The machine shall function satisfactorily when subjected to the acceleration test specified in BS 3G 100-2, appropriate to the performance grading declared by the manufacturer.

2.3.16 Temperature-pressure

2.3.16.1 The machine used for the temperature-pressure tests shall be either that used for the test in **2.3.14** or another machine which has been subjected to 10 % of the vibration test cycles specified in that subclause. It shall function satisfactorily when subjected to the tests specified in BS 3G 100-2.3.2, appropriate to the classification and grading declared by the manufacturer.

2.3.16.2 During the functioning tests required by the relevant specification, for the appropriate grade, the machine shall be run at average speed for a few minutes to ensure that all moving parts and brushes are free. It is acceptable for the machine to be run as a motor and the input power recorded. For the low temperature functioning tests the temperature of the chamber may be raised so that the machine is at its minimum declared ambient temperature.

2.3.16.3 Insulation resistance shall be measured before the tests required by **2.3.16.2**, also immediately on removal from the chamber after these tests, and at suitable intervals of time to enable the recovery under normal ambient conditions to be plotted over a period of 24 hours.

2.3.17 Mould growth. If required by the individual specification the machine shall be subjected to the mould growth test detailed in BS 2G 100-2, Clause **208**c.

2.3.18 Compass interference. The machine shall be subjected to the tests for compass safe distance detailed in BS 2G 100-2.

2.3.19 Waterproofness. If required by the individual specification, the machine shall be subjected to the Grade A or Grade B waterproofness specified in BS 2G 100-2, as appropriate to the performance grading declared by the manufacturer.

2.3.20 Salt corrosion. If required by the individual specification, a salt corrosion test in accordance with Appendix A shall be made.

At the end of the 28 day test the machine shall be examined for corrosion and deterioration of metal parts, finishes, materials and components, and shall be subjected to such functioning tests as may be required by the individual specification.

2.3.21 Dust and sand. If required by the individual specification, a sand and dust test in accordance with Appendix B shall be made.

At the end of the test the machine shall be examined for local accumulations of dust and, if required by the individual specification, a functioning test shall be made.

2.3.22 Fluid contamination. If required by the individual specification, the machine shall be subjected to fluid contamination tests as described in Appendix C. The test shall be repeated for each specified fluid.

At the conclusion of each test the machine shall be examined for signs of deterioration, such as softening of paints and varnishes, and after the final test shall be submitted to such functioning tests as are required by the individual specification.

2.4 Production routine tests

2.4.1 Component check. All the components and sub-assemblies of the machine shall have been checked in accordance with the approved drawings.

2.4.2 Resistance of windings. The resistance of all windings, measured at room temperature and corrected to 20 °C, shall be within 10 % of the value specified in the drawing.

2.4.3 Brush bedding and adjustment. Machines fitted with brushes shall be run at a suitable speed for a period sufficient to ensure that the brushes are bedded over the full arc for at least 80 % of their axial width. Where applicable, the brush position shall be adjusted and the setting indicated by a suitable marking. After setting, running shall be continued to ensure that brushes are correctly bedded. Any running required to condition the commutator surface shall also be done at this stage.

2.4.4 Temperature. (Commutator machines only.) A test of 10 minute duration shall be carried out at rated minimum speed without cooling. The load shall be that determined in the type test (**2.3.9**) and the excitation shall be varied to maintain rated output voltage.

At the end of the test the temperature rises of the commutator (determined by the method used in the type tests) and of the shunt field winding (by change of resistance) shall not exceed 110 % of those recorded in the type tests.

2.4.5 Overspeed. Whilst hot from the test in **2.4.4**, the machine shall be run for at least one minute at 120 % of its rated maximum speed. During the run there shall be no excessive noise or vibration.

2.4.6 Loading. Whilst the machine is still hot from the test in **2.4.5**, the excitation required to produce rated voltage on no-load and rated-load, at rated maximum and minimum speeds in that order, shall be determined. The values obtained shall lie within the specified limits. The quality of commutation shall be to the standard determined from the type tests. A check shall also be made that the polarity of the terminals is correct.

2.4.7 Insulation. Whilst the machine is still hot from the tests in **2.4.6**, and with the capacitors disconnected, it shall be subjected to insulation tests in accordance with BS 2G 100-2, except that:

1) a high voltage test shall be made at 500 V r.m.s. 50 Hz, applied between live parts and the frame; and

2) the insulation resistance between live parts and the frame, measured to 250 V d.c., shall be not less than 2 MΩ.

2.5 Production quality tests

2.5.1 Selection of samples. Unless otherwise agreed between the manufacturer and the purchaser or Inspecting Authority, as appropriate, sample machines for quality tests shall be selected on the following basis.

1) At the commencement of production, or when production recommences after a lapse of 6 months or more, quality tests shall be made on one of the first machines produced from each source of manufacture.

2) When the quantity scheduled for production is less than 100, one machine shall be selected for testing, except that the test may be omitted at the discretion of the Inspecting Authority when the quantity does not exceed 10.

3) Quality tests shall be applied to one machine in every 100 produced, or one test shall be made in every 6 months, whichever provides the greater frequency of testing.

The samples shall be selected from current production and shall have previously passed the production routine tests.

The sampling sequence shall be recommenced upon the introduction of a major modification.

2.5.2 Testing

2.5.2.1 During the quality tests the sample shall not be serviced in any way.

2.5.2.2 The sample shall be submitted to the following tests:

1) *Temperature tests* in accordance with **2.3.8.1** and **2.3.8.4**.

2) *Tropical exposure tests* in accordance with Clause **208**b of BS 2G 100-2, for a duration of 7 days instead of 28 days.

3) *Endurance tests* in accordance with **2.3.13**, except that the duration of the test may be reduced to 200 hours.

2.5.2.3 If a sample fails during any portion of the quality tests, it shall be dismantled for examination and a report on the cause of failure shall be made to the Inspecting Authority. Two further samples shall be selected from the same production batch, and the tests repeated. Only if these two further samples are satisfactory shall the batch be deemed to comply with the requirements of this British Standard.

Appendix A Salt corrosion test

A.1 Apparatus

The following apparatus is required:

1) a chamber in which the following atmospheric conditions can be maintained:

temperature 35 ± 2 °C

relative humidity 90–95 %;

2) a means of spraying the test solution in the form of a fine mist.

A.2 Test solution

A solution prepared by dissolving the following substances in distilled water and making up the volume to one litre, the proportions of the ingredients being within 10 % of those given.

		g
Sodium chloride	NaCl	26.5
Magnesium chloride	$MgCl_2$	2.4
Magnesium sulphate	$MgSO_4$	3.3
Calcium chloride	$CaCl_2$	1.1
Potassium chloride	KCl	0.73
Sodium bicarbonate	$NaHCO_3$	0.20
Sodium bromide	NaBr	0.28

NOTE The use of sea water is not recommended since its effects have been observed to be very variable.

A.3 Test procedure

A.3.1 Place the machine in the chamber and allow it to attain normal laboratory temperature.

A.3.2 Spray the test solution, in the form of a fine mist, into the atmosphere surrounding the machine for one hour to two hours at such a rate that the volume sprayed in one hour is approximately 1 % of the volume of the chamber.

NOTE It is essential that there should be no contamination of the solution being sprayed. Solution drippings from the walls and ceiling of the chamber, and from the machine, should not be re-sprayed.

A.3.3 Adjust the atmospheric conditions in the chamber to those given in **A.1** 1) and allow the machine to remain in those conditions for 7 days.

A.3.4 Repeat the procedures in **A.3.2** and **A.3.3** a further three times.

Appendix B Dust and sand test

B.1 Apparatus

The following apparatus is required:

1) a chamber in which the following atmospheric conditions can be maintained:

temperature 35 ± 2 °C

relative humidity not more than 60 %;

2) a suitable means of blowing dust and sand laden air through the chamber so as to produce a given concentration of the mixture;

3) a measuring device as shown in Figure 1.

NOTE The mixture of dust and sand enters through the five circular holes in the measuring device and collects at the bottom in the detachable tray.

B.2 Test mixture

A mixture of equal proportions, by weight, of dust and sand complying with BS SP 20:1949, Appendix B, and all of it capable of passing a 150 μm nominal size aperture (100 mesh) British Standard sieve conforming to BS 410.[2)]

B.3 Test procedure

B.3.1 Adjust the atmospheric conditions in the chamber to, and maintain them throughout the test at those given in **B.1** 1).

B.3.2 Place the measuring device in any representative position in the chamber and adjust the apparatus so that, when the air is circulated in the chamber for 5 minutes and the dust and sand is then allowed to settle, the amount of the mixture in the tray is 25 ± 5 g.

B.3.3 Remove the measuring device, place the machine in the chamber and allow it to attain the temperature in the chamber.

B.3.4 Blow the dust and sand laden air through the chamber for 30 minutes.

[2)] BS 410, "*Test sieves*".

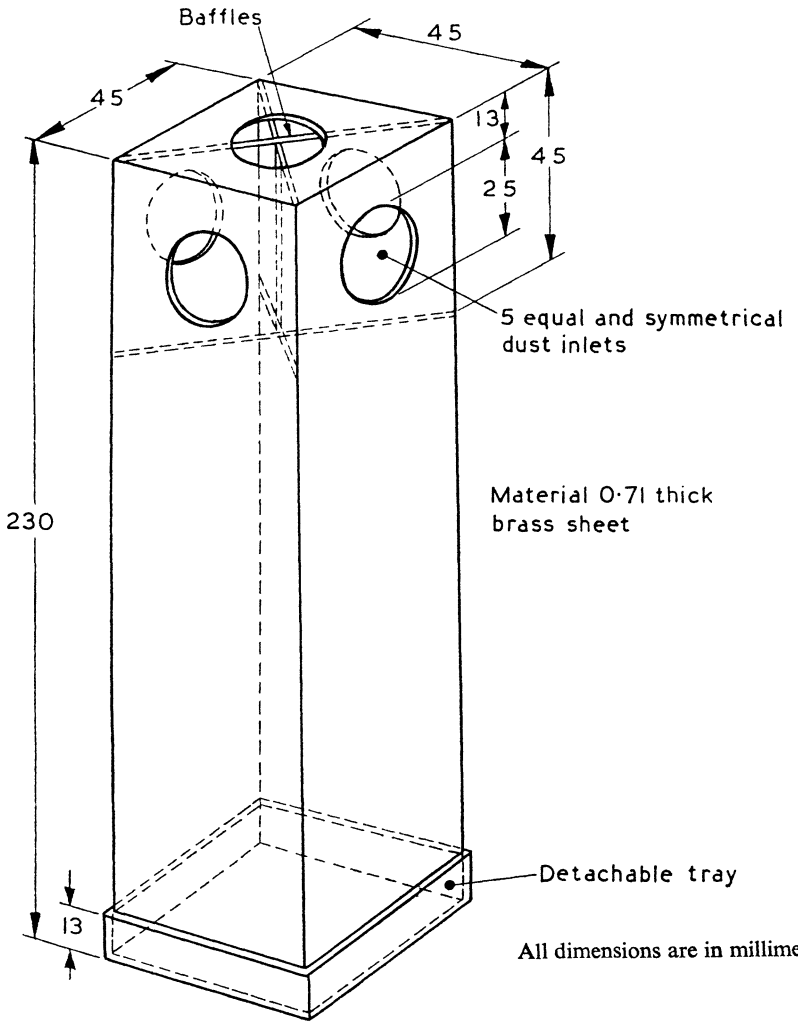

Figure 1 — Measuring device for dust and sand test

Appendix C Fluid contamination test

C.1 Apparatus

The following apparatus is required:

1) a chamber in which the temperature can be maintained at 50 ± 2 °C;

2) a suitable means of spraying the test fluids.

C.2 Test fluids

Test fluids are as follows:

Fluid represented	Test fluid
Fuel	70 % *iso*octane and 30 % toluene by volume
Hydraulic fluid	1) 80 % ethylene glycol monoethyl ether and 20 % castor oil by volume 2) ester based synthetic hydraulic fluid[a] 3) high temperature hydraulic fluid[a]
Mineral lubricating oil	[a]
Cleaning fluid	Trichloroethylene to BS 580[b] Type 2

[a] Details obtainable from BSI, 2 Park Street, London, W1A 2BS.
[b] BS 580, *"Trichloroethylene"*.

C.3 Test procedure

C.3.1 Thoroughly clean the machine, spray it with the selected test fluid so that it is thoroughly wetted and place it in the chamber.

C.3.2 Adjust the temperature in the chamber to that appropriate, as follows, and maintain it at that temperature for not less than 48 h:

trichloroethylene	20 ± 5 °C
other test fluids	50 ± 2 °C.

C.3.3 Remove the machine from the chamber and allow it to regain room temperature.

BSI — British Standards Institution

BSI is the independent national body responsible for preparing British Standards. It presents the UK view on standards in Europe and at the international level. It is incorporated by Royal Charter.

Revisions

British Standards are updated by amendment or revision. Users of British Standards should make sure that they possess the latest amendments or editions.

It is the constant aim of BSI to improve the quality of our products and services. We would be grateful if anyone finding an inaccuracy or ambiguity while using this British Standard would inform the Secretary of the technical committee responsible, the identity of which can be found on the inside front cover. Tel: 020 8996 9000. Fax: 020 8996 7400.

BSI offers members an individual updating service called PLUS which ensures that subscribers automatically receive the latest editions of standards.

Buying standards

Orders for all BSI, international and foreign standards publications should be addressed to Customer Services. Tel: 020 8996 9001. Fax: 020 8996 7001.

In response to orders for international standards, it is BSI policy to supply the BSI implementation of those that have been published as British Standards, unless otherwise requested.

Information on standards

BSI provides a wide range of information on national, European and international standards through its Library and its Technical Help to Exporters Service. Various BSI electronic information services are also available which give details on all its products and services. Contact the Information Centre. Tel: 020 8996 7111. Fax: 020 8996 7048.

Subscribing members of BSI are kept up to date with standards developments and receive substantial discounts on the purchase price of standards. For details of these and other benefits contact Membership Administration. Tel: 020 8996 7002. Fax: 020 8996 7001.

Copyright

BSI
389 Chiswick High Road
London
W4 4AL