MILITARY SPECIFICATION

GENERATOR, GAS PRESSURE,

PROPELLANT ACTUATED

BBU-18/B

This specification is approved for use by the Naval Air Systems Command, Department of the Navy, and is available for use by all Departments and Agencies of the Department of Defense.

1. SCOPE.

1.1 Scope. This specification establishes the requirements for manufacture and acceptance of the Propellant Actuated Gas Pressure Generator, BBU-18/B, critical item, referred to herein as the generator.

2. APPLICABLE DOCUMENTS.

2.1 Issues of documents. The following documents of the issue in effect on date of invitation for bids or request for proposal form a part of this specification to the extent specified herein.

SPECIFICATIONS

MILITARY

MIL-B-85251	Bomb, Binary Chemical, BLU-80/B.

Beneficial comments (recommendations, additions, deletions) and any pertinent data which may be of use in improving this document should be addressed to: Commanding Officer, Naval Air Engineering Center, Engineering Specifications and Standards Department (ESSD), Code 93, Lakehurst, NJ 08733, by using the self-addressed Standardization Document Improvement Proposal (DD Form 1426) appearing at the end of this document, or by letter.

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FSC 1377

STANDARDS

FEDERAL

FED-STD-102	Preservation, Packaging and Packing Levels.

MILITARY

MIL-STD-109	Quality Assurance Terms and Definitions.
MIL-STD-129	Marking for Shipment and Storage.
MIL-STD-414	Sampling Procedures and Tables for Inspection by Variables.
MIL-STD-453	Radiographic Inspection.
MIL-STD-810	Environmental Test Methods.
MIL-STD-45662	Calibration System Requirements.

DRAWINGS

Naval Air Systems Command
(Code Ident 30003)

DL X4900537	Generator, Gas Pressure, Propellant Actuated BBU-18/B.
DL X4900553	Propellant Cartridge, CCU-15/B.
X4900583	Disk, Solid, Plain.
SA495192	Assembly, Adapter, Static Firing, Gas Generator.
SA2875556	Fixture, Vibration (MAU-132A/B, BBU-18/B).

(Copies of specifications, standards, drawings, and publications required by contractors in connection with specified procurement functions should be obtained from the procuring activity or as directed by the contracting officer.)

2.2 Other publications. The following documents form a part of this specification to the extent specified herein. Unless otherwise indicated, the issue in effect on date of invitation for bids or request for proposal shall apply.

DEPARTMENT OF TRANSPORTATION

Code of Federal Regulations

49 CFR 171-178	Transportation.

(Application for copies should be addressed to the Superintendent of Documents, Government Printing Office, Washington, D.C. 20402.)

American Society for Testing and Materials

ASTM F-78-71	Standard Method of Calibration of Helium Leak Detectors by use of Secondary Standards.
ASTM E-493-73	Leaks Using the Mass Spectrometer Leak Detector in the Inside-out Testing Mode, Methods of Test for.

(Application for copies should be addressed to the American Society for Testing and materials, 1916 Race Street, Philadelphia, PA 19103.)

3. REQUIREMENTS.

3.1 Item description. The generator is an ammonium nitrate solid propellant device, which, when electrically initiated, produces gas suitably clean and cool to drive MAU-132A/B Hot Gas Motor. The major components of the generator are a head assembly, propellant assembly, retainer, and igniter.

3.2 Characteristics.

3.2.1 Performance.

3.2.1.1 Prefunctional.

3.2.1.1.1 Mechanical integrity. The generator shall exhibit no evidence of loose parts due to separation of the propellant grain assembly from the canister. The propellant grain shall be free of breaks, cracks, voids, or low density areas.

3.2.1.1.2 Electrical resistance. The generator ignition circuit shall have a resistance of 1.00 ±0.15 ohms.

3.2.1.1.3 Airtightness (leak rate). The generator shall have a leak rate less than 1.0×10^{-4} atmospheric cubic centimeter per second (atm cm^3/s) at 1 atmosphere differential pressure and 25 ±2 degrees Celsius (°C).

3.2.1.2 Functional. When assembled and static fired, the generator shall function without ignition failure or blowing up and produce a pressure-time curve with values meeting the requirements of Table I.

TABLE I. Functional requirements.

Performance characteristics[1/]	Specification limits[2/]			
	-48°C		+74°C	
	Min	Max	Min	Max
Ignition delay, ms	---	20	---	20
Time-to-900 lb/in^2g, ms	---	750	---	750
Early maximum pressure, lb/in^2g	---	1,900	---	2,300
Minimum pressure, lb/in^2g	800	---	800	---
Late maximum pressure, lb/in^2g	---	1,500	---	1,500
Burning time, s	---	---	---	---

[1/] Performance characteristics definitions of 6.3 shall apply.

[2/] These values are subjected to revision upon completion of testing.

3.2.2 Environmental. The generator performance shall not be degraded below that specified in Table I after exposure to the following environments.

3.2.2.1 Temperature shock. Alternate sequential exposure to temperatures of -48 and 74°C.

3.2.2.2 Vibration. Exposure to the vibration schedule specified in Figure 1 in each of three mutually perpendicular axes under the environmental conditions stated in 4.5.2.2.

3.2.2.3 High temperature. Exposure to a temperature of 74°C for a minimum of 30 consecutive days under the environmental conditions stated in 4.5.2.1.

3.2.2.4 Mechanical shock. Exposure to half sine wave impact shocks having a peak amplitude of 15 gravity units (g) and a total duration of 11 milliseconds (ms) at a temperature of -48°C under the environmental conditions stated in 4.5.2.4.

3.3 Design and construction.

3.3.1 Production drawings. The generator shall be fabricated and assembled in accordance with the drawings, parts list, and other documents listed on DL X4900537, DL X4900553, and this specification.

3.3.2 Standards of manufacture.

3.3.2.1 Working environement. Special working environments for the manufacture of propellant and assembly of generator shall be as specified in MIL-B-85251 and 3.3.2.2.

3.3.2.2 In process handling and storage. All binder, propellant, inhibitor, inhibited propellant, and generator shall be processed and stored in an environmentally controlled area with a relative humidity not greater than 40 percent and a temperature not greater than 32°C.

3.3.2.3 Manufacturing processes and procedures. When specified in the contract or purchase order (see 6.2.2), the contractor shall prepare, in his own format, written procedures covering detailed equipment, process requirements, and procedures used by the contractor in the

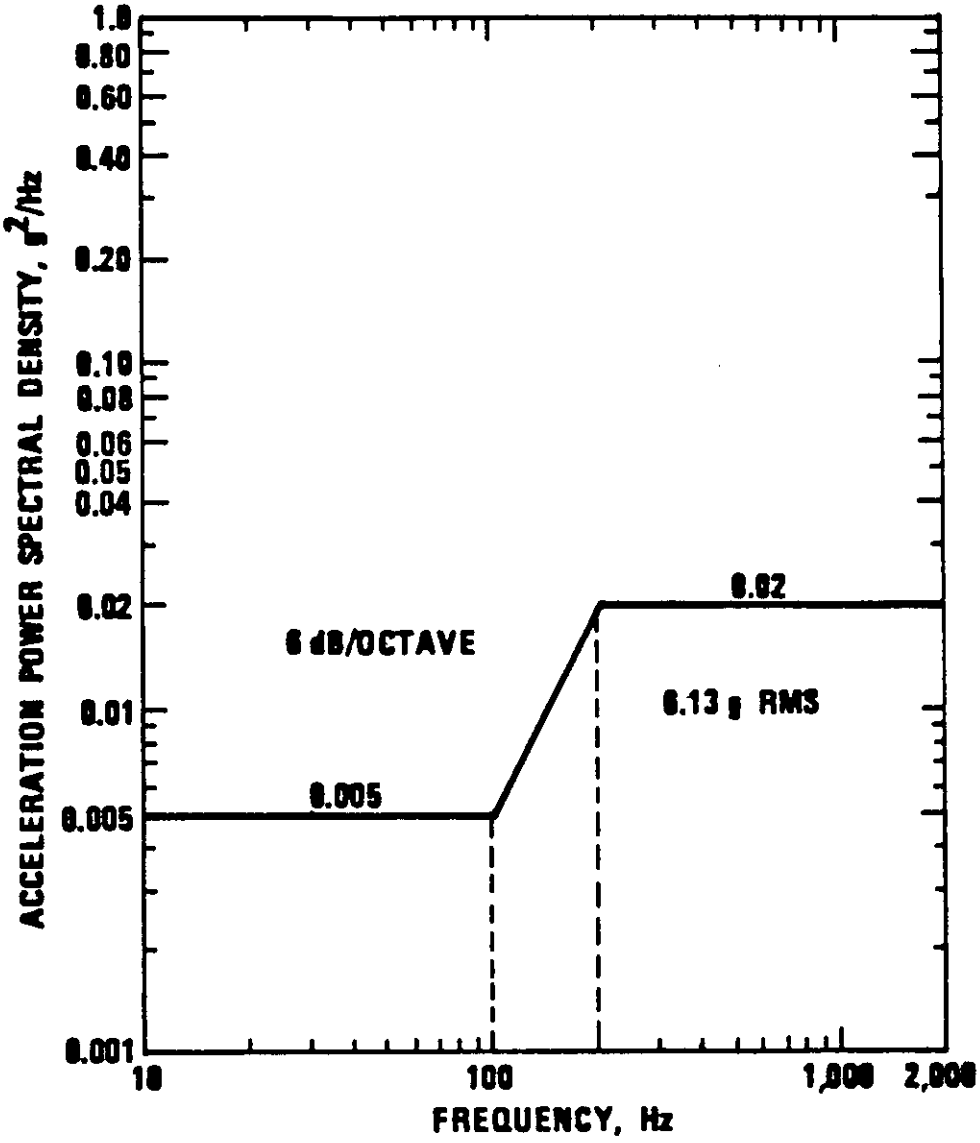

FIGURE 1. Vibration schedule.

manufacture of the generator. Copies of work instructions, together with copies of any documents referenced therein, shall be made available to the procuring activity. Acceptance of documents by the procuring activity will not constitute technical approval but will evidence only that the documents have been included and are in sufficient detail to describe the process and procedures used in the manufacture of the generator.

3.3.2.4 Certification. When specified in the contract or purchase order (see 6.2.2), the contractor shall include written certification accompanied by objective quality evidence as defined in MIL-STD-109, that the materials, processes, and parts used in the generator meet the requirements of Section 3.

3.3.3 Data cards. Data cards, 5 by 7 inches, made from 4-ply commercial white cardboard, and printed in accordance with Figure 2, shall be properly filled out for each lot of generators (see 6.2.2).

3.4 First article. Unless otherwise specified in the contract or purchase order, the contractor shall furnish a preproduction sample consisting of 20 generators to the testing activity designated in the contract or purchase order for first article inspection and approval (see 4.1.2.1 and 6.2.1). The preproduction sample shall be manufactured using the same methods, materials, processes, and procedures proposed for production. Any production prior to acceptance of the preproduction sample is at the risk of the contractor.

3.4.1 Retest. At the discretion of the procuring activity, preproduction tests, or any portion thereof, shall be repeated under any of the following conditions:

a. The manufacturer has modified his product (such as a change of raw materials, the process, production procedures, or methods).

b. Where there is evidence that the quality of the product has not been maintained. This evidence may be in the form of accumulated product failures, of system failures attributable to the product, or failure of the product to pass any of the tests for production lot acceptance that may be conducted by or for the procuring activity.

DATA CARD

GAS GENERATOR, BBU-18/B

Dwg. No._____ Rev. _____ Lot No._____

Specification No. and
Revision Letter _____ Net Quantity _____

Mfg. _____ Purchase Order or
Contract No. _____

Date Assembled _____

Component	Lot No.	Dwg. No. and Rev. Ltr.	Mfr.	Date Mfd.
Igniter, Mk 133 Mod ____				
Propellant Cartridge CCU-15/B				
Disk (4900583-2)				
Canister				

FIGURE 2. Gas generator BBU-18/B data card sample.

c. When applicable documents have been amended or revised sufficiently so that continued validity of the previous preproduction testing is questionable.

d. When the manufacturer has not produced propellant to this specification for BBU-18/B gas generators for a period of 12 months or longer.

e. When the manufacturer changes the location at which generators are produced.

3.5 Documentation. When specified in the contract or purchase order (see 6.2.2), the following documents shall be prepared for the procuring activity:

a. Certification (see 3.3.2.4, 4.1.2.3, and 4.2.3).

b. Inspection reports (see 4.1.2.3 and 4.2.3).

c. Data cards (see 5.4).

3.6 Workmanship. The device shall be fabricated in a manner that will ensure compliance with all requirements of this specification and the assembly drawing. The generator shall be manufactured using good workmanship. Items deserving special attention include:

a. Plating of metal parts, and freedom from burrs and sharp edges.

b. Preparation of parts to be bonded or inhibited, and the application of adhesive or inhibiting material.

c. The lubrication and installation of O-rings.

d. Surface finish and cleanliness of all sealing surfaces.

4. QUALITY ASSURANCE PROVISIONS.

4.1 Responsibility for inspection. Unless otherwise specified in the contract or purchase order (see 6.2.1), the contractor is responsible for the performance of all inspection requirements as specified herein. Except as otherwise specified in the contract or purchase order (see 6.2.1), the contractor may utilize his own facilities or any commercial laboratory acceptable to the Government. The Government reserves the right to perform any of the inspections set forth in this specification where such inspections are deemed necessary to assure that supplies and services conform to prescribed requirements.

4.1.1 Classification of inspections. The examinations and tests specified herein shall be classified as follows:

a. Preproduction inspections (see 4.1.2.1).

b. Quality conformance inspections (see 4.2).

4.1.2 Special tests and examinations.

4.1.2.1 Preproduction inspections. The preproducton sample of 3.4 shall be subjected to the examinations and tests of Table II in the sequence shown.

TABLE II. Preproduction inspections.

Examination or test	Requirement paragraph	Method paragraph
Group I		
Visual	3.3	4.5.1.1
Electrical resistance	3.2.1.1.2	4.5.1.2
Mechanical integrity	3.2.1.1.1	4.5.1.4
Airtightness (leak check)	3.2.1.1.3	4.5.1.3
Group II		
High temperature	3.2.2.3	4.5.2.1
Vibration	3.2.2.2	4.5.2.2
Mechanical integrity	3.2.1.1.1	4.5.1.4
Temperature shock	3.2.2.1	4.5.2.3
Mechanical integrity	3.2.1.1.1	4.5.1.4
Mechanical shock	3.2.2.4	4.5.2.4
Mechanical integrity	3.2.1.1.1	4.5.1.4
Electrical resistance	3.2.1.1.2	4.5.1.2
Airtightness (leak check)	3.2.1.1.3	4.5.1.3
Group III		
Static firing tests		
Firing at -48°C (10 units)	3.2.1.2	4.5.3
Firing at +74°C (10 units)	3.2.1.2	4.5.3

4.1.2.2 Acceptance criteria. Failure of one or more generators in the preproduction sample to pass any of the preproduction tests shall cause rejection of the preproduction sample.

4.1.2.3 Preproduction inspection report. When specified in the contract or purchase order (see 6.2.2), results of the preproduction inspections shall be prepared for the procuring activity. The report shall contain the following information accompanied by a certification (see 6.2.2) which attests that the information provided is correct and applicable to the product being submitted:

a. A statement that the preproduction sample complies with all quality assurance provisions of this specification for the assembly.

b. Number of units of product inspected.

c. Results obtained for all inspections performed.

d. Contract or purchase order number and date, together with an identification and date of changes.

e. Certificates of compliance of all material procured directly by the contractor.

f. Date submitted.

The certification shall be signed by a responsible agent of the certifying organization. The initial certification shall be substantiated by evidence of the agent's authority to bind his principal. Substantiation of the agent's authority will not be required with subsequent certifications unless, during the course of the contract, this authority is vested in another agent of the certifying organization.

4.2 Quality conformance inspections. Each lot of generators offered for acceptance shall be subjected to the quality conformance inspections and tests specified in Table III. Tests shall be performed in the sequence shown.

TABLE III. Quality conformance inspections.

Examination or test	Requirement paragraph	Method paragraph
Group I (100% of lot)		
Visual	3.3	4.5.1.1
Electrical resistance	3.2.1.1.2	4.5.1.2
Mechanical integrity	3.2.1.1.1	4.5.1.4
Airtightness (leak check)	3.2.1.1.3	4.5.1.3
Group II (quality conformance samples)		
Temperature shock	3.2.2.1	4.5.2.3
Mechanical shock	3.2.2.4	4.5.2.4
Vibration	3.2.2.2	4.5.2.2
Mechanical integrity	3.2.1.1.1	4.5.1.4
Electrical resistance	3.2.1.1.2	4.5.1.2
Airtightness (leak check)	3.2.1.1.3	4.5.1.3
Group III (quality conformance samples)		
Static firing tests		
First sample fired at -48°C	3.2.1.2	4.5.3
Second sample fired at +74°C	3.2.1.2	4.5.3

4.2.1 Acceptance criteria. Failure of the quality conformance sample to pass any of the Group II and III tests of Table III shall cause rejection of the lot represented.

4.2.2 Inspection lot. Unless otherwise specified herein, inspection lot definition, lot formation, and lot size shall be in accordance with MIL-STD-414 and 4.2.2.1. Definition of terms and inspection procedures shall be as defined in MIL-STD-414.

4.2.2.1 Lot definition. A generator lot shall consist of generators meeting the conditions specified herein. Prior to assembly of the generator, all parts and components thereof shall have been inspected, tested, and accepted in accordance with their respective specifications and drawings. In addition:

a. All igniters in the generator lot shall come from a single igniter lot.

b. All propellant cartridges (see DL X4900553) in the generator lot shall be from a single propellant cartridge lot (see 4.2.2.2).

4.2.2.2 Propellant-grain lot.

a. All propellant cartridges in a propellant cartridge lot shall be from a single propellant batch (see 4.2.2.3).

b. All propellant cartridges in a propellant cartridge lot shall have been inhibited with material from a single inhibitor batch (see 4.2.2.4).

4.2.2.3 Propellant batch. A propellant batch shall be made in a single mixing operation. Each ingredient in the batch shall be from a single lot of that particular ingredient.

4.2.2.4 Inhibitor batch. An inhibitor batch shall be made in a single mixing operation of inhibitor material. Each ingredient in the batch shall be from a single lot of that particular ingredient.

4.2.3 Quality conformance inspection report. When specified in the contract or purchase order (see 6.2.2), results of the quality conformance inspections shall be included with each lot. The report shall contain the following information accompanied by a certification (see 6.2.2) which attests that the information provided is correct and applicable to the product being submitted:

a. A statement that the lot complies with all quality assurance provisions of this specification for the generator.

b. Number of units of product inspected.

c. Results obtained for all inspections performed.

d. Contract or purchase order number and date, together with an identification and date of changes.

e. Certificates of compliance of all material procured directly by the contractor.

f. Number of items in the lot.

g. Date submitted.

The certification shall be signed by a responsible agent of the certifying organization. The initial certification shall be substantiated by evidence of the agent's authority to bind his principal. Substantiation of the agent's authority will not be required with subsequent certifications unless, during the course of the contract, this authority is vested in another agent of the certifying organization.

4.3 Sampling. A sample for each of the firing temperatures specified in 4.5.3 shall be randomly selected from each inspection lot and subjected to Group II and III tests of Table III. The sample-size code letter for use with each static-firing-test temperature shall be as specified in MIL-STD-414, Table A2, Inspection Level III, Acceptable Quality Level (AQL) of 0.65 percent deficient, except that the sample size for each firing temperature shall never be smaller than that specified for sample-size code letter D.

NOTE: Keep the temperature samples separate until after static firings have been completed.

4.4 Test equipment.

4.4.1 Special test equipment. The following items of special test equipment shall be used in performing the tests of 4.5:

a. Helium leak detection equipment capable of detecting leak rates of 1.0×10^{-6} atm cm^3/s standard air per second (s).

b. A vacuum system capable of drawing a vacuum of 10 microns of mercury.

c. A pressure chamber for pressurizing generators with helium capable of withstanding pressures of 5.0×10^{-3} through 35 pounds per square inch absolute (lb/in^2a).

d. Assembly adapter, static firing (see Figure 3, Drawing SA495192).

4.4.1.1 Calibration and maintenance. Unless otherwise specified in the contract or purchase order (see 6.2.1), calibration system requirements shall conform to MIL-STD-45662.

4.4.2 Automatic recording equipment. Continuous recording equipment having at least the following accuracies (including reading resolution) shall be used in obtaining data during those parts of the generator tests requiring evaluation of time versus performance:

a. True pressure to within ±20 pounds per square inch gage (lb/in^2g).

b. True ignition delay and true time to 900 lb/in^2g to within ±20 ms.

c. True burning time to within ±0.5 s.

4.5 Test methods.

4.5.1 Prefunctional. Each generator of the entire inspection lot shall be subjected to the following prefunctional tests.

4.5.1.1 Visual examination. Each generator shall be visually inspected for conformance to the requirements of 3.3.

4.5.1.2 Electrical resistance. Electrical resistance tests shall be conducted by removing the shorting clip from the igniter and measuring the resistance between the firing pin and the igniter body. After measuring, replace the shorting clip. Accuracy of the equipment used to measure electrical resistance shall determine true resistance to within ±0.02 ohm.

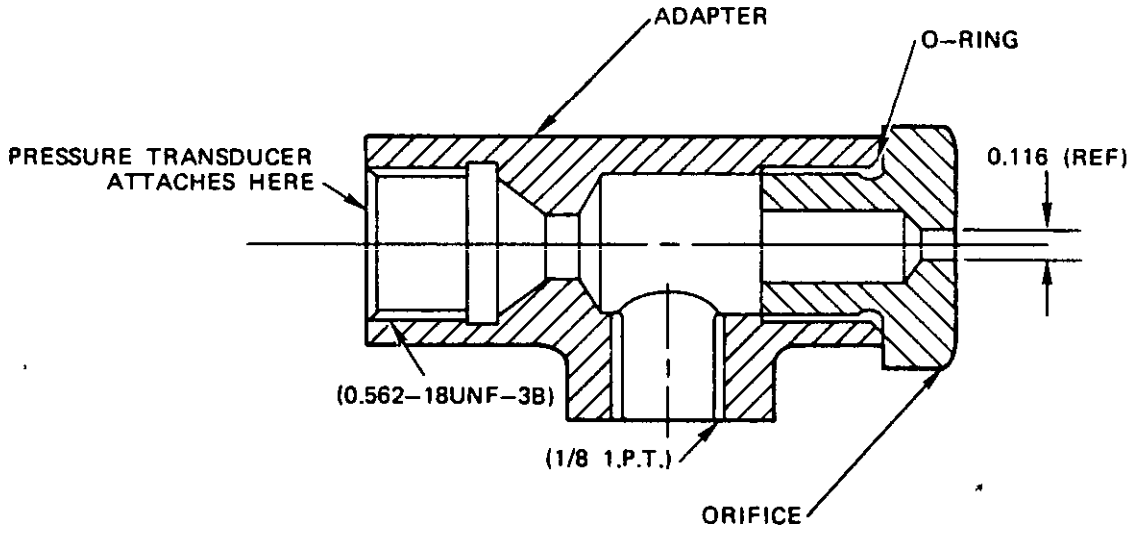

FIGURE 3. Gage adapter, static firing, gas generator. (See Drawing SA495192).

WARNING

For safety reasons, the test equipment should not subject the igniter's electrical circuit to a current exceeding 50 milliamperes (ma).

4.5.1.2.1 Acceptance criteria. Any generator having an electrical resistance outside the limits given in 3.2.1.1.2 is defective. Defective gas generators found during Group I tests shall be removed from the lot and rejected. Defective generators found during Group II tests shall cause rejection of the lot represented.

4.5.1.3 Airtightness. Airtightness testing shall be conducted by operators certified for helium leak testing. The leak detector shall be calibrated in accordance with ASTM F-78 by a helium leak standard before and after a given lot or every 4 hours, whichever occurs first. Testing shall be conducted in accordance with ASTM-E-493, Method A, except that Method B may be utilized for Group I testing if testing is conducted within 4 hours of final assembly in accordance with DL X4900537. The following information shall be recorded:

a. Part number.

b. Lot number.

c. Serial number.

d. Date test performed.

e. Leak rate.

4.5.1.3.1 Acceptance criteria. The generator shall meet the requirements of 3.2.1.1.3. Generators which fail to meet the requirements of 3.2.1.1.3 are defective. Defective generators found during Group I tests shall be removed from the lot and rejected. Defective generators found during Group II tests shall cause rejection of the lot represented.

4.5.1.4 Mechanical integrity. The generator shall be turned upside down and radiographically inspected in accordance with MIL-STD-453 to determine compliance with 3.2.1.1.1.

4.5.1.4.1 Acceptance criteria. The generators shall meet the requirements of 3.2.1.1.1 to be acceptable. Generators which fail to meet the requirement of 3.2.1.1.3 during Group I tests shall be removed from the lot and rejected. Generators which fail to meet the requirement of 3.2.1.1.1 during Group II tests shall cause rejection of the lot represented.

4.5.2 Environmental tests. The following environmental tests shall be performed in the sequence shown in Table II for preproduction samples and Table III for quality conformance samples. Visual examinations and electrical resistance tests performed subsequent to environmental testing as shown in Table II or III shall be considered acceptance criteria.

4.5.2.1 High temperature. All generators of the sample shall be stored for not less than 30 consecutive days in a temperature conditioning chamber maintained at an internal temperature of 74 ±3°C.

4.5.2.2 Vibration (random). The testing shall be in accordance with MIL-STD-810, Method 514. Time of testing shall be 120 minutes in each of the three major orthogonal axes. The test time shall be divided into 90 minutes per axis at low temperatures of -40 ±3°C and 30 minutes per axis at high temperatures of 60 ±3°C.

a. Temperature stabilization shall be in accordance with general requirements of MIL-STD-810.

b. The vibration test profile shall be in accordance with the vibration schedule of Figure 1.

c. The tolerance on vibration test levels and test conduct shall be in accordance with MIL-STD-810, Method 514.2, paragraph 4.5.2, "Random Vibration Test."

d. Drawing SA2875556 shall be used as the vibration fixture.

4.5.2.3 Temperature-shock cycling. Temperature-shock cycling shall be conducted as follows:

a. Place the generators in a temperature-conditioning chamber maintained at 74 ±3°C.

NOTE: The relative humidity of the temperature-conditioning chambers need not be controlled during this test.

b. After the generators have been in the temperature-conditioning chambers for a minimum of 4 hours (6 hours maximum), place the gas generators in a chamber maintained at -48 ±3°C. Effect a complete interchange in less than 5 minutes. After the generators have been held in the new temperature environments for a period of 4 hours (6 hours maximum), again interchange the contents of the two chambers. Four to 6 hours of temperature-conditioning at each extreme (a total of 8 to 12 hours) constitutes one complete cycle.

c. Perform 10 cycles of thermal-shock treatment.

d. Bring all generators back to ambient temperature.

4.5.2.4 Mechanical shock. Testing shall be in accordance with MIL-STD-810, Method 516.2, Procedure I, with the modifications and additions herein. Testing shall be conducted by applying three shocks in each direction through three mutually perpendicular principle axes at a temperature of -48 ±3°C.

a. The shock pulse signature shall be a half sine pulse, 15 g peak and 11 ms duration. The shock pulse tolerance limits shall be in accordance with MIL-STD-810, Method 516.2, Figure 516.2-2, "Half Sine Shock Pulse Configuration and its Tolerance Limits."

b. Before applying mechanical shocks, the generators shall be temperature conditioned at -48 ±3°C for not less than 4 hours. If the generators must be removed from the chamber to apply the required shocks, the elapsed time between removal from the chamber and the start of application of any shock along any axis shall not exceed 3 minutes. If the generators are transferred from the temperature-conditioning chamber to a temperature-conditioned insulated box which is at the same temperature, the elapsed time between removal from the chamber and start of application of any shock along any axis may be increased to 5 minutes, provided the generators are not exposed to ambient temperature for more than 3 minutes of the 5 minute period. If shock testing is not completed within the time limits specified, the generators shall be returned to the conditioning chamber for not less than 1 hour before shock tests are resumed.

4.5.3 Static-firing tests. Prior to firing the generators, install the generator nozzle exhaust fitting (Figure 3) and any necessary static firing fixtures. Fill pressure transducer and associated tubing with DC-11 silicone compound or equivalent grease to prevent variations in generator free volume. Temperature condition the generators in appropriate temperature chambers for no less than 4 hours prior to firing. Units to be fired at -48°C shall be conditioned at -48 ±3°C. Units to be fired at +74°C shall be conditioned at +74 ±3°C. Remove a generator from its temperature-conditioned chamber and attach it to the static firing stand. Connect the pressure transducer and recording instrumentation and fire the generator by application of a direct current of 5.00 ±0.25 amperes. Fire each generator within 3 minutes from the time of removal from its temperature-conditioning chamber. If the generator is transferred to a firing, temperature-conditioned, insulated box, when removed from the conditioning chamber, the time from removal from the conditioning chamber to firing may be increased to 5 minutes provided the time out of the insulated box does not exceed 3 minutes. In the event a generator is not fired within 3 minutes, return the generator to the appropriate temperature-conditioned chamber for 1 hour minimum. The generator shall then be static fired within 3 minutes from removal from the chamber.

NOTE: During static firing, record the test values for milliseconds and lb/in^2g to the nearest whole unit. Record seconds to the nearest hundredth of a second.

4.5.3.1 Acceptance criteria. For each group of generators fired at a single test temperature, the MIL-STD-414 acceptability constant (K factor) shall be determined for each parameter listed in Table I. The evaluation shall be in accordance with the procedures of MIL-STD-414, variability unknown, Standard Deviation Method, Single Specification Limit, Form 1, and an AQL of 0.65 percent deficient to determine whether the performance characteristics comply with the limits given in Table I. The lot shall be rejected if, from its sample, any characteristic fails to meet the acceptance criteria of MIL-STD-414 or if ignition failure or blow up occurs.

4.6 Packaging, packing, and marking. Prior to shipment, examination shall be made to assure that packaging, packing, and marking conform to Section 5 of this specification.

5. PACKAGING.

5.1 Preservation-packaging. Preservation and packaging shall be Level C in accordance with FED-STD-102. The generator shall be packaged in a manner to assure delivery to the first receiving destination without damage to the generator.

5.2 Packing. Packing shall be Level C in accordance with FED-STD-102. The packaged generator shall be packed in containers in a manner consistent with safe and good commercial practices complying with the Code of Federal Regulations, 49 CFR 171-178.

5.3 Marking. In addition to any special markings required by the contract or purchase order (see 6.2.1), shipping containers and palletized loads shall be marked in accordance with MIL-STD-129.

5.4 Data card. One data card shall be placed on top of the contents in each generator shipping container (see 3.5).

6. NOTES AND CONCLUDING MATERIAL.

6.1 Intended use. The generator is intended to provide high-pressure gas for driving a hot-gas motor.

6.2 Ordering data.

6.2.1 Procurement requirements. Procurement documents should specify the following:

a. Title, number, and date of this specification.

b. When a first article is required, it should be tested and approved under the appropriate provisions of 7-104.55 of the Defense Acquisition Regulations (DAR). The first article should be a preproduction sample consisting of 20 generators as specified in 3.4. The contracting officer should include specific instructions in all procurement instruments, regarding arrangements for examinations, tests, and approval of the first article.

c. Responsibility for inspection and inspection facilities (see 4.1).

d. Calibration system requirements, if different from 4.4.1.

e. Special marking (see 5.3).

6.2.2 Data requirements. When this specification is used in a procurement which incorporates a Contract Data Requirements List (DD Form 1423) and invokes the provisions of 7-104.9(n) of the DAR, the data requirements identified below will be developed as specified by an approved Data Item Description (DID) (DD Form 1664) and delivered in accordance with the approved DD Form 1423 incorporated in the contract. When the provisions of DAR 7-104.9(n) are not invoked, the data specified below will be delivered by the contractor in accordance with the contract

requirements. Deliverable data required by this specification are cited as follows:

Paragraph	Data Requirements	Applicable DID
3.3.2.3	Manufacturing instructions	DI-T-5204
3.3.3, 5.4	Data card	DI-E-2001
3.3.2.4, 3.5, 4.1.2.3, 4.2.3	Certification of compliance	DI-E-2121
3.5, 4.1.2.3, 4.2.3	Inspection report	DI-T-2072

(Copies of DIDs required by the contractors in connection with specific procurement functions should be obtained from the procuring activity or as directed by the contracting officer.)

6.3 Definitions. The following definitions apply:

a. Ignition delay. Elapsed time from application of firing current until pressure[1/] reaches 250 lb/in^2g (expressed in ms).

b. Time to 900 lb/in^2g. Elapsed time from application of firing current until the pressure[1/] first reaches 900 lb/in^2g (expressed in ms).

c. Early maximum pressure. Maximum pressure[1/] produced by the generator during the first 5.0 s of burning. (Time of burning is considered to start when the pressure reaches 250 lb/in^2g.) Early maximum pressure is expressed in lb/in^2g.

d. Minimum pressure. The minimum pressure[1/] observed after early maximum pressure and before the pressure starts to drop off near the end of burning (expressed in lb/in^2g).

e. Late maximum pressure. Maximum pressure[1/] produced by the generator at any time after 5.0 s of burning (expressed in lb/in^2g).

f. Burning time. Elapsed time at pressures[1/] continuously above 250 lb/in^2g (expressed in s).

[1/] All pressures are output pressures.

6.4 Safety precautions. Handling of the generator is hazardous and requires safety precautions as stated in DoD 4145.26M.

6.5 Mechanical integrity analysis. In the event mechanical integrity (see 3.2.1.1.1 and 4.5.1.4) is not maintained during Group II tests of Tables II or III, the Government reserves the right to disassemble those generators exhibiting a lack of mechanical integrity prior to commencing Group III tests. Disassembly of the generators will be for the purpose of assessing damage to the propellant grain and igniter and the extent of adhesive coverages on the bottom of the propellant grain. Generators exhibiting damage such as to constitute a hazard during firing, in the opinion of the Government, may be removed from the sample. Disassembled generators will be reassembled and subjected to the airtightness test of 4.5.1.3. Upon satisfactory completion of the airtightness test, the generators will be returned to the sample and Group III tests of Tables II or III initiated.

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MIL-G-85258(AS), GENERATOR, GAS PRESSURE, PROPELLANT ACTUATED BBU-18/B

NAME OF ORGANIZATION AND ADDRESS OF SUBMITTER

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