INCH-POUND
MIL-D-21625G(AS)
30 November 1993
SUPERSEDING
MIL-D-21625F(AS)
24 September 1974

MILITARY SPECIFICATION

DESIGN AND EVALUATION OF CARTRIDGES FOR CARTRIDGE ACTUATED DEVICES

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 covers the general requirements for design and establishes uniform methods for testing cartridges used in cartridge actuated devices. Cartridges designed as stores separation cartridges used in stores separation equipment and single discrete units which are used as electric initiators that are not an integral part (see 6.4.2) of the cartridge design do not fall within the scope of this specification but do fall within the scope of MIL-D-81303 and MIL-I-23659, respectively. For purposes of this specification, the term cartridge includes any assembled unit containing an explosive, propellant, or pyrotechnic material either singly or in any combination designed as the energy source for cartridge actuated devices. Laser initiated cartridges, linear shaped charge, explosive energy transfer lines, devices with the cartridge(s) "sealed-in" (see 6.4.1) and their associated ballistic assemblies used in cartridge actuated device application shall fall within the scope of this specification. The purpose of the testing program is to determine performance, safety, soundness of mechanical design, and resistance to environments encountered during storage, handling, and service use. Cartridges must be safe for handling and must not deteriorate to a degree which would render their performance or safety doubtful after being subjected to the testing program of this specification.

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 Warfare Center Aircraft Division Lakehurst, Systems Requirements Department, Code SR3, Lakehurst, NJ 08733-5100, by using the self-addressed Standardization Document Improvement Proposal (DD Form 1426) appearing at the end of this document or by letter.

AMSC N/A FSC 1377

1.2 Classification of the types of cartridge release to service. Cartridge releases are of the following types as specified (see 6.2).

Type I

Safety of handling and installation. Certification as to safety of handling and installation is required prior to any flight of naval aircraft, target drones, or missiles with cartridges installed, or use of the cartridge in the device of application. For requirements see 3.16.1.

Type II

Interim service release. This type of release is required prior to any flights or use of a device containing cartridges involving naval personnel and will be granted in accordance with the provisions of 3.16.2. The Naval Air Systems Command has the prerogative to authorize procurement of cartridges for Fleet use subsequent to a type II release.

Type III A

Final release to service (fully documented). This type of release is required for admission of the cartridges into the naval supply system as a fully documented cartridge (see 3.9). For requirements see 3.16.2.

Type III B

Special release to service (documented by a source control drawing). If the data required for a type III A release are not available, such as proprietary rights and patents, then a type III B release to service for Fleet use is permissible. For requirements for a type III B release see 3.16.2. For documentation requirements for a type III B release see 3.9.

Type IV

Use of approved cartridge in a new application. If a cartridge has previously been granted a type III A or type III B release and is to be used in a new application, type I release is automatic. A type IV release to service for the new application will be granted in accordance with the requirements of 3.16.3.

2. APPLICABLE DOCUMENTS

2.1 Government documents.

2.1.1 Specifications, standards, and handbooks. The following specifications, standards, and handbooks form a part of this document to the extent specified herein. Unless otherwise specified, the issues of these documents are those listed in the issue of the Department of Defense Index of Specifications and Standards (DODISS) and supplement thereto, cited in the solicitation (see 6.2).

SPECIFICATIONS

MILITARY

MIL-S-5002	Surface Treatments and Inorganic Coatings for Metal Surfaces of Weapons Systems

SPECIFICATIONS

MILITARY

MIL-C-5541	Chemical Conversion Coatings of Aluminum and Aluminum Alloys
MIL-A-8625	Anodic Coatings, for Aluminum and Aluminum Alloys
MIL-C-10464	Cans, Hermetic Sealing, Metal, Light Gage, Tear-Strip Type
MIL-N-18307	Nomenclature and Identification for Aeronautical Systems Electronics Including Joint Type Designated Systems and Associated Systems
MIL-D-23615	Design and Evaluation of Cartridge Actuated Devices
MIL-I-23659	Initiators, Electrical, General Design Specification for
MIL-D-81303	Design and Evaluation of Cartridges for Stores Suspension Equipment
MIL-D-81980	Design and Evaluation of Signal Transmission Subsystems: General Specification for
MIL-C-83125	Cartridges for Cartridge Actuated/Propellant Actuated Devices, General Design Specification for

STANDARDS

MILITARY

MIL-STD-100	Engineering Drawing Practices
MIL-STD-129	Marking for Shipment and Storage
MIL-STD-331	Fuze and Fuze Components, Environmental and Performance Tests for
MIL-STD-453	Inspection, Radiographic
MIL-STD-810	Environmental Test Methods and Engineering Guidelines
MIL-STD-831	Test Reports, Preparation of
MIL-STD-875	Type Designation System for Aeronautical and Aeronautical Support Equipment

STANDARDS

MILITARY

MIL-STD-889	Dissimilar Metals
MIL-STD-970	Standards and Specifications, Order of Precedence for the Selection of
MIL-STD-1168	Ammunition Lot Numbering
MIL-STD-1385	Preclusion of Ordnance Hazards in Electromagnetic Fields
MIL-STD-1521	Technical Reviews and Audits for Systems, Equipments, and Computer Software
DOD-STD-2101	Classification of Characteristics

(Unless otherwise indicated, copies of federal and military specifications, standards, and handbooks are available from DODSSP - Customer Service, Standardization Documents Order Desk, Building 4D, 700 Robbins Avenue, Philadelphia, PA 19111-5094.)

2.1.2 Other Government documents, drawings, and publications. The following other Government documents, drawings, and publications form a part of this document to the extent specified herein. Unless otherwise specified, the issues are those cited in the solicitation.

PUBLICATIONS

49CFR Parts 100-199	Transportation

(Copies of 49CFR are available from the Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402-0001.)

2.2 Non-Government publications. The following documents form a part of this document to the extent specified herein. Unless otherwise specified, the issues of the documents which are DoD adopted are those listed in the issue of the DODISS cited in the solicitation. Unless otherwise specified, the issues of documents not listed in the DODISS are the issues of the documents cited in the solicitation (see 6.2).

AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)

ASTM D 4919	Specification for Testing of Hazardous Materials, Packaging

(Application for copies should be addressed to the American Society for Testing and Materials, 1916 Race Street, Philadelphia, PA 19103-1187.)

(Non-Government standards and other publications are normally available from the organizations that prepare or distribute the documents. These documents also may be available in or through libraries or other informational services.)

2.3 Order of precedence. In the event of a conflict between the text of this document and the references cited herein, the text of this document takes precedence. Nothing in this document, however, supersedes applicable laws and regulations unless a specific exemption has been obtained.

3. REQUIREMENTS

3.1 Selection of specifications and standards. Specification and standards for necessary commodities and service not specified herein shall be selected in accordance with MIL-STD-970.

3.2 Special requirements. Special requirements for specific applications shall take precedence over those listed herein, provided such special requirements are more stringent. Other conflicting requirements are subject to the approval of the cognizant design agency for the specific application involved.

3.3 Materials. Materials for cartridges shall be compatible with the explosive, propellant, delay composition, pyrotechnic, and propellant gas and shall withstand environmental, electromagnetic, functional, service, and storage conditions to which the cartridges will be exposed. Acceptance or approval of materials for design or during the course of manufacture shall in no case be construed as a guarantee of acceptance of the finished cartridges. Pyrocellulose materials shall not be included as wads, spacers, or closure discs. Sealants used in close proximity to explosives, propellants, delay composition or pyrotechnics shall be compatible with these materials. Materials which are nutrients for fungi shall not be used.

3.3.1 Metals. Exposed metals shall be of the corrosion-resisting type or suitably treated to resist the corrosive effects of fuels, salt spray, or atmospheric conditions to which the cartridges may be subjected in storage or normal service use.

3.3.1.1 Dissimilar metals. Dissimilar metals shall not be used in intimate contact with each other unless protected against electrolytic corrosion. Dissimilar metals are defined in MIL-STD-889.

3.3.2 Plastic parts. The use of plastic parts shall be subject to the approval of the cognizant design agency for the specific application involved.

3.4 Finishes. Protective coatings and finishes shall be used which will not crack, chip, or scale during normal service life or when subjected to environmental conditions specified herein. Surface treatments, coatings, and finishes shall conform to MIL-S-5002 except that aluminum and aluminum alloy parts shall be anodized in accordance with 3.4.1.

3.4.1 Anodizing. Aluminum and aluminum alloy parts subject to wear, abrasion, and erosion or exposed to corrosive environmental elements shall be anodized in accordance with MIL-A-8625, type II or III. Chemical conversion coatings conforming to MIL-C-5541 may be used to repair mechanically damaged areas from which the anodic coating has been removed.

3.5 Color coding. Color coding of cartridges as a primary means of identification is strictly forbidden.

3.6 Design and construction. The cartridges shall be of the simplest and most efficient design consistent with the proposed use. Specific consideration shall be given to the factors of minimum size and weight, resistance to deleterious environments, reliability of performance, and safety of operation. All cartridges subjected to the tests of 4.6 shall be of final design configuration, identical in design, and manufactured by the same process and shall be from the same lot. Prior to manufacturing cartridges for service release testing, a critical design review shall be conducted per MIL-STD-1521 (see 6.3).

3.6.1 Explosive, propellant, delay composition, or pyrotechnic material. Any explosive, propellant, delay composition, or pyrotechnic material used in a cartridge shall be approved by the cognizant design agency prior to use in a cartridge. The use of lead azide is restricted.

3.6.2 Assembly. The cartridge shall be simple and safe to assemble. The propellant, explosive, or pyrotechnic material shall be tightly confined without hand stacking the charge. Spacers shall not be used for this purpose.

3.6.3 Cartridge cases. Cartridge cases shall be lightweight. The cases shall be strong enough to withstand environmental and functional tests as specified herein. For electrically initiated cartridges, the cartridge case shall not be a part of the electrical circuit.

3.6.4 Sealed-in type cartridges actuated devices. In addition to meeting the design, environmental, and functional requirements of this specification, sealed-in type cartridge actuated devices (see 6.4.1) shall meet the structural, firing mechanism, shear pin, sand and dust, submersion, iced condition, and structural integrity requirements of MIL-D-23615.

3.6.5 Stab primer/detonators. Stab primers/detonators shall not be used in cartridges nor for initiating any other portion of the explosive components used in cartridge actuated devices.

3.6.6 Electric initiators and cartridges.

3.6.6.1 Electric initiators. Electric initiators which are single discrete units that are used in cartridges shall meet the release requirements of MIL-I-23659 and the electrical requirements of MIL-STD-1385.

3.6.6.2 Electric cartridges. Cartridges containing an electric initiator which is an integral part of the cartridge design (see 6.4.2) shall meet the electrical requirements of MIL-STD-1385 in addition to the requirements specified herein.

3.6.7 Service life. Cartridges, when packaged in hermetically sealed containers, shall have a service life of not less than 5 years from date of manufacture or 36 months after opening of the hermetically sealed container, provided the 5 years (or total service life if longer than 5 years) from date of manufacture is not exceeded by the 36 months. Service life assignments must be approved by the Naval Air Systems Command prior to application in service hardware. When a service life of greater than 5 years is required for a specific installation, the longer service life will be supported by analysis or test.

3.6.8 Cartridges for signal transmission subsystems. Cartridges employed in signal transmission subsystems shall meet all additional requirements specified in MIL-D-81980.

3.6.9 Insensitive munitions. The cartridge shall meet the technical requirements for insensitive munitions.

3.7 Cartridge identification.

3.7.1 Nomenclature. The contractor shall follow the procedure outlined in MIL-N-18307 and MIL-STD-875 when submitting the DD Form 61 for cartridge nomenclature. The information on the DD Form 61 shall be concurred by the cognizant design agency prior to submittal.

3.7.2 National stock number. The cognizant design agency shall obtain a national stock number and Department of Defense Identification Code (DODIC) prior to final release to service use.

3.7.3 Explosive hazard classification. Data for each cartridge for explosive hazard classification (see 6.3) shall be reviewed by the cognizant CAD design agency. An interim explosive hazard classification is required prior to granting a Type I release per 3.15.1. The cognizant CAD design agency shall obtain a final explosive hazard classification prior to final release to service.

3.8 Marking. Each cartridge shall be clearly and permanently (nondefaceable through normal storage and service handling) marked with the cartridge nomenclature (see 3.7.1) identifying number, lot number in accordance with MIL-STD-1168, and serial number.

3.9 Drawings. Drawings of the cartridge, including special tooling required, packaging, and detail and assembly drawings of test sets, shall be in a accordance with MIL-STD-100 (see 6.3). A full disclosure shall be given. If full disclosure cannot be obtained, then there shall be a source control drawing, as defined in MIL-STD-100, including packaging. If source control drawings are obtained, complete drawings containing restrictive use notation shall facilitate in-service support/malfunction investigation.

3.10 Performance. The cartridges shall satisfy all design, environmental, and functional requirements specified herein and reliability and performance requirements outlined in the detailed cartridge design specification.

3.10.1 Dimensions. Unless otherwise specified, dimensions shall apply after all machining, process treatments (plating, anodizing, heat treating), and nondestructive testing have been completed. No cartridge shall deviate from the drawing configuration, dimensions, and tolerances.

3.10.2 Leakage. The cartridges shall pass a dry gas leak test. Unless otherwise specified in the respective cartridge specification, cartridges which exhibit a leak rate in excess of 10^{-5} cubic centimeters per second of air at a pressure differential of 1 ± 0.1 atmosphere shall be considered defective. The leak test shall be conducted as specified in 4.7.2.

3.10.3 Radiographic examination. Each cartridge shall be subjected to radiographic examination such as x-ray, neutron bombardment, and gamma ray, as specified in 4.7.3. Use of radiograhic techniques not covered by military

specifications shall be submitted to the cognizant design agency. Radiographic plates shall be identified by date, contract number, part number, lot number, and serial number. Radiographic plates shall be retained until acceptance of the qualification test report (see 6.3).

3.10.4 Dielectric withstanding voltage. Cartridges using an electric initiator which is an integral part of the design shall meet the dielectric withstanding voltage test requirements when tested as specified in 4.7.4.

3.10.5 Bridge circuit resistance. Cartridges using an electric initiator which is an integral part of the design shall meet the bridge circuit resistance test requirements when tested as specified in 4.7.4.

3.10.6 Static discharge. Cartridges using an electric initiator which is an integral part of the design shall meet the static discharge test requirements when tested as specified in 4.7.4.

3.10.7 Stray voltage. Cartridges using an electric initiator which is an integral part of the design shall meet the stray voltage test requirements when tested as specified in 4.7.4.

3.10.8 Power current/stimulus. Cartridges using an electric initiator which is an integral part of the design shall meet the power current/stimulus test requirements when tested as specified in 4.7.4.

3.10.9 Minimum all-fire and maximum no-fire energy.

3.10.9.1 Electrically initiated cartridges. The minimum all-fire current and the maximum no-fire current shall be determined by statistical methods for cartridges using an electrical initiator which is an integral part of the design when tested as specified in 4.10.1.

3.10.9.2 Laser initiated cartridges. The minimum all-fire energy and the maximum no-fire energy shall be determined by statistical methods for laser initiated cartridges as specified in 4.10.2.

3.11 Environmental conditions.

3.11.1 Forty-foot drop. To ensure safety of handling, the cartridge shall not fire when dropped from a height of 40 feet as specified in 4.8.1 and shall be safe for handling and disposal.

3.11.2 Six-foot drop. The cartridge shall not fire when dropped from a height of 6 feet as specified in 4.8.2. After being subjected to the 6-foot drop test, the cartridges shall meet the nondestructive test requirements and the design performance requirements when test fired.

3.11.3 Shock. The cartridges shall withstand shock conditions as specified in 4.8.3. After being subjected to the shock test, the cartridges shall meet the design performance requirements when test fired.

3.11.4 Temperature/humidity/altitude cycling. The cartridges shall withstand the temperature/humidity/altitude cycling conditions as specified in 4.8.4. After being subjected to the temperature/humidity/altitude cycling test, the cartridges shall meet the nondestructive test requirements and the design performance requirements when test fired.

3.11.5 Vibration. The cartridges shall withstand vibration conditions as specified in 4.8.5. After being subjected to the vibration test, the cartridges shall meet the nondestructive test requirements and the design performance requirements when test fired.

3.11.6 Salt fog. The cartridges shall withstand exposure to salt fog as specified in 4.8.6. After being subjected to the salt fog test, the cartridges shall meet the nondestructive test requirements and the design performance requirements when test fired.

3.11.7 High temperature storage. The cartridges shall withstand the high temperature storage conditions as specified in 4.8.7. After being subjected to the high temperature storage test, the cartridges shall meet the nondestructive test requirements and the design performance requirements when test fired.

3.11.8 Cookoff temperature. The maximum temperature to which a cartridge can be exposed to for a period of 1 hour without cookoff shall be established to within 25°F. The cookoff reaction (outgassing, burning, and explosion) shall be recorded for informational purposes. The maximum temperature to which a cartridge can be exposed to for a period of one hour without cookoff, as determined by the cookoff test of 4.8.8, shall be 225°F or greater.

3.11.9 High temperature exposure (12 hours). The maximum temperature to which cartridges may be exposed for 12 hours and function within design performance requirements when fired after cooling to 70°F shall be established to within 25°F. The maximum temperatures shall be determined by the high temperature exposure test of 4.8.9.

3.11.10 Extended low temperature. The cartridges shall withstand the low temperature conditions of -65°F for 50 hours minimum as specified in 4.8.10 and meet the design performance requirements when test fired.

3.11.11 Extended high temperature. The cartridges shall withstand the high temperature conditions of 200°F for 50 hours minimum as specified in 4.8.11 and meet the design performance requirements when test fired.

3.12 Functional tests.

3.12.1 Low-temperature operation. Operation at -65°F (see 4.9.2).

3.12.2 Normal-temperature operation. Operation at 70°F (see 4.9.3).

3.12.3 High-temperature operation. Operation at 200°F (see 4.9.4).

3.12.4 Underload. For information purposes, cartridges containing 80 percent of their output charges shall be tested at -65°F and 70°F as specified in 4.9.5 to assist in the evaluation of future production lots.

3.12.5 Overload. For information purposes, cartridges containing 120 percent of their output charge shall be tested at 200°F as specifed in 4.9.6 to assist in the evaluation of future production lots. Cartridges which cannot be loaded with 120 percent of their output charge weight will be loaded with the maximum amount of output charge that will fit into cartridge cases. The cartridge hardware will have minimum and maximum material conditions that will allow the maximum free volume for the output charge. The weight of the maximum amount of output charge shall be recorded.

3.13 Post environmental and functional test analysis.

3.13.1 Damage and deterioration. Damage to or deterioration of any internal or external part of the cartridge after environmental testing which could in any manner prevent it from meeting functional requirements shall be reason to consider the cartridge as having failed to meet the test to which it was subjected.

3.13.2 Marginality of success evaluation. No failure, incipient failure, or marginal condition shall be permitted. A detailed post-test inspection of all cartridges and test data shall be conducted to aid in the detection of failures or marginal conditions. The test data shall be recorded and treated in a manner to aid in the detection of failures or marginal conditions and examined for operating results. A marginality of success evaluation plan shall be included in the design verification and service release test plans (see 6.3). All anomalies identified during design verification testing (see 4.5.2) or service release testing (see 4.6) shall be documented and evaluated to ascertain their potential for inducing failures in service, to ascertain the consequences of such failures, and to determine recommendations for remedial action (see 6.3).

3.14 Design freeze. Development tests (see 4.5) shall be conducted to establish a design freeze of the cartridge.

3.15 Criteria of acceptance.

3.15.1 Minimum type I test requirements. After successful completion of the design verification tests (see 4.5.2), minimum requirements for a type I release are satisfactory performance in the tests listed in table I as performed by the Government, contractor, or an independent testing laboratory. If the requirements of 4.5.2 are met without design change, the results may be accepted in fulfilling the requirements for a type I release. If the tests are performed by a contractor or by an independent testing laboratory, the test plan, test facility, and the test report (see 6.3) shall be acceptable to the cognizant design agency. There shall be a certified copy of the test data prior to granting of a type I release (see 6.3).

3.15.2 Type II, type III A, or type III B release. A type II, type III A, or type III B release to service can be given only after the cartridge satisfies the environmental and functional requirements and after successful performance in the complete testing program as set forth in tables I and II. Unless otherwise specified in the contract, the tests listed in table II shall be conducted by the cognizant design agency (see 6.3). There shall be a certified copy of the test data prior to granting of a type II, type III A, or type III B release to service (see 6.3). Documentation for either a type III A, or type III B release in accordance with the requirements of 3.9 shall be prepared as determined by contractual agreement (see 6.2). Distribution of cartridges for the various environmental and functional tests shall be in accordance with tables I and II. Cartridges which have met the requirements of MIL-C-83125 may be considered acceptable for a type II, type III A, or type III B release provided all requirements of this specification have been met.

3.15.3 Acceptance of a standard cartridge in an additional device. When it is desired to use a previously approved cartridge (a cartridge which has had a type III A or type III B release to service) in a new application, certification of 3.15.1 is automatic (see 6.3). A type IV release for service use will be granted upon satisfactory performance in any special tests required by the new application

TABLE I. Design verification test program.

Test	Test paragraph	Group 1/ and number of cartridges in group A	B	C	D	E	F	G	H 2/4/	Total
Nondestructive										
Examination of product	4.7.1	6	6	6	6	6	18	6	120	174
Leakage	4.7.2	6	6	6	6	6	18	6	120	174
Radiographic examination	4.7.3	6	6	6	6	6	18	6	120	174
Dielectric withstanding voltage 2/	4.7.4	6	6	6	6	6	18	6	120	174
Bridge circuit resistance 2/	4.7.4	6	6	6	6	6	18	6	120	174
Static discharge 2/	4.7.4	6	6	6	6	6	18	6		54
Bridge circuit resistance 2/	4.7.4	6	6	6	6	6	18	6		54
Stray Voltage 2/	4.7.4	6	6	6	6	6	18	6		54
Bridge circuit resistance 2/	4.7.4	6	6	6	6	6	18	6		54
Environmental										
40-foot drop 3/	4.8.1	6								6
6-foot drop	4.8.2		6							6
Shock	4.8.3			6						6
Temperature/humidity/ altitude	4.8.4				6					6
Vibration	4.8.5					6				6
Extended high temperature	4.8.11							6		6
Nondestructive										
Bridge circuit resistance 2/	4.7.4		6	6	6	6				24
Leakage	4.7.2		6	6	6	6				24
Radiographic examination	4.7.3		6	6		6				18
Static Discharge 2/	4.7.4		6	6	6	6				24
Bridge circuit resistance 2/	4.7.4		6	6	6	6				24
Power current stimulus at 70°F 2/	4.7.4		4	4	4	4				16
Power current stimulus at 200°F 2/	4.7.4		2	2	2	2				8
Bridge circuit resistance 2/	4.7.4		6	6	6	6				24
Functional										
Low temperature operation (-65°F)	4.9.2						6			6
Normal temperature operation (70°F)	4.9.3		6	6	6	6	6			30
High temperature operation (200°F)	4.9.4						6			6
Minimum all-fire and maximum no-fire current or energy 2/, 4/	4.10.1/ 4.10.2								120	120

TABLE I. Design verification test program - Continued.

1/ The test shall be performed in the order listed for each group of cartridges.
2/ This test is applicable when the cartridge contains an electric initiator which is an integral part of the cartridge design (see 3.6.6). Cartridges or cartridge subassemblies from group H shall be used to determine the minimum all-fire and maximum no-fire current.
3/ Cartridges subjected to the 40-foot drop test shall be disposed of in accordance with approved safety regulations.
4/ Group H also applies to laser intiated cartridges.

TABLE II. Services release test program.

Test	Test paragraph	Group 1/ and number of cartridges in group														TOTAL
		A	B	C	D	E	F	G	H	I	J	K	L	M	N 4/	
		6	12	18	12	12	18	12	12	6	6	36	12	6	24	192
Nondestructive																
Examination of product	4.7.1	6	12	18	12	12	18	12	12	6	6	36	12	6	24	192
Leakage	4.7.2	6	12	18	12	12	18	12	12	6	6	36	12	6	24	192
Radiographic examination	4.7.3	6	12	18	12	12	18	12	12	6	6	36	12	6	24	192
Dielectric withstanding voltage 2/	4.7.4	6	12	18	12	12	18	12	12	6	6	36	12	6	24	192
Bridge circuit resistance 2/	4.7.4	6	12	18	12	12	18	12	12	6	6	36	12	6	24	192
Static discharge 2/	4.7.4	6	12	18	12	12	18	12	12	6	6	36	12	6	24	192
Bridge circuit resistance 2/	4.7.4	6	12	18	12	12	18	12	12	6	6	36	12	6	24	192
Stray Voltage 2/	4.7.4	6	12	18	12	12	18	12	12	6	6	36	12	6	24	192
Bridge circuit resistance 2/	4.7.4	6	12	18	12	12	18	12	12	6	6	36	12	6	24	192
Environmental																
6-foot drop	4.8.2	6														6
Shock	4.8.3		12													12
Temperature/humidity/ altitude	4.8.4			18												18
Vibration	4.8.5				12											12
Salt fog	4.8.6					12										12
High temperature storage	4.8.7						18									18
Cookoff	4.8.8							12								12
High temperature exposure	4.8.9								12							12
Extended low temperature	4.8.10									6						6
Extended high temperature	4.8.11										6					6

TABLE II. Services release test program - Continued.

Test	Test paragraph	Group 1/ and number of cartridges in group													TOTAL
		A 6	B 12	C 18	D 12	E 12	F 18	G 12	H 12	I 6	J 6	K 36	L 12	M 6	N 4/ 24	192
Nondestructive																
Bridge Circuit resistance 2/	4.7.4	6	12	18	12	12	18									78
Leakage	4.7.2	6	12	18	12	12	18									78
Radiographic examination	4.7.3	6	12		12											30
Static Discharge 2/	4.7.4	6	12	18	12	12	18									78
Bridge circuit resistance 2/	4.7.4	6	12	18	12	12	18									78
Power current stimulus at 70°F 2/	4.7.4	4	9	12	9	9	12									55
Power current stimulus at 200°F 2/, 3/	4.7.4	2	3	6	3	3	6									23
Bridge circuit resistance 2/	4.7.4	6	12	18	12	12	18									78
Functional																
Low temperature operation (-65°F)	4.9.2		3		3	3						12				21
Normal temperature operation (70°F)	4.9.3	6	6	18	6	6	18		12			12				84
High temperature operation (200°F)	4.9.4		3		3	3						12				21
Underload (-65°F and 70°F)	4.9.5												12			12
Overload (200°F)	4.9.6													6		6

1/ The tests shall be performed in the order listed for each group of cartridges.
2/ These tests are applicable only when the cartridge contains an electric initiator which is an integral part of the cartridge design (see 3.6.6).
3/ Cartridges subjected to the power current/stimulus at 200°F in groups B, D, and E shall be used for the high temperature operation (200°F) test.
4/ If the tests of table II are performed by a contractor in house or at an independent testing laboratory, the 24 cartridges of group M that were not allocated to the destructive test of table II, are to be furnished to a designated Navy activity. These cartridges will be used to verify production lot acceptance procedures and test set functioning as being appropriate for acceptance and follow-on-support for production lot procurements. If the test of table II are performed by a Government laboratory, the cartridges that were not allocated to the destructive tests of table II shall be retained for investigative purposes.

(see 3.2) and the tests of table II (see 6.3) required by the new application.

3.16 Workmanship. Workmanship shall be subjected to the inspection of all requirements as specified herein and as specified in 3.9.

4. QUALITY ASSURANCE PROVISIONS

4.1 Responsibility for inspection. Unless otherwise specified in the contract or purchase order, the contractor is responsible for the performance of all inspection requirements (examinations and tests) as specified herein. Except as otherwise specified in the contract or purchase order, the contractor may use his own or any other facilities suitable for the performance of the inspection requirements specified herein, unless disapproved by 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 ensure supplies and services conform to prescribed requirements.

4.1.1 Responsibility of compliance. All items shall meet all requirements of sections 3 and 5. The inspection set forth in this specification shall become a part of the contractor's overall inspection system or quality program. The absence of any inspection requirements in the specification shall not relieve the contractor of the responsibility of ensuring that all products or supplies submitted to the Government for acceptance comply with all requirements of the contract. Sampling inspection, as part of manufacturing options, is an acceptable practice to ascertain conformance to requirements, however, this does not authorize submission of known defective material, either indicated or actual, nor does it commit the Government to accept defective material.

4.2 Materials. Inspection and testing of component parts and assemblies shall be made to determine compliance with 3.3. Where defects or inferior quality are evident and the Government deems material analysis is required, the contractor will be requested to submit samples or specimens to the cognizant design agency for analysis and approval.

4.3 Measurements and records. All functional tests of cartridges shall be performed with the equipment mounted and loaded in a manner to simulate service conditions. Performance parameters such as the following shall be recorded during functional tests (see 6.3):

a. Pressure versus time for ballistic cycle time

b. Velocity (at end of power stroke)

c. Displacement of simulated load versus time

d. Thrust versus time for ballistic cycle time

e. Acceleration versus time

f. Resistive load versus time

g. Time interval between actuating firing mechanism and beginning of movement of load or start of pressure rise

h. Time interval between actuating firing mechanism and completion of operating cycle

4.3.1 Instrumentation. Any state of the art type of instrumentation and recording equipment may be used, such as the oscillograph, oscilloscope, or magnetic tape. Transducers may be any state of the art type, such as piezoelectric, strain gage, variable reluctance, capacitive, or potentiometer. However, accuracy of all test apparatus shall conform to requirements of MIL-STD-810. Documented calibration records shall be reviewed by the cognizant design agency.

4.4 Rejection. Failure of any cartridge subjected to the environmental and functional test to conform to the applicable requirements of this specification or the predetermined critical design requirements may be cause for rejection of the entire lot (see 3.6 and 6.3).

4.5 Development testing. Development tests shall be conducted to establish a design freeze of the cartridge. Development tests may be used to determine operating characteristics. Stress to failure tests shall be conducted during development to provide failure mode characteristics for verification of analysis and determination of strength and operating margins of safety. It is required that development tests be run on the cartridge under simulated thermal environments to ensure design compatibility with the requirements of this specification. Vibration amplification factors shall be substantiated during development testing. Development tests shall be categorized as follows:

a. Design feasibility tests (see 4.5.1).

b. Design verification tests (see 4.5.2).

4.5.1 Design feasibility tests. Prior to design feasibility tests, conceptual drawings and critical supporting calculations (see 6.3) shall be in compliance with the requirements specified herein. Design feasibility tests shall include all tests conducted for the following purposes:

a. Component and part selection.

b. Investigation of development model performance shall include, as a minimum, functional test performance to indicate rupture, operating margins, and structural integrity.

c. Demonstration of safety and operating margins or other analytical assumptions.

d. Establish system and performance requirements.

4.5.2 Design verification (DT-1A) tests. Design verification tests are advanced stage development tests which are performed on the cartridges for the purpose of substantiating the design for its intended mission. These tests shall include, as a minimum, radiographic inspection, the tests listed in table I, and certification of 4.5.1 (see 6.3). Successful completion of the design verification tests and concurrence by the cognizant design agency provides the assurance to permit a design freeze decision to be made.

4.6 Service release (DT-IIA) tests. Service release tests are conducted after design freeze to qualify the cartridge for its intended application and service use by substantiating the performance, reliability, safety, soundness of mechanical design, and resistance to environments encountered during storage handling and

service use. These tests shall include, as a minimum, the successful completion of the design verification (DT-1A) tests and the tests listed in table II.

4.7 Nondestructive tests. Individual tests shall be conducted on each cartridge submitted for environmental and functional test. If any cartridge fails a part of the nondestructive test, the cognizant design agency may reject the entire lot (see 3.6). Following concurrence and approval by the cognizant design agency, the contractor shall correct all deficiencies prior to resubmitting the rejected articles for nondestructive retest. Nondestructive tests shall consist of those specified in 4.7.1, 4.7.2, 4.7.3, and 4.7.4.

4.7.1 Examination of product. Each cartridge shall be completely inspected for compliance with the requirements specified herein, workmanship (see 3.17), and its drawings and specification requirements (see 3.9) prior to environmental and functional testing.

4.7.2 Leakage test. All cartridges shall be tested with a dry gas leak tester of sufficient sensitivity to ascertain whether the cartridges meet the leak rate requirement of 3.10.2.

4.7.3 Radiographic inspection. All cartridges shall be inspected by radiographic means as specified in MIL-STD-453 and 3.10.3. The radiographic plates shall be examined for defects and misassembly.

4.7.4 Electrical tests. Any cartridge which uses an electric initiator as an integral part of the design shall be subjected to the dielectric withstanding voltage (see 3.10.4), bridge circuit resistance (see 3.10.5), static discharge (see 3.10.6), stray voltage (see 3.10.7), and power current/stimulus (see 3.10.8) tests per the test procedures of MIL-I-23659.

4.8 Environmental tests. All temperatures specified in 4.8.1 through 4.8.11 shall have a tolerance of $\pm$5°F. If the cartridge cannot be fired in the temperature conditioning chamber, the cartridge shall be placed in the test device and fired within 3 minutes after removal from the temperature conditioning chamber. Whenever it is necessary to repeat low (-65°F) temperature conditioning of a cold device, all condensation shall be removed from the device before it is returned to the temperature conditioning chamber.

4.8.1 Forty-foot drop test. This test shall be conducted in accordance with test A3 of MIL-STD-331. Six cartridges shall be dropped to impact in the following positions: (1) two with head up, (2) two with head down, and (3) two horizontal. A new cartridge shall be used for each drop. The cartridges shall meet the requirement of 3.11.1.

4.8.2 Six-foot drop test. Six cartridges shall be dropped onto a 2-inch thick steel plate (minimum) embedded in concrete to impact as follows: (1) two with head up, (2) two with head down, and (3) two horizontal. A new cartridge shall be used for each drop and no cartridge shall fire during this test. After the drop test has been completed, the cartridges shall be subjected to the nondestructive tests and test fired per table I or II, as applicable.

4.8.3 Shock. This test shall be conducted in accordance with method 516.4 procedure I of MIL-STD-810. The shock pulse wave form shall be terminal peak sawtooth. The peak shall be 20 g and the duration shall be 11 milliseconds. After the shock test has been completed, the cartridges shall be subjected to the

nondestructive tests and test fired per table I or II, as applicable.

4.8.4 Temperature/humidity/altitude cycling. The cartridges shall be subjected to the temperature/humidity/altitude cycling test as outlined below. Provision has been made for withdrawal of cartridges at two times during the deterioration, if such exits. The schedule has been arranged in a manner that operations are not required outside normal working hours except for such supervision to ensure proper operation of the test equipment. It is not mandatory that the day/clock time schedule given below be followed; however, it is mandatory that the time, environmental, and sequence requirements be followed. A minimum of two chambers are needed to conduct the temperature shock portion of this test. If it is desired to use three chambers, it is permissible provided the time, environmental, and sequence requirements are met. The fluctuations from the specified temperatures shall not exceed 5°F. When the temperature chamber door is opened to place test items inside, the chamber pressure will be atmospheric. The time required to return the chamber pressure to 0.65 pounds per square inch (psia) shall not exceed one hour. Cartridges shall be supported on screen trays or racks so that all areas are exposed to the same prescribed atmospheric conditions at all times throughout the test. The schedule to be followed is:

Monday	0800	Place test items in a chamber maintained at 70°F at 50 percent relative humidity (RH).
	1200	Raise chamber temperature to 160°F and the RH to 95 percent. The chamber temperature shall reach 160°F at 95 percent RH not later than 1300.
	1600	Remove test items from above chamber and immediately place in a chamber maintained at -65°F at a pressure altitude of 70,000 feet (0.65 psi).
Tuesday	0800	Remove test items from above chamber and place test items in a chamber maintained at 70°F at 50 RH.
	1200	Remove test items from above chamber and immediately place in a chamber maintained at -65°F at a pressure altitude of 70,000 feet (0.65 psi).
	1600	Remove test items from above chamber and immediately place in a chamber maintained at 160°F at 95 percent RH.
Wednesday	0800	Reduce chamber pressure to 70°F at 50 percent RH. The chamber temperature shall reach 70°F at 50 percent RH not later than 0900.
	1200	Raise chamber temperature to 160°F and the RH to 95 percent. The chamber temperature shall reach 160°F at 95 percent RH not later than 1300.
	1600	Remove test items from above chamber and immediately place in a chamber maintained at -65°F at a pressure altitude of 70,000 feet (0.65 psi).

Thursday	0800	Place test items in a chamber maintained at 70°F at 50 percent RH.
	1200	Remove test items from above chamber and immediately place in a chamber maintained at -65°F at a pressure altitude of 70,000 feet (0.65 psi).
	1600	Remove test items from above chamber and immediately place in a chamber maintained at 160°F at 95 percent RH.
Friday	0800	Reduce chamber temperature to 70°F at 50 percent RH. The chamber temperature shall reach 70°F at 50 percent RH not later than 0900.
	1200	Raise chamber to 160°F and the RH to 95 percent. The chamber temperature shall reach 160°F at 95 percent RH not later than 1300.
	1600	Remove test items from above chamber and immediately place in a chamber maintained at -65°F at a standard ambient pressure.

This schedule shall be followed for a total of 4 weeks (28 days) except that on the second and fourth weekends the soak time shall be from 1200 on Friday until 0800 on Monday at a temperature of 160°F at 95 percent RH. In the design verification test program there shall be no interim withdrawals. In the service release test program six cartridges each shall be removed at 0800 on the third and fourth Monday. The completion of the test occurs on the 5th Monday after starting. After the temperature/humidity/altitude test has been completed, the cartridges shall be subjected to the nondestructive tests and test fired per table I or II, as applicable.

4.8.5 Vibration. This test shall be conducted per Method 514.4 of MIL-STD-810. The procedure shall be determined by the particular application. Each cartridge shall be subjected to vibration at -65°F, 70°F, and 200°F. The vibration time per each axis shall be a minimum of three hours and shall be equally divided for vibration at -65°F, 70°F, and 200°F. The minimum acceleration power spectral density (Wo) for cartridges mounted in the cockpit of jet aircraft shall be 0.10 g^2/Hz shall be approved by the cognizant design agency. After vibration testing has been completed, the cartridges shall be subjected to the nondestructive tests and test fired per table I or table II, as applicable.

4.8.6 Salt fog. This test shall be conducted in accordance with method 509.3 of MIL-STD-810 with a 5 percent salt concentration. The test shall be conducted for 48 hours. After the salt fog test has been completed, the specimens shall be subjected to the nondestructive tests and test fired per table II. Sealed in cartridge actuated actuated devices shall be subjected to the salt fog test for 168 hours. Cartridges installed in cartridge actuated devices will be subjected to a 168 hour salt fog test when the cartridge actuated devices are tested in accordance with MIL-D-23615.

4.8.7 High temperature storage. Cartridges shall be placed in the temperature conditioning chamber in such a manner that the air can circulate freely about the cartridge. Temperature shall be maintained at 160°F. The following schedule provides for a total storage time of 24 days, with periodic withdrawals for functional test.

Tuesday	0800	Place in 160°F storage
Second Wednesday	0800	Remove six cartridges
Third Tuesday	0800	Remove six cartridges
Fourth Friday	0800	Remove six cartridges

No attention is required outside normal working hours except to ensure that the temperature is maintained. After the high-temperature storage test has been completed, the cartridges shall be subjected to the nondestructive tests and test fired per table II.

4.8.8 Cookoff test. Three cartridges shall be placed in an oven preheated to the highest temperature which it is estimated that the cartridges will withstand for 1 hour. If no cartridges cookoff during 1 hour, the temperature shall be increased 25°F and the test repeated with three new cartridges. The test shall be repeated in 25°F increments until cookoff of at least one cartridge occurs within a 1 hour period. If cookoff occurs in the first group tested, the temperature shall be decreased 25°F and the test repeated with three new cartridges. The test shall be repeated in 25°F decrements until cookoff does not occur within a 1 hour period.

4.8.9 High temperature exposure (12 hours). Three cartridges shall be placed in an oven preheated to a temperature 25°F less than the maximum determined for exposure without cookoff in 4.8.8. The temperature shall be maintained for 12 hours. If no cartridge cooks off, the three cartridges shall be cooled to 70°F and functionally tested. If any cartridge cooks off or fails to meet design performance requirements after cooling, the test shall be repeated with additional groups of cartridges, decreasing the temperature in increments of 25°F until design performance requirements are met.

4.8.10 Extended low temperature. This test shall be conducted in accordance with Method 502.3, procedure I of MIL-STD-810 except that the cartridges shall be exposed to a temperature of -65°F for 50 hours minimum after the temperature conditioning chamber reaches thermal equilibrium. All the cartridges shall be fired at -65°F within 52 hours after thermal stabilization is reached. The time between the removal of the cartridges from the temperature conditioning chamber and test firing shall not exceed 3 minutes.

4.8.11 Extended high temperature. This test shall be conducted in accordance with Method 501.3, procedure I of MIL-STD-810 except that the cartridges shall be exposed to a temperature of 200°F for 50 hours minimum after the temperature conditioning chamber reaches thermal equilibrium. All the cartridges shall be fired at 200°F within 52 hours from the time that thermal stabilization is reached. The time between the removal of the cartridges from the temperature conditioning chamber and test firing shall not exceed 3 minutes.

4.9. Functional tests.

4.9.1 General. Cartridges and the devices for which they are designed will be tested together. If additional cartridge tests in a special test device are required, these results shall be correlated with results obtained using the device

for which they were intended. All temperatures specified in 4.9.2 through 4.9.6 shall have a tolerance of ±5°F. If the cartridge cannot be fired in the temperature conditioning chamber, the cartridge shall be removed from the temperature conditioning chamber, placed in the test device and fired within 3 minutes after removal from the temperature conditioning chamber.

4.9.2 Low temperature operation (-65°F). Test devices and cartridges shall be conditioned at a temperature of -65°F for a minimum of 4 hours and a maximum of 24 hours after the temperature conditioning chamber reaches thermal equilibrium and then fired.

4.9.3 Normal temperature operation (70°F). Test devices and cartridges shall be conditioned at a temperature of 70°F for a minimum of 4 hours after the temperature conditioning chamber reaches thermal equilibrium and then fired.

4.9.4 High temperature operation (200°F). Test devices and cartridges shall be conditioned at a temperature of 200°F for a minimum of 4 hours and a maximum of 24 hours after the temperature conditioning chamber reaches thermal equilibrium and then fired.

4.9.5 Underload operation (-65°F and 70°F). Test devices and cartridges containing 80 percent of their output charge shall be conditioned at a temperature of -65°F and 70°F as specified in 4.9.2 and 4.9.3 and then fired.

4.9.6 Overload operation (200°F). Test devices and cartridges containing 120 percent of their output charge shall be conditioned at a temperature of 200°F as specified in 4.9.4 and then fired.

4.10 Minimum all-fire and maximum no-fire energy.

4.10.1 Electrically initiated cartridge. Electrically initiated cartridges shall be subjected to varying electrical current levels per the test procedures of MIL-I-23659 to determine the minimum all-fire and maximum no-fire current levels. Statistically significant sample sizes shall be used at each current level.

4.10.2 Laser initiated cartridge. Laser initiated cartridges shall be subjected to varying laser energy levels which are delivered and verified at the fiber optic and cartridge interface to determine the minimum all-fire and maximum no-fire energy levels. The fiber optic configuration and the laser pulse duration shall remain constant throughout the test. Statisically significant sample sizes shall be used at each energy level.

4.11 Inspection of packaging. The sampling and inspection of the preservation, packing, and marking shall be in accordance with section 5.

4.12 Classification of characteristics. Classification of characteristics shall be in accordance with DOD-STD-2101.

4.13 Reports. Reports of all tests performed by the prime or subcontractor during development (see 4.5) and qualification of the cartridge and any statistical analysis of these results shall be in accordance with MIL-STD-831 (see 6.3).

5. PACKAGING

5.1 Testing. The contractor shall perform testing and acquire data to support compliance with Performance Oriented Packaging (POP) requirements of hazardous materials as defined in Title 49, Code of Federal Regulations (CFR) (see 6.5). Testing shall be performed in accordance with the American Society for Testing and Materials (ASTM) D 4919, Testing of Hazardous Materials Packaging.

5.1.1 Report, instructions, and drawings. There shall be a POP test report, special packaging instructions, and packaging drawings (see 6.3).

5.1.1.1 Report number. The sequential and non-duplicative report number for each POP test report shall be provided by the cognizant design agency.

5.1.2 Certification. There shall be a signed certification that the packaging and marking conform to Title 49 of the CFR. The certification shall be incorporated on the DD 250 Form Material Inspection and Receiving Report or other acceptance document if the DD 250 Form is not used (see 6.3).

5.2 Inner pack. An inner pack shall be hermetically sealed, airtight, and moisture proof.

5.3 Marking. Marking of inner packs and the outer container shall be in accordance with Title 49 of the CFR and MIL-STD-129. Marking of inner packs and outer containers shall be as follows:

Inner pack

a. Item nomenclature

b. National/NATO stock number

c. NALC/DODIC

d. UN proper shipping name

e. UN serial number

f. Lot number in accordance with MIL-STD-1168 and serial number

g. Quantity

h. POP certification markings (Example: UN 4C1/Y455/92
USA/DOD/NAD)

Outer container

a. Item nomenclature

b. National/NATO stock number

c. NALC/DODIC

d. UN proper shipping name

e. UN serial number

f. Lot number in accordance with MIL-STD-1168

g. Quantity

h. Gross weight

i. POP certification markings (Example: UN 4C1/Y455/92
USA/DOD/NAD)

6. NOTES

(This section contains information of a general or explanatory nature that may be helpful, but is not mandatory.)

6.1 Intended use. The cartridges covered by this specification are intended to be used in cartridge actuated devices.

6.2 Acquisition requirements. Acquisition documents should specify the following:

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

b. Type of cartridge release.

c. Issue of DODISS to be cited in the solicitation, and if required, the specific issue of individual documents referenced (see 2.1.1 and 2.2).

d. Type packaging (see 5).

e. Quantity and marking of inner pack and outer container (see 5.2 and 5.3).

f. Applicable documentation for either a type III A or III B release (see 3.15.2).

g. Where data items (see 6.3) are to be forwarded.

6.3 Consideration of data requirements. The following data requirements should be considered when this specification is applied on a contract. The applicable Data Item Descriptions (DIDs) should be reviewed in conjunction with the specific acquisition to ensure that only essential data are requested/provided and that the DIDs are tailored to reflect the requirements of the specific acquisition. To ensure correct contractual application of the data requirements, a Contract Data Requirements List (DD Form 1423) must be prepared to obtain the data, except where DOD FAR Supplement 227.405-70 exempts the requirement for a DD Form 1423.

Reference Paragraph	DID number	DID Title	Suggested Tailoring
3.6	DI-ADMIN-81250	Conference minutes	--
3.7.3	DI-L-3311B	Explosive hazard classification data	--

Reference Paragraph	DID number	DID Title	Suggested Tailoring
3.9, 5.1.1	DI-DRPR-81000	Product drawings and associated lists	--
3.9, 4.5.1	DI-DRPR-81001	Conceptual design drawings and associated lists	--
3.9	DI-DRPR-81002	Developmental design drawings and associated lists	--
3.10.3, 3.15.1, 3.15.2, 3.15.3, 4.3, 4.13	DI-NDTI-80809A	Test/inspection reports	--
4.1.1	DI-NDTI-80809A	Test/inspection reports 10.2.7, only	
3.13.2, 4.4	DI-R-5299C	Failure analysis and corrective action report	--
4.5.2, 3.15.1, 3.15.2, 3.15.3, 5.1.2	DI-MISC-80678	Certification/data report	--
3.13.2, 3.15.1, 3.15.2	DI-NDTI-80808	Test plans/procedures	--
5.1.1	DI-PACK-81059	Performance oriented packaging test report	--
5.1.1	DI-PACK-80121A	Special packaging instructions	--

The above DIDs were those cleared as of the date of this specification. The current issue of DOD 5010.12-L, Acquisition Management Systems and Data Requirements Control List (AMSDL), must be researched to ensure that only current, cleared DIDs are cited on the DD Form 1423.

6.4 Definitions.

6.4.1 Sealed in type cartridge actuated device. Cartridge actuated devices in which the propellant, explosive, or pyrotechnic components become an integral part of the device and which by design are not to be disassembled and reassembled for inspection are termed sealed in cartridge actuated devices.

6.4.2 Electric Cartridge. An electric cartridge is a cartridge which contains an electric initiator that is an integral part of the cartridge design. The electric initiator is not separable from the cartridge during manufacture, storage, shipping, or service use.

6.4.3 Cognizant design agency. Unless the contract specifically indicates otherwise, all reference herein to the cognizant design agency for cartridges and CADs are defined as referring to the Indian Head Division, Naval Surface Warfare Center, Indian Head, MD 20640-5035.

6.5 Outer container. Any containers that have been documented as being tested to the POP requirements are acceptable for use and additional testing is not required. Verification of whether the proposed container has met the POP requirements can be obtained from the Naval Weapons Station Earle, Colts Neck, NJ 07722-5000, Attn Code 50C, telephone number (908) 577-3831/3832.

6.6 Subject term (key word) listing.

Feasibility tests
Verification tests
Service release tests
Functional tests

6.7 Changes from previous issue. Marginal notations are not used in this revision to identify changes with respect to the previous issue due to the extensiveness of the change.

Preparing Activity:
Navy - AS

(Project 1377-NE54)

STANDARDIZATION DOCUMENT IMPROVEMENT PROPOSAL

INSTRUCTIONS

1. The preparing activity must complete blocks 1, 2, 3, and 8. In block 1, both the document number and revision letter should be given.
2. The submitter of this form must complete blocks 4, 5, 6, and 7.
3. The preparing activity must provide a reply within 30 days from receipt of the form.

NOTE: This form may not be used to request copies of documents, nor to request waivers, or clarification of requirements on current contracts. Comments submitted on this form do not constitute or imply authorization to waive any portion of the referenced document(s) or to amend contractual requirements.

I RECOMMEND A CHANGE:	1. DOCUMENT NUMBER MIL-D-21625G(AS)	2. DOCUMENT DATE (YYMMDD) 93/11/30

3. DOCUMENT TITLE
DESIGN AND EVALUATION OF CARTRIDGES FOR CARTRIDGE ACTUATED DEVICES

4. NATURE OF CHANGE (*Identify paragraph number and include proposed rewrite, if possible. Attach extra sheets as needed.*)

5. REASON FOR RECOMMENDATION

6. SUBMITTER

a. NAME (Last, First, Middle Initial)	b. ORGANIZATION	
c. ADDRESS (Include Zip Code)	d. TELEPHONE (Include Area Code) (1) Commercial (2) AUTOVON (If applicable)	7. DATE SUBMITTED (YYMMDD)

8. PREPARING ACTIVITY

a. NAME COMMANDING OFFICER, NAVAL AIR WARFARE CENTER AIRCRAFT DIVISION LAKEHURST SYSTEMS REQUIREMENTS DEPARTMENT	b. TELEPHONE (Include Area Code) (1) Commercial: (908) 323-7488 (2) AUTOVON: 624-7488
c. ADDRESS (Include Zip Code) CODE SR3 LAKEHURST, NJ 08733-5100	IF YOU DO NOT RECEIVE A REPLY WITHIN 45 DAYS, CONTACT: Defense Quality and Standardization Office 5203 Leesburg Pike, Suite 1403, Falls Church, VA 22041-3466 Telephone (703) 756-2340 AUTOVON 289-2340