

INCH-POUND

MIL-DTL-82935(OS)  
29 January 1996

## DETAIL SPECIFICATION

## CARTRIDGE, IMPULSE, CCU-132/A

*This specification is approved for use by the Naval Sea 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 requirements for the manufacture and acceptance of the CCU-132/A Impulse Cartridge, referred to herein as "cartridge".

**2. APPLICABLE DOCUMENTS**

**2.1 General.** The documents listed in this section are specified in sections 3 and 4 of this specification. This section does not include documents cited in other sections of this specification or recommended for additional information or as examples. While every effort has been made to ensure the completeness of this list, document users are cautioned that they must meet all specified requirements documents specified in sections 3 and 4 of this specification, whether or not they are listed.

**2.2 Government documents.**

**2.2.1 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 supplements thereto, cited in the solicitation (see 6.2).

## SPECIFICATIONS

## MILITARY

MIL-D-21625      Design and Evaluation of Cartridges for Cartridge Actuated Devices

Beneficial comments (recommendations, additions, deletions) and any pertinent data which may be of use in improving this document should be addressed to: Commander, Indian Head Division, Naval Surface Warfare Center, Standardization Branch (Code 8420), 101 Strauss Avenue, Indian Head, MD 20640-5035 by using the Standardization Document Improvement Proposal (DD Form 1426) appearing at the end of this document, or by sending a letter.

AMSC N/A

FSC 1377

**DISTRIBUTION STATEMENT A:** Approved for public release; distribution is unlimited.  
STANDARDS

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## MILITARY

MIL-STD-453	Inspection, Radiographic
MIL-STD-1168	Ammunition Lot Numbering
MS17983	Compass, Magnetic, Pilot's Standby

(Unless otherwise indicated, copies of Federal and military specifications and standards are available from: Standardization Documents Order Desk, Bldg. 4D, 700 Robbins Avenue, Philadelphia, PA 19111-5094.)

**2.2.2 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.

## SPECIFICATIONS

Naval Sea Systems Command (CAGE Code 53711)

WS 21535	Ignition device, (Percussion), PVU-1/A
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(Application for copies should be addressed to the Commander, Naval Surface Warfare Center, Indian Head Division, Attn: Code 8410, Indian Head, Maryland 20640.)

## DRAWINGS

Naval Air Systems Command (CAGE Code 30003)

850AS895	Cartridge, Impulse CCU-132/A
851AS110	Ignition Device (Percussion), PVU-1/A

(Application for copies should be addressed to the Commander, Naval Surface Warfare Center, Indian Head Division, Attn: Code 8410, Indian Head, Maryland 20640.)

**2.3 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 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 Material (ASTM)

ASTM B 117	Standard Practice for Operating Salt Spray (Fog) Testing Apparatus
ASTM E 748	Standard Practices for Thermal Neutron Radiographs of Materials
ASTM D 1141	Substitute Ocean Water

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

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**2.4 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 First article.** When specified (see 6.2), a sample shall be subjected to the first article inspection (see 6.3) in accordance with 4.2.1.

**3.2 Design and construction.** The following applies to the qualification status and configuration control of the cartridge and its test fixtures over the entire life of the item.

**3.2.1 Identical configuration.** The cartridge design and construction shall be identical to that subjected to Navy qualification testing and approved for service use by Indian Head Division, Naval Surface Warfare Center, Indian Head, Maryland 20640-5035.

**3.2.2 Configuration control.** Only the cartridge procured from the vendor(s) listed on Drawing 850AS895 is approved for the application specified. All parts having the same vendor's item number shall be functionally and dimensionally interchangeable. A substitute cartridge shall not be used without prior testing and approval by the Indian Head Division, Naval Surface Warfare Center, Indian Head, MD 20640-5035 and the Naval Air Systems Command Headquarters.

**3.2.3 Contractor baseline.** The contractor shall maintain a product and test fixture (non-destructive, environmental and performance) list. The list shall be complete, specifying each item used in the cartridge and test fixtures. The list shall include for each item: the description, part number or identifying number, revision letter, and material and/or applicable specification. The list and subsequent revisions shall be submitted for technical review and shall be approved in writing by Indian Head Division, Naval Surface Warfare Center, Indian Head, MD 20640-5035. Only cartridges conforming to Drawing 850AS895 and to the approved product baseline list, of the latest revision at the time of contract award, will be accepted for delivery.

**3.3 Primary components.** For the purpose of this specification, the PVU-1/A ignition device, lead azide and Hexanitrostilbene (HNS) are primary components (see 6.4). Only primary components from a single lot shall be used in a lot of cartridges; however, one primary component lot may be used in more than one cartridge lot.

**3.3.1 PVU-1/A Ignition Device.** The PVU-1/A ignition device used in the cartridge shall be furnished from lots manufactured within the past 24 months or have been recertified within the past 12 months. The ignition device shall be manufactured in accordance with Drawing 851AS110 and shall be from lots which are accepted in accordance with product specification WS 21535. The PVU-1/A ignition device shall be free of the following defects when examined by x-ray: missing or abnormally thin charge; charge broken, cracked or porous, cracked or off-center anvil or other misplaced or deformed inert parts; anvil abnormally close to cup dome; and any other observable defects in assembly.

**3.4 Cartridge production.** The cartridge shall be manufactured in accordance with DL850AS895. Each production cartridge shall meet the requirements of 3.3 and 3.4.1 through 3.4.4 as outlined in table I. Failure of any cartridge to meet the requirements of 3.3 and table I shall result in rejection of that cartridge.

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TABLE I. Production inspections.

Test Sequence	Test Paragraph	Requirement Paragraph
1. Visual	4.3.1	3.4.1 and 3.6
2. Radiographic inspection	4.3.2	3.4.2
3. Leakage	4.3.3	3.4.3
4. Demagnetization	4.3.4	3.4.4

**3.4.1 Visual inspection.** Cartridges shall be free of the following defects: illegible, missing or inaccurate identification markings, damage, burrs, dents, sharp edges, or other defects which may prevent installation of the cartridge into its designated end items. Each cartridge shall meet the requirements of 3.3, 3.6, and Drawing 850AS895.

**3.4.2 Radiographic examination.** When radiographically examined in accordance with 4.3.2, the cartridge shall show proper assembly, presence of parts, and proper thread form. The radiographic inspection shall show no defective or improperly assembled components; foreign matter; cracks; abnormal voids or other abnormalities which could affect the performance of the unit.

**3.4.3 Leakage.** The leakage rate of each cartridge shall not exceed  $1.0 \times 10^{-5}$  cc/sec of air when tested in accordance with 4.3.3.

**3.4.4 Demagnetization.** The cartridges shall not deflect an approved pilot's standby compass more than 3 degrees in either direction when passed in front of the compass when tested in accordance with 4.3.4.

**3.4.4.1 Degauss.** If a cartridge deflects the compass more than 3 degrees, the cartridge shall be degaussed and the test repeated until acceptable results are obtained.

**3.5 Cartridge performance.** The cartridge shall meet all requirements of 3.5.1 through 3.5.6 and the acceptance criteria of 4.4.

**3.5.1 Vibration.** The cartridge shall not initiate or incur any internal/external damage or degradation when vibration cycles are applied in accordance with 4.3.5.

**3.5.2 Temperature and humidity cycling (T&H).** The cartridge shall not initiate or incur any internal or external degradation or damage when a T&H cycle is applied in accordance with 4.3.6.

**3.5.3 High altitude.** The cartridge shall not degrade in performance when submitted to the conditions of 4.3.7.

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**3.5.4 Salt fog.** The cartridge shall not initiate or incur any internal or external damage or degradation when a saltfog test is applied in accordance with 4.3.8.

**3.5.5 Shock.** The cartridge shall not initiate or incur any internal or external damage or degradation when a terminal peak sawtooth shock is applied in accordance with 4.3.9.

**3.5.6 Functioning.** The cartridge shall meet the requirements of 3.5.6.1 when fired in accordance with 4.3.10.

**3.5.6.1 Dent block indent.** Each cartridge shall supply a high order detonation to demonstrate a minimum dent of 0.040 inch in a 6061-T6 aluminum dent block with the booster charge in contact with the dent block over the temperature range of  $-65^{\circ}\text{F}$  to  $200^{\circ}\text{F}$ .

**3.6 Workmanship.** The cartridge shall be constructed and finished in a manner to assure compliance with all requirements of this specification. Particular attention shall be directed to dimensions, finishes, sealing, and assembly operations.

## 4. VERIFICATION

### 4.1 Classification of inspections.

- a. First article inspection (see 4.2.1)
- b. Production inspection (see 4.2.2)
- c. Lot acceptance inspection (see 4.2.3)

### 4.2 Inspections.

**4.2.1 First article inspection.** Unless otherwise specified in the contract or purchase order (see 6.2), a first article sample of 39 cartridges conforming to Drawing 850AS895 shall be subjected to first article testing. Thirty-six of these cartridges shall be expended in the tests listed in table II and three cartridges shall be retained for investigative purposes. Any damage inflicted by the environmental treatments which would adversely affect the performance of the item in service application shall be cause for rejection of the first article sample. Any further production prior to notification by the contracting agency of first article sample acceptability shall be at the contractor's risk. Failure of any cartridge to comply with the requirements of section 3 shall be cause for rejection of the first article represented.

**4.2.2 Production inspection.** All production cartridges manufactured under the contract shall be inspected and screened for defects. Cartridges failing to meet the requirements that are listed in table I shall be rejected and removed from the lot.

TABLE II. First article test plan.

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Test Sequence	Test Para.	Requirement Para.	Sample Group							
			I	II	III	IV	V	VI	VII	VIII
1. Visual	4.3.1	3.4.1 and 3.6	6	6	3	6	6	3	3	3
2. X-Ray	4.3.2.2	3.4.2	6	6	3	6	6	3	3	3
3. Leakage	4.3.3	3.4.3	6	6	3	6	6	3	3	3
4. Vibration <sup>1</sup>	4.3.5	3.5.1	6							
5. T & H Cycling <sup>2</sup>	4.3.6	3.5.2		6						
6. High Altitude <sup>2</sup>	4.3.7	3.5.3			3					
7. Salt fog <sup>2</sup>	4.3.8	3.5.4				6				
8. Shock <sup>1</sup>	4.3.9	3.5.5					6			
9. Function test: -65 ± 5°F 70 ± 5°F 200 ± 5°F	4.3.10	3.5.6	— 6 —	— 6 —	3 — —	— 6 —	— 6 —	3 — —	— 3 —	— — 3

<sup>1</sup> Visual and x-ray examinations shall be conducted following this test.

<sup>2</sup> Visual and leakage examinations shall be conducted following this test.

**4.2.3 Lot acceptance inspection.** Lot acceptance inspection shall consist of the examinations and tests specified in table III. Failure of any sample cartridge to comply with the requirements listed in table III shall be cause for rejection of the lot represented. Packaging defects shall be corrected before acceptance.

TABLE III. Lot acceptance inspections and tests.

Inspection/Test	Test Paragraph	Requirement Paragraph	Quantity
1. Visual Inspection	4.3.1	3.4.1, 3.6	Test and retain sample
2. X-Ray Examination	4.3.2.2	3.4.2	Test and retain sample
3. Leakage	4.3.3	3.4.3	Test and retain sample
4. Function Test: -65 ± 5°F 70 ± 5°F 200 ± 5°F	4.3.10	3.5.6	1/3 Sample 1/3 Sample 1/3 Sample

**4.2.3.1 Sample size.** A random sample of cartridges from each production lot, including the samples retained for investigative purposes, shall be selected in accordance with table IV for lot acceptance

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inspection. Test sample cartridges and samples retained for investigative purposes shall not be applied as part of the quantity specified for delivery by the contract or purchase order.

TABLE IV. Lot acceptance sampling.

Lot Size	Test Sample Size	Retained Sample Size
2 - 50	9	3
51 - 100	12	3
101 - 150	21	3
151 - 300	33	3

### 4.3 Inspections and tests.

#### 4.3.1 Visual inspections.

**4.3.1.1 Cartridge inspection.** The external condition and appearance of the cartridge shall be determined by comparison to Drawing 850AS895. Each cartridge shall meet the requirements of 3.4.1 and 3.6.

**4.3.1.2 Packaging inspection.** The condition of the packaging (inner container), packing (outer container), and markings shall be determined by comparison to the requirements of section 5.

**4.3.2 Radiographic inspection.** All cartridges shall be identified with serial numbers beginning with 001 prior to examination. The cartridges shall be arranged on boards or trays in consecutive order with any missing serial numbers identified on the radiographic plate. Each radiograph shall carry a permanent identification of the items displayed thereon in a 4 × 6 inch region, maximum. The radiographic identification shall include the drawing number, the complete lot number in accordance with MIL-STD-1168 for the cartridge, the contract number, and the span of serial numbers displayed. Radiographs of the entire production lot shall accompany the ballistic sample to the activity conducting the tests. Any observable imperfections as outlined in 3.4.2 shall be cause for rejection of the cartridge. Defective cartridges found during radiographic reviews are to be marked on the radiographic plate and removed from the production lot.

**4.3.2.1 N-Ray examination.** Each cartridge shall be N-rayed in accordance with ASTM E 748 and the plates examined for defect.

**4.3.2.2 X-Ray examination.** Each cartridge shall be X-rayed in accordance with MIL-STD-453 and the plates examined for defect.

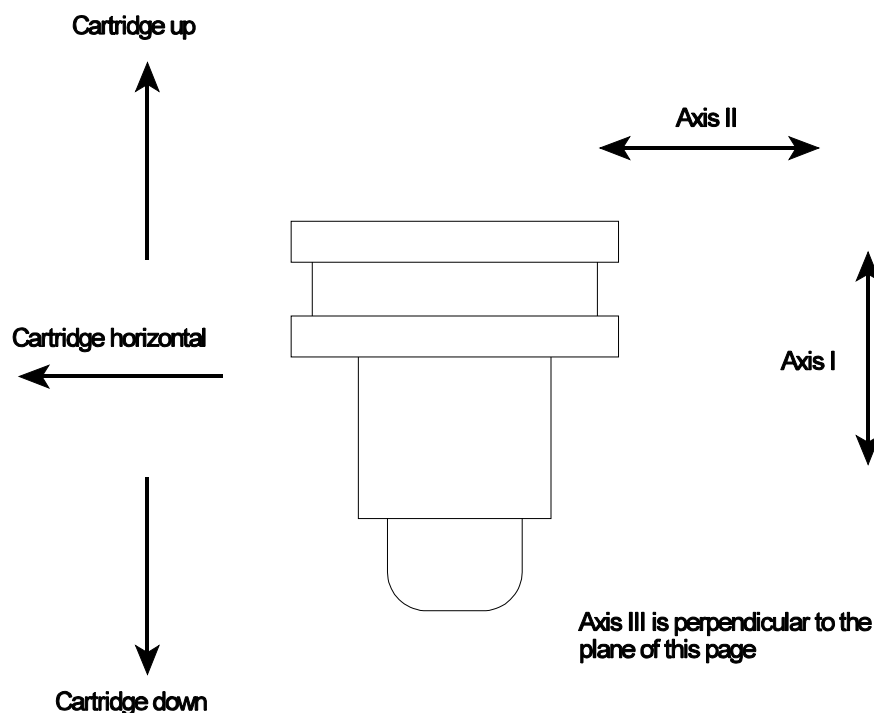
**4.3.3 Leakage test.** Leakage shall be measured after bombing the cartridge in Helium gas for 60 +1.0, -0.0 minutes at a pressure of 2 +0.1, -0.0 atmospheres absolute and venting with air for 10 +2, -0 minutes or washed with dry nitrogen. The cartridge shall then be tested in a dry gas leak tester. Each cartridge shall meet the requirements of 3.4.3.

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**4.3.4 Demagnetization.** Each cartridge shall be moved past a pilot's standby compass type MS17983 in an area free of local magnetic effects. The cartridge shall be passed six inches from the compass face in a north to south horizontal position with the compass placed in an east to west heading. The entire cartridge shall pass by the compass face. The compass and the cartridge shall be approximately the same height from the floor. The test procedure shall be repeated for every 90 degree rotation of the cartridge body. Each cartridge shall meet the requirements of 3.4.4.

FIGURE 1. Axis orientation for the vibration/shock test.

**4.3.5 Vibration test.** The cartridges shall be submitted to a series of vibration test profiles. The test



fixture shall be such that two cartridges shall be installed on three sides of the fixture at once. The cartridges shall be vibrated along each of the three mutually perpendicular axis orientations as shown in figure 1.

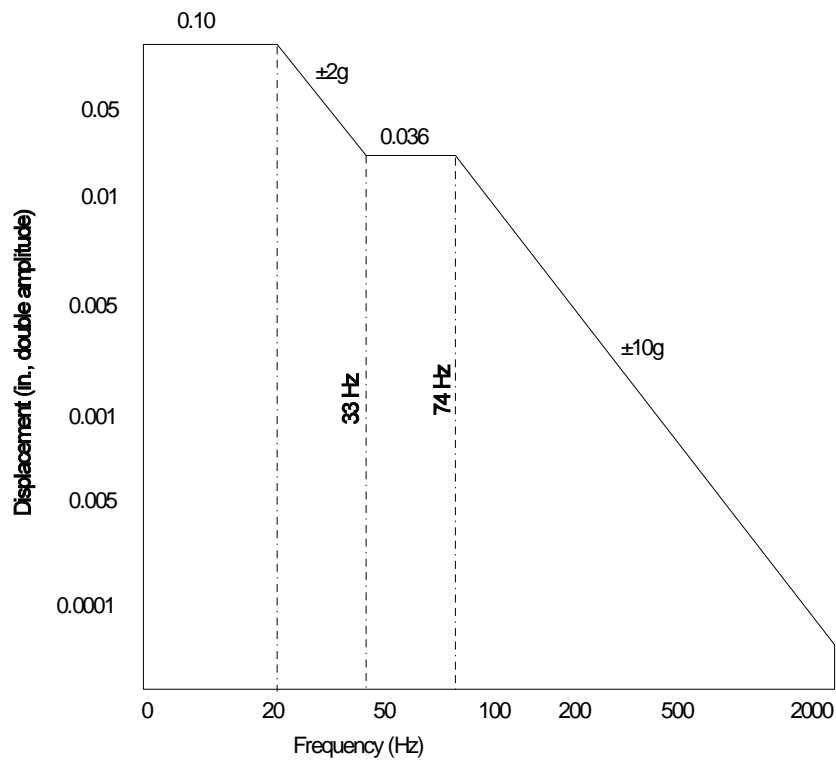
a. Non-gunfire vibration.

(1) Resonance: The cartridges shall not be subjected to a resonance search or dwell during the non-gunfire vibration due to the physical characteristics; small size and weight and the method of testing the cartridge, which is inside the vibration (cube) test fixture.

(2) Sinusoidal cycling (5 Hz to 2,000 Hz): The six cartridges shall be subjected to the sinusoidal vibration cycling at 70°F for 1 hour with the frequency varying logarithmically from 5 Hz to 2,000 Hz and back to 5 Hz in approximately 20 minutes. The test level is shown in figure 2.



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FIGURE 2. Sinusoidal non-gunfire vibration test levels.

(3) After the initial 1 hour of vibration cycling, the test fixture shall be rotated 90 degrees so the six cartridges are positioned in a new axis, the procedure shall be repeated along the new axis.

(4) After the second 1 hour of vibration cycling, the test fixture shall be rotated 90 degrees so the six cartridges are positioned in a new axis, the procedure shall be repeated along the new axis.

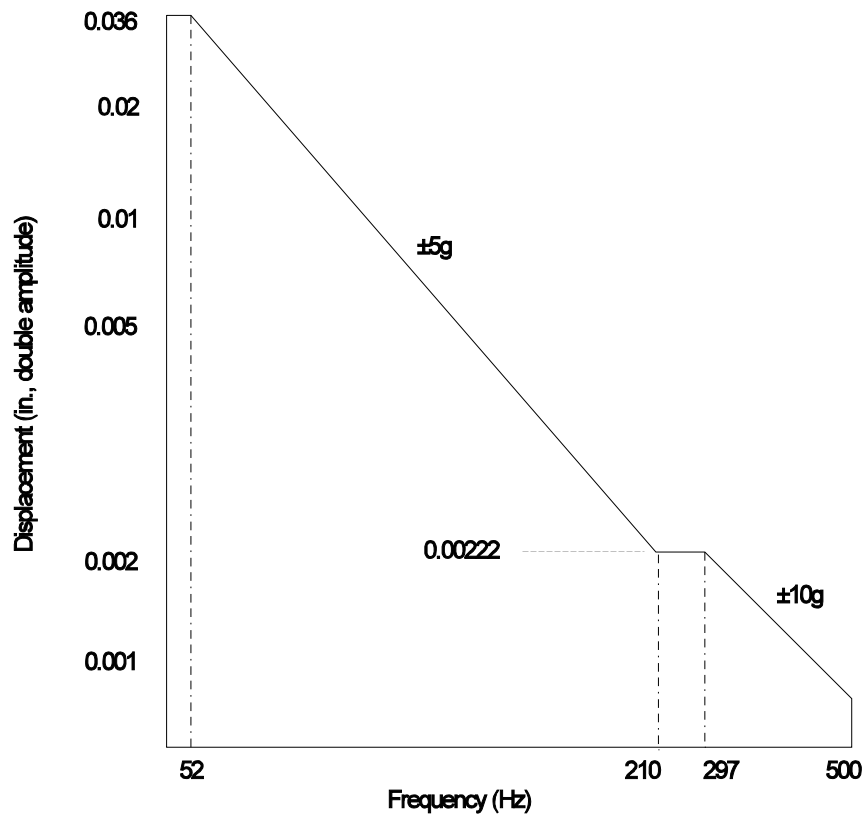
(5) After completing the three 1-hour cycles at 70°F, the procedure outlined above shall be conducted at -65°F.

FIGURE 3. Sinusoidal gunfire vibration test levels.

(6) After completing the three 1-hour cycles at -65°F, the procedure outlined above shall be conducted at 200°F.

b. Gunfire vibration.

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(1) Resonance: The same cartridges shall not be subjected to a resonance search or dwell during the gunfire vibration due to the physical characteristics; small size and weight and the method of testing cartridge, which is inside the vibration (cube) test fixture.

(2) Sinusoidal cycling (50 Hz to 500 Hz): The same six cartridges shall be subjected to the sinusoidal vibration cycling at 70°F for 30 minutes in each of three axes with the frequency varying logarithmically from 50 Hz to 500 Hz and back to 50 Hz in approximately 7.5 minutes. The test level is shown in figure 3.

(3) Fixed dwell testing: After the initial sinusoidal cycling, the cartridges shall be subjected to a series of fixed dwells at 70°F as shown in table V in each of the three axes. The fixed narrow band dwells shall be performed by sweeping the frequency about  $\pm 5\%$  of the specific center frequency. For example, the 100 Hz dwell should be performed from 95 Hz to 100 Hz at a logarithmic sweep rate of 7.5 minutes.

TABLE V. Gunfire vibration test schedule.

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Test Times in Minutes per Axis	
Sweep Time	30.00
Fixed Dwells at the following center frequencies:	
$f_d =$ 67 Hz	7.50
100 Hz	7.50
135 Hz	7.50
200 Hz	15.00
267 Hz	7.50
300 Hz	7.50
335 Hz	7.50
400 Hz	15.00
467 Hz	7.50
500 Hz	7.50
Total Time Each Axis (minutes)	120.00

(4) Random cycling: After the fixed dwell testing, the same six cartridges shall be subjected to 30 minutes of random vibration in each of the three axes. The vibration test level is specified in figure 4.

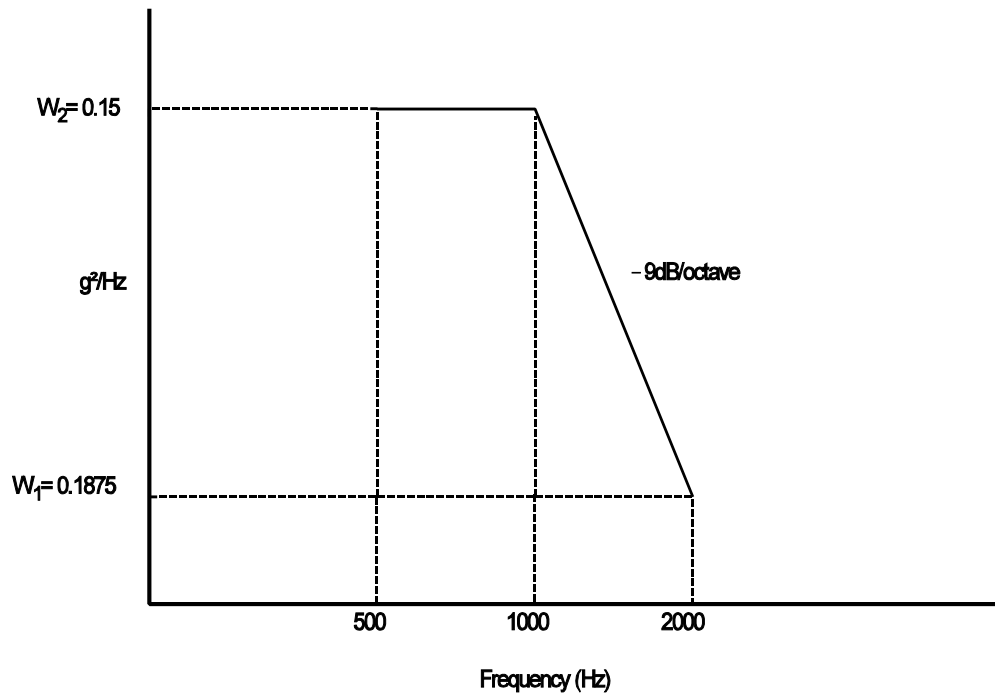
c. Failure of any cartridge to comply with the requirements of 3.5.1 shall be cause for rejection of the lot and/or first article.

**4.3.6 Temperature and Humidity (T&H) cycling test.** The cartridges, with protective means removed, shall be submitted to the temperature and humidity cycling test outlined in MIL-D-21625 with the following requirements:

a. The cartridges shall be supported in such a way that all areas are exposed to the prescribed atmospheric conditions at all times throughout the test. No cartridge shall be touched by another cartridge during the cycling schedule shown in table VI.

b. Failure of any cartridge to comply with the requirements of 3.5.2 shall be cause for rejection of the lot and/or first article.

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FIGURE 4. Gunfire random vibration test level.

**4.3.7 High Altitude.** The cartridges, one at a time, shall be installed into the performance test fixture and functionally fired at altitude as follows:

a. Each cartridge shall be installed in its test setup and conditioned to  $-65^{\circ}\text{F}$  with an absolute pressure in the environmental chamber of 0.82 inch of mercury (corresponding to an altitude of 80,000 feet above sea level). This shall be maintained for no less than 1 hour. At the end of the time, while maintaining these environmental conditions, the cartridge shall be fired.

b. Failure of any cartridge to comply with the requirements of 3.5.3 shall be cause for rejection of the lot and/or first article.

**4.3.8 Salt fog test.** The cartridges, with protective mean installed, shall be submitted to the salt fog test outlined in ASTM B117 except that synthetic sea water per ASTM D1141 shall be used in place of the 5% salt solution. The control of pH and salt impurity requirements of ASTM B117 shall also not apply. The following requirements shall be met:

a. Waxed string shall be used to support the cartridges in the chamber. The cartridge shall be oriented with the axis II, figure 1, parallel to the chamber floor. No change in orientation is required during the test.

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b. After completing 168 hours of testing, the cartridges shall be gently washed with water not warmer than 38°C (100°F) to remove any salt deposits from the surface and then immediately dried. Forced air is recommended for drying cartridges.

c. A complete visual inspection shall be conducted. Any damage or degradation shall be noted.

d. Failure of any cartridge to comply with the requirements of 3.5.4 shall be cause for rejection of the lot and/or first article.

TABLE VI. Temperature and humidity cycling schedule.

Monday	1300	Place in cabinet or room at -65°F.
	1600	Remove cartridges from chamber and immediately place in chamber maintained at 160°F at 90% Relative humidity (RH)
Tuesday	0800	Remove cartridges from chamber and immediately place in chamber maintained at 70°F.
	1300	Remove cartridges from chamber and immediately place in chamber maintained at -65°F.
	1600	Remove cartridges from chamber and immediately place in a chamber maintained at 160°F at 90% RH.
Wednesday	0800	Remove cartridges from chamber and immediately place in a chamber maintained at 70°F.
	1300	Remove cartridges from chamber and immediately place in a chamber maintained at -65°F.
	1600	Remove cartridges from chamber and immediately place in chamber maintained at 160°F at 90% RH.
Thursday	0800	Remove cartridge from chamber and immediately place in a chamber maintained at 70°F.
	1300	Remove cartridges from chamber and immediately place in chamber maintained at -65°F.
	1600	Remove cartridges from chamber and immediately place in a chamber maintained at 160°F at 90 RH.
Friday	0800	Remove cartridges from chamber and immediately place in chamber maintained at 70°F.
	1300	Remove cartridges from chamber and immediately place in chamber maintained at -65°F.
	1600	Remove cartridges from chamber and immediately place in chamber maintained at 160°F at 90% RH.
Saturday & Sunday	—	Maintain cartridges at 160°F at 90% RH.
Monday	0800	Remove from chamber and immediately place in a chamber maintained at 70°F.

The same temperature cycle shall be followed as specified on the first Monday (1300) until the second Friday (1300) at which time the cartridges shall be maintained at -80°F until the third Monday (0800) when the cartridges are placed into a chamber at 70°F.

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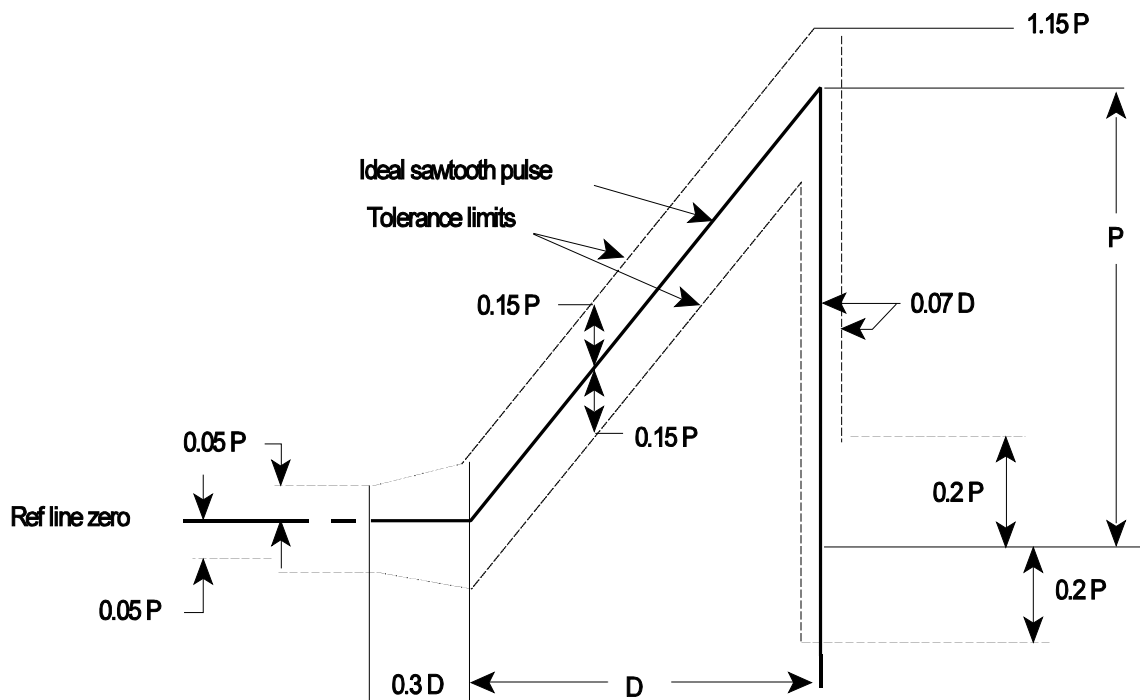
At the end of the first two week period two cartridges shall be removed. One cartridge shall be conditioned at 70°F and fired, as soon as possible, the remaining one being placed in 70°F storage until the end of the cycling program at which time it shall be fired.

The second two week period follows the same schedule of temperature and humidity cycling. Withdraws of cartridges during the second 2-week period to be as follows:

At 0800 on the fourth Monday, two cartridges shall be removed. One cartridge shall be conditioned at 70°F and fired, as soon as possible, the remaining one shall be placed in 70°F storage until the end of the cycling program at which time it shall be fired.

At the completion of the two periods on the 5th Monday (0800) after starting, the remaining two cartridges shall be removed. These two cartridges and the remaining two from the withdraws at two and three weeks shall be conditioned at 70°F and fired.

**4.3.9 Shock.** The cartridge, with any protective means removed, shall be subjected to the shock profile



of figure 5, with the following requirements:

FIGURE 5. Terminal peak sawtooth shock pulse profile and tolerance limits.

a. The cartridges shall be mounted to the shock/vibration test fixture to simulate the actual service installation.

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- b. All shock testing shall be conducted at +70°F.
- c. The shock pulse wave form shall be terminal peak sawtooth as defined in figure 2, where P= 20 g and D= 11 milliseconds. Three shocks shall be applied in each direction of three mutually perpendicular axes of the cartridge or a total of 18 shocks. The three mutually perpendicular axes are shown in figure 1. Each cartridge shall be visually inspected after each axis direction test for evidence of mechanical failure or any defects which may affect proper installation of function. Result of inspection shall be noted.
- d. Failure of any cartridge to comply with the requirements of 3.5.5 shall be cause for rejection of the lot or first article sample, or both.

**4.3.10 Functional test.** The sample cartridges for the functional test shall be conditioned for not less than 4 hours and no more than 24 hours at the specified temperatures. The cartridges shall be removed from the conditioning chamber and test fired within 3 minutes. If any cartridge is not fired within 3 minutes after removal, it shall be reconditioned at the specified temperature for an additional 4 hours and then tested. The cartridge shall be fired in the cartridge test firing setup similar to as depicted in figure 6. The test fixture shall have a gas operated firing mechanism as shown. The firing mechanism shall consist of a firing pin with an o-ring seal and retained by a shear pin. The application of gas pressure (625 psig reference), shear pin actuation pressure (400 to 600 psig reference - see 6.4)), and firing mechanism design shall be as such to deliver sufficient firing energy to the cartridge for proper actuation without permeating the cartridge primer wall. The cartridges shall meet the requirements specified in 3.5.6.

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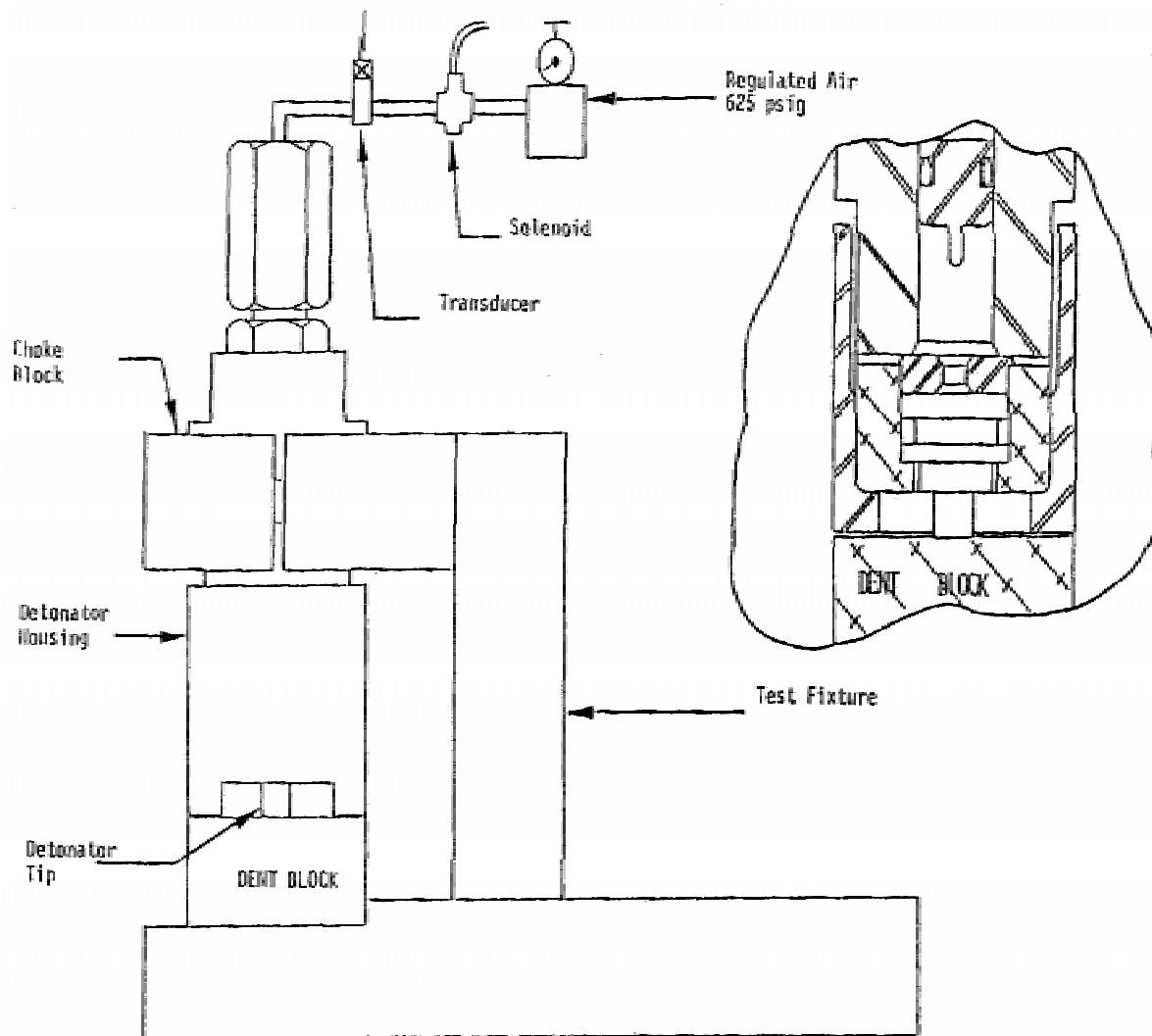


FIGURE 6. Schematic of cartridge test firing setup.

**4.3.10.1 Dent block indent.** An indent shall be obtained in a 6061-T6 aluminum dent block. The cartridge shall meet the requirements of 3.5.6.1.

**4.3.10.2 Test failure.** If a test failure is attributable to an assignable cause, excluding the cartridges, the original test results shall be discarded and the test re-conducted.

**4.4 Acceptance criteria.** The cartridges shall meet the requirements of 3.5 when tested as specified in 4.3.5 through 4.3.10. The acceptable number of defects is 0 and the rejection number is 1.

## 5. PACKAGING



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**5.1 Packaging.** For acquisition purposes, the packaging requirements shall be as specified in the contract or order (see 6.2). When actual packaging of materiel is to be performed by DOD personnel, these personnel need to contact the responsible packaging activity to ascertain requisite packaging requirements. Packaging requirements are maintained by the Inventory Control Point's packaging activity within the Military Department or Defense Agency, or within the Military Department's System Command. Packaging data retrieval is available from the managing Military Department's or Defense Agency's automated packaging files, CD-ROM products, or by contacting the responsible packaging activity.

## 6. NOTES

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

**6.1 Intended Use.** The cartridge is intended for use in the BBU-58/A Cartridge Actuated Mount-Cutter and the CCU-133/A Cartridge Actuated Initiator. The cartridge supplies an explosive force to perform a work function during an emergency crew ejection or upon aircraft ground impact. The cartridge is used in some F-18C and F18-D aircraft.

**6.2 Acquisition requirements.** Acquisition documents must specify the following:

- a. Title, number, and date of this specification.
- b. Issue of DODISS to be cited in the solicitation, and if required, the specific issue of individual documents referenced (see 2.2.1, 2.2.2, and 2.3).
- c. Whether first article inspection is required and, if so, specify the test activity (see 3.1 and 4.2.1).
- d. Number of inner containers per pack if not optional (see 5.2.1).
- e. Marking if other than as specified (see 5.3.1).
- f. If bar coding is not required on outer container (see 5.3.2).

**6.3 First article.** When a first article inspection is required, the contracting officer should provide specific guidance to offerors whether the item(s) should be a preproduction sample, a first article sample, a first production item, a sample selected from the first production items, standard production item from the contractor's current inventory (see 3.1) and the number of items to be tested as specified in 4.2.1. The contracting officer should also include specific instructions in acquisition documents regarding arrangements for examinations, approval of first article test results, and disposition of first articles. Invitations for bids should provide that the U.S. Government reserves the right to waive the requirement for samples for first article inspection to those bidders offering a product which has been previously acquired or tested by the U.S. Government, and that bidders offering such products, who wish to rely on such production or test, must furnish evidence with the bid that prior U.S. Government approval is presently appropriate for the pending contract. Bidders should not submit alternate bids unless specifically requested to do so in the solicitation.

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**6.4 Definitions.**

**6.4.1 Level A packing.** The degree of packing which will afford maximum protection during shipment, handling, indeterminate storage and world-wide redistribution under the most severe conditions.

**6.4.2 Level C packing.** The degree of packing which will afford protection against damage during direct domestic shipment from the supply source to the first receiving activity for immediate use. This level will conform to the applicable carrier rules and regulations and may be the supplier's commercial practice when such meets the requirements of this level and MIL-STD-129-1.

**6.4.3 Primary components.** Primary components are all components in which a functional failure would result in a misfire or malfunction of the cartridge.

**6.4.4 Shear pin actuation pressure.** The shear pin actuation pressure is the gas pressure required to actuate the gas operated firing mechanism when a gas pressure of 625 psig (reference) is applied.

**6.5 Contract packaging and marking.** The following packaging and marking requirements should be specified in the contract.

**6.5.1 Preservation, packaging, and packing.** Preservation, packaging, and packing shall be in accordance with the requirements listed below. The contractor shall also comply with all applicable transportation regulations.

**6.5.1.1 Level A packaging.** Level A preservation and packing (see 6.4) shall be used for packaging of all production lot cartridges by the contractor for distribution.

**6.5.1.1.1 Inner container.** One cartridge with one O-ring (NAS1611-011 or equivalent) and one label (Drawing 850AS904), shall be packaged conforming to MIL-P-116, submethod IId sealed rigid metal container or equivalent. Adequate support and cushioning shall be provided for the packaged items. Dunnage must be chemically compatible with explosive content. A tight pack is mandatory.

**6.5.1.1.2 Outer pack.** Fifty (50) cartridges packaged as described in 6.5.1.1.1 shall be packaged into a box conforming to PPP-B-601, style A or B, or to PPP-B-621, class II, style 4 or 4 1/2 unless otherwise specified. A tight pack is mandatory.

**6.5.1.2 Level C packaging.** Level C preservation and packing (see 6.4) shall be used for packaging of cartridges intended for expenditure in first article and lot acceptance testing accordance with the contractor's standard packaging procedures.

**6.5.2 Marking.**

**6.5.2.1 Normal marking.** Unless otherwise specified in the contract or purchase order (see 6.2), the marking on the inner and outer containers shall be as specified below. The specified markings shall be applied to the containers in accordance with the applicable provisions of MIL-STD-129-1.

## a. Inner Container Marking

(1) NSN:

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- (2) DODIC:
- (3) Serial Number
- (4) Cartridge, Impulse, CCU-132/A
- (5) Drawing 850AS895
- (6) Quantity
- (7) Lot number in accordance with MIL-STD-1168

### b. Outer Container Marking

- (1) NSN:
- (2) DODIC:
- (3) Cartridge, Impulse, CCU-132/A
- (4) Drawing 850AS895
- (5) Quantity
- (6) Gross weight and cube
- (7) Lot number in accordance with MIL-STD-1168
- (8) Contract/purchase order number

**6.5.2.2 Bar Coding.** Unless otherwise specified in the contract or purchase order (see 6.2), the outer container shall be bar coded in accordance with MIL-STD-129-1, Part 2.

**6.5.2.2.1 Markings.** The markings of outer containers as a minimum shall include the NIIN and the lot number, shelf life expiration date, and quantity. The bar code label shall be applied to the outer container.

### 6.6 Subject term (key word) listing.

Ejection systems, aircrew  
Emergency escape systems, aircrew  
Escape systems, aircrew  
Life-saving systems, aircrew

Preparing Activity:  
Navy - OS  
(Project 1377-0037)

# 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, and send to preparing activity.
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-DTL-82935

2. DOCUMENT DATE (YYYYMMDD)  
19960129

3. DOCUMENT TITLE CARTRIDGE, IMPLUSE, CCU-132/A

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

### 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  
(YYYYMMDD)

### 8. PREPARING ACTIVITY

a. NAME COMMANDER, INDIAN HEAD DIVISION  
NAVAL SURFACE WARFARE CENTER  
STANDARDIZATION BRANCH (CODE 8420)

(Include Area Code)  
(2) AUTOVON

(Include Zip Code)  
101 STRAUSS AVENUE  
-5035

IF YOU DO NOT RECEIVE A REPLY WITHIN 45 DAYS, CONTACT:  
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