

MIL-C-743A
7 October 1968
SUPERSEDING
JAN-C-743
14 March 1949
(See 6.2)

MILITARY SPECIFICATION
CARTRIDGE, CALIBER .30, CARBINE, TEST, HIGH PRESSURE, M18

This specification is mandatory for use by all Departments and Agencies of the Department of Defense.

1. SCOPE

1.1 This specification covers Cartridge, Caliber .30, Carbine, Test, High Pressure, M18 for proof testing caliber .30 carbine weapons.

2. APPLICABLE DOCUMENTS

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

STANDARDS

Military

- | | |
|-------------|---|
| MIL-STD-105 | - Sampling Procedures and Tables for Inspection by Attributes |
| MIL-STD-109 | - Quality Assurance Terms and Definitions |
| MIL-STD-636 | - Visual Inspection Standards for Small Arms Ammunition Through Caliber .50 |
| MIL-STD-644 | - Visual Inspection Standards and Inspection Procedures for Inspection of Packaging, Packing and Marking of Small Arms Ammunition |

DRAWINGS

U.S. Army Munitions Command

- | | |
|----------|---|
| C6176267 | - Cartridge, Caliber .30, Carbine, Test, High Pressure, M18 |
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2.1 DRAWINGS (Cont'd)

U.S. Army Munitions Command

IEL-6176267

- Inspection Equipment List for Cartridges,
Caliber .30, Carbine, Test, High Pressure,
M18

PUBLICATIONS

AMCR 715-505, Volume 3 - Ammunition Ballistic Acceptance Methods
and Procedures for 7.62mm Cartridges

TECP 700-700, Vol. III - Manual of Test Methods for Small Arms
Ammunition

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

3. REQUIREMENTS

3.1 General. - The cartridge shall comply with Drawing B6176267, referenced specifications and the following:

3.2 Residual stress. - The cartridge case shall not split when subjected to a one percent mercurous nitrate solution for 15 minutes.

3.3 Bullet extraction. - The force required to extract the bullet from the cartridge case shall be not less than 45 pounds.

3.4 Chamber pressure. - The average chamber pressure of the sample cartridges, conditioned at 68° to 72° Fahrenheit (F), shall be 47,500 pounds per square inch (psi) plus or minus 2500 psi. The standard deviation of the chamber pressures shall not exceed 5500 psi.

3.5 Function and casualty. - The cartridge shall function without casualty.

3.6 Workmanship. - The requirements for workmanship are as specified on the applicable drawings, referenced specification and the following:

3.6.1 Metal defects. - The cartridge shall be free of folds, wrinkles, deep draw scratches, scaly metal, dents and other defects.

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3.6.2 Foreign matter. - The cartridge shall be free of corrosion, stains, discolorations, dirt, oil and smears of lacquer.

4. QUALITY ASSURANCE PROVISIONS

4.1 Responsibility for inspection. - Unless otherwise specified in the contract or purchase order, the supplier is responsible for the performance of all inspection requirements as specified herein. Except as otherwise specified in the contract or order, the supplier 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 the specification where such inspections are deemed necessary to assure supplies and services conform to prescribed requirements.

4.1.1 Quality assurance terms and definitions. - Reference shall be made to MIL-STD-109 for definition of quality assurance terms.

4.2 First article sample.

4.2.1 Initial production sample. - At the beginning of regular production, a sample shall be submitted in accordance with contract requirements and shall consist of 200 cartridges. The sample shall be manufactured using the same materials, equipment, processes and procedures as will be used in regular production. All parts and materials, including packaging and packing shall be the same as used for regular production and shall be obtained from the same source of supply.

4.2.1.1 Examination and test. - After inspection and provisional acceptance at source, the sample shall be inspected for all requirements of the drawings and specifications at a government laboratory or such other facility specified in the contract.

4.2.1.2 Initial production sample failure. - Failure of the sample to comply with the requirements of the drawings and specifications shall result in sample disapproval.

4.3 Inspection provisions.

4.3.1 Lot.

4.3.1.1 Submission of product. - The product shall be submitted in accordance with MIL-STD-105.

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4.3.1.2 Lot identification.- Each lot of ammunition shall be identified as to type, caliber and model, as well as with a lot number and the supplier's identification as assigned by the procuring activity. Each lot shall be further identified by a Federal Stock Number assigned by the procuring activity.

4.3.2 Examination.- Examination for major and minor defects shall be performed on a class basis in accordance with the classification of defects, Table I, using applicable sampling plans and acceptance criteria of MIL-STD-105. The AQL for Major Class shall be 0.25 percent and the AQL for the Minor Class shall be 1.50 percent.

4.3.2.1 Classification of defects.- The classification of defects shall be as specified in Table I.

TABLE I

| No. | Defect and Method of Inspection | Major | Minor | Major or Minor |
|-----------|----------------------------------|-------|-------|-------------------|
| Visual 1/ | | | | |
| Cartridge | | | | |
| 1 | Discolored, dirty, oily, smeared | | X | |
| 2 | Corroded, or stained, if etched | X | | |
| Case | | | | |
| 4 | Round head | X | | |
| 5 | Dent | | | X |
| 6 | Split case 2/ | X | | |
| 7 | Perforated case | X | | |
| 8 | Draw scratch | | | X |
| 9 | Scratch | | X | |
| 10 | Beveled underside of head | X | | |
| 11 | Scaly metal | | | X |
| 12 | No chamfer on head (rim) | X | | |
| 13 | Fold | | X | |
| 14 | Wrinkle | | X | |
| 15 | Bulge | | X | |
| 16 | Illegible or missing head stamp | | X | |
| 17 | Defective head | | X | |
| 18 | Defective mouth | | X | |
| 18A | Coating missing | X | | |

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4.3.2.1 (Cont'd)

TABLE I (Cont'd)

| No. | Defect and Method of Inspection | Major | Minor | Major or Minor |
|----------|---|-------|-------|-------------------|
| Bullet | | | | |
| 19 | Dent | | X | |
| 20 | Scratch | | X | |
| 21 | Split bullet jacket | X | | |
| 22 | Loose bullet | X | | |
| 23 | Scaly metal | | | X |
| 24 | Upset (crooked) point | | X | |
| 25 | Exposed steel (clad jacket) | | X | |
| 26 | Flat point | | X | |
| Primer | | | | |
| 27 | No primer | X | | |
| 28 | Cocked primer | X | | |
| 29 | Inverted primer | X | | |
| 30 | Loose primer | X | | |
| 31 | Nicked or dented primer | | X | |
| 32 | No waterproofing material (Primer pocket joint) | | X | |
| Gaging | | | | |
| 33 | Total length | X | | |
| 34 | Cartridge profile failure (requiring more than 20 lbs. dead weight to insert in profile and alignment gage) | X | | |
| 35 | Diameter of extractor groove, max. | X | | |
| 36 | Diameter of extractor groove, min. | | X | |
| 37 | Diameter of head | X | | |
| 38 | Thickness of head | X | | |
| 39 | Length of case | X | | |
| 40 | Depth of primer | X | | |
| Weighing | | | | |
| 41 | Weight, min. | X | | |

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4.3.2.1 (Cont'd)

- 1/ Refer to MIL-STD-636 for visual defects standards for defects 1 through 32.
- 2/ A split in any location and with or without evidence of propellant loss shall be classed as a major defect.

4.3.3 Tests.- The tests listed in Table II shall be conducted in accordance with the methods and procedures specified in 4.4.

4.3.3.1 Test sample.- The quantities for the various tests shall be as specified in Table II. Only cartridges having met the visual, dimensional and weight requirements shall be used in the ballistic tests and shall have been selected in such a manner that the sample is representative of the entire lot. The cartridges shall be thoroughly mixed before being divided into samples for the various tests.

TABLE II

| <u>Test</u> | <u>Number of Cartridges</u> | <u>Requirement Paragraph</u> |
|---|-----------------------------|------------------------------|
| Residual stress (Mercurous Nitrate) <u>1/</u> | 50 | 3.2 |
| Bullet extraction <u>1/</u> | 25 | 3.3 |
| Chamber pressure <u>2/</u> | 25 | 3.4 |
| Function and Casualty <u>3/</u> | -- | 3.5 |

- 1/ Failure of two or more cartridges to comply with the applicable requirement shall be cause for rejection of the lot. If one cartridge fails in the first test, a second sample consisting of double the number of cartridges in the first sample shall be tested. If any failing cartridges are found in the second sample, the lot shall be rejected.
- 2/ Failure of the cartridges to comply with the applicable requirement shall be cause for rejection of the lot subject to testing of a second sample consisting of double the quantity of cartridges used in the first test. Failure of the cartridges in the second sample to comply with the applicable requirement shall be cause for rejection of the lot.

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4.3.3.1 (Cont'd)

- 3/ Observation for function and casualty shall be made during firing of the chamber pressure test. The lot shall be rejected when firing defects exceed the acceptance number for the cumulative sample in Table III. If the number of defects found in the first test exceeds the acceptance number for the first sample, but is equal to or less than the acceptance number for the cumulative sample, a second sample consisting of double the quantity of cartridges specified for the chamber pressure test shall be fired. If the total number of defects in the combined first and second sample exceeds the acceptance number for the cumulative sample, the lot shall be rejected. If, in testing a second sample, defects other than those for which the second sample is being tested should occur to the extent that they exceed the acceptance number for the cumulative sample, the lot shall be rejected.

4.3.3.2 Firing defects. - Firing defects and acceptance numbers shall be as specified in Table III.

TABLE III

| <u>Defects</u> | <u>Acceptance</u> | |
|---|---------------------|---|
| | <u>First Sample</u> | <u>Cumulative First and Second Sample</u> |
| 1. Misfire | 1 | 2 |
| 2. Bullet remaining in bore 1/ | 0 | - |
| 3. Blown primer or primer falls out of pocket on retraction of bolt | 0 | 1 |
| 4. Case casualties | | |
| a. Split (longitudinal) | 1 | 2 |
| b. Complete rupture (circumferential) | 0 | 1 |
| c. Partial rupture (circumferential) | 1 | 2 |

- 1/ No second sample permitted. Lot shall be rejected.

4.3.4 Packaging, packing and marking inspection. - During or immediately prior to the packaging operation, 100 percent examination of the cartridge shall be performed to ascertain that the cartridge type conforms to the drawing. Occurrence of any type other than high pressure test shall be classed as a major defect. All non-conforming cartridges shall be rejected. Inspection for packaging, packing and marking shall be in accordance with MIL-STD-644 as applicable to the drawing.

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4.3.5 Inspection equipment.- The examination and tests shall be made using the equipment listed on IEL-6176267.

4.4 Test methods and procedures.

4.4.1 Bullet extraction.- The cartridges shall be tested in accordance with AMCR 715-505, Volume 3. The rate of travel of the test head shall be not less than three or more than six inches per minute.

4.4.2 Residual stress (mercurous nitrate).- The test shall be conducted in accordance with TECP 700-700, Vol. III.

4.4.3 Chamber pressure.- The test shall be conducted in accordance with TECP 700-700, Vol. III.

4.4.4 Function and casualty.- The test shall be conducted simultaneously with the chamber pressure test. When testing of a second sample is required, the test shall be conducted in accordance with the procedure prescribed for chamber pressure test in TECP 700-700, Vol. III, using the long piston, and procedure in accordance with 4.4.4.1. All reference pertaining to obtaining chamber pressure data shall be disregarded.

4.4.4.1 Five warming shots shall be fired. To fire the warming shots, it shall be necessary to seat the long piston in the chamber pressure piston hole and the anvil screwed down on the head of the piston until the piston has reached its correct final position. Before each warming shot is fired, the anvil should be checked to assure it is in a snug position on the head of the piston.

4.4.5 Defect penalty.- If, in the chamber pressure test, a firing defect prevents the obtaining of a reliable result for the characteristic being tested, an additional shot shall be fired. The chamber pressure test shall not be penalized, but the ballistic sample shall be penalized for such defects in accordance with Table III.

5. PREPARATION FOR DELIVERY

5.1 Packing - Level A (world wide shipment).- The cartridges shall be packed as required by the contracting officer.

5.2 Marking and labeling.- Marking for shipment shall be as specified by the contract.

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6. NOTES

6.1 Ordering data.- Invitations for bids or request for proposal and contracts or orders will specify the following:

6.1.1 Title, number and date of this specification.

6.1.2 Type and level of packing.

6.1.3 Provision for the supply, maintenance and disposition of mandatory ballistic test equipment for acceptance inspection purposes.

6.1.4 Provision for the submission of acceptance inspection reports containing final inspection results for each lot of ammunition presented to the Government.

6.1.5 Requirement for the contractor to provide and maintain an inspection system in accordance with MIL-I-45208, Inspection System Requirements.

6.2 Supersession data.- This specification together with those listed below include the requirements of JAN-C-743 dated 14 March 1949:

| | |
|-----------------|---|
| MIL-C-60161(MU) | - Cartridge, Caliber .30, Test, High Pressure, M1 |
| MIL-C-60162(MU) | - Cartridge, Caliber .50, Test, High Pressure, M1 |
| MIL-C-60163(MU) | - Cartridge, Caliber .45, Test, High Pressure, M1 |

Custodian:

Army - MU

User activity:

Air Force 70

Preparing activity:

Army - MU

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