

MIL-R-1296C

31 AUGUST 1964

SUPERSEDING

MIL-R-1296B

27 JUNE 1960

MIL-R-20690

25 MARCH 1957

(See Section 6.)

MILITARY SPECIFICATION

RIFLE, CALIBER .22, M12

This specification has been approved by the Department of Defense and is mandatory for use by all Departments and Agencies of the Department of Defense

1. SCOPE

1.1 This specification covers manually operated, bolt-action, heavy barrel, rimfired rifles of commercial design, chambered for caliber .22 long rifle cartridges, used for match shooting.

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:

SPECIFICATIONS

FEDERAL

TT-L-215 — Linseed Oil, Raw, (for Use in Organic Coatings).

MILITARY

MIL-P-116 — Preservation, Methods of.

MIL-C-565 — Cartridge, Ball, Caliber .22, Long Rifle (Commercial).

MIL-F-13083 — Finish, Protective, Tung (Chinawood) Oil Base (for Wooden Components of Small Arms).

MIL-W-13855 — Weapons, Small Arms, General Specification for.

MIL-I-45607 — Inspection Equipment, Supply and Maintenance of.

MIL-C-45662 — Calibration System Requirements.

STANDARDS

MILITARY

MIL-STD-10 — Surface Roughness, Waviness, and Lay.

MIL-STD-105 — Sampling Procedures and Tables for Inspection by Attributes.

MIL-STD-109 — Quality Assurance Terms and Definitions.

FSC 1005

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DRAWINGS

U. S. ARMY WEAPONS COMMAND
A7268278 — Rifle, Cal .22, M12.

PUBLICATIONS

U. S. ARMY WEAPONS COMMAND
P7268278 — Packaging Data Sheet for
Rifle, Caliber .22, M12.

(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.)

2. REQUIREMENTS

3.1 Bid samples. Each bidder shall furnish three rifles of the design he proposes to supply for evaluation and test to determine compliance with this specification (see 4.3.2.1, 4.3.3.1.1, and 6.3) Sample rifles shall be forwarded free on board (f.o.b.) contractor's plant to the procuring activity (see 6.1).

3.2 Manufacturing models. Upon award of the contract, three rifles of the design being procured shall be forwarded f.o.b. contractor's plant to the designated testing agency for approval as inspection standards (see 4.2 and 6.2) in accordance with MIL-W-13855. Rifles shall be representative of manufacturer's normal production.

3.3 Materials, design, and construction. Materials, design, and construction shall conform to the applicable drawings for part numbers listed on Drawing A7268278, to this specification, and to the applicable requirements of MIL-W-13855. The action and parts in rolling or sliding contact shall be of hardened steel. Staked or dovetailed members shall have sufficient temper to retain their original fit after extended use.

3.3.1 General characteristics. General characteristics shall be in accordance with table I.

TABLE I. General characteristics

Weight (unloaded, with sight, without accessories).	11 to 13 pounds.
Barrel	Free floating, with adjustable bedding device.
Barrel length	26 to 29 inches.
Type of sights:	
Rear	Redfield International with Merit Iris Shutter, Delux Disc No. 3SS with flexible rubber shield, or approved equal.
Front	Redfield Olympic globe target front sight, or approved equal, with 16 metal interchangeable inserts: (18 aperture type sized 0.095 inch to 0.155 inch in 0.005 inch increments and 3 post type sized 0.080 inch, 0.090 inch, and 0.100 inch).
Action	Single shot, solid bottom receiver.
Stock	Target type, with full length metal rail on bottom fore end which will accept a palm rest and an adjustable fore end stop. Non-slip rubber butt plate. (See 3.3.10.)
Telescope sight bases	Mounted on rifle.
Trigger pull	Adjustable, in weight from 1 to 3 pounds, in sear engagement, and in movement after release.

3.3.2 Human engineering characteristics. In addition to meeting the design requirements specified herein, rifles shall meet with the approval of the bid sample evaluation and test agency (see 3.1) for human engineering characteristics such as size, shape, and balance deemed essential for expert match shooting.

3.3.2.1 Size. The overall length shall be from 46 to 48 inches.

3.3.2.2 *Shape.* The stock shall have a drop of not more than three-eighths of an inch at the comb and not more than one-fourth of an inch at the heel. Measurements shall be made from the centerline of the bore.

3.3.2.3 *Balance.* The length of pull (distance from the trigger to the butt of the stock measured parallel to the centerline of the bore) shall be not less than 13 inches and not more than 13 $\frac{3}{4}$ inches. The center of balance shall be 8 to 10 inches forward of the trigger.

3.3.3 *Barrel.* The barrel shall be so fabricated that, upon assembly to the receiver, the requirements for accuracy and targeting hereinafter prescribed shall be met. The bore and chamber shall be free of scratches, cracks, seams, pits, and toolmarks.

3.3.4 *Barrel and receiver assembly.* The barrel shall be shouldered and the shoulder shall be drawn tight against the receiver by screw threads. The nominal diameter of the screw threads shall not be less than three-fourths of an inch. The length of barrel supported in the receiver, consisting of threaded or a combination of threaded and unthreaded portions, shall be not less than 100 percent of the nominal thread diameter, provided that the threaded portion shall be at least equal to 65 percent of the nominal thread diameter.

3.3.5 *Bolt assembly.* The bolt shall be free of cracks, burs, tool marks, scratches, and mutilations. It shall move freely through its full range of travel as evidenced by manual examination.

3.3.6 *Trigger.* The trigger shall return to its normal forward position immediately upon release after partial or complete trigger pull.

3.3.7 *Sights.* The front sight shall have no looseness as evidenced by manual examination. The rear sight shall be adjustable by

hand. After adjustment, the sight shall maintain its setting during normal firing conditions.

3.3.8 *Safety device.* A safety device shall be provided which, when set at the safe position, shall prevent firing of the rifle. It shall be movable manually between the safe position and the fire position and shall remain in the position set until reset manually.

3.3.9 *Finishes.*

3.3.9.1 *Machine finish.* Machine finishes shall be in accordance with commercial practice for the type of rifle furnished. Approved manufacturing models (see 3.2) shall be used as standards for machine finishes for rifles to be supplied under contract. In the event of a dispute over the comparison of finishes of the manufacturing models and production rifles, referee comparison shall be in accordance with MIL-STD-131.

3.3.9.2 *Final protective finish.* The exterior metallic surfaces shall be polished and blued, or finished in such other manner as approved by the procuring agency. The finish shall be applied so as not to draw the temper or alter the form or dimensions of components sufficiently to affect functioning. The finish shall be uniform in texture and appearance. Approved manufacturing models (see 3.2) shall be used as standards for final protective finishes for rifles to be supplied under contract.

3.3.10 *Stock.*

3.3.10.1 *Material.* Stocks shall be of dense black walnut wood. The grain shall be straight and in the longitudinal direction of the stock. Slight deviations in grain, small knots in the butt of the stock, slight sap streaks, small checks, and small cracks shall not be cause for rejection provided they do not cause weakness, particularly in a thin section. Stocks shall be free of patches. Small checks, cracks, and knotholes shall be filled

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with plastic wood or other suitable material approved by the procuring agency.

3.2.10.2 Color. Stocks shall have a uniform nonbleeding color matching the color of black walnut heartwood. Black walnut sapwood may be stained prior to the protective finish treatment.

3.2.10.3 Protective finish compound. Stocks shall be treated with tung (chinawood) oil base protective finish compound conforming to MIL-F-13088, raw linseed oil conforming to TT-L-215, or other suitable finish approved by the procuring agency.

3.2.10.4 Butt plate. The butt plate shall be of soft synthetic rubber compound which is resistant to oil and cleaning solvents. It shall be approximately five-sixteenths of an inch thick, having horizontal serrations with the teeth pitching downward, spaced at approximately three thirty-seconds of an inch and one thirty-second of an inch deep. Color scheme shall be consistent with accepted commercial practice. Mounting screws shall be recessed below the roots of the serrations on the rear surface of the butt plate.

3.3.11 Swivels. Rifles shall be equipped with swivels adaptable to slings $1\frac{1}{4}$ inches wide. The front swivel shall be movable permitting adjustment of handhold with relation to the sling. After adjustment, the front swivel shall maintain its position during normal usage.

3.3.12 Trigger pull. The trigger pull shall be free of detectable creep and shall be capable of adjustment within the range specified in table I when tested as specified in 4.3.3.1.2.1 and 4.4.1. Creep shall be interpreted to mean any detectable movement between the time positive resistance is met and the firing mechanism is released. There shall be additional adjustment remaining in the adjusting device when the trigger pull has been set to meet the specified trigger pull requirements. After adjustment of the

trigger pull, the rifle shall demonstrate the ability to consistently retain the trigger pull setting within 4 ounces (see 3.3.17).

3.3.13 Functioning. Each rifle shall operate without malfunctions, unserviceable parts, punctured or ruptured cartridge cases, and loose stock or screws when tested as specified in 4.3.3.1.2.1 and 4.4.2. Malfunctions attributable to defective ammunition shall not be counted against the rifle being tested. Drawing the bolt entirely to the rear shall extract the cartridge or cartridge case from the chamber and eject it freely and completely out of the receiver. Returning the bolt forward to the closed position shall push a cartridge from the loading platform into the chamber. Thrusting the bolt forward sharply by hand in chambering a cartridge shall not fire the cartridge.

3.3.14 High-pressure resistance. Each rifle shall withstand the high-pressure resistance test (proof firing) specified in 4.3.3.1.2.1 and 4.4.3. Parts shall be free of cracks, seams, and other injurious defects after proof firing, as evidenced by visual examination, and the headspace shall be 0.042 inch minimum to 0.046 inch maximum.

3.3.15 Targeting. Sights shall be capable of being zeroed to the rifle within the limits of the adjustable windage and elevation index plates and still have additional adjustment remaining on the index plates in both directions. A series of 5 shots fired from the rifle at a range of 100 yards shall be within or cut the edge of a bull's-eye 4 inches in diameter, or a series of 5 shots fired at a range of 50 yards shall be within or cut the edge of a bull's-eye 2 inches in diameter when tested as specified in 4.3.3.1.2.1 and 4.4.4.

3.3.16 Accuracy. The average extreme spread, measured from center to center of shot holes, of three consecutive 10-shot groups fired at a range of 100 yards shall not exceed 1.20 inches, and no individual

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group shall exceed 1.30 inches when tested as specified in 4.3.3.1.2.1 and 4.4.5. Bid samples shall demonstrate the ability of the design to consistently meet this requirement when tested as specified in 4.3.3.1.1.1 and 4.4.5.

4.3.17 *Reliability.* Rifles shall be capable of withstanding a reliability test of 2,000 rounds without malfunctions or unserviceable parts when tested as specified in 4.3.3.1.1.2 and 4.4.6. At the completion of the test, rifles shall meet the targeting, accuracy, and trigger pull requirements of this specification (see 3.3.15, 3.3.16, and 3.3.12).

3.4 *Marking.* Unless otherwise specified, rifles shall be marked in accordance with the marking provisions of MIL-W-13855 (see 6.1). The letters "U.S." and serial number shall be placed on the receiver.

2.5 *Workmanship.* Workmanship shall be in accordance with the requirements of MIL-W-13855 and the approved manufacturing models.

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, the supplier may utilize his own facilities or any other commercial laboratory acceptable to 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.* Quality assurance terms and definitions used herein are in accordance with MIL-STD-109.

4.2 *Manufacturing model inspection.* Un-

less otherwise specified, sample rifles shall be submitted to the designated testing agency for Government approval as inspection standards (see 3.2, 3.3.9, 3.5, and 4.3.2.2) in accordance with MIL-W-13855. Acceptance of the initial lot shall be deferred pending approval of the manufacturing models.

4.3 Inspection provisions.

4.3.1 *Inspection lot.* The formation, size, and presentation of inspection lots shall be in accordance with MIL-STD-105. Inspection lots shall be as large as practicable, in consideration of quality history, manufacturing conditions, and contractor's delivery schedule and within the limitations of MIL-W-13855.

4.3.2 Examination.

4.3.2.1 *Bid sample rifles.* Examination of bid sample rifles shall be in accordance with the applicable provisions of MIL-W-13855. Rifles shall be examined by the evaluation and test agency (see 3.1) for completeness of manufacture, general characteristics, human engineering characteristics, assembly, finishes marking, and workmanship, and the barrel, barrel and receiver assembly, bolt, trigger, sights, safety, stock, and swivels shall be examined for compliance with the requirements specified in 3.3.5 through 3.3.11.

4.3.2.2 *Production rifles.* Each rifle shall be examined by the contractor as specified in 4.3.2.1. Approved manufacturing models shall be utilized as standards.

4.3.2.3 *Packaging.* Examination of packaging of rifles shall be performed in accordance with the classification of defects and acceptable quality levels (AQL's) specified in 4.3.2.3.1 (see 6.1). Sample size shall be in accordance with MIL-STD-105, using inspection level I. The following provisions shall apply:

- (a) The AQL's are specified as percent defective.

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(b) An individual AQL is specified for each defect, not for a group of defects.

ages, or exterior containers, as applicable.

(c) Examination for packaging defects specified in 4.3.2.3.1 shall apply to each item of the applicable sample of rifles, interior pack-

4.3.2.3.1 *Classification of defects for packaging.* (Unless otherwise specified in each listed defect, the packaging requirements are specified on Packaging Data Sheet P7268278.)

Categories	Defect	AQL
Critical: None defined.		
Major:		
101	Illegible or incorrect marking.	1.0
102	Improper level of packaging and packing (see procurement documents).	1.0
103	Improper preservative application and drainage.	1.5
104	Improper cushioning and wrapping.	1.5
105	Improper size of bag.	1.5
106	Improper closure of interior packages.	1.5
107	Inadequate blocking and bracing.	1.5
108	Improper packing (container oversize inadequate or excessive cushioning).	1.5
109	Improper closure and strapping of shipping container.	1.5
Minor:		
201	Workmanship (see 5.3).	4.0

4.3.3 Testing.

4.3.3.1 *Classification of tests.* Testing of rifles shall be classified as follows:

(a) Bid sample tests.

(b) Quality conformance (production rifle) tests.

4.3.3.1.1 *Bid sample testing.* Bid sample testing shall be performed by the Government and shall consist of all quality conformance tests specified herein and the following tests.

4.3.3.1.1.1 *Bid sample accuracy testing.* Each bid sample rifle shall be subjected to three accuracy tests (90 rounds total) specified in 4.4.5.

4.3.3.1.1.2 *Reliability testing.* After being found satisfactory in examination and all other tests, each bid sample rifle shall be subjected to the reliability test specified in 4.4.6.

4.3.3.1.2 Quality conformance testing.

4.3.3.1.2.1 *Trigger pull, functioning, high-pressure resistance, and targeting and accuracy firing testing.* The contractor shall test each rifle for trigger pull, functioning, high-pressure resistance, and targeting and accuracy firing using the test methods specified in 4.4.1, 4.4.2, 4.4.3, 4.4.4, and 4.4.5 respectively. The tests for functioning and targeting and accuracy may be performed concurrently. Failure of a rifle to meet any of the tests shall cause rejection of the individual rifle.

4.3.3.1.2.2 *Packaging testing.* The contractor shall furnish the Government representative with certification that the packaging materials conform to the applicable packaging data sheets and specifications.

4.3.3.1.2.2.1 *Determination of cleanliness.* The contractor shall test items from each inspection lot for cleanliness using the test methods specified in 4.4.7.1. Sampling shall

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be in accordance with MIL-P-116.

4.3.3.1.2.2.2 Heat seal and vacuum retention. The contractor shall test level A unit packages from each inspection lot for heat seal and vacuum retention using the test methods specified in 4.4.7.2 and 4.4.7.3 respectively. Sampling shall be in accordance with MIL-P-116.

4.3.4 Inspection equipment.

4.2.4.1 Unless otherwise specified in procurement documents (see 6.1), responsibilities for acquisition, maintenance, and disposition of acceptance inspection equipment shall be in accordance with MIL-I-45607 and MIL-C-45662.

4.3.4.2 Ammunition. Cartridges loaded to develop a mean breech pressure of 31,000 to 33,000 pounds per square inch shall be used in the high-pressure resistance test. Except as otherwise indicated cartridges for other firing tests shall be in accordance with MIL-C-566. Selected lots of match grade ammunition having an average extreme spread of all targets at 100 yards of 1.0 inch or less shall be used for targeting and accuracy firing tests. Ammunition may be subjected to a verification test by the appropriate Government testing agency at the discretion of the procuring activity. Standard velocity grade cartridges may be used for functioning and reliability firing tests.

4.4 Test methods.

4.4.1 Trigger pull test. Rifles shall be tested for trigger pull requirement (see 3.3.12) at both the minimum and maximum limits of required adjustment using a Government approved measuring device. The rifle shall be cocked and the safety shall be in the fire position. The load shall be gradually applied to the center of the trigger and exerted in a line parallel to the axis of the bore. The trigger pull shall also be tested for creep by applying pressure manually to the trigger at

a uniform rate of increase over a period of not less than 3 seconds.

4.4.2 Functioning test. Rifles shall be tested for functioning requirement (see 3.3.13) by hand functioning and function firing. Prior to firing, five dummy cartridges shall be chambered, extracted, and ejected by hand operation of the bolt without pulling the trigger. Rifles shall then be function fired by firing at least 10 rounds. Chambering of each of the 10 rounds shall be accomplished by thrusting the bolt forward sharply. The safety device shall be checked (see 3.3.8) by attempting to fire the rifle with the safety device set at the safe position.

4.4.3 High-pressure resistance test. Rifles shall be tested for high-pressure resistance requirement (see 3.3.14) by firing one high-pressure test cartridge in each rifle. After proof firing, rifles shall be visually examined for cracks, deformations, and other evidence of damage, and cartridge cases shall be visually examined for bulges, splits, rings, and other defects caused by defective barrels. Headspace shall be checked using an approved measuring device.

4.4.4 Targeting test. Rifles shall be fired for targeting with the sights set at zero windage and elevation and aligned at 6 o'clock on the bull's-eye using post-type front sight inserts. The targets shall be checked to determine whether the targeting requirements have been met, and the rifles shall be checked to determine whether additional index plate adjustment is available (see 3.3.15).

4.4.5 Accuracy firing test. Rifles shall be tested for accuracy requirement (see 3.3.16) using a muzzle and elbow rest or a machine rest simulating a muzzle and elbow rest. Each rifle may have a 10-shot warmup, prior to test, for adjustment of test equipment and rifle. Refiring any individual target of 10 shots will be permitted to eliminate non-representative results due to ammunition "flyers." A "flyer" is defined as a shot hole

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which is a greater distance from the nearest shot hole than the average spread of the nine shot group. One ranging of any target will be permitted to eliminate nonrepresentative results induced by faulty test procedure or malfunctioning test equipment.

4.4.6 Reliability test. Rifles shall be tested for reliability requirement (see 3.3.17) by firing 2,000 rounds of ammunition. Cleaning and lubricating shall be performed after each 500 rounds and at the end of a day's firing. Upon completion of the reliability test, rifles shall be subjected to the trigger pull test and the targeting and accuracy firing tests specified in 4.4.1, 4.4.4, and 4.4.5 respectively.

4.4.7 Packaging tests.

4.4.7.1 Determination of cleanliness. The applicable surfaces (except for barrel bore and chamber) of each sample unit shall be subjected to the determination of cleanliness test in accordance with MIL-P-116, except that the wipe test shall not be applicable to parts with blued, black oxide, or anodized protective coatings. The barrel bores and chambers shall be wipe tested for cleanliness using clean white bore cleaning swabs, and the degree of cleanliness shall be verified by comparison of test swabs with standard swab samples furnished by the contracting officer.

4.4.7.2 Heat seal. The sample level A unit packages shall be subjected to the heat seal test specified in MIL-P-116.

4.4.7.3 Vacuum retention.

4.4.7.3.1 The flexible barrier of the sample level A unit packages shall be sealed except for an opening in the seam at one corner to accommodate a tube or pipe which is connected to a vacuum producing apparatus (aspirator or vacuum pump). A sufficient vacuum shall be drawn to cause the flexible barrier to cling snugly to the enclosed item.

Care shall be exercised to insure that an excessive amount of vacuum is not applied which might cause puncture or rupture of the barrier. Without releasing the vacuum, the final opening in the barrier shall be sealed.

4.4.7.3.2 Interpretation of results. After remaining undisturbed at room temperature for 2 hours, the barrier shall be examined to determine whether it is still taut and retracts against the item when drawn away and quickly released.

5. PREPARATION FOR DELIVERY

5.1 Packaging data sheets. Quantity of rifles per pack shall be as specified under "Logistic Data" on Packaging Data Sheet P7268278. All other logistic data are for informational use only.

5.2 Preservation, packaging, packing, and marking. Rifles shall be preserved, unit packaged, packed, and marked in accordance with the requirements of Packaging Data Sheet P7268278.

5.3 Workmanship. Adequate controls shall be utilized to check for continuation of cleaning solvents and preservative oils. Heat seals shall be uniform in appearance. Sealing tape shall be applied to boxes uniformly and shall adhere to joints and seams.

6. NOTES

6.1 Ordering data. Procurement documents should specify the following:

- (a) Title, number, and date of this specification.
- (b) Shipping instructions for bid sample (see 3.1).
- (c) Shipping instructions for manufacturing models (see 3.2).
- (d) Marking of rifles if other than specified (see 3.4).

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- (e) Selection of applicable levels of preservation and packaging, and packing (see section 5).
- (f) That packages opened for examination shall be repackaged by the contractor at the contractor's expense.
- (g) Place of final inspection and acceptance (see "Notes" in MIL-W-13855).
- (h) Responsibilities for furnishing acceptance inspection equipment (see 4.3.4.1).
- (i) Responsibilities for furnishing ammunition (see 4.3.4.2).
- (j) Government property to be furnished the contractor and responsibilities therefor.
- (k) Disposition of Government furnished property.

6.2 Work programming for examination and testing of manufacturing models should be effected with the testing agency at the earliest practicable date (see 3.2).

6.3 Rifles submitted as bid samples shall be of the latest commercially available design of each manufacturer (see 3.1).

6.4 The following paragraph should be included in the written contract to cover the type of quality assurance system that is desirable for this item:

Contractor's quality assurance system. The contractor shall provide and maintain a quality assurance system in accordance with MIL-I-45208.

6.5 This specification also supersedes Springfield Armory Purchase Description SAPD-283A, dated 20 September 1963, which was issued for use in lieu of MIL-R-1296B.

Custodians:

Army—WC
Navy—WP
Air Force—84

Review activities:

Navy—WP
Air Force—84

User activity:

Navy—MC

Preparing activity:

Army—WC

Project No. 1005-0253