

MIL-R-3285

8 SEPTEMBER 1950

SUPERSEDING

Army 52-1-21

7 October 1944

Springfield SXS-169

29 February 1945

MILITARY SPECIFICATION

RIFLES, U. S., CALIBER. 30, M1 AND M1C

This medication was approved by the Department of the Army, the Navy, and the Air Force for we of procurement services of the respective departments.

1. CLASSIFICATION

1.1 Type.-Rifles shall be semi-automatic, of one type in the following models, as specified (see 6.2) :

Rifle U. S., Caliber .30, M1.

Rifle, U. S., Caliber .30, M1C.

2. APPLICABLE SPECIFICATIONS, OTHER PUBLICATIONS, AND DRAWINGS

2.1 Specification The following specifications and specifications listed on drawings in 2.2 of the issue in effect on date of invitation for bids, form a part of this specification:

MILITARY SPECIFICATION

JAN-B-121-Barrier-Materials, Grease-proof.

U. S. ARMY SPECIFICATIONS

52-0-1 -General Specification Governing the Manufacture and Inspection of Small Arms Weapons, Spare and Replacement Parts, and Accessories.

57-0-2 -Finishes, Protective, for Iron and Steel Parts.

9440645 -Marking, Exterior, Domestic and Export Shipment by Contractors.

100-2 -Standard Specification for Marking Shipments by Contractor.

(Army-copies of specifications should be obtained from the procuring agency or as directed by that agency. Both the title and identifying number or symbol should be stipulated when requesting copies.)

(Navy-Copies of Military and U. S. Army specifications may be obtained upon supplication to the Bureau of Supplies and Accounts, Navy Department Washington 25, D. C., except that activities of the Armed Forces should make application to the Commanding Officer, Naval Supply Center, Norfolk, Va. Both the title and identifying number or symbol should be stipulated when requesting copies.)

(Air Force.-Copies of Military and U. S. Army specifications may be obtained upon application to the Commanding General, Air Materiel Command, Wright-Patterson Air Force Base, Dayton, Ohio. Both the title and identifying number or symbol should be stipulated when requesting copies.)

2.2 Other publications. - The following publications, of the issue in effect on date of invitation for bids, form a part of this specification:

U. S. ARMY ORDNANCE CORPS PUBLICATIONS

PS-5 -Ordnance Packaging Instructions for 10 Rifle, U. S., Cal. .30, M1

PS-92 -Ordnance Packing Instructions for Cleaning, Preserving and Packing Spare Parts for Rifle, U. S., Cal. .30, M1 and M1C.

PS-134-Ordnance Packing Instructions

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for Cleaning, Preserving and Packing,
for Rifle U. S., Cal .30, M1C and Ac-
cessories

(Copies of Army Ordnance Corps publications should be obtained from the procuring agency or as directed by that agency. Both the title and identifying number or symbol should be stipulated when requesting Copied)

BUREAU OF SUPPLIES AND ACCOUNTS PUBLICATION

Navy Shipment Marking Handbook.¹

(Copies of the Navy Shipment Marking handbook may be obtained upon application to the Bureau of Supplies and Accounts, Department of the Navy, Washington 25, D. C., except that activities of the Armed Forces should make application to the Commanding Officer, Naval Supply Center, Norfolk 11, Va)

2.3 Drawings. - The following drawings and drawings listed thereon, of the issue in effect on date of invitation for bids, form a part of this specification:

U. S. Army ORDNANCE CORPS DRAWINGS

42-24-1A-Rifle, U. S., Cal .30, M1, List of Drawings and Specifications.

42-24-4A-Rifle U. S., Cal. .30, M1C, List of Drawings and Specifications.

(Copies of Army Ordnance Corps drawings should be obtained from the procuring agency or as directed by that agency. Both the title and identifying number or symbol should be stipulated when requesting copies)

3. REQUIREMENTS

3.1 Components and assemblies.

3.1.1 General. - Components and assemblies shall conform to the materials, dimensions, tolerance limits, heat treatment, grade of final finish, and protective finish specified on the drawings. All surfaces shall be smooth and finished in accordance with Specification 52-0-1.

3.1.2 Protective finishes.-Protective finishes shall be in accordance with the draw-

¹ Applicable only to Navy shipments

ings and shall conform to Specification 57-0-2 Sand or shot blasting shall not be used in connection with the application of any finish, unless specifically specified on the drawings.

3.1.3 Marking.

3.1.3.1 Rifle. -Unless otherwise specified, each rifle shall be marked in the position and of the type size specified on the drawings as follows :

- 1 Model, name and number.
2. Manufacturer's name or identification
3. Certain components with piece marks (see Spec 52-0-1).
- 4.
5. Proof marks (see 4.7).
6. Army inspector's stamp.
7. Ordnance Corps final acceptance Stamp.

3.1.3.2 Components.-Whenever practicable, components shall bear an identifying mark of the manufacturer and, in the case of components furnished by a subcontractor, an identifying mark of the subcontractor. A component shall bear a piecemark only when called for on the drawing. If a special piece mark drawing is furnished, only the items listed thereon shall bear a piece mark.

3.1.4 Barrel.-The chamber and bore shall be smooth and free of scratches, pits, rings, and other defects. The lands shall be sharp and well defined. Burrs and sharp edges shall be removed from edge of chamber.

3.1.5 Burrel and receiver assembly.-The uppermost keyway at muzzle end of barrel shall be in alignment with the vertical center line of the receiver when barrel and receiver are screwed together with a tight draw.

3.1.6 Bedding of receive and trigger housing.-The stock shall bear on its contact

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surfaces with the receiver and trigger housing and shall be gripped solidly between these components when assembled

3.1.7 Bolt assembly.-The bolt shall move freely through its full range of travel. Locking lugs shall bear evenly on full surface in alignment with locking surface in the receiver.

3.1.8 Follower slide.-The follower slide shall move freely from side to side on the follower without tendency to stick or bind.

3.1.9 Gas cylinder.-The hole in which the piston operates shall be straight round, smooth, and free of burrs, ridges, and other processing defects.

3.1.10 Firing pin.-The point of the firing pin shall be smooth and well formed.

3.1.11 Clip latch.-The clip latch shall hold the loaded clip firmly on the magazine of the receiver until the last round is fired.

3.1.12 Rear sight assembly.-The aperture shall slide freely in the base without side play. The windage knob thread shall fit in the base without backlash.

3.1.13 Bracket and receiver assembly for rifle, M1C.

3.1.13.1 Bracket. - The bracket for the telescope mount shall be attached to the receiver before either member has received final heat treatment. The bracket shall be closely and uniformly positioned front to rear in relation to the front end of the receiver and vertically and horizontally from the centerline of bore. The bracket shall be positioned so that the front holding screw will break through and clear the camming surface at the front end of the bolt lug slot. The rear screws and pins shall break through into the slot clear of the side walls. The screws shall be finished flush with the bottom surface of the slot, tightened, and staked. The bracket shall have a working distance

from the receiver such that when the telescope is mounted in the slide there shall be clearance between the telescope and the iron sights with reasonable room for making adjustments in setting the sights. No portion of the telescope slide or bracket shall obstruct the sighting vision of the iron sights nor interfere with the insertion of the cartridge clip. The bracket shall be so mounted to the receiver that when the telescope is targeted at 100 yards there shall be remaining a sufficient amount of adjustment to reach 1,000 yards of range with either Government standard ball, armor piercing, or tracer ammunition.

3.1.13.2 Receiver. - The receiver shall be selected for the M1C rifle (green) prior to heat treatment condition. There shall be no burrs. The longitudinal axis of the threading which receives the barrel and the squareness of the front of the receiver shall be such that the targeting requirements shall be met

3.1.13.3 Heat treatment.-Bracket and receiver after assembly shall be given the same heat treatment and protective finish as specified on the receiver drawing.

2.1.14 Telescope for rifle, M1C.-The telescope shall be as specified (see 6.2). It shall conform to the applicable specification and it shall be mounted in the telescope slide assembly with the reticle in proper position.

3.1.15 Telescope slide assembly for rifle, M1C.-When the two lock screws have been rotated in a counterclockwise direction until the handles rest on the stop screws, the slide is in the unlocked position and shall be capable of being readily mounted or dismounted from the bracket. In this position of the screws, the fit of the slide assembly and bracket shall be smooth, free, and without appreciable shake. With the slide assembly on the bracket and the locking screws turned clockwise approximately 155° from the unlocked position, the slide assembly shall be securely locked. The slide assembly shall be

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marked with the same serial number as that of the receiver of the rifle on which it was targeted. The marking shall be clear and distinct and of sufficient size to be readily discernible. The marking shall be positioned as indicated on the applicable drawing. The clamping of the telescope in the mount shall cause no deformation of the telescope tube. It shall be possible to securely tighten the telescope and upper part of bracket with the locking levers and there shall be no shake of the telescope and mount when the levers are tightened. There shall be no looseness in the staked screws. The reticle shall remain serviceable and the adjustment shall have positive action.

3.1.16 Stocks and handguards.-The direction of the grain in wood stocks and handguards shall be in the longitudinal direction of the component. Slight deviation in grain direction, 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, especially in a thin section. Small checks, cracks, and knot holes shall be filled with shellac or plastic wood after approval by the inspector. Wood stocks and handguards shall be treated with chinawood oil base finish. Substitution of material other than that indicated on the drawings may be made upon approval of the procuring agency.

3.2 Springs.-Springs designated as critical by the drawings or, in the absence of specific requirements on the drawing, by the inspector, shall be subjected to an endurance test by means of the gymnasticating device specified in 4.2.

3.3 Trigger pull-The trigger pull shall be smooth, free of perceptible creep and shall be within the range of 4.5 to 7.5 pounds. There shall be no alteration of any component beyond the prescribed tolerances in order to meet the trigger pull requirements.

Note.-The word "creep" is interpreted to mean any perceptible movement in the trig-

ger Pull between the time the slack is taken up and the hammer is released, with pressure applied to the trigger at a uniform rate of increase over a period of not less than 10 seconds.

3.4 Interchangeability. - All components and assemblies on lists supplied by the procuring agency, which substantially contain those parts maintained for replacements, shall be interchangeable.

3.5. Striker indent.-The indent, taken in copper compression cylinders of 99.90 percent pure copper, soft annealed shall be a minimum of 0.016 inch; and it shall not be off center more than one-half the diameter of the striker point.

3.6 Breeching space ore proof firing, the breeching space shall be as shown on the applicable drawings. The breeching space should not increase more than 0.001 inch in proof firing; however, should this dimension be exceeded, a second proof round shall show no further increase. In no instance shall the maximum breeching space after proof firing exceed by more than 0.001 inch the maximum specified on the drawings,

3.7 Functioning-The rifle shall function smoothly and properly under firing conditions.

3.8 Targeting. - The assembled rifle shall require no greater range of sight adjustment in targeting than is authorized in 4.8.

3.9 Accuracy.-The accuracy of each rifle shall be such that five successive shots fired at 100 yards shall fall on the target so as to group within or be cut by the size circle specified in 4.9.

3.10 Endurance.-Rifle shall have a dependable endurance life of 6,000 rounds without substitution of any components, without breakage or excessive wear of any compo-

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ment, and without malfunction, in excess of the limits shown in table I.

3.11 Workmanship. - Finished rifles shall be free of defects which may affect serviceability, functioning, operation, or appearance.

TABLE I.-Malfunction, nonacceptable conditions, and broken parts.

Malfunctions and nonacceptable conditions	Number permitted in the endurance test	
	First 3,000 rounds	Second 3,000 rounds
Failure of trigger to release (any cause)	0	0
Failure to close (due to any rifle component)	3	5
Failure to eject cartridge case	0	0
Failure to eject chip	1	1
Failure to extract (bolt remains closed)	0	0
Failure to feed (insufficient recoil)	2	4
Failure to stay open on last round.	0	0
Follower fails to function	0	0
Hangfire (noticeable). (See 4.1.2.4.1.)		
Loose barrel and receiver	0	0
Loose stock	0	0
Misfire. (See 4.1.2.4.1.)	0	0
Pierced primers (due to excessive protrusion or roughness)	0	0
Safety fails to function	0	0
Worn clip latch	0	0
Worn cylinder (causing gas leak)	0	0
Breeching space max. 0.002 in. crease in 6,000 rds.	0	0
Broken or unserviceable parts		
Receiver	0	0
Cartridge ejector	0	1
Clip ejector	0	0
Bolt	0	0
Firing pin	0	1
Hammer	0	0
Operating spring	0	0
Extractor	0	1
Extractor spring	0	0
Trigger	0	0
Other parts	0	2

4. SAMPLING, INSPECTION, AND TEST PROCEDURES

4.1 General procedures and inspection.

4.1.1 Sampling.

4.1.1.1 Lot.-unless otherwise specified, 8 lot shall consist of not more than 500 rifles or 500 of each spare part.

4.1.2.2 Size of sample The size of the inspection sample shall consist of the entire lot The size of test sample shall be as specified under each test.

4.1.2 Inspection and tests, general.

4.1.2.1 Place. - Unless otherwise specified, inspection and tests shall be conducted by a Government inspector at the place of manufacture. The inspector may subject all or part of any lot of components or assemblies to such inspection as he deems necessary to determine compliance with this specification.

4.1.2.2 Contractors inspection.-The contractor shall maintain an adequate system of processing, inspection, and lot identification. Only such lots which meet the requirements of this specification shall be submitted for final Government inspection.

4.1.2.3 Concurrent tests. - The targeting test and the accuracy test may be fired concurrently at a range of 100 yards.

4.1.2.4 Reinspection and retests.

4.1.2.4.1 Hangfires and misfires.-If hangfires and misfires occur during any of the tests, the rifle shall be subjected to the firing pin indent test; and in the event that the firing pin blow is not within the specified limits, the rifle shall not be accepted until properly corrected.

4.1.2.4.2 Defective ammunition. - Malfunctions in any test traceable to defective ammunition shall not be counted against the rifle being tested.

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4.1.2.4.3 Rejections.-Rifles rejected individually because of inspection or malfunctions, nonacceptable condition or broken or defective components or assemblies in any test except the endurance test may be conditioned and resubmitted for inspection or test in which failure occurred and such other tests as the inspector may consider necessary, provided the number of rifles submitted for such reinspection and retest does not exceed 2 percent of the lot. Retests of a larger number may be made at the discretion of the inspector.

4.1.2.4.4 Endurance retest.-If the rifle representing any lot or lots fails to meet the specified requirements in the endurance test, a retest shall be made, unless in the opinion of the inspector, the failure or failures indicate serious defects in the rifles, in which case retest shall be made only if authorized by the procuring agency. In case a retest is made the inspector shall select another rifle for the purpose from the lot under consideration. If a retest is not made or the rifle selected therefor fails in the retest, the lot or lots shall be rejected subject to conditioning and further test.

4.1.3 Inspection-Each rifle of a lot shall be visually inspected for completeness of manufacture assembly, finish, and workmanship. The chamber and bore shall be examined for rust pits, powder fouling, burrs, and other defects. Each rifle shall be operated by hand to ascertain that the final adjustments have been made to assure proper operation. Before final acceptance of any lot, the inspector shall make whatever final visual inspection deemed necessary to assure that the rifles have undergone all inspection and tests prescribed therefor, and that the rifles have been thoroughly cleaned and prepared for shipment as required by section 5.

4.2 Spring test.-Unless otherwise specified on the drawings $\frac{1}{10}$ of 1 percent of the springs from each lot, but not less than 10, shall be tested through 20,000 cycles and stressed through the same range and at approximately the same velocity and change

of motion as in service. The inspector may increase the quantity of springs to be tested. The contractor shall provide equipment including suitable recording cyclometer, for making this test and shall record the conditions, number of cycles specified, and results of each test

4.3 Trigger pull test.-Each rifle of a lot shall be tested for trigger pull using a dead weight attached to a hooked wire, The prescribed weights shall be applied pendant and parallel to axis of bore when the rifle is held with the barrel in a vertical position The trigger shall be carefully checked for "creep."

4.4 Interchangeability test. -

4.4.1 Sample.-Ten rifles, selected by the inspector from each lot, shall be tested for interchangeability of like components and assemblies which are likely to require replacement or repair.

4.4.2 Procedure.-Componenti and assemblies readily disassembled as shown in the list to be furnished by the procuring agency shall be disassembled from the weapons. Components of each kind shall be placed together and mixed. The ties shall be reassembled without fitting or altering any component in any way except that hand-fitting will be allowed on not more than 2 percent of the parts, provided that as a result, no component or assembly is rendered unsuitable for assembly in other rifles. The 10 assembled rifles shall operate and function properly.

4.4.3 At the option of the inspector, all rifles assembled from interchanged components shall be subjected to function and accuracy firing tests.

4.5 Striker indent test.-The striker indent shall be taken on at least 2 percent of the rifles of a lot using a holding fixture with copper compression cylinders, soft annealed (Government standard), inserted in the recess.

4.6 Breeching space proof firing test.- Each assembled rifle, spare barrel, receiver,

and bolt assembly of a lot shall be subjected to the firing of one Government standard high pressure proof cartridge under supervision of the inspector. Suitable fixtures for proof firing these spare components shall be provided by the contractor. The person doing the proof firing shall place the prescribed proof-marks on each accepted barrel, bolt, or receiver immediately after the task.

4.7 Function firing test.-Unless otherwise directed by the procuring agency, function firing shall be conducted as follows: Each rifle of the first lot manufactured shall be tested by firing at least 96 rounds, 64 rounds of which shall be U. S. Government caliber .30 standard service ball ammunition and 16 rounds of such other ammunition as may be directed by the procuring agency. In subsequent lots, each rifle shall be fired at least 24 rounds using standard service ball ammunition and, in addition hereto, approximately 1 percent of the rifles shall be fired 8 rounds of such other ammunition as may be directed.

4.8 Targeting firing tests.

4.8.1 Rifle M1.-At a range of 100 yards and using a fixed or muzzle- and elbow rest, each rifle of a lot shall be fired one series of five rounds of caliber .30 ball ammunition, of known accuracy, at a 5-inch bull's eye or a "T" target.

4.8.1.1 With the rear sight set at zero windage, the aperture elevated eight clicks from the lowest position and the sights aligned at 6 o'clock on the target, all shots shall come within or cut the edge of the bull's eye (or a centrally located 5-inch circle if a "T" target is used) or it shall be possible to move the group within the bull's eye (or circle) with not more than six clicks of adjustment, either up or down, right or left, or both.

4.8.1.2 In the event that more than three clicks of windage adjustment is required, a correction must be made by shifting the front sight, but the movement shall not cause overhanging on either side.

4.8.2 Rifle, M1C.

4.8.2.1 Iron sights.-At a range of 100 yards and using a machine rest and Woodworth type cradle each rifle of a lot with flash hider attached shall be fired one series of five rounds of caliber .30 Government standard ball ammunition of known accuracy, at a 5.6-inch bull's-eye. With the rear sight elevation set at zero, the elevating knob having at least two clicks depression remaining, the windage index within three clicks right or left of zero, and the sights aligned at 6 o'clock on the target, all shots shall be within the bull's-eye.

4.8.2.2 Telescope sights.-At a range of 100 yards and using a machine rest and Woodworth type cradle, each rifle of a lot with flash hider attached shall be fired one series of five rounds of caliber .30 Government standard ball ammunition of known accuracy at a 5.6-inch bull's-eye. Each rifle shall be targeted using the mount and telescope assigned to the particular rifle. The rifles equipped with telescopes having cross-hair reticles shall be fired with the cross-hairs centering on a 5.6-inch diameter bull's eye. The rifles having a tapered post reticle shall be fired with the top of the post centered under a 5.6-inch bull's-eye at 6 o'clock. Under the above sighting condition, any group of five successive shots will be at the center of the bull's-eye or it shall be possible to bring it there and yet have remaining at least 40 clicks for elevation, 40 clicks right or left in azimuth, and 40 clicks for depression. The group being at or having been brought to the center of the bull's-eye, the reticle will be adjusted for 300 yards elevation. The zero numeral on the indicating plates for elevation and windage will then be set to the zero index mark.

4.9 Accuracy firing test.

4.9.1 Rifle, M1.

4.9.1.1 Ninety-foot range option.-At the option of the contractor, each rifle may be fired at least one series of 5 rounds of caliber .30 standard service ball ammunition of

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known accuracy, with a fixed or a muzzle-and-elbow rest at a range of not less than 90 feet. The accuracy shall be such as to meet the corresponding requirements of the above paragraphs. If rifles are fired at a 90-foot range, then 1 percent of all rifles shall also be tied at a 100-yard range as specified in 4.8.1.

4.9.2 Rifle, M1C.

4.9.2.1 Each rifle shall be fired for accuracy at a range of 100 yards. Firing shall be done using a machine rest and Woodworth type cradle. The flash hider shall be attached to the rifle during the firing. Government standard M2 ball ammunition of known accuracy shall be used. All shots shall be within or cut the edge of a circle 2 1/2 inches in diameter (all shots within a 3.10-inch circumscribed circle).

4.10 Endurance test.

4.10.1 One rifle selected by the inspector from the first 500 rifles and at least one rifle so selected from each successive 5,000 rifles, found satisfactory in other tests, shall be considered as representative weapons and shall be subjected to endurance tests of 6,000 rounds each. Twenty clips shall be selected on the same basis and used in the test of the rifle.

4.10.2 Endurance tests shall be fired in series not to exceed 120 rounds at the rate of approximately 40 rounds per minute using caliber .30 ball ammunition and 20 clips selected for the test, in rotation, so that approximately 300 rounds will be fired from each clip.

4.10.3 During this test, the barrel shall be cooled either by air or water after each series. Cleaning and oiling at reasonable intervals is permissible.

4.10.4 Upon completion of the endurance test, the rifle shall be cleaned and oiled and all worn and defective components replaced. Before acceptance, the rifle shall be thorough-

ly conditioned at the expense of the contractor.

5. PREPARATION FOR DELIVERY

5.1 Preservation, packaging, and packing

5.1.1 Rifles. - Rifles shall be prepared in accordance with Publication PS-5.

5.1.2 Spare parts.-Spare parts shall be prepared in accordance with Publication PS-92

5.1.3 Telescopic sights.-Telescopic Sights shall be packed in accordance with applicable provisions of Packing Instructions PS-134.

5.2 Marking.-Shipments for the Army shall be marked in accordance with Specification 100-2; for the Air Force in accordance with Specification 94-40645; and for the Navy in accordance with the Navy Shipment Marking Handbook.

6. NOTES

6.1 Intended use.-The M1 rifle is intended for general service use; the M1C rifle for long range or sniper use.

6.2 Ordering data. - Procurement documents should specify:

- a. Title, number, and date of this specification.
- b. Model of rifle (see 1.1)
- c. Telescope for M1C rifle when required (see 3.1.14).
- d. List of interchangeable components and assemblies (see 3.4).

Notice--This specification, together with specifications and drawings pertaining to it and bearing a "Notice" of similar restrictions, is intended for use only in connection with procurement by the United States Government, and shall not be reproduced either wholly or in part except when authorized in connection with Government procurement, nor be used for any other purpose except when specifically authorized by the Chief of Ordnance.

Custodian:

Army-Ordnance Corps

Other interest:

Army-T
Navy-OSMC
Air Force.-

STANDARDIZATION DOCUMENT IMPROVEMENT PROPOSAL

(See Instructions - Reverse Side)

1. DOCUMENT NUMBER

2. DOCUMENT TITLE

3a. NAME OF SUBMITTING ORGANIZATION

4. TYPE OF ORGANIZATION *(Mark one)*

VENDOR

USER

MANUFACTURER

OTHER *(Specify):* _____

b. ADDRESS *(Street, City, State, ZIP Code)*

5. PROBLEM AREAS

a. Paragraph Number and Wording:

b. Recommended Wording:

c. Reason/Rationale for Recommendation:

6. REMARKS

7a. NAME OF SUBMITTER *(Last, First, MI) - Optional*

b. WORK TELEPHONE NUMBER *(Include Area Code) - Optional*

c. MAILING ADDRESS *(Street, City, State, ZIP Code) - Optional*

8. DATE OF SUBMISSION *(YYMMDD)*