INCH-POUND

MIL-R-71126(AR)
24 September 1992

MILITARY SPECIFICATION

RIFLE, 7.62MM, SNIPER
W/ DAY OPTICAL SIGHT AND
CARRYING CASES, M24

This specification is approved for use by the U.S. Army Armament, Munitions and Chemical Command, and is available for use by all Departments and Agencies of the Department of Defense.

1. SCOPE

1.1 Scope. This specification covers the performance, characteristics, firing, packaging and quality assurance requirements for the Rifle, 7.62mm, Sniper with day optical sight, and carrying cases, M24. The M24 is comprised of a rifle, a detachable day optical sight with a carrying case, iron sights and a carrying case for all the components.

2. APPLICABLE DOCUMENTS

2.1 Government documents.

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

SPECIFICATIONS

MILITARY

MIL-B-117	-Bag, Sleeve and Tubing - Interior Packaging
MIL-G-174	-Glass, Optical
MIL-C-372	-Cleaning Compound, Solvent
MIL-C-675	-Coating of Glass Optical Elements (Anti-reflection)

Beneficial comments (recommendations, additions, deletions) and any pertinent data which may be of use in improving this document, should be addressed to: Commander U.S. Army ARDEC, ATTN: SMCAR-BAC-S, Picatinny Arsenal, New Jersey 07806-5000 by using the self-addressed Standardization Document Improvement Proposal (DD Form 1426) appearing at the end of this document or by letter.

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MIL-A-8625 -Anodic Coatings, for Aluminum and Aluminum Alloys
MIL-O-13830 -Optical Components for Fire Control Instruments. General Specification Governing the Manufacture, Assembly and Inspection of
MIL-W-13855 -Weapons: Small Arms and Aircraft Armament Subsystems, General Specification for
MIL-F-13926 -Fire Control Material, Manufacture and Inspection General Specification for
MIL-L-14107 -Lubricating Oil, Weapons, Low Temperature
MIL-L-46000 -Lubricant, Semi-Fluid (Automatic Weapons)
MIL-C-46477 -Cartridge, 7.62mm, NATO, Test, High Pressure, M60
MIL-C-46934 -Cartridge, 7.62mm, NATO, Special Ball, M118
MIL-L-63460 -Lubricant, Cleaner and Preservative for Weapons and Weapons Systems
MIL-W-63150 -Weapons and Support Materiel Standard Quality Assurance Provisions for

STANDARDS

FEDERAL

FED-STD-101 -Test procedures for Packaging Materials

MILITARY

MIL-STD-109 -Quality Assurance Terms and Definitions
MIL-STD-129 -Marking for Shipment and Storage
MIL-STD-130 -Identification Marking of US Military Property
MIL-STD-171 -Finishing of Metal and Wood Surface
MIL-STD-810 -Environmental Test Methods
MIL-STD-1472 -Human Engineering Design Criteria for Military Systems, Equipment and Facilities
MIL-STD-1474 -Noise Limits for Army Materiel
MIL-STD-1949 -Inspection process, Magnetic Particle

HANDBOOKS

MIL-HDBK-759 -Human Factors Engineering

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

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

DRAWINGS (See 6.6)

U.S. ARMY ARMAMENT, RESEARCH, DEVELOPMENT AND ENGINEERING CENTER (ARDEC)

PRODUCT AND PACKING DRAWINGS

7141245	-Sling, Leather, M1907
5564174	-Brush, Cleaning, Cal .30

NATICK LAB DRAWING

D2-2-282	Cleaning Pouch

PUBLICATIONS

DEPARTMENT OF DEFENSE

TOP-3-2-609	-Chemical Compatability of Non-Metallic Materials

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

2.2 Non-government publications. The following documents form a part of this document to the extent specified herein. Unless otherwise specified, the issues of the documents which are DoD adopted are those listed in the issue of the DoDISS citied 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 METALS SOCIETY (AMS)

AMS 2469	-Aluminum & Aluminum Alloys, Processing & Requirements, Hard Coating Treatment of

(Application for copies should be addressed to the society of automotive Engineers, 40 Commonwealth Drive, Warrendale, PA, 15096).

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AMERICAN NATIONAL STANDARDS INSTITUTE

ANSI-B46 -Surface Texture (Surface Roughness, Waviness and Lay)

(Application for copies should be addressed to the American National Standards Institute, 1430, Broadway, New York, NY 10018-3308)

AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)

ASTM-B117 -Standard Method of Salt Spray (Fog) Testing
ASTM-D3951 -Packaging, Commercial

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

2.3 Order of precedence. In the event of a conflict between the text of this document and the references cited herein, the text of this specification 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 first article inspection in accordance with 4.4.

3.2 Materials and construction. The M24 shall conform to the materials and construction requirements specified herein and be in accordance with the applicable materials and construction provisions of MIL-W-13855 and MIL-F-13926. Parts and surfaces subjected to rolling or sliding contact shall be of sufficient hardness to resist wear. Staked or dovetailed members shall have sufficient temper to retain their original fit after extended use. Screws, when firmly tightened, shall not cause binding of any of the mechanisms. External pins shall be secured in position by detent or retainer.

3.3 Design. Unless otherwise specified in the contract, the M24 shall conform to the human factors provisions of MIL-STD-1472 and MIL-HDBK-759.

3.3.1 Component carrying case. The component carrying case shall have provisions to securely contain and protect the following: rifle without day optical sight mounted on the rifle; the unmounted day optical sight enclosed in its carrying case; the

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rifle cleaning kit; two (2) magazines if the magazines are detachable from the rifle, and the deployment kit. If the iron sights are detachable, they shall be enclosed in the day optical sight carrying case.

3.4 Machine finish. Machine finishes shall be in accordance with commercial practice for the rifle, iron sights and optical sight furnished. First article rifles, and the aforementioned sighting systems (see 3.1) shall be used as standards for machine finishes for production items. In the event of a dispute over the comparison of finishes of the inspection standards and the production items, referee comparison shall be in accordance with ANSI B46.1.

3.5 Final protective finish. Unless otherwise specified (see 6.2) the final finish of the exterior of metal parts shall be in accordance with the applicable finishes listed below. The final protective finishes shall not apply to springs, or spring pins which may be left bright. However, exterior exposed surfaces of these parts are subject to the touchup requirements in accordance with 3.6. A commercial protective finish may be used in lieu of those specified in this paragraph provided that finish meets the corrosion resistance requirements of 3.12 and 4.6.3. A protective finish shall not be applied to the firing pin. All carbon steel parts in the deployment kit shall be coated with lubricant per MIL-L-63460 (CLP).

Material	Finish
Steel (other than corrosion resisting steel)	5.3.1.2 or 5.3.2.2 ** of MIL-STD-171
Corrosion-resisting steel	3.3.2 or 3.3.3 of MIL-STD-171
Aluminum and aluminum alloys	7.1.2 or 7.2.2 (dyed black) or 7.5* of MIL-STD-171 or MIL-A-8625, Type II or III, class 1 or 2, color of finished parts shall be lusterless uniform dark grey or black.

* The following provisions shall apply to finish number 7.5:

a. Thickness of coating shall be 0.002 + 0.0002 inch.

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b. In lieu of the abrasion and wear resistance test specified in AMS 2469, resistance to wear may be determined by other suitable means as approved by the procuring activity.

** Finish number 5.3.2.2 shall not be used on steel parts that are subjected to rolling or sliding contact.

3.6 Touchup material. Exterior surfaces on metal components which are bright or without finish after assembly operations, such as the surfaces of rivets, pins, screw heads, staking marks and the like shall be refinished using materials and procedures in accordance with the touchup procedures of MIL-W-13855.

3.7 Human engineering characteristics. In addition to meeting the design requirements specified herein, rifles, sighting systems and carrying cases shall meet with approval of the Government for human engineering characteristics in accordance with MIL-STD-1472 (para 5.4 and 5.11).

3.8 Operator's manual. An operator's manual which clearly and fully explains the operations, field stripping and maintenance shall be provided with each M24. This manual shall also include a parts list keyed to an exploded assembly drawing. The manual shall be placed in a plastic bag conforming to Type I, Class B, Style 2 of MIL-B-117, for packing.

3.9 Parts list. The contractor shall provide a comprehensive parts list with the quantities required to maintain the M24 over a period of 10,000 rounds of firing. The list should reflect but need not specifically identify all data available to the contractor, such as a factory replacement and repair history, contractor test and endurance test history,sales to dealer and repair stations, etc.

3.10 NBC decontamination. The M24, except for the interior of the carrying cases, shall be NBC decontamination survivable.

3.11 Fungus. The M24 shall be fungus resistant.

3.12 Corrosion resistance. All components of the M24 shall be corrosion resistant. All metal components shall meet the corrosion resistance requirement of paragraph 5.1.3.1, 5.1.3.2, 5.1.3.3 and 5.1.3.4 of MIL-STD-171 as applicable.

3.13 Chemical resistance. All components of the M24, except for the interior of the carrying cases, and except for the adjustment knobs, lenses, and lens cover on the day optical sight, shall not be affected by petroleum, oil and lubricant products, insect repellants and other common battlefield compounds, listed

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in TOP 3-2-609. The interior of the component carrying case shall not be affected by LSA (MIL-L-46000), CLP (MIL-L-63460), LAW (MIL-L-14107) and RBC (MIL-C-372).

3.14 Rifle.

3.14.1 Weight/size. The rifle shall weigh no more than 16 pounds when mounted with the day optical sight and equipped with sling swivels, carrying strap and with the magazine fully loaded with ammunition. The total length of the rifle shall not be more than 46 inches with the stock adjusted to the minimum length.

3.14.2 Cleaning equipment. The rifle shall be supplied with a cleaning rod and cleaning patch eyelet which shall not cause scratches, burrs nor any other type of damage or wear detrimental to the rifle, rifle barrel or any other parts. The cleaning rod shall be compatible with cleaning brush Dwg. 5564174. The cleaning rod shall fit into the cleaning pouch (Dwg. D2-2-282) (NATICK Lab Dwg.) and shall be capable of being used with standard DOD lubricants and solvents.

3.14.3 Maintainability. The rifle shall be designed to allow the operator to perform necessary maintenance using standard DOD lubricant/solvent, without the use of any tools other than the equipment in the cleaning kit and deployment kit. The deployment kit shall consist of replacement parts including at least one (1) firing pin and any tools required for maintenance of all operator level functions on the SWS. It shall be designed such that as a minimum the operator can replace the firing pin.

3.14.4 Magazine. The magazine shall have a minimum capacity of four rounds. The magazine shall not protrude below the toe of the stock and shall be free of defects which may affect the functioning of either the magazine or the rifle.

3.14.5 Noise. The rifle, when firing M118 ammunition, shall not exceed curve Y of the peak pressure level and B-duration limits for impulse noise of MIL-STD-1474.

3.14.6 Sling swivels. The rifle shall have detachable (without the use of tools) sling swivels which will accommodate a 1 1/4 inch wide carrying strap (sling, leather, M1907) (Dwg. 7141245). The front sling swivel shall have a minimum opening height of 3/8 inch.

3.14.7 Exterior surface. All components of the rifle shall have permanent nonreflective exterior surfaces. The color shall be black or camouflage green.

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3.14.8 Stock. The stock shall have an adjustable length of pull. Adjustments shall be continuous or incremental, with a maximum of 1/4 inch increments, over a minimum acceptable length of pull range of 12 to 14 inches. Adjustment of the stock, at ambient temperature, shall be accomplished within 3 minutes without the use of special tools. Special tools are tools not contained in the cleaning or deployment kit. The stock shall be adjustable at ambient, hot (145° ± 5°F) and cold (-50° ± 5°F). The stock shall be adjustable by a person dressed in cold weather environmental clothing (with the exception of the outer artic mitten) and NBC clothing.

3.14.8.1 Stock surface. The gripping surfaces of the forestock and stock shall have non-skid surface textures in accordance with MIL-STD-1472 (para 5.9.11.5.4).

3.14.9 Bolt assembly. The bolt assembly shall be removable and replaceable within one minute without the use of any tools.

3.14.10 Soundness of weld. All welds shall show good fusion. The weld and welded parts shall be free of cracks, porosity, inclusions and other metallic discontinuities.

3.14.11 Safety. The rifle shall have a safety device which shall be detented in both the extreme "safe" and extreme "fire" position and, when in the safe position, will prevent the weapon from firing. The shooter shall be able to verify the position of the safety by both sight and touch. It shall be movable between the safe and fire positions by the operator without moving his hands from the shooting position (prone, standing, kneeling, sitting). It shall remain in the position the operator sets it until it is manually changed. The safety shall provide tactile feedback during movement from one position to another. The safety shall require a force of between 2 to 10 pounds to operate.

The safety shall perform all the above operations at ambient, hot (145° ± 5°F) and cold (-50° ± 5°F) and by a person dressed in cold weather environmental clothing (except for the outer artic mitten) and NBC clothing.

3.14.12 Iron sights. The rifle shall have accurate, match grade quality iron sights capable of engaging "E" silhouette targets at ranges up to and including 600 meters.

The iron sights, if detachable, shall be capable of being detached and reattached by the operator with no tools other than those contained in the deployment kit and when reattached shall repeat zero to within 1 minute of angle (MOA).

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The configuration of the iron sights shall consist of a front sight and a rear peep sight. The rear peep sight shall have a movable scale for zeroing purposes.

The iron sights may have inserts for the front sight and the rear peep sight. If the iron sights have inserts, they shall be replaceable by the operator with no tools other than those contained in the deployment kit.

The width of the front sight shall be such that it is the narrowest one offered by the contractor.

The iron sights shall be adjustable for both elevation and azimuth in increments no greater than .5 MOA increments. The adjustments shall be detented, audible and tactile clicks and be capable of being performed at ambient, hot (145°F ± 5°F), cold (-50°F ± 5°F) by a person dressed in cold weather environmental clothing (less the outer arctic mitten), and by a person dressed in NBC clothing.

3.15 Performance Characteristics.

3.15.1 Headspace. The headspace shall be a maximum of 1.640 inches and a minimum of 1.630 inches. Variance from these values shall require Government approval.

3.15.2 Trigger pull. The rifle shall have a trigger pull capable of being adjusted in force and in movement after release by the operator. The minimum force shall be 2 pounds 8 ounces ± 8 ounces. The maximum force shall be at least four pounds. After adjustment of the trigger pull, the rifle shall demonstrate the ability to consistently retain the trigger pull setting within ± 8 ounces at 2.5 pounds, within ± 12 ounces at 3.0 pounds and within ± 16 ounces at 4 pounds, but in no case shall it go below 2 pounds. The trigger shall return to its normal forward position immediately upon release after partial or complete trigger pull.

3.15.3 Functioning. The rifle shall operate without malfunctions or unservicable parts. After functioning, the day optical sight shall meet the cleanliness and optical quality requirement (3.16.10). Unless otherwise specified, all ammunition used shall be Government standard 7.62mm NATO, Special Ball, M118 Cartridges in accordance with MIL-C-46934.

3.15.4 Endurance. The rifle and day optical sight shall withstand a 10,000 round endurance test. The rifle shall be capable of firing 10,000 rounds without the receiver requiring overhaul. The receiver shall be free of cracks. Cracks shall be defined as cracks that are detected by magnetic particle inspection with the unaided eye.

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The rifle shall have a barrel which is accurate and is free of cracks for a minimum of 5000 rounds. The barrel shall be considered worn out when the average mean radius, calculated using five targets of ten shots each, exceeds the values listed below for the ranges specified when fired from a Government approved machine rest.

Range	Average Mean Radius (AMR)
200 yards	2.6 inches
300 yards	3.8 inches
200 meters	2.8 inches

The rifle and day optical sight shall meet the reliability requirements of 3.15.5.

3.15.5 Reliability. The mean round between stoppage (MRBS) for the rifle shall be 1400 rounds. The MRBS is the total number of rounds fired divided by the total number of stoppages. A stoppage shall be defined as any malfunction* of the rifle.

* A malfunction is defined as any incident resulting in system stoppage (unplanned cessation in firing or inability to commence firing). A malfunction also includes system stoppages which are traceable or chargeable to an unserviceable part. Malfunction descriptions include system stoppages which are traceable or chargeable to an unserviceable part. Malfunction descriptions include failures to feed, extract, eject, close, fire, or failure to function of the magazine. When it is definitely established by the Government representative that previously recorded malfunctions are attributable to an unserviceable part, such malfunctions shall not be counted against the rifle being tested, provided they occurred not more than 200 rounds prior to replacement of the unserviceable part. These 200 rounds shall have been fired with the unserviceable part. However, such malfunctions shall remain recorded and properly identified. Malfunctions attributed to ammunition, as substantiated by a contractor failure analysis acceptable to the Government representative, shall not be counted against the rifle/magazine being tested. However, they shall be recorded and properly identified with supporting analysis.

The mean round between failure (MRBF) for the rifle and day optical sight shall be 2600 rounds, the MRBF is the total number of rounds fired divided by the total number of failures. A failure shall be one or more of the following:

1. Any stoppage that cannot be corrected within 10 seconds.

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2. Any parts that are replaced. Each part that is replaced shall be counted as one failure, except where the parts failures are interrelated. In this case, all the parts failures that are interrelated, shall be counted as one failure. Replacement of the barrel after 5000 rounds shall not be counted as a failure.

3. Occurrence of a crack in the bolt.

4. The day optical sight becomes loose or falls off within 500 rounds of being fixed to the rifle.

5. The maximum change between the point of aim and the center of impact exceeds 1.086 minutes of angle.

3.15.6 High-pressure resistance. The rifle shall withstand the proof firing of one Government standard 7.62mm, M60 high-pressure test cartridge. Cartridges shall be in accordance with MIL-C-46477. Parts shall be free of cracks after proof firing as evidenced by visual and magnetic particle inspection. As a minimum, the barrel, bolt and receiver shall be inspected by magnetic particle.

3.15.7 Targeting and accuracy. The rifle shall achieve the dispersion set forth below when fired from a Government approved machine rest. The average mean radius shall be less than or equal to the values stated below. The minimum rate of fire for conducting this test shall be three rounds per minute.

Range	Average Mean Radius (AMR)
200 yards	1.3 inches
300 yards	1.9 inches
200 meters	1.4 inches

The radial distance from the calculated center of impact of the first target compared to the calculated center of impacts of the subsequent targets shall be less than or equal to 1.086 minutes of angle (3.3 inches @300 yards, 2.2 inches @ 200 yards, 2.4 inches @ 200 meters) on an average basis. After the rifle is zeroed on the target, there shall be a minimum of 30 tactile clicks (15 minutes of angle) of windage adjustment (in both the left and right directions) and a minimum of 40 tactile clicks (40 minutes of angle for system superelevation adjustment) of elevation adjustment between the zeroed position of the reticle and the extreme adjustment position.

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3.15.8 Drop test - rifle. The rifle, with the safety in the safe position and an empty primed M118 cartridge in the chamber, shall withstand a five foot drop onto dirt. The dirt shall have a minimum soil penetration resistance of 750 pounds per square inch at a depth between one and one and one half inches. The primed cartridge shall not discharge. There shall be no functional damage to the rifle. After rezeroing, the rifle shall meet the targeting and accuracy requirement (3.15.7).

3.15.9 Firing pin indent. The minimum firing pin indent at ambient temperature shall be 0.020 inches when tested as specified in 4.6.19.

3.15.10 Temperature extremes. The rifle with day optical sight shall be operable and safely functionable at hot (145° ± 5°F) and cold (-50° ± 5°F) and shall be operable by the shooter dressed in cold weather environmental clothing (except for the outer artic mitten) at the cold temperature.

3.15.10.1 Cold temperature functioning. The rifle shall be capable of firing 300 rounds at cold temperature (-50° ± 5°F) with the occurrence of a total of no more than 18 stoppages and parts failures.

3.15.11 Special clothing. The rifle with day optical sight shall be operable by the shooter when dressed in NBC clothing.

3.15.12 Interchangeability. All operator level repair parts that are field serviceable shall be interchangeable.

3.16 Day optical sight.

3.16.1 Magnification. The magnification shall be 10 or 12 power.

3.16.2 Elevation and windage adjustment. Adjustment for elevation and windage shall be knobs which have clearly marked graduations and tactile clicks. The zero position of the reticle shall not move more than .55 MOA from the optical axis when each knob is cycled from 0 to the extreme adjustments and returned, for 10 cycles. The elevation and windage adustment shall meet the above requirements at ambient temperature.

3.16.3 Lens cover. The lens covers shall provide protection to the lenses from sunlight, debris and dust. The lens covers shall be capable of being securely fastened to the day optical sight, and shall be flip up with a detent lock.

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3.16.4 Reticle. The day optical sight shall have a scaled, cross hair reticle with one mil increment dots that will assist the shooter in compensating for wind, target movement, and estimation of range.

3.16.5 Anti-reflection coating. All lens surfaces shall be coated with an anti-reflection coating that conforms to minimum durability requirements in 3.8.4.2 and 3.8.5 of MIL-C-675. The coating shall allow at least 85% light transmission for the assembled sight unit.

3.16.6 Optical glass. The optical glass shall meet the requirements of grade C of specification MIL-G-174.

3.16.7 Parallax. The focus parallax between center of the reticle and image of a target out to a range of 800 meters shall not exceed 0.5 minutes of angle.

3.16.8 Eyepiece focus. The eyepiece shall be easily adjustable and provide at least plus 2 diopters to minus 4 diopters from the position of best focus on the reticle surface.

3.16.9 Resolution. At the center of field of view, the sight unit shall resolve 9 seconds of angle or better.

3.16.10 Cleanliness and optical quality. There shall be no evidence of glass, fracture, cement separation, grease or fingerprints on any optical component when viewing through the objective or eyepiece end of the sight unit. There shall not be more than 3 particles of foreign matter visible on the reticle surface and no particle shall exceed the apparent width of a reticle line. There shall be no foreign matter obvious to the unaided eye which would impair optical performance when looking into the eyepiece against a background having a brightness of the sky in average daylight.

3.16.11 Watertightness. The day optical sight shall show no evidence of leakage when subjected to a minimum pressure of 32.5 pounds per square inch atmospheric by being submerged in water for a 5 minute period. No moisture or fogging shall be observed.

3.16.12 Sealing. All internal optical areas of the day optical sight shall be purged with dry nitrogen. The sight unit shall be sealed such that the interior is moisture-free after purging. The sight unit shall remain sealed after being exposed to an external pressure of 4.4 pounds per square inch atmospheric for a minimum of 8 hours.

3.16.13 Exterior surface. All components of the day optical sight except the lenses, shall have a permanent non-reflective exterior surface. The lens surfaces shall comply with 3.16.5.

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3.16.14 Reattachment. The day optical sight shall be capable of being removed and replaced on the rifle using only the tools contained in the deployment and cleaning kits. The day optical sight shall be capable of being removed from the rifle and reattached for a minimum of 180 cycles. The maximum change in the zero of the weapon shall be 1/2 minute of angle.

3.16.15 Drop test day optical sight with carrying case. The day optical sight, while inside day optical sight carrying case shall withstand a drop test from a height of seven feet onto a one inch thick steel plate backed by concrete. The drop test shall be conducted at hot (145° ± a5°F) and cold (-50° ± 5°F). There shall be no structural damage to the carrying case which may result in damage to the contents during subsequent shipping, handling, or storage. There shall be no affect on the optical properties or functional damage to the day optical sight.

3.16.16 Drop test day optical sight. The day optical sight shall withstand either a two foot drop onto dirt or a five foot drop onto an 86 durometer rubber pad, one inch thick, backed by concrete. The dirt shall have a minimum soil penetration resistance of 750 pounds per square inch at a depth between 1 and $1\frac{1}{2}$ inches. The day optical sight shall still meet all the optical requirements. There shall be no functional damage to the day optical sight.

3.17 Component carrying case. The component carrying case shall meet the following requirements.

3.17.1 Drop test. The component carrying case and its full contents (3.3.1) shall withstand a 30 inch drop test onto a one inch steel plate backed by concrete. The drop test shall be conducted at hot (145° ± 5°F) and cold (-40° ± 5°F) temperature. The component carrying case shall not open. There shall be no structural damage to the component carrying case which may result in damage to the contents during subsequent shipping, handling or storage. There shall be no functional or physical damage to its contents.

3.17.2 Transportation vibration. The component carrying case and its full contents shall withstand the transportation vibration tests of Method 5019.1 and method 5020.1 of Federal Test Method Standard No. 101. There shall be no functional or physical damage to the contents and no functional damage to the component carrying case. There shall be no structural damage to the component carrying case which may result in damage to the contents during subsequent shipping, handling or storage. The day optical sight shall meet the requirements of 3.16.10.

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3.17.3 Rain/moisture. The component carrying case shall keep its full contents dry when subjected to rain falling at a rate of at least 0.03 inches/minute with a crosswind of 60 feet/second.

3.17.4 Man portable. The component carrying case when fully loaded shall be man portable in accordance with MIL-STD-1472.

3.17.5 Pressure test. The component carrying case shall be capable of maintaining an internal positive pressure of 0.50 ± 0.05 psig (13.8 ± 1.4 in. of water) for 6 minutes with no more than a 15 percent drop from the initial reading.

3.18 Bid samples.

a. Each bidder shall furnish the specified number of bid sample rifles (see 6.2) of the design he proposes to supply for test and evaluation for determination of compliance with this specification and other characteristics as may be desired by the Government. Rifles shall be representative of a commercially available design modified as necessary to meet this purchase description. Unless otherwise specified, bid sample rifles shall be prepared for delivery in accordance with level B requirements and shall be forwarded to the test and evaluation agency specified in the contract. Along with the submitted sample, each bidder shall indicate the commercial nomenclature and model designation of the samples submitted.

b. Upon award of contract, samples submitted by the successful bidder and approved by the evaluation and test agency will be retained for use by the Government as inspection standards. These standards shall apply to all characteristics for which definite requirements are not prescribed.

3.19 Marking. The rifle shall be marked and serial numbers assigned in accordance with MIL-W-13855. The day optical sight shall be marked in accordance with MIL-F-13926. Each rifle shall be marked as specified below in accordance with MIL-STD-130:

3.19.1 Candidate Bid Samples. Candidate Bid Samples shall be identified by a serial number on the receiver assigned by the procuring agency. A mark shall be stamped on the barrel indicating successful passing of the high pressure resistance test.

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3.19.2 Contract production items. Contract production items shall be identified by a serial number on the receiver assigned through the contractor's serialization series and the following:

(1) Manufacturer's name.
(2) Model number identification
(3) Caliber of the weapon

3.20 Workmanship. Workmanship shall be in accordance with MIL-W-13855 and MIL-F-13926. Finished items and parts shall not exhibit poor material and processing such as seams, laps, laminations, cracks, visible steps, sharp edges, nicks, scratches, burrs, deformations and missing operations which may affect serviceability, functioning, operation, appearance or safety. Fins and other extraneous metal shall be removed from cast or forged parts. Hammering to shape, salvage operations (including repair by welding except that normal cosmetic welding of surface blemishes on forgings or castings prior to heat treatment shall be permissible, except on barrels) or other similar practices shall not be permitted without prior approval of the procuring activity.

4. QUALITY ASSURANCE PROVISIONS

4.1 Responsibility for inspection. Unless otherwise specified in the contract or purchase order, the contractor is responsible for the performance of all inspection requirements (examinations and tests) as specified herein. Except as otherwise specified in the contract or purchase order, the contractor may use his own or any other facilities suitable for the performance of the inspection requirements specified herein, unless disapproved by the Government. The Government reserves the right to perform any of the inspections set forth in this specification where such inspections are deemed necessary to ensure supplies and services conform to prescribed requirements.

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

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4.1.2 General provisions. Unless otherwise specified herein, the provisions of MIL-F-13926 and MIL-W-63150 apply and form a part of this specification. Reference shall be made to MIL-STD-109 to define quality assurance terms used herein.

4.2 Quality assurance terms and definitions. Quality assurance terms and definitions used herein are in accordance with MIL-STD-109.

4.3 Classification of inspections. The following type of inspection shall apply:

a. Bid Sample Inspection (4.3.1).

b. First Article Inspection (4.4).

c. Quality Conformance Inspection (see 4.5).

4.3.1 Bid sample inspection. Bid sample inspection of M24's shall be subjected to the quality conformance inspection specified herein and such other inspection as necessary to determine compliance with the contract.

4.4 First article.

4.4.1 First article inspection. The first article shall be selected from early production and submitted for testing in accordance with Figures 1 and 2, and Table I. The sample shall be representative of production processes to be used during quantity production. The first article shall be subjected to all examination and tests specified herein, and such other inspection as necessary to determine that all the requirements of the contract have been met.

4.4.2 First article submission. The contractor shall submit a first article sample consisting of 19 M24's.

4.4.3 Rejection. If any M24 fails to comply with any of the applicable requirements, the first article sample shall be rejected. The Government reserves the right to terminate its inspection upon any failure of a M24 to comply with any of the stated requirements. In the event of rejection, the Government reserves the right to require the contractor to take corrective action and submit a new first article quantity.

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TABLE I. First article inspection.

CLASSIFICATION OF CHARACTERISTICS

PARAGRAPH	TITLE Rifle, 7.62MM, Sniper w/Day Optical Sight and Carrying Cases, M24	SHEET 1 OF 5		DRAWING NUMBER NEXT HIGHER ASSEMBLY
CLASSIFICATION	EXAMINATION OR TEST	CONFORMANCE CRITERIA	REQUIREMENT PARAGRAPH	INSPECTION METHOD REFERENCE
	Tests			
	NBC Decontamination 1/	1	3.10	4.6.1
	Fungus	1	3.11	4.6.2
	Corrosion Resistance	1	3.12	4.6.3
	Chemical Resistance 1/	1	3.13	4.6.4
	Noise 1/	5	3.14.5	4.6.5
	Stock 1/	3	3.14.8	4.6.6
	Bolt Assembly 1/	3	3.14.9	4.6.7
	Soundness of Weld	100%	3.14.10	4.6.8
	Safety Ambient Temperature 1/	100%	3.14.11	4.6.9
	Safety Hot and Cold Temperature and Special Clothing 1/	10	3.14.11	4.6.9
	Iron Sights 1/	6	3.14.12	4.6.10
	Performance Tests			
	Headspace	100%	3.15.1	4.6.11
	Trigger Pull	100%	3.15.2	4.6.12
	Endurance 1/	5	3.15.4	4.6.14
	Reliability 1/	5	3.15.5	4.6.15
	High Pressure Resistance	100%	3.15.6	4.6.16
	Drop Test Rifle	6	3.15.8	4.6.18
	Targeting and Accuracy	100%	3.15.7	4.6.17
	Firing Pin Indent	100%	3.15.9	4.6.19
	Interchangeability	10	3.15.12	4.6.22
	Temperature Extremes 1/	2	3.15.10	4.6.20
	Special Clothing 1/	2	3.15.11	4.6.21

NOTES:
1/ This test will be performed by the Government.

AMSMC Form 1570b, 1 Jul 89 Replaces 1570, 1 Feb 85, which may not be used.

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TABLE I. First article inspection.

CLASSIFICATION OF CHARACTERISTICS

MIL-R-71126(AR)

PARAGRAPH	TITLE	SHEET 2 OF 5	DRAWING NUMBER
	Rifle, 7.62MM, Sniper w/Day Optical Sight and Carrying Cases, M24		NEXT HIGHER ASSEMBLY

CLASSIFICATION	EXAMINATION OR TEST	CONFORMANCE CRITERIA	REQUIREMENT PARAGRAPH	INSPECTION METHOD REFERENCE
	Rifle			
	Weight/Size	100%	3.14.1	SMTE
	Cleaning System	100%	3.14.2	Visual/Manual
	Maintainability	100%	3.14.3	Visual/Manual
	Magazine	100%	3.14.4	SMTE
	Sling Swivels	100%	3.14.6	Visual/Manual/ SMTE
	Exterior Surface	100%	3.14.7	Visual
	Stock Surface	10	3.14.8.1	Visual/Manual
	Machine Finish	100%	3.4	Visual
	Final Protective Finish	100%	3.5	Visual
	Human Engineering Characteristics	100%	3.7	Visual/Manual/ SMTE
	Operators Manual	1	3.8	Visual
	Touch-up	100%	3.6	Visual
	Workmanship	10	3.20	Visual/Manual

NOTES:

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TABLE I. First article inspection.

CLASSIFICATION OF CHARACTERISTICS

PARAGRAPH	TITLE	SHEET 3 OF 5	DRAWING NUMBER
	Rifle, 7.62MM, Sniper w/Day Optical Sight and Carrying Cases, M24		NEXT HIGHER ASSEMBLY

CLASSIFICATION	EXAMINATION OR TEST	CONFORMANCE CRITERIA	REQUIREMENT PARAGRAPH	INSPECTION METHOD REFERENCE
	Day Optical Sight			
	Machine finish	100%	3.4	Visual
	Final protective finish	100%	3.5	Visual
	Touch-up material	100%	3.6	Visual
	Human engineering characteristics	100%	3.7	Visual/Manual/ SMTE
	Maintainability	100%	3.14.3	Visual/Manual
	Performance Tests			
	Watertightness	10	3.16.11	4.6.27
	Sealing	10	3.16.12	4.6.28
	Reattachment 1/	3	3.16.14	4.6.29
	Drop test day optical sight with carrying case	2	3.16.15	4.6.30
	Drop test day optical sight	3	3.16.16	4.6.31

NOTES:

1/ This test will be performed by the Government.

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TABLE I. First article inspection.

CLASSIFICATION OF CHARACTERISTICS

MIL-R-71126(AR)

PARAGRAPH	TITLE Rifle, 7.62MM, Sniper w/Day Optical Sight and Carrying Cases, M24	SHEET 4 OF 5		DRAWING NUMBER NEXT HIGHER ASSEMBLY
CLASSIFICATION	EXAMINATION OR TEST	CONFORMANCE CRITERIA	REQUIREMENT PARAGRAPH	INSPECTION METHOD REFERENCE
	Day Optical Sight			
	Tests			
	Magnification	100%	3.16.1	SMTE
	Elevation and windage adjustment 1/	10	3.16.2	4.6.23
	Lens cover	100%	3.16.3	Visual/Manual
	Reticle	100%	3.16.4	Visual
	Anti-reflective coating	100%	3.16.5	CTR
	Optical glass	100%	3.16.6	CTR
	Parallax	100%	3.16.7	4.6.24
	Eye piece focus	100%	3.16.8	4.6.25
	Resolution	100%	3.16.9	4.6.26
	Cleanliness and optical quality	100%	3.16.10	Visual

NOTES:
1/ This test will be performed by the Government.

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TABLE I. First article inspection.

CLASSIFICATION OF CHARACTERISTICS

PARAGRAPH	TITLE Rifle, 7.62MM, Sniper w/Day Optical Sight and Carrying Cases, M24	SHEET 5 OF 5		DRAWING NUMBER NEXT HIGHER ASSEMBLY
CLASSIFICATION	EXAMINATION OR TEST	CONFORMANCE CRITERIA	REQUIREMENT PARAGRAPH	INSPECTION METHOD REFERENCE
	Day Optical Sight			
	Tests			
	Drop Test	2	3.17.1	4.6.32
	Transportation Vibration	2	3.17.2	4.6.33
	Rain/Moisture	2	3.17.3	4.6.34
	Man Portable	2	3.17.4	SMTE
	Pressure Test	2	3.17.5	4.6.35

NOTES:

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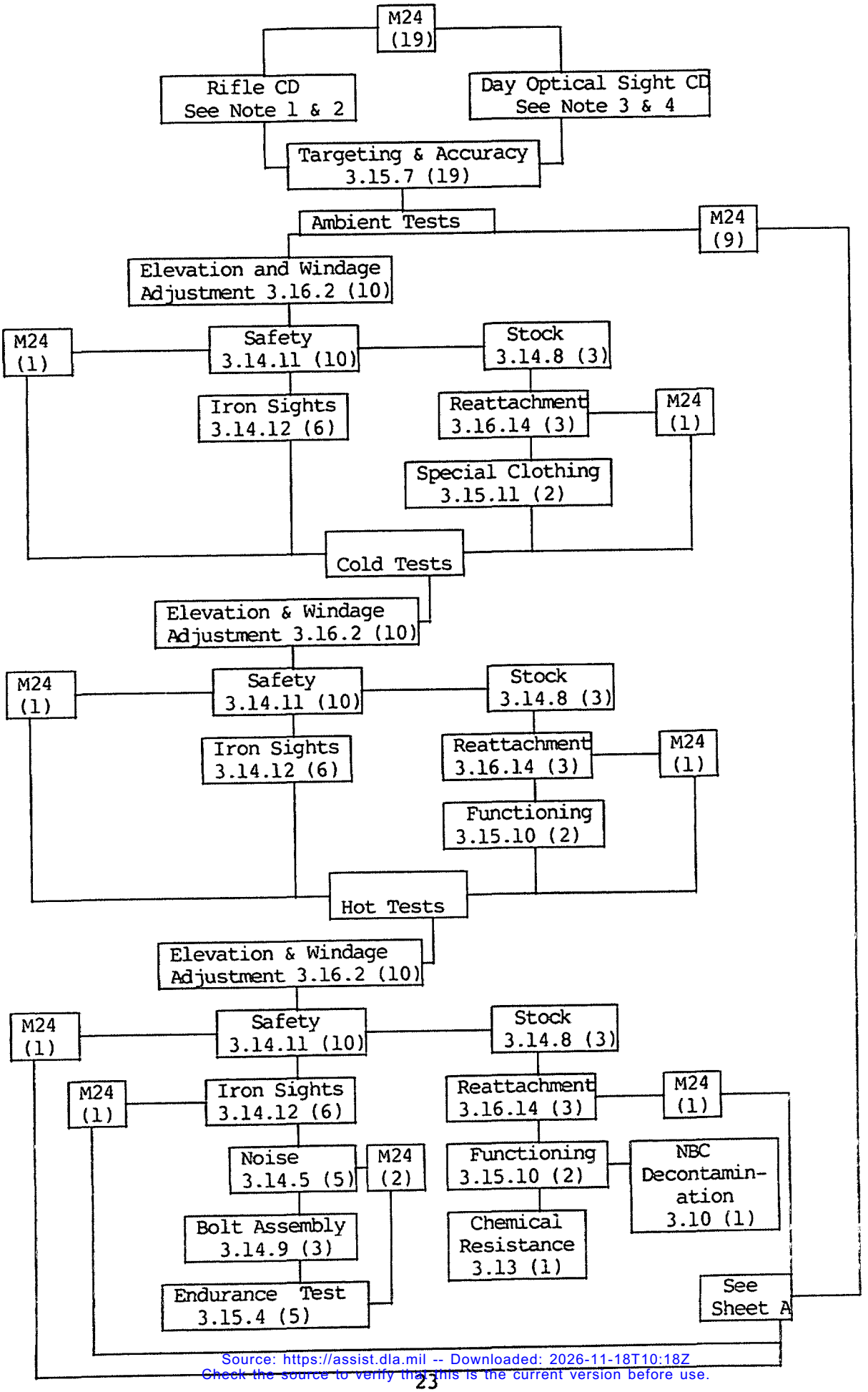


Figure 1. First Article Test Plan

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Sheet A

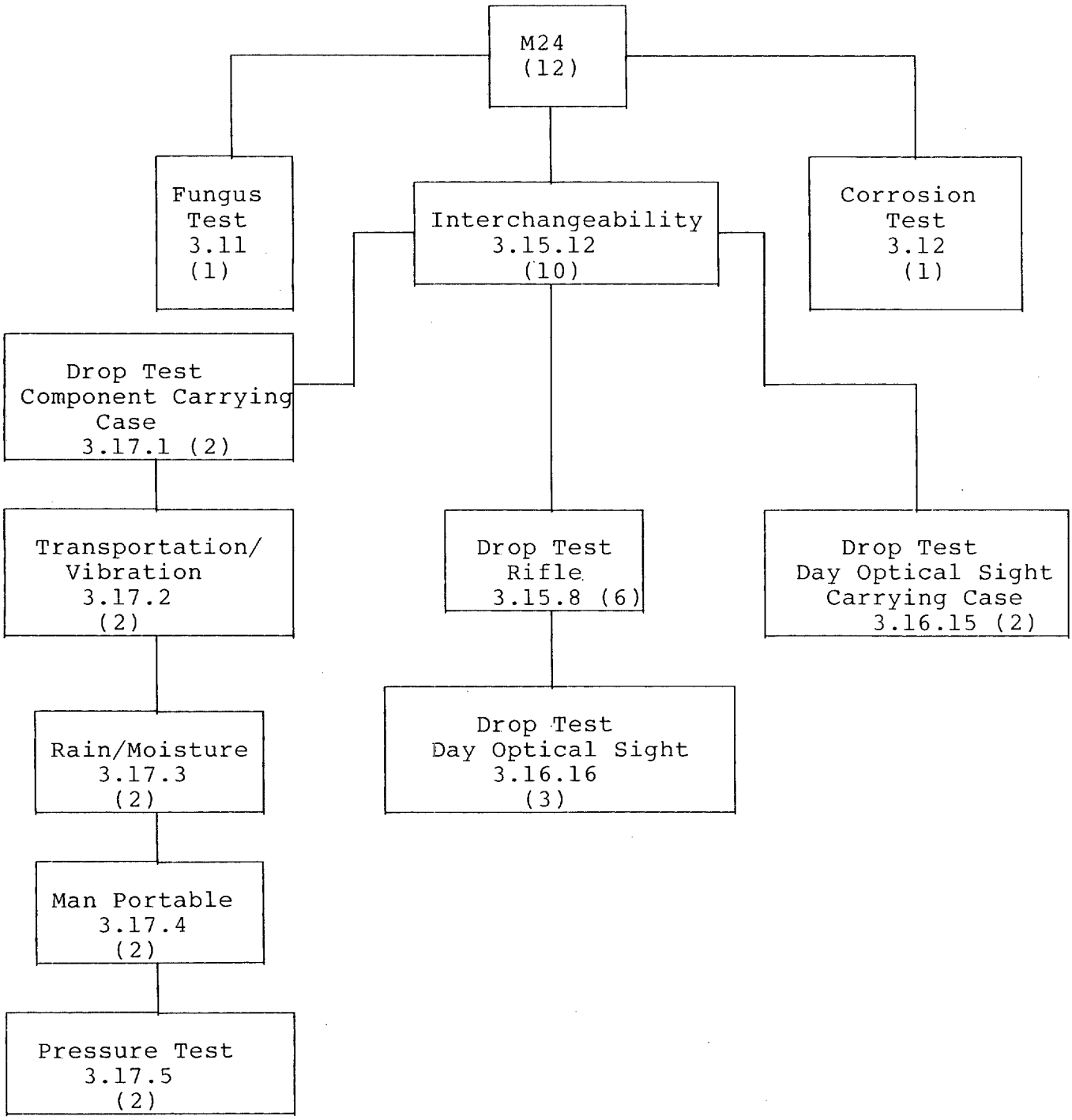


Figure 2. First Article Test Plan

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First Article Test Plan Notes

Note 1

Rifle			
Weight/Size	100%	3.14.1	SMTE
Cleaning System	100%	3.14.2	Visual/Manual
Maintainability	100%	3.14.3	Visual/Manual
Magazine	100%	3.14.4	SMTE
Sling Swivels	100%	3.14.6	Visual/Manual/ SMTE
Exterior Surfaces	100%	3.14.7	Visual
Stock Surface	10	3.14.8.1	Visual/Manual
Machine Finish	100%	3.4	Visual
Final Protective Finish	100%	3.5	Visual
Human Engineering Characteristics	100%	3.7	Visual/Manual/ SMTE
Operator's manual	1	3.8	Visual
Touch-up	100%	3.6	Visual
Workmanship	10	3.20	Visual/Manual

Note 2

Rifle Tests			
High pressure Resistance	100%	3.15.6	Visual/Manual
Soundness of Weld	100%	3.14.10	Visual/Manual
Headspace	100%	3.15.1	SMTE
Trigger Pull	100%	3.15.2	SMTE
Firing Pin Indent	100%	3.15.9	SMTE

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First Article Test Plan Notes

Note 3

Day Optical Sight			
Machine Finish	100%	3.4	Visual
Final protective Finish	100%	3.5	Visual
Touch-up Material	100%	3.6	Visual
Maintainability	100%	3.14.3	Visual/Manual
Human Engineering Characteristics	100%	3.7	Visual/Manual

Note 4

Day Optical Sight Tests			
Magnification	100%	3.16.1	SMTE
Lens Cover	100%	3.16.3	Visual/Manual
Reticle	100%	3.16.4	Visual
Anti-reflective Coating	100%	3.16.5	CTR
Optical Glass	100%	3.16.6	CTR
Parallax	100%	3.16.7	4.6.24
Eye Piece Focus	100%	3.16.8	4.6.25
Resolution	100%	3.16.9	4.6.26
Cleanliness and Optical Quality	100%	3.16.10	Visual
Watertightness	10	3.16.11	4.6.27
Sealing	10	3.16.12	4.6.28

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4.5 Quality conformance inspection.

4.5.1 Inspection lot formation. The term "inspection lot" is defined as a homogeneous collection of units of product from which a representative sample is drawn or which is inspected 100 percent to determine conformance with applicable requirements. Units of product selected for inspection shall represent only the inspection lot from which they are drawn and shall not be construed to represent any prior or subsequent quantities presented for inspection. Homogeneity shall be considered to exist provided the inspection lot has been produced by one manufacturer, in one unchanged process, using the same materials and methods, in accordance with the same drawings, same drawing revisions, same specifications and same specification revisions. All material submitted for inspection in accordance with this specification shall comply with the homogeneity criteria specified herein, regardless of the type of inspection procedure which is being applied to determine conformance with requirements.

4.5.1.1 Lot size. The size of the lot shall be in accordance with MIL-W-13855. The maximum size of a lot shall be 400.

4.5.1.2 Lot identification. Each inspection lot shall be identified with a lot number. The reason for rejection of any inspection lot shall be recorded. When a rejection inspection lot is resubmitted after reconditioning, it shall be identified as such.

4.5.2 Examinations and tests.

a. Classification of characteristics. Quality conformance examinations and tests are specified in the following Classification of Characteristics paragraphs. The contractor's quality program or detailed inspection system shall provide assurance of compliance of all characteristics with the applicable drawing and specification requirements utilizing as a minimum the conformance criteria specified. When cited herein, attributes sampling inspection shall be conducted in accordance with Table II using the inspection levels stated in the Classification of Characteristics paragraphs. The certification provisions of MIL-W-63150 for Certified Test Reports (CTR) and Certificates of Conformance (COC) shall apply.

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TABLE II. Attributes sampling inspection

Lot Size	Inspection Levels III	IV	V
2 to 8	*	*	5
9 to 15	*	13	5
16 to 25	*	13	5
26 to 50	32	13	5
51 to 90	32	13	13
91 to 150	32	13	13
151 to 280	32	32	20
281 to 500	32	32	20
501 to 1200	80	50	20

Numbers under inspection levels indicate sample size; asterisks (*) indicate one hundred percent inspection. If sample size exceeds lot size, perform one hundred percent inspection. Accept on zero and reject on one or more for all inspection levels.

b. Alternative quality conformance provisions. Unless otherwise specified herein or provided for in the contract, alternative quality conformance procedures, methods, or equipment, such as statistical process control, tool control, other types of sampling procedures, etc., may be used by the contractor when they provide, as a minimum, the level of quality assurance required by the provisions specified herein. Prior to applying such alternative procedures, methods, or equipment, the contractor shall describe them in a written proposal submitted to the Government for evaluation (see 6.8). When required, the contractor shall demonstrate that the effectiveness of each proposed alternative is equal to or better than the specified quality assurance provision(s) herein. In cases of dispute as to whether the contractor's proposed alternative(s) provides equivalent assurance, the provisions of this specification shall apply. All approved alternative provisions shall be specifically incorporated into the contractor's quality program plan or detailed inspection system, as applicable.

c. Failure data. Unless otherwise specified herein, all tests shall be conducted on the M24. If test requirements cited herein are not met, acceptance of the M24 shall be deferred and the contractor shall accomplish, as applicable, the following actions:

(1) Conduct a failure analysis study performing a dimensional, physical and visual examination of the components which are suspected to be cause of failure or malfunction.

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(2) Evaluate and correct the applicable production processes and procedures to prevent recurrence of the same defect(s) in future production.

(3) Examine rifles, partially assembled rifles, carrying cases, and components (including components and subassemblies at in-process or final assembly) to insure that material containing the same defect is purged from the inventory and not presented to the Government for acceptance.

(4) Submit the results of the failure analysis and the corrective actions taken to the Government for review and approval prior to submitting a reconditioned lot or reconditioned M24 for retest.

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QUALITY CONFORMANCE INSPECTION.

CLASSIFICATION OF CHARACTERISTICS

MIL-R-71126(AR)

PARAGRAPH	TITLE	SHEET 1 OF 1	DRAWING NUMBER
4.5.2.1	Rifle, 7.62MM, Sniper w/Day Optical Sight and Carrying Cases, M24		NEXT HIGHER ASSEMBLY

CLASSIFICATION	EXAMINATION OR TEST	CONFORMANCE CRITERIA	REQUIREMENT PARAGRAPH	INSPECTION METHOD REFERENCE
	Performance tests			
CRITICAL	None defined.			
MAJOR:				
101.	Headspace 1/	100%	3.15.1	4.6.11
102.	Functioning 1/	100%	3.15.3	4.6.13
103.	Endurance 2/	5/	3.15.4	4.6.14
104.	Reliability 2/	5/	3.15.5	4.6.15
105.	High pressure resistance 1/	100%	3.15.6	4.6.16
106.	Targeting and accuracy 1/	100%	3.15.7	4.6.17
107.	Firing pin indent 1/	100%	3.15.9	4.6.19
108.	Interchangeability 3/	10	3.15.12	4.6.22
109.	Trigger pull 1/	100%	3.15.2	4.6.12
	Component Carrying Case			
110.	Pressure test 4/	100%	3.17.5	4.6.35
MINOR:	None defined			

NOTES:

AMSMC Form 1570b, 1 Jul 89 Replaces 1570, 1 Feb 85, which may not be used.

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Notes

1/ Failure to meet the applicable requirement shall be cause for rejection of the rifle.

2/ Failure to meet the applicable requirement shall be cause for rejection of the lot of rifles.

3/ Interchangeability testing. A sample of ten M24's from each inspection lot shall be tested for interchangeability of repair parts using the test method specified in 4.6.22. M24's taken for interchangeability testing shall have been found satisfactory in all other examinations and tests. Hand refinement of parts will not be allowed. Failure of any part of the interchange testing specified in 4.6.22 shall be cause for retest or rejection of the represented lot. An interchangeability retest shall be cause for rejection of the represented lot subject to reconditioning and further test as a reconditioned lot. A sample of 20 M24s from a reconditioned lot shall be tested using the same procedure described above.

4/ Failure to meet the applicable requirement shall be cause for rejection of the lot of component carrying case.

5/ For the endurance test, the sample size shall be one weapon for a lot size of 200 or less and two weapons for a lot size between 201 and 400.

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QUALITY CONFORMANCE INSPECTION.

CLASSIFICATION OF CHARACTERISTICS

MIL-R-71126(AR)

PARAGRAPH	TITLE	SHEET 1 OF 1	DRAWING NUMBER
4.5.2.2	Rifle, 7.62MM, Sniper w/Day Optical Sight and Carrying Cases, M24		NEXT HIGHER ASSEMBLY

CLASSIFICATION	EXAMINATION OR TEST	CONFORMANCE CRITERIA	REQUIREMENT PARAGRAPH	INSPECTION METHOD REFERENCE
	Rifle			
CRITICAL	None defined			
MAJOR				
101.	Magnetic Particle Mark 1/	100%	3.15.6	4.6.16
102.	Proof Mark 1/	100%	3.15.6	4.6.16
103.	Ironsights 2/	Level III	3.14.12	4.6.10.2
104.	Soundness of Weld 1/	100%	3.14.10	4.6.8
105.	Safety	100%	3.14.11	4.6.9.2
MINOR:				
201.	Machine Finish 2/	Level IV	3.4	Visual
202.	Final Protective Finish 2/	Level IV	3.5	Visual
203.	Touch-up Material 2/	Level IV	3.6	Visual
204.	Stock Surface 2/	Level IV	3.14.8.1	Visual/ Manual
205.	Sling Swivels 2/	Level IV	3.14.6	Visual/ Manual/SMTE
206.	Workmanship 2/	Level V	3.20	Visual/ Manual

NOTES: 1/ Failure to meet the applicable requirements shall be cause for rejection of the rifle. 2/ Failure to meet the applicable requirements shall be cause for rejection of the lot of rifles.

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QUALITY CONFORMANCE INSPECTION.

CLASSIFICATION OF CHARACTERISTICS

MIL-R-71126(AR)

PARAGRAPH	TITLE	SHEET 1 OF 1	DRAWING NUMBER
4.5.2.3	Rifle, 7.62MM, Sniper w/Day Optical Sight and Carrying Cases, M24		NEXT HIGHER ASSEMBLY

CLASSIFICATION	EXAMINATION OR TEST	CONFORMANCE CRITERIA	REQUIREMENT PARAGRAPH	INSPECTION METHOD REFERENCE
	Day Optical Sight			
CRITICAL	None defined			
MAJOR				
101.	Elevation and windage adjustment 1/	Level III	3.16.2	4.6.23
102.	Lens Cover 2/	Level III	3.16.3	Visual/Manual
103.	Parallax 1/	Level III	3.16.7	4.6.24
104.	Eye Piece focus 1/	Level III	3.16.8	4.6.25
105.	Resolution 1/	Level III	3.16.9	4.6.26
106.	Watertightness 1/	Level III	3.16.11	4.6.27
107.	Sealing 1/	Level III	3.16.12	4.6.28
108.	Anti-reflection coating 1/	Level III	3.16.5	CTR
MINOR:				
201.	Cleanliness and optical quality 1/	Level IV	3.16.10	Visual
206.	Workmanship (MIL-F-13926) 1/	Level V	3.20	Visual/ Manual

NOTES: 1/ Failure to meet the applicable requirements shall be cause for rejection of the lot of day optical sights. 2/ Failure to meet the applicable requirements shall be cause for rejection of the lot of lens covers.

AMSMC Form 1570b, 1 Jul 89 Replaces 1570, 1 Feb 85, which may not be used.

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4.6 Methods of inspection.

4.6.1 NBC decontamination. The contractor shall submit a list of all of the materials used in the rifle, sighting systems and the exterior of the carrying case. The Government will do an engineering study to determine the NBC decontamination survivability of the materials. To be acceptable, all of the materials shall pass the Government's study.

4.6.2 Fungus. The fungus resistance test shall be conducted on the rifle, sighting systems and carrying cases in accordance with MIL-STD-810. The test cycle shall be 28 days.

4.6.3 Corrosion resistance. The test shall be performed as specified in ASTM-B117. Test procedures and equipment shall have prior approval of the Government.

4.6.3.1 Repair parts. The time for the salt spray test repair parts shall be the following:

Maganese phosphate coating:	1 1/2 hours
Zinc phosphate coating:	2 hours
Protective finishes on metal components other than those specified in 3.5:	96 hours

Upon completion of the test, parts shall be examined for corrosion. To be acceptable, there shall be no evidence of corrosion.

4.6.3.2 Rifle with day optical sight and component carrying case. The rifle with the day optical sight attached and a closed empty component carrying case shall be subjected to the salt spray test for 24 hours. The adjustment knobs and lenses shall be exposed. Upon completion of the test the rifle with day optical sight and component carrying case shall be examined for corrosion for information only. The following test shall then be conducted.

4.6.3.3 Targeting and accuracy. The rifle shall be cleaned and lubricated before the start of the test. The rifle and day optical sight shall be subjected to the targeting and accuracy test of 4.6.17. To be acceptable, it shall meet the targeting and accuracy requirements of 3.15.7.

4.6.3.4 Reattachment. The rifle with day optical sight shall be tested for reattachment in accordance with 4.6.29. The day optical sight shall be removed and reattached for a total of 10 cycles. To be acceptable, it shall meet the requirements of 3.16.14.

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4.6.3.5 Component carrying case. The hinges shall be checked for functioning. The component carrying case shall be opened and closed three times. To be acceptable, all of the hinges shall function without binding.

4.6.4 Chemical resistance. The rifle, sighting systems except for the adjustment knobs, lenses and lens cover, and the exterior of the carrying cases shall be tested in accordance with TOP 3-2-609. The interior of the carrying case shall be tested for the chemicals listed in 3.13 in accordance with TOP 3-2-609.

4.6.5 Noise. The noise test shall be conducted on the rifle in accordance with MIL-STD-1474. A minimum of 10 rounds shall be fired.

4.6.6 Stock. The range of the length of pull shall be checked using a Government approved gage. If the adjustment is incremental, the length of each increment of adjustment between the range of 12 to 14 inches shall be checked using a Government approved gage. The rifle shall be placed on a table with the stock in the minimum position. A command shall be given to start at the same time a Government approved stopwatch is started. The stock shall be adjusted to a length of pull of 14 inches minimum using only the tools available to the operator. The time to completion shall be recorded.

To be acceptable, the time to completion shall be less than 3 minutes.

The stock shall be adjusted to a length of pull of 14 inches, minimum, using only the tools available to the operator under the following conditions:

a. By a person dressed in NBC clothing.

b. The rifle shall be conditioned for a minimum of four hours in a cold temperature chamber at -50°F ± 5°F. A person dressed in cold weather environmental clothing, with the outer artic mitten removed, shall enter the chamber and the above procedure repeated.

c. The rifle shall be conditioned for a minimum of four hours in a hot temperature chamber at 145°F ± 5°F and the above procedure repeated.

4.6.7 Bolt assembly. The rifle shall be placed on a table. A command shall be given to start at the same time a Government approved stopwatch is started. The bolt shall be removed and reinserted. The time shall be recorded. To be acceptable the time to completion shall be less than one minute.

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4.6.8 Soundness of weld. Magnetic particle inspection for soundness of weld shall be performed in accordance with MIL-STD-1949.

4.6.9 Safety.

4.6.9.1 First article. A primed empty M118 cartridge shall be inserted into the chamber before performing the following tests:

The safety shall be placed in the safe position. Three attempts shall be made to fire the rifle. With the shooter in each of the positions listed in 3.14.11, the shooter shall verify the position of the safety by looking at it. Next, without looking the shooter shall verify the position of the safety by touch. While in each of these positions, the shooter shall change the position of the safety from safe to fire and back to safe without moving his hands from the shooting position. To be acceptable the shooter shall perform all of the above tests and the rifle shall not fire.

With the safety in the safe position, a force gage shall be attached and a force applied parallel to the direction of rotation until the safety moves to the fire position. The force shall be recorded. To be acceptable, both forces shall be between 2 and 10 pounds.

The above procedure with the exception of the force test, shall be repeated under the following conditions:

a. By a person dressed in NBC clothing.

b. The rifle shall be conditioned for a minimum of four hours in a cold temperature chamber at -50°F ± 5°F. A person dressed in cold weather environmental clothing with the outer artic mitten removed, shall enter the chamber and the above procedure repeated.

c. The rifle shall be conditioned for a minimum of four hours in a hot temperature chamber at 145°F ± 5°F and the above procedure repeated.

4.6.9.2 Lot acceptance. Ensure that the weapon is in the cocked position (firing pin head is to the rear) before beginning this test. The safety shall be placed in the safe position. Three attempts shall be made to fire the weapon. The firing pin head shall be visually inspected after each attempt to ensure that it does not fall forward. To be acceptable the firing pin head shall not fall forward on any of the three attempts. The safety shall then be placed in the fire position. An attempt shall be made to fire the weapon. If firing pin head falls forward the

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weapon shall be recocked. This procedure shall be repeated three times. To be acceptable the firing pin head shall fall forward all three times. Ensure that the weapon is in the cocked position. The safety shall be placed in the safe position. Three attempts shall be made to fire the weapon. The firing pin head shall be visually inspected after each attempt to ensure that it does not fall forward. To be acceptable the firing pin head shall not fall forward on any of the three attempts. A force gage shall then be attached to the safety lever and a force applied parallel to the direction of rotation until the safety moves to the fire position. The force shall be recorded. The force shall then be applied in the opposite direction until the safety moves from the fire to the safe position. The force shall be recorded. To be acceptable both force readings shall be between 2 and 10 pounds.

4.6.10 Iron sights.

4.6.10.1 First article. A total of six rifles shall be used for this test. All six rifles shall be subjected to the test listed in 4.6.10.2. Two rifles shall then be conditioned in a cold temperature chamber (-50° ± 5°F) for a minimum of four hours. A person dressed in cold weather environmental clothing with the outer artic mitten removed, shall enter the chamber and perform the adjustments listed in 4.6.10.1.1. The two rifles shall then be conditioned in a hot temperature chamber (+145° ± 5°F) for a minimum of four hours. A person shall enter the chamber and perform the procedure listed in 4.6.10.1.1. A person dressed in NBC clothing shall perform the adjustments listed in 4.6.10.1.1 at ambient temperature.

4.6.10.1.1 Adjustment. The iron sight azimuth and elevation adjustment shall be adjusted to each extreme two times.

4.6.10.1.2 Front sight width. The contractor shall submit the dimensions with tolerance of the front sight width for Government approval. Upon Government approval, this shall be the requirement for checking the front sight width.

4.6.10.2 Lot acceptance. The width of the front sight shall be checked using a Government approved gage. The iron sight azimuth and elevation adjustment shall be adjusted to each extreme two times. The full range of azimuth and elevation shall be checked for detented, audible and tactile clicks. If the iron sights are detachable, the following procedure shall be performed:

The iron sights shall be set to zero. The rifle shall then be mounted in a Government approved rigid mount. A Government approved test target shall be positioned at a distance from the weapon and dimensioned such that when viewed through the iron sights, it will represent the tolerance for maximum change in

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zero. The iron sights shall then be removed and reattached to the rifle. Upon completion of the test, the target shall be viewed through the iron sights. To be acceptable, the line of sight shall lie within the tolerance zone on the test target.

4.6.11 Headspace. The rifles shall be gaged for headspace using a Government approved headspace gage.

4.6.12 Trigger pull. This test shall be performed using Government approved inspection equipment.

4.6.12.1 Minimum load. The trigger pull shall be set to its minimum force. The rifle shall be cocked and the selector level shall be placed in the "fire" position. A Government approved force gage shall be attached to the trigger. A force shall be gradually applied to the center of the trigger and exerted in a line parallel to the axis of the barrel bore until the firing mechanism is released. The force shall be recorded. The above procedure shall be repeated a total of five times. To be acceptable all of the readings shall be within 2 pounds 8 ounces $\pm$ 8 ounces.

4.6.12.1.1 Minimum load after targeting and accuracy. The above test shall be performed prior to targeting and accuracy testing (4.6.17). The targeting and accuracy test shall then be performed with the trigger pull force set at approximately 4 pounds. At the conclusion of target and accuracy testing, the trigger pull force shall be reset at its minimum setting and the minimum load test shall be repeated.

4.6.12.2 Maximum load. The trigger pull shall be set to its maximum force. The above procedure in 4.6.12.1 shall be repeated. To be acceptable all of the readings shall be a minimum of 4 pounds.

4.6.12.3 Retainability. This test shall be performed as part of the contractor's in-process testing. The trigger pull shall be set at its minimum setting and checked in accordance with 4.6.12.1. The rifle shall be manually cycled and the trigger pulled a total of 50 times. The trigger pull forces shall again be checked in accordance with 4.6.12.1. To be acceptable all ten trigger pull force readings shall be within 2 pounds 8 ounces $\pm$ 8 ounces. The above procedure shall be repeated at trigger pull settings of approximately 3 pounds and 4 pounds with the exception that the rifle shall be cycled 20 times. To be acceptable, all trigger pull force readings shall be within a range of $\pm$ 12 ounces at the 3 pound setting and $\pm$ 16 ounces at the 4 pound setting. At the conclusion of the test at four pounds, the trigger pull force shall be reset at its minimum setting and again checked in accordance with 4.6.12.1.

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4.6.13 Functioning. During targeting and accuracy (4.6.17), the rifle shall be checked to assure that there are no malfunctions or unserviceable parts or pierced primers. Upon completion of the test, the day optical sight shall be checked for cleanliness and optical quality (3.16.10). In the event of the occurrence of any stoppages during the functioning test, a retest shall be allowed consisting of firing 100 rounds. To be acceptable, no stoppages, malfunctions, unserviceable parts or pierced primers shall occur during the retest.

4.6.14 Endurance test. The endurance test shall be performed by firing each rifle with the day optical sight attached, a total of 10,000 rounds. The rifle shall be fired from a Government approved test fixture. The ammunition used for this test shall be as specified in 3.15.3. All rounds fired shall be counted. The number of rifles used shall be the following:

First Article	5
Lot acceptance	1 (Lot size 200 or less) 2 (Lot size 201 to 400)

4.6.14.1 Firing procedure. Firing shall be accomplished in groups of 30 shots. Firing shall be at the rate of 60 shots per hour for the first 5,000 shots fired. The firing rate after 5,000 shots have been fired may vary between 60 shots and 240 shots per hour. The weapon shall be cleaned, decoppered and lubricated at 30 round intervals.

4.6.14.2 Replacement of parts. No parts shall be altered during the test. Broken parts that affect function and those parts that are worn to the extent they are unserviceable shall be replaced. The contractor shall provide replacement parts as required to complete the test at no additional cost to the Government.

4.6.14.3 Magnetic particle inspection. The barrel receiver and bolt shall be magnetic particle inspected at 2,500 rounds, 5,000 rounds and at every 1,000 rounds thereafter. Magnetic particle inspection shall be done in accordance with MIL-STD-1949.

4.6.14.4 Barrel accuracy. The barrel accuracy shall be checked after 4940 rounds have been fired. Testing shall be conducted with the rifle held in a Government approved machine rest. The ranges shall be as specified in 3.15.4. The ammunition shall be as specified in 3.15.3. Before the rifle is fired for record, ten shots shall be fired to seat the rifle. Five targets of ten rounds each shall then be fired and the average mean radius calculated. The average mean radius must meet the requirements as specified in 3.15.4.

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4.6.14.5 Cleaning and lubrication. The rifle shall be cleaned and lubricated as specified below.

4.6.14.5.1 Lubrication. The rifle shall be lubricated using lubricant in accordance with MIL-L-46000 (LSA) or MIL-L-63460.

4.6.14.5.2 Cleaning. The rifle shall be cleaned using a cleaning solvent in accordance with MIL-C-372.

4.6.14.6 Retention of point of aim. At the start of the endurance test, the scope mounting bolts shall be torqued as specified in 4.6.17. The weapon shall be mounted in a machine rest and ten shots shall be fired to seat the weapon. Five consecutive ten shot groups shall then be fired at five separate targets, for a total of fifty shots. The same point of aim shall be retained for all rounds fired. The center of impact for each ten round group shall be calculated. The centroid of the five centers of impact shall then be calculated by taking the mean of the X and Y coordinates for the five centers of impact. At 440 rounds of the endurance test the above procedure shall be repeated. To be acceptable, the calculated centroid of the five centers of impact at 440 rounds shall not deviate by more than 1.086 minutes of angle (3.3 inches @ 300 yards, 2.2 inches at 200 yards, 2.4 inches at 200 meters) from the calculated centroid at 0 rounds. The above test shall be repeated over the 4500 round through 4940 round interval of the endurance test.

4.6.15 Reliability test.

4.6.15.1 MRBF. The MRBF shall be calculated based on the results of the endurance test. Only failures that are attributable to either the rifle or the optical day sight and meet the failure criteria of 3.15.5 shall be counted.

The MRBF shall be calculated based on the following formula:

$$\text{M.R.B.F. req} = \frac{\text{Total number of rounds fired}}{\text{Total number of failures}}$$

4.6.15.1.1 Number of failures allowed for first article. Accept on 19 failures or less.

4.6.15.1.2 Number of failures allowed for lot acceptance.

Sample size	
1	Accept on 4 failures or less
2	Accept on 8 failures or less

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4.6.15.2 MRBS. The MRBS shall be calculated based on the results of the endurance test. Only stoppages that are attributable to the rifle and meet the stoppage criteria of 3.15.5 shall be counted.

The MRBS shall be calculated based on the following formula:

$$\text{M.R.B.S. req} = \frac{\text{Total number of rounds fired}}{\text{Total number of stoppages}}$$

4.6.15.2.1 Number of stoppages allowed for first article. Accept on 36 stoppages or less.

4.6.15.2.2 Number of stoppages allowed for lot acceptance.

Sample size	
1	Accept on 7 stoppages or less
2	Accept on 14 stoppages or less

4.6.16 High pressure resistance. The rifles shall be tested for high-pressure resistance by firing one Government standard high-pressure test cartridge in each rifle. After proof firing the 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. As a minimum, the barrel, bolt and receiver shall be examined by magnetic particle for cracks, and other evidence of damage, in accordance with MIL-STD-1949. Proof marks and magnetic particle inspection marks shall be applied to rifles that have passed this test.

4.6.17 Targeting and accuracy. Testing of rifles with day optical sight for targeting and accuracy shall be accomplished with the rifle held in a Government approved machine rest. The range shall be as specified in 3.15.7. The ammunition shall be as specified in 3.15.3. All firing shall begin with the magazine filled to capacity. Before each rifle is fired for record, up to ten shots may be fired to foul the bore, seat the weapon, settle the rifle action and sight the weapon. Five series of ten shots shall be fired at five separate targets for a total of 50 shots.

The same point of aim shall be retained between all rounds fired. A Government approved stop watch shall be started coincident with the firing of the first shot for record. It shall be stopped as soon as the last shot in the magazine is fired. This procedure shall be repeated until all 50 shots for record have been fired. The total time used for firing shall then be recorded. This time is then to be divided by 50 to determine the average firing rate. To be acceptable, the firing rate shall be 3 shots per minute or greater.

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The five targets shall be suitably identified with a common reference coordinate system to accomplish the measuring required to determine the requirements of paragraph 3.15.7. The targets shall then be checked to determine whether all the targeting and accuracy requirements of 3.15.7 have been met. To be acceptable each group of targets shall meet all requirements of 3.15.7.

This test shall be performed with the trigger pull force set at four pounds. Prior to the performance of this test, the day optical sight mounting nut threads shall be lubricated with lubricant per MIL-L-63460 and the day optical sight shall be removed form the rifle and reattached a total of 20 times using the following procedure:

Removal:

a. Using 1/2 inch box wrench, loosen front ring nut.

b. Using 1/2 inch box wrench, loosen back ring nut.

Reattachment:

a. The back and front right nuts shall be checked for lubrication and smooth movement with respect to the clamp of the ring mount. Lubrication and smooth movement shall be assured before proceeding with attachment of the day optical sight.

b. Inspection for burrs and foreign matter shall be made between the ring nut and the clamp of the ring mount. Any such burrs or foreign matter found shall be removed prior to telescope attachment.

c. Finger tighten the back ring nut.

d. Finger tighten the front ring nut.

e. Using 1/2 inch box wrench, tighten the back ring nut 1/4 turn (i.e. rotate 90 degrees).

f. Using 1/2 inch box wrench, tighten the front ring nut 1/4 turn (i.e. rotate 90 degrees).

4.6.17.1 Reticle adjustment. Upon completion of the targeting and accuracy test (4.6.17), the number of tactile clicks of reticle adjustment between the zeroed position of the windage (left and right direction) and elevation shall be counted. To be acceptable, the number of clicks of adjustment shall meet the requirements of 3.15.7.

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4.6.18 Drop test rifle. A total of six rifles are to be drop tested. Each of the six rifles shall be used for one of six orientations. The rifles shall be dropped onto a dirt surface. The soil penetration resistance shall be measured at a depth of 1 to 1 1/2 inches using a Government approved cone penetrometer. A minimum of three readings at least six inches apart shall be made in the area the rifle is to be dropped (a maximum of six inches away from where the rifle will impact). The safety shall be placed in the safe position and an empty M118 cartridge inserted in the chamber. The rifle shall then be attached to a contractor designed Government approved test fixture in the following orientations; barrel down, butt end down, right side down, left side down, 45 degree angle with vertical plane - butt end down, and top side down. The rifle shall be released from each of these orientations and allowed to free fall a minimum distance of five feet onto the dirt surface. Upon completion of this test, each rifle shall be visually inspected for damage, rezeroed and shall then be subjected to the targeting and accuracy test (4.6.17).

4.6.19 Firing pin indent test. Prior to this test, the bolt body assembly will be cleaned and visually inspected to ensure that there is no excess braze or other condition which could interfere with normal function of the firing pin assembly. The bolt body assembly will then be lightly lubricated with CLP. The rifles shall be tested for firing pin indent using Government approved inspection equipment. The rifle shall be held in a horizontal position with the bolt held open. A fixture for holding a copper compression cylinder shall be inserted into the chamber, along with an undeformed cylinder. The bolt shall be manually returned to battery position and the trigger pulled to indent the copper from the rifle and the depth of the indent in the copper cylinder computed by measuring the distance from the original surface of the copper cylinder (before indentation) to the bottom of the firing pin impression. The test shall be repeated 2 additional times using a new copper cylinder each time. To be acceptable the firing pin indent in all three cylinders shall be equal to or greater than the firing pin indent requirement of 3.15.9.

4.6.20 Temperature extremes. Two rifles with the day optical sight shall be used for this test. The rifles shall be fired at the rate of 60 shots per hour and cleaned and lubricated every 30 rounds. For the cold temperature test, the bolt assembly from each rifle shall be disassembled, cleaned with solvent in accordance with MIL-C-372, dried and reassembled dry. The rifles shall then be conditioned in a cold temperature chamber at $-50^{o} \pm 5^{o}F$ for a minimum of four hours before testing begins. A person dressed in cold weather environmental clothing with the outer artic mitten removed, shall enter the chamber, load the magazine, insert the magazine in the rifle or load the rifle, and fire 100 shots

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with each weapon. Upon completion of this test, the day optical sight shall be checked for looseness. The rifles shall then be cleaned and lubricated using LSA (MIL-L-46000) or CLP (MIL-L-63460). The rifles shall then be conditioned in a hot temperature chamber at 145° ± 5°F. A person shall enter the chamber and fire 100 shots with each weapon. To be acceptable all shots must fire without any stoppages, as defined in 3.15.5, and the day optical sight shall not become loose.

4.6.21 Special clothing. Two rifles shall be used for this test. A shooter dressed in N.B.C. clothing shall load the magazine, insert the magazine in the rifle or load the rifle. He shall then fire four shots with each rifle. To be acceptable, all shots shall fire without any stoppages attributable to the clothing.

4.6.22 Interchangeability. The M24 shall be tested for the interchange of repair parts (3.15.2) by disassembling and then reassembling parts using the parts and pre-arranged system specified below. Interchange of parts shall be accomplished by dividing the parts of each M24 into 10 groups of non-mating parts. The 10 groups of non-mating parts shall be based on the contractor supplied parts list (3.9). The parts shall be distributed in groups into 10 different trays until each tray contains parts of a complete M24. Groups of parts from the first M24 shall be taken in order and placed in trays 1 through 10; groups of parts from the second M24 shall be taken in order and placed in trays 2 through 10 to 1; groups of parts from the third M24 shall be taken in order and placed in trays 3 through 10 to 2, etc. Commercial parts such as screws, spring pins, etc., shall be placed in the same tray as their mating or associated part. Any commercial part rendered unserviceable by disassembly shall be replaced without penalty to the interchangeability test. The M24 shall be reassembled using only those parts which are in the same tray. The rifle shall then be subjected to the headspace test (4.6.11) and firing pin indent test (4.6.19). The rifle shall then be subjected to the targeting and accuracy (4.6.17) and functioning test (4.6.13).

4.6.23 Elevation and windage adjustment. A Government approved collimator which has a reticle capable of measuring to 1/2 minute of angle shall be used for this test. The day optical sight shall be rigidly mounted to a Government approved test fixture. View through the day optical sight and line up the reticle with the collimator reticle. The elevation and windage knobs shall be rotated as specified in 3.16.2. To be acceptable, the zero position of the day optical sight as defined by the intersection of the vertical and horizontal reticle lines shall not have moved more than the tolerance specified in 3.16.2.

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4.6.24 Parallax. Parallax shall be checked by sighting through the day optical sight and observing a point on the target at the distance specified in 3.16.7 with respect to a corresponding point of the day optical sight reticle in close proximity to the optical axis. Parallax shall be recognized as any apparent displacement of the target image in relation to the reticle image when the observer's head is moved. The displacement of the target image shall not exceed the limit specified in 3.16.7.

4.6.25 Eye piece focus. This test shall be performed with the aid of a calibrated dioptometer with a magnification of at least 3 power (3), and a diopter measuring range of at least plus and minus 4 diopters. Adjust the dioptometer eyepiece for best focus of the dioptometer reticle and set the dioptometer diopter scale to zero. Adjust the eyepiece of the day optical sight to each extreme direction and obtain a clear sharp image of the day optical sight reticle while viewing through the dioptometer to determine conformance with 3.16.8.

4.6.26 Resolution. This test shall be performed utilizing an auxiliary telescope with a magnification of at least 3 power (3X), a resolving power chart, and a supporting medium to receive this test equipment as well as the day optical sight to be tested. The resolving power chart shall be either figure I of MIL-O-13830 or the National Bureau of Standards (NBS) High Contract Resolution Test Chart 1952 that forms a part of NBS Circular 533. The test method and procedure shall be in compliance with the "Resolution Test" specified in MIL-O-13830. The limit of resolution shall be within the value specified in 3.16.9 as determined by viewing through the auxiliary telescope.

4.6.27 Watertightness. The day optical sight shall be placed in a container of water at ambient temperature and subjected to a minimum pressure of 17.8 pounds per square inch gage for five minutes. The day optical sight shall then be visually examined for evidence of moisture penetration. To be acceptable, there shall be no evidence of moisture or fogging.

4.6.28 Sealing. The day optical sight shall be placed in a Government approved test chamber and the pressure reduced to at least -10.3 pounds per square inch gage. Once this pressure is reached, it shall be maintained for a minimum of 7 1/2 hours. At the end of this time, the vacuum pump shall be turned off and the valves to the chamber closed. Water vapor shall then be introduced into the chamber until a condition of water vapor condensing exists. This condition shall be maintained while the chamber is slowly brought to atmospheric pressure. The total time of this condition shall be a minimum of 1/2 hour. The day optical sight shall then be removed from the chamber and examined

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for the presence of water vapor within the day optical sight. To be acceptable, there shall be no evidence of water vapor within the day optical sight.

4.6.29 Reattachment. This test shall be performed after the targeting and accuracy test (4.6.17). Three rifles, with day optical sight, shall be used. The day optical sight shall be removed and reattached for a total of 180 cycles using the procedure specified in 4.6.17. Throughout this test the scope rings must be aligned with the same slot of the base mount/receiver from which it was removed. The change in zero of the day optical sight, as defined by the intersection of the horizontal and vertical reticle lines in relation to the bore of the rifle, shall be recorded after each of the required 180 cycles. An auto-collimator which is accurate to 0.5 seconds of arc, a muzzled reference mirror rigidly attached to the muzzle of the rifle and a light source which will project light through the day optical sight to the collimator shall be used to measure the change in zero. The distance between the auto-collimator reticle as reflected from the muzzle mirror and the projected day optical sight reticle is the change in zero. To be acceptable, the change in zero shall not exceed the value specified in 3.16.14.

4.6.30 Day optical sight carrying case. A total of two day optical sight carrying cases with the day optical sight inside shall be used for this test. One day optical sight carrying case shall be conditioned in a cold temperature chamber (-50°F ± 5°F) for a minimum of 24 hours. The remaining one day optical sight carrying case shall be conditioned in a hot temperature chamber (145°F ± 5°F) for a minimum of 24 hours. The two sets of day optical sight carrying cases shall be subjected to the test in 4.6.30.1 either while still inside the chamber or immediately after removal from the chamber. If the drop test is performed outside of the chamber, the test shall be completed within three minutes of removal from the chamber.

4.6.30.1 Orientations. The day optical sight carrying case with the day optical sight inside shall be attached to a Government approved test fixture in each of the following six orientations: top, bottom, two adjacent sides, and two diagonally opposed corners. The day optical sight carrying case shall be released from each of these orientations and allowed to fall a minimum distance of seven feet onto a one inch steel plate backed by concrete. Upon completion of this test, the day optical sight shall be examined for structural and functional damage. The day optical sight shall be subjected to the optical tests (4.6.26, 4.6.24 and 4.6.23 (ambient only), the watertightness test (4.6.27) and the sealing test (4.6.28).

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4.6.31 Drop test day optical sight. A total of three day optical sights are to be drop tested in accordance with either 4.6.31.1 or 4.6.31.2. Each of the three day optical sights shall be used for one of three orientations.

4.6.31.1 Drop test day optical sight on dirt. The day optical sight shall be dropped on a dirt surface. The soil penetration resistance shall be measured at a depth of 1 to 1 1/2 inches using a Government approved cone penetrometer. A minimum of three readings at least six inches apart shall be made in the area the day optical sight is to be dropped (a maximum of six inches away from where the day optical sight will impact). The day optical sight shall then be attached to a contractor designed Government approved test fixture in the following three orientations: both ends and the knobs pointing down. The day optical sight shall be released from each of these orientations and allowed to free fall a minimum distance of two feet onto the dirt surface. Upon completion of the test, the day optical sight shall be subjected to the optical tests (4.6.23 (ambient only) 4.6.24, 4.6.26), the watertightness test (4.6.27) and the sealing test (4.6.28).

4.6.31.2 Drop test day optical sight on rubber mat. The day optical sight shall be dropped on a 86 durometer pad, one inch thick, back by concrete. The rubber mat shall be certified that it meets the proper durometer value. The day optical sight shall then be attached to a contractor designed Government approved test fixture in the following three orientations: both ends and the knobs pointing down. The day optical sight shall be released from each of these orientations and allowed to free fall a minimum distance of five feet onto the rubber mat. Upon completion of the test, the day optical sight shall be subjected to the optical tests (4.6.23 (ambient only) 4.6.24, 4.6.26), the watertightness test (4.6.27) and the sealing test (4.6.28).

4.6.32 Droptest component carrying case. A total of two component carrying cases are to be drop tested. One component carrying case with its full contents shall be conditioned in a cold temperature chamber (-40°F ± 5°F) for a minimum of 24 hours. The remaining one rifle carrying case with its full contents shall be conditioned in a hot temperature chamber (145°F ± 5°F) for a minimum of 24 hours. The two component carrying cases with its full contents shall be subjected to the test in 4.6.32.1 either while still inside the chamber or immediately after removal from the chamber. If the drop test is performed outside the chamber, the test shall be completed within ten minutes of removal from the chamber.

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4.6.32.1 Orientations. The component carrying case shall be attached to a Government approved test fixture in each of the following orientations: top, bottom, tow adjacent sides and two diagonally opposed corners. The component carrying case shall be released from each of these orientations and allowed to fall a minimum distance of 30 inches onto a one inch steel plate backed by concrete. Upon completion of this test, the component carrying case shall be visually examined for any structural or functional damage. All of the contents shall be examined for any physical damage.

4.6.33 Transportation vibration. This test shall be performed at the completion of the component carrying case drop test. One component carrying case shall be subjected to the cold temperature transportation vibration test of Method 5019.1 and Method 5020.1 of Federal Test Method Standard No. 101. Upon completion of the test, the component carrying case shall be examined for structural damage and the rifle and day optical sight shall be examined for physical damage. The component carrying case and its full contents shall be subjected to the rain/moisture test (4.6.34) and the rifle shall be subjected to the targeting and accuracy test (4.6.17).

4.6.34 Component carrying case rain/moisture. The component carrying case with all of its contents inside shall be placed inside a Government approved rain chamber. Rain and wind shall be applied at the rate specified in 3.17.3 for 1/2 hour. Upon completion of the test, the rifle shall be removed from the case and examined for wetness. To be acceptable there shall be no wetness inside the case.

4.6.35 Component carrying case pressure test. The pressure relief value shall be removed from the carrying case and a suitable adaptor shall be installed which will permit dry compressed air to pressurize the case. A pressure regulator shall be used to prevent over pressurization. The case shall be pressurized to a positive pressure of 0.50 $\pm$ 0.05 psig (13.8 $\pm$ 1.4 in. of water) and the air supply shut off. The pressure shall be allowed to stabilize for 15 minutes. If the pressure falls outside 0.50 $\pm$ 0.05 psig range during the stabilization period, the case shall be repressurized to 0.50 $\pm$ 0.05 psig. Record the actual pressure in the case. Allow the container to remain in this condition for 6 minutes and record the pressure. If the pressure drop after 6 minutes exceeds the requirement in 3.17.5 the case shall be rejected.

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5. PACKAGING

5.1 Packaging requirements. The requirements for packaging shall be in accordance with ASTM-D3951. The quantity of unit pack shall be one each.

5.2 Marking. Marking shall be in accordance with MIL-STD-129.

6. NOTES

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

6.1 Intended use. The M24 furnished to this specification are intended for sniper purposes.

6.2 Acquisition requirements. Procurement documents should 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 2.1.2).

c. Requirements for first article (see 3.1).

d. Final protective finish, if other than specified (see 3.5).

e. Block of serial numbers (see 3.19).

f. Level of packaging and packing (see Section 5).

g. Responsibilities for furnishing acceptance inspection equipment, if other than specified (see 6.3).

h. Disposition instructions for endurance tested rifles and first article rifles.

i. MIL-I-45208 as the applicable higher level contract quality requirement.

6.3 Submission of contractor inspection equipment designs for approval. Inspection equipment designs are of two types - Government Special Inspection Equipment (SIE) designs and contractor designs. SIE designs are designated by drawing numbers under the "Method of Inspection" heading in Section 4. Design responsibility for all other inspection equipment is assigned to

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the contractor. However, the contractor need not furnish any design when a complete Government SIE 49 design is part of the Technical Data Package (TDP). Unless otherwise specified, the contractor may submit alternate or modified contractor designs of SIE in accordance with 6.3.2 and 6.3.3 should he elect to do so.

6.3.1 SIE designs. SIE designs may consist of any of the following:

a. Detailed drawings which completely depict all information necessary for the fabrication and use of the item of inspection equipment.

b. A source control drawing or a specification control drawing as defined in the Contract Data Requirements List (DD Form 1423).

c. An envelope drawing, as defined in DOD-STD-100, which establishes the criteria which a detailed design shall meet. When envelope drawings are specified, the contractor shall prepare designs which comply with the criteria therein.

6.3.2 Contractor designs. Contractor designs are required for all inspection equipment for which SIE designs are not specified and may include commercial equipment which the contractor proposes to use. (Commercial equipment is defined as unmodified equipment which is cataloged and available for purchase by the general public). Contractor designs shall include appropriate operating instructions, calibration procedures and maintenance procedures. Commercial equipment shall be fully described by catalog listing or other means which provide sufficient information to permit identification and evaluation by the Government and may include illustration and engineering data. Designs shall be prepared for any special fixture(s) required to be used with commercial equipment, or with SIE designs if not otherwise covered thereby (see 6.3.1c). Designs shall be of the category and form specified in the Contract Data Requirements Lists (DD Form 1423).

The specification number, paragraph number, and defect number from Section 4 shall be referenced on each contractor design together with the component or assembly drawing number, revision letter and date to which the specific design applies.

6.4 Definitions.

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6.4.1 Contractor. Unless otherwise specified, the work Contractor used throughout this or the item detail specification shall mean any supplier or producer of items or material to the Government. This shall include commercial contractors, sub-contractors, Government Owned, Contractor Operated (GOCO) and Government Owned, Government Operated (GOGO) plants.

6.4.2 Technical data package (TDP). A technical description of an item adequate for use in procurement. The description defines the required design configuration and assures adequacy of item performance. It consists of all applicable technical data such as plans, drawings, and associated lists, specifications, standards, models, performance requirements, quality assurance provisions, and packaging data.

6.4.3 Critical defect. A defect that judgement and experience indicate is likely to result in hazardous or unsafe conditions for individuals using, maintaining, or depending upon product; or a defect that judgement and experience indicate is likely to prevent performance and of the tactical function of a major end item such as an aircraft, tank, land vehicle, missile, artillery, or other major weapon system.

6.4.4 Special defect. A defect, other than Critical, that judgement and experience indicate may, depending upon the degree of variance from the design, requirement:

a. Result in hazardous or unsafe conditions for individuals using, maintaining or depending upon the product or

b. Prevent performance of the tactical function of a major end item.

6.5 Test firing facilities and operating procedures. Test firing facilities and operating procedures should be designed by the contractor in conformance with local, state, and federal regulations, they should be suitable for carrying out prescribed firing tests and insure the safety of operating and visiting personnel. Copies of these contractor designs should be forwarded to the contracting officer.

6.6 Drawings. Drawings listed in Section 2 of this specification under the heading US Army Armament Research, Development and Engineering Center (ARDEC) may also include drawings prepared by and identified as, Edgewood Arsenal, NATICK Labs, Frankford Arsenal, Rock Island Arsenal, Picatinny Arsenal or US Army Armament Research and Development Command (ARRADCOM) drawings. Technical data originally prepared by these activities is now under the cognizance of ARDEC.

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6.7 Subject term (key word) listing.

Small caliber weapons
Sniper weapons
Markmanship rifles

6.8 Submission of alternative quality conformance provisions. Unless otherwise specified in the contract, proposed alternative quality conformance provisions will be submitted by the contractor for evaluation by the technical activity responsible for the preparation of this specification.

Custodian
Army-AR

Preparing activity:
Army-AR

(Project 1005-A768)

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STANDARDIZATION DOCUMENT IMPROVEMENT PROPOSAL

INSTRUCTIONS

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

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

I RECOMMEND A CHANGE:	1. DOCUMENT NUMBER	2. DOCUMENT DATE (YYMMDD)
3. DOCUMENT TITLE		

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

5. REASON FOR RECOMMENDATION

6. SUBMITTER

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

8. PREPARING ACTIVITY

a. NAME	b. TELEPHONE (Include Area Code) (1) Commercial (2) AUTOVON
c. ADDRESS (Include Zip Code)	IF YOU DO NOT RECEIVE A REPLY WITHIN 45 DAYS, CONTACT: Defense Quality and Standardization Office 5203 Leesburg Pike, Suite 1403, Falls Church, VA 22041-3466 Telephone (703) 756-2340 AUTOVON 289-2340

DD Form 1426, OCT 89 *Previous editions are obsolete.* 193/280

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