MIL-G-001298C(AR)
17 November 1981
SUPERSEDING
MIL-G-001298B(WC)
3 December 1976

MILITARY SPECIFICATION

GUN, MACHINE, CALIBER .50, BROWNING, M2, HEAVY BARREL

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

1. SCOPE

1.1 This specification covers an automatic, recoil-operated, link-belt fed, air-cooled, caliber .50, heavy barrel machine gun for flexible installation on ground mounts and combat vehicles.

2. APPLICABLE DOCUMENTS

2.1 Government documents.

2.1.1 Specifications and standards. Unless otherwise specified (see 6.2), the following specifications and standards of the issue listed in that issue of the Department of Defense Index of Specifications and Standards (DoDISS) specified in the solicitation, form a part of this specification to the extent specified herein.

SPECIFICATIONS

MILITARY

MIL-I-6868	-	Inspection Process, Magnetic Particle
MIL-W-13855	-	Weapons: Small Arms and Aircraft Armament Subsystems, General Specification for
MIL-P-14232	-	Parts, Equipment and Tools for Army Materiel, Packaging and Packing of
MIL-I-45607	-	Inspection Equipment, Acquisition, Maintenance and Disposition of
MIL-W-63150	-	Weapons and Support Material, Standard Quality Assurance Provisions for

STANDARDS

MILITARY

MIL-STD-105	-	Sampling Procedures and Tables for Inspection by Attributes
MIL-STD-109	-	Quality Assurance Terms and Definitions

2.1.2 Other Government documents, drawings and publications. The following other Government documents form a part of this specification to the extent specified herein:

CODE OF FEDERAL REGULATIONS

TITLE 49 - Transportation, Parts 100-199

(The Code of Federal Regulations is available from the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402. Orders should specify, "49 CFR 100-199 (latest revision)").

DRAWINGS (See 6.10)

US ARMY ARMAMENT RESEARCH AND DEVELOPMENT COMMAND (ARRADCOM)

PRODUCT AND PACKAGING DRAWINGS

7265636	Machine Gun, Cal. .50: M2, Heavy Barrel, Flexible
7265636	Packaging Data Sheet: Machine Gun, Cal. .50, Heavy Barrel, Flexible

INSPECTION EQUIPMENT DRAWINGS

5520627	Copper Compression Cylinder Holding Fixture
6047008	Indicator Gage Assembly
6511053	Testing Fixture
7266955	Diagram, Targeting and Accuracy
7270150	Weighing Gage
8440920	Cylinder, Pressure Gage
8440929	Fixture, Function Firing
12003958	Gage, Headspace
12003959	Gage, Timing

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

2.2 Order of precedence. In the event of a conflict between the text of this specification and the references cited herein, the text of this specification shall take precedence.

3. REQUIREMENTS

3.1 First article. Requirements for submission of the first article shall be as specified in the contract (see 6.1). Unless otherwise specified (see 6.1), the first article shall include the pilot pack (see 5.1).

3.2 Materials, construction and design. The machine gun, components and assemblies shall conform to the materials, construction and design requirements specified herein, on Drawing 7265636 and the applicable part and assembly drawings, and in MIL-W-13855.

3.2.1 Sear engagement. The cocking lever, when operated by hand, shall retract the firing pin extension assembly sufficiently to insure engagement of the hook of the extension to the hook of the sear.

3.2.2 Firing pin protrusion. The firing pin protrusion shall be not less than 0.072 inch and not more than 0.079 inch when measured from the breech face.

3.2.3 Headspace. Each machine gun shall be cpable of being adjusted for proper headspace. With the bolt retracted until the barrel extension and the trunnion block are separated approximately 1/16 inch, the distance between the rear face of the barrel and the face of the bolt shall be not more than 0.206 inch and not less than 0.202 inch.
NOTE: This adjustment is essential for proper weapon function and must be maintained during all firing schedules.

3.2.4 Timing. After having been adjusted for headspace, each machine gun must then be timed. The firing pin shall not release upon actuation of the triggering mechanism when the gap between the barrel extension and the trunnion block exceeds 0.116 inch. However, at some point in the interval where the gap between the barrel extension and the trunnion block is not more than 0.116 inch and not less than 0.020 inch, the firing pin shall release upon actuation of the triggering mechanism.
NOTE: This setting must also be maintained during subsequent firing schedules.

3.3 Performance characteristics.

3.3.1 Firing pin release. The firing pin shall be released by a load not exceeding 38 pounds applied to the sear slide and by a load not exceeding 26 pounds applied to the sear. Testing shall be as specified in 4.5.3.2.

3.3.2 Firing pin indent. When taken on pressure cylinder (Drawing 8440920), the firing pin indent shall be within the range of 0.017 to 0.023 inch and shall not be off center more than one-half the diameter of the indent. Testing shall be as specified in 4.5.3.3.

3.3.3 High pressure resistance. The machine gun shall be capable of withstanding the firing of one round of Government standard .50 caliber, M1 high pressure test cartridge. Parts shall be free of cracks, seams or other injurious defects after proof firing. The barrel assembly, barrel extension assembly, bolt subassembly and receiver assembly, of machine guns satisfactorily meeting this requirement, shall be proof marked as specified on the appropriate drawings. Testing shall be as specified in 4.5.3.4.

3.3.4 Functioning. The machine gun shall function without malfunctions attributable to the weapon, and without evidence of unserviceable parts. Testing shall be as specified in 4.5.3.5.

3.3.5 Belt pull. The machine gun shall be capable of functioning while a 20 pound free hanging weight is attached to the ammunition belt. Testing shall be as specified in 4.5.3.6

3.3.6 Cyclic rate of fire. The machine guns shall maintain an average rate of fire of 450 to 600 shots per minute. Testing shall be as specified in 4.5.3.7.

3.3.7 Targeting and accuracy. With the rear sight set at zero elevation, the windage scale adjusted to zero and the sights aligned at 6 o'clock on the sighting image of Drawing 7266955, the center of impact of a 10 round burst shall be within the 8.0 inch diameter circle shown on the drawing and all shots shall group within or cut the edge of an 8.0 inch diameter circle at a range of 100 feet. Testing shall be as specified in 4.5.3.8.

3.3.8 Endurance. The machine gun shall be capable of firing an endurance schedule of 10,000 rounds of M33 ball cartridges, using M9 links, without substitution of any components and without malfunctions in excess of the limits shown in table I. Testing shall be as specified in 4.5.3.9.

TABLE 1. Malfunctions and Unserviceable Components (See Notes).

Malfunctions (attributable to gun) 2/	Number permitted in the 10,000 round endurance test
Extruded primer	1
Failure to eject	1
Failure to extract (cartridge case from chamber)	1
Failure to extract (cartridge from feed belt)	1
Failure to feed (bullet striking face of barrel)	2
Failure to feed (insufficient recoil)	1
Hangfire (noticeable) (See 4.5.3.12)	0
Misfire caused by light blow (See 4.5.3.12)	2
Pierced primer	1
Uncontrolled fire	0
All other malfunctions:	
If correctable by recharging	3
If not correctable by recharging	1

Unserviceable components	Number permitted in the 10,000 round endurance test 1/
Accelerator	0
Back Plate	0
Barrel extension	0
Barrel support	0
Belt feed pawl	0
Belt feed slide	0
Belt	0
Breech lock cam	0
Cocking lever	0
Cover pin	0
Driving springs, (inner and outer)	0
Ejector	1
Extractor	0
Extractor cam	0
Firing pin	1
Firing pin spring	0
Sear	1
Set back of recoil plate in face of bolt (in excess of .0002 inch)	0
Side, top, or bottom plates (receiver assembly)	0
All other unserviceable components (different)	2

NOTES:

1. No unserviceable components shall be allowed within the first 5,000 rounds.

2. When malfunctions (within the allowances of Table I) are traceable to particular components, it is permissible to replace such components and record them as unserviceable, subject to limitations of Table I. When it is definitely established by the inspector that previously recorded malfunctions are attributable to an unserviceable component, such malfucntions shall not be counted against the machine gun being tested, provided that they occurred not more than 200 rounds prior to replacement of the unserviceable component. However, such malfunctions shall remain recorded and properly identified.

3.3.8.1 Barrel erosion. The barrel assembly shall be capable of firing a 10,000 round endurance schedule without experiencing a muzzle velocity drop of more than 200 feet per second. Testing shall be as specified in 4.5.3.10.

3.4 Interchangeability. Unless otherwise specified on the drawings, all parts shall be interchangeable. (In manual assembly operations, there shall be no objections to preferential assembly of parts provided that all parts are dimensionally acceptable.) Testing shall be as specified in 4.5.3.11.

3.5 Marking. Each machine gun, and each component thereof for which markings are prescribed, shall be clearly marked in accordance with the drawings and MIL-W-13855. Each machine gun shall be identified by a serial number assigned by the procuring activity (see 6.1).

3.6 Workmanship. Workmanship shall be in accordance with MIL-W-13855.

4. QUALITY ASSURANCE PROVISIONS

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

4.1.1 The contractor shall perform, as a minimum, inspections in accordance with the specifications, quality assurance provisions, MIL-W-63150 and such documents as included in the contract. These minimum inspections shall not be construed as relieving the contractor of his responsibilities under terms of the contract to furnish the Government with items complying with and conforming to the requirements of the contract, drawings and specifications.

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 inspection requirements are as follows:

a. First article inspection (see 4.4).

b. Quality conformance inspection (see 4.5).

4.4 First article inspection.

4.4.1 Submission. The first article shall be subjected to quality conformance inspection specified herein and in SQAP'S and such other inspection as necessary to determine compliance with contract requirements (see 6.1). The first article shall be representative of the manufacturing methods and processes to be used for quantity production. The first article or articles shall be selected, as specified in the contract, from articles produced prior to the beginning of quantity production.

4.4.2 Inspections to be performed. First article assemblies, components, and test specimens may be subjected by the Government to any or all of the examinations and tests specified in applicable contract, specifications, and to any or all requirements of the applicable drawings.

4.4.3 Rejection. If any assembly, component, or test specimen falls 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 an assembly, component or test specimen in the sample 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. Until the first article quantity is accepted, the contractor is not authorized to proceed with regular production unless otherwise directed by the Contracting Officer.

4.5 Quality conformance inspection.

4. 5.1 Inspection lot formation. Unless otherwise specified (see 6.1), a lot shall consist of not more than 501 machine guns or one month's production, whichever is smaller. Unless otherwise specified herein, inspection sample sizes shall be in accordance with MIL-STD-105. 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 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, and complies with the provisions for submission of product as specified in MIL-STD-105. 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.

4.5.2 Examination.

4.5.2.1 Machine guns. Visually and manually examine each machine gun to determine conformance with the applicable requirements. Each step in the examination shall include a visual examination for proper cleaning, the presence of the specified protective coating, and to determine general quality, completeness of manufacture, assembly and workmanship (see 3.6). Visually examine all markings to assure that they are correct and legible (see 3.5).

4.5.2.2 Sear engagement. Manually retract the firing pin of each machine gun by moving the cocking lever rearward. The firing pin shall engage the sear (see 3.2.1). Failure to meet the requirements shall be cause for rejection of that machine gun.

4.5.2.3 Firing pin protrusion. With the firing pin in the fired position, using gage Drawing 6047008, measure the firing pin protrusion (see 3.2.2) of each machine gun. Failure to meet the requirements shall be cause for rejection of that machine gun.

4.5.2.4 Headspace. Each machine gun shall meet the headspace requirements of 3.2.3. Failure to meet the requirement shall be cause for rejection of that machine gun.

4.5.2.5 Timing. Each machine gun shall meet the timing requirements of 3.2.4. Failure to meet the requirement shall be cause for rejection of that machine gun.

4.5.3 Testing.

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

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

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

c. Examine machine guns, partially assembled machine guns, 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.

d. 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 subassembly for retest.

4.5.3.2 Firing pin release testing. Ten bolt assemblies taken at random from each lot of machine guns shall be tested for firing pin release (see 3.3.1) using the test method specified in 4.6.1. Failure to meet the requirements shall be cause for rejection of the lot of machine guns.

4.5.3.3 Firing pin indent testing. Ten machine guns from each lot shall be tested for firing pin indent (see 3.3.2) using the test method specified in 4.6.2. Failure to meet the requirements shall be cause for rejection of the lot of machine guns.

4.5.3.4 High pressure resistance testing. Each machine gun shall be tested for high pressure resistance (see 3.3.3) using the test method specified in 4.6.3. Failure to meet the requirements shall be cause for rejection of that machine gun.

4.5.3.5 Functioning testing. Each machine gun shall be tested for functioning (see 3.3.4) using the test method specified in 4.6.4. Failure to meet the requirements shall be cause for rejection of that machine gun.

4.5.3.5.1 When consistent satisfactory production has been proven, the 50 round right side feed test may be eliminated when authorized by the procuring agency (see 6.1).

4.5.3.6 Belt pull testing. Each machine gun shall be tested for belt pull (see 3.3.5) using the test method specified in 4.6.5. Failure to meet the requirements shall be cause for rejection of that machine gun.

4.5.3.7 Cyclic rate of fire testing. Each machine gun shall be tested for cyclic rate of fire (see 3.3.6) using the test method specified in 4.6.6. This test may be performed concurrently with 4.5.3.5. Failure to meet the requirement shall be cause for rejection of that machine gun.

4.5.3.8 Targeting and accuracy testing. Each machine gun shall be tested for targeting and accuracy (see 3.3.7) using the test method specified in 4.6.7. Failure to meet the requirements shall be cause for rejection of that machine gun.

4.5.3.9 Endurance testing. One machine gun from each lot shall be tested for endurance (see 3.3.8), after having been found to be satisfactory in all previous tests, using the test method specified in 4.6.8. Failure to meet the requirements shall be cause for rejection of the lot of machine guns.

4.5.3.9.1 Endurance retest. If the machine gun representing any lot fails to meet the specified requirements in the endurance test, a retest shall be made, unless in the opinion of the Government representative the failure indicates serious defects in the machine guns, in which case retest shall be made only if authorized by the procuring agency. In case a retest is made, the Government representative shall select another machine gun for the retest from the lot under consideration. If a retest is not made or the machine gun selected fails in the retest, the lot shall be rejected subject to conditioning and further test.

4.5.3.10 Barrel erosion testing. Each endurance test barrel shall also be tested concurrently for barrel erosion (see 3.3.8.1) using the test method specified in 4.6.8.2. Failure to meet the requirements shall be cause for rejection of the lot of machine guns.

4.5.3.11 Interchangeability testing.

4.5.3.11.1 In plant.

4.5.3.11.1.1 Machine guns. The contractor shall test a sample of 10 machine guns, selected by the Government representative from each inspection lot, for interchangeability (see 3.4) using the test method specified in 4.6.9.1.1. Machine guns taken for interchangeability testing shall have been found satisfactory in all other examinations and tests. Test frequency may be reduced, on approval of the procuring agency, to not less than one test of 10 machine guns each month when a record of consistently satisfactory results has been established. The 10 machine guns shall be inspected for and shall comply with the requirements for firing pin protrusion, headspace, timing and firing pin release before and after interchange of parts using the inspection methods specified in 4.5.2.3, 4.5.2.4, 4.5.2.5 and 4.5.3.2, respectively. In addition, the machine guns shall be tested for functioning, targeting, and accuracy requirements after interchange of parts using the test methods specified in 4.6.4 and 4.6.7 respectively. Failure of the interchangeability test shall cause retest or rejection of the represented lot. At the discretion of the Government representative, an interchangeability retest may be allowed without reconditioning the lot of machine guns. Failure in the retest shall cause rejection of the represented lot subject to reconditioning and further test as a reconditioned lot. A sample of 20 machine guns from each retest or reconditioned lot shall be tested using the same procedure described above.

4.5.3.11.1.2 Concurrent repair parts. The contractor shall subject at least two parts frcm each inspection lot of concurrent repair parts to the interchangeability test specified in 4.6.9.1.2. Failure of any part to meet the requirements shall be cause for rejection of the represented lot of parts subject to reconditioning and further test as a reconditioned lot. A sample of double the number of parts used in the original test shall be tested from each reconditioned lot using the test method specified in 4.6.9.1.2.

4.5.3.11.2 Interplant. When machine guns are manufactured concurrently by more than one contractor, each contractor shall forward monthly six machine guns for the interplant interchange-ability test specified in 4.6.9.2 (see 6.1). The contractor will be informed of the results of the test which indicates failure of the machine guns to meet prescribed requirements.

4.5.3.12 Hangfires and misfires. If hangfires and misfires occur during any of the tests, the machine gun shall be subjected to the firing pin indent test (see 4.5.3.3); and in the event that the firing pin indent is not within the specified limits, the machine gun shall be rejected.

4.5.3.13 Malfunctions. Malfunctions in any test assignable to improper linking of ammunition, improper feeding of ammunition to the weapon, or defective ammunition, links or testing equipment, shall not count against the machine gun being testing.

4.5.4 Inspection equipment. Unless otherwise specified (see 6.1), responsibility for acquisition, calibration, maintenance and disposition of acceptance inspection and test equipment required by applicable specifications, shall be in accordance with MIL-I-45607.

4.5.5 Inspection of packaging. Unless otherwise specified (see 6.1), inspection to determine compliance with preservation, packing and marking requirements of the applicable packaging documentation, for the level designated in the contract, shall be as specified in MIL-P-14232.

4.6 Test methods.

4.6.1 Firing pin release test. The firing pin release test shall be performed using an approved fixture (see Drawing 6511053 or 7270150). A load shall be applied slowly and uniformly at the following points until the firing pin is released: First, to the sear slide on one side; second, with the sear slide reversed, to the sear slide on the other side; and third, directly to the sear from the top. The load shall be applied five times at each of the three points.

4.6.2 Firing pin indent test. The indent, when taken in Government Standard copper compression cylinders (Drawing 8440920) inserted into a holding fixture (Drawing 5520627), shall be computed by measuring the distance from the original surface (before indentation) of the cylinder to the bottom of the impression.

4.6.3 High pressure resistance test. Machine guns shall be mounted in a firing fixture with safety cover conforming to Drawing 8440929 or approved equivalent and tested by firing one high pressure test cartridge. After proof firing, the high pressure cartridge case shall be visually examined for bulges, splits, rings, and other defects caused by defective barrels; the gun shall be examined for cracks, deformations, or other visible damage; and the barrel assembly, barrel extension assembly, and bolt subassembly shall be magnetic particle inspected in accordance with MIL-I-6858 and the applicable drawings.

4.6.4 Functioning test. The reaching guns shall be tested for functioning as follows: Each machine gun shall be fired 50 rounds right side feed and 50 rounds left side feed using a test fixture (Drawing 8440929). Each 50 round segment shall be fired 25 rounds spasmodic and 25 rounds continuous burst. Parts within the receiver group, cover group, and bolt group shall be disassembled from right side feed and reassembled for left side feed.

4.6.5 Belt pull test. The machine gun shall be tested for belt pull using the applicable pieces of the belt pull test fixture (Drawing 8440929). Each machine gun shall be fired a ten round burst right side feed and a ten round burst left side feed for belt pull test. The ten round metallic linked belts shall be loaded with ten rounds of live and two rounds of dummy ammunition. The live ammunition shall feed into the machine gun first. The turn-buckle part 15 of the fixture shall be adjusted to feed the rounds horizontally or with not over a 50 rise from the pulley to the feedway of the weapon.

4.6.6 Cyclic rate of fire test. Each machine gun shall be fired, using test fixture (Drawing 8440929), 25 rounds continuous fire and the cyclic rate of fire recorded.

4.6.7 Targeting and accuracy test. The machine gun shall be mounted in a firing fixture confirming to Drawing 8440929 or an approved equivalent. With the leaf of the rear sight in the folded-down position and the windage scale adjusted to zero, the sights shall be aligned at 6 o'clock on the sighting image of the targeting and accuracy diagram D7266955 and a 10 round continuous burst fired.

4.6.8 Endurance test. The machine gun shall be mounted in a firing fixture conforming to Drawing 8440929 or an approved equivalent. The test shall be started with left hand feed and the direction of feed shall be changed every 1000 rounds. The firing schedule shall be 50 rounds in interrupted bursts followed by 50 rounds in a continuous burst. The barrel shall be air cooled to ambient temperature after each 100 rounds fired. The ammunition may be linked in 50 round belts or in 100 round belts with a dummy inert round separating each 50 rounds. During the interrupted burst firing, the bolt latch release shall be released at least twice to stop the firing and the trigger shall be released at least three times to stopfiring. The average cyclic rate of fire for 25 rounds shall be measured and recorded during the first 50 round continuous burst of each 1000 rounds. The average muzzle velocity of 10 consecutive rounds shall be determined during the first 50 rounds fired, during, 4900-5100 rounds fired and during 9900-10,000 rounds fired. Ten rounds may be fired for warm-up before the velocity is measured.

4.6.8.1 Maintenance. The machine gun shall be cleaned, oiled and inspected after each 1000 rounds and at the close of each days firing. No component shall be altered or replaced, except those components which are broken or worn to the extent that they are unserviceable shall be replaced.

4.6.8.2 Barrels. Barrels failing to remain within the requirements for barrel erosion (see 3.3.9.1) shall be cause for rejection of the lot.

4.6.8.3 Records. Complete, accurate records shall be kept for each endurance test, showing each malfunction and part replacement including the round number when each occurred.

4.6.9 Interchangeability test.

4.6.9.1 In plant.

4.6.9.1.1 Machine guns. Machine guns shall be tested for interchangeablility by disassembling and them reassembling parts using the parts and prearranged system specified below. Interchange of parts shall be accomplished by dividing the parts of each machine gun into 10 groups of nonmating parts as shown below and distributing the groups into 10 different trays until each tray contains parts for a complete machine gun. Groups of parts from the first machine gun shall be taken in order and placed in trays 1 through 10; groups of parts from the second machine gun shall be taken in order and placed in trays 2 through 10 to 1; groups of parts from the third machine gun 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 associate part. Any commercial part rendered unserviceable by disassembly shall be replaced without penalty to the interchangeability test. The machine guns shall be reassembled using only those parts which are in the same tray.

GROUPS OF NONMATING PARTS

GROUP I

Bar, Trigger - 6257592
Barrel Assy - 7266131
Extension Assy, Firing Pin - 6008976
Extractor Assy - 6008959
Pin, Cocking Lever - 7312078
Spring, Cover Latch - 6008931
Cam, Lock, Breech - 6147583
Bolt, Shoulder - 5013681
Slide, Retracting - 6147893
Spring, Switch - 6008493
Sight Assy, Rear - 12003047
Except Leaf Assy, Rear Sight - 7267936

GROUP II

Bolt Subassembly - 6147463
Rod Assy, Oil Buffer Piston - 6008763
Pin, Locking - 7312970
Spring, Cover Extractor - 6009741
Pawl, Cover Detent - 7313069
Pin Assy, Breech Lock - 6008784
Pin Assy, Trigger Bar - 7313106
Spring, Helical, Comp - 5013693
Carrier Assy, Barrel - 5504080
Nut, Slotted Hexagon - 5013686

GROUP III

Slide, Sear - 5351220
Switch, Bolt - 5504062
Tube, Barrel Buffer - 9340486
Pin Assy, Belt Feed Pawl - 6008962
Spring, Helical Compression - 5013516
Plunger, Adjusting Screw - 5152839
Leaf Assy, Rear Sight - 7267936
Handle Assy, Retracting Slide - 6313800
Spring, Helical Torsion - 5013691 or 5013692
Stop Assy, Adjustable, Trigger Bar - 7265212
Rod, Bolt Latch - 6008919

GROUP IV

Lever, Cocking - 6009718
Sear - 5504067
Stop, Accelerator - 7161301
Spring, Helical Compression - 6009832
Plunger, Belt Feed Lever - 5013515
Release, Bolt Latch - 5504071
Lever, Retracting Slide - 6147085
Stop, Front, Cartridge - 5013539

GROUP V

Lock, Accelerator Stop - 7161300
Spring, Helical Compression - 5009524
Guide Assy, Buffer Spring - 6008782
Shaft Assy, Cover Latch - 7312723
Spring, Helical Compression - 5009351
Pawl Assy, Belt Holding - 7313083
Sleeve, Buffer Tube - 7265562
Rod Assy, Driving Spring - 5564305
Stop, Rear, Cartridge - 5013540
Spring, Helical Compression - 5013525
Trigger - 6008918

GROUP VI

Accelerator, Oil Buffer - 5508141
Slide Assy, Belt Feed - 6261110
Pin, Shoulder, Headless - 5013424
Nut, Slotted, Hexagon - 5152939
Screw, Externally Relieved Body - 7312028
Plunger, Retracting Slide - 6008990
Washer, Thrust - 5013697
Stripper, Link - 5013541
Spring, Helical Compression - 5013527
Plate Assy, Back - 5564307 With
Tube Handle - 5009369 and
Grip Handle - 7265561 and
Screw, Handle Tube - 5009394

GROUP VII

Body Assy, Barrel Buffer - 7266835
Arm, Belt Feed Pawl - 6008914
Washer, Thrust - 5013545
Lock, Back Plate Latch - 11010453
Plate, Buffer - 5152869
Screw, Adjusting - 5152834
Spring, Helical Compression - 5009352
Switch, Extractor - 6147461
Pin, Straight, Headless - 5013523
Stop Assy, Cartridge, Rear RH - 5577409

GROUP VIII

Pin Assy, Accelerator - 6008790
Cover Subassembly - 5504081
Disk, Buffer, Fiber - 5152835
Latch, Back Plate - 6008949
Pin, Locking - 7312517
Spring, Locking, Elevating Mechanism - 5140428
Spring, Helical Compression - 7160628
Plunger, Bolt Latch - 5013524
Spring, Helical Compression - 5009300

GROUP IX

Lever, Belt Feed - 5564278
Lock, Breech - 7161302
Pin, Straight, Headed - 5013581
Pin, Belt Holding Pawl - 7162872
Spring, Back Plate Latch Lock - 6243607
Screw, Machine, Fillister Head - 7265596
Spring, Helical Compression - 7313068
Latch, Bolt - 5504060 with Nut, Plain, Hexagon - 5013623 and Screw, Machine, Hexagon Head - 5013622 or Alternate Latch, Bolt - 5504060
Pin, Firing - 7310080

GROUP X

Nut, Buffer Piston Head - 9340485
Pawl Assy, Belt Feed - 6008961
Extension Assy, Barrel - 5504082
Nut, Slotted, Hexagon - 5013556
Pin, Straight, Headless - 5009275
Spring, Helical Compression - 5009356
Pin, Straight, Headed - 5009271
Screw, Machine, Flat Csk Head - 5153191
Bracket, Retracting Slide - 11010440
Support, Barrel -5504091
Nut, Bolt Latch Rod - 5013526

4.6.9.1.2 Concurrent repair parts. Concurrent repair parts shall be tested for interchangeability by disassembling two machine guns, previously tested in 4.5.3.11.1.1, as necessary, and then reassembling them using the concurrent repair parts. No hand refinements of parts will be allowed, and the machine guns shall operate and function properly. This test may be performed independently of the machine gun interchangeability test specified in 4.5.3.11.1.1 and at more frequent intervals using accepted machine guns taken from current production.

4.6.9.2 Interplant. Machine guns to be subjected to the interplant interchangeability test shall be given preliminary hand functioning to assure proper operation before parts are disassembled. In addition, the machine guns shall be inspected for firing pin protrusion, headspace, timing, firing pin release, functioning and accuracy before and after interchange of parts using the inspection methods specified in 4.5.2.3, 4.5.2.4, 4.5.2.5, 4.5.3.2, 4.6.4, and 4.6.7, respectively. Machine guns shall be interchanged in a manner similar to the detailed plan specified in 4.6.9.1.1 except that parts shall be divided into six groups and when disassembling, every other machine gun used shall be one produced by a different manufacturer. Before machine guns are returned to the contractors, the original parts shall be reassembled to their respective machine guns, and the machine guns shall be hand functioned to assure proper operation.

5. PACKAGING

5.1 Pilot pack. A pilot pack shall consist of a complete machine gun preserved in accordance with Packaging Data Sheet 7265636 for the level of protection specified in the contract (see 6.1), packed Level B and forwarded as specified in 3.1.

5.2 Levels A and B. Preservation, packing and marking shall be in accordance with Packaging Data Sheet 7265636 for the level of protection specified in the contract (see 6.1).

5.3 Repair parts. Repair parts shall be preserved, packed, and marked in accordance with the Packaging Data Sheet or other packaging requirements, as specified in the contract (see 6.1).

6. NOTES

6.1 Ordering data. Procurement documents should specify the following:

a. Title, number and date of this specification.

b. List of drawings, specifications and publications pertinent to the machine gun, showing applicable revision dates.

c. Shipping instructions for first article and pilot pack (see 3.1, 4.4 and 5.1).

d. When the Government will provide barrel assemblies for endurance testing (see 3.3.9).

e. Block of serial numbers for quantity of machine guns on order (see 3.5).

f. Inspection lot size, if other than specified (see 4.5.1).

g. Elimination of 50 round right side feed test, when allowed (see 4.5.3.5.1).

h. Quantity, shipping instructions and test procedures for machine guns required for interplant interchangeability test (see 4.5.3.11.2).

i. Responsibility for acquisition, calibration, maintenance and disposition of inspection and test equipment, if other than specified (see 4.5.4).

j. Packaging inspection, if different (see 4.5.5).

k. Selection of Level A or B packaging (see 5.1 and 5.2).

l. Packaging instructions for repair parts (see 5.3).

Custodian:
Army-AR

Preparing activity:
Army-AR

(Project 1005-A619)

STANDARDIZATION DOCUMENT IMPROVEMENT PROPOSAL

INSTRUCTIONS: This form is provided to solicit beneficial comments which may improve this document and enhance its use. DoD contractors, government activities, manufacturers, vendors, or other prospective users of the document are invited to submit comments to the government. Fold on lines on reverse side, staple in corner, and send to preparing activity. Attach any pertinent data which may be of use in improving this document. If there are additional papers, attach to form and place both in an envelope addressed to preparing activity. A response will be provided to the submitter, when name and address is provided, within 30 days indicating that the 1426 was received and when any appropriate action on it will be completed.
NOTE: This form shall not be used to submit requests for waivers, deviations or clarification of specification 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.

DOCUMENT IDENTIFIER *(Number)* AND TITLE

MIL-G-001298C (AR) Gun, Machine, Caliber .50, Browning, M2, Heavy Barrel

NAME OF ORGANIZATION AND ADDRESS OF SUBMITTER

☐ VENDOR ☐ USER ☐ MANUFACTURER

1. ☐ HAS ANY PART OF THE DOCUMENT CREATED PROBLEMS OR REQUIRED INTERPRETATION IN PROCUREMENT USE? ☐ IS ANY PART OF IT TOO RIGID, RESTRICTIVE, LOOSE OR AMBIGUOUS? PLEASE EXPLAIN BELOW.

A. GIVE PARAGRAPH NUMBER AND WORDING

B. RECOMMENDED WORDING CHANGE

C. REASON FOR RECOMMENDED CHANGE(S)

2. REMARKS

SUBMITTED BY *(Printed or typed name and address — Optional)*

TELEPHONE NO.

DATE

DD FORM 1426 1 OCT 76

EDITION OF 1 JAN 72 WILL BE USED UNTIL EXHAUSTED.

FOLD

DEPARTMENT OF THE ARMY

OFFICIAL BUSINESS
PENALTY FOR PRIVATE USE $300

NO POSTAGE
NECESSARY
IF MAILED
IN THE
UNITED STATES

BUSINESS REPLY CARD

FIRST CLASS PERMIT NO. 12062 WASHINGTON D. C.

POSTAGE WILL BE PAID BY THE DEPARTMENT OF THE ARMY

Commander
US Army Armament R & D Command
ATTN: DRDAR-QAF-S
Dover, NJ 07801

FOLD

INCH-POUND
MIL-G-001298C (AR)
AMENDMENT 2
30 September 1993
SUPERSEDING
AMENDMENT 1
29 January 1990

MILITARY SPECIFICATION

GUN, MACHINE, CALIBER .50, BROWNING, M2, HEAVY BARREL

This amendment forms a part of MIL-G-001298C (AR) dated 17 November 1981, 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.

PAGE 1

1.1: Delete in its entirety and substitute the following:

"1.1 Scope. This specification covers an automatic, recoil-operated, alternate feed, link-belt fed, air-cooled, caliber .50, heavy barrel machine gun."

* 2.1.1, line 2: Delete "(see 6.2)" and substitute "(see 6.1.b)".

* Delete the specification number for Inspection Process, Magnetic Particle: "MIL-I-6868" and substitute "MIL-sTD-1949".

PAGE 2

* 2.1.2, under Product and Packaging Drawings: Add the following:

"12002953 - Machine Gun, Caliber .50: M2 Heavy Barrel, Turret Type (M48 and M48C) Series"

* 2.1.2, under Inspection Equipment Drawings:
Delete "12003958" and substitute "12003958 or 5351211".
Delete "12003959" and substitute "12003959 or 5351213 and 5351314".

PAGE 3

* 3.2, line 4: After ". . . . Drawing 7265636" add "or 12002953".

* 3.2.1, line 3: Delete "...to insure engagement of the hook of the extension to the hook of the sear" and substitute "...to insure engagement of the hook of the extension with the hook of the sear".

* Add new paragraph 3.2.5 as follows:

"3.2.5 Bar code label. A bar code label shall be firmly affixed to the receiver assembly."

PAGE 4

* 3.3.2: Delete in its entirety and substitute the following:

"3.3.2 Firing pin indent. The firing pin indent shall be within the range of 0.017 to 0.040 inches and shall not be off center by more than one-half the diameter of the indent. Testing shall be as specified in 4.5.3.3."

* 3.3.3: Delete in its entirety and substitute the following:

"3.3.3 High pressure resistance. The machine gun shall be capable of withstanding the firing of one high pressure test (proof) round. Bolt subassemblies, barrel extension assemblies, and barrel assemblies may be proof tested, inspected and marked individually in accordance with the applicable product drawings. If components are proof tested individually, and then assembled into a complete machine gun, they shall be reproof tested and inspected with the complete machine gun. After firing, the machine gun shall be free from cracks, seams, or other injurious defects. The barrel assembly, barrel extension assembly and bolt subassembly shall be magnetic particle inspected and marked in accordance with the applicable drawing except those assemblies which receive a second proof round shall be marked with a prefix "2" at the previous marking."

* 3.3.8, Table I: Delete "correctable" and substitute "correctable" (two places).

PAGE 6

* 3.5: Delete the last sentence and substitute the following:

"Each machine gun shall be identified by a serial number which shall appear on both the top plate of the receiver assembly and on the bar code label. The serial number shall be assigned by the procuring activity (see 6.1)."

PAGE 7

* 4.1.4, line 5: Delete "responsibilities" and substitute "responsibilities".

PAGE 10

* 4.5.3.5.1: Delete in its entirety and substitute the following:

"4.5.3.5.1 Riqht hand feed function testing. When 500 consecutive machine guns meet the specification requirement, the number of machine guns to be tested each month of production shall be reduced to two or 5% of the total monthly production rounded up to the next higher whole number, whichever is greater. Reduced testing shall apply to subsequent contracts provided production has been uninterrupted."

4.5.3.6: Delete in its entirety and substitute the following:

"4.5.3.6 Belt pull testing. Each machine gun shall be tested for belt pull (see 3.3.5) using the test method specified in 4.6.5. Machine guns which fail to meet these requirements shall be subject to the provisions of paragraph 4.5.3.1. They may then be mechanically gymnasticated for a period not longer than ten minutes, and then retested as specified in 4.6.5. Failure of the retest to meet the requirements shall be cause for rejection of the machine gun."

* Add new paragraph 4.5.3.6.1 as follows:

"4.5.3.6.1 Right hand feed belt pull testing. When 500 consecutive machine guns meet the specification requirement the number of machine guns to be tested each month of production shall be reduced to two or 5% of the total monthly production rounded up to the next higher whole number, whichever is greater. Reduced testing shall apply to subsequent contracts provided production has been uninterrupted."

* 4.5.3.9, line 4: Delete "falure" and substitute "failure".

PAGE 12

* 4.5.5, line 4: Delete “docoumentation” and substitute “documentation”.

* 4.6.2, line 2: Delete “cylinders” and substitute “cylinders”.

* 4.6.3, last line: Delete “MIL-I-6858" and substitute “MIL-STD-1949”.

PAGE 13

* 4.6.4: Delete “reaching” and substitute “machine”.

* 4.6.4: Add the following to the end of the paragraph:

“Machine guns which fall to fire the 50-round right hand feed test may be retested and accepted if two subsequent consecutive firings are successful.”

* 4.6.5: Add the following to the end of the paragraph:

“Machine guns which fail to fire the initial ten-round burst right hand feed may be retested and accepted if two subsequent consecutive firings are successful.”

* 4.6.7: Delete in its entirety and substitute the following:

“Targeting and accuracy test. Machine Gun Caliber .50: M2 Heavy Barrel, Flexible. The machine gun shall be mounted in a firing fixture conforming to Drawing 8440929 or an approved equivalent. With the leaf of the rear sight in the folded-down position and the windage scale adjusted to zero, the sights shall be aligned at 6 o’clock on the sighting image of the targeting and accuracy diagram D7266955 and a 10-round continuous burst fired.”

4.6.7.1: Add new paragraph 4.6.7.1 as follows:

“Targeting and accuracy test. Machine Gun Caliber .50: M2 Heavy Barrel, Turret Type (M48 and M48 Series). The machine gun shall be mounted in a firing fixture conforming to Drawing 8440929 or an approved equivalent. Boresight the gun to bring the point of aim to the center of the target (reference Drawing 7266955) at a range of 100 feet. A 10-round continuous burst shall be fired and all shots shall group within or cut the edge of an 8.0 inch diameter circle.”

4.6.8: Delete "...During the interrupted burst firing, the bolt latch release shall be released at least twice to stop the firing and the trigger shall be released at least,three times to stop firing..." and substitute "...During the interrupted burst firing, the bolt latch release (if applicable) shall be released at least twice to stop the firing and the trigger shall be released at least three times to stop firing...".

PAGE 14

4.6.8.2, line 2: Delete "(see 3.3.9.1)" and substitute "(see 3.3.8.1)".

4.6.9.1.1, line 1: Delete "Machine guns. Machine guns shall be tested..." and substitute "Machine guns, Caliber .50: M2 Heavy Barrel, Flexible. Machine guns shall be tested...".

PAGE 15

Delete "Groups of Nonmating Parts" and substitute "Groups of Nonmating Parts (Flexible)".

PAGE 16

* In Group V: Delete "Shaft Assembly, Cover Latch - 7312723".

In Group VII: Delete "Washer, Thrust - 5013545".

* In Group VIII: Delete "Cover Subassembly - 5504081".

PAGE 17

* In Group X: Delete "Support, Barrel - 5504091".

* Add new paragraph 4.6.9.1.1.1 as follows:

"4.6.9.1.1.1 Machine Guns, Caliber .50: M2, Heavy Barrel, Turret Type M48 and M48 Series). Machine guns shall be tested for interchangeability by disassembling and then reassembling parts using the parts and prearranged system specified below: Interchange of parts shall be accomplished by dividing the parts of each machine gun into 10 groups of nonmating parts as shown below and distributing the groups into 10 different trays until each tray contains parts for a complete machine gun. Groups of parts from the first machine gun shall be taken in order and placed in trays 1 through 10; groups of parts from the second machine gun shall be taken in order and placed in

trays 2 through 10 to 1; groups of parts from the third machine gun 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 associate part. Any commercial part rendered unserviceable by disassembly shall be replaced without penalty to the interchangeability test. The machine guns shall be reassembled using only those parts which are in the same tray."

* Add Listing of Nonmating Parts for Turret Type interchange as follows:

"GROUPS OF NONMATING PARTS (TURRET TYPE)

GROUP IB

Bar, Trigger - 6257592
Barrel Assy - 7266131
Extension Assy, Firing Pin - 6008976
Extractor Assy - 6008959
Pin, Cocking Lever - 7312078
Spring, Cover Latch - 6008931
Cam, Lock, Breech - 6147583
Cover, Top Plate - 6008939
Cover, Trunnion Block - 5013588
Spring, Switch - 6008493

GROUP IIB

Bolt Subassembly - 6147463
Rod Assy, Oil Buffer Piston - 6008763
Pin, Locking - 7312970
Spring, Cover Extractor - 6009741
Pawl, Cover Detent - 7313069
Pin Assy, Breech Lock - 6008784
Pin Assy, Trigger Bar - 7313106
Spring, Helical, Comp - 5013693
Safety, Trigger - 6147511

GROUP IIIB

Slide, Sear - 5351220
Switch, Bolt - 5504062
Tube, Barrel Buffer - 9340486
Pin Assy, Belt Feed Pawl - 6008962
Spring, Helical Compression - 5013516
Plunger, Adjusting Screw - 5152839
Spacer, Back Plate - 5013583
Screw, Trigger Safety - 5152897
Stop Assy, Adjustable, Trigger Bar - 7265212

GROUP IVB

Lever, Cocking - 6009718
Sear - 5504067
Stop, Accelerator - 7161301
Spring, Helical Compression - 6009832
Plunger, Belt Feed Lever - 5013515
Spring, Trigger Safety - 5152896
Lever, Retracting Slide - 6147085
Stop, Front, Cartridge - 5013539

GROUP VB

Lock , Accelerator Stop - 7161300
Spring, Helical Compression - 5009524
Guide Assy, Buffer Spring - 6008782
Trigger - 6008918
Spring, Helical Compression - 5009351
Pawl Assy, Belt Holding - 7313083
Sleeve, Buffer Tube - 7265562
Rod Assy, Driving Spring - 5564305
Stop, Rear, Cartridge - 5013540
Spring, Helical Compression - 5013525

GROUP VIB

Accelerator, Oil Buffer - 5508141
Slide Assy, Belt Feed - 6261110
(3) Pin, Locking - 7312517
Nut, Slotted, Hexagon - 5152939
Screw, Externally Relieved Body - 7312028
Stud Assembly, Bolt - 7268490
Plate, Back - 6535475
Washer, Thrust - 5013697
Stripper, Link - 5013541

GROUP VIIB

Body Assy, Barrel Buffer - 7266835
Arm, Belt Feed Pawl - 6008914
(2) Pin, Headed - 5152854
Lock, Back Plate Latch - 11010453
Plate, Buffer - 5152869
Screw, Adjusting - 5152834
Spring, Helical Compression - 5009352
Switch, Extractor - 6147461
Stop Assy, Cartridge, Rear RH - 5577409

GROUP VIIIB

Pin Assy, Accelerator - 6008790
Piece Filler - 5152750
Disk, Buffer, Fiber - 5152835
Latch, Back Plate - 6008949
Pin, Locking - 7312517
Spring, Locking, Elevating Mechanism - 5140428
Spring, Helical Compression - 7160628
Plunger, Bolt Latch - 5013524
Spring, Helical Compression - 5009300

GROUP IXB

Lever, Belt Feed - 5564278
Lock, Breech - 7161302
Pin, Straight, Headed - 5013581
Pin, Belt Holding Pawl - 7162872
Spring, Back Plate Latch Lock - 6243607
(3) Screw, Machine, MS35266-68(2)
Spring, Helical Compression - 7313068
Pin, Firing - 7310080

GROUP XB

Nut, Buffer Piston Head - 9340485
Pawl Assy, Belt Feed - 6008961
Extension Assy, Barrel - 5504082
Nut, Slotted, Hexagon - 5013556
Pin, Straight, Headless - 5009275
Spring, Helical Compression - 5009356
Pin, Straight, Headed - 5009271
Screw, Machine, Flat Csk Head - 5153191
Charger, M10 - 7267982

PAGE 18

* 5.3: Delete “...in accordance with the packaging Data Sheet. . .“ and substitute “... in accordance with the applicable Packaging Data Sheet...”.

* 6.1.b: Delete “List of drawings, specifications and publications pertinent to the machine gun, showing applicable revision dates” and substitute “List of drawings, specifications and publications pertinent to the machine gun, showing applicable revision and dates”.

PAGE 19

* 6.1: Add new paragraph as follows:

"m. Bar code marking requirements."

The margins of this amendment are marked with an asterisk to indicate where changes (additions, modifications, corrections deletions) from the previous amendment were made. This was done as a convenience only and the Government assumes no liability whatsoever for any inaccuracies in these notations. Bidders and contractors are cautioned to evaluate the requirements of this document based on the entire content irrespective of the marginal notations and relationship to the last previous amendment.

Custodian:
Army-AR

Preparing activity:
Army-AR

(Project 1005-A773)

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