

INCH-POUND

MIL-DTL-45500/6
18 December 1996

DETAIL SPECIFICATION SHEET

GUN, AUTOMATIC, 20MM: M61A2

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

The complete requirements for procuring the gun described herein shall consist of this specification sheet and the issue of MIL-DTL-45500E.

1. SCOPE

1.1 Scope. This specification sheet covers a type of six-barrel, electrically fired, 20 millimeter (mm) automatic gun: M61A2. The gun utilizes an ammunition feeder and is power driven through its cycle of operation by an external drive.

2. APPLICABLE DOCUMENTS

SPECIFICATIONS

DEPARTMENT OF DEFENSE

MIL-DTL-45500 - Gun, Automatic, 20MM: General Specification For

DRAWINGS

U.S. ARMY ARMAMENT RESEARCH, DEVELOPMENT AND ENGINEERING CENTER

F12913464 - Gun, 20MM Automatic, M61A2

PUBLICATIONS

U.S. ARMY WEAPONS COMMAND

IEL11013148 - Index of Inspection Equipment Lists for M61A1 and M61A2

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3. REQUIREMENTS

3.1 Material, construction and design. Gun and parts shall conform to the material, construction and design requirements specified herein and on Drawing F12913464.

3.1.1 Clearing solenoid. The clearing solenoid shall be fastened securely to the housing and the electrical receptacle connector shall be securely fastened to the connector bracket as specified of the applicable drawing.

3.2 Performance characteristics.

3.2.1 Functioning. Functioning requirements of guns shall be in accordance with Table I, Acceleration Time and Stopping Time are required test parameters and will be maintained by proper test equipment operation (i.e. gun drive controls).

TABLE I. Performance Requirements.

Gun Torque (Max)	Acceleration Time (Max)	Steady State Rate of Fire	Stopping Time (Max)
800 pound-inches at minimum steady state rate of fire.	0.4 seconds (from start of gun rotation minimum steady state rate of fire).	6,000 to 7,200 rounds per	0.4 seconds (from minimum steady state rate of fire to complete stop).

3.2.2 Targeting and accuracy. At a range of 1,000 inches, 80 percent of a 75 round (min.) burst shall be completely within an 8.0 inch diameter circle for accuracy; and the center of the 80 percent group shall be within 4.0 inches elevation or depression and 4.75 inches azimuth right or 2.8 inches azimuth left of the true boresight point for targeting.

3.2.3 Endurance. Guns shall fire 30,000 rounds for endurance. A series is approximately 1000 rounds using five (5) bursts of 200 \pm 10 rounds each. Preventive maintenance and post-test refurbishment, if required by contract, shall be performed in accordance with the periodic parts replacement and maintenance schedule in "Technical Manual, Intermediate Maintenance"(T.O. 11W1-12-4-32).

4. VERIFICATION

4.1 Conformance inspection.

4.1.1 Examination. Guns shall be visually and manually examined in accordance with the following:

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TABLE III. Examination.

Clearing solenoid	Ref. Para. 3.1.1
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4.1.2 Inspection equipment. The measuring and testing equipment shall be as specified on the Index of Inspection Equipment Lists: IEL 11013148 or shall be contractor supplied, government approved.

4.2 Test methods.

4.2.1 Function firing test procedure. The gun shall be function fired at a cyclical rate of 6,000 to 6,400 rounds per minute using an external power supply with control equipment, and calibrated drive in accordance with MIL-DTL-45500. To calculate gun torque at minimum cyclic rate of fire, the steady state rate of fire, and the mean differential pressure across the drive shall be calculated using the last 50 percent of the burst excluding stopping time. The calculated rate of fire shall be 6,000 to 6,400 rounds per minute.

4.2.2 Interchangeability tests. The following groups of nonmating parts shall be utilized in the interchangeability test:

GROUPS OF NON-MATING PARTS

<u>GROUP I</u>	
Barrel	12599987
Block, locking	11691480
Gear, rotor	7268664
Housing Assembly, rear	12599990
Insulator, Vertical	11691415
Pin, firing	11691418
Plug	11691414
Track, rotor center	7268703
Track, rotor front	7268711
Track, rotor removable	7268552

<u>GROUP II</u>	
Bar, guide	11010130
Cam, unlocking, front	11698265
Clamp, mid-barrel, assembly	12913471
Insulator, horizontal	11691420
Pin, cam	11691417
Pin, cover lock	11010132
Plate, end	11698286
Recoil Mechanism	12913475
Shaft assembly, bolt	11691421

Spacer, removable track	7268715
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Spring, firing pin	11691419
Spring, helical, torsion	7791606

GROUP III

Body, breech bolt	11691423
Cam, lock	11691677
Cam, unlocking, rear	11698264
Clamp assembly, muzzle	11010336
Clamp, coupling	12011779
Contact assembly, firing	11010186
Cover, access, clearing	8226785-10
Pin assembly, indexing	7790768
Rotor assembly	12913472
Sector, clearing cam assembly	11010219

5. PACKAGING

5.1 Packaging. For acquisition purposes, the packaging requirements shall be as specified in the contract or purchase order (see 6.2). When actual packaging of materiel is to be performed by DoD personnel, these personnel need to contact the responsible packaging activity to ascertain requisite packaging requirements. Packaging requirements are maintained by the Inventory Control Point's packaging activity within the Military Department or Defense Agency, or within the Military Department's System Command. Packaging data retrieval is available from the managing Military Department's or Defense Agency's automated packaging files, CD-ROM products, or by contacting the responsible packaging activity.

6. NOTES

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

6.1 Intended use. The 20mm automatic gun is intended for use on fixed and rotary wing aircraft and for use on ground to air anti-aircraft weapon systems.

6.2 Packaging data sheet. Packaging Data Sheet P12913464 applies.

Custodians:
 Army - AR
 Navy - NW
 Air Force - 84

Preparing activity:
 Army - AR
 (Project: 1005-0847)

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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 MIL-DTL-45500/6	2. DOCUMENT DATE (YYMMDD) 18 December 1996
3. DOCUMENT TITLE Gun, Automatic, 20MM: M61A2.		
4. NATURE OF CHANGE (<i>Identify paragraph number and include proposed rewrite, if possible. Attach extra sheets as needed.</i>)		
5. REASON FOR RECOMMENDATION		
6. SUBMITTER		
a. NAME (<i>Last, First, Middle Initial</i>)	b. ORGANIZATION	
c. ADDRESS (<i>Include Zip Code</i>)	d. TELEPHONE (<i>Include Area Code</i>) (1) Commercial (2) AUTOVON (<i>if applicable</i>)	7. DATE SUBMITTED (YYMMDD)
8. PREPARING ACTIVITY		
a. NAME U. S. Army ARDEC	b. TELEPHONE (<i>Include Area Code</i>) (1) Commercial: (201) 724-6671 DSN 880-6671	
c. ADDRESS (<i>Include Zip Code</i>) ATTN: AMSTA-AR-EDE-S, B-12 Picatinny Arsenal, NJ 07806-5000	<p>IF YOU DO NOT RECEIVE A REPLY WITHIN 45 DAYS, CONTACT:</p> <p>Defense Quality and Standardization Office 5203 Leesburg Pike, Suite 1403, Falls Church, VA 22041-3466 Telephone (703) 756-2340 DSN 289-2340</p>	