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PRELIMINARY OPERATOR'S AND ORGANIZATIONAL MAINTENANCE MANUAL

5.56MM MEDIUM MACHINEGUN, BELT FED: STONER 63

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FOR

U.S. ARMY WEAPONS COMMAND
Rock Island, Illinois

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5.56MM MEDIUM MACHINEGUN, BELT-FED: STONER 63

ERRATA

Make the following pen-and-ink changes to the pages indicated:

Page 3, paragraph 4d: Strike out grenade, blank from Type of Ammunition, so that only ball, tracer remains.

Page 3, paragraph 4e: Change Maximum Effective Range from 500 yds (460 meters) to 1203 yds (1100 meters).

Page 9, paragraph 17: Change line 3, last word, from course to cause.

Page 14, Table 2, item 2: Change line 3, from tube to cylinder.

Page 19, paragraph 32 b (2): Change line 1, from trunnion rest lock to trunnion nest lock.

Page 26, paragraph 36: Change paragraph no. from 36 to 34.

Page 27, paragraph 37: Change paragraph no. from 37 to 35.

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INTRODUCTION

Section I. GENERAL

1. SCOPE

- \underline{a} . This manual contains instructions for operator and organizational maintenance of the Stoner medium machinegun.
- <u>b</u>. Appendix I contains a list of current references and publications applicable to this materiel.
- c. Appendix II contains a list of basic issue items, repair parts, and tools and equipment which are required for operational maintenance of the weapon.
- d. Appendix III contains a list of repair parts, special tools and equipment which are required for performing organizational maintenance of the weapon.

Section II. DESCRIPTION AND DATA

2. DESCRIPTION

- <u>a.</u> The Stoner medium machinegun, figure 1, is a belt-fed, air-cooled automatic weapon. The weapon is fired automatically by moving the selector lever to the "A" (automatic) position. The ammunition is fed into the weapon by means of a disintegrating metallic link belt. The weapon fires from the open-bolt position and has a quick change barrel and fixed head space. The operational energy is provided by the gas from the fired round.
- <u>b</u>. The rear sight is mounted on the rear of the feed cover by means of a dovetailed base. The sights are adjustable in 1/4-mil increments in windage and elevation and are graduated on a scale from 200 to 1100 meters.

3. NAME AND SERIAL NUMBER

The name and serial number of the weapon are stamped on the bottom of the receiver in front of the trigger housing (fig. 10).

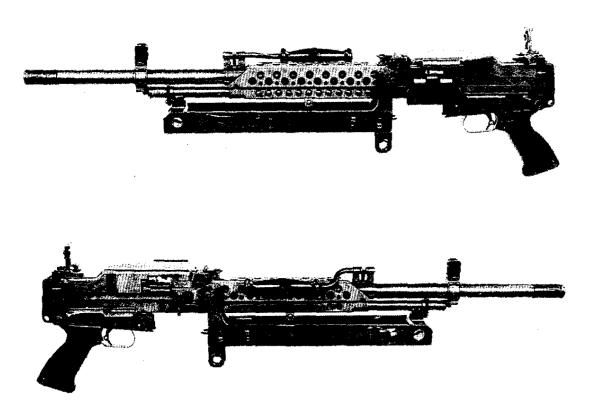


FIGURE 1. STONER MEDIUM MACHINEGUN - LEFT AND RIGHT VIEW

4. TABULATED DATA

a. Weight (in pounds).

Medium Machinegun10.62 lbsSubmount1.875 lbs

b. Lengths (in inches)

Machinegun with Flash Suppressor w/o Buttstock 30.12 in.

Machinegun with Flash Suppressor w/Buttstock 40.25 in.

Barrel (bolt face to muzzle) 20.00 in.

Barrel with Extension and 21.67 in.

Flash Suppressor

c. Mechanical Features

Rifling Right hand twist (6 grooves),

one turn in 12 in.

Bore (max) .220 in.

Groove (max) .2245 in.

Sight Radius 22.25 in. (from rear of rear

sight aperture to midpoint of

front sight)

Trigger Pull

Maximum9 lbsMinimum6 lbsMethod of OperationGas

Type of Lock Mechanism Rotating bolt

Method of Feeding Belt feed, disintegrating

metallic link

Cooling

d. Ammunition.

Caliber 5.56mm (.223 caliber)

Type Ball, tracer, grenade, blank

e. Firing Characteristics.

Muzzle Velocity $3250 \text{ fps} \pm 40 \text{ fps}$

Muzzle Energy 1300 ft lbs (approx)

Chamber Pressure $52,000 \pm 2000 \text{ psi}$

Cyclic Rate of Fire 800 - 900 rds per min

Maximum Rate of Fire 150 - 200 rds per min

Maximum Sustained Rate of Fire 75 - 125 rds per min

Maximum Effective Rate of Fire 150 - 200 rds per min

Maximum Range 2895 yds (2653 meters)

Maximum Effective Range 500 yds (460 meters)

OPERATING INSTRUCTIONS

Section I. SERVICE UPON RECEIPT OF MATERIEL

5. GENERAL

- <u>a.</u> When a weapon is received, it is the responsibility of the officer in charge to determine whether the material has been properly prepared for service by the supplying organization and to be sure it is in condition to perform its function.
- b. All repair parts, tools, and equipment will be checked with the listing in Appendix II and III.
- <u>c</u>. A record will be made of all missing parts, tools, and equipment and of any malfunctions Deficiencies will be corrected as quickly as possible.

6. SERVICES

When preparing weapons for use that are packed with volatile-corrosion inhibitor (VCI), the following procedures shall be followed:

- <u>a. Unpacking.</u> Open container and remove weapon and equipment. Remove VCI wrapping from all surfaces. Clean per paragraph (b) below and assemble.
- b. Cleaning. Wipe off excess oil with a clean, dry cloth. Run a clean, dry patch through the bore of the weapon before firing.
 - c. Lubrication. Lubricate as indicated in paragraphs 24 through 26.
 - d. Inspection. Perform inspection as indicated in paragraph 33.
 - e. Submounts. For service pertaining to the submount refer to paragraph 33(5)(9).

Section II. CONTROLS

7. GENERAL

This section describes, locates, and illustrates the various controls provided for the operation and organizational maintenance of the weapon.

8. WEAPON CONTROLS

- <u>a. Barrel Latch.</u> The barrel latch (fig. 2) is located on the top of the receiver, forward of the feed cover. It consists of three parts, latch, lock pin, and spring assembly. Attached to the rear of the latch is a locking pin which locks and holds the barrel into position.
- b. Cocking Handle. The cocking handle (fig. 2) is located on the right side of the receiver. This control allows for manual cocking of the weapon when required.
- c. Selector Lever. (Safety.) The selector lever (fig. 7) is located directly below the rear sight. It is movable to three positions "A" (Automatic), "R" (Repetitive), and "S" (Safe).
- d. <u>Trigger</u>. The trigger (fig. 2) is located below the receiver under the feedway. Its function is to control the firing of the weapon with the selector lever in the "A" (Automatic) position.
- e. <u>Feed Cover Latch.</u> The feed cover latch (fig. 2) is located on the right rear end of the feed cover. The function of the latch is to secure the cover in the closed position. Pushing the latch forward unlatches the feed cover from the receiver.
 - f. Rear Sight. The rear sight (fig. 3) has two controls and a battle sight.
- (1) <u>Elevation knob</u>. The elevation knob is located on the right side of the leaf sight (fig. 3). The function of the knob is to provide vertical adjustment of the sight slide.
- (2) Windage knob. The windage knob is located on the left side of the sight base. The function of the knob is to provide accurate lateral adjustment.

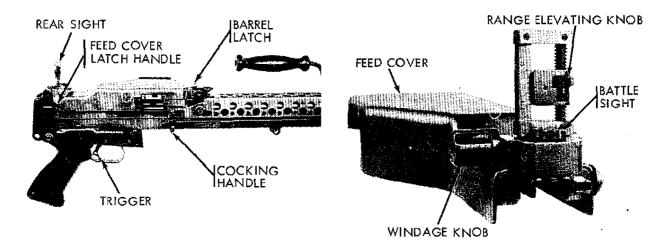


FIGURE 2. BARREL LATCH, FEED COVER LATCH, COCKING HANDLE, AND TRIGGER

FIGURE 3. REAR SIGHT - RAISED POSITION

- (3) <u>Battle sight</u>. The battle sight is located on the base of the sight and is used when the leaf rear sight is in the down position and corresponds to the operative sight set at a range of 200 meters.
- g. Front Sight. The elevation adjustment for zeroing the weapon is in the front sight base (fig. 4), and adjustments are made by using the tip of a cartridge. To raise or lower the front sight post, depress the detent at the base of the front sight post and turn the post in the desired direction. To move the point of impact up, turn the sight post clockwise, in the direction of the arrow and the word "UP" stamped on the base.

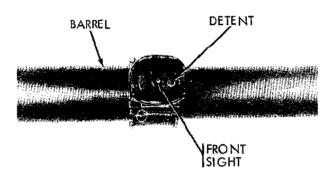


FIGURE 4. FRONT SIGHT

Section III. OPERATION UNDER USUAL CONDITIONS

9. GENERAL

This section contains instructions for the operation of the weapon under conditions of moderate temperatures and humidity.

10. PREPARATION FOR FIRING

- a. Check all ammunition to be sure proper type and grade are being used.
- b. Check weapon to see if it has been thoroughly cleaned and lubricated. Inspect for malfunction or other defects.

11. SERVICE BEFORE FIRING

Perform the before-firing operations as described in Table 2.

12. LOADING THE WEAPON

The rounds should be securely assembled and positioned in their push-through type links. Set the selector on "S" (Safe), pull the cocking handle to the rear, return the cocking handle to its locked position. Unlatch and raise the feed cover. The feed tray should remain on the receiver rails. A suitable container is furnished to hold the linked ammunition. Place the link belt on the feed tray (fig. 5) with the first round to be fired in the feed tray slot. The feed tray belt holding pawl will then engage the second round. The ammunition belt must be positioned with the open side of the links facing down to permit stripping of the cartridge from the link. Close cover, making sure that it is latched securely.

13. ZEROING

The weapon will be zeroed in accordance with instructions contained in FM 23-67.

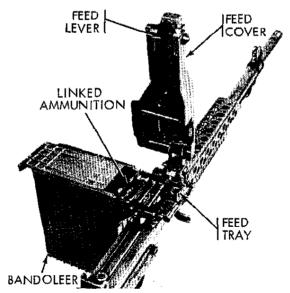


FIGURE 5. LINKED AMMUNITION INSTALLED ON FEED TRAY

14. FIRING WEAPON

WARNING: Make sure the selector lever is in the "S" (Safe) position when the weapon is not being fired.

WARNING: The machinegun also fires automatically when the selector lever is in the "R" (Repetitive) position.

With the machinegun loaded and aimed, move the selector lever to the "A" (automatic) position and pull the trigger. The machinegun will continue to fire until the linked ammunition is exhausted or the trigger is released. When the ammunition is exhausted, the last link of the belt will remain in the feed tray, and must be removed by hand when the cover is opened to reload.

15. MISFIRE, HANGFIRE, AND COOKOFF

- a. Misfire. A misfire is a complete failure to fire. A misfire in itself is not dangerous but, since it cannot be immediately distinguished from a delay in the functioning of the firing mechanism or from a hangfire (b below), it should be considered as a possible delayed firing until such possibility has been eliminated. Such delay in the functioning of the firing mechanism, for example, could result from the presence of foreign matter such as grit, sand, frost, ice, or improper or excessive oil or grease which might create initially a partial mechanical restraint which, after some indeterminate delay, is overcome and the firing pin is then driven into the primer in the normal manner. In this connection, no round should be left in a hot weapon any longer than the circumstances require because of the possibility of a cookoff (c below). Refer to paragraph 16 for removal procedures.
- b. Hangfire. A hangfire is a delay in the functioning of a propelling charge at the time of firing. The amount of delay is unpredictable but, in most cases, will fall within the range of a split second to several seconds. Thus, a hangfire cannot be distinguished immediately from a misfire and therein lies the principal danger of assuming a failure of the weapon to fire immediately upon actuation of the firing mechanism is a misfire, whereas, in fact, it may prove to be a hangfire.

WARNING: During the prescribed time intervals, the weapon will be kept trained on the target. All personnel will stand clear of the muzzle. Refer to paragraph 16 for removal procedures.

c. Cookoff. A cookoff is a functioning of any or all of the explosive components of a round chambered in a very hot weapon due to the heat of the weapon. If the primer or propelling charger should cookoff, the projectile may be propelled from the weapon with normal velocity even though no attempt was made to fire the primer by actuating the firing mechanism. In such a case, although there may be uncertainty as to whether or when the round will fire, the precautions to be observed are the same as those prescribed for a hangfire (b above). To prevent

a cookoff, a round of ammunition which has been loaded into a very hot weapon should be fired or removed after round is in weapon 5 seconds. Refer to the following paragraphs for removal procedures.

16. PROCEDURES FOR REMOVING A ROUND IN CASE OF FAILURE TO FIRE

- a. General. After a failure to fire, due to the possibility of a hangfire or cookoff, the following general precautions, as applicable, will be observed until the round has been removed from the weapon and the cause of failure determined.
 - (1) Keep the weapon trained on the target. All personnel will stand clear of the muzzle.
- (2) Before retracting the bolt, either to remove the round or recock as the case may be, personnel not required for the operation will be cleared from the vicinity.
- (3) The round, after removal from the weapon, will be kept separate from other rounds until it has been determined whether the round or the firing mechanism was at fault. If it is determined that the round is at fault, it will continue to be kept separated from other rounds until disposed of. On the other hand, if examination reveals that the firing mechanism was at fault, the round may be reloaded and fired after correction of the cause for failure to fire.
- b. Time Interval. The definite time intervals for waiting after failure of weapon to fire are prescribed as follows: Always keep the round locked in the chamber for 5 seconds from the time a misfire occurs, to insure against an explosion outside of the gun in the event a hangfire develops. If the barrel is hot and a misfire stops automatic operation of the gun, wait 5 seconds with the round locked in the chamber to insure against hangfire dangers, then extract immediately to prevent a cookoff. If the round cannot be extracted within 10 seconds, it must remain locked in the chamber for at least 5 minutes due to the possibility of a cookoff.

WARNING: Do not retract the bolt when a hangfire or cookoff is suspected. A hangfire will normally occur within 5 seconds from the time the primer is struck and a cookoff after 10 seconds of contact with the chamber in a hot barrel. One hundred-fifty rounds fired in a 2-minute period will make a barrel hot enough to produce a cookoff.

17. DOUBLE FEED

A double feed is a malfunction which occurs when the empty case fails to eject and another round is picked up by the bolt. Neither can feed or chamber properly and both become jammed and deformed. Both rounds can be ejected manually using the cocking handle. The course normally is a short recoil which indicates a dirty gas port or faulty ammunition.

18. SERVICE DURING FIRING

No during-firing service operations are required for this weapon.

19. UNLOADING THE WEAPON

To unload a cocked, loaded machinegun, move the selector lever to the "S" (Safe) position. Raise the feed cover, remove the belt and remaining link in the feed tray. Check the receiver and chamber to make sure no rounds remain.

20. SERVICE AFTER FIRING

Perform the after firing operations. Refer to table 2.

ORGANIZATIONAL MAINTENANCE INSTRUCTIONS

Section I. REPAIR PARTS, TOOLS, AND EQUIPMENT

21. GENERAL

Repair parts, tools, and equipment are issued to the using organization for operating and maintaining the material. Tools and equipment should not be used for purposes other than prescribed and, when not in use, should be properly stowed.

22. REPAIR PARTS

Repair parts are supplied to the using organization for replacement of those parts most likely to become worn, broken, or otherwise unserviceable, when replacement of these parts is authorized to the using organization. Repair parts supplied to the using organization are listed in Appendix II, which is the authority for requisitioning replacements. Repair parts supplied for organizational maintenance are listed in Appendix III.

23. SPECIAL TOOLS AND EQUIPMENT

Special tools are listed in Appendix III.

Section II. LUBRICATION

24. LUBRICATION INSTRUCTIONS

The lubrication instructions (Table 1) prescribes cleaning and lubrication procedures as to locations, intervals and proper materials.

Table 1. LUBRICATION INSTRUCTIONS

Item	Procedure		
MEDIUM MACHINEGUN	Immediately after firing, the barrel bore and other surfaces exposed to powder residue or gases will be thoroughly cleaned with brushes saturated with CR. Other surfaces will be cleaned with SD. After cleaning, all surfaces and components will be thoroughly dried with clean cloths or swabs (patches).		
	CR -	MATERIALS TO BE USED CLEANING COMPOUND, SOLVENT, Rifle	
	SD -	DRY-CLEANING SOLVENT or TPM	
	PL Special -	THINNER, PAINT, MINERAL SPIRITS LUBRICATING OIL, GENERAL PURPOSE, above 0°F.	
	LAW -	LUBRICATING OIL, WEAPONS, below 0°F.	

25. GENERAL LUBRICATION INSTRUCTIONS

- a. <u>Usual Conditions</u>. Lubrication intervals specified in Table 1 are for normal operation and where moderate temperature and humidity prevail.
- b. Reports and Records. Report unsatisfactory performance of the weapon effect of prescribed lubricants and preserving materials.

26. SPECIFIC LUBRICATION INSTRUCTIONS

- <u>a. General.</u> Lubrication will be performed more frequently than specified in Table 1 to compensate for abnormal operation and extreme conditions, such as high or low temperatures, prolonged periods of highrate operation, or continued exposure to moisture, any one of which may quickly destroy the protective qualities of the lubricant.
- b. Changing Grade of Lubricants. Lubricants are prescribed in accordance with temperature ranges: above 0°F., and below 0°F. The time to change the grade of lubricants is determined by maintaining a close check of the operation of the weapon during the approach to change-over periods in accordance with weather forecast data. Ordinarily, it will be necessary to change grade of lubricants only when air temperature is consistently above or below 0°F.
- c. Extreme Cold Weather. Apply a light coat of weapons lubricating oil (LAW) to all operating mechanism surfaces. The weapon should be exercised more frequently during periods of low temperature to insure proper functioning.
- <u>d. Extreme Hot Weather.</u> Special lubricants will ordinarily not be required at extremely high temperatures, as lubricants prescribed for temperatures above 0°F. provide adequate protection. However, more frequent servicing than specified in Tables 2 and 3 is necessary because the heat tends to dissipate the lubricants.
- e. <u>Humid and Salt-Air Conditions</u>. High humidity, moisture, or salt air contaminate lubricants, necessitating more frequent service than specified in Tables 2 and 3.
- <u>f. Before Immersion.</u> Lubricate materiel before amphibious operation as prescribed in Table 1.
- g. After Immersion. After immersion, perform the maintenance described in paragraph which covers maintenance operations after immersion and includes special lubrication instructions.
- h. Sandy or Dusty Conditions. If firing or prolonged travel has occurred under dusty or sandy conditions, clean and inspect all lubricated surfaces for fouled lubricants. Lubricate as necessary.

Section III. PREVENTIVE-MAINTENANCE SERVICES

27. SPECIFIC PREVENTIVE-MAINTENANCE PROCEDURES FOR THE OPERATOR

Table 2 gives the specific procedures to be performed on the weapon by the operator for each daily service.

Table 2. DAILY PREVENTIVE-MAINTENANCE SERVICES-OPERATOR'S

Interval	& Seguer	ce No.						
				OPERATOR-DAILY SCHEDULE				
Before Firing	During Firing	After Firing	Item to be Inspected	Procedures	Paragraph References			
1	;		Bore	Clean all surfaces of the bore and wipe oil from bore and chamber.	33 <u>a</u> (5)			
2		l	Bolt	Retract bolt to assure free move- ment between bolt carrier and gas tube.	33 <u>a</u> (5)			
3			Action parts	Hand function to assure proper operation.	35 <u>h</u>			
		4	Entire weapon	Examine bore for evidence of powder fouling or corrosion. Clean bore after firing, then oil as prescribed.	33 <u>a</u> (5)			
:		5	Entire weapon	Wipe outside finished surfaces of weapon, clean, and oil sparingly.	33 <u>a</u> (5)			
		6	Submount	Check for positive retention and functioning of moving parts. Wipe with oil sparingly.	35 <u>h</u>			

28. PREVENTIVE MAINTENANCE BY ORGANIZATIONAL MAINTENANCE PERSONNEL

Refer to Table 3.

Table 3. WEEKLY PREVENTIVE-MAINTENANCE SERVICES ORGANIZATIONAL MAINTENANCE PERSONNEL

Sequence No.	Item	Procedure
1	Barrel assembly	Check for unusual wear and damage to bore.
2	Barrel assembly	Check for evidence of metal fouling, corrosion, and use of unauthorized cleaning material and methods.
3	Action parts	Check for smoothness of operation. Visually examine moving parts for unusual wear.
4	Action parts	Check for corrosion and damage.
5	Lubrication	See that all items have been lubricated as prescribed in paragraph 24.
6	Equipment	See that tools and equipment are service- able, cleaned, and properly stowed.

Section IV. TROUBLESHOOTING

29. SCOPE

This section contains troubleshooting information and tests for locating and correcting some of the troubles which may develop in the weapon. Troubleshooting is the systematic study of trouble signs, testing to determine the defective component, and applying corrective action. Each malfunction is followed by probable causes and suggested procedures to be followed.

30. TROUBLESHOOTING GUIDE

Table 4 is intended to be used only as a guide in troubleshooting. This table does not cover all possible malfunctions that may occur; only the more common malfunctions are listed. The tests and corrective actions are governed by the scope of the operator or organizational level of maintenance.

TABLE 4. TROUBLESHOOTING GUIDE

		I
Malfunction	Probable causes	Corrective action
Failure to feed.	1. Dirty or carboned gas cylinder.	1. Clean gas cylinder.
	2. Lubrication inadequate.	2. Apply lubricant as required.
	 Obstruction by foreign substances or material in receiver. 	3. Remove item blocking movements, clean and lubricate as required.
	 Defective link or ammunition. 	4. Insert new ammunition or link.
	Ammunition belt in- stalled wrong.	5. Install correctly.
1	6. Unlatched feed cover.	6. Latch.
	Damaged or weak driving spring assembly.	7. Refer to higher echelon (direct support) for corrective action.
	8. Defective feed pawl or spring.	8. Refer to higher echelon (direct support) for corrective action.
	9. Defective cover latch.	9. Refer to higher echelon (direct support) for corrective action.

TABLE 4. TROUBLESHOOTING GUIDE - Continued

Malfunction	Probable causes	Corrective action
Failure to cycle with	1. Frozen ejector.	1. Disassemble and clean.
selector lever set at automatic.	2. Insufficient gas.	2. Clean gas cylinder.
adomata.	3. Faulty selector lever.	3. Refer to higher echelon (direct support) for corrective action.
Failure to fire.	1. Faulty ammunition.	 Remove and replace ammunition.
	2. Dirty chamber.	2. Clear and clean.
	3. Broken or damaged firing pins.	 Refer to higher echelon (direct support) for corrective action.
·	4. Damaged or weak driving spring assembly.	4. Refer to higher echelon (direct support) for corrective action.
Failure to extract.	1. Short recoil.	1. Clean gas cylinder.
	2. Broken extractor or spring.	Refer to higher echelon (direct support) for correct action.
Failure to chamber.	1. Ruptured cartridge case.	1. Remove.
	2. Damaged round.	2. Recharge weapon.
Failure to eject.	1. Short recoil.	1. Clean gas cylinder.
	2. Frozen or damaged ejector.	 Refer to higher echelon (direct support) for corrective action.
Failure to cock.	1. Short recoil.	1. Clean gas cylinder.
	2. Obstruction in receiver.	2. Clean as required.
	3. Broken sear.	3. Refer to higher echelon (direct support) for corrective action.
	4. Deformed sear notch.	4. Refer to higher echelon (direct support) for corrective action.
Uncontrolled fire.	1. Broken or worn sear.	 Refer to higher echelon (direct support) for corrective action.
	2. Worn sear notch.	 Refer to higher echelon (direct support) for corrective action.

MAINTENANCE OF MACHINEGUN

31. GENERAL

- <u>a.</u> Maintenance includes all measures taken to keep the weapon in top operating condition. This includes normal cleaning, inspection for defective parts, repair, and lubrication. The individual is authorized to disassemble his weapon to the extent called field "stripping". The amount of disassembly allowed is adequate for normal maintenance. The frequency of disassembly and assembly should be kept to a minimum, consistent with maintenance and instructional requirements.
- b. The weapon has been designed so that it can be taken apart and put together easily. No force is needed if it is disassembled and assembled correctly. As the weapon is disassembled, the parts should be laid out from the left to right. This makes assembly easier because the parts are assembled in the reverse order of disassembly. Disassembly may be accomplished in the field using only a cartridge.

32. DISASSEMBLY

- a. <u>Inspection for Safe Condition</u>. The following procedures are to be followed prior to disassembly of the weapon.
 - (1) Move the selector lever to the "S" (Safe) position, (fig. 7).
- (2) Pull the cocking handle on the right side of the receiver to the rear until the action is locked open.
 - (3) Return the cocking handle to the forward, locked position.
 - (4) Push forward on the cover latch handle (fig. 2) and raise the cover.
- (5) Check the receiver and chamber to be sure that the weapon is cleared of all ammunition and is safe to disassemble.
 - (6) Move the selector lever to the "A" (Automatic) position.
- (7) Pull the cocking handle (fig. 2) to the rear, still holding the cocking handle, pull the trigger, then ease the bolt forward closing the action.

b. Submount Assembly.

(1) Description. The submount assembly (fig. 6) is required when mounting the Stoner machinegun on the M2 mount. The elevating and traversing mechanism and the pintle are attached to the submount assembly.

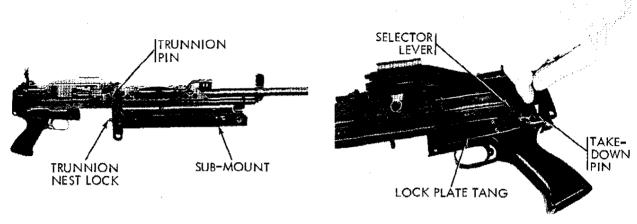


FIGURE 6. SUBMOUNT ASSEMBLY - INSTALLED VIEW

FIGURE 7. DISENGAGING THE TAKE-DOWN PIN

- (2) To remove the weapon from the submount, depress the trunnion rest lock (fig. 6) and push forward and upward on the weapon to disengage the weapon from the submount lugs.
 - c. Removing the Driving Spring, Carrier, Piston and Bolt Assemblies.
- (1) With the bolt closed and selector lever on "S" (Safe) disengage the take-down pin (fig. 7).
- (2) Holding the machinegun with the left hand under the receiver, muzzle pointing down, pull out the take-down pin with the right hand until the trigger housing group is allowed to pivot downward (fig. 8). The take-down pin cannot be removed from the trigger housing group.
- (3) Still holding the open weapon in the left hand, grasp the driving spring (fig. 8) and remove.
- (4) Place the right hand over the back of the receiver and rotate the muzzle up slowly. The carrier, piston and bolt assembly will slide out of the receiver (fig. 9).

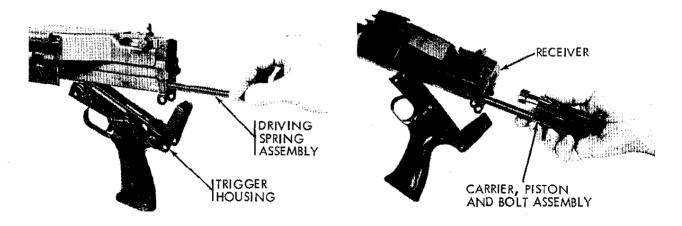
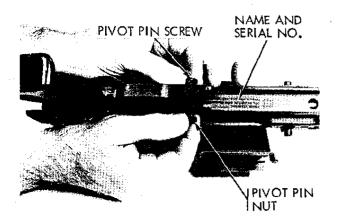


FIGURE 8. REMOVING THE DRIVING SPRING ASSEMBLY

FIGURE 9. REMOVING CARRIER, PISTON AND BOLT ASSEMBLY

- d. Removal of the Trigger Housing Group from the Receiver Group.
 - (1) Unscrew the pivot pin screw from the pivot pin nut, and remove (fig. 10).
 - (2) Remove the trigger housing group from the receiver group.
- e. Removal of the Feed Cover, Feed Tray, Barrel, and Cocking Handle from the Receiver Group.
- (1) Remove the feed cover assembly retaining pin (fig. 11) and push forward on the cover latch handle (fig. 2). Raise the cover and remove the feed cover and feed tray assemblies (fig. 12).
- (2) Depress the barrel latch (fig. 13) and remove the barrel assembly by pushing forward on the carrying handle.



JEATCH HANDLE RETAINING PIN

FIGURE 10. REMOVING PIVOT PIN SCREW
AND PIVOT PIN NUT

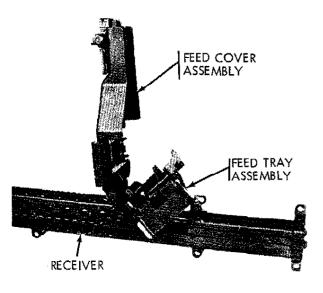


FIGURE 11. REMOVING FEED COVER
ASSEMBLY PIN

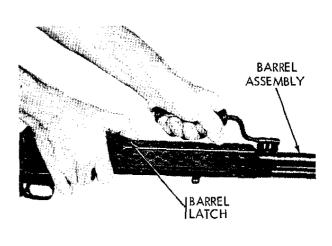


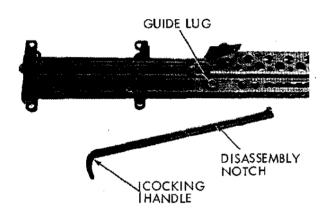
FIGURE 12. REMOVING FEED COVER AND FEED TRAY

FIGURE 13. REMOVING BARREL ASSEMBLY

- (3) Pull back on the cocking handle until the guide lug on the receiver is aligned with the disassembly notch on the cocking handle (fig. 14). Rotate the cocking handle downward 90° (fig. 15) and remove.
- f. Removal of the Firing Pin, Cam Pin, and Bolt Assembly from the Carrier Piston and Bolt Assembly.
- (1) Push down on the base of the firing pin until it is flush with the back of the carrier cap assembly (fig. 16).

CAUTION: Failure to do this will cause damage to the firing pin.

While holding the firing pin in this position, rotate the carrier cap assembly counterclockwise with the side of the index finger pressing against the cap roller, until the "T" is in line with the top of the bolt carrier (fig. 17).



90° |COCKING |HANDLE

FIGURE 14. COCKING HANDLE GUIDE LUG AND DISASSEMBLY NOTCH

FIGURE 15. COCKING HANDLE ROTATED 90°

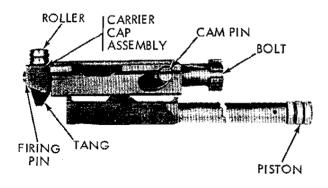


FIGURE 16. CARRIER, PISTON AND BOLT ASSEMBLY

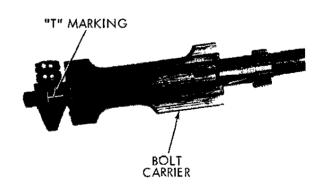


FIGURE 17. "T" MARKING IN CARRIER CAP ASSEMBLY IN LINE WITH TOP OF BOLT CARRIER

- (2) Remove the firing pin from the bolt carrier.
- (3) Push the bolt into the carrier, and remove the cam pin from the bolt (fig. 18).
- (4) Remove the bolt from the bolt carrier.

NOTE: The operator has now completed his maintenance responsibilities. Further disassembly must be performed under the supervision of Organizational-Maintenance Personnel.

g. Removal of the Ejector, Ejector Detent, Ejector Spring, and Ejector Lock Plate (fig. 22).

- (1) Push down, with the tip of a cartridge, the ejector detent below the ejector lock plate surface.
 - (2) Push aside the lock plate and remove.
 - (3) Remove the ejector detent, spring and ejector from its recess in the receiver.

h. Disassembly of the Trigger Housing Group.

- (1) Hold the trigger housing group in the vertical position. Insert the point of a cartridge into the hole that the lock plate tang is engaged in and push the lock plate forward as shown in figure 19. The lock plate must remain forward during disassembly of the trigger housing group so that the trigger pins can be removed.
- (2) Push out the trigger pin and the trigger housing cover pin (fig. 20) and remove the trigger housing cover (fig. 20). Remove the trigger by pushing down on the rear of the sear and pushing up on the trigger assembly.
 - (3) Remove the lock plate by grasping the extended front edge and remove.
- (4) Remove the trigger guard by pushing down on the front of the guard until it unlatches (fig. 21). Remove the trigger guard from rear notch.

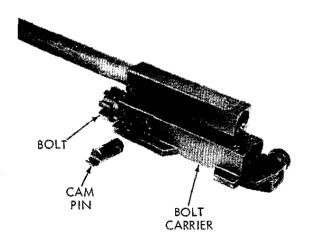


FIGURE 18. REMOVING CAM PIN AND BOLT

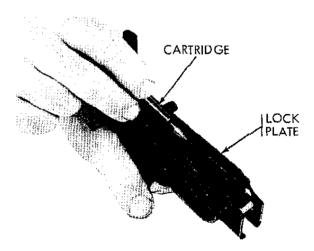


FIGURE 19. PUSHING LOCK PLATE FORWARD

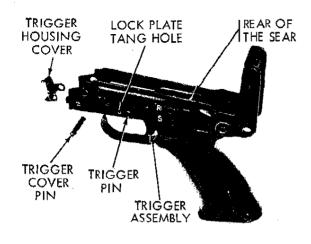




FIGURE 20. REMOVE TRIGGER AND TRIGGER HOUSING COVER

FIGURE 21. REMOVING TRIGGER GUARD

NOTE: The weapon is now detailed stripped (fig. 23) as far as permitted by Organizational-Maintenance Personnel. Further disassembly of the weapon is restricted to Direct Support Personnel only.

33. CLEANING, INSPECTION AND REPAIR

a. Cleaning and Inspection.

(1) Cleaning materials.

- (a) Bore cleaner is used for cleaning the bore, chamber, barrel extension, and gas cylinder. It also provides temporary protection from rust.
 - (b) Hot, soapy water or plain hot water is a substitute for bore cleaner.
- (c) Dry-cleaning solvent is used for cleaning weapons which are coated with grease, oil, or corrosion-preventative compounds.

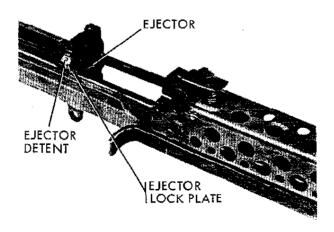
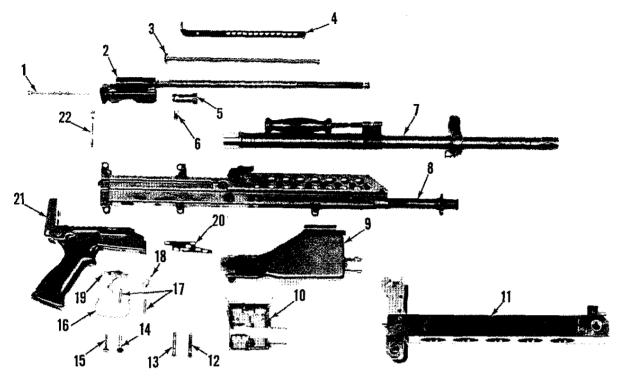


FIGURE 22. REMOVING THE EJECTOR ASSEMBLY



- 1. Firing Pin
- 2. Carrier and Piston Assembly
- 3. Driving Spring
- 4. Cocking Handle
- 5. Bolt Assembly
- 6. Cam Pin
- 7. Barrel Assembly
- 8. Receiver Group

- 9. Feed Cover Assembly
- 10. Feed Tray Assembly
- 11. Sub-mount Assembly
- 12. Feed Tray Assembly Pin
- 13. Feed Cover Assembly Pin
- 14. Pivot Pin Nut
- 15. Pivot Pin Screw

- 16. Trigger Guard
- 17. Trigger Pins
- 18. Trigger Housing
 Cover
- 19. Trigger
- 20. Lock Plate
- 21. Trigger Housing
- 22. Ejector Assembly

FIGURE 23. MEDIUM MACHINEGUN DETAILED-STRIPPED

CAUTION: Use warm soapy water to clean handgrip assembly. Some cleaning solvents and gasoline tend to soften and distort this material.

(2) Lubricants.

- (a) Special preservative lubricating oil is used for lubricating the weapon at normal and low temperatures.
- (b) Medium preservative lubricating oil is used instead of special lubricating oil when the weapon is exposed to high temperatures, high humidity, or salt water.
- (c) "Lubriplate" grease should be applied to working surfaces in extremely humid weather or whenever there is a likelihood that the weapon will be subjected to immersion in either fresh or salt water. After immersion in either fresh or salt water, the weapon should be cleaned and lubricated as soon as possible.

(3) Equipment furnished for cleaning the weapon:

- (a) Cleaning rod
- (b) Bore cleaner
- (c) Rifle oil

- (d) Brushes (See Appendix IL)
- (e) Cleaning patches. Satisfactory caliber 5.56mm patches can be obtained by cutting .30 caliber patches into quarters.

(4) Before firing.

- (a) The bore and chamber should be cleaned and dried. A light coat of oil should be placed on all metal parts except those which come in contact with ammunition.
- (b) "Lubriplate" should be applied to the parts that show friction wear. This is particularly important when the weapon is exposed to rain or salt water. A small amount of Lubriplate is applied to those parts that show wear. Lubriplate is not used in extremely cold temperatures or when the weapon is exposed to extremes of sand and dust.
- (c) In cold climates (temperatures below freezing) the weapon must be kept free of moisture and excess oil. Moisture and excess oil on the working parts cause them to operate sluggishly or to fail completely. The weapon must be disassembled and wiped with a clean dry cloth. Dry-cleaning solvent may be used if necessary to remove oil or grease. Parts that show signs of wear may be wiped with a patch lightly dampened with a special preservative lubricating oil. It is best to keep the weapon as close as possible to outside temperatures at all times due to the collection of moisture which occurs when cold metal comes in contact with warm air. If the weapon is brought into a warm room, it should be allowed to reach room temperatures so that condensation will appear before it is cleaned.
- (d) In hot, dry climates, the weapon must be cleaned daily, or more often to remove sand and/or dust from the bore and working parts. In sandy areas, the weapon should be kept dry to prevent the collection of sand. The muzzle and receiver should be kept covered during sand and dust storms.

(5) After firing.

- (a) The weapon must be cleaned after it has been fired because firing produces deposits of primer fouling, powder ashes, carbon, and metal fouling. The ammunition has a non-corrosive primer which makes cleaning easier, but no less important. The primer still leaves a deposit that may collect moisture and promote rust if it is not removed. The cleaning described below will remove all deposits except metal fouling which is relatively uncommon and is removed by ordnance personnel.
- (b) The weapon should be disassembled and cleaned in the following manner after it has been fired.
- 1. Bore. Run patches dampened with bore cleaner or hot soapy water back and forth through the bore several times. Next, attach the bore brush to the cleaning rod and run it back and forth through the bore once or twice. Follow this with more wet patches. Run several dry patches through the bore and inspect each patch as it is removed. The bore is clean when a

dry patch comes out clean with no evidence of fouling. Finally, run an oily patch through the bore to leave a light coat of oil inside the barrel.

NOTE: The patch or brush must be pushed all the way through the bore before it is withdrawn.

- 2. Chamber and barrel extension. Using the appropriate brushes (fig. 6) clean the lugs of the barrel extension and the chamber. After removing the carbon, particles of dirt and/or brass filings, dry the chamber with a clean patch. The lugs of the barrel extension should be oiled lightly.
- 3. Gas cylinder. Using the appropriate brush (fig. 22) clean the inside of the gas cylinder. Put two patches on the patch holder of the cleaning rod, moisten them with bore cleaner and swab the cylinder bore. Dry the cylinder bore with clean dry patches. Use no abrasives in cleaning the cylinder.
- 4. Carrier and piston assembly. Shake the gas cylinder assembly (fig. 16) to determine if the inertia pin in the piston rod has free movement. If it is not free, remove the roll pin and piston head and clean. Saturate patches with bore cleaner and wipe the exterior surface of the piston as clean as possible. The piston does not need to have a shiny surface to function properly. Do not use abrasives to clean the piston.
- 5. Face of the bolt. Clean the face of the bolt with a patch and bore cleaner. Wipe with a dry patch, and oil the bolt lightly.
- 6. Bolt carrier. Remove all carbon and foreign materials from the bolt carrier with a patch dampened with bore cleaner. Wipe off the bolt carrier with dry patches and apply a light coat of oil.
- 7. Receiver group and trigger housing group. Inspect both groups for dirt and brass filings. Clean both groups with the appropriate brush (fig. 22) and oil all surfaces lightly. Place a drop of oil on each of the pins in the trigger housing group for lubrication.
- 8. Ejector. The ejector is spring actuated. It is important that it has free movement. Visually inspect and manually operate ejector for proper function. Dirt, brass filing, or lack of lubrication may hinder proper function.
- 9. Submount. Remove all rust, dirt and foreign matter from the submount (fig. 6); apply a light coat of oil on all exposed surfaces. Place a few drops of oil on the locking device.

36. REPLACEMENT OF PARTS.

All replacement parts (Appendix III) are interchangeable and require no adjustments when being installed in this weapon.

37. ASSEMBLY.

NOTE: The weapon should be assembled in the reverse order of disassembly.

a. Assembly of the Trigger Housing Group.

- (1) Place the lock plate in the left side of the trigger housing group, as shown in figure 19, insuring that the lock plate is held in position by the two lock plate guide pins. The lock plate must remain forward during assembly of the trigger housing group.
- (2) Depressing the rear of the sear, insert the trigger from the the top of the trigger housing.
 - (3) Replace the trigger pin.
 - (4) Replace the trigger housing cover (fig. 20) and insert the trigger housing cover pin.
- (5) Align the trigger pins, and push the extending edge of the lock plate to the rear. The front edge of the lock plate should be flush with the forward edge of the trigger housing, and the lock plate tang should be seated in the lock plate tang hole (fig. 20).
 - (6) Replace the trigger guard (fig. 21) by engaging it in the notches provided.
 - b. Assembly of the Ejector, Ejector Spring, Detent and Lock Plate.
 - (1) Insert the ejector with the ejector spring and detent into the recess of the receiver.
- (2) Depress the ejector detent and spring below the lock plate recess and insert the lock plate in the slots of the receiver.
- (3) Slide the lock plate over the detent until the detent pops up into the hole in the lock plate.

c. Assembly of the Bolt Assembly, Cam Pin, and Firing Pin.

- (1) Replace the bolt in the bolt carrier with the ejector groove in the bolt facing toward the cam track in the bolt carrier.
- (2) Insert the cam pin thru the cam track and into the cam pin hole in the bolt. The flat side of the cam pin guide lug must be in line with the lower side of the bolt carrier, as shown in figure 20.
- (3) Replace the firing pin in the bolt carrier. Push down on the rear of the firing pin until it is flush with the rear of the carrier cap assembly. Holding the firing pin in this position, rotate the carrier cap assembly 1/4 turn, so the tang on the carrier cap assembly is in the downward position as shown in figure 16.
- d. Assembly of the Cocking Handle, Barrel, Feed Tray, and Feed Cover, with the Receiver Group.
 - (1) Replace the cocking handle (fig. 15).

- (2) To replace the barrel assembly, depress the barrel latch (fig. 13) and insert the barrel into the receiver group. Lock the barrel into place by releasing the barrel latch.
 - (3) Replace the feed tray assembly (fig. 12).
 - (4) Replace the feed cover assembly and insert the feed cover assembly retaining pin.
- e. Replacing the Trigger Housing Group on the Receiver Group. Place the trigger group on the receiver group and replace the pivot pin nut. Screw the pivot pin screw into the pivot pin nut until fingertight (fig. 10).

f. Replacing the Carrier-Piston, Bolt and Driving Spring Assemblies.

- (1) Holding the machinegun in the left hand, muzzle pointing down, insert the carrier-piston bolt assembly (fig. 9). The bolt must be in the forward position with the cam pin aligned with the bolt carrier rail (fig. 16).
 - (2) Replace the driving spring assembly (fig. 8).

g. Locking the Trigger Group to the Receiver Group.

(1) Before rotating the trigger housing group upward, check to be sure that the takedown pin has been pulled to the right as far as it will go. Then rotate the trigger housing group upward and lock it to the receiver group with the take-down pin (fig. 7).

h. Functioning Test.

- (1) A function test will be performed after assembly of the machinegun. A complete function check of the weapon consists of checking its operation while the selector lever is in the "S" (Safe), and "A" (Automatic) positions. The following sequence will be followed.
- (a) <u>Clear the machinegun.</u> Place the selector lever on "S" (Safe). Pull the cocking handle to the rear. Return the cocking handle to its locked position. Pull the trigger. The operating parts should not go into battery.
- (b) Place the selector lever on "A" (Automatic). Pull the trigger. The operating parts should go into battery.

MAINTENANCE UNDER UNUSUAL CONDITIONS

36.	EXTREME-COLD	WEATHER	MAINTENANCE

37. EXTREME-HOT WEATHER MAINTENANCE

38. MAINTENANCE AFTER AMPHIBIOUS OPERATION

AMMUNITION

39. GENERAL

40. CARE, HANDLING, AND PRESERVATION

DESTRUCTION OF MATERIEL TO PREVENT ENEMY USE

41. GENERAL

APPENDIX I

REFERENCES

The following references should be consulted for additional procedures for the maintenance of the material covered by this publication.

FM-23-67	Machinegun, 7.62mm, M60.
FM-31-70 B	Basic Cold Weather Manual.
тм 9-207	Operation and Maintenance of
Α	Army Material in Extreme
C	Cold Weather 0° to -65°F.

APPENDIX II

BASIC ISSUE ITEMS LIST

Section I. PREFACE

1. GENERAL

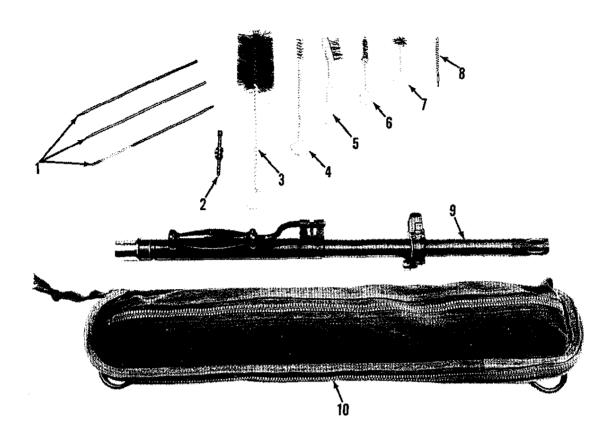
This appendix is a list of the basic issue items that are required for stockage by first-echelon maintenance. It includes the first-echelon maintenance tools and repair parts accompanying the equipment, all of which constitute the major end item for issue to users.

2. EXPLANATION OF COLUMNS

- a. Source, Maintenance, and Recoverability Code. This column lists a code that indicates the selection status and source of supply of the repair part, the lowest echelon capable of installing or manufacturing the repair part, and the recoverability and expendability aspects of the repair parts. An example of this code is P, O, R. The "P" indicates that the item is a mission stockage list repair part that is procured and stocked on a national program basis, the "O" indicates that the repair part is authorized to Organizational Maintenance, and the "R" indicates that the repair part is an expendable, recoverable item. When repair parts supply responsibility has been assigned to a technical service other than Ordnance, the basic number of the supplying technical service is listed in the first position of the source code, for example, "11" for a Signal Corps item. Refer to paragraph 4 for an explanation of all codes appearing in this manual.
- <u>b.</u> <u>Federal Stock Number.</u> This column lists the Federal stock number which has been assigned by the Cataloging Division, Armed Forces Supply Support Center.
- <u>c.</u> <u>Description.</u> This column lists the Federal item name (shown in capital letters) and any additional description required for supply operations. The abbreviation "w/e" (with equipment) when used as a portion of the nomenclature indicates that the major item or major combination includes all armament, equipment, accessories, and repair parts issued with the item. The technical service or manufacturer's part number is also included for reference.
- d. Unit of Issue. This column lists the minimum quantity that will be supplied. All items are considered as each except where the unit of issue is shown as ft., in., such as for bulk materials; the requisition should indicate the exact amount that is required, for example, 6 ft.
- e. Quantity Authorized. This column lists the quantity of the listed item authorized for stockage by first echelon.
- f. Illustration. This column indicates the figure number of the illustration that depicts the item. When more than one item appears on an illustration, the item number is also indicated.

3.	ABBR	EVIATIONS	
	assy		assembly(ies)
	cal.		
	ctg.		cartridge
	ctn.	• • • • • • • • • • • • • • • • • • • •	carton
	equip		
	wdn		wooden
	w/e		with equipment
4.	EXPL	ANATION OF CODES	
	a. Sou	irce.	
		Code	Explanation
		P	Applied to repair parts which are high-
			mortality parts procured by technical
			services, stocked in and supplied from
			the technical service depot system, and
			authorized for use at indicated main-
			tenance echelons.
	b. Ma	intenance Level.	
		Code	Explanation
	٠	0	Organizational Maintenance
	c. Rec	coverability.	
	_	Code	Explanation
		NR	Indicates a repair part or assembly that
			is nonexpendable and recoverable and is
			economically repairable.
		R	Indicates a repair part or assembly that
			is expendable and recoverable and is
			economically repairable and, when
			available, is furnished by supply on an
			exchange basis.
	d. Illu	ıstration	
	****	Code	Explanation
		NI.	Indicates a standard military issue item
			and therefore not illustrated in this

handbook.



- 1. Cleaning Rod
- 2. Combination Tool
- 3. Receiver Brush
- 4. Gas Cylinder Brush
- 5. Utility Brush

- 6. Chamber Brush
- 7. Locking Lug Brush
- 8. Barrel Bore Brush
- 9. Spare Barrel
- 10. Carrying Case

FIGURE 24. CLEANING EQUIPMENT, COMBINATION TOOL, SPARE BARREL, AND CARRYING CASE.

APPENDIX II Section II, BASIC ISSUE ITEMS LIST Table 5. BASIC ISSUE ITEMS

,				· · · · · · · · · · · · · · · · · · ·	Table 5. BASIC ISSUE ITEMS		1	
REC	AN OVER COD	RABIL De	ITY.	(FEDERAL	DESCRIPTION	UNIT OF ISSUE	QTY AUTH	ILLUST
SERVICE NO E	SOURCE Ê	MAINTERANCE O	RECOVERABILITY®					FIG NO
					MAJOR ITEMS		1	
				•	The following items are requisitioned for initial issue only.		ļ	
					MEDIUM MACHINEGUN, belt-fed, 5.56MM, w/e			
]			}	COMPONENTS OF MAJOR ITEMS			
					The items listed below are issued as components of the major items for initial issue. Replacement items will be requisitioned separately under their individual stock numbers.			
					MEDIUM MACHINEGUN, belt-fed, 5.56MM			
					REPAIR PARTS FOR:		}	
					MEDIUM MACHINEGUN, belt-fed, 5.56MM (see Appendix III)			
1	l	 		ļ	TOOLS AND EQUIPMENT FOR:			
İ	•				MEDIUM MACHINEGUN, belt-fed, 5.56MM			
					BAG: canvas carrying, barrel BANDOLEER: 150-round BANDOLEER CARRYING STRAP: canvas BARREL ASSEMBLY: spare BRUSH, CLEANING: barrel bore BRUSH, CLEANING: chamber BRUSH, CLEANING: gas cylinder BRUSH, CLEANING: locking lug BRUSH, CLEANING: receiver BRUSH, CLEANING: utility ROD, CLEANING: cal223 TOOL: combination	1 1 1 1 1 1 1 1 1 1 1	3 3 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	22-10 5 NI 22-9 22-8 22-6 22-4 22-7 22-3 22-5 22-1 22-2
					MISCELLANEOUS MATERIEL			
	 				The items listed under subheadings below are not issued with the major items but are requisitioned and issued in accordance with tables of organization and equipment, tables of allowances, or as otherwise authorized.			
					AMMUNITION			
					Ammunition for use with this weapon is listed in SM 9-5-1305. ARTICLES FOR INSTRUCTIONAL PURPOSES			NI
					The following item WILL BE TAKEN into the field upon permanent change of station and into the theater of operation.			
	1	1			CARTRIDGE, 5.56MM DUMMY:	bx		NI
					The following item WILL NOT BE TAKEN into the field upon permanent change of station or into the theater of operations. Units will turn in all equipment to the commanding officer of the station from which it departs. The receiving officer will make a report to the Army commander, without delay, showing number, type, and condition of item received.			
					GRAPHIC TRAINING AID:			
-					(Above item, when available, will be listed in DA Pam 310-5.)	1		
					·			

APPENDIX III

ORGANIZATIONAL MAINTENANCE REPAIR PARTS AND SPECIAL TOOL LIST

Section I. PREFACE

1. GENERAL

This appendix lists all items required or authorized for organizational maintenance.

2. EXPLANATION OF COLUMNS

- a. Figure and Index Number. This column lists the figure and index number in this manual which illustrates the item.
 - b. Description. This column lists the repair part or tool with its basic nomenclature.
 - c. Quantity per Unit. This column lists the quantity of the item used on each weapon.
- d. Quantity Authorized. This column lists the quantity of each item recommended for stockage at the organizational level per weapon. Where a large quantity of weapons (50 or more) is assigned to an organizational unit, standard allowance percentages should be used.

Appendix III, Section II. REPAIR PARTS AND SPECIAL TOOL LIST Table 6. ORGANIZATIONAL MAINTENANCE REPAIR PARTS AND SPECIAL TOOLS

ILLUST FIG. NO.	RATION ITEM NO.	DESCRIPTION	OTY. PER UNIT	ÇTY. AUTH.
23 23 23 23 23 23 23 23 23 23 23 23 23 2	7 5 6 2 4 3 9 10 14 15 8 11 19 17 16 18 21	Barrel Assembly Bolt Assembly Cam Pin. Carrier and Piston Assembly Cocking Handle Driving Spring Feed Cover Assembly Firing Pin Lock Plate Pivot Pin Nut Pivot Pin Screw Receiver Assembly Submount Assembly Trigger Trigger Pins Trigger Guard Trigger Housing Cover	111111111111111111111111111111111111111	1 4
24	2	SPECIAL PURPOSE TOOLS Combination Tool		*

^{*1} or more per Organizational Unit, as required.