This copy is a reprint which includes current pages from Changes 1 and 2.

ARMY TM 9-1005-213-10
MARINE CORPS TM 02498A-10/1
AIR FORCE TO 1 1W2-6-3-161
NAVY SW361 -AB-MMO-010
Supersedes copy
dated 12 July 1968

OPERATOR'S MANUAL

MACHINE GUNS, CALIBER .50; BROWNING, M2, HEAVY BARREL

FLEXIBLE, W/E (1005-00-322-9715) (EIC: 4AG)
M48 TURRET TYPE (1005-00-957-3893) (EIC: 4BB)

SOFT MOUNT (1005-LL-H11-5877) (NAVY)
FIXED TYPE RIGHT HAND FEED (1005-00-122-9339) (NAVY)
FIXED TYPE LEFT HAND FEED (1005-00-122-9368) (NAVY)

HEADQUARTERS, DEPARTMENTS OF THE ARMY,
US MARINE CORPS, AIR FORCE AND NAVY

AUGUST 1992

WARNING

Hearing protection must be worn when firing this weapon.

Headspace should be checked and adjusted before firing weapon, after assembling weapon, and after replacing barrel.

Improper headspace and timing can cause malfunctions, damage to the gun, and injury to personnel.

When bolt latch release and trigger are both held down, machine gun will fire automatically (flex only).

Immediate action should be applied to a hot weapon within 10 seconds (cook-off). If round is not removed within 10 seconds, wait 15 minutes. Keep the weapon trained on the target.

Never open the cover on a hot weapon. An open cover cook-off could occur and result in serious injury or death.

When machine gun has been in action, clear machine gun before anyone moves in front of the muzzle. Clearing consists of unloading the machine gun and visually inspecting weapon to ensure all rounds have been removed. Do not release the bolt or press the trigger.

Chemical resistant gloves must be worn while using dry cleaning solvent.

Do not expose ammunition to the direct rays of the sun.

Do not oil or grease ammunition. Oiled cartridges will produce excessive chamber pressure.

Be sure to clear weapon before disassembling, cleaning, inspecting. transporting, or storing.

Do not remove backplate unless the bolt is in forward position.

Do not attempt to charge machine gun without the backplate assembled to machine gun. Stand to one side when removing backplate.

Never attempt to lift machine gun by the backplate group assembly in the upright position.

To prevent accidental firing, immediately after a firing exercise, request unit maintenance remove the side plate trigger assembly from the receiver when the M2 flex machine gun has been used on the M63 antiaircraft mount. The side plate trigger is to be stored in the container attached to the M63 antiaircraft mount.

Heat protective mitten should be used when barrel is hot.

Do not close cover when bolt is held rearward as damage may occur when bolt goes forward.

Never remove the backplate assembly from any weapon until the chamber has been cleared.

FIRST AID

For further information on first aid, see FM 21-11.

d

CHANGE
NO.2

HEADQUARTERS
DEPARTMENT OF THE ARMY
Washington D.C., 6 August 1996

OPERATOR'S MANUAL
MACHINE GUN, CALIBER. 50; BROWNING, M2,
HEAVY BARREL

TM 9-1005-213-10, 6 August 1992, is changed as follows:

1. Remove old pages and insert new pages as indicated.
2. New or changed material is indicated by a vertical bar in the margin of the page.
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File this change sheet in the front of the publication for reference purposes.

Remove Pages	**Insert Pages**
2-15 and2-16	2-15 and 2-16
3-121 and 4-0	3-121 and 4-0
None	4-0.1 through 4-2
A-1 and A-2	A-1 and A-2

By Order of the Secretary of the Army:

DENNIS J. REIMER
General, United States Army
Chief of Staff

Official:

JOEL B. HUDSON
Acting Administrative Assistant to the
Secretary of the Army
00498

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CHANGE

NO. 1

HEADQUARTERS
DEPARTMENT OF THE ARMY
Washington, D.C., 1 August 1995

OPERATOR'S MANUAL
MACHINE GUN, CALIBER. 50; BROWNING, M2,
HEAVY BARREL

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See reverse for page removal/insert.

Remove Pages	Insert Pages
i thru iv	i thru iv
1-1 thru 1-8	1-1 thru 1-8
1-11 thru 1-12	1-11/(1 -12 Blank)
2-7 thru 2-12	2-7 thru 2-12
2-15 thru 2-38	2-15 thru 2-28
2-5 thru 2-56	2-55 thru 2-56
2-59 thru 2-62	2-59 thru 2-62
2-77 thru 2-80	2-77 thru 2-79/(2-80 Blank)
2-97 thru 2-106	2-97 thru 2-106
3-3 thru 3-8	3-3 thru 3-8
3-29 thru 3-34	3-29/3-30(Blank)
3-35 thru 3-36	3-35 thru 3-36
none	3-100.1 thru 3-100.3/(3-100.4 Blank)
3-101 thru 3-120	3-101/(3-102 BIank)
3-121 thru 4-0	3-121 thru 4-0
A-1 thru A-2	A-1 thru A-2
C-3 thru C-4	C-3 thru C-4
Index-1 thru Index-10	Index -1 thru Index-9/(Index-10 Blank)
cover thru inside cover	cover thru inside cover

By Order of the Secretary of the Army:

DENNIS J. REIMER
General, United States Army
Chief of Staff

Official:

JOEL B. HUDSON
Administrative Assistant to the
Secretary of the Army
02212

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No. SW361-AB-MMO-010)

*ARMY TM 9-1005-213-10
*MARINE CORPS TM 02498A-10/1
*AIR FORCE TO 11W2-6-3-161
*NAVY SW361-AB-MMO-010
HEADQUARTERS
DEPARTMENTS OF THE ARMY,
US MARINE CORPS, AIR FORCE, AND NAVY
Washington, DC 6 AUGUST 1992

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* This manual supersedes TM 9-1005-213-10, 12 July 1968, including all changes.
This manual supersedes NAVSEAOP 4130, July 1972, including all changes.

REPORTING ERRORS AND RECOMMENDING IMPROVEMENTS

You can help improve this manual. If you find any mistakes or if you know of a way to improve the procedures, please let us know. Mail your letter or DA Form 2028 (Recommended Changes to Publications and Blank Forms) direct to: Director, Armament and Chemical Acquisition and Logistics Activity, ATTN: AMSTA-AC-MAS, Rock Island, IL 61299-7630. Marine Corps users submit NAVMC 10722 to: Commander, Marine Corps Logistics Base (Code 850), Albany, GA 31704-5000.
Air Force user submit AFTO Form 22, Technical Order System Publication Improvement Report and Reply to: WR-ALC/LZDTA, Robins AFB, GA 31098-5330. Navy users submit Form TMDER NAVSEA 9086/10 to: Commanding Officer, Naval Weapons Support Center, Code 20, Crane, IN 47522-5020. A reply will be furnished to you.

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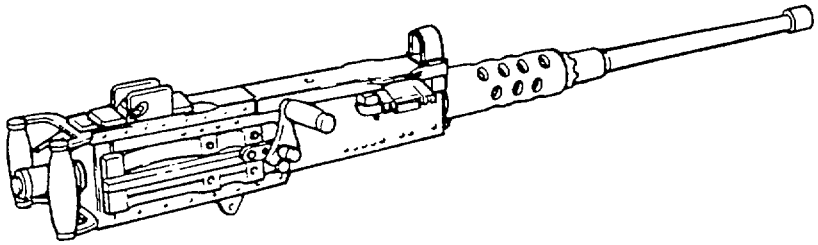
CHAPTER 1
INTRODUCTION

Section I. GENERAL INFORMATION



1-1. SCOPE.

a. Type of Manual: Operator's Manual.

b. Model Number and Equipment Name: Browning Machine Gun, Caliber .50; M2, heavy barrel, flexible type, and M48 turret type, soft mount, and fixed type machine guns. For maintenance of the M3 Tripod Mount, MK 93 MOD 0 and MOD 1 Mounts refer to TM 9-1005-245-13&P. Marine Corps users refer to TM 9-1010-231-13&P for MK 64 Mount maintenance procedures.

c. Purpose of Equipment: To provide automatic weapon suppression fire for offensive and defensive purposes. This weapon can be used effectively against personnel, light armored vehicles, and low flying, slow flying aircraft. The caliber .50, M2 flexible version is used as a ground gun on either the M3 Tripod Mount or with the MK 93 MOD 0 Mount on the M3 Tripod. The caliber .50 M2, M48 turret type, fixed type and soft mount are installed on mounts of several different types of combat vehicles and ships.

1-2. MAINTENANCE FORMS AND RECORDS.

Department of Army forms and procedures used for equipment maintenance will be those prescribed by DA PAM 738-750, The Army Maintenance Management System (TAMMS).

Navy users refer to applicable preventive maintenance instructions. Marine Corps forms and procedures for equipment maintenance will be those prescribed by TM 4700-15/1. Air Force users refer to TO 11 W1 -1-10 for applicable forms and records.

1-3. REPORTING EQUIPMENT IMPROVEMENT RECOMMENDATIONS (EIR)

If your machine gun or mounts need improvement, let us know. Send us an EIR. You, the user, are the only one who can tell us what you don't like about your equipment. Let us know why you don't like the design or performance. Put it on an SF 368 (Quality Deficiency Report). Mail it to us at: Commander, US Army Armament, Research, Development and Engineering Center, ATTN: AMSTA-AR-QAW, Rock Island, IL 61299-7300. Marine Corps personnel are encouraged to submit SF 368 in accordance with MCO 4855.10, Quality Deficiency Report, to: Commander, Marine Corps Logistics Base (Code 808), Albany, GA 31704-5000. Air Force users submit Materiel Deficiency Report (MDR) and Quality Deficiency Report (QDR) in accordance with TO 00-35D-54, TM, USAF, Materiel Deficiency Reporting and Investigating System to WR-ALC/LZBS, Robins AFB, GA 31098-5330. Navy users submit SF 368, Quality Deficiency Report, to: Commanding Officer, Naval Weapons Support Center, Code 20, Crane, IN 47522-5020.

1-4. CORROSION PREVENTION AND CONTROL (CPC).

Corrosion Prevention and Control (CPC) of Army materiel is a continuing concern. It is important that any corrosion problems with this item be reported so that the problem can be corrected and improvements can be made to prevent the problem in future items.

While corrosion is typically associated with rusting of metals, it can also include deterioration of other materials such as rubber and plastic. Unusual cracking, softening, swelling, or breaking of these materials may be a corrosion problem.

If a corrosion problem is identified, it can be reported using SF 368, Quality Deficiency Report. Use of key words such as 'corrosion", 'rust", "deterioration", or "cracking' will assure that the information is identified as a CPC problem. The form should be submitted to: Commander, US Army Armament, Research, Development and Engineering Center, ATTN: AMSTA-AR-QAW, Rock Island, IL 61299-7300. Marine Corps personnel are encouraged to submit SF 368 in accordance with MCO 4855.10, Quality Deficiency Report, to: Commander, Marine Corps Logistics Base (Code 808), Albany, GA 31704-5000.

Section II. EQUIPMENT DESCRIPTION

1-5. EQUIPMENT CHARACTERISTICS, CAPABILITIES AND FEATURES.

The caliber .50 machine gun, Browning, M2, Heavy Barrel, Flexible:

a. is a belt-fed, recoil-operated, air-cooled, crew-served machine gun. The machine gun is capable of firing single-shot and automatic. Is capable of right and left-hand feed.

b. is used as a ground gun mounted on the M3 tripod mount, MK 56 MOD 0 and four gun mounts (Navy), MK 93 MOD 0 and MOD 1 mount, or is installed on the M66 ring mount of several different types of combat vehicles.

The caliber .50 machine gun, Browning, M2, Heavy Barrel, M48 Turret type:

a. is an air-cooled, recoil-operated, alternate-feed, automatic, crew-served weapon.

b. is mounted on the M1 and MIA1 Abrams main battle tank commander’s station.

1.5 EQUIPMENT CHARACTERISTICS, CAPABILITIES, and FEATURES (cont)

The caliber .50 machine gun, Browning, M2, Heavy Barrel, Soft Mount type:

a. Is mounted on the MK 26 Mod 15, 16, and 17 gun mounts.

b. Is a belt-fed, recoil operated, air-cooled, crew served machine gun.

The caliber .50 machine gun, Browning, M2, Heavy Barrel, Fixed Type:

a. Is mounted on the MK 56, Mod 0 and 4 gun mounts.

b. Is a belt-fed, recoil operated, air-cooled, crew served machine gun.

c. Is primarily fired by a solenoid and requires a 24-28Vdc power source.

The M3 Tripod Mount:

Is a lightweight, portable folding mount which permits a high degree of accuracy and control of fire. Refer to TM 9-1005-245-13&P.

The MK 93 MOD 0 Mount:

Is an advanced soft recoil (for M2) dual purpose cradle mount to be used on the M3 Tripod or as part of the HMMWV vehicle mount MK 93 MOD 1 (which includes the carriage (MK 93 MOD 0), 40mm ammo can bracket, .50 cal ammo can bracket, T&E mechanism, MK 175 adapter and the catch bag assembly).

1-6. DIFFERENCES BETWEEN MODELS. Refer to Table 1-1 for differences between models.

Table 1-1. Differences Between Models

ASSEMBLY	FLEX	SOFT MOUNT	TURRET TYPE	FIXED TYPE
Machine Gun Barrel (PIN 7266131)	X	X	X	X
Back Plate Assembly (PIN 6535477)	X			
Back Plate Assembly (P/N 5564311)			X	
Back Plate Assembly (PIN 5985102)		X		
Back Plate Assembly (PIN 2866381)				X
Breech Bolt Assembly (PIN 6528322)	X	X	X	X
Barrel Extension Assembly (PIN 5504082)	X	X	X	X
Retracting Slide Assembly (PIN 11010439)	X	X		X
Cover Assembly (P/N 6528309)	X	X	X	X
Receiver Assembly (PIN 6535480)	X	X	X	X
M10 Manual Charger (PIN 7267982)			X	X
Rear Sight Assembly (P/N 12003047)	X			
Barrel Carrier Assembly (P/N 5504080)	X			
Top Cover Plate (P/N 6008939)		X	X	
Front Sight Assembly (P/N 6085990)		X		
Electrical Solenoid Assembly (PIN 2846714)				X

Procedures are written for M2 Machine Gun (flexible) but apply to all models except where noted.

1-7. EQUIPMENT DATA

a. Machine guns:

Weight of gun (approx)	84 lb (38.10 kg)
Weight of barrel	26 lb (11.79 kg)
Length of gun	65.13 in. (165.43 cm)
Length of barrel	45 in. (114.30 cm)
Length of rifling (approx)	41.88 in. (106.38 cm)
Number of lands and grooves	8
Twist, right-hand	one turn in 15 in. (38.10 cm)
Feed	link-belt
Operation	short recoil
Cooling	air
Muzzle velocity (approx)	3,050 fps (929.64 mps)
Maximum range (approx)	7,400 yds (6,767 m)
Maximum effective range (approx)	2,000 yds (1,829 m)

RATES OF FIRE:

NOTE

For Abrams series tanks refer to FM 17-12-1.

1-7. EQUIPMENT DATA (cont)

SINGLE SHOT - Place gun in single shot mode and engage target with well aimed shots. The caliber .50 machine gun is extremely accurate and can effectively engage targets out to 2,000 yards (1,829 m). Change barrel at end of firing day, or if the barrel is damaged.

SLOW FIRE - Slow fire is less than 40 rounds per minute, fired in bursts of six to nine rounds, at 10-15 second intervals. Change barrel at the end of the firing session or if the barrel is damaged.

RAPID FIRE - Rapid fire is greater than 40 rounds per minute, fired in bursts of six to nine rounds, at 5-10 second intervals. Change barrel at the end of the firing session or if the barrel is damaged.

CYCLIC FIRE - This rate represents the maximum amount of ammunition that can be expended by a gun without a break in firing. The cyclic rate of this caliber .50 machine gun is 400 to 550 rounds per minute. Change barrel at end of firing session, or if the barrel is damaged.

b. M3 Tripod Mount:

Refer to TM 9-1005-245-13&P.

c. MK 93 MOD 0 and MK 93 MOD 1 Mounts:

Refer to TM 9-1005-245-13&P.

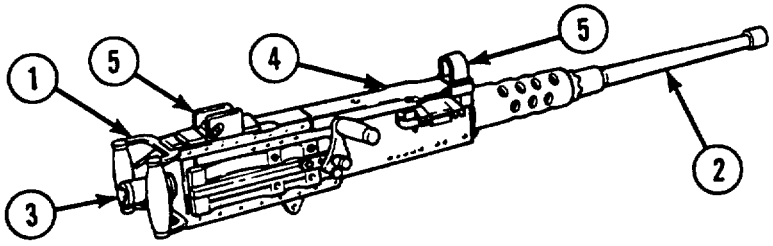
CHAPTER 2
OPERATING INSTRUCTIONS

SECTION I. DESCRIPTION AND USE OF OPERATOR'S CONTROLS AND INDICATORS

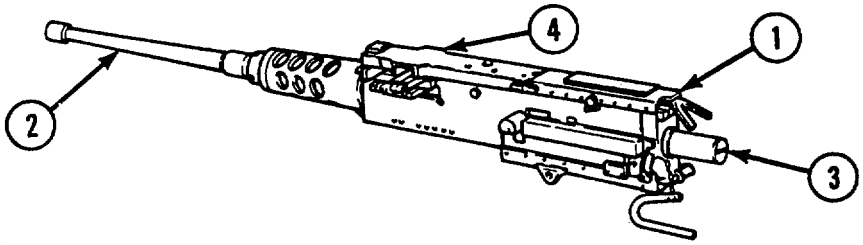
2-1. GENERAL

Familiarize yourself with the following parts before operating the machine guns and various mounts.

2-2. MACHINE GUNS



Caliber .50 Machine Gun, Browning. M2, Heavy Barrel. Flexible



Caliber .50 Machine Gun, Browning. M2, Heavy Barrel, M48 Turret Type

BACK PLATE (1) houses trigger and buffer tube.

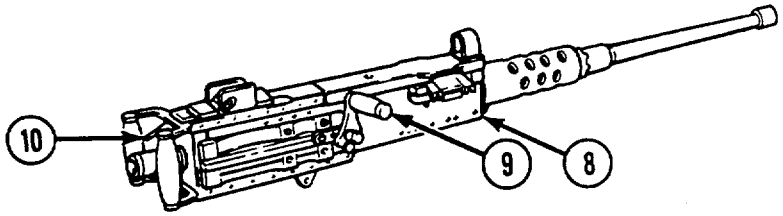
BARREL (2) has rifling to give bullet spin for accuracy and a chamber for firing the cartridge.

BUFFER TUBE SLEEVE (3) locks the bolt latch release in the open position to permit the machine gun to fire automatic or the unlocked position for single shot (flexible type only).

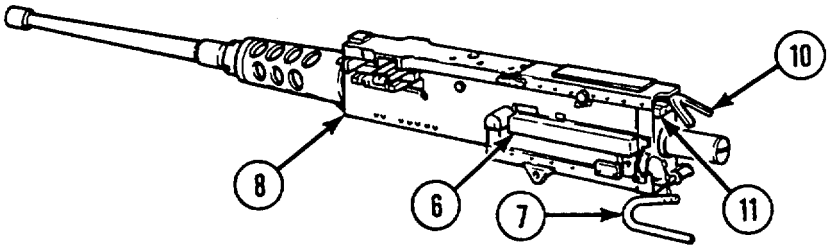
COVER (4) feeds the belt and positions and holds the cartridges for chambering.

FRONT AND REAR SIGHTS (5) zero and accurately sight the machine gun (flexible type only).

2-2. MACHINE GUNS (cont)



Caliber .50 Machine Gun, Browning, M2, Heavy Barrel, Flexible



Caliber .50 Machine Gun, Browning, M2, Heavy Barrel, M48 Turret Type

M10 MANUAL CHARGER (6) has a cable and CHARGING HANDLE (7) for cocking the machine gun (M48 turret type and fixed type only).

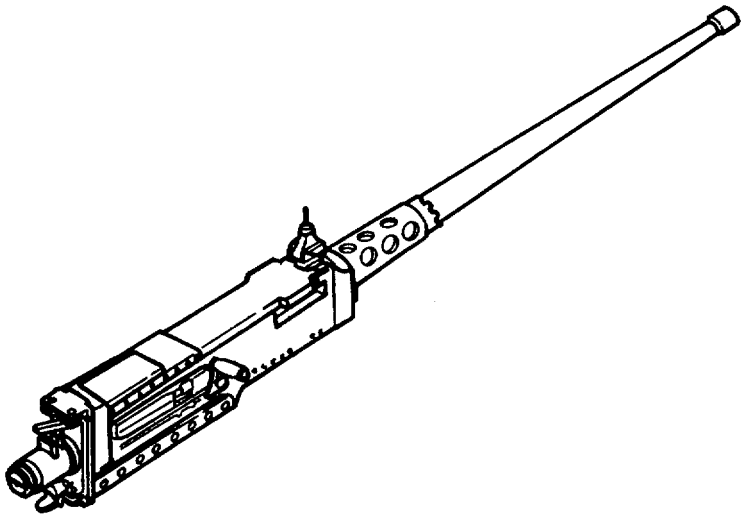
RECEIVER (8) houses the internal components of the machine gun and serves as support for entire machine gun.

RETRACTING SLIDE HANDLE (9) is used for cocking the machine gun (flexible type and soft mount type only).

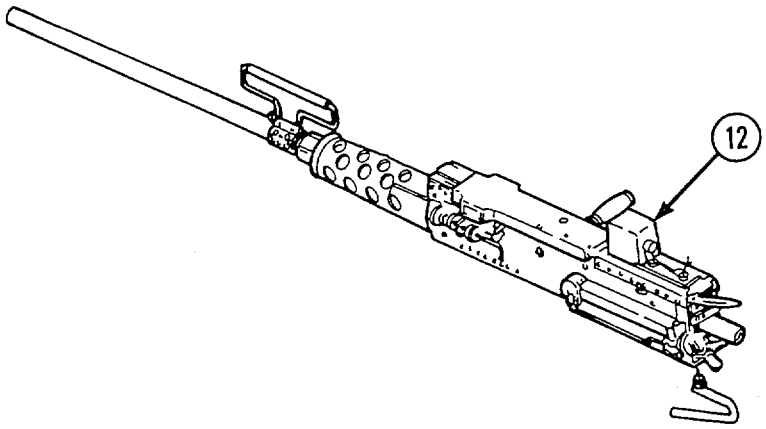
TRIGGER (10) controls the firing of the machine gun.

SAFETY (11) slides to select fire or no fire (M48 turret type and fixed type only).

2-2. MACHINE GUNS (cont)



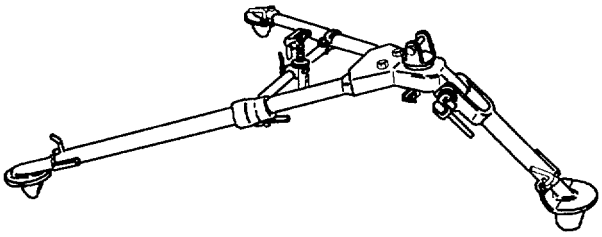
Caliber .50 Machine Gun, Browning. M2, Heavy Barrel, Soft Mount (Navy)



Caliber .50 Machine Gun, Browning, M2 Heavy Barrel, Fixed Type (Navy)

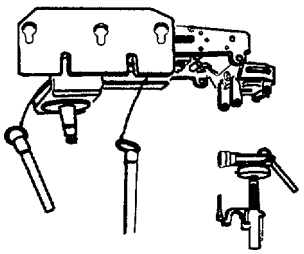
Solenoid Assembly (12) operates on a 24-28 V dc power source to fire the gun (fixed type only).

2-3. M3 TRIPOD MOUNT

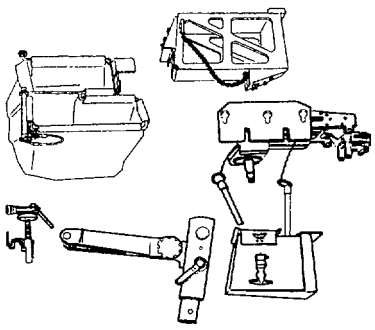


Refer to TM 9-1005-245-13&P.

2-4. MK 93 MOD 0 MACHINE GUN MOUNT



2-4.1 MK 93 MOD 1 MACHINE GUN MOUNT



Refer to TM 9-1005-245-13&P.

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SECTION II. PREVENTIVE MAINTENANCE CHECKS AND SERVICES (PMCS)

2-5. GENERAL

a. General. Your PMCS table has been provided so you can keep your equipment in good operating condition and ready for its primary mission.

b. Warnings and Cautions. Always observe the WARNINGS and CAUTIONS appearing in your PMCS table BEFORE, DURING, and AFTER you operate the equipment. The warnings and cautions appear before certain procedures. You must observe these WARNINGS and CAUTIONS to prevent serious injury to yourself and others or prevent damage to you equipment.

2-6. EXPLANATION OF TABLE ENTRIES

a. Item number column. Numbers in this column are for reference. When completing DA Form 2404, Equipment Inspection and Maintenance Worksheet, include the item number for the check/service indicating a fault. Item numbers also appear in the order that you must do checks and services for the intervals listed.

b. Interval column. This column tells you when you must do the procedure in the procedure column. BEFORE procedures must be done before you operate or use the equipment for its intended mission. DURING procedures must be done. during the time you are operating or using the equipment for its intended mission. AFTER procedures must be done immediately after you have operated or used the equipment.

c. Check/Service column. This column provides the location and the item to be checked or serviced. The item location is underlined.

2.6. EXPLANATION OF TABLE ENTRIES (cont)

d. Procedure column. This column gives the procedure you must do to check or service the item listed in the Check/Service column to know if the equipment is ready or available for its intended mission or for operation. You must do the procedure at the time stated in the interval column.

e. Not fully mission capable if: column. Information in this column tells you what faults will keep your equipment from being capable of performing its primary mission. If you make check and service procedures that show faults listed in this column, do not operate the equipment. Follow standard operating procedures for maintaining the equipment or reporting equipment failure.

Table 2-1. Preventive Maintenance Checks and Services for Caliber .50 M2 Machine Gun

Item No.	Interval	Location Item to Check/ Service	Procedure	Not Fully Mission Capable If:
	CALIBER .50 M2 MACHINE GUN **WARNING** **BEFORE PERFORMING PMCS, MAKE SURE WEAPON IS CLEAR OF LIVE ROUNDS.** **NOTE** **If any procedure does not meet 'Not Fully Mission Capable If:' criteria, notify unit maintenance.**			
1	Before	Barrel Assemblies	Check barrels for obstruction, abnormalities, or damage.	Barrels are obstructed or damaged.

Table 2-1. Preventive Maintenance Checks and Services for Caliber .50 M2 Machine Gun

Item No.	Interval	Location Item to Check/ Service	Procedure	Not Fully Mission Capable If:
2	Before	Machine Guns (M2 Flex and M48 TT)	Hand operate the machine gun. Check to ensure that all moving parts are clean, lightly oiled and function freely. Check/adjust headspacing/ timing (p 2-39, 2-53). Notify unit maintenance If headspace and timing cannot be obtained. Check all B11 is present and serviceable (p B-4).	Weapon will not function. Proper headspace/timing cannot be obtained. One or more B11 items missing or un-serviceable.

Table 2-1. Preventive Maintenance Checks and Services for Caliber .50 M2 Machine Gun

Item No.	Interval	Location Item to Check/ Service	Procedure	Not Fully Mission Capable If:
			NOTE **The following checks are for the M48 turret type and fixed type only.**	
3	Before Charger	M10 Manual	a. Inspect safety wire to ensure presence.	Safety wire is missing
			b. Inspect charger bolt cover and channel housing for deformation, cracks, and damage.	Charger bolt cover is deformed, cracked, or damaged.

Table 2-1. Preventive Maintenance Checks and Services for Caliber .50 M2 Machine Gun

Item No.	Interval	Location Item to Check/ Service	Procedure	Not Fully Mission Capable If:
3	Before	M10 Manual Charger (cont)	c. Inspect charger cable assembly for kinks, broken strands, and loose or missing ball ends.	Charger cable assembly has broken strands or loose or missing ball ends.
			d. Inspect pulleys for burrs, elongated holes, and distortion.	Pulley has burrs or elongated holes or is distorted.

Table 2-1. Preventive Maintenance Checks and Services for Caliber .50 M2 Machine Gun

Item No.	Interval	Location Item to Check/ Service	Procedure	Not Fully Mission Capable If:
			e. Inspect latches for wear and if broken.	Latches are worn or broken.
			f. Inspect ball bearings for damage on swivel.	Ball bearings are damaged.

Table 2-1. Preventive Maintenance Checks and Services for Caliber .50 M2 Machine Gun

Item No.	Interval	Location Item to Check/ Service	Procedure	Not Fully Mission Capable If:
3	Before	M10 Manual Charger (cont)	g. Inspect charger catch and pulley retainer slide for deformation, burrs, and elongated holes.	Charger catch and pulley retainer slide are deformed or have burrs, or elongated holes.
			h. Inspect bolt stud assembly for deformation, burrs, and worn retaining collar.	Bolt stud assembly is deformed, has burrs, or is worn at retaining' collar.

Table 2-1. Preventive Maintenance Checks and Services for Caliber .50 M2 Machine Gun

Item No.	Interval	Location Item to Check/ Service	Procedure	Not Fully Mission Capable If:
			NOTE **The user and/or unit armorer will be responsible for the serviceability of the gages by performing a visual inspection of the gages prior to issue/use. Those gages that are broken, bent, rusted, pitted or exhibit other forms of mutilation that could affect the dimensional tolerance of the gages, will be turned in for replacement.**	
4	During	Machine Gun	Erratic or sluggish firing may indicate carbon buildup or change in headspace and timing. Change barrel and reverify headspace and timing (p 2-39) if situation allows.	Weapon ceases to operate. Headspace and timing cannot be obtained.

Table 2-1. Preventive Maintenance Checks and Services for Caliber .50 M2 Machine Gun

Item No.	Interval	Location Item to Check/ Service	Procedure	Not Fully Mission Capable If:
5	After	Machine Gun (cont)	Field strip, clean, inspect, and lubricate entire weapon immediately after firing (p 3-1 and 3-36).	
6	After	Barrel Assembly	Check bore and chamber for obstructions and abnormalities.	Obstructions in bore. Barrel damaged.

Table 2-1. Preventive Maintenance Checks and Services for Caliber .50 M2 Machine Gun

Item No.	Interval	Location Item to Check/ Service	Procedure	Not Fully Mission Capable If:
7	After	Backplate Assembly	Check latch and latch lock for function and retention of back-plate assembly in receiver group. Check trigger and bolt latch release for function. Check for cracks and loose-ness in grips.	Backplate will not lock in receiver Cracks in back plate assembly.
			Inspect backplate buffer tube for any fluids (oil, solvent, or water) coming from the inside of buffer tube.	Fluids coming from inside of the buffer.

Table 2-1. Preventive Maintenance Checks and Services for Caliber .50 M2 Machine Gun

Item No.	Interval	Location Item to Check/ Service	Procedure	Not Fully Mission Capable If:
8	After	Bolt Group and Rod Assembly	Check for sharp edges on any surface of bolt group. Check spring rod assembly for deformation and bent or broken pin or rod assembly. Check sear for burrs. Check firing pin and firing pin extension for bends or cracks.	Bolt group cracked, missing, or defective.

Table 2-1. Preventive Maintenance Checks and Services for Caliber .50 M2 Machine Gun

Item No.	Interval	Location Item to Check/ Service	Procedure	Not Fully Mission Capable If:
9	After	Barrel Extension	Check barrel extension for gouges, burrs, and binding. Check barrel locking spring for staking in its groove. Check for burred or stripped threads. Check breech lock/pin for cracks and loose-ness.	Barrel extension threads damaged. Cracked or missing parts.

Table 2-1. Preventive Maintenance Checks and Services for Caliber .50 M2 Machine Gun

Item No.	Interval	Location Item to Check/ Service	Procedure	Not Fully Mission Capable If:
10	After	Receiver and Cover Assemblies	Check working surfaces for cracks, burrs, and gouges. Check belt holding pawl(s) for binding and broken or missing pawls. Check trigger lever and stop assembly for cracks and binding. Check cartridge stops for cracks.	Receiver cracked. Operating parts missing or damaged.

Table 2-1. Preventive Maintenance Checks and Services for Caliber .50 M2 Machine Gun

Item No.	Interval	Location Item to Check/ Service	Procedure	Not Fully Mission Capable If:
			Check retracting slide assembly for broken, missing, or loose lever. Check cover assembly for missing or broken springs. Check belt feed lever and belt feed slide group for binding, cracks, and broken parts. Check function of cover latch.	Cover latch does not lock cover in closed position.

(Pages 2-29 thru 2-38 have been removed)

Table 2-1. Preventive Maintenance Checks and Services for Caliber .50 M2 Machine Gun, M3 Tripod Mount, M63 Antiaircraft Mount (cont)

Item No.	Interval	Location Item to Check/ Service	Procedure	Not Fully Mission Capable If:
13	After	Backplate Assembly	Check latch and latch lock for function and retention of back plate assembly in receiver group. Check trigger and bolt latch release for function. Check for cracks and looseness in grips.	Backplate will not lock in receiver. Cracks in back plate assembly.

Table 2-1. Preventive Maintenance Checks and Services for Caliber .50 M2 Machine Gun, M3 Tripod Mount, M63 Antiaircraft Mount (cont)

Item No.	Interval	Location Item to Check/ Service	Procedure	Not Fully Mission Capable If:
14	After	Bolt Group and Rod Assembly	Check for sharp edges on any surface of bolt group. Check spring rod assembly for deformation and bent or broken pin or rod assembly. Check sear for burrs. Check firing pin and firing pin extension for bends or cracks.	Bolt group cracked, missing, or defective.

Table 2-1. Preventive Maintenance Checks and Services for Caliber .50 M2 Machine Gun, M3 Tripod Mount, M63 Antiaircraft Mount (cont)

Item No.	Interval	Location Item to Check/ Service	Procedure	Not Fully Mission Capable If:
15	After	Barrel Extension	Check barrel extension for gouges, burrs, and binding. Check barrel locking spring for staking in its groove. Check for burred or stripped threads. Check breech lock/pin for cracks and looseness.	Barrel extension threads damaged. Cracked or missing parts.

Table 2-1. Preventive Maintenance Checks and Services for Caliber .50 M2 Machine Gun, M3 Tripod Mount, M63 Antiaircraft Mount (cont)

Item No.	Interval	Location Item to Check/ Service	Procedure	Not Fully Mission Capable If:
16	After	Receiver and Cover Assemblies	Check working surfaces for cracks, burrs, and gouges. Check belt holding pawl(s) for binding and broken or missing pawls. Check trigger lever and stop assembly for cracks and binding. Check cartridge stops for cracks.	Receiver cracked. Operating parts missing or damaged.

Table 2-1. Preventive Maintenance Checks and Services for Caliber .50 M2 Machine Gun, M3 Tripod Mount, M63 Antiaircraft Mount (cont)

Item No.	Interval	Location Item to Check/ Service	Procedure	Not Fully Mission Capable If:
			Check retracting slide assembly for broken, missing, or loose lever. Check cover assembly for missing or broken springs. Check belt feed lever and belt feed slide group for binding, cracks, and broken parts. Check function of cover latch.	Cover latch does not lock cover in closed position.

Table 2-1. Preventive Maintenance Checks and Services for Caliber .50 M2 Machine Gun, M3 Tripod Mount, M63 Antiaircraft Mount (cont)

Item No.	Interval	Location Item to Check/ Service	Procedure	Not Fully Mission Capable If:
			M3 TRIPOD MOUNT	
17	After	Legs/Tripod Head	Check for missing, broken, or loose leg clamps. Check for missing, broken, or inoperative sleeve lock latch. Clean and lubricate tripod mount. Check pintle lock assembly.	Missing, broken, or loose leg clamps. Inoperative sleeve lock latch. Pintle will not secure to tripod head.

Table 2-1. Preventive Maintenance Checks and Services for Caliber .50 M2 Machine Gun, M3 Tripod Mount, M63 Antiaircraft Mount (cont)

Item No.	Interval	Location Item to Check/ Service	Procedure	Not Fully Mission Capable If:
18	After	Traversing and Elevating Mechanism	Check quick release pin for burrs and corrosion. Check for missing parts. Check handwheels for ease of operation. Check traversing and elevating scales for legibility (p 3-105).	Will not elevate or traverse.

Table 2-1. Preventive Maintenance Checks and Services for Caliber .50 M2 Machine Gun, M3 Tripod Mount, M63 Antiaircraft Mount (cont)

Item No.	Interval	Location Item to Check/ Service	Procedure	Not Fully Mission Capable If:
			M63 ANTIAIRCRAFT MOUNT	
19	After	Mount, Leg Elevator Assembly, and Base Assembly Group	Check for missing or inoperative lock assembly. Check toggle bolts for stripped threads. Check legs for damage. Check for missing or inoperative pintle lock clamp.	Mount legs inoperable. Elevator assembly will not function. Pintle lock clamp inoperable.

Table 2-1. Preventive Maintenance Checks and Services for Caliber .50 M2 Machine Gun, M3 Tripod Mount, M63 Antiaircraft Mount (cont)

Item No.	Interval	Location Item to Check/ Service	Procedure	Not Fully Mission Capable If:
20	After	Cradle and Yoke Assembly	Check for cracked, bent, or missing parts. Check front and rear mounting pins and cradle locking pin to ensure they operate freely.	Yoke will not mount to elevator assembly.
21	After	Trigger Frame Assembly	Check gun grips and linkage for missing parts and proper functioning.	Missing or broken linkage.

Table 2-1. Preventive Maintenance Checks and Services for Caliber .50 M2 Machine Gun, M3 Tripod Mount, M63 Antiaircraft Mount (cont)

Item No.	Interval	Location Item to Check/ Service	Procedure	Not Fully Mission Capable If:
22	After	Ammunition Box Tray Assembly	Check locking lever for proper functioning. Check for missing or broken straps.	Locking lever will not function. Missing or broken straps.

Section III. OPERATION UNDER USUAL CONDITIONS

2-7. NORMAL OPERATION

PREPARATION FOR FIRING-CHECKING AND ADJUSTING HEADSPACE

WARNING

Ensure gun is clear of ammunition before starting (p 2-93).

Headspace should be checked and adjusted before firing weapon, after assembling weapon, and after replacing barrel.

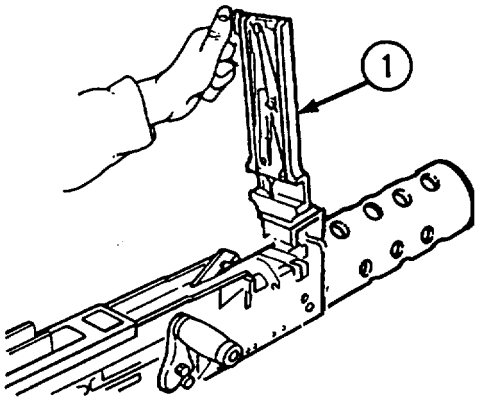
Improper headspace and timing can cause malfunctions, damage to gun, and injury to personnel.

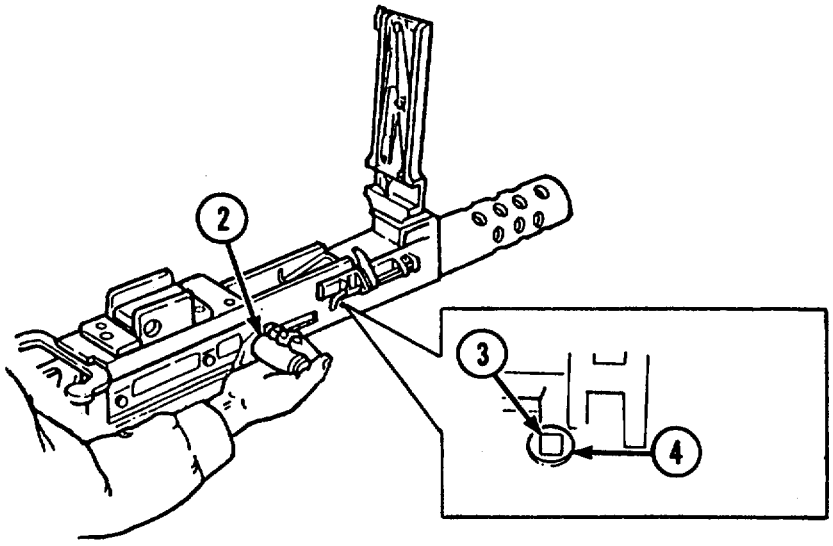
If headspace cannot be obtained, turn in weapon to next higher level of maintenance.

2-7. NORMAL OPERATION (cont)

PREPARATION FOR FIRING-CHECKING AND ADJUSTING HEADSPACE (cont)

1 Raise cover (1) all the way up.





2 Grasp retracting slide handle (2) and retract bolt to align barrel locking spring lug (3) with the 3/8 inch hole (4) in the right side of receiver.

2-7. NORMAL OPERATION (cont)

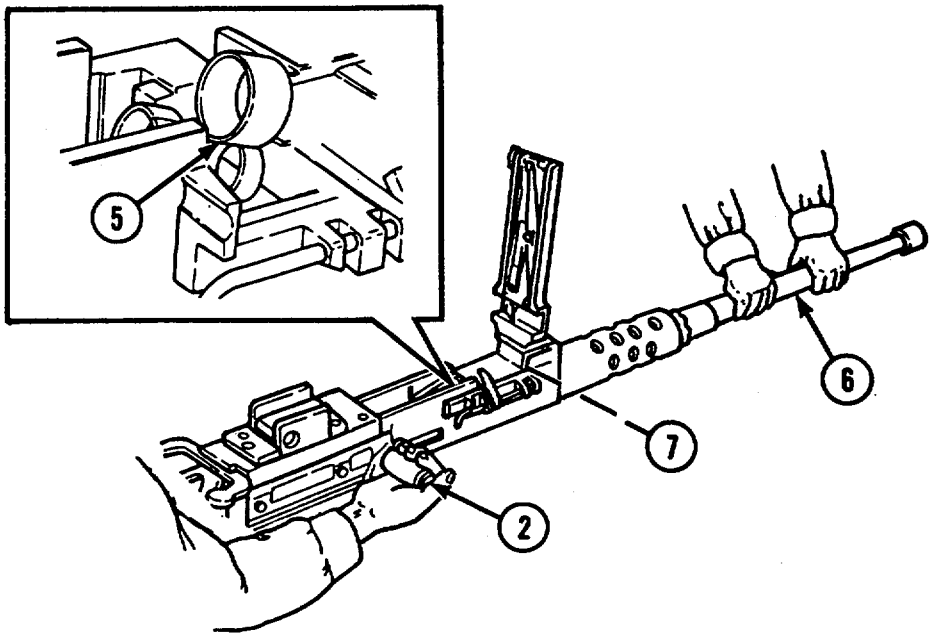
PREPARATION FOR FIRING-CHECKING AND ADJUSTING HEADSPACE (cont)

NOTE
Ensure no obstructions are located in the barrel assembly before installing.

3 Holding bolt in this position, either insert the small loop of a .50 cal metal link (5) between trunnion block and barrel extension or continue holding the handle while screwing the barrel (6) fully into the barrel extension (7).

4 With bolt still retracted, unscrew barrel (6) two notches (clicks). Release retracting slide handle (2) (or remove link (5), if used) and allow bolt to go forward.

WARNING
Check barrel to ensure it is locked with the bolt in the forward position. Attempt to turn barrel in either direction; barrel should not turn. If barrel does turn, stop here; do not attempt to fire the gun. Notify the unit armorer.

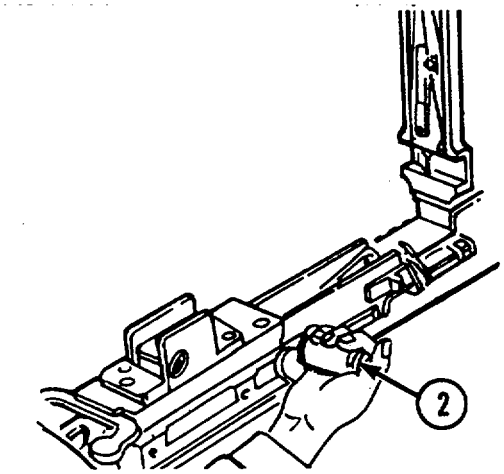

5
6
7
2

2-7. NORMAL OPERATION (cont)

PREPARATION FOR FIRING-CHECKING AND ADJUSTING HEADSPACE (cont)

5 Pull bolt to rear with retracting slide handle (2) and hold. This charges the weapon (withdraws firing pin into bolt). Otherwise headspace gage won't fit at all.

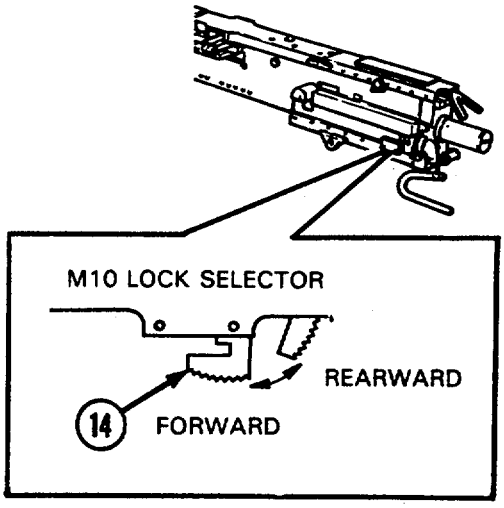
6 In single shot mode, hold retracting slide handle (2), push the bolt latch release, and slowly return bolt forward (do not slam). Do not fire the weapon.



NOTE
Steps 7 and 8 are for M48 turret type and fixed type only.

7 Move M10 lock selector (14) to rearward position. Charge weapon locking bolt to rear.

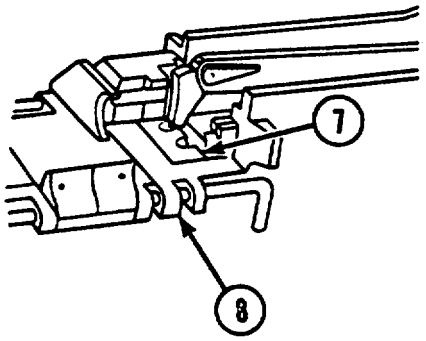
8 Move M10 lock selector (14) to the forward position. Pull on retracting slide handle until a click is heard, then ease bolt forward. (Do not allow bolt to slam forward.)



2-7. NORMAL OPERATION (cont)

PREPARATION FOR FIRING-CHECKING AND ADJUSTING HEADSPACE (cont)

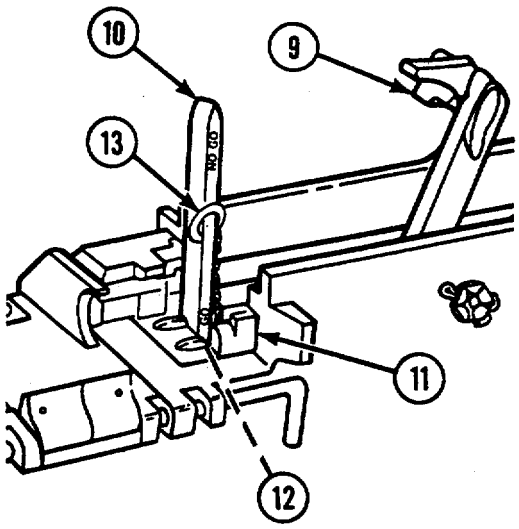
9 Remove slack in the bolt and barrel extension by retracting the retracting slide handle until the barrel extension (7) begins to separate (but not more than 1/16 of an inch) from the trunnion block (8).



NOTE

Ensure GO/NO GO gage does not have any broken, bent, rusted, or pitted areas or other forms of mutilation that could affect dimensional tolerances.

10 Raise cartridge extractor (9) and attempt to insert the GO end of the GO/NO GO headspace gage (10) in the T-slot between the face of the bolt (11) and the rear of barrel (12) all the way up to the ring (13). If GO end of gage (10) enters freely down to the ring, proceed to step 12.

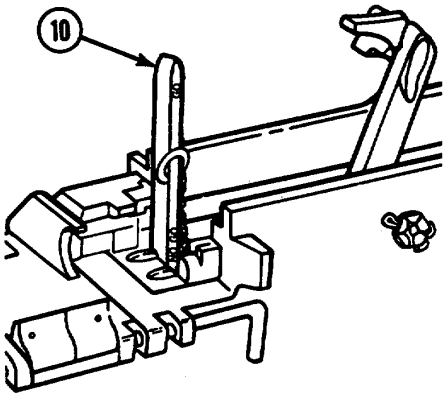


2-7. NORMAL OPERATION (cont)

PREPARATION FOR FIRING-CHECKING AND ADJUSTING HEADSPACE (cont)

11 If GO end of gage (10) does not enter T-slot freely, follow the procedures for Headspace Too Tight (p 2-49).

12 Attempt to insert the NO GO end of the GO/NO GO headspace gage (10) while maintaining 1/16 inch separation. If NO GO end of gage (10) enters, proceed to Headspace Too Loose (p 2-51). If NO GO end of gage does not enter, headspace is correct. Proceed to timing (p 2-53).

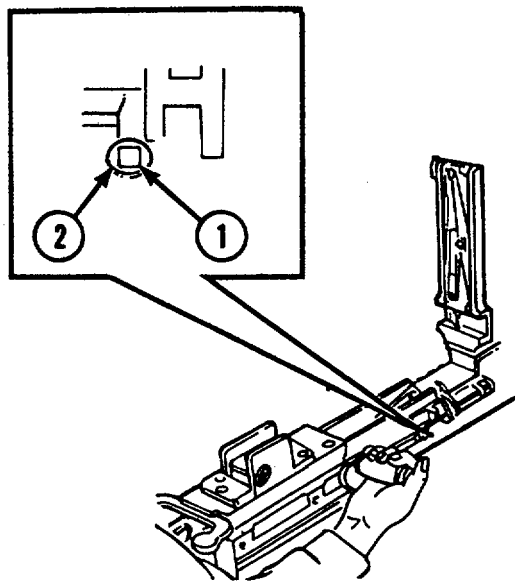


HEADSPACE TOO TIGHT

1 If GO end of gage will not enter T-slot freely, retract bolt so you can see barrel locking lug spring (1) in center of receiver hole (2) on right side of receiver.

2 Unscrew barrel one notch (click).

3 Slowly return bolt forward; then retract recoiling parts 1/16 inch (step 9, CHECKING AND ADJUSTING HEADSPACE, p 2-46).



2-7. NORMAL OPERATION (cont)

PREPARATION FOR FIRING-CHECKING AND ADJUSTING HEADSPACE (cont)

HEADSPACE TOO TIGHT (cont)

4 Recheck headspace (step 10, CHECKING AND ADJUSTING HEADSPACE, p 2-47).

5 Repeat steps 1 thru 4 until GO end of gage enters and NO GO end of gage does not enter.

CAUTION

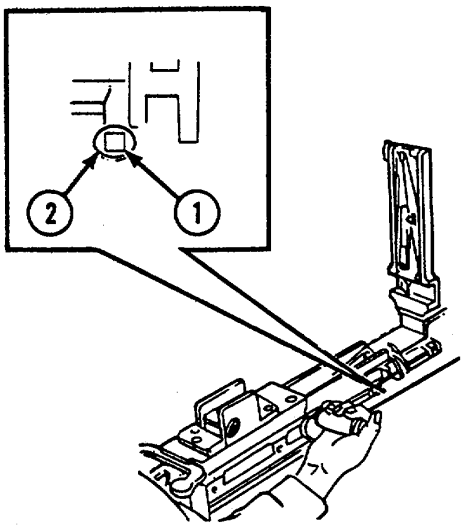
Do not unscrew barrel more than a total of five notches (clicks) beyond the first setting of two clicks for a total of seven. If this condition occurs, turn in machine gun to unit armorer for inspection.

HEADSPACE TOO LOOSE

1 If NO GO end of gage enters T-slot, retract bolt so you can see barrel locking lug spring (1) in center of receiver hole (2) on right side of receiver.

2 Screw barrel in one notch (click).

3 Slowly return bolt forward (step 9, CHECKING AND ADJUSTING HEADSPACE, p 2-46).



2-7. NORMAL OPERATION (cont)

PREPARATION FOR FIRING--CHECKING AND ADJUSTING TIMING

HEADSPACE TOO LOOSE (cont)

4 Repeat steps 1 thru 3 until NO GO end of gage does not enter and GO end of gage enters.

CAUTION

After obtaining proper headspace, recheck positive locking action of barrel by attempting to screw barrel in or out with bolt in forward position. Do not fire machine gun if barrel can be screwed in or out. (See warning following step 4 of CHECKING AND ADJUSTING HEADSPACE, p 2-42).

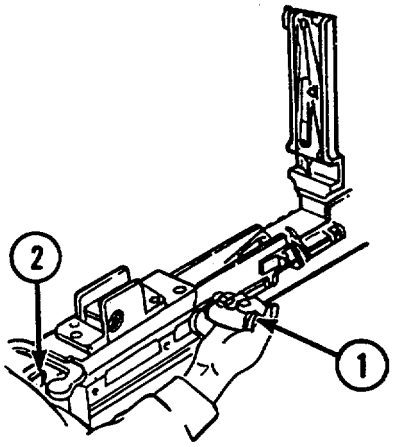
CHECKING TIMING

WARNING

Ensure gun is clear of ammunition before starting. Improper headspace and timing can cause malfunctions, damage to gun, and injury to personnel.

NOTE

Ensure proper headspace before adjusting timing (p 2-39).

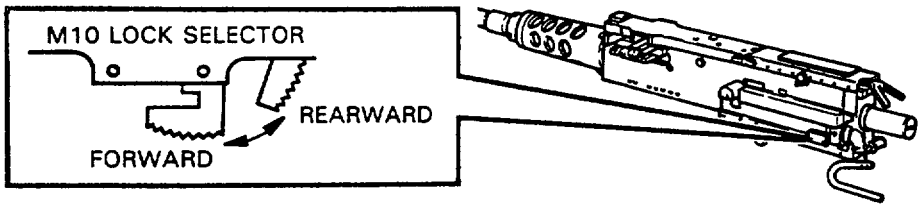


1 Pull bolt to rear with retracting slide handle (1) to cock machine gun; while holding handle, depress the bolt latch release (2) and slowly return bolt forward. Do not press trigger.

2-7. NORMAL OPERATION (cont)

PREPARATION FOR FIRING-CHECKING AND ADJUSTING TIMING (cont)

CHECKING TIMING (cont)



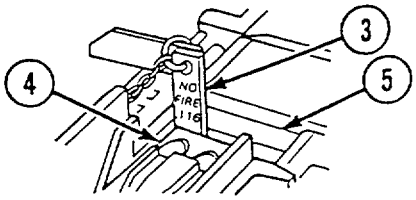
NOTE
Steps 2 thru 4 are for the M48 turret type and fixed type.

2 Move Ml 10 lock selector to rearward position. Charge the weapon, locking bolt to rear.

3 Move Ml 10 lock selector to the forward position. Pull on retracting slide handle until a click is heard, then ease the bolt forward. Do not allow bolt to slam forward.

4 Place safety to fire position.

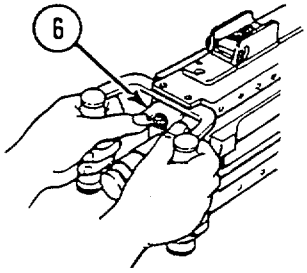
5 Grasp retracting slide handle and retract bolt just enough (1/16 inch) to insert NO FIRE gage (3) with beveled edge against barrel notches between barrel extension (4) and trunnion block (5). Release retracting slide handle slowly.



6 Depress trigger (6); gun should not fire.

NOTE

If machine gun does fire, it has early timing. Go to ADJUSTING TIMING (either Early or Late) (p 2-57).

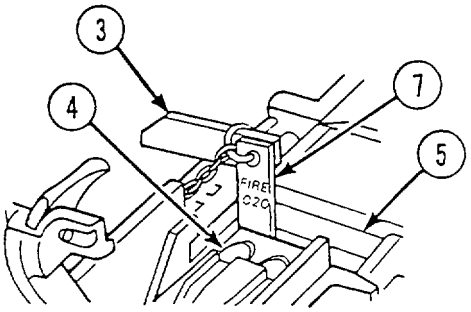


2-7. NORMAL OPERATION (cont)

PREPARATION FOR FIRING- *CHECKING AND ADJUSTING TIMING* (cont)

CHECKING TIMIMG (cont)

7 Retract bolt just enough to remove NO FIRE gage (3) and insert Fire gage (7) with beveled edge against barrel notches between barrel extension (4) and trunnion block (5). Release retracting slide handle slowly.



8 Depress trigger; machine gun should fire. If gun does fire, timing is now complete.

NOTE

If machine gun does not fire, it has late timing. Go to ADJUSTING TIMING (either EARLY or LATE) (p 2-57).

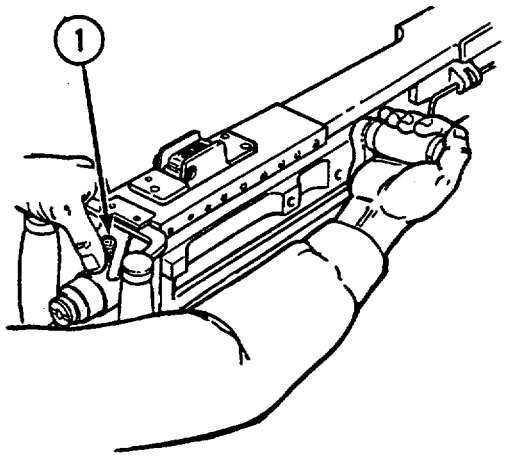
ADJUSTING TIMING (EITHER EARLY OR LATE)

1 If gun has fired, remove gage and charge gun. Return bolt forward by pressing bolt latch release (1) and ease the bolt forward with retracting slide handle.

NOTE

Steps 2 and 3 are for the M48 turret type and fixed type only.

2 Move M10 lock selector to rearward position. Charge the weapon locking bolt to the rear.



2-7. NORMAL OPERATION (cont)

PREPARATION FOR FIRING-CHECKING AND ADJUSTING TIMING

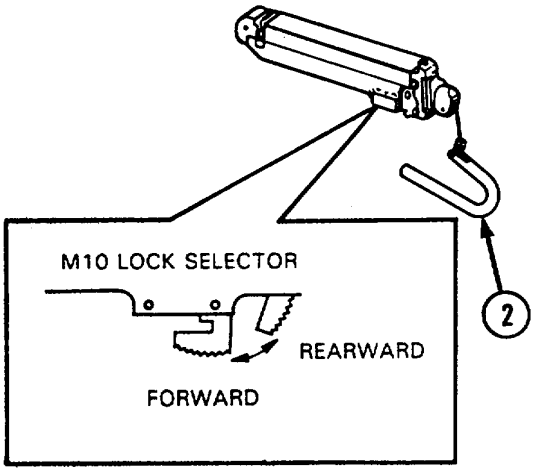
ADJUSTING TIMING (EITHER EARL Y OR LATE) (cont)

3 Move M 10 lock selector to the forward position. Pull back on charging handle (2) until a click is heard, then ease bolt forward.

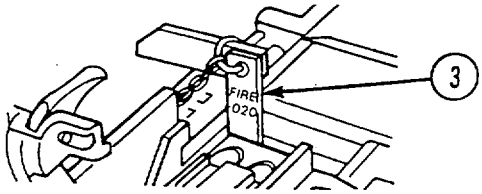
WARNING

Never charge gun with backplate off.

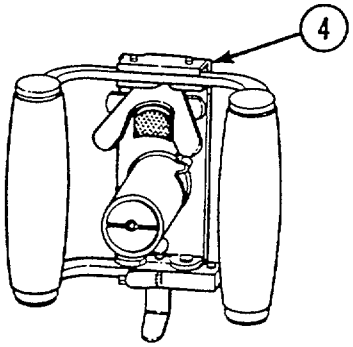
Do not stand directly behind gun while removing backplate.



4 Insert FIRE gage (3).



5 Remove backplate (4) (p 3-38).

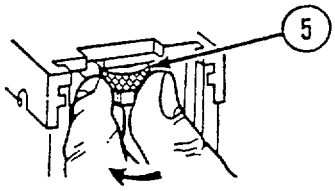


2-7. NORMAL OPERATION (cont)

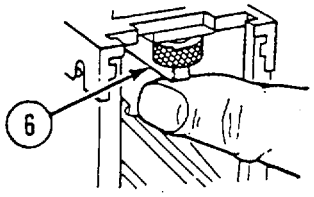
PREPARATION FOR FIRING- CHECKING AND ADJUSTING TIMING (CONT)

ADJUSTING TIMING (EITHER EARLY OR LATE) (cont)

6 Screw timing adjustment nut (5) all the way down (to the left). Nut should turn hard.

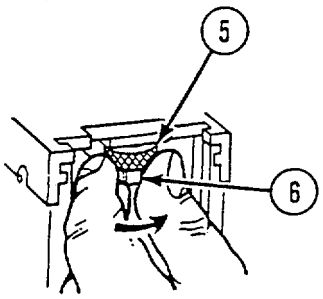


7 Attempt to fire gun by pushing up on rear of trigger bar (6). Gun should not fire.



8 Screw timing adjustment nut (5) up (to the right) one click at a time. Push up firmly on trigger bar (6) after each click. Repeat until gun fires. Return to and complete "before" firing Preventive Maintenance Checks and Services (p 2-12).

9 Turn timing adjustment nut (5) two more clicks up (to the right). Do not turn the timing adjustment nut any more.



2-7. NORMAL OPERATION (cont)

PREPARARION FOR FIRING- CHECKING AND ADJUSTING TIMING(cont)

ADJUSTING TIMING (EITHER EARLY OR LATE) (cont)

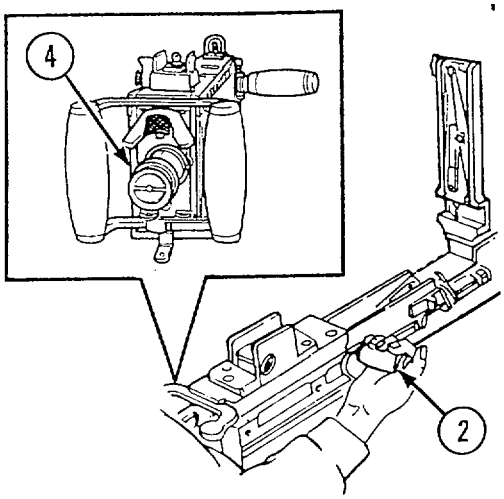
10 Remove FIRE gage.

11 Replace backplate (4).

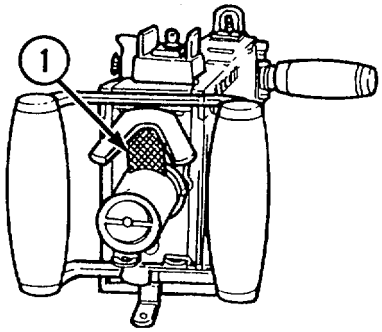
NOTE

After setting headspace and timing, operator has to complete the following "function check" for flex and soft mount machine guns.

12 Pull retracting slide handle (2) to rear to charge machine gun.



13 Depress bolt latch release (1) and slowly ease bolt forward with retracting slide handle. Recheck timing with FIRE/NO FIRE gage two more times to ensure that adjustment is correct.



NOTE
Steps 14 and 15 are for M48 turret type and fixed type only.

14 Move M10 lock selector to rearward position. Charge weapon locking bolt to rear.

15 Move M10 lock selector to the forward position. Pull on charging handle until a click is heard, then ease bolt forward. Recheck timing two more times.

2-7. NORMAL OPERATION (cont)

PREPARATION FOR FIRING--CHECKING AND ADJUSTING TIMING (cont)

NOTE
Perform Safety/Function check for the M48 turret type and fixed type.

1. Place safety to S (safe) position.
2. Move M10 lock selector to the rear.
3. Charge the weapon.
4. Move M10 lock selector forward.
5. Pull charging handle until a click is heard, then ease bolt forward.
6. Press trigger. Weapon should not fire.
7. Place safety to F (fire) position.
8. Press trigger. Weapon should fire.

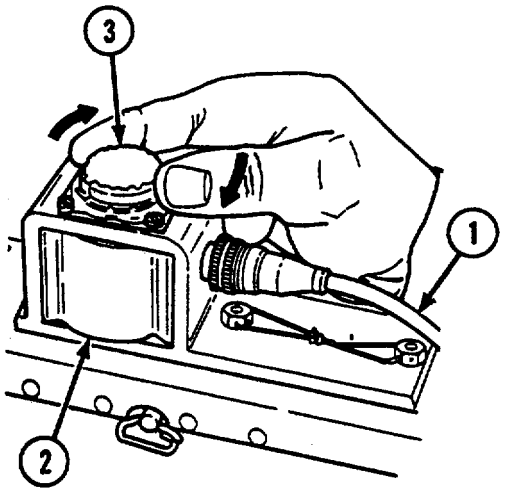
TIMING TOP PLA TE SOLENOID (FIXED TYPE ONL Y

1 Ensure headspace and timing are correctly adjusted (p 2-39).

2 Ensure solenoid assembly is properly attached to receiver and securing screws are lockwired.

3 Remove solenoid cover and install power source cable (1) to solenoid (2).

4 Push in and rotate adjusting cap (3) clockwise as far as possible.



2-7. NORMAL OPERATION (cont)

PREPARATION FOR FIRING-CHECKING AND ADJUSTING TIMING (cont)

TIMING TOP PLATE SOLENOID (FIXED TYPE ONLY) (cont)

CAUTION

Ease recoiling parts slowly forward with charging or retracting slide handle to prevent damage to bolt.

5 Retract recoiling parts fully to rear to cock the firing pin. Release recoiling parts forward to battery position.

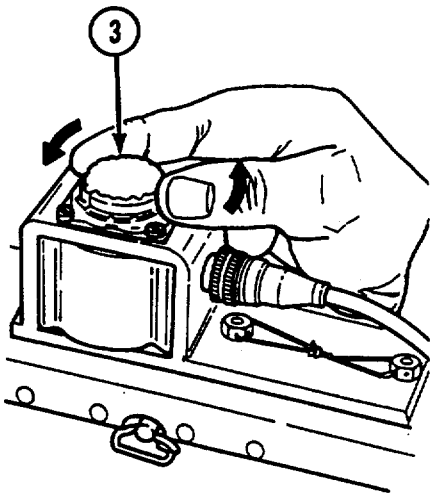
6 Retract recoiling parts sufficiently and insert FIRE (0.020 inch) gage between barrel extension and trunnion block. Allow barrel extension to slowly close on gage.

7 Push in and rotate adjustable cap (3) counterclockwise one notch toward INCREASE position.

NOTE
When firing pin releases, obtain three positive firings at this setting.

8 Turn power source to ON position. Attempt to fire by depressing electrical trigger. If firing pin does not release, continue rotating adjustable cap (3) counterclockwise toward INCREASE position one notch at a time, attempting to fire at each notch until firing pin releases.

9 Retract recoiling parts sufficiently to remove FIRE gage and repeat steps 5 and 6.

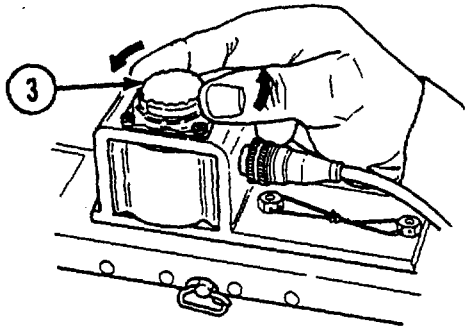


2-7. NORMAL OPERATION (cont)

PREPARATION FOR FIRING-CHECKING AND ADJUSTING TIMING (cont)

TIMING TOP PLATE SOLENOID (FIXED TYPE ONLY) (cont)

NOTE
Count and record the amount of notches from when firing pin released until firing pin does not release.



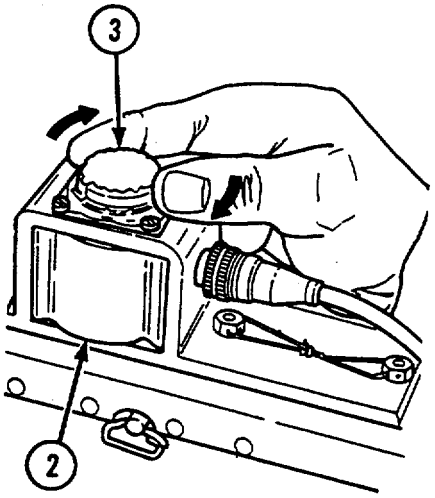
10 Push in and rotate adjustable cap (3) counterclockwise one notch toward INCREASE position. Depress electrical trigger; firing pin should *release.*

11 Retract recoiling parts sufficiently to remove FIRE gage and repeat steps 5, 6, 10, and 11 until firing pin will not release.

12 Rotate adjusting cap (3) clockwise one-half the number of notches counted and recorded since firing pin released and until firing pin did not release.

13 Retract recoiling parts sufficiently to remove FIRE gage and install NO FIRE (0.116 inch) gage between barrel extension and trunnion block. Allow barrel extension to slowly close on gage.

14 Attempt to fire by depressing electrical trigger; firing pin should not release. If firing pin does release, readjust timing of solenoid (2).



2-7. NORMAL OPERATION (cont)

PREPARATION FOR FIRING-CHECKING AND ADJUSTING TIMING (cont)

TIMING TOP PLATE SOLENOID (FIXED TYPE ONLY) (cont)

15 Retract recoiling parts sufficiently to remove NO FIRE gage and insert FIRE gage between barrel extension and trunnion block. Allow barrel extension to slowly close on gage.

16 Depress electrical trigger; firing pin should release. If firing pin does not release, readjust timing of solenoid (2).

17 Remove the FIRE gage. Position power source switch to OFF. Disconnect power source cable (1) from solenoid (2). Reinstall solenoid cover.

WARNING

Hearing protection must be worn when firing this weapon.

Do not expose ammunition to the direct rays of the sun.

When bolt latch release and trigger are both held down, machine gun will fire automatically (flex only).

Do not oil or grease ammunition. Oiled cartridges will produce excessive chamber pressure.

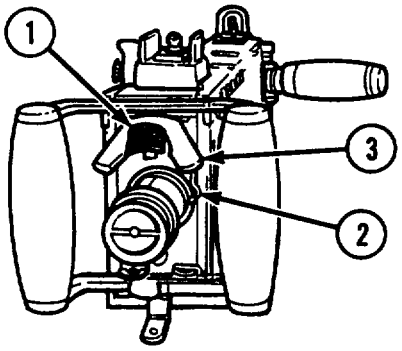
2-7. NORMAL OPERATION (cont)

FIRING PROCEDURES (cont)

SINGLE SHOT MODE

NOTE

If machine gun is set for single shot fire, the bolt assembly will remain in the rearward position. In this event, move the retracting slide handle forward before releasing the bolt with the bolt latch release.



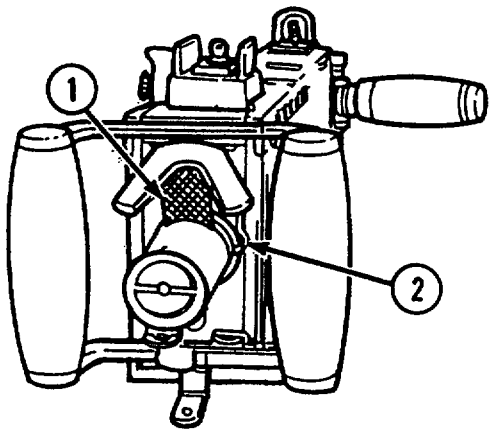
Ensure bolt latch release lock (2) is in the unlocked position (turn right). The bolt latch release (1) must be in the up position (not locked down). For each round fired, press the bolt latch release, then the trigger (3).

AUTOMATIC FIRE

NOTE

If the machine gun is set for automatic fire, the retracting slide handle will go forward with the bolt when released.

Press bolt latch release (1) down and lock by turning the bolt latch release lock (2) to the left.



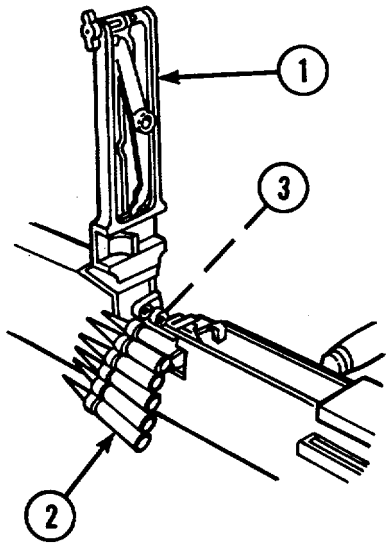
2-7. NORMAL OPERATION (cont)

FIRING PROCEDURES (cont)

FIRING MACHINE GUN ON M3 TRIPOD MOUNT

NOTE
Ensure bolt is forward.

1 Open machine gun cover (1) and insert the double loop end of ammunition (2) in feedway until first cartridge is held by belt holding pawls (3).



WARNING

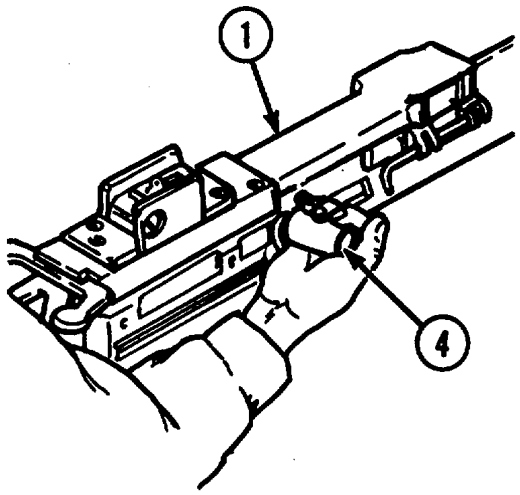
Do not close cover when bolt is held rearward as damage may occur when bolt goes forward.

2 Close cover (1) of machine gun.

NOTE

To half load the machine gun, complete step 3; to fully load the machine gun, repeat step 3 before moving on to step 4.

3 Pull retracting slide handle (4) rearward, retracting the bolt all the way to the rear. Release the handle.



2-7. NORMAL OPERATION (cont)

FIRING PROCEDURES (cont)

FIRING MACHINE GUN ON M3 TRIPOD MOUNT (cont)

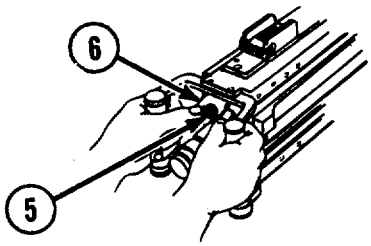
NOTE

If machine gun is set for single shot fire, the bolt assembly will remain in the rearward position. In this event, move the retracting slide handle forward before releasing the bolt with the bolt latch release (5). If the machine gun is set for automatic fire, the retracting slide handle will go forward with the bolt when released.

4 Press trigger (6) to fire the machine gun.

NOTE

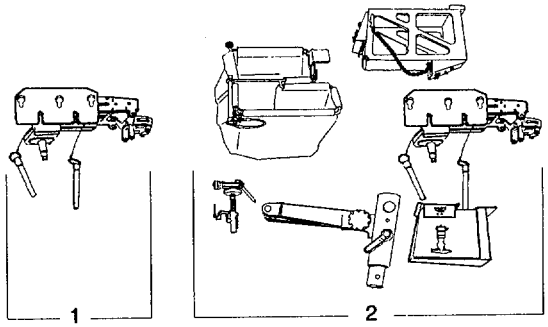
In case of failure to fire, refer to IMMEDIATE AC- TION (p 2-87).



*FIRING MACHINE GUN ON MK 93 MOD 0 MOUNT*TM 9-1005-213-10

GENERAL

The loading and firing procedures for the machine gun on the MK 93 MOD 0 (1) and MOD 1(2) mounts are the same as those for the M3 mount.



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FIRING MALFUNCTIONS

GENERAL

The malfunctions classified as misfires, hangfires, cook-offs, and stoppages are normally the result of improper weapon or ammunition maintenance and/or the use of unauthorized ammunition. The precautions described below are applicable to each specific type of malfunction rather than the occurrence of the malfunction in a specific weapon. All personnel concerned will know the nature of each malfunction, described below, as well as the proper preventive and corrective procedures in order to avoid injury to personnel or damage to materiel. Navy personnel become familiar with SW300-BC-SAF-010.

MISFIRE

A misfire is the failure of a chambered round to ignite when the firing mechanism is actuated. Such failure can be due to an ammunition defect or faulty firing mechanism in the weapon. A misfire in itself is not dangerous, but because it cannot be immediately distinguished from a hangfire, it should be handled with IMMEDIATE ACTION (p 2-87).

2-7. NORMAL OPERATION (cont)

FIRING MALFUNCTIONS (cont)

WARNING

Never open the cover on a hot weapon, if a malfunction occurs. The possibility of a cook-off condition exists when the barrel is hot.

COOK-OFF

WARNING

The climatic temperature of various global regions will make a difference as to what constitutes a hot gun. A cook-off can occur within 50 rounds when the weapon and ammunition have been sitting in the sun.

A cook-off is the igniting of a round, caused by the heat of a very hot barrel, and not caused by actuating the firing mechanism. A cook-off may be avoided by immediately firing ammunition loaded in a hot machine gun or by unloading the weapon in the time specified under IMMEDIATE ACTION (p 2-87).

STOPPAGE

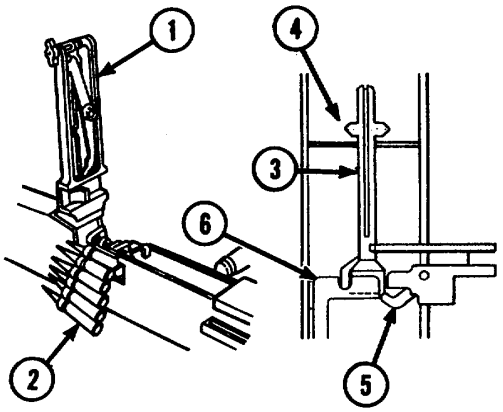
Stoppage is any interruption in the cycle of operation caused by faulty action of the machine gun or ammunition. Any stoppage must be handled as a misfire.

REMOVING RUPTURED CARTRIDGE CASE

1 Open machine gun cover (1), remove ammunition belt (2).

2 Clear the machine gun of all live ammunition.

3 With bolt in the forward position, place the ruptured cartridge case extractor (3) with slot facing up into the feedway (4) against the cartridge stop assembly pawl (5) and hook the extractor assembly of the bolt (6) over the ruptured cartridge case extractor.



2-7. NORMAL OPERATION (cont)

FIRING MALFUNCTIONS (cont)

REMOVING RUPTURED CARTRIDGE CASE (cont)

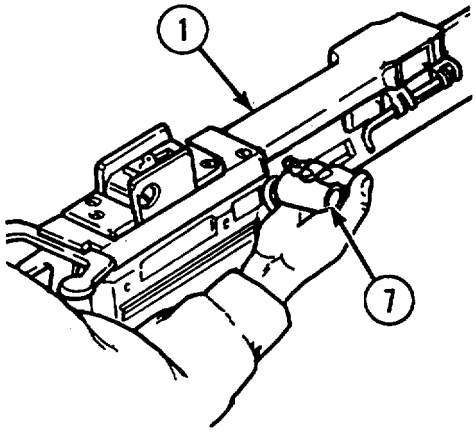
WARNING

Do not close cover when bolt is held rearward as damage may occur when bolt goes forward.

NOTE

For M48 turret type and fixed type, proceed to step 7.

4 Close machine gun cover (1), retract the bolt pulling the retracting slide handle (7) rearward, and release to the forward position.



5 Retract the bolt to extract the ruptured cartridge case and extractor from the chamber.

WARNING

Heat protective mitten should be used when barrel is hot.

6 If steps 3 thru 5 do not remove the ruptured cartridge case, remove the barrel (p 3-36), install the spare barrel (p 3-100), and check headspace and timing (p 2-39).

2-7. NORMAL OPERATION (cont)

FIRING MALFUNCTIONS {cont)

NOTE

If the ruptured cartridge case cannot be removed, notify unit maintenance.

After removing ruptured cartridge case, check headspace (p 2-39).

Steps 7 thru 10 are for the M48 turret type and fixed type only.

7 Close cover and move M10 lock selector to the forward position. Pull charging handle rearward and allow the bolt to go forward.

8 Move M10 lock selector to the rear. Charge the weapon to lock the bolt to the rear.

9 Open machine gun cover and ensure the ruptured cartridge extractor has extracted the ruptured cartridge. Recheck headspace (p 2-39).

10 Repeat step 3 to extract the ruptured cartridge case and extractor from the chamber.

11 If spare barrel is installed, perform headspace and timing (p 2-39).

12 Load and continue firing until time permits to extract the ruptured cartridge case from the original barrel.

IMMEDIATE ACTION PROCEDURES

WARNING

Do not open cover while performing immediate action. Keep the weapon pointed downrange while performing immediate action.

Never remove the backplate assembly from any weapon until the chamber has been cleared.

Depending on climate condition, do not leave live rounds laying on top of hot expended brass.

2-7. NORMAL OPERATION (cont)

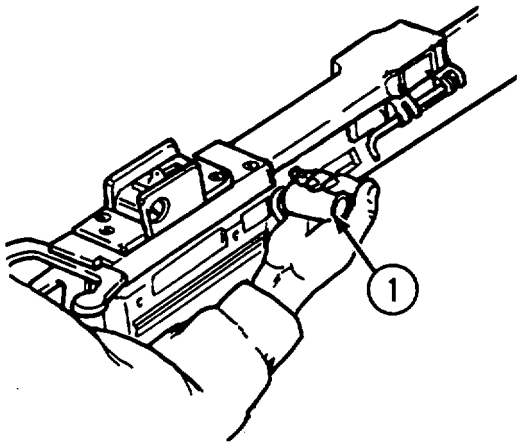
IMMEDIATE ACTION PROCEDURES (cont)

NOTE

If your machine gun stops firing, take the following actions within 10 seconds.

1 Pull retracting slide handle (1) rearward.

2 Observe if round or fired case is ejected, release retracting slide handle, and attempt to fire again.



WARNING

Never open the cover on a hot weapon. An open cover cook-off could occur and result in serious injury or death.

3 If weapon does not fire and the barrel is hot enough to cause a cook-off (200 rounds fired within 2 minutes), place the bolt in the forward position and place weapon in single-shot mode.

4 Evacuate immediate area for 15 minutes. For M48 turret type, refer to TM 9-2350-264-10-2 and TM 9-2350-255-10-2.

5 If immediate action fails to correct stoppage, apply the following remedial ac- tion after weapon has cooled sufficiently.

2-7. NORMAL OPERATION (cont)

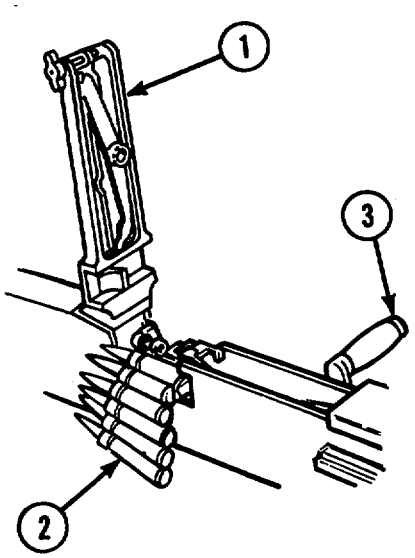
REMEDIAL ACTION

WARNING

Keep the weapon pointed downrange while performing the following procedures.

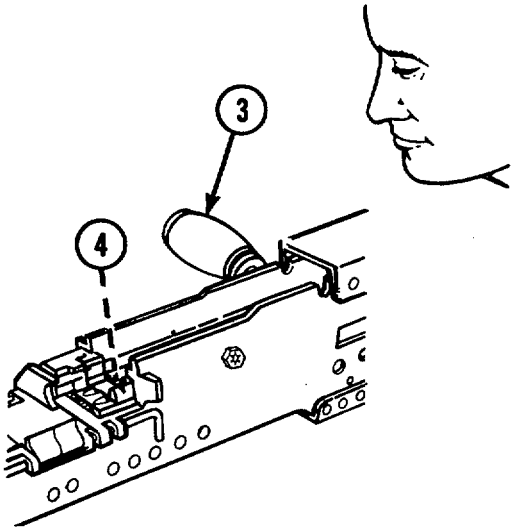
1 Open cover (1) and remove ammunition belt (2).

2 Pull retracting slide handle (3) to the rear.



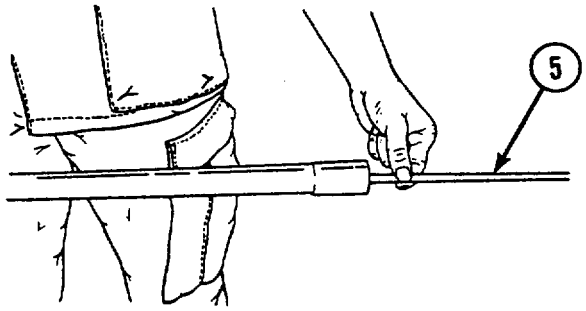
3 If round is not ejected, lock bolt to the rear, and, if applicable, return retracting slide handle (3) forward.

4 Visually inspect for cartridge in chamber (4).



2-7. NORMAL OPERATION (cont)

REMEDIAL ACTION (cont)



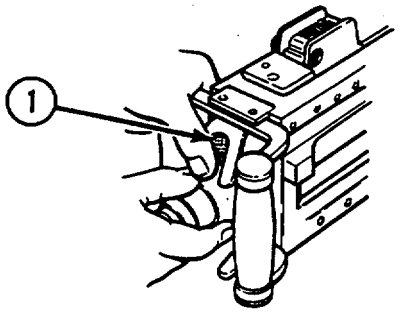
5 If round is present in the chamber, with a second man standing to the side of the weapon, insert a cleaning rod (5) into the muzzle end of the machine gun and gently tap the round/case from the chamber.

6 The weapon is now clear.

7 Return bolt to forward position.

8 Check the weapon to determine the cause of the stoppage using the TROUBLESHOOTING CHART (p 3-6), or turn in to unit maintenance for repair.

UNLOADING AND CLEARING THE GUN



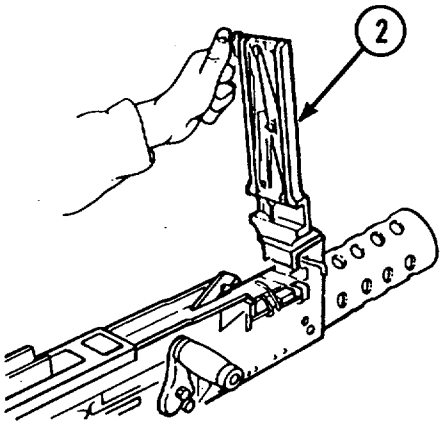
1 Place safety on SAFE (M48 turret type and fixed type).

2 Unlock the bolt latch release (1).

2-7. NORMAL OPERATION (cont)

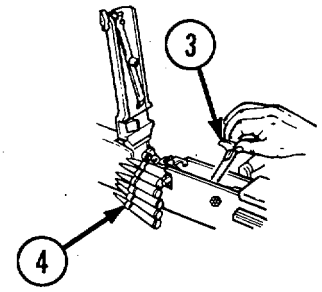
UNLOADING AND CLEARING THE GUN (cont)

3 Raise the cover (2).



4 Lift the cartridge extractor (3) and remove the ammunition belt (4) from the feedway.

5 Place cartridge extractor down and close cover.



WARNING

Round may fall to surface and possibly explode.

6 Pull and lock the bolt to the rear, leaving the retracting slide handle to the rear. Open cover.

NOTE

Step 7 is for the M48 turret type and fixed type.

7 Move M10 lock selector to the rear. Charge the weapon.

2-7. NORMAL OPERATION (cant)

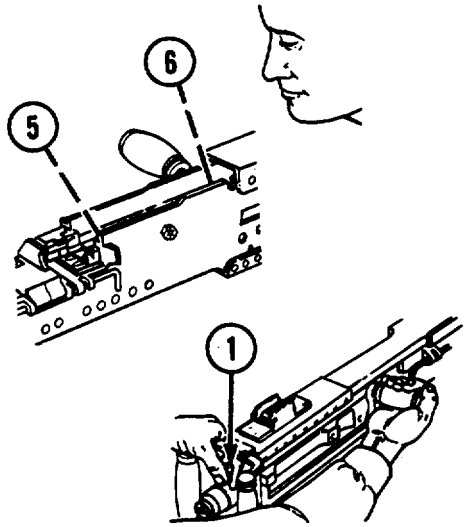
UNLOADING AND CLEARING THE GUN (cont)

WARNING

Chamber may be hot. Use caution while inspecting T-slot.

8 Visually inspect the chamber (5) and T-slot (6) for rounds (in darkness the gunner must feel the chamber and T-slot to ensure they are clear).

9 Press the bolt latch release (1) and ease the bolt forward with retracting slide handle.



Note

Steps 10 and 12 are for the M48 turret type and fixed type.

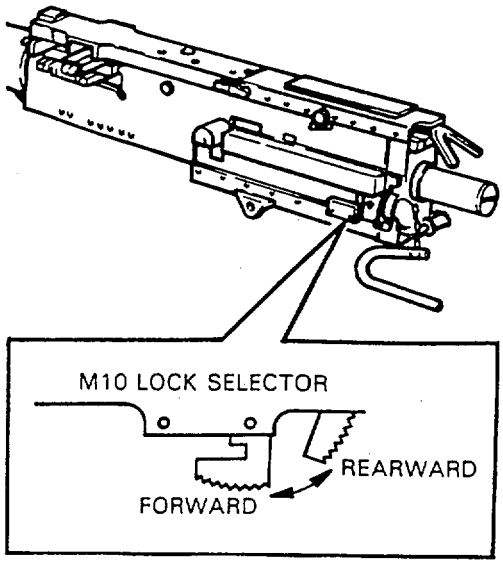
10 Move the M10 lock selector forward and pull back on charging handle until a click is heard, then ease the bolt forward.

11 Close the cover.

12 Place safety on FIRE.

13 Press the trigger.

14 Perform "after operation" Preventive Maintenance Checks and Services (p 2-12).



2-7. NORMAL OPERATIONS (cont)

INSTALLATION ON THE M3 TRIPOD

1 Firmly plant M3 tripod.

2 Lower MK 93 Mount pintle into the M3 Tripod ground mount bearing sleeve assuring the pintle latch locks the MK 93 in place.

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INSTALLATION ON MK 93 MOD 0 MOUNT

NOTE
The M2 should be mounted without the barrel.

NOTE
If required, remove the .50 caliber pin assembly.

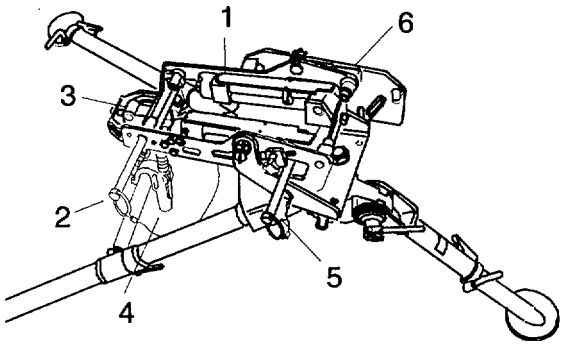
1 Rotate shock absorber assemblies (1) to the 'UP' position.

2 Remove rear .50 caliber pin assembly (2) from the rear slider assembly (3).

3 Rotate rear slider assembly (3) to 'UP' position.

INSTALLATION ON MK 93 MOD 0 MOUNT (cont)

4 Install T & E mechanism (4) onto the mount.



5 Place the M2 in the mount and insert pin assembly (5) through slider and weapon.

6 Align rear mounting hole of the M2 with the rear slider assembly and insert pin (2).

7 Mount the .50 caliber ammunition can bracket on the mount's side plate (6).

8 To remove, reverse installation procedures.

INSTALLATION ON MK 93 MOD 1 MOUNT

1 If present, remove original HMMWV pedestal.

2 Place the MK 175 adapter assembly (1) into the HMMWV ring socket (2) and insert the quick release pin (3).

3 Insert the MK 93 mount pintle (4) into socket and insert quick release pin (5).

4 Lock the lower body at 0 degrees azimuth with the stow lock and adjustable arm assemblies locked at 0 degrees elevation.

5 Install the catch bag (p 3-100.1).

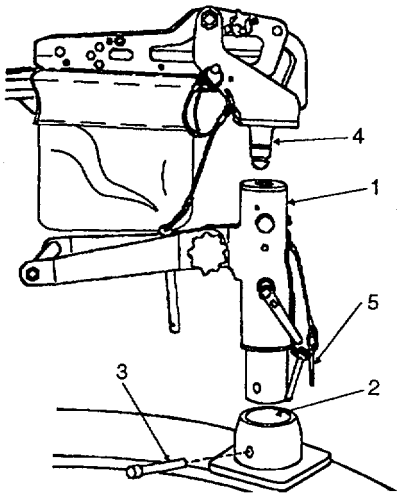
6 Attach the T & E mechanism between the MK 175 and the MK 93 mount.

7 Install weapon onto the MK 93 MOD 1.

8 Install the appropriate ammunition can bracket.

INSTALLATION ON THE MK 93 MOD 1 **MOUNT**

9 To remove, reverse installation procedures.



Section IV. OPERATION UNDER UNUSUAL CONDITIONS

PROTECTIVE MEASURES FOR UNUSUAL CONDITIONS

2-8. EXTREME COLD CLIMATES

NOTE
Refer to FM 31-71.

a. All moving parts of machine guns and mounts must be kept free of moisture. Before firing in temperatures below 0°F (-18°C), completely disassemble and clean all parts of the machine gun and oil with weapons lubricating oil (item 8, app D). Remove excess oil from moving parts.

b. When the machine gun and mounts are moved indoors they must first be brought to room temperature, then cleaned and lightly oiled with weapons lubricating oil (item 8 app D).

c. If the machine gun has been fired, the bore must be immediately swabbed out with several patches saturated with rifle bore cleaning compound (RBC) (item 5, app D). Use dry patches to remove all solvent film.

2-9. EXTREME HEAT AND HUMIDITY

In climates where temperature and humidity are high, the weapons and mounts should be thoroughly inspected on a daily basis and disassembled to lubricate.

2-10. HOT, DRY CLIMATES

NOTE

Hot, dry climates are usually areas containing dust and sand.

a. In climates where sand and dust enter the working parts and bore of the weapon, the machine gun should be disassembled and wiped clean with a wiping rag (item 10, app D) at least once daily. Remove excess oil from moving parts.

b. The lubricants on exposed and noncritical operating surfaces of the mounts should be wiped. This will prevent wind blown sand from sticking to the lubricating oil and forming an abrasive. Remove excess oil from moving parts.

c. Immediately upon leaving sandy terrain, clean and lubricate with general purpose lubricating oil (item 7, app D).

2-10. HOT, DRY CLIMATES (cont)

d. After handling, wipe with a wiping rag (item 10, app D) to remove perspiration which will cause rust.

e. During sand or dust storms the machine guns and mounts should be I covered, if possible.

2-11. HOT, HUMID, AND SALTY CLIMATES

Hot, humid, and salty atmospheric conditions necessitate more frequent cleaning and lubricating of bore and exposed metal surfaces. When weapon and mounts are not in use, cover surfaces with a film of general purpose lubricating oil 7, app D) and keep covers in place.

2-12. EXPOSURE TO WATER

After exposure to water, especially salt water (accidentally splashed or sub merged), drain, wipe dry, clean, and lubricate the weapons and mounts as soon as practical.

2-13. USE OF AUXILIARY BOLT HANDLE

When primary method of charging weapon fails, install auxiliary bolt handle (1) on .opposite side of bolt stud. Ensure notch (2) is installed toward barrel end. Rotate auxiliary bolt handle 90 degrees. Follow normal procedures to charge the machine gun.

2-14. BOLT ASSEMBLY FAILS TO LOCK TO THE REAR

NOTE

An assistant is recommended for this procedure. This procedure can be performed either using primary or auxiliary bolt handle method to charge the weapon.

a. Open cover. Charge the machine gun and hold bolt to the rear.

2-14. BOLT ASSEMBLY FAILS TO LOCK TO THE REAR (cont)

b. While holding bolt assembly to the rear, lift extractor and ease bolt forward while fitting front edge of the extractor into the notch of the bolt stop.

c. To release bolt assembly, pull rearward to allow extractor to drop and ease bolt assembly forward.

2-15. NIGHT OPERATION

CLEARING THE GUN

WARNING

Chamber may be hot. Use caution while inspecting T-slot.

Keep fingers out of chamber to prevent injury.

Round may fall to surface and possibly explode.

The gunner must ensure the gun is clear by feeling the T-slot and chamber for rounds.

CHAPTER 3

MAINTENANCE INSTRUCTIONS

Section I. LUBRICATION INSTRUCTIONS

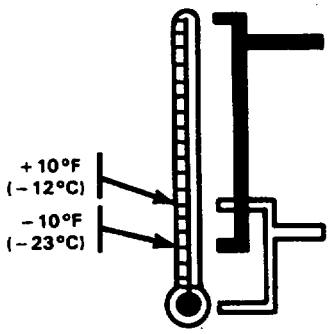
3-1. LUBE GUIDE

Under all but the coldest arctic conditions, LSA (item 9, app D) or CLP (item 4, app D) are the recommended lubricants to use on your machine gun. Remember to remove excessive oil from the bore before firing.

NOTE

Lubrication instructions are mandatory. It is not recommended to mix lubricants on the same weapon. The weapon must be thoroughly cleaned during change from one lubricant to another. Dry cleaning solvent (available at unit maintenance) is recommended for cleaning during change from one lubricant to another. Navy personnel follow applicable maintenance requirements cards to perform lubrication and preventive maintenance.

3-1. LUBE GUIDE (cont)



CLP - Cleaner, lubricant and preservative (item 4, app D).

LSA - Weapons lubricating oil, semifluid (item 9, app D).

Between 100F (- 120C) and - 100F (- 23°C) use CLP, LSA, or LAW. Below -100F (-230°C use only LAW.

LAW - Weapons lubricating oil, arctic (item 8, app D).

PL-M - Lubricating oil, general purpose (item 7, app D).

Lightly Lube - A film of oil barely visible to the eye.

MACHINE GUN

CAUTION

Do not use dry cleaning solvent to clean backplate assembly. Use clean wiping rag (item 10, app D) to remove foreign matter. Lubricate exterior very lightly with oil saturated cloth.

a. Immediately after firing, clean all powder fouled surfaces with rifle bore cleaning compound (RBC) (item 5, app D).

b. Field strip machine gun into major groups and assemblies (p 3-36).

c. Clean components with RBC (item 5, app D).

d. Wipe dry and oil with weapons lubricating oil (LSA) (item 9, app D) at temperatures above OOF (-180C), or weapons lubricating oil (LAW) (item 8, app D) at temperatures below 0°F (-18°C).

e. Thereafter, clean and oil as above every 90 days, unless inspection reveals more frequent servicing is required.

3-1. LUBE GUIDE (cont)

MACHINE GUN (CONT)

f. Reassemble major groups and assemblies (p 3-77).

g. Remove oil from barrel bore before firing.

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Section II. TROUBLESHOOTING PROCEDURES

3-2. INTRODUCTION

a. The table lists the common malfunctions which you may find during operation or maintenance of the .50 caliber heavy barrel machine gun. You should perform the tests/inspections and corrective actions in the order listed.

b. This manual cannot list all malfunctions that may occur, nor all tests or inspections and corrective actions. If a malfunction is not listed or is not corrected by listed corrective actions, notify unit maintenance.

c. Numerous malfunctions are caused by improper assembly. Check for proper assembly of all components.

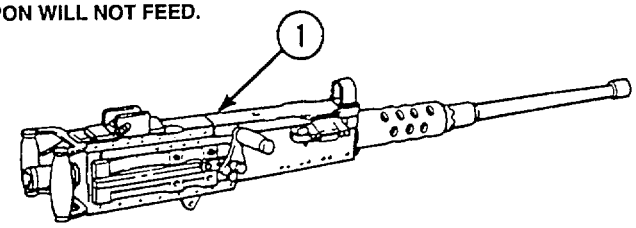
Symptom Index

TROUBLESHOOTING TABLE

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION

MACHINE GUN

1. WEAPON WILL NOT FEED.

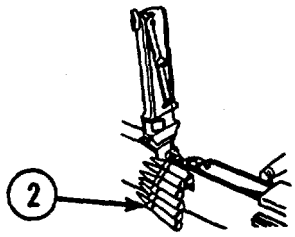


Step 1. Check if cover (1) is completely down and latched.
Latch cover.

TROUBLESHOOTING TABLE (cont)

MALFUNCTION TEST OR INSPECTION CORRECTIVE ACTION

1. WEAPON WILL NOT FEED. (cont)



Step 2. Check ammunition belt (2) for short round or misalined link.

NOTE

Ensure bolt is forward.

Open cover, remove short round or aline link.

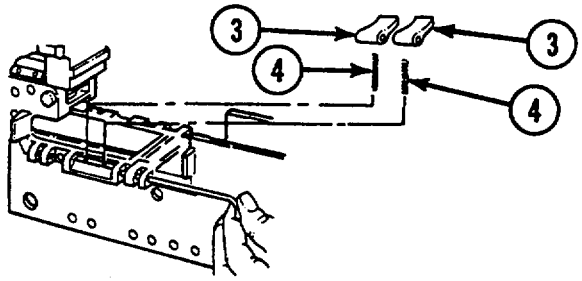
TROUBLESHOOTING TABLE (cont)

MALFUNCTION TEST OR INSPECTION CORRECTIVE ACTION
1. WEAPON WILL NOT FEED. (cont)
Step 3. If weapon repeatedly fires two rounds then fails to feed, check for early timing. Adjust timing (p 2-53).

TROUBLESHOOTING TABLE (cont)

MALFUNCTION TEST OR INSPECTION CORRECTIVE ACTION

1. WEAPON WILL NOT FEED. (cont)



Step 4. Check for weak or broken belt holding pawl assembly (3) or belt feed pawl springs (4).
Notify unit maintenance.

TROUBLESHOOTING TABLE (cont)

MALFUNCTION TEST OR INSPECTION CORRECTIVE ACTION	
1.	WEAPON WILL NOT FEED. (cont)
Step 5.	Improper lubrication.
	Lubricate as necessary (p 3-1).
2.	ROUND WILL NOT CHAMBER.
Step 1.	Check for corroded or damaged ammunition.
	Remove defective ammunition.

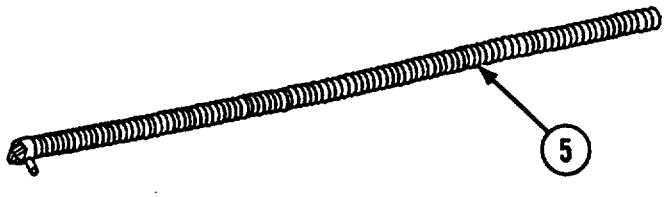
TROUBLESHOOTING TABLE (cont)

MALFUNCTION TEST OR INSPECTION CORRECTIVE ACTION	
2. ROUND WILL NOT CHAMBER. (cont)	
Step 2.	Check chamber and T-slot for obstruction.
	Clear and clean chamber. (If obstruction was ruptured cartridge, check headspace (p 2-39).
Step 3.	Check for tight headspace.
	Adjust headspace (p 2-39).

TROUBLESHOOTING TABLE (cont)

MALFUNCTION TEST OR INSPECTION CORRECTIVE ACTION

2. ROUND WILL NOT CHAMBER. (cont)



Step 4. Check driving spring rod assembly (5) for weak or broken springs or bent rod.

Notify unit maintenance.

TROUBLESHOOTING TABLE (cont)

MALFUNCTION TEST OR INSPECTION CORRECTIVE ACTION
3. BOLT WILL NOT LOCK.
Check to see if bolt returns to forward position.
Adjust headspace (p 2-39).

TROUBLESHOOTING TABLE (cont)

MALFUNCTION TEST OR INSPECTION CORRECTIVE ACTION

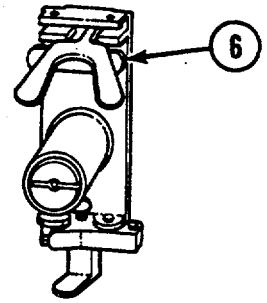
4. WEAPON WILL NOT FIRE.

Step 1. (M48 turret type only) Check if safety lever (6) is in "safe" position.
Place safety lever in "fire" position.

TROUBLESHOOTING TABLE (cont)

MALFUNCTION TEST OR INSPECTION CORRECTIVE ACTION

4. WEAPON WILL NOT FIRE., (cont)



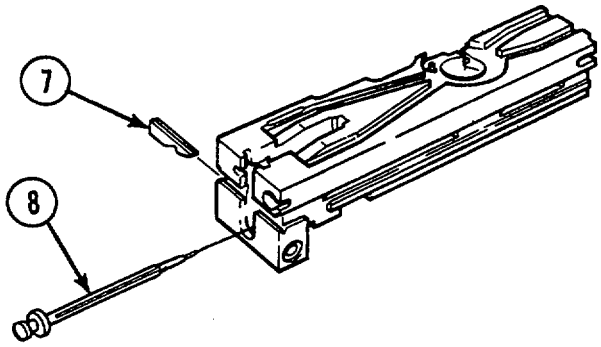
TROUBLESHOOTING TABLE (cont)

MALFUNCTION TEST OR INSPECTION CORRECTIVE ACTION	
4. WEAPON WILL NOT FIRE. (cont)	
Step 2. Check for defective ammunition.	
Remove defective ammunition.	
Step 3. Check for incorrectly installed sear slide (7).	
Install sear slide from left side.	
Step 4. Check for broken or damaged firing pin (8).	
Notify unit maintenance.	

TROUBLESHOOTING TABLE (cont)

MALFUNCTION TEST OR INSPECTION CORRECTIVE ACTION

4. WEAPON WILL NOT FIRE. (cont)



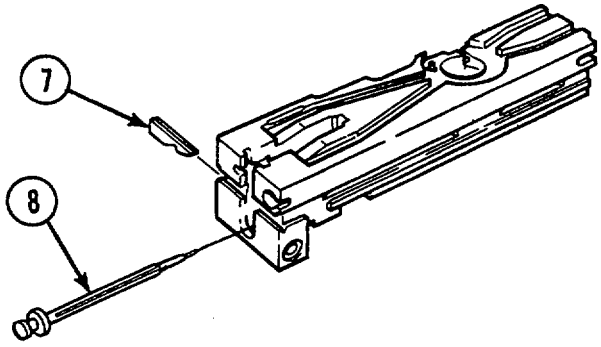
TROUBLESHOOTING TABLE (cont)

MALFUNCTION TEST OR INSPECTION CORRECTIVE ACTION	
4. WEAPON WILL NOT FIRE. (cont)	
Step 5.	Check firing pin well inside bolt (9) for obstruction. Clean the interior of the bolt with a swab (item 11, app D) saturated with RBC (item 5, app D). Lubricate by applying light coat of lubricating oil (item 7, 8, or 9, app D) to interior of bolt.
Step 6.	Inspect firing pin (8) and firing pin extension (10) for burrs or broken firing pin spring (11). Notify unit maintenance.

TROUBLESHOOTING TABLE (cont)

MALFUNCTION TEST OR INSPECTION CORRECTIVE ACTION

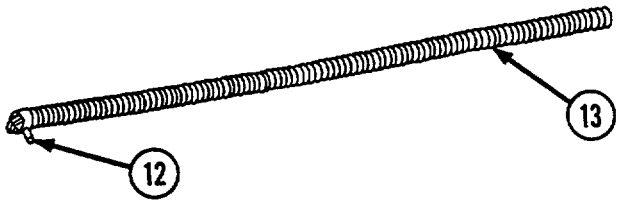
4. WEAPON WILL NOT FIRE. (cont)



TROUBLESHOOTING TABLE (cont)

MALFUNCTION TEST OR INSPECTION CORRECTIVE ACTION

4. WEAPON WILL NOT FIRE. (cont)



Step 7. Check for bent driving spring rod (12) or weak or broken rod springs (13).

Notify unit maintenance.

TROUBLESHOOTING TABLE (cont)

MALFUNCTION TEST OR INSPECTION CORRECTIVE ACTION

4. WEAPON WILL NOT FIRE. (cont)
   Step 8. Check for incorrect timing.
   Adjust timing (p 2-53).

NOTE

If weapon still will not fire, refer to TM 9-2350-255-10 or TM 9-2350-264-10.

5. WEAPON WILL NOT UNLOCK.

   Check for incorrect timing.

   Adjust timing (p 2-53).

TROUBLESHOOTING TABLE (cont)

MALFUNCTION TEST OR INSPECTION CORRECTIVE ACTION

6. WEAPON WILL NOT EXTRACT.

Step 1. Check headspace; tight headspace will cause binding and excessive friction between the moving parts during recoil.

Adjust headspace (p 2-39).

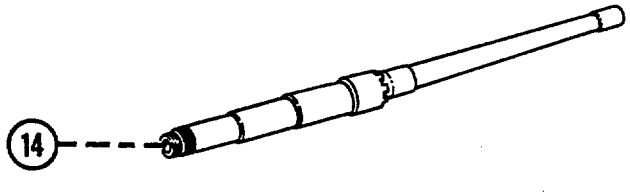
Step 2. Check for ruptured cartridge.

Remove ruptured cartridge (p 2-83). Adjust headspace (p 2-39).

TROUBLESHOOTING TABLE (cont)

MALFUNCTION TEST OR INSPECTION CORRECTIVE ACTION

6. WEAPON WILL NOT EXTRACT. (cont)



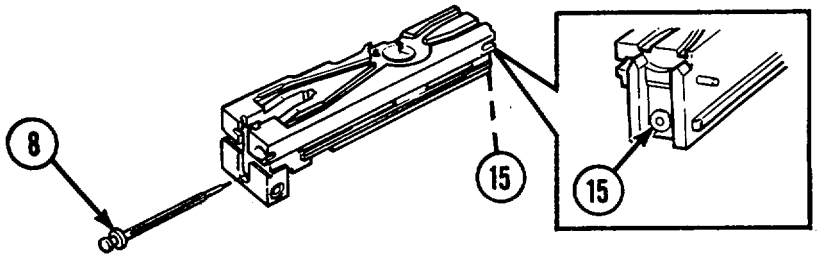
Step 3. Check chamber (14) for excessive pitting.

Replace barrel. Adjust headspace (p 2-39) and timing (p 2-53).

TROUBLESHOOTING TABLE (cont)

MALFUNCTION TEST OR INSPECTION CORRECTIVE ACTION

7. WEAPON WILL NOT EJECT,



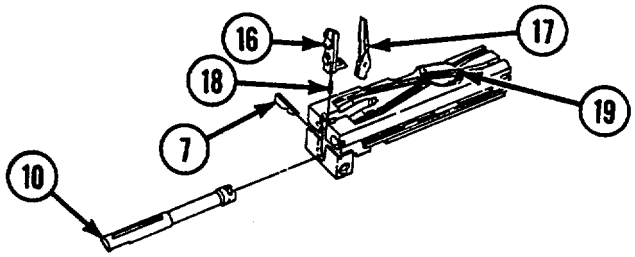
Check bolt face (15) for enlarged firing pin hole and deformed firing pin (8). These can cause the spent brass to bind in the T-slot, preventing ejection.

Notify unit maintenance.

TROUBLESHOOTING TABLE (cont)

MALFUNCTION TEST OR INSPECTION CORRECTIVE ACTION

8. WEAPON WILL NOT COCK.



Check notch on sear (16), sear slide (7), and firing pin extension (10). Check cocking lever (17) for wear and proper installation. Check sear spring (18) and bolt switch (19) for proper installation (p 3-92).

Notify unit maintenance.

TROUBLESHOOTING TABLE (cont)

MALFUNCTION TEST OR INSPECTION CORRECTIVE ACTION
9. SLUGGISH OPERATION.
Check for dirt, carbon, burrs, and lack of lubrication.
Clean and lubricate.

(Pages 3-31 through 3-34 have been removed.)

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Section III. FIELD STRIPPING AND MAINTENANCE PROCEDURES FOR MACHINE GUN

3-3. REMOVAL OF BARREL ASSEMBLY

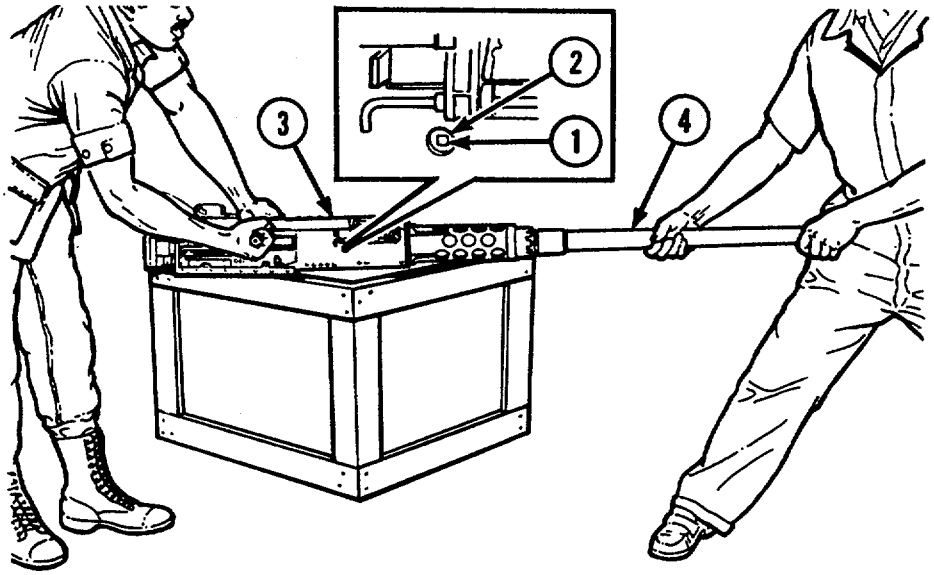
WARNING

To avoid accidental firing, remove ammunition, clear weapon (p 2-93), and verify chamber is clear.

Heat protective mitten should be used when barrel is hot.

1. Retract bolt far enough for barrel locking spring lug (1) to center in barrel locking spring hole (2) on right hand side of receiver (3).

2. Unscrew and remove barrel assembly (4).


1
2
3
4

3-4. REMOVAL OF BACKPLATE ASSEMBLY

WARNING

Never remove the backplate assembly from any weapon until the chamber has been cleared.

Do not attempt to remove backplate unless the bolt is in the forward position.

Do not attempt to charge weapon without backplate assembled to the machine gun.

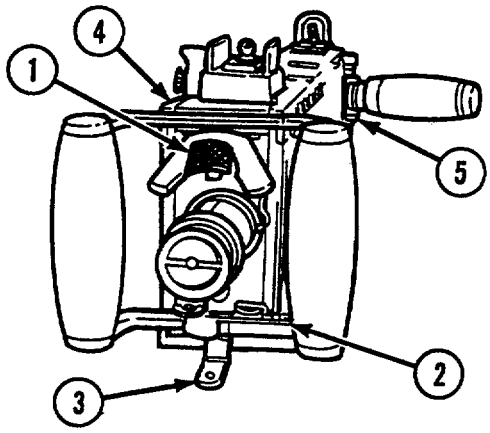
NOTE

Illustration shows flexible type backplate. Procedure applies to both the flexible and M48 turret type backplates.

1 Ensure bolt latch release (1) is in unlocked (single shot) position (flexible type and soft mount type only).

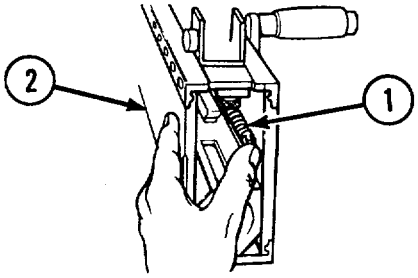
CAUTION
Do not stand behind machine gun while removing backplate.

2 Pull backplate latch lock (2) straight back, while lifting up on backplate latch (3). Raise backplate assembly (4) straight up and remove from receiver (5).



3-5. REMOVAL OF DRIVING SPRING ROD ASSEMBLY

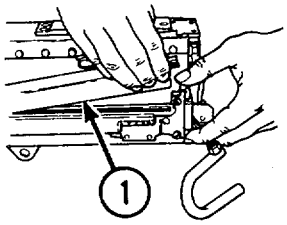
Push rear of driving spring rod assembly (1) forward and to the left until free from the side of receiver (2). Remove driving spring rod assembly (1).



3-6. REMOVAL OF BOLT ASSEMBLY

NOTE

For M48 turret type remove M10 charger cover (1) first.

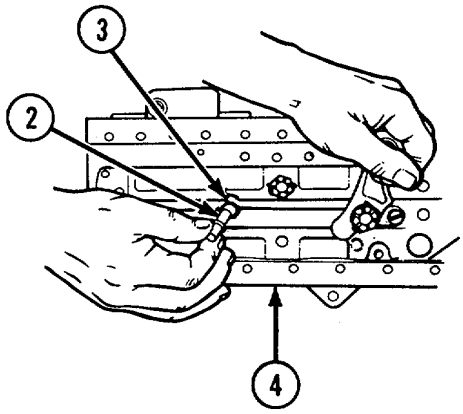


NOTE

The bolt stud (2) is removed from the right side of the receiver for the flex and from the left side of the receiver for the M48 turret type.

Bolt latch cannot be pushed up until step 1 is completed.

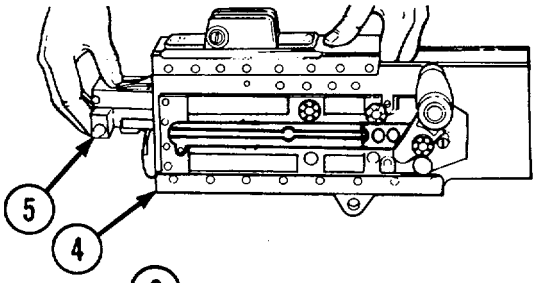
1 Retract bolt assembly far enough to aline bolt stud (2) with (enlarged) bolt stud hole (3) in receiver (4). Remove bolt stud (2).



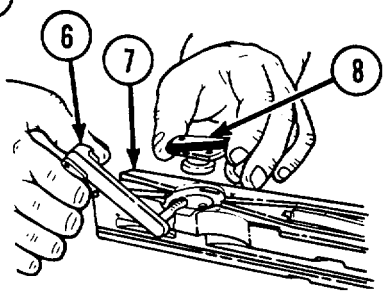
3-6. REMOVAL OF BOLT ASSEMBLY (cont)

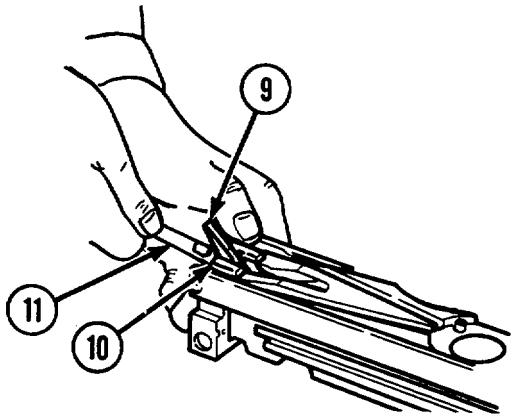
NOTE
For flex type, bolt latch must be pushed up to remove bolt.

2 Remove bolt assembly (5) from receiver (4).



3 Rotate cartridge extractor (6) upward and remove from left side of bolt (7). Remove bolt switch (8) by lifting straight up from bolt (7).

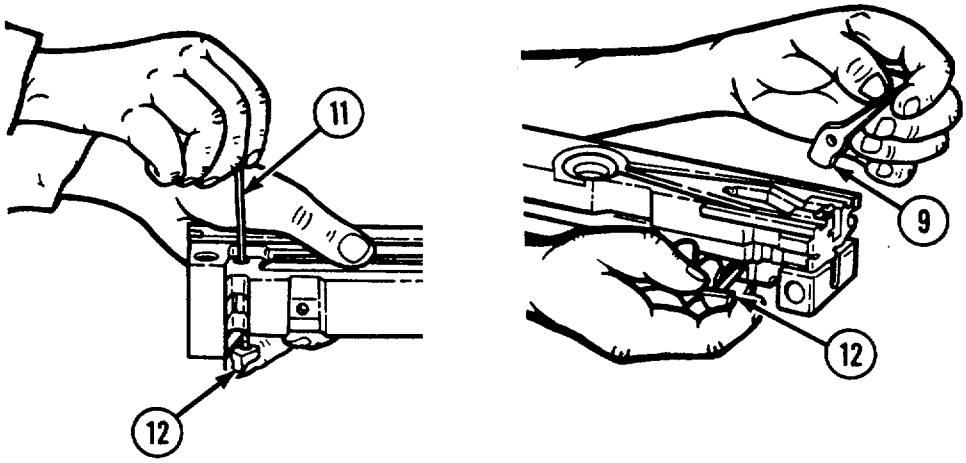




4 Place cocking lever (9) in its rearmost position.

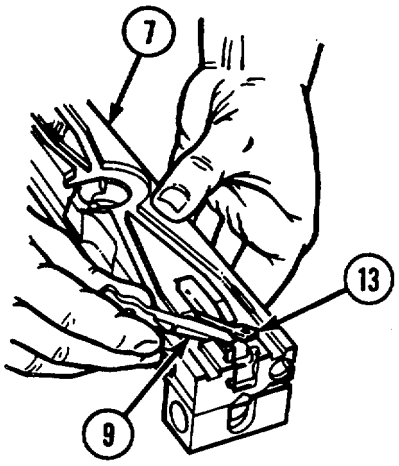
5 Release firing pin spring by pressing down on sear (10) with swab holder sec- tion (11).

3-6. REMOVAL OF BOLT ASSEMBLY (cont)

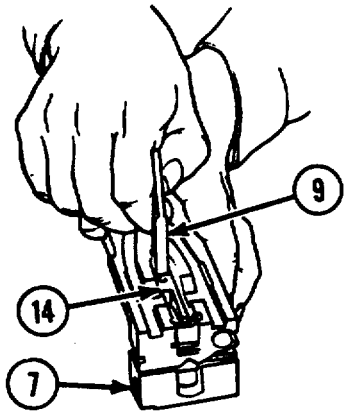


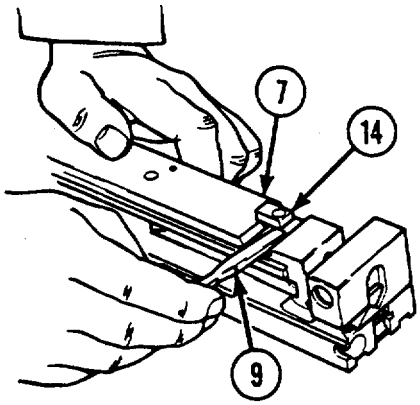
6 Using swab holder section (11), remove cocking lever pin (12) and cocking lever (9).

7 Using thin end of cocking lever (9), rotate accelerator stop lock (13) to center of recess in bolt (7). Pry up accelerator stop lock (13) and remove.



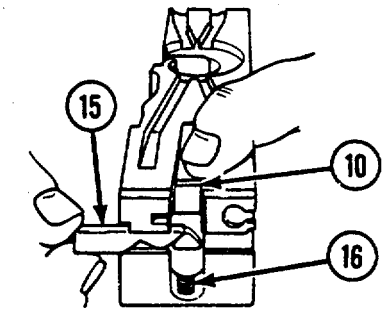
3-6. REMOVAL OF BOLT ASSEMBLY (cont)



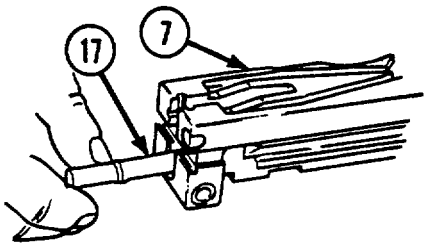


8 Using thin end of cocking lever (9), press accelerator stop (14) from bolt (7). Turn bolt (7) over and use thin end of cocking lever (9) to pry accelerator stop (14) from bottom of bolt.

9 Depress sear (10) and remove sear slide (1 5). Remove sear (10) and sear spring (16).

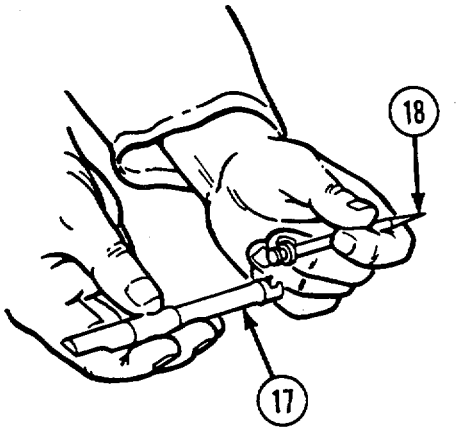


10 Tip the front end of the bolt (7) upward and remove firing pin extension assembly (17).

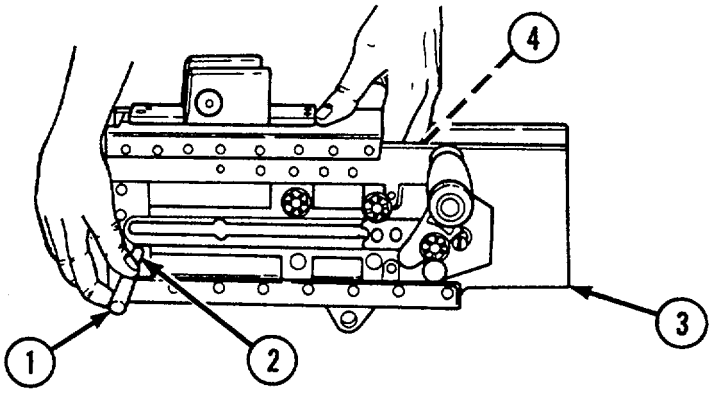


3-6. REMOVAL OF BOLT ASSEMBLY (cont)

11 Remove firing pin (18) from firing pin extension assembly (17).



3-7. REMOVAL AND FIELD STRIP OF BARREL BUFFER AND BARREL EXTENSION ASSEMBLIES



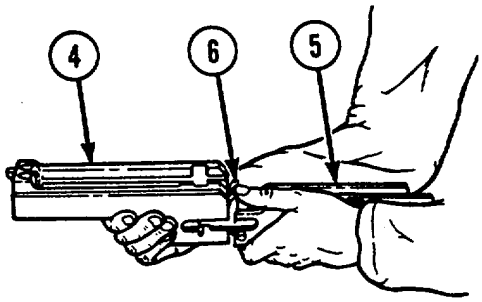
1 install pointed end of M4 cleaning rod (1) into hole (2) in receiver (3) and depress buffer body lock while applying rearward pressure on barrel extension assembly (4).

3-7. REMOVAL AND FIELD STRIP OF BARREL BUFFER AND BARREL EXTENSION ASSEMBLIES (cont)

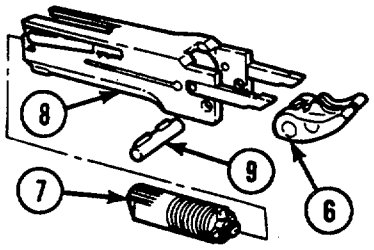
WARNING

While removing barrel buffer assembly (5) and barrel extension assembly (4), maintain thumb pressure on buffer accelerator (6).

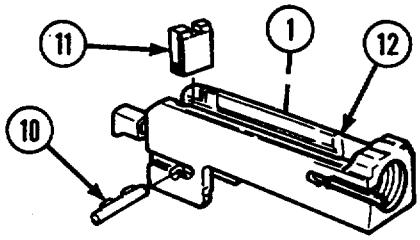
2 Remove barrel buffer assembly (5) and barrel extension assembly (4) together. Separate the assemblies by pushing forward on tips of buffer accelerator (6).



3 Remove buffer assembly (7) by pushing it out rear of barrel buffer body (8). Drive accelerator pin assembly (9) from barrel buffer body (8) with swab holder. Remove buffer accelerator (6).

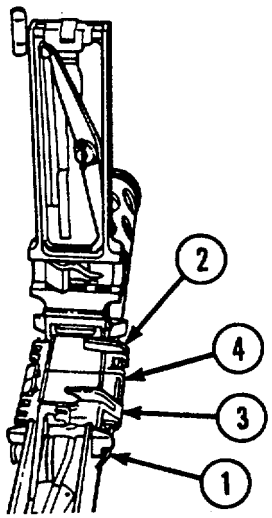


4 Use pointed end of M4 cleaning rod (1) to remove breech lock pin assembly (10) and breech lock (11) from barrel extension assembly (12).



3-8. REMOVAL AND FIELD STRIP OF RECEIVER ASSEMBLY

1 Remove belt holding pawl pin (1) attaching front cartridge stop (2) and rear cartridge stop assembly (3) to receiver (4). Remove front cartridge stop (2) and rear cartridge stop assembly (3).

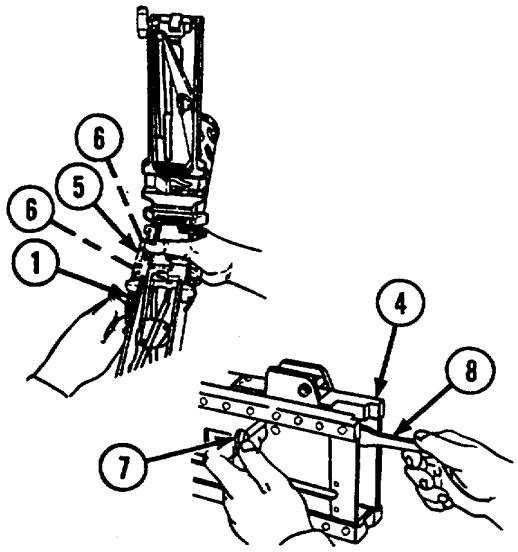


NOTE

Hold down on belt holding pawl assembly to prevent loss of springs.

2 Remove belt holding pawl pin (1), belt holding pawl assembly (5), and two springs (6).

3 Raise loop of trigger lever pin (7) and rotate pin until loop is in vertical position. Reach inside receiver (4) and hold trigger lever (8) while removing trigger lever pin assembly (7). Remove trigger lever (8).



3-9. MAINTENANCE OF BARREL ASSEMBLY

CLEANING

NOTE

Do not reverse direction of bore brush while in bore in order to prevent damage to the bore brush and bore.

1 Using the cleaning rods, bore brush, and RBC (item 5, app D), dip bore brush in RBC and run rod through chamber (1) of barrel (2). Unscrew bore brush fr6m cleaning rods, remove rods from bore, rescrew bore brush to rods, and repeat process until clean.

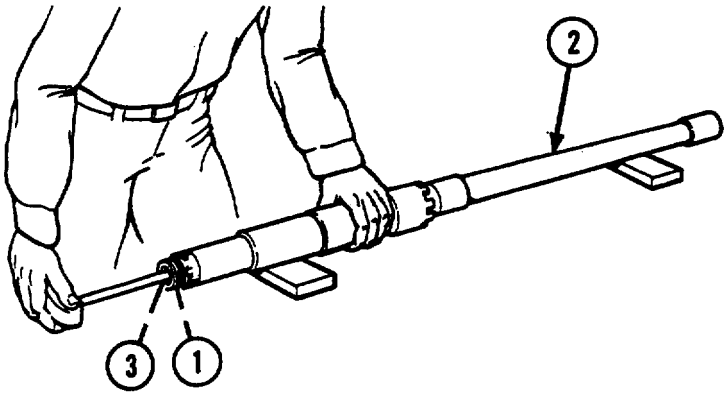
2 Using cleaning rods and chamber brush, dip chamber brush in RBC (item 5, app D) and clean chamber (1) using clockwise twisting motion. Unscrew chamber brush from cleaning rods, remove rods from bore, rescrew chamber brush to rods, and repeat process until clean.

3 Remove chamber brush from swab holder section, insert a cleaning swab (item 11, app D) in slot, then run clean swab through bore (3), from chamber end and back. Repeat until a clean swab is obtained.

NOTE

Chamber and bore must be clean, dry, and free of oil before firing and/or inspection.

4 Clean outside surface of barrel (2) with carbon removing compound (item 3, app D). Wipe all surfaces dry with clean wiping rags (item 10, app D).



3-9. MAINTENANCE OF BARREL ASSEMBLY (cont)

INSPECTION

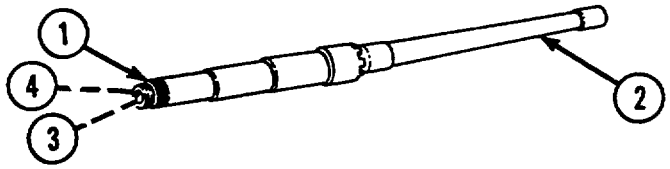
1 Inspect barrel locking notches (1) for wear or breakdown.

2 Inspect barrel (2) for rust.

3 Inspect bore (3) for bulges, missing bands, or large pits. (A bulge will appear as a shadowy depression or ring).

NOTE

Do not be confused by the ring 8 to 10 inches from breech end. This is caused by a "designed in" gap to allow for expansion of the stellite liner when the barrel gets hot.



4 Inspect chamber (4) for bulges or large pits.

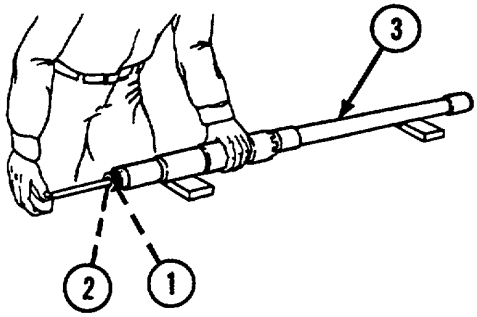
NOTE

If there is any doubt about the condition of barrel, notify unit maintenance.

Unless barrel is to be fired immediately, chamber, bore, and outside surfaces are to be lightly oiled.

LUBRICATION

Place clean cleaning swab (item 11, app D) in swab holder. Dip swab in lubricating oil (item 7, 8, or 9, app D) and run through chamber (1) and bore (2) of barrel (3).



3-10. MAINTENANCE OF BACKPLATE ASSEMBLY

CLEANING

CAUTION
Do not submerge backplate assembly in any fluid.

Use clean wiping rags (item 10, app D) to remove foreign matter from backplate assembly.

INSPECTION

1 Inspect guides (1) for burrs or bent condition.

2 Check backplate latch (2) and backplate latch lock (3) for proper functioning.

3 Ensure locking pins (4) are in place.

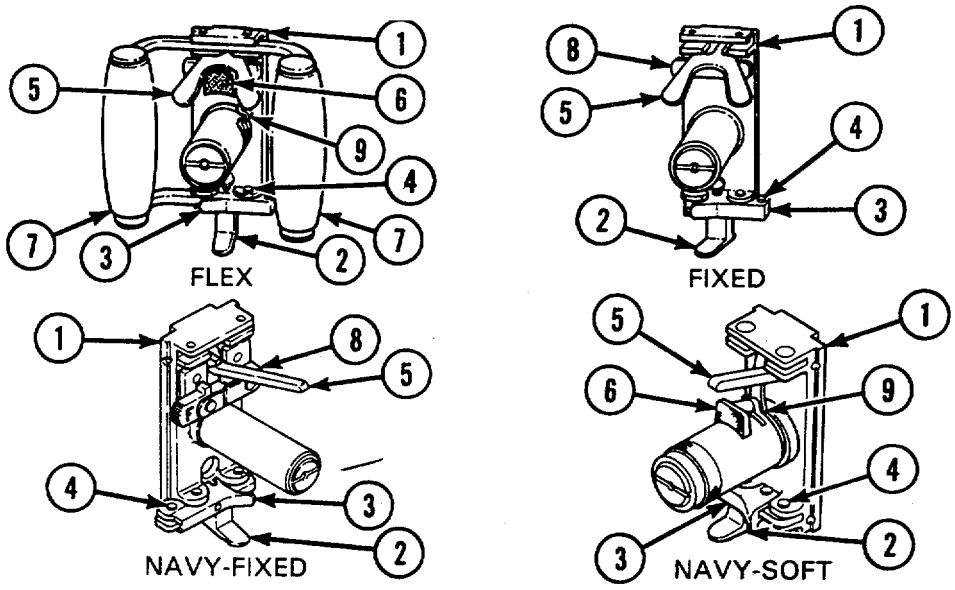
4 Check trigger (5) for proper functioning.

5 Check bolt latch release (6) for proper functioning (flexible type only).

6 Handle grips (7) should not move freely and should not be cracked (flexible type only).

7 Function test safety (8) (M48 turret type only) (p 2-64).

8 Check bolt latch release lock (9) for proper functioning.



3-10. MAINTENANCE OF BACKPLATE ASSEMBLY (cont)

LUBRICATION

Lubricate exterior of backplate assembly very slightly using a clean wiping rag (item 10, app D) saturated with lubricating oil (item 7, 8, or 9, app D).

3-11. MAINTENANCE OF BOLT ASSEMBLY AND ROD ASSEMBLY

CLEANING

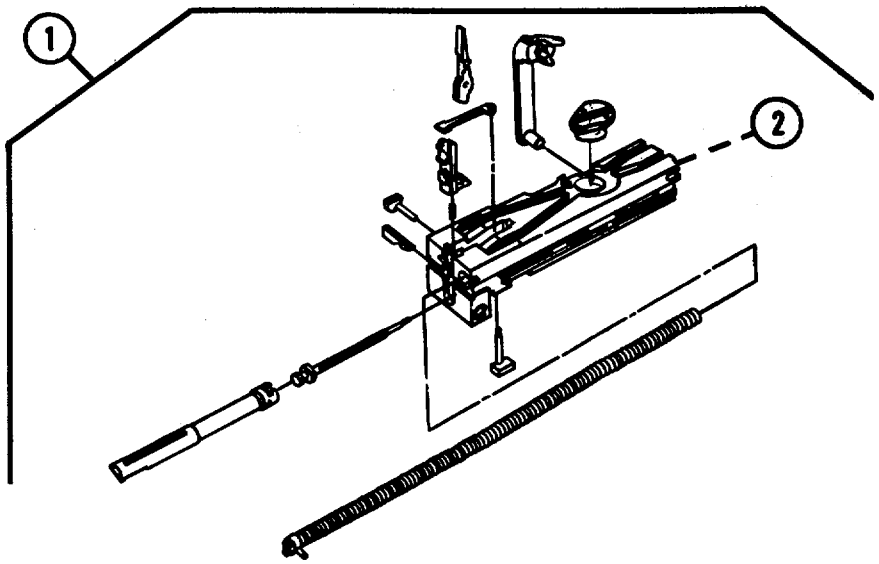
1 Clean all parts of bolt assembly (1) with a cleaning swab (item 11, app D) saturated with carbon removing compound (item 3, app D).

2 Clean face of bolt (2) with a cleaning swab (item 11, app D) saturated with RBC (item 5, app D).

3 Wipe all parts dry with clean wiping rags (item 10, app D).

NOTE

Ensure all traces of RBC are removed from bolt assembly before lubricating.



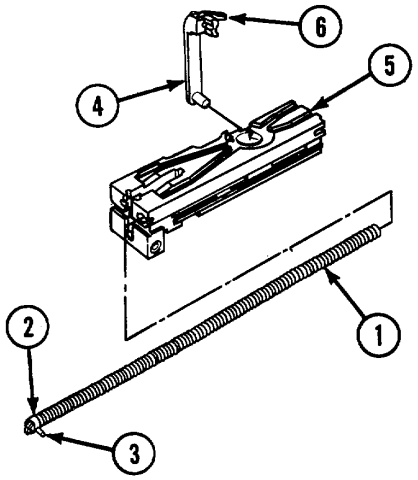
3-61

3-11. MAINTENANCE OF BOLT ASSEMBLY AND ROD ASSEMBLY (cont)

INSPECTION

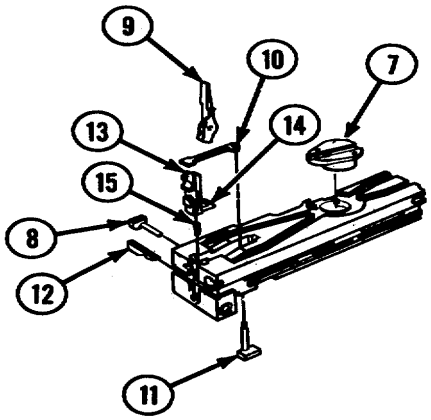
1 Inspect driving spring rod assembly (1) for flat spots on springs. Ensure that springs operate freely and that rod (2) and pin (3) are not bent or broken.

2 Check movement of cartridge extractor (4) in bolt (5). Cartridge extractor (4) should raise and lower without binding. Check movement of cartridge ejector (6). Inspect for cracks and burrs.



3 Inspect bolt switch (7), cocking lever pin (8), cocking lever (9), accelerator stop lock (10), accelerator stop (11), and sear slide (12) for cracks, bends, and burrs.

4 Inspect sear (13) for cracks and burrs, and inspect sear notch (14) for wear, chips, or burrs. Inspect sear spring (15) for breaks or lack of tension.



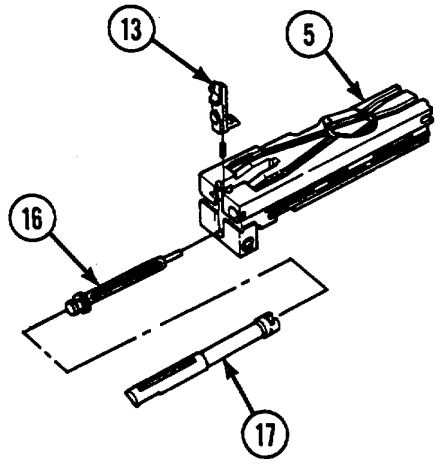
3-11. MAINTENANCE OF BOLT ASSEMBLY AND ROD ASSEMBLY (cont)

5 Inspect firing pin (16) for cracks and chipped or sharp tip.

NOTE
Tip should be smooth and well rounded.

6 Check firing pin extension (17) for cracks, burrs, and free movement in bolt (5). Ensure shoulder that engages sear (13) has a sharp angle and is free of chips and burrs.

7 Ensure bolt (5) is free of burrs, and cracks. Firing pin hole must not be visibly out of round.



LUBRICATION

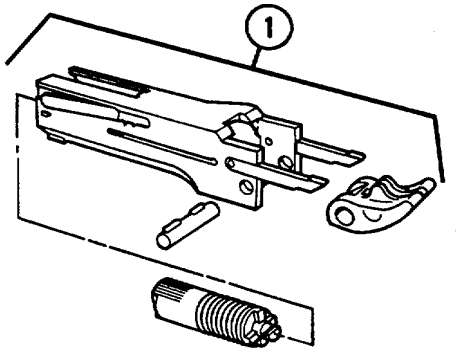
Apply light coat of lubricating oil (item 7, 8, or 9, app D) to all parts of bolt assembly and rod assembly.

3-12. MAINTENANCE OF BARREL BUFFER ASSEMBLY

CLEANING

1 Clean all parts of barrel buffer assembly (1) with a cleaning swab (item 11, app D) saturated with carbon removing compound (item 3, app D).

2 Wipe all parts dry with clean wiping rag (item 10, app D).



3-12. MAINTENANCE OF BARREL BUFFER ASSEMBLY (cont)

INSPECTION

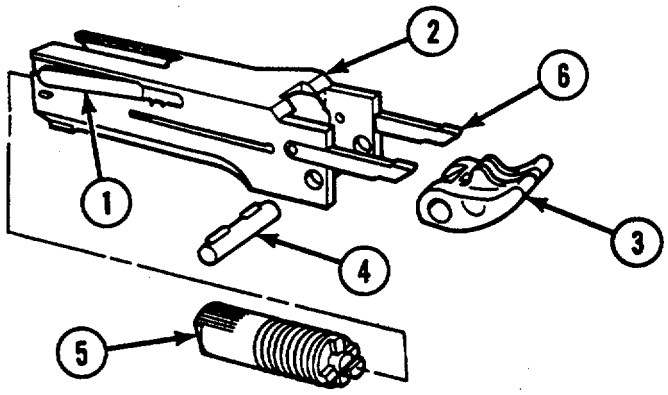
1 Inspect buffer body lock (1) for tension, staking, and retention in barrel buffer body (2).

2 Inspect buffer accelerator (3) for broken claws or tips.

3 Inspect accelerator pin assembly (4) for broken or missing spring.

4 Inspect buffer spring (5) for cracks or breaks.

5 Breech lock depressors (6) must have slight vertical (up and down) movement but should not have lateral (side to side) movement.



LUBRICATION

Apply a light coat of lubricating oil (item 7, 8, or 9, app D) to all parts of barrel buffer assembly.

3-13. MAINTENANCE OF BARREL EXTENSION ASSEMBLY

CLEANING

1 Clean all parts of barrel extension assembly with a cleaning swab (item 11, app D) saturated with carbon removing compound (item 3, app D).

2 Wipe all parts dry with clean wiping rag (item 10, app D).

INSPECTION

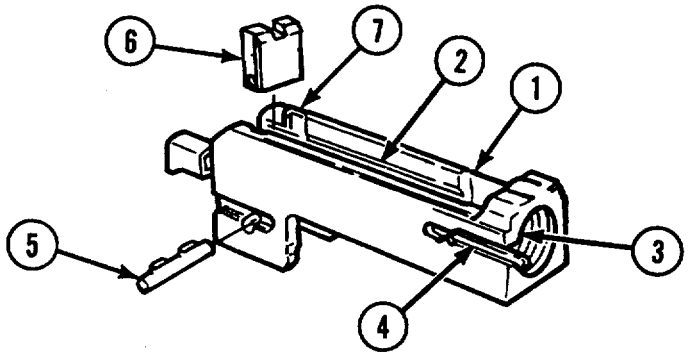
1 Inspect barrel extension assembly (1) to ensure it is not bent and that the bolt guideways (2) are smooth and free of burrs.

2 Visually inspect threads (3) of barrel extension assembly (1) for any damage.

3 Ensure barrel locking spring (4) is staked and fully seated in its groove. Also ensure the locking end of the spring has good tension and the lug is not damaged.

4 Inspect breech lock pin assembly (5) for broken or missing spring.

5 Check breech lock (6) for smooth movement in guideways (7) of barrel extension assembly (1).



LUBRICATION

Apply a light coat of lubricating oil (item 7, 8, or 9, app D) to all parts of barrel extension assembly.

3-14. MAINTENANCE OF RETRACTING SLIDE HANDLE (FLEXI- BLE TYPE ONLY)

CLEANING

1 Clean all surfaces of retracting slide handle with a cleaning swab (item 11, app D) saturated with carbon removing compound (item 3, app D).

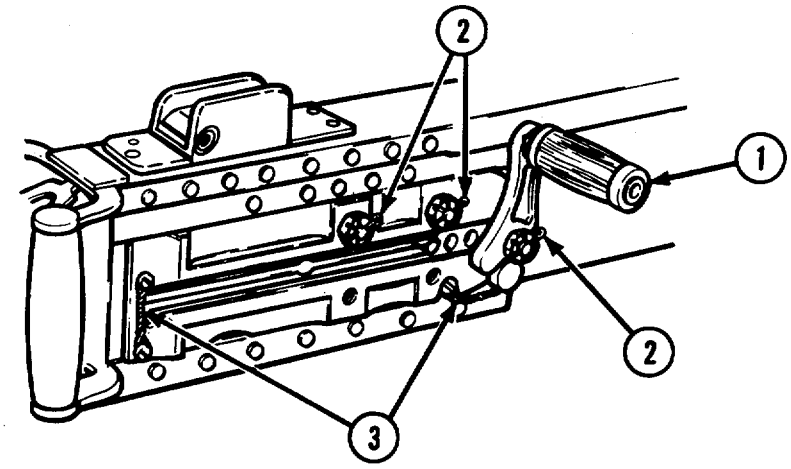
2 Wipe all parts dry with clean wiping rags (item 10, app D).

INSPECTION

1 Inspect retracting slide handle (1) for cracks or other visible damage. Inspect for weak or broken retracting springs.

2 Ensure cotter pins (2) are present and in good condition.

3 Ensure safety wire (3) is in place and properly laced.



LUBRICATION

Apply a light coat of lubricating oil (item 7, 8, or 9, app D) to all parts of retracting slide handle.

3-15. MAINTENANCE OF M10 MANUAL CHARGER (M48 TURRET TYPE ONLY)

CLEANING

1 Clean outside surface of M10 manual charger with a cleaning swab (item 1 app D) saturated with carbon removing compound (item 3, app D).

2 Wipe all parts dry with clean wiping rags (item 10, app D).

INSPECTION

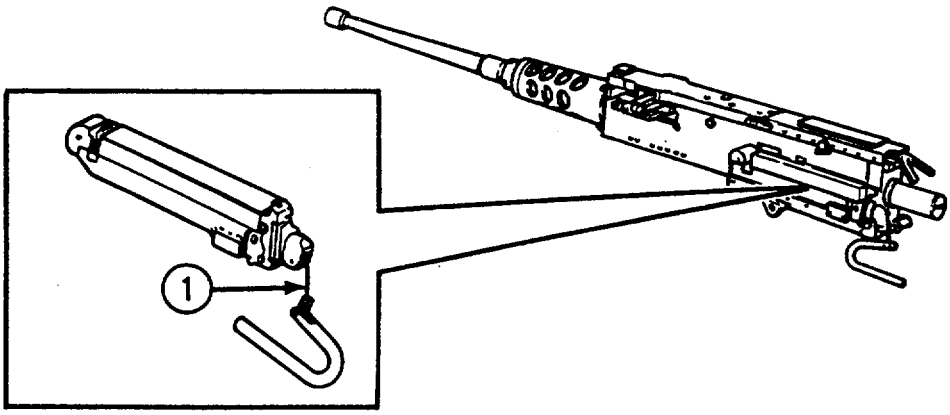
1 Inspect cable (1) for fraying or kinks.

2 Inspect all surfaces (inside and out) for any other visible damage.

3 All other deficiencies noted should be reported to unit maintenance.

LUBRICATION

Apply a light coat of lubricating oil (item 7, 8, or 9, app D) to all parts of M10 manual charger.

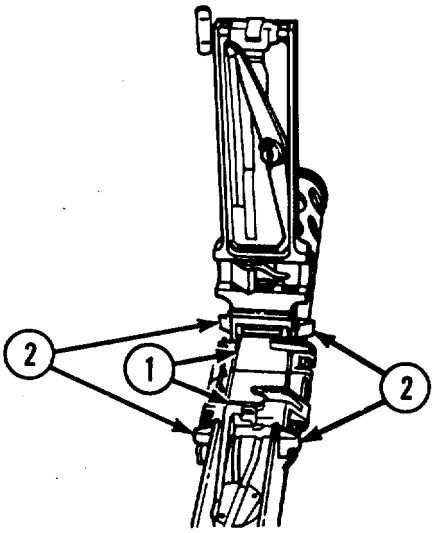


3-16. MAINTENANCE OF RECEIVER ASSEMBLY

CLEANING

1 Clean all surfaces of receiver assembly with a cleaning swab (item 11, app D) saturated with carbon removing compound (item 3, app D).

2 Wipe all parts dry with clean wiping rags (item 10, app D).



INSPECTION

1 Feedway (1) must be clear of obstructions.

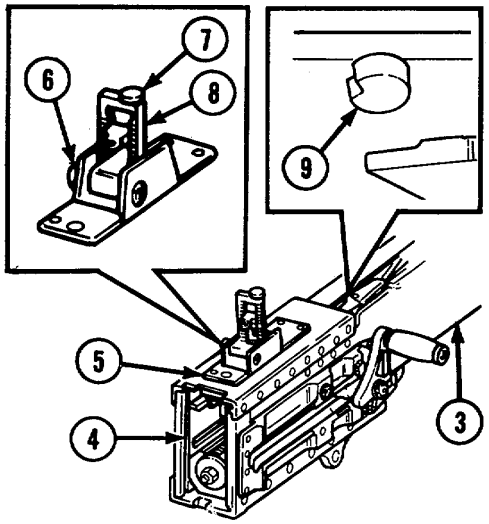
2 Inspect belt holding pawl brackets (2) for looseness, bends, or cracks.

3 Inspect side plates (3) for bends that would affect movement of any internal components.

4 Inspect for cracks and burrs at backplate grooves (4).

5 Check operation of rear sight (5) (flexible type only). Ensure windage screw (6) and elevation screw (7) function without binding. Ensure leaf assembly (8) has good spring tension. Ensure sight assembly is secured tightly to receiver.

6 Ensure bolt stop (9) is present and in good condition.



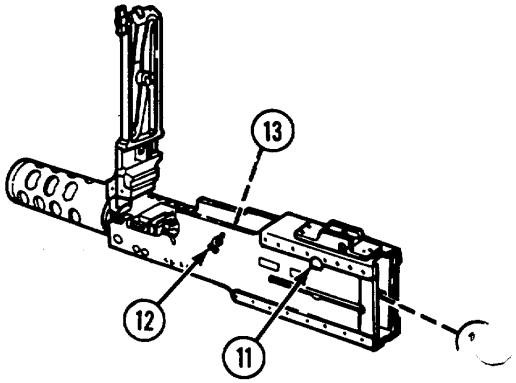
3-16. MAINTENANCE OF RECEIVER ASSEMBLY (cont)

7 Ensure trigger lever (10) moves freely without binding.

8 Ensure trigger lever pin (11) locks in place.

9 Ensure cotter pin (12) is in place on extractor switch (13). LUBRICATION

Apply a light coat of lubricating oil (item 7, 8, or 9, app D) to all parts of receiver group.



3-17. ASSEMBLY OF TRIGGER LEVER

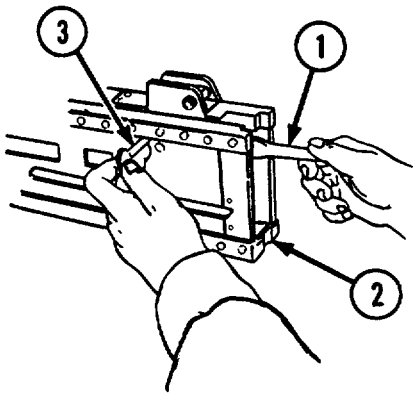
1 Install trigger lever bar (1) in receiver (2).

NOTE
Ensure trigger lever bar is aligned directly under timing nut.

2 Aline hole in trigger lever bar (1) with mounting hole in receiver (2).

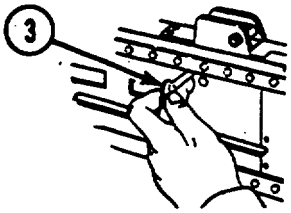
3 Place trigger lever pin assembly (3), loop end vertical, in assembly hole on left side plate of receiver (2).

4 Match key on trigger lever pin assembly (3) with keyway in side plate of receiver (2) and install pin completely.

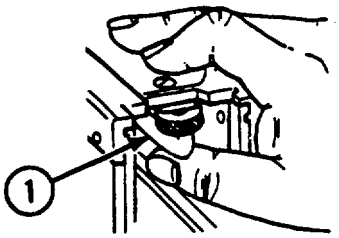


3-17. ASSEMBLY OF TRIGGER LEVER (cont)

5 Rotate trigger lever pin assembly (3) 90 degrees to lock securely in place, and fold down out of the way.



6 Check that trigger lever bar (1) moves freely.



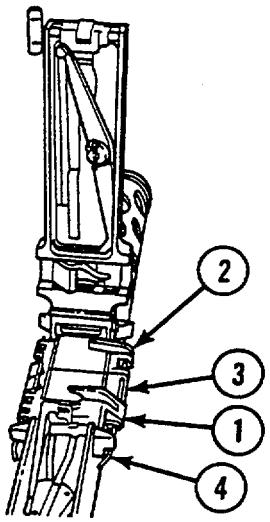
3-18. ASSEMBLY OF RECEIVER ASSEMBLY

NOTE

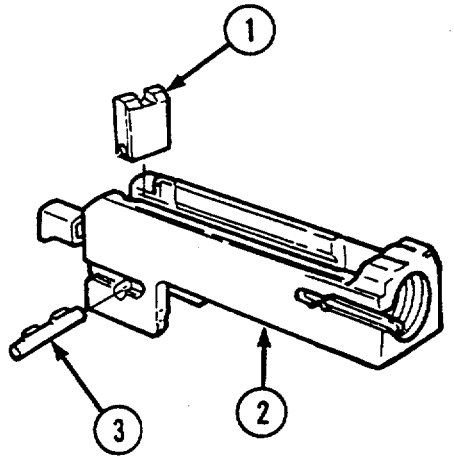
Determine direction of feed before proceeding. Left hand feed is shown.

1 Place right hand rear cartridge stop assembly (1) and front cartridge stop (2) on belt holding pawl bracket (3).

2 Install belt holding pawl pin (4) with hooked end to rear.



3-18. ASSEMBLY OF RECEIVER ASSEMBLY (cont)



3 Seat belt holding pawl springs (5) in place on belt holding pawl bracket (3).

4 Place belt holding pawl assembly (6) on springs (5). Compress springs (5) and insert belt holding pawl pin (4).

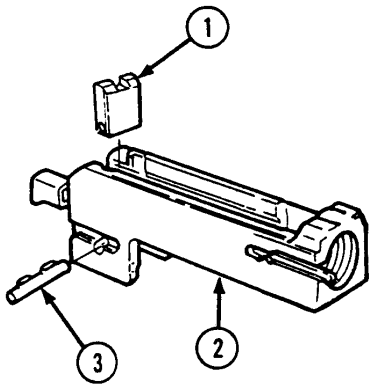
NOTE

To change direction of feed to right hand, refer to unit maintenance.

3-19. ASSEMBLY OF BARREL EXTENSION ASSEMBLY

1 Install breech lock (1) in barrel extension assembly (2) with double beveled edge up and to the front of barrel extension assembly (2).

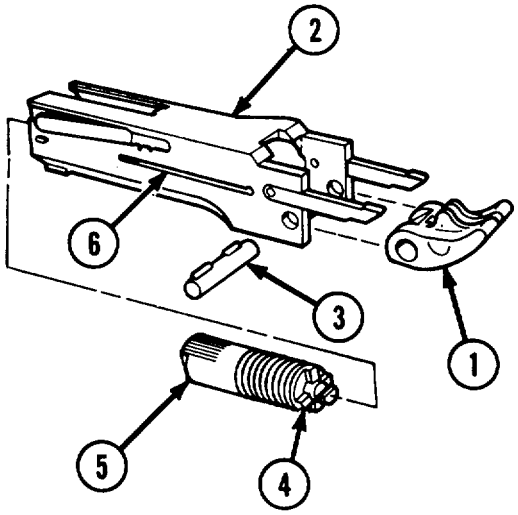
2 Install breech lock pin assembly (3) in barrel extension assembly (2). Ensure both ends of breech lock pin assembly (3) are flush with sides of barrel extension assembly (2).

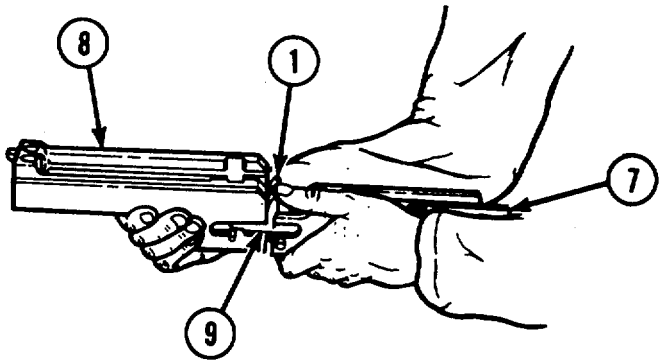


3-20. ASSEMBLY OF BARREL BUFFER ASSEMBLY

1 Place buffer accelerator (1) (tips up) into barrel buffer body (2), alining mounting holes. Install barrel buffer pin assembly (3). Ensure both ends of the barrel buffer pin assembly 13) are flush with the sides of the barrel buffer body (2).

2 Aline key (4) on barrel buffer assembly (5) with key slot (6) in barrel buffer body (2), and slide barrel buffer assembly (5) into barrel buffer body (2).





3 Hold barrel buffer assembly (7) with buffer accelerator (1) up and engage notch on shank of barrel extension assembly (8) with cross groove in piston rod of barrel buffer assembly (7).

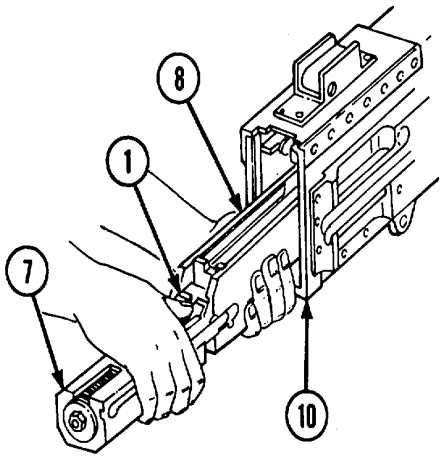
4 Aline breech lock depressors (9) in grooves of barrel extension assembly (8) and push barrel buffer assembly (7) forward.

3-20. ASSEMBLY OF BARREL BUFFER ASSEMBLY (cont)

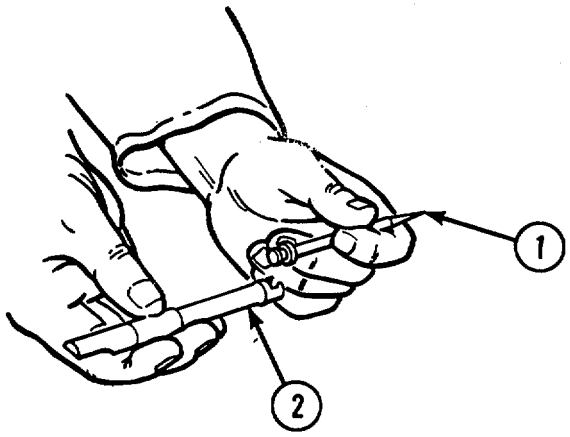
CAUTION

While installing barrel buffer assembly (7) and barrel extension assembly (8) into receiver (10), maintain thumb pressure on buffer accelerator (1).

5 Install barrel buffer assembly (7) and barrel extension assembly (8) in receiver (10).



3-21. ASSEMBLY OF BOLT ASSEMBLY



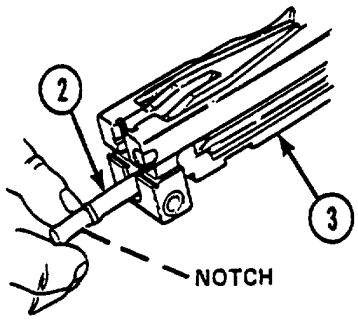
1 Attach firing pin (1) to firing pin extension assembly (2).

3-21. ASSEMBLY OF BOLT ASSEMBLY (cont)

2 Place firing pin extension assembly (2) into bolt (3) with notch of firing pin extension assembly (2) down.

3 Slide firing pin extension assembly (2) forward so that tip of firing pin protrudes from face of bolt (3).

4 Place sear spring (4) in recess on bolt (3).

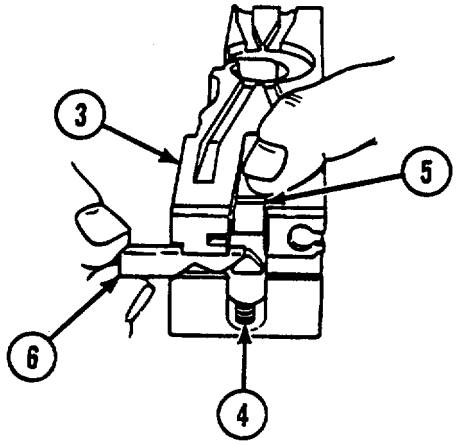


5 Slide sear (5) down into vertical grooves at rear of bolt (3) with wedge shaped lug pointed outward and upward.

NOTE

Ensure that sear and sear spring engage properly. Sear also has a recess for sear spring.

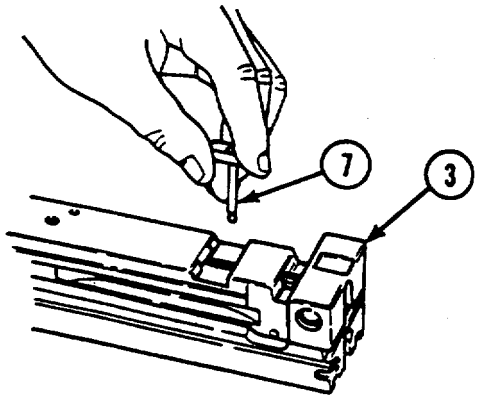
6 Compress sear spring (4) by pressing down on sear (5). Install sear slide (6) from left side of bolt in grooves of bolt (3) with V notch down.



3-21. ASSEMBLY OF BOLT ASSEMBLY (cont)

NOTE
Ensure pin end of accelerator stop is installed behind firing pin spring, not through a coil.

7 Insert pin end of accelerator stop (7) through bottom of bolt (3).

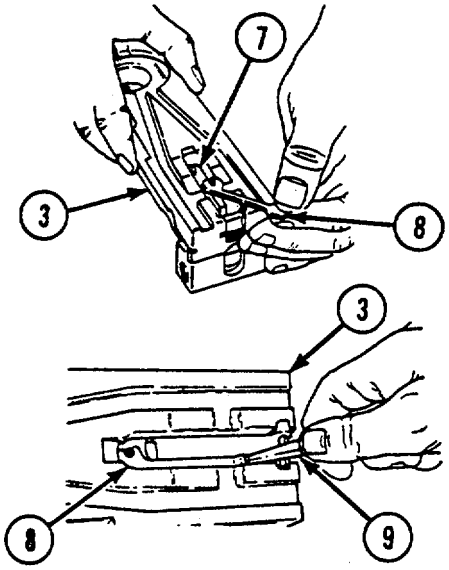


NOTE

Base end of accelerator stop (7) should be installed with long end forward so beveled edges match.

8 Turn bolt (3) over. Place forked end of accelerator stop lock (8) on notched end of accelerator stop (7).

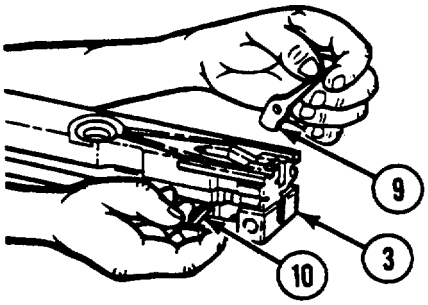
9 Using wedge shaped end of the cocking lever (9) as a tool, press down on the flat end of the accelerator stop lock (8) and swing it into groove on left side of bolt (3).



3-21. ASSEMBLY OF BOLT ASSEMBLY (cont)

10 Insert cocking lever (9), with rounded nose on lower end of lever to rear, into slot in top of bolt (3).

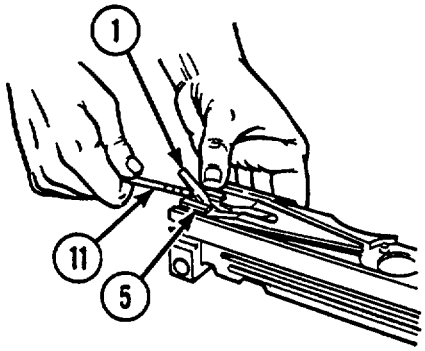
11 .Aline hole in cocking lever (9) with holes in the bolt (3). Insert cocking lever pin (10) from left side.



12 Push cocking lever (9) forward to charge firing pin. Return cocking lever (9) to rearward position.

WARNING

Do not attempt to release the firing pin with cocking lever forward. The cocking lever could spring back forcibly and cause serious injury to the hand.



13 Trip firing pin (1) by depressing top of sear (5) with a swab holder section (11).

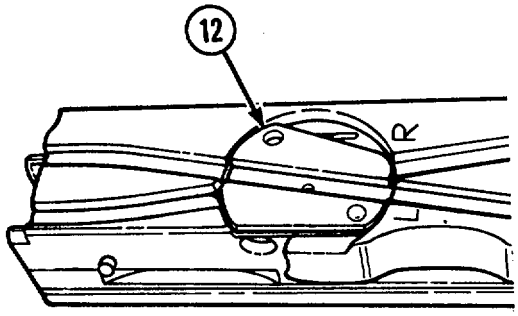
NOTE
A sharp metallic sound indicates firing pin spring is in good condition.

14 Place cocking lever (9) in forward position after testing firing pin release.

3-21. ASSEMBLY OF BOLT ASSEMBLY (cont

NOTE
Determine direction of feed before installing bolt switch. Left hand feed is illustrated.

15 Place bolt switch (12) in position so that the feed groove is continuous for feed direction selected.



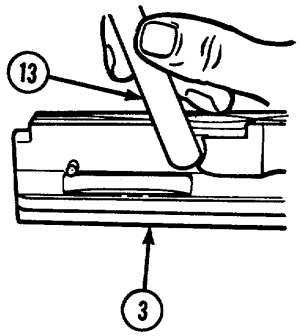
16 Hold cartridge extractor (13) in vertical position. Insert shank end of cartridge extractor (13) into left side of bolt (3).

NOTE

Ensure cartridge extractor (13) fits into bolt (3) as far as possible.

17 Rotate cartridge extractor (13) downward to full horizontal position.

18 Check that flange on bottom of cartridge extractor (13) has engaged shoulder on bolt (3).



3-21. ASSEMBLY OF BOLT ASSEMBLY (cont)

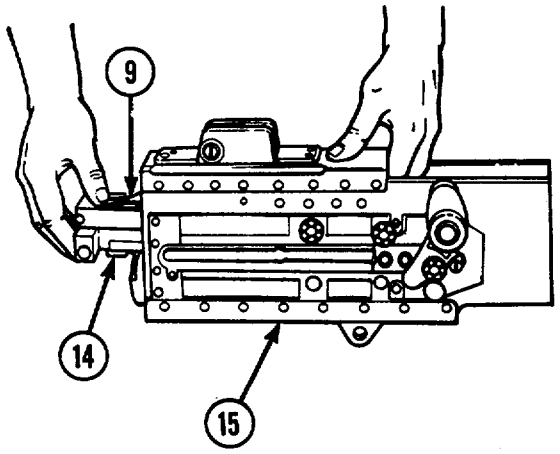
CAUTION

When installing bolt assembly, do not trip buffer accelerator.

NOTE

Ensure cocking lever (9) is forward before installing bolt assembly (14) into receiver (15).

19 Push bolt assembly (14) forward into receiver (15) until bolt latch engages notches in top of bolt assembly (14).

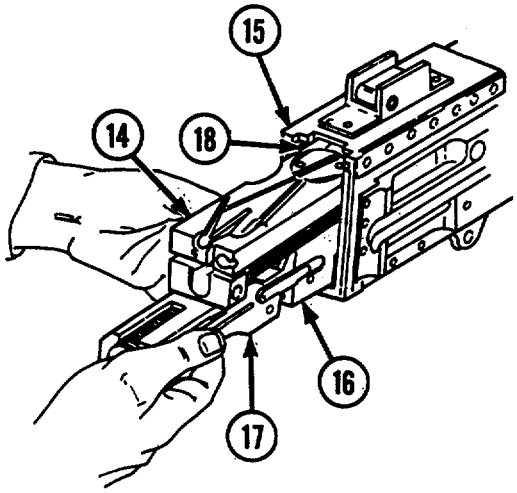


NOTE

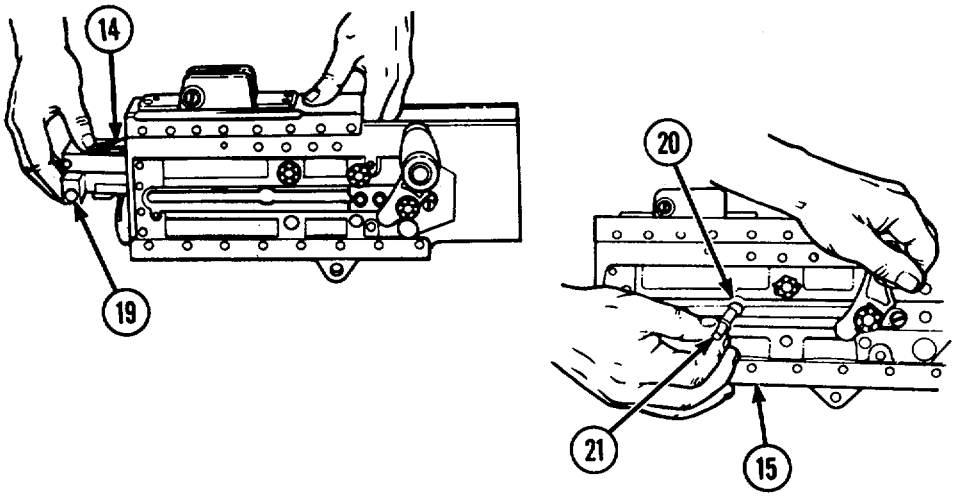
If unable to install by performing step 19, perform step 20.

20 Remove barrel extension (16) and buffer assembly (17) from the receiver. Install bolt assembly (14) into barrel extension and buffer assembly then install into the receiver.

21 Raise bolt latch (18) and push bolt assembly (14) into receiver (15).



3-21. ASSEMBLY OF BOLT ASSEMBLY (cont)



22 Aline hole (19) in bolt assembly (14) with stud assembly hole (20) in receiver (15) and install bolt stud (21) in hole (19) in bolt assembly.

NOTE

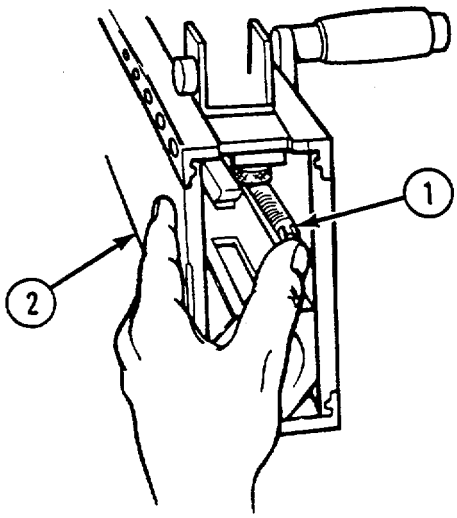
The bolt stud (21) is installed in the right side of the receiver and bolt for the flex and in the left side of the receiver and bolt for the M48 turret type.

23 Place bolt in forward position.

24 Replace M10 charger cover (M48 turret type and fixed type only).

3-22. ASSEMBLY OF DRIVING SPRING ROD ASSEMBLY

Install driving spring rod assembly (1) in upper right hand corner of bolt. Push forward and to the right until driving spring rod assembly (1) engages in hole in side plate of receiver (2) and not in the groove for the backplate.



3-23. ASSEMBLY OF BACKPLATE ASSEMBLY

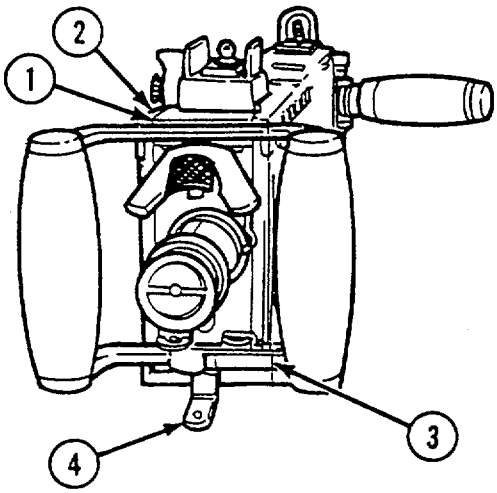
NOTE

Illustration shows flexible type backplate. Procedure applies to both the flexible type and M48 turret type backplates.

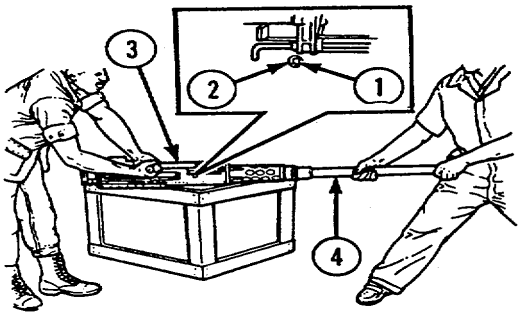
Install backplate assembly (1) in receiver (2) grooves. Pull backplate latch lock (3) while lifting up on backplate latch (4). Lower backplate assembly (1) down until engaged in receiver (2).

NOTE

Test proper locking by pulling up on backplate assembly (1).



3-24. ASSEMBLY OF BARREL ASSEMBLY



1 Retract bolt far enough for barrel locking spring lug (1) to center in barrel locking spring hole (2) on right hand side of receiver (3).

2 Install and screw barrel assembly (4) completely into receiver (3). Unscrew barrel assembly until two clicks are heard and check headspace (p 2-39).

3 Perform weapon function check to ensure proper assembly.

NOTE

The above procedures are setup for use. If weapon is to be stored after cleaning and lubricating, return weapon to unit maintenance.

3-24.1 ASSEMBLY OF THE CATCH BAG

1 Bend the Velcro tabs (1) on the bag down over the frame (2). The flat metal plate on the frame should be forward, the frame's two welded rings to the rear, and the catch bag clean-out to the left side.

NOTE

When the catch bag is used with the MK 93 mount and MK 175 adapter, follow the above instructions for assembling the catch bag and frame. Remove the T & E mechanism between the MK 175 adapter and MK 93 mount. Release the following Velcro tabs on the catch bag: the tab directly beneath the flat metal plate on the frame, the tab between the two welded rings at rear, and the tab securing the bag's left side panel. Allow the left side panel to drop away from the frame.

2 Attach the catch bag assembly (3) to the MK 93 mount by inserting the flat metal plate (4) of the frame into the slot on the mount forward cross bar (5). The rear of the catch bag assembly should be moved up until the two welded rings on the catch bag frame can be secured between the two tabs used for stowing the rear MK 19 mount pin.

3-24.1 ASSEMBLY OF THE CATCH BAG (cont)

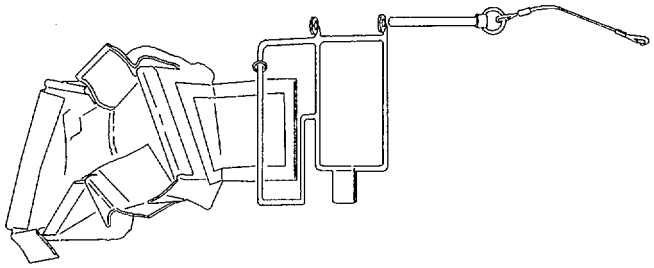
NOTE
The catch bag assembly has an additional pin for use when the MK 19 machine gun is mounted in the MK 93 mount and the rear mount pin is in use. If the MK 19 pin is used to secure the catch bag assembly, the additional pin may be stowed in the catch bag.

3 Reattach the T & E mechanism between the MK 175 adapter and the MK 93 mount.

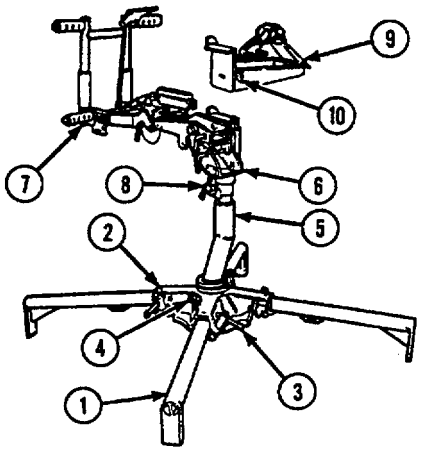
4 Bring the left side panel of the catch bag upward and reattach it to the left side of the frame. This allows the arm of the MK 175 adapter to pass through the catch bag.

The forward and rear Velcro tabs may be reattached to secure the bag to the frame.

NOTE
Ensure the MK 175 arm adjusting knob and the T & E mechanism are outside the catch bag.



(Pages 3-103 through 3-120 have been removed.)



3-121

CHAPTER 4
AMMUNITION

4-1. AUTHORIZED AMMUNITION

WARNING

THIS IS THE ONLY AMMUNITION AUTHORIZED FOR USE IN YOUR MACHINE GUN. IF IT IS NOT SHOWN, IT IS NOT AUTHORIZED. BECAUSE OF THE POTENTIAL INJURY FROM DISCARDING SABOT FRAGMENTS, NEITHER THE M903 NOR THE M962 SHOULD BE FIRED OVER THE HEADS OF FRIENDLY PERSONNEL.

Normal training mix: 4 ball M2 and 1 tracer M17 with M9 link.
Normal combat mix: 4 ball API-M8 and 1 APIT M20 with M9 link.
Normal combat mix: 4 SLAP M903 and 1 SLAPT M962 with M9 link

NOTE

All cartridges except the M2 DUMMY have plain cases.

M1A1 blank is to be utilized with the M19 blank firing attachment. Refer to TM 9-1005-314-12&P.

NOTE (cont)

The sights on the M2 Machine gun are designed for conventional ball, tracer, and armor-piercing incendiary ammunition. Firing of the slap cartridges with the current sight will result in the projectile having a higher trajectory than desired. For targets at 1,000 meters or less, align the sights on the target and then drop two clicks on the sight or T&E mechanism. For targets beyond 1,000 meters, align the sights and come down three clicks.

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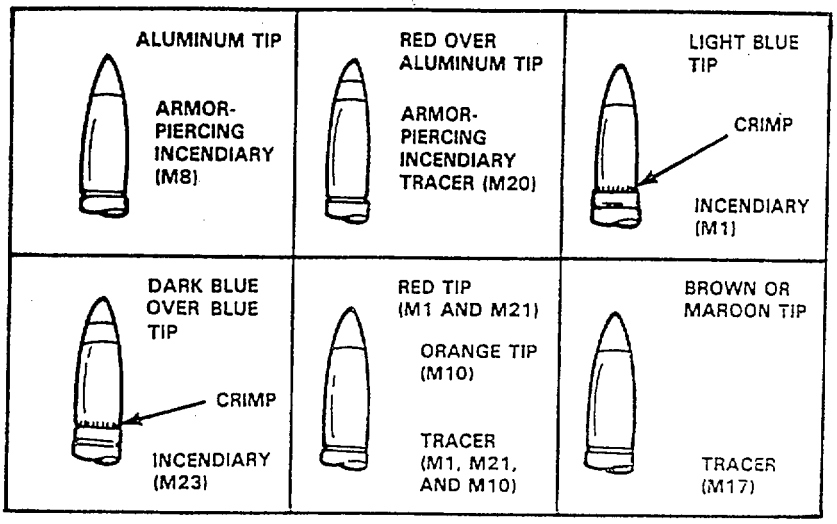
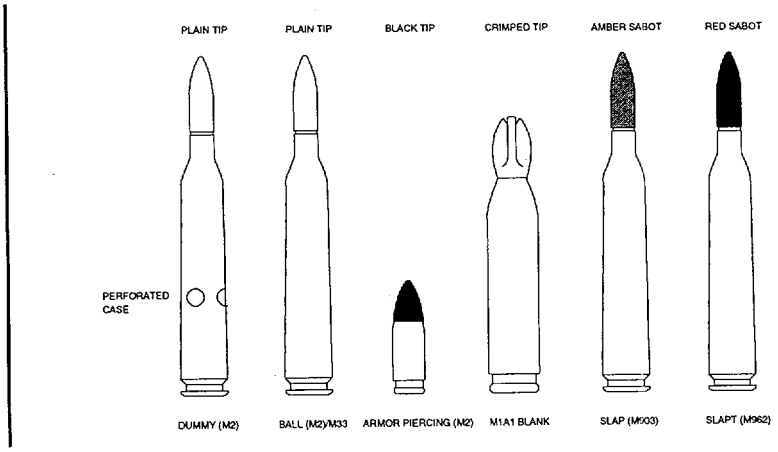

ALUMINUM TIP
ARMOR-PIERCING INCENDIARY (M8)
RED OVER ALUMINUM TIP
ARMOR-PIERCING INCENDIARY TRACER (M20)
LIGHT BLUE TIP
CRIMP
INCENDIARY (M1)
DARK BLUE OVER BLUE TIP
CRIMP
INCENDIARY (M23)
RED TIP (M1 AND M21)
ORANGE TIP (M10)
TRACER (M1, M21, AND M10)
BROWN OR MAROON TIP
TRACER (M17)

4-1. AUTHORIZED AMMUNITION



4-2. AMMUNITION WHICH FAILS TO FIRE

Ammunition which fails to fire should be disposed of in accordance with authorized procedures.

4-3. CARE, HANDLING, AND PRESERVATION

a. Do not open ammunition containers until the ammunition is to be used. Ammunition removed from the airtight containers, particularly in damp climates, is likely to corrode.

b. Protect ammunition from mud, dirt, and water. If the ammunition gets wet or dirty, wipe it off prior to use. Wipe off light corrosion as soon as it is discovered. Heavily corroded cartridges or cartridges which have dented cases or loose projectiles should not be fired.

c. Do not expose ammunition to the direct rays of the sun. If the powder is hot, excessive pressure may develop when the gun is fired.

d. Do not oil or grease ammunition. Dust and other abrasives collecting on oiled or greased ammunition will damage the operating parts of the gun. Oiled cartridges will produce excessive chamber pressure.

APPENDIX A
REFERENCES

A-1. SCOPE

This appendix lists publications referenced in this manual.

A-2. FIELD MANUALS (FM)

Browning Machine Gun Caliber .50, HB, M2 ..... FM 23-65
First Aid for Soldiers ..... FM 21-11
Northern Operations ..... FM 31-71
Tank Combat Tables ..... FM 17-12-1

A-3. FORMS

Equipment Inspection and Maintenance Worksheet ..... DA Form 2404
Quality Deficiency Report ..... SF 368

Recommended Changes to Publications and Blank Forms ..... DA Form 2028
Quality Deficiency Report (Navy) ..... SF 368
Marine Corps Forms and Procedures for Equipment Maintenance ..... TM 4700-15/1
Marine Corps Recommended Changes to Publications ..... NAVMC 10722
Publication Improvement Report (Navy) ..... TMDER NAVSEA 9086/10
Air Force Materiel Deficiency Reporting and Investigating System ..... TO 00-35D-54
Air Force Forms and Records ..... TO 11W-1-10
Technical Order System Publication Improvement Report and Reply ..... AFTO Form 22

A-4. MISCELLANEOUS PUBLICATIONS

The Army Maintenance Management System (TAMMS) ..... DA PAM 738-750
Expendable/Durable Items (Except Medical, Class V, Repair Parts, and Heraldic Items ..... CTA 50-970
Marine Corps Quality Deficiency Report ..... MCO 4855.10
Marine Corps Transportation and Travel Record of Transportation Discrepancies ..... MCO P4610.19
Marine Corps Warehousing Manual ..... MCO P4450.7

A-5. TECHNICAL MANUALS

Tactical/Armored Vehicles and Ground Mounting ..... TM 9-1005-245-13&P
Blank Firing Attachment (BFA) M19 ..... TM 9-1005-314-12&P
Mount, Machine Gun, MK 64 ..... TM 9-1010-231-13&P
Tank, Combat, Full Tracked 105mm, M1 ..... TM 9-2350-255-10-1, 2*
Tank, Combat, Full Tracked 120mm, M1A1 ..... TM 9-2350-264-10-1, 2*
Marine Corps Upgunned Weapon Station (UGWS) Assault
Amphibian Vehicle Personnel, Model 7A1
(AAAVP7A1) ..... TM 10004A-10/1
Marine Corps Stocklist SL-3 Components List
for M2 HB Machine Gun SL-3-02498
Maintenance Manual for Small Arms Machine
Gun Mounts W361-AO-MMO-010

* - 1 - PMCS and Operation Under Usual Conditions
- 2 - Operation Under Unusual Conditions

APPENDIX B
COMPONENTS OF END ITEM (COEI) AND BASIC ISSUE ITEMS (BII) LISTS

Section I. INTRODUCTION

B-1. SCOPE

This appendix lists components of end item and basic issue items for the machine guns and mounts to help you inventory items required for safe and efficient operation.

B-2. GENERAL

This Components of End Item List is divided into the following sections:

a. Section II. Components of End Item. There is no COEI list for the machine guns and mounts.

B-2. GENERAL (cont)

b. Section III. Basic Issue Items. These are the minimum essential items required to place the machine guns and mounts in operation, to operate them, and to perform emergency repairs. Although shipped separately packaged, 811 must be with the machine guns and mounts during operation and whenever they are transferred between property accounts. The illustration will assist you with hard to-identify items. This manual is your authority to request/requisition replacement BII, based on TOE/MTOE authorization of the end item.

B-3. EXPLANATION OF COLUMNS

The following provides an explanation of columns found in the tabular listings:

a. Column (1)-Illustration Number (Illus Number). This column indicates the number of the illustration in which the item is shown.

b. Column (2)-National Stock Number. Indicates the National stock number assigned to the item and will be used for requisitioning purposes.

c. Column (3)-Description. Indicates the Federal item name and, if required, a minimum description to identify and locate the item. The last line for each item indicates the FSCM (in parentheses) followed by the part number.

d. Column (4)-Unit of Measure (UIM). Indicates the measure used in performing the actual operational/maintenance function. This measure is expressed by a two-character alphabetical abbreviation (e.g., es., in., pr).

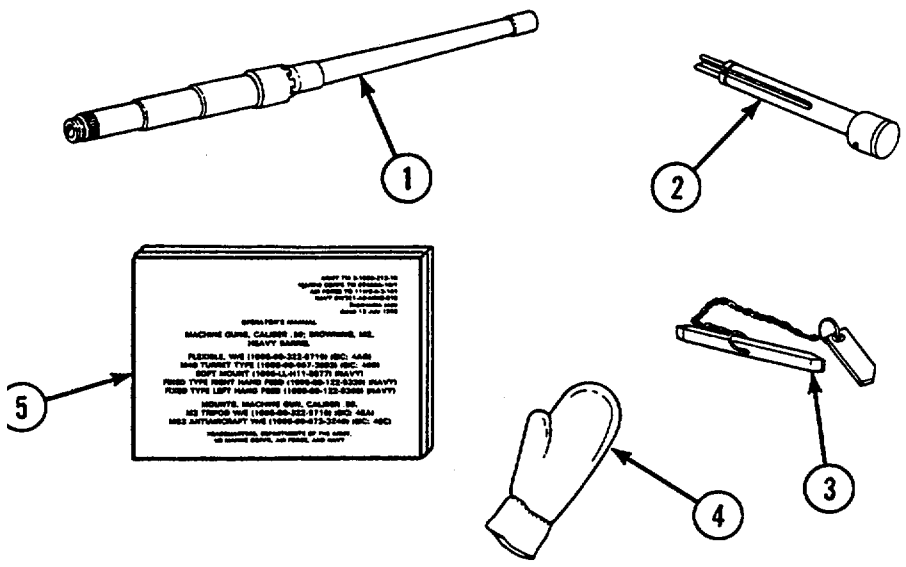
e. Column (5)-Quantity required (Qty rqr). Indicates the quantity of the item authorized to be used with/on the equipment.

Section II. COMPONENTS OF END ITEM

There are no components of end item for the machine guns or mounts.

Section III. BASIC ISSUE ITEMS

(1) Illus Number	(2) National Stock Number	(3) Description, FSCM and Part Number	(4) U/M	(5) QTY Rqr
1	1005-00-726-6131	BARREL ASSEMBLY (19204) 7266131	EA	1
2	4933-00-716-0041	EXTRACTOR, RUPTURED CARTRIDGE (19204) 7160041	EA	1
3	4933-00-535-1217	GAGE, HEADSPACE AND TIMING (19205) 5351217	EA	1
4	8415-01-092-0039	MITTEN, HEAT PROTECTIVE (81349) MIL-M-1 1199	EA	1
5	. . .	TM 9-1005-213-10	EA	1


1
2
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APPENDIX C
ADDITIONAL AUTHORIZATION LIST

Section I. INTRODUCTION

C-1. SCOPE

This appendix lists additional items you are authorized for the support of the machine guns and mounts.

C-2. GENERAL

This list identifies items that do not have to accompany the machine guns and mounts and that do not have to be turned in with them. These items are all authorized to you by CTA, MTOE, TDA, or JTA.

C-3. EXPLANATION OF LISTING

National stock numbers, descriptions, and quantities are provided to help you identify and request the additional items you require to support this equipment. The items are listed in alphabetical sequence by item name under the type document (i.e., CTA, MTOE, TDA, or JTA) which authorizes the item(s) to you.

Section II. ADDITIONAL AUTHORIZATION LIST (AAL)

(1) NATIONAL STOCK NUMBER	(2) DESCRIPTION FSCM AND PART NUMBER	USABLE ON CODE	(3) U/M	(4) QTY AUTH
	CTA			
8105-00-921-5821	BAG, ORDNANCE WEAPON (19204)11686430		EA	1

Section II. ADDITIONAL AUTHORIZATION LIST (AAL)

(1) NATIONAL STOCK NUMBER	(2) DESCRIPTION FSCM AND PART NUMBER	USABLE ON CODE	(3) U/M	(4) QTY AUTH
1005-01-091-7510	BLANK FIRING ATTACHMENT (BFA) M19		EA	1
1005-00-550-4037	BRUSH, CLEANING, SMALL ARMS BORE (19204) 5504037		EA	1
1005-00-766-0915	BRUSH, CLEANING, SMALL ARMS, CHAMBER (19204) 7790737		EA	1

(1) NATIONAL STOCK NUMBER	(2) DESCRIPTION FSCM AND PART NUMBER	USABLE ON CODE	(3) U/M	(4) QTY AUTH
1005-00-716-2702	BRUSH, CLEANING, SMALL ARMS (19205) 7162702		EA	1
1005-00-550-4080	CARRIER ASSEMBLY, BARREL (19204) 5504080		EA	1
1005-00-487-4100	COVER, MACHINE GUN (19207)11631791		EA	1
1005-00-659-1031	COVER, SPARE BARREL (19204) 6591031 (FLEX ONLY)		EA	1
1005-00-796-4436	COVER, SPARE BARREL (19207) 7964436 (TURRET TYPE ONLY)		EA	1

Section II. ADDITIONAL AUTHORIZED LIST (AAL) (cont)

(1) NATIONAL STOCK NUMBER	(2) DESCRIPTION FSCM AND PART NUMBER	USABLE ON CODE	(3) U/M	(4) QTY AUTH
1005-00-716-2072	FLASH HIDER (19204) 7162072		EA	1
	MTOE			
5855-00-829-5327	NIGHT VISION SIGHT, CREW SERVED WEAPON AN/TVS-5		EA	1
1005-00-653-5441	ROD, CLEANING, SMALL ARMS (19204) 6535441		EA	1
1005-00-556-4102	ROD, CLEANING, SMALL ARMS (19204) 5564102		SET	1
1005-00-716-2704	SWAB HOLDER SECTION (19205)7162704		EA	1

APPENDIX D
EXPENDABLE/DURABLE SUPPLIES AND MATERIALS LIST (EDSML)

Section I. INTRODUCTION

D-1. SCOPE

This appendix lists expendable supplies and materials you will need to operate and maintain the machine guns and mounts. This listing is for informational purposes only and is not authority to requisition the listed items. These items are authorized to you by CTA 50-970, Expendable/Durable Items (Except Medical, Class V, Repair Parts, and Heraldic Items).

D-2. EXPLANATION OF COLUMNS

a. Column (1)-Item Number. This number is assigned to the entry in the listing and is referenced in the narrative instructions to identify the material (e.g., "Use cleaning compound, (item 5, .app D)").

b. Column (2)-Level. This column identifies the lowest level of maintenance that requires the listed item.

C-Operator/Crew

c. Column (3)-National Stock Number. This is the National stock number assigned to the item; use it to request or requisition the item.

d. Column (4)-Description. Indicates the Federal item name and, if required, a description to identify the item. The last line for each item indicates the Federal Supply Code for Manufacturer (FSCM) in parentheses followed by the part number.

e. Column (5)-Unit of Measure (U/M). Indicates the measure used in performing the actual maintenance function. This measure is expressed by a two character alphabetical abbreviation (e.g., ea., in., pr). If the unit of measure differs from the unit of issue, requisition the lowest unit of issue that will satisfy your requirements.

Section II. EXPENDABLE/DURABLE SUPPLIES AND MATERIALS LIST (EDSML)

(1) ITEM NUMBER	(2) LEVEL	(3) NATIONAL STOCK NUMBER		(4) DESCRIPTION	(5) U/M
1	C		8020-00-244-0153 (81348) H-B-241	BRUSH, ARTIST'S	EA

Section II. EXPENDABLE/DURABLE SUPPLIES AND MATERIALS LIST (EDSML) (cont)

(1) ITEM NUMBER	(2) LEVEL	(3) NATIONAL STOCK NUMBER	(4) DESCRIPTION	(5) U/M
2	C		7920-00-205-2401 BRUSH, CLEANING, TOOL AND PARTS (81349) MIL-B-43871	EA
3	C		6850-00-965-2332 CARBON REMOVING COMPOUND, GAL dip type, rinsing required (81348) P-C-11l, type II	
4	C		CLEANER, LUBRICANT AND PRESERVATIVE: grade 2 (CLP)	
		9150-01-102-1473	1/2 oz bottle	OZ
		9150-01-079-6124	4 oz bottle	OZ
			(81349) MIL-L-63460	

(1) ITEM NUMBER	(2) LEVEL	(3) NATIONAL STOCK NUMBER	(4) DESCRIPTION	(5) U/M
5			CLEANING COMPOUND, RIFLE BORE	
			rifle bore cleaner (RBC)	
	C	6850-00-224-6656	2 oz (59.1 ml) container	OZ
	C	6850-00-224-6657	8 oz (236.56 ml) can	OZ
			(81349) MIL-C-372	
6	C	8415-00-823-7457	GLOVES, CHEMICAL RESISTANT, (ZZ-G-381) type 3	PR
7	C	9150-00-273-2389	LUBRICATING OIL, GENERAL PURPOSE medium (PL-M) 4 oz (118.30 ml) can (81348) VV-L-800	OZ

Section II. EXPENDABLE/DURABLE SUPPLIES AND MATERIALS LIST (EDSML) (cont)

(1) ITEM NUMBER	(2) LEVEL	(3) NATIONAL STOCK NUMBER	(4) DESCRIPTION	(5) U/M
8	C	9150-00-292-9689	LUBRICATING OIL, WEAPONS (LAW) 1 qt (0.95 1) can (81349) MIL-L-14107	QT
9	C	9150-00-889-3522	LUBRICATING OIL, WEAPONS semi-fluid (LSA) 4 oz bottle (19204) 8436793	OZ

(1) ITEM NUMBER	(2) LEVEL	(3) NATIONAL STOCK NUMBER	(4) DESCRIPTION	(5) U/M
10	C	7920-00-205-1711	RAG, WIPING, cotton designed for general use 50 lb bale (81348) DDD-R-30	LB
11	C		1005-00-288-3565 SWAB, SMALL ARMS CLEANING COTTON, 21/2 SO IN., 200 in. bundle (19204) 5019316	BDL

ALPHABETICAL INDEX

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Page

ALPHABETICAL INDEX (cont)

ALPHABETICAL INDEX (cont)

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R

S

ALPHABETICAL INDEX (cont)

ALPHABETICAL INDEX (cont)

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METRIC CHART

The list below shows the difference between US customary and metric units. It also shows the symbols used for the units.

US CUSTOMARY **METRIC**

LENGTH AND DISTANCE

inch: 1 in. ..... 2.54 cm: centimeters
yard: 1 yd. ..... 0.9144 m: meter

TEMPERATURE

degree Fahrenheit: °F ..... (F° -32°x5/9=°C: degree Celsius

WEIGHT

pound: 1 lb ..... 0.4536 kg: kilogram

VOLUME

ounce: 1 oz ..... 29.57 ml: milliliters
quart: 2 qt ..... 0.9463 l: liter

PIN: 026372-000