SS by TM 9-1005-224-24 & TM9-1005-262-13

TM 9-1005-262-14

DEPARTMENT OF THE ARMY TECHNICAL MANUAL

OPERATOR, ORGANIZATIONAL, DIRECT SUPPORT, AND GENERAL SUPPORT MAINTENANCE MANUAL FOR ARMAMENT SUBSYSTEM, HELICOPTER, 7.62 MILLIMETER MACHINE GUN: DOOR MOUNTED, LIGHTWEIGHT, M23 (1005-907-0720) (USED ON UH-1D/UH-1H HELICOPTER); ARMAMENT SUBSYSTEM, HELICOPTER, 7.62 MILLIMETER MACHINE GUN: DOOR MOUNTED, LIGHTWEIGHT, M24 (1005-763-1404) (USED ON CH-47 SERIES HELICOPTER); AND ARMAMENT SUBSYSTEM, HELICOPTER, 7.62 MILLIMETER MACHINE GUN: RAMP MOUNTED, LIGHTWEIGHT, M41 (1005-087-2046) (USED ON CH-47 SERIES HELICOPTER)

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WARNING

WEAPONS AND AMMUNITION

The procedures in this technical manual involve the operation of machine guns with live ammunition. All standard safety precautions governing the handling of weapons and live ammunition must be observed. When not in use, all weapons shall be pointed in a direction offering the least exposure to personnel and property in the event of accidental firing.
Do not walk in front of weapons.
Safe the machine gun before servicing.
Failure to perform certain steps in the procedures can cause potentially dangerous situations.
These steps are pointed out in the text and must be followed.
Observe all warnings within the text.

*TM 9-1005-262-14

TECHNICAL MANUAL

NO. 9-1005-262-14

HEADQUARTERS,
DEPARTMENT OF THE ARMY
WASHINGTON, D. C., *29 August, 1973*

OPERATOR, ORGANIZATIONAL, DIRECT SUPPORT AND GENERAL SUPPORT MAINTENANCE MANUAL FOR ARMAMENT SUBSYSTEM, HELICOPTER, 7.62 MILLIMETER MACHINE GUN: DOOR MOUNTED, LIGHTWEIGHT, M23 (1005-907-0720); ARMAMENT SUBSYSTEM, HELICOPTER, 7.62 MILLIMETER MACHINE GUN: DOOR MOUNTED, LIGHTWEIGHT, M24 (1005-763-1404); AND ARMAMENT SUBSYSTEM, HELICOPTER, 7.62 MILLIMETER MACHINE GUN: RAMP MOUNTED, LIGHTWEIGHT, M41 (1005-087-2046)

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*This manual supersedes TM 9-1005-262-15, 20 February 1968.

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CHAPTER 1

INTRODUCTION

Section I. GENERAL

1-1. Scope.

a. This manual contains information and instructions for operation and maintenance of 7.62 millimeter machine gun helicopter armament subsystems M23 (fig 1-1), M24 (fig 1-2), and M41 (fig 1-3).

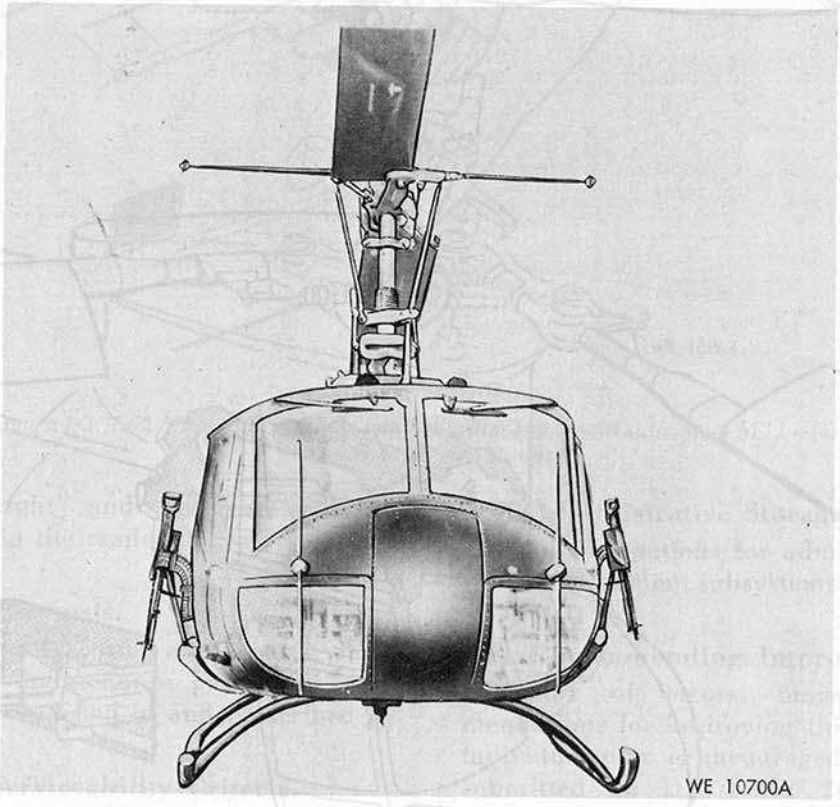


Figure 1-1. 7.62 Millimeter machine gun helicopter armament subsystem M23—installed on UH-1D or UH-1H helicopter.

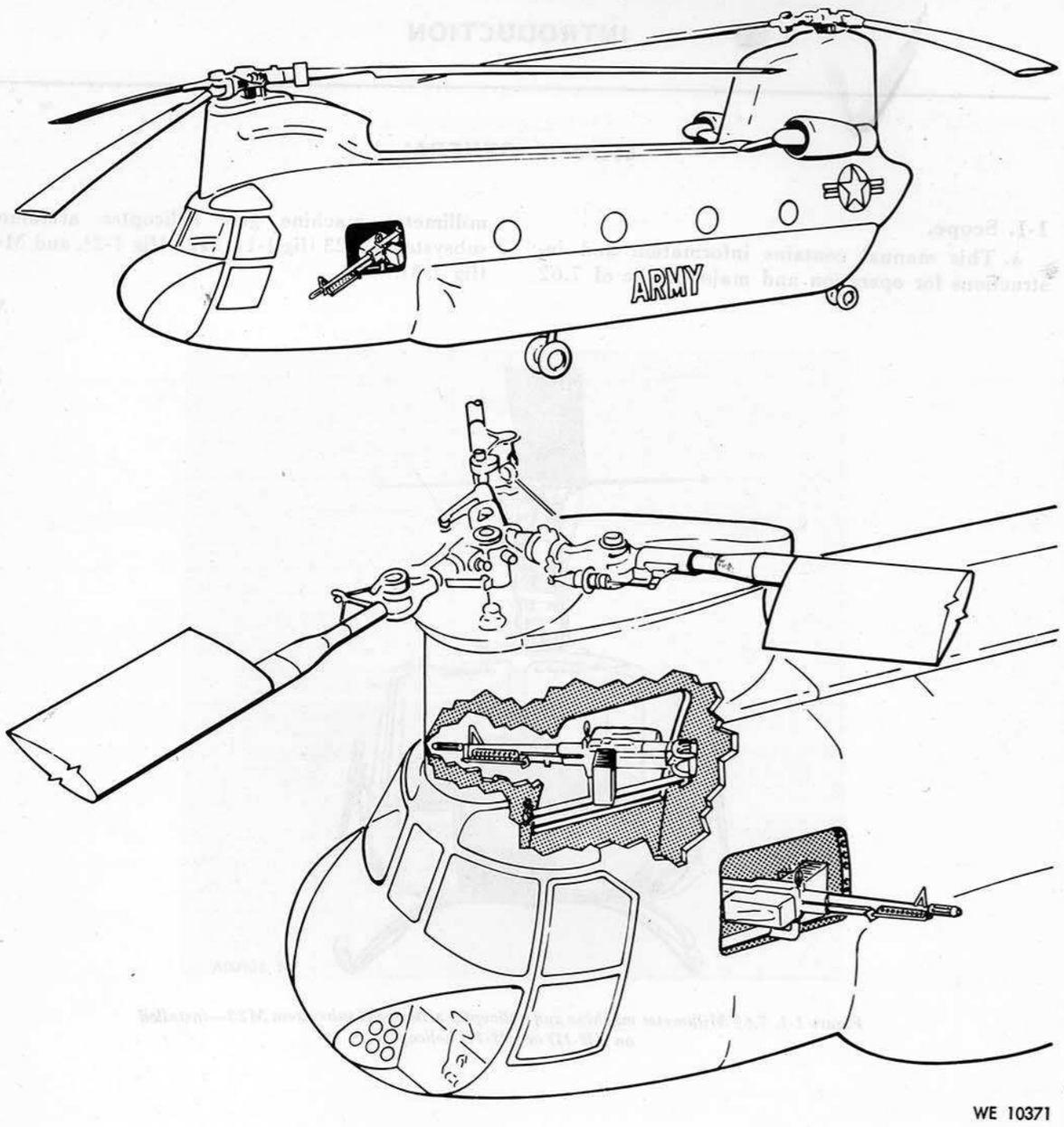


Figure 1-2. 7.62 Millimeter machine gun helicopter armament subsystem M24—installed on CH-47 serics helicopter.

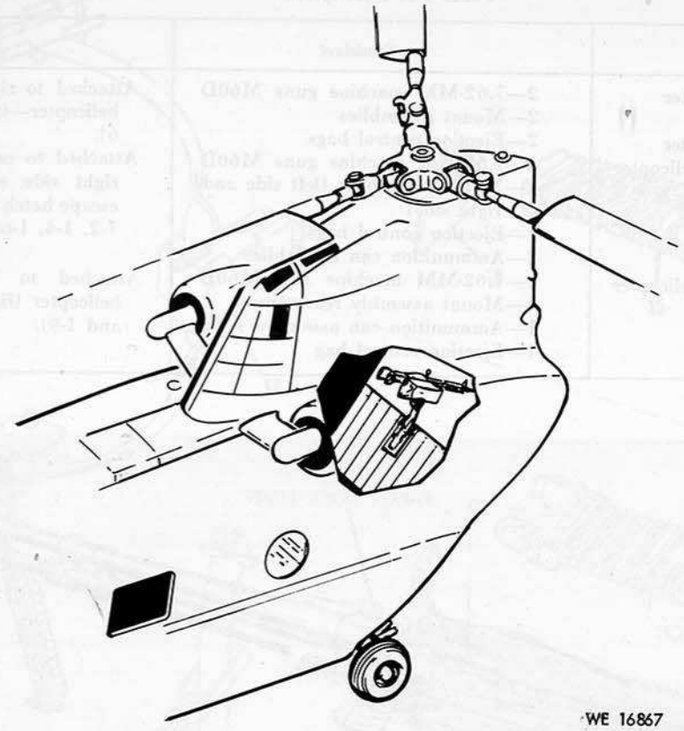


Figure 1-3. 7.62 Millimeter machine gun helicopter armament subsystem M41—installed on CH-47 series helicopter.

b. The terms "right" and "left" used in this manual are based on the reader facing forward in the helicopter.

1-2. Forms and Records.

Maintenance forms, records, and reports which are to be used by maintenance personnel at all maintenance levels are listed in and prescribed by TM 38-750.

1-3. Equipment Serviceability Criteria.

Instructions for performing equipment serviceability checks on armament subsystems M23, M24, and M41 are in TM 9-1005-262-ESC.

1-4. Administrative Storage.

Basic instructions for administrative storage of aircraft armament subsystems are contained in TM 740-90-1.

1-5. Recommending Improvements.

Report of errors, omissions, and recommendations for improving this publication by the individual user is encouraged. Reports should be submitted on DA Form 2028, Recommended Changes to Publications, and forwarded direct to Commander, U. S. Army Armament Command, ATTN: AMSAR-MAS, Rock Island, Illinois 61201.

Section II. DESCRIPTION AND DATA

1-6. Description.

Refer to table 1-1.

Table 1-1. Description

Sub-system	Used on	Consists of	Location and reference
M23	UH-1D helicopter and UH-1H helicopter	2—7.62-MM machine guns M60D 2—Mount assemblies 2—Ejection control bags	Attached to right and left sides of helicopter—(fig 1-1, 1-4, 1-5 and 1-6).
M24	CH-47 series helicopter	2—7.62-MM machine guns M60D 2—Mount assemblies (left side and right side) 2—Ejection control bags 2—Ammunition can assemblies	Attached to cabin doorway on the right side of helicopter and to escape hatch on the left side—(figs 1-2, 1-4, 1-6, 1-7, and 1-8).
M41	CH-47 series helicopter	1—7.62-MM machine gun M60D 1—Mount assembly rear ramp 1—Ammunition can assembly 1—Ejection control bag	Attached to the rear ramp of helicopter (figs 1-3, 1-4, 1-6, 1-8 and 1-9).

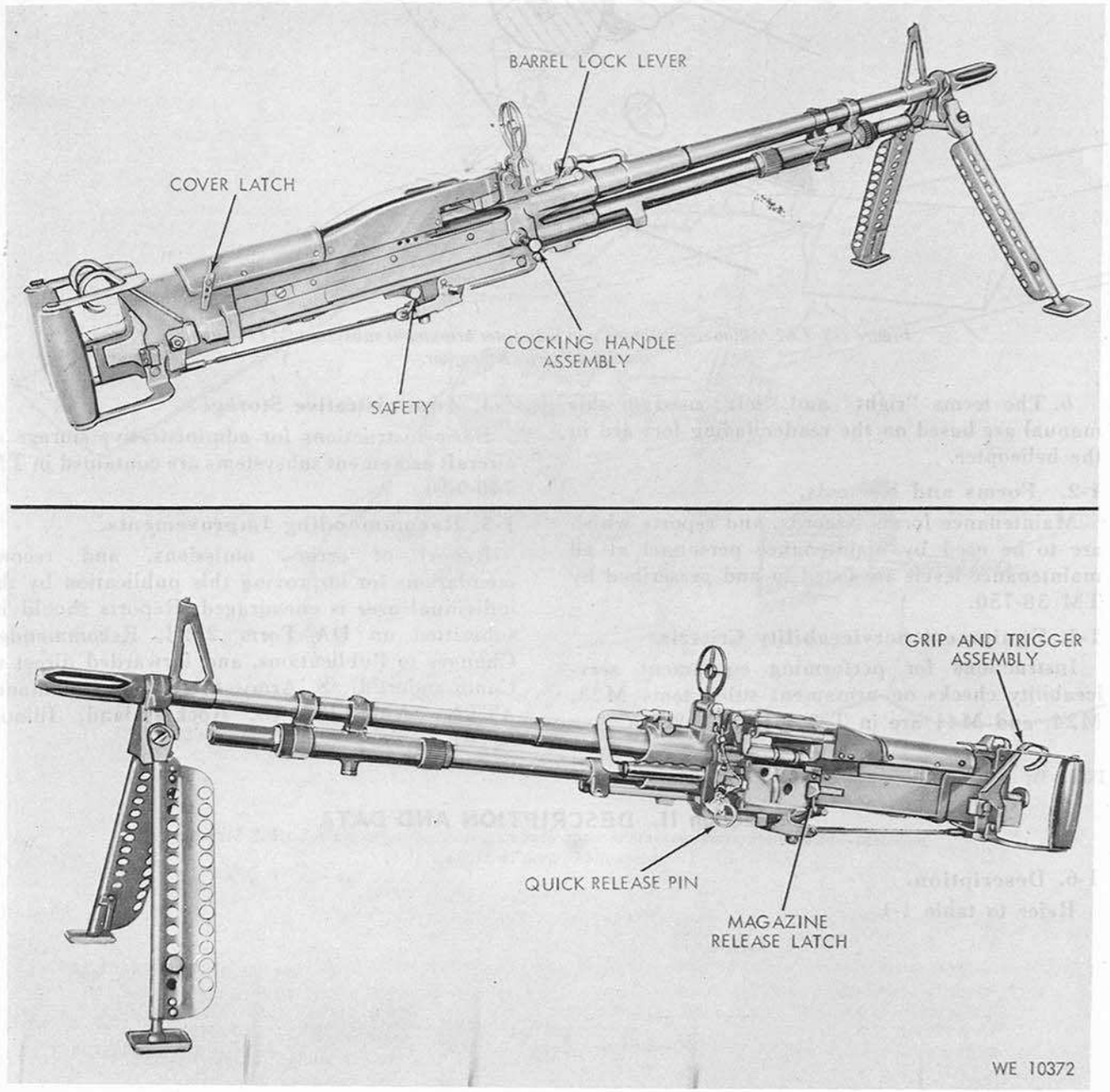
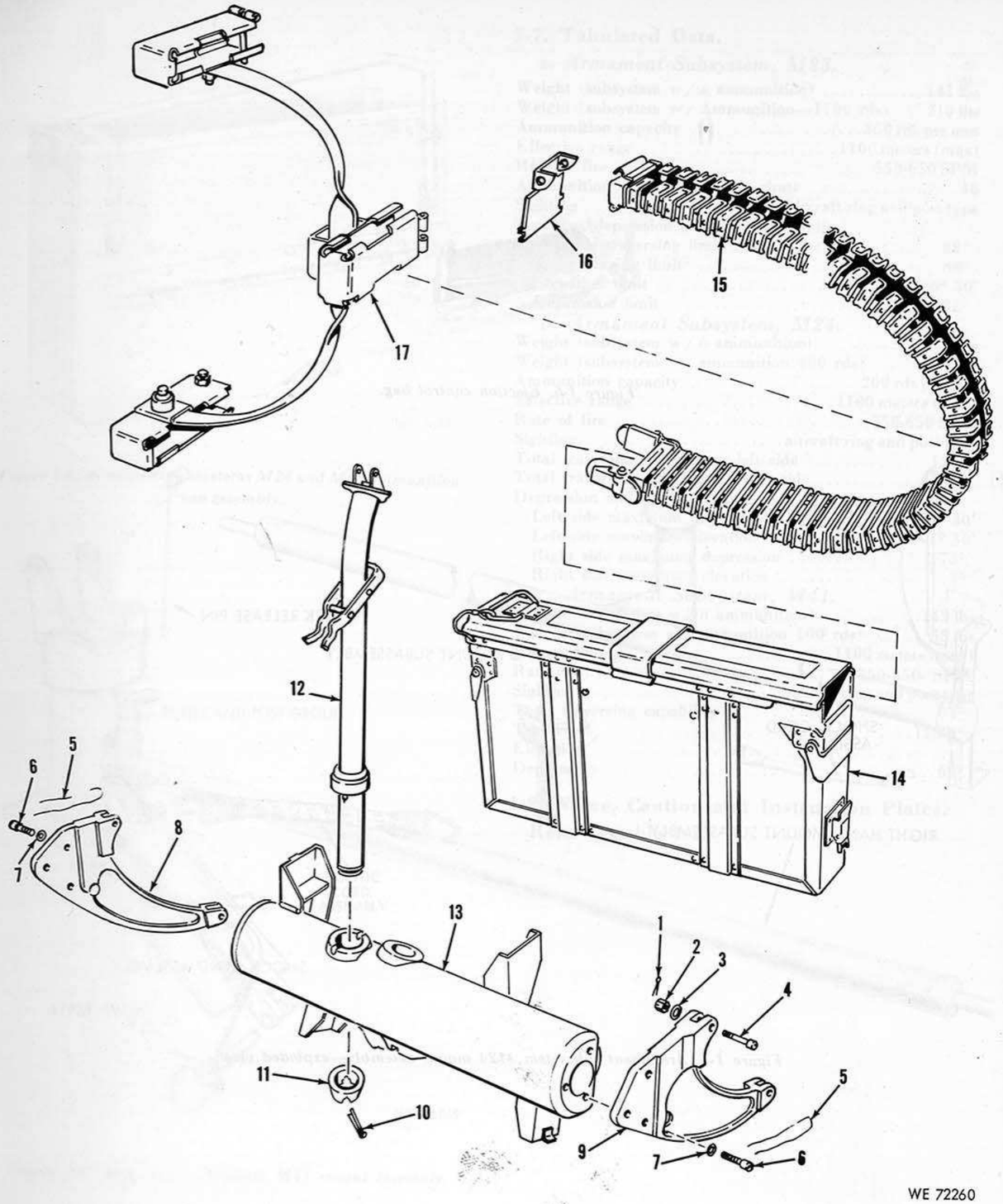


Figure 1-4. 7.62 Millimeter machine gun M60D—right rear and left front views.



1. 1/16 x ¾ Cotter pin—MS24665-153
2. ¼-Inch hexagon castellated nut—AN310-C4
3. ¼-Inch flat washer—AN960-416
4. ¼ x 1-21/32 Clevis bolt—AN24-26
5. 0.032-Inch wire—MS20995-C32
6. ⅜ x 1-½ Socket-head cap screw—MS24678-47
7. 0.406-Inch I D flat washer—MS27183-14
8. Forward mounting beam—11699727
9. Aft mounting beam—11699728
10. 1/16 x 2-½ Cotter pin—MS24665-144
11. Round plain nut—11699724
12. Pintle post assembly—11699723
13. Base tube assembly—11699733
14. Ammunition box and cover assembly—11699743
15. Flexible chute assembly—7792346-5
16. Ammunition chute adapter—11686424
17. Chute brace assembly—11699819

Figure 1-5. Armament subsystem M23 mount assembly—exploded view.

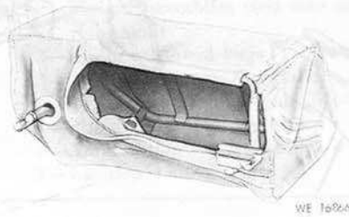


Figure 1-6. Ejection control bag.

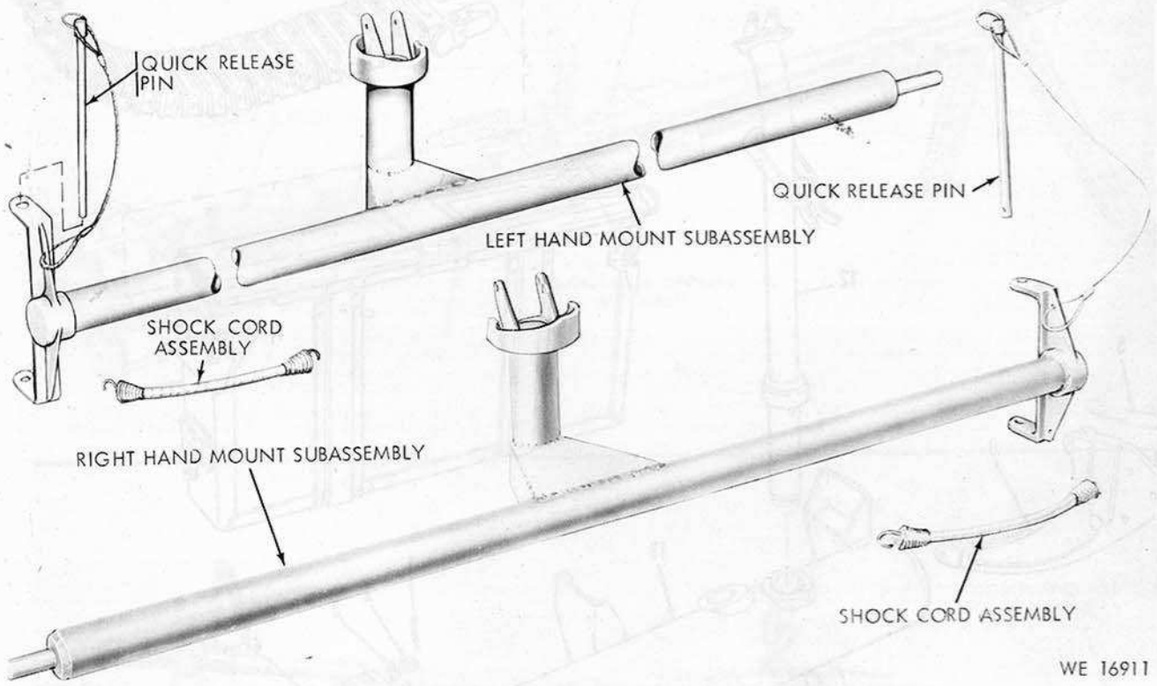


Figure 1-7. Armament subsystem M24 mount assembly—exploded view.

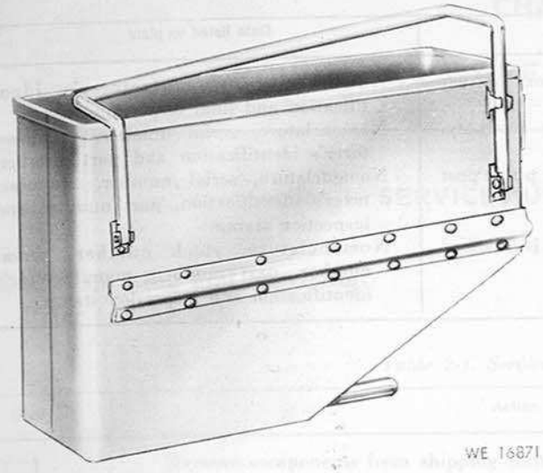


Figure 1-8. Armament subsystems M24 and M41 ammunition can assembly.

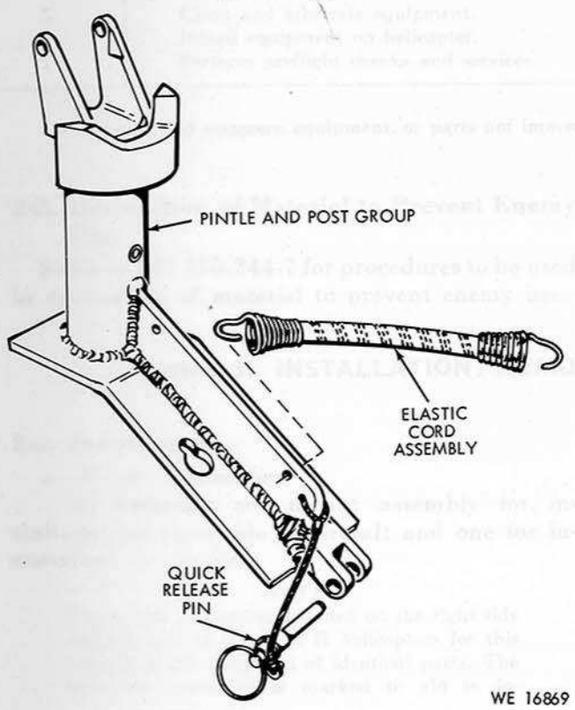


Figure 1-9. Armament subsystem M41 mount assembly.

1-7. Tabulated Data.

a. Armament Subsystem, M23.

Weight (subsystem w/o ammunition)	141 lbs
Weight (subsystem w/ Ammunition—1100 rds)	210 lbs
Ammunition capacity	550 rds per gun
Effective range	1100 meters (max)
Rate of fire	550-650 SPM
Ammunition chutes—links per chute	46
Sighting	Aircraft ring and post type
Traverse, depression and elevation limits	
Forward traversing limit	88°
Aft traversing limit	88°
Elevation limit	6° 30'
Depression limit	82°

b. Armament Subsystem, M24.

Weight (subsystem w/o ammunition)	87 lbs
Weight (subsystem w/ ammunition 400 rds)	111 lbs
Ammunition capacity	200 rds per gun
Effective range	1100 meters (max)
Rate of fire	550-650 SPM
Sighting	aircraft ring and post type
Total traversing capability—left side	122°
Total traversing capability—right side	127°
Depression and elevation limits:	
Left side maximum depression	67° 30'
Left side maximum elevation	7° 30'
Right side maximum depression	73°
Right side maximum elevation	7°

c. Armament Subsystem, M41.

Weight (Subsystem w/o ammunition)	42 lbs
Weight (subsystem w/ ammunition 200 rds)	55 lbs
Effective range	1100 meters (max)
Rate of fire	550-650- SPM
Sighting	aircraft ring and post type
Total traversing capability	94°
Traverse	12.30°
Elevation	
Depression	69°

1-8. Name, Caution and Instruction Plates.

Refer to table 1-2.

Table 1-2. Name, Caution and Instruction Plates

Name	Location	Data listed on plate
Machine gun M60D	Top of receiver assembly in front of rear sight.	Nomenclature, manufacturer's identification and final inspection stamp.
Armament subsystem M23 mount assembly	On outside of aft end of tube assembly, when mounted on left side.	Nomenclature, serial number, manufacturer's identification and part number.
Armament subsystem M24 mount assembly	Top of welded bracket attaching pintle post to mount assembly.	Nomenclature, serial number, manufacturer's identification, part number and inspection stamp.
Armament subsystem M41 mount assembly	Side of stiffening support which is attached to pintle post and base.	Nomenclature, stock number, serial number, part number, manufacturer's identification and inspection stamp.

1-9. Difference in Models.

There is only one model each of armament subsystems M23, M24, and M41.

CHAPTER 2

GROUND CREW OPERATIONAL INSTRUCTIONS

Section I. SERVICES UPON RECEIPT OF MATERIEL

2-1. Inspecting and Servicing.

Refer to table 2-1.

Table 2-1. Service Upon Receipt of Materiel

Step	Action	Reference
1	Remove components from shipping containers.	
2	Check that all items are present.	Packing lists
3	Remove volatile corrosion inhibitor (VCI) packaging from those items to be used immediately. *	
4	Inspect all components for proper assembly. Check condition of all items needed for installation.	Para 2-3, 2-5, 2-7
5	Clean and lubricate equipment.	LO 9-1005-262-12
6	Install equipment on helicopter.	Para 2-5 through 2-8
7	Perform preflight checks and services.	Tables 3-2, 3-3, 3-4

* VCI wrapped weapons, equipment, or parts not immediately used will be stored in their VCI packages.

2-2. Destruction of Materiel to Prevent Enemy Use.

Refer to TM 750-244-7 for procedures to be used in destruction of materiel to prevent enemy use.

Section II. INSTALLATION / REMOVAL OF ARMAMENT SUBSYSTEM M23

2-3. Installation.

a. Mount Assemblies.

(1) Assemble one mount assembly for installation on right side of aircraft and one for installation on left side.

NOTE

The mount assemblies installed on the right side and left side of UH-1D / H helicopters for this subsystem are composed of identical parts. The base tube assembly is marked to aid in installation. Near one end, one side is stamped "TOP FRONT FOR RH ASSY" and the opposite side is stamped "TOP FRONT FOR LH ASSY".

(2) To assemble right hand mount assembly mounting components refer to figure 2-1 and proceed as follows:

(a) Position tube assembly for right hand mounting.

(b) Position forward and aft beams to tube assembly with clevis-like ends inboard.

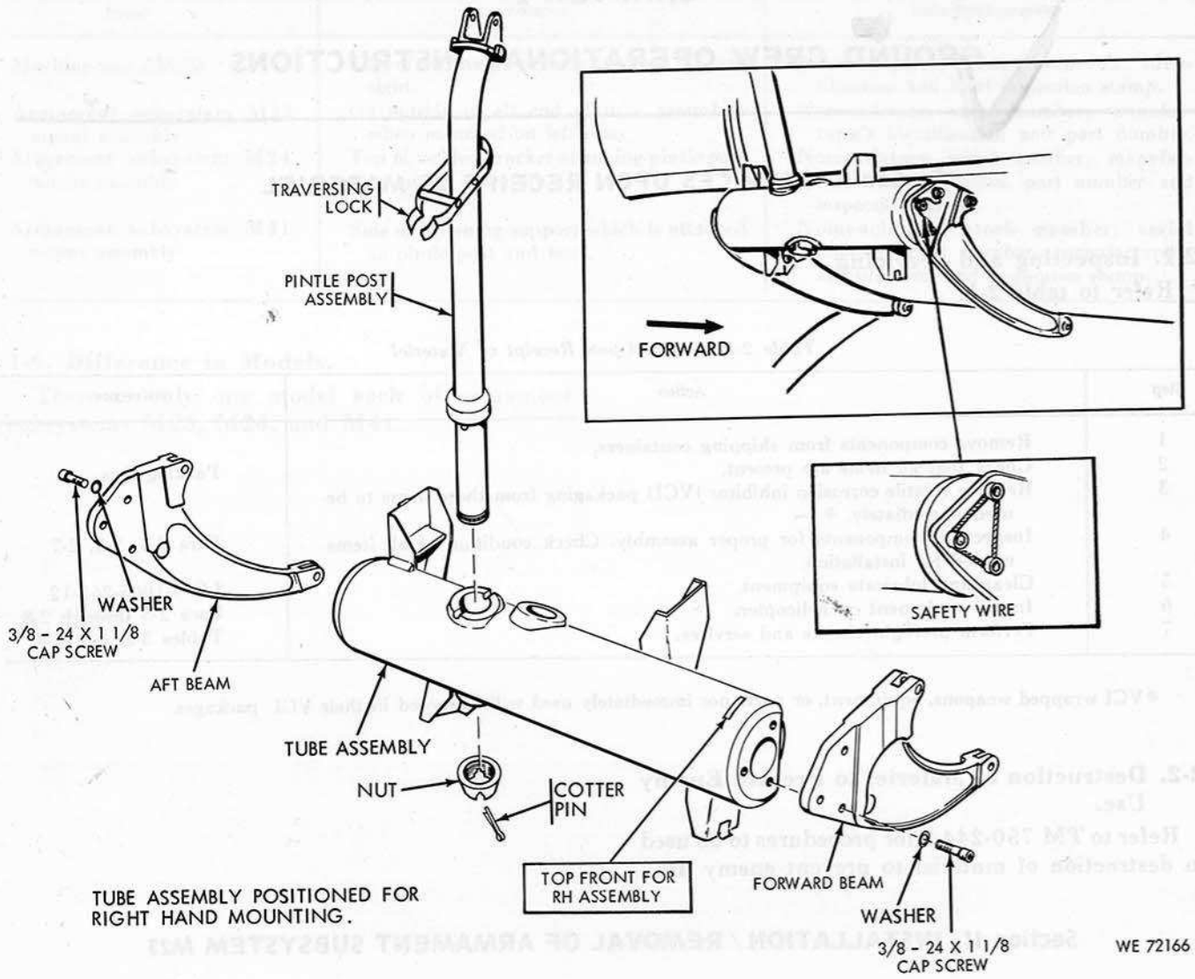


Figure 2-1. Armament subsystem M23 mount assembly mounting components.

NOTE

Although similar in appearance, the forward and aft beams are not interchangeable. The aft beam is the longer and bulkier of the two.

(c) Attach beams to tube assembly with three 3/8-24 x 1-1/2 cap screws and three washers on each end. Safety wire the screws.

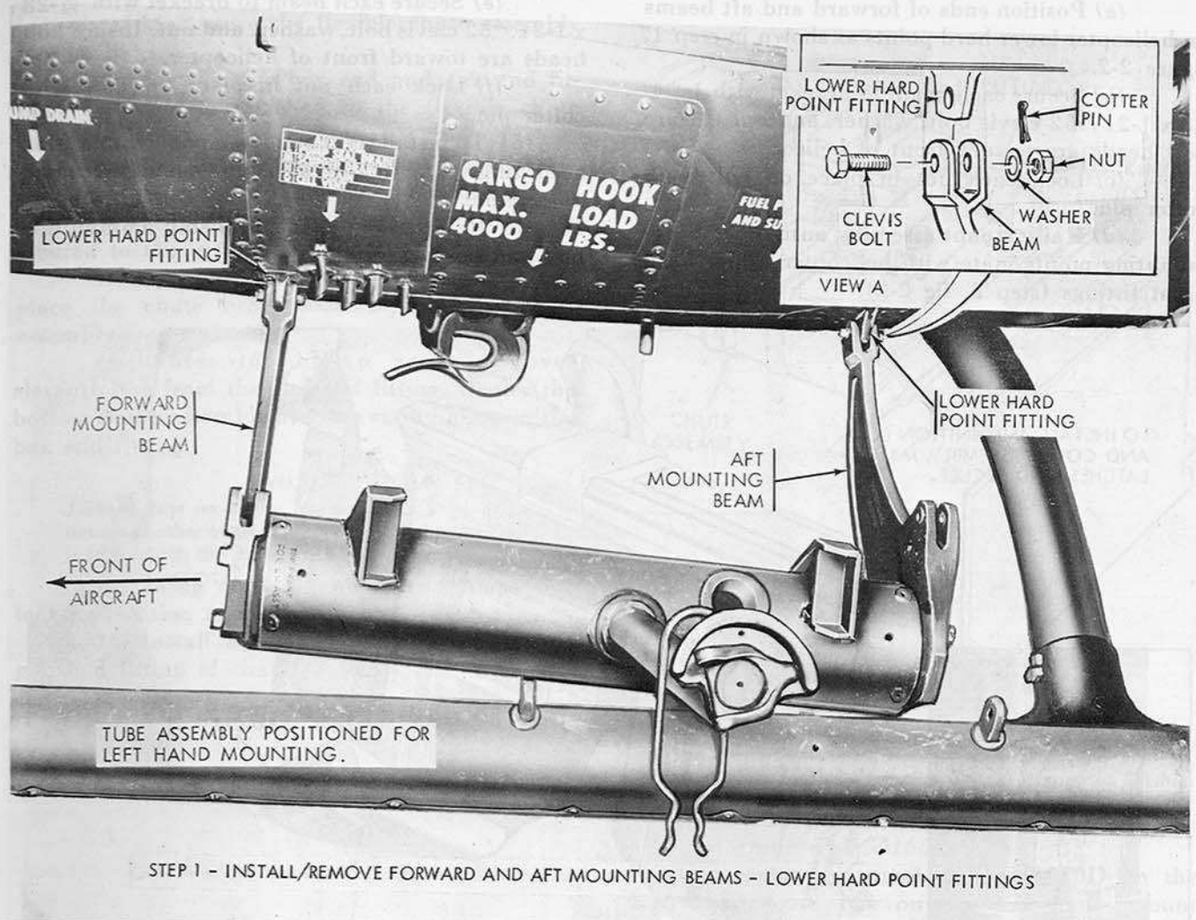
NOTE

The pintle post assembly is inserted through the opening in the tube assembly which has recesses to receive the locating bosses on pintle post collar. The pintle post assembly is positioned so that traversing lock is outboard.

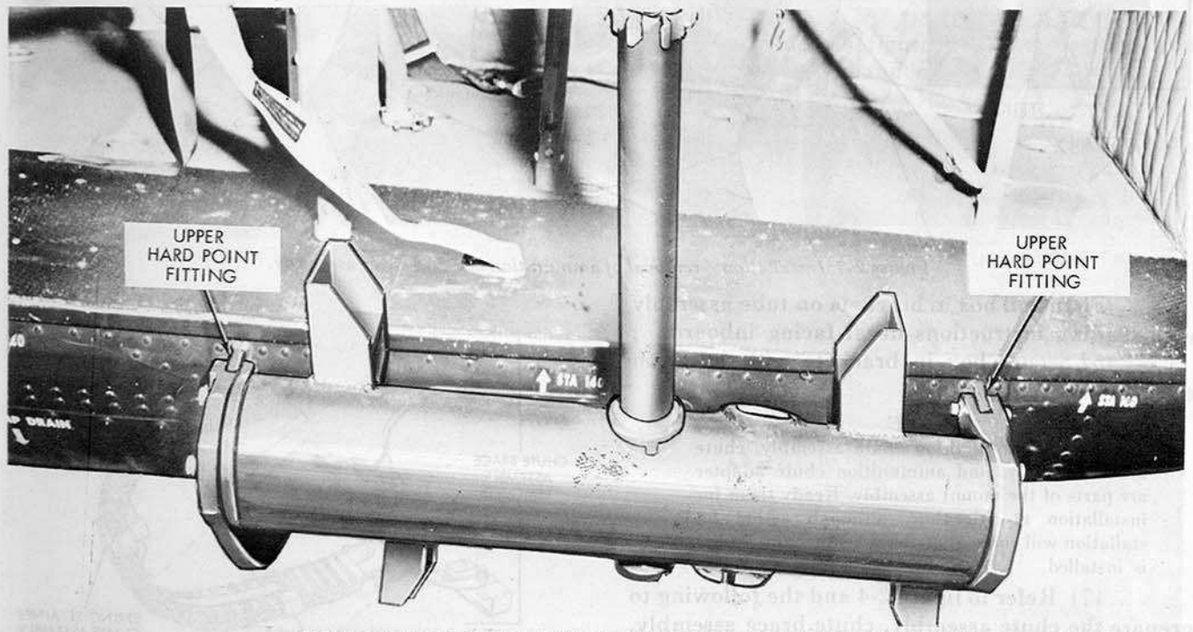
(d) Insert pintle post assembly through tube assembly and secure with nut and cotter pin. If pintle post assembly is received unassembled refer to paragraph 6-2 for assembly instructions.

(3) To assemble left hand mount assembly mounting components position tube assembly accordingly and follow steps *(a)* through *(d)* in *a* (2) of this paragraph.

(4) Refer to figure 2-2 and install left hand components on aircraft.



STEP 1 - INSTALL/REMOVE FORWARD AND AFT MOUNTING BEAMS - LOWER HARD POINT FITTINGS



STEP 2-INSTALL/ REMOVE MOUNT ASSEMBLY - UPPER HARD POINT FITTING WE 72174

Figure 2-2. Installation / removal of armament subsystem M23 mount assembly—UH-1D / H helicopter—left side shown.

(a) Position ends of forward and aft beams on helicopter lower hard points as shown in step 1, figure 2-2.

(b) Secure each beam to bracket with 1 / 4-28 x 1-21 / 32 clevis bolt, washer, and nut. Insure bolt heads are toward front of helicopter.

(c) Lock each nut in place on bolt with cotter pin.

(d) Raise mount assembly until other beam mounting points mate with helicopter upper hard point fittings (step 2, fig 2-2).

(e) Secure each beam to bracket with ¼-28 x 1-21 / 32 clevis bolt, washer, and nut. Insure bolt heads are toward front of helicopter.

(f) Lock each nut in place on bolt with cotter pin.

(5) To install right hand components, position accordingly and follow steps in (4) of preceding paragraph.

(6) Refer to figure 2-3 to install ammunition box and cover assembly.

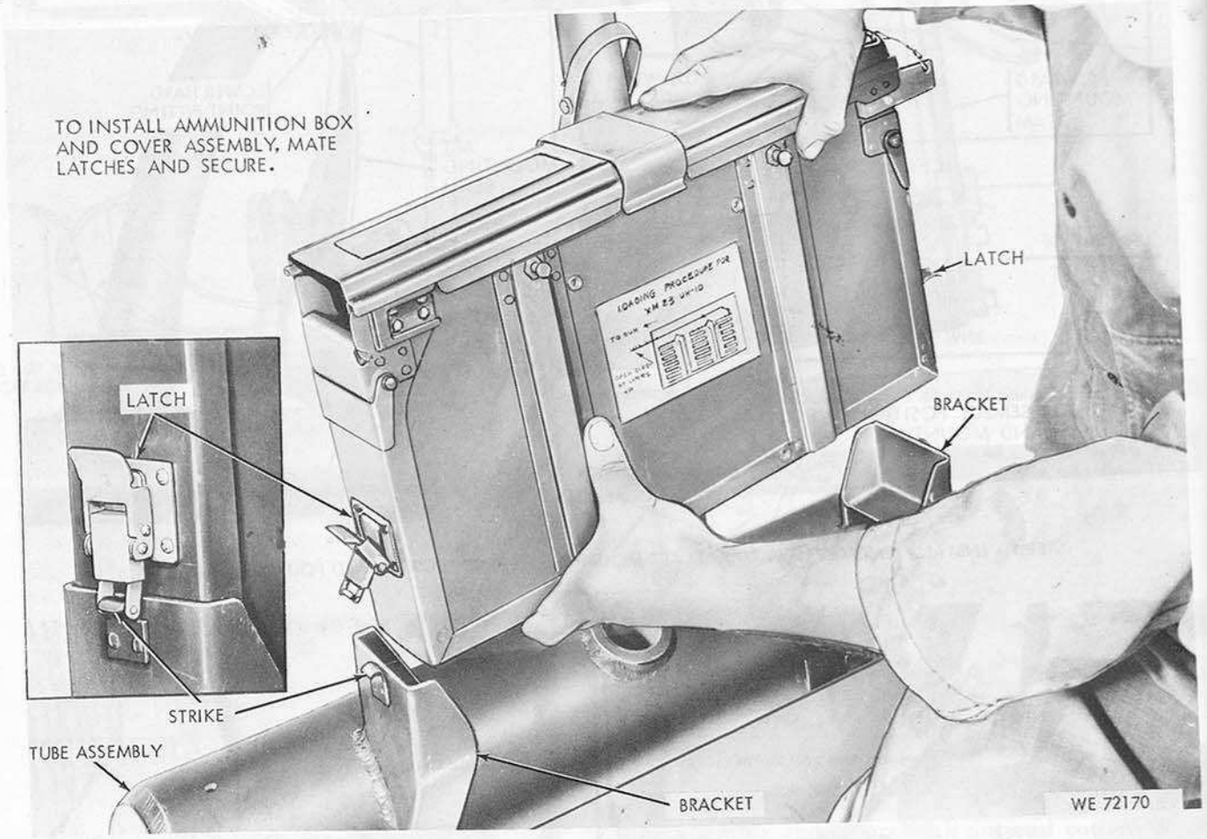


Figure 2-3. Installation / removal of ammunition box and cover assembly.

(a) Install box in brackets on tube assembly with loading instructions decal facing inboard.

(b) Secure box in brackets with latch on each end of box.

NOTE

The flexible ammunition chute assembly, chute brace assembly, and ammunition chute adapter are parts of the mount assembly. Ready them for installation at this time, although actual installation will come after the machine gun M60D is installed.

(7) Refer to figure 2-4 and the following to prepare the chute assembly, chute brace assembly, and chute adapter for installation.

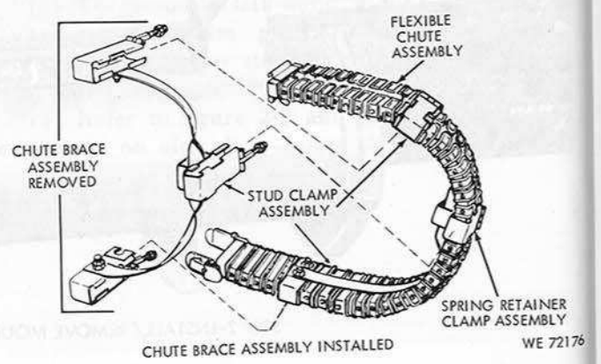


Figure 2-4. Installation / removal of chute brace assembly on flexible chute assembly.

(a) Make sure the flexible chute assembly has 46 links.

(b) See that the box end and gun end fittings are securely attached to the flexible chute assembly.

(c) See that the spring retainer clamp is in position on the chute brace assembly spring.

(d) See that both stud clamp assemblies are secured to the spring.

(e) Open all three clamp assemblies and place the chute brace assembly on the chute assembly.

(f) Center top clamp assembly over eleventh link from the gun end fitting. Center the bottom clamp assembly over the sixth link from the box end fitting.

NOTE

Tighten nuts on clamp assemblies to snug and tighten another quarter turn. Do not tighten these nuts so much the ammunition flow is restricted.

(g) Swing studs on all three clamps into locking position and tighten nuts.

(h) Install ammunition chute adapter to gun end fitting of chute assembly (fig. 2-5).

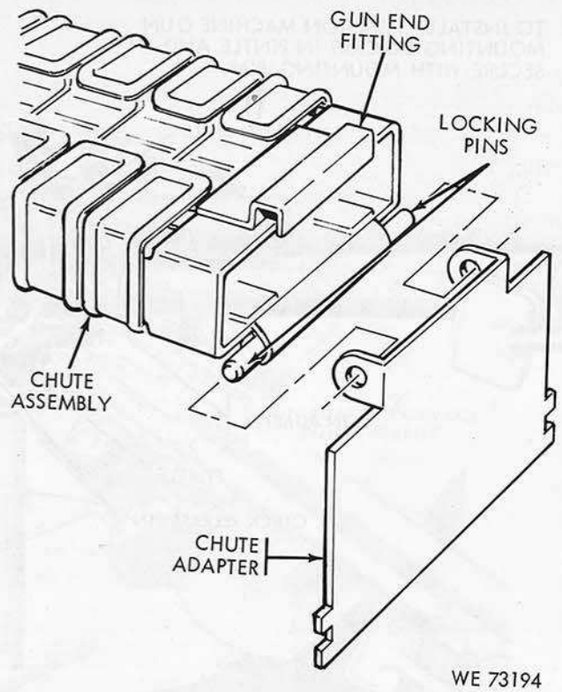


Figure 2-5. Installation / removal of chute adapter on flexible chute assembly.

b. Machine Guns M60D.

(1) Install one machine gun M60D on the right hand and one on the left hand mount assemblies.

(a) Refer to figure 2-6 and position gun adapter into right hand mount release pin.

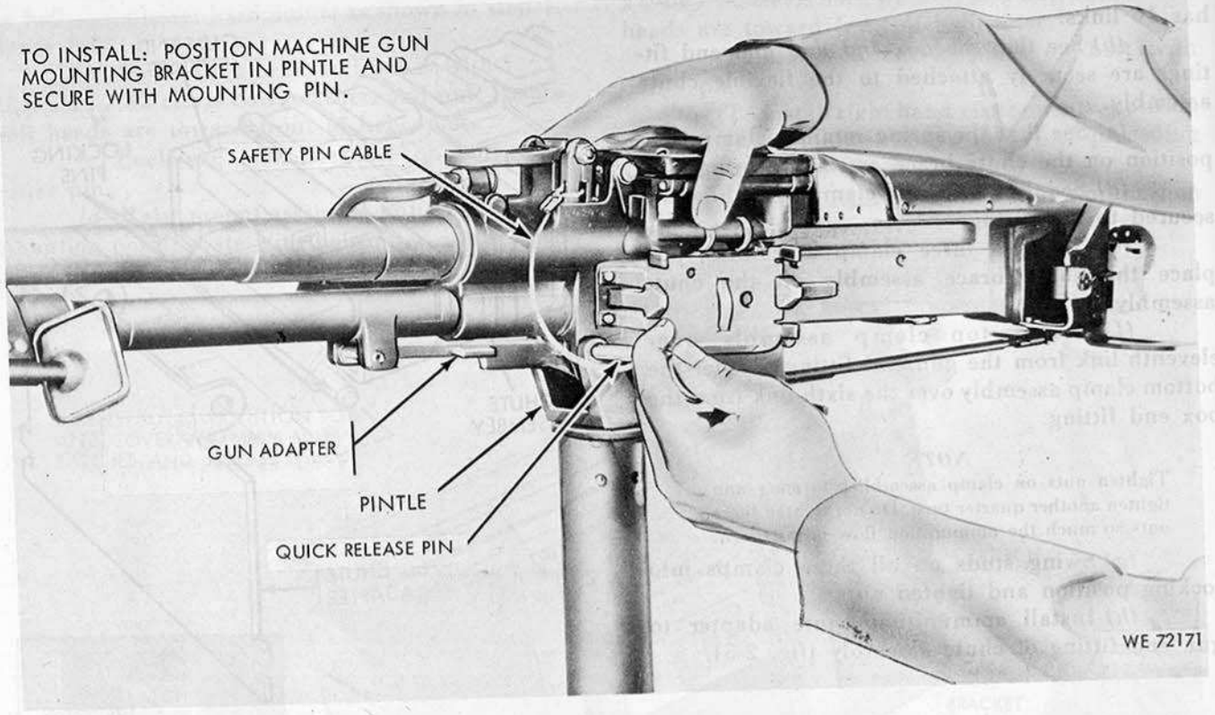


Figure 2-6. Installation of machine gun M60D on pintle—left side shown.

(b) Secure gun to pintle with quick release pin.

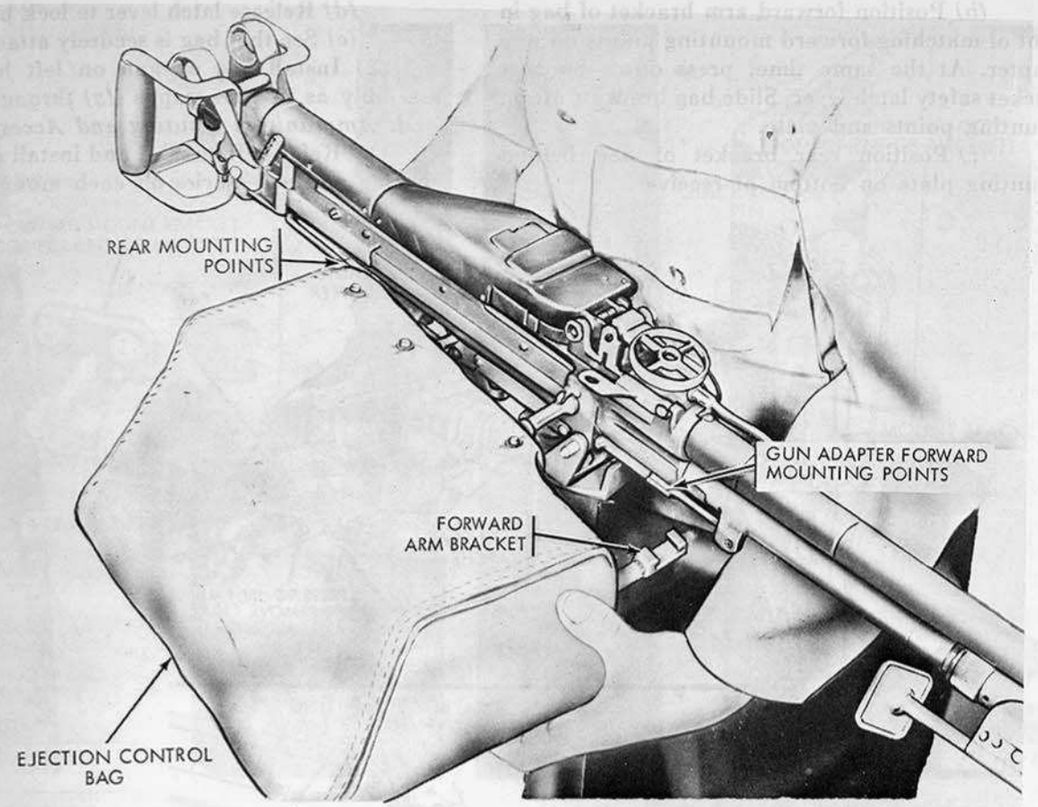
(c) Install gun on left hand mount assembly pintle as in paragraphs *(a)* through *(c)*.

(2) Check that each gun moves freely in azimuth and can be depressed to traversing lock (fig. 2-1).

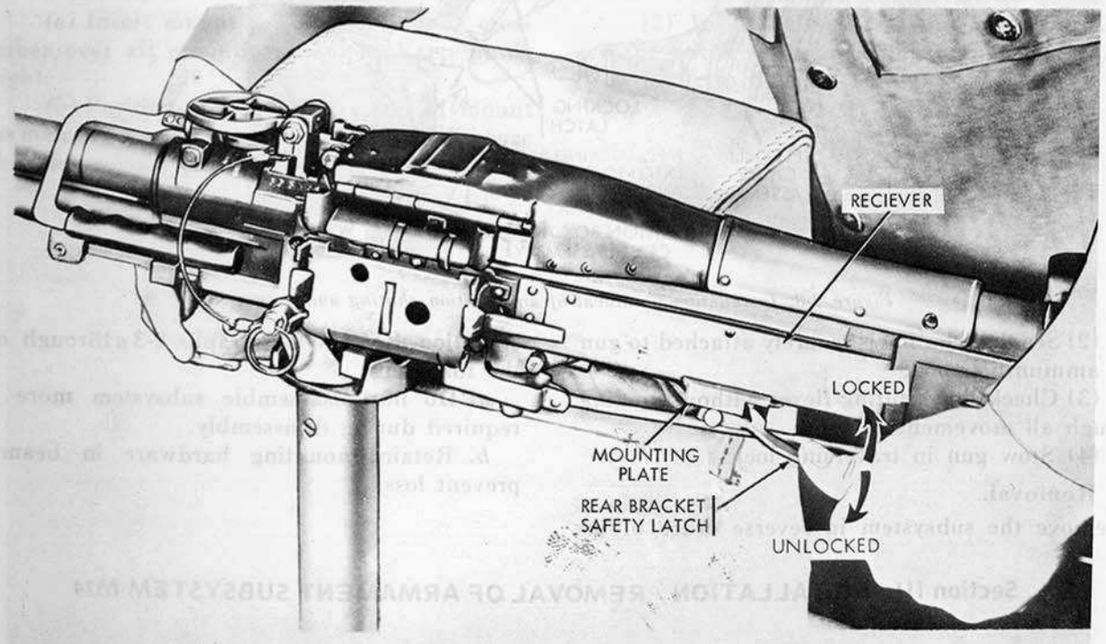
c. Ejection Control Bags.

(1) Install an ejection control bag on each gun.

(a) Refer to step 1, figure 2-7 and position bag on right of gun on right hand mount assembly.



STEP 1 - POSITION EJECTION CONTROL BAG ON MOUNTING POINTS.



STEP 2 - LOCKED OR UNLOCKED POSITION. WE 72168

Figure 2-7. Installation of ejection control bag.

(b) Position forward arm bracket of bag in front of matching forward mounting points on gun adapter. At the same time, press down on rear bracket safety latch lever. Slide bag brackets aft on mounting points and plate.

(c) Position rear bracket of bag behind mounting plate on bottom of receiver.

(d) Release latch lever to lock bag in place.

(e) See that bag is securely attached to gun.

(2) Install bag on gun on left hand mount assembly as in paragraphs *(a)* through *(e)*.

d. Ammunition Chuting and Accessories.

(1) Refer to figure 2-8 and install ammunition chuting and accessories on each mount assembly.

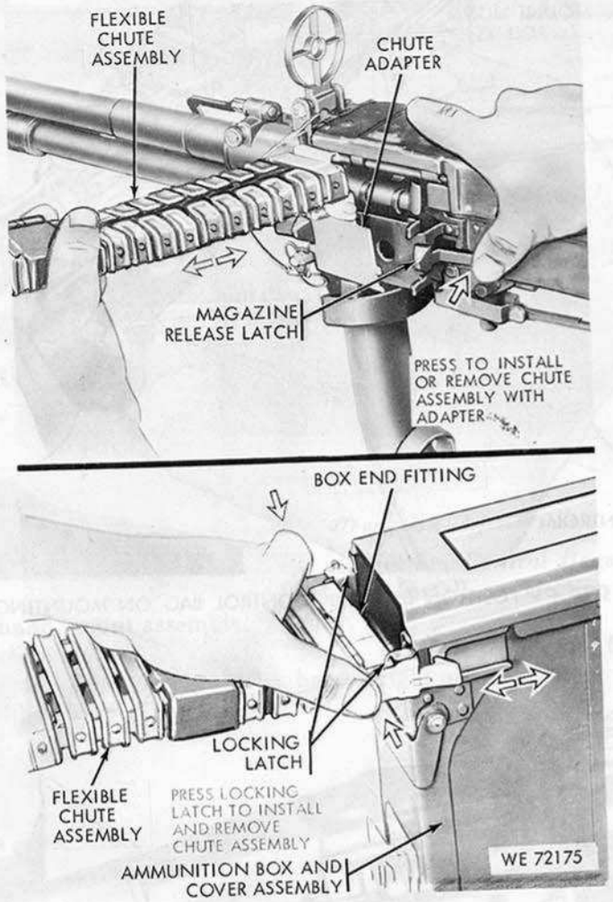


Figure 2-8. Installation / removal of ammunition chuting and accessories.

(2) See that chuting is securely attached to gun and ammunition box.

(3) Check that chuting flexes without binding through all movements of gun.

(4) Stow gun in traversing lock.

2-4. Removal.

Remove the subsystem in reverse order of installation. Refer to paragraphs 2-3 *a* through *d* and the following:

a. Do not disassemble subsystem more than required during disassembly.

b. Retain mounting hardware in beams to prevent loss.

Section III. INSTALLATION / REMOVAL OF ARMAMENT SUBSYSTEM M24

2-5. Installation.

a. Mount Assemblies.

NOTE

The right side and left side mount assemblies of the armament subsystem M24 are similar in appearance. They are stamped either FOR L H or FOR R H etc., on the apron between the cross member and pintle.

(1) Refer to figure 2-9 and install right side mount assembly across right door of helicopter.

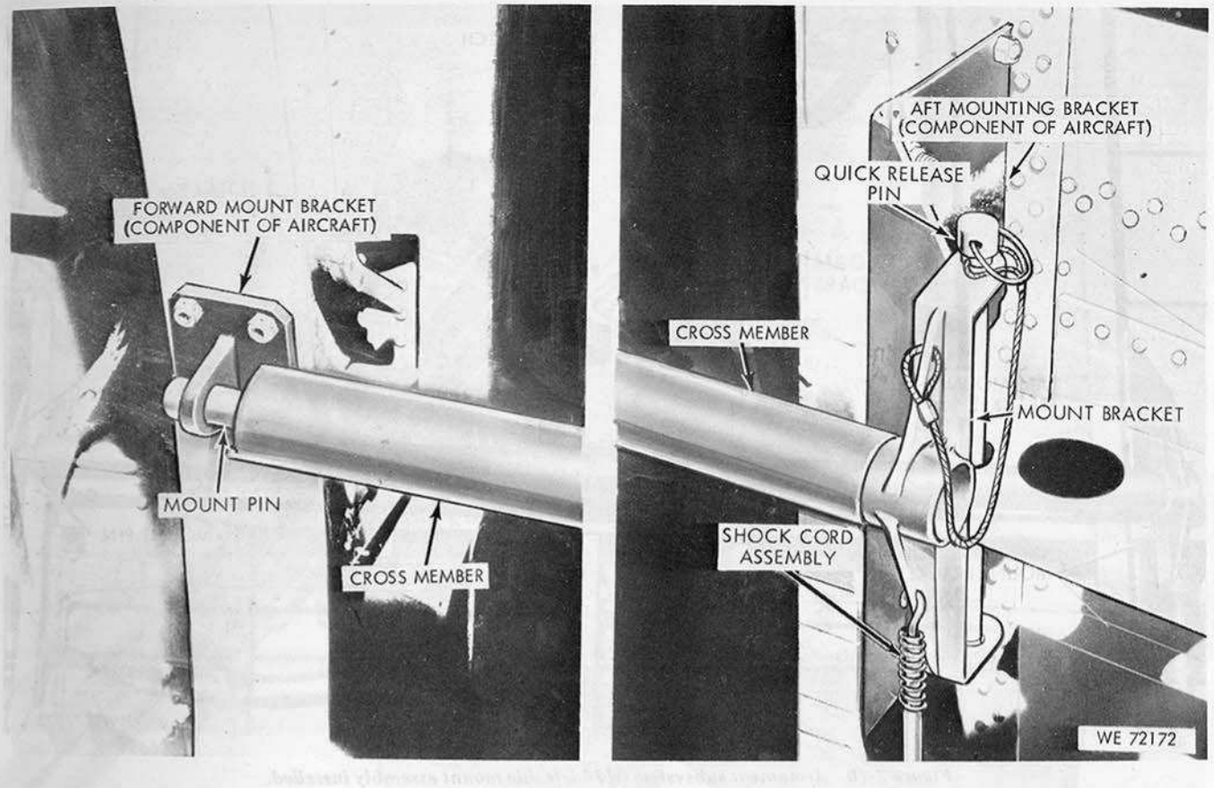


Figure 2-9. Installation / removal of armament subsystem M24 right side mount assembly.

(a) Insert mount pin end of mount cross member over aft mounting bracket. Keep pintle upright.

(b) Position mount bracket end of mount cross member over aft mounting bracket and secure with quick release pin.

(2) Install left side mount assembly across escape hatch as in preceding paragraphs *(a)* and *(b)*. Refer to figure 2-10.

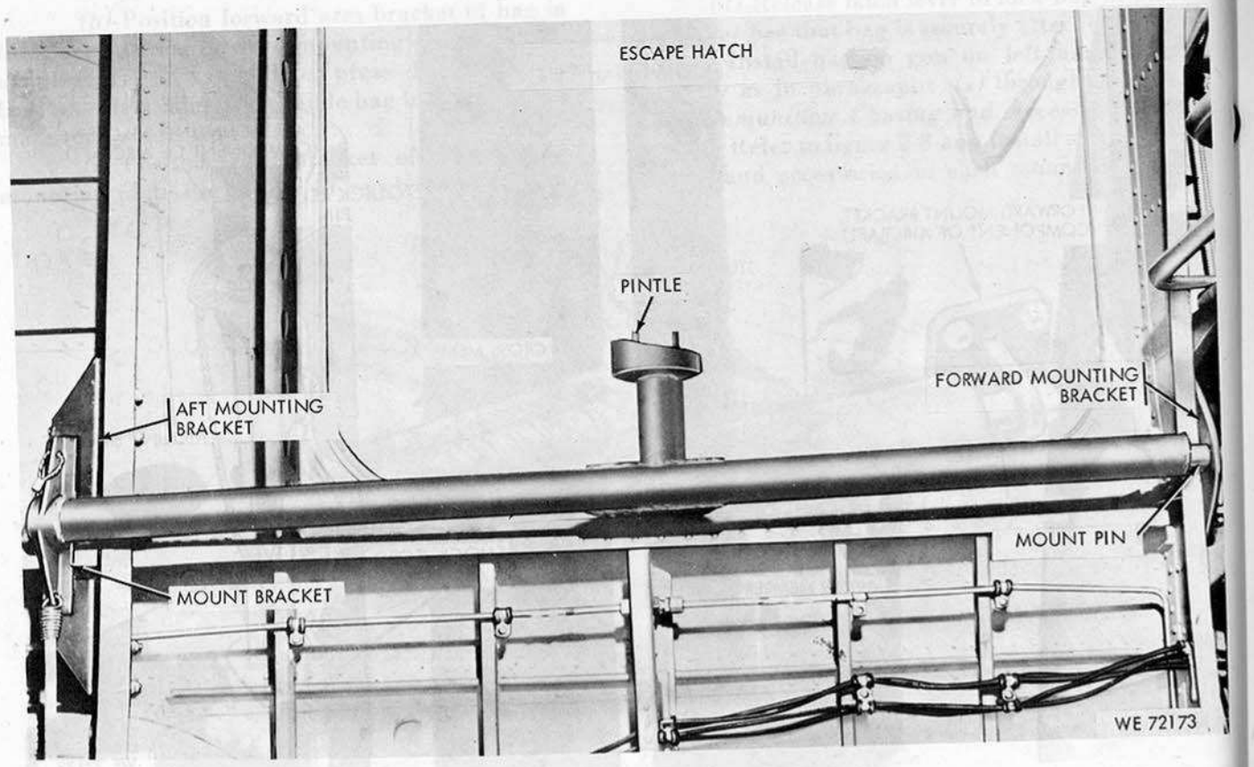


Figure 2-10. Armament subsystem M24 left side mount assembly installed.

b. Machine Gun M60D. Refer to paragraph 2-3 *b* (1).

c. Ammunition Can Assemblies.

(1) Refer to figure 2-11, open release latch, and install ammunition can assembly.

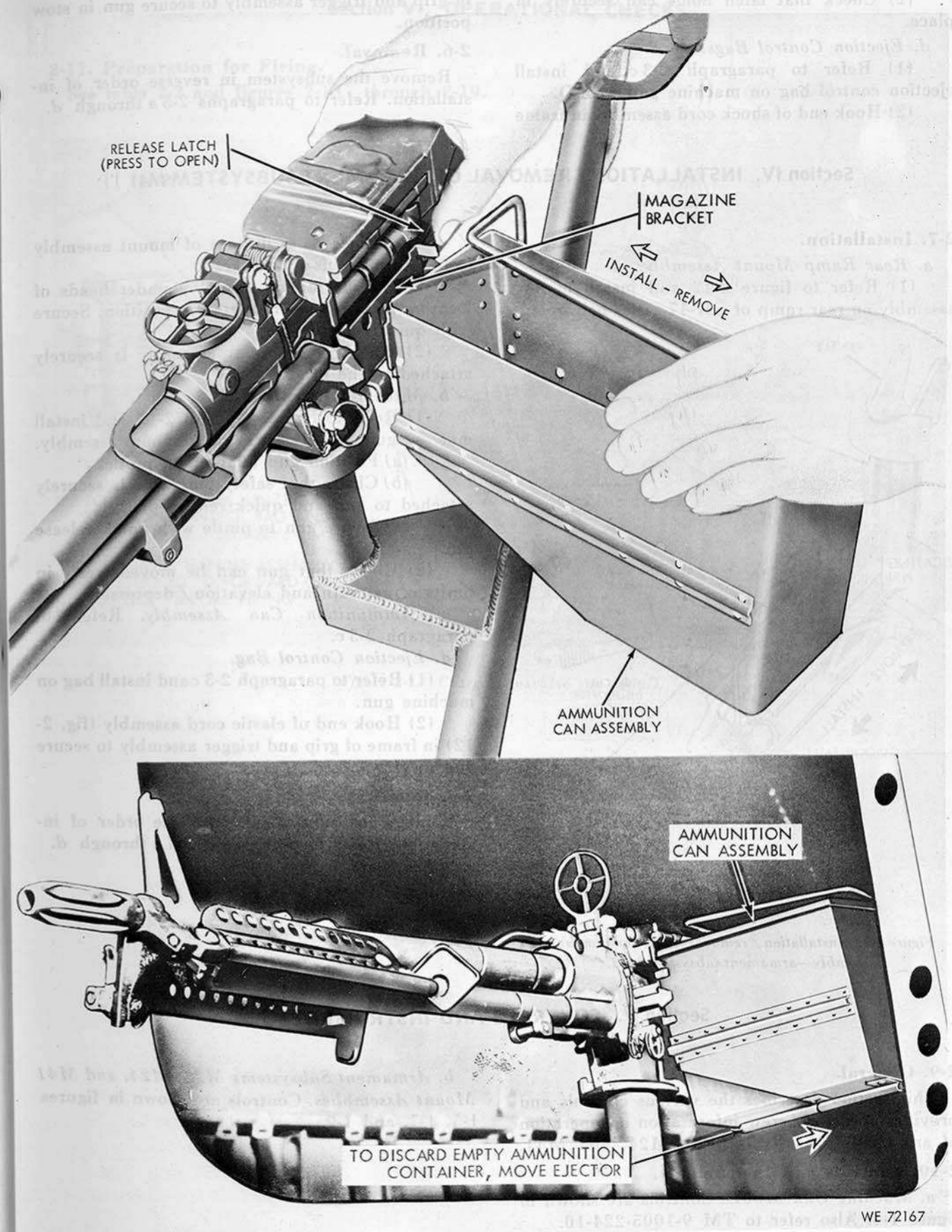


Figure 2-11. Installation / removal of ammunition can assembly on machine gun M60D.

(2) Check that latch holds can securely in place.

d. Ejection Control Bags.

(1) Refer to paragraph 2-3 *c* and install ejection control bag on machine gun M60D.

(2) Hook end of shock cord assembly in frame of grip and trigger assembly to secure gun in stow position.

2-6. Removal.

Remove the subsystem in reverse order of installation. Refer to paragraphs 2-5 *a* through *d*.

Section IV. INSTALLATION / REMOVAL OF ARMAMENT SUBSYSTEM M41

2-7. Installation.

a. Rear Ramp Mount Assembly.

(1) Refer to figure 2-12 and install mount assembly on rear ramp of CH-47 series helicopter.

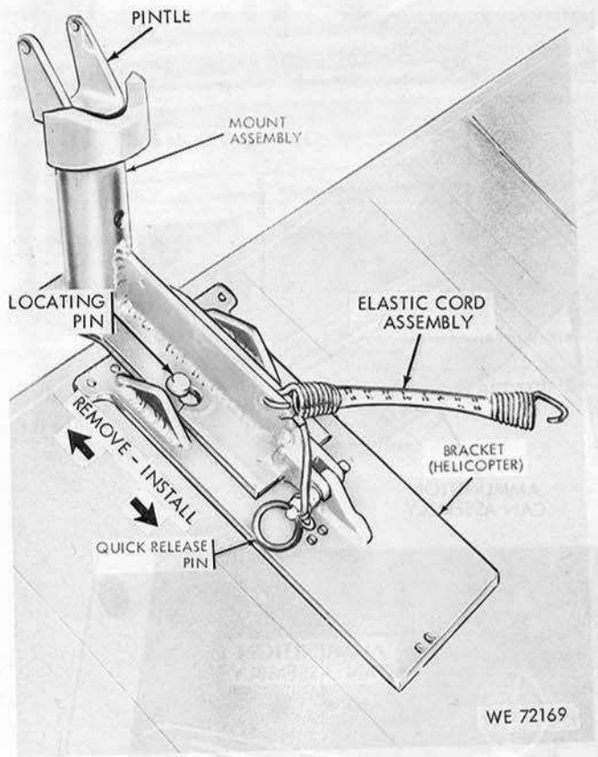


Figure 2-12. Installation / removal of rear ramp mount assembly—armament subsystem M41.

(a) Place holes in base of mount assembly over locating pins in bracket.

(b) Slide mount assembly under heads of locating pins to lock in operating position. Secure with quick release pin.

(2) Check that mount assembly is securely attached to the bracket.

b. Machine Gun M60D.

(1) Refer to figures 2-6 and 2-12 and install machine gun M60D on rear ramp mount assembly.

(a) Position gun adapter on pintle.

(b) Check that safety pin cable is securely attached to gun and quick release pin.

(c) Secure gun to pintle with quick release pin.

(2) Check that gun can be moved freely in limits of azimuth and elevation / depression.

c. Ammunition Can Assembly. Refer to paragraph 2-5 *c*.

d. Ejection Control Bag.

(1) Refer to paragraph 2-3 *c* and install bag on machine gun.

(2) Hook end of elastic cord assembly (fig. 2-12) in frame of grip and trigger assembly to secure gun in stow position.

2-8. Removal.

Remove the subsystem in reverse order of installation. Refer to paragraphs 2-7 *a* through *d*.

Section V. CONTROLS AND INSTRUMENTS

2-9. General.

This section describes the various controls and provides operator / crew information on operation of armament subsystems M23, M24, and M41.

2-10. Controls and Instruments.

a. Machine Gun M60D. Controls are shown in figure 1-4. Also refer to TM 9-1005-224-10.

b. Armament Subsystems M23, M24, and M41 Mount Assemblies. Controls are shown in figures 1-5, 1-7, and 1-9.

Section VI. OPERATIONAL CHECKS

2-11. Preparation for Firing.

See table 2-2 and figures 2-13 through 2-19.

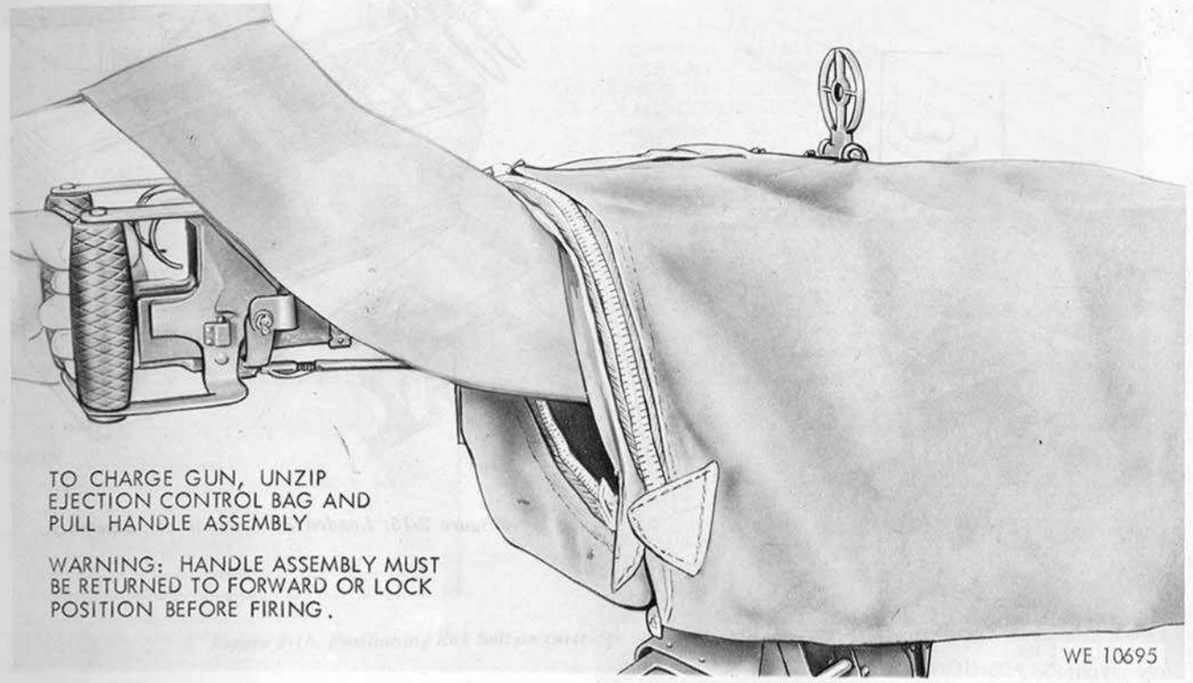


Figure 2-13. Charging machine gun M60D.

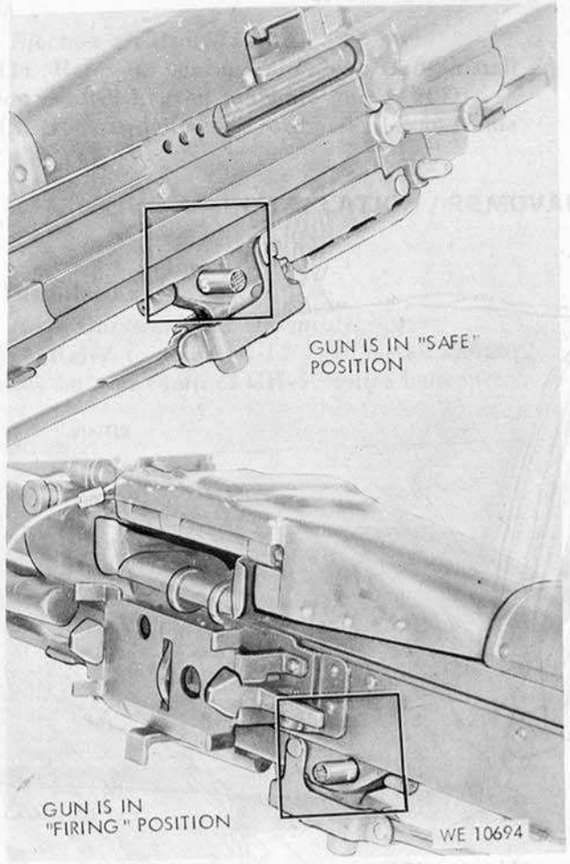


Figure 2-14. Location and identification of SAFE (S) and FIRING (F) positions of safety button on machine gun M60D.

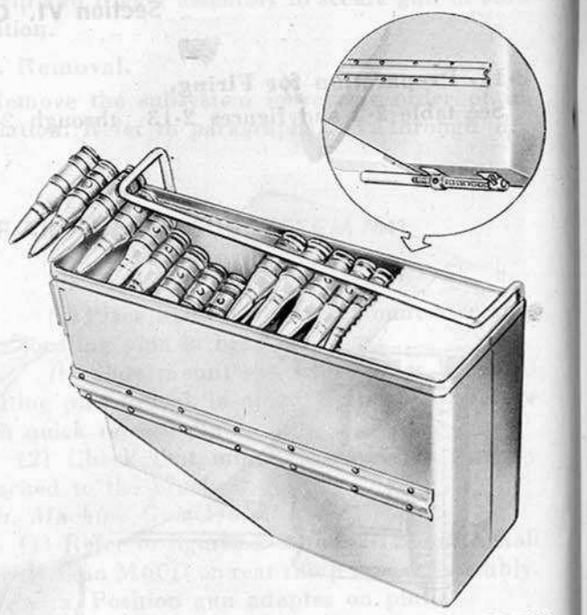


Figure 2-15. Loaded ammunition can assembly.

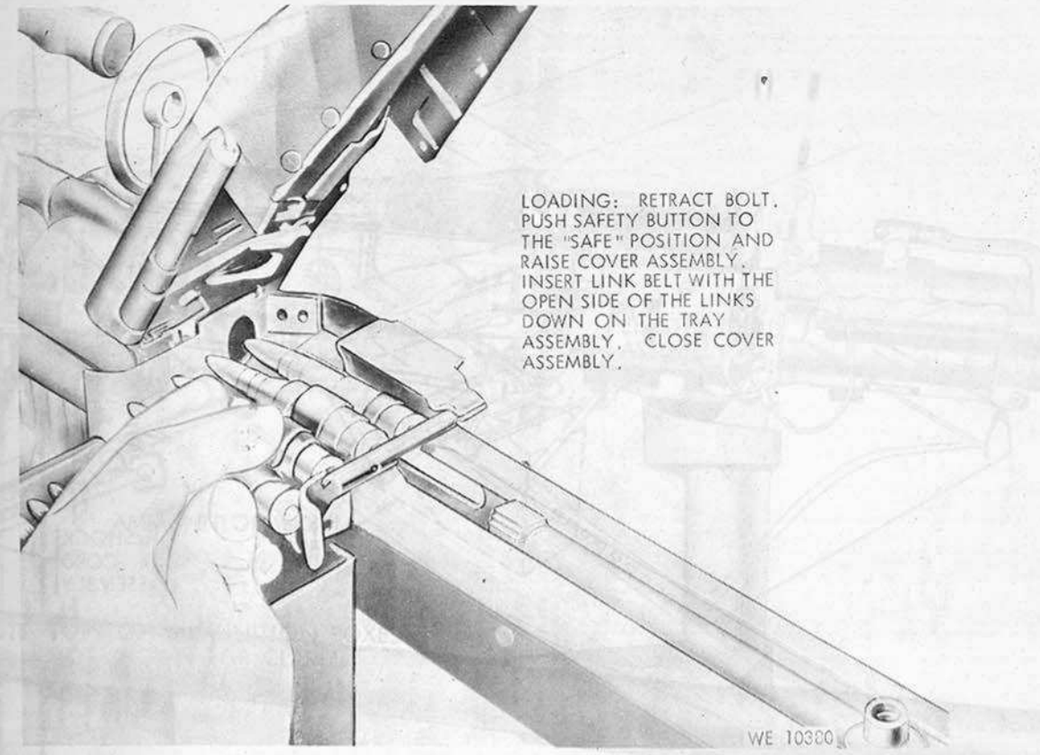


Figure 2-16. Positioning link belt on cartridge tray assembly on machine gun M60D.

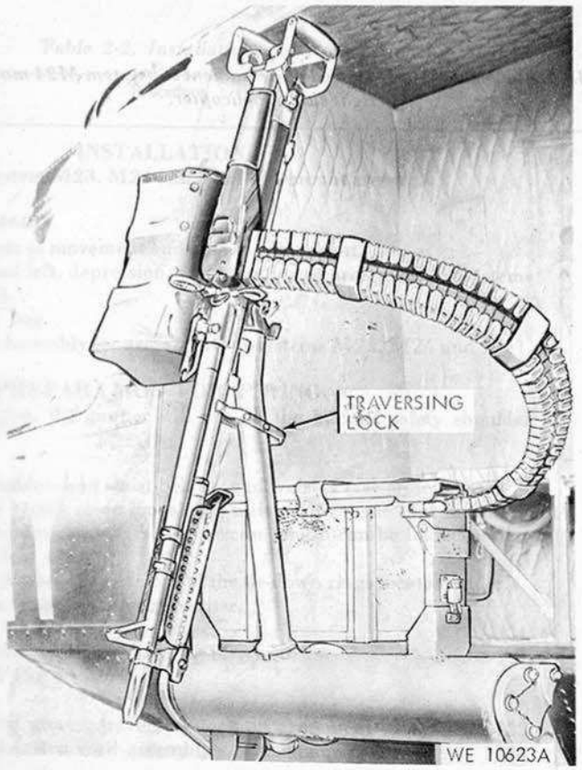


Figure 2-17. Armament subsystem M23 installed, machine gun M60D stowed—right side shown.

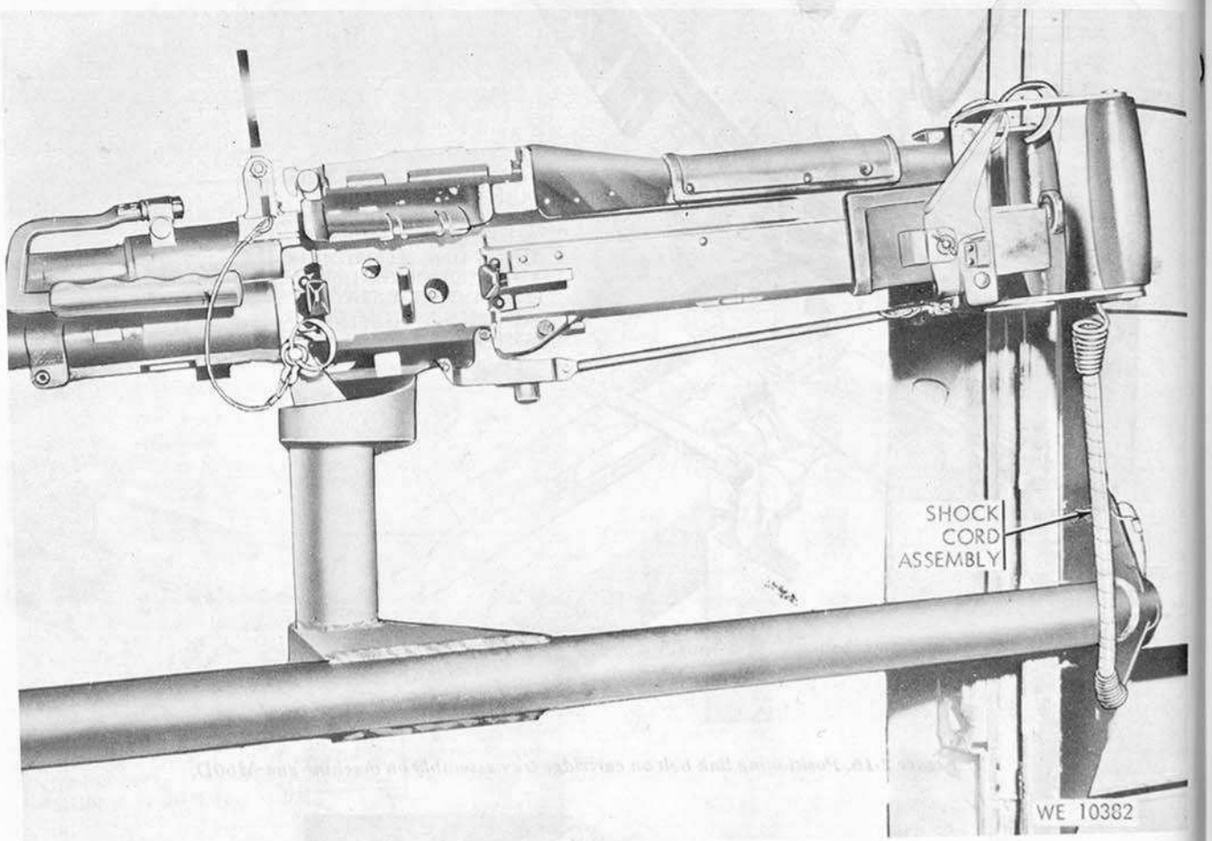


Figure 2-18. Machine gun M60D stowed on armament subsystem M24 mount assembly—right side of helicopter.

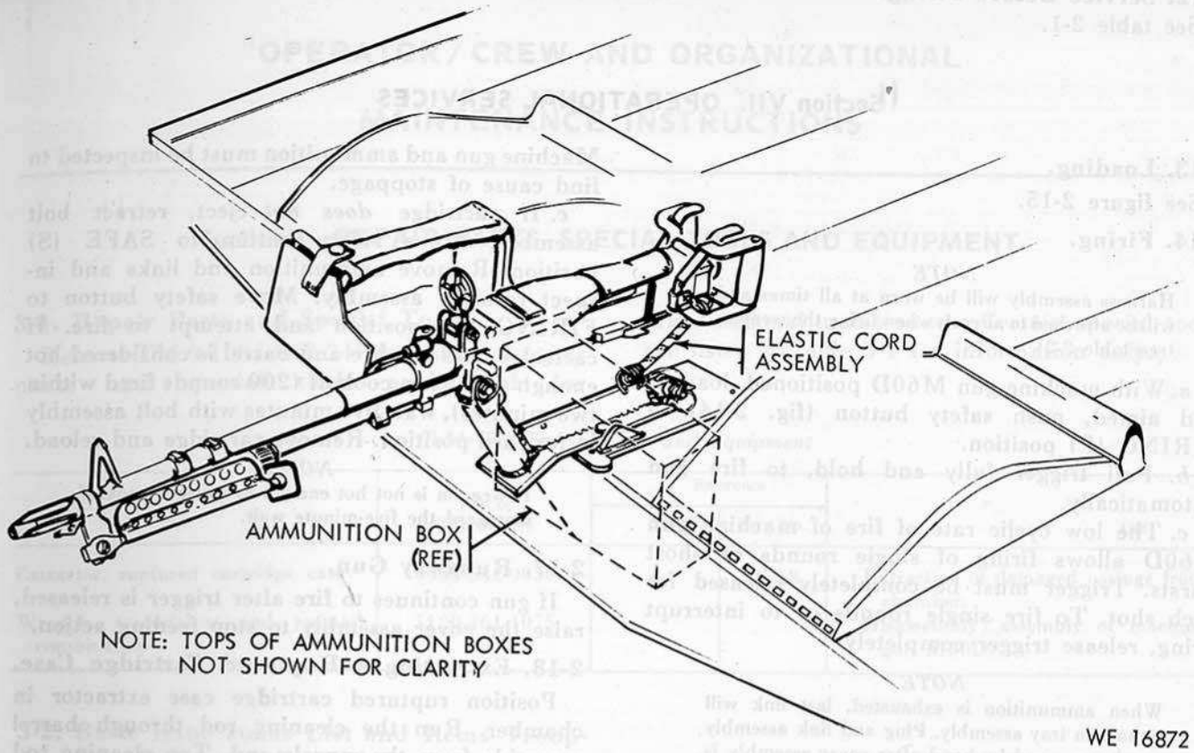


Figure 2-19. Armament subsystem M41 installed—machine gun M60D stowed—right rear view.

Table 2-2. Installation and Preparation for Firing

Sequence No.	Procedure	Reference
	INSTALLATION	
1	Install armament subsystem M23, M24 and / or M41 mount assembly.	Figs. 2-1 through 2-5, 2-7 through 2-12.
2	Install machine gun M60D.	Fig. 2-6
3	Check bipods for freedom of movement and ease of adjustment.	
4	Check traverse, right and left, depression, and elevation of armament subsystems M23, M24 and M41.	Para 1-8
5	Install ejection control bag.	Fig. 2-7 and para 2-3*c*.
6	Install ammunition can assembly for armament subsystems M23, M24 and M41.	Fig. 2-8.
	PREPARATION FOR FIRING	
7	Prior to firing the weapon, the gunner will put on the aircraft safety shoulder harness as follows: *a*. Slip harness over shoulders and waist belt around waist. Place crotch straps between legs. Place crotch strap loops over waist belt tongue and fasten. *b*. Adjust safety strap to desired length. Any excess length can be folded and secured with electrical tape. *c*. Fasten snap hook and safety strap to one of the tie-down rings located under the gunner's seat on the deck of the helicopter.	
8	Charge weapon by pulling handle assembly to rear.	Fig. 2-13.
9	Push safety into SAFE (S) position.	Fig. 2-14.
10	Load ammunition.	Figs. 2-15 and 2-16.
11	To stow weapon, position gun in traversing lock on armament subsystem M23 mount assembly; and fasten cord assemblies on armament subsystems M24 and M41.	Figs. 2-17, 2-18 and 2-19.

2-12. Service Before Firing.
See table 2-1.

Section VII. OPERATIONAL SERVICES

2-13. Loading.
See figure 2-15.

2-14. Firing.

NOTE
Harness assembly will be worn at all times and will be attached to aircraft when firing the weapon (see table 2-2).

a. With machine gun M60D positioned, loaded, and aimed, push safety button (fig. 2-14) to FIRING (F) position.

b. Pull trigger fully and hold, to fire gun automatically.

c. The low cyclic rate of fire of machine gun M60D allows firing of single rounds or short bursts. Trigger must be completely released for each shot. To fire single rounds or to interrupt firing, release trigger completely.

NOTE
When ammunition is exhausted, last link will remain in tray assembly. Plug and link assembly can be removed by hand after cover assembly is opened for loading.

2-15. Failure to Fire.

a. Misfire. A misfire is a complete failure to fire. It must be treated as a hangfire until possibility of a hangfire is eliminated.

b. Hangfire. A hangfire is a delay in functioning of the propelling charge. Time intervals set out in paragraph 2-16 must be observed after a failure to fire.

c. Cookoff. A cookoff is firing of the chambered cartridge from a hot barrel. A cookoff may occur from ten seconds to five minutes after cartridge has been in contact with the barrel.

2-16. Immediate Action Procedures—Failure to Fire.

a. If a stoppage occurs, wait five seconds. Pull handle assembly to rear, insuring operating rod assembly is held back.

b. If cartridge ejects, return handle assembly forward, reaim machine gun, and attempt to fire. If machine gun does not fire, it must be cleared. Machine gun and ammunition must be inspected to find cause of stoppage.

c. If cartridge *does not* eject, retract bolt assembly. Move safety button to SAFE (S) position. Remove ammunition and links and inspect receiver assembly. Move safety button to FIRING (F) position and attempt to fire. If cartridge does not fire and barrel is considered hot enough to cause a cookoff (200 rounds fired within two minutes), wait five minutes with bolt assembly in forward position. Remove cartridge and reload.

NOTE
If weapon is not hot enough to cause a cookoff, disregard the five-minute wait.

2-17. Runaway Gun.

If gun continues to fire after trigger is released, raise the cover assembly to stop feeding action.

2-18. Extracting a Ruptured Cartridge Case.

Position ruptured cartridge case extractor in chamber. Run the cleaning rod through barrel assembly from the muzzle end. Tap cleaning rod against extractor until extractor and ruptured cartridge case come out of the chamber.

2-19. Unloading.

Raise cover assembly and remove linked cartridges. Inspect chamber.

2-20. Double Feeding.

When a stoppage occurs with bolt assembly in forward position, assume there is an unfired cartridge in the chamber. Treat this as a hangfire (para 2-14 *b*).

WARNING
If a stoppage occurs, never retract bolt assembly and allow it to go forward again without inspecting chamber to see it is clear. Such an action strips another cartridge from the belt. If an unfired cartridge remains in the chamber, a second cartridge can fire the first and cause injury to personnel and/or weapon damage.

CHAPTER 3

OPERATOR/CREW AND ORGANIZATIONAL MAINTENANCE INSTRUCTIONS

Section I. REPAIR PARTS, SPECIAL TOOLS AND EQUIPMENT

3-1. Repair Parts and Special Tools.

Refer to TM 9-1005-262-24P for listing of repair parts and special tools authorized for organizational maintenance. Certain special tools are listed in table 3-1 for information only.

Table 3-1. Special Tools and Equipment

Item	FSN or Reference No.	Reference		Use
		Fig. No.	Para. No.	
Extractor, ruptured cartridge case:	4933-652-9950		2-18	Extraction of damaged casings from chamber.
Wrench, screwdriver and reamer combination	5120-461-1075			Disassembly/assembly of machine gun M60D

3-2. Basic Issue Items List and Items Troop-Installed or Authorized List.
Refer to appendix B.

Section II. LUBRICATION INSTRUCTIONS

Refer to LO 9-1005-262-12 for lubrication instructions under usual conditions. Unusual conditions are covered in TM 9-1005-224-24.

Section III. PREVENTIVE MAINTENANCE CHECKS AND SERVICES

3-3. General

Preventive maintenance is the systematic cleaning, lubricating and inspection of equipment to prevent breakdown and to maintain maximum operational readiness.

3-4. Preventive Maintenance Checks and Services.

See tables 3-2 through 3-7 for specific requirements for daily and intermediate (25 flying hours) inspections.

Table 3-2. Organizational Preventive Maintenance Checks and Services

D—Daily
Total man hours required: 0.7

ARMAMENT SUBSYSTEM M23

Interval and sequence no.	Item to be inspected procedure	Work time (M / H)
	MACHINE GUN M60D	
1. Preflight	Barrel assembly bore and chamber must be dry and free of foreign objects.	0.1
2. Preflight	Barrel lock lever—check to assure positive retention of barrel (fig. 1-4).	0.1
	MOUNT ASSEMBLY	
3. Preflight	Check mount assembly for secure attachment to helicopter hard points. See that pintle post is secure in base. (fig. 1-5).	0.1
	EJECTION CONTROL BAG	
4. Preflight	Inspect frame for distortion; check bag for tears or torn seams. Make sure slide fastener works and latch holds securely (fig. 1-6).	0.1
	MACHINE GUN M60D	
5. Postflight	Clean and lubricate in accordance with lubrication order (LO 9-1005-262-12).	0.3

Table 3-3. Organizational Preventive Maintenance Checks and Services

D—Daily
Total man hours required: 0.7

ARMAMENT SUBSYSTEM M24

Interval and sequence no.	Item to be inspected procedure	Work time (M H)
	MACHINE GUN M60D	
1. Preflight	Refer to table 3-2.	0.1
	MOUNT ASSEMBLY	
2. Preflight	Check mount assembly for secure installation horizontally across the cabin doorway on the right side, and the escape hatch on the left side of the helicopter (figs. 2-9 and 2-10).	0.1
	AMMUNTION CAN ASSEMBLY	
3. Preflight	Examine for loose rivets and distortion. Check that plunger slides easily and that spring has proper tension. Check installation (fig. 2-11).	0.1
	EJECTION CONTROL BAG	
4. Preflight	Refer to table 3-2.	0.1
	MACHINE GUN M60D	
5. Postflight	Refer to table 3-2.	0.3

Table 3-4. Organizational Preventive Maintenance Checks and Services

D—Daily
Total man hours required: 0.7

ARMAMENT SUBSYSTEM M41

Interval and sequence no.	Item to be inspected procedure	Work time (M H)
	MACHINE GUN M60D	
1. Preflight	Refer to table 3-2.	0.1
	MOUNT ASSEMBLY	
2. Preflight	Check mount assembly for secure installation on rear loading ramp of helicopter (fig. 2-12).	0.1

Table 3-4. Organizational Preventive Maintenance Checks and Services—Continued

D—Daily
Total man hours required: 0.7

ARMAMENT SUBSYSTEM M41—Continued

Interval and sequence no.	Item to be inspected procedure	Work time (M / H)
	AMMUNITION CAN ASSEMBLY	
3. Preflight	Refer to table 3-2.	0.1
	EJECTION CONTROL BAG	
4. Preflight	Refer to table 3-2.	0.1
	MACHINE GUN M60D	
5. Postflight	Refer to table 3-2.	0.3

Table 3-5. Organizational Preventive Maintenance Checks and Services

I—Intermediate
Total man hours required: 1.2

ARMAMENT SUBSYSTEM M23

Interval and sequence no.	Item to be inspected procedure	Work time (M / H)
	MACHINE GUN M60D.	
1. Intermediate	Barrel assembly with bipod assembly—Check for unusual wear and damage to bore. Check flash suppressor for distorted ribs. Replace barrel assembly if required.	0.2
2. Intermediate	Cover assembly—Hand operate components to assure freedom of movement. Test cover latch to be sure it holds cover assembly closed.	0.1
3. Intermediate	Buffer assembly—Inspect for oil leaks, rust, or damage that would hinder operation. Replace if required.	0.1
4. Intermediate	Bolt assembly—Inspect ejector and extractor for free movement. Inspect for chipping or cracks; replace if required. Inspect firing pin for freedom of movement in bolt assembly. Firing pin should be smooth and well rounded. Firing pin must not be cracked or bent.	0.1
5. Intermediate	Receiver assembly—Inspect for loose rivets. Check rails inside receiver assembly for distortion and chipping.	0.1
6. Intermediate	Grip and trigger assembly—Check for free movement of parts. Check link and spring sear assemblies for proper adjustment. Adjust link and spring sear assembly as required. Replace damaged parts.	0.1
7. Intermediate	Sear and safety housing assembly—Inspect for freedom of movement, weak or broken springs, and missing parts. Replace parts as required.	0.1
8. Intermediate	Operating rod inspection—Inspect for chipping or cracks. Replace if required.	0.1
9. Intermediate	Lubrication—Clean and oil as per LO 9-1005-262-12.	0.1
	MOUNT ASSEMBLY	
10. Intermediate	Inspect beam, base, and pintle post for cracks and distortion. Check traversing lock for proper action in stowing the machine gun (figs. 2-1 and 2-2).	0.1
	EJECTION CONTROL BAG	
	Refer to table 3-2.	0.1

Table 3-6. Organizational Preventive Maintenance Checks and Services

I—Intermediate
Total man hours required: 0.5

Interval and sequence no.	Item to be inspected procedure	Work time (M / H)
	ARMAMENT SUBSYSTEM M24	
	MACHINE GUN M60D	
1. Intermediate	Refer to table 3-5.	0.2
	MOUNT ASSEMBLY	
2. Intermediate	Inspect mount and bracket for cracks and distortion. Inspect pin and cord assembly for secure attachment on cabin doorway on right side and on escape hatch on left side (figs. 2-9 and 2-10).	0.1
	AMMUNITION CAN ASSEMBLY	
3. Intermediate	Refer to table 3-3.	0.1
	EJECTION CONTROL BAG	
4. Intermediate	Refer to table 3-2.	0.1

Table 3-7. Organizational Preventive Maintenance Checks and Services

I—Intermediate
Total man hours required: 0.5

Interval and sequence no.	Item to be inspected procedure	Work time (M / H)
	ARMAMENT SUBSYSTEM M41	
	MACHINE GUN M60D	
1. Intermediate	Refer to table 3-5.	0.2
	MOUNT ASSEMBLY	
2. Intermediate	Inspect mount assembly and attaching plate for distorition and cracks. Check pin and cord assembly for secure attachment to mount assembly (fig. 2-12).	0.1
	AMMUNITION CAN ASSEMBLY	
3. Intermediate	Refer to table 3-3.	0.1
	EJECTION CONTROL BAG	
4. Intermediate	Refer to table 3-2.	0.1

Section IV. TROUBLESHOOTING

3-5. General.

This section contains troubleshooting information for locating and correcting malfunctions which may develop in armament subsystems.

3-6. Troubleshooting.

See table 3-8 for the most common malfunctions, probable causes, and corrective actions.

Table 3-8. Troubleshooting

Malfunction	Probable Cause	Corrective Action
	MACHINE GUN M60D	
1. Failure to feed	*a.* Insufficient gas pressure.	*a.* Clean gas port (TM 9-1005-224-24).
	b. Feed pawl assembly defective.	*b.* Replace.
	c. Feed pawl spring defective.	*c.* Notify direct support.
	d. Front and rear cartridge guides defective.	*d.* Replace.
	e. Feed lever cam spring defective.	*e.* Replace.
	f. Cartridge feed roller defective.	*f.* Notify direct support
	g. Lubrication inadequate.	*g.* Clean and lubricate (LO 9-1005-262-12).
	h. Linked cartridges loaded incorrectly.	*h.* Load linked cartridges with open part of link down.
	i. Defective cover latch.	*i.* Notify direct support.
2. Failure to chamber	*a.* Damaged or weak operating rod spring.	*a.* Replace.
	b. Obstruction by foreign matter in receiver.	*b.* Clean and lubricate.
	c. Ruptured cartridge case.	*c.* Remove (para 2-18).
	d. Carbon caked in gas cylinder piston or receiver assembly.	*d.* Remove carbon (TM 9-1005-224-24).
	e. Damaged cartridge.	*e.* Remove damaged cartridge. Recharge machine gun (fig. 2-13).
3. Failure to lock	*a.* Weak or short operating spring.	*a.* Replace.
	b. Foreign matter in chamber or receiver.	*b.* Clean and lubricate as required.
4. Failure to fire.	*a.* Broken or damaged firing pin or spring.	*a.* Replace.
	b. Faulty ammunition.	*b.* Replace.
	c. Dirty chamber.	*c.* Clear the chamber. Clean. If required, change barrel assemblies.
	d. Defective sear, plunger, or spring.	*d.* Replace.
	e. Weak or damaged operating rod spring.	*e.* Replace.
5. Failure to unlock.	*f.* Loose grip and trigger assembly.	*f.* Tighten knob and pin assembly.
6. Failure to extract.	Broken firing pin.	Replace.
	a. Broken extractor plunger or spring.	*a.* Replace.
	b. Short recoil.	*b.* Clean gas port in barrel assembly (TM 9-1005-224-24).
	c. Gas piston in backwards.	*c.* Install correctly.
7. Failure to eject.	*a.* Short recoil.	*a.* Clean gas port in barrel assembly.
	b. Frozen or damaged ejector or ejector spring.	*b.* Clean; replace if required.
8. Failure to cock.	*a.* Broken sear.	*a.* Replace (fig. 3-10).
	b. Worn sear notch on operating rod assembly.	*b.* Notify direct support.
	c. Sear link nut improperly adjusted.	*c.* Adjust (para 3-15).
	d. Broken, missing, or defective sear plunger and / or compression helical spring.	*d.* Replace (para 3-14, fig. 3-10).
	e. Insufficient gas pressure.	*e.* Clean gas port.
9. Uncontrolled fire.	*a.* Defective sear.	*a.* Replace.
	b. Worn sear notch on operating rod assembly.	*b.* Replace operating rod assembly.
	ARMAMENT SUBSYSTEM M23 MOUNT ASSEMBLY	
10. Pintle movement restricted.	Dirty, rusty, damaged pintle or bearing balls.	Clean, repair, or replace (para 3-22, fig. 3-18).
11. Subsystem not in alinement.	Twisted mounting beam, pintle post, or tube assembly.	Replace (fig. 3-18).

Table 3-8. Troubleshooting—Continued

Malfunction	Probable Cause	Corrective Action
	ARMAMENT SUBSYSTEM M24 MOUNT ASSEMBLY	
12. Pintle movement restricted	Dirty, rusty, damaged pintle or bearing balls.	Clean, repair, or replace (para 3-32, fig. 3-21).
13. Subsystem not in alinement.	Twisted mount assembly or cord assembly.	Replace (fig. 3-21).
	ARMAMENT SUBSYSTEM M41 MOUNT ASSEMBLY	
14. Pintle movement restricted	Dirty, rusty, damaged pintle or sleeve bearing.	Clean, repair, or replace (para 3-39, fig. 3-23).

Section V. MAINTENANCE OF MACHINE GUN M60D

3-7. General.

The 7.62 millimeter machine gun M60D is used in each of the subsystems covered in this manual. The following information and instructions are for organizational level of maintenance and apply to each subsystem. Assembly is normally in reverse of disassembly unless other instructions are given. Perform disassembly only as necessary to lubricate or repair the item.

3-8. Disassembly / Assembly.

WARNING

A machine gun may contain a live cartridge. Safe the machine gun, inspect the chamber, and remove any cartridge found before proceeding.

At disassembly, check that no cartridges are present. Push safety button to FIRE (F) position. Pull the trigger and slowly let the cocking handle assembly go forward, before disassembly. At assembly, push safety button to FIRE (F) position, retract cocking handle assembly, and push safety button to SAFE (S). Refer to figure 3-1 for items removed during organizational parts replacement.

a. Refer to figure 3-2 to remove barrel assembly with bipod assembly (1, fig. 3-1).

b. Release and remove hinge pin latch (2), cover hinge pin (3), torsion helical spring (4), cover assembly (5), and cartridge tray assembly (6).

c. Refer to figure 3-3 and remove 1 / 16 x 1 / 2 cotter pin (7, figure 3-1) and headed grooved pin (8).

d. Press on pin to release knob. Turn knob counterclockwise until knob and pin assembly is loose. Remove grip and trigger assembly (9).

e. Remove safety wire securing sear link nut to link and spring (11). Disconnect sear link nut and remove link and spring.

f. Remove sleeves (12), cable (13), and quick release pin (14).

g. Relieve staking and slide rear sight assembly (15) free of receiver. Restake at assembly (fig. 3-4).

h. Remove retaining pin (16, fig. 3-1), lock spring (17), and sear and safety housing assembly (18).

i. Remove 7 / 32 x 1-1 / 4 spring pin (19) and adapter (20).

j. Remove dust boot (21).

k. Press in on spring-loaded buffer and remove buffer retaining yoke (22) when pressure is relieved from the yoke.

l. Remove buffer assembly (23), guide assembly (24), spring (25), breech bolt assembly (26), and operating rod assembly (27).

KEY to figure 3-1:
1. Barrel assembly with bipod assembly—7269027
2. Hinge pin latch—7269243
3. Cover hinge pin—7269247
4. Torsion helical spring—7269301
5. Cover assembly—7269114
6. Cartridge tray assembly—7792096
7. 1 / 16 x ½ cotter pin—MS24665-151
8. Headed grooved pin—11699788
9. Grip and trigger assembly—11699751
10. Sear link nut—11699789
11. Link and spring—11699790
12. Sleeve—8427871
13. Cable—8427869-7
14. Quick release pin—MS17990C519
15. Rear sight assembly—11699796
16. Retaining pin—7269205
17. Lock spring—11699785
18. Sear and safety housing assembly—11699773
19. 7 / 32 x 1-⅓ spring pin—MS16562-151
20. Adapter—11699793
21. Dust boot—11699787
22. Buffer retaining yoke—11699786
23. Buffer assembly—11010518
24. Guide assembly 7269199
25. Spring—7269303
26. Breech bolt assembly—11010357
27. Operating rod assembly—11686309

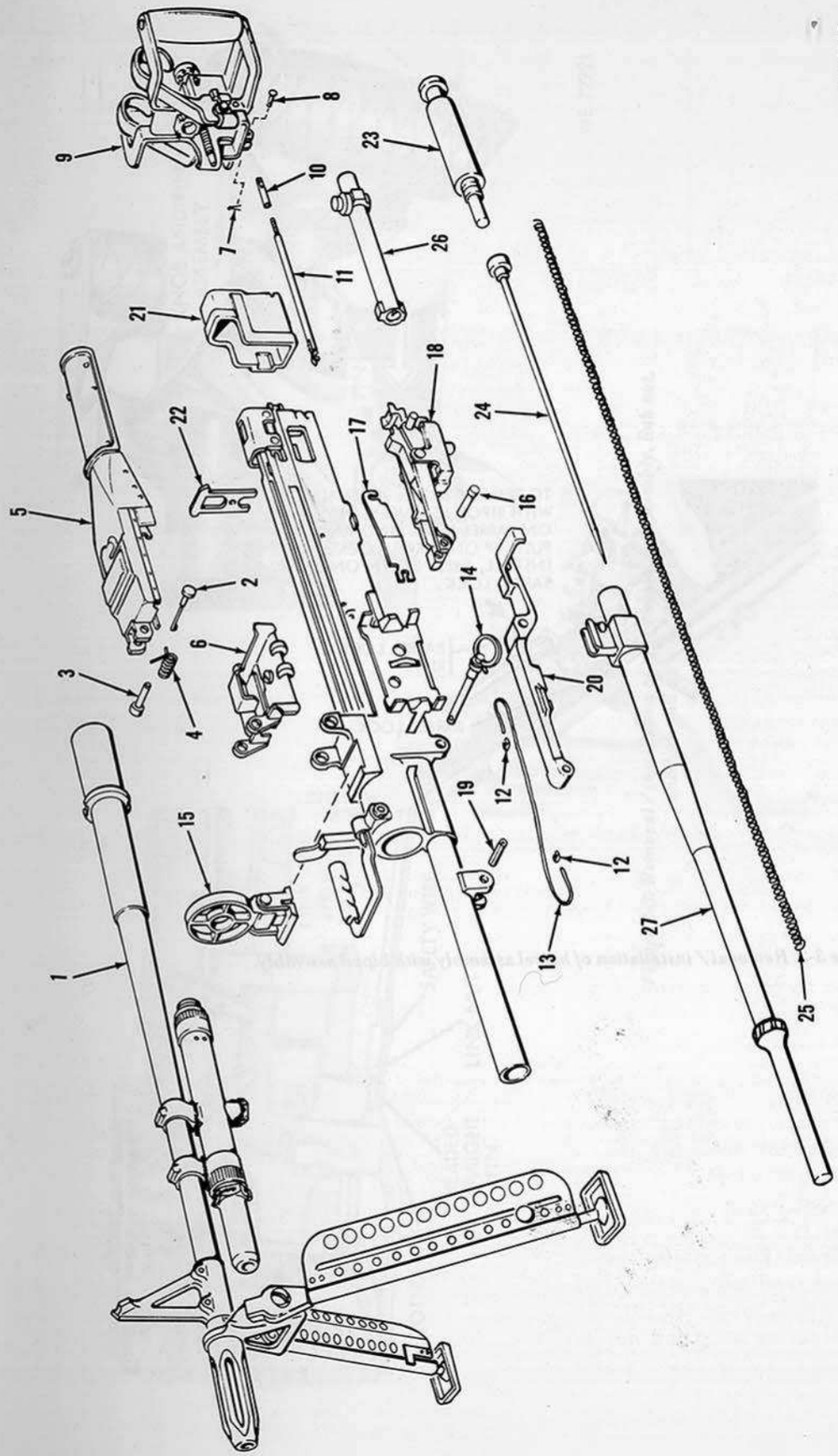


Figure 3-1. Machine gun M60D—partially exploded view.



Figure 3-2. Removal / installation of barrel assembly with bipod assembly.



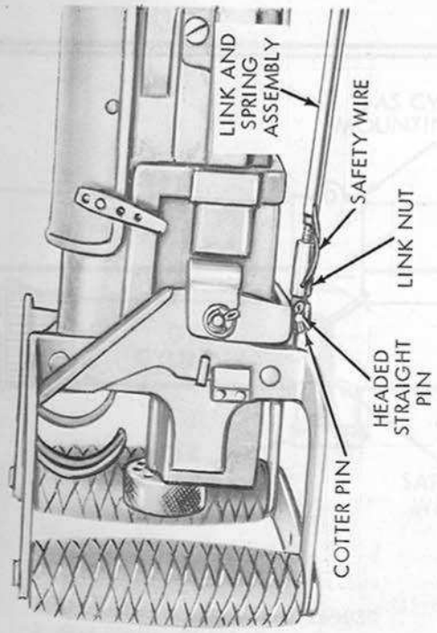


Figure 3-3. Removal / installation of grip and trigger assembly, link nut, and link and spring assembly.

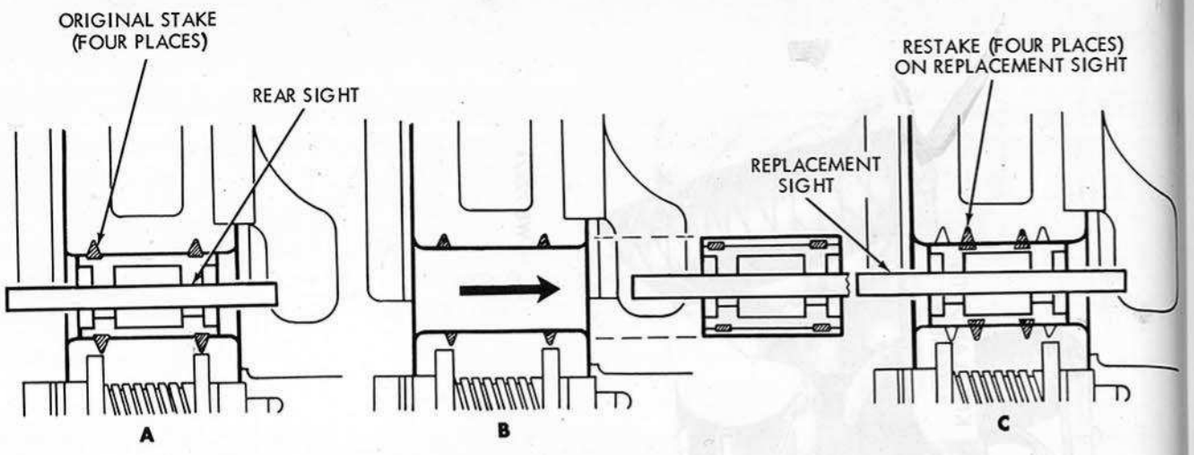


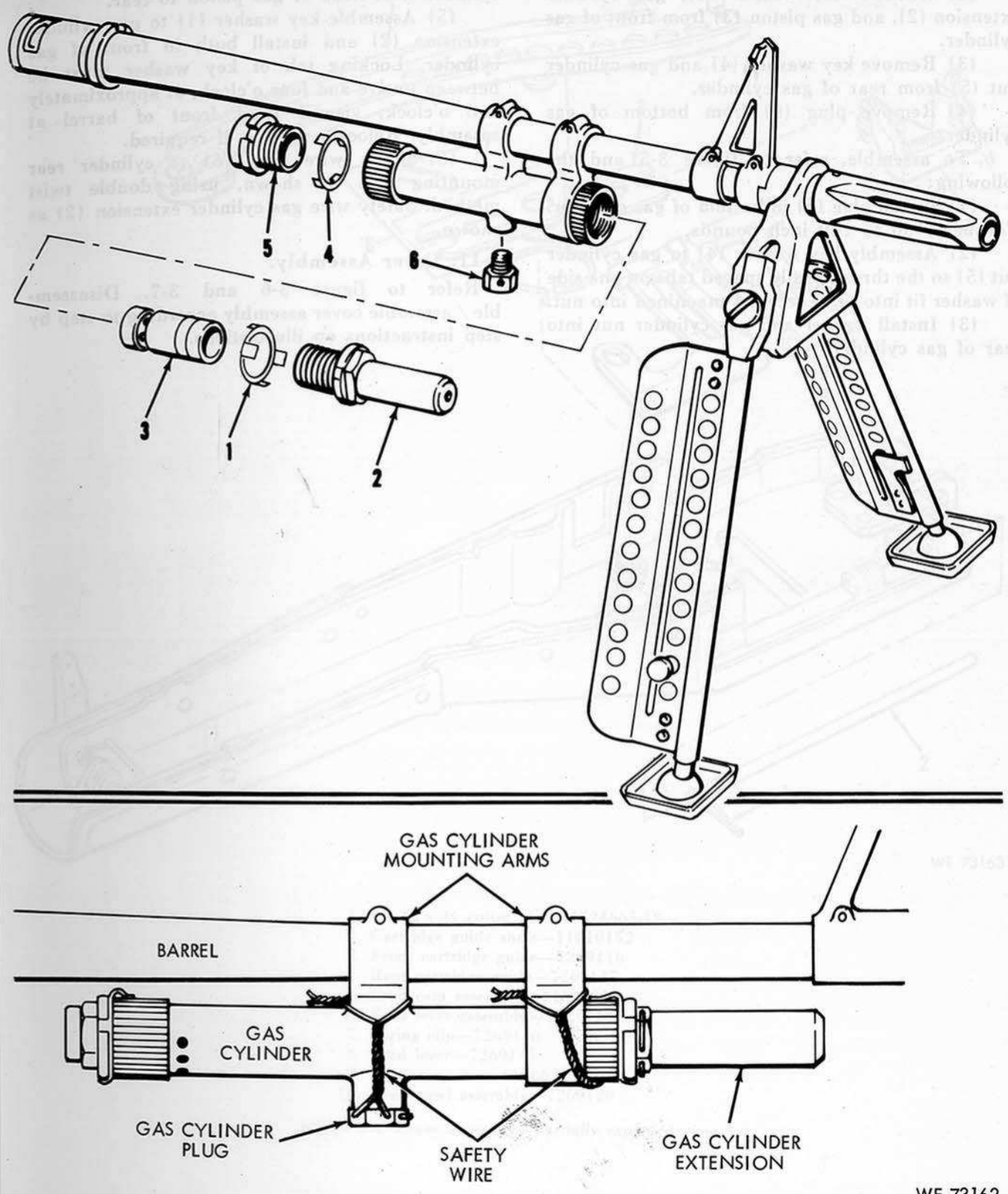
Figure 3-4. Removal / installation of rear sight on machine gun receiver—top view.

3-9. Disassembly / Assembly of Gun Components.

Instructions for disassembly / assembly of gun components are given in the order in which components were removed from the machine gun.

3-10. Barrel Assembly With Bipod Assembly.

a. Refer to figure 3-5 to disassemble.



1. Key washer—7269035
2. Gas cylinder extension—7269030
3. Gas piston—7791247
4. Key washer—7269035
5. Gas cylinder nut—7269031
6. Plug—7792093

Figure 3-5. Barrel assembly with bipod assembly—partially exploded view.

(1) Remove safety wire, two places.

(2) Remove key washer (1), gas cylinder extension (2), and gas piston (3) from front of gas cylinder.

(3) Remove key washer (4) and gas cylinder nut (5) from rear of gas cylinder.

(4) Remove plug (6) from bottom of gas cylinder.

b. To assemble, refer to figure 3-5 and the following:

(1) Install plug (6) in bottom of gas cylinder. Torque to 60 to 180 inch pounds.

(2) Assembly key washer (4) to gas cylinder nut (5) so the three equally spaced tabs on one side of washer fit into three recesses machined into nut.

(3) Install washer and gas cylinder nut into rear of gas cylinder.

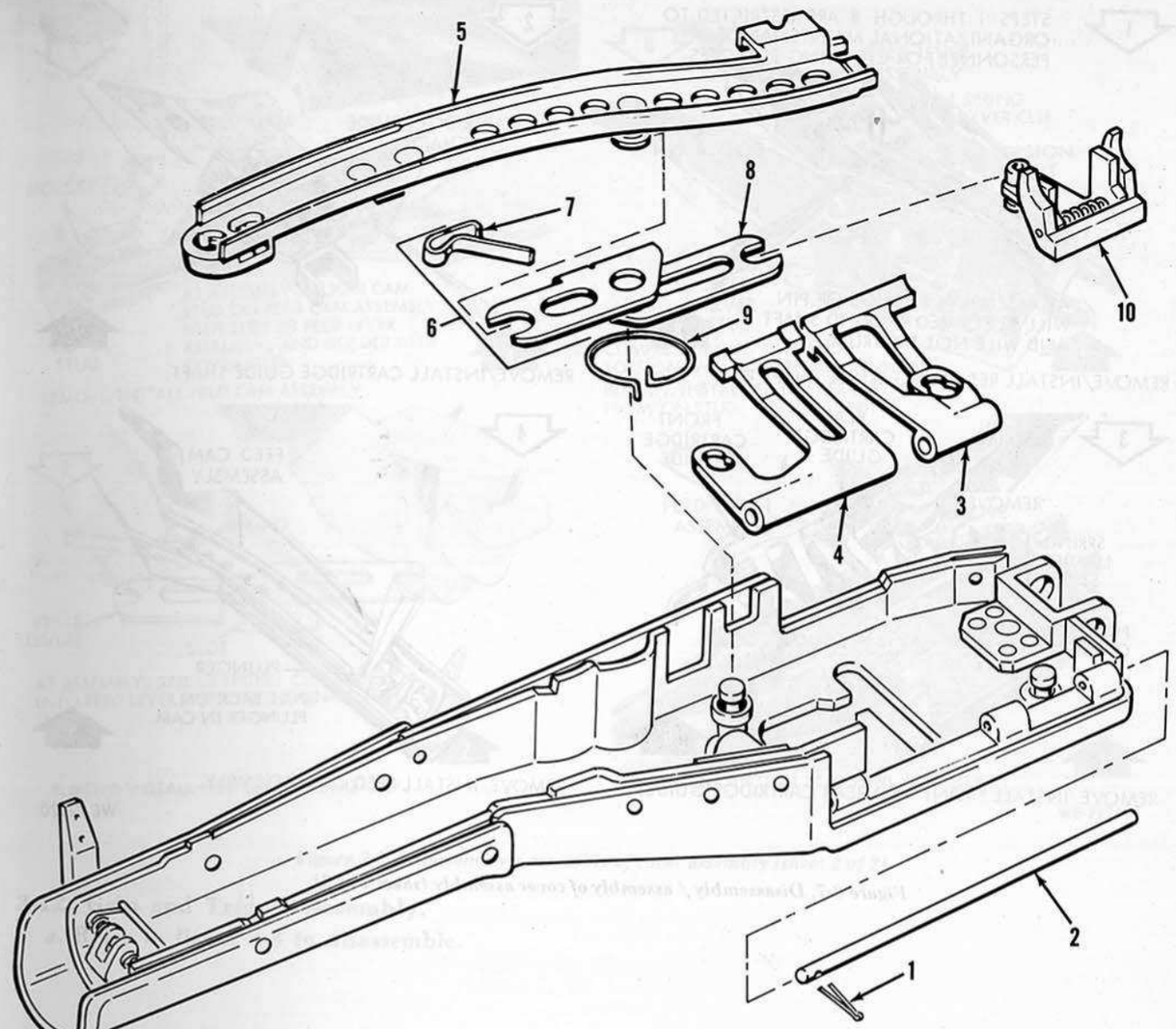
(4) Install gas piston (3) into front of gas cylinder with head of gas piston to rear.

(5) Assemble key washer (1) to gas cylinder extension (2) and install both in front of gas cylinder. Locking tab of key washer must be between twelve and four o'clock, at approximately two o'clock, viewed from front of barrel at assembly. Relocate washer, if required.

(6) Safety wire plug (6) to cylinder rear mounting arm as shown, using double twist method. Safety wire gas cylinder extension (2) as shown.

3-11. Cover Assembly.

Refer to figure 3-6 and 3-7. Disassemble / assemble cover assembly according to step by step instructions on illustrations.



WE 73163

1. 1 / 32 x ¼ cotter pin—MS24665-18
2. Cartridge guide shaft—11010152
3. Front cartridge guide—7269116
4. Rear cartridge guide—7269117
5. Feed cam assembly—11699814
6. Feed lever assembly—7269119
7. Spring clip—7269146
8. Feed lever—7269145
9. Torsion spring—11686315
10. Feed pawl assembly—7269120

Figure 3-6. Cover assembly—partially exploded view.

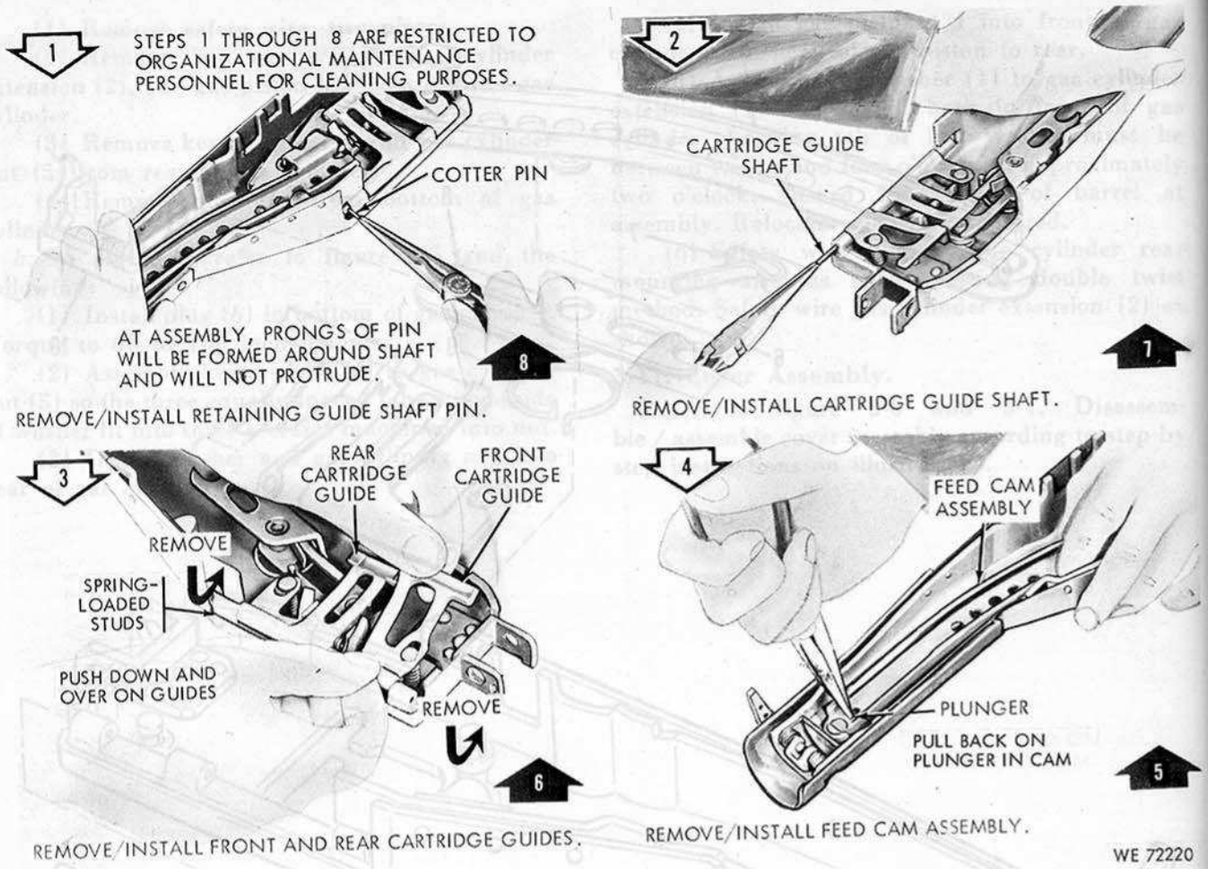


Figure 3-7. Disassembly / assembly of cover assembly (sheet 1 of 2).

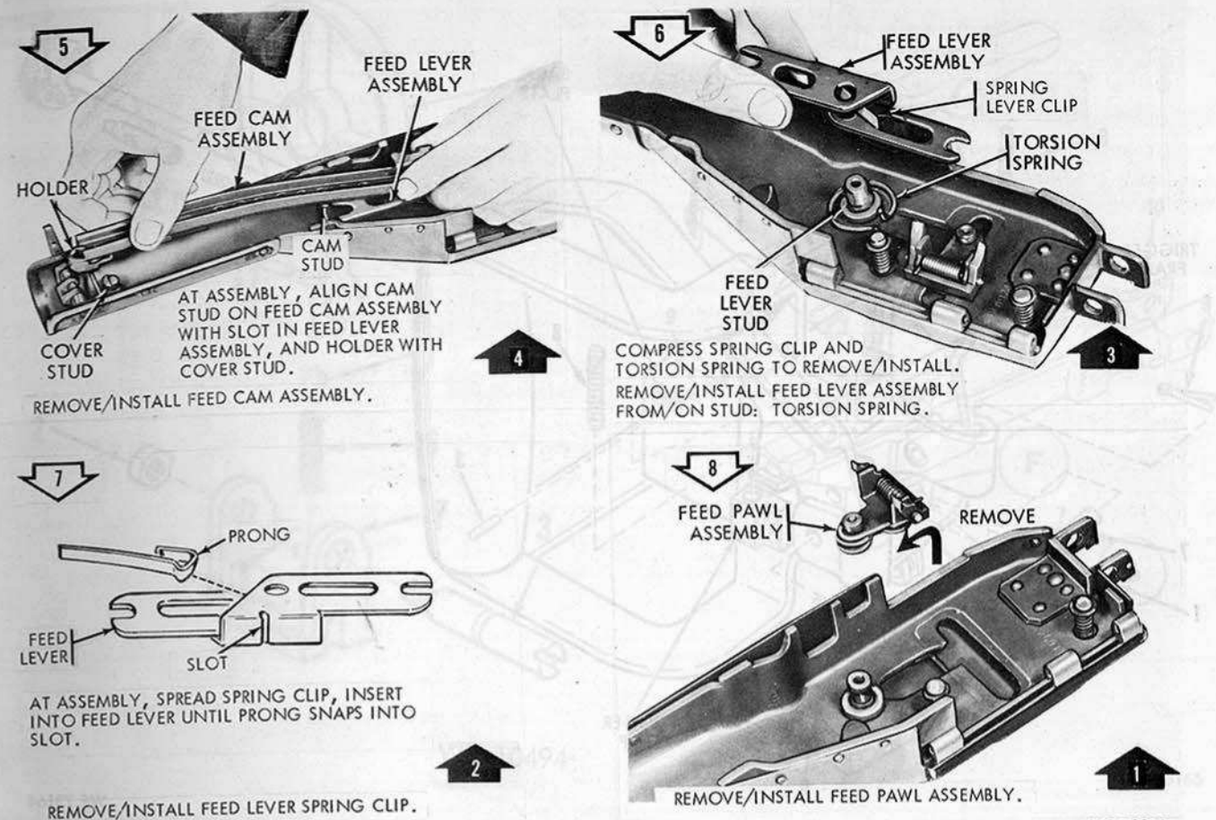
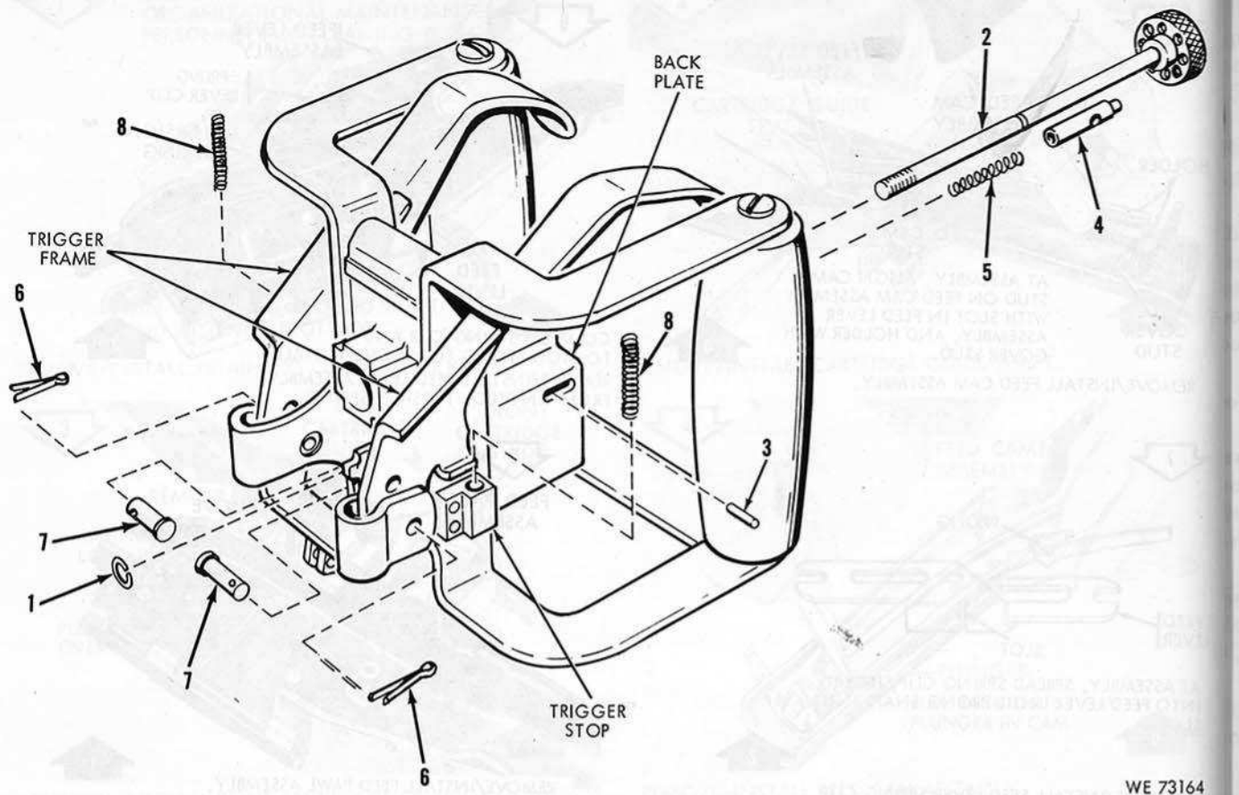


Figure 3-7. Disassembly / assembly of cover assembly (sheet 2 of 2).

3-12. Grip and Trigger Assembly.

a. Refer to figure 3-8 to disassemble.



1. Screw retaining clip—11699772
2. Knob and pin assembly—11699769
3. 1/8 x 1/2 spring pin—MS16562-127
4. Headless shoulder pin—11699768
5. Spring—11699767
6. 3/64 x 1/2 cotter pin—MS24665-86
7. Headed grooved pin—11699757
8. Spring—11699756

Figure 3-8. Grip and trigger assembly—partially exploded view.

(1) Remove screw retaining clip (1) and pull out knob and pin assembly (2).

(2) Remove 1/8 x 1/2 spring pin (3) from spring-loaded headless shoulder pin (4). Remove pin and spring (5).

(3) Remove 3/64 x 1/2 cotter pins (6), headed grooved pins (7), and springs (8).

b. To assemble, refer to figure 3-8.

(1) Install both springs (8) into trigger stops, press down on frame of trigger, and install both headed grooved pins (7).

(2) Secure pins (7) with 3/64 x 1/2 cotter pins (6).

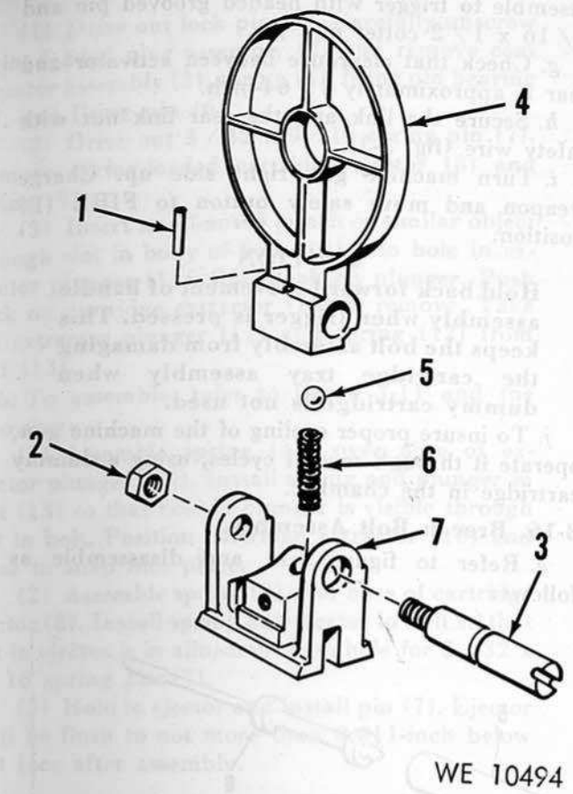
(3) Insert spring (5) into headless shoulder pin (4) and install spring and pin into back plate.

(4) Press in on headless shoulder pin (4) and turn until hole is visible in slot. Install 1/8 x 1/2 spring pin (3) through slot into pin (4). Pin (3) must move freely the length of the slot.

(5) Insert knob and pin assembly (2) into back plate and secure with screw retaining clip (1).

3-13. Rear Sight Assembly.

a. Refer to figure 3-9 and disassemble as follows:



1. 3/32 x 1/2 spring pin—MS16562-119
2. Nut—11699763
3. Rear sight retainer—11699798
4. Rear sight—11699799
5. Bearing ball—MS19059-47
6. Spring—MS24585-75
7. Base—11699797

Figure 3-9. Rear sight assembly—exploded view.

(1) Remove 3/32 x 1/2 spring pin (1).

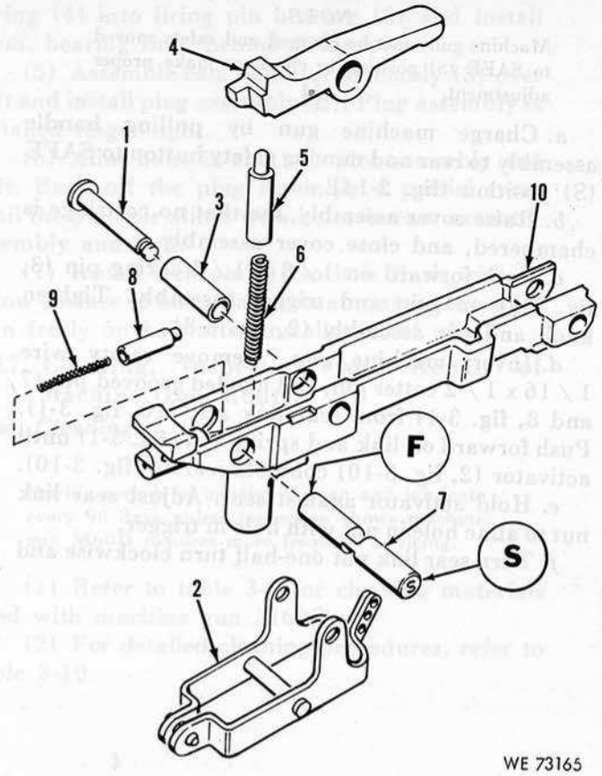
(2) Remove nut (2) and rear sight retainer (3) which hold sight in place.

(3) Carefully remove rear sight (4), spring-loaded bearing ball (5), and spring (6) from base (7).

b. Assemble in reverse order of disassembly. Make certain the 3/32 x 1/2 spring pin (1) is alined with groove in rear sight retainer (3).

3-14. Sear and Safety Housing Assembly.

a. Refer to figure 3-10 and disassemble as follows:



1. Headed grooved pin—11699779
2. Activator—11699780
3. Bushing—11699778
4. Sear—7269209
5. Sear plunger—7269207
6. Spring—7269211
7. Safety—11699777
8. Safety plunger—11699776
9. Spring—11699775
10. Housing—11699774

Figure 3-10. Sear and safety housing assembly—exploded view.

(1) Take out headed grooved pin (1) and remove activator (2), bushing (3), and sear (4). Remove spring-loaded sear plunger (5), and spring (6).

(2) Depress safety plunger (8). Remove safety (7), safety plunger (8) and spring (9) from housing (10).

b. Assemble in reverse order of disassembly. Assemble springs in plungers and depress at assembly. Be sure that safety (7) is installed as shown.

3-15. Adjustment of Sear Link Nut.

NOTE

Machine gun must be charged and safety moved to SAFE (S) position to check or make proper adjustment.

a. Charge machine gun by pulling handle assembly to rear and moving safety button to SAFE (S) position (fig. 2-14).

b. Raise cover assembly, see that no cartridge is chambered, and close cover assembly.

c. Push forward on 1 / 8 x 1 / 2 spring pin (3, fig. 3-8) on grip and trigger assembly. Tighten knob and pin assembly (2, fig. 3-8).

d. Invert machine gun. Remove safety wire 1 / 16 x 1 / 2 cotter pin, and headed grooved pin (7 and 8, fig. 3-1) from sear link nut (10, fig. 3-1). Push forward on link and spring (11, fig. 3-1) until activator (2, fig. 3-10) contacts sear (4, fig. 3-10).

e. Hold activator against sear. Adjust sear link nut to aline hole in nut with hole in trigger.

f. Turn sear link nut one-half turn clockwise and assemble to trigger with headed grooved pin and 1 / 16 x 1 / 2 cotter pin.

g. Check that clearance between activator and sear is approximately 1 / 64-inch.

h. Secure the link and the sear link nut with safety wire (fig. 3-3).

i. Turn machine gun right side up. Charge weapon and move safety button to FIRE (F) position.

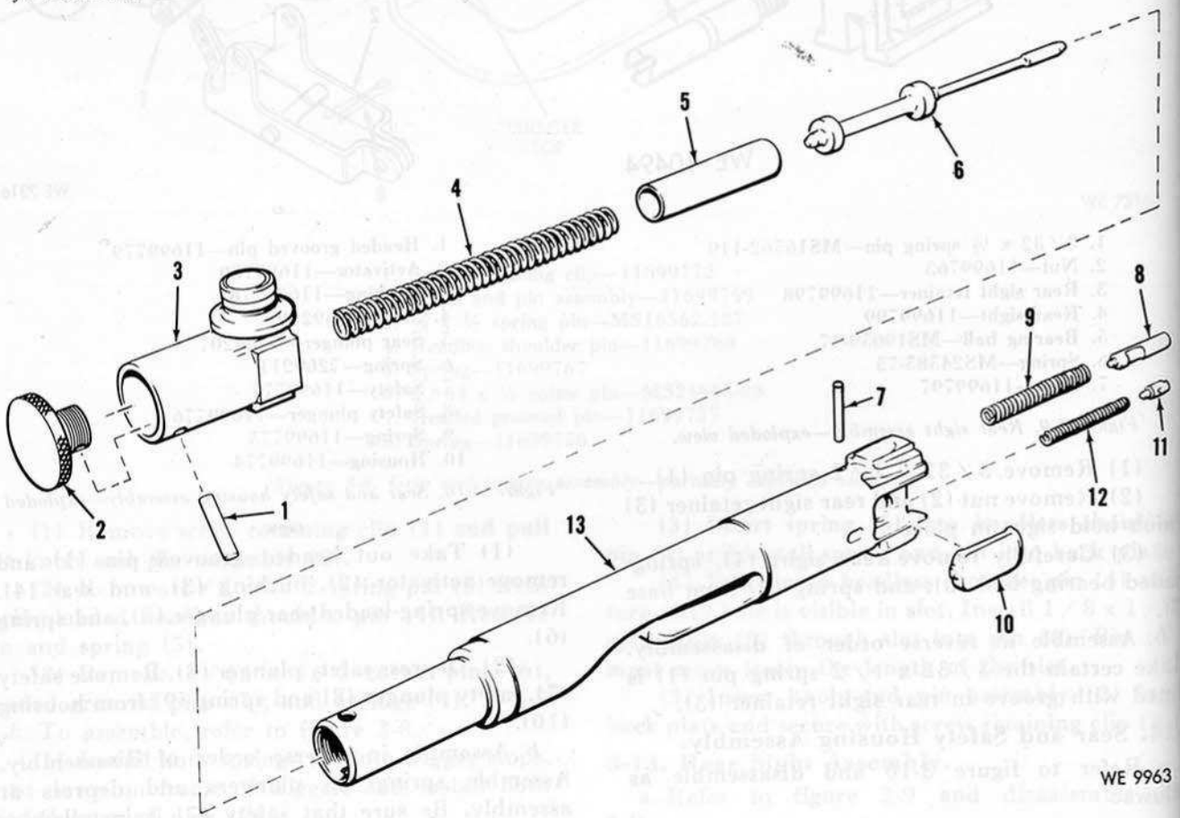
CAUTION

Hold back forward movement of handle assembly when trigger is pressed. This keeps the bolt assembly from damaging the cartridge tray assembly when dummy cartridge is not used.

j. To insure proper cycling of the machine gun, operate it through several cycles, using a dummy cartridge in the chamber.

3-16. Breech Bolt Assembly.

a. Refer to figure 3-11 and disassemble as follows:



1. Lock pin—7792920
2. Plug assembly—7791523
3. Cam actuator assembly—7269073
4. Spring—7269087
5. Firing pin bearing—7269065
6. Firing pin—11010376
7. 3 / 32 x 9 / 16 spring pin MS39086-81
8. Cartridge ejector—11010375
9. Spring—7269085
10. Cartridge extractor—779090
11. Extractor plunger—7269083
12. Spring—7269086
13. Bolt—11010358

Figure 3-11. Breech bolt assembly—exploded view.

(1) Drive out lock pin (1). Carefully unscrew spring-loaded plug assembly (2) and remove cam actuator assembly (3), spring (4), firing pin bearing (5), and firing pin (6).

(2) Drive out 3 / 32 x 9 / 16 spring pin (7). Remove spring-loaded cartridge ejector (8) and spring (9).

(3) Insert small-nosed punch or similar object through slot in body of bolt (13) into hole in extractor plunger (11). Pull back on plunger. Push back on cartridge extractor (10) to remove. Take out extractor plunger (11) and spring (12) from bolt (13).

b. To assemble, refer to figure 3-11 and the following:

(1) Assemble spring (12) over nose of extractor plunger (11). Install spring and plunger in bolt (13) so that hole in plunger is visible through slot in bolt. Position cartridge extractor (10) and press to snap into place.

(2) Assemble spring (9) over nose of cartridge ejector (8). Install spring and ejector in bolt so that slot in ejector is in alinement with hole for 3 / 32 x / 16 spring pin (7).

(3) Hold in ejector and install pin (7). Ejector shall be flush to not more than 0.011-inch below bolt face after assembly.

(4) Install firing pin (6) in bolt. Assemble spring (4) into firing pin bearing (5) and install them, bearing first, behind firing pin.

(5) Assemble cam actuator assembly (3) over bolt and install plug assembly (2). Plug assembly is installed finger tight.

(6) Aline holes in cam actuator assembly and bolt. Back off the plug assembly a partial turn, until the pin hole alines with holes in cam actuator assembly and bolt.

(7) Install lock pin (1) so it is flush with or below surface of bolt. Cam actuator assembly must turn freely on bolt after installation of pin.

3-17. Cleaning, Inspection, and Repair of Machine Gun M60D.

a. Cleaning.

NOTE

During periods of inactivity, clean and lubricate every 90 days unless inspection shows machine gun M60D requires more frequent servicing.

(1) Refer to table 3-9 for cleaning materials used with machine gun M60D.

(2) For detailed cleaning procedures, refer to table 3-10.

Table 3-9. Maintenance Supplies and Materials

FSN	Description	Maintenance level
8020-244-0153	BRUSH, ARTISTS: metal, ferrule, flat, chisel edges, 7 / 16 w, 1-½ lg, exposed bristle	C
7920-205-2401	BRUSH, CLEANING, TOOL, AND PARTS: rd, 100 percent tampico fiber, 1 / 16 at ferrule brush dia, 2-7 / 8 clear of block brush lg	C
6850-965-2332	CARBON REMOVING COMPOUND: (5 gal pail) P-C-111b	O
	RIFLE BORE CLEANER (RBC)	C
6850-224-6657	8 oz can	
6850-224-6663	1 gal can	
5350-221-0872	CLOTH, ABRASIVE: crocus, ferric oxide and quartz, jean-cloth-backing, closed coating, 9 w, 11 lg, 50 sh-sleeve (CA)	C
6850-281-1985	DRY CLEANING SOLVENT: (SD) (1 gal can)	C
8010-582-5382	LACQUER: black (jet) lusterless, type I, color 37038, 16 oz, aerosol can, type I nitrocellulose base	C
	LUBRICATING OIL, GENERAL PURPOSE: (PL special)	C
9150-273-2389	4 oz can	
9150-231-6689	1 qt can	
9150-889-3522	LUBRICATING OIL, SEMI-FLUID: (LSA) (4 oz flat oval bottle)	C
9150-292-9689	LUBRICATING OIL, WEAPONS: (LAW) for below zero temperatures (1 qt can)	C
7920-205-1711	RAG, WIPING: cotton, for general purpose use (50 lb bale)	C

Table 3-10. Cleaning Procedures—Machine Gun M60D

Step	Procedure
	NOTE Use of gasoline, kerosene, benzine (benzol) or high pressure water, steam or air for cleaning the weapon is prohibited.
1	Immediately after firing, or as soon as possible, thoroughly clean and lubricate machine gun M60D.
2	Disassemble machine gun into groups and assemblies.
	NOTE Do not dilute rifle bore cleaner (RBC). Do not add anti-freeze to RBC. Shake well before using.
	CAUTION **Be careful to avoid getting RBC or oil in the gas cylinder when cleaning the barrel assembly with bipod assembly. Position the gas cylinder above the barrel assembly while cleaning. Remove and clean gas cylinder parts only when the piston does not click when barrel assembly is tilted end for end. If gas cylinder components are cleaned, thoroughly dry piston and inside wall of cylinder *before* assembly. After assembly, check for free movement of piston by tilting barrel assembly end for end.**
3	Clean bore and chamber with brush or swab and RBC until a clean swab run through the barrel remains clean. Wipe dry and lubricate.
4	Clean all metal surfaces subject to powder fouling with RBC. Wipe dry and lubricate.
	CAUTION **Do not submerge buffer assembly in solvents or other cleaning fluids. Wipe external surfaces of buffer assembly with an oily cloth.**
5	Clean all other surfaces not covered in steps 3 and 4 with SD or RBC. Wipe dry and lubricate.
	WARNING **Avoid skin contact with carbon removing compound P-C-111b. If some does come in contact with the skin, thoroughly wash the affected area with running water. A good lanolin base cream is helpful after exposure to the compound. The use of rubber gloves and protective equipment is recommended.**
	CAUTION **Dry cleaning solvent (SD) is flammable. Do not use near an open flame. Use only in well-ventilated areas. SD evaporates quickly and has a drying effect on the skin. When used without gloves, SD may cause skin cracks and in some cases mild irritation or inflammation.**
6	Components with a hard carbon residue can be cleaned with carbon removing compound. Soak parts in the compound for 2 to 16 hours, depending on amount of carbon residue. Rinse parts with water and dry cleaning solvent (SD), brush with a stiff bristle brush, wipe dry, and lubricate.

b. Inspection and Repair. Refer to table 3-11.

Table 3-11. Organizational Maintenance Procedures—Machine Gun M60D

Group or assembly	Inspection	Repair
	WARNING **Inspect the weapon to be sure it is empty. Examine the chamber and check to see that no ammunition is in position to be introduced. Do not pull the trigger until weapon has been cleared.**	
Machine gun	Inspect for general appearance, condition, and operation. Hand cycle dummy cartridges through machine gun, observing action. Serial number must be legible. Inspect for furs or damage. Check for proper assembly.	Replace unserviceable parts as authorized. Remove burs by stoning. Take care not to change original configuration. Evacuate to direct support maintenance for any required repairs.
	NOTE All external aluminum parts must have a dull black finish.	Refinish exterior of all aluminum parts not having a dull black finish by painting with black lusterless paint (table 3-9).
Barrel assembly with bipod assembly.	Inspect for damage. Flash suppressor pin must be tight and must retain suppressor. Pin must be staked at both ends. Flash suppressor may have up to 1/16 inch circular movement but no vertical or horizontal movement is permitted.	Replace authorized parts as required (TM 9-1005-262-24P). Stake pin at both ends.
	Baffles of suppressor must not be bent or cracked. Inspect gas cylinder plug and washer for secure wiring.	
	Inspect gas piston and cylinder for imperfections that might cause loss of propulsion for operating rod assembly. Check to insure no abrasives have been used on these surfaces.	Evacuate to direct support for repairs beyond the scope of organizational maintenance.
	Inspect gas port for foreign matter (table 3-10, step 2).	
	Inspect front sight and gas cylinder. No movement is allowed; rivets must be secure. Check gas piston for proper movement in cylinder (table 3-10, step 2).	
	Inspect for damaged threads.	
	Inspect wire to insure it secures plug.	
	Inspect for positive retention of barrel in receiver.	
Barrel assembly	Inspect for distortion or damage. Bore must be clean and free from corrosion and powder fouling. Pits in the chamber are allowable if not large enough to cause extraction difficulties. Check for cracked or loose barrel socket.	Evacuate to direct support maintenance.

Table 3-11. Organizational Maintenance Procedures—Machine Gun M60D—Continued

Group or assembly	Inspection	Repair
Barrel assembly —continued	*NOTE* A clean bore is not necessarily a shiny bore and may have a dull gray appearance. A shiny, polished bore may indicate abrasives have been used. Abrasives will NOT be used on the bore, piston or inside of gas cylinder.	
Bipod assembly	Inspect for damage. Bipod leg assemblies shall swing easily and telescope freely. Check to insure adjustments of position can be made. Lock must retain leg assemblies positively in open position.	Evacuate to direct support maintenance.
Cover assembly	Inspect for damaged or missing parts. Check for proper function. Cover assembly must be held firmly open by spring tension and must be held closed by cover latch. There must be no binding during opening or closing. Front and rear cartridge guides will function smoothly. Feed lever, feed cam assembly, and feed pawl assembly will operate freely by action of their springs.	Replace authorized items as required.
Cartridge tray assembly	Inspect for frozen rollers, broken reinforcement bar, loose or missing guide block, or weak belt holding pawl spring. Rollers must function smoothly. Inspect spot welds for evidence of failure or separation.	Evacuate to direct support maintenance.
Buffer assembly	Inspect for damage, rust, burs, and movement of plunger. Buffer assembly must not leak hydraulic fluid.	Replace authorized items as required
Operating rod assembly	Inspect driving spring guide for damage and spring for weakness, damage, burs, or sharp edges. Spring must have a minimum free length of 24 inches. Inspect for damage or obstructions in spring hole. Roller must be uncracked and must turn freely. Roller must be assembled with large chamfer toward tube. Yoke must be tight on operating rod. Pin must not protrude on either side.	Evacuate to direct support maintenance for repair beyond the scope of organizational maintenance.
Breech bolt assembly	Inspect parts for burs or damage. Inspect for proper function. Rollers on cam actuator assembly shall turn freely. Cam actuator assembly shall rotate freely on bolt. Inspect firing pin spring for tension.	Replace unserviceable parts as required. If breech bolt is unserviceable, replace whole assembly. Remove burs by stoning. Take care not to change original configuration.

Table 3-11. Organizational Maintenance Procedures—Machine Gun M60D—Continued

Group or assembly	Inspection	Repair
Breech bolt assembly—continued	Inspect firing pin for freedom of movement in bolt assembly. Firing pin point should be smooth and well rounded. Firing pin must not be cracked or bent. Inspect cartridge ejector and cartridge extractor for freedom of movement. Ejector and extractor should return under spring tension when depressed. Extractor must not be chipped or damaged in hook portion. Ejector face must be above bolt face but must not protrude past end of bolt. Inspect for pits on face of breech bolt. Firing pin must not be visibly out of round.	Ejector pin must be flared at bottom to insure positive retention.
Receiver group	Inspect for damaged parts. Inspect rear sight assembly for proper function. Sight must be held in position by spring tension. Inspect barrel lock and barrel lock ring for positive retention of barrel assembly. Inspect carrying handle assembly for cracks. Must be secure. Handle assembly must be retained in position by spring tension. Inspect cocking handle assembly for proper function. Handle assembly must not bind. Inspect magazine bracket assembly for damage and positive retention of magazines. Latches must return to assembled position.	Replace authorized items as required. Evacuate to direct support for repair beyond the scope of organizational maintenance.
Re-assembled machine gun	Hand cycle to insure proper functioning. Use dummy cartridges. Inspect safety to insure it positively prevents trigger from being depressed.	

Section VI. MAINTENANCE OF ARMAMENT SUBSYSTEM M23 LESS MACHINE GUN M60D

3-18. General.

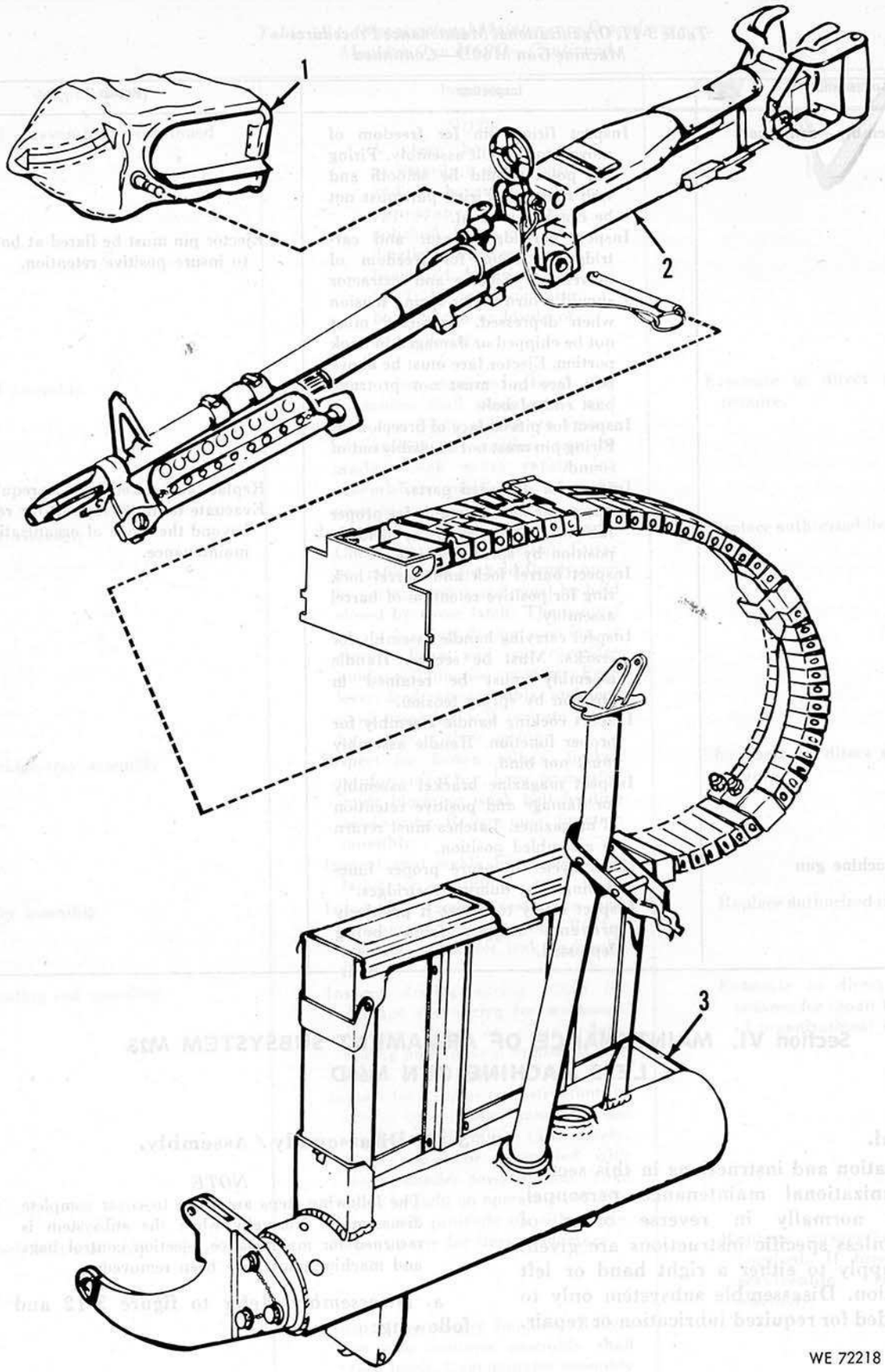
The information and instructions in this section are for organizational maintenance personnel. Assembly is normally in reverse order of disassembly unless specific instructions are given. Instructions apply to either a right hand or left hand installation. Disassemble subsystem only to the extent needed for required lubrication or repair.

3-19. Disassembly / Assembly.

NOTE

The following steps are given to cover complete disassembly. Normally when the subsystem is returned for maintenance, ejection control bags and machine guns have been removed.

a. Disassembly. Refer to figure 3-12 and the following:



WE 72218

1. Ejection control bag—11699714
2. Machine gun M60D—11699750
3. M23 mount assembly—11699749

Figure 3-12. Components of armament subsystem M23.

(1) Refer to figure 2-7. Press down on rear bracket safety latch lever. Slide ejection control bag forward and off machine gun.

(2) Press back on magazine release latch and release chuting from machine gun.

(3) Refer to figure 2-6. Pull quick release pin and remove machine gun from pintle on mount assembly.

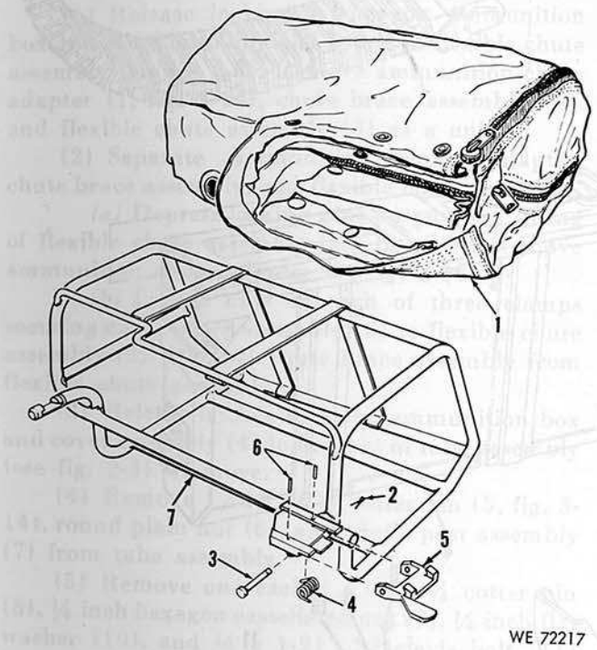
b. Assembly. To assemble, refer to paragraphs 2-3 *a*., through 2-3 *d*.

3-20. Disassembly / Assembly of Subsystem Components.

Instructions for disassembly / assembly for subsystem components, less machine gun, are given in the order in which they were removed from subsystem.

3-21. Ejection Control Bag.

a. Refer to figure 3-13 to disassemble.



WE 72217

1. Empty cartridge bag—11699740
2. 1 / 16 x ½ cotter pin—MS24665-151
3. Headed straight pin—11699713
4. Torsion helical spring—11699712
5. Rear bracket safety latch—11699711
6. 3 / 32 x ⅜ spring pin—MS51923-104
7. Frame subassembly—11699696

Figure 3-13. Ejection control bag—partially exploded view.

(1) Zip open empty cartridge bag (1) and remove from frame subassembly (7).

(2) Remove 1 / 16 x ½ cotter pin (2), headed straight pin (3), torsion helical spring (4) and remove rear bracket safety latch (5) from frame subassembly. Remove two 3 / 32 x ⅜ spring pins (6).

b. Assemble 3 / 32 x ⅜ spring pins (6) flush with bracket on frame subsystembly (7). Remaining assembly is in reverse order of disassembly.

3-22. M23 Mount Assembly.

a. Refer to figure 3-14 and the following to disassemble.

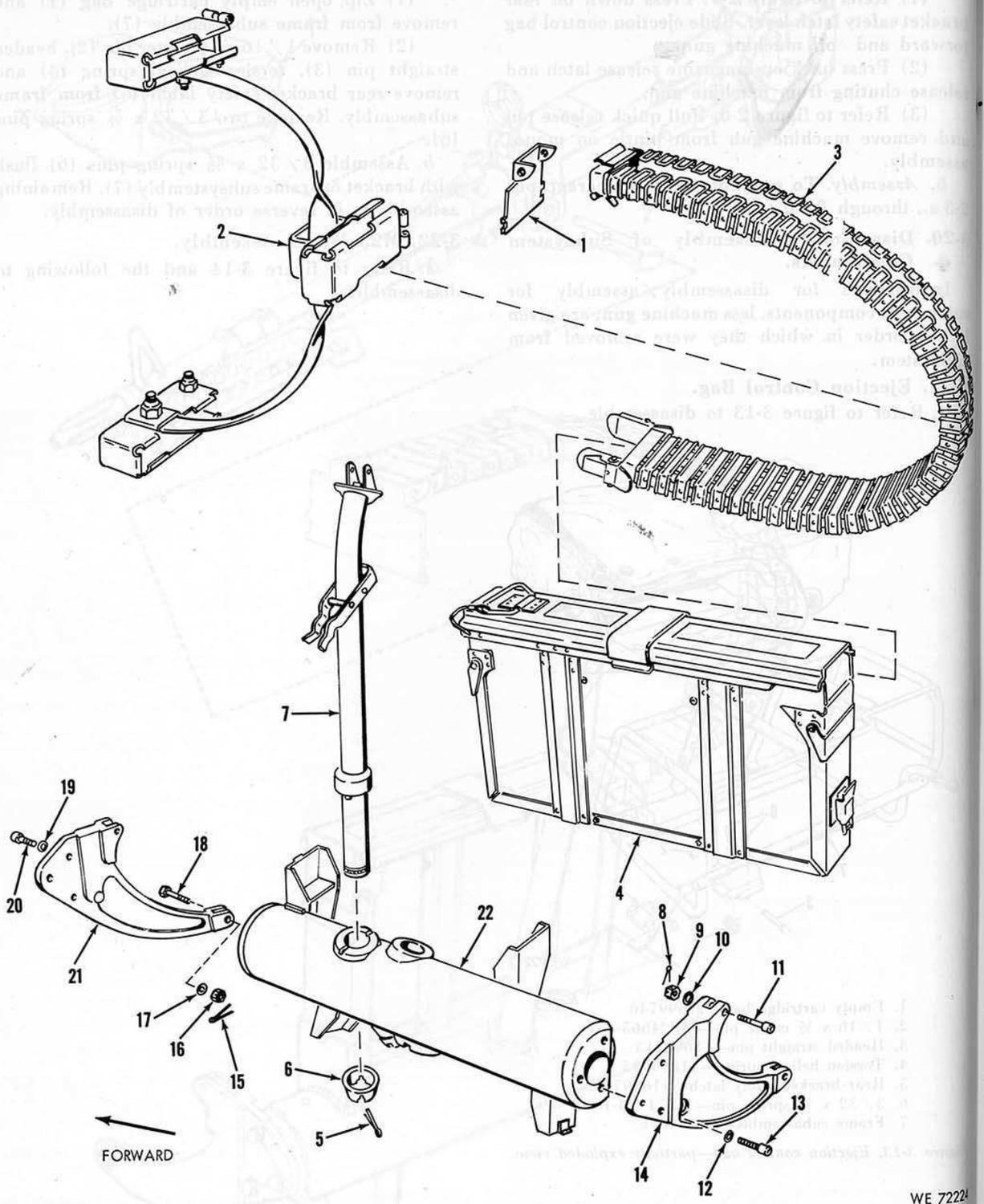


Figure 3-14. Armament subsystem M23 mount assembly—exploded view.

KEY to figure 3-14:

1. Ammunition chute adapter—7792472
2. Chute brace assembly—11699819
3. Flexible chute assembly—7792346-5
4. Ammunition box and cover assembly—11699743
5. 1 / 16 x 2-½ cotter pin MS24665-144
6. Round plain nut—11699724
7. Pintle post assembly—11699723
8. 1 / 16 x ¾ cotter pin—MS24665-153
9. ¼-inch hexagon castellated nut—AN310C4
10. ¼-inch flat washer—AN960-416
11. ¼ x 1-21 / 32 clevis bolt—AN24-26
12. 0.406-inch ID flat washer—MS27183-14
13. ⅜ x 1-½ socket head cap screw—MS24678-47
14. Aft mounting beam—11699728
15. 1 / 16 x ¾ cotter pin—MS24665-153
16. ¼-inch hexagon castellated nut—AN310C4
17. ¼-inch flat washer—AN960-416
18. ¼ x 1-21 / 32 clevis bolt—AS24-26
19. 0.406-inch ID flat washer—MS27183-14
20. ⅜ x 1-½ socket head cap screw—MS24678-47
21. Forward mounting beam—11699727
22. Tube assembly—11699733

(1) Release locking latches on ammunition box and cover assembly and fitting of flexible chute assembly (see fig. 2-8). Remove ammunition chute adapter (1, fig. 3-14), chute brace assembly (2), and flexible chute assembly (3) as a unit.

(2) Separate ammunition chute adapter, chute brace assembly, and flexible chute assembly.

(a) Depress locking pins on gun end fitting of flexible chute assembly (see fig. 2-5). Remove ammunition chute adapter (1, fig. 3-14).

(b) Loosen nuts on each of three clamps securing chute brace assembly (2) to flexible chute assembly (3). Remove chute brace assembly from flexible chute assembly.

(3) Release latches securing ammunition box and cover assembly (4) to bracket of tube assembly (see fig. 2-3). Remove.

(4) Remove 1 / 16 x 2½ cotter pin (5, fig. 3-14), round plain nut (6), and pintle post assembly (7) from tube assembly.

(5) Remove one each 1 / 16 x ¾ cotter pin (8), ¼ inch hexagon castellated nut (9), ¼ inch flat washer (10), and ¼ x 1-21 / 32 clevis bolt (11) from the upper and lower clevis portions of the aft mounting beam (14).

(6) Cut and remove safety wire from the three ⅜ x 1½ socket head cap screws (13). Remove cap screws and 0.406-inch id flat washers (12). Remove aft mounting beam.

(7) Remove one each 1 / 16 x 3 / 4 cotter pin (15), 1 / 4-inch hexagon castellated nut (16), 1 / 4-inch flat washer (17), and 1 / 4 x 1-21 / 32 clevis bolt (18) from the upper and lower clevis portions of the forward mounting beam (21).

(8) Cut and remove safety wire from the three 3 / 8 x 1½ socket head cap screws (20). Remove cap screws and 0.406-inch id flat washers (19). Remove forward mounting beam.

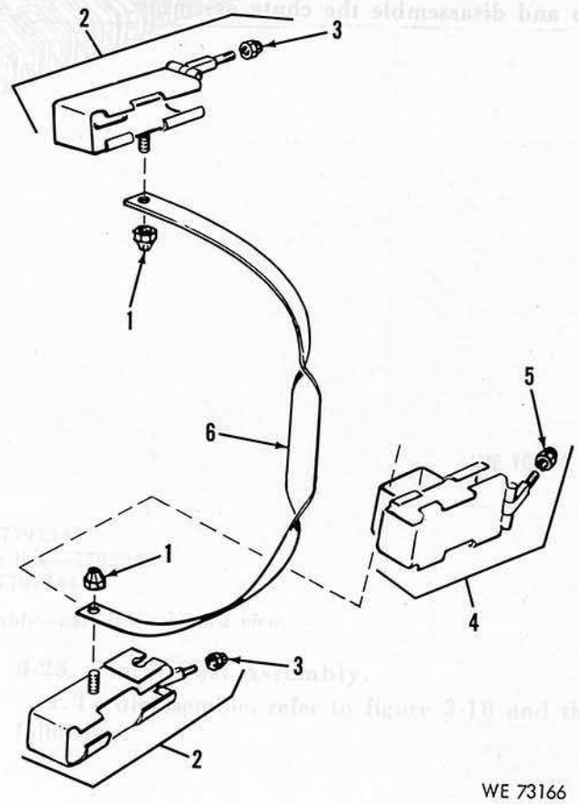
NOTE

After the subsystem is removed from the helicopter, install mounting hardware on mounting beams to prevent loss.

b. To assemble, refer to installation instructions in paragraphs 2-3 *a* through 2-3 *d*.

3-23. Chute Brace Assembly.

a. To disassemble, refer to figure 3-15 and the following:



1. ¼-inch hexagon self-locking nut—MS21045C4
2. Stud clamp assembly—11699825
3. No. 10 hexagon self-locking nut—MS21045C3
4. Spring retainer clamp assembly—11699822
5. No. 10 hexagon self-locking nut—MS21045C3
6. Chute brace assembly spring—11699823

Figure 3-15. Chute brace assembly—exploded view.

(1) Remove two 1 / 4-inch hexagon self-locking nuts (1) and two stud clamp assemblies (2) from chute brace assembly spring (4).

(2) Remove No. 10 hexagon self-locking nut from each clamp assembly (2).

(3) Remove spring retainer clamp assembly (4).

(4) Remove No. 10 hexagon self-locking nut (5) from clamp assembly.

b. Assemble in reverse order of disassembly. Assure that all clamp assemblies (2 and 4) are

installed on the chute brace assembly spring with open ends in the same direction.

3-24. Flexible Chute Assembly.

a. The chute assembly is 46 ammunition chute links assembled with fittings at each end. One fitting attaches to an ammunition box and the other to the machine gun. Links and fittings are assembled with spring tabs on each piece snapping into matching recesses in the adjacent piece. Refer to figure 3-16. Use a small punch to relieve spring tab and disassemble the chute assembly.

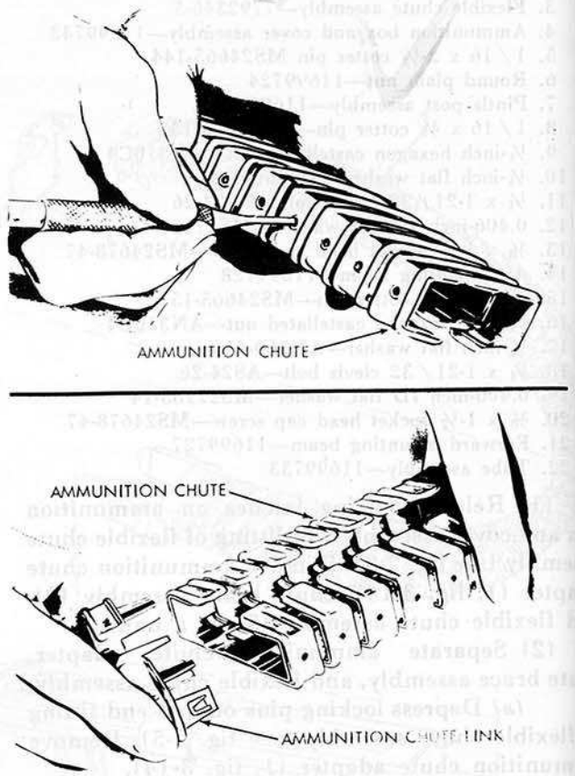
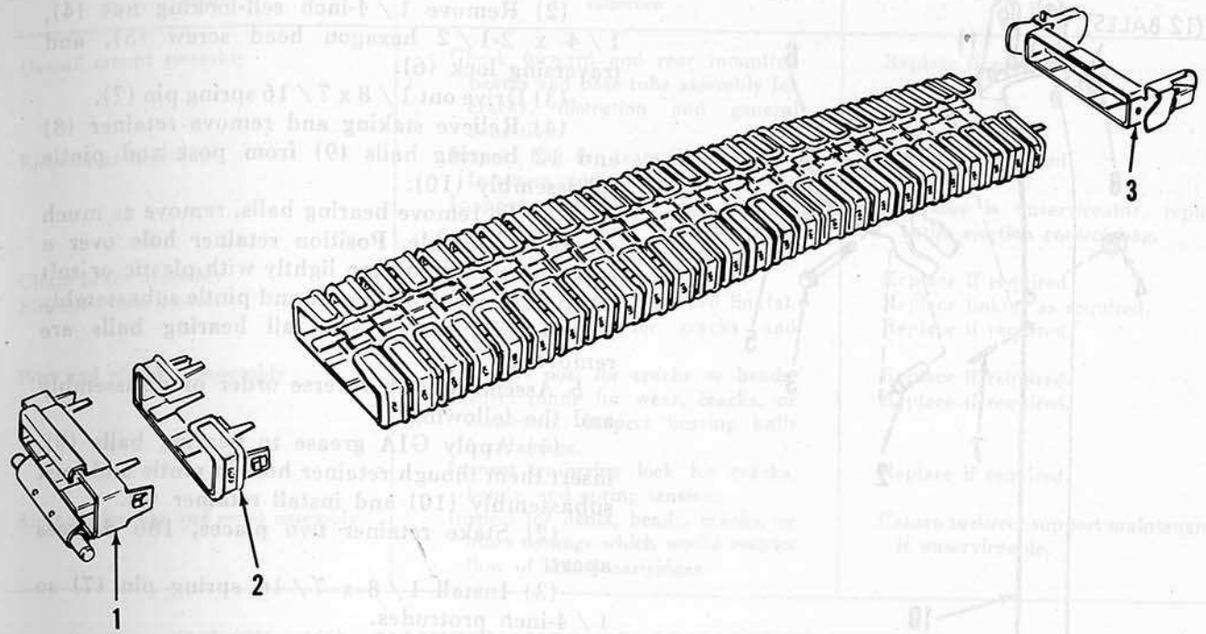


Figure 3-16. Removal / installation of ammunition chute link

(1) Remove gun end fitting (1, fig. 3-17) from adjacent ammunition chute link (2).



1. Gun end fitting—7792345
2. Ammunition chute link—7792343
3. Box end fitting—7792344

Figure 3-17. Flexible chute assembly—partially exploded view.

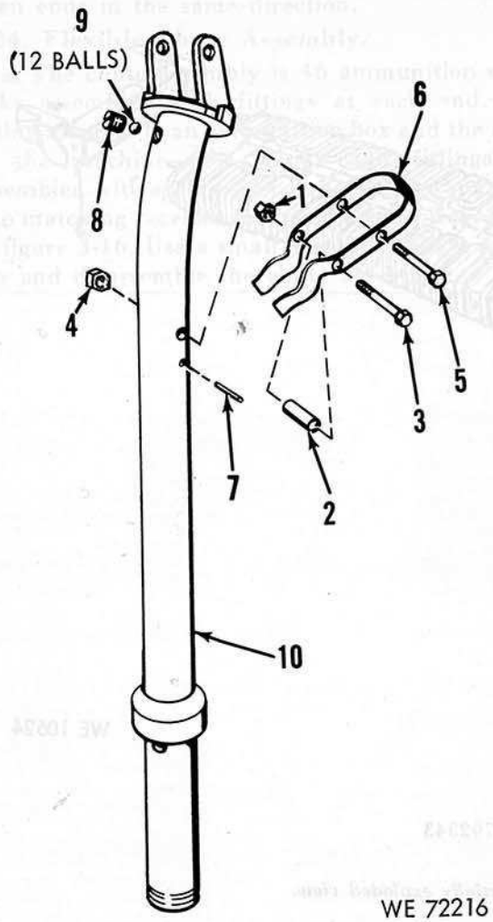
(2) Separate 46 links (2).

(3) Remove box end fitting (3).

b. To assemble, aline all tabs with recesses. Assemble in reverse order of disassembly.

3-25. Pintle Post Assembly.

a. To disassemble, refer to figure 3-18 and the following:



1. No. 10 hexagon self-locking nut—MS21045C3
2. Sleeve spacer—11699725
3. No. 10 x 2-¼ hexagon head bolt—MS9451-30
4. ¼-inch hexagon self-locking nut—MS21045-4
5. ¼ x 2-½ hexagon head screw—MS90726-16
6. Traversing lock—11699722
7. ⅛ x 7/16 spring pin—MS16562-126
8. Retainer—11699670
9. Bearing ball—MS19059-47
10. Post and pintle subassembly—11699826

Figure 3-18. Pintle post assembly—partially exploded view.

(1) Remove No. 10 hexagon self-locking nut (1), sleeve spacer (2), and No. 10 x 2¼ hexagon head bolt (3).

(2) Remove 1/4-inch self-locking nut (4), 1/4 x 2-1/2 hexagon head screw (5), and traversing lock (6).

(3) Drive out 1/8 x 7/16 spring pin (7).

(4) Relieve staking and remove retainer (8) and 12 bearing balls (9) from post and pintle subassembly (10).

(5) To remove bearing balls, remove as much grease as possible. Position retainer hole over a small container and tap lightly with plastic or soft faced hammer. Rotate post and pintle subassembly as necessary to be sure all bearing balls are removed.

b. Assembly is in reverse order of disassembly and the following:

(1) Apply GIA grease to bearing balls (9), insert them though retainer hole in pintle and post subassembly (10) and install retainer (8).

(2) Stake retainer two places, 180 degrees apart.

(3) Install 1/8 x 7/16 spring pin (7) so 1/4-inch protrudes.

(4) Position traversing lock (6) on post so prongs aline with extensions on pintle. The 1/4 x 2½ hexagon head screw (5) and No. 10 x 2¼ hexagon head bolt (3) securing traversing lock shall have heads on same side as pin (7) to prevent wrench damage to pin. Traversing lock must turn through full range of travel without binding.

3-26. Cleaning, Inspection and Repair.

a. Cleaning.

(1) Clean powder fouled parts with rifle bore cleaner (RBC).

(2) Clean other metal parts with dry cleaning solvent (SD) or mineral spirits paint thinner (TPM).

(3) Dry parts thoroughly and coat lightly with lubricating oil (PL Special or LAW).

b. Inspection and Repair. See table 3-12.

Table 3-12. Inspection and Repair—Armament Subsystem M23 Less Machine Gun M60D

Group or assembly	Inspection	Repair
Overall mount assembly	Check forward and rear mounting beams and base tube assembly for cracks, distortion and general condition.	Replace if required.
Ejection control bag	Inspect bag for tears, broken slide fasteners, and mildew.	Replace if required.
	Inspect frame for cracks or distortion. Check front and rear dovetails for alinement and scoring.	If frame is unserviceable, replace entire ejection control bag.
Chute brace assembly	Inspect for kinks or distortion.	Replace if required.
Flexible chute assembly	Inspect for bent or deformed link(s).	Replace link(s) as required.
	Inspect adapter for cracks and distortion.	Replace if required.
Post and pintle subassembly	Examine post for cracks or bends.	Replace if required.
	Inspect pintle for wear, cracks, or distortion. Inspect bearing balls for damage.	Replace if required.
	Inspect traversing lock for cracks, bends, and spring tension.	Replace if required.
Ammunition box and cover assembly	Inspect for dents, bends, cracks, or other damage which would restrict flow of linked cartridges.	Return to direct support maintenance if unserviceable.

Section VII. MAINTENANCE OF ARMAMENT SUBSYSTEM M24 LESS MACHINE GUN M60D

3-27. General.

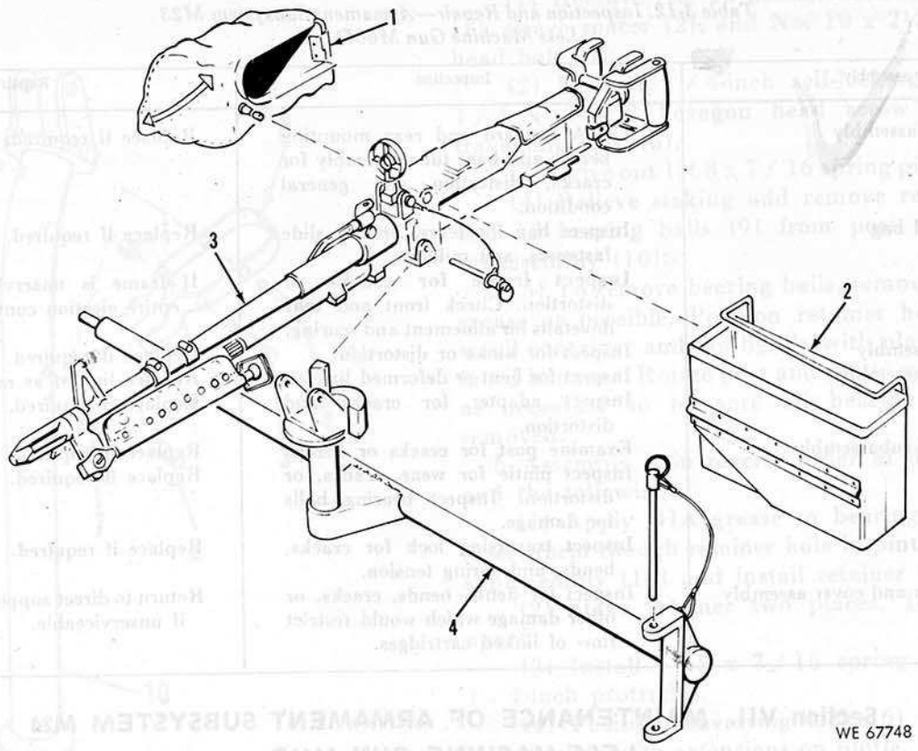
Information and instructions in this section are for organizational maintenance personnel. Assembly is normally in reverse order of disassembly unless specific instructions are given. Instructions apply to either the right side (door) or left side (hatch) installation. Disassemble subsystem only to the extent needed for required lubrication or repair.

3-28. Disassembly / Assembly.

NOTE

The following steps are given to cover complete disassembly. Normally when the subsystem is returned for maintenance, ejection control bag (s), ammunition can assembly (s), and machine guns have been removed.

a. Disassembly. Refer to figure 3-19 and the following:



1. Ejection control bag—11699714
2. Ammunition can assembly—11699679
3. Machine gun M60D—11699750
4. M24 mount assembly—11699655 (left side)
   or
   M24 mount assembly—11699658 (right side)

Figure 3-19. Components of armament subsystem M24.

(1) Refer to figure 2-7. Press down on rear bracket safety latch lever. Slide ejection control bag back and off machine gun.

(2) Refer to figure 2-11. Press release latch lever and remove ammunition can assembly (2, fig. 2-19) from machine gun.

(3) Pull quick release pin and remove machine gun (3, fig. 3-19) from pintle on mount assembly (4).

b. Assembly. To assemble, refer to paragraph 2-4.

3-29. Disassembly / Assembly of Subsystem Components.

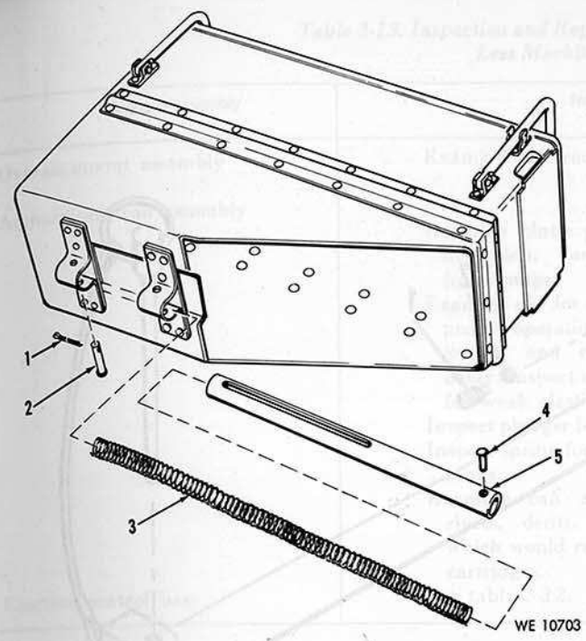
Instructions for disassembly / assembly for subsystem components, less machine gun, are given in the order in which they were removed from subsystem.

3-30. Ejection Control Bag.

Refer to paragraph 3-21.

3-31. Ammunition Can Assembly.

a. Refer to figure 3-20 and the following:



1. 1 / 16 x ½ cotter pin—MS24665-814
2. Headed straight pin—MS20392-2C21
3. Spring—11699684
4. ⅛ x 0.625 solid rivet—MS20513-4P10
5. Plunger—11699683

Figure 3-20. Ammunition can assembly—partially exploded view.

(1) Remove 1 / 16 x 1 / 2 cotter pin (1) and carefully remove headed straight pin (2), spring (3), and plunger with rivet.

(2) Drill and punch out 1 / 8 x 0.625 solid rivet (4) from plunger (5).

b. Assembly is in reverse order of disassembly and the following:

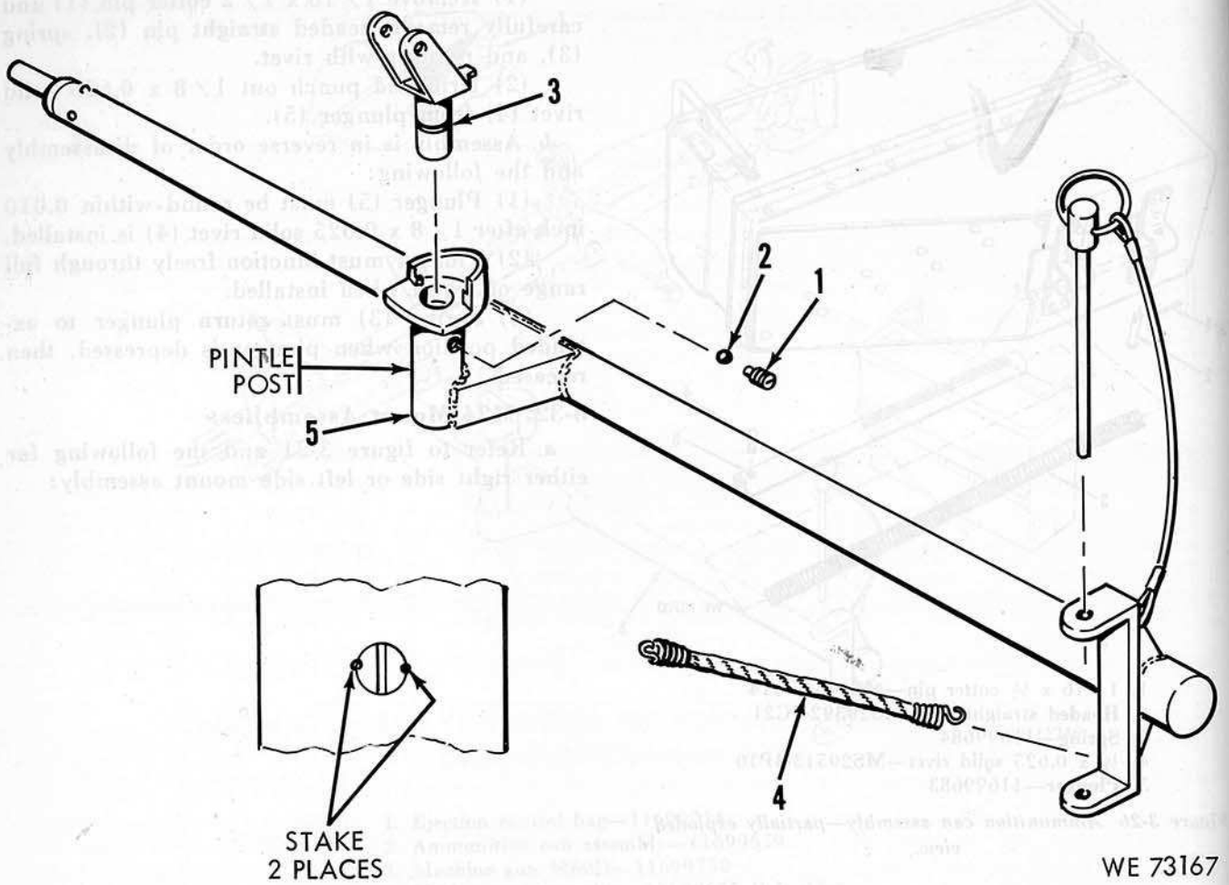
(1) Plunger (5) must be round within 0.010 inch after 1 / 8 x 0.625 solid rivet (4) is installed.

(2) Plunger must function freely through full range of travel when installed.

(3) Spring (3) must return plunger to extended position when plunger is depressed, then released.

3-32. M24 Mount Assemblies.

a. Refer to figure 3-21 and the following for either right side or left side mount assembly:



1. Bearing ball retainer—11699670
2. Bearing ball—MS19059-47
3. Pintle pivot—11699669
4. Shock cord assembly—11699674-1
5. Mount subassembly, left hand—11699656
   or
5. Mount subassembly, right hand—11699659

Figure 3-21. Armament subsystem M24 mount assembly—partially exploded view—left side shown.

(1) Relieve staking and remove bearing ball retainer (1).

(2) Remove 12 bearing balls (2). Remove as much grease as possible. Position retainer hole over a small container and tap lightly with plastic or soft faced hammer. Rotate pintle pivot to assist in removal. Be sure all bearing balls are removed.

(3) Remove pintle pivot (3) from pintle post. If pintle pivot is tight, position mount subassembly in vise with pintle pivot down. Tighten vise only enough to hold. Use a brass drift and hammer; carefully tap base of pintle pivot through center of post.

(4) Remove shock cord assembly (4) from mount subassembly (5).

b. Assembly is in reverse order of disassembly and the following:

(1) Hook one end of shock cord assembly (4) through hole in base of aft mounting bracket (fig. 2-9). Bend hook to prevent loss. Hook shall be loose enough to allow shock cord assembly to pivot to 30 degrees above horizontal.

(2) Apply GIA to bearing surfaces of pintle pivot (3, fig. 3-21); install in pintle post. Pintle pivot must turn freely through full range of travel.

(3) Apply GIA to 12 bearing balls. Insert balls through retainer hole.

(4) Install bearing ball retainer (1). Stake two places, 180 degrees apart.

(5) See that pintle pivot still turns freely.

3-33. Cleaning, Inspection and Repair.

a. Cleaning. Refer to paragraph 3-26 *a.*

b. Inspection and Repair. Refer to table 3-13.

Table 3-13. Inspection and Repair—Armament Subsystem M24 Less Machine Gun M60D

Group or assembly	Inspection	Repair
Overall mount assembly	Examine for cracks or distortion.	If unserviceable, return to direct support maintenance for repair or replacement.
Ammunition can assembly	Examine pintle pivot for cracks or distortion. Inspect bearing balls for damage.	Replace pintle pivot or bearing balls if unserviceable.
	Examine pin for cracks, breaks, and proper operation. Inspect cable for breaks and complete protective cover. Inspect shock cord assembly for weak elastic.	Replace if required.
	Inspect plunger for bends and cracks.	Replace if required.
	Inspect spring for proper tension and kinks.	Replace if required.
	Examine can assembly for loose rivets, dents, or other damage which would restrict flow of linked cartridges.	Return to direct support maintenance for repair or replacement.
Ejection control bag.	See table 3-12.	

Section VIII. MAINTENANCE OF ARMAMENT SUBSYSTEM M41 LESS MACHINE GUN M60D

3-34. General

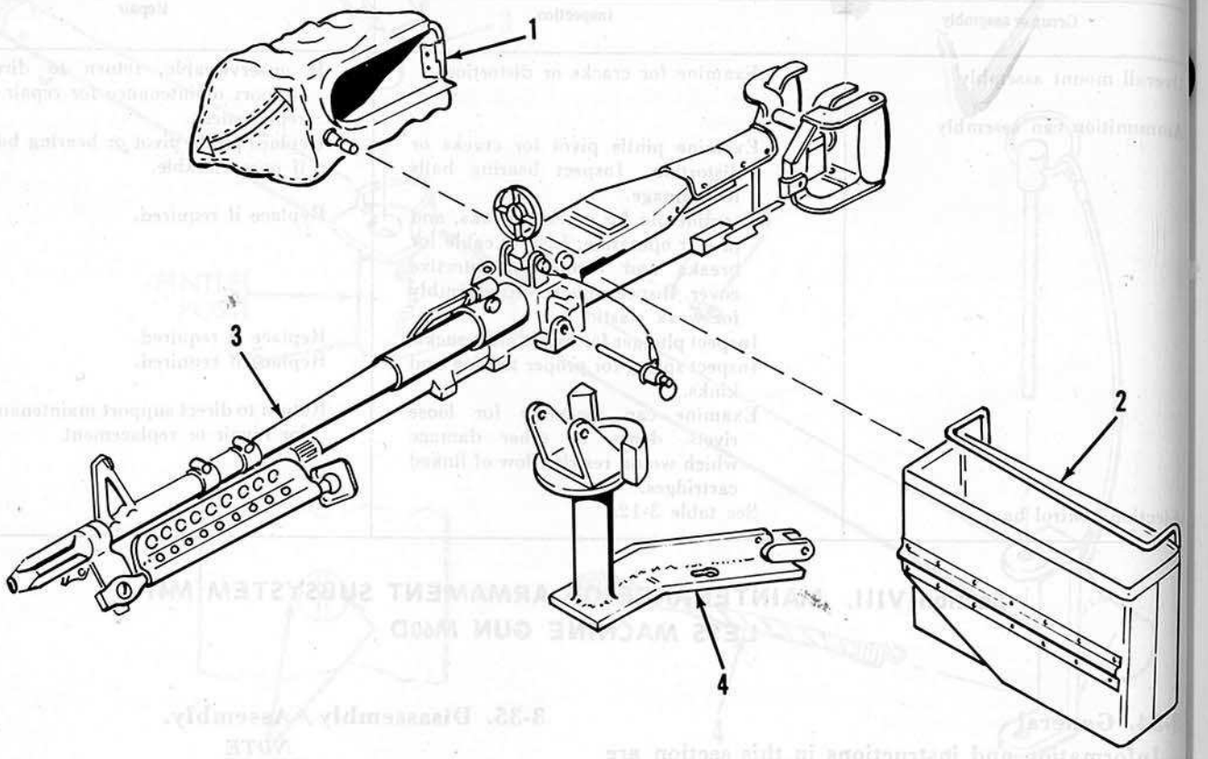
Information and instructions in this section are for organizational maintenance personnel. Assembly is normally in reverse of disassembly unless specific instructions are given. Disassemble subsystem only to the extent needed for required lubrication or repair.

3-35. Disassembly / Assembly.

NOTE

The following steps are given to cover complete disassembly. Normally when the subsystem is returned for maintenance, ejection control bag, ammunition can assembly, and machine gun have been removed.

a. Disassembly. Refer to figure 3-22 and the following:



WE 67749

1. Ejection control bag—11699714
2. Ammunition can assembly—11699679
3. Machine gun M60D—11699750
4. Rear ramp mount assembly—8436675

Figure 3-22. Components of armament subsystem M41.

(1) Refer to figure 2-7. Press down on rear bracket safety latch lever. Slide ejection control bag forward and off machine gun.

(2) Refer to figure 2-11. Press release latch lever and remove ammunition can assembly (2, fig. 3-22) from machine gun.

(3) Pull quick release pin and remove machine gun (3, fig. 3-22) from pintle on rear ramp mount assembly (4).

b. Assembly. To assembly, refer to paragraph 2-5 *a* through *d*.

3-36. Disassembly / Assembly of Subsystem Components.

Instructions for disassembly / assembly for subsystem components, less machine gun, are given in the order in which they were removed from subsystem.

3-37. Ejection Control Bag.

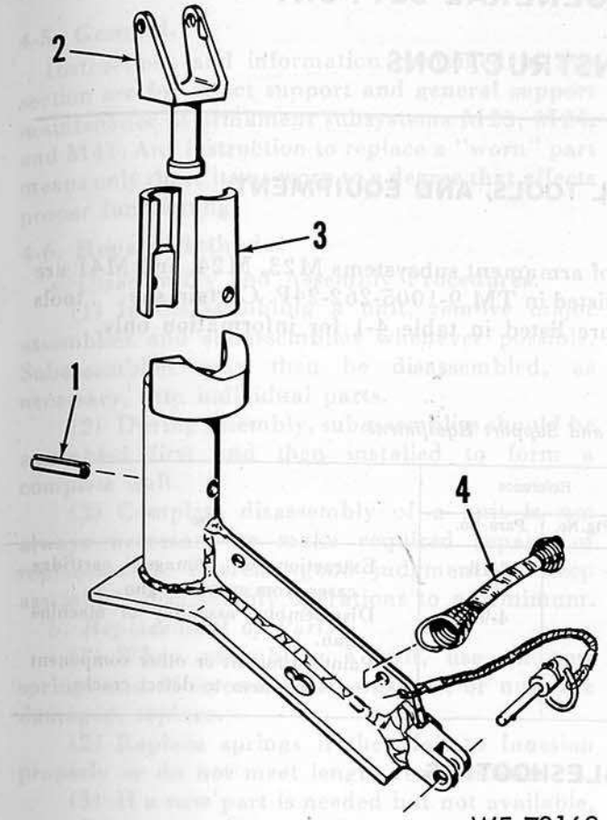
Refer to paragraph 3-21.

3-38. Ammunition Can Assembly.

Refer to paragraph 3-31.

3-39. Rear Ramp Mount Assembly.

a. Refer to figure 3-23 and the following:



WE 73168

1. ⅜ x 1-¾ spring pin—MS16562-80
2. Pintle—8436685
3. Sleeve bearing—8436686
4. Elastic cord assembly—11699674-2

Figure 3-23. Rear ramp mount assembly—partially exploded view.

(1) Drift out 3 / 8 x 1-3 / 4 spring pin (1) and lift out pintle (2) and two halves of sleeve bearing (3).

(2) Remove elastic cord assembly (4).

b. Assemble in reverse order of disassembly and the following:

(1) Hook one end of elastic cord assembly (4) through hole in rib of post assembly base. Bend hook to prevent loss.

(2) Coat inner surfaces of sleeve bearings (3) and bearing surfaces of pintle (2) with ISA.

(3) Assemble sleeve bearing around pintle and install as a unit in post assembly. Bearings must be alined to receive 3 / 8 x 1-3 / 4 spring pin (1). If a new sleeve bearing is to be installed, proceed as follows:

(a) Place sleeve bearing halves in post assembly. Sleeve bearings shall not protrude more than 0.005 inch from post assembly.

(b) Position sleeve bearings so split line is visible as near as possible to center of spring pin hole. Secure post assembly so it can be drilled.

(c) Drill a 3 / 8-inch hole through sleeve bearings, using the pin hole in post assembly as a guide. Hole should be 0.375 plus 0.007 inches in diameter.

(d) Remove sleeve bearing halves after drilling and remove any sharp edges. Thoroughly clean and dry post assembly and sleeve bearing.

(e) Install sleeve bearing (3) and pintle (2) as in proceeding paragraphs (2) and (3).

(4) Install 3 / 8 x 1-3 / 4 spring pin (1) to secure sleeve bearing in post assembly.

3-40. Cleaning, Inspection, and Repair.

a. Cleaning. Refer to paragraph 3-26 *a*.

b. Inspection and Repair. See table 3-14.

Table 3-14. Inspection and Repair—Armament Subsystem M41 Less Machine Gun M60D

Group or assembly	Inspection	Repair
Overall mount assembly	Inspect for cracks or distortion.	If unserviceable, return to direct support maintenance for repair or replacement.
	Inspect pintle for cracks or distortion. Inspect bearing sleeves for damaged surfaces.	Replace pintle or bearing sleeves if required.
	Inspect quick release pin for cracks, breaks, and proper operation.	Replace as required.
	Inspect cable for breaks and complete protective cover. Inspect elastic cord assembly for weak elastic.	
Ammunition can assembly	Refer to table 3-13.	
Ejection control bag	Refer to table 3-12.	

CHAPTER 4

DIRECT SUPPORT AND GENERAL SUPPORT MAINTENANCE INSTRUCTIONS

Section I. REPAIR PARTS, SPECIAL TOOLS, AND EQUIPMENT

4-1. Repair Parts.

Repair Parts are listed in TM 9-1005-262-24P.

4-2. Special tools and test or support equipment authorized for direct support and general support of armament subsystems M23, M24, and M41 are listed in TM 9-1005-262-24P. Certain spe : tools are listed in table 4-1 for information only.

Table 4-1. Special Tools, Test, and Support Equipment

Item	FSN or Reference No.	Reference		Use
		Fig. No.	Para. No.	
Extractor, ruptured cartridge case	4933-652-9950		2-18	Extraction of damaged cartridge cases from machine gun.
Wrench, screwdriver and reamer combination.	5120-461-1075		4-9	Disassembly / assembly of machine gun.
Kit, inspection penetrant	6850-826-0981			Paint on mount or other component of subsystem to detect cracks.

Section II. TROUBLESHOOTING

4-3. General.

Direct support troubleshooting is limited to machine gun M60D.

4-4. Troubleshooting.

Refer to table 4-2 for a list of the more common malfunctions with corrective action to be taken by direct support personnel.

Table 4-2. Troubleshooting

Malfunction	Probable Cause	Corrective Action
1. Failure to feed	*a.* Defective latch lever assembly.	*a.* Replace.
	b. Feed pawl spring defective.	*b.* Replace.
	c. Helical torsion spring on feed lever cam defective.	*c.* Replace.
	d. Cartridge feed roller defective.	*d.* Replace.
	e. Defective latch cover.	*e.* Replace.
2. Failure to cock	Worn sear notch on operating rod.	Replace.
3. Uncontrolled fire	Defective sear notch on operating rod.	Replace.

Section III. PREEMBARKATION INSPECTION OF MATERIEL IN UNITS ALERTED FOR OVERSEAS MOVEMENT

Refer to TB 9-1000-247-34 for standards for overseas shipment for armament subsystems M23, M24, and M41.

Section IV. GENERAL MAINTENANCE

4-5. General.

Instructions and information contained in this section are for direct support and general support maintenance of armament subsystems M23, M24, and M41. Any instruction to replace a "worn" part means only those items worn to a degree that affects proper functioning.

4-6. Repair Methods.

a. Disassembly and Assembly Procedures.

(1) In disassembling a unit, remove major assemblies and subassemblies whenever possible. Subassemblies may then be disassembled, as necessary, into individual parts.

(2) During assembly, subassemblies should be assembled first and then installed to form a complete unit.

(3) Complete disassembly of a unit is not always necessary to make required repairs or replacements. Exercise good judgment to keep assembly / disassembly operations to a minimum.

b. Replacement of Parts.

(1) When assembling a unit, use all new spring pins. If screws, bolts, washers, or nuts are damaged, replace.

(2) Replace springs if they fail to function properly or do not meet length requirements.

(3) If a new part is needed but not available, recondition the old one. Examine such reconditioned parts carefully to determine useability.

c. Use of Tools.

(1) Be careful to use tools suitable for the task, to avoid damage to either parts or tools.

(2) Keep tools clean and work with clean parts.

CAUTION

Do not attempt to weld metal without knowing its physical characteristics.

d. Welding. Refer to TM 9-237.

e. Finish of Metals.

(1) Chipped or cracked painted surfaces of the armament subsystem may be repainted.

(2) Use a type M or type Z phosphate finish on ferrous metals unless otherwise specified.

(3) Apply a type I or II anodic coating to all aluminum or aluminum alloy parts unless otherwise specified.

(4) It is not necessary to refinish parts that already have a good quality finish and will not be improved by refinishing.

(5) All parts will be free from rust, fungus, and corrosion.

f. Repair of Damaged Threads. Repair damaged threads with a thread chaser, by chasing on a lathe, or with a tap or die of proper dimension. Replace damaged or defective inserts with oversize inserts.

g. Repair of Damaged Machined and Polished Surfaces. Smooth rough spots, scores, burs, galling, and gouges from damaged machined and polished surfaces. The finish of the repaired part is to approximate the original finish. In performing any of these operations, take care to not alter critical dimensions.

h. Removal of Rust or Corrosion. Remove corrosion from all portions of the part. Use of crocus cloth, vapor blast equipment, or wipe-on type phosphoric acid metal conditioner is recommended.

4-7. Cleaning.

a. General. Refer to LO 9-1005-262-12 and chapter 3 of this manual for user's information on cleaning, cleaning agents, and precautions to be observed in cleaning. For repainting, refer to paragraph 4-6 *e*.

b. Cleaning Materiel Received From Storage.

(1) Materiel received in maintenance shops from storage will be cleaned by one of the following methods described, as applicable or available.

CAUTION

Degreasing compound and degreasing temperatures can damage rubber plastic parts of the subsystem. Do not attempt to degrease rubber or plastic parts or metal parts which do not need degreasing.

(a) Dip-tank method. Disassemble as required. Put parts in a perforated metal basket and submerge and agitate in dry cleaning solvent (SD) or mineral spirits paint thinner (TPM). Repeat, using clean solvent or thinner. Amount of treatment will depend on how preservatives dissolve.

WARNING

Do not breathe fumes from the vapor degreaser. Fumes are toxic. Use only in well-ventilated areas.

(b) Vapor-degreaser method. Vapor-degreaser tanks contain a heated solution of trichlorethylene or perchlorethylene (type II). This method is used on very greasy or oily parts which are not rapidly cleaned in a dip-tank. Place parts in a perforated metal basket. Submerge and keep basket just below the vapors in the tank until grease or oil melts and runs off.

(c) Steam method. Place parts in a perforated metal basket and steam treat until clean. This method is less effecient than the vapor-

degreaser method. Parts may require additional cleaning to remove all grease or oil, particularly from recesses.

(2) If some time will elapse before repair operations, apply a light grade preservative oil on polished metal surfaces.

(3) Remove rust from highly finished surfaces with a light application of crocus cloth. Use grade 2/0 abrasive cloth on ordinary machine-finished surfaces.

c. Cleaning After Repair. After repair and before assembly, remove shop dirt and other foreign matter from all metal surfaces. Do this by the dip-tank method, the vapor-degreaser method, or by cleaning in SD or TPM.

d. Cleaning After Shop Inspection. After in-process shop inspections, dip parts in fingerprint remover oil (type A) and remove. Use rubber gloves. Dry thoroughly with clean, lint-free cloths or let parts drip-dry. Apply preservatives as soon as possible after cleaning.

4-8. Lubrication and Preservation.

a. Lubrication. Refer to chapter 3 of this manual and LO 9-1005-262-12 for lubrication instructions for armament subsystems M23, M24, and M41.

CAUTION

Do not apply greases or oils to parts coated with dry film lubricant.

b. Preservation. After cleaning and drying, immediately coat unpainted metal surfaces with an oil grease.

4-9. Use of Inspection Penetrant Kit.

a. Clean surface area to be inspected *thoroughly* with a cleaning solvent, preferably trichlorethylene. Substitute cleaners, such as lacquer thinner or chlorothene are acceptable.

NOTE

Do not apply penetrant until cleaning solvent has evaporated completely from surface and flaws. Remove paint from area to receive penetrant.

b. Apply penetrant to the clean, dry surface. Allow a minimum 5 minute penetration time. Increase penetration time if temperature is below 60 degrees F. Do not apply to surfaces too hot to hold in hand.

c. Spray remover lightly over area covered with penetrant. Avoid overspraying, which might dilute or remove flaw-trapped penetrant. Wipe clean with lint-free rag or paper toweling. Allow any remaining remover to evaporate naturally, or with the aid of warm gentle air currents. Under no condition soak parts in remover.

d. Before applying developer, shake can until agitator rattles freely, each time used. Spray developer in a thin, even, wet coating on the dry surface. Red marks indicate flaws; some may appear the instant the developer dries. Allow developer to remain on surface at least 5 minutes before making final interpretation of inspection results.

Section V. REMOVAL AND INSTALLATION OF MAJOR COMPONENTS AND AUXILIARIES

4-10. Armament Subsystem M23.

Refer to paragraphs 2-2 and 2-3 for instructions on installation and removal of armament subsystem M23.

4-11. Armament Subsystem M24.

Refer to paragraphs 2-4 and 2-5 for instructions on installation and removal of armament subsystem M24.

4-12. Armament Subsystem M41.

Refer to paragraphs 2-6 and 2-7 for instructions on installation and removal of armament subsystem M41.

CHAPTER 5

DIRECT AND GENERAL SUPPORT REPAIR OF MACHINE GUN M60D

Section I. GENERAL

5-1. Description.

The 7.62 millimeter machine gun M60D is an air-cooled, gas-operated automatic machine gun. It uses all standard 7.62 millimeter ammunition. Headspace is fixed to permit quick changes of barrels. Designed primarily for operation in the air, the machine gun M60D has an aircraft ring and post sighting system. The weapon is pintle-mounted and is secured by a quick release pin. It is easily removed from the helicopter and can be used for ground defense with bipod assembly extended.

5-2. Purpose.

Instructions and information in this chapter are for use in performance of direct support and general support maintenance.

Section II. REMOVAL/INSTALLATION

Refer to chapter 2 for instructions on removal and installation of machine gun M60D.

Section III. DISASSEMBLY/ASSEMBLY

5-3. Disassembly.

a. Refer to figure 5-1 and paragraph 3-9 for disassembly of items 1 through 27, figure 5-1.

Key to figure 5-1:

1. Barrel assembly with bipod assembly—7269027
2. Hinge pin latch—7269243
3. Cover hinge pin—7269247
4. Torsion helical spring—7269301
5. Cover assembly—7269114
6. Cartridge tray assembly—7792096
7. 1/16 x ½ Cotter pin—MS24665-151
8. Headed grooved pin—11699788
9. Grip and trigger assembly—11699751
10. Sear link nut—11699789
11. Link and spring—11699790
12. Sleeve—8427871
13. Cable—8427869-7
14. Quick release pin—MS17990C519
15. Rear sight assembly—11699796
16. Retaining pin—7269205
17. Lock spring—11699785
18. Sear and safety housing assembly—11699773
19. 7/32 x 1-¼ spring pin—MS16562-151
20. Adapter—11699793
21. Dust boot—11699787
22. Buffer retaining yoke—11699786
23. Buffer assembly—11010518
24. Guide assembly—7269199
25. Spring—7269303
26. Breech bolt assembly—11010357
27. Operating rod assembly—11686309
28. 3/32 x 9/16 spring pin—MS39086-81
29. Barrel lock ring—11010377
30. Spring—11010197
31. Barrel lock—11010184
32. 3/32 x 9/16 spring pin—MS39086-81
33. Barrel lock ring—11010377
34. Carrying handle assembly—7269231
35. Carrying handle plunger—7269250
36. Spring—7269302
37. Assembled washer screw—7790559
38. Cocking handle guide—11010155
39. Handle assembly—7791621
40. 1/32 x ¼ Cotter pin—MS24665-18
41. Latch retaining pin—7792069
42. Magazine release latch—7790554
43. Magazine latch—7790553
44. Spring—7790551
45. Rivet—7792086
46. Magazine bracket—1168976
47. Receiver assembly—11686308
48. Rivet—7792972
49. Mounting plate—7792974
50. Rivet—7269411
51. Bridge
52. Receiver—11686307

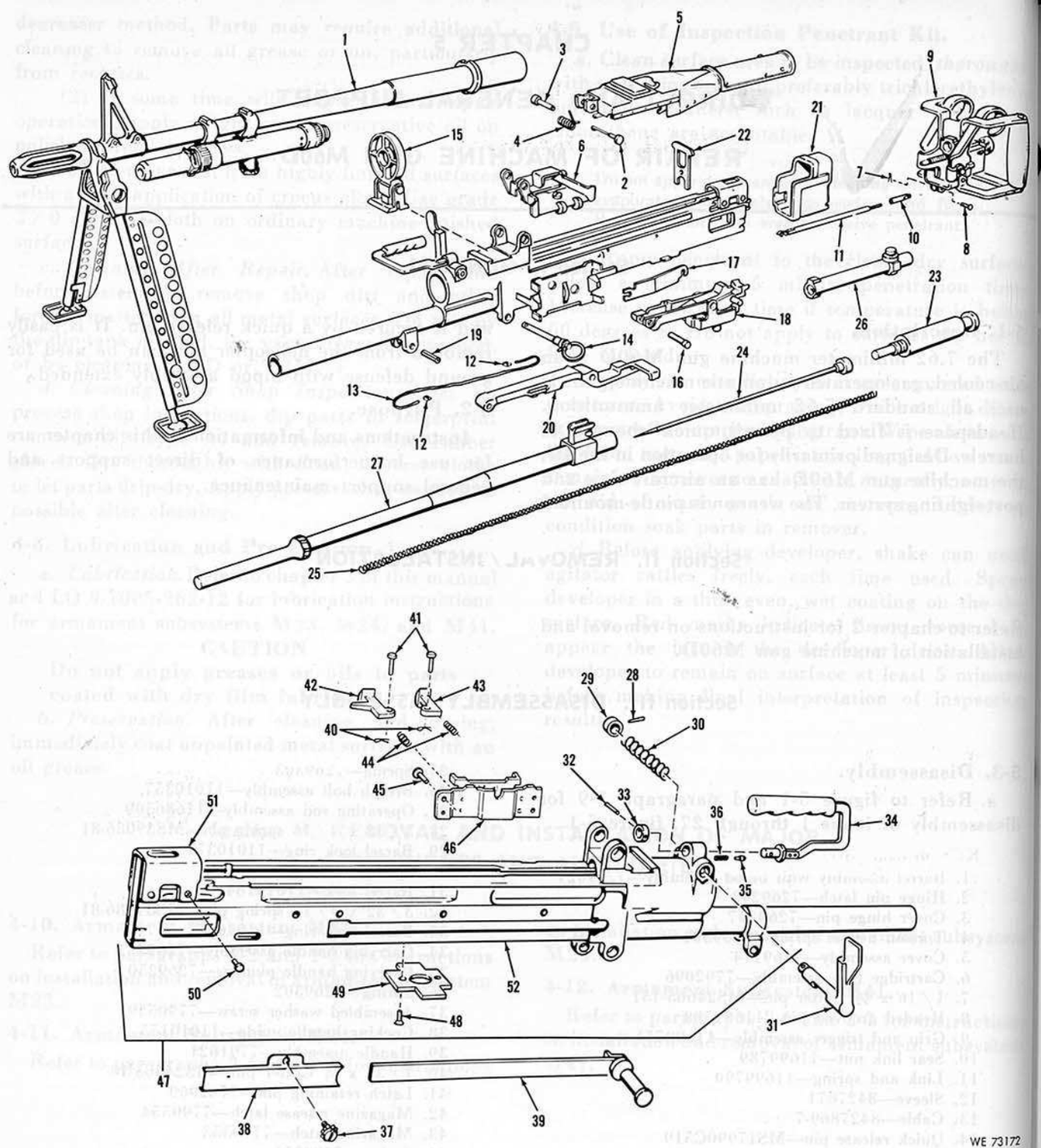


Figure 5-1. Machine gun M60D—partially exploded view.

b. Separate breech bolt assembly (26) from operating rod assembly (27).

c. Tap out 3 / 32 x 9 / 16 spring pin (28) and remove barrel lock ring (29), spring (30), and barrel lock (31).

d. Tap out second 3 / 32 x 9 / 16 spring pin (32) and remove second barrel lock ring (33), carrying handle assembly (34), carrying handle plunger (35), and (36).

e. Remove assembled washer screw (37), cocking handle guide (38), and handle assembly (39).

f. Remove two 1 / 32 x 1 / 4 cotter pins (40), latch retaining pins (41), the magazine release latch (42), magazine latch (43), and two springs (44).

g. Remove four rivets (45) magazine bracket (46) from receiver assembly (47).

h. Remove two rivets (48) and mounting plate (49).

i. Remove four rivets (50) securing bridge (51) to receiver (52).

5-4. Assembly.

Assemble in reverse order of disassembly and the following:

a. Rivets (50) shall not protrude more than 0.010-inch inside receiver (52) nor more than 0.005-inch outside of bridge (51).

b. Rivets (48) shall be installed so they are flush with the bottom of mounting plate (49) and do not protrude more than 0.005 inch into receiver.

c. Fit recess in breech bolt assembly (26) to top of operating rod assembly (27). Push both into receiver as a unit, until flush.

d. Install spring (25) and guide assembly (24) into operating rod assembly.

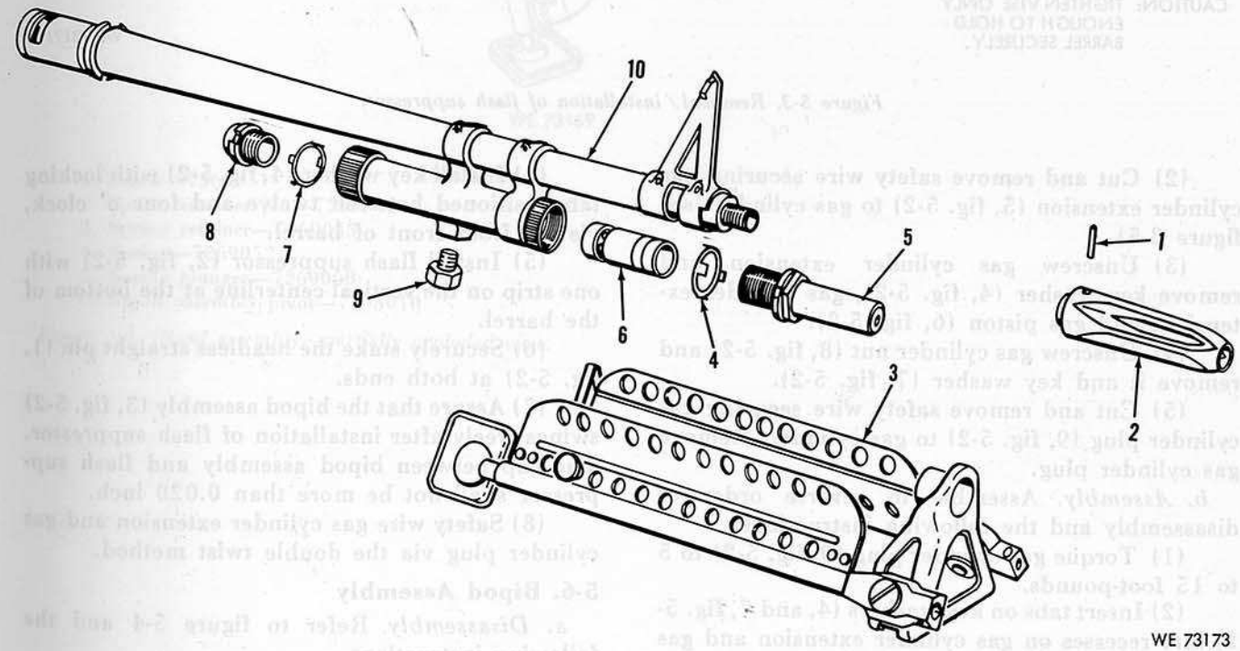
e. Install buffer assembly (23) behind guide assembly and push in until buffer retaining yoke (22) will go over neck recess of buffer assembly.

f. Restake rear sight assembly (15) at installation (fig. 3-4).

g. Replace sleeves (12) when assembling sleeves, cable (13), and quick release pin (14).

5-5. Barrel Assembly With Bipod Assembly.

a. Disassembly. Refer to figure 5-2 and the following instructions.



1. Headless straight pin—7792085
2. Flash suppressor—7269034
3. Bipod assembly—7793009
4. Key washer—7269035
5. Gas cylinder extension—7269030
6. Gas piston—7791247
7. Key washer—7269035
8. Gas cylinder nut—7269031
9. Gas cylinder plug—7792093
10. Barrel assembly—7269028

Figure 5-2. Barrel assembly with bipod assembly—exploded view.

(1) Drill out headless straight pin (1, fig. 5-2) (fig. 5-3). Remove flash suppressor (2, fig. 5-2) and bipod assembly (3, fig. 5-2).

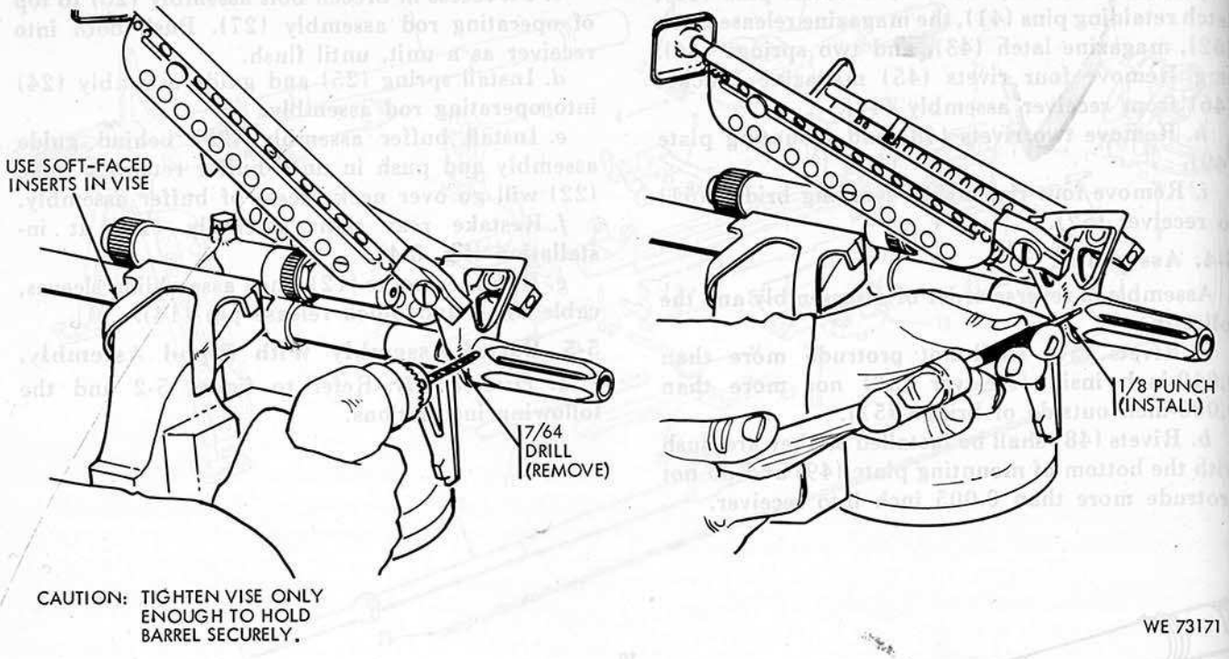


Figure 5-3. Removal / installation of flash suppressor.

(2) Cut and remove safety wire securing gas cylinder extension (5, fig. 5-2) to gas cylinder (see figure 3-5).

(3) Unscrew gas cylinder extension and remove key washer (4, fig. 5-2), gas cylinder extension, and gas piston (6, fig. 5-2).

(4) Unscrew gas cylinder nut (8, fig. 5-2) and remove it and key washer (7, fig. 5-2).

(5) Cut and remove safety wire securing gas cylinder plug (9, fig. 5-2) to gas cylinder. Remove gas cylinder plug.

b. Assembly. Assemble in reverse order of disassembly and the following instructions.

(1) Torque gas cylinder plug (9, fig. 5-2) to 5 to 15 foot-pounds.

(2) Insert tabs on key washers (4, and 7, fig. 5-2) into recesses on gas cylinder extension and gas cylinder nut (5 and 8, fig. 5-2).

(3) Install gas piston (6, fig. 5-2) with solid end toward receiver end of barrel.

(4) Install key washer (4, fig. 5-2) with locking tab positioned between twelve and four o' clock, viewed from front of barrel.

(5) Install flash suppressor (2, fig. 5-2) with one strip on the vertical centerline at the bottom of the barrel.

(6) Securely stake the headless straight pin (1, fig. 5-2) at both ends.

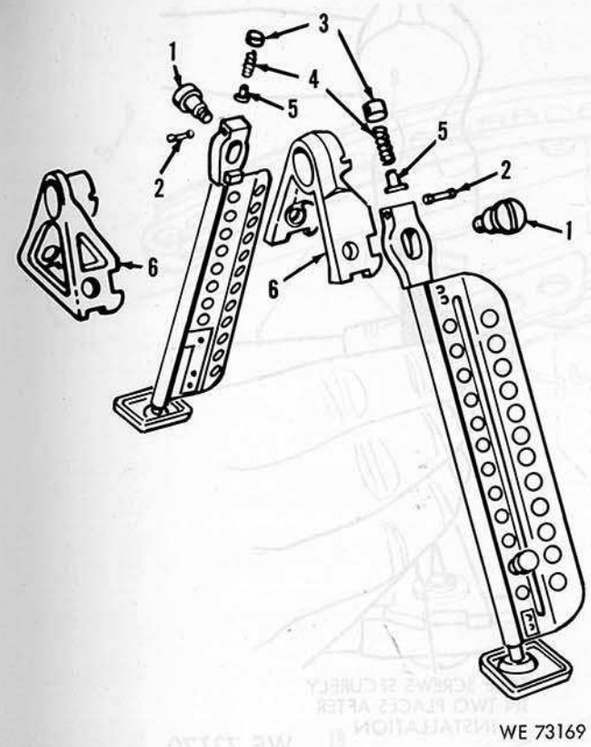
(7) Assure that the bipod assembly (3, fig. 5-2) swings freely after installation of flash suppressor. The gap between bipod assembly and flash suppressor shall not be more than 0.020 inch.

(8) Safety wire gas cylinder extension and gas cylinder plug via the double twist method.

5-6. Bipod Assembly

a. Disassembly. Refer to figure 5-4 and the following instructions.

(1) Relieve staking on screw (1, fig. 5-4) by grinding (see figure 5-5).



1. Screw—7269051
2. Spring retainer pin—7269048
3. Spring retainer—7269053
4. Spring—7269052
5. Spring plunger—7269050
6. Bipod assembly pivot—7793010

Figure 5-4. Bipod assembly—partially exploded view.

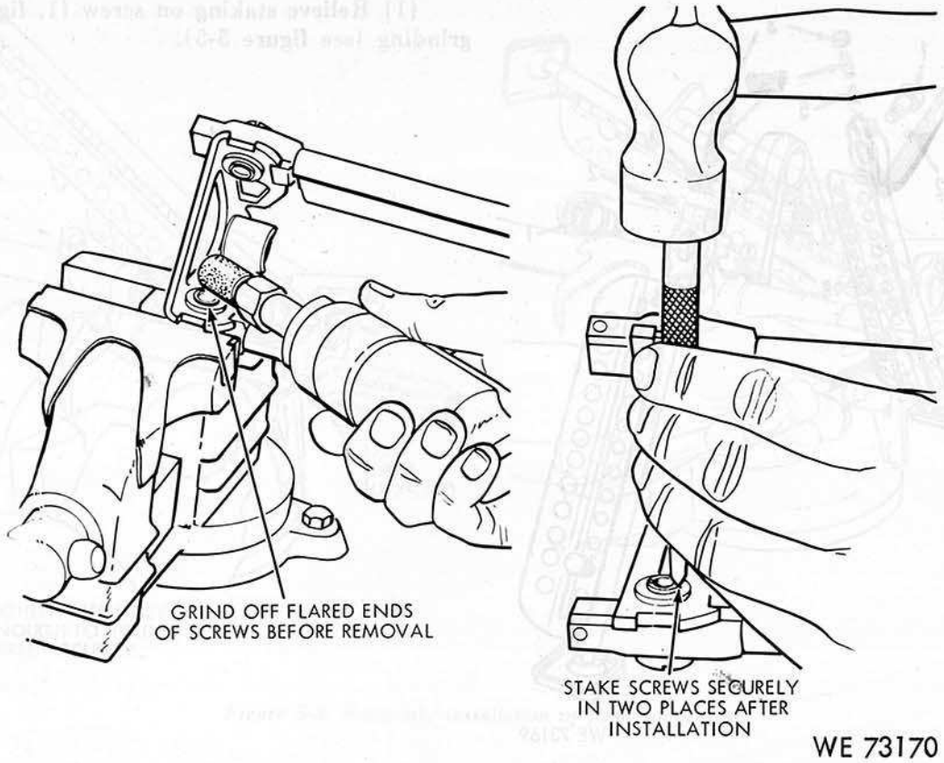


Figure 5-5. Removal / installation of leg assembly pivot screw.

(2) Use sharp pointed object to lift up on spring plunger (5, fig. 5-4) and remove screws.

(3) Tap out spring retainer pins (2, fig. 5-4) and remove spring retainers (3), springs (4), and spring plungers (5) from bipod assembly pivot (6).

b. Assembly. Assemble bipod assembly in reverse order of disassembly.

5-7. Cover Assembly.

a. Disassembly. Disassemble cover assembly in accordance with figure 3-7 and item number sequence in figure 5-6.

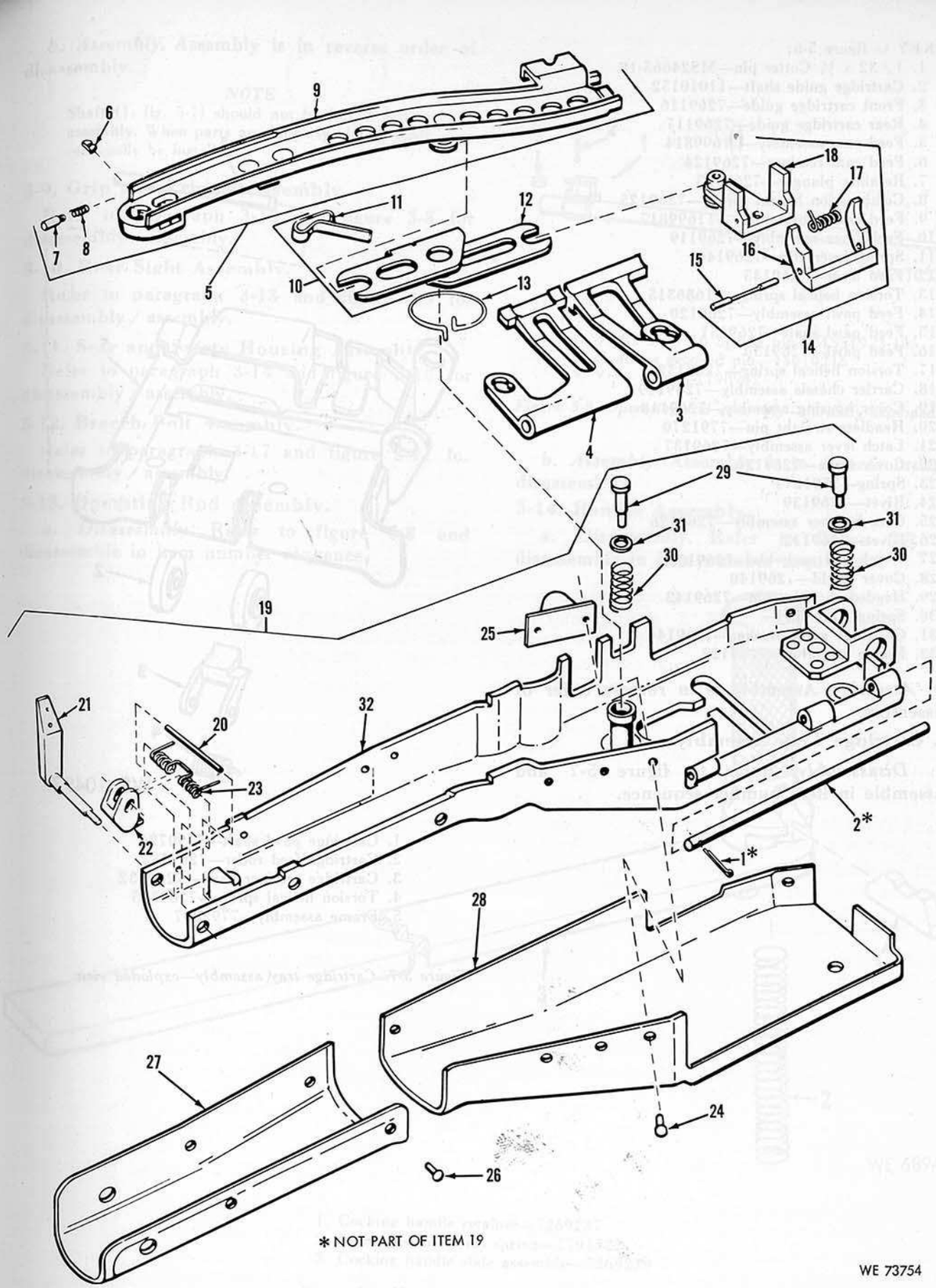


Figure 5-6. Cover assembly—exploded view.

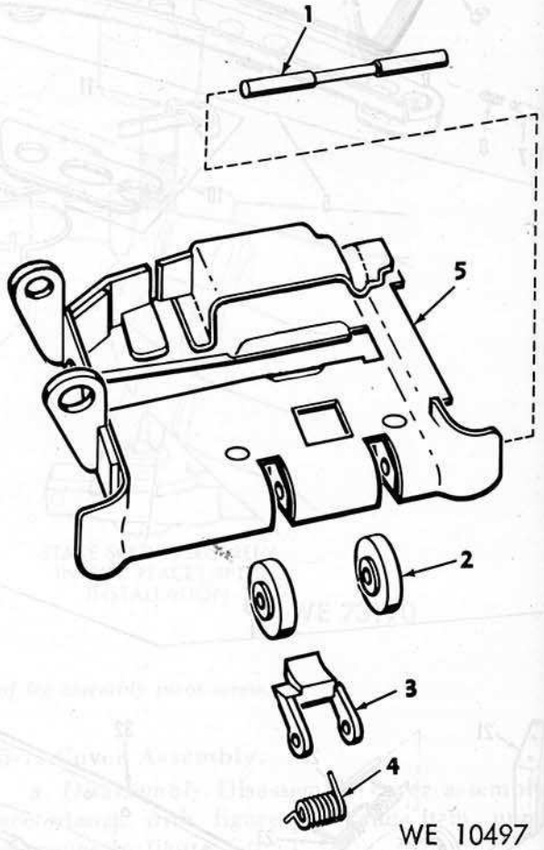
KEY to figure 5-6:

1. 1/32 x ¼ Cotter pin—MS24665-18
2. Cartridge guide shaft—11010152
3. Front cartridge guide—7269116
4. Rear cartridge guide—7269117
5. Feed cam assembly—11699814
6. Feed cam retainer—7269124
7. Retainer plunger—7269123
8. Compression helical spring—7269125
9. Feed cam subassembly—11699817
10. Feed lever assembly—7269119
11. Spring lever clip—7269146
12. Feed lever—7269145
13. Torsion helical spring—11686315
14. Feed pawl assembly—7269120
15. Feed pawl shaft—7269151
16. Feed pawl—7269150
17. Torsion helical spring—7269152
18. Carrier chassis assembly—7269149
19. Cover housing assembly—7269118
20. Headless straight pin—7791270
21. Latch lever assembly—7269137
22. Cover latch—7269136
23. Spring—7791271
24. Rivet—7269139
25. Cam bumper assembly—7269126
26. Rivet—7269112
27. Cheek pad assembly—7269138
28. Cover shield—7269140
29. Headed shoulder pin—7269143
30. Spring—7269141
31. Cartridge guide washer—7269144
32. Frame assembly—7969128

b. Assembly. Assembly is in reverse order of disassembly.

5-8. Cartridge Tray Assembly.

a. Disassembly. Refer to figure 5-7 and disassemble in item number sequence.



1. Cartridge pawl shaft—7790724
2. Cartridge feed roller—7269333
3. Cartridge retainer pawl—7269332
4. Torsion helical spring—7269335
5. Frame assembly—7792097

Figure 5-7. Cartridge tray assembly—exploded view.

b. Assembly. Assembly is in reverse order of disassembly.

NOTE

Shaft (1, fig. 5-7) should not be forced during assembly. When parts are properly alined, shaft can easily be installed.

5-9. Grip and Trigger Assembly.

Refer to paragraph 3-12 and figure 3-8 for disassembly / assembly.

5-10. Rear Sight Assembly.

Refer to paragraph 3-13 and figure 3-9 for disassembly / assembly.

5-11. Sear and Safety Housing Assembly.

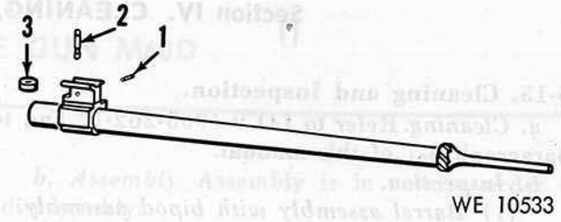
Refer to paragraph 3-14 and figure 3-10 for disassembly / assembly.

5-12. Breech Bolt Assembly.

Refer to paragraph 3-17 and figure 3-11 for disassembly / assembly.

5-13. Operating Rod Assembly.

a. Disassembly. Refer to figure 5-8 and disassemble in item number sequence.



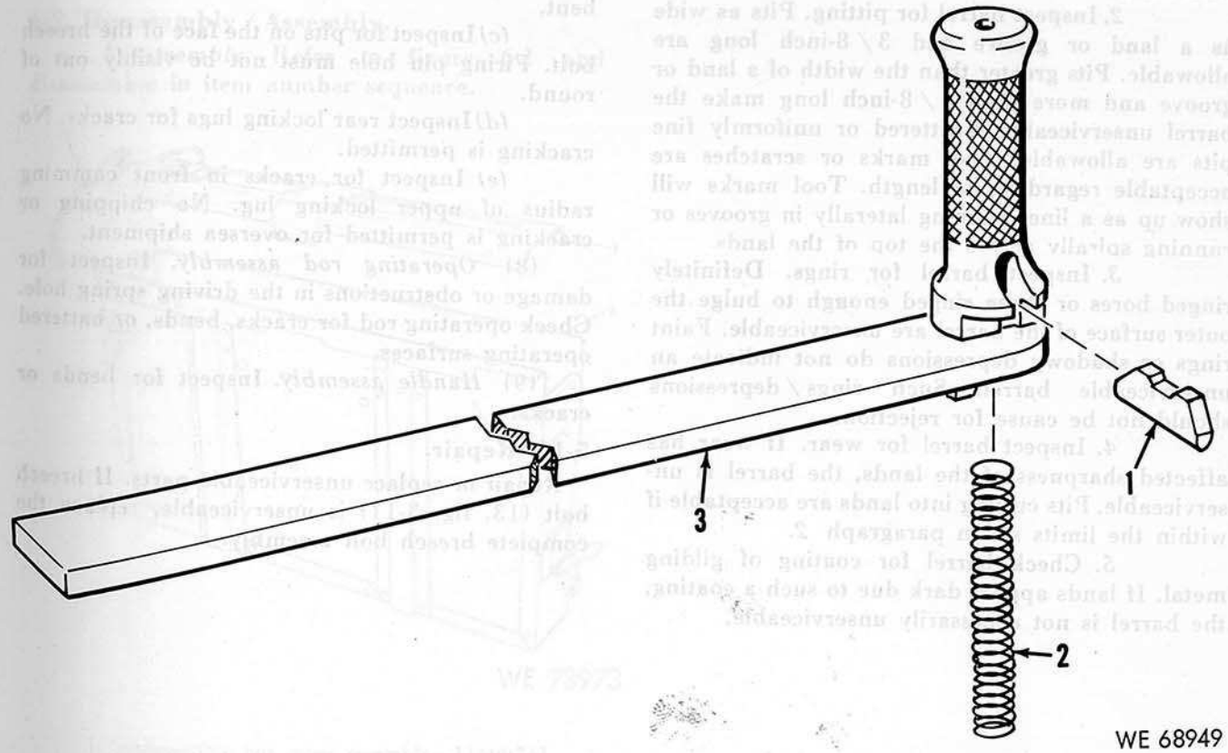
1. 3/32 x 7/16 Spring pin—MS51923-105
2. Headless grooved pin—11010215
3. Yoke roller—7790942

Figure 5-8. Operating rod assembly—partially exploded view.

b. Assembly. Assembly is in reverse order of disassembly.

5-14. Handle Assembly.

a. Disassembly. Refer to figure 5-9 and disassemble in item number sequence.



1. Cocking handle retainer—7269237
2. Compression helical spring—7791522
3. Cocking handle slide assembly—7269239

Figure 5-9. Handle assembly—exploded view.

b. Assembly. Assembly is in reverse order of disassembly.

Section IV. CLEANING, INSPECTION AND REPAIR

5-15. Cleaning and Inspection.

a. Cleaning. Refer to LO 9-1005-262-12 and to paragraph 4-7 of this manual.

b. Inspection.

(1) *Barrel assembly with bipod assembly.*

(a) Inspect gas piston and cylinder for damage or imperfections that could cause loss of propulsion for operating rod assembly. Inspect to see that no abrasives have been used on polished surfaces.

(b) See that the gas port is free of foreign matter.

(2) *Barrel assembly.*

(a) Sight through barrel to see it is straight.

(b) Determine serviceability.

1. Inspect chamber for pitting. Pits are allowable if not large enough to cause extraction difficulties.

2. Inspect barrel for pitting. Pits as wide as a land or groove and 3 / 8-inch long are allowable. Pits greater than the width of a land or groove and more than 3 / 8-inch long make the barrel unserviceable. Scattered or uniformly fine pits are allowable. Tool marks or scratches are acceptable regardless of length. Tool marks will show up as a lines running laterally in grooves or running spirally across the top of the lands.

3. Inspect barrel for rings. Definitely ringed bores or those ringed enough to bulge the outer surface of the barrel are unserviceable. Faint rings or shadowy depressions do not indicate an unserviceable barrel. Such rings / depressions should not be cause for rejection.

4. Inspect barrel for wear. If wear has affected sharpness of the lands, the barrel is unserviceable. Pits cutting into lands are acceptable if within the limits set in paragraph *2.*

5. Check barrel for coating of gilding metal. If lands appear dark due to such a coating, the barrel is not necessarily unserviceable.

6. Inspect barrel socket. A cracked or loose socket indicates an unserviceable barrel.

(3) *Cover assembly.* Inspect for worn, burred, cracked, or otherwise damaged parts. See that springs are not weak or broken.

(4) *Cartridge tray assembly.* Inspect spot welds for indications of separation of failure.

(5) *Grip and trigger assembly.* Inspect for worn, burred, cracked, or otherwise damaged parts.

(6) *Sear and safety housing assembly.* Inspect for worn, burred, cracked, or otherwise damaged parts. Check cocking surfaces of sear for damage.

(7) *Breech bolt assembly.* Inspect parts for burs or damage.

(a) Inspect firing pin spring for tension and breaks in spring wire.

(b) See that the point of the firing pin is smooth and well rounded. Firing pin must not be bent.

(c) Inspect for pits on the face of the breech bolt. Firing pin hole must not be visibly out of round.

(d) Inspect rear locking lugs for cracks. No cracking is permitted.

(e) Inspect for cracks in front camming radius of upper locking lug. No chipping or cracking is permitted for oversea shipment.

(8) *Operating rod assembly.* Inspect for damage or obstructions in the driving spring hole. Check operating rod for cracks, bends, or battered operating surfaces.

(9) *Handle assembly.* Inspect for bends or cracks.

5-16. Repair.

Repair or replace unserviceable parts. If breech bolt (13, fig. 3-11) is unserviceable, replace the complete breech bolt assembly.

CHAPTER 6

REPAIR OF ARMAMENT SUBSYSTEM M23 LESS MACHINE GUN M60D

6-1. General.

a. For direct support and general support maintenance of 7.62 millimeter machine gun M60D, refer to chapter 5.

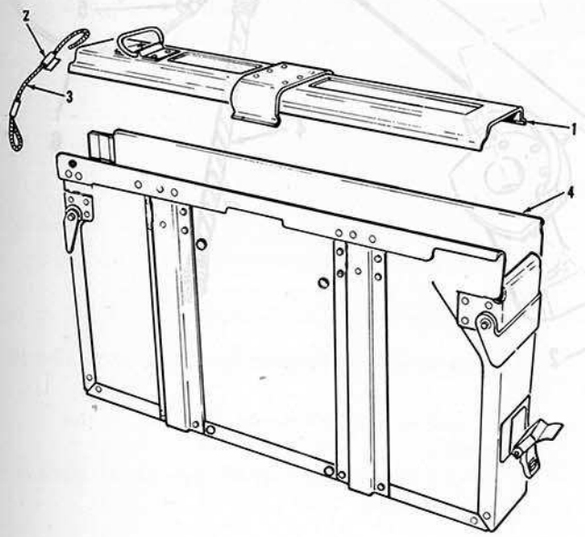
b. For direct support and general support maintenance of the ejection control bag, refer to paragraph 3-37.

c. For direct support and general support maintenance of the ammunition box and cover assembly, refer to following paragraphs 6-2 and 6-3.

d. For direct support and general support maintenance of the flexible chute assembly and chute brace assembly, refer to paragraphs 3-24 and 3-23 respectively.

6-2. Disassembly / Assembly.

a. Disassembly. Refer to figure 6-1 and disassemble in item number sequence.



1. Ammunition box cover assembly—11699741
2. Swaging sleeve—8427871
3. Cable—8427869-7
4. Ammunition box—11699742

Figure 6-1. Ammuntion box and cover assembly—partially exploded view.

b. Assembly. Assembly is in reverse order of disassembly.

6-3. Cleaning, Inspection, and Repair.

a. Cleaning and Inspection. Refer to LO 9-1005-262-12 and paragraph 4-7 of this manual.

b. Repair. Replace cover assembly, swaging sleeve, or cable (1, 2, and 3, fig. 6-2) as required.

CHAPTER 7

REPAIR OF ARMAMENT SUBSYSTEM M24 LESS MACHINE GUN M60D

7-1. General

a. For direct support and general support maintenance of 7.62 millimeter machine gun M60D, refer to chapter 5.

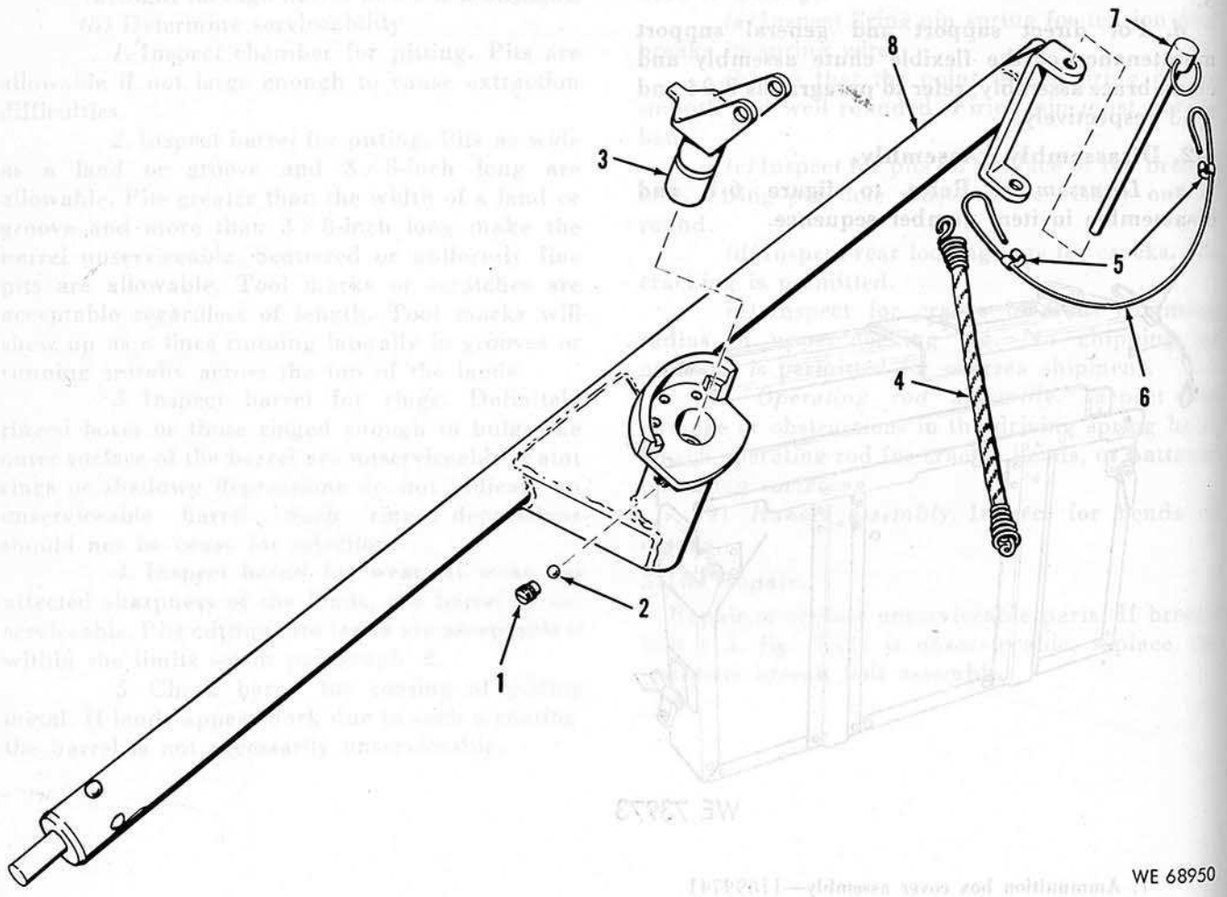
b. For direct support and general support maintenance of the ejection control bag, refer to paragraph 3-37.

c. For direct support and general support maintenance of the ammunition can assembly, refer to paragraph 3-31.

d. For direct support and general support maintenance of the overall mount assembly, refer to following paragraphs 7-2 and 7-3.

7-2. Disassembly / Assembly.

a. Disassembly. Refer to figure 7-1 and disassemble in item number sequence.



WE 68950

1. Bearing ball retainer—11699670
2. Bearing ball—MS19059-47
3. Pintle pivot—11699669
4. Shock cord assembly—11699674-1
5. Swaging sleeve—8427871
6. Cable—8427869-6
7. Quick release pin—11699671
8. Left hand mount subassembly—11699656
   or
8. Right hand mount subassembly—11699659 (not shown)

Figure 7-1. Mount assembly, armament subsystem M24—exploded view (left side shown).

b. Assembly. Assembly is in reverse order of disassembly.

7-3. Cleaning, Inspection, and Repair.

a. Cleaning and Inspection.

(1) *Cleaning.* Refer to LO 9-1005-262-12 and paragraph 4-7 of this manual.

(2) *Inspection.*

(a) Ammunition can assembly.

1. Check that spring (3, fig. 3-20) is free of kinks. See that spring compresses to 3 inches long and returns to approximately 9 inches long.

2. Inspect plunger for cracks and distortion.

3. Examine can for dents or bulges which would restrict free flow of linked cartridges to the gun.

(b) Mount assembly.

1. Inspect welds for cracks.

2. See that positive stops of post are not badly worn or distorted.

3. Check that cross member rod of mount subassembly is visibly straight.

4. Examine quick release pin for cracks or distortion.

5. Inspect shock cord assembly for weak elastic and correct contour of attaching ends.

6. Inspect the pintle for cracks and distortion. Check ball race for galling.

7. Inspect all bearing balls for surface damage.

8. Inspect cable securing quick release pin for breaks and properly swaged sleeves.

b. Repair.

(1) *Ammunition can assembly.* Repair of the ammunition can assembly is limited to replacement of authorized parts, straightening of metal parts, and tightening of rivets.

(2) *Mount assemblies.* To prevent damage to the helicopter from machine gun fires, refer to figure 7-2 and inspect pintle post bearings. If they have not been modified as shown, perform the following steps.

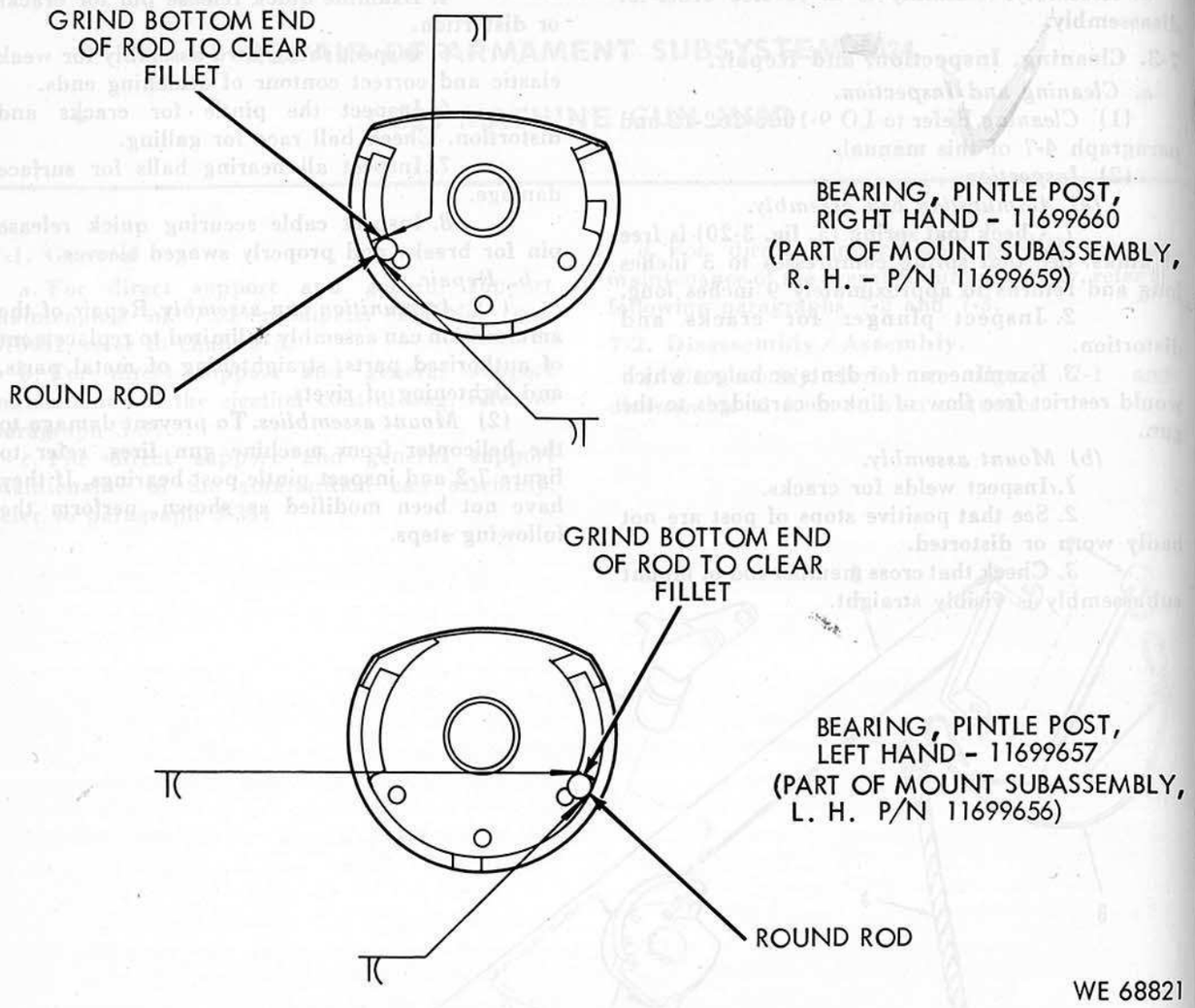


Figure 7-2. Installing firing arc limit stops on mount assembly, armament subsystem M24.

(a) Use 0.25-inch thick drill rod (steel, round, cold rolled or cold drawn, 1010-1020).

(b) Grind end of drill rod to clear fillet in bottom of bearing (s) in position shown.

(c) Tack weld drill rod upright in position shown. Use inert gas metal arc welding (MIG) or inert gas tungsten arc welding (TIG) process. Use 0.125-inch low hydrogen (or equivalent) welding rod.

(d) Cut off drill rod flush with cam surface of bearing.

(e) Grind and / or file top of cut drill rod to a smooth finish.

CHAPTER 8

REPAIR OF ARMAMENT SUBSYSTEM M41 LESS MACHINE GUN M60D

8-1. General.

a. For direct support and general support maintenance of 7.62 millimeter machine gun M60D, refer to chapter 5.

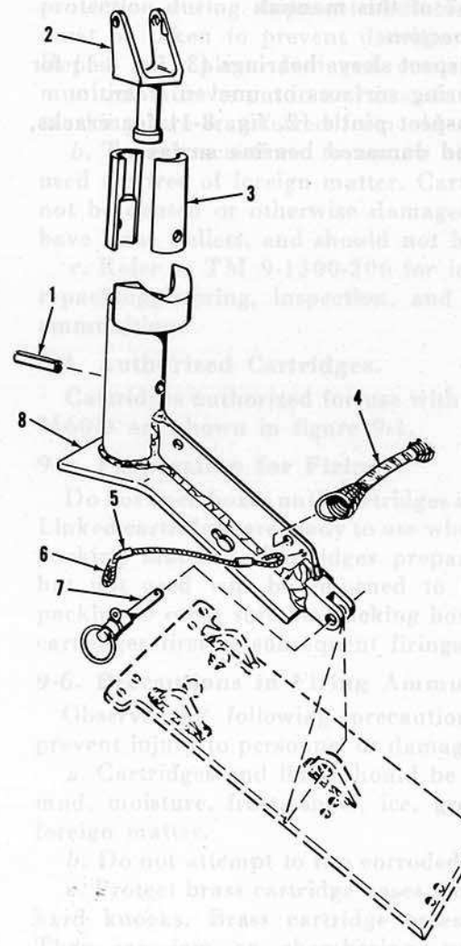
b. For direct support and general support maintenance of the ejection control bag, refer to paragraph 3-30.

c. For direct support and general support maintenance of the ammunition can assembly, refer to paragraph 3-31.

d. For direct support and general support maintenance of the rear ramp mount assembly, refer to paragraphs 8-2 and 8-3.

8-2. Disassembly / Assembly.

a. Disassembly. Refer to figure 8-1 and disassemble in item number sequence.



1. ⅜ x 1-¼ spring pin—MS16562-80
2. Pintle—8436685
3. Sleeves bearing—8436686
4. Elastic cord assembly—11699674-2
5. Swaging sleeve—8427871
6. Safety pin cable—8437869-3
7. Quick release pin—MS17990C510
8. Pintle post assembly—8436680

Figure 8-1. Rear ramp mount assembly—exploded view.

b. Assembly. Assembly is in reverse order of disassembly and the following instructions.

(1) The end of cable (6, fig. 8-1) shall be flush with sleeve (5, fig. 8-1) at assembly.

(2) When assembled, the connection made b sleeve shall withstand a pull of 50 pounds with no evidence of pull-out.

8-3. Cleaning, Inspection, and Repair.

a. Cleaning and Inspection.

(1) *Cleaning.* Refer to LO 9-1005-262-12 and paragraph 4-7 of this manual.

(2) *Inspection.*

(a) Inspect sleeve bearings (3, fig. 8-1) for damaged bearing surfaces or uneven wear.

(b) Inspect pintle (2, fig. 8-1) for cracks, distortion, and damaged bearing surface.

(c) Inspect welds on pintle post assembly (8, fig. 8-1) for cracks.

(d) See that positive stops on pintle post assembly are not badly worn.

(e) Inspect the elastic cord assembly (4, fig. 8-1) for weak elastic and correct contour of attaching ends.

(f) Inspect quick release pin (7, fig. 8-1) for cracks or distortion.

(g) Inspect cable securing quick release pin for breaks and properly swaged sleeves.

b. Repair. Repair is limited to replacement of damaged or worn parts and restoring of damaged surfaces.

CHAPTER 9

AMMUNITION

9-1. Classification.

a. The 7.62 millimeter cartridge is a centerfire cartridge. The primer is held in a small well in the center of the cartridge case head.

b. Cartridges approved for issue and use with machine gun M60D are:

(1) Ball, M59 and M80
(2) Armor piercing (AP), M61
(3) Tracer, M62
(4) Dummy inert loaded, M63

9-2. Identification.

a. Cartridges (fog. 9-1) used in machine gun M60D are identified, except for grade, by packing and marking on original containers. Marking includes the ammunition lot number.



Figure 9-1. Authorized rounds.

b. Cartridges have the manufacturer's identification and the year of manufacture stamped in the cartridge case head. Except for dummy inert loaded cartridge M63, cartridges also bear the NATO symbol. This resembles a plus sign in a circle. Interchangeable 7.62 millimeter ammunition is further identified by a clover leaf symbol on the outer shipping container. Ammunition of foreign manufacture with both these symbols is equally usable in US weapons.

9-3. Care, Handling and Preservation.

a. This ammunition is not dangerous to handle. It is packed to withstand conditions normally met in the field. Moisture-resistant boxes provide protection during shipment and storage, but care must be taken to prevent damage to containers. Repair or replace damaged containers. If ammunition must be put in new containers, be sure all markings are transferred from old containers.

b. Take precautions to assure that cartridges used are free of foreign matter. Cartridges should not be dented or otherwise damaged, should not have loose bullets, and should not be overheated.

c. Refer to TM 9-1300-206 for instructions on repacking, storing, inspection, and protection of ammunition.

9-4. Authorized Cartridges.

Cartridges authorized for use with machine gun M60D are shown in figure 9-1.

9-5. Preparation for Firing.

Do not open boxes until cartridges are to be used. Linked cartridges are ready to use when taken from packing material. Cartridges prepared for firing but not used will be returned to their original packing or other suitable packing boxes. Use these cartridges first in subsequent firings.

9-6. Precautions in Firing Ammunition.

Observe the following precautions closely to prevent injury to personnel or damage to materiel.

a. Cartridges and links should be free of sand, mud, moisture, frost, snow, ice, grease or other foreign matter.

b. Do not attempt to fire corroded ammunition.

c. Protect brass cartridge cases from blows and hard knocks. Brass cartridge cases dent easily. They can jam on chambering, keep the bolt assembly from complete closing and locking, and cause difficulty in extraction.

d. Do not fire ammunition unless it has been properly identified by Federal stock number, type, ammunition lot number and grade. Do not fire *any* ammunition lot until lot number has been checked against TB 9-1300-385 and provisions of that technical bulletin are complied with.

e. Do not fire ammunition heated to 135 degrees F or more by direct sunlight or other heat sources. Allow such ammunition to cool to normal tem-

peratures. If fired, hot ammunition can develop dangerous chamber pressure.

9-7. Misfires, Hangfires, and Cook-offs.

a. Misfire. A misfire is a complete failure to fire. It may be due to a faulty firing mechanism or a faulty element in the propelling charge explosive train.

b. Hangfire. A hangfire is a delay in the functioning of the propelling charge explosive train at time of firing. Delay time is unpredictable but usually ranges from a split second to several minutes. A hangfire cannot be told immediately from a misfire.

WARNING

Do not assume failure to fire immediately is a misfire. Failure may be a hangfire. Observe time intervals prescribed in paragraph 2-16.

c. Cook-off. A cook-off is the functioning of any or all of the explosive components of a cartridge chambered in a very hot weapon. If the primer or propellant charge cooks off, the cartridge will fire normally, without any attempt to fire the weapon. When the machine gun M60D is hot and malfunctions, observe the same precautions as for a hangfire.

d. Precautions for Removing a Cartridge. After a failure to fire, observe the following precautions until cartridge has been removed from the machine gun.

(1) Keep the weapon trained on the target.

(2) Personnel not needed for the operation will clear the area.

9-8. Packing.

Cartridges used in machine gun M60D are inner packed in cartons or moisture proofed bags, in linked belts. The ammunition is then packed in cardboard, metal, wirebound, or wooden containers. Wooden packing containers are unpainted with markings in black. Containers carry the following information:

a. Department of Transportation (DOT) shipping instructions.

b. Federal stock number (FSN) and Department of Defense (DOD) ammunition code or ammunition identification code (AIR) symbol.

c. Ammunition lot number.

d. Gross weight of packing and contents.

e. Cubic displacement of packing box.

f. Caliber and weapon designation.

g. Ordnance insignia.

h. Name and address of box maker and date manufactured.

CHAPTER 10

FINAL INSPECTION

10-1. Machine Gun M60D.

Refer to TM 9-1005-224-24.

10-2. Armament Subsystem M23 Mount Assembly.

a. Inspect base, forward and aft mounting beams, and pintle post for cracks or distortion. Inspect traversing lock to see it secures the gun. Inspect pintle for ease of movement. Inspect pintle stops for chipping or wear that would allow gun movement past limits (para. 1-7).

b. Inspect ammunition box assembly, chute brace assembly, and flexible chute assembly for kinks or distortion which would prevent free flow of cartridges to gun.

c. Inspect ejection control bag for tears and broken stitches. Inspect slide fastener and latch for serviceability. Inspect bag frame for distortion and cracks.

10-3. Armament Subsystem M24 Mount Assembly.

a. Inspect armament subsystem M24 mount assembly and pintle for cracks, wear and distortion. Check bearing balls for damaged surfaces. Inspect pin for proper operation, cable for protective covering, and shock cord assembly for elasticity. Inspect pintle stops for chipping or wear that would allow gun movement past limits (para. 1-7).

b. Inspect ammunition can assembly for cracks, dents, distortion, and loose rivets. Check the plunger and spring for easy movement and proper tension.

c. Inspect ejection control bag for tears and broken stitches. Inspect slide fastener and latch for serviceability. Inspect bag frame for distortion and cracks.

10-4. Armament Subsystem M41 Mount Assembly.

a. Inspect rear ramp mount assembly and pintle for cracks and distortion. Inspect sleeve bearings for damaged surfaces that would hinder pintle movement. Inspect quick release pin for cracks and distortion. Inspect cable for breaks and complete protective cover; inspect elastic cord assembly for weak elastic. Inspect pintle stops for chipping or wear that would allow gun movement past limits (para. 1-7).

b. Inspect ammunition can assembly for cracks, dents, distortion, and loose rivets. Check the plunger and spring for easy movement and proper tension.

c. Inspect ejection control bag for tears and broken stitches. Inspect slide fastener and latch for serviceability. Inspect bag frame for distortion and cracks.

APPENDIX A

REFERENCES

A-1. Publication Indexes.

Consult each new issue of the following for the latest changes or revisions to the publications listed in this appendix and for new publications on the subsystem covered in this manual.

Index of Administrative Publications	DA Pam 310-1
Index of Blank Forms	DA Pam 310-2
Index of Doctrinal, Training, and Organizational Publications	DA Pam 310-3
Index of Supply Catalogs and Supply Manuals	DA Pam 310-6
Index of Technical Manuals, Technical Bulletins, Supply Manuals (Types 7, 8, and 9), Supply Bulletins and Lubrication Orders	DA Pam 310-4
US Army Equipment Index of Modification Work Orders	DA Pam 310-7

A-2. Forms.

In addition to the forms required by the Army Maintenance Management System (TM 38-750), the following forms pertain to this manual:

Materiel Inspection Tag	DA Form 9-1
Recommended Changes to Publications	DA Form 2028
Report of Packaging and Handling Deficiencies	DD Form 6
Request for Issue or Turn-in	DA Form 2765
Requirements for Army Aviation and Army Avinic Configuration Publications	DA Form 12-31
Requisition for Publications and Blank Forms	DA Form 17

A-3. Other Publications.

The following publications contain information pertinent to this materiel and associated equipment.

a. Ammunition.

Ammunition and Explosives	SC 1305/30-IL
Aummunition, General	TM 9-1300-200
Ammunition Service in the Theater of Operations	FM 9-6
Care, Handling, Preservation, and Destruction of Ammunition	TM 9-1300-206
Munitions: Restricted or Suspended	TB 9-1300-385
Regulations for Firing Ammunition for Training, Target Practice and Combat	AR 385-63

b. Camouflage.

Camouflage	FM 5-20

c. Decontamination.

Chemical, Biological and Radiological (CBR) Decontamination	TM 3-220
Chemical, Bioligical, Radiological and Nuclear Defense	FM 21-40

d. Destruction to Prevent Enemy Use.

Explosives and Demolitions	FM 5-25
Procedures for Destruction to Prevent Enemy Use	TM 750-244-7

e. General.

Accident Reporting and Records	AR 385-40
Army Maintenance Management System (TAMMS)	TM 38-750
Basic Cold Weather Manual	FM 31-70

f. Maintenance and Repair.

Equipment Serviceability Criteria for Armament Subsystem Helicopter, 7.62-MM Machine Gun: Door Mounted, Lightweight, M23 (1005-907-0720) (Used on UH-1D Helicopter) Armament Subsystem, Helicopter, 7.62-MM Machine Gun: Door Mounted, Lightweight, M24 (1005-763-1404) (used on CH 47A Helicopter) and Armament Subsystem, Helicopter, 7.62-MM Machine Gun: Ramp Mounted, Lightweight, XM41 (1005-087-2046) (Used on CH-47A Helicopters)	TM 9-1005-262-ESC
Lubrication Order, Armament Subsystem, Helicopter, 7.62 Millimeter Machine Gun: Door Mounted, Lightweight, M23; Armament Subsystem, Helicopter, 7.62 Millimeter Machine Gun: Door Mounted, Lightweight, M24; and Armament Subsystem, Helicopter, 7.62 Millimeter Machine Gun: Ramp Mounted, Lightweight, M24	LO 9-1005-262-12
Operator's Manual: Welding Theory and Application	TM 9-237
Operator's Manual: M60 Machine Gun	TM 9-1005-224-10
Organizational, Direct Support, and General Support Maintenance Manual Including Repair Parts and Special Tools Lists: Machine Gun, 7.62-MM, M60 w/e (1005-605-7710); Mount, Tripod, Machine Gun: 7.62-MM, M122 (1005-710-5599)	TM 9-1005-224-24
Organizational, Direct Support, and General Support Maintenance Repair Parts and Special Tools Lists Armament Subsystem, Helicopter, 7.62 Millimeter Machine Gun: Door Mounted, Lightweight, M23 (1105-907-0720) (Used on UH-1D Helicopter); Armament Subsystem, Helicopter, 7.62 Millimeter Machine Gun: Door Mounted, Lightweight, M24 (1005-763-1404) (Used on CH-47A Helicopter); and Armament Subsystem, Helicopter, 7.62 Millimeter Machine Gun: Ramp Mounted, Lightweight, M41 (1005-087-2046) (Used on CH-47A Helicopter)	TM 9-1005-262-24P

g. Operations.

Operation and Maintenance of Ordnance Materiel in Cold Weather (0 to -65F)	TM 9-207

h. Shipment and Storage.

Administrative Storage of Equipment	TM 740-90-1
Preservation, Packaging and Packing of Military Supplies and Equipment	TM 38-230
Procedures for Rapid Deployment, Redeployment and Retrogrades for Aircraft Armament	TM 750-209
Standards for Overseas Shipment or Domestic Issue of Small Arms, Aircraft armament, Towed Howitzers, Mortars, Recoilless Rifles, Rocket Launchers and Associated Fire Control Equipment	TB 9-1000-247-34
Storage and Materiels Handling	TM 743-200-1
Storage Serviceability Standard For USAWECOM Materiel: Aircraft Armament Subsystems	SB740-95-101

APPENDIX B

BASIC ISSUE ITEMS LIST AND ITEMS TROOP INSTALLED OR AUTHORIZED LIST

Section I. INTRODUCTION

B-1. Scope.

This appendix lists basic issue items and items troop installed or authorized required by the crew / operator for operation and required for performance of organizational maintenance of armament subsystems M23, M24 and M41.

B-2. General.

This basic issue items and items troop installed or authorized list is divided into the following sections:

a. Basic Issue Items List—Section II. A list, in alphabetical sequence, of items which are furnished with, and which must be turned in with, the end item.

b. Items Troop Installed or Authorized List—Section III. A list, in alphabetical sequence of items, which at the discretion of the unit commander, may accompany the end item but are not subject to be turned in with the end item.

B-3. Explanation of Columns.

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

a. Federal Stock Number. Indicates the Federal stock number assigned to the item and will be used for requisitioning purposes.

b. Description. Indicates the Federal item name and a minimum description required to identify the item. The last line indicates the reference number followed by the applicable Federal Supply Code for Manufacturer (FSCM) in parentheses. The FSCM is used as an element in item identification to designate the manufacturer or distributor or Government agency, etc., and is identified in SB 708-42. Items that are included in kits and sets are listed below the name of the kit or set with quantity of each item in the kit or assembly indicated in front of the item name.

c. Unit of Measure. (U / M). Indicates the standard or basic quantity by which the listed item is used in performing the actual maintenance function. This measure is expressed by a two-character alphabetic abbreviation, e.g., ea, in, pr, etc., and is the basis used to indicate quantities and allowances in subsequent columns. When the unit of measure differs from the unit of issue, the lowest unit of issue that will satisfy the required units of measure will be requisitioned.

d. Quantity Furnished With Equipment (Basic Issue Items). Indicates the quantity of the item furnished with the equipment.

e. Quantity Authorized (Items Troop Installed or Authorized). Indicates the quantity of the item authorized to be used with the equipment. (Basic Issue Items Only).

f. Illustration. This column is divided as follows:

(1) *Figure number.* Indicates the figure number of the illustration on which the item is shown.

(2) *Item number.* Indicates the callout number used to reference the item on the illustration.

B-4. Special Information.

a. Federal stock numbers listed on the manual cover are for the major combinations (end items) with equipment and are for initial requisitioning only. When the major combination is turned in, all components and basic issue items will be included.

b. Items listed in the previous basic issue items list and not shown in section II or section III of this appendix are listed in current parts list TM 9-1005-262-24.

c. Action change codes indicated in the left hand margin of Section III denote the following:

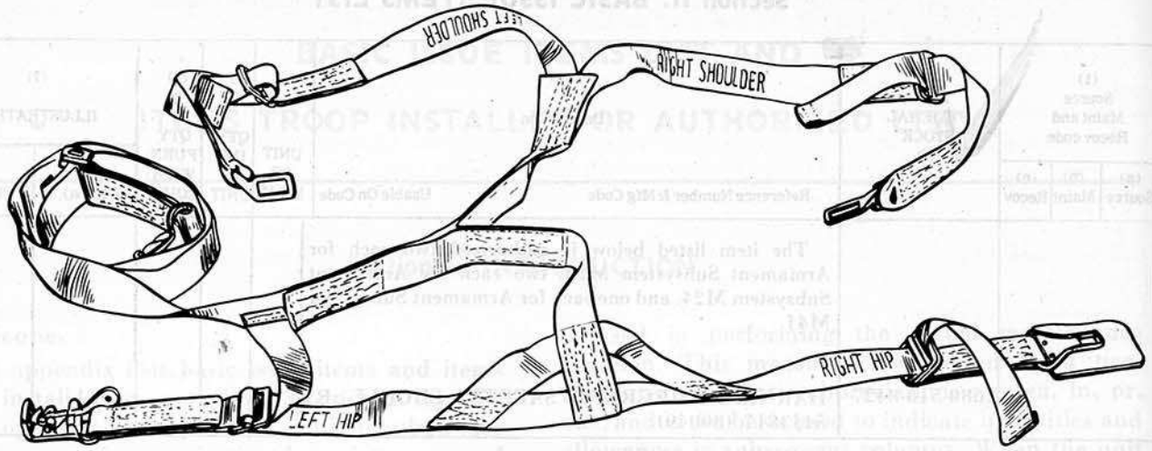
N—Indicates an added item.
C—Indicates a change in data.
R—Indicates a change in FSN only.

d. The following publications pertain to armament subsystems M23, M2 4, and M41:

LO 9-1005-262-12	Lubrication Order
TM 9-1005-262-24P	Organizational, Direct Support, and General Support Maintenance Repair Parts and Special Tools Lists
TM 9-1006-262-ESC	Equipment Serviceability Criteria

Section II. BASIC ISSUE ITEMS LIST

(1) Source Maint and Recov code (a) Source	(b) Maint	(c) Recov	(2) FEDERAL STOCK NO.	(3) Description Reference Number & Mfg Code Usable On Code	(4) UNIT OF MEAS	(5) QTY INC IN UNIT	(6) QTY FURN WITH EQUIP	(7) ILLUSTRATION (a) FIG NO.	(b) ITEM NO
				The item listed below is authorized two each for Armament Subsystem M23, two each for Armament Subsystem M24, and one each for Armament Subsystem M41.					
			1680-516-8427	HARNESS, AIRCRAFT SAFETY, SHOULDER: 51J3817 (80049)	EA			B-1	



HARNESS ASSEMBLY WE 17032

Figure B-1. Basic issue item.

Section III. ITEMS TROOP INSTALLED OR AUTHORIZED LIST

(2) Federal stock number	(3) DESCRIPTION Reference Number & Mfg Code — Usable On Code	(4) UNIT of meas	(5) QTY auth
	The items listed below are authorized for each of the armament sub systems M23, M24, and M41.		
1005-556-4174	BRUSH, CLEANING, SMALL ARMS: BORE 5564174 (19204)	EA	1
1005-690-3115	BRUSH, CLEANING, SMALL ARMS: CHAMBER 7790452 (19204)	EA	1
1005-350-4100	BRUSH, CLEANING, SMALL ARMS: RECEIVER 8448466 (19204)	EA	1
1005-791-5420	CASE, CARRYING, BARREL ASSEMBLY AND EQUIPMENT: 7791009 (19204)	EA	1
4933-652-9950	EXTRACTOR, RUPTURED CARTRIDGE CASE: 7790352 (19204)	EA	1
1005-793-6761	HANDLE ASSEMBLY, CLEANING ROD: 7266115 (19204)	EA	1
1005-999-7783	MAGAZINE ASSEMBLY: 11686442 (19204)	EA	1
1005-994-9647	PLUG, END LINK: 7791595 (19204)	EA	5
1005-726-6109	ROD SECTION, CLEANING, SMALL ARMS: 7266109 (19204)	EA	5
1005-726-6110	SWAB HOLDER SECTION, CLEANING ROD: 7266110 (19204)	EA	1

APPENDIX C

MAINTENANCE ALLOCATION CHART

Section I. INTRODUCTION

C-1. General.

The Maintenance Allocation Chart identifies the maintenance operations that must be performed for each component and assembly of the end items. Each maintenance operation is assigned to the lowest category of maintenance able to perform the task in terms of available time, tools, test and support equipment, skills, and employment of the end items.

C-2. Maintenance Functions.

Maintenance functions are limited to and defined as follows:

a. Adjust. Maintain within prescribed limits by bringing into proper or exact position, or by setting the operating characteristics to the specified parameters.

b. Aline. To adjust specified variable elements of an item to bring about optimum or desired performance.

c. Calibrate. To determine and cause corrections to be made on or to be adjusted on instruments or test, measuring, and diagnostic equipment used in precision measurement. Consists of comparisons of two instruments, one of which is a certified stand ard of known accuracy, to detect and adjust any discrepancy in the accuracy of the instrument being compared.

d. Inspect. To determine the serviceability of an item by comparing its physical, mechanical, and / or electrical characteristics with established standards through examination.

e. Install. The act of emplacing, seating, or fixing into position an item, part, module (component or assembly) in a manner to allow the proper functioning of the equipment / system.

f. Overhaul. That maintenance effort (service / action) necessary to restore an item to a completely serviceable / operational condition as prescribed by maintenance standards (e.g., DMWR) in pertinent technical publications. Overhaul is normally the highest degree of maintenance performed by the Army. Overhaul does not normally return an item to like-new condition.

g. Rebuild. Consists of those services / actions necessary for the restoration of unserviceable equipment to like-new condition in accordance with original manufacturing standards. Rebuild is the highest degree of materiel maintenance applied to Army equipment. The rebuild operation includes the act of returning to zero those age measurements (hours, miles, etc.) considered in classifying Army equipment / components.

h. Repair. The application of maintenance services (inspect, test, service, adjust, aline, calibrate, replace) or other maintenance actions (welding, grinding, straightening, facing, remachining, or resurfacing) to restore serviceability to an item by correcting specific damage, fault, malfunction, or failure in a part, subassembly, module / component / assembly, end item or system.

i. Replace. The act of substituting a serviceable like-type part, subassembly, module (component or assembly) in a manner to allow the proper functioning of an equipment / system.

j. Service. Operations required periodically to keep an item in proper operating condition, i.e., to clean, preserve, drain, paint, or to replenish fuel / lubricants / hydraulic fluids or compressed air supplies.

k. Test. To verify serviceability and to detect incipient failure by measuring the mechanical or electrical characteristics of an item and comparing those characteristics with prescribed standards.

l. Symbols. The assignment of each item's maintenance operation to the lowest level of maintnenace is recorded in the appropriate column by the maintenance level symbol "C" for operator / crew, "O" for organizational, "F" for direct support, "H" for general support, and "D" for depot maintenance.

C-3. Explanation of Format.

Section II, the Maintenance Allocation Chart (MAC), contains the following data elements.

a. Column 1, Group Number. Column 1 lists group numbers, the purpose of which is to match components, assemblies, subassemblies and modules with the next higher assembly.

b. Column 2, Functional Group. Column 2 lists the next higher assembly group and the item names of components, assemblies, subassemblies, and modules within the group for which maintenance is authorized.

c. Column 3, Maintenance Function. Column 3 lists the twelve maintenance functions defined in C-2 above. Each maintenance function required for an item is specified by the symbol among those listed in C-2 above which indicates the level responsible for the required maintenance. Under this symbol is listed an appropriate work measurement time value.

d. Work Measurement Time. This is the active repair time required to perform the maintenance function, included directly below the symbol identifying the category of maintenance. The figures have been developed under conditions (real or simulated) corresponding to those that are considered normal for TOE units operating in the field. The skill levels used to obtain the measurement times approximate those found in typical TOE units. Active repair time is the average aggregate time required to restore an item (subassembly, assembly, component, module, end item or system) to a serviceable condition under typical field operating conditions. This time includes preparation time, fault isolation / diagnostic time, and QA / QC time in addition to the time required to perform specific maintenance functions identified for the tasks authorized in the maintenance allocation chart. Time is expressed in man-hours and tenths of man-hours.

e. Column 4, Tools and Equipment. This column is used to specify, by code those tools and test equipment required to perform the designated function. A table, suitably coded and explained, lists the tools, test, and support equipment required by the level to perform the maintenance functions and is included as a supplement to the maintenance allocation chart.

f. Column 5, Remarks. Self explanatory.

Section II. MAINTENANCE ALLOCATION CHART FOR ARMAMENT SUBSYSTEM M23

(1) Group No.	(2) Functional group — Component assembly nomenclature	(3) Maintenance functions A Inspect	B Test	C Service	D Adjust	E Align	F Calibrate	G Install	H Replace	I Repair	J Overhaul	K Rebuild	(4) Tools and equipment	(5) Remarks
1.	Armament subsystem M23	O		O		O		O		O				
		0.5		0.3				1.0		2.5				
2.	Machine gun M60D	O		O				O	F	O				
		0.1		0.5				0.2	0.2	1.5				
3.	Barrel assy w / bipod	O		O				O	O	O		H	3-1, 3-3	
		0.1		0.2					0.2	0.5				
4.	Bipod assy	F							F					
5.	Cover assy	O		O				O		O		H		
		0.1												
6.	Cartridge tray assy	O		O				O	O	F		H		
		0.1		0.2					0.2	0.5				
7.	Grip and trigger assy	O		O	O			O	O	O		H		
		0.1		0.2	0.2				0.2	0.4				
8	Rear sight assembly	O		O	O			O	O	O		H		
		0.1		0.2	0.4					0.4				
9.	Sear and safety assy	O		O				O	O	O		H		
		0.1		0.2						0.3				
10.	Buffer assy	O		O				O	O					
		0.1		0.2				0.2	0.2					
11.	Breech bolt assy	O		O				O	O	O		H	11-1	
		0.1		0.2				0.2	0.2	0.4				
12.	Operating rod assy	O		O				O	O	F				
		0.1		0.2				0.2	0.2	0.5				
13.	Handle assy	O		O				O	F	F				
		0.1		0.2				0.3		1.0				
14	Ejection control bag	O		O				O	O	O				
		0.1						0.2	0.3	1.0				
15.	(M23) Mount assy	O						O		O				
16.	Pintle post assy	O		O				O	O	O				
		0.1		0.2				0.4	0.6	1.0				
17.	Ammunition box / cover	O		O				O	O	F				
		0.1						0.3	0.4	0.5				
18.	Ammunition chute	O		O				O	O	O				
		0.1						0.3	0.5	1.0				
19.	Chute brace assy	O		O				O	O	O				
		0.1						0.3	0.4	1.0				

Section II. MAINTENANCE ALLOCATION CHART FOR ARMAMENT SUBSYSTEM M23

(1) Group No.	(2) Functional group — Component assembly nomenclature	(3) Maintenance functions A Inspect	B Test	C Service	D Adjust	E Align	F Calibrate	G Install	H Replace	I Repair	J Overhaul	K Rebuild	(4) Tools and equipment	(5) Remarks
1.	Armament Subsystem	O		O		O		O		O				
		0.5		0.3				1.0	2.5					
2.	Machine gun M60D	O						O	F	O				
		0.1		0.5				0.2	0.2	1.5				
3.	Barrel assy w / bipod	O		O				O	O	O		H		
		0.1		0.2					0.2	0.5			3-3, 3-1	
4.	Bipod assy	F							F					
5.	Cover assy	O		O				O		O		H		
		0.1												
6.	Cartridge Tray assy	O		O				O	O	F		H		
		0.1		0.2					0.2	0.5				
7.	Grip and trigger assy	O		O	O			O	O	O		H		
		0.1		0.2	0.2			0.2	0.4					
8.	Rear sight assy	O		O	O			O	O	O		H		
		0.1		0.2	0.4					0.4				
9.	Sear and safety assy	O		O				O	O	O		H		
		0.1		0.2						0.3				
10	Buffer assy	O		O				O	O					
		0.1		0.2				0.2	0.2					
11.	Breech bolt assy	O		O				O	O	O		H	11-1	
		0.1		0.2				0.2	0.2	0.4				
12.	Operating rod assy	O		O				O	O	F				
		0.1		0.2				0.2	0.2	0.5				
13.	Handle assy	O		O				O	F	F				
		0.1		0.2				0.3		1.0				
14.	Ejection control bag	O		O				O	O	OF				
		0.1						0.2	0.3	1.0				
15.	Ammunition can assy	O		O				O	O	OF				
		0.1						0.2	0.2					
16.	(M24) Mount Assy	O		O				O		O				
		0.5		0.3				1.0		2.5				

Section II. MAINTENANCE ALLOCATION CHART FOR ARMAMENT SUBSYSTEM M23

(1) Group No.	(2) Functional group / Component assembly nomenclature	(3) Maintenance functions											(4) Tools and equipment	(5) Remarks
		A Inspect	B Test	C Service	D Adjust	E Align	F Calibrate	G Install	H Replace	I Repair	J Overhaul	K Rebuild		
1.	Armament Subsystem M41	O		O		O		O		O				
		0.5		0.3				1.0		2.5				
2.	Machine gun M60D	O						O	F	O				
		0.1		0.5				0.2	0.2	1.5				
3.	Barrel assy w / bipod	O		O				O	O	O				
		0.1		0.2					0.2	0.5			3-1, 3-3	
4.	Bipod assy	F							F					
5.	Cover assy	O		O				O		O		H		
		0.1												
6.	Cartridge tray assy	O		O				O	O	F		H		
		0.1		0.2					0.2	0.5				
7.	Grip and trigger assy	O		O	O			O	O	O		H		
		0.1		0.2	0.2				0.2	0.4				
8.	Rear sight assy	O		O	O			O	O	O		H		
		0.1		0.2	0.4					0.4				
9.	Sear and Safety assy	O		O				O	O	O		H		
		0.1		0.2						0.3				
10.	Buffer assy	O		O				O	O					
		0.1		0.2				0.2	0.2					
11.	Breech bolt assy	O		O				O	O	O		H	11-1	
		0.1		0.2				0.2	0.2	0.4				
12.	Operating rod assy	O		O				O	O	F		H		
		0.1		0.2				0.2	0.2	0.5				
13.	Handle assy	O		O				O	F	F				
		0.1		0.2				0.3		1.0				
14.	Ejection control bag	O		O				O	O	OF				
		0.1						0.2	0.3	1.0				
15.	Ammunition can assy	O		O				O	O	OF				
		0.1						0.2	0.2					
16.	Rear ramp mount assy	O		O				O		O				
		0.5		0.3				1.0		2.5				

Table C-1. Tool and Test Equipment Requirements

Tool or test equipment reference code	Maintenance Category	Nomenclature	Federal stock number	Part number
3-1	F	KIT, BARREL EROSION GAGE: M8	4933-313-9485	5910297
3-3	O	WRENCH, SCREWDRIVER AND REAMER, COMBINATION: M60D	5120-461-1075	8448458
11-1	F	GAGE, FIRING PIN PROTRUSION: M60	4933-653-3373	7274754
11-1	F	GAGE, PLUG, PLAIN CYLINDRICAL:	5220-745-8598	7458598

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By Order of the Secretary of the Army:

CREIGHTON W. ABRAMS
General, United States Army
Chief of Staff

Official:
VERNE L. BOWERS
Major General, United States Army
The Adjutant General

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