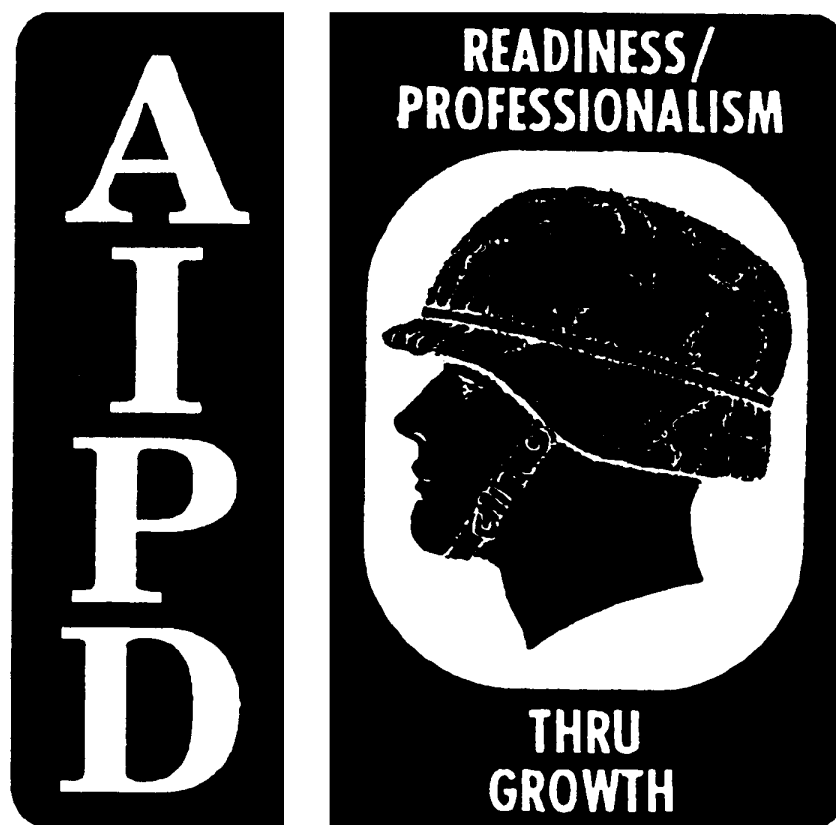
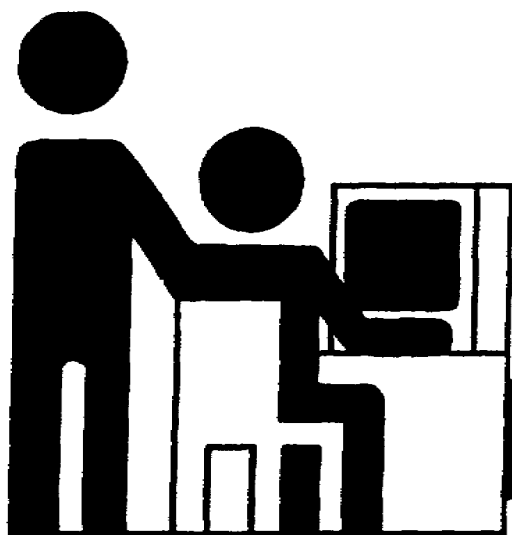


MAINTENANCE OF THE M240 SERIES MACHINEGUNS



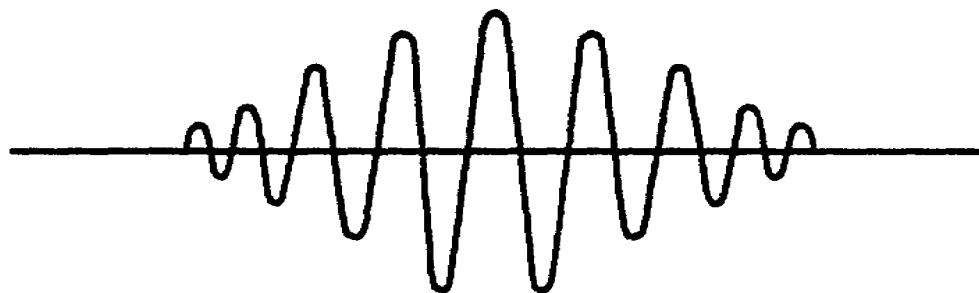
**THE ARMY INSTITUTE FOR PROFESSIONAL DEVELOPMENT
ARMY CORRESPONDENCE COURSE PROGRAM**



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US ARMY TANK TURRET REPAIRER
MOS/SKILL LEVEL: 45K30

MAINTENANCE OF THE M240 SERIES MACHINEGUNS

SUBCOURSE NO. OD1502

US Army Correspondence
Course Program

7 Credit Hours

GENERAL

The purpose of this subcourse is to introduce the inspection and maintenance procedures for the M240 and M240C series machineguns at the operator, unit, and intermediate direct support (IDS) levels of maintenance. The characteristics of the M240 machinegun and the operating procedures will be discussed, followed by the procedures for inspecting and maintaining the weapon.

The scope of this subcourse includes the characteristics and operating procedures for the M240 series machineguns; the cleaning, inspection and maintenance of the weapon at the operator level; the inspection, cleaning, lubrication, and repair of the weapon at the unit maintenance level; and the more detailed inspections and repairs that take place at the IDS level of maintenance.

Seven credit hours are awarded for successful completion of this subcourse which consists of one lesson divided into tasks as follows:

Lesson 1: OPERATION, MAINTENANCE, AND INSPECTION PROCEDURES FOR THE M240
SERIES MACHINEGUNS

TASK 1: Describe the operating procedures for the M240 series machineguns.

TASK 2: Describe operator maintenance and inspection procedures for the M240 series machineguns.

MAINTENANCE OF THE M240 MACHINEGUN - OD1502

TASK 3: Describe the unit maintenance, inspection and maintenance procedures for the 240 series machineguns.

TASK 4: Describe intermediate direct support (IDS) maintenance and inspection procedures for the M240 series machineguns.

***** IMPORTANT NOTICE *****

THE PASSING SCORE FOR ALL ACCP MATERIAL IS NOW 70%.

PLEASE DISREGARD ALL REFERENCES TO THE 75% REQUIREMENT.

MAINTENANCE OF THE M240 MACHINEGUN - OD1502

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MAINTENANCE OF THE M240 MACHINEGUN - OD1502 - LESSON 1/TASK 1

LESSON 1 OPERATION, MAINTENANCE, AND INSPECTION PROCEDURES FOR THE M240 SERIES MACHINEGUNS

TASK 1. Describe the operating procedures for the M240 series machineguns.

CONDITIONS

Within a self-study environment and given the subcourse text, without assistance.

STANDARDS

Within one hour

REFERENCES

No supplementary references are needed for this task.

1. Introduction

The M240 machinegun is a gas-operated, coaxial-mounted machinegun which fires 7.62mm ammunition from the open bolt position. As with any weapon, it is vital that the M240 be kept in good operating condition and be operated properly and safely. This subcourse will describe operating, inspection, and maintenance procedures as they apply to the M240 series machineguns. This task describes the characteristics of the M240 machinegun and explains the procedures used for loading, firing, and clearing the weapon.

2. General Description

The M240 is designed as a coaxial machinegun for tanks and 7.62mm fire power on light armored vehicles.

a. *Differences Between Models.* The only difference between the two models is the direction of feed for ammunition. The M240 model feeds

MAINTENANCE OF THE M240 MACHINEGUN - OD1502 - LESSON 1/TASK 1

ammunition from the left and the M240C feeds ammunition from the right. All parts are interchangeable between the two models except the cover assembly and feed tray. The receivers have the model number stamped on the left side. Procedures are written for the M240 machinegun, but apply to both models except where noted.

b. *Equipment Data.*

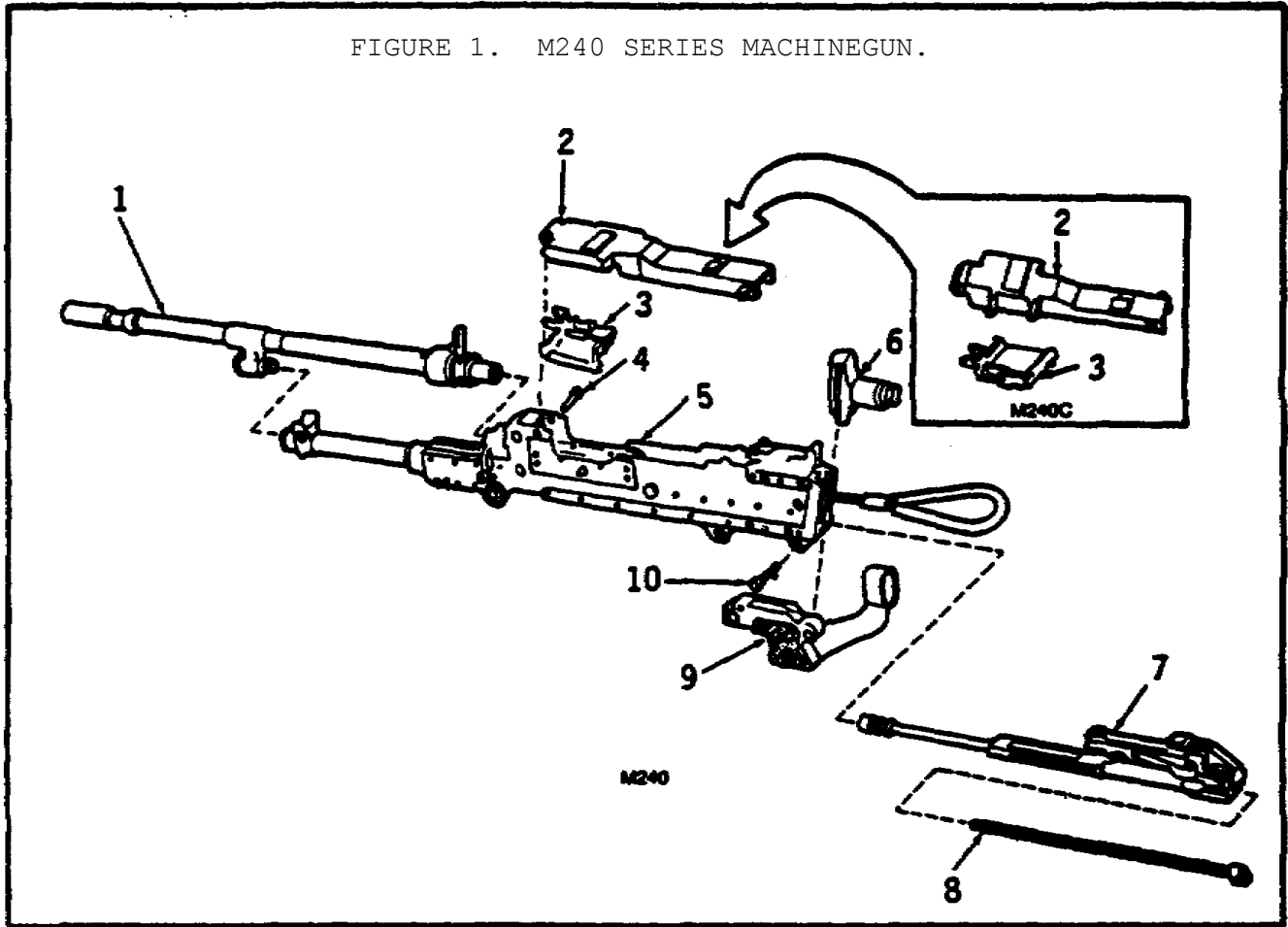
Weight:	10.3 kg (22.2 lb)
Rate of Fire:	The sustained and rapid rates are obtained through practice.
Cyclic:	650 to 950 RDS/M - Change barrel every minute.
Sustained:	100 RDS/M (4-5 sec between bursts) - Change barrel every 10 minutes.
Rapid:	200 RDS/M (2-3 sec between bursts) - Change barrel every 2 minutes.
Range:	
Maximum range:	3,725 meters
Maximum effective range:	Tracer burnout 900 meters
Maximum grazing range:	600 meters

c. *Capabilities and Features.* The machinegun is gas-operated, mounted on a coaxial mount, and fires 7.62mm ammunition from the open bolt position. The major components of the machinegun are:

(1) *Barrel Assembly* (1) (figure 1 on the following page). The barrel assembly houses the cartridge for firing and directs the projectile.

(2) *Buffer Assembly* (6). The buffer assembly absorbs recoil from bolt and operating rod assembly at the end of recoil movement.

FIGURE 1. M240 SERIES MACHINEGUN.



(3) *Driving Spring Rod Assembly* (8) (figure 1). The driving spring rod assembly provides energy for returning the bolt and operating rod assembly to firing position.

(4) *Bolt and Operating Rod Assembly* (7). The bolt and operating rod assembly provides feeding, stripping, chambering, firing, extraction, and ejection of cartridges using the projectile propelling gases for power.

(5) *Trigger Housing Assembly* (9). The trigger housing assembly controls the firing of the machinegun.

(6) *Cover Assembly* (2). The cover assembly feeds linked ammunition belt and holds the cartridges in position for stripping, feeding and chambering.

(7) *Feed Tray* (3). The feed tray serves as a guide for positioning cartridges to assist in chambering.

MAINTENANCE OF THE M240 MACHINEGUN - OD1502 - LESSON 1/TASK 1

(8) *Receiver Assembly* (5) (figure 1 on the previous page). The receiver assembly serves as a support for all major components. It houses action of the weapon, and through a series of cam ways, controls functioning of the weapon.

3. Principles of Operation - General

a. *Mounted on a Coaxial Mount.* Three characteristics of the coaxial mounted machinegun are:

- (1) Fires parallel to the turret main gun.
- (2) Requires no sights on the machinegun.
- (3) Can be fired manually or electrically.

b. *Gas-Operated.* Recoil operates with a gas-assist boost. Three gas settings maintain a consistent rate of fire.

c. *Positive Locking of Bolt Body.* The firing pin is part of the bolt and operating rod assembly and cannot strike the primer until the bolt is fully locked.

d. *Fires from Open Bolt Position.* Firing from an open bolt position results in lower chamber temperature which prevents explosion of the cartridge (cookoff) after prolonged firing.

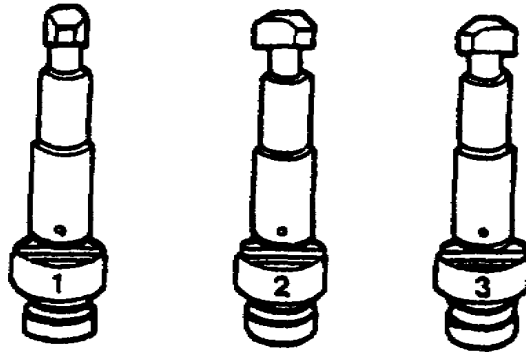
4. Principles of Operation - Technical

The barrel is air-cooled and has an established headspace allowing quick changes for cooling and maintenance. The rate of fire is controlled by 3 regulator settings (figure 2 on the following page); setting #1 is preferred. Settings #2 and #3 are used when carbon buildup, cold weather, and dusty conditions reduce the firing rate. Bolt design permits the cover to be opened or closed, regardless of bolt position, without damage.

5. Operation Under Usual Conditions

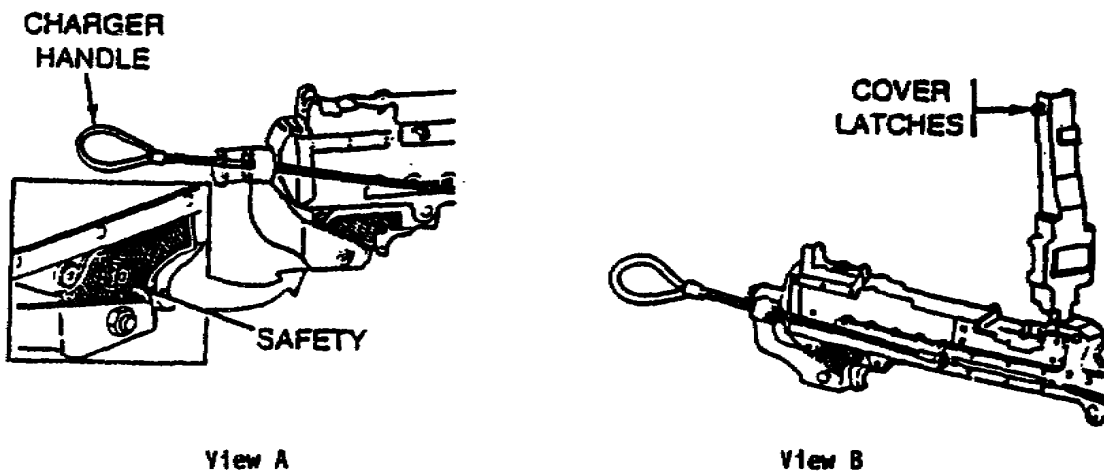
Knowing how the machinegun works and how the components operate is necessary when performing maintenance procedures.

FIGURE 2. M240 REGULATOR SETTINGS.



- a. *Loading.* To load the M240 series machinegun, follow this procedure:
Step 1. Pull the charger handle to the rear (figure 3, view A).

FIGURE 3. LOADING M240 MACHINEGUN.



MAINTENANCE OF THE M240 MACHINEGUN - OD1502 - LESSON 1/TASK 1

WARNING

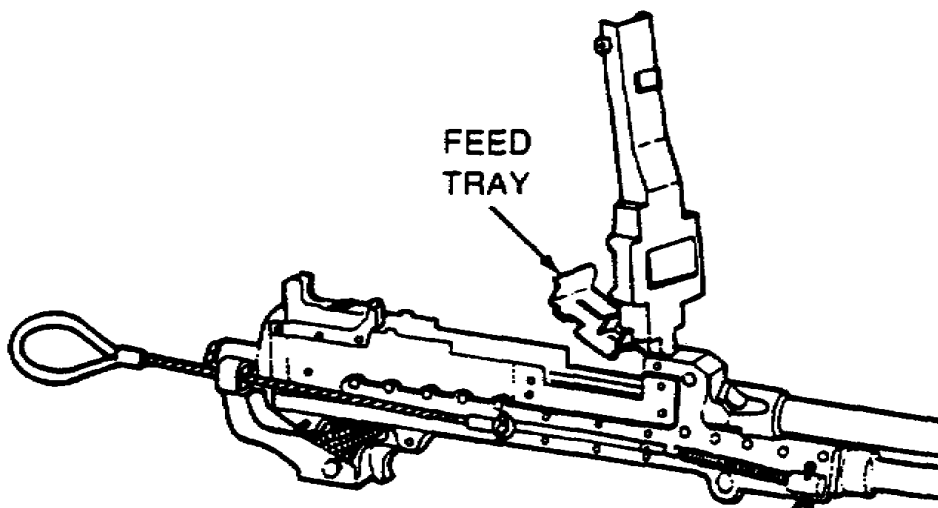
Keep the safety ON until the weapon is to be fired!

Step 2. Place the safety to "S" (figure 3, view A, on the previous page).

Step 3. Push in the latches and open the cover assembly (figure 3, view B).

Step 4. Raise the feed tray (figure 4).

FIGURE 4. LOADING THE M240 (CONTINUED).



Step 5. Look into the chamber to make sure there is no round chambered in the weapon.

Step 6. Lower the feed tray.

Step 7. Place ammunition (ammo) link belt in the feed tray with the first round against the cartridge stop (figure 5 on the following page).

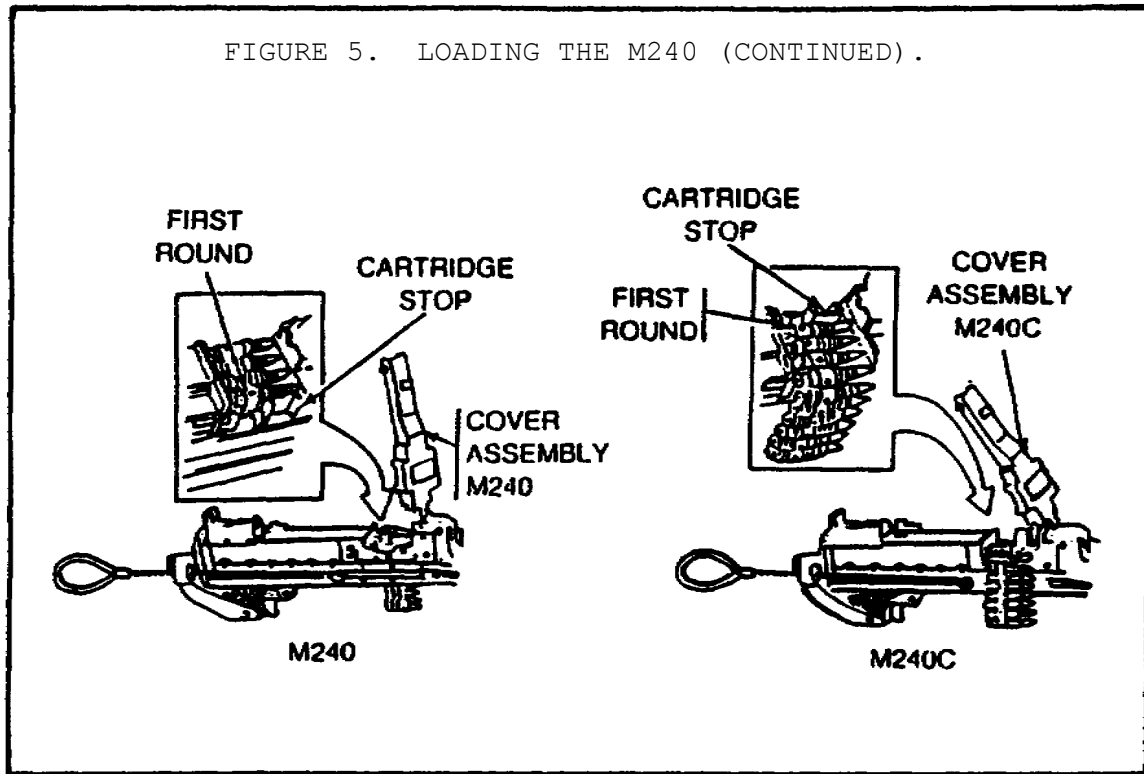
NOTE

Open side of links is down.

Step 8. Close the cover assembly.

b. *Clearing.* To clear the M240 series machinegun, follow this procedure:

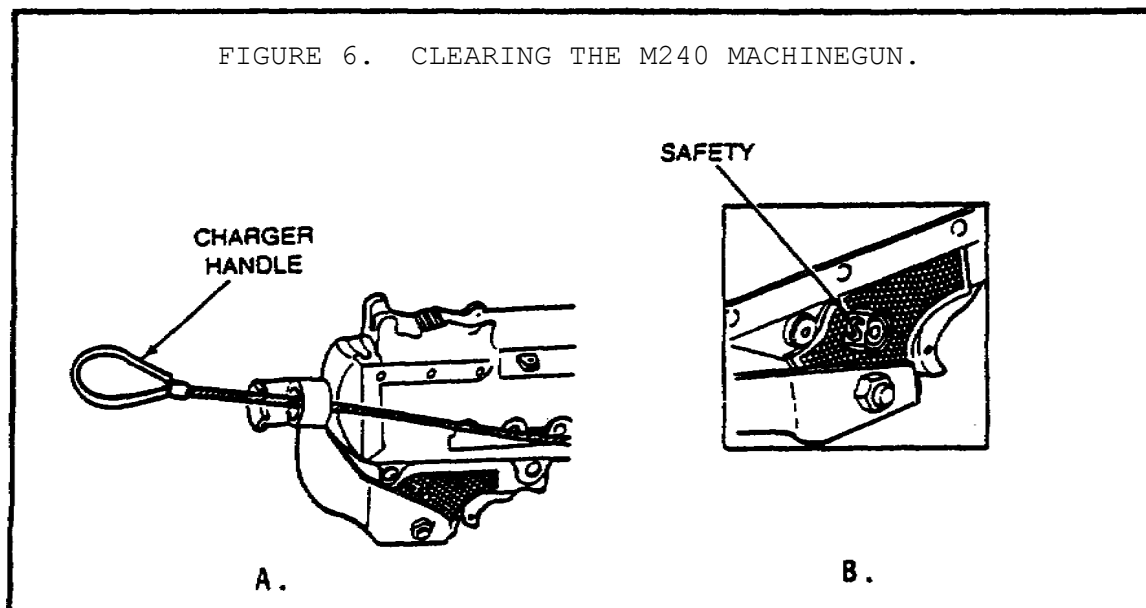
FIGURE 5. LOADING THE M240 (CONTINUED).



Step 1. Pull the charger handle to the rear to lock the bolt back (figure 6, view A).

Step 2. Place the safety to "S" (figure 6, view B).

FIGURE 6. CLEARING THE M240 MACHINEGUN.



MAINTENANCE OF THE M240 MACHINEGUN - OD1502 - LESSON 1/TASK 1

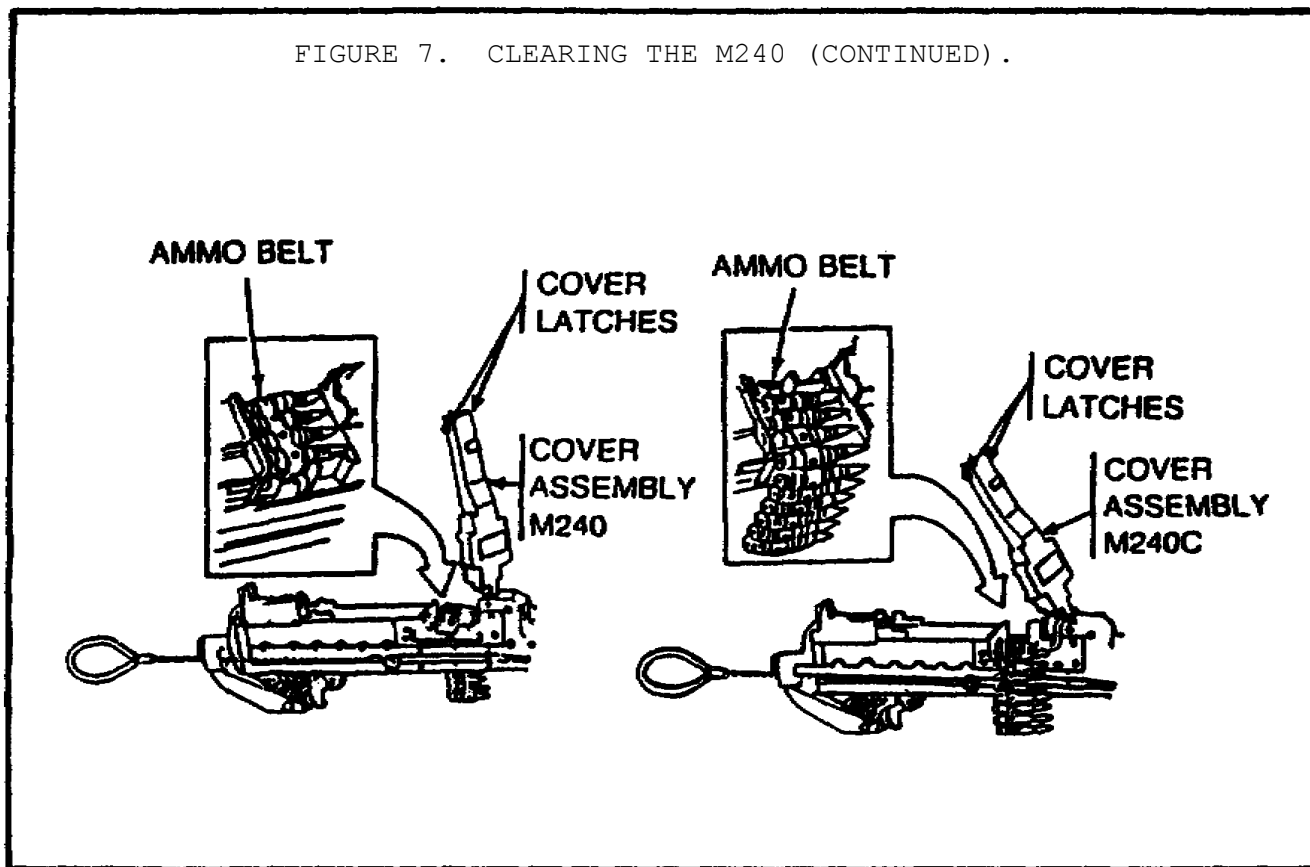
Step 3. Push the latches to open the cover assembly (figure 7).

Step 4. Remove the ammo belt.

Step 5. Raise the feed tray (figure 8 on the following page).

Step 6. Look into the chamber.

FIGURE 7. CLEARING THE M240 (CONTINUED).



Step 7. If a round is still chambered, this is a serious malfunction of the weapon that requires immediate removal of the round.

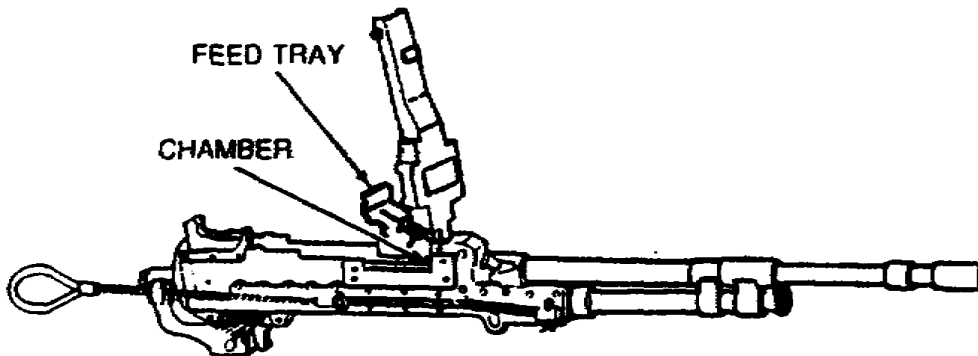
Step 8. Remove the round. (See paragraphs 5c(4) through 5c(6) on pages 11 through 14.)

Step 9. Check again to ensure that the chamber is cleared.

Step 10. Lower the feed tray (figure 9, view A, on page 10).

Step 11. Close the cover assembly (figure 9, view A). Make sure it looks shut.

FIGURE 8. CLEARING THE M240 (CONTINUED).



Step 12. Place the safety to "F" (figure 9, view B, on the following page).

Step 13. Hold the charger handle to the rear, depress the trigger, and ease the bolt forward to close and lock the weapon (figure 9, view B).

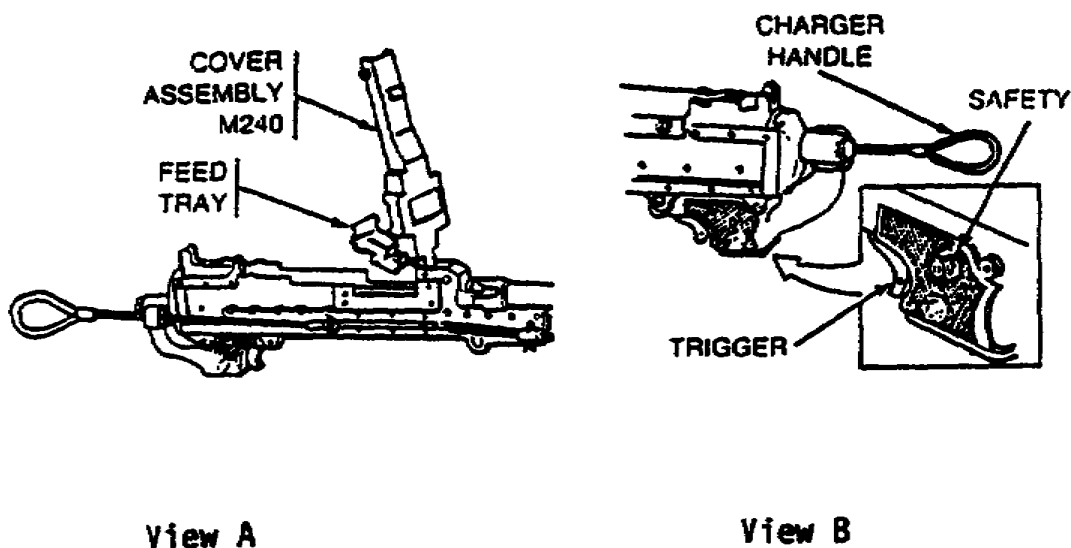
c. *Firing Problems.* The properly loaded machinegun is ready to fire by aiming it downrange toward the target and pulling the trigger. However, should the machinegun unexpectedly stop firing, immediate action must be taken to correct this malfunction. If the immediate action procedures do not correct the situation, remedial action must be taken.

(1) *Immediate Action.* If the weapon stops firing unexpectedly, the following actions should be taken:

Step 1. Pull the charger handle to the rear.

Step 2. If a round is ejected--FIRE AGAIN!

FIGURE 9. CLEARING THE M240 (CONTINUED).



WARNING

If nothing is ejected and the barrel is hot (200 rounds fired within a 2 minute period), do not open the cover. Place the safety to "S," keep the machinegun pointed down range, and remain clear for 15 minutes. After 15 minutes, clear the weapon.

(2) *If Immediate Action Does Not Work.* If the steps described do not work, follow these procedures:

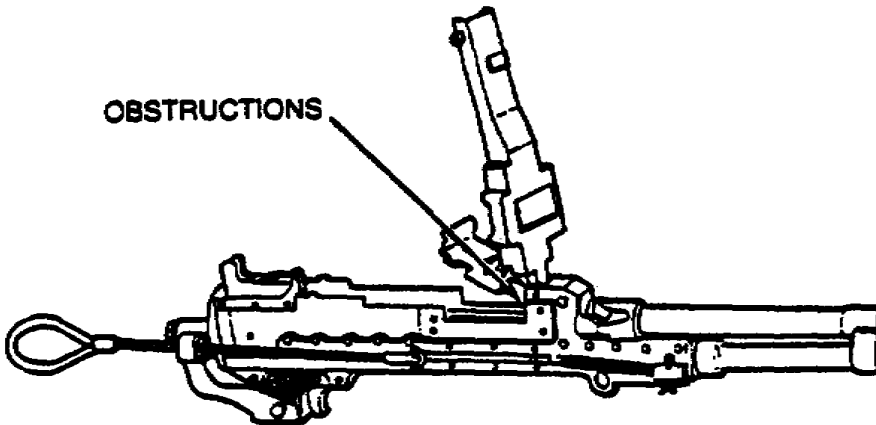
Step 1. Be sure that the weapon is on SAFE; clear the weapon.

Step 2. Check for obstructions (figure 10 on the following page), lubrication, and dirt.

Step 3. Reload, charge, and fire again.

(3) *Runaway Machinegun.* If a "runaway" occurs (machinegun will not stop firing), take the following action to correct this condition immediately:

FIGURE 10. CHECKING FOR OBSTRUCTIONS.



WARNING

Always keep the machinegun pointed down range.

Step 1. Break the ammunition link belt (figure 11 on the following page) by grasping the belt and twisting it firmly.

Step 2. Grab the charger handle (figure 12 on the following page), and pull it all the way back and hold it. Place the safety to SAFE (S) and remove the link belt.

Step 3. Let the machinegun fire if it is near the end of the link belt of ammunition.

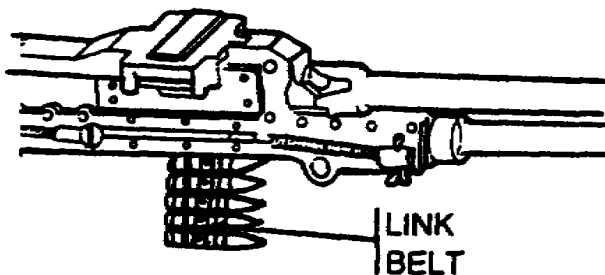
Step 4. Notify unit maintenance for repair.

WARNING

Never reload a runaway machinegun until it has been repaired. Be sure the machinegun is cleared before removing it from the vehicle.

(4) *Stuck Cartridge Case or Live Round.* If the weapon fires but does not extract, the condition is known as having a stuck cartridge-case. If the weapon did not fire and did not extract, this condition is known as a stuck live round. The

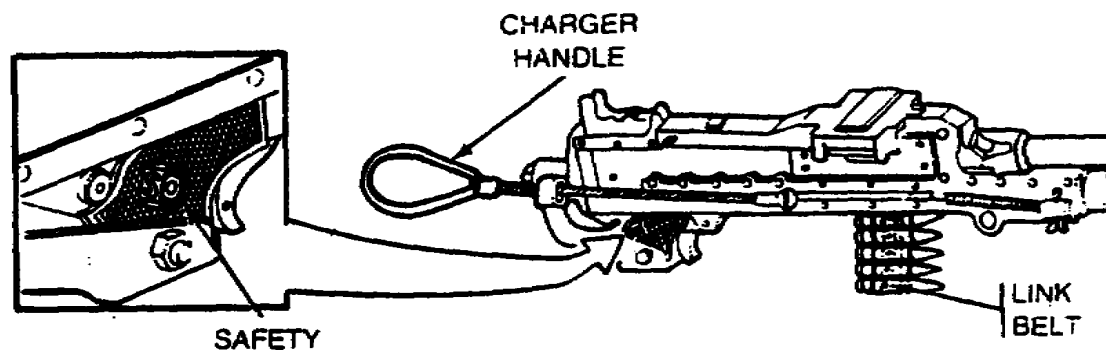
FIGURE 11. BREAKING LINK BELT.



following steps are to be followed to correct either condition:

Step 1. Close the cover to the weapon.

FIGURE 12. PULL CHARGER HANDLE BACK.

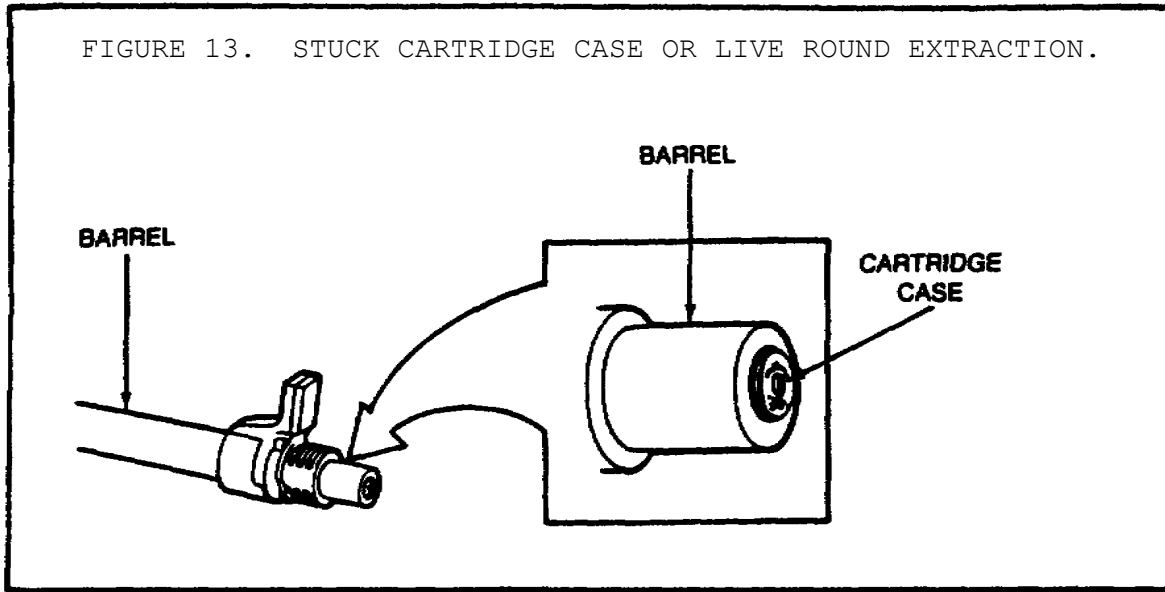


Step 2. Place the safety to "F."

Step 3. Pull the trigger.

Step 4. Wait until the barrel is cool; remove the barrel and lift cartridge case from the chamber of the barrel, or pry the rim of the round if the case is tight (figure 13 on the following page).

FIGURE 13. STUCK CARTRIDGE CASE OR LIVE ROUND EXTRACTION.

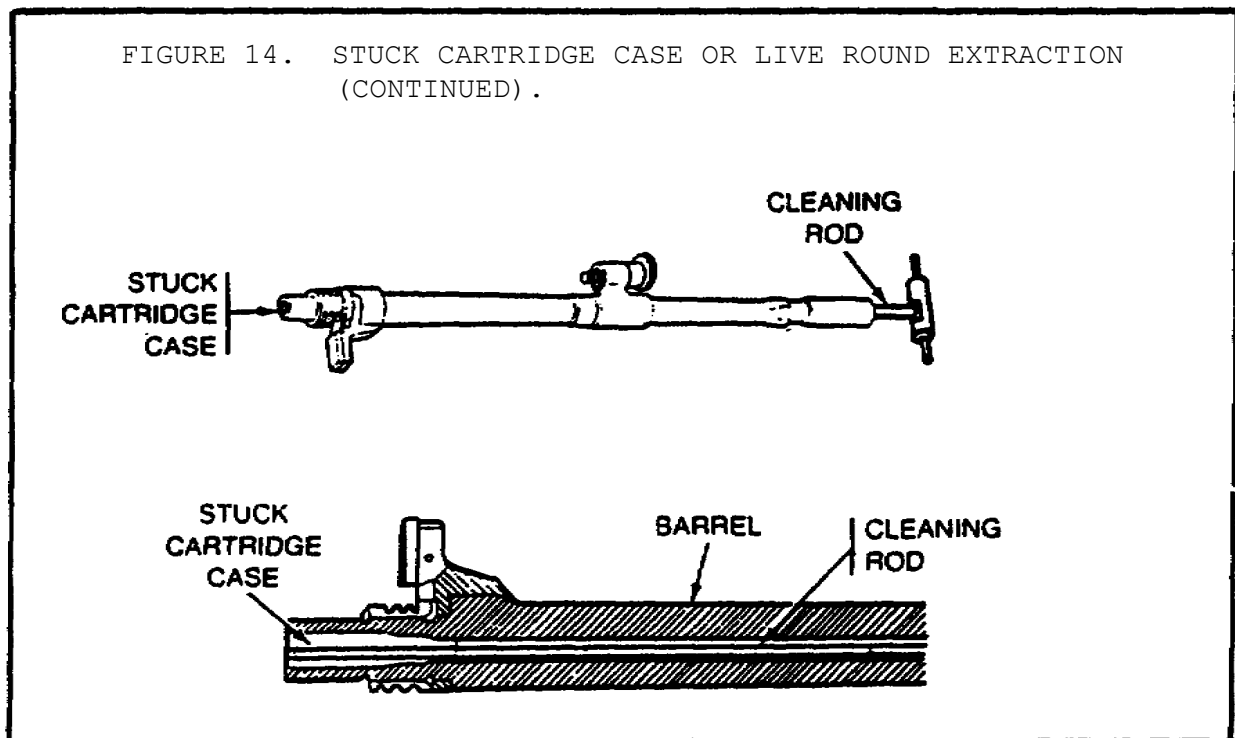


(5) *Alternate method - Stuck Cartridge or Live Round.*

Step 1. Remove swab holder section from cleaning rod and insert the cleaning rod through the muzzle end of the barrel (figure 14).

Step 2. Gently tap out case/round.

FIGURE 14. STUCK CARTRIDGE CASE OR LIVE ROUND EXTRACTION (CONTINUED).



MAINTENANCE OF THE M240 MACHINEGUN - OD1502 - LESSON 1/TASK 1

(6) *Ruptured Cartridge Case.* If the weapon fired and blew the back off the case, this condition is known as a ruptured cartridge. To correct this condition follow these steps:

Step 1. Clear the weapon.

Step 2. Place the safety to "F."

Step 3. Hold the charger handle to the rear, press the trigger, and ease the bolt forward until it stops.

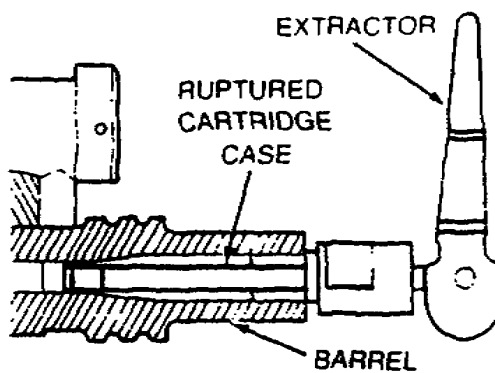
Step 4. Remove the barrel.

Step 5. Push the threaded end of the extractor post through the ruptured case. Pull on the handle to remove the case (figure 15).

NOTE

In the event a live round is fed into a ruptured case, remove the round first, then remove the ruptured cartridge case from the weapon.

FIGURE 15. RUPTURED CARTRIDGE CASE EXTRACTION.



MAINTENANCE OF THE M240 MACHINEGUN - OD1502 - LESSON 1/ TASK 1

6. Conclusion

Understanding how the M240 machinegun operates and functions will help to determine what went wrong when there is a malfunction with the weapon. The maintenance and inspection procedures performed by the operator, unit mechanic, and intermediate direct support (IDS) maintenance personnel will be discussed in the following three tasks.

MAINTENANCE OF THE M240 MACHINEGUN - OD1502 - LESSON 1/TASK 2

LESSON 1

OPERATION, MAINTENANCE, AND INSPECTION PROCEDURES FOR THE M240 SERIES MACHINEGUNS

TASK 2. Describe operator maintenance and inspection procedures for the M240 series machineguns.

CONDITIONS

Within a self-study environment and given the subcourse text, without assistance.

STANDARDS

Within one hour

REFERENCES

No supplementary references are needed for this task.

1. Introduction

In order for any piece of equipment to function as it should, it is essential that it is properly inspected and maintained. A machinegun that malfunctions can be deadly to the operator instead of the enemy. The inspection and maintenance procedures for the M240 series machineguns range from the general disassembly, inspection, minor maintenance, and reassembly at the operator level to the more complex detailed disassembly inspection, repair, and reassembly procedures at the unit and intermediate direct support (IDS) levels of maintenance.

This task describes the inspection and maintenance procedures for the M240 series machineguns that are performed by the operator. Whenever maintenance is performed on any weapon, safety precautions should be observed to avoid serious accidents.

MAINTENANCE OF THE M240 MACHINEGUN - OD1502 - LESSON 1/TASK 2

WARNING

Before starting any inspection or maintenance procedure, be sure to clear the weapon. Do not actuate the trigger until the weapon is cleared. Inspect the chamber to ensure that it is empty, and check to see that no ammunition is in position to be introduced.

2. Operator Maintenance

The M240 and M240C machineguns can be disassembled and assembled without special tools or equipment. General disassembly at the operator level begins by field stripping the weapon. Once general disassembly has been completed, a number of inspection procedures can be performed by the operator. The machinegun can then be reassembled if inspection did not show any problems that required maintenance at the unit or IDS maintenance levels.

a. *General Disassembly.* The M240 and M240C machineguns can be disassembled into their eight major group parts by the operator. These eight major groups are: The barrel assembly, the buffer assembly, the driving spring rod assembly, the bolt and operating rod assembly, the trigger housing assembly, the cover assembly, the feed tray, and the receiver assembly. As each part is removed, it should be placed on a clean, flat surface, such as a table, or disassembly mat. This makes it easier to keep track of the parts and aids in reassembly, since the parts are assembled in the reverse order from disassembly. To field strip the M240 and M240C machineguns, perform the following steps.

WARNING

A hot barrel can burn you. If the barrel is hot, use your asbestos mittens.

Step 1. Begin field stripping the weapon by clearing the machinegun.

Step 2. Depress the barrel locking latch and hold (figure 16, view A, on the following page).

MAINTENANCE OF THE M240 MACHINEGUN - OD1502 - LESSON 1/TASK 2

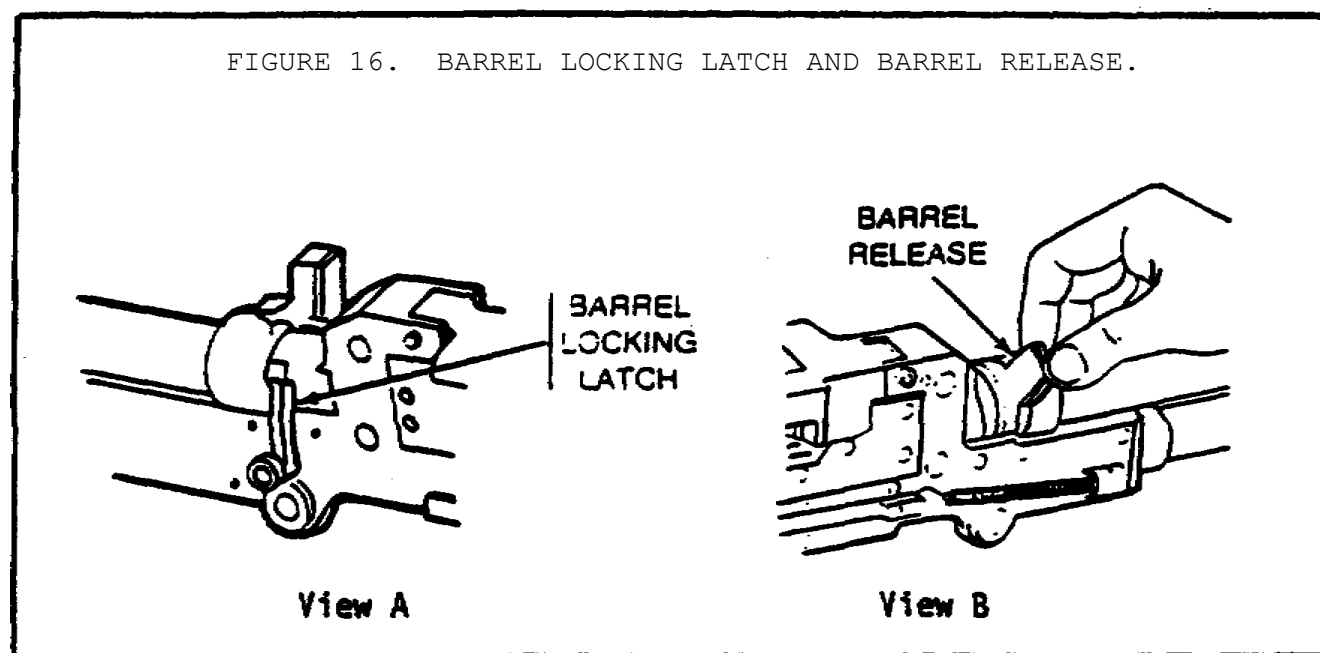
Step 3. Turn the barrel release to the upright position (figure 16, view B).

Step 4. Remove the barrel by pulling it straight out (figure 17 on the following page).

CAUTION

Be sure that the bolt is forward or the receiver can be damaged.

Step 5. Depress the trigger pin spring and remove the pin (figure 18, view A, on the following page). (This procedure can normally be done without special tools.)



Step 6. Pull the trigger housing assembly down and back. Pull the charger handle through the cable guide (figure 18, view B).

Step 7. With the charger handle clear of the cable guide, pull the back plate latch and lift the buffer straight up (figure 19, view A, on page 20).

FIGURE 17. BARREL REMOVAL.

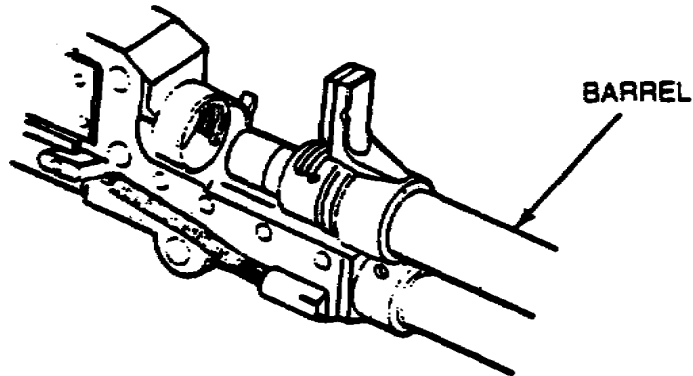
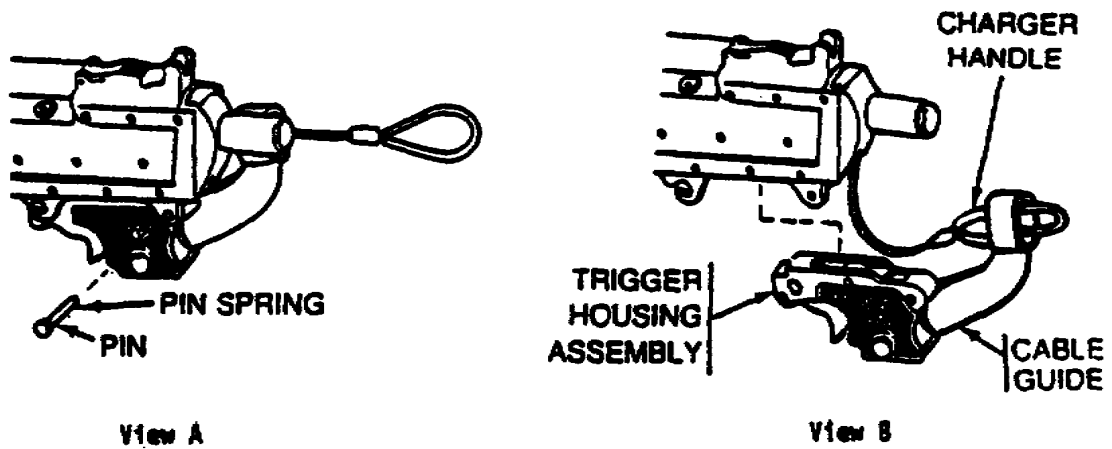
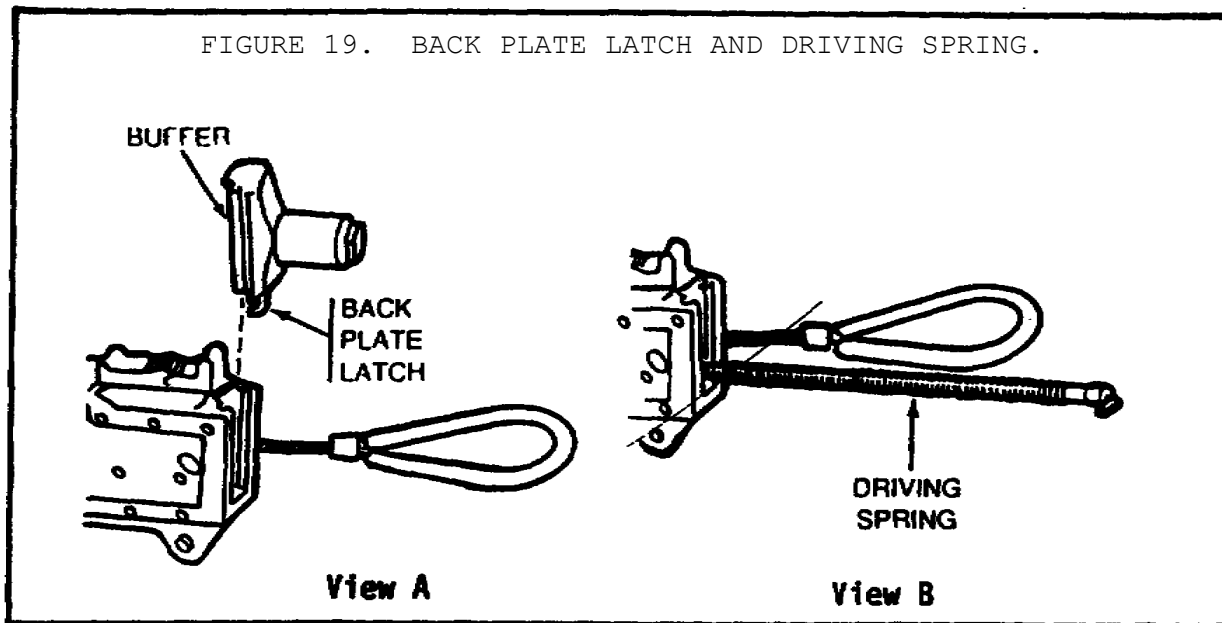


FIGURE 18. LOCATION OF PIN SPRING TRIGGER HOUSING ASSEMBLY REMOVAL.

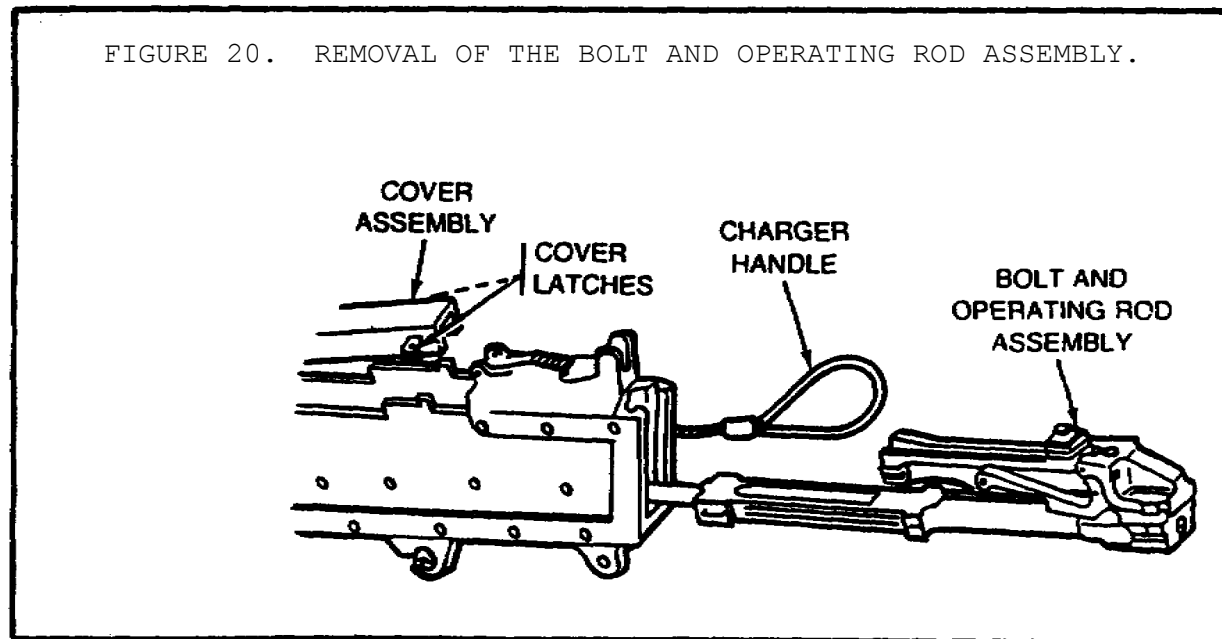




Step 8. Press the driving spring in, and pull it out (figure 19, view B).

Step 9. Depress the cover latches and raise the cover assembly. Pull the charger handle back; then pull the bolt and operating rod assembly out (figure 20).

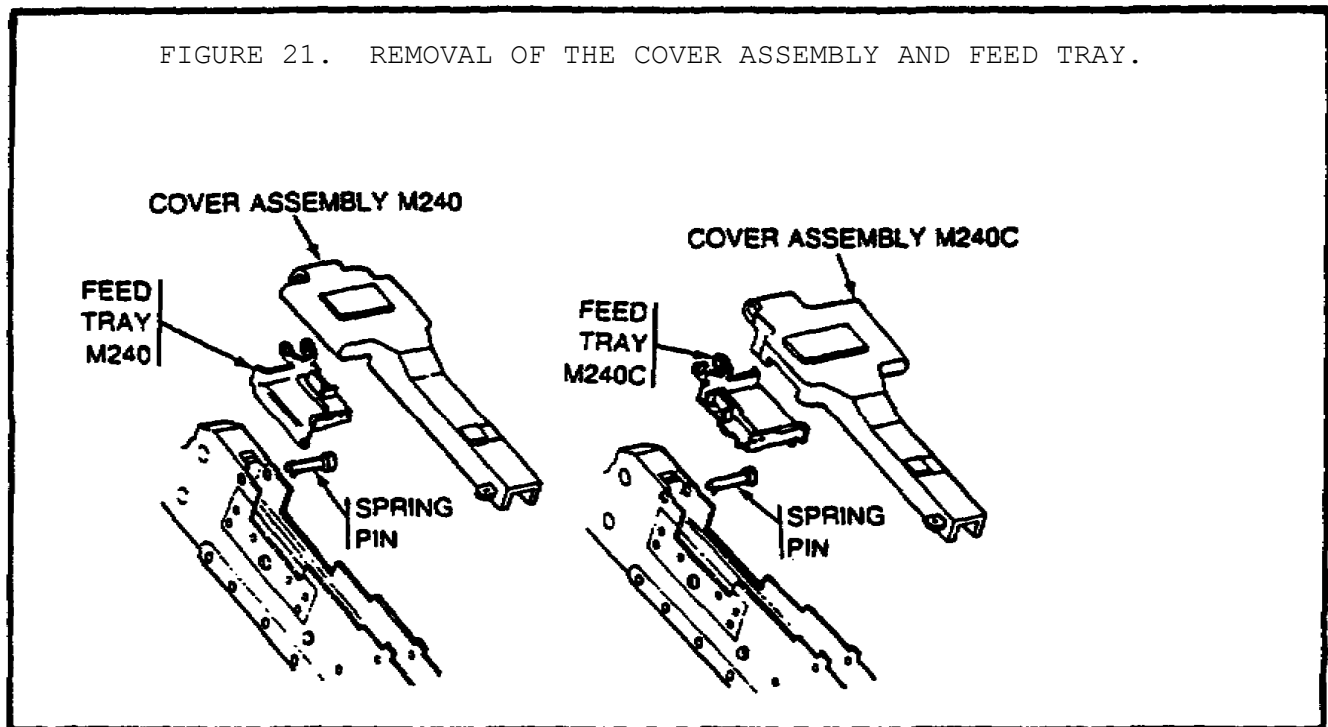
Step 10. Close the cover. Push out the spring pin as far as possible with the back of the buffer. Then remove the pin with your fingers. Conclude



MAINTENANCE OF THE M240 MACHINEGUN - OD1502 - LESSON 1/TASK 2

field stripping the M240 and 240C by pressing the cover latches and removing the cover assembly and feed tray (figure 21).

b. *Cleaning and Inspection.* Cleaning and inspection by the operator is an important maintenance function. As a rule, the operator should check for the cleanliness and overall condition of the eight major components of the weapon. During the specific cleaning and inspection procedures described below, minor component replacements (as authorized at the operator level) are indicated. All other problems detected during inspection should be referred to the appropriate higher level of maintenance.



WARNING

Using gasoline, kerosene, hydraulic oil, benzene, bensol, high pressure water, steam, or air for cleaning is prohibited.

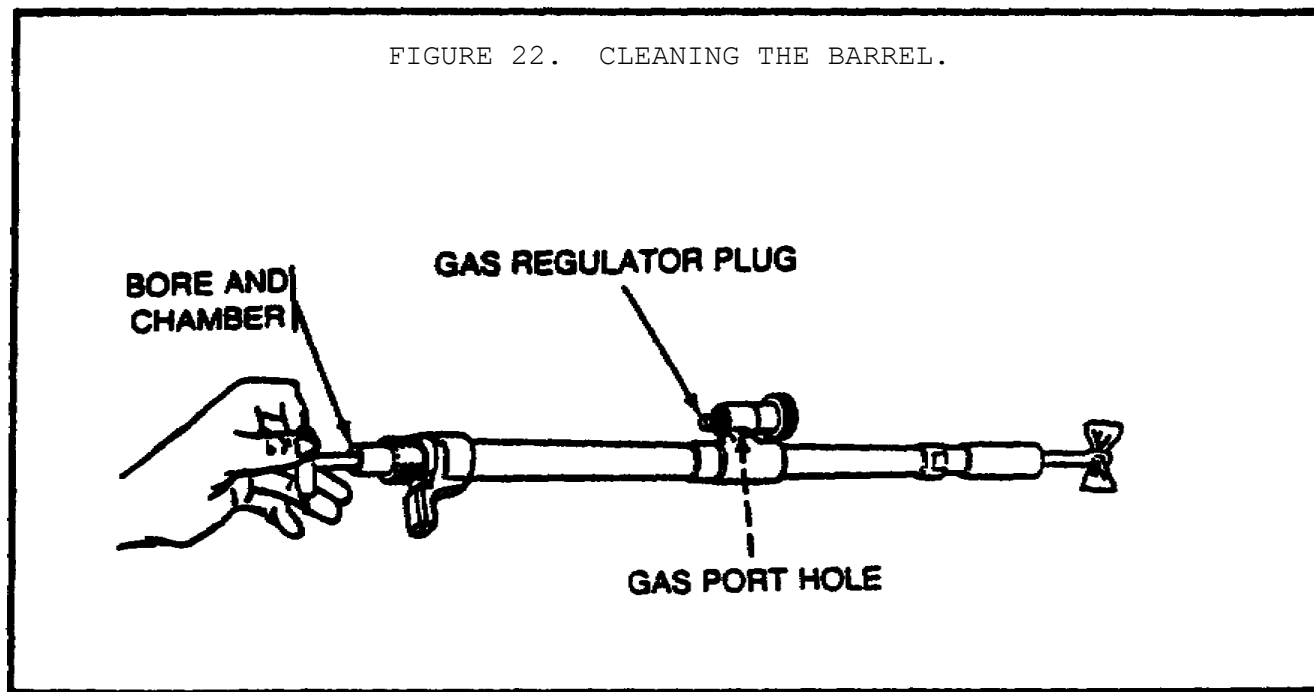
CAUTION

Do not use abrasives to clean the bore, piston, gas cylinder, or gas regulator plug. Do not submerge the buffer in any liquid. Wipe the components of the weapon with a clean wiping rag only.

MAINTENANCE OF THE M240 MACHINEGUN - OD1502 - LESSON 1/TASK 2

Do not allow cleaning solvents to come in contact with the rubber handle of the charger cable.

Step 1. When cleaning the barrel assembly, make sure that the gas regulator plus faces upward to avoid letting dirt in the gas port hole (figure 22). Inspect the bore and chamber. Using a cleaning rod and swab, remove oil, foreign material, or obstructions.



CAUTION

Do not oil the plug or the recess in the barrel. Do not use abrasives to clean the plug.

Step 2. Wipe the outside of the barrel with a lightly oiled rag, and run a lightly oiled swab through the bore and chamber of the barrel.

Step 3. Inspect the barrel for cracks, dents, burrs, or other damage to the flash hider, barrel adapter, and barrel release.

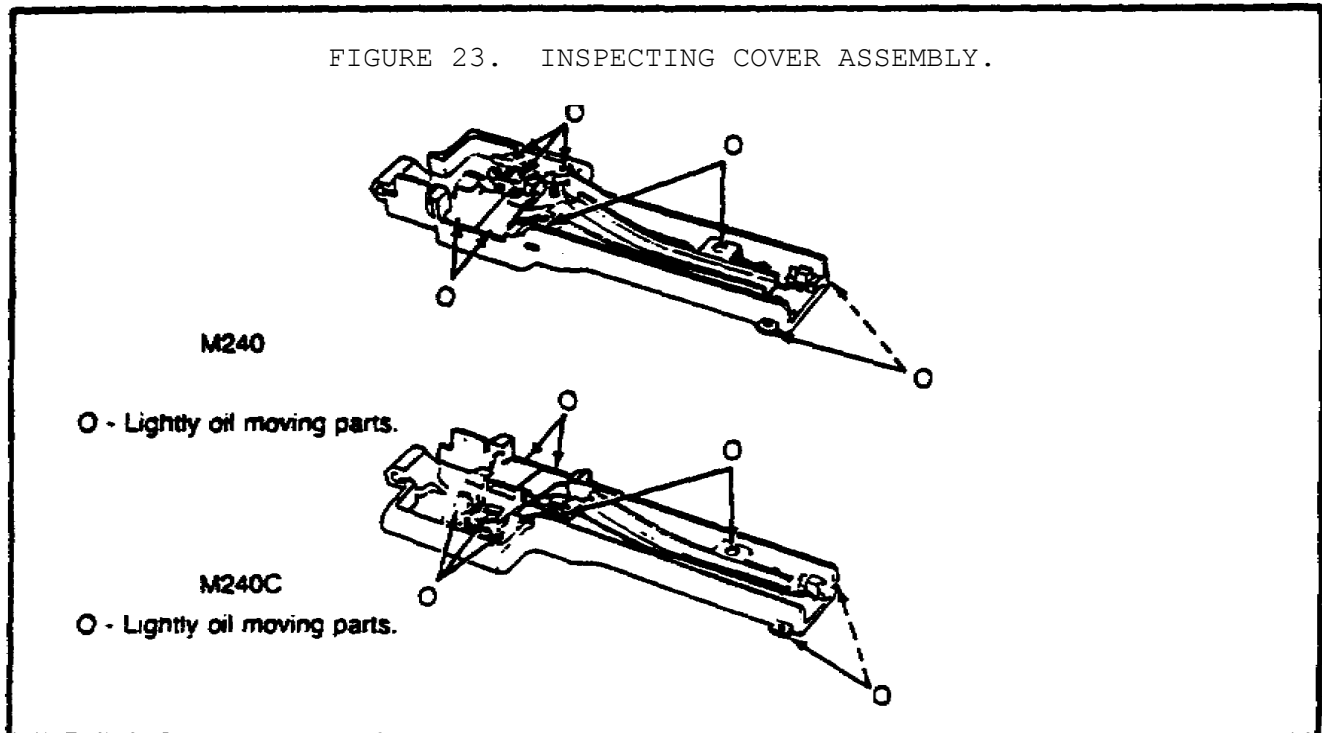
Step 4. Inspect for excessive carbon buildup from the gas system. If this condition is found, the machinegun will be sent to unit maintenance for removal of the excessive carbon.

MAINTENANCE OF THE M240 MACHINEGUN - OD1502 - LESSON 1/TASK 2

Step 5. Check the cover assembly for smooth operation, spring tension, bent parts, or excessive wear (figure 23).

Step 6. Check the charger assembly (figure 24 on the following page), for free movement and inspect for beads, cracks, and excessively worn, burred, or chipped rails. Check the barrel locking latch and cover detent for spring tension. Lightly oil all rails.

FIGURE 23. INSPECTING COVER ASSEMBLY.



Step 7. Inspect the trigger housing assembly (figure 25 on the following page), for broken grips, bent cable guide, loose nut and bolt, and chipped or cracked trigger housing holding lug.

Step 8. Check the tripping lever and sear (figure 25) for burrs, cracks, and wear. If a problem exists with these two parts, notify unit maintenance.

NOTE

To place the safety to "S," the sear must be up.

FIGURE 24. INSPECTING CHARGER ASSEMBLY.

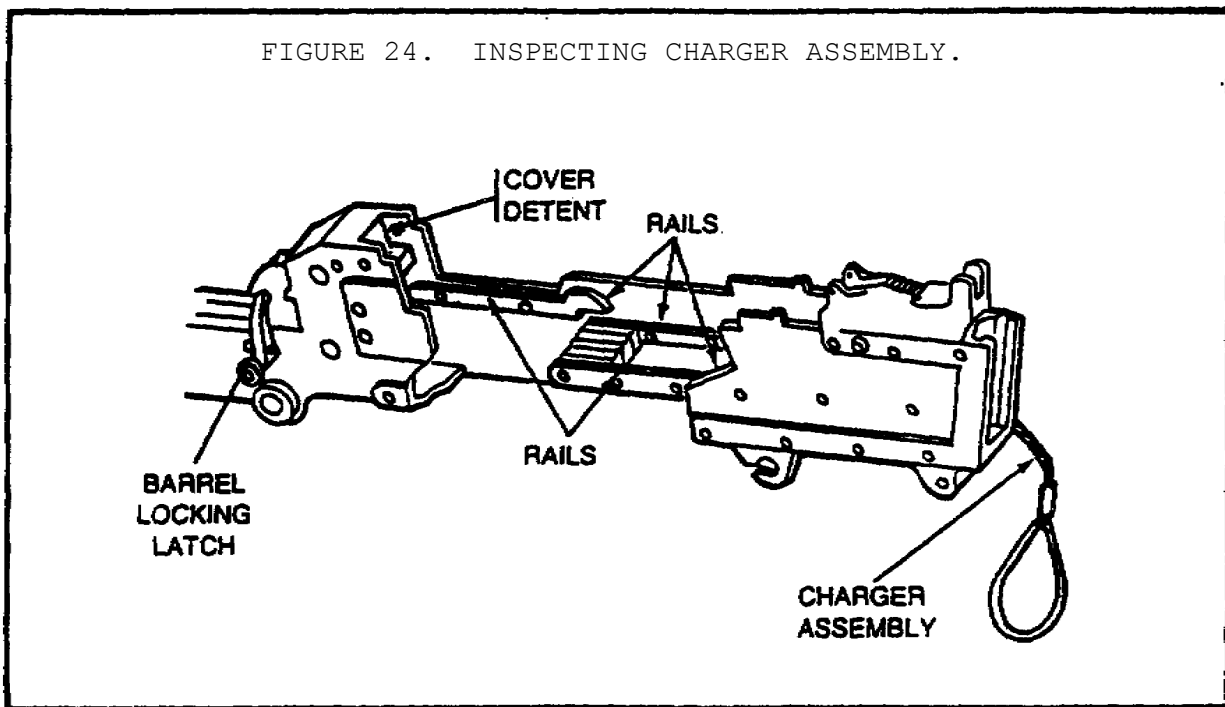
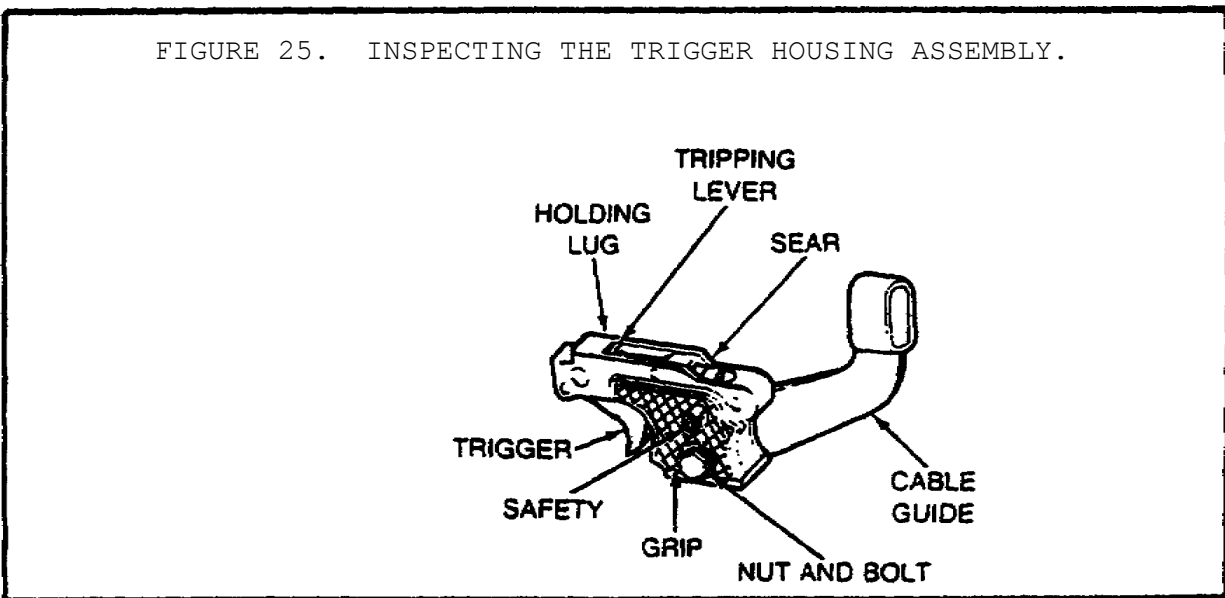


FIGURE 25. INSPECTING THE TRIGGER HOUSING ASSEMBLY.



Step 9. Check the cocking action by pushing back on the tripping lever (figure 25); the sear will raise. Pull the trigger; the sear will lower.

Step 10. Inspect the safety for proper functions. When the safety is placed to "S," pull the trigger; the sear will not lower. When safety is placed to "F," pull the trigger; the sear will lower.

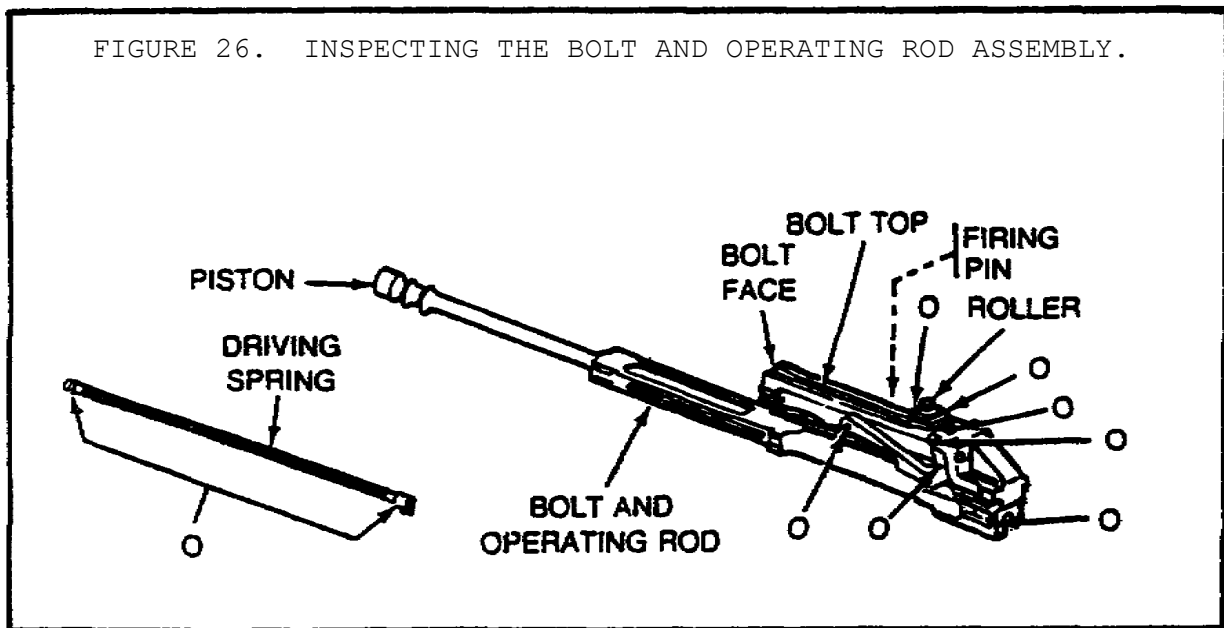
MAINTENANCE OF THE M240 MACHINEGUN - OD1502 - LESSON 1/TASK 2

Step 11. Lightly lubricate the tripping lever and sear surfaces.

Step 12. Check the bolt and operating rod (figure 26), for burrs, cracks, broken pins, or frozen roller. Push down on the roller to make sure it will retract. Check the driving spring (figure 26) for broken strands. Notify unit maintenance if two or more broken strands are found on the same coil or if three or more strands are broken regardless of location on the entire spring.

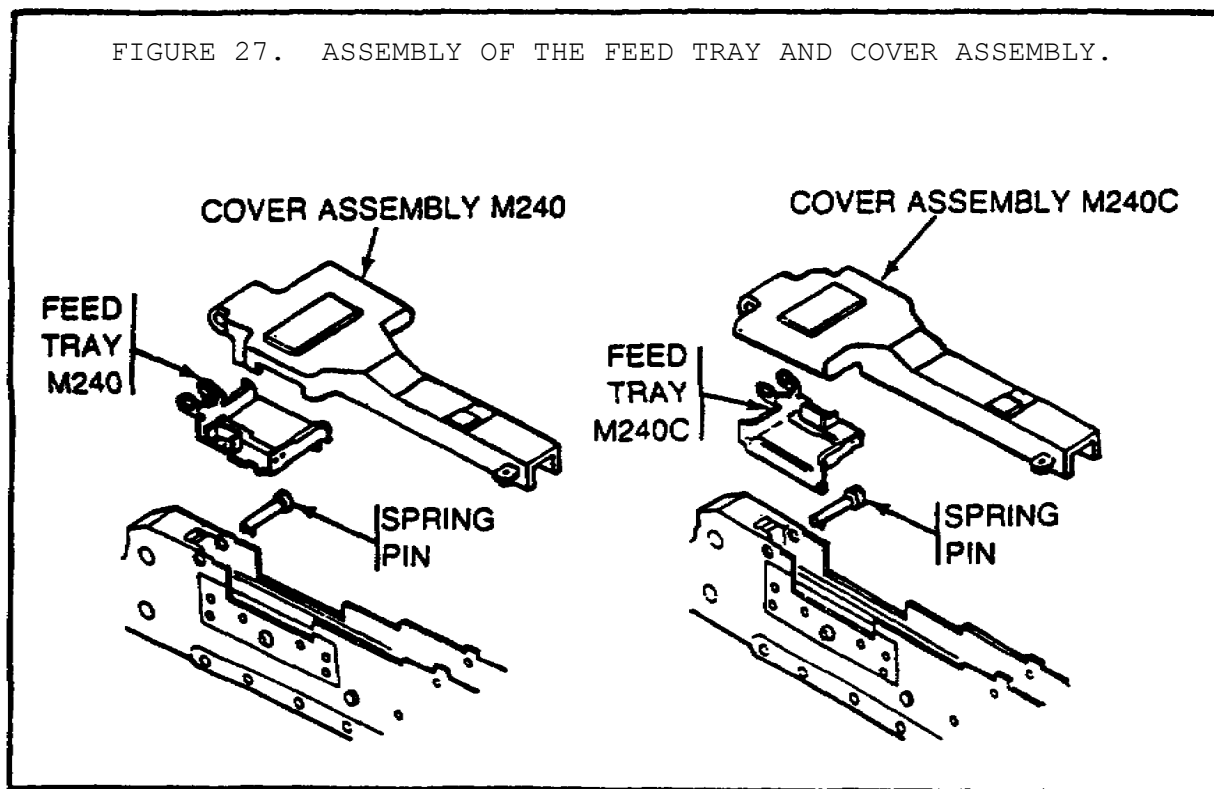
NOTE

Do not lubricate the top or face of the bolt (figure 26), and do not oil the piston. Notify unit maintenance if heavy carbon deposits are present.



c. *General Assembly.* General assembly is performed approximately in the reverse order of disassembly.

Step 1. Position the feed tray and cover assembly as shown in (figure 27 on the following page). Push the cover assembly forward; close the cover and insert the spring pin.



NOTE

Insert the spring pin from the right side.

Step 2. Open the cover assembly. Be sure that the cover detent holds the cover open. If the cover assembly does not remain open, unit maintenance should be notified.

Step 3. Set the bolt operating rod assembly on top of the rails (receiver) as shown in figure 28 on the following page. Extend the bolt to the unlocked position, then push the assembly all the way in. Close the cover and lock.

Step 4. Insert the driving spring into the operating rod (figure 29 on the following page). Push it in fully and lower it to the seat of the stud in the hole of the receiver.

Step 5. Install the buffer (figure 30 on page 28), and make sure that it latches.

NOTE

The top of the buffer should be flush with the top of the receiver.

FIGURE 28. ASSEMBLY OF THE BOLT AND OPERATING ROD ASSEMBLY.

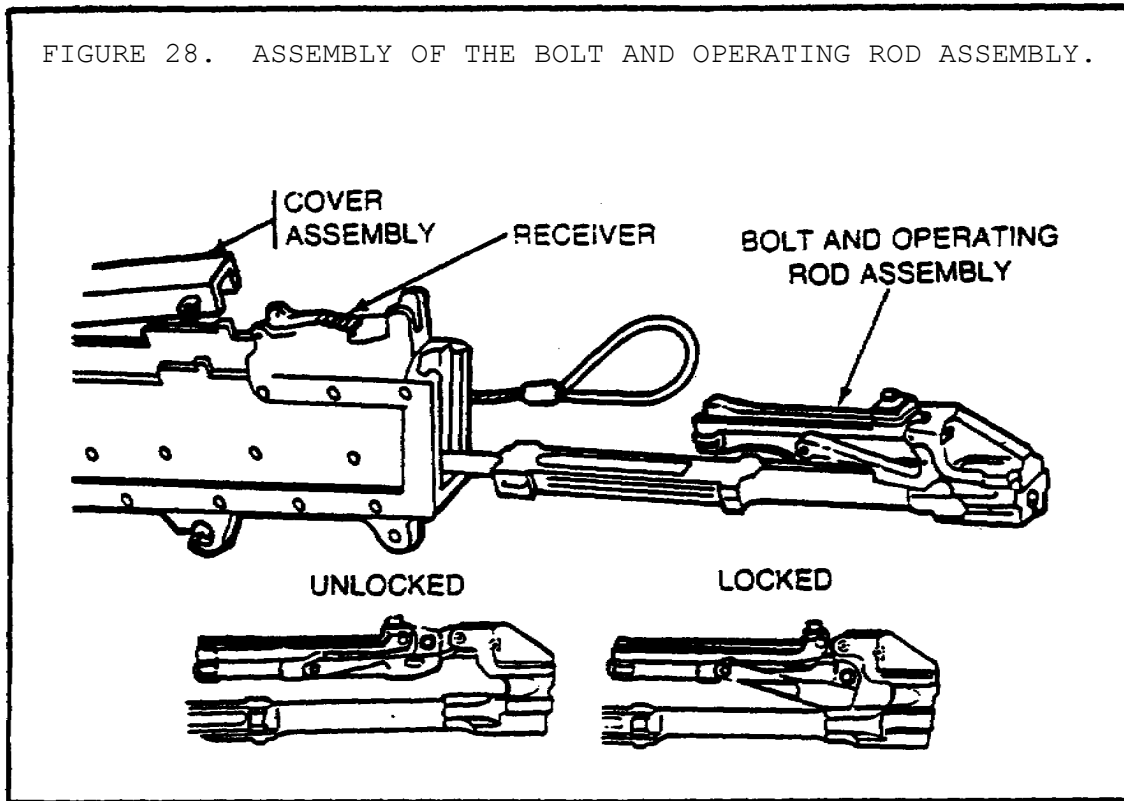


FIGURE 29. ASSEMBLY OF DRIVING SPRING INTO THE RECEIVER.

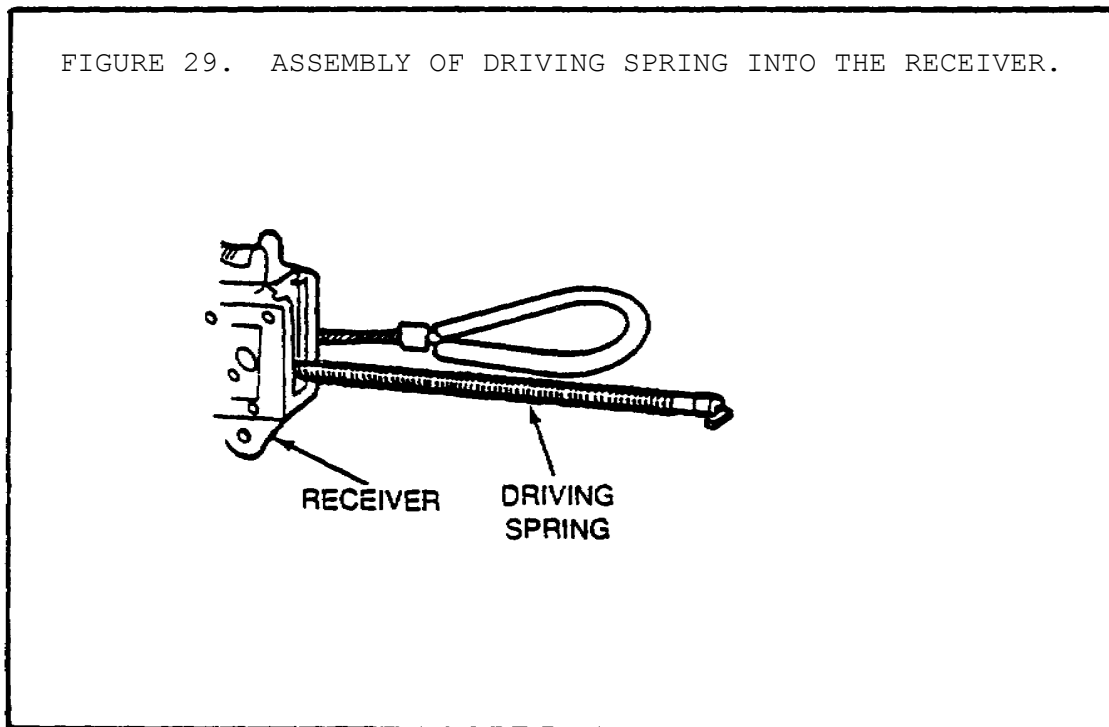
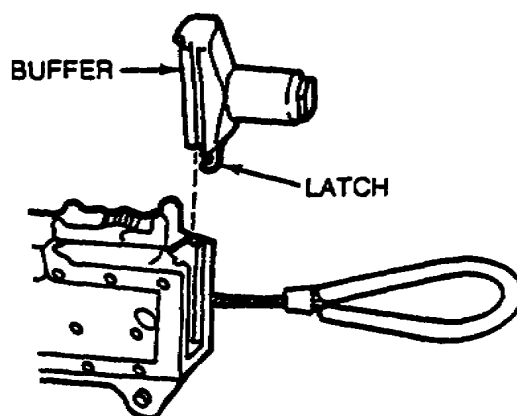


FIGURE 30. INSTALLING THE BUFFER.



Step 6. Slide the charger handle through the cable guide and position the trigger housing assembly into place (figure 31).

Step 7. Insert the pin (figure 32 on following page).

NOTE

Pin can be inserted from either side.

FIGURE 31. INSERTING CHARGER HANDLE.

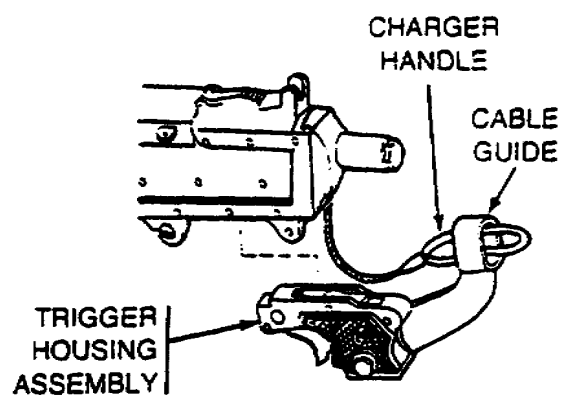
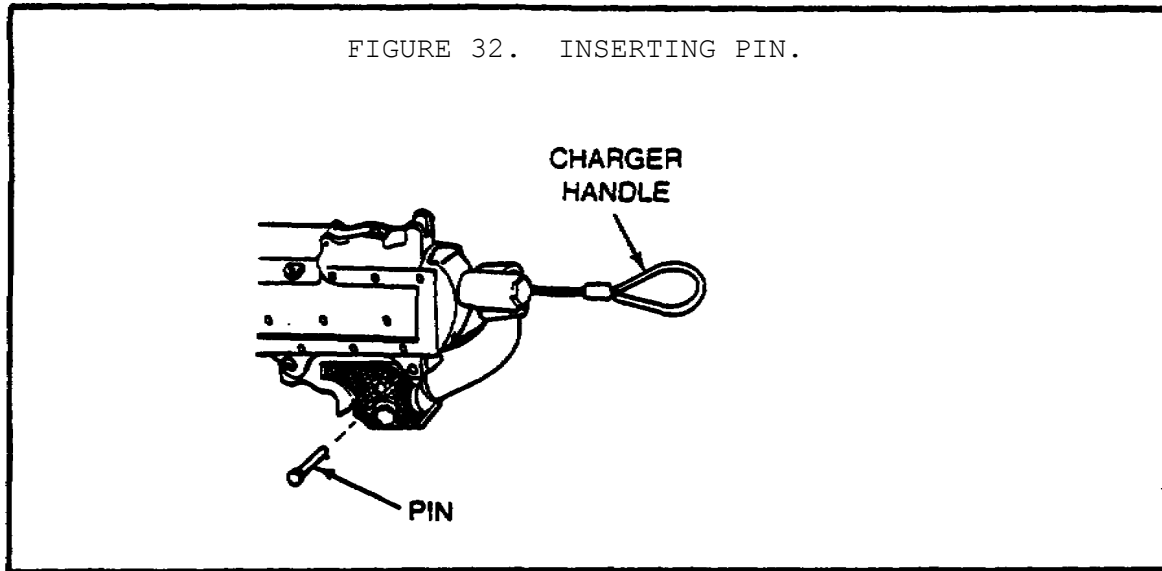


FIGURE 32. INSERTING PIN.



WARNING

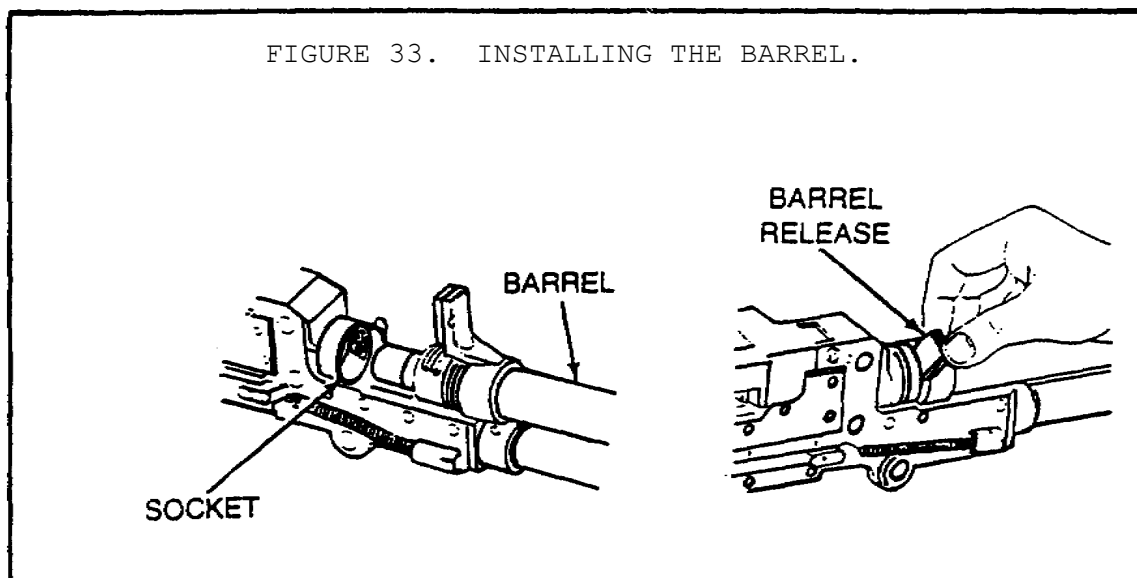
Before firing, make sure that the barrel is locked tightly in the receiver. If the barrel is not locked tightly, the threads in the receiver could be damaged or cause personal injury.

NOTE

The barrel release must be in the upright position to install the barrel.

Step 8. Insert the barrel fully into the socket (figure 16, view A, on page 18), and push the barrel release to the right (figure 33 on the following page), as far as it will go (not less than 2 nor more than 7 clicks). Use finger pressure only. If the barrel binds in the socket or if the barrel release will not rotate when pushed, do not pound on the barrel release; notify unit maintenance of this malfunction.

d. *Perform a Function Check of the Weapon.* Once the M240 or M240C is assembled, a function check must be performed to ensure that the machinegun is assembled correctly.

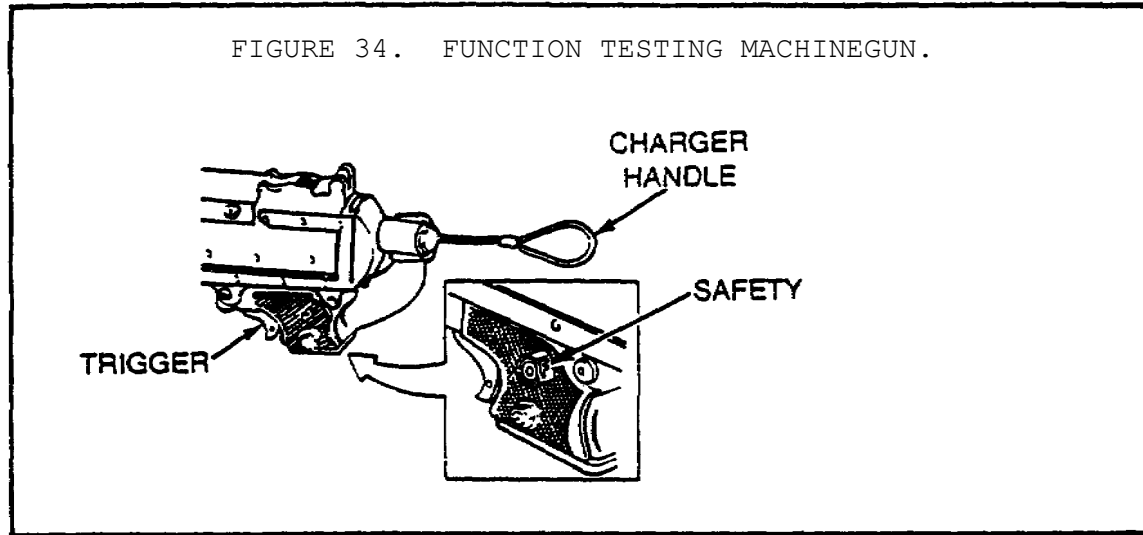


WARNING

After unloading a dummy round of ammunition, be sure that there is nothing in the barrel.

- Step 1. Check to see that the bolt is forward. If it is not, place the bolt forward.
- Step 2. Load the machinegun with dummy ammunition.
- Step 3. Depress the trigger (figure 34 on the following page). Nothing should happen.
- Step 4. Place the safety to "F."
- Step 5. Depress trigger - bolt should move forward, strip and chamber a dummy round, and lock.
- Step 6. Release the trigger.
- Step 7. Pull the charger handle back (figure 34). Dummy round should eject, and bolt should lock to the rear.
- Step 8. Place the safety to "S."
- Step 9. Unload the dummy ammo and clear the weapon.

FIGURE 34. FUNCTION TESTING MACHINEGUN.



Step 10. Be sure that the projectile stays on the dummy round (figure 35).

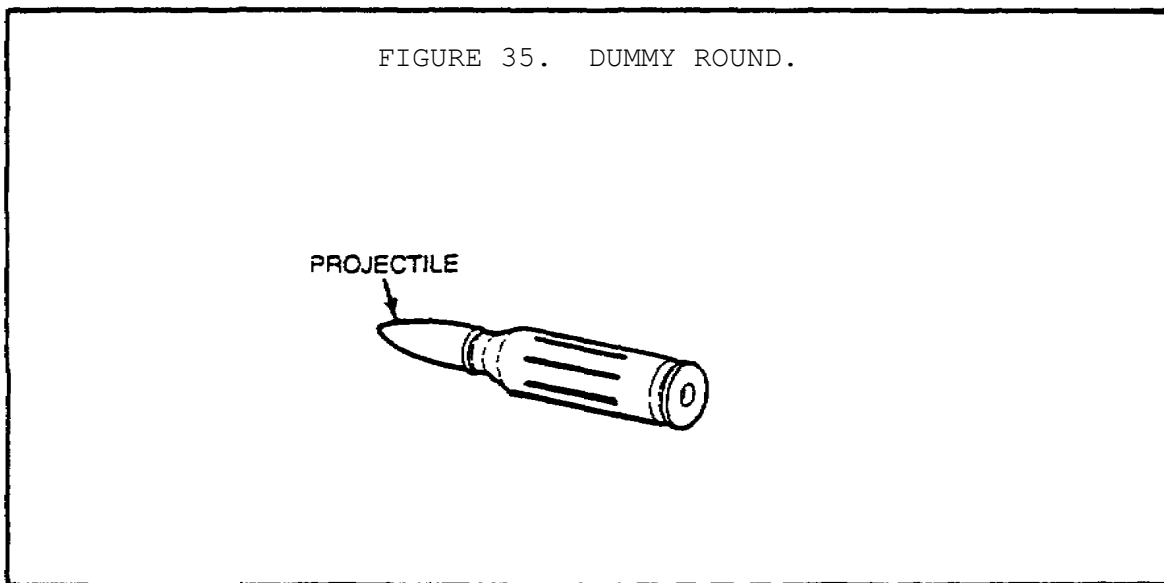
Step 11. Close the cover and latch.

Step 12. Place the safety to "F," pull the charger handle, depress the trigger, and ease the bolt forward.

NOTE

Be sure the bolt is forward when the gun is not in use.

FIGURE 35. DUMMY ROUND.



MAINTENANCE OF THE M240 MACHINEGUN - OD1502 - LESSON 1/TASK 2

3. Conclusion

This task covered the maintenance and inspection procedures performed by the weapon's operator. In the next task, those maintenance and inspection procedures performed at the unit maintenance level will be discussed.

MAINTENANCE OF THE M240 MACHINEGUN - OD1502 - LESSON 1/TASK 3

LESSON 1

OPERATION, MAINTENANCE, AND INSPECTION PROCEDURES FOR THE M240 SERIES MACHINEGUNS

TASK 3. Describe the unit maintenance, inspection and maintenance procedures for the M240 series machineguns.

CONDITIONS

Within a self-study environment and given the subcourse text, without assistance.

STANDARDS

Within two hours

REFERENCES

No supplementary references are needed for this task.

1. Introduction

Unit maintenance procedures include the disassembly, cleaning, inspection, repair, and reassembly of the barrel assembly, bolt, and operating rod assembly, trigger housing assembly, and receiver assembly.

This task describes the inspection and maintenance procedures for the M240 series machineguns that are performed at the unit maintenance level. Whenever maintenance is performed on any weapon, safety precautions should be observed to avoid serious accidents.

WARNING

Before starting any inspection, cleaning, disassembly/assembly, or repair, be sure to clear the weapon. Do not actuate the trigger until the weapon has been cleared. Inspect the chamber to be sure that it is

MAINTENANCE OF THE M240 MACHINEGUN - OD1502 - LESSON 1/TASK 3

empty, and check to see that no ammunition is in position to be introduced.

NOTE

When a machinegun is received at unit maintenance, all gaging requirements must be checked as standing maintenance procedure. In addition, the machinegun must be inspected and, if found, deficiencies should be repaired or noted for repair at intermediate direct support (IDS) maintenance.

2. Maintenance of the M240 Series Machineguns

a. *Disassembly.* Maintenance of the M240 machinegun begins with field-stripping the weapon as described on page 17, paragraph 2a.

b. *Cleaning.* Dirt and corrosion or powder residue is removed from the major parts of the weapon using a wiping rag dampened with rifle bore cleaner (RBC). Lightly oil major weapon assemblies after cleaning.

c. *Inspection.*

Step 1. Visually inspect all parts for damage.

Step 2. Inspect the external surfaces for proper finish (black surfaces should not reflect light).

d. *Repair.*

Step 1. Replace the driving spring assembly if two or more strands of a coil are broken on the same coil or if there are three or more broken strands, regardless of location on the entire spring.

Step 2. Replace the spring trigger pin if it is bent or if the spring portion of the pin is damaged.

Step 3. Replace the cover hinge spring pin if it is bent or damaged.

Step 4. Clean rusted or shiny surfaces with crocus cloth. Wash thoroughly with RBC.

MAINTENANCE OF THE M240 MACHINEGUN - OD1502 - LESSON 1/TASK 3

CAUTION

If solid film lubricant comes in contact with any moving or internal part, clean it with RBC.

Step 5. Apply solid film lubricant to all external surfaces showing wear. Allow to dry 12 hours before using weapon.

e. *Reassembly.* Reassembly of the M240 machinegun is performed in accordance with the procedures described in paragraph 2c of the previous task on pages 25 through 29, and includes checking out the machinegun using dummy ammunition as described in paragraph 2d of the previous task on pages 29 through 31.

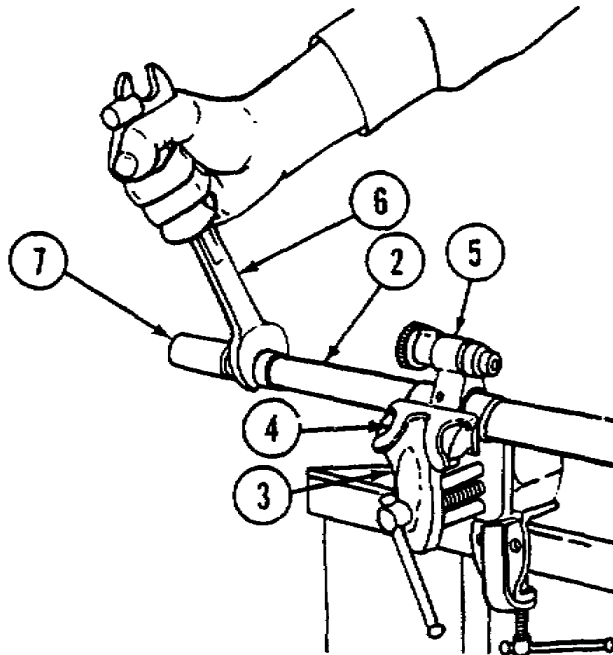
3. Maintenance of the M240 Barrel Assembly

a. *Disassembly.*

NOTE

Clamp barrel assembly (2) (figure 36) in gas port (5) area only.

FIGURE 36. DISASSEMBLY OF BARREL ASSEMBLY.



MAINTENANCE OF THE M240 MACHINEGUN - OD1502 - LESSON 1/TASK 3

Step 1. Secure the barrel assembly (2) (figure 36 on the previous page) in a vise (3) with protective jaws (4) with the gas regulator (5) up.

Step 2. Use a combination wrench with a brass hammer (6) to remove the flash hider (7).

Step 3. Rotate the collar (8) (figure 37) until it releases, then pull out.

Step 4. Drive out plug (9) (figure 38) using the brass hammer with the combination wrench (6). Catch the plug to prevent losing it.

FIGURE 37. REMOVING COLLAR.

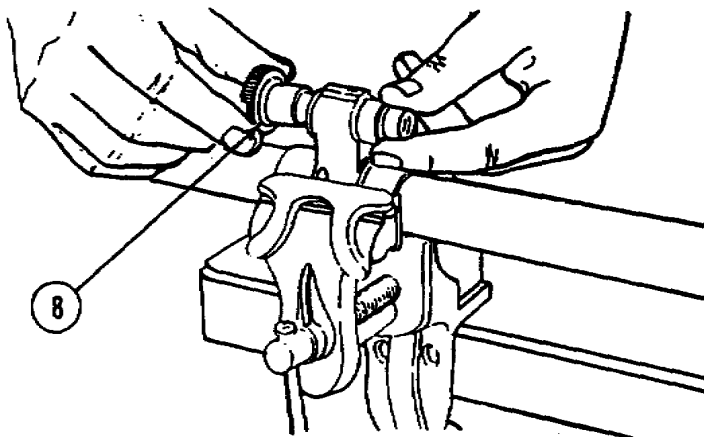
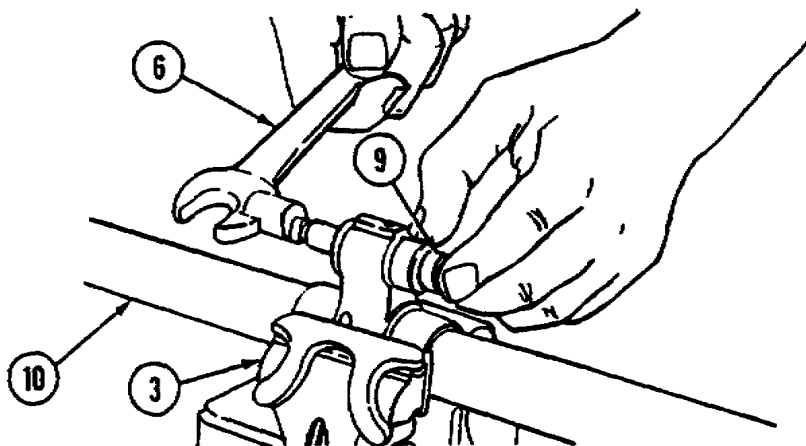


FIGURE 38. DRIVING OUT PLUG.



MAINTENANCE OF THE M240 MACHINEGUN - OD1502 - LESSON 1/TASK 3

Step 5. Remove the barrel (10) (figure 38 on the previous page) from the vise (3).

b. Cleaning

Step 1. Remove the scraper cover and insert the scraper (2) (figure 39) into the center hole (3) of plug (4). Twist tool (2) back and forth to remove carbon from center hole (3).

Step 2. Fold the scraper (2) (figure 40) and press the point into the groove (5). Twist the plug (4) back and forth to remove carbon from groove (5) on plug (4).

FIGURE 39. USING SCRAPER.

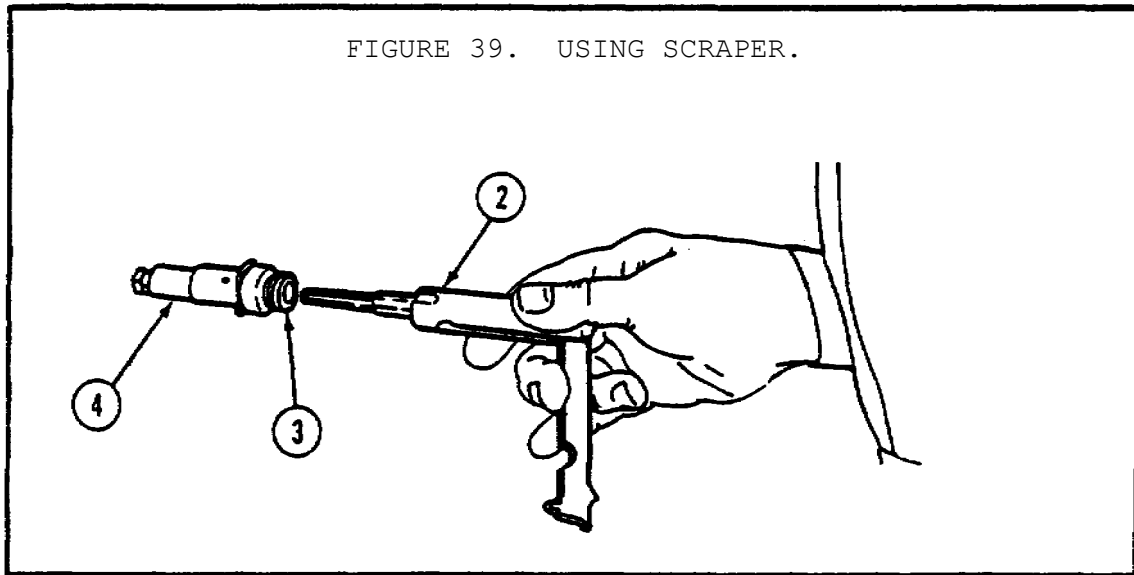
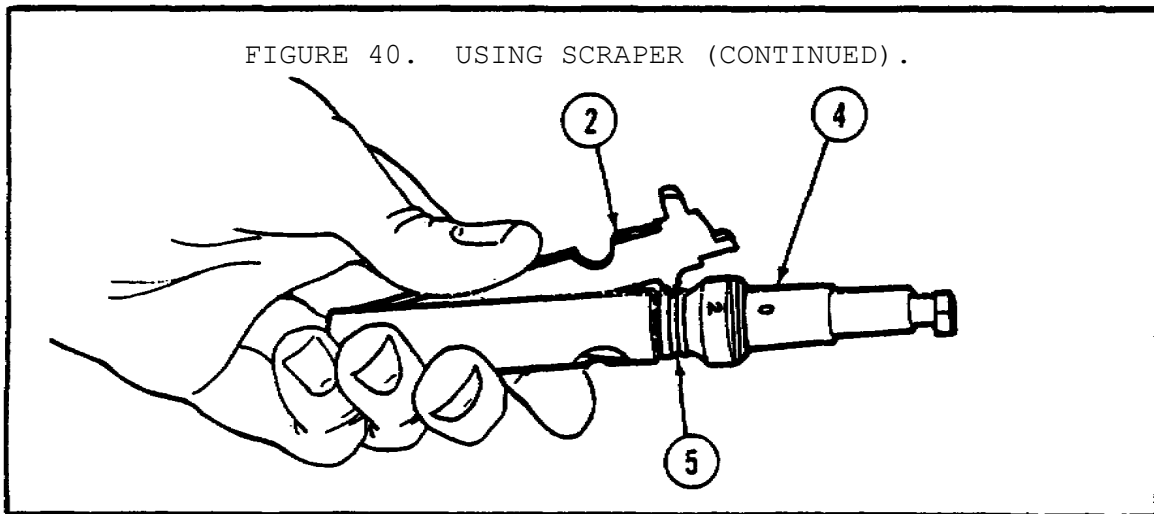


FIGURE 40. USING SCRAPER (CONTINUED).



MAINTENANCE OF THE M240 MACHINEGUN - OD1502 - LESSON 1/TASK 3

Step 3. Pivot the scraper blade and place groove tip (6) (figure 41) of scraper into groove (7) of plug (4) and twist back and forth to remove carbon from groove (7) on plug.

Step 4. With the tip of the scraper, scrape carbon from surfaces of the plug.

Step 5. Insert small reamer (10) (figure 42, on the following page) into each gas inlet hole of plug (4) and twist back and forth to remove carbon buildup.

Step 6. Insert the large reamer (11) (figure 43, on the following page) through hole (12) into gas port hole in barrel (13) and twist back and forth to remove carbon from the gas port hole in the barrel.

CAUTION

Do not oil the plug or the recess in the barrel. Do not use abrasives to clean plug.

Step 7. Remove dirt and corrosion from bore using a cleaning rod and swab dampened with RBC, and from other parts using a wiping rag dampened with RBC. Lightly oil the barrel after cleaning.

FIGURE 41. USING SCRAPER (CONTINUED).

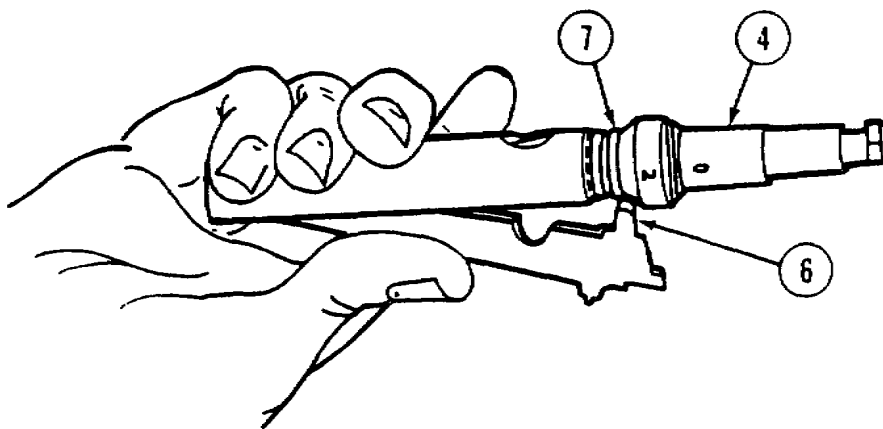


FIGURE 42. USING REAMER TO REMOVE CARBON.

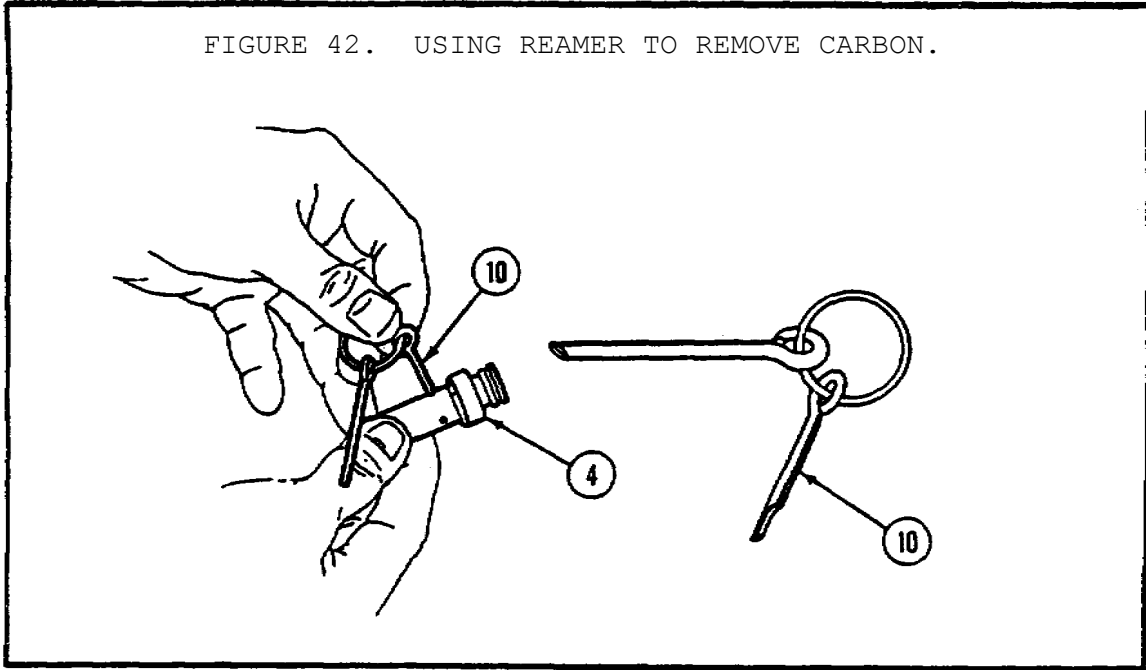
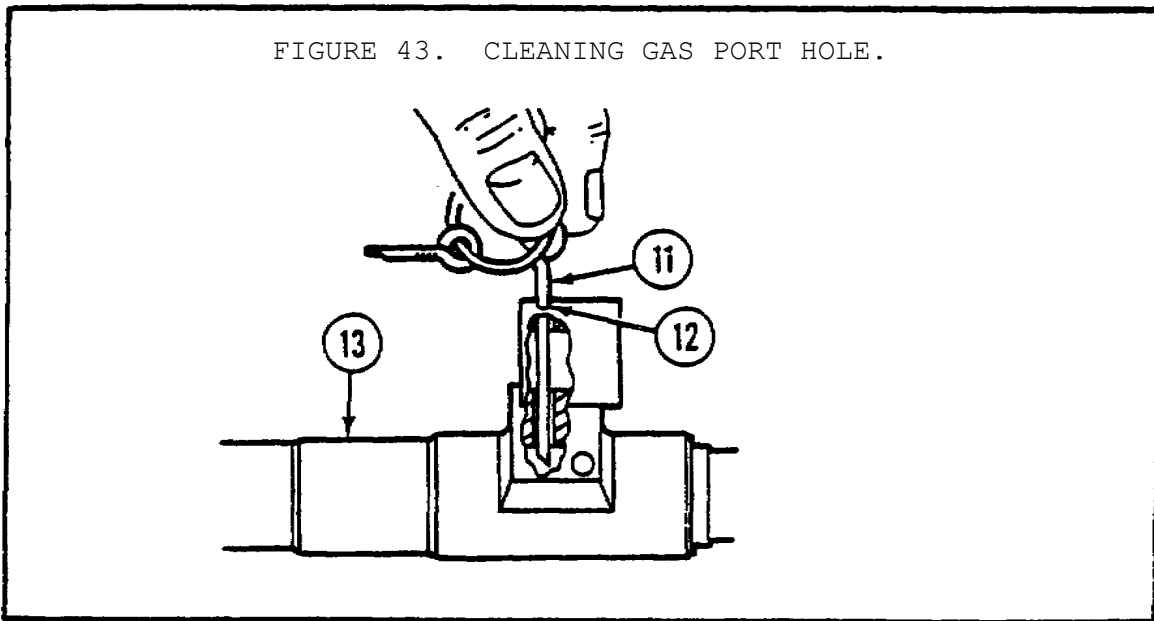


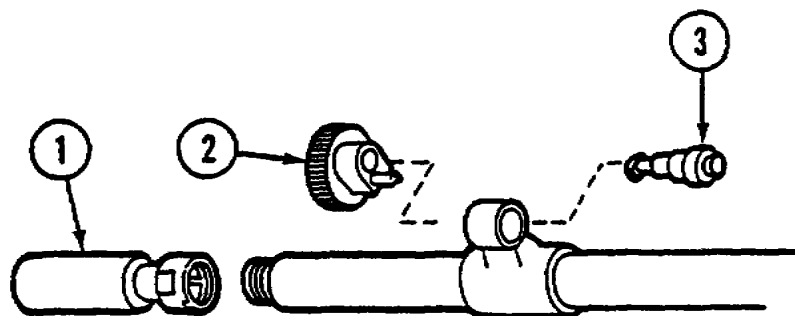
FIGURE 43. CLEANING GAS PORT HOLE.



c. *Inspection and Repair.*

Step 1. Inspect the flash hider (1) (figure 44 on the following page), collar (2), and plug (3) for dents or burrs. Replace any component that is damaged.

FIGURE 44. INSPECTING FLASH HIDER, COLLAR, AND PLUG.



Step 2. If other parts of the barrel assembly are damaged, notify intermediate direct support (IDS) maintenance.

d. *Reassembly.*

NOTE

Clamp barrel assembly in gas port area only.

Step 1. Secure the barrel in a vise with protective jaws with the gas regulator area up.

NOTE

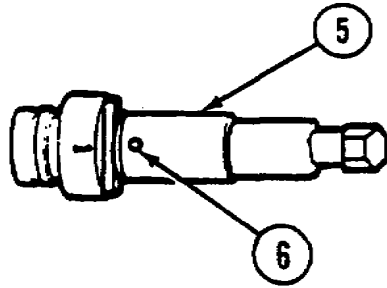
The plug (5) (figure 45 on the following page) is designed with three gas inlet settings to maintain the rate of fire. This design is intended to maintain a consistent rate of fire under adverse conditions and NOT TO INCREASE YOUR RATE OF FIRE. Gas inlet setting number 1 (6) (number facing the barrel) is preferred for normal conditions.

Setting number 1 = 650 rds/m approx.

Setting number 2 = average (mean)

Setting number 3 = 950 rds/m approx.

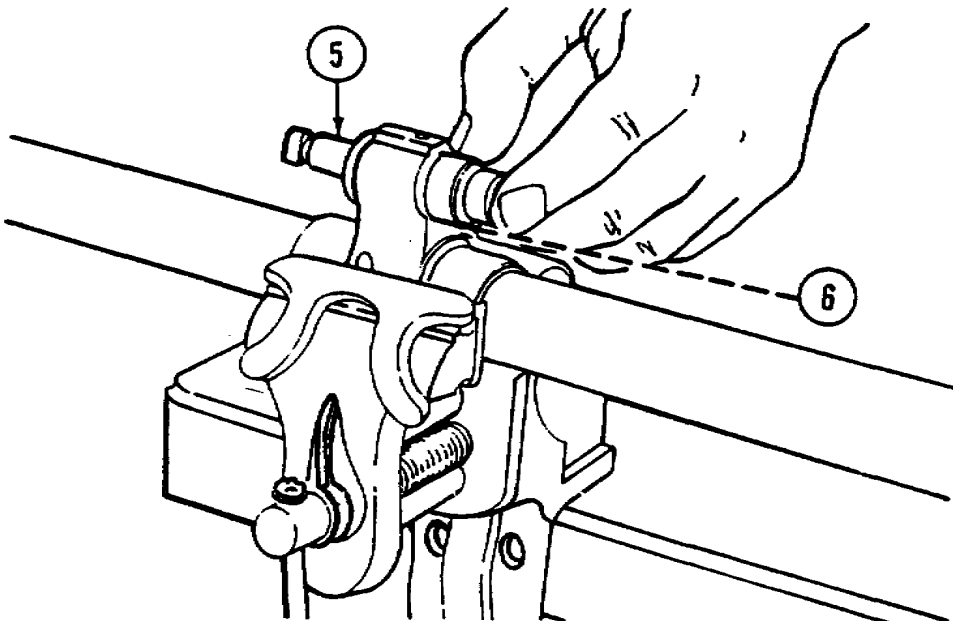
FIGURE 45. PLUG.

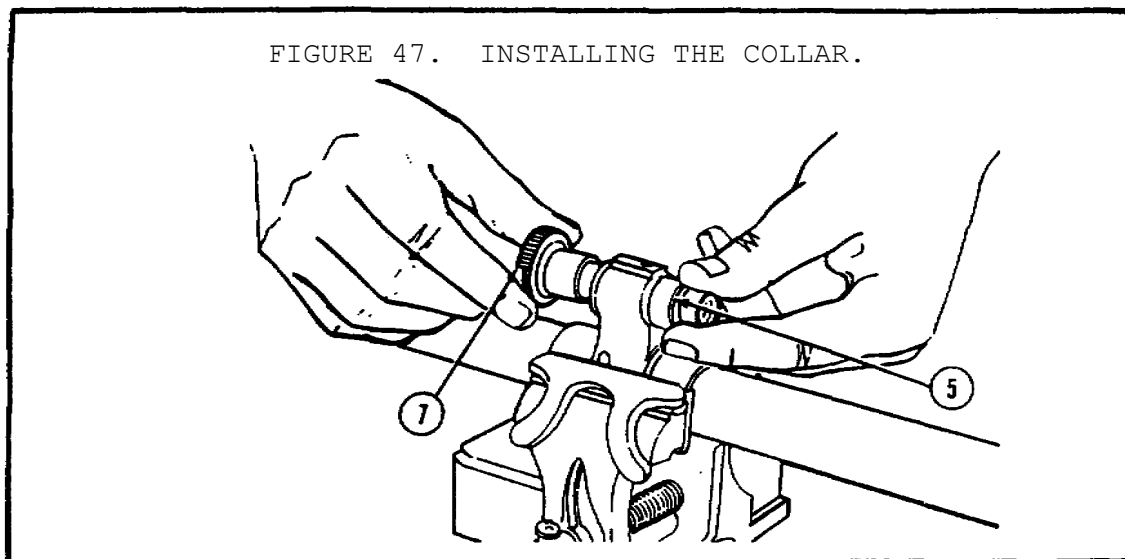


Step 2. Place the plug (5) (figure 46) with gas inlet setting number 1 (6) hole facing the barrel.

Step 3. Install the collar (7) (figure 47 on the following page) on plug (5). Rotate the collar (7) until it slips onto the plug (5). Press in and rotate to lock in place (pull the collar to be sure it is in the locked position).

FIGURE 46. INSTALLING THE PLUG.





(4) Install the flash hider on the barrel and tighten securely using a combination wrench with brass hammer.

(5) Remove the barrel assembly from the vise.

4. Maintenance of the Bolt and Operating Rod Assembly

a. *Disassembly.*

Step 1. Remove the spring-loaded pin (1) (figure 48 on the following page) and bolt assembly (2) from the operating rod (3).

Step 2. Remove spring pin (4) (figure 49 on the following page). Remove the firing pin (5) from the operating rod (3).

b. *Cleaning.* A combination tool is used to clean carbon from the piston head cavity of the operating rod.

CAUTION

Do not use abrasives to clean the operating rod piston.

Be sure the combination tool bottoms securely against the face of the piston.

FIGURE 48. REMOVAL OF SPRING-LOADED PIN AND BOLT ASSEMBLY.

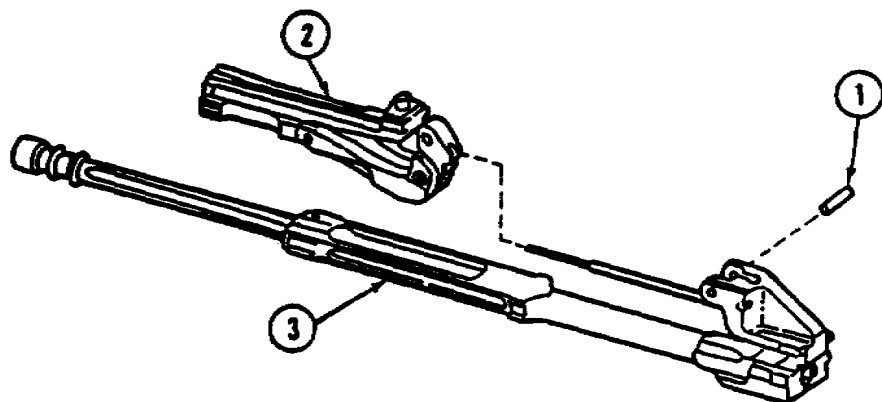
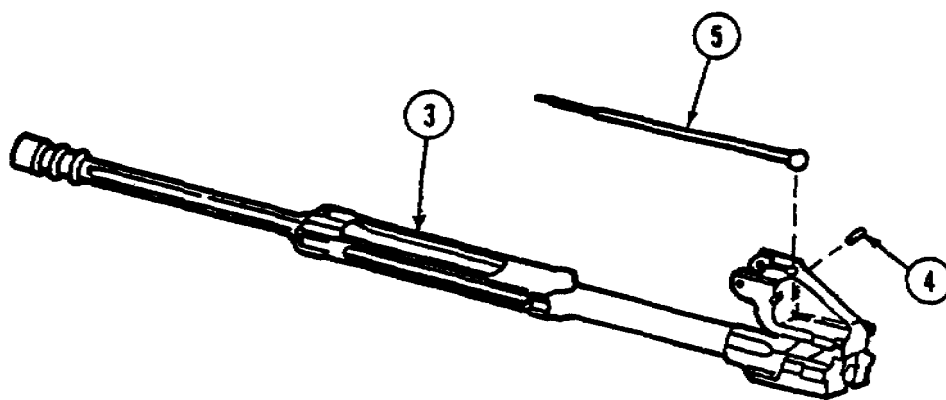
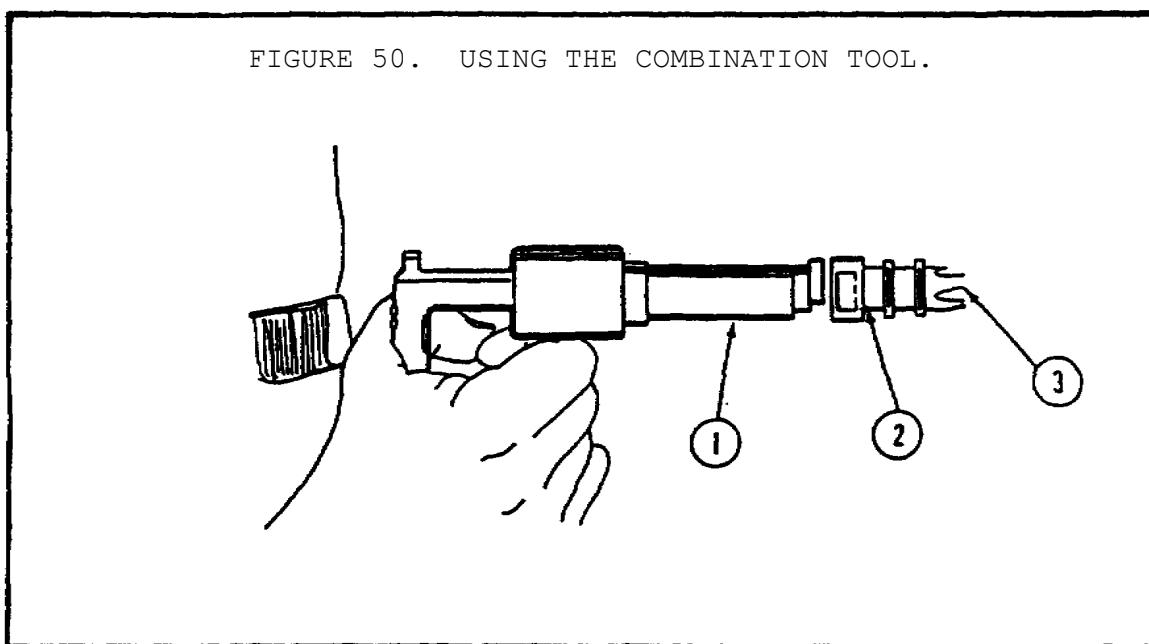


FIGURE 49. REMOVAL OF SPRING-LOADED PIN AND FIRING PIN.



MAINTENANCE OF THE M240 MACHINEGUN - OD1502 - LESSON 1/TASK 3

Step 1. Insert the combination tool (1) (figure 50) into the bottom of cavity (2) of the piston end of the operating rod (3). Squeeze the handles firmly and twist the combination tool back and forth to remove carbon.



Step 2. Insert the screwdriver end (4) (figure 51 on the following page) of the combination tool (1) into cavity (2) of the piston end of the operating rod (3) to remove carbon residue in the bottom of the cavity.

Step 3. Clean all other areas of the operating rod, firing pin, and spring pin with a wiping rag dampened with RBC. For caked carbon deposits, use more RBC.

Step 4. Lightly oil the operating rod, firing pin and spring pin after cleaning.

c. *Inspection.* A firing pin length gage is used to inspect the firing pin.

Step 1. Place the firing pin length gage on a flat surface for proper measurement of the firing pin.

Step 2. If the firing pin (1) (figure 52 on the following page) length exceeds GO (2), replace it.

FIGURE 51. REMOVING CARBON FROM PISTON
USING THE COMBINATION TOOL.

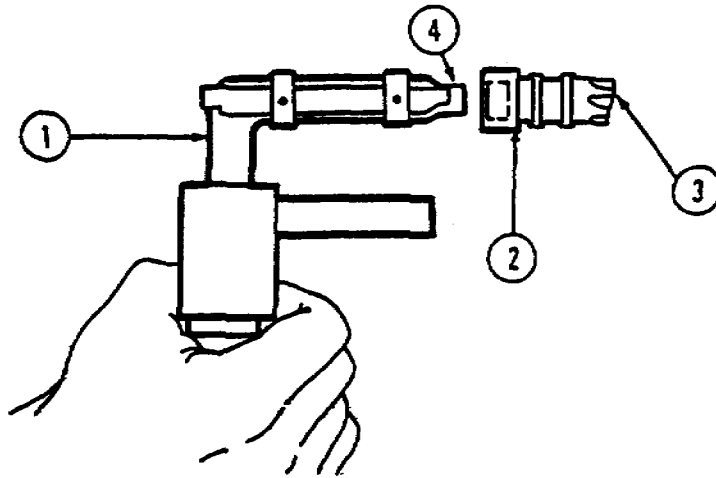
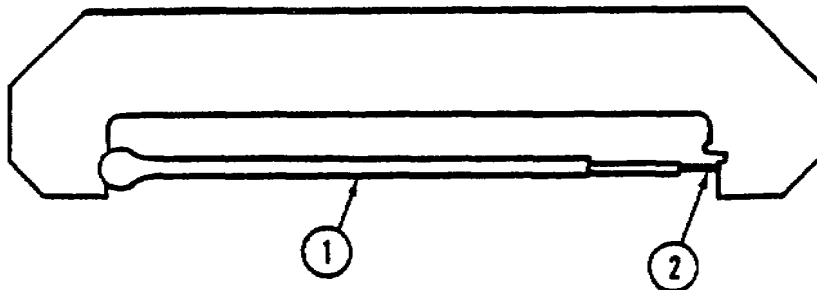


FIGURE 52. MEASURING THE FIRING PIN.



Step 3. If the firing pin (1) (figure 53 on the following page) length is less than NO GO (3), replace the firing pin.

Step 4. Inspect the spring-loaded pin (3) (figure 54 on the following page) and spring pin (4) for damage or burrs. Replace them if they are damaged.

FIGURE 53. MEASURING THE FIRING PIN (CONTINUED).

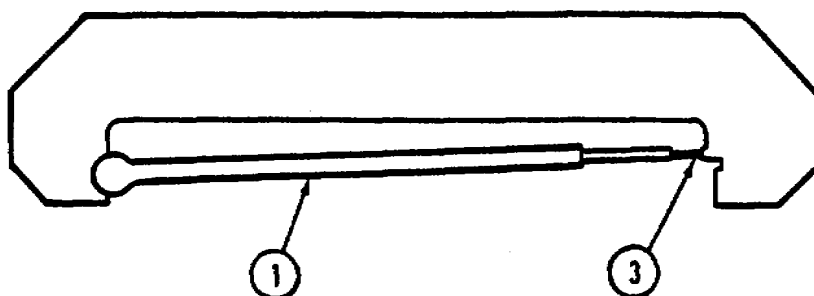
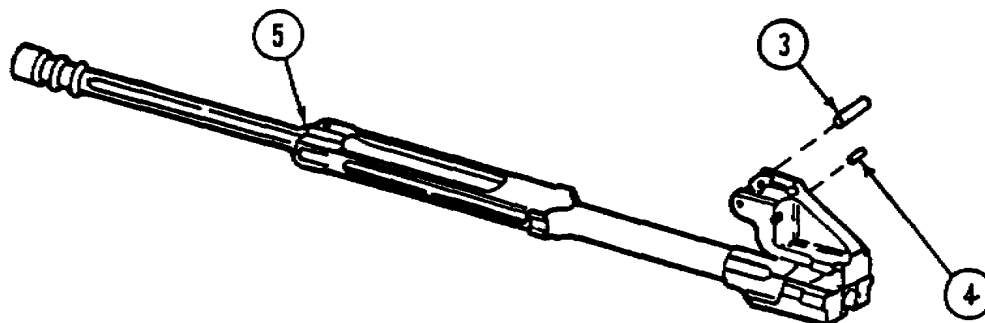


FIGURE 54. INSPECTING SPRING-LOADED PIN FOR BURRS OR DAMAGE.



NOTE

Slight rotation of the piston end of the operating rod (5) in its housing is normal and is not cause for rejection.

Step 5. If operating rod (5) is damaged, notify intermediate direct support (IDS) maintenance.

MAINTENANCE OF THE M240 MACHINEGUN - OD1502 - LESSON 1/TASK 3

d. *Repair.*

Step 1. Remove burrs from the spring-loaded pin with crocus cloth. Replace the pin if burrs cannot be removed.

Step 2. Replace the spring pin if it is damaged.

Step 3. Replace the firing pin if it is too short, bent, or broken.

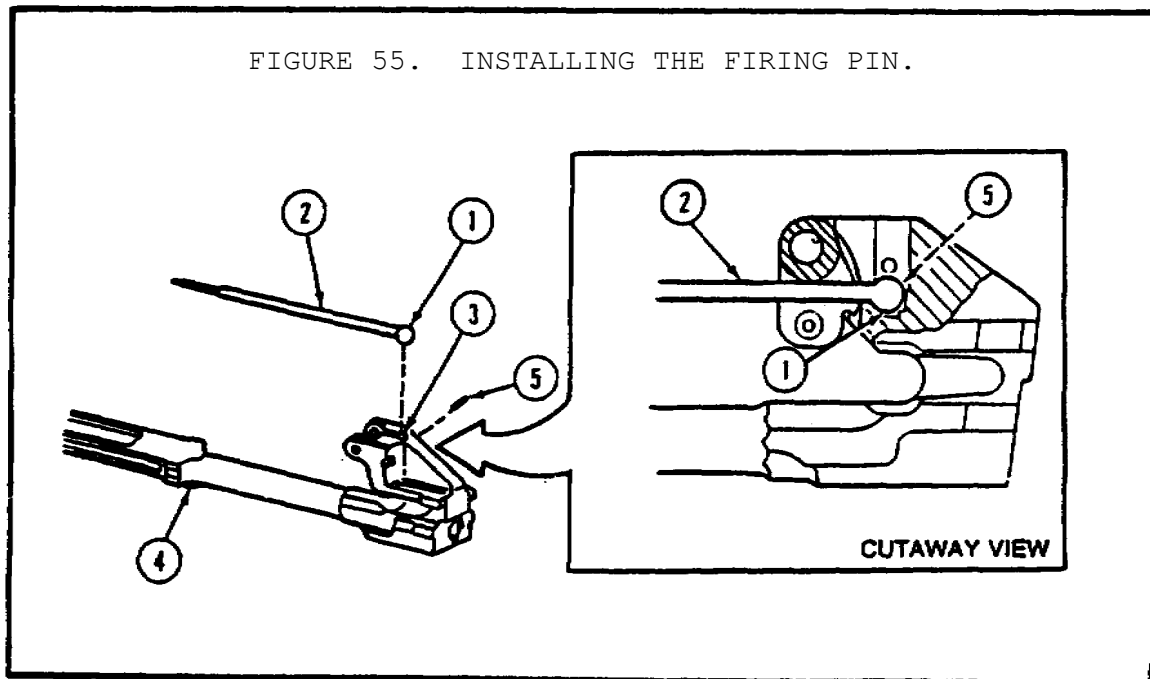
Step 4. Remove burrs from operating rod with crocus cloth. Notify intermediate direct support (IDS) maintenance if the operating rod is damaged.

e. *Reassembly.*

NOTE

The ball end of the firing pin must be positioned in the groove between the spring pin and the bottom of the groove in the operating rod.

Step 1. Install the ball end (1) (figure 55) of the firing pin (2) into the groove (3) in the operating rod (4).



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Step 2. Install the spring pin (5) (figure 55 on the previous page) so that the ball end (1) of the firing pin (2) is properly seated in the groove (3) of the operating rod (4).

Step 3. Install the bolt assembly in the operating rod and secure with the spring-loaded pin.

Step 4. Be sure the bolt linkage moves freely by moving the bolt assembly through its range of operation. If movement is not free, check the spring-loaded pin and mating surfaces for damage.

5. Maintenance of the Bolt Assembly

a. *Disassembly.* Disassembly of the bolt begins with using the ejector removing tool to remove the bolt assembly ejector.

Step 1. Align pin (1) (figure 56) of the ejector removing tool (2) with the groove in the ejector (3) in the bolt body (4).

Step 2. Insert stud (5) (figure 57 on the following page) into locking recess (6) of locking lever (7).

FIGURE 56. USING EJECTOR REMOVAL TOOL OF REMOVE EJECTOR.

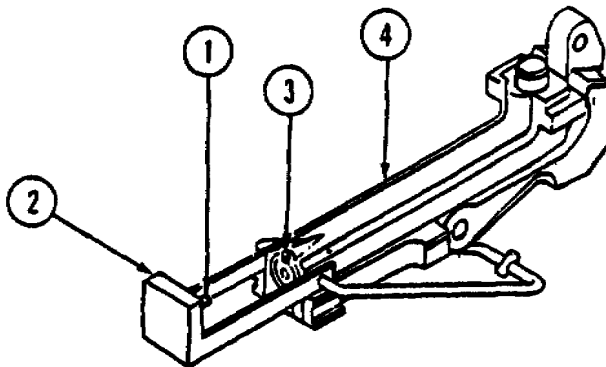
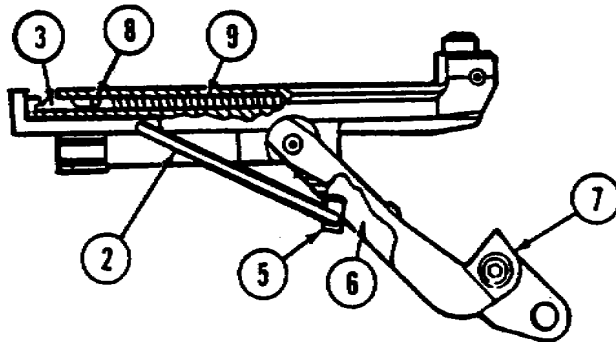


FIGURE 57. BOLT DISASSEMBLY.



Step 3. Apply pressure to the ejector (3) (figure 57) by pushing up on the looking lever (7) to relieve the spring tension on the helical compression ejector spring (9) and drive out the spring pin (8).

WARNING

Point bolt face away from your face and other soldiers. The spring can fly out and cause injury.

Step 4. Release and remove ejector removing tool (2) (figure 56 on the previous page).

Step 5. Remove ejector (3) (figure 58 on the following page) and the helical compression ejector spring (9).

Step 6. Insert the thin edge (10) (figure 59 on the following page) of the combination tool (11) in groove (12) of the extractor plunger, and insert the thick edge (13) into the looking recess (6) in the bottom of the side of the bolt body (4).

FIGURE 58. REMOVAL OF EJECTOR AND SPRING.

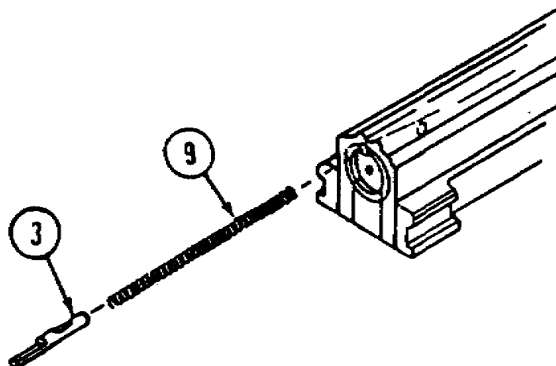
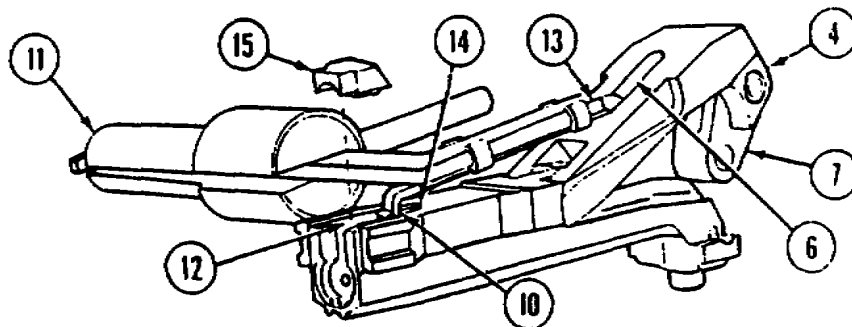


FIGURE 59. USING COMBINATION TOOL TO REMOVE THE EXTRACTOR.



Step 7. Hold the combination tool (11) and push the looking lever (7) downward to compress the extractor spring assembly (14).

Step 8. Maintaining pressure on the combination tool (11), remove the extractor (15) by pushing down on the front of it.

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WARNING

Point bolt face away from your face and other soldiers. The spring can fly out and cause injury.

Step 9. Remove the combination tool. Remove the extractor plunger and extractor spring from the bolt body.

b. *Cleaning.*

CAUTION

Do not lubricate the top or face of the bolt body.

Remove dirt and corrosion from all parts using a wiping rag dampened with RBC. Lightly oil all parts, except the top or face of the bolt body, after cleaning.

c. *Inspection and Repair.*

Step 1. Inspect the roller (1) (figure 60 on the following page) on the top of the bolt body (2) for free movement.

Step 2. Be sure bolt linkage moves freely through its range of operation. If it does not move freely, notify intermediate direct support (IDS) maintenance.

Step 3. Replace all broken authorized parts. If bolt body (2) (figure 60) is damaged, notify IDS maintenance.

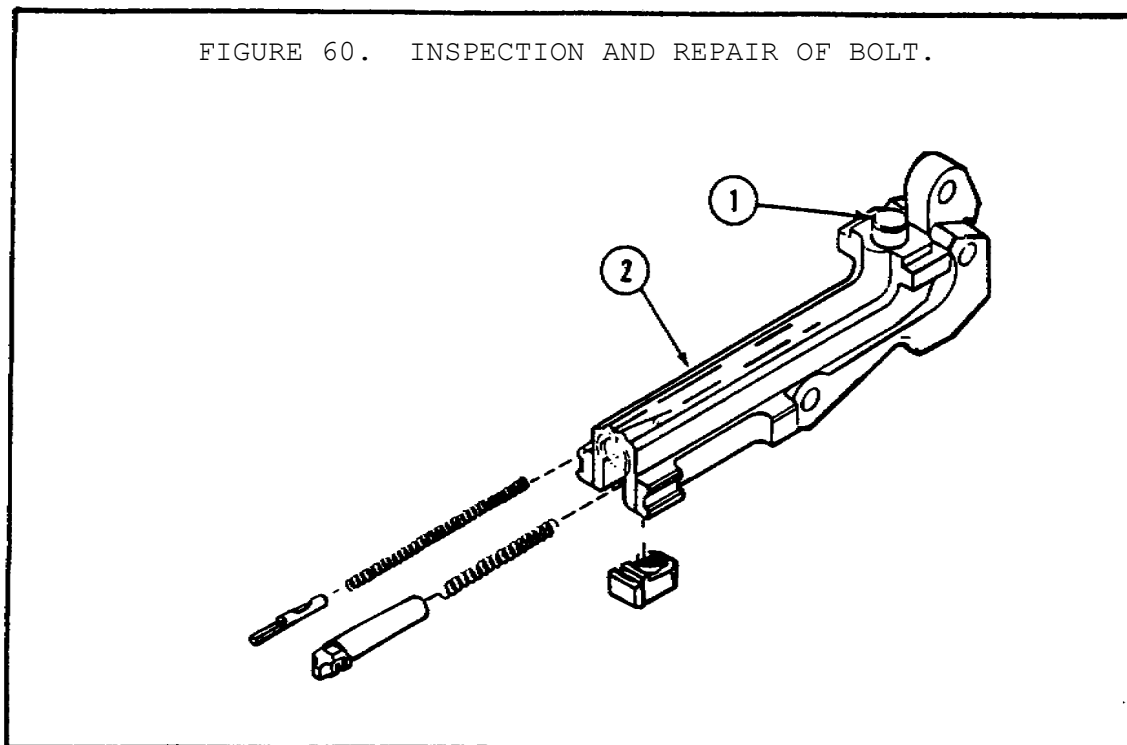
d. *Reassembly.*

WARNING

Point the bolt face away from your face and away from other soldiers. The spring can fly out and cause injury.

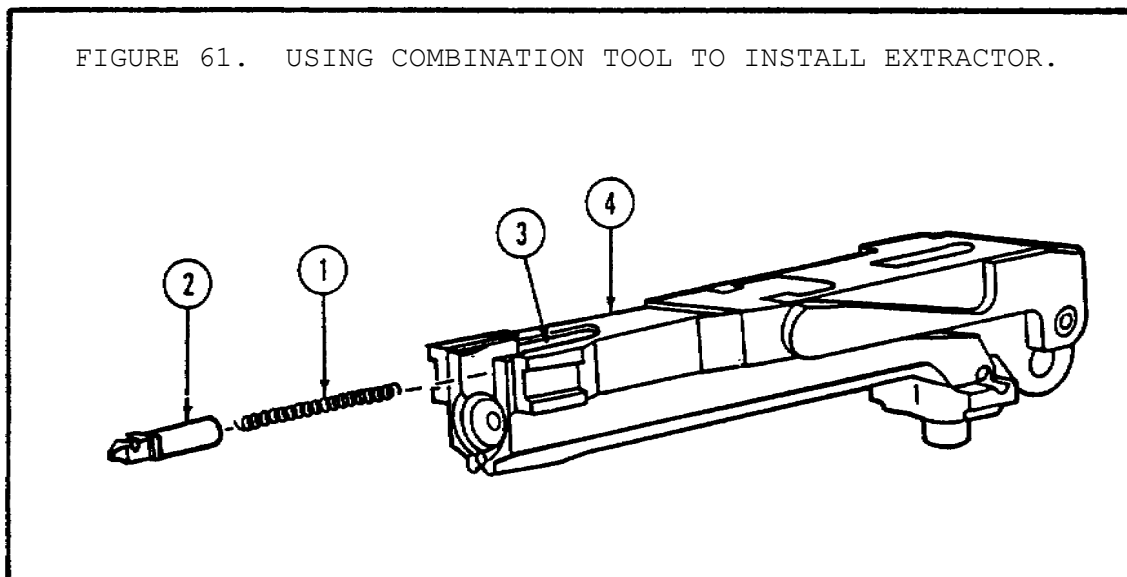
Step 1. Make sure the first coil of one end of the extractor spring (1) (figure 61 on the following page) is opened slightly. Place the open end of

FIGURE 60. INSPECTION AND REPAIR OF BOLT.



the extractor spring (1) in the extractor plunger (2). (The open end of the extractor spring should hold the extractor spring in the extractor plunger.) Place extractor spring (1) and extractor plunger (2) in hole in the bolt face (3) of bolt body (4) (extractor spring end goes in first).

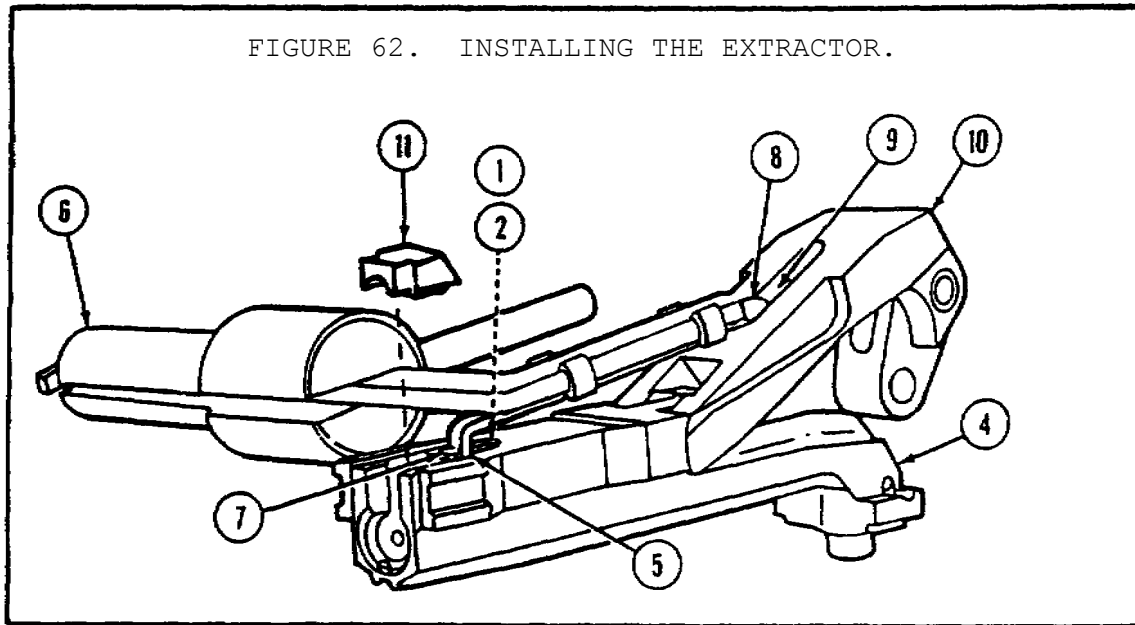
FIGURE 61. USING COMBINATION TOOL TO INSTALL EXTRACTOR.



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Step 2. Insert the thin edge (5) (figure 62) of the combination tool (6) in groove (7) of the extractor plunger (2) and thick edge (8) in the locking recess (9) in the bottom side of the bolt body (4).

Step 3. Hold the combination tool (6) (figure 62) and push the locking lever (10) downward to compress the extractor spring (1) and extractor plunger (2).



Step 4. Insert the extractor (11) in the bolt body (4). Release the combination tool (6) until the extractor plunger (2) makes contact with the extractor (11).

Step 5. Remove the combination tool (6).

Step 6. Install the helical compression ejector spring into the bolt body.

Step 7. With groove facing upward (shoulder end goes in first), install ejector into the bolt body.

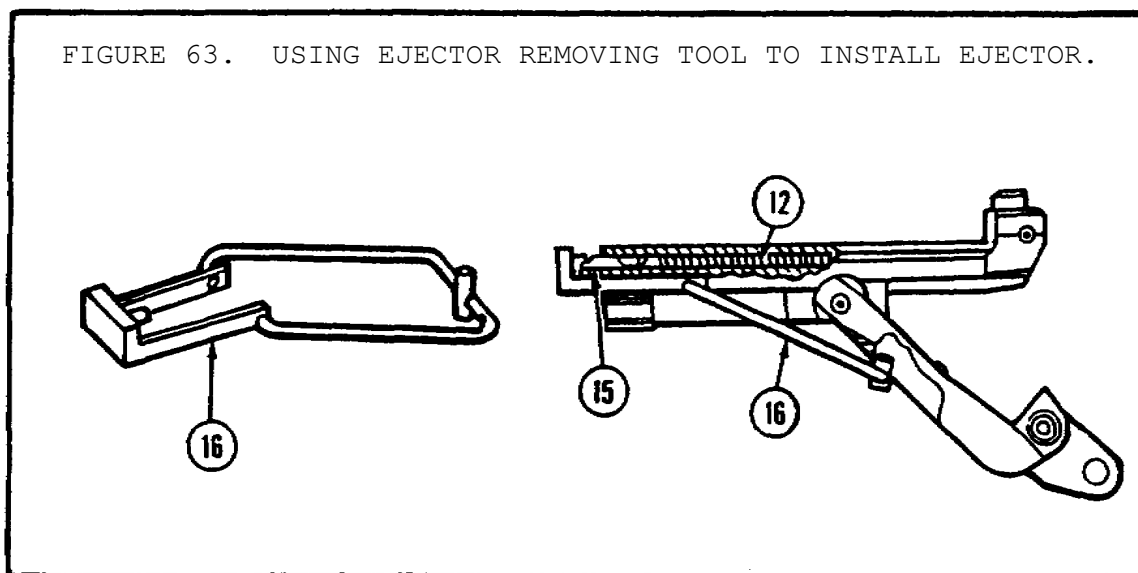
WARNING

Point bolt face away from your face and other soldiers. The spring can fly out and cause injury.

MAINTENANCE OF THE M240 MACHINEGUN - OD1502 - LESSON 1/TASK 3

Step 8. Install the ejector removing tool (16) (figure 63). Apply pressure to the ejector (15) and compress the helical compression ejector spring (12) with the ejector removing tool (16).

Step 9. Install spring pin in the bolt body. Spring pin should be flush or slightly below flush. Remove the ejector removing tool (16) (figure 63).



e. *Testing.* The breech bolt extractor engagement gage (figure 64 on the following page) is used to check the cartridge extractor engagement.

NOTE

Do not force gage into the bolt face.

Step 1. Place the GO end (2) (figure 65 on the following page) of the breech bolt extractor engagement gage (1) against the bolt face (3) with the cutout portion (4) toward the ejector (5). The gage must seat on the bolt face (3) without lifting the extractor (6).

FIGURE 64. BREECH BOLT EXTRACTOR ENGAGEMENT GAGE.

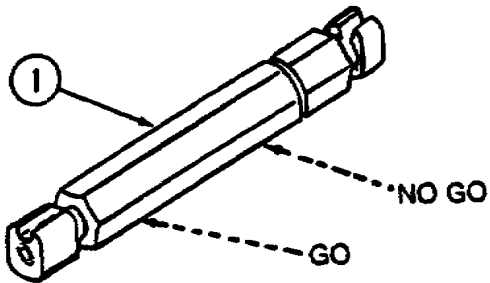
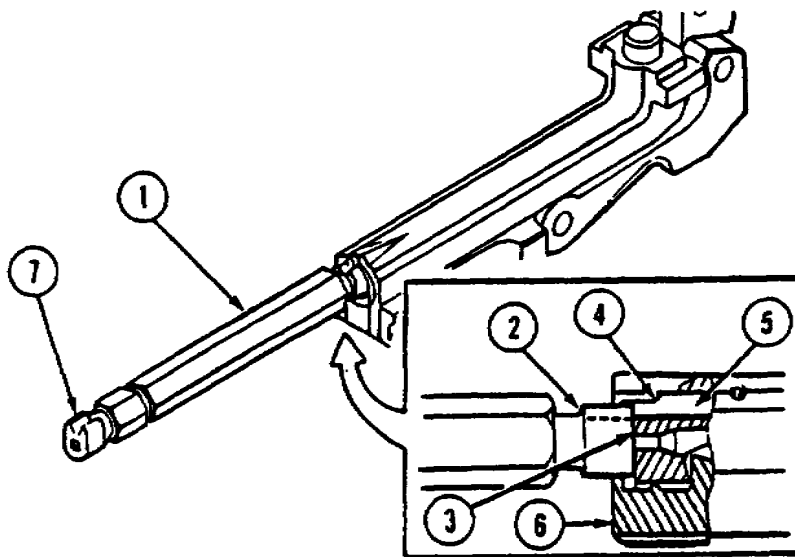


FIGURE 65. USING BREECH BOLT EXTRACTOR GAGE TO CHECK THE BOLT.



Step 2. Place the NO GO end (7) of the extractor engagement gage (1) against the bolt face (3) with the cutout portion (4) toward the ejector (5). The NO GO end (7) must not touch the bolt face (3).

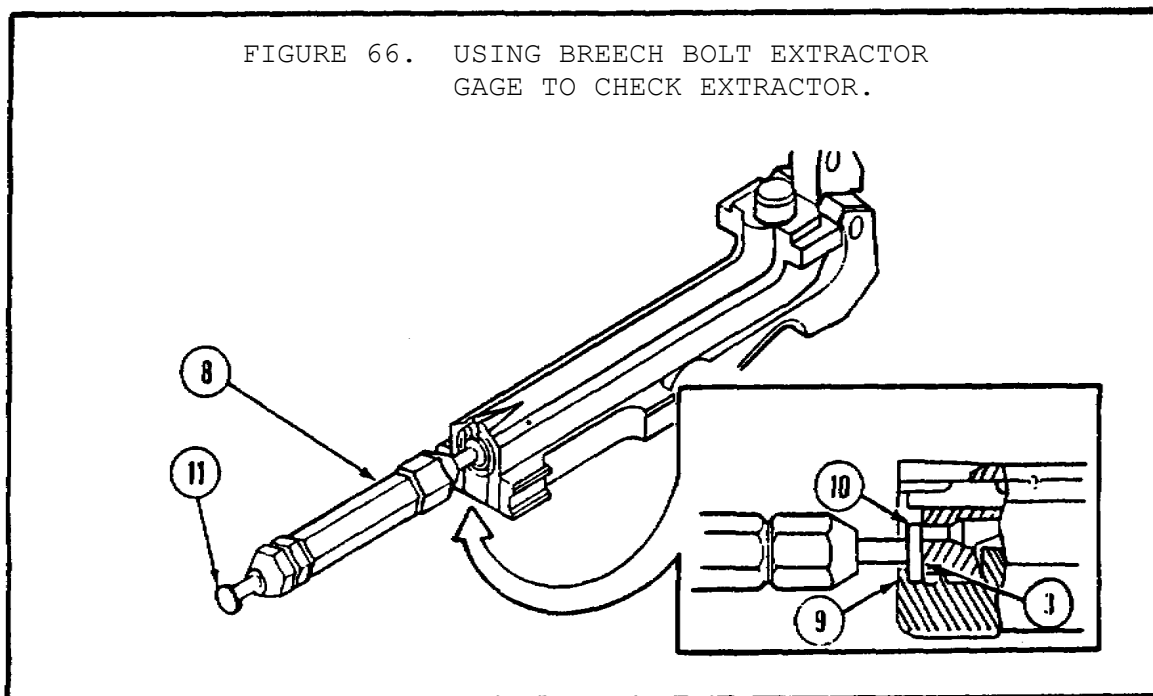
Step 3. If these conditions are not met, replace the extractor (6).

MAINTENANCE OF THE M240 MACHINEGUN - OD1502 - LESSON 1/TASK 3

Step 4. Place the breech bolt extractor clearance gage (8) (figure 66) squarely against the bolt face (3) and, keeping this contact, bring the clearance gage down behind the extractor claw (9) (figure 66). The GO end (10) must seat.

Step 5. Place the NO GO end (11) in the same way. The NO GO end (11) must not seat.

Step 6. If these conditions are not met, replace the extractor.



6. Maintenance of the Trigger Housing Assembly

a. Disassembly.

Step 1. Use an adjustable open end wrench to unscrew the hexagon plain nut (1) (figure 67 on the following page), and remove the lock washer (2), charger cable guide (3), and right grip (4) from the trigger housing assembly (5).

Step 2. Remove the hex head machine bolt, lock washer, flat washer, and left grip from the trigger housing assembly (5).

MAINTENANCE OF THE M240 MACHINEGUN - OD1502 - LESSON 1/TASK 3

b. *Cleaning/Inspection/Repair.*

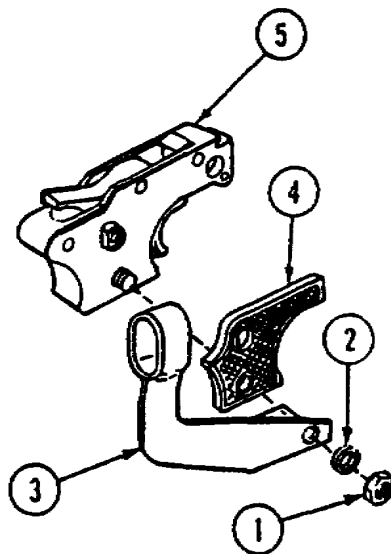
Step 1. Remove dirt and corrosion from the grips with soap and water and wipe dry with a wiping rag.

Step 2. Clean all other parts with a rag dampened with RBC.

Step 3. Visually inspect parts for damage. Also, inspect the grips for breaks and cracks.

Step 4. Inspect the charger cable guide (3) (figure 68 on the following page) for bends.

FIGURE 67. DISASSEMBLY OF TRIGGER HOUSING ASSEMBLY.

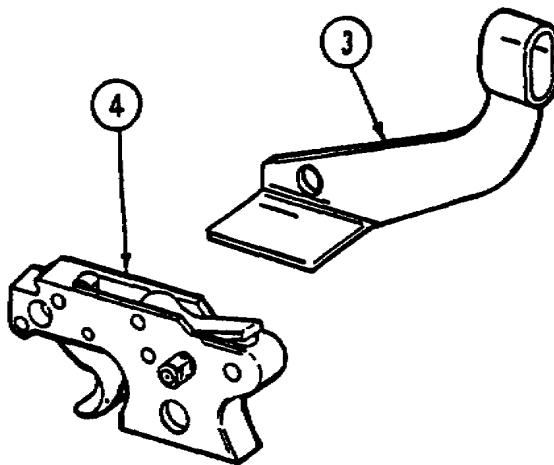


Step 5. Replace damaged authorized parts.

Step 6. If the trigger housing assembly (4) (figure 68) is damaged, notify IDS maintenance.

Step 7. Lightly oil components after cleaning them.

FIGURE 68. INSPECTING THE CABLE GUIDE AND TRIGGER HOUSING.

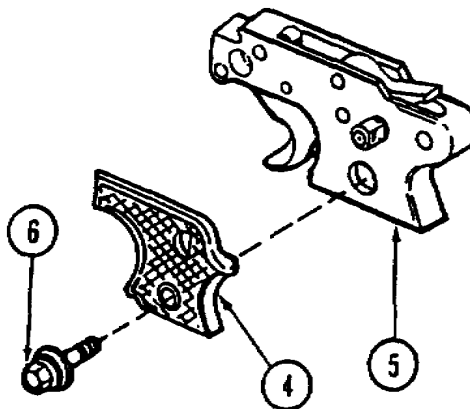


c. Reassembly.

Step 1. Install a new lock washer and flat washer on the hex head machine bolt.

Step 2. Install the left grip (4) (figure 69) on the left side of the trigger housing assembly (5).

FIGURE 69. ASSEMBLING THE TRIGGER HOUSING.



MAINTENANCE OF THE M240 MACHINEGUN - OD1502 - LESSON 1/TASK 3

Step 3. Insert the assembled bolt and washers (6) through the left grip (4) and into the trigger housing assembly (5).

Step 4. Install the right grip on the right side of the trigger housing assembly.

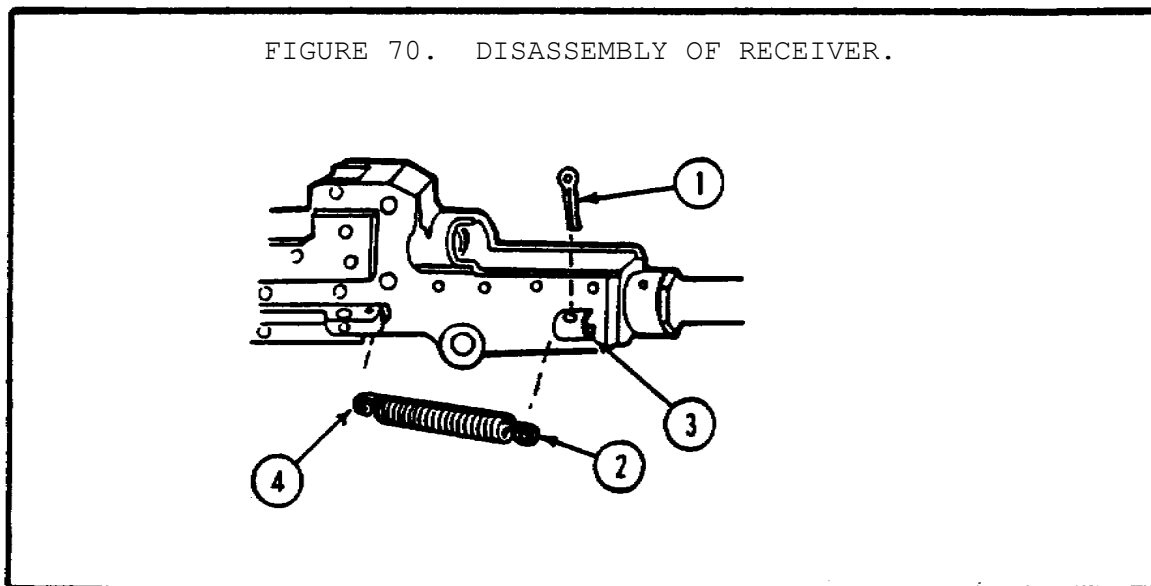
Step 5. Install the charger cable guide against the right grip.

Step 6. Secure with a lock washer and hexagon plain nut.

7. Maintenance of the Receiver Assembly

a. Disassembly.

Step 1. Remove the cotter pin (1) (figure 70) securing extension spring (2) to the spring mounting plate (3). Discard the cotter pin (1).



Step 2. Spread the coil at slide end (4) of extension spring (2) and rotate to remove.

Step 3. Remove the cotter pin securing the charger cable to the charger slide and remove the charger cable. Discard the cotter pin.

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Step 4. Turn the receiver (8) (figure 71 on the following page) upside down, depress rear tang of the access cover (9), and slightly move it toward the breech end.

Step 5. Turn the receiver (8) over and slide the access cover (9) out through breech end of the receiver.

b. *Cleaning.* Be sure the combination tool shoulder (1) (figure 72 on the following page) is seated fully against the fore end of the gas cylinder (2) before rotating the combination tool (3).

NOTE

If the combination tool is not properly seated, it could cause damage to smaller diameter of the gas cylinder.

FIGURE 71. DISASSEMBLY OF RECEIVER (CONTINUED).

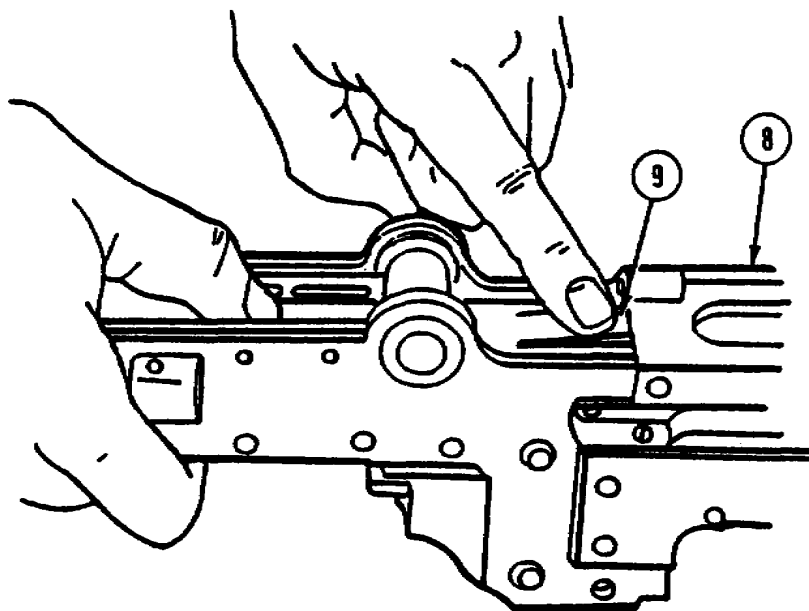
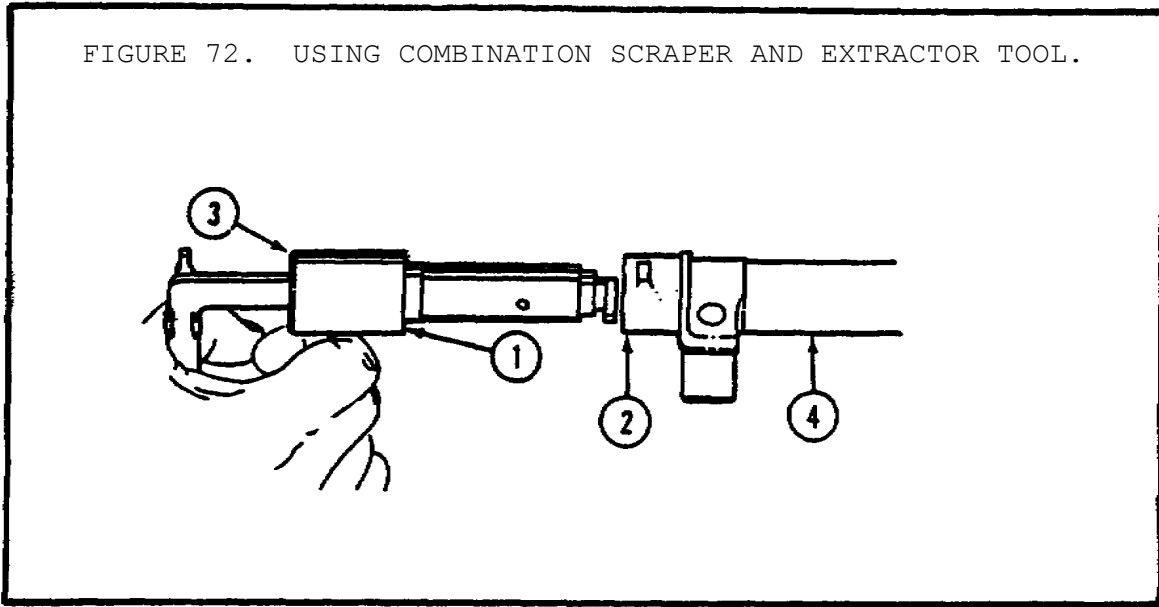


FIGURE 72. USING COMBINATION SCRAPER AND EXTRACTOR TOOL.



CAUTION

Do not use an abrasive to clean the gas cylinder end of the receiver.

Step 1. Carefully insert the combination tool (3) (figure 72) into the fore-end of the gas cylinder (2) of the receiver body (4).

Step 2. Be sure the combination tool (3) is fully inserted and seated against the fore-end of the gas cylinder (2) in the receiver body (4).

Step 3. Apply slight pressure to the handles and twist back and forth to remove carbon.

Step 4. Clean the gas cylinder bore with a gas cylinder cleaning brush dampened with RBC.

Step 5. With a wiping rag, dampened with RBC, remove dirt and corrosion from area under the front access cover of the receiver and all other parts and areas.

Step 6. For caked carbon deposits, use RBC.

c. *Inspection and Repair.*

Step 1. Check extension spring (1) (figure 73 on the following page) for distortion and breaks.

MAINTENANCE OF THE M240 MACHINEGUN - OD1502 - LESSON 1/TASK 3

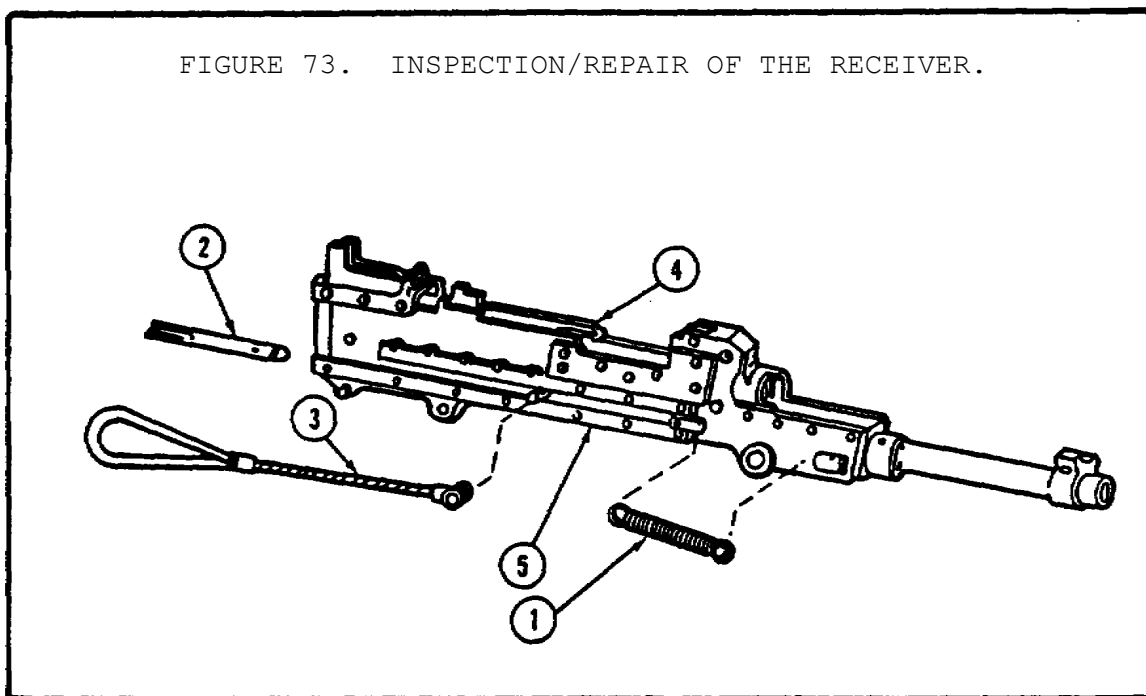
Step 2. Check access cover (2) for breaks or bends.

Step 3. Check the charger cable (3) for broken wire strands, missing rubber handle, or torn handle exposing wire rope.

Step 4. Visually check the receiver body (4) for damage.

Step 5. Replace damaged extension spring (1), access cover (2), or cable (3). If the receiver body (4) is damaged, notify IDS maintenance.

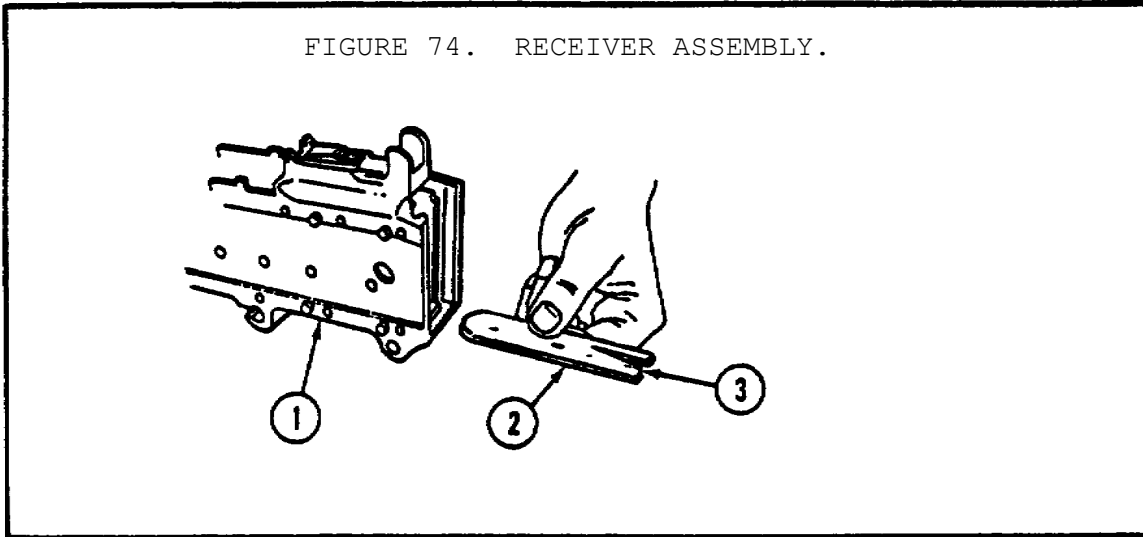
Step 6. Lightly oil the receiver (5).



d. Reassembly.

Step 1. With the receiver body (1) (figure 74 on the following page) right side up, install access cover (2). Place solid end in first with bent end of tang (3) pointed downward. Slide the access cover (2) forward until tang (3) clicks into the locked position in the receiver body (1).

FIGURE 74. RECEIVER ASSEMBLY.

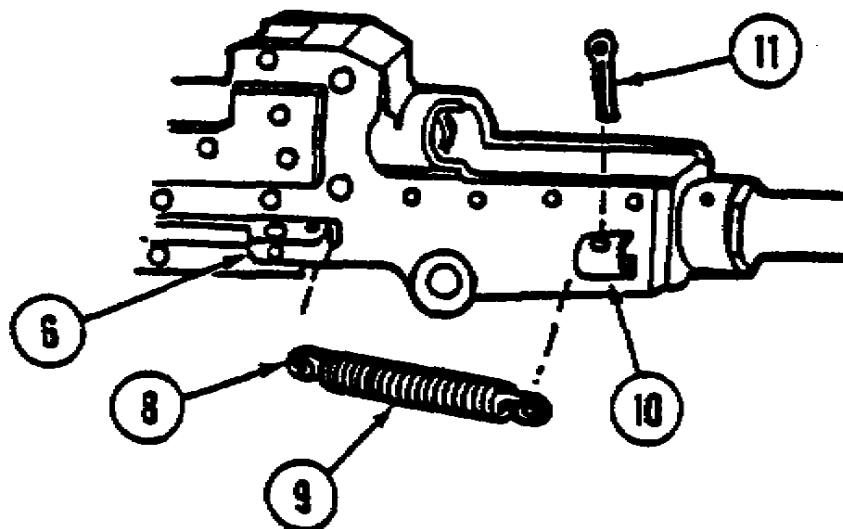


Step 2. Turn the receiver body over and be sure the front access cover and tang are in the correct position.

Step 3. Turn the receiver over again and install the charger cable onto the post of the charger slide and install a new cotter pin. Spread the ends of the cotter pin to secure this pin.

Step 4. Spread the rear end (8) (figure 75, on the following page) of extension spring (9) and hook to the charger slide (6). Rotate the extension spring (9) and secure to the spring mounting plate (10) with a new cotter pin (11) in the spring mounting plate (10). Spread ends of the cotter pin (11) to secure this pin.

FIGURE 75. REASSEMBLY OF RECEIVER.



8. Conclusion

This task covered the maintenance and inspection procedures performed at the unit maintenance level. In the next task, those inspection and maintenance procedures performed by intermediate direct support (IDS) will be discussed.

MAINTENANCE OF THE M240 MACHINEGUN - OD1520 - LESSON 1/TASK 4

LESSON 1

OPERATION, MAINTENANCE, AND INSPECTION PROCEDURES FOR THE M240 SERIES MACHINEGUNS

TASK 4. Describe intermediate direct support (IDS) maintenance and inspection procedures for the M240 series machineguns.

CONDITIONS

Within a self-study environment and given the subcourse text, without assistance.

STANDARDS

Within two hours

REFERENCES

No supplementary references are needed for this task.

1. Introduction

Although the operator and unit mechanic are authorized to perform some replacement and repair maintenance, the more detailed disassembly and repair of the M240 machinegun takes place at the intermediate direct support (IDS) maintenance level. Naturally, the IDS mechanic must also be familiar with the inspection and maintenance procedures authorized for the operator and for the unit mechanic, since these will be needed in performing the more detailed IDS maintenance. This task discusses those maintenance procedures the IDS mechanic is authorized to perform.

2. Intermediate Direct Support (IDS) Maintenance

When performing maintenance on the M240 machinegun, the IDS mechanic will disassemble the machinegun into its major groups and assemblies. The groups and assemblies may then be disassembled, as needed, into individual components. Complete disassembly

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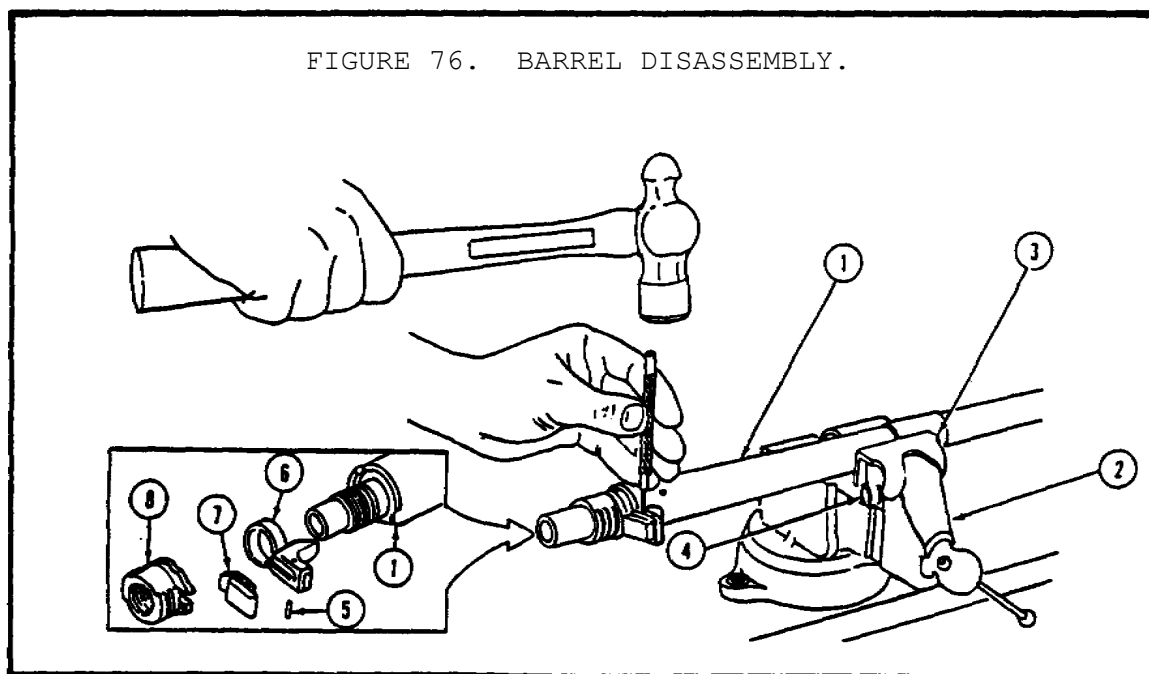
of a unit is not always necessary in order to make a required replacement or repair. Good judgment should be exercised to keep disassembly and assembly operations to a minimum. All rollers and sliding surfaces should be lubricated before reassembly. During assembly, the individual assemblies and groups should be assembled first. The major groups and assemblies can then be assembled to form a complete machinegun unit.

3. Maintenance of the Barrel Assembly

a. *Disassembly.*

Step 1. Remove the flash hider, collar, and plug.

Step 2. Clamp the barrel (1) (figure 76) in a vise (2) with protective jaws (3) above the gas regulator area with the regulator (4) pointed down.



CAUTION

The barrel and barrel adapter have left-hand threads.

Step 3. Drive the spring release pin (5) (figure 76) out of the barrel release (6). Move the barrel

MAINTENANCE OF THE M240 MACHINEGUN - OD1502 - LESSON 1/TASK 4

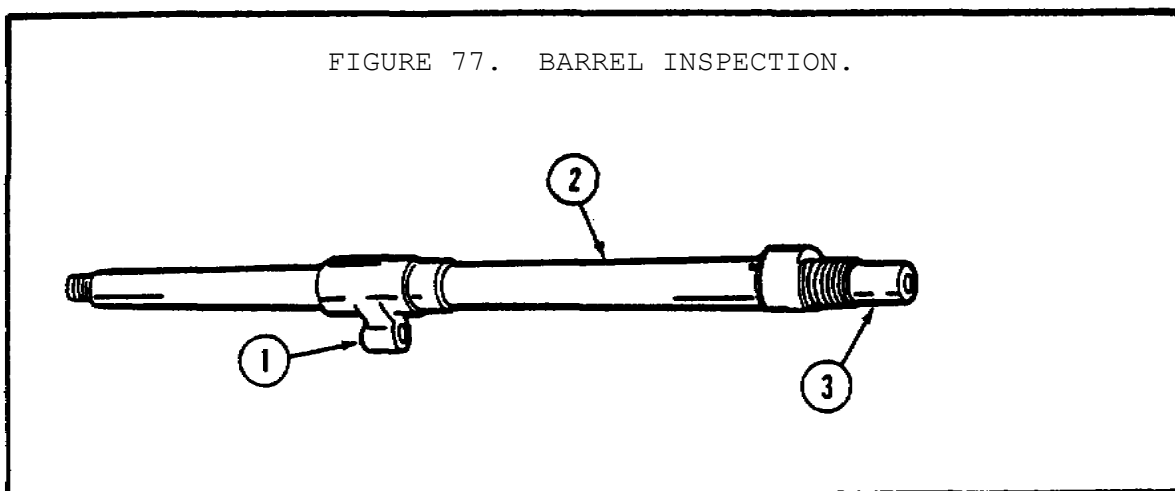
release latch (7) to stop. Unscrew the barrel adapter (8) (left-hand thread). Remove the barrel release (6) from the barrel (1). Remove barrel release latch (7) from the barrel release (6). Discard the spring release pin (5).

b. *Inspection and Repair.*

NOTE

The barrel may be removed from the vise to determine its serviceability.

Step 1. Inspect for foreign matter in the gas port (1) (figure 77) of the barrel (2).



Step 2. Inspect breech (3) for burrs.

Step 3. Take off excess matter on the cylindrical part (4) (figure 78 on the following page) of the breech.

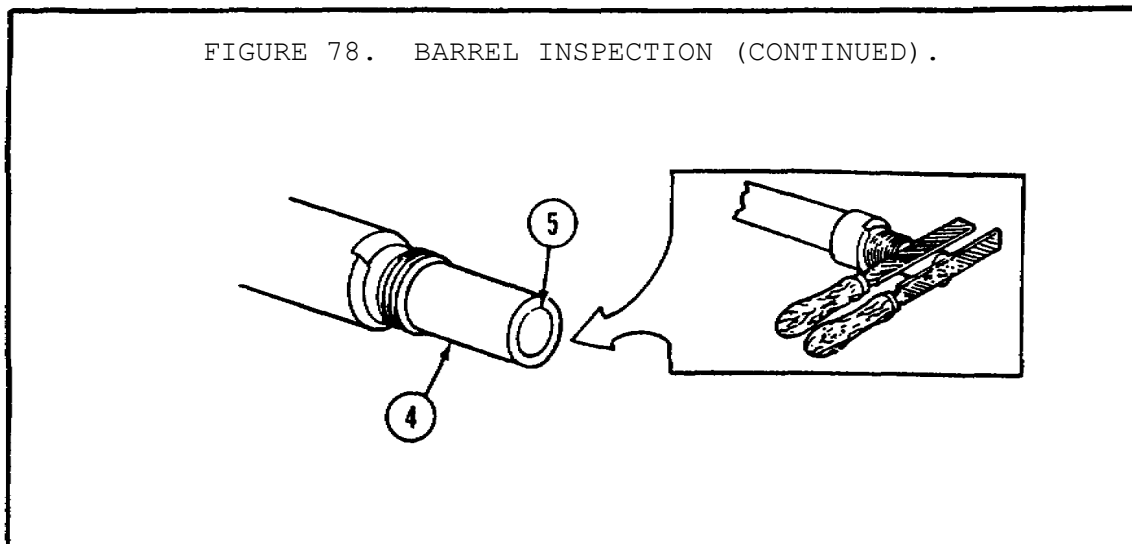
Step 4. Take off excess matter on rear section (5).

Step 5. Inspect threads for damage.

Step 6. Inspect the barrel using the following criteria:

(1) Pits in the chamber of the breech are allowable if they are not large enough to cause extraction difficulties.

FIGURE 78. BARREL INSPECTION (CONTINUED).



(2) Pits as wide as a land or groove or less in length are allowable. Replace barrel if pits greater than the width of a land or groove are present.

(3) Scattered or uniformly fine pits are allowable.

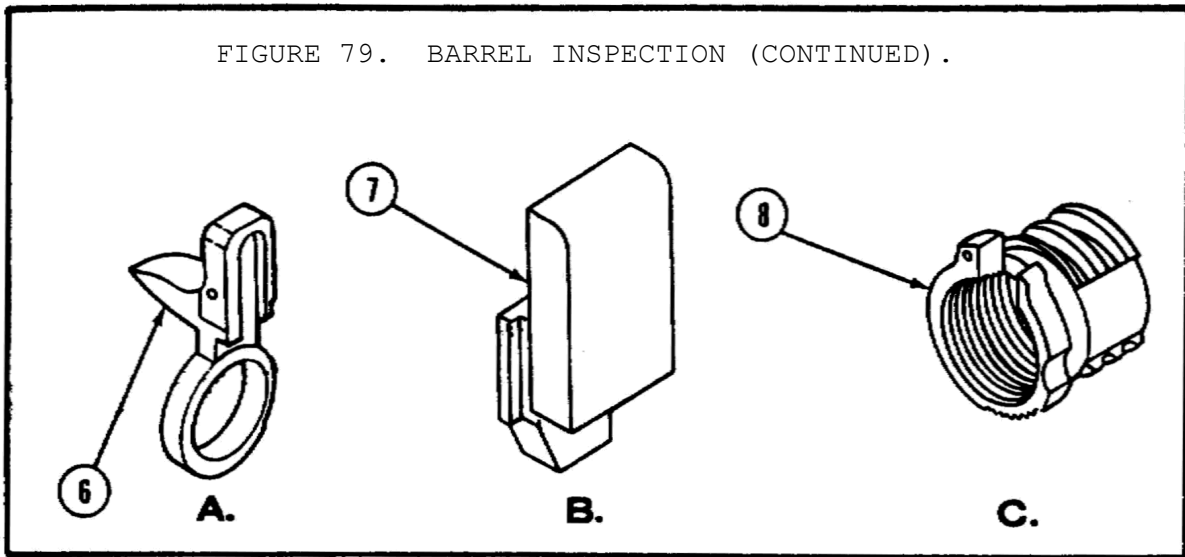
(4) Tool marks or scratches are acceptable regardless of length. Tool marks will appear as lines running laterally in the grooves or may run spirally across the top of the lands.

(5) Definitely ringed bores, or bores ringed sufficiently to bulge the outside surface of the barrel, are cause for rejection. However, faint rings or shadowy depressions do not indicate an unserviceable barrel and should not be cause for rejection.

(6) Lands that appear dark due to a coating of gilding metal from projectiles should not be cause for rejection.

(7) Check barrel release (6) (figure 79, view A, on the following page) for cracks or distortion. Replace the barrel release if it is found to have cracks or distortion.

(8) Inspect the barrel release latch (7) (figure 79, view B) for breaks or cracks. Replace if damaged.



(9) Inspect the barrel adapter (8) (figure 79, view C) for damaged threads or cracks. Replace if damaged.

c. Reassembly.

NOTE

Clamp in gas port area only.

Step 1. Place the barrel (1) (figure 80 on the following page) in vise (2) with protective jaws (3) above the gas regulator area (4) with regulator pointed down.

CAUTION

The barrel and barrel adapter have left-hand threads.

Step 2. Place the barrel release latch (5) (figure 81 on the following page) in barrel release (6). Hold them vertically and place firmly against front shoulder of the barrel (1).

Step 3. Screw the barrel adapter (7) onto the barrel fingertight.

FIGURE 80. REASSEMBLY OF BARREL.

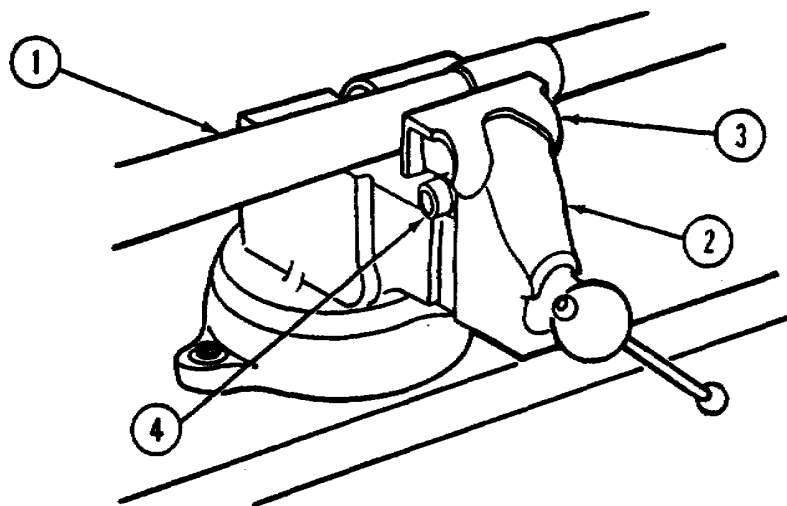
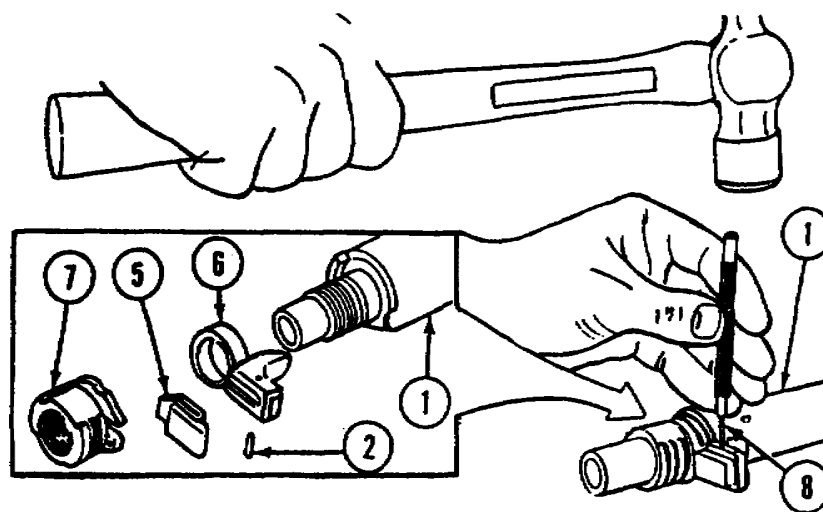


FIGURE 81. REASSEMBLY OF BARREL (CONTINUED).

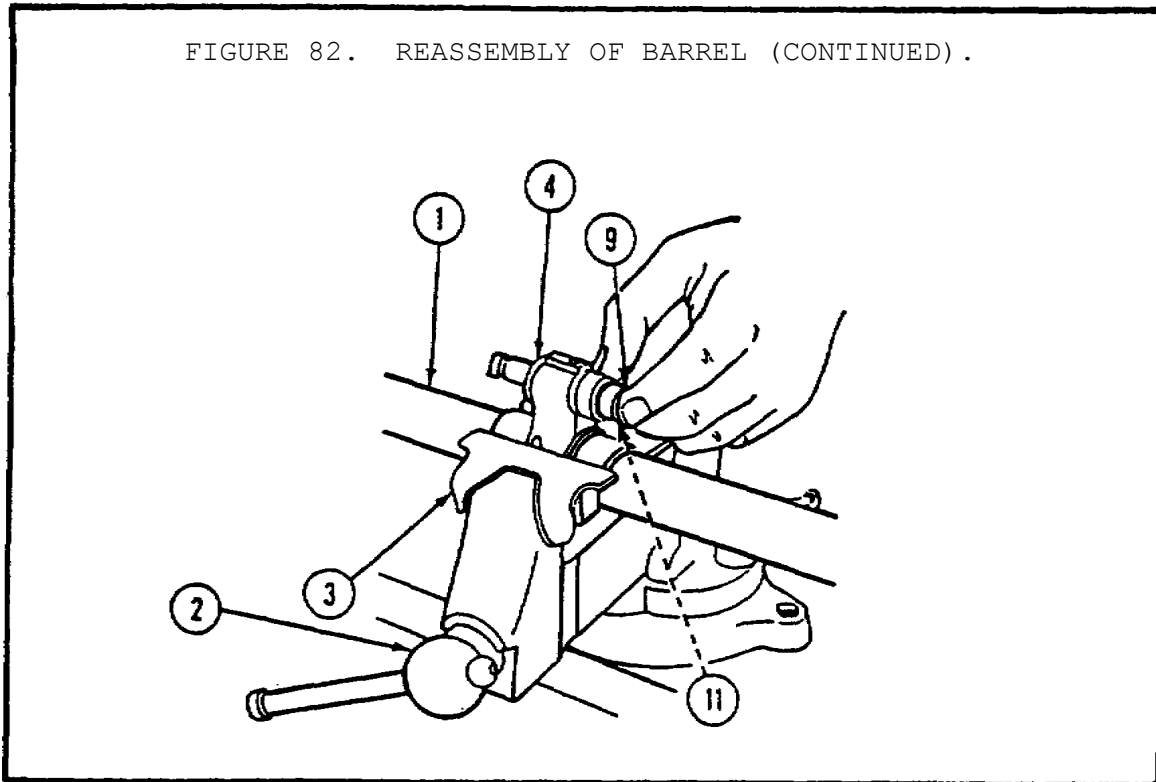


MAINTENANCE OF THE M240 MACHINEGUN - OD1520 - LESSON 1/TASK 4

Step 4. Unscrew the barrel adapter (7) (figure 81 on previous page) until the barrel release latch (5) engages the recess in the barrel adapter (7).

Step 5. Secure barrel release latch (5) to the barrel release (6) with a new spring release spring pin (8).

Step 6. Clamp the barrel (1) (figure 82) in a vise (2) equipped with protective jaws (3) below the gas regulator area, with the gas regulator area (4) pointed up.



Step 7. Place plug (9) with gas inlet hold number 1 (11) facing the barrel (1).

Step 8. Install the collar and flash hider.

Step 9. Remove the barrel assembly from the vise.

4. Maintenance of the Buffer Assembly

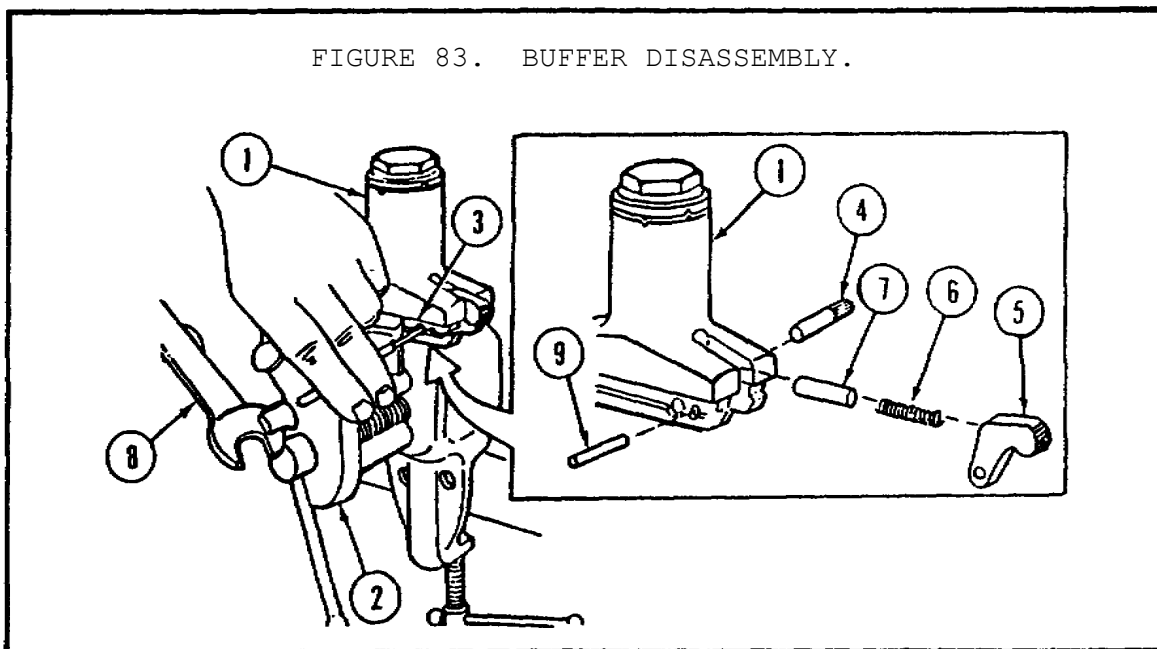
a. *Disassembly.*

MAINTENANCE OF THE M240 MACHINEGUN - OD1502 - LESSON 1/TASK 4

CAUTION

Do not overtighten the vise on plate.

Step 1. Clamp the buffer assembly (1) (figure 83) in a vise (2) (with protective jaws) at the two forward ribs (3). Be sure that the vise jaws do not cover headed straight pin (4).



Step 2. Back plate latch (5) is under tension. Hold one hand over the back plate latch when removing headed straight pin (4) and helical compression spring (6), or detent plunger (7) will fly out.

Step 3. Use brass hammer with combination wrench (8) and punch to drive headed straight pin (4) out from left to right.

NOTE

Catch stop spring pin (9) need not be removed unless damaged.

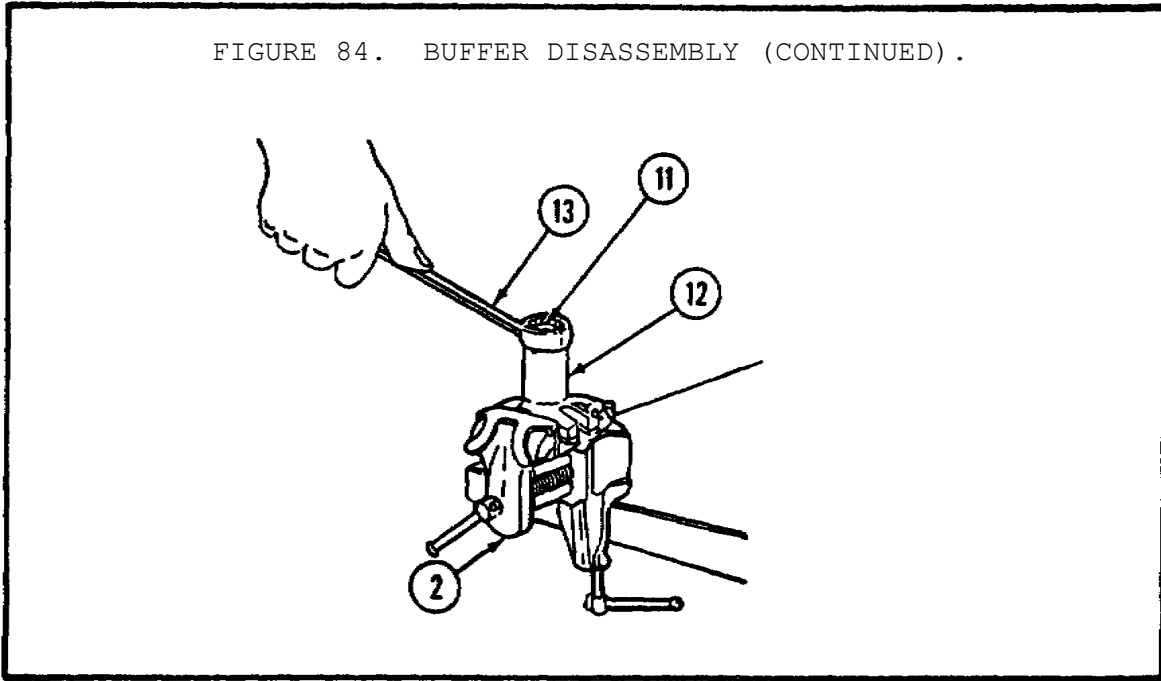
Step 4. Punch dimple of key washer out of the notch in the machine plug.

MAINTENANCE OF THE M240 MACHINEGUN - OD1502 - LESSON 1/TASK 4

Step 5. Reposition back plate (12) (figure 84) in vise (2) for more support and, using a box and open end combination wrench (13), loosen machine plug (11).

Step 6. Remove buffer from the vise.

FIGURE 84. BUFFER DISASSEMBLY (CONTINUED).

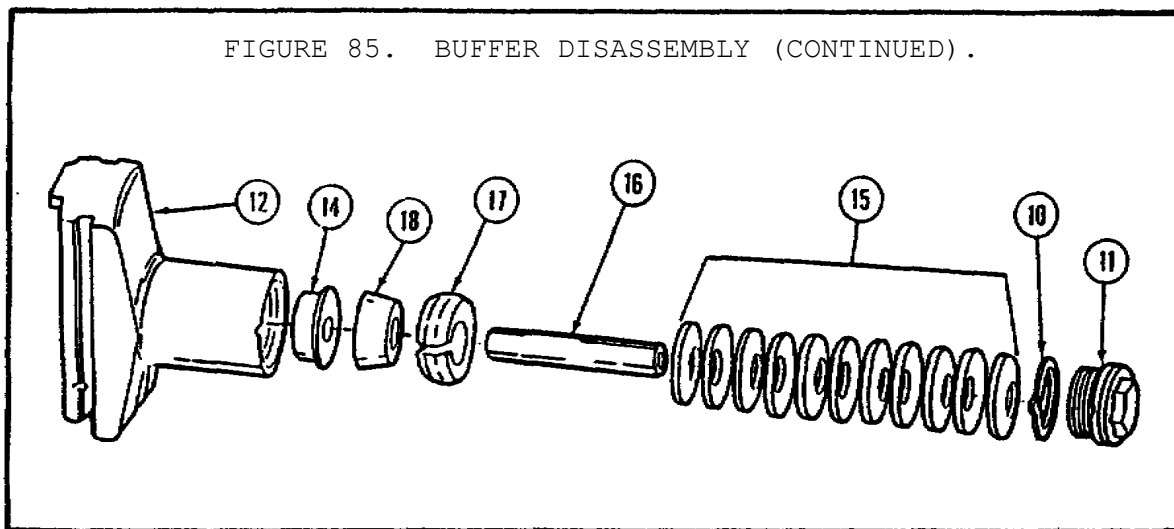


NOTE

If necessary, use the brass hammer or combination wrench to loosen the buffer plug (14) (figure 85 on the following page).

Step 7. Unscrew the machine plug (11) (figure 85) and remove key washer (10), eleven spring tension washers (15), sleeve-washer support spacer (16), expansion braking ring (17), braking buffer cone (18), and buffer plug (14) from the back plate (12). Discard the key washer (10).

b. *Cleaning.* Remove dirt and corrosion from all parts with a wiping rag dampened with RBC. Lightly oil all parts after cleaning.



c. *Inspection and Repair.*

Step 1. Check headed straight pin. Replace if bent or broken.

Step 2. Replace detent plunger if bent or broken.

Step 3. Check helical compression spring for deformation or breaks. Replace if it is damaged, broken, or deformed.

Step 4. Check back plate latch for cracks or breaks. Replace if it is damaged.

Step 5. Check back plate for damaged threads and burrs and remove burrs with a file.

Step 6. Check machine plug for deformed threads or rounded shoulders of octagon head. Replace if damaged.

Step 7. Check the eleven spring tension washers for cracks, deformation, or permanent set. Replace entire set if any are damaged, broken, or deformed.

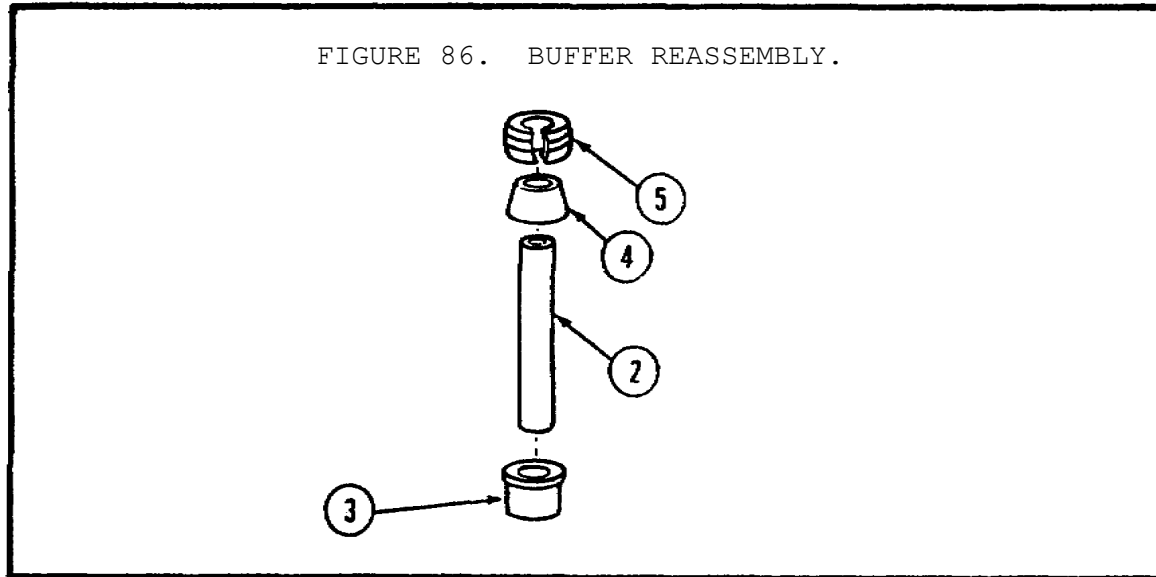
Step 8. Replace sleeve washer support spacer and buffer plug if distorted, bent, or burred.

Step 9. Check expansion braking ring and braking buffer cone for damaged mating surfaces. Replace if damaged, broken or deformed.

d. *Reassembly.*

Step 1. Place back plate with threaded end up on a clean surface.

Step 2. Place sleeve washer support spacer (2) (figure 86) into the buffer plug (3). Install braking buffer cone (4) with its base against the buffer plug (3).



Step 3. Place tapered surface of expansion braking ring (5) against tapered surface on the braking buffer cone (4).

Step 4. Apply a light coat of oil to all eleven spring tension washers (6) (figure 87 on the following page).

Step 5. Install eleven spring tension washers (6) on the sleeve washer support spacer (2). Place the concave surface of the first washer against the expansion braking ring (5). Check washer sequence diagram. Place the second washer in the opposite direction with its convex surface against the first washer.

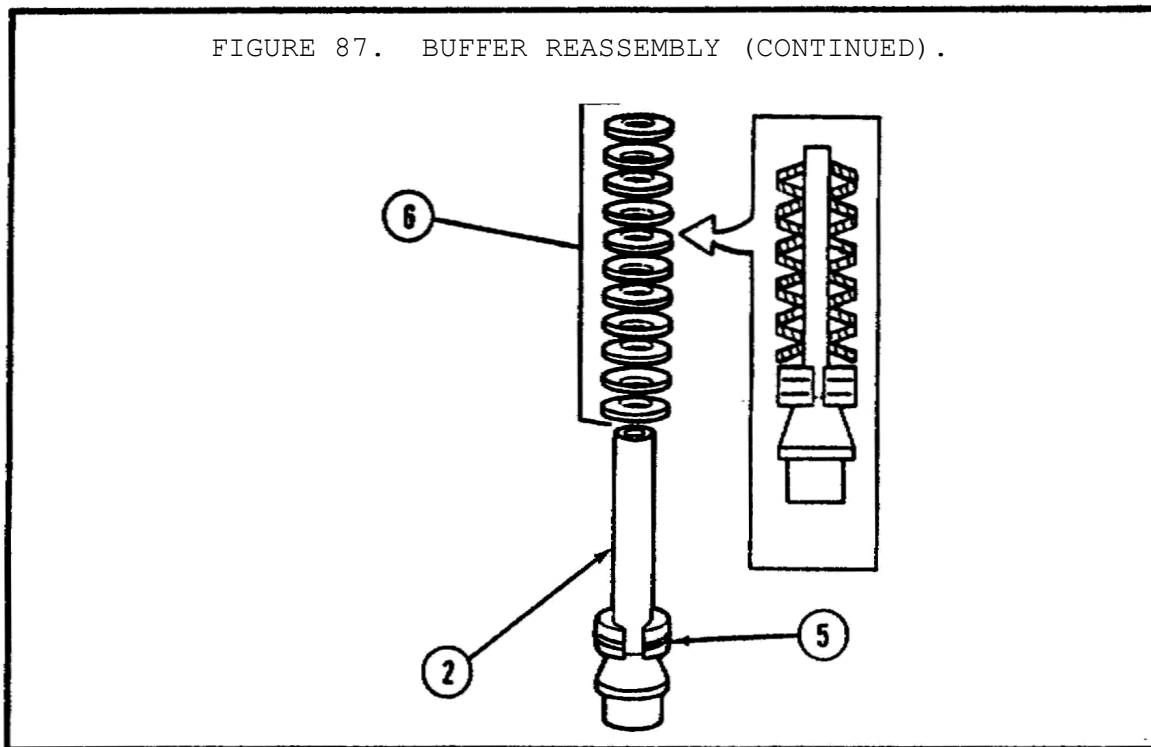
Step 6. Place the concave surface of the third washer against the concave surface of the second washer.

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Step 7. Continue this sequence until all eleven spring tension washers are assembled on sleeve washer support spacer (2) as shown in (figure 87).

CAUTION

Buffer plug must protrude through the hole in the back plate.



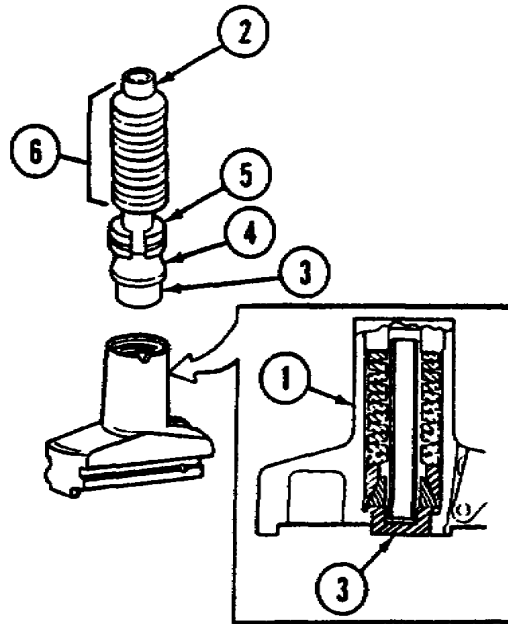
Step 8. Install sleeve washer support spacer (2) (figure 88 on the following page), buffer plug (3), braking buffer cone (4), expansion braking ring (5), and spring tension washers (6) in the back plate (1).

CAUTION

Do not overtighten vise on back plate.

Step 9. Place the back plate in a vise at the two forward ribs and secure.

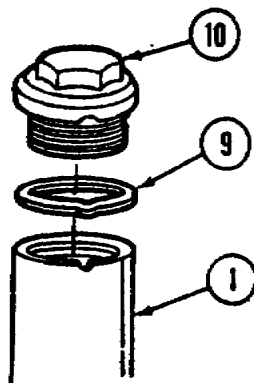
FIGURE 88. BUFFER REASSEMBLY (CONTINUED).



Step 10. Install a new key washer (9) (figure 89) aligning the notch in the key washer with the notch in the back plate (1). Install machine plug (10).

Step 11. Tighten machine plug securely with a box or open end wrench and back off 1/16 turn.

FIGURE 89. BUFFER REASSEMBLY (CONTINUED).

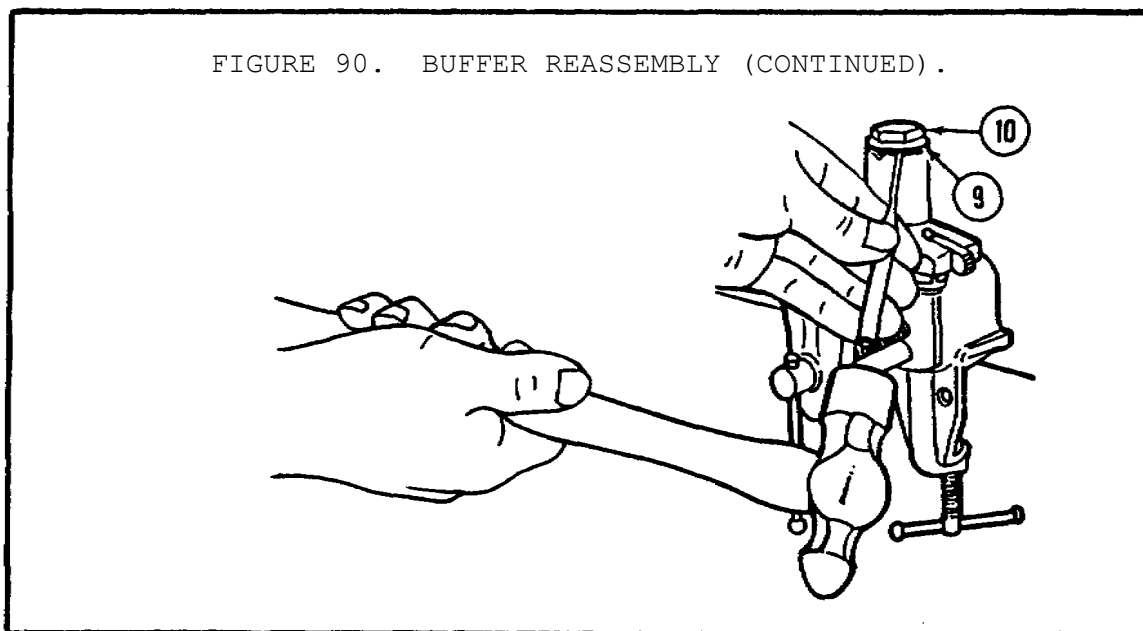


MAINTENANCE OF THE M240 MACHINEGUN - OD1502 - LESSON 1/TASK 4

Step 12. With a punch, drive the surface of key washer (9) (figure 90) into the notch of the machine plug (10) to secure.

NOTE

Relocate back plate in vise so pin holes are not covered. Place new catch stop spring pin in back plate only if it had been removed.



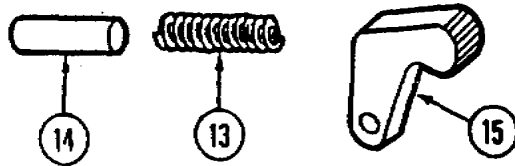
Step 13. Place the helical compression spring (13) (figure 91 on the following page), with open coil first, into the detent plunger (14).

NOTE

If a new helical compression spring is installed, open one end of first coil.

Step 14. Place helical compression spring (13) and detent plunger (14) into hole in the back plate latch (15).

FIGURE 91. BUFFER REASSEMBLY (CONTINUED).

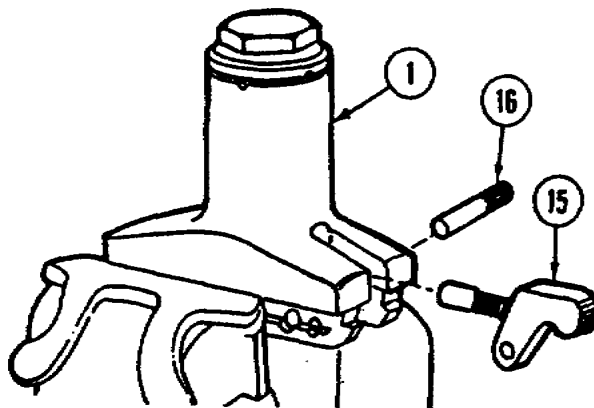


CAUTION

Be sure headed straight pin does not stick out into channels of the back plate.

Step 15. Install back plate latch (15) (figure 92) with helical compression spring and detent plunger into back plate (1). Align holes in back plate (1) and back plate latch (15). Install headed straight pin (16) from right to left (smooth end of pin is installed first).

FIGURE 92. BUFFER REASSEMBLY (CONTINUED).



MAINTENANCE OF THE M240 MACHINEGUN - OD1502 - LESSON 1/TASK 4

5. Maintenance of the Bolt and Operating Rod Assembly

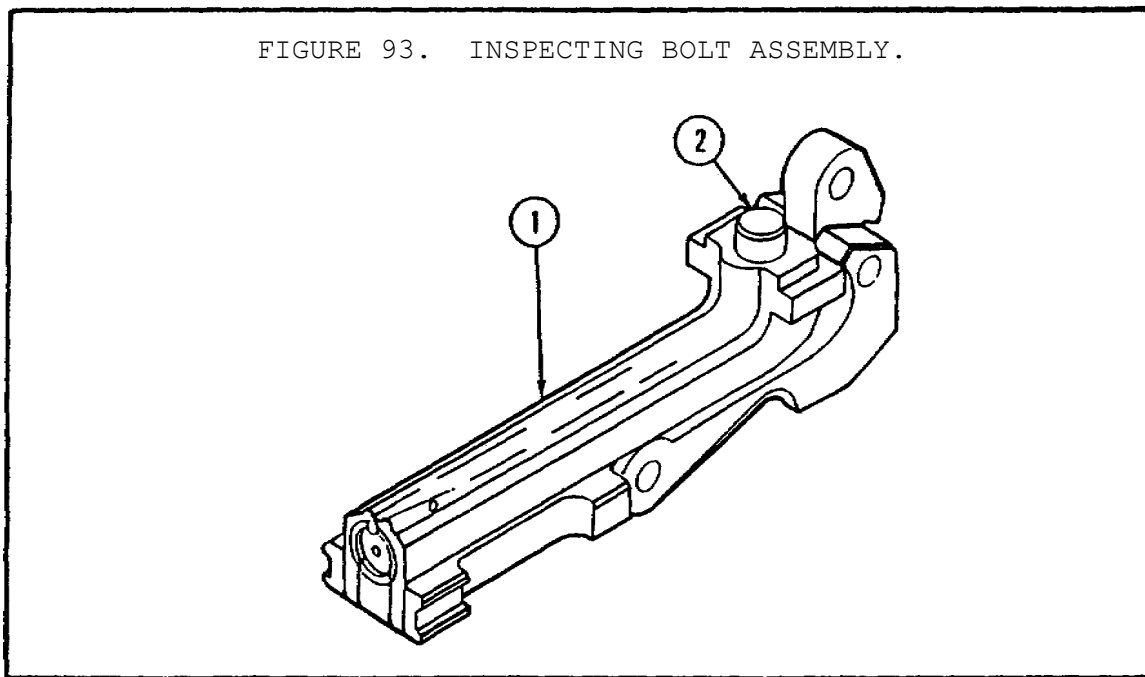
Inspect operating rod for bends, breaks, burrs, or cracks. Replace if damaged.

NOTE

Slight rotation of the piston end of the operating rod in its housing is normal and is not cause for rejection.

6. Maintenance of the Bolt Assembly

a. *Inspection.* Inspect the bolt body (1) (figure 93) for cracks using inspection penetrant. Roller (2) must rotate freely.



b. *Repair.* If damaged, replace with a new bolt body.

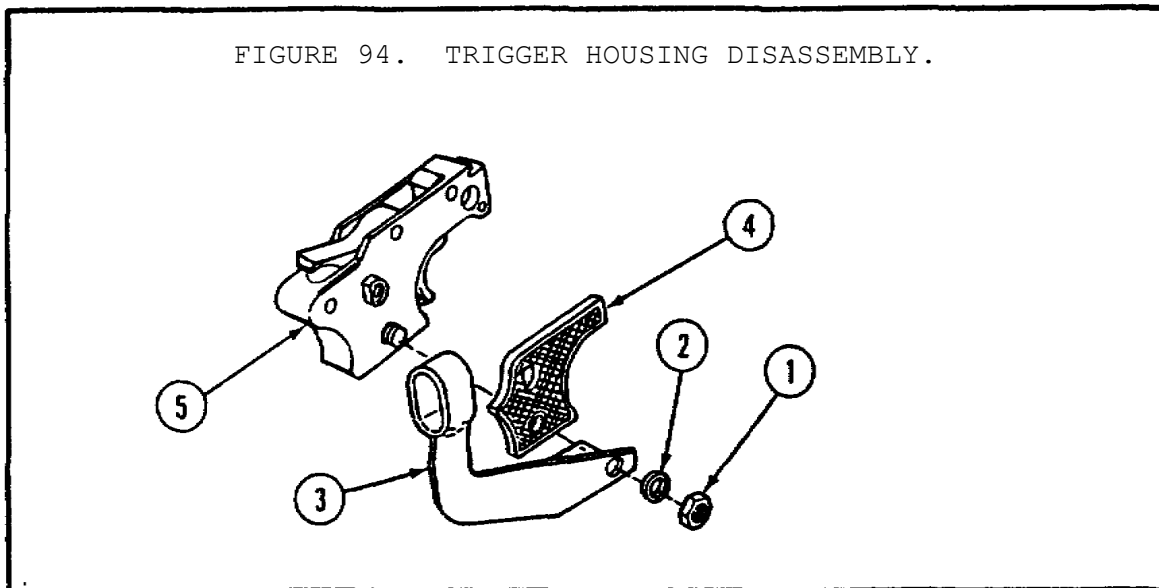
7. Maintenance of the Trigger Housing Assembly

a. *Disassembly.*

MAINTENANCE OF THE M240 MACHINEGUN - OD1502 - LESSON 1/TASK 4

Step 1. Use an adjustable open end wrench to unscrew the hexagon plain nut (1) (figure 94), and remove the lock washer (2), the charger cable guide (3), and right grip (4) from the trigger housing assembly (5).

Step 2. Remove the hex head machine bolt, lock washer, flat washer and left grip from the trigger housing assembly (5).



Step 3. Pull back on the tripping lever (10) (figure 95 on the following page) inside the trigger housing (11) and raise the sear (12).

Step 4. Rotate the safety (13) (figure 96 on the following page) a quarter turn clockwise (as viewed from the left side). Letters "S" and "F" will face downward. Pull the safety (13) through the trigger housing (11) from right to left.

Step 5. Remove three headless straight pins (14 and 15) (figure 97 on page 83), and remove the sear (12), sear spring (16), and the trigger (17) from the trigger housing (11).

Step 6. Separate the sear (12) (figure 98 on page 83) and trigger (17) by giving the sear a quarter turn, freeing it from the slot in the lever.

FIGURE 95. TRIGGER HOUSING DISASSEMBLY (CONTINUED).

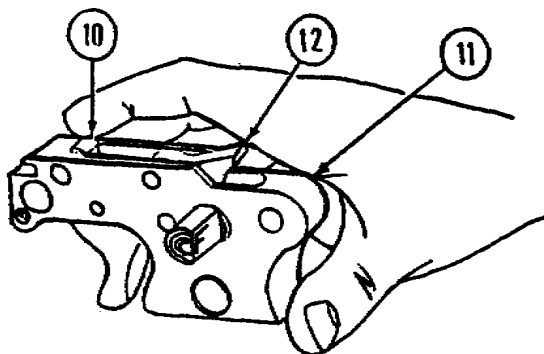
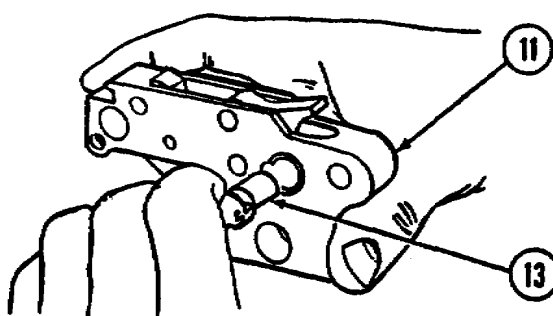


FIGURE 96. TRIGGER HOUSING DISASSEMBLY (CONTINUED).



b. *Cleaning.* Using a wiping rag dampened with RBC, remove dirt and corrosion on powder-fouled parts.

c. *Inspection and Repair.*

Step 1. Inspect front edge of trigger. Replace if chipped or if burrs cannot be removed.

FIGURE 97. TRIGGER HOUSING DISASSEMBLY (CONTINUED).

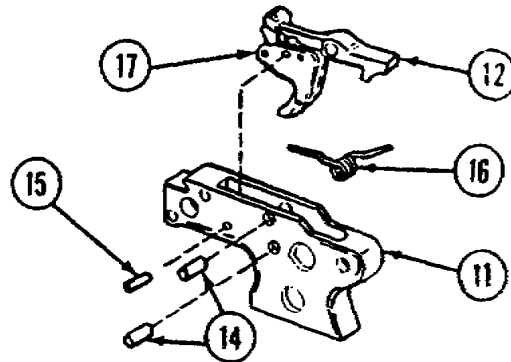
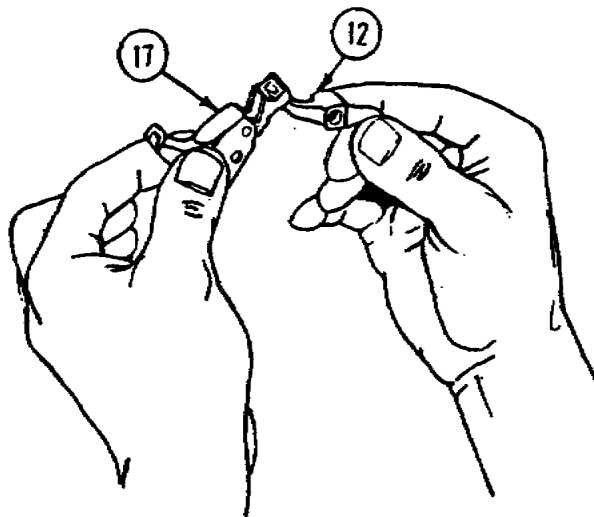


FIGURE 98. TRIGGER HOUSING DISASSEMBLY (CONTINUED).



Step 2. Pull tripping lever rearward. Replace trigger if tripping lever does not return to its position without binding.

Step 3. Check safety for burrs, damaged detent, or distorted lettering. Replace if burrs cannot be removed with crocus cloth or if safety is damaged.

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Step 4. Check headless pins and replace if bent.

Step 5. Check sear and replace if broken, cracked, or worn.

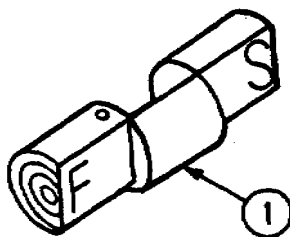
Step 6. Replace sear spring if broken or distorted.

Step 7. Check trigger housing and replace if broken or cracked.

d. *Lubrication.*

Lightly oil all parts after cleaning. Take special care to be sure safety (1) (figure 99) is clean and lubricated.

FIGURE 99. SAFETY LUBRICATION.



e. *Reassembly.*

Step 1. Insert the sear (1) (figure 100 on the following page) into lever slot in the trigger (2) sideways. Give the sear a quarter turn, as viewed from the left side.

Step 2. Place the trigger housing (3) (figure 101 on following page) on its side on a flat surface.

Step 3. Lower the sear (1) and trigger (2) into the trigger housing (3). Grasping the trigger, press it forward against the inner front edge of the housing. This action will push backward on the lever allowing the trigger to slide into place. Align the holes in trigger (2) and trigger housing (3). Insert headless straight pin (4).

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Step 4. Insert sear spring (5) (figure 102 on the following page), with leg pointing forward, into trigger housing (3). The lower tip of the sear spring must bear against the riveted pin (6) across the back of the trigger (2).

NOTE

Be sure leg of sear spring (5) is in groove of sear (1) and behind riveted pin (6) as shown in figure 102.

FIGURE 100. TRIGGER REASSEMBLY.

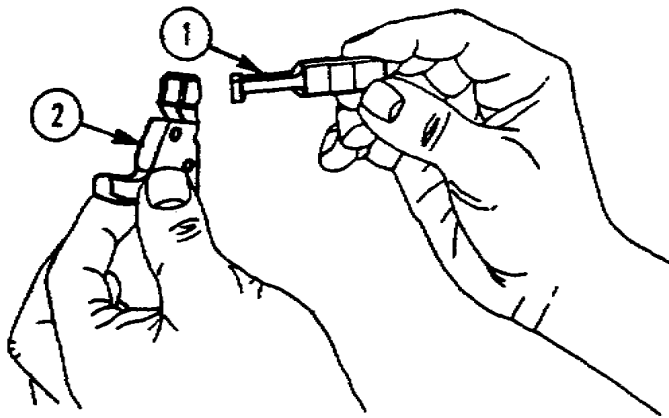


FIGURE 101. TRIGGER REASSEMBLY (CONTINUED).

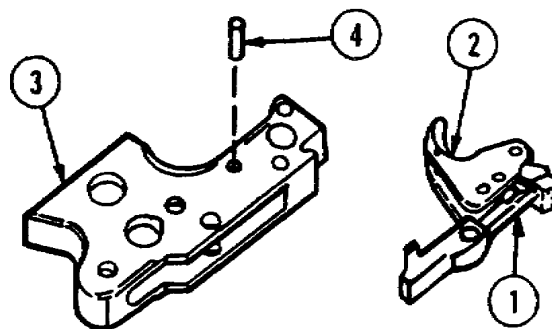
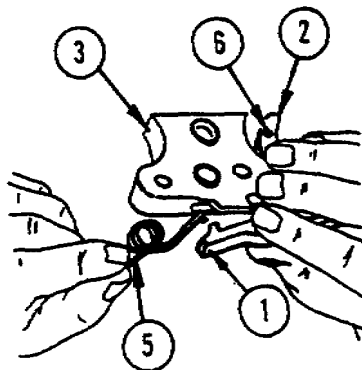


FIGURE 102. TRIGGER REASSEMBLY (CONTINUED).

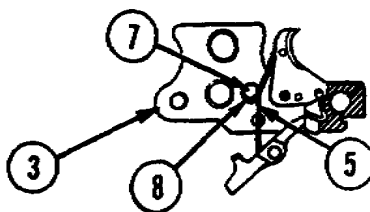


Step 5. Install one headless straight pin (7) (figure 103) in pin hole (8) in trigger housing (3) and through sear spring (5).

NOTE

Figure 103 is a cutaway view of the trigger housing.

FIGURE 103. TRIGGER REASSEMBLY (CONTINUED).



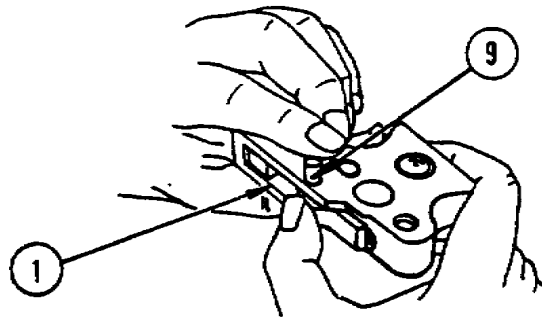
MAINTENANCE OF THE M240 MACHINEGUN - OD1502 - LESSON 1/TASK 4

Step 6. Lower sear (1) (figure 104) compressing the sear spring, and install headless straight pin (9).

Step 7. Pick up trigger housing (3) (figure 105 on the following page) and insert safety from left to right with the letter "S" first and facing down. The detent remains outside of the housing.

Step 8. Rotate the safety a quarter turn so the letters "S" and "F" face rearward.

FIGURE 104. TRIGGER REASSEMBLY (CONTINUED).



Step 9. Install the lock washer and flat washer onto the hex head machine bolt.

Step 10. Install the left grip on the left side of the trigger housing.

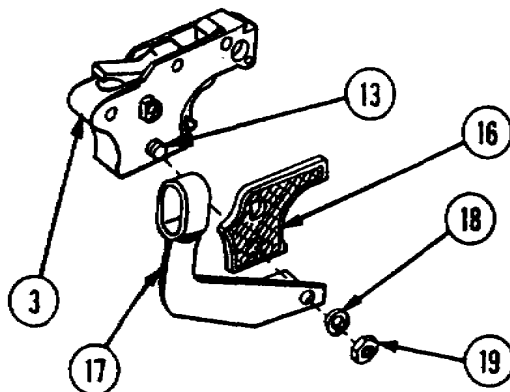
Step 11. Insert assembled bolt and washers through the left grip and into the trigger housing.

Step 12. Install the right grip (16) (figure 105) on hex head machine bolt on the right side of the trigger housing (3).

Step 13. Install charger cable guide (17) (figure 105) against the right grip (16).

Step 14. Secure with lock washer (18) and hexagon plain nut (19).

FIGURE 105. TRIGGER REASSEMBLY (CONTINUED).



8. Maintenance of the Cover Assembly

a. *Disassembly.*

WARNING

Hold hand over the retaining clips when engaging or disengaging leg or the retaining clip will fly off pivot post.

NOTE

Procedures are written for the M240 cover assembly, but apply to both the M240 and M240C cover assemblies.

Step 1. Hold retaining clip (1) (figure 106 on the following page) so it will not rotate. Lift the straight leg (2) and engage it in the hook of its opposite leg.

Step 2. Use a screwdriver to remove the spring tension lock pin (3) (figure 107 on following page).

FIGURE 106. COVER DISASSEMBLY.

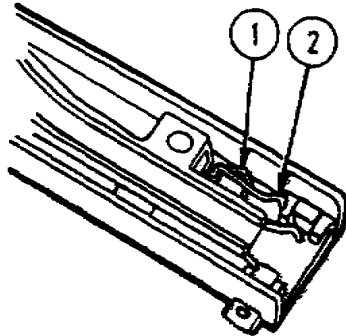
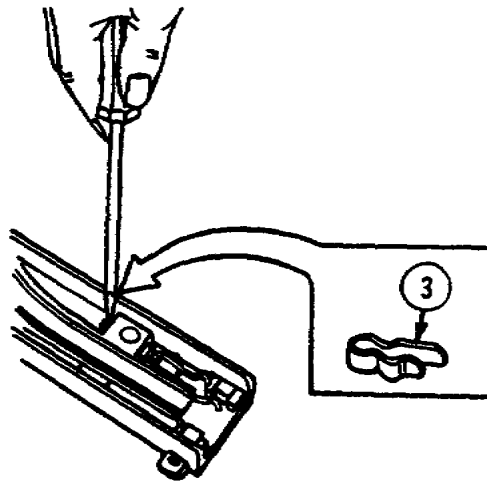


FIGURE 107. COVER DISASSEMBLY (CONTINUED).



Step 3. Remove feed lever (4) (figure 108 on the following page).

Step 4. Disengage the straight leg (2) (figure 109 on the following page) of the retaining clip (1) from the hooked leg and remove.

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WARNING

Hold hand over the retaining clip when engaging or disengaging leg, or the retaining clip will fly off pivot post.

FIGURE 108. COVER DISASSEMBLY (CONTINUED).

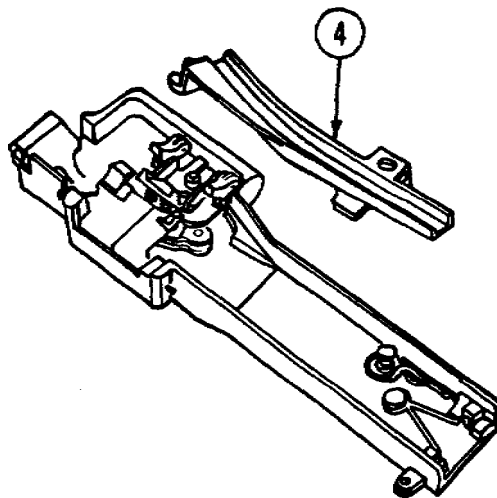
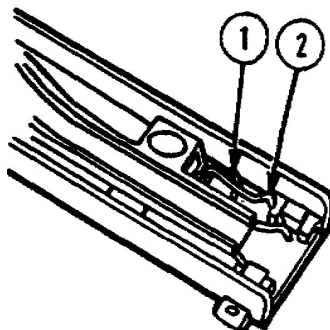


FIGURE 109. COVER DISASSEMBLY (CONTINUED).



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Step 5. Insert the blade of the screwdriver under one leg of the retaining catch clip (5) (figure 110). Apply slight pressure on the leg of the clip and raise it by turning the screwdriver against the wall of the cover to remove the retaining catch clip (5).

Step 6. Remove two cover latches (6) (figure 111).

FIGURE 110. COVER DISASSEMBLY (CONTINUED).

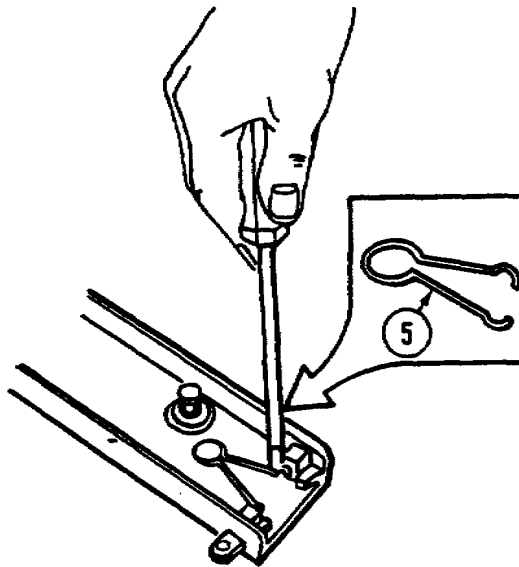
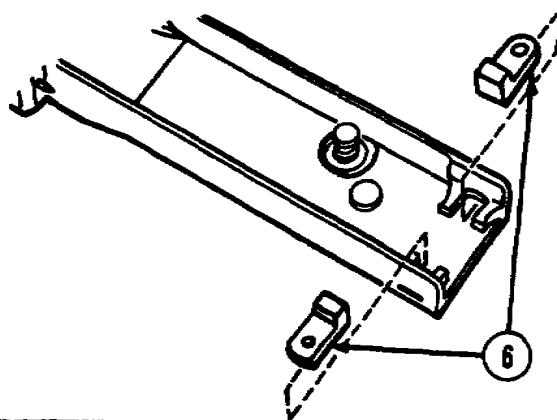


FIGURE 111. COVER DISASSEMBLY (CONTINUED).



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Step 7. Unlock pawl retaining pin (7) (figure 112) from notch in the cover.

Step 8. Apply slight pressure downward between the front and rear cartridge guides (8 and 9) (figure 113) and remove pawl retaining pin (7), rear cartridge guide (9), one helical compression spring (10), front cartridge guide (8), and the other helical compression spring (11).

FIGURE 112. COVER DISASSEMBLY (CONTINUED).

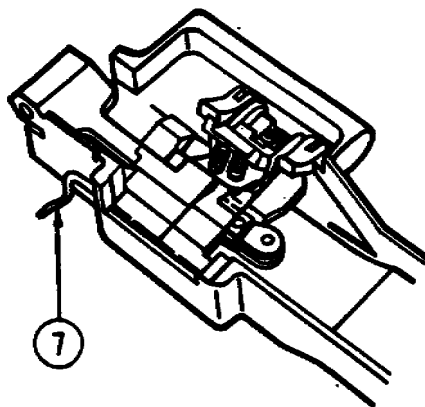
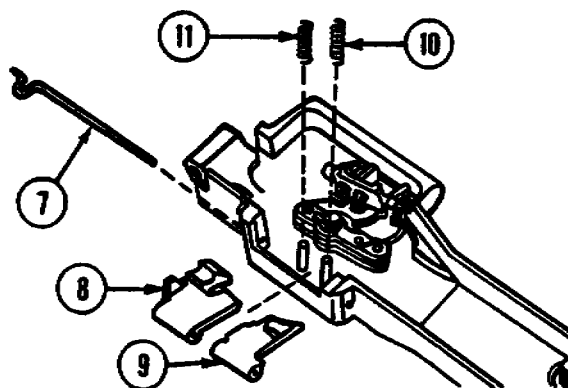


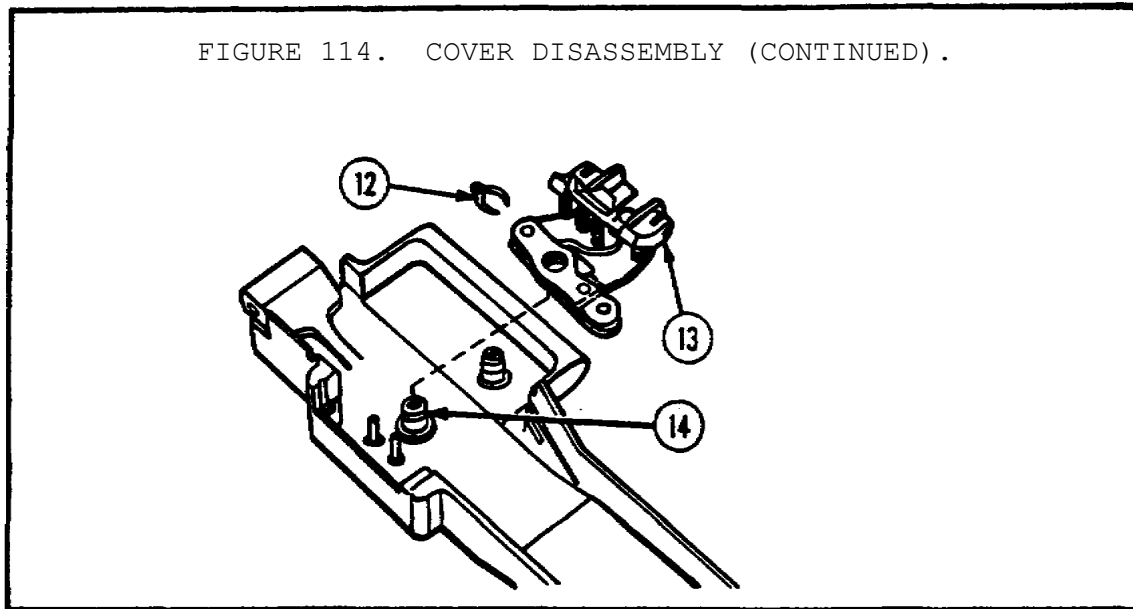
FIGURE 113. COVER DISASSEMBLY (CONTINUED).



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Step 9. Remove retaining ring (12) (figure 114) and lift the feed pawl assembly (13) off pawl pivot post (14).

b. *Cleaning.* Using a wiping rag dampened with RBC, remove dirt and corrosion on all powder fouled parts.



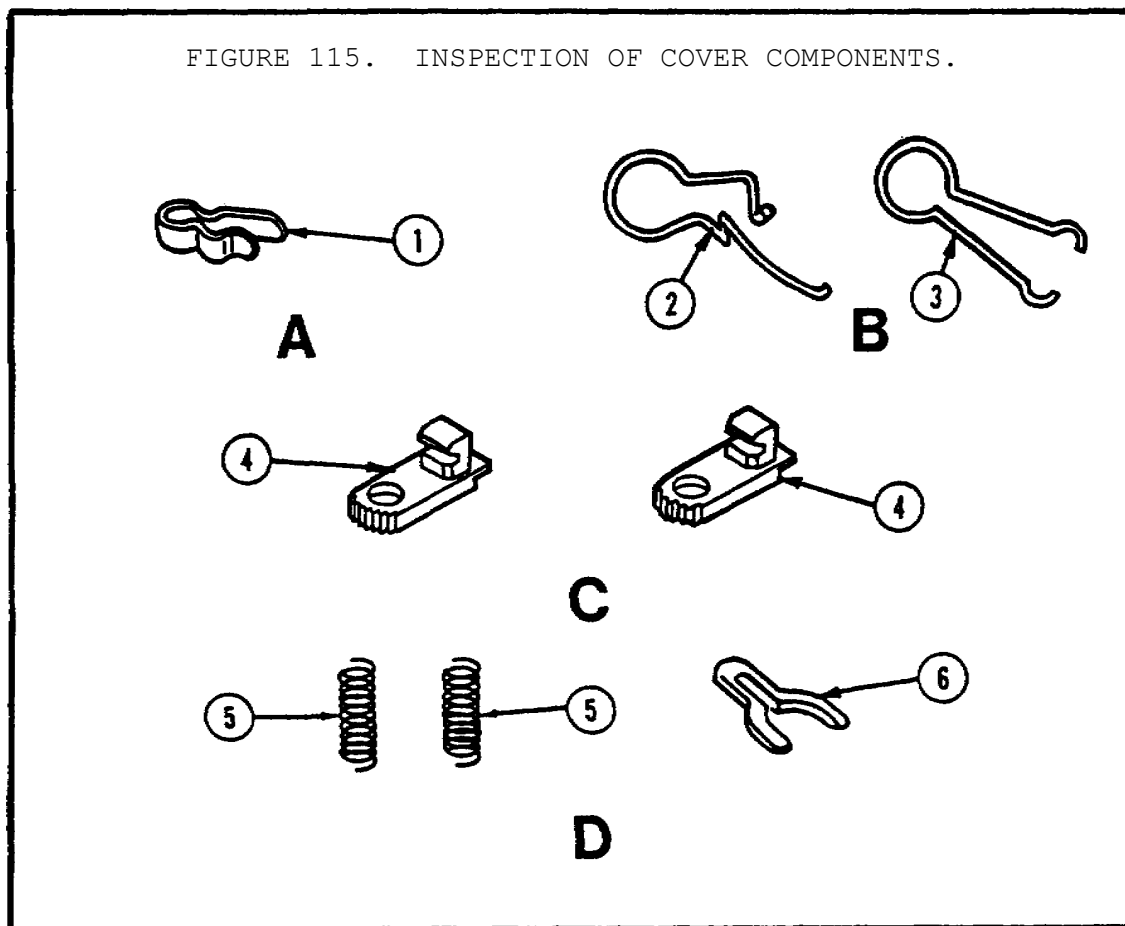
c. *Inspection and Repair.*

Step 1. Replace spring tension lock pin (1) (figure 115, view A, on the following page) if it is weak, deformed or burred.

Step 2. Replace retaining clip (2) (figure 115, view B) and retaining catch clip (3) if either is deformed or has lost its spring tension.

Step 3. Replace the two cover latches (4) (figure 115, view C) if they have cracks or burrs which cannot be removed.

Step 4. Replace the two helical compression springs (5) (figure 115, view D) if they are cracked, broken, or have taken a permanent set. Replace retaining ring (6) (figure 115, view D) if broken or cracked.



Step 5. Replace the feed lever (7) (figure 116 on the following page) if channel is distorted, cracked, or rippled, or if pivot hole is elongated or enlarged. Remove burrs with crocus cloth or replace if fork end (8) has burrs in roller area.

Step 6. Replace pawl retaining pin (9) (figure 117 on the following page) if it does not hold securely.

Step 7. Replace rear cartridge guide (10) (figure 118 on page 96) and front cartridge guide (11) if they are bent or broken or have burrs or cracks.

Step 8. Replace cover (12) (figure 119 on page 96) if the cover has distortion, cracks, or burrs which cannot be removed; if posts (13) or pivots (14) are loose; or if roller (15) binds or has burrs which cannot be removed.

FIGURE 116. INSPECTING COVER CHANNELS.

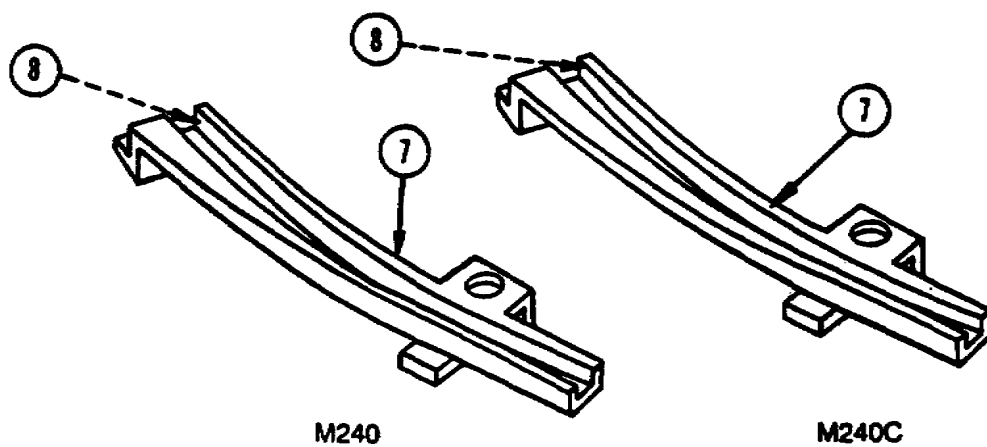


FIGURE 117. PAWL RETAINING PIN.

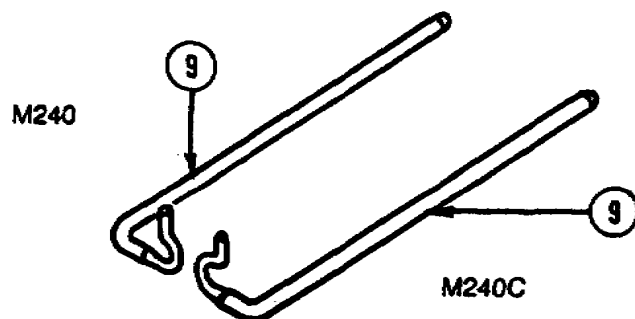


FIGURE 118. CARTRIDGE GUIDES.

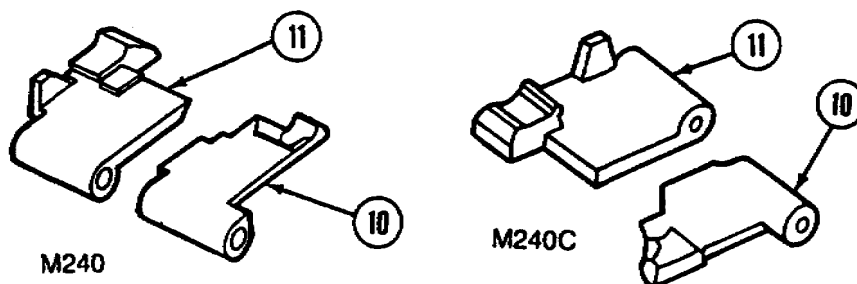
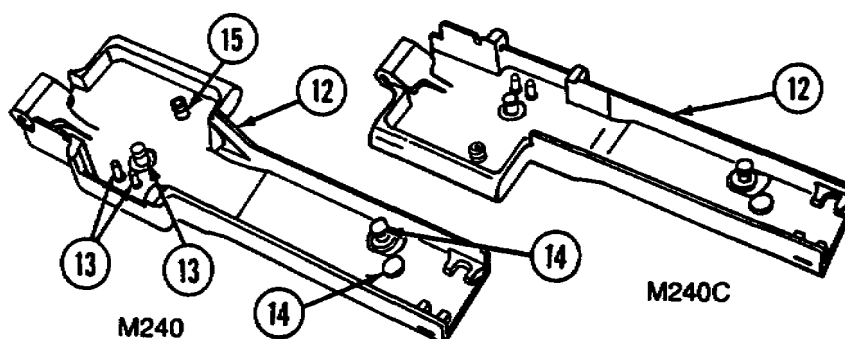


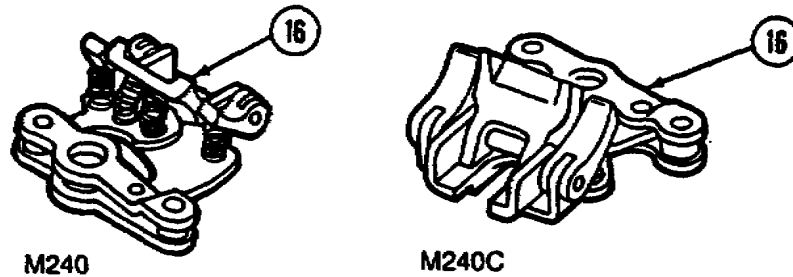
FIGURE 119. INSPECTING COVER.



Step 9. Replace the feed pawl assembly (16) (figure 120 on the following page) if the pawl has distortion, cracks, or burrs which cannot be removed.

Step 10. Lightly oil all parts before reassembly.

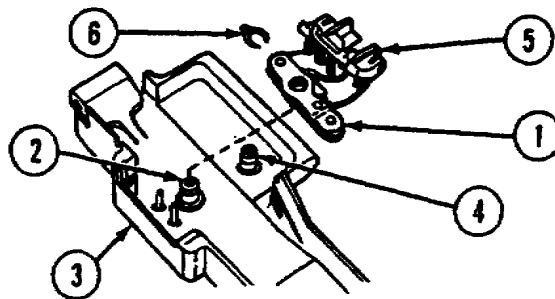
FIGURE 120. INSPECT FEED PAWL ASSEMBLY.



d. *Reassembly.*

Step 1. Install the feed pawl assembly (1) (figure 121) on the feed pawl pivot post (2) in cover (3). Be sure the feed pawl roller (4) is in well behind the feed pawl (5). Secure the retaining ring (6) in place on the feed pawl pivot post (2).

FIGURE 121. REASSEMBLY OF FEED PAWL.



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Step 2. Insert two helical compression springs (7) (figure 122) on the spring guide posts (8) in cover (3).

NOTE

Front cartridge guide (9) (figure 123) must overlap the rear cartridge guide (10).

FIGURE 122. INSTALLING HELICAL SPRINGS.

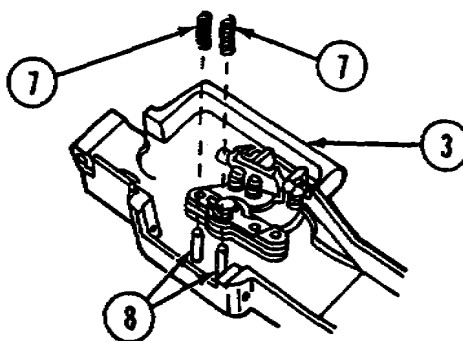
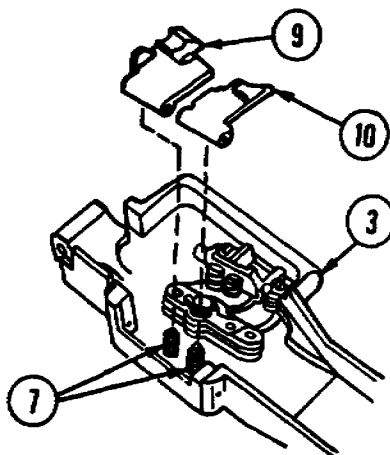


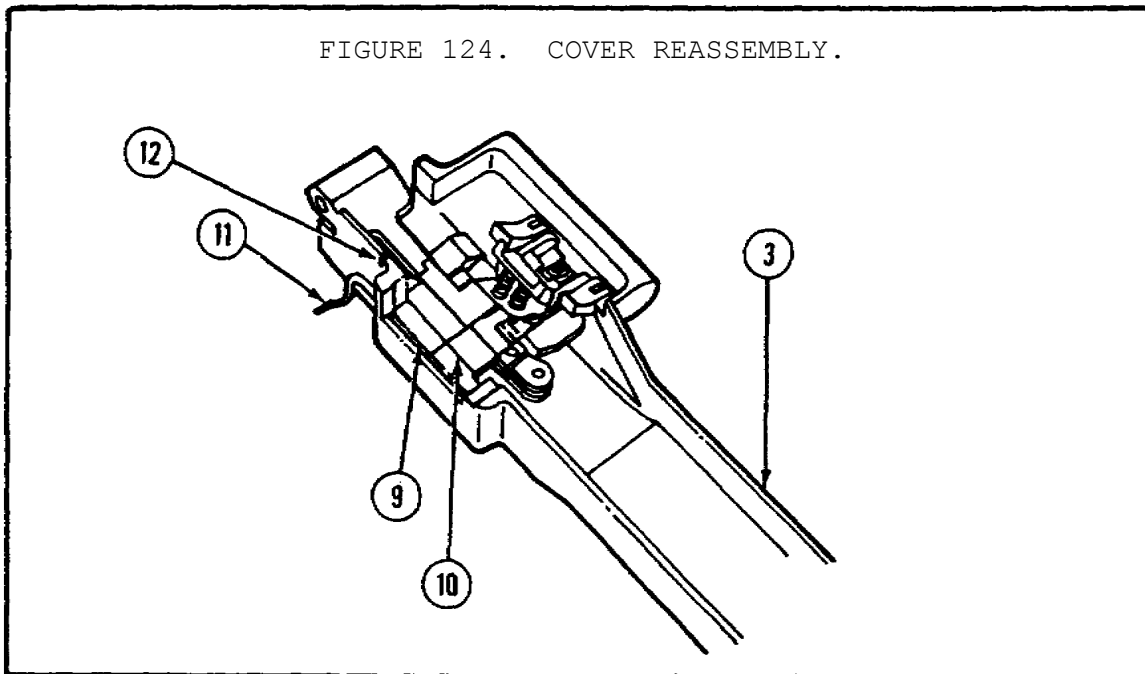
FIGURE 123. CARTRIDGE GUIDE REASSEMBLY.



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Step 3. Place the rear cartridge guide (10) (figure 123 on the previous page) and the front cartridge guide (9) in cover opening with spring wells toward the cover (3) and over the helical compression spring (7).

Step 4. Align pawl retaining pin hole in cartridge guides (9 and 10) (figure 124) and the cover (3). Apply pressure downward, and insert the pawl retaining pin (11) through cover (3) and cartridge guides (9 and 10) from front to rear. Lock the pawl retaining pin (11) into slot (12) of the cover (3).



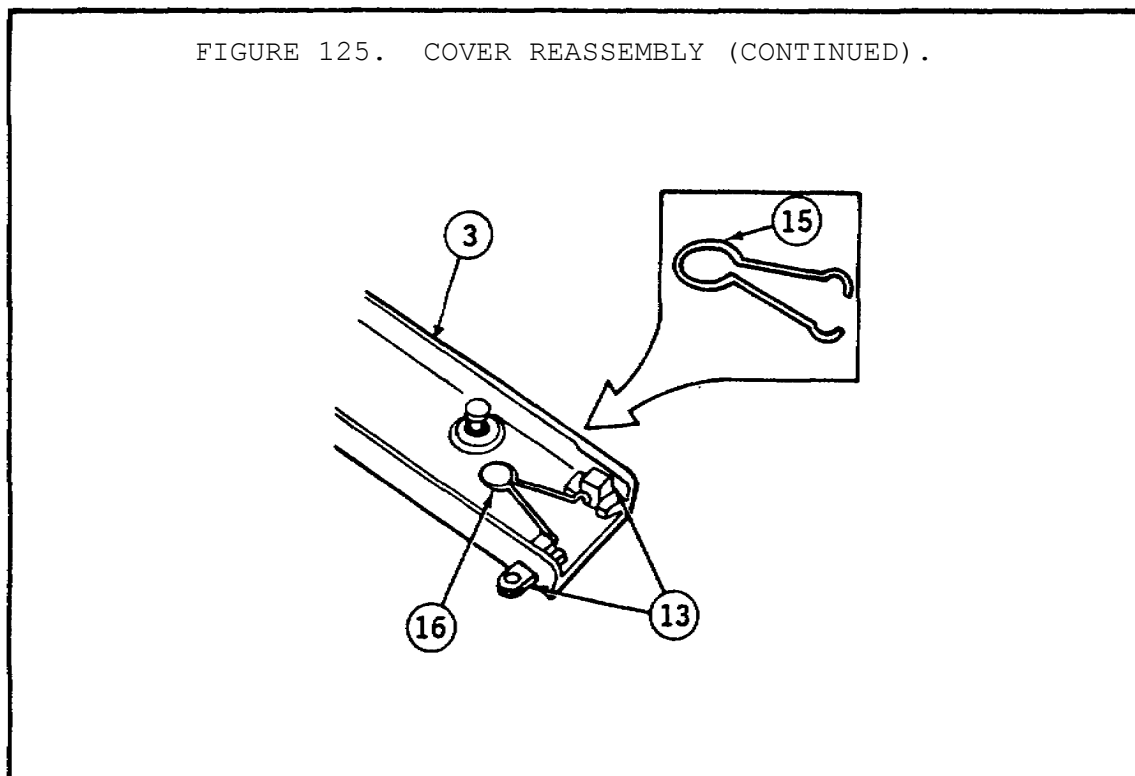
Step 5. Insert the two cover latches (13) (figure 125 on the following page) into the slots at the rear of the cover (3).

WARNING

Hold one hand over the retaining catch when engaging or disengaging leg or retaining catch clip will fly off pivot.

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Step 6. Place one leg of retaining catch clip (15) (figure 125) in slot of cover latch (13) and place loop over the pivot post (16). Push the other leg into the slot of the other cover latch (13).



NOTE

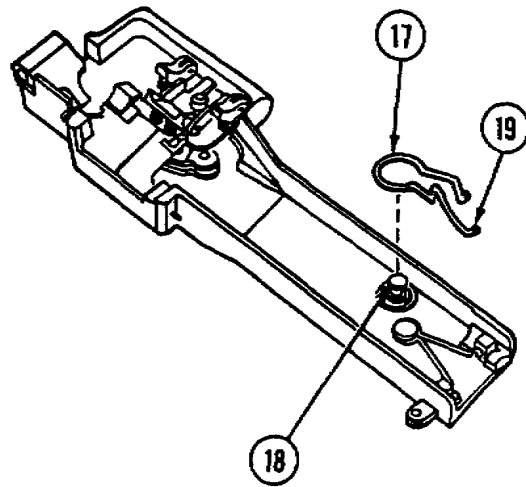
Be sure loop of retaining catch clip (15) is seated properly in the pivot post and the legs are seated in the cover latches.

Step 7. Install loop of the retaining clip (17) (figure 126 on the following page) over the feed lever pivot (18) with the legs pointing rearward. Hook straight leg (19) of the retaining clip behind the hooked leg making sure the loop is tightened around the feed lever pivot.

NOTE

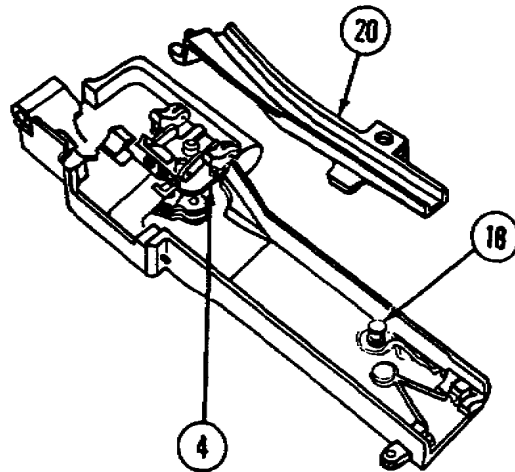
Be sure loop of the retaining clip (17) is properly seated in the well.

FIGURE 126. INSTALLING RETAINING CLIP.



Step 8. Install feed lever (20) (figure 127) on the feed pivot (18). At the same time, engage fork into feed pawl roller (4). Be sure the feed lever (20) is flush with the top of the feed lever pivot (18).

FIGURE 127. INSTALLING FEED LEVER.



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Step 9. Install spring tension lock pin with legs pointed rearward and the loop of the clip pointed toward the feed lever. Push unit into position on the feed lever pivot.

NOTE

Spring tension lock pin will click when properly secured.

Step 10. Unhook the straight leg of the retaining clip from the hooked leg. Position the straight leg in the groove of the feed lever.

9. Maintenance of Feed Pawl Assembly

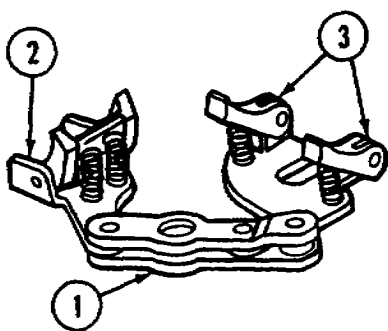
a. Disassembly.

Step 1. Spread the feed pawl assembly (1) (figure 128) and separate the feed pawl (2) from the holding pawls (3).

NOTE

Feed and holding pawl springs are removed and installed the same way. Remove and assemble one set of springs before removing the other set.

FIGURE 128. DISASSEMBLY OF FEED PAWL.

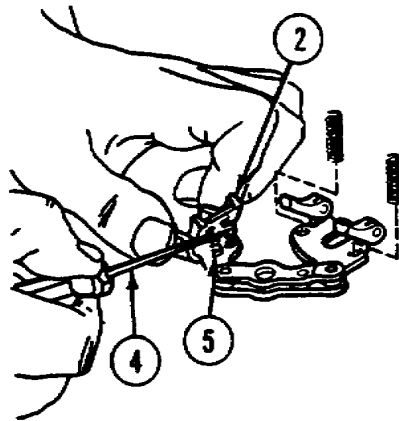


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Step 2. Holding onto the feed pawl (2) (figure 129), insert the tip of a screwdriver (4) between the first and second coils of spring (5) just below the feed pawl (2).

Step 3. Apply a slight pressure with a screwdriver (4) and remove spring (5).

FIGURE 129. DISASSEMBLY OF FEED PAWL (CONTINUED).



b. *Cleaning.* Remove dirt and corrosion on powder fouled parts with a wiping rag dampened with RBC.

c. *Inspection and Repair.*

Step 1. Check feed pawl assembly (1) (figure 130 on the following page) for completeness. Rollers (2 and 3) must be free of burrs. Pawls (4 and 5) must be free of burrs and cracks. Linkage arms (6) must be free of distortion and cracks. If not, the feed pawl assembly (1) should be replaced.

Step 2. Replace springs (7 and 8) that are cracked, broken, or have taken a permanent set.

d. *Reassembly.*

NOTE

Feed pawl springs (1) (figure 131 on the following page) are 9 1/2 coils long. Holding pawl springs (2) are 12 3/4 coils long.

FIGURE 130. INSPECTING FEED PAWL.

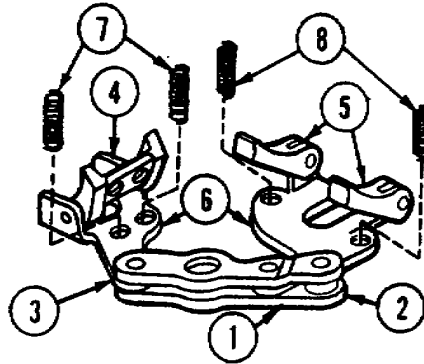
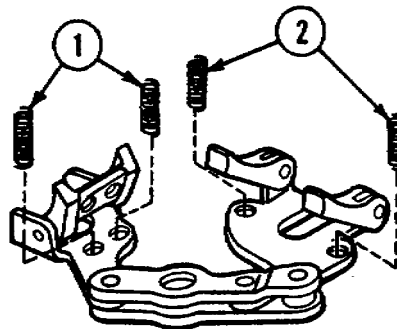


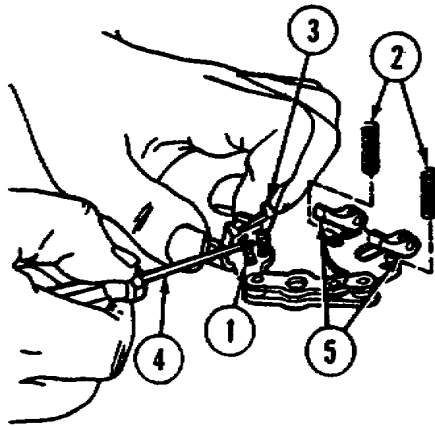
FIGURE 131. LOCATION OF THE FEED PAWL AND HOLDING PAWL SPRINGS.



Step 1. Install one end of the feed pawl spring (1) (figure 132 on the following page) into well of the feed pawl (3).

Step 2. Hold the feed pawl (3) and feed pawl spring (1) and insert a screwdriver (4) between last coils of exposed feed pawl springs (1), and compress to slip into the well of the feed pawl (3). Install the other feed pawl the same way.

FIGURE 132. FEED PAWL REASSEMBLY.



NOTE

Be sure coils of springs (1) (figure 132) are seated in the wells of the feed pawl (3).

Step 3. Install holding pawl springs (2) into wells of holding pawls (5) the same way.

10. Maintenance of Receiver Assembly

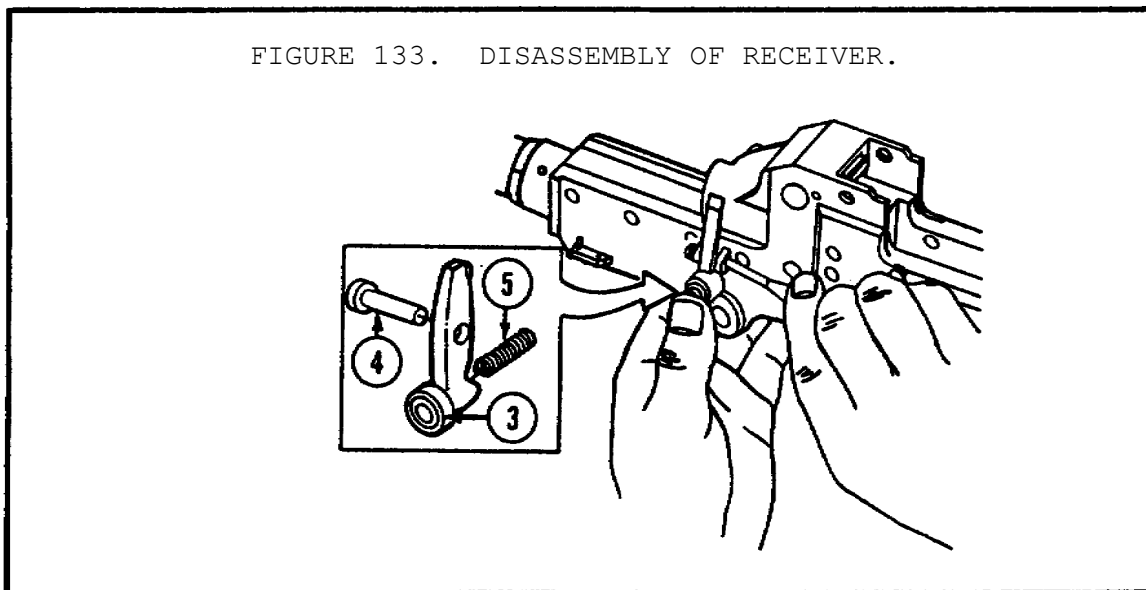
a. *Disassembly.*

Step 1. Turn the receiver body upside down, depress the access cover, and slightly move it toward the breech end.

Step 2. Turn the receiver body back over and slide the access cover out through the breech end of the receiver body.

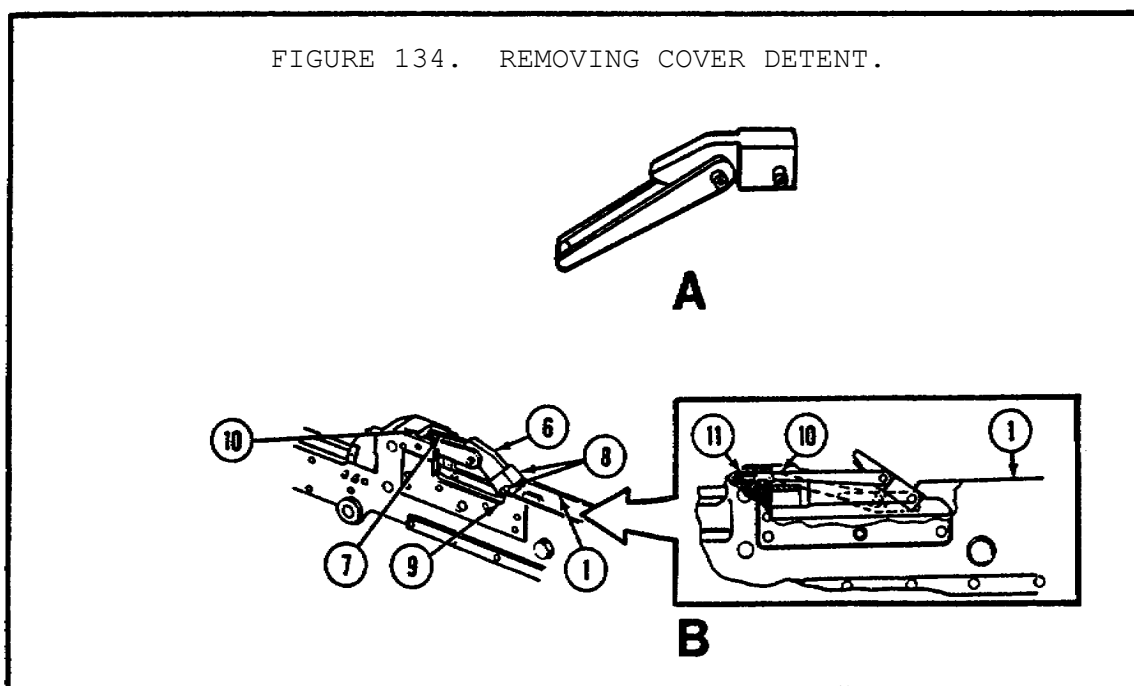
Step 3. Apply pressure on the barrel latch (3) (figure 133 on the following page), hold in place, and remove headed grooved pin (4). Remove the barrel latch (3), and grasp the barrel latch helical compression spring (6) to prevent it from springing away.

FIGURE 133. DISASSEMBLY OF RECEIVER.



Step 4. Use a cover detent plunger disassembly tool (figure 134, view A) to remove the cover detent. Position the cover detent plunger disassembly tool (6) (view B) in the opening for the feed tray (7) in the receiver body (1) so that its rear pins (8) rest against the upper breechblock guides (9) and its nose (10) rests in the groove of the detent plunger (11).

FIGURE 134. REMOVING COVER DETENT.



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Step 5. Push the lever (12) (figure 135) of the cover detent plunger disassembly tool (6) fully downward so that pin (14) will come to rest on the upper breechblock guides (9), and the detent plunger (11) compresses the detent plunger helical compression springs (13), removing pressure on the spring plunger pin (15).

Step 6. Remove the spring plunger pin (15) (figure 136).

FIGURE 135. RECEIVER DISASSEMBLY.

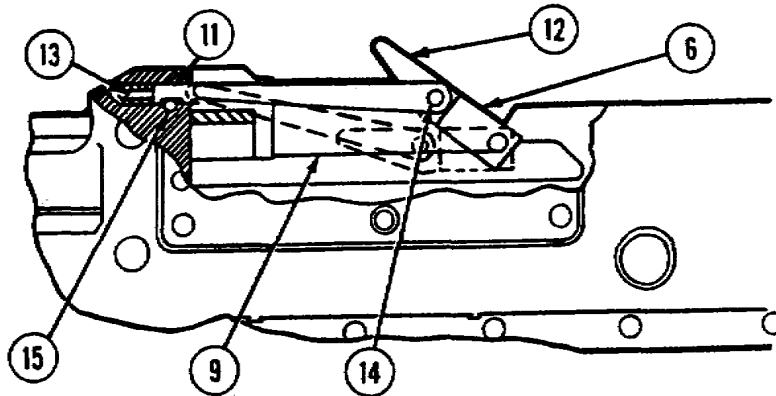
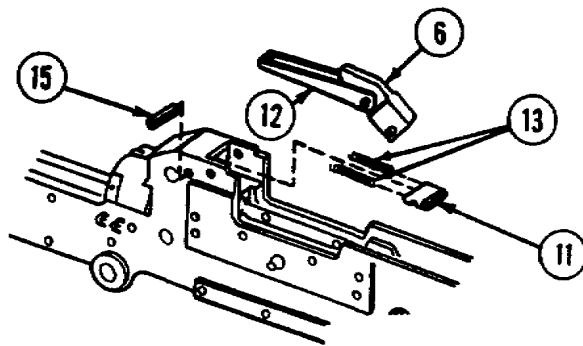


FIGURE 136. RECEIVER DISASSEMBLY (CONTINUED).



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Step 7. Place one hand on the cover detent plunger disassembly tool (6) (figure 136 on the previous page) to steady it. Then lift the lever (12) and remove the tool (6).

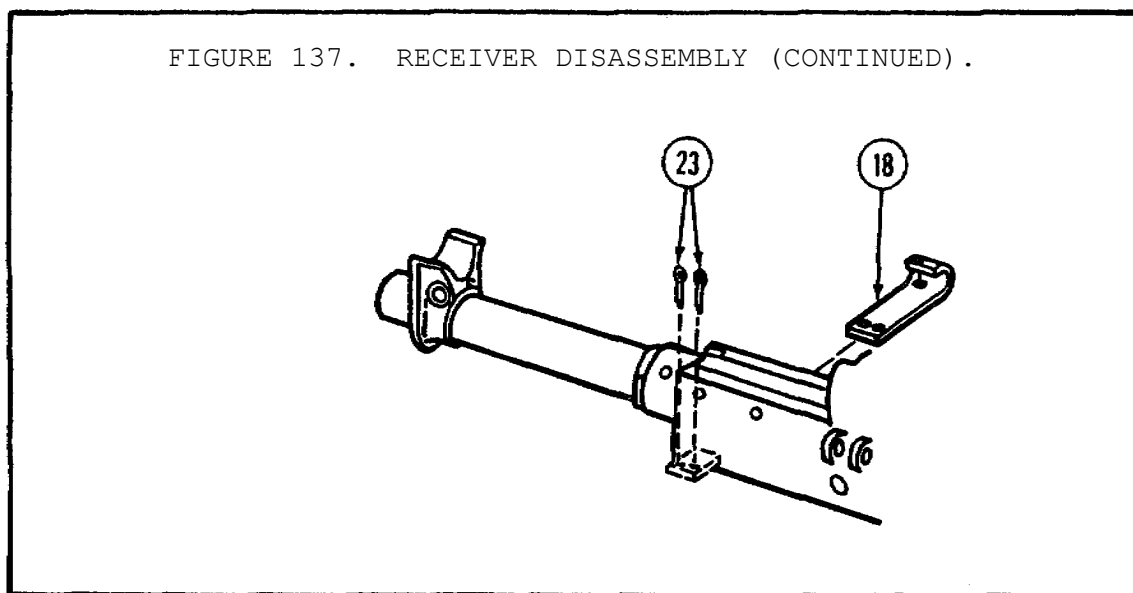
Step 8. Remove the detent plunger (11) and detent plunger helical compression springs (13).

Step 9. Remove the cotter pin that secures the helical extension spring to the spring mounting plate. Discard this cotter pin.

Step 10. Rotate the helical extension spring to remove it from the receiver.

Step 11. Remove the cotter pin securing the charger cable to the charger slide and remove the charger cable. Discard this cotter pin.

Step 12. Remove the two cotter pins (23) (figure 137) and discard them. Slide out the spring mounting plate (18).



Step 13. Drive out spring pin (24) (figure 138 on the following page). Press headed straight pin (25) outward from inside of the receiver body (1).

Step 14. Remove charger slide (22) (figure 139 on the following page) by sliding it forward out of the receiver body (1).

FIGURE 138. RECEIVER DISASSEMBLY (CONTINUED).

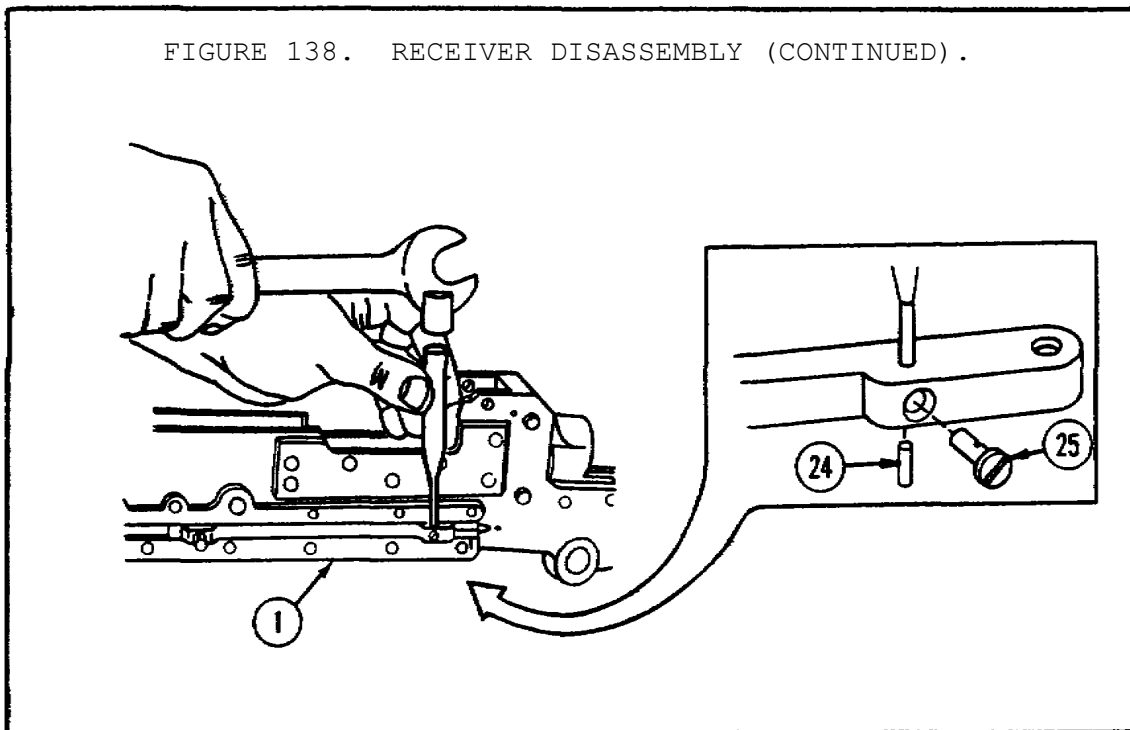
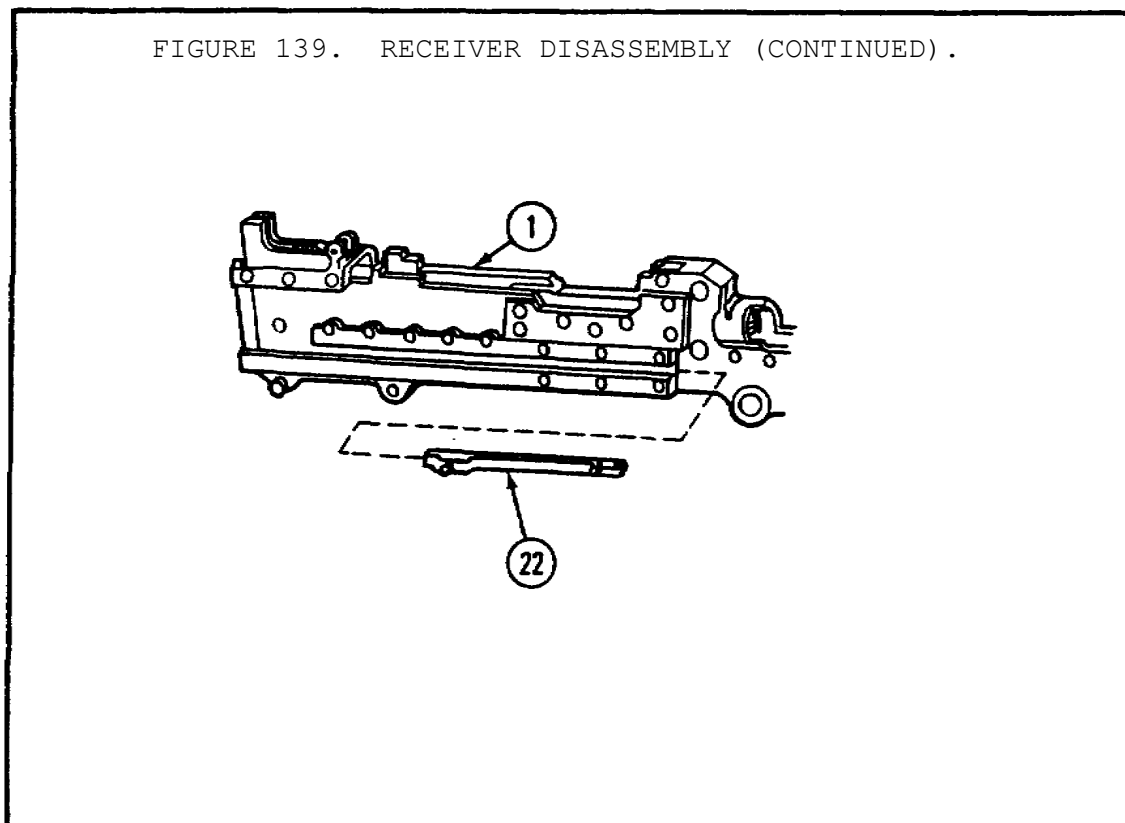


FIGURE 139. RECEIVER DISASSEMBLY (CONTINUED).

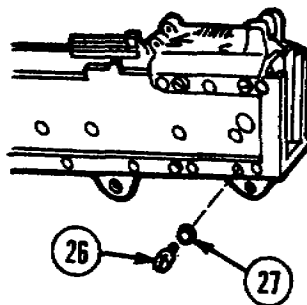


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NOTE

Be sure that the four panhead machine screws (26) (figure 140) and flat washers (27) are present. Removal and inspection are not necessary since these items are not critical to weapon functioning.

FIGURE 140. LOCATION OF THE PANHEAD MACHINE SCREWS.



b. *Cleaning.* Remove dirt and corrosion on powder fouled parts with a wiping rag dampened with RBC.

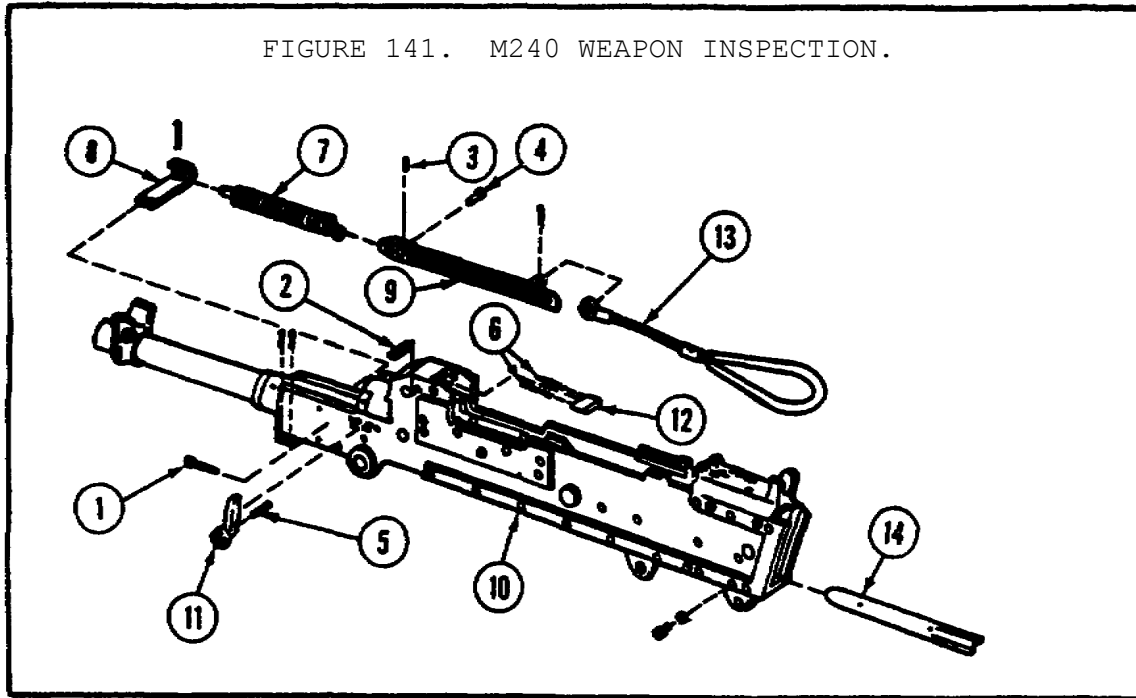
c. *Inspection and Repair.*

NOTE

Remove burrs from parts with a fine file or crocus cloth.

Step 1. Check pins (1, 2, 3, and 4) (figure 141 on the following page) for distortion, cracks, or excessive wear. Replace if distorted, cracked, or worn excessively.

Step 2. Check springs (5, 6, and 7) for breaks, cracks, or distortion. Replace broken, cracked, or permanently set springs.



Step 3. Check spring mounting plate (8) (figure 141) for distortion or cracks. Replace if distorted or cracked.

Step 4. Check charger slide (9) for distortion, cracks, or burrs. Replace if distorted, cracked, or if slide does not operate freely in the receiver body.

Step 5. Check the receiver body (10) for distortion and burrs. Remove burrs. If the receiver body is distorted, receiver is unserviceable.

Step 6. Check the receiver body (10) for cracks using inspection penetrant. If the receiver body is cracked, the receiver is unserviceable.

Step 7. Replace barrel latch (11) if it has cracks or breaks.

Step 8. Check the detent plunger (12) for cracks, wear, or burrs. Replace if the burrs cannot be removed or if it is otherwise damaged.

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Step 9. Check the charger handle (13) (figure 141 on the previous page) for broken wire strands, missing rubber handle, or torn handle exposing wire rope. Replace if wire strands are broken or if rubber handle is torn.

Step 10. Check access cover (14) for cracks, burrs, or distortion. Replace if cracked or distorted.

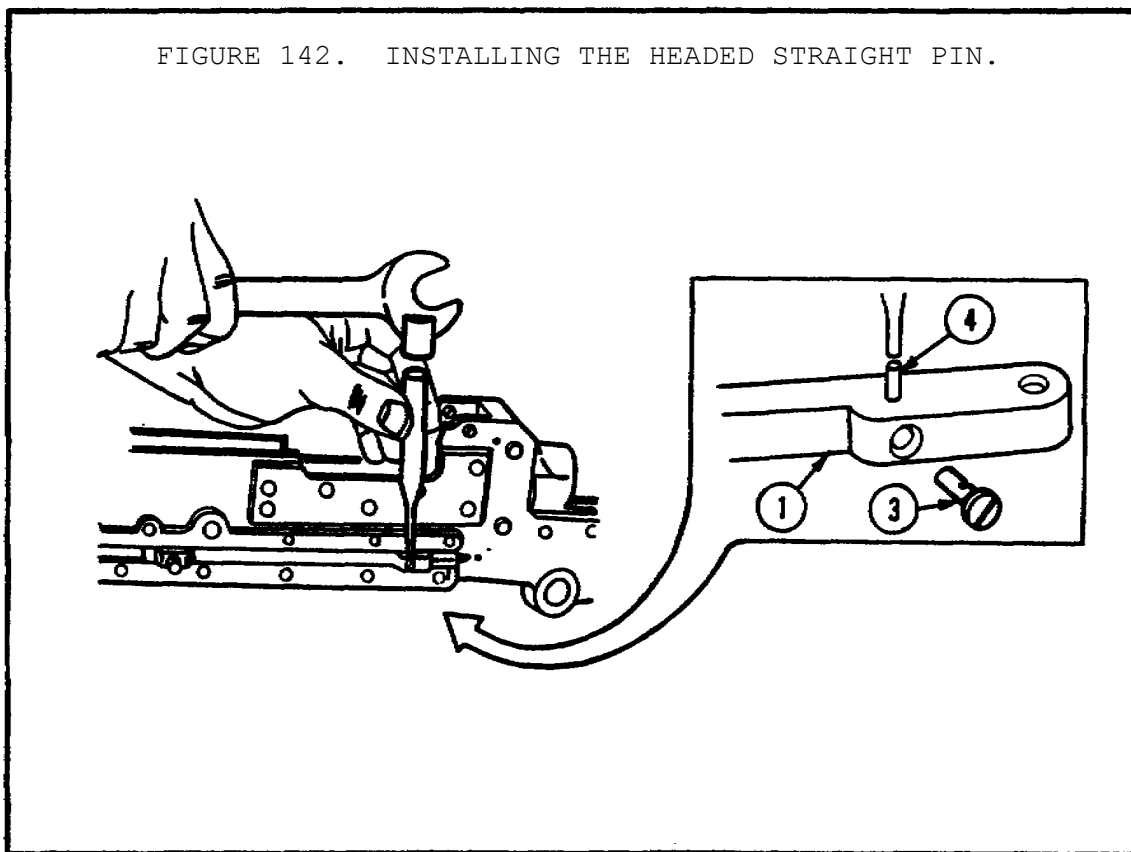
d. *Lubrication.* Lightly oil all parts after cleaning.

e. *Reassembly.*

Step 1. Install charger slide into the right front of the receiver body and slide rearward.

Step 2. Install the headed straight pin (3) (figure 142) in charger slide (1). Align the headed straight pin (3) slot with slide spring pin hole and secure with spring pin (4). Spring pin (4) must be flush on both sides.

FIGURE 142. INSTALLING THE HEADED STRAIGHT PIN.



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Step 3. Install the spring mounting plate from the right side with the curved end up. Install new cotter pins with the head up. Spread the legs of the cotter pin to secure.

Step 4. Secure the charger cable to the charger slide with a new cotter pin. Spread the legs of the cotter pin to secure.

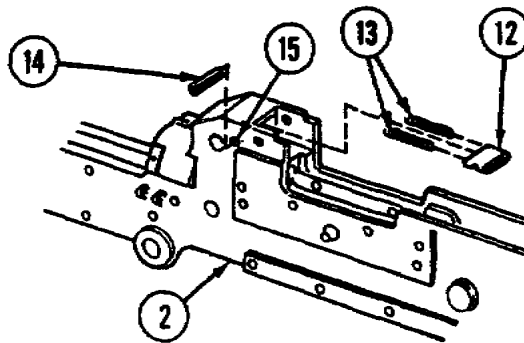
Step 5. Spread rear end of the helical extension spring and twist onto the charger slide. Extend the spring and secure the other end to the spring mounting plate with a new cotter pin, inserted with its head up. Spread the legs of cotter pin to secure.

Step 6. Lubricate the detent plunger (12) (figure 143) and the two detent plunger helical compression springs (13), and insert the detent plunger helical compression springs (13) into the wells in the detent plunger (12) (open end is inserted in the plunger first).

NOTE

If new springs are used, open the first coil on one end of each spring prior to insertion.

FIGURE 143. RECEIVER REASSEMBLY.

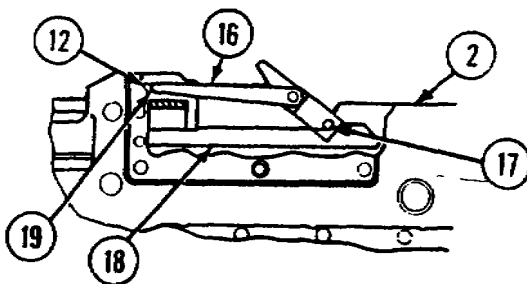


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Step 7. Install detent plunger (12) (figure 143 on the previous page) in the receiver body (2) with slot in detent plunger (12) facing down. Start spring plunger pin (14) into pin holes (15) in the receiver body.

Step 8. Position the cover detent plunger disassembly tool (16) (figure 144) on the receiver body (2) so that the rear pins (17) rest against the upper breechblock guides (18) and end (19) sets in groove of the detent plunger (12).

FIGURE 144. RECEIVER REASSEMBLY (CONTINUED).



Step 9. Push the lever (20) (figure 145 on the following page) of the plunger disassembly tool (16) fully downward so that the detent plunger (12) compresses the detent plunger helical compression springs (13) and pin (21) will come to rest on the upper breechblock guides (18) of the receiver body (2).

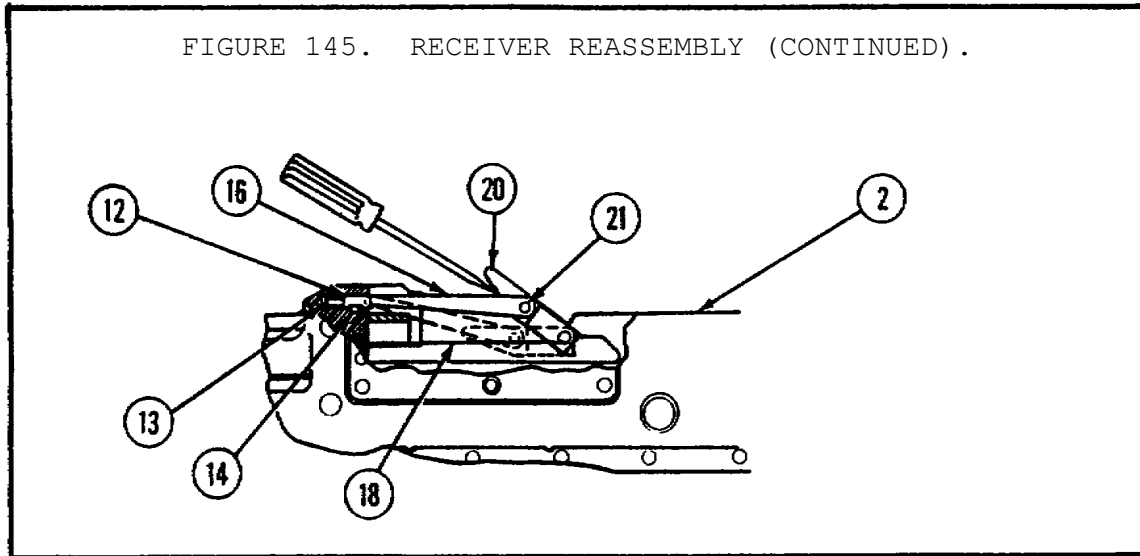
Step 10. Complete installation of spring plunger pin (14).

Step 11. Use a screwdriver to remove tool (16) as shown.

NOTE

If a new spring is used, open the first coil on one end prior to insertion.

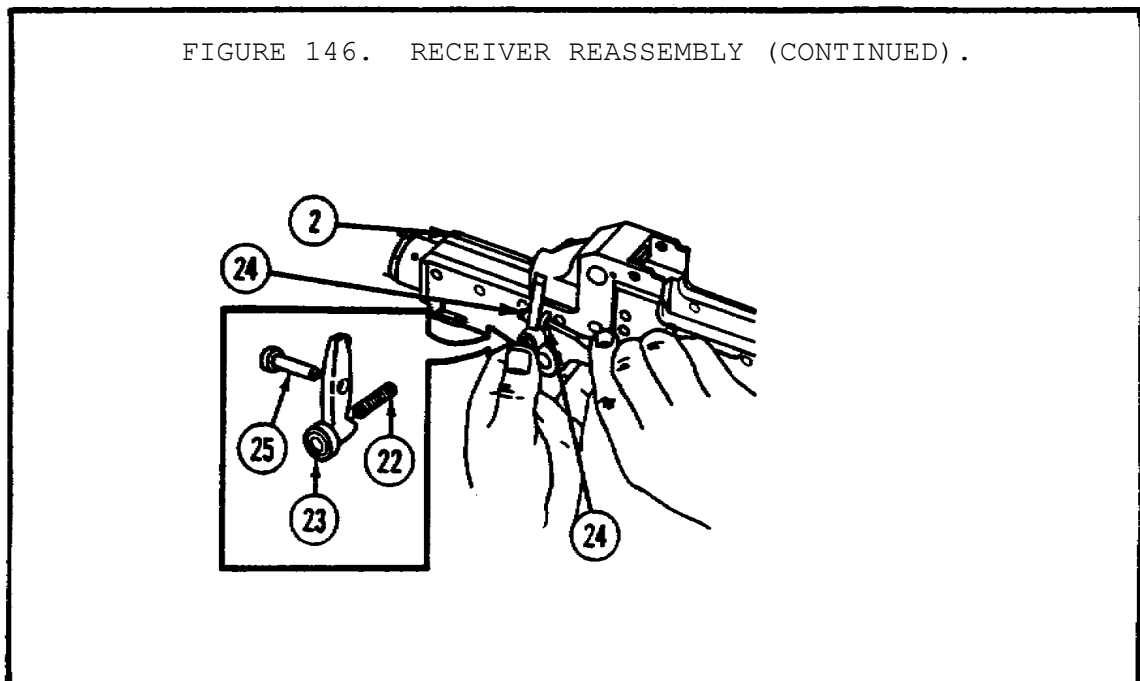
FIGURE 145. RECEIVER REASSEMBLY (CONTINUED).



Step 12. Insert barrel latch helical compression spring (22) (figure 146), with the opened coil first, into well in the barrel latch (23).

Step 13. Install the barrel latch (23) on the left side of the receiver body, aligning the latch pin hole in the barrel latch with the mounting holes (24) in the receiver body (2).

FIGURE 146. RECEIVER REASSEMBLY (CONTINUED).



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Step 14. Install headed grooved pin (25) (figure 146 on the previous page) to secure barrel latch (23) to the receiver body (2).

Step 15. Install access cover. Place solid end in first (bent end of tang pointed downward). Slide access cover forward until it clicks into locked position in the receiver body (2).

Step 16. Turn the receiver body upside down and make sure the access cover is in the locked position.

f. Final Inspection.

Step 1. Check the overall machinegun and make sure black finish surfaces do not reflect light.

Step 2. Check the tightness of all attaching screws, bolts, nuts, and cotter pins.

Step 3. Check for adequate lubrication.

Step 4. Check for missing parts.

Step 5. A machinegun that has been repaired should be function fired whenever possible to be sure it operates properly. If a machinegun fails the function firing test, it must be reinspected to determine the cause of the failure and corrective action must be taken.

Step 6. Upon completion of firing, the machinegun should be cleaned and lubricated.

Step 7. Make an overall inspection of the machinegun for cleanliness and general appearance.

11. Conclusion

Accurate maintenance is essential to the proper operation of the M240 machinegun. Careful maintenance is particularly important with weapons because there are so many safety factors involved. Lives can depend on the good working condition of the M240 machinegun.

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PRACTICAL EXERCISE 1

1. Instructions

On a plain piece of paper, respond to the requirements listed below. Then check your answers against those on the following page.

2. First Requirement

Answer these questions about the characteristics and operation of the M240 series machineguns.

- a. What is the primary difference between the M240 and M240C machineguns?
- b. What is the maximum range of the M240?
- c. Four of the eight major components of the M240 machinegun are the barrel assembly, driving spring rod assembly, trigger housing assembly, and feed tray. What are the remaining four major components?
- d. What is the purpose (function) of the driving spring rod assembly?
- e. The clearing procedure for the M240 machinegun is described below. Fill in the blanks.

(1) Pull the _____ to the rear to lock the bolt back.

(2) Place the _____ to "S."

(3) Push the latches to _____ the cover assembly.

(4) Remove the _____.

(5) Raise the _____.

(6) Look into the _____.

(7) If a round is still chambered, this is a serious _____ of the weapon that requires immediate removal of the round.

(8) Remove the _____.

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(9) Check _____ to ensure the chamber is cleared.

(10) Lower the _____.

(11) Close the cover assembly. Make sure it _____.

(12) Place the safety to "_____".

(13) Hold the charger handle to the _____, depress the trigger, and ease the bolt forward to _____ the weapon.

f. Should the M240 fail to stop firing, referred to as a "runaway" machinegun, what is the first step taken to correct this problem?

g. What is meant by condition/malfunction term "stuck cartridge case."

3. Second Requirement

Answer the following questions regarding operator maintenance and inspection procedures.

a. Disassembly of the M240 into its major component groups is commonly referred to as _____.

b. Name six materials the operator is prohibited from using when cleaning the weapon.

c. The operator inspects the barrel and flash hider for cracks, dents, and burrs. Name two other components of the barrel assembly that are also checked for these deficiencies.

d. What checkpoints will the operator include when inspecting the trigger housing assembly?

e. General assembly is performed nearly in the reverse order of disassembly. What component will the operator install after he has inserted the driving spring into the operating rod during reassembly of the weapon?

f. Once the operator has fully reassembled the weapon, what must he do to ensure that the machinegun is assembled correctly?

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4. Third Requirement

Answer the following questions regarding unit maintenance inspection and maintenance procedures.

- a. What is normally removed from major parts of the weapon using a wiping rag dampened with RBC?
- b. When would the unit maintenance armorer replace a driving spring that was found damaged?
- c. What is the proper procedure for securing the barrel assembly for disassembly?
- d. Identify the tool that is used to clean carbon from the gas regulator plug.
- e. When inspecting the flash hider, what action would the unit armorer take if this component was found dented?
- f. Name the tool that is used to clean carbon from the piston head cavity of the operating rod.
- g. During inspection of the firing pin, the unit armorer finds that the firing pin length exceeds GO on the firing pin length gage. What action (if any) would be required of the armorer?
- h. The unit armorer found a damaged operating rod. Explain what action the unit armorer is authorized to take to correct this deficiency.
- i. During reassembly of the bolt and operating rod assembly the firing pin must be properly positioned. Describe what constitutes a properly positioned firing pin.
- j. What tool is required to remove the bolt assembly ejector from the bolt?
- k. What is the reason for holding the bolt face away from your face and other soldiers during disassembly?
- l. What tool is used for testing the bolt after reassembly?
- m. What is the preferred method for removing dirt and corrosion from the trigger grips?

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n. What two deficiencies will the unit armorer look for when inspecting the access cover?

5. Fourth Requirement

Answer the following question regarding intermediate direct support (IDS) maintenance and inspection procedures.

a. What component will the IDS armorer remove by driving it out of the barrel release?

b. Pits in the chamber of the breech are allowable if they do not cause what form of difficulty?

c. Inspection and repair procedures for the buffer assembly are described below. Fill in the blanks.

(1) Check headed straight pin. Replace if _____ or _____.

(2) Replace _____ if bent or broken.

(3) Check helical compression spring for deformation or breaks. Replace if it is damaged, _____ or _____.

(4) Check back plate _____ for cracks or breaks. Replace it if it is damaged.

(5) Check back plate for damaged _____ and burrs and remove burrs with a file.

(6) Check machine plug for deformed threads or _____ shoulders of octagon head. Replace if damaged.

(7) Check the _____ spring tension washers for cracks, deformation, or permanent set. Replace as a set if damaged, broken, or deformed.

(8) Replace sleeve washer support spacer and _____ if distorted, bent, or burred.

(9) Check expansion braking ring and braking buffer cone for damaged _____ surfaces. Replace if damaged, broken or deformed.

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- d. What material will the IDS armorer use for inspecting the bolt body for cracks?
- e. What should be placed over the M240 retaining clips when engaging or disengaging the leg?

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LESSON 1. PRACTICAL EXERCISE - ANSWERS

1. First Requirement

a. The primary difference between these two machineguns is the direction of feed for ammunition. The M240 feeds ammunition from the left and the M240C feeds ammunition from the right.

b. 3,725 meters.

c. (1) Buffer assembly.

(2) Bolt and operating rod assembly.

(3) Cover assembly.

(4) Receiver assembly.

d. The driving spring rod assembly provides energy for returning the bolt and operating rod assembly to the firing position.

e. The steps in the clearing procedure are:

(1) charger handle

(2) safety

(3) open

(4) ammo belt

(5) feed tray

(6) chamber

(7) malfunction

(8) round

(9) again

(10) feed tray

(11) locks shut

(12) F

(13) rear, close and lock

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- f. Break the ammunition link belt.
- g. When firing the weapon and it fired but did not extract, this condition is known as having a stuck cartridge case.
- 2. Second Requirement
 - a. field stripping the weapon
 - b.
 - (1) Gasoline
 - (2) Kerosene
 - (3) Hydraulic oil
 - (4) Benzene
 - (5) High water pressure
 - (6) Steam
 - c.
 - (1) Barrel adapter
 - (2) Barrel release
 - d. He will inspect the trigger housing assembly for broken grips, bent cable guide, loose nut and bolt, and a chipped or cracked trigger housing holding lug.
 - e. The buffer.
 - f. Perform a function check of the weapon.
- 3. Third Requirement
 - a. Dirt and corrosion or powder residue.
 - b. When two or more strands of a coil were broken on the same coil or if there were three or more broken strands, regardless of location on the entire spring.
 - c. The barrel assembly is secured in a vise with protective jaws with the gas regulator up.
 - d. A reamer.
 - e. He would replace the flash hider.

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- f. Combination tool.
- g. He is authorized to replace the firing pin.
- h. The armorer should notify intermediate direct support to correct this deficiency.
- i. The ball end of the firing pin must be positioned in the groove between the spring pin and the bottom of the groove in the operating rod.
- j. Ejector removal tool.
- k. The spring in the bolt can fly out and cause possible injury.
- l. The breech bolt extractor engagement gage.
- m. Wash with soap and water and wipe dry with wiping rag.
- n. Breaks or bends.
- 4. Fourth Requirement
 - a. Barrel release pin.
 - b. Pits are allowable if they are not large enough to cause extraction difficulties.
 - c. The steps for inspecting and repairing the buffer assembly are:
 - (1) bent, broken
 - (2) detent plunger
 - (3) broken or deformed
 - (4) latch
 - (5) threads
 - (6) rounded
 - (7) eleven
 - (8) buffer plug
 - (9) mating

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d. Inspection penetrant.

e. IDS armorer's hand should be placed over the retaining clips to prevent them from flying off the pivot post.

MAINTENANCE OF THE M240 MACHINEGUN - OD1502 - REFERENCES

REFERENCES

MAINTENANCE OF THE M240 MACHINEGUN - OD1520 - REFERENCES

REFERENCES

The following documents were used as resource materials in developing this subcourse:

TM 9-1005-313-10
TM 9-1005-313-23
TM 9-1005-313-23P