UNITED STATES MARINE CORPS
Basic Officer Course
The Basic School
Marine Corp Combat Development Command
Quantico, Virginia 22134-5019

B2121 Student Handout

M240G Medium Machinegun

STUDENT HANDOUT

1. General. The M240G Medium Machinegun is a result of a Marine Corps search for a weapon that could fire at an extended range with greater dependability and accuracy than the M240G. The search was not long, for the machinegun chosen was already in the Marine Corps inventory. The M240C and "E" series machineguns are found on the LAV and the M-1 Abrams Main Battle Tanks. The M240G is the ground variant and is made by Fabrique Nationale of Herstal, Beligum, and the same manufacturer of the M249 Squad Automatic Weapon. A European version, called the FN MAG 58, is used by over 100 different nations throughout the world and is the premier machinegun used in NATO. The M240G is a battle-proven machinegun that has demonstrated many times the highest possible performance levels in combat throughout the world. (See Figure 1)

Figure 1.

2. Description. The M240G machinegun is an air-cooled, belt-fed, gas-operated, crew-served, automatic weapon. The M240G machinegun is found in the machinegun section of the weapons platoon of every rifle company in the Marine Corps. There are six of these machineguns in each section. They are divided into three, two gun squads.

3. Specifications.

a. Characteristics:

Weight of Machinegun	25.6 pounds
Weight of spare barrel case, SL-3 complete	12.9 pounds
Weight of tripod, flex mount, and T&E	20 pounds
Total system weight	45.6 pounds
Length of Machinegum	49 inches
Rifling	4 grooves with a uniform right-hand twist. One turn in 12 inches.
Sustained rate of fire	100rpm
Rapid rate of fire	200 rpm
Cyclic rate of fire	650 to 950 rpm
Muzzle velocity	2,800 fps

Maximum range	3,725 meters
Maximum effective range	1,800 meters
Maximum grazing fire	600 meters

c. Ammunition. Ammunition for the M240G machinegun is issued as complete rounds consisting of projectiles (bullets), cartridge cases, propellant powder, and primers. The ammunition is issued in 100-round bandoleers. Weight of a 100 round assault pack (2 per can) 7 pounds. Basic allowance per gun 400 rounds. There are five types of ammunition. The chart below lists their characteristics:

TYPE	TIP COLOR	PURPOSE
M63 Dummy	Plain, fluted cartridge, no primer or propellant	Training (Loading/Unloading), Gun drills
M82 Blank	Double tapered neck, no bullet	Simulated firing
M80 Ball	Plain, full metal jacketed bullet	Field firing, personnel and light material vehicles
M62 Tracer	Orange tip	Observing fire, incendiary effects, signaling, marking
M61 Armor-piercing	Black tip on the bullet	Light armored targets

4. General Nomenclature.

a. Five Main Groups (See Figure 2)

(1) The butt-stock and buffer group.

(2) Operating group.

(3) Trigger-housing group.

(4) Barrel group.

(5) Receiver group.

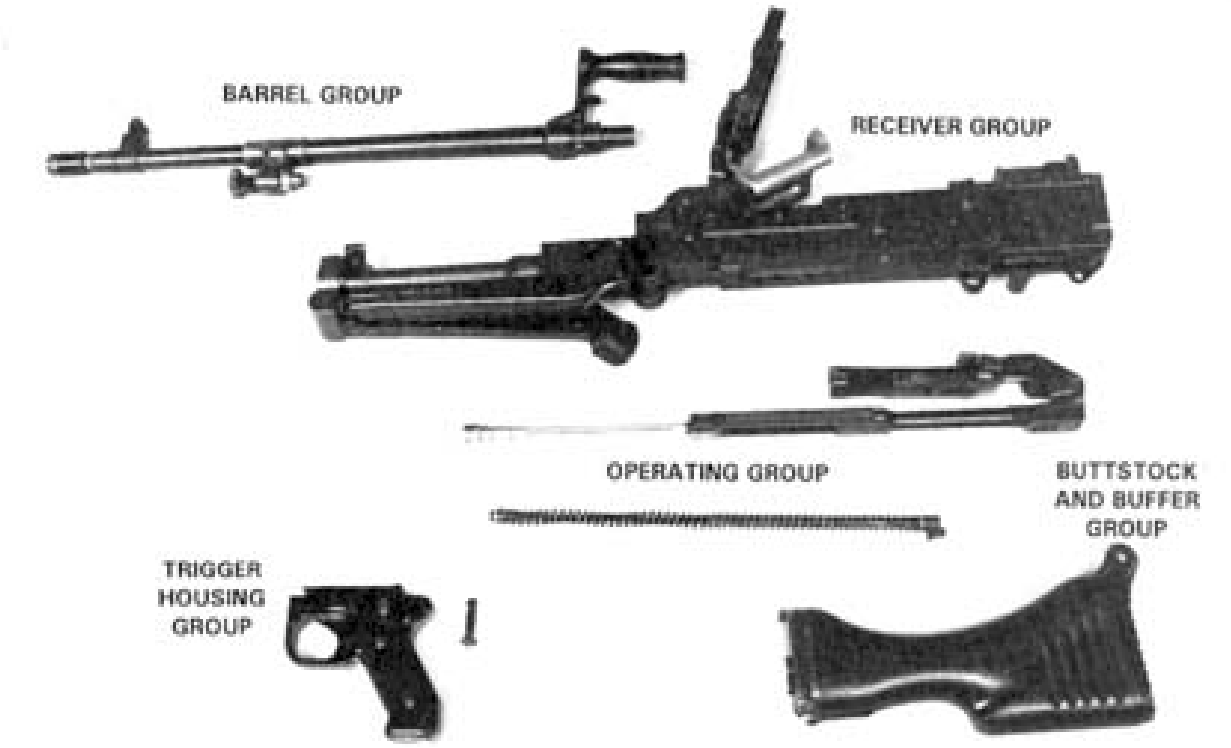


Figure 2.

5. Safety. The safety (Figure 3) is located in the trigger-housing group. The safety is pushed from left to right ("S" visible) to render the weapon safe. When the safety is engaged, the cutaway portion of the safety bar is not aligned with the safety lug of the sear. When the trigger is pulled, the sear cannot rotate downward and the bolt cannot be released to go forward. The safety is pushed from right to left ("F" visible) to render the weapon ready to fire. When the safety is not engaged, the cutaway portion of the safety bar is aligned with the safety lug on the sear. This allows the sear to move downward when the trigger is pulled. **The weapon**

cannot be placed on safe when the bolt is forward.

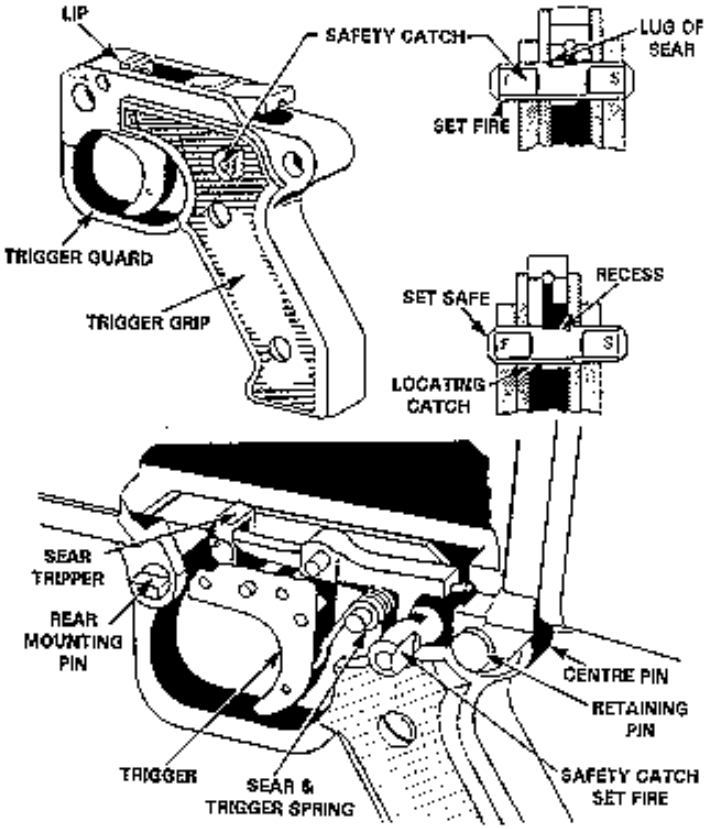


Figure 3.

6. Unloading/Clearing. The following steps must be performed, in sequence, to ensure that the M240G is clear of ammunition:

a. Attempt to put the weapon on **SAFE**.

b. Raise the cover and remove the belted ammunition.

c. If the bolt is not already locked to the rear, pull the bolt to the rear and lock it. Place the weapon on safe.

d. Lift the feed tray and inspect the chamber.

CAUTION: If the barrel is hot and a round is still chambered, immediately close the cover. Ensure the weapon is pointed in a safe direction and wait until the barrel cools. A hot barrel may cause the round to cook-off.

e. Close the cover.

f. Place the weapon on fire.

g. While holding the cocking handle to the rear, pull the trigger and ease the bolt forward.

7. Disassembly. General disassembly (field stripping) is the separation of the M240G into five main groups.

a. Removing the Butt-stock Group. (See Figure 4)

(1) With the bolt forward, raise the cover. Depress the butt-stock latch located on the underside of the butt-stock where it joins the receiver. Slide the butt-stock upward and remove it from the receiver.

Figure 4.

b. Removing the Operating Group. (See Figure 5)

(1) To remove the drive spring rod assembly, first push in against its base, then lift up and outward so that it clears its retaining studs inside the receiver. Then remove it from the rear of the receiver.

Figure 5.

(3) Pull the cocking handle to the rear to start the rearward movement of the bolt and operating assembly inside the receiver. With the index finger, reach inside the top of the receiver and push rearward on the face of the bolt until the bolt and operating rod assembly are exposed at the rear of the receiver.

(4) Grasp the bolt and operating rod assembly and remove them from the rear of the receiver. (See Figure 6)

Figure 6.

(5) To separate the operating rod and bolt, remove the spring-loaded pin that holds them together.

(6) Then, pull the bolt forward until it is clear of the firing pin, thus disengaging the bolt from the operating rod.

c. Removing the Trigger Housing Group. (Figure 7)

(1) Remove the trigger housing assembly spring pin.

(2) Rotate the rear of the trigger housing assembly down, disengage the holding notch at the front of the assembly from its recess on the bottom of the receiver, and remove the assembly from the receiver.

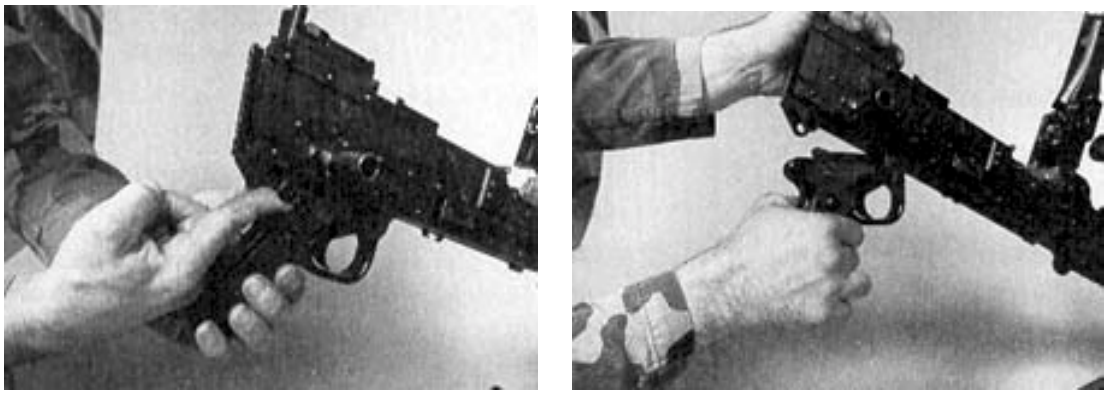


Figure 7.

d. Removing the Barrel Group. (Figures 8 and 8a)

(1) Depress the barrel-locking latch located on the left side of the receiver where the barrel joins the receiver. Grasp the carrying handle and rotate it to an upright position. Then push forward and pull up, separating the barrel from the receiver.

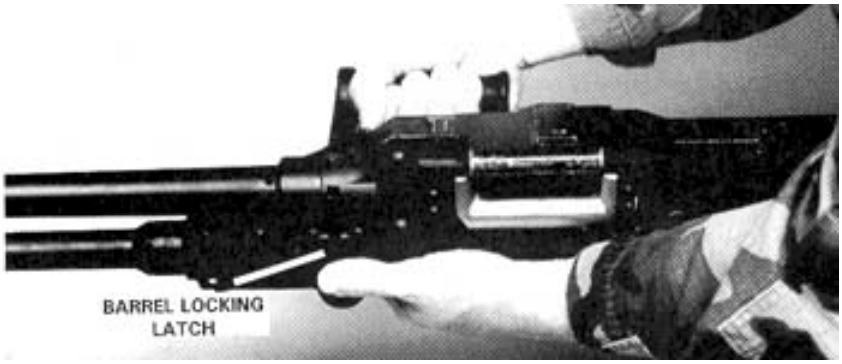


Figure 8.

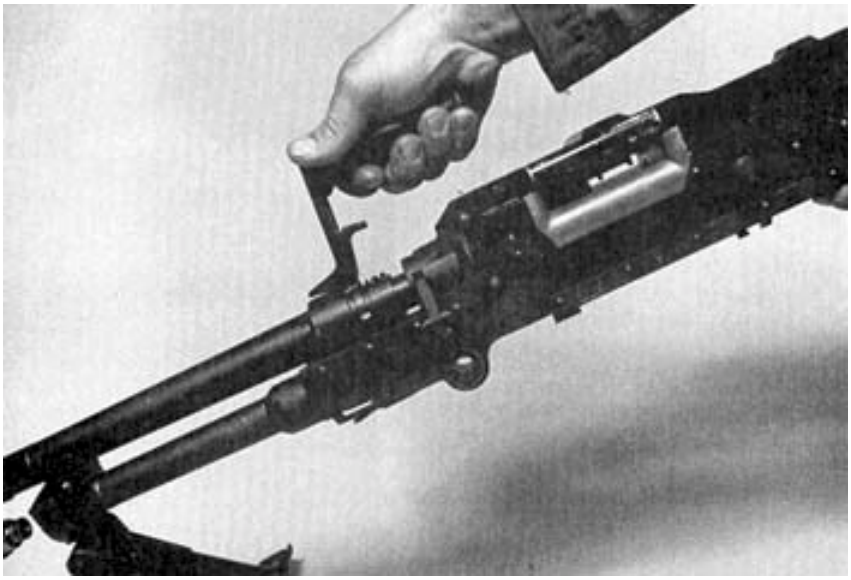


Figure 8a.

e. Receiver Group. General disassembly is completed after the removal of the other main groups from the receiver group.

8. Detailed Disassembly. Detailed Disassembly involves removal of component parts of some of the main groups.

a. Detailed disassembly of the operating group. (Figures 9, 9a)

(1) Remove the spring-loaded pin that holds the bolt and operating rod together.

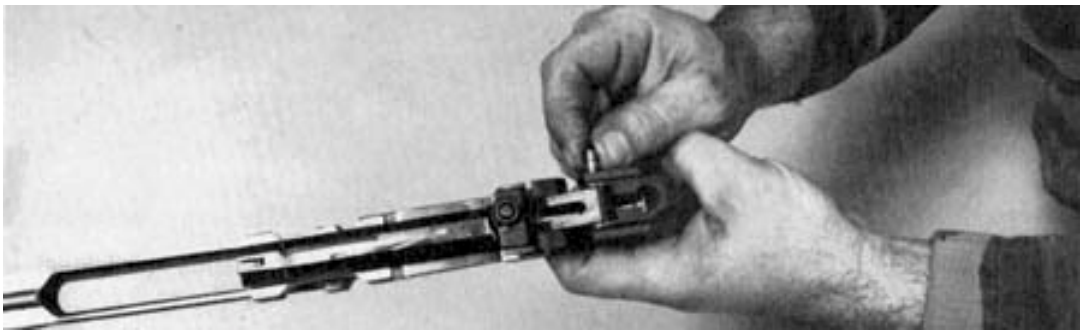


Figure 9.

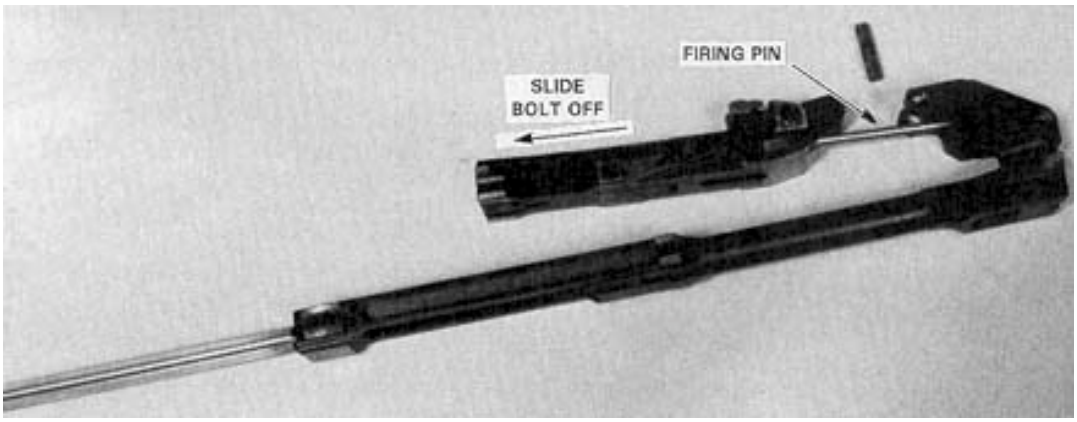


Figure 9a.

b. Detailed disassembly of the barrel group. (Figures 10, 10a)

(1) Hold the barrel at the point where the gas system attaches to it.

(2) Grasp and rotate the collar clockwise until it releases from the gas plug. Remove the collar from the gas plug.

(3) Slide the gas plug to the rear out of the gas regulator.

Figure 10.

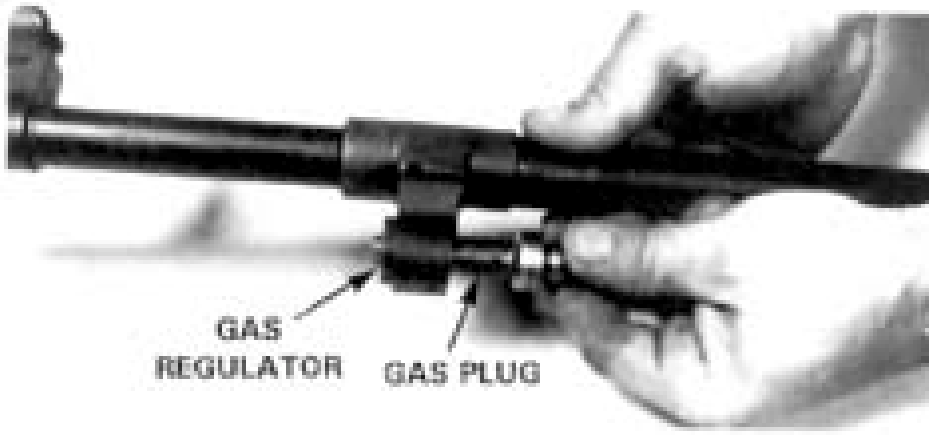


Figure 10a.

c. Detailed disassembly of the receiver group. (Figures 11, 11a, 11b)

(1) Pull the hinge spring pin out and lift the cover and feed tray from the receiver.

Figure 11.

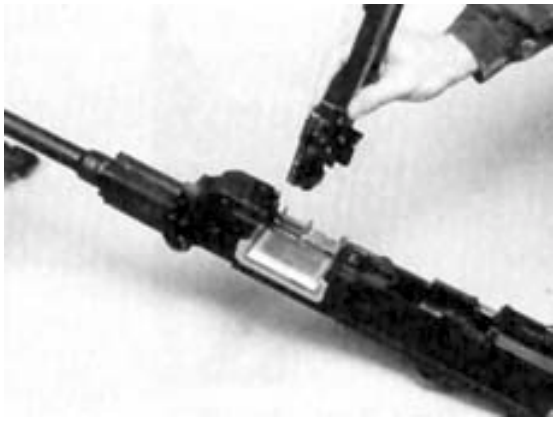


Figure 11a.

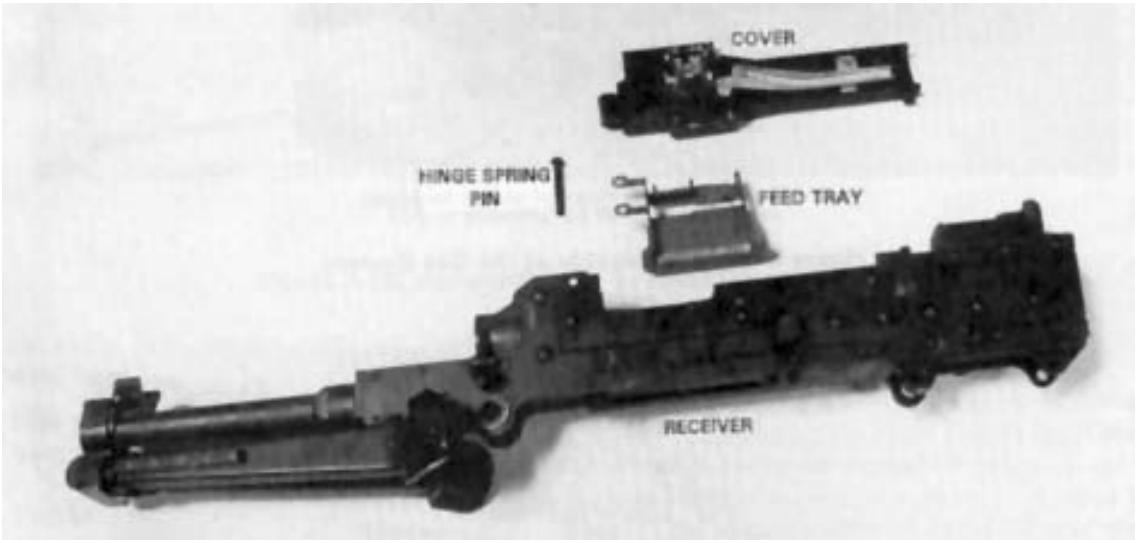


Figure 11b.

9. Detailed Assembly.

a. Receiver Group. To replace the feed tray, lay the feed tray on the receiver so that the feed tray guides are aligned with the receiver brackets. To replace the cover, place the cover onto the receiver aligning its mounting holes with the mounting brackets on the receiver, and push it down into its closed position. Then, insert the cover hinge spring pin into the holes to affix the cover and feed tray to the receiver.

b. Barrel Group. Insert the gas plug into the gas regulator. Place the collar over the forward end of the plug. Push against face of the collar while rotating counterclockwise until it locks into place. Pull on the collar to ensure it is in the locked position.

c. Operating Group. To join the bolt and operating rod, hold the rod in one hand, then position the rear of the bolt and slide it over the firing pin. Align the holes on the bolt with those on the operating rod and push the spring-loaded pin through them to secure the two assemblies together. The pin can be inserted from the left or right.

10. General Assembly.

a. Replacing the Barrel Group.

(1) Insert the barrel socket into the receiver forward of the cover and align the rear of the gas plug with the gas cylinder tube in front of the bipod.

(2) Fully seat the barrel in the receiver. Rotate the carrying handle down to its lowered position to lock the barrel in place.

(a) Check for proper headspace. To do this, rotate the barrel-changing handle and count the number of clicks heard. There must be a minimum of two clicks, but not more than seven. If this is not the case, the weapon should not be fired. It should be turned in for higher echelon maintenance/inspection.

b. Replacing the Trigger Housing Group

(1) Insert the holding notch on the front of the trigger housing into its recess on the bottom of the receiver. (See Figure 12)

(2) Rotate the rear of the trigger housing upward and align the hole of the trigger housing with the mounting bracket on the receiver.

(3) Insert the trigger housing assembly spring pin into the hole, securing the assembly to the receiver. It can be inserted from the left or right.

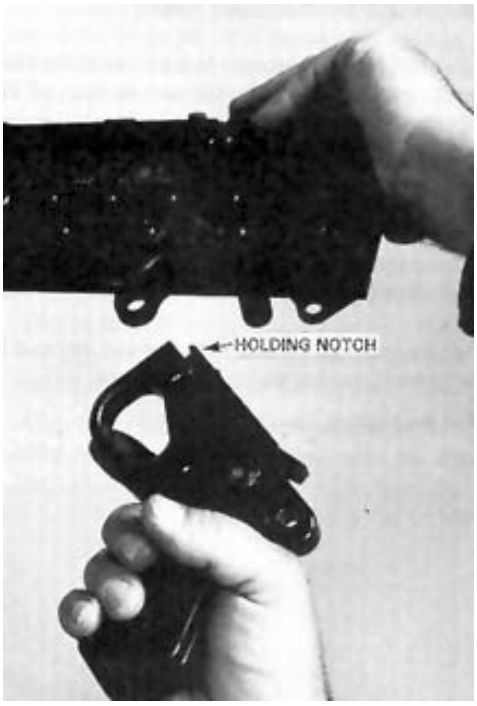


Figure 12.

c. Replacing the Operating Group. (Figure 13)

(1) To join the bolt and operating rod, hold the rod in one hand, then position the rear of the bolt and slide it over the firing pin.

(2) Align the holes on the bolt with those on the operating rod and push the spring-loaded pin through them to secure the two assemblies together. The pin can be inserted from the left or right.

(3) Insert the bolt and operating rod into the receiver, aligning the slots along their sides with the rails inside the receiver.

(4) Extend the bolt to the unlocked (forward) position and then push the entire bolt and operating rod assembly inside the receiver.

(5) Pull the trigger so that the assembly can slide all the way into the receiver.

(6) Insert the drive spring rod assembly into the receiver, sliding it all the way forward against the recess in the rear of the operating rod. (See Figure 14)

(7) Then lower it so that its base seats against the retaining studs inside the receiver that holds it into place.

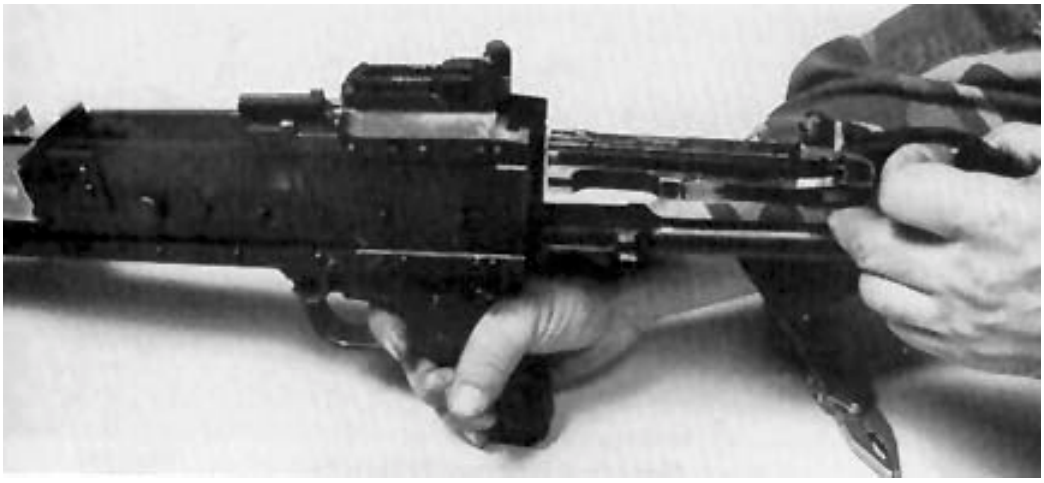


Figure 13.

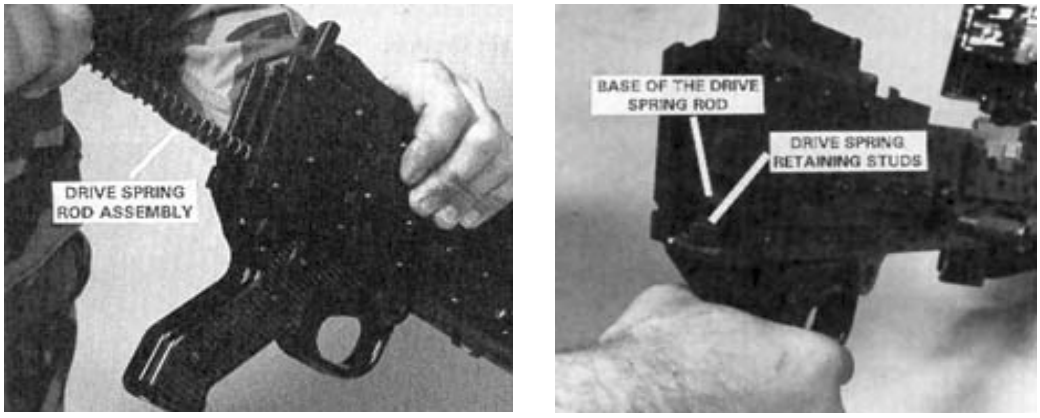


Figure 14.

d. Replacing the Butt-stock Group

(1) Align the recessed grooves at the front of the butt-stock with the vertical rails at the rear of the receiver.

(2) Slide the butt-stock downward until it locks in place on the receiver.

11. Care and Cleaning.

a. Cleaning Materials.

(1) CLP (Cleaning, Lubricant, Protectant)

(2) RBC (Rifle Bore Cleaner)

(3) Dry cleaning solvent

b. Lubricants.

(1) CLP (Cleaning, Lubricant, Protectant)

(2) LAW (Lubricant, Artic Weather)

(3) LSA (Lubricant, weapon, semi-fluid)

(4) LSA-T (liquid solvent agent with Teflon)

c. Before Firing. Inspect for cleanliness, proper mechanical condition, and missing or broken parts. Remove excess oil from the bore, chamber, barrel socket, and face of the bolt. Lubricate the gun by placing a light coat of CLP on the following parts:

(1) Operating rod. Apply CLP on those recesses along the side that make contact with the receiver rails.

(2) Bolt. A very small amount of CLP should be placed on the spring pin, the roller, and other moving parts.

(3) Receiver. With the bolt to the rear, apply a line of CLP on either side of the bolt. Manually pull the bolt back and forth, so that CLP is spread over the bolt and receiver rails.

d. During Firing. During firing, maintain a light coat of CLP on the parts listed in paragraph 10, and ensure that the gas system's connections remain tight. Change barrels when necessary.

e. After Firing. After firing, clean the gun with CLP, RBC, or dry cleaning solvent. Even the most careful initial cleaning will not remove all carbon deposits; therefore, it is necessary to clean the gun for 3 consecutive days after firing. After cleaning each day, wipe off all cleaning materials and place a light coat of CLP on all metal parts. If the gun is fired daily, remember that repeated detailed disassembly will cause unnecessary wear. Adequate cleaning can be performed on a gun that has been disassembled into its five main groups. It is essential to perform detailed disassembly only after prolonged firing. Ensure that cleaning materials such as CLP and RBC are not used on the nonmetallic portions of the gun, such as the buttstock. Hot water, rags, and nonabrasive brushes can be used to re-move dirt from the nonmetallic portions of the gun. The M122 tripod should be cleaned to remove all dirt, and then a light coat of CLP should be applied, especially to the sleeve and sleeve latch.

f. Normal Maintenance Procedures. Each gun should be cleaned as soon after firing as possible and each time it is exposed to field conditions. In combat conditions the gun should be cleaned and lubricated daily, whether or not it has been fired. If possible, keep the gun covered with a canvas, tarpaulin, or poncho when not in use. During normal training conditions, inspect the gun daily for rust and maintain a light coat of CLP on all metal parts. In ideal conditions, when the gun is not used and is kept in a clean place, it may only be necessary to disassemble and clean it every 3 to 5 days. The gun should be disassembled, cleaned, and lubricated in a clean, dry location where it is least ex-posed to dirt and moisture.

g. Inspection.

(1) Always check for cleanliness.

(2) Look for broken, missing, or burred parts.

(3) Test the spring tension of appropriate parts, and perform appropriate checks to determine if the gun functions properly.

12. Function Check. After assembly has been completed it will be necessary to perform a function check. Remember that function checks are only to check proper reassembly procedures. Function checks are not meant to take the place of actual live fire operational tests to be done before movement if the tactical situation permits. Function checks for the M240G consist of the following:

a. Grasp the cocking handle with the right hand, palm up, and pull the bolt to the rear locking it in place.

b. While continuing to hold the resistance on the cocking handle, use the left hand to move the safety to the "S" position.

c. Push the cocking handle forward into the forward lock position.

d. Pull the trigger. (The weapon should not fire.)

e. Grasp the cocking handle with the right hand, palm up, and pull and hold it to the rear.

f. Move the safety to the "F" position.

g. While continuing to hold resistance on the cocking handle, use the left hand to pull the trigger and ease the bolt forward to prevent it from slamming into the chamber area and damaging the face of the bolt.

h. If the weapon fails the function check, check for missing parts or incorrect reassembly.

CAUTION: The bolt must be eased forward to prevent damage to the cover and feed mechanism assembly and operating rod group.

NOTE: The cover can be closed with the bolt in either the forward or the rearward position.

13. Functioning.

a. Firing. After the bolt reaches its locked position, the operating rod moves forward, independent of the bolt. It carries the striker of the fixed firing pin through the aperture in the face of the bolt, striking and detonating the primer of the cartridge.

b. Unlocking. After the cartridge ignites and the projectile passes the gas port, part of the gases enter the gas cylinder. The rapidly expanding gases enter the hollow end cap of the gas piston and force the operating assembly to the rear, providing the power for the last four steps in the cycle of functioning The operating rod now moves rearward, independent of the bolt, for a short distance. At this point, the locking lever begins to swing toward the rear, carrying the bolt with it into its unlocked position, and clears the barrel socket.

c. Extracting. The extractor grips the rim of the cartridge as the bolt and operating rod pull the case from the chamber.

d. Ejecting. As the case is withdrawn from the chamber, the ejector exerts a push from the top, and the extractor exerts a pull from the bottom. The casing falls from the gun as soon as it reaches the cartridge ejection port. At approximately the same time, the empty link is forced out of the link ejection port between the cartridge stops on the feed tray by the next round moving into the feed tray groove.

e. Cocking. This is the process of placing the parts of the gun in position to fire the next round. During the rearward independent movement of the operating rod, the firing pin striker is withdrawn from the face of the bolt. When the bolt has moved far enough to the rear to pick up the next round for chambering, cocking is completed.

f. Feeding. When the bolt is to the rear, the outer feed pawls are outside the first round of ammunition. The inner feed pawls are between the first and second rounds. As the bolt moves forward to fire the round in the feed tray groove, the belt feed pawl moves to the left. It moves up and over the second round in the belt of ammunition and is now in position to drag the second round into the feed tray groove. As the bolt moves to the rear after firing, the belt feed pawl moves to the right, dragging the second round into the feed tray groove. Inside the cover the cam roller, feed arm with control spring, feed arm fork, and pivot arm exist only so the feed pawls can move back and forth, dragging rounds into position to be chambered

g. Chambering. This is the process of stripping a round from the belt and seating it in the chamber. As the bolt travels forward, the upper locking lug of the bolt contacts the base of the cartridge. The bolt strips the round from the belt link. The chambering ramp angles downward and forces the round toward the chamber along with the spring tension of the cartridge guide pawl. The cartridge guide pawl also holds back the belt link. When the round is fully seated in the chamber, the extractor snaps over the extractor rim of the cartridge, and the ejector is depressed.

h. Locking. During chambering, the bolt enters the barrel socket as the operating rod is driven forward by the drive spring and the locking lever, which the bolt is riding on, swings forward pushing the bolt forward and locking it to the barrel socket. Although the term locking is used here, it should be noted that in the M240G the bolt and barrel do not physically inter-lock. This is why the barrel can be removed even when the bolt is forward.

14. Sights. The M240G has a front sight post which can be adjusted using the tool, combination, front sight adjusting. This is normally only done to zero the weapon. The rear sight consists of a peep sight aperture on an adjustable sight leaf slide. This sight leaf slide rides on a range plate with a graduated scale that is attached to the weapon by a hinged mount. The gun is normally carried with the sight in its horizontal position. The gun can be used with the sight in this position to engage close in targets (800 meters or below) from the bipod or tripod. It can also be raised to a vertical position for sighting on targets at greater ranges (more than 800 meters). These settings are normally used only when the gun is employed on the tripod, which provides the stable platform necessary to accurately engage targets at these greater ranges. The range plate scale, located on both sides of the range plate, is marked at 100-meter intervals from 200 meters to the maximum effective range of 1,800 meters. Range changes can be made by moving the rear sight slide horizontally along its graduated steps for range settings from 200 meters to 800 meters, or range changes can be made by raising the sight to its upright position and moving the rear sight slide vertically for range settings from 800 meters to 1,800 meters.

15. Mounts and Accessories.

a. Bipod. The bipod mount is part of the receiver group and cannot be removed by the operator. The bipod is held in position by the ball joint that joins it to the bottom of the receiver. See figure 15.

(1) Lowering. To lower the bipod legs, push in on the bipod latch and rotate the legs down and forward (see figure 15). Release the legs and they will automatically spring outward into their open and locked position.

(2) Raising. To raise the bipod legs, squeeze them together and rotate the legs rearward and upward into the slot on the bottom of the receiver until the bipod latch engages, locking them in position.

(3) Lateral Movement. The M240G's bipod pivots on the ball joint, allowing quick and easy right or left lateral movement of the weapon by the gunner.

Figure 15.

b. Tripod Mount, M122. The tripod assembly provides a stable and relatively lightweight base that is far superior to the bipod. The tripod may be extended and collapsed easily. It consists of a tripod head, one front and two rear legs, and a traversing bar (see figure 16). The traversing bar connects the two rear legs. It is hinged on one side with a sleeve and on the other side with a sleeve latch. This allows the tripod to collapse to a closed position for carrying or storage or to lock in an open extended position for use. The traversing bar also supports the T&E mechanism. Engraved on the bar is a scale that measures direction in mils. It is graduated in 5-mil increments. It is numbered every 100 mils from 0 in the center to 450 mils on the left side and 425 mils on the right side (see figure 17).

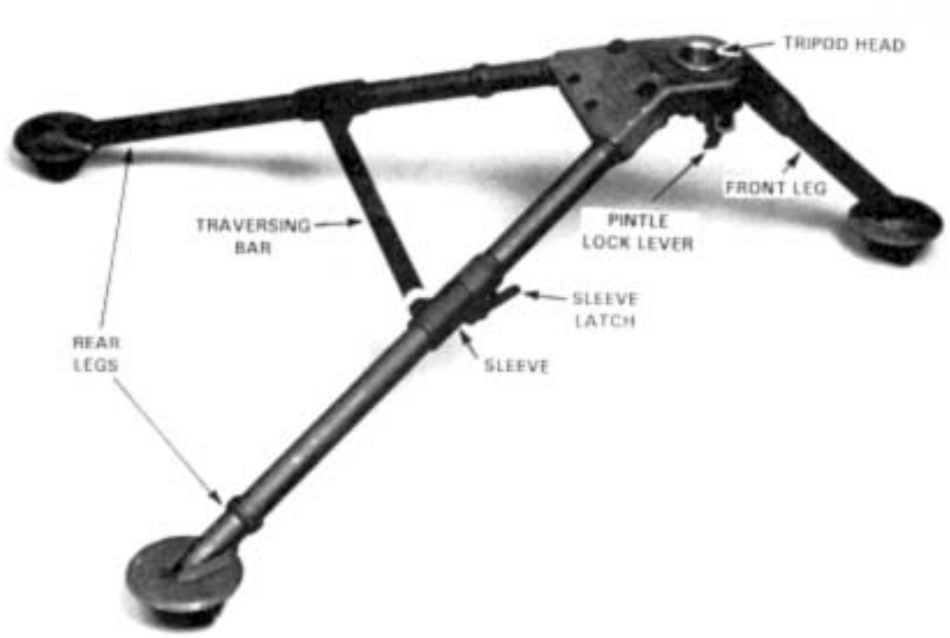


Figure 16.

Figure 17.

c. Flex-mount. The flex-mount consists of the mount itself, the T&E mechanism and the pintle. It joins the gun and T&E to the tripod. The flex-mount enhances the stability of the tripod platform and dampens the recoil of the weapon (see figure 18). The purpose of the T&E mechanism is to provide controlled manipulation and the ability to engage predetermined targets (see figure 19). The traversing portion of the mechanism consists of the traversing handwheel, traversing screw, offset head, and traversing slide with lock lever. As the handwheel is turned, the offset head will appear to move along the traversing screw, and the muzzle of the weapon will move to the right or left. Each click of the handwheel indicates a 1 mil change in direction of the muzzle: 1 click = 1 mil. There is a total of 100 mils traverse on the traversing screw. Notice that the traversing slide is a U-shaped projection near the bottom of the T&E mechanism. This slide is locked to the traversing bar by the slide-locking lever. The elevating portion of the mechanism consists of the upper elevating screw with scale, elevating hand-wheel, and lower elevating screw. The scale on the upper elevating screw is graduated in 50-mil increments from 0 to +200 and 0 to -200, for a total of 400 mils of elevation change. The elevating handwheel also has a scale. It is marked in 1-mil increments from 0 to 50. One click on the elevating handwheel indicates a 1 mil change in elevation of the barrel: 1 click = 1 mil. Beneath the elevating handwheel is the lower elevating screw.

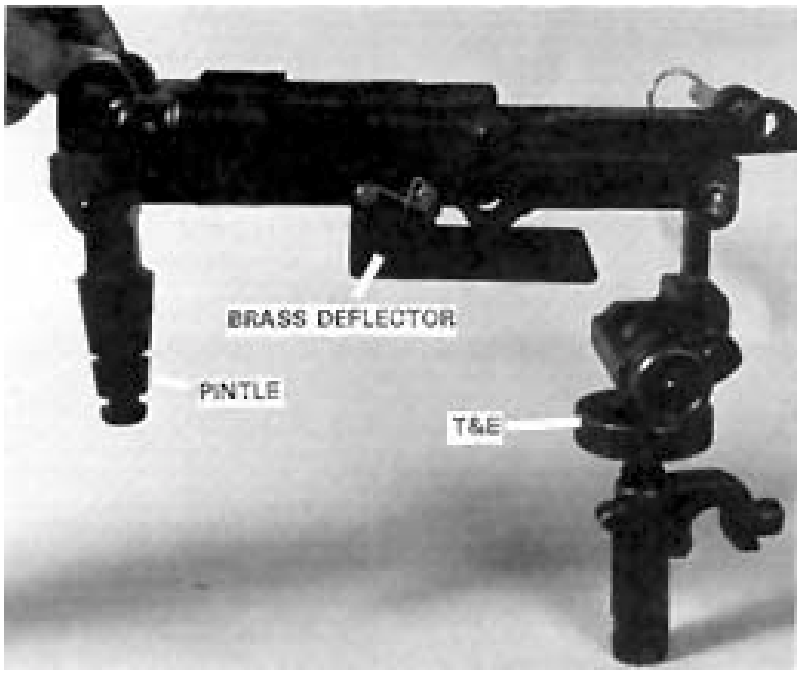
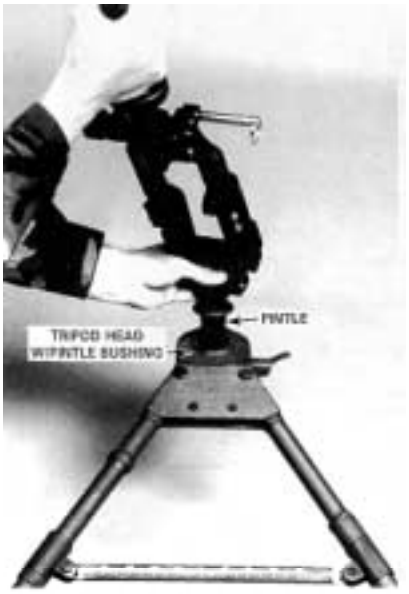


Figure 18.

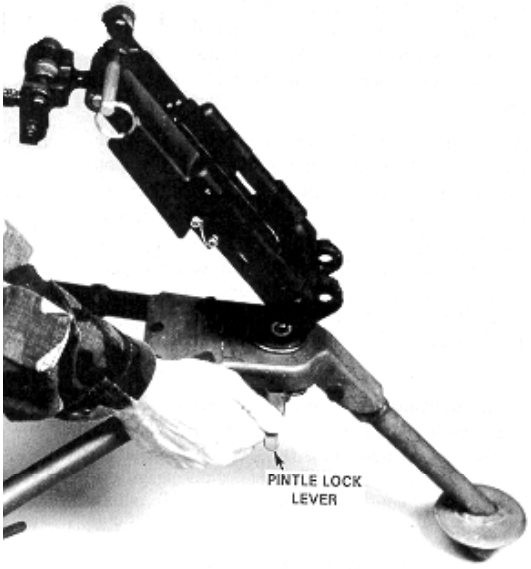
Figure 19.

(1) Mounting the Gun. The preferred method of mounting the gun is to first attach the flex-mount to the tripod and then mount the gun on the flex-mount. Prepare the tripod by extending its legs until the sleeve latch engages and locks the legs in the open position. (See figure 16). Prepare the T&E mechanism for mounting by accomplishing the following: rotating the elevating handwheel until approximately 1 1/2 inches (two fingers) are visible on the upper elevating screw, rotate the traversing slide until approximately two fingers are visible on the lower elevating screw, and rotate the traversing handwheel until the offset head is

centered on the traversing screw. The T&E is now roughly centered. Insert the flex-mount's pintle into the tripod's pintle bushing and then engage the pintle locking lever to hold it in place. (See figure 20, steps 1and 2).



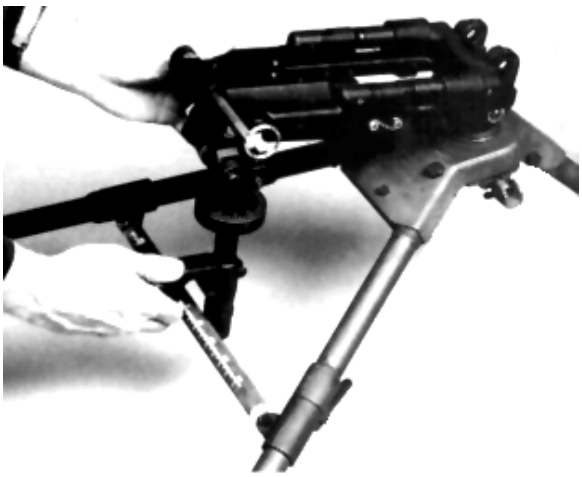
Step 1.



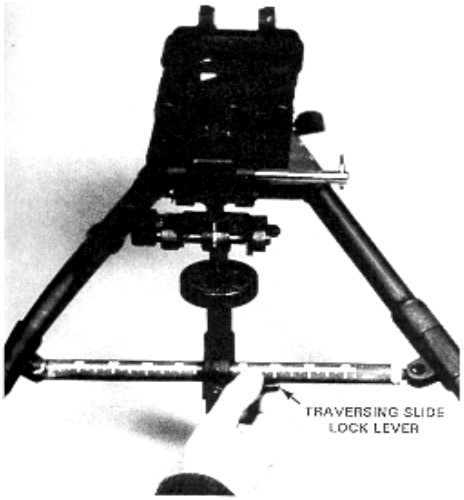
Step 2.

Figure 20.

(2) Lower the traversing slide over the traversing bar with the traversing slide to the rear and the traversing wheel to the left. Secure it by turning the locking lever clockwise. See figure 21, steps 1 and 2. Attach the gun to the flex-mount by pushing the recesses on the forward portion of the receiver on the bottom of the receiver against the forward bushings on the flex-mount (See figure 22, step 1). Rotate the rear of the gun down to the mount and insert the retaining pin forward of the trigger housing assembly to lock the weapon in place (See figure 22, step 2). This completes mounting (See figure 23).



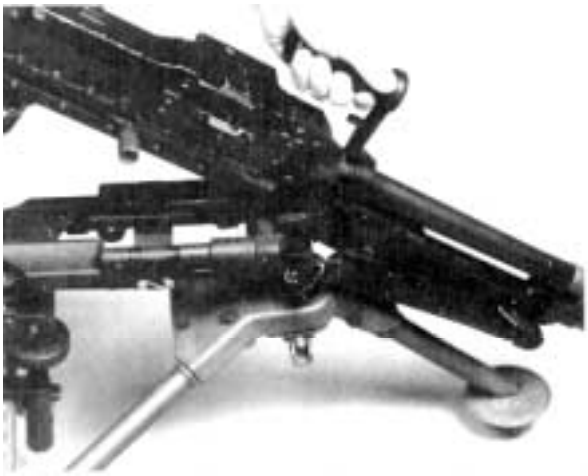
Step 1.



Step 2.

Figure 21.

Step 1.



Step 2.

Figure 22.

Figure 23.

d. Gun Bag. The gun bag is used to carry and protect the M240G machine gun system, complete. It consists of a large outer bag and a smaller, removable spare barrel bag inside. The complete gun bag is used to carry the machine gun, tripod, flex-mount, spare barrel, and all user maintenance equipment and other accessories (SL-3 components) (See figure 24). This will keep the gun and all its components together and protected during events such as unit movements for embarkation on ships or aircraft. The removable spare barrel bag is designed for field use and will carry the spare barrel, and a complete set of user maintenance equipment and accessories (See figure 25). The spare barrel bag has adjustable shoulder straps and can be worn like a pack or can be carried by a fixed carrying strap.

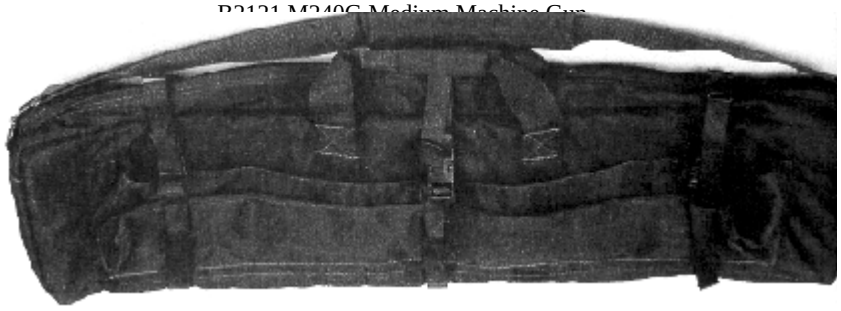


Figure 24.

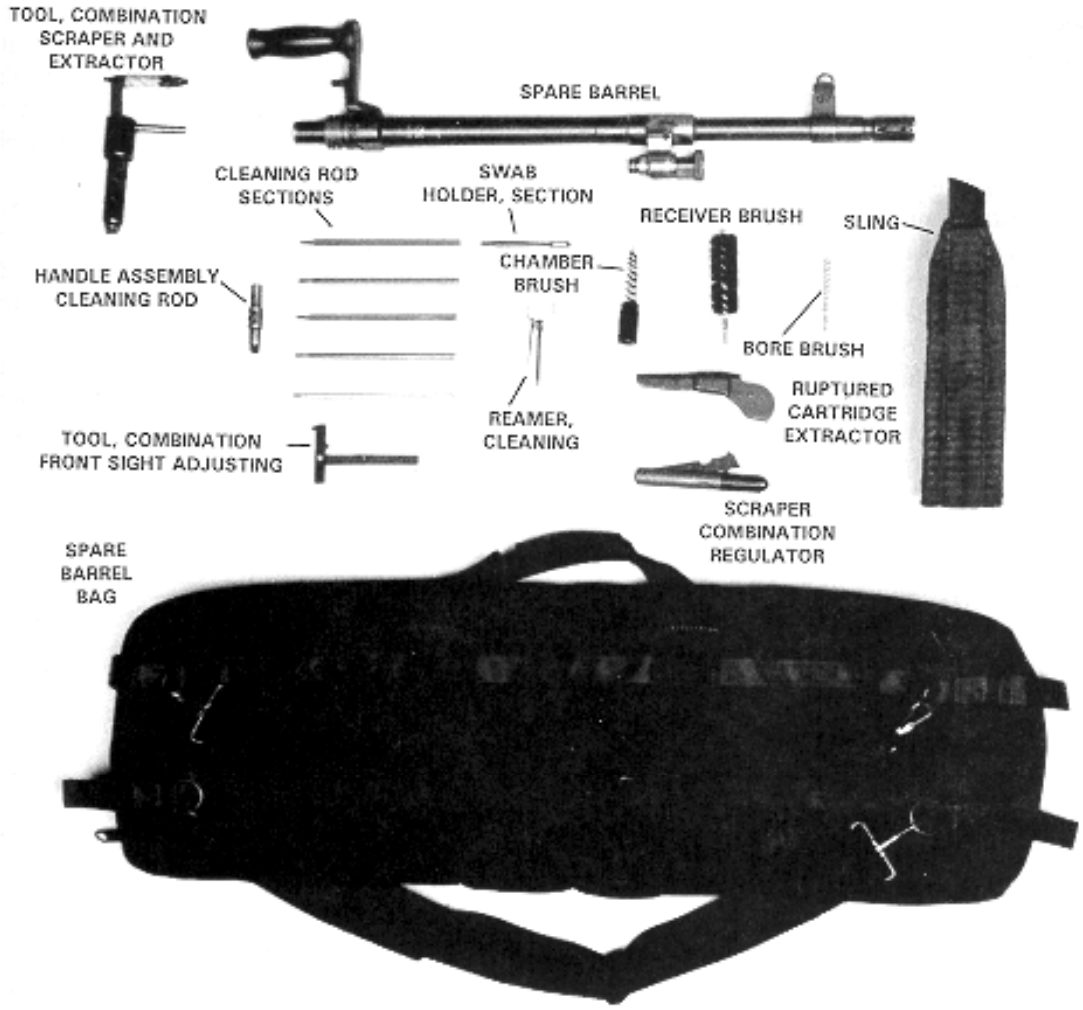


Figure 25.

16. Change Barrel Procedures.

a. The ability to change the barrels of the M240G quickly provides a great advantage. It allows one barrel to be used while the other is cooling. This increases the life of each barrel and ensures a continuous rapid rate of accurate fire. Barrels should be changed when they are beginning to overheat. Changing a barrel only takes a few seconds and significantly improves the rate of fire and accuracy. As a guide, a barrel change is required after firing the sustained rate for 10 minutes and after firing the rapid rate for 2 minutes. The procedures outlined below are for a tripod-mounted gun; however, they are very similar to those for a bipod-mounted gun. The barrel can be changed with the bolt forward or to the rear. The weapon does not necessarily need to be unloaded; however, it must be placed on *S* when the bolt is to the rear. The gunner depresses the barrel-locking latch with his left hand and keeps his hand at that position (See figure 26). The team leader grasps the barrel by the changing handle, rotates it to its upright position, pushes

forward and pulls up, separating the barrel from the receiver. He then grasps the spare barrel by the changing handle, and with the gunner again depressing the barrel locking latch, inserts the barrel socket into the receiver, aligns the gas plug with the gas cylinder, and pulls to the rear until the barrel is fully seated. The gunner then releases the barrel release latch. Once the barrel is fully seated, the team leader lowers the barrel-changing handle, counting the clicks (minimum two, maximum seven) to ensure proper headspace.

Figure 26.

17. Malfunctions and Stoppages.

a. Malfunctions. A malfunction is a failure of the gun to function satisfactorily; the gun will fire, but fires improperly. Defective ammunition or improper operation of the gun by a crewmember is not considered a malfunction. Two of the more common malfunctions are sluggish operation and runaway gun.

(1) Sluggish Operation. Instead of firing at its normal rate (approximately 9 to 10 rounds per second), a sluggish gun fires very slowly. It can be due to excessive friction or loss of gas. Excessive friction is usually due to lack of lubrication or excessive dirt/carbon in the gas system or on the bolt and receiver rails. Excessive loss of gas is usually due to loose connections in the gas system. To reduce sluggish operation, move the regulator setting to the number 2 or 3 position (see figure 3-32). To remedy continued sluggish operation, clean, lubricate, tighten, or replace parts as required.

(2) Runaway Gun. This is when a gun continues to fire after the trigger is released; firing is uncontrolled. A runaway gun is usually caused by a worn, broken, or burred sear; the sear shoulder is unable to grab the operating rod and hold it to the rear. An excessively worn sear notch on the operating rod could also be responsible. The action taken to stop a runaway gun, for both tripod and bipod-mounted guns, is for the team leader to twist and break the belt of ammunition. The remedy for runaway gun is to replace worn parts.

b. Stoppages. A stoppage is any interruption in the cycle of functioning caused by faulty action of the gun or defective ammunition; in short, the gun stops firing. Stoppages must be cleared quickly and firing resumed.

(1) Immediate Action. Immediate action is that action taken by the gunner/crew to reduce a stoppage, without investigating its cause, and quickly return the gun to action. Hang fire and cook off are two terms that describe ammunition condition and should be understood in conjunction with immediate action procedures. A hang fire occurs when the cartridge primer detonates after being struck by the firing pin but some problem with the propellant powder causes it to burn too slowly and delays the firing of the projectile. Time (5 seconds) is allotted for this malfunction before investigating a stoppage further because injury to personnel and damage to equipment could occur if the round goes off with the cover of the weapon open. A cook off occurs when the heat of the barrel is high enough to cause the propellant powder inside the round to ignite even though the primer is not struck. Immediate action is completed in a total of 10 seconds to ensure that the round is extracted before the heat of the barrel affects it. When the round fails to extract/eject, further action is delayed (15 minutes) if the barrel is hot because the gunner must assume that a round is still in the chamber and could cook off before the barrel cools down.

(a) Immediate action procedures for the M240G are as follows: Wait 5 seconds after the misfire to guard against a hang fire. Within the next 5 seconds (to guard against a cook off), pull the charging handle to the rear, observe the ejection port, and, if brass was seen ejecting, attempt to fire again. If brass did not eject, place the weapon on S, determine if the barrel is hot (200 rounds or more fired in the last 2 minutes) or cold.

- Hot Barrel. Assume a live is in the chamber. Wait until the barrel has reached air temperature (15 minutes) and proceed with cold barrel procedures.
- Cold Barrel. Raise the feed cover, remove ammo belt and links, and inspect the chamber. If the chamber is clear, reload and attempt to fire. If brass is present, execute clear gun. (use a cleaning rod to punch the bore) Reload and attempt to fire.
- In either case, if the weapon fails to fire repeat cold barrel procedures a second time. If the weapon fails to fire again, execute remedial action.

(2) Remedial Action. When immediate action fails to reduce the stoppage, remedial action must be taken. This involves investigating the cause of the stoppage and may involve some disassembly of the weapon and replacement of parts to correct the problem. Two common causes of stoppage that may require remedial action are failure to extract due to a stuck or ruptured cartridge.

(a) Stuck Cartridge. Some swelling of the cartridge occurs when it fires. If the swelling is excessive, the cartridge will be fixed tightly in the chamber. If the extractor spring has weakened and does not tightly grip the base of the cartridge, it may fail to extract the round when the bolt moves to the rear. Once the bolt is locked to the rear, the weapon is placed on S, and the barrel has been allowed to cool, a length of cleaning rod should be inserted into the muzzle to push the round out through the chamber.

(b) Ruptured Cartridge. Sometimes a cartridge is in a weakened condition after firing. In addition, it may swell as described above. In this case, a properly functioning extractor may sometimes tear the base of the cartridge off as the bolt moves to the rear, leaving the rest of the cartridge wedged inside the chamber. The ruptured cartridge extractor must be used in this instance to remove it. The barrel must be removed and the extractor inserted into the chamber where it can grip and remove the remains of the cartridge.

18. Weapon Conditions.

a. Condition 1. Ammunition in position on feed tray, bolt locked to the rear, weapon on safe.

b. Condition 2. Not applicable to the M240G.

c. Condition 3. Ammunition in position on feed tray, chamber empty, bolt forward, safety not engaged.

d. Condition 4. Feed tray clear of ammunition, chamber empty, bolt forward, safety not engaged.

19. Weapon Commands.

a. Execute "**LOAD**" taking the weapon from condition 4 to condition 3.

(1) Raised Cover

(a) Ensure the weapon is in condition 4. (Bolt forward; weapon on “F”)

(b) Place the first round of the belt in the feed tray groove against the cartridge stop with the open side of the link down. (“Brass to the Grass”) (See Figure 27).

(c) Close the cover.

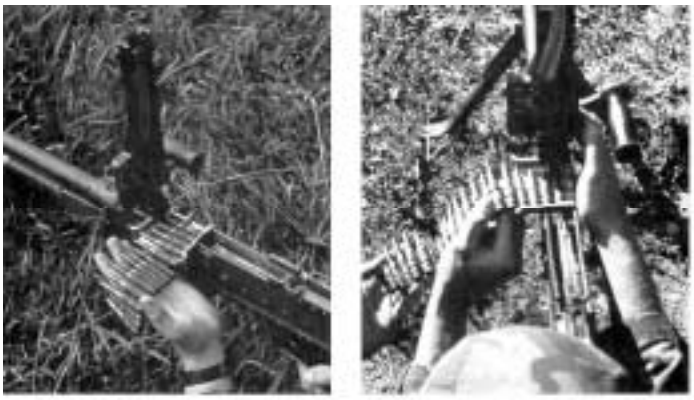


Figure 27.

(2) Closed Cover

(a) Ensure the weapon is in condition 4. (Bolt forward; weapon on “F”)

(b) Insert the first round of a belt of ammunition with the open side of the links down into the feed way until the holding pawl engages it and holds it in place.

b. Execute "**MAKE READY**" taking the weapon from condition 3 to condition 1.

(1) Pull the cocking handle fully to the rear.

(2) Push the cocking handle fully forward to the locked position.

(3) Place the weapon on “S”.

c. Execute "**FIRE**".

(1) Place the weapon on “F”**.**

(2) Engage target.

d. Execute "**UNLOAD**" taking the weapon from Condition 1or Condition 3 to Condition 4.

(1) If the weapon is in Condition 1, ensure the weapon is on “S”. If the bolt is forward the weapon will not go on safe.

(2) Raise the cover and clear the feed tray of ammunition.

CAUTION: If the barrel is hot and a round is still chambered, immediately close the cover and feed mechanism assembly. Ensure the weapon is pointed in a safe direction and wait until the barrel cools. A hot barrel may cause the round to cook-off.

(3) If the bolt is forward, pull the cocking handle fully to the rear until the bolt locks to the rear and push the cocking handle fully forward to the locked position. Place the weapon on “S”.

(4) Lift the feed tray and inspect the chamber.

(5) Close the cover.

(6) Place the weapon on “F”.

(7) While holding the cocking handle to the rear, pull the trigger and ease the bolt forward.

e. Execute "**UNLOAD SHOW CLEAR**" taking the weapon from Condition 1 or Condition 3 to Condition 4.

(1) If the weapon is in Condition 1, ensure the weapon is on “S”. If the bolt is forward the weapon will not go on safe.

(2) Raise the cover and clear the feed tray of ammunition.

CAUTION: If the barrel is hot and a round is still chambered, immediately close the cover and feed mechanism assembly. Ensure the weapon is pointed in a safe direction and wait until the barrel cools. A hot barrel may cause the round to cook-off.

(3) If the bolt is forward, pull the cocking handle fully to the rear until the bolt locks to the rear and push the cocking handle fully forward to the locked position. Place the weapon on “S”.

(4) Lift the feed tray and inspect the chamber.

(5) **Have a second individual check to ensure no ammunition is present.**

(6) Close the cover.
(7) Place the weapon on “F”.

(8) While holding the cocking handle to the rear, pull the trigger and ease the bolt forward.

20. References.

a. MCWP 3-15.1 Machine Guns and Machine Gun Gunnery

REVIEW QUESTIONS

1. Before you disassemble the M240G, you must do what?

_____

2. What is the sustained rate of fire for the M240G?

_____

3. What is the extent of grazing fire that can be achieved with the M240G?

_____

4. What is Condition 1 for the M240G?

_____

5. What is the rule of thumb used to determine if the barrel is hot or cold?

_____

6. During training, while performing immediate action, if nothing is ejected and the barrel is hot how long must you wait before clearing the weapon?

_____

7. What is Condition 3 for the M240G?

_____

8. A minimum of two clicks but not more than seven indicates proper headspace when changing barrels.

_____

9. The M240G can be placed on safe when the bolt is forward.

_____

10. When clearing the weapon, if the barrel is hot and a round is in the chamber what should be done immediately?

_____

11. The cover cannot be closed with the bolt to the rear.

_____

12. With the M240G in Condition 4 can the safety be engaged?

_____

13. If you have a failure to fire, how can you prevent a cook off from occurring?

_____

14. How many mils of traverse are there on the traversing slide bar?

_____

15. When loading ammunition the first round or the belt is placed against the cartridge stop with the open side of the link up.

_____

16. How many mils will one click of the traversing handwheel move the muzzle of the weapon?

_____

17. What is Condition 4 for the M240G?

_____

18. A worn, broken or burred _____ will cause a runaway gun.

_____

19. As a guide, when should the barrel be changed?

_____

20. How many mils of elevation are available on the T&E?

_____

REVIEW QUESTIONS (ANSWERS)

1. Before you disassemble the M240G, you must _____.

Clear the weapon.

2. What is the sustained rate of fire for the M240G?

100rpm

3. What is the extent of grazing fire that can be achieved with the M240G?

600 meters

4. What is Condition 1 for the M240G?

Ammunition in position on feed tray, bolt locked to the rear, weapon on safe.

5. What is the rule of thumb used to determine if the barrel is hot or cold?

Firing at the sustained rate for 10 minutes

6. During training, while performing immediate action, if nothing is ejected and the barrel is hot how long must you wait before clearing the weapon?

15min

7. What is Condition 3 for the M240G?

Ammunition in position on feed tray, chamber empty, bolt forward, safety not engaged.

8. A minimum of two clicks but not more than seven indicates proper headspace when changing barrels.

True

9. The M240G can be placed on safe when the bolt is forward.

False

10. When clearing the weapon, if the barrel is hot and a round is in the chamber what should be done immediately?

Close the cover.

11. The cover cannot be closed with the bolt to the rear.

False

12. With the M240G in Condition 4 can the safety be engaged?

No

13. If you have a failure to fire, how can you prevent a cook off from occurring?

By applying immediate action within 10 seconds.

14. How many mils of traverse are there on the traversing slide bar?

875

15. When loading ammunition the first round or the belt is placed against the cartridge stop with the open side of the link up.

False

16. How many mils will one click of the traversing hand wheel move the muzzle of the weapon?

1

17. What is Condition 4 for the M240G?

Feed tray clear of ammunition, chamber empty, bolt forward, safety not engaged.

18. A worn, broken or burred _____ will cause a runaway gun.

Sear

19. As a guide, when should the barrel be changed?

After firing the rapid rate for 2 minutes

20. How many mils of elevation are available on the T&E?

400