ANNEX B
TO
SERVICE AND TROOP TESTS

STONER 63 WEAPONS SYSTEM
(RIFLE CONFIGURATION)

ANNEX B

STONER 63 RIFLE CONFIGURATION

1. INTRODUCTION:

a. Purpose and Scope

(1) This Annex is a guide for commanders and instructors in presenting instruction and training in the mechanical operation of the Stoner "63" rifle. It includes a detailed description of the rifle, and procedures for detailed disassembly and assembly; an explanation of functioning; a discussion on stoppages and the immediate action applied to reduce them, instructions on the care, cleaning and the handling of the rifle, and suggested Manual of Arms.

b. Importance of Mechanical Training

The rifle is the infantryman's basic weapon. It gives him an individual and powerful capability for combat. To get the most out of his individual combat capability, the infantryman must develop two skills to an equal degree - he must be able to fire his weapon well enough to get hits on battlefield targets and he must know enough about its working parts to keep them operating.

c. Description of the Rifle

(1) The Stoner 63 rifle is a caliber 5.56mm, magazine fed, gas operated, air cooled, shoulder weapon. It can be fired either automatically or semi-automatically by moving the selector lever to R (repetitive) for semi-automatic or A (automatic) for automatic fire. Figure 1 shows the left and right side of the rifle.

(2) The rifle has a dual range sight system for simplicity and reliability. Basic sight settings are fully adjustable in 1 minute of angle increments in windage and elevation. For ease in adjustment under field conditions the sights are readily

FIGURE 1. — Right and left view of rifle.

FIGURE 2. — Rifle grenade and bipod on rifle.

adjusted by using the point of the 5.56mm cartridge. At each incremental adjustment the sights are positively locked in place to prevent inadvertent misalignment. A bayonet and snap on bipod are provided for the rifle. The flash suppressor serves as a grenade launcher capable of launching rifle grenades presently in the system, as shown in Figure 2. A conventional spring loaded, 30 round magazine feeds the ammunition to the rifle.

2. GENERAL DATA

a. Weights in pounds

Rifle	8.20 lbs.
Empty Magazine	.45 lbs.
Full Magazine (30 rds)	1.20 lbs.
Sling	.25 lbs.

Firing Weight (Fully loaded with sling)	9.65 lbs.
Bayonet w/o scabbard	.50 lbs.
Grenade Sight	.06 lbs.
Bipod	.50 lbs.

b. Lengths (in inches)

Rifle with flash suppressor	40.25 inches
Rifle with bayonet	45.65 inches
Barrel (Bolt Face to Muzzle)	20.00 inches
Barrel with extension & flash suppressor	21.67 inches

c. Mechanical Features

Rifling	Right hand twist, one turn in 12 inches.
Sight radius	21.5 inches (from rear of rear sight aperture to midpoint of front sight).
Trigger pull	
Maximum	8 lbs.
Minimum	5 lbs.
Loading device	30 round magazine
Method of operation	Gas
Type of lock mechanism	Rotating bolt
Method of feeding	Magazine
Chamber pressure	52,000 $\pm$ 2000 psi
Cooling	Air

d. Ammunition

Caliber	5.56mm (.223 caliber)
Type	Ball, Tracer, Grenade, Blank

e. Firing Characteristics

Muzzle velocity	3250 fps $\pm$ 40 fps

Muzzle energy	1288 ft. lbs. (approx.)
Cyclic rate of fire	740 - 800 rds per min.
Maximum rate of fire	
Semiautomatic	(to be determined)
Automatic	(to be determined)
Maximum sustained rate of fire	(to be determined)
Maximum effective rate of fire	
Semiautomatic	(to be determined)
Automatic	(to be determined)
Maximum range	2833 yds (2590 meters)
Maximum effective range	500 yds (460 meters)

f. Definitions

Cyclic rate	The rate at which the weapon fires automatically.
Sustained rate of fire	The rate at which a weapon can fire indefinitely without seriously overheating.
Maximum effective rate of fire	The maximum number of rounds the average rifleman can fire and still get a reasonable number of hits on target.
Maximum rate of fire	The maximum number of rounds the average rifleman can fire in one minute disregarding hits on the target.
Maximum range	The greatest distance the weapon can fire.
Maximum effective range	The greatest distance at which a rifleman can be expected to fire accurately to inflict casualties or damage.

3. MECHANICAL TRAINING

a. Disassembly (Field Stripping)

(1) The individual is authorized to disassemble his rifle to the extent called field stripping, figure 3. The amount of disassembly he is allowed to perform without

supervision is adequate for normal maintenance. The frequency of disassembly and assembly should be kept to a minimum consistent with maintenance and instructional requirements.

The rifle has been designed so that it can be taken apart and put together easily. No force is needed if it is disassembled and assembled correctly. As the rifle is disassembled, the parts should be laid out from left to right. This makes assembly easier because the parts are assembled in the reverse order of disassembly. The names of the parts (nomenclature) should be taught along with disassembly and assembly to make further instruction on the rifle easier. A combination tool for disassembly is provided. However, disassembly may be accomplished in the field using only a cartridge. Through this annex reference is made to the use of the point of a cartridge in disassembling the weapon. The reference in no way authorizes the use of a live or dummy cartridge for this purpose in training situations where local directives prohibit such practice.

FIGURE 3. — Rifle field stripped.

FIGURE 4. — Removing the magazine.

(2) Removing the Magazine

Grasp the rifle with the left hand keeping the muzzle pointed away from you in a safe direction. Grasp the magazine with the right hand. With the thumb of the right hand depress the magazine latch toward the magazine. See figure 4. Rotate the magazine forward and remove.

(3) Inspection for safe condition

(a) Pull the cocking handle on the left side of the receiver to the rear until the action is fully open.

(b) Lock the action open by pushing up on the bolt stop. See figure 5 and 6.

(c) Return the cocking handle to the forward, locked position.

(d) Move the selector lever to the S (safe) position. See figure 7.

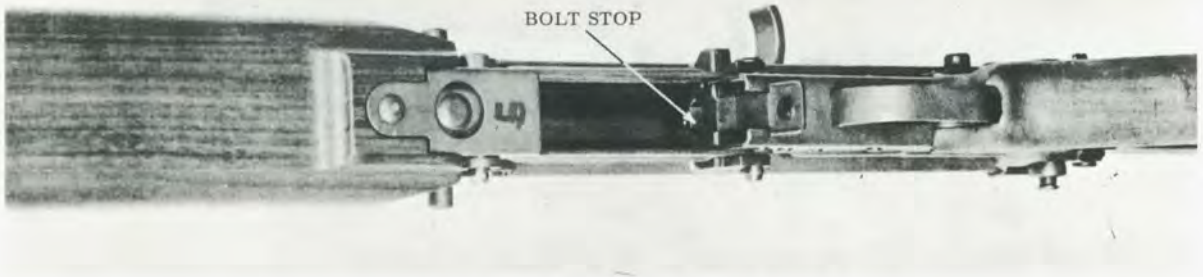


FIGURE 5. — Bolt stop.

FIGURE 6. — Pushing up bolt stop.

FIGURE 7. — Selector lever on S (safe)

(e) Look in the receiver and chamber to be sure that the weapon is cleared of all ammunition and is safe to disassemble.

(f) Pull the cocking handle to the rear until the bolt stop is released, then ease the bolt forward closing the action. When the pressure of the bolt is taken off the bolt stop, the compressed bolt stop spring expands and forces the bolt stop down and out of the path of the bolt.

(4) Removing the Driving Spring Assembly and Carrier, Piston and Bolt Assembly

(a) With the bolt closed and selector lever on S (safe), push the take-down pin out toward the right side of the weapon with the point of a cartridge, as shown in figure 8.

FIGURE 8. — Pushing out the take-down pin.

FIGURE 9. — Trigger housing group pivoted downward.

FIGURE 10. — Driving spring assembly.

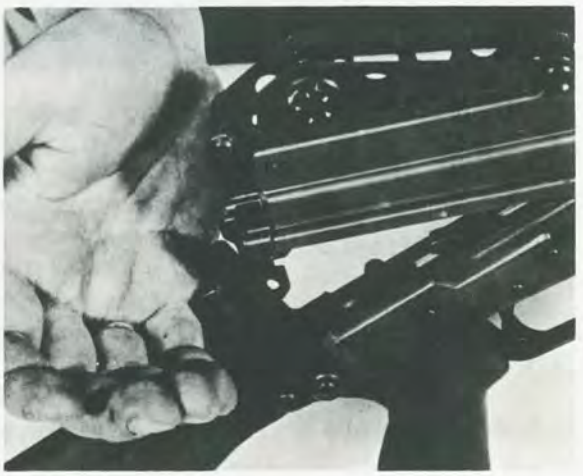


FIGURE 11. — Removing the carrier, piston and bolt assembly.

(b) Holding the rifle with the left hand under the receiver, muzzle pointing down, pull out the take-down pin with the right hand until the trigger housing group is allowed to pivot downward, as shown in figure 9. The take-down pin cannot be removed from the trigger housing assembly.

(c) Still holding the open weapon in the left hand, grasp the driving spring assembly, shown in figure 10, and remove.

(d) Place the right hand over the back of the receiver, as shown in figure 11, and rotate the rifle muzzle up slowly. The carrier, piston and bolt assembly will slide out of the receiver assembly.

(5) Removal of the Trigger Housing Group from the Receiver Group

(a) Remove the trigger housing group retaining pin, shown in figure 12, and remove the trigger housing group from the receiver group.

FIGURE 12. — Removing the trigger housing group retaining pin.

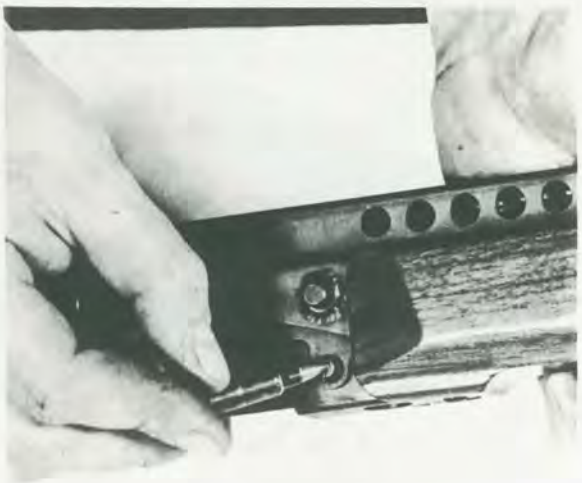


FIGURE 13. — Removing the magazine adapter assembly retaining pin.

(6) Removal of the Magazine Adapter, Barrel, and Cocking Handle Assemblies, from the Receiver group

(a) Remove the magazine adapter assembly retaining pin, as shown in figure 13.

(b) Grasping the forearm of the magazine adapter assembly, slide it forward and remove it from the receiver assembly.

(c) Depress the barrel latch, as shown in figure 14, and remove the barrel assembly.

(d) Pull back on the cocking handle until the guide lug on the receiver is aligned with the disassembly notch on the cocking handle, as shown in figure 15.

(e) Rotate the cocking handle upward 90°, as shown in figure 16, and remove.

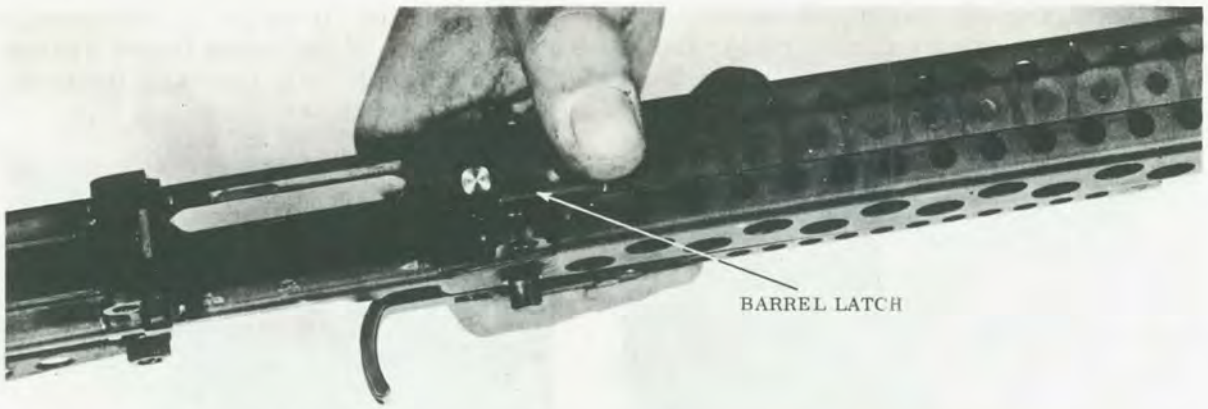


FIGURE 14. — Depressing the barrel latch.

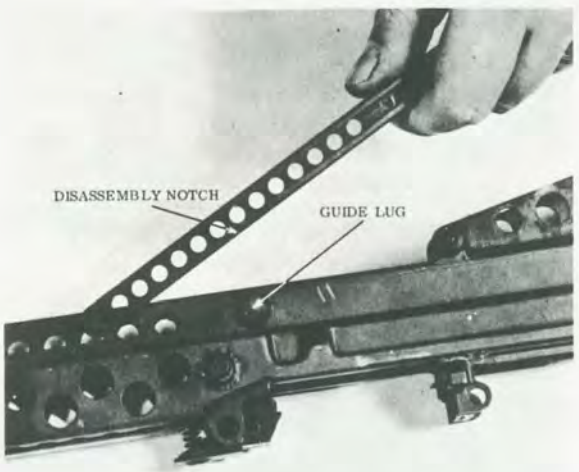


FIGURE 15. — Cocking handle guide lug and disassembly notch.

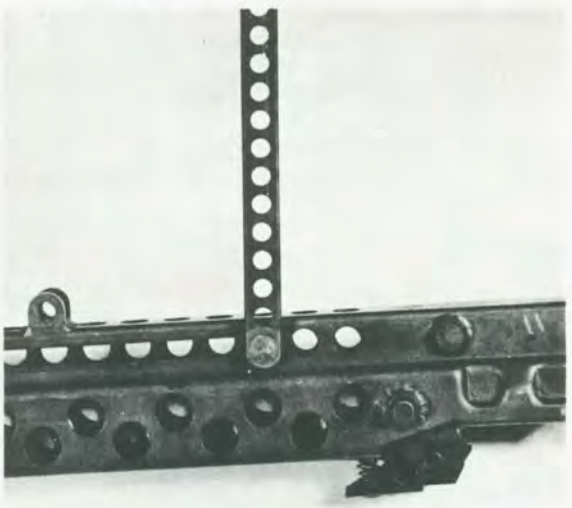


FIGURE 16. — Cocking handle rotated 90°.

(7) Removal of the Stock from the Trigger Housing Group

(a) To remove the stock from the trigger housing Group, remove the stock retaining pin as shown in figure 17.

(b) Rotate the bottom of the stock up, as shown in figure 18, and remove.

NOTE: The stock retaining pin, magazine adapter retaining pin, and trigger housing group retaining pin are interchangeable.

(8) Removal of the Firing Pin, Cam Pin, and Bolt Assembly from the Carrier-Piston Assembly

(a) Push down on the base of the firing pin until it is flush with the back of the carrier cap assembly, as shown in figure 19. Failure to do this will cause damage

to the firing pin during disassembly. While holding the firing pin in this position, rotate the carrier cap assembly clockwise with the side of the index finger pressing against the cap roller, as shown in figure 20, until the "T" is in line with the bottom of the bolt carrier as shown in figure 21.

FIGURE 17. — Removing the stock retaining pin.

FIGURE 18. — Rotating the stock upward.

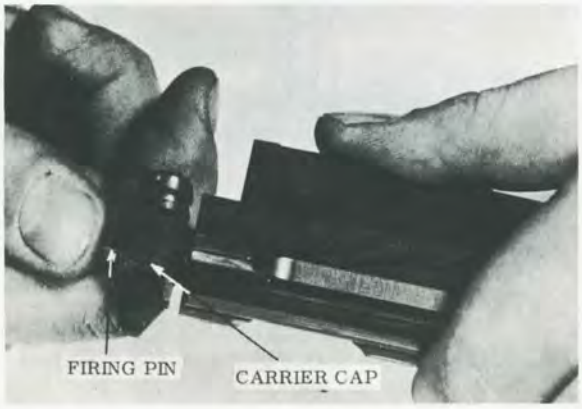


FIGURE 19. — Firing pin and back of the carrier cap assembly.

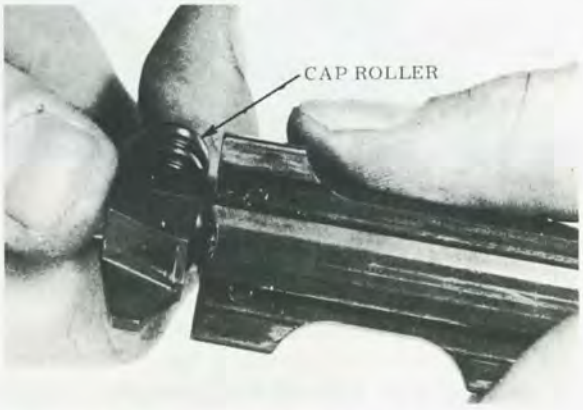


FIGURE 20. — Rotating the carrier cap assembly.

(b) Remove the firing pin from the bolt carrier.

(c) Push the bolt into the carrier, as shown in figure 22 and remove the cam pin from the bolt, as shown in figure 23.

(d) Remove the bolt from the bolt carrier as shown in figure 24.

b. ASSEMBLY. The rifle is assembled in the reverse order of disassembly.

(1) Assembly of the Bolt Assembly, Cam Pin and Firing Pin with the Carrier-Piston Assembly.

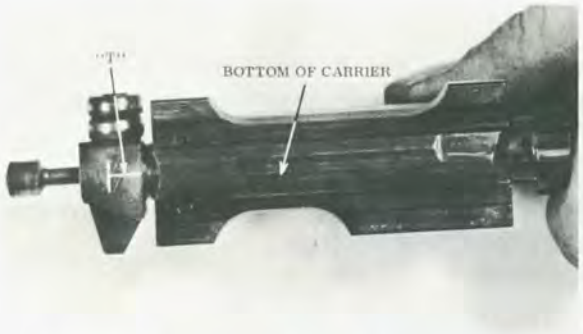


FIGURE 21. — "T" on carrier cap assembly in line with the bottom of the bolt carrier.

FIGURE 22. — Pushing bolt into carrier.

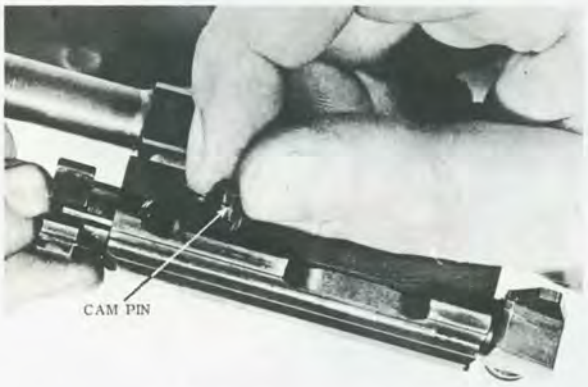


FIGURE 23. — Removing the cam pin from the bolt.

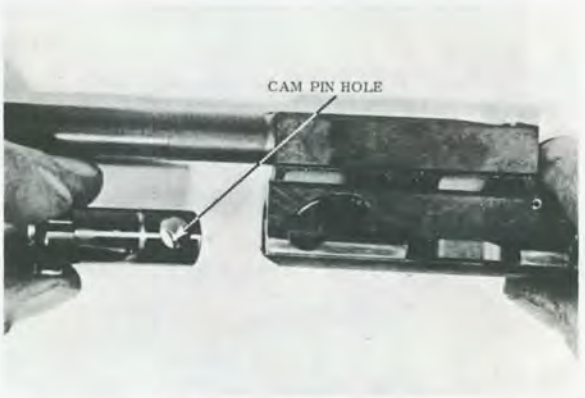


FIGURE 24. — Removing the bolt from the bolt carrier.

(a) Replace the bolt in the bolt carrier with the ejector groove in the bolt facing toward the cam track in the bolt carrier.

(b) Insert the cam pin thru the cam track and into the cam pin hole in the bolt. The flat side of the cam pin guide lug must be in line with the lower side of the bolt carrier, as shown in figure 25.

(c) Replace the firing pin in the bolt carrier. Push down on the rear of the firing pin until it is flush with the rear of the carrier cap assembly. Holding the firing pin in this position, rotate the carrier cap assembly 1/4 turn counter-clockwise, so the tang on the carrier cap assembly is in the downward position as shown in figure 26.

(2) Assembly of the Stock and Trigger Housing Group.

(a) Replace the stock by locking it in the rear of the trigger housing group and insert the stock retaining pin from left to right.

(3) Assembly of the Cocking Handle, Barrel, and Magazine Adapter Assemblies with the Receiver Group.

(a) Replace the cocking handle.

(b) To replace the barrel assembly, depress the barrel latch FIRST and insert the barrel into the receiver group. Lock the barrel into place by releasing the barrel latch.

(c) Replace the magazine adapter assembly by aligning the hooks, shown in figure 27, in the lower receiver and slide the magazine adapter assembly to the rear. Insert the magazine adapter assembly pin from left to right.

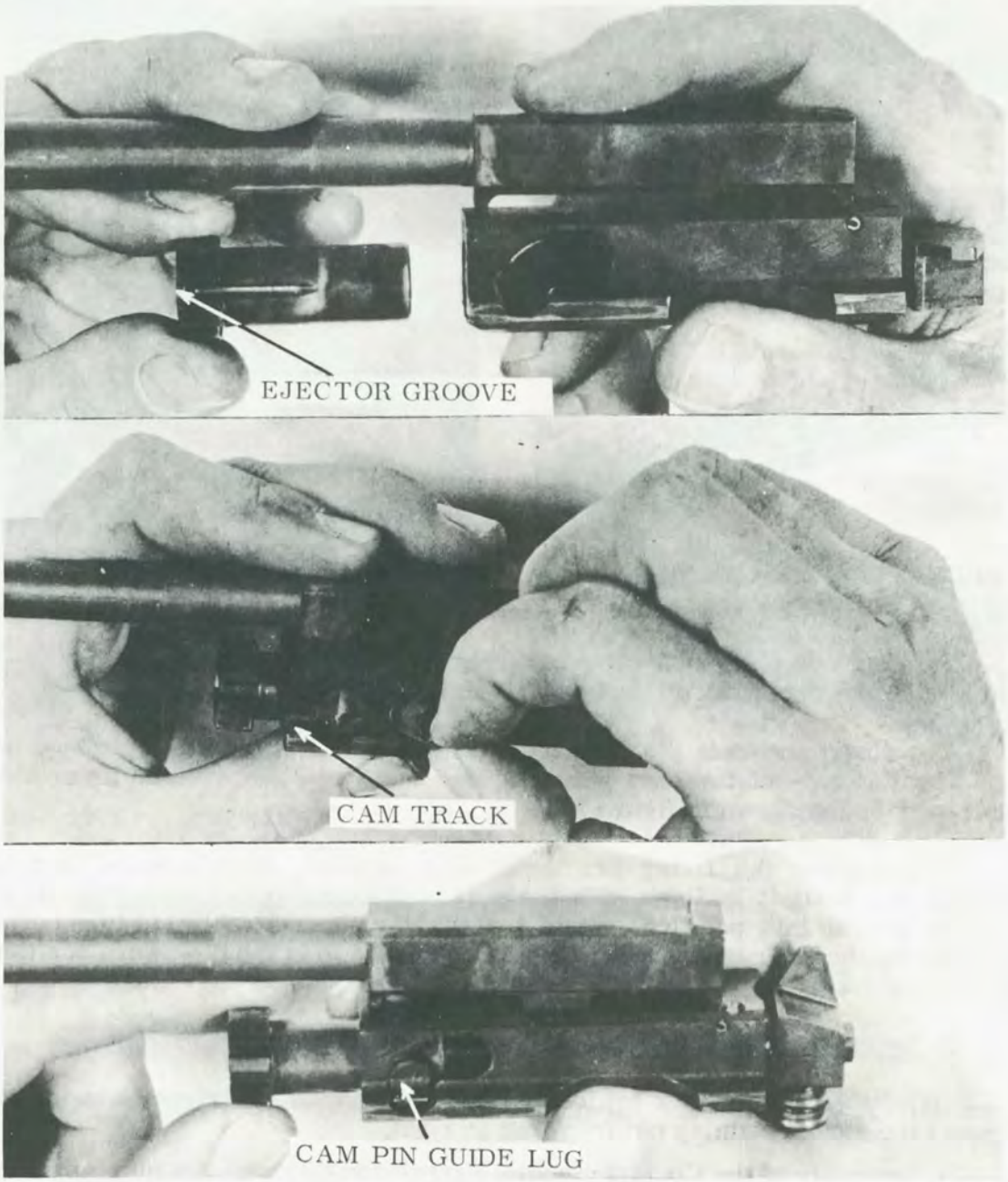


FIGURE 25. — Replacing the bolt and cam pin in the bolt carrier.

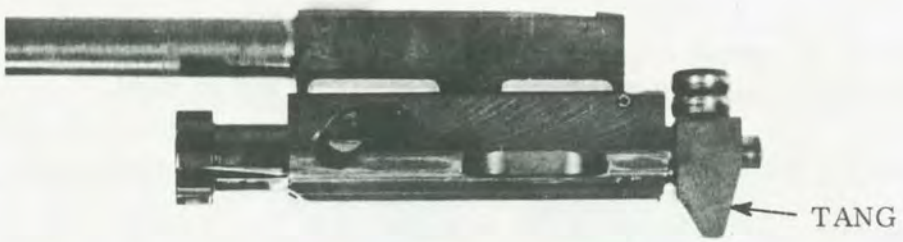


FIGURE 26. — Tang on the carrier cap assembly in the downward position.

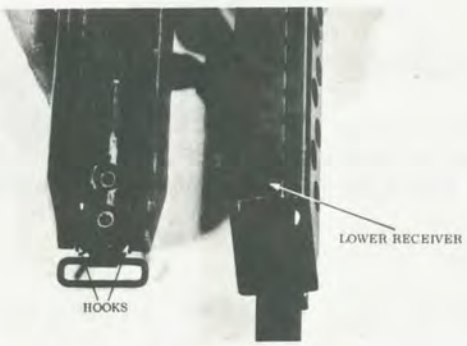


FIGURE 27. — Hooks on the magazine adapter assembly.

FIGURE 28. — Replacing the trigger group on the receiver group.

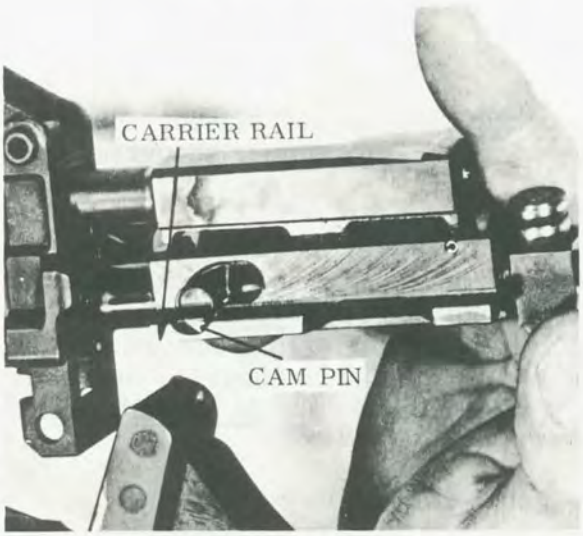


FIGURE 29. — Cam pin aligned with the bolt carrier rail.

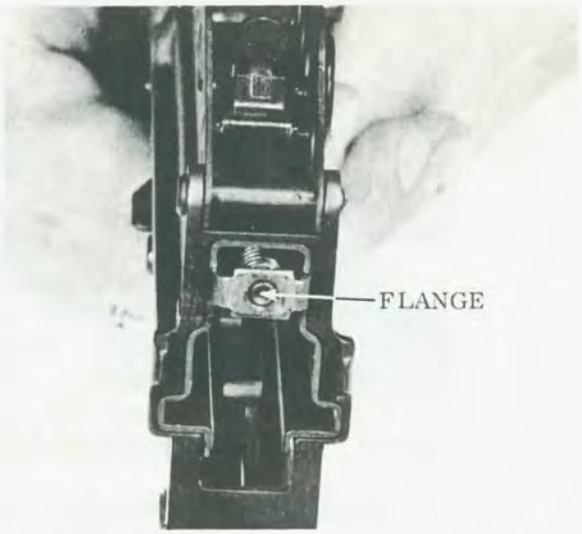


FIGURE 30. — Driving spring guide flange aligned in receiver group.

(4) Replace the Trigger Housing Group on the Receiver Group.

(a) With the hammer cocked, and the selector lever in the S (safe) position, PUSH THE TIMER FORWARD DISENGAGING IT FROM THE HAMMER. (Figure 31).

(b) Place the trigger group on the receiver group, as shown in figure 28, and replace the trigger housing group retaining pin from left to right.

(5) Replacing the Carrier-Piston Bolt and Driving Spring Assemblies.

(a) Holding the rifle in the left hand, muzzle pointing down, insert the carrier-piston bolt assembly. The bolt must be in the forward position with the cam pin aligned with the bolt carrier rail, as shown in figure 29.

(b) Replace the driving spring assembly. The spring guide flange is replaced in the receiver group as shown in figure 30.

(6) Locking the Trigger Group and Stock to the Receiver Group.

(a) Before rotating the trigger housing group and stock up, check to be sure that the take-down pin has been pulled to the right as far as it will go. Then rotate the trigger housing group and stock up and lock them to the receiver group with the take down pin.

(7) Functioning Test.

(a) A functioning check will be performed after assembly of the rifle. A complete function check of the weapon consists of checking its operation while the selector lever is in the S (safe), R (repetitive) and A (automatic) positions. The following sequence is used.

1. STEP 1. S (safe) position.

Clear the rifle, leaving it cocked with the bolt closed. Place the selector lever in the safe position. Pull the trigger. The hammer should not fall.

2. STEP 2. R (repetitive) position.

With the hammer still cocked from the safety check, move the selector lever to the "R" (repetitive) position and pull the trigger. You should hear the hammer strike the firing pin. While holding the trigger to the rear, recock the rifle. Release the trigger slowly. An audible metallic click should be heard indicating that the disconnect operates properly. The hammer should not fall. Again pull the trigger. The hammer should fall.

3. STEP 3. A (automatic) position.

Recock the rifle. Turn the selector lever to "A" (automatic) position. Pull the trigger. The hammer should fall. While still holding the trigger to the rear, pull the cocking handle fully to the rear and let the bolt close and lock. The hammer should have been released automatically. Release the trigger and pull it again. The hammer should not fall.

c. DISASSEMBLY (Detailed stripping under supervision of a qualified NCO)

(1) Disassembling the Trigger Housing Group

(a) To disassemble the trigger housing group, first push the timer forward, as shown in figure 31, disengaging it from the hammer.

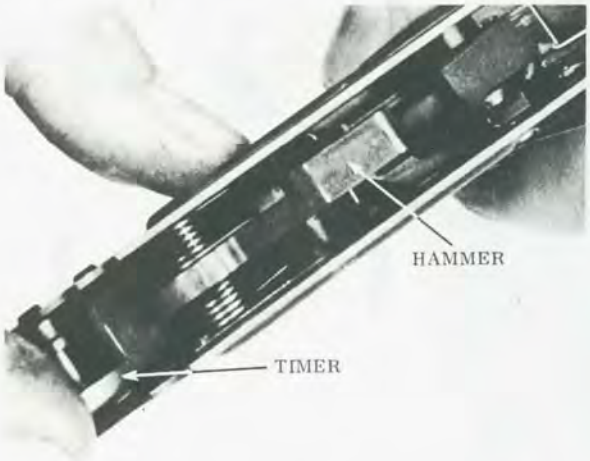


FIGURE 31. — Pushing the timer forward.

FIGURE 32. — Pushing the lock plate forward.

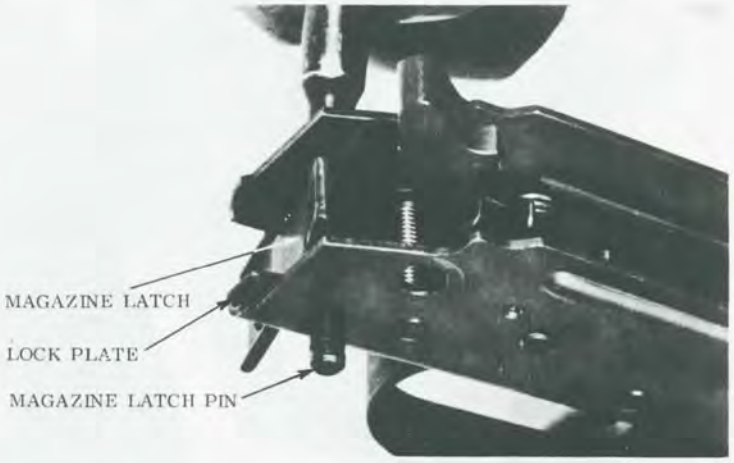


FIGURE 33. — Removing the magazine latch pin.

(b) Move the selector lever to the "R" (repetitive) fire position. Holding the hammer pull the trigger and ease the hammer forward.

(c) Hold the trigger housing assembly in the left hand with the right side up, and with the tip of the cartridge, push the lock plate forward as shown in figure 32. The lock plate must remain forward during disassembly of the trigger housing assembly so that the trigger pins can be removed.

FIGURE 34. — Magazine latch, magazine latch pin, timer, timer pin, hammer, hammer pin, and trigger pin removed from the trigger housing group.

FIGURE 35. — Rear of the sear.

FIGURE 36. — Removing the trigger assembly.

(d) With the tip of a cartridge remove the magazine latch pin, and remove the magazine latch. See figure 33. Remove the timer pin and remove the timer. Remove the hammer pin and remove the hammer. Remove the trigger assembly pin. See figure 34. All four pins are of the same size and are called trigger pins. For

ease of instruction they will be called hammer pin, timer pin, and magazine latch pin when returning these parts to the trigger housing group.

(e) To remove the trigger assembly, push down on the rear of the sear and push up on the trigger assembly as shown in figures 35 and 36. Remove the trigger assembly.

(f) Remove the lock plate by grasping the extended front edge, shown in figure 37, and remove.

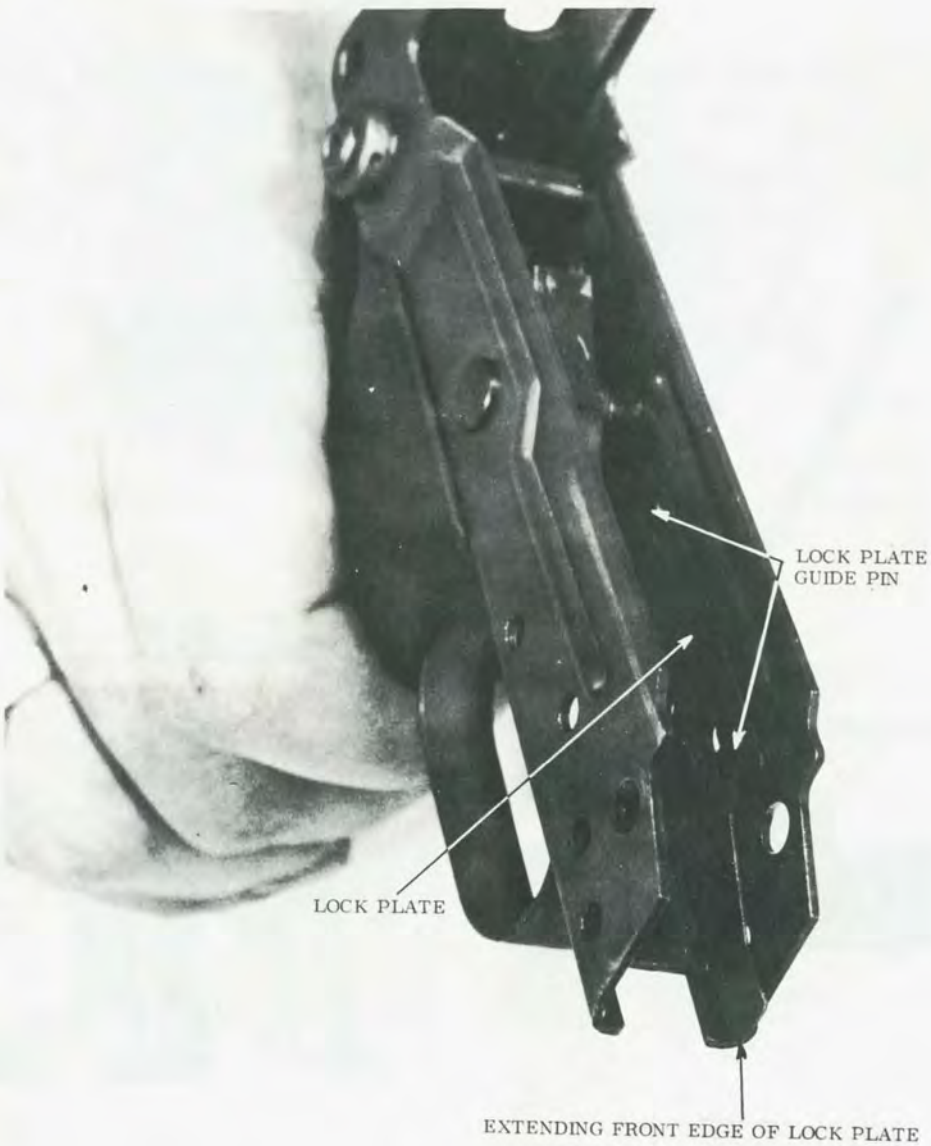


FIGURE 37. — Extended front edge of the lock plate.

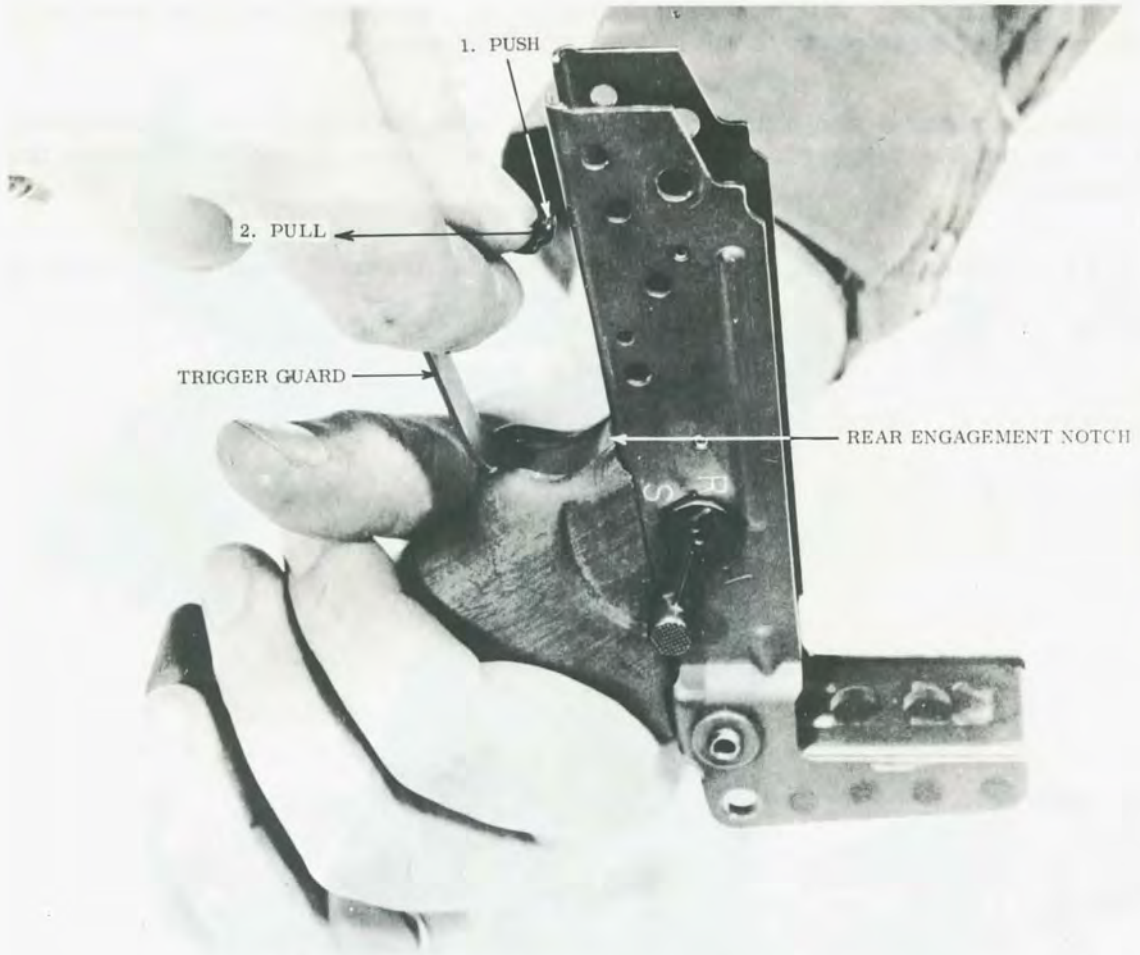


FIGURE 38. — Removing the trigger guard.

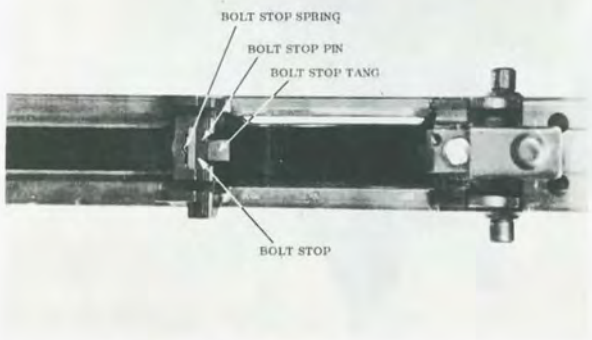


FIGURE 39. — Bolt stop.

FIGURE 40. — Pushing out the bolt stop pin.

(g) Remove the trigger guard by pushing down on the front of the trigger guard until it is unlatched. See figure 38. Remove the trigger guard from the rear-notch.

(h) Further disassembly of the trigger housing assembly will be restricted to ORDNANCE PERSONNEL ONLY.

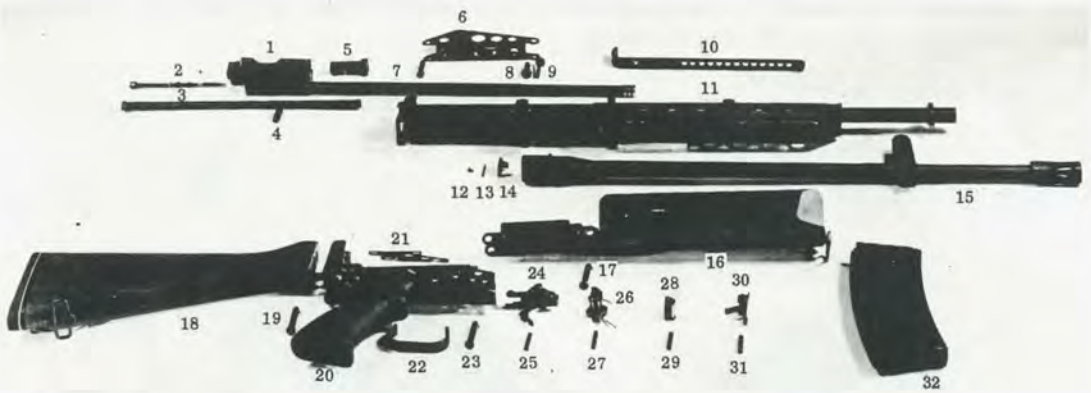
(2) Disassembly of the Receiver Group

(a) Remove the bolt stop, figure 39, by pushing out the bolt stop pin as shown in figure 40, and remove the bolt stop and bolt stop spring.

(b) Remove the rear sight assembly by pushing out the rifle sight pin,

FIGURE 41. — Pushing out the rifle sight pin.

FIGURE 42. — Removing pivot pin and pivot pin screw.



1. CARRIER AND PISTON ASSEMBLY
2. FIRING PIN
3. DRIVING SPRING
4. CAM PIN
5. BOLT ASSEMBLY
6. REAR SIGHT ASSEMBLY
7. RIFLE SIGHT PIN
8. PIVOT PIN NUT
9. PIVOT PIN SCREW
10. COCKING HANDLE
11. RECEIVER GROUP
12. BOLT STOP PIN
13. BOLT STOP SPRING
14. BOLT STOP
15. BARREL ASSEMBLY
16. MAGAZINE ADAPTER ASSEMBLY
17. MAGAZINE ADAPTER ASSEMBLY PIN
18. STOCK ASSEMBLY
19. STOCK ASSEMBLY PIN
20. TRIGGER HOUSING GROUP
21. LOCK PLATE
22. TRIGGER GUARD
23. TRIGGER HOUSING GROUP PIN
24. TRIGGER ASSEMBLY
25. TRIGGER ASSEMBLY PIN
26. HAMMER
27. HAMMER PIN
28. TIMER
29. TIMER PIN
30. MAGAZINE LATCH
31. MAGAZINE LATCH PIN
32. MAGAZINE ASSEMBLY

FIGURE 43. — Rifle detailed stripped.

figure 41. Unscrew the pivot pin screw from the pivot pin nut, and remove as shown in figure 42.

(c) Remove the rear sight assembly.

(d) The rifle is now detailed stripped as far as permitted under supervision of a qualified noncommissioned officer. See figure 43. Further disassembly is restricted to ORDNANCE PERSONNEL ONLY.

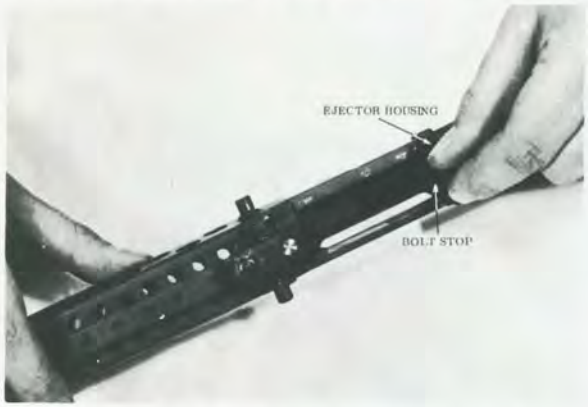


FIGURE 44. — Replacing the bolt stop.

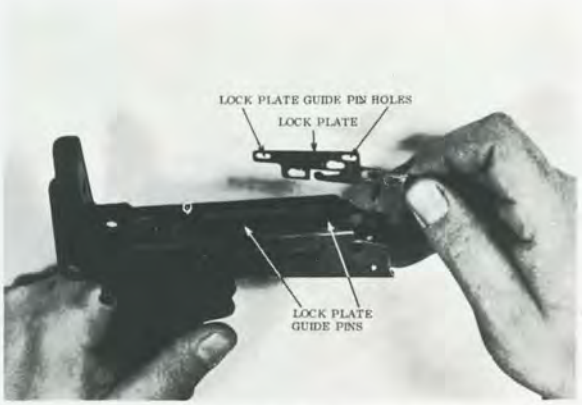


FIGURE 45. — Replacing the lock plate.

d. ASSEMBLY (Under supervision of a qualified NCO).

(1) Assembly of the Rear Sight to the Receiver Group.

(a) Place the rear sight on the receiver with the sight aperture to the rear and the windage drum on the right side.

(b) Insert the pivot pin nut in the forward mounting bracket from right to left.

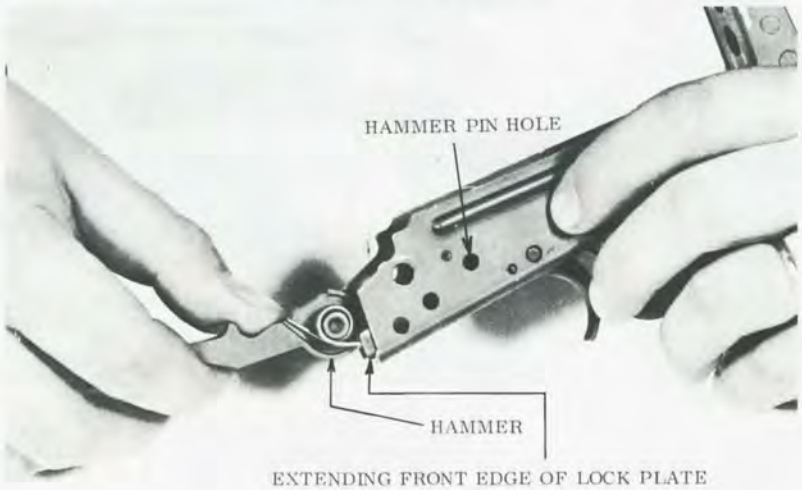


FIGURE 46. — Replacing the hammer assembly.

(c) From the left side rear sight, screw the pivot pin into the pivot pin nut until finger tight.

(d) Replace the rear sight pin from left to right.

(2) Assembly of the Bolt Stop and Receiver Group

(a) Turn the receiver, sight down.

(b) Put the bolt stop spring in the groove of the bolt stop.

(c) Put the bolt stop in the receiver as shown in figure 44.

(d) Depress the bolt stop until the hole in the bolt stop is aligned with the hole in the ejector housing and insert the bolt stop pin from the rear of the ejector housing until it engages and locks the bolt stop.

(3) Assembly of the Trigger Housing Group

(a) Place the lock plate in the left side of the trigger housing group, as shown in figure 45, insuring that the lock plate is held in position by the two lock plate guide pins. The lock plate must remain forward during assembly of the trigger housing group.

(b) Depressing the rear of the sear, insert the trigger assembly from the top of the trigger housing.

(c) Replace the trigger pin from left to right.

(d) Replace the hammer assembly as shown in figure 46, and insert the

FIGURE 47. — Replacing the timer assembly.

FIGURE 48. — Replacing the magazine latch assembly.

hammer pin from left to right.

(e) Cock the hammer, place the selector lever on S (safe), and replace the timer assembly in the trigger housing group as shown in figure 47, and insert the timer pin from left to right.

(f) Replace the magazine latch assembly as shown in figure 48, and insert the magazine latch pin from left to right.

(g) Align the trigger pins, and push the extending edge of the lock plate to the rear. The front edge of the lock plate should be flush with the forward edge of the trigger housing.

(h) Replace the trigger guard by engaging it in the notches provided.

4. FUNCTIONING

a. Definition

Each time a round is fired the parts inside the rifle function in a given order.

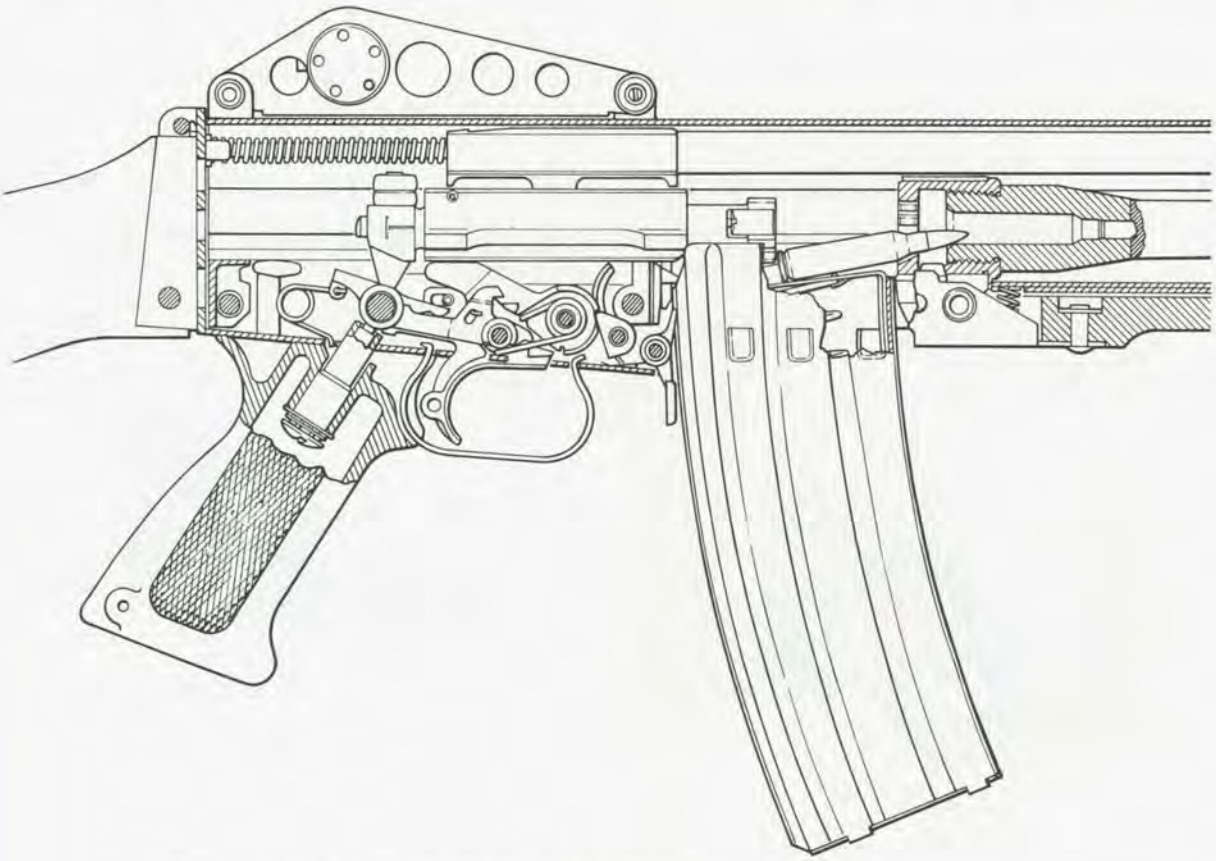


FIGURE 49. — Carrier and bolt moving forward, stripping a round from the magazine into the chamber.

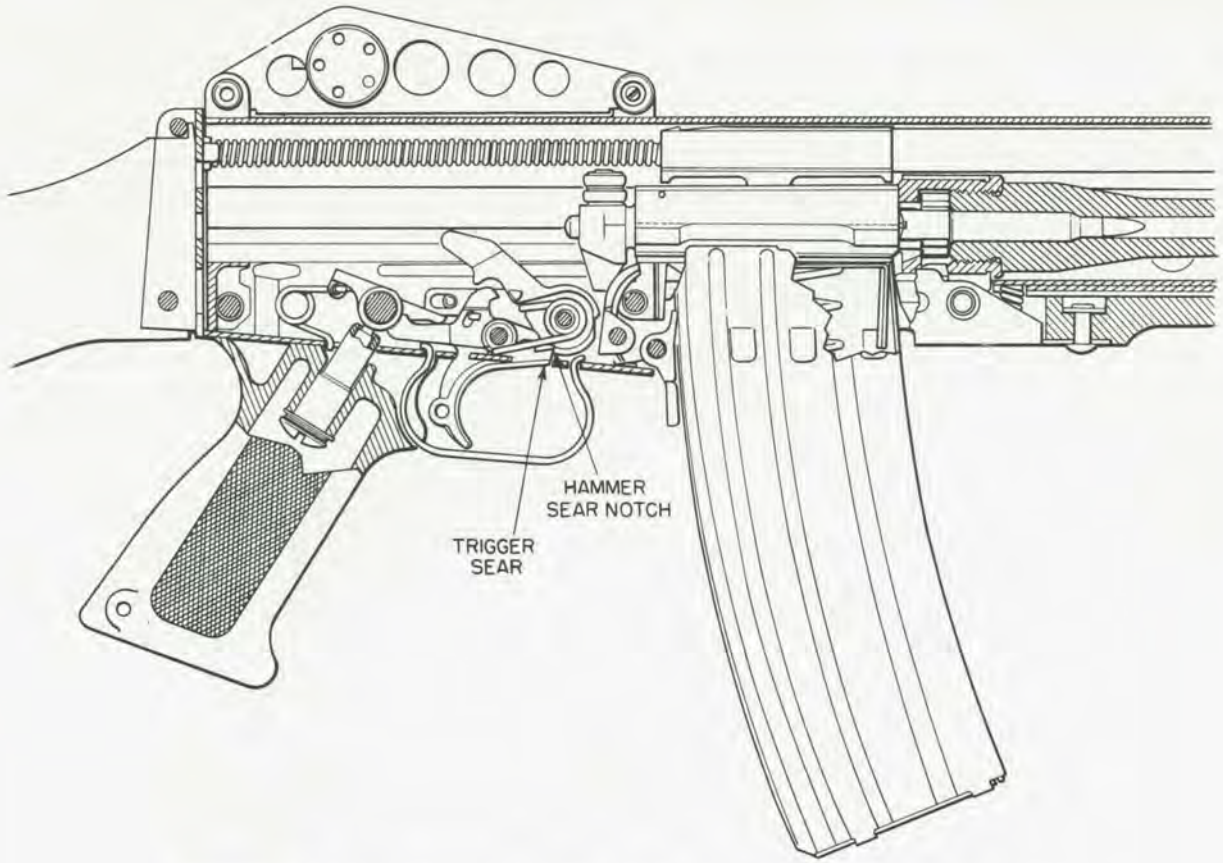


FIGURE 50. — Carrier and bolt forward, round chambered, hammer sear notch engaged on trigger sear.

This order, or sequence, is known as the cycle of operation. A knowledge of what happens inside the rifle will help you understand the causes of, and the remedies for, various stoppages or malfunctions.

b. Cycle of operation

The cycle of operation is divided into eight steps; feeding, chambering, locking, firing, unlocking, extracting, ejecting and cocking.

With a loaded magazine in the rifle, the following cycle of operation takes place:

(1) STEP 1 - FEEDING: Feeding takes place when the bolt moves forward, strips the top round from the magazine, and moves it toward the chamber. (figure 49).

(2) STEP 2 - CHAMBERING: Chambering occurs when a round is moved into the chamber by the bolt. Chambering is completed when the round is fully seated in the chamber and the extractor snaps into the extracting groove of the cartridge. (figure 50).

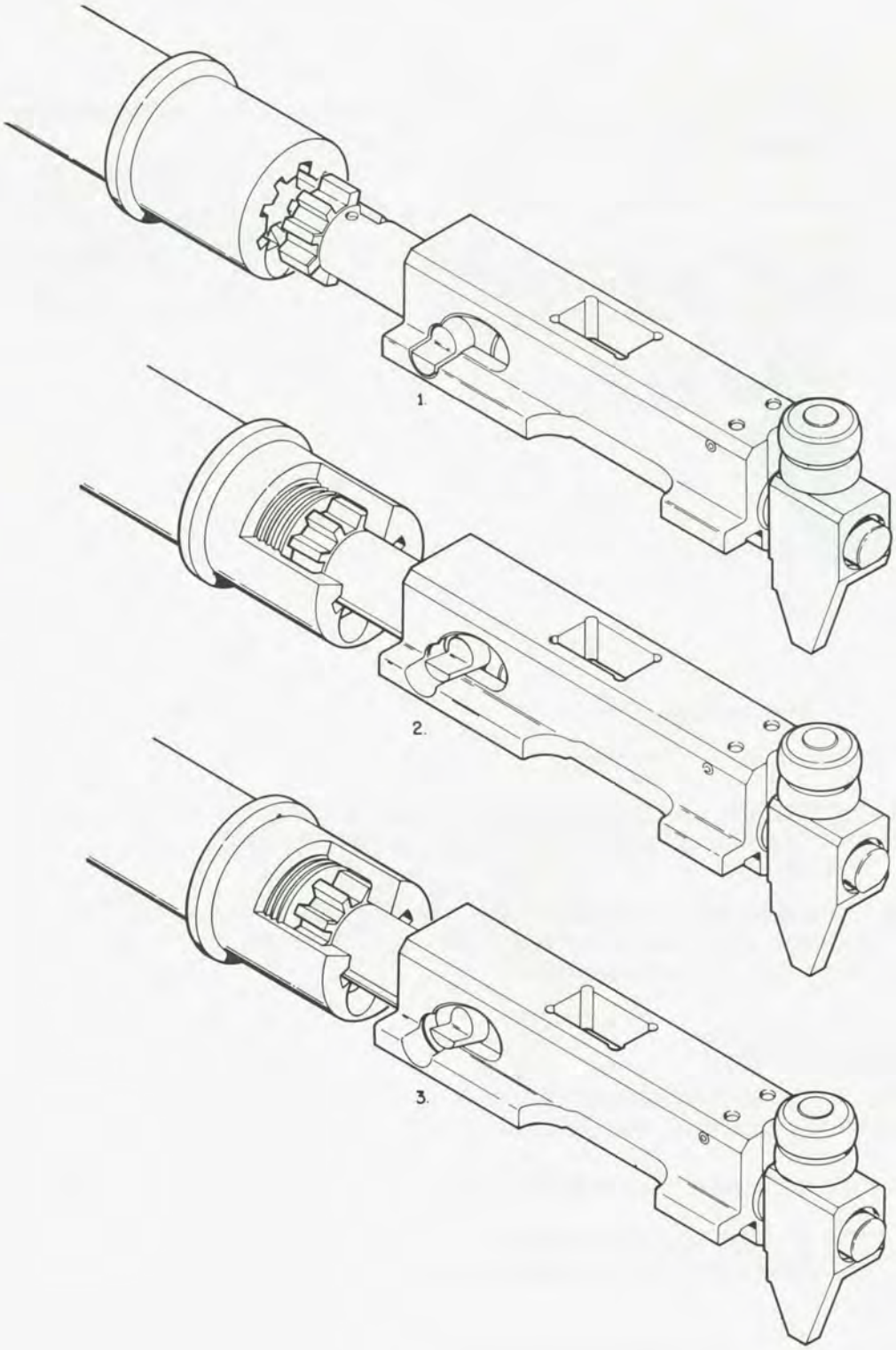


FIGURE 51. — The three positions of the bolt locking:
1. Bolt entering barrel extension
2. Bolt rotated half way
3. Bolt locked

(3) STEP 3 - LOCKING: Locking occurs when the bolt is fully rotated into its locked position, i.e., the bolt lugs are directly in line with and in front of the barrel extension lugs. This prevents the bolt from moving to the rear due to the pressure of the propellent gases when the weapon is fired.

This locking action is accomplished in the following manner: The bolt, carried forward by the bolt carrier due to the action of the expanding driving spring, enters the barrel extension and is stopped either by hitting the chambered cartridge or the breech end of the barrel. Up to this point the bolt was prevented from rotating because the cam pin had been contained by the carrier rail grooves in the receiver. However, the cam pin is now in a position to rotate because it is in line with the clearance well in the guide rail of the receiver. The carrier continues to move forward. Because of the action of the cam track on the cam pin the bolt is rotated clockwise into its locked position, being fully locked when the carrier is still 5/32 of an inch from battery. The carrier continues on into battery (figure 51).

(4) STEP 4 - FIRING: Firing takes place when the primer ignites the propellent charge in the chambered cartridge. This is accomplished in the following manner: The hammer is held in the cocked position by the engagement of the trigger sear with the sear notch of the hammer. The trigger is pulled disengaging the trigger sear

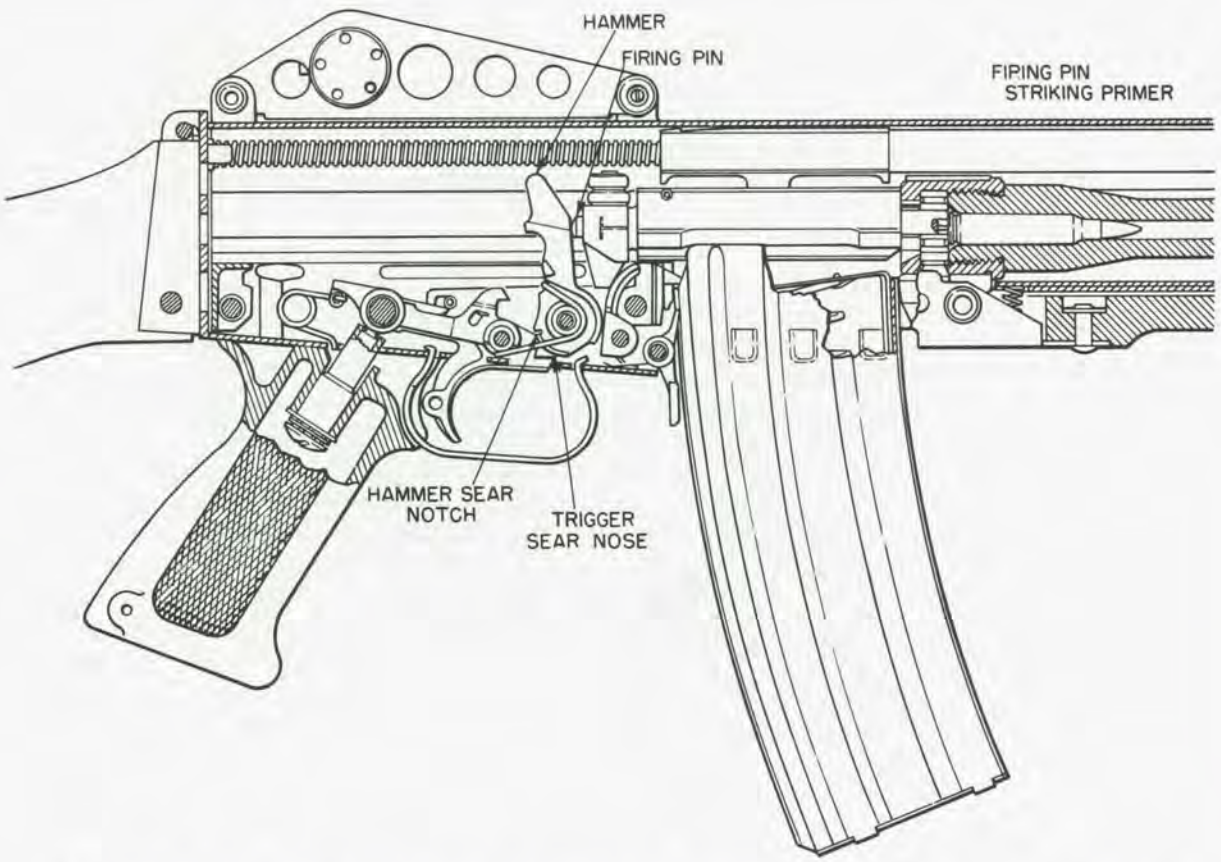


FIGURE 52. — Trigger pulled, disengaging hammer sear notch from trigger sear, hammer moved forward striking firing pin, firing pin striking primer.

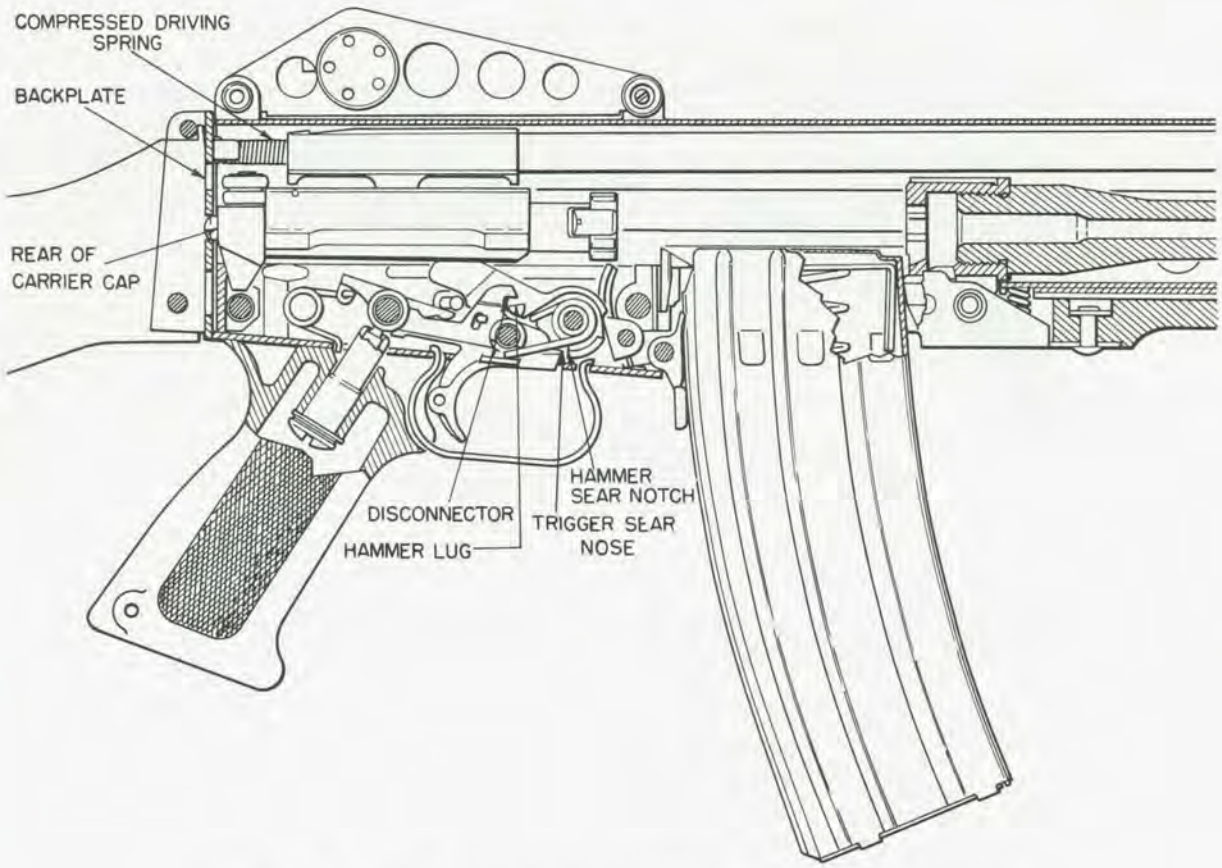


FIGURE 55. — Hammer being held down by the carrier.

disconnector back so that it can not engage the hammer. With the trigger held to the rear and the carrier-piston-bolt assembly moving forward due to the action of the expanding driving spring, the hammer follows the carrier forward until it is stopped by the timer. The carrier continues to move forward. The tang of the carrier cap hits the arm of the timer and moves it forward completing timer disengagement from the hammer when the carrier is still 1/16 of an inch out of battery. The carrier continues its movement into battery, and the hammer moves up and forward striking the firing pin, driving it forward and igniting the primer. The propellent gases drive the carrier piston bolt assembly to the rear and the cycle is repeated. Firing continues until the trigger is released or the magazine is exhausted.

5. OPERATION

a. Safety Procedures

Before discussing loading and firing of the rifle, it is necessary that all safety precautions be observed. For your own safety and the safety of others this rifle is assumed to be loaded until you, personally, have inspected it. Inspect the rifle by removing the magazine, opening the bolt and locking it open, setting the selector lever on S (safe), and looking into the receiver and chamber.

FIGURE 56. — Selector lever.

FIGURE 57. — Loading the magazines.

FIGURE 58. — Magazine lock and magazine latch.

b. Mechanical Safety

The safety selector is located on the left side of the trigger housing assembly. There are three positions in which the selector lever can be set, as indicated by the letter S (safe), R (repetitive or semiautomatic and A (automatic). See figure 56. Note that the position in which the selector lever is set is indicated by the POINTER, not the knurled lever. Note also that the safety selector cannot be placed on S (safe) unless the rifle is cocked.

c. Loading the Magazine

The magazine has a 30 round capacity and may be loaded with any amount up

to that capacity. All types of 5.56mm ammunition may be loaded. Looking down on the magazine follower, it has a raised portion on the right rear of the follower. Cartridges are loaded into the magazine so that the tips of the bullets are forward of the raised portion on the follower. See figure 57.

d. Loading the Rifle

The magazine may be inserted with the action open or closed. With the bolt closed, insert a loaded magazine into the magazine well until the magazine lock and magazine latch (see figure 58) engage the magazine and lock it into position. Pull down on the magazine to insure that it is locked. Pull back and release the cocking handle, allowing the bolt to strip the top round from the magazine, feeding and chambering.

e. Firing

The rifle may be fired semi-automatically or automatically by moving the selector lever to the desired position.

R (repetitive fire position). With the selector lever in this position the rifle

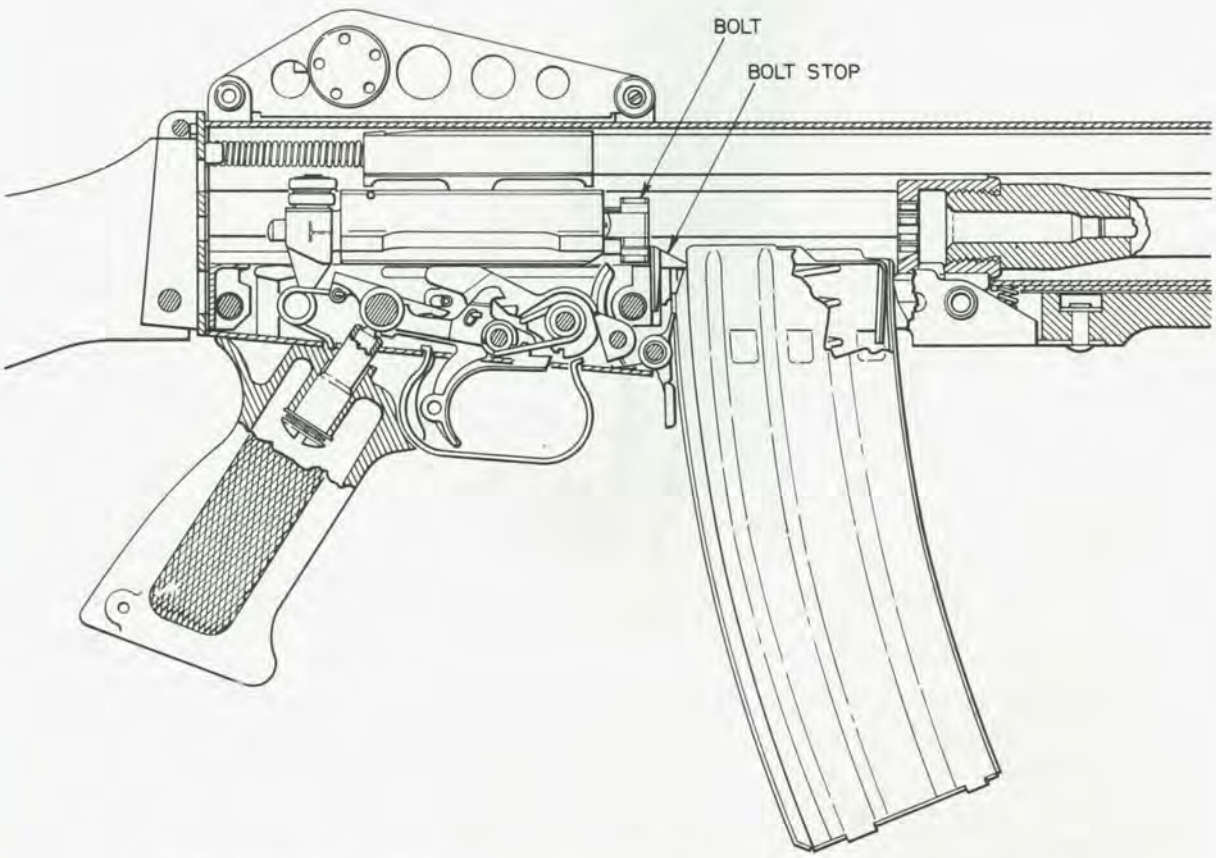


FIGURE 59. — Magazine follower moving the bolt stop up into the path of the bolt.

FIGURE 60. — Removing the magazine.

will fire one round each time the trigger is pulled.

A (automatic fire position). With the selector lever in this position the rifle will continue to fire until the magazine is exhausted or the trigger is released.

f. Action of the Bolt Stop

When firing in either the R (repetitive fire) position, or the A (automatic fire) position, the bolt will lock to the rear after the last round is fired. After the last round is fired and the bolt travels to the rear due to the action of the gas, the magazine follower, because of the expanding magazine follower spring, moves up into contact with the tang of the bolt stop and pushes the bolt stop up into the path of the bolt, stopping the bolt in its forward motion. (Figure 59).

g. Reloading

Remove the magazine by grasping it with the right hand and depressing the magazine latch with the right thumb. See figure 60. Insert a loaded magazine, and close the action as described in paragraph 4 LOADING THE RIFLE.

h. Unloading

To unload a cocked, loaded rifle, move the selector lever to S (safe) position. Depress the magazine latch and remove the loaded magazine. Pull the cocking handle to the rear ejecting the round from the chamber. Lock the bolt to the rear by holding the cocking handle to the rear and pushing up on the bolt stop. Look in the receiver and chamber to make sure no round remains.

FIGURE 61. — Windage adjustment.

FIGURE 62. — Front sight adjustment.

i. Sights and Adjustment

(1) The rifle is equipped with an aperture rear sight and a post front sight. These sights are adjustable for windage and elevation. The adjustments are calibrated in minute of angle graduations. Each graduation moves the bullets point of impact one inch in either windage or elevation for every hundred yards of range, i.e., one inch at 100 yards, 2 inches at 200 yards, etc..

(2) The rear sight assembly is located on top and to the rear of the receiver assembly and is held in place by two pins. The rear sight assembly provides short or long range settings and windage adjustments. There are two apertures on a folding, L shaped sight. The short range unmarked aperture is used for short (0-300 yard) ranges. The long range aperture, identified by the letter "L" stamped under the aperture, is used for long (300-500 yard) ranges.

(3) The windage adjustment is located on the right side and to the rear of the rear sight assembly. Adjustments are made by inserting the point of a cartridge into the lower hole containing the plunger of the windage scale drum, and pushing in with the cartridge rotating the drum either clockwise or counter-clockwise. To move the point of impact of the bullet to the left, rotate the desired amount of increments counter-clockwise in the direction of the arrow stamped "L" on the drum.

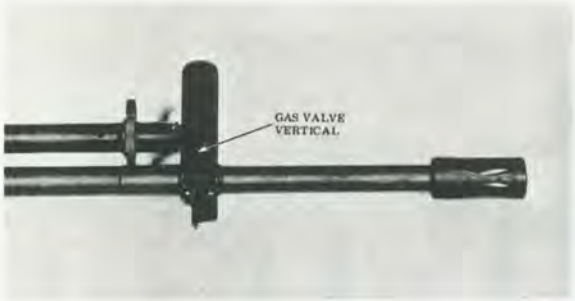


FIGURE 63. — Gas valve in vertical position.

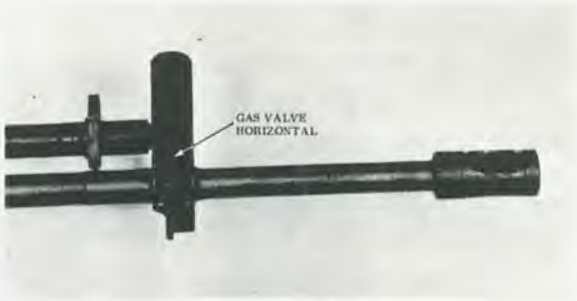


FIGURE 64. — Gas valve in horizontal position.

Reverse the direction of rotation to move the impact of the bullet to the right. Windage adjustment is illustrated in figure 61.

(4) The elevation adjustment for zeroing the weapon is in the front sight base, and adjustments are made by using the tip of a cartridge. To raise or lower the front sight post, depress the detent at the base of the front sight post and turn the post in the desired direction. To move the point of impact up, turn the sight post clockwise, in the direction of the arrow and the word "UP" stamped on the base. Front sight adjustment is shown in figure 62.

j. Gas Valve

The head of the gas valve (the side with the screwdriver slot) is located on the right side of the sight base, midway between the barrel and gas cylinder. In order to fire ball ammunition in either the R (repetitive fire) or A (automatic fire) positions, the screwdriver slot must be in the vertical position. See figure 63. The gas valve must be in the horizontal position to launch grenades. See figure 64.

k. Stoppages and Immediate Action

(1) A stoppage is the unintentional interruption in the cycle of operation. When a stoppage occurs, wait 10 seconds before attempting to clear it.

(2) To apply immediate action, after the 10 second wait, pull the cocking handle to the rear, release it, aim and fire. If the rifle still fails to fire, push, or strike upward on the bottom of the magazine with the palm of the hand to make certain that the magazine is securely engaged by the magazine lock and magazine latch. Visually inspect the receiver to see if a jam has occurred. If so, put the selector lever on safe, remove the magazine and clear the jam. Reload the rifle aim and fire.

6. MAINTENANCE

a. General

Maintenance includes all measures taken to keep the rifle in top operating condition. This includes normal cleaning, inspection for defective parts, repair, and lubrication.

FIGURE 65. — Rifle cleaning equipment and bipod.

b. Cleaning Materials, Lubricants, and Equipment

(1) Cleaning Materials

(a) Bore cleaner is used for cleaning the bore, chamber, barrel extension, and gas cylinder. It also provides temporary protection from rust.

(b) Hot, soapy water or plain hot water is a substitute for bore cleaner.

(c) Dry-cleaning solvent is used for cleaning rifles which are coated with grease, oil, or corrosion-preventative compounds.

(2) Lubricants

(a) Special preservative lubricating oil is used for lubricating the rifle at normal and low temperatures.

(b) Medium preservative lubricating oil is used instead of special preservative oil when the rifle is exposed to high temperatures, high humidity, or salt water.

(c) SAE 10 engine oil or castor oil may be used as a field expedient under combat conditions when the oils prescribed in (a) and (b) above cannot be obtained. However, as soon as possible the weapon should be cleaned and lubricated with the proper lubricants.

(d) "Lubriplate" rifle grease should be applied to working surfaces in extremely humid weather or whenever there is a likelihood that the rifle will be subjected to immersion in either fresh or salt water. After immersion in either fresh or salt water, the rifle should be cleaned and lubricated as soon as possible.

(3) Equipment Furnished for Cleaning the Rifle (see figure 65)

(a) Cleaning rod

(b) Bore Cleaner

(c) Rifle oil

(d) Wire bore brush

(e) Cleaning patches. Satisfactory caliber 5.56mm patches can be obtained by cutting .30 caliber patches into quarters.

c. Cleaning the Rifle Before Firing

(1) Before firing the rifle, the bore and chamber should be cleaned and dried. A light coat of oil should be placed on all other metal parts except those which come in contact with ammunition, and the gas piston and interior surfaces of the gas cylinder.

(2) Rifle grease should be applied before firing to the parts that show friction wear. This is particularly important when the rifle is exposed to rain or salt water. A small amount of grease is applied to those parts that show wear. Rifle grease is not used in extremely cold temperatures or when the rifle is exposed to extremes of sand and dust.

(3) In cold climates (temperatures below freezing) the rifle must be kept free of moisture and excess oil. Moisture and excess oil on the working parts cause them to operate sluggishly or fail completely. The rifle must be disassembled and wiped with a clean dry cloth. Dry cleaning solvent may be used if necessary to remove oil or grease. Parts that show signs of wear may be wiped with a patch lightly dampened with a special preservative lubricating oil. It is best to keep the rifle as close as possible to outside temperatures at all times due to the collection of moisture which occurs when cold metal comes in contact with warm air. If the rifle is brought into a warm room, it should be allowed to reach room temperatures so that condensation will appear before the weapon is cleaned.

(4) In hot, dry climates, the rifle must be cleaned daily, or more often to remove sand and/or dust from the bore and working parts. In sandy areas, the rifle should be kept dry to prevent the collection of sand. The muzzle and receiver should be kept covered during sand and dust storms. Wooden parts must be kept oiled with raw linseed oil to prevent drying.

d. Cleaning the Rifle After Firing

(1) The rifle must be cleaned after it has been fired because firing produces deposits of primer fouling, powder ashes, carbon, and metal fouling. The ammuntion has a noncorrosive primer which makes cleaning easier, but no less important. The primer still leaves a deposit that may collect moisture and promote rust if it is not removed. The cleaning described below will remove all deposits except metal fouling which is relatively uncommon and is removed by ordnance personnel.

(2) The rifle should be field stripped and cleaned in the following manner after it has been fired.

(a) Bore. Run patches dampened with bore cleaner or hot soapy water back and forth through the bore several times. Next attach the rifle bore brush to the cleaning rod and run it back and forth through the bore one or two times. Follow this with more wet patches. Run several dry patches through the bore and inspect each patch as it is removed. The bore is clean when a dry patch comes out clean with no evidence of fouling. Finally, run an oily patch through the bore to leave a light coat of oil inside the barrel.

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

(b) Chamber and Barrel Extension. Using a suitable brush, clean the lugs of the barrel extension. After removing the carbon, particles of dirt and/or brass filings, dry the chamber with a clean patch. The lugs of the barrel extension should be oiled lightly.

(c) Gas Cylinder. Put two patches on the patch holder of the cleaning rod, moisten them with bore cleaner and swab the cylinder bore. Dry the cylinder bore with clean dry patches. Use no abrasives in cleaning the cylinder and do not oil the interior surfaces.

(d) Gas Piston. Saturate patches with bore cleaner and wipe the exterior surface of the piston as clean as possible. A piston does not have to have a shiny surface to function properly. Do not use abrasives to clean the piston.

(e) Face of the Bolt. Clean the face of the bolt with a patch and bore cleaner. Remove the bore cleaner with a dry patch, and oil the bolt lightly.

(f) Bolt carrier. Remove all carbon and foreign materials from the bolt carrier with a patch dampened with bore cleaner. Wipe off the bolt carrier with dry patches and apply a light coat of oil.

(g) Receiver Assembly and Trigger Housing Assembly. Inspect both assemblies for dirt and brass filings. Clean both assemblies with a suitable brush and oil all surfaces lightly. Place a drop of oil on each of the pins in the trigger housing assembly for lubrication

(h) Bolt stop and ejector. The bolt stop and ejector are spring actuated. It is important that they have free movement. Visually inspect and manually operate

both for proper function. Dirt, brass filing, or lack of lubrication may hinder proper function.

7. AMMUNITION

a. This paragraph includes available information on the types of ammunition used in the rifle. The following types of ammunition, commercially, are for the purposes indicated.

(1) Types

(a) Ball: The ball ammunition is a 5.56mm (caliber .223) center fire cartridge with a 55 grain gilding-metal jacketed, lead alloy core bullet. The primer and case are waterproofed. The ball round is the basic cartridge for field use.

(b) The following listed ammunition has not been adopted and is not available through normal distribution channels. When the listed ammunition is adopted, standardized, and procured it will be authorized in appropriate publications.

Tracer

Grenade launching

Blank

(2) Ballistic date; approximate range, velocity, and energy of the ball ammunition is shown below.

RANGE (yds)	VELOCITY (fps.)	ENERGY (ft. lbs.)	DROP (in.)	MID-RANGE TRAJECTORY (in.)
0	3265	1300	-	-
100	2905	1035	1.75	.5
200	2550	795	7.67	2.1
300	2210	595	18.98	5.4
400	1885	430	37.56	11.1
500	1590	310	66.30	20.6

(3) Penetration tests: Velocity of 3250 fps at the muzzle, imparted to the 55 grain, full-jacketed, boat-tailed bullet makes this an extremely effective military cartridge with excellent combat accuracy and penetration. Tests show the following penetration at ranges indicated:

(a) At 600 yards

Penetrates one side of U. S. Steel helmet and heavily dents the opposite side.

(b) At 500 yards:

7 to 13, 1'' pine boards

10 gage (.135) steel plate

Both sides of U. S. steel helmet

Body armor

(c) At 200 yards:

3/16'' steel plate

(4) Packaging: Presently, 20 rounds per commercial carton, 50 cartons per commercial fiber or wooden packing case are available.

8. MANUAL OF ARMS FOR THE RIFLE

a. General

(1) Execute FALL IN with the rifle at order arms.

(2) Facing, alignments, and short distance marching movements are executed from order arms. Side step, backward march, open and close ranks, and close and

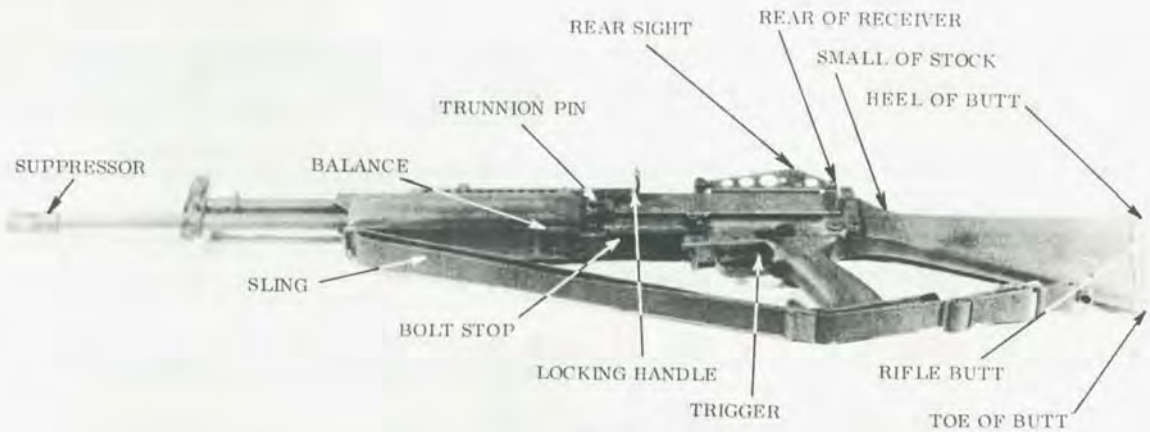


FIGURE 66. — Rifle drill nomenclature.

extend are short-distance movements. FORWARD march may be given from ORDER arms to march units forward for a short distance. When these movements are commanded while at order arms, it is necessary to come automatically to trail arms on the command of execution for the movement. The rifle is returned to order arms

upon halting.

(3) Before a command for any marching movement (other than the exceptions stated in (2), above) is given to armed troops, they are faced in the direction of march and their weapons brought to right shoulder, port, or sling arms by the appropriate command. After a marching movement has been completed and it is desired to execute a facing movement, the command to order or unsling arms is given, followed by the command for the facing movement.

(4) When at a position other than sling arms, the troops must come to port arms for double time. When the troops are in formation, the commander gives the appropriate commands.

b. Rules for the rifle manual of arms

(1) The term "at the balance" refers to a point on the rifle (figure 66) just forward of the magazine well. In this position the little finger of the left hand is placed on the trunnion pin (figure 66). While this is not the true balance of the rifle, it is used as a reference point for instructional purposes and to facilitate the manipulation of the weapon while performing the manual of arms.

(2) The position of the rifle known as "diagonally across the body" (figure 67) is as follows:

FIGURE 67. — Rifle diagonally across body.

FIGURE 68. — Order arms.

(a) The left hand is at the balance, with the thumb and fingers grasping the rifle sling. To do this, extend and join the fingers so as to form a U with the thumb.

(b) The barrel is up and at such an angle that it bisects the juncture of the neck and shoulder. The heel of the butt is on line with the right hip (figure 67).

(c) The rifle is held at a height which allows the right forearm to be horizontal when the small of the stock is grasped with the right hand.

(d) The distance of the rifle from the body depends upon the conformation of the body, but it should be about 4 inches from the belt.

(3) The cadence for rifle movements is quick time, but in early stages of instruction the movements are done more slowly until the troops can execute them with precision. They are then practiced until the proper cadence is acquired.

(4) The manual for the rifle is executed while standing at the position of attention. To add interest to drill and to lessen fatigue on long marches, movements between right and left shoulder and port arms may be commanded when marching at attention in quick time.

(a) To move the rifle from the right shoulder to the left shoulder, Left Shoulder, ARMS is commanded as the left foot strikes the ground. The first count of this movement is executed as the right foot strikes the ground and the left arm is swinging forward in a natural arc.

(b) To move the rifle from the left shoulder to the right shoulder, Right Shoulder, ARMS is commanded as the right foot strikes the ground. The first count of this movement is executed as the left foot strikes the ground and the right arm is swinging forward in a natural arc.

(5) The following positions are commanded from order arms only: trail arms, sling arms, fix and unfix bayonets, and the rest positions at order arms. Port arms is the only command that may be given from inspection arms.

(6) The manual of arms with the magazine in the rifle is restricted to inspection arms, port arms, sling and unsling arms, order arms, trail arms, and fix and unfix bayonets.

c. Order Arms

(1) Order arms is the position of the individual at attention with the rifle. It is assumed on the command attention from any of the rest positions except fall out. Order arms is assumed on the command FALL IN and on the command Order, ARMS from any position in the manual except inspection arms and sling arms.

(2) At order arms, the position of attention is maintained except for the right arm and rifle. The rifle butt is placed on the ground with the sight to the rear and the toe of the butt against and on line with the toe of the right shoe. The upper part of the rifle is grasped with the right hand in a V formed by the fingers and the thumb. The fingers are placed diagonally so the tips of the index finger and the thumb are grasping the sides of the rifle; the right arm is kept behind the rifle so the thumb is along the trousers seam (figure 68).

d. Rest positions with the rifle.

(1) Rest positions with the rifle are commanded and executed as without arms, with the following exceptions and additions:

(a) On the command Parade REST, the left foot is placed 12 inches from and on line with the right foot. The rifle butt is kept against the right foot, the butt toe on line with the shoe toe. The barrel of the rifle rests against the hip along the seam of the trousers as in the position of attention. The grasp of the rifle is unchanged. The left hand is placed behind the back just below the belt line with the fingers and thumb extended and joined and the palm facing the rear (figure 69 and 70).

FIGURE 69. — Parade rest (front view).

FIGURE 70. — Parade rest (rear view).

(b) On the command at ease, or rest the right foot remains in place and the rifle is held as in parade rest with the right arm relaxed slightly.

(c) When at sling arms, rest positions are commanded and executed as described in paragraph 1.

(d) Armed troops must be at attention at order arms, port arms, stack arms, or unsling arms before fall out may be given.

e. Trail arms

(1) For instructional purposes, the command Trail ARMS may be used to teach the position at a halt. At the command ARMS, the rifle is raised vertically 3 inches

FIGURE 71. — Trail arms.

FIGURE 72. — First count of port arms.

off the ground with the wrist straight and the thumb along the seam of the trousers; the grasp of the rifle does not change (figure 71). This movement is executed in one count.

(2) At the command Order, ARMS, the rifle is lowered vertically to the position of order arms. For instructional purposes when trail arms is commanded, the rifle is held at the trail until order arms is given.

f. Port arms

(1) The command is Port, ARMS.

(2) This is a two-count movement from order arms. At the command ARMS, the rifle is raised diagonally across the body with the right hand; the left hand grasps the rifle at the balance and holds it so that it is 4 inches from the belt. The right elbow is held down without strain (figure 72). On the second count, the rifle is regrasped with the right hand at the small of the stock, fingers and thumb closed around the stock (figure 73). The right forearm is horizontal and the elbows are against the sides.

(3) From port arms to order arms is a three-count movement. At the command ARMS, the right hand is moved to regrasp the upper part of the rifle without moving the rifle (figure 72). On the second count, the left hand is removed from the balance, and the rifle is lowered to the right side with the right hand until the butt is 3 inches from the ground. The left hand is placed immediately below the suppressor,

fingers and thumb extended and joined, palm to the rear, to steady the rifle and hold the barrel vertical (figure 74). On the third count, the left hand is cut sharply to the side while the rifle is lowered gently to the ground, and the position of order arms is assumed.

g. Right shoulder arms

(1) The command is Right Shoulder, ARMS.

(2) When executed from order arms, right shoulder arms is a four-count movement. At the command ARMS, the first count of port arms is executed as described in paragraph f (figure 72). The right elbow is held down without strain. On the second count, the rifle is regrasped at the butt between the first two fingers, and the thumb and fingers closed around the heel with the thumb and forefinger touching (figure 75). On the third count the rifle is placed on the right shoulder with the grasp of the right hand unchanged. At the same time, the left hand is moved from the balance to the small of the stock where it is used to guide the rifle to the shoulder (figure 76). The thumb and fingers are extended and joined with palm turned toward the body. The first joint of the left forefinger touches the rear of the receiver. The left elbow is kept down. On the fourth count, the left hand is cut smartly back to its position by the side, as at attention. The right forearm is horizontal with the right elbow against the side and on line with the back (figure 77).

(3) The return to order arms is a four-count movement. On the command ARMS, the rifle butt is pulled quickly toward the body with the right hand. As the rifle clears the shoulder, the right hand smartly twists the stock 90° in a clockwise

FIGURE 73. — Port arms.

FIGURE 74. — Second count of order arms.

FIGURE 75. — Second count of right shoulder arms.

FIGURE 76. — Third count of left shoulder arms.

direction causing the rifle to be guided diagonally across the body. At the same time the left hand is brought up to catch the rifle at the balance, smartly and audibly. On the second count, the right hand is moved up to grasp the upper part of the rifle. The third and fourth counts are executed the same as the second and third counts used in executing order arms from port arms.

(4) Right shoulder arms from port arms is a three-count movement. On the first count, the rifle is grasped at the butt with the right hand as in coming to right shoulder from order arms. The last two counts are the same as the last two counts in moving from order to right should arms.

(5) Port arms from right shoulder arms is a two-count movement. The first count is the same as the first count from right shoulder to order arms. On the second count, the rifle is regrasped with the right hand at the small of the stock in the position of port arms.

h. Left shoulder arms

(1) The command is Left Shoulder, ARMS.

(2) To move the rifle to left shoulder arms from the order, the rifle is brought to port arms in the first two counts (figure 73). On the third count, the rifle is placed on the left shoulder with the right hand and at the same time the stock of the rifle is driven smartly and audibly into the palm of the left hand as the right arm comes across the body. The butt is grasped with the left hand (figure

78). On the fourth count, the right hand is cut smartly to the side as in the position of attention (figure 79)

FIGURE 77. — Right shoulder arms.

FIGURE 78. — Third count of right shoulder arms.

(3) Port arms from left shoulder arms is a two-count movement. On the first count, the right hand moves up and across the body and grasps the small of the stock and the right arm is pressed against the body (figure 78). On the second count, the rifle is brought from the shoulder and diagonally across the body with the right hand and regrasped at the balance with the left hand as in the position of port arms (figure 73).

(4) Order arms or right shoulder arms from left shoulder arms is a five-count movement. On the first two counts, the rifle is brought to port arms. On the last three counts, it is possible to go to order arms or right shoulder arms as described in paragraphs c and g.

i. Present arms

(1) The command is Present ARMS.

(2) Order arms to present arms is a two-count movement. On the first count, the rifle is raised and carried to the center of the body. It is held vertical, approximately 4 inches from the body with the sight to the rear. The right elbow is down. The rifle and sling are grasped at the balance with the left hand. The left forearm is horizontal and the left elbow is against the side (figure 80). On the second count, the right hand regrasps the rifle at the small of the stock (figure 81).

FIGURE 79. — Left shoulder arms.

FIGURE 80. — First count of present arms.

(3) Order arms from present arms is a three-count movement. On the first count, the rifle is grasped at the upper part of the rifle with the right hand (figure 80) with the right elbow kept down and against the side. The rifle is lowered to the ground with the right hand on counts two and three as in port arms to order arms (figure 74).

(4) Port arms from present arms is executed in one count. The rifle is raised and twisted with the right hand, the muzzle moves to the left, and the rifle is regrasped at the balance with the left hand (figure 73).

(5) Present arms from port arms is executed in one count. The rifle is lowered and twisted with the right hand while being moved into a vertical position where it is regrasped at the balance with the left hand.

j. Inspection arms

(1) The command is Inspection ARMS. It is a four-count movement, executed only from order arms.

(2) At the command ARMS, the rifle is raised diagonally across the body with the right hand and is grasped with the left hand at the balance as in the first count of port arms. On the second count, the right hand grasp is released and the right hand slides down the rifle with the index finger on the left side of the rifle, permitting the index finger to hook around the cocking handle. At this time, take a half step to the rear with the left foot, the cocking handle is pulled sharply to the

rear, the butt of the rifle on the right hip (figure 82). On the third count, the bolt stop is engaged with the index finger of the left hand so that the bolt is locked in the rearmost position (figure 83). On the fourth count, the left foot is brought up sharply and the left hand regrasps the rifle at the balance, the right hand regrasps the small of the stock as in port arms.

FIGURE 81. — Present arms.

FIGURE 82. — Second count of inspection arms.

(3) PORT ARMS, is the only command that is given from inspection arms. On the preparatory command, the grip on the small of the stock is relaxed to permit the thumb to hook around the cocking handle, pulling it slightly to the rear so that the bolt stop is released (figure 84). At the command ARMS the cocking handle is released, the trigger pulled, with the thumb, and the small of the stock regrasped in the position of port arms.

(4) Variation of inspection arms

(a) The command is Inspection ARMS. It is a six-count movement executed from order arms.

(b) At the command ARMS, the rifle is raised diagonally across the body with the right hand and is grasped with the left hand at the balance as in the first count of port arms. On the second count, the right hand grasp is released and the right hand slides down the rifle with the index finger on the left side of the rifle, permitting the index finger to hook around the cocking handle. At this time, take a half step to the rear with the left foot, the cocking handle is pulled sharply to the rear, the butt of the rifle on the right hip (figure 82). On the third count, the bolt

FIGURE 83. — Third count of inspection arms.

FIGURE 84. — Port arms from inspection arms.

stop is engaged with the index finger of the left hand so that the bolt is locked in the rearmost position (figure 83). On the fourth count, the left foot is brought up sharply and the left hand regrasps the rifle at the balance, the right hand regrasps the small of the stock as in port arms. On the fifth-count, the rifle is pushed upward and rotated on its side. At the same time, the head and eyes are raised to check the chamber (figure 85). On the sixth-count, the head and eyes are returned to the front and the rifle is returned to the port arms position.

(c) Port ARMS, is the only command that is given from inspection arms. On the preparatory command, the grip on the small of the stock is relaxed to permit the thumb to hook around the cocking handle, pulling it slightly to the rear so that the bolt stop is released (figure 84). At the command ARMS the cocking handle is released, the trigger pulled with the thumb, and the small of the stock regrasped in the position of port arms.

(5) Inspection arms at sling arms

(a) The command is Inspection, ARMS. It involves many movements which are not executed in cadence, but quickly and smartly.

(b) On ARMS, grasp the sling with your left hand and grip the rear sight with your right. Rotate the butt forward until the rifle is almost level with the deck (figure 86). Then press the magazine latch with your left index finger. At the same time, withdraw the magazine with your left hand. Place the magazine under your belt in front of your left hip. Pull the cocking handle to the rear with the left hand

and engage the bolt stop with the index finger of the right hand so that the bolt is locked in the rearmost position. Return the right hand to the rear sight and take the magazine from under your belt and hold it in your open left hand at the height of your belt with the follower to the front (figure 86).

FIGURE 85. — Fifth-count of inspection arms.

FIGURE 86. — Inspection arms at sling arms.

k. Rifle salute

(1) This movement may be executed from order arms, trail arms, right shoulder arms, or left shoulder arms. For instructional purposes, the command rifle salute may be used. The rifle salute is a two-count movement.

(2) When at order arms, the left arm moves across the body on the first count, with the forearm and wrist straight, fingers and thumb extended and joined, and palm down. The first joint of the forefinger touches the rifle at a point below the suppressor (figure 87). If not in ranks, the head and eyes turn toward the person or color saluted. On the second count, the left hand is cut smartly to the side and the head and eyes are turned to the front.

(3) When saluting at trail arms, the movements are identical with those for saluting at order arms, except that the rifle is held in the trail arms position.

(4) At right shoulder arms, the movement is executed by moving the arm across the chest and touching the first joint of the forefinger to the rear to the receiver. The left elbow is held so that the left forearm is horizontal. Fingers, thumb, and wrist are held as described in (2) above. The palm is down (figure 88).

FIGURE 87. — Rifle salute at order arms.

FIGURE 88. — Rifle salute at right shoulder arms.

The second count of the rifle salute at right shoulder arms is executed by cutting the left hand smartly to the side.

(5) At left shoulder arms, the salute is executed by moving the right arm across the chest and touching the first joint of the forefinger to the rear of the receiver. The right elbow is held so that the forearm is horizontal. The fingers, thumb, and wrist are as described in (2), above. The palm is down. The second count of the rifle salute at right shoulder arms is executed by cutting the left hand smartly to the side.

l. Sling and unsling arms

(1) The command Sling, ARMS is given only from order arms. This movement is not executed in cadence. If the sling is not adjusted, the butt of the rifle is placed on the right hip and the rifle is cradled in the crook of the right arm at the command of execution. The sling is adjusted with both hands and the rifle is then slung over the right shoulder in the more convenient manner. When at sling arms, the sling is grasped with the right hand, keeping the right forearm horizontal and holding the barrel of the rifle vertical (figure 89). If the sling is already adjusted, the rifle is slung in the most convenient manner at the command of execution.

(2) The command Unsling, ARMS is given only from the position of sling arms. At the command of execution, the rifle is unslung and brought to the position of unsling arms by steadying the rifle with the left hand. The positions of order arms and unsling arms are the same except that at unsling arms the sling is loose.

(3) So that precise movements of the manual can be executed, the command adjust, SLINGS is given. At the command slings, the slings is tightened while holding the rifle as described in (1), above.

(4) To salute while at sling arms, on the command arms of present, ARMS, the sling is grasped with the left hand to steady the rifle. The palm of the left hand is to the rear and the forearm is horizontal. At the same time, the sling is released with the right hand and the first count of the hand salute is executed. At the command arms of order, ARMS, the right hand and arm are moved smartly to the side as in the position for attention and then the original position of sling arms is resumed.

FIGURE 89. — Sling arms.

FIGURE 90. — Fix bayonets.

(5) When at sling arms, parade rest, rest and at ease are executed as from order arms except that the rifle is held slung with the right hand. When the command REST is given, the rifle may be unslung. When calling a unit to attention, the position of parade rest at sling arms is assumed on the preparatory command.

m. Fix and unfix bayonets

(1) These movements are not executed in cadence.

(2) On the command Fix, BAYONETS the muzzle of the rifle is moved across the body and regrasped with the left hand below the suppressor. The snap on the scabbard is unfastened and the bayonet is grasped with the right hand, as shown in figure 90. The bayonet is drawn from the scabbard. The point of the bayonet is turned skyward and the bayonet is fixed on the muzzle of the rifle with a downward motion. After the bayonet is fixed, the position of order arms is assumed.

(3) The command Unfix, BAYONETS is given only at the position of order arms.

(4) At the command BAYONETS, the rifle is moved to the left hand as when fixing bayonets. The rifleman glances down and grasps the locking clip of the bayonet with the right hand, the palm toward the body. The bayonet locking clip is pressed and the bayonet is raised vertically until the handle is approximately a foot above the muzzle of the rifle. Then, keeping the eyes on the point of the bayonet, the rifleman returns the bayonet to the scabbard, reversing the movements of its withdrawal. The snap on the bayonet scabbard is fastened with the left hand and the position of order arms is assumed. The bayonet is carried in the scabbard with the ring to the front.

n. To stack arms

(1) The members of the squad stack arms from their positions in line at normal interval on the command of Stack, ARMS. After the squad counts of the commander designates the stackmen by numbers and then gives the command, prepare, SLINGS.

(2) At the command SLINGS, the stackman places the butt of his rifle on his right hip and cradles it in the crook of his right arm. He then adjusts the sling keeper to form a 4 inch loop (a palm's width within the loop) next to the upper sling swivel. As soon as he has prepared the loop, the stackman returns to order arms. After all stackmen are at order arms, the command Stack, ARMS is given.

(3) At the command ARMS, the stackman places his rifle directly in front of and centered on his body with the sling facing to the front. The heel of the rifle butt is on the ground on line with the toes of the stackman. The stackman grasps the rifle by the forearm with his left hand. The first two fingers of the left hand hold the inner part of the loop against the rifle. He reaches across the front of the rifle with the right hand, grasps the outer part of the loop, and holds it open for the insertion of the other rifles. He holds the rifle vertical at all times.

(4) After the stackman has positioned his rifle, the man on the right and left perform the following movements simultaneously:

(a) The man on the stackman's left raises and rotates his rifle, sling up, to a horizontal position across his body, muzzle to the right. At the same time, he grasps the rifle at the small of the stock with the left hand, palm downward, over the sling. He continues to grasp the upper part of the handguard with his right hand. He lets both arms hang naturally, holding the weapon in a horizontal position.

(b) The man on the stackman's right moves his rifle vertically and across his body with his right hand until his wrist is shoulder high in the center of the body. He grasps the rifle with his left hand immediately under the right hand, palm over the sling. He then lowers his right hand to the small of the stock, palm facing the sling, and turns the rifle until the sling is up, muzzle to the left, and the rifle is in a horizontal position. He lets his arms hang naturally.

(c) As soon as both men have completed these movements, each moves his foot that is nearest the stackman 18 inches to the oblique and toward the stackman.

In a continuing motion, the man on the stackman's left inserts the muzzle of his rifle into the loop held by the stackman until the suppressor protrudes past the far end of the loop. He holds his weapon in this position until the man on the stackman's right inserts the muzzle of his rifle through the loop in the same manner The muzzle of the second rifle is on top.

(5) When both rifles have been inserted into the loop, the men on each side of the stackman swing the butts of their rifles outward and down to the ground until the stack is tight with the rifle butts on line and approximately 2 feet from the base line.

(6) After necessary adjustments have been made, all three men come back to the position of attention.

(7) Extra rifles are passed to the nearest stack on the right. As each rifle is passed, it is grasped at the upper part of the barrel with the right hand. Then, with the rifle held vertically, it is passed with fully extended arm to the right front. The man on the right grasps the rifle at the balance with his left hand, brings the rifle to the center of his body, and regrasps it at the upper part of the barrel with his right hand. This action continues until the stackman receives the rifle and places it on the stack with his right hand as nearly vertical as possible. He places the rifle on the stack with the slings away from the stack.

o. To take arms

(1) The squad in position, on line behind the stacks, takes arms at the command Take, ARMS.

(2) At the command ARMS, the stackman passes each extra rifle towards its bearer. The rifles are handled in the manner described for passing them to the stack (left hand at the balance, right hand at the upper part of the barrel). As the men receive their rifles, they resume the position of order arms.

(3) After all extra rifles have been returned, the stackman grasps the base rifle, holding the loop open as in stack arms.

(4) The men to the right and left of the stackman take one step to their left and right fronts, respectively. They reach down and grasp their rifles, bringing them to a horizontal position. The man to the right of the stackman frees his rifle from the stack first. Each man returns to order arms after retrieving his rifle. He does this by guiding and steadying the rifle with his left hand as in the next to last count of order arms.

(5) The stackman adjusts the sling of his rifle before returning to order arms.