

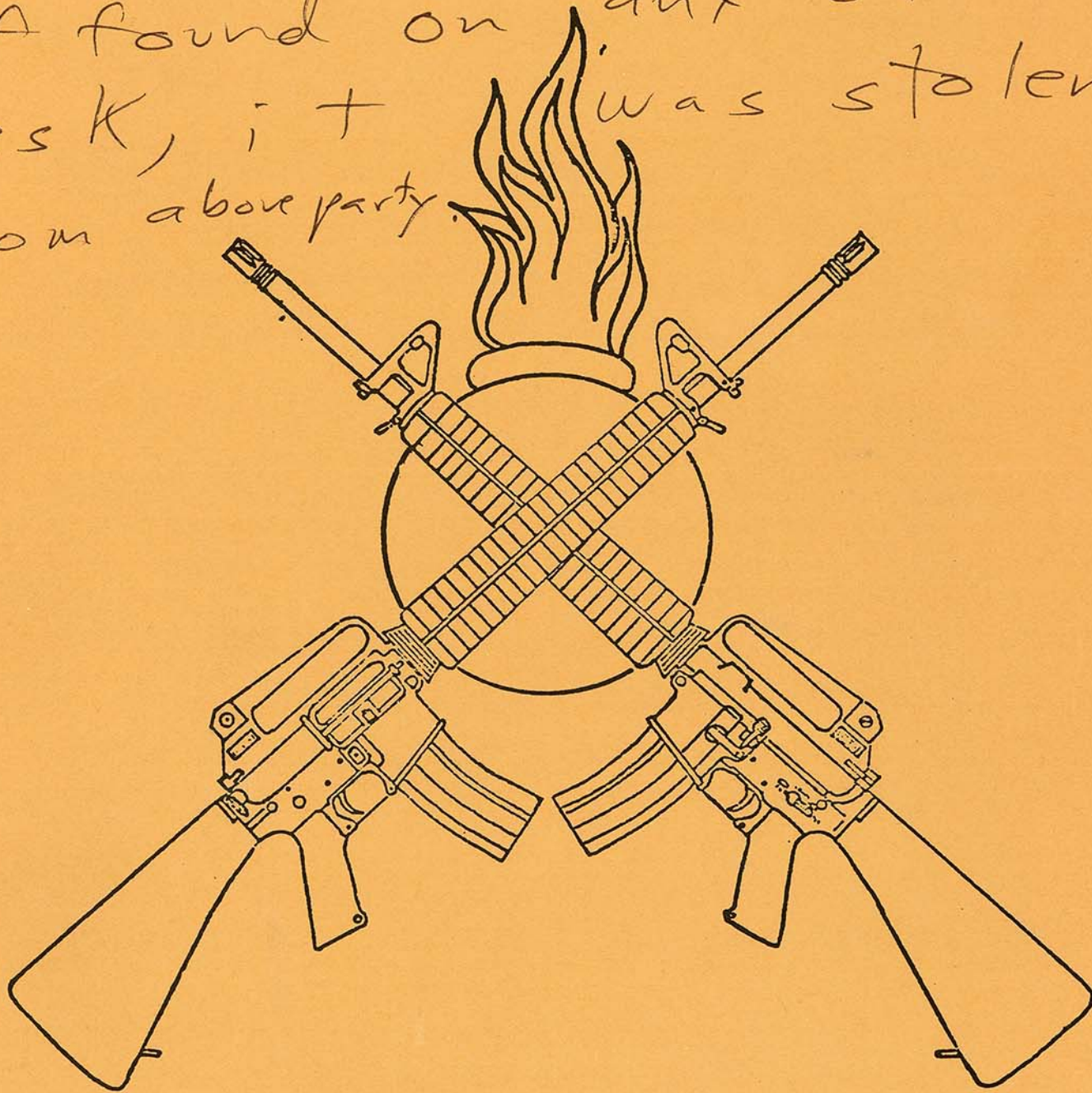
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ARMORER'S MANUAL, RIFLE 5.56MM NATO,

M16A1E1

Mark Humphreille, Bldg 350

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PROPOSED DRAFT  
ADDITION TO:  
TM 9-1005-249-20/34

31 October 1981

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## WARNING

### BEWARE OF DANGEROUS PROCEDURES

- \* Be sure the cam pin is installed in the bolt group. If it isn't, your rifle can still fire, but it could possibly explode, causing you harm.
- \* If you're using the blank ammo attachment, don't use any other ammo except the blank round, M200. (Marked on each box of 20 rounds).
- \* DO NOT exchange or switch bolt assemblies from one M16A1E1 to another...It could cause damage to both you and the rifle.
- \* If your rifle stops firing with a live round in the chamber of a hot barrel (misfire), remove the round fast. However, during training, if you cannot remove it within 10 seconds, wait 15 minutes with the rifle pointing in a safe direction. This way you won't get hurt by a possible ammo cook-off which could happen 10 seconds after contact with a hot chamber. Regardless, keep your face away from the ejection port while clearing a hot chamber.
- \* Use only authorized ammo that is manufactured to U.S. or NATO specifications.
- \* If your bolt fails to unlock and you try to free it by banging the butt stock on the ground, keep yourself clear of the muzzle.
- \* If there's water in the barrel, don't fire the rifle. It could explode.
- \* If a noticeable difference in sound or recoil is experienced, STOP FIRING. Either condition could indicate an incomplete propellant burn and a bullet still in the bore. Retract bolt slowly and remove fired cartridge case. Clear weapon and check for unburned powder grains in the receiver or bore and for a bullet in the bore. Remove unburned propellant or bullet from bore before resuming firing or barrel could explode. If bullet is lodged in bore, turn in rifle to direct support maintenance.

IF YOU GO BY ALL THE INSTRUCTIONS IN THIS BOOK, AND PERFORM PREVENTIVE MAINTENANCE (PM), YOUR M16A1E1 RIFLE WILL SHOOT AND SHOOT AND SHOOT. IF YOU'VE DONE YOUR PART AND IT STOPS SHOOTING, TAKE YOUR M16A1E1 RIFLE TO YOUR NCO. HE HAS THE ANSWERS.

ARMORER'S MANUAL, RIFLE, 5.56MM NATO, M16A1E1

31 October 1981

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NOTE: This Armorer's Manual should be used in conjunction with the Draft Operator's Manual for the M16A1E1 Rifle, Dated October 1981

I. INTRODUCTION

a. The U.S. Rifle, 5.56mm NATO, M16A1E1 is a modified standard M16A1 rifle. Consequently, no attempt will be made in this manual to cover items that have not been modified. This requires you to possess the existing manuals for the M16A1 for the complete information you will need to complete your armorer's mission.

b. The following modifications have been made and are covered in detail later in this manual.

1. The standard flash suppressor has been replaced with a muzzle compensating flash suppressor.

2. The standard barrel has been replaced with a barrel of increased diameter, weight and rifling twist.

3. The standard left and right "smooth" triangular handguards have been replaced with identical upper and lower "ribbed" round handguards.

4. The standard straight sided handguard slip ring has been replaced with a tapered handguard slip ring.

5. The upper receiver forging has been changed to accommodate an adjustable rear sight and brass deflector for left handed shooters.

6. The standard "round" front sight post has been changed to a "square" front sight post.

7. The standard fiberglass pistol grip and buttstock have been replaced with ones made from nylon.

8. The plastic buttplate has been replaced with one made from nylon.

9. The standard trigger mechanism has been replaced with one that limits automatic bursts to three (3) rounds per trigger pull.

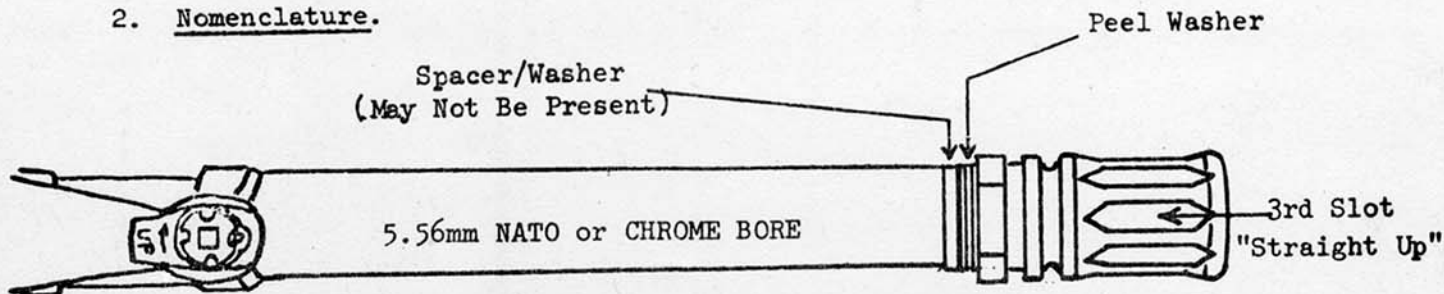
II. DESCRIPTION, NOMENCLATURE, FUNCTIONING  
DISASSEMBLY, ASSEMBLY AND INSPECTION

a. Muzzle Compensating Flash Suppressor.

1. Description. The muzzle compensating flash suppressor has all five (5) of its slots along the top. These slots direct the hot muzzle gases upwards during firing. This helps "compensate" for the natural tendency of the muzzle to climb upwards during firing by forcing the muzzle down. The device also suppresses the muzzle flash at night. In addition, because the bottom is solid, dust is not kicked up during daylight firing to disclose your position.

Directly behind the muzzle compensating flash suppressor is a "peel washer" or "laminated shim". This washer has pieces which can be peeled off or added to change the washer's thickness. This is necessary to "index" the slots of the compensator in the straight up position when the required torque is applied.

## 2. Nomenclature.



3. Functioning. As the bullet leaves the end of the barrel, hot muzzle gases are forced up out of the five slots of the compensator. This produces a "jet" of gases which force the muzzle down. This downward motion counters the natural tendency of the muzzle to "climb" during firing.

The "peel washer" functions as described above.

4. Disassembly. This is performed with the standard Combination Wrench or a 3/4 inch or 19mm open end wrench.

5. Assembly. This is essentially the opposite of disassembly. However, the third or middle slot of the compensator must be straight up as the correct torque of 15-20 foot pounds is applied. This is also called top-dead-center (TDC). TDC is determined by using the lettering on the top surface of the barrel or the front sight post as a reference mark for the third or middle slot of the compensator. If TDC is not achieved by the middle slot, the compensator must be removed and a piece of the peel washer removed or added. Then the compensator is torqued again to the 15-20 foot pounds. This process is repeated until the middle slot is at TDC.

## 6. Inspection.

(1) The third or middle slot must be within 1/2 the width of the slot to be at TDC.

(2) Compensator must be tight. In other words, resist removal by hand.

(3) Compensator ribs must not be bent, cracked or broken.

## b. Barrel

1. Description. The increased diameter barrel is about 4 ounces heavier than the standard barrel. The front sight assembly has been "bored-out" to accept this increased diameter. Attachment of a M203 to the barrel is not affected by this. The rifling in the bore has been increased in twist rate. It was 1 turn in 12 inches, now it is 1 turn in 7 inches. This makes the bullet spin faster as it flies down range. These barrels are marked with either a 1/7 or the words "5.56mm NATO" or both. The words "Chrome Bore" need not appear as all new barrels have chrome lined chambers and bores.

2. Nomenclature. Same as for standard barrel.

3. Functioning. Same as for standard barrel except that the new 1 turn in 7 inch rifling twist will make the bullet spin faster.

4. Disassembly. No change except that the standard barrel removal fixture will not fit the barrel diameter in front of the front sight. It is, therefore, advised that the gas tube be removed during barrel nut removal.

5. Assembly. Same as above.

6. Inspection. Same as for standard barrel except:

(1) The 1/7 twist barrel requires a special bore erosion gage, so don't use the old ones. Inspect bore erosion by visual means or by actual known distance firings.

(2) Close attention should be applied to "side walls" of the front sight assembly for cracks.

c. Handguards

1. Description. The round handguards are identical halves. One goes on the top of the barrel and one goes on the bottom. They are completely interchangeable and therefore can be reversed. The round handguards also "lock" together by long tenon joints which run along the length of each handguard half. The aluminum heat shields overlap each other on both sides when assembled to better insulate your hand.

2. Nomenclature. Same except left and right is now handguard "half".

3. Functioning. No change.

4. Disassembly. Same as for standard except that the round handguards are pulled away from the top and the bottom rather than from the sides.

5. Assembly. Reverse of above.

6. Inspection.

(1) Check for secure assembly and retention to barrel assembly.

(2) Check for cracks or breakage in gripping area. In this regard, if only one handguard half has allowable cracks, chips or breakage, it should be placed in the upper position. In other words, place the "best" of the two halves in the lower position.

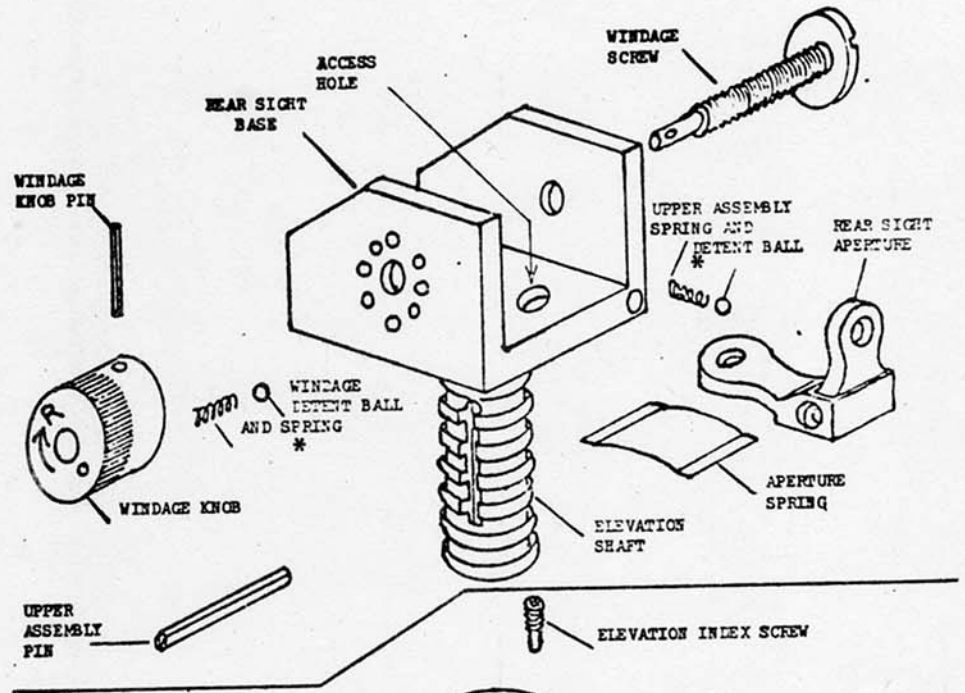
(3) Small cracks and chips are allowed as long as they do not affect retention or present a safety hazard. Cracks over one inch in length are never acceptable.

(4) Heat shields should be secure and not make any noise when the handguards are fully assembled to the rifle.

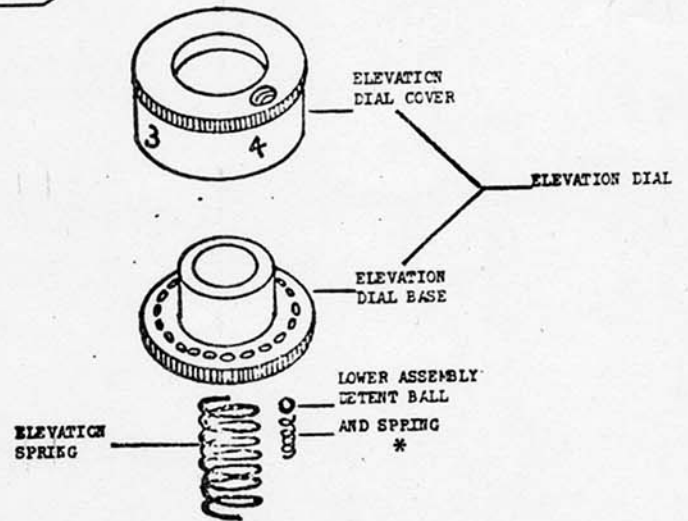
d. Tapered Handguard Slip Ring. All factors concerning this item are unchanged.

e. Adjustable Rear Sight and Square Front Sight Post.

# UPPER ASSEMBLY

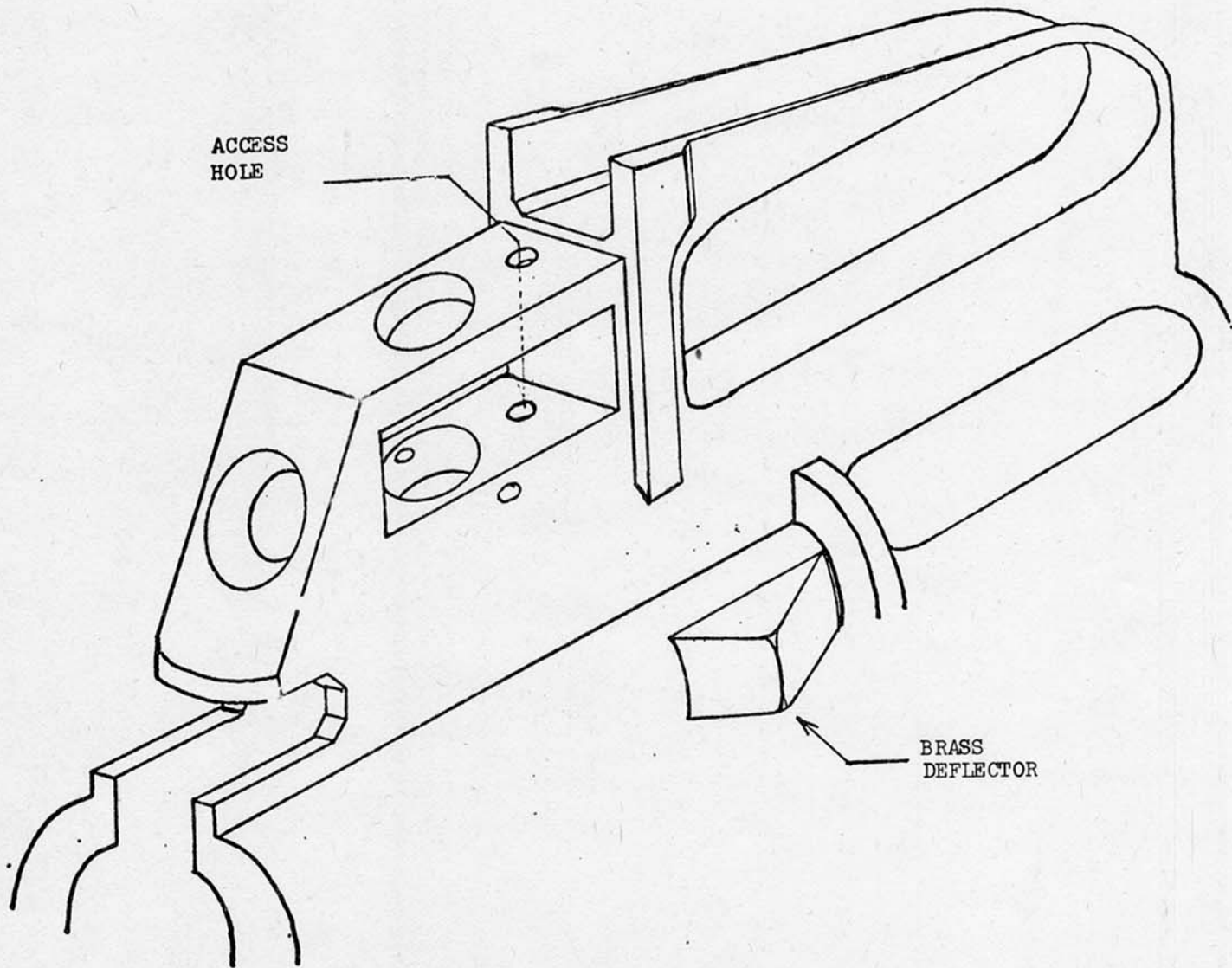


# LOWER ASSEMBLY



\* ALL DETENT BALLS AND SPRINGS ARE IDENTICAL.

UPPER RECEIVER FORGING  
(STRIPPED)



CAPE, CLEANING AND PRESERVATION OF  
THE ADJUSTABLE REAR SIGHT

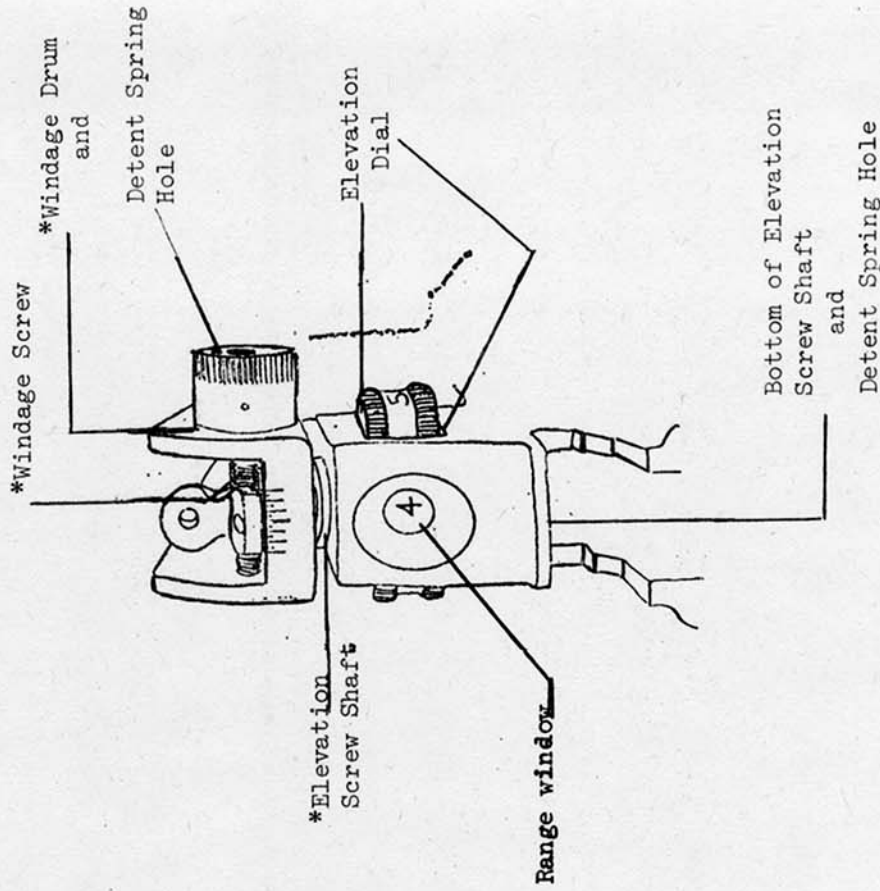
\*LUBRICATE AND KEEP EXTRA CLEAN\*

The adjustable rear sight on your M6ALE1 requires a little extra care. To operate properly, it must be lubricated. CLP is great for this purpose. One or two drops on the moving parts is usually OK. But you must rotate these parts back and forth a few times to make sure the lubricant is spread evenly above and below the "dial" and on the "elevation screw shaft" as well (see illustration on right). This is also true of the windage knob.

The "elevation screw shaft" should also be lubed from inside the upper receiver. Turn the upper receiver upside down and, with the charging handle removed, you can see the bottom of the elevation screw shaft. Put 2 or 3 drops on it and, while keeping the upper receiver upside down, rotate the elevation dial back and forth a few times.

When you are finished lubing the rear sight, place your correct zero windage and your battlesight zero of 200 meters. You will notice the rear sight comes all the way down in the receiver when the "2" is in the window. On some rifles, the "2" may move a little past the window when the sight is all the way down. Always place the "2" exactly in the window. This is easy to do because a "click" will be felt when the "2" first shows in the window. This is how you should carry your rifle. Your NCO will tell you when to adjust for greater range. This will help keep dirt and water out of the sight mechanism and also protect the sight from damage.

When conducting amphibious operations if your rear sight gets wet with salt water, clean it immediately if possible. If you don't have time to clean and lube it properly right away, wash it off with fresh water from your canteen or some other source.



1. Description. The Adjustable Rear Sight (ARS) is a mechanical screw device which raises or lowers the rear aperture for range. This rear aperture can be moved to the left or right for windage. The ARS is very similar to the traversing and elevation device (T&E) for the M60 Machinegun. The ARS can only be installed in the modified upper receiver forging.

The rear sight aperture is raised or lowered by rotating the elevation dial. There are actually two apertures. The unmarked "shorter" one is used for 0-700 meters and the taller one marked with an "8" is used for 800 meters.

The square front sight post is very similar to the standard round front sight post. However, when it is used in conjunction with the ARS, the square front sight post is only adjusted during zeroing of the rifle for 200 meters. During zeroing, it is raised and lowered in the same manner as was the standard round front sight post.

2. Nomenclature. This is illustrated on the preceding pages for both the assembled and disassembled ARS.

3. Functioning. Most field firing will utilize the unmarked or "shorter" aperture at ranges from 0-700 meters. This aperture is held in the "up" position by the aperture spring. The aperture is moved to the left or right by rotating the windage knob in the desired direction. Windage "clicks" are provided by the windage detent ball and spring. All of the above parts are carried as part of the rear sight base which is referred to in the illustration as the upper assembly. This upper assembly is under spring tension via the upper assembly spring and detent ball pushing against the left side of the upper receiver forging. Tension for the elevation function is provided by the elevation spring. This spring is carried inside the elevation shaft and is retained by the upper assembly pin. The entire upper assembly is raised or lowered by rotating the elevation dial in the desired direction. Elevation "clicks" are provided by the lower assembly detent ball and spring. The elevation dial has a range scale which can be adjusted or "slipped" by removing the elevation index screw. Access to this screw is provided through the access hole in the rear sight base.

4. Disassembly. This is seldom required except to replace damaged parts. Unnecessary disassembly should be avoided. Obtain a small magnet and use its magnetic capabilities to keep the detent balls from rolling off your work bench.

(1) Windage Knob. Lower rear sight base to mechanical bottom. Drift out windage knob pin approximately three quarters of its length with a 1/16 inch diameter pin punch. Do not remove punch at this time. Rotate the rifle so that the windage knob is in the palm of your hand. Now, as you remove the punch, the knob, detent ball, and spring will "pop" off into your hand and you won't lose the parts. Stick the detent ball and spring onto the small magnet mentioned above.

(2) Aperture. With the knob removed, rotate the windage screw out of the upper assembly with the proper size screw driver. The aperture and aperture spring can now be removed. Stick these parts onto the magnet.

(3) Rear Sight Base and Upper Assembly Detent Ball. This step does not require removal of the windage knob. Rotate elevation dial to the 700 meter setting. This reduces the spring tension on the assembly. Support the left side of the upper receiver with a proper bench block or piece of scrap lumber. Drift out the upper assembly pin with a 3/32 inch pin punch. Do not remove punch at this time. Place the palm of your hand under the upper receiver in order to "catch" the elevation spring.

Now as you remove the punch, the elevation spring will "pop" into your hand. The elevation dial can now be rotated past the 700 meter setting. Keep turning this dial and the rear sight base will come right out of the upper receiver. While you are doing this, rotate the left side of the sight into the palm of your hand so you can catch the upper assembly detent ball and spring when they "pop" out. This will occur right before the base is clear of the receiver. Stick these small parts onto the magnet mentioned above.

(4) Elevation Dial. After the upper assembly is removed as described above, the elevation dial can be pushed out to the side. Again, rotate the upper receiver into the palm of your hand as you push out the dial. This will allow you to catch the lower assembly detent ball. The lower assembly detent spring can be removed by "fishing" it out with a 1/16 inch allen wrench. Use this same allen wrench to remove the elevation index screw to separate the halves of the elevation dial. Disassembly is now completed.

5. Assembly. This is the reverse of disassembly. However, "slave pins" are recommended to hold the windage knob onto the windage screw and the elevation spring into the elevation shaft prior to the re-insertion of their respective pins. Also, care must be exercised to ensure that the detent balls are properly positioned under or between their respective assemblies. The elevation scale will probably require adjustment in order to "slip" the 2 into the range window while the rear sight base is flush or at mechanical bottom with the upper receiver forging.

For your information, detailed assembly instructions are as follows:

(1) Slide the lower assembly spring onto the long end of a 1/16 allen wrench. Insert this long end into the spring hole itself. The spring should slide off the allen wrench and into the hole.

(2) Hold the lower assembly detent ball gently in a pair of long nose pliers and carefully place the ball on top of the spring in the detent hole. The receiver should be level so the ball will not roll out.

(3) Carefully insert the assembled elevation dial into the upper receiver forging while making sure the detent ball slips under the dial. Center the elevation dial in the receiver.

(4) Hold the sight base in one hand with the front up and insert the upper assembly detent spring and detent ball. Retain spring loaded ball with your thumb. Place the end of the elevation shaft into its hole in the receiver and begin turning the elevation dial counter-clockwise. The upper assembly must be held straight for the elevation dial to engage the threads of the elevation shaft. As the upper assembly is lowered into the receiver, the ball detent will slip behind the left protective ear of the carrying handle.

(5) Continue to rotate the elevation dial until the rear sight base is flush with the upper receiver forging (mechanical bottom); now, rotate the elevation dial clockwise 20-22 clicks (up).

(6) Turn the upper receiver over so the carrying handle is straight down and held securely. Slide the elevation spring onto a 3/32 inch pin punch and insert the spring into the hollow of the elevation shaft. Allow the spring to slide off and remove the pin punch.

(7) Start drifting the upper assembly pin through one side of the receiver, but stop when the tip of the pin is visible in the hollow of the elevation shaft. At this point, the elevation spring must be pushed below where the pin will traverse and held there while you continue to drift the upper assembly pin through the elevation shaft. The end of a bore rod or a 7/32 inch pin punch can be used to depress this end of the spring. The spring may also be held down with a slave pin inserted from the opposite side of the receiver. Regardless of the technique you use, observe the movement of the upper assembly pin across the hollow to ensure it passes over and not through the spring and on into the other side of the upper receiver forging.

(8) Rotate the elevation dial counter-clockwise until the rear sight base is all the way down at mechanical bottom. The "2" should be visible in the window at the last "click" down. If this is not the case, the elevation index screw must be removed through the access hole and the scale "slipped".

6. Inspection. Start by ensuring proper assembly and smooth operation of assemblies.

(1) Elevation dial must return to the "2" or 200 meter setting when the dial is rotated to its last "click" (counter-clockwise) and the rear sight base reaches mechanical bottom.

(2) Clicks of elevation and windage should be distinct and positive.

(3) Spring loaded ball detents should be strong enough to return their respective assembly to its original or "in battery" position. For example, pushing the windage knob to the left should move the aperture slightly to the left. But upon releasing the knob, the aperture should return to its original position by action of the windage detent ball and spring.

(4) Each of the three ball detent spring holes has a small drain hole which also allows lubrication. Check that these holes are clear with a small piece of wire and apply one drop of lubricant.

f. Pistol Grip. All factors concerning this item are unchanged.

g. Buttstock. All factors concerning the buttstock remain unchanged except that the new nylon buttstock requires a shortened lower sling swivel screw. This is because the slot for the swivel has been moved to the rear slightly.

h. Buttplate. All factors concerning this item are unchanged.

i. Three Round Burst Control Firing Mechanism.

1. Description. The Three Round Burst Control Firing Mechanism or Three Round Burst Control (TRBC) for short is a device which automatically limits an automatic burst to the optimum three (3) rounds per trigger pull. The "SAFE" and "SEMI" positions and functions remain unchanged. Complete firing mechanisms are interchangeable between rifles (M16A1E1 assembly to M16A1).

2. Nomenclature. For those of you who are familiar with the parts of the standard fire control mechanism, you will immediately see their similarity to the TRBC parts on the following diagrams.

THREE ROUND BURST CONTROL FIRING MECHANISM  
COMPONENTS AND NOMENCLATURE



AUTOMATIC SEAR  
(Same as Standard)



HAMMER SPRING



BURST DISCONNECT



SAFETY SELECTOR  
(Same as Standard)



HAMMER



SEMIAUTOMATIC DISCONNECT



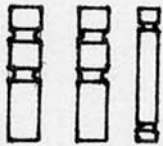
CAM



DISCONNECT SPRING



AUXILIARY  
DISCONNECT SPRING



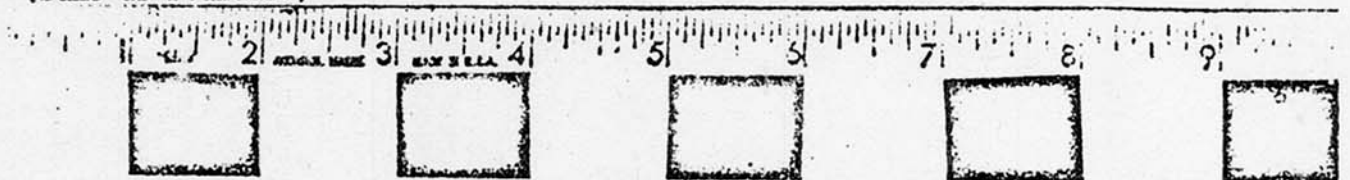
HAMMER, TRIGGER, AND  
AUTO SEAR PINS  
(Same as Standard)



CAM CLUTCH SPRING

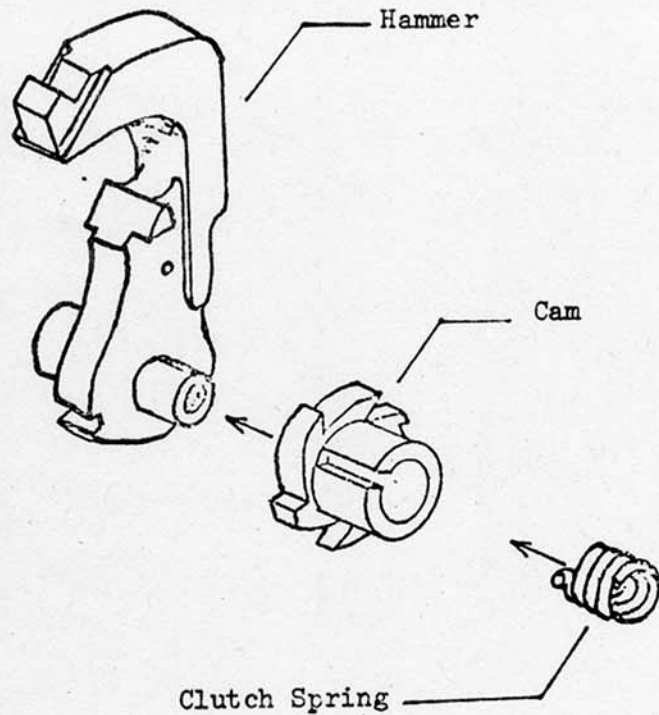


TRIGGER



\* Although very similar in appearance to their standard counterparts, they should not be intermixed with them or vice versa.

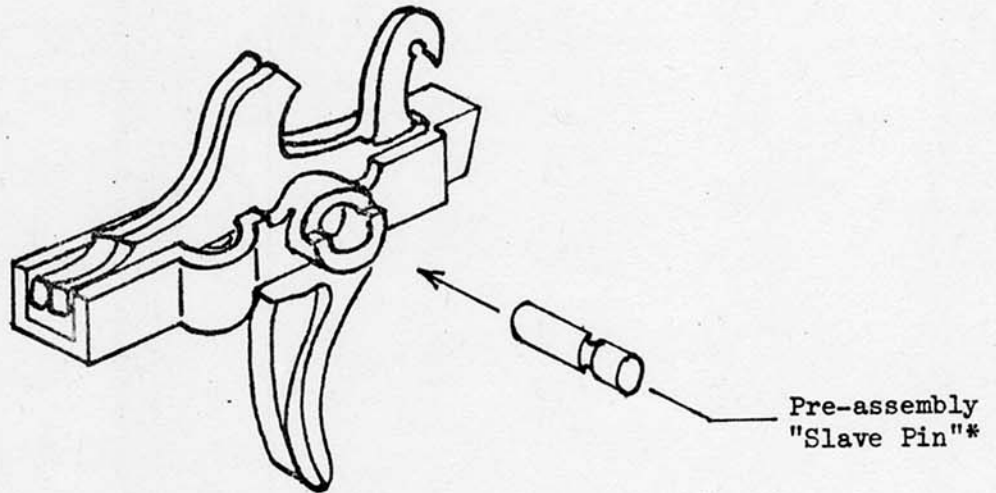
## HAMMER ASSEMBLY MODULE



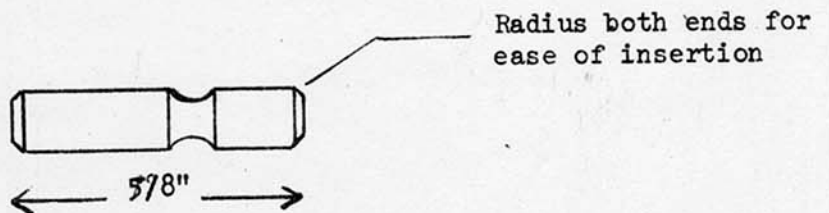
The Clutch Spring is placed in the Cam with the "bent" end first. The "bent" end rides in the slot of the Cam. Then they are pushed onto the Hammer Shaft. The round end of the spring must be flush with the end of the Cam and Hammer Shaft when fully assembled. This can be easily done by pushing the assembly against a hard table top. The bent end must be in the slot of the Cam. At this point you should be able to rotate the Cam backward (counter-clockwise) but not forward (clockwise).

TRIGGER/DISCONNECT ASSEMBLY MODULE

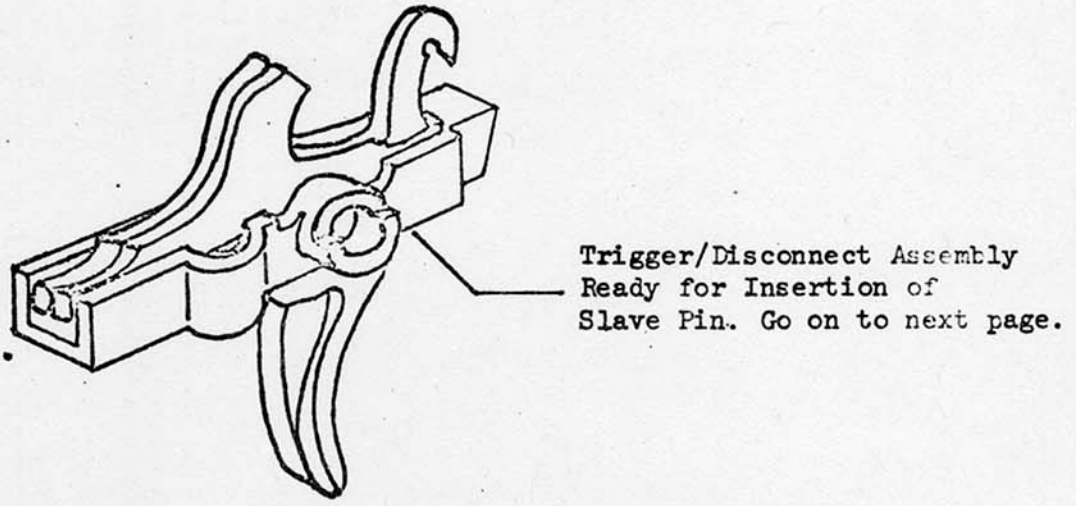
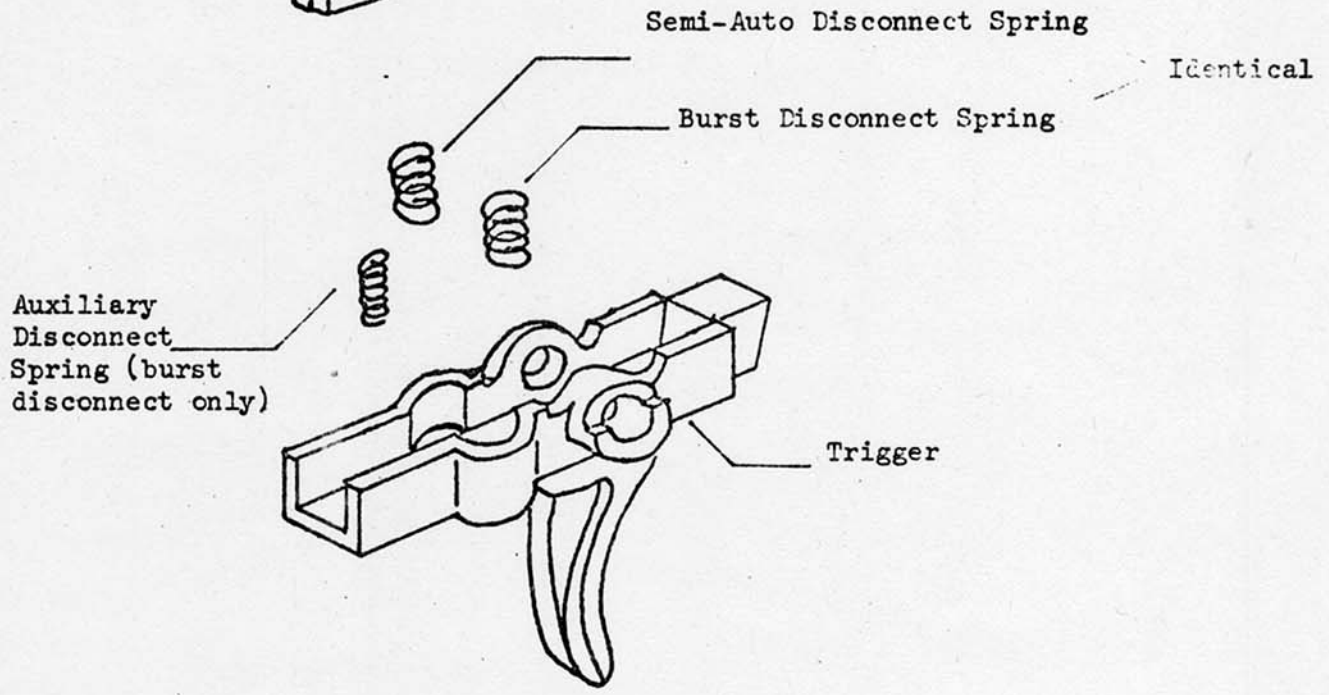
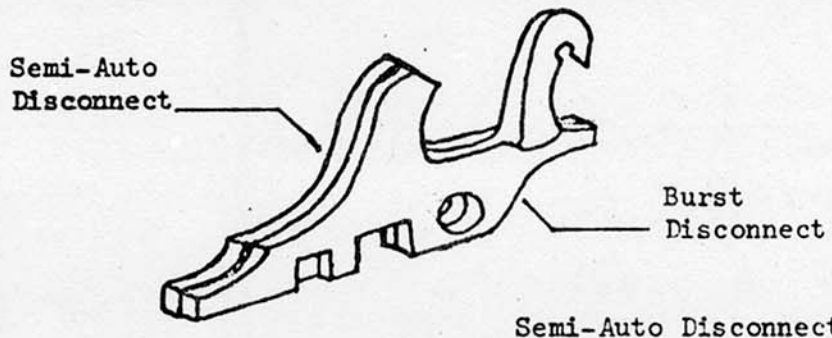
(READY FOR INSERTION TO LOWER RECEIVER)



\* This pin can be made from an old trigger pin  
and will greatly ease the assembly/re-assembly process.

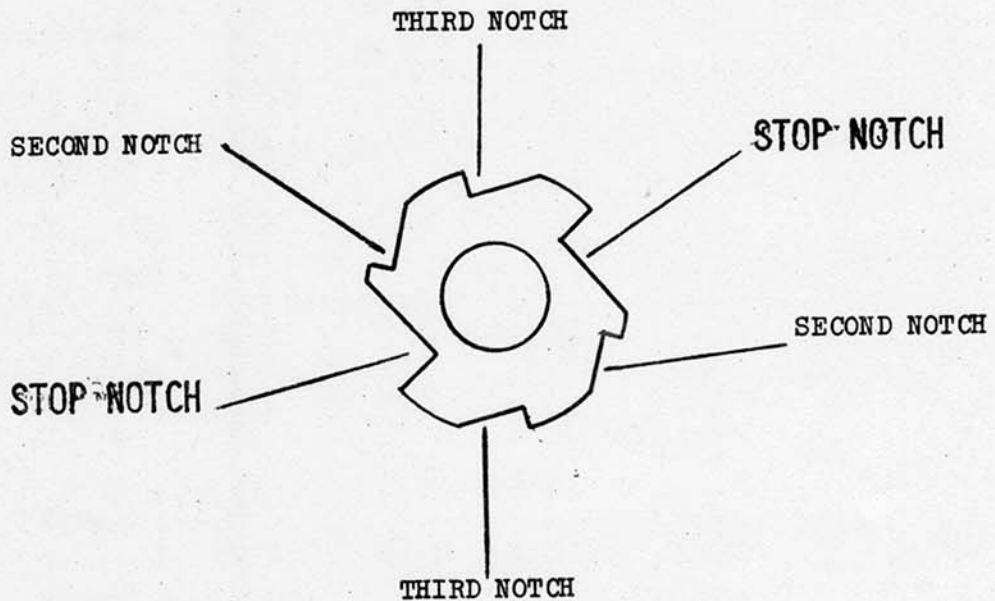


# TRIGGER AND DISCONNECT ASSEMBLY



## BURST CAM NOMENCLATURE\*

\*The Burst Cam regulates the Burst Disconnect and, thereby, controls, i.e., allows the firing, the automatic burst.



## FUNCTIONING

- STOP NOTCH:** Ends a three round burst cycle automatically. Then, once the trigger is released and then squeezed again, fires the first round of the next burst.
- SECOND NOTCH:** Fires the second round of the burst.
- THIRD NOTCH:** Fires the third round of the burst.

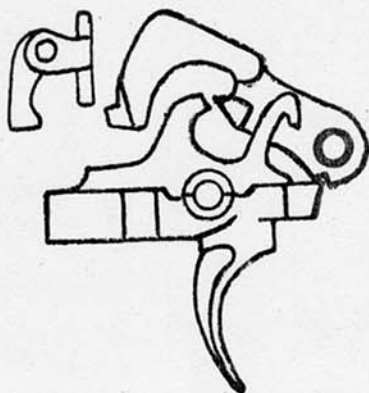
3. Functioning. First become familiar with the functioning of the standard firing mechanism especially when in the "SAFE", and "SEMI" positions. You should also understand the role that the automatic sear plays when firing in the "AUTO" position. Functioning of the mechanism is explained below in a step by step manner. This actually will seem to complicate something that is really very simple and happens in less than one second. The diagrams below and on the following pages do not show the associated springs for the sake of simplicity. Also the diagram of the hammer does not illustrate the burst cam. The positioning of the burst cam is shown in detail on an adjacent illustration.

FUNCTIONING OF THE THREE ROUND BURST:

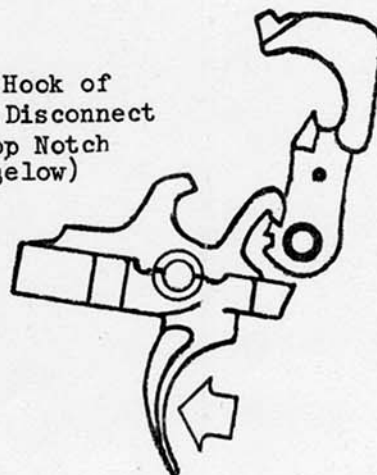
The rifle is at rest with a round in the chamber and:

a. Selector on BURST

b. Hammer cocked



c. Front Hook of Burst Disconnect in Stop Notch (See Below)

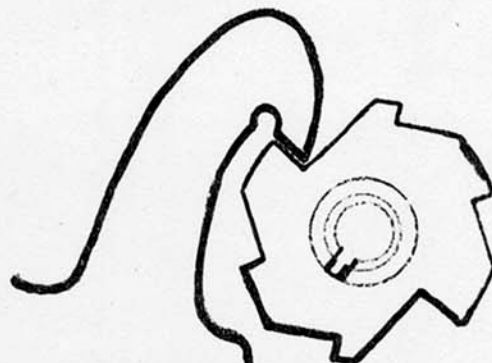
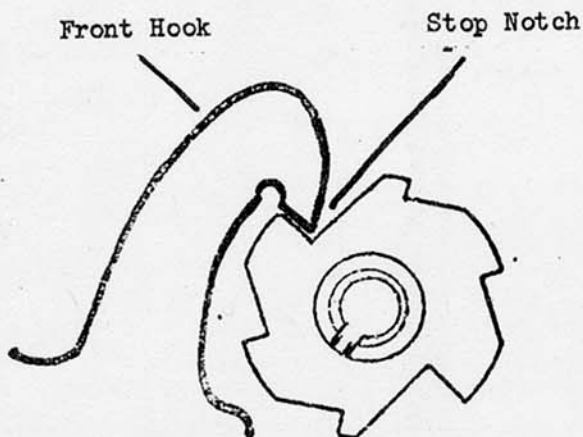


d. Trigger is pulled

e. Trigger Nose drops and Hammer falls firing the First Round\*

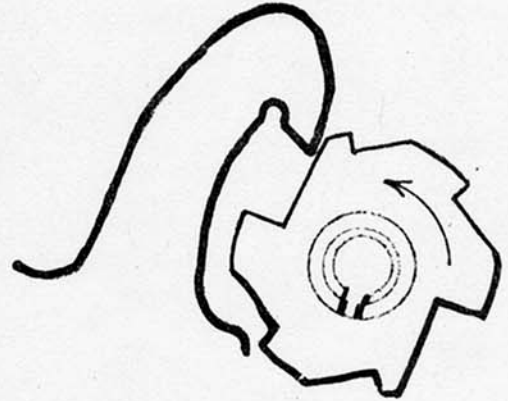
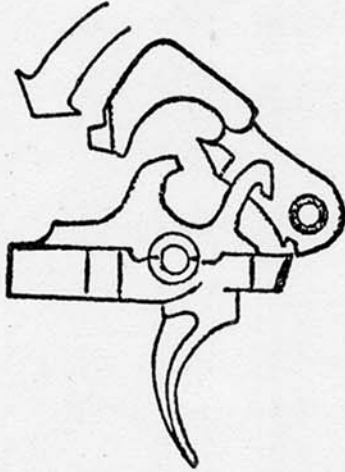
f. Front Hook of Burst Disconnect holds Burst Cam in place as Hammer falls (See Below)

As illustrated below, the Cam has been held in place by the Front Hook when the Hammer went forward.



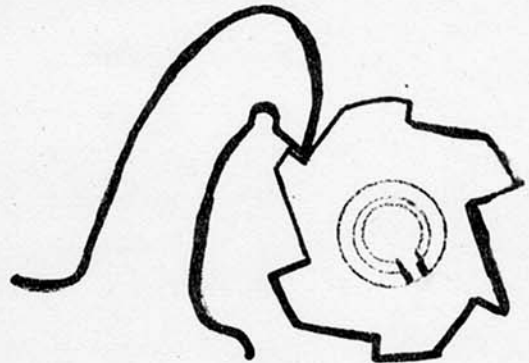
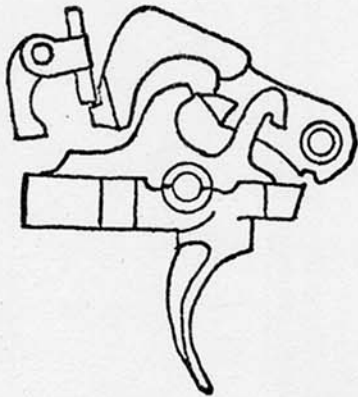
\* Any time the Hammer falls forward, the Clutch Spring releases the Burst Cam and allows the Front Hook of the Burst Disconnect to keep it in place.

As the Bolt Carrier moves to the rear, the Hammer is forced back to the rear. The Clutch Spring of the Burst Cam clutches against the Cam and causes it to rotate one notch as the Hammer is forced back.

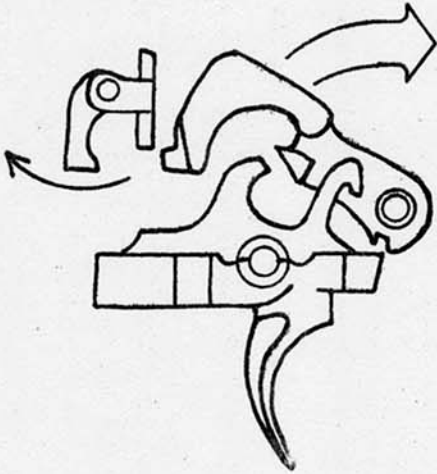


With the Hammer fully to the rear, it is caught by the Automatic Sear.

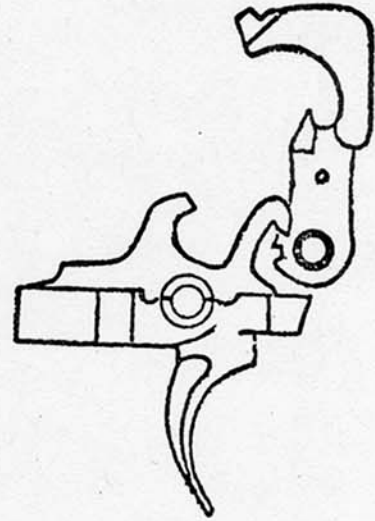
The Front Hook of the Burst Disconnect is now fully in the second notch.



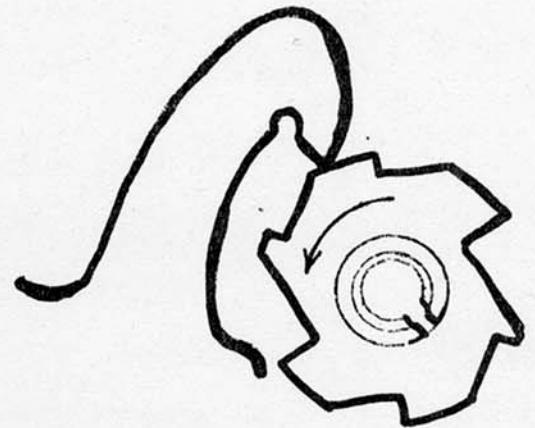
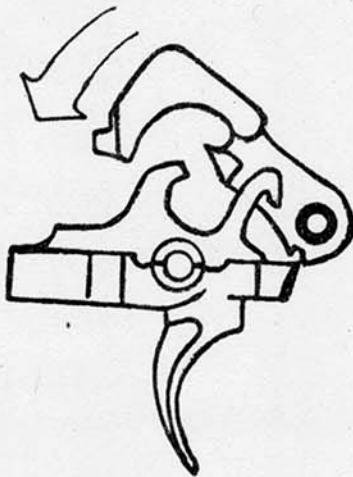
As the Bolt Carrier travels forward the Automatic Sear releases the Hammer and the Hammer falls.



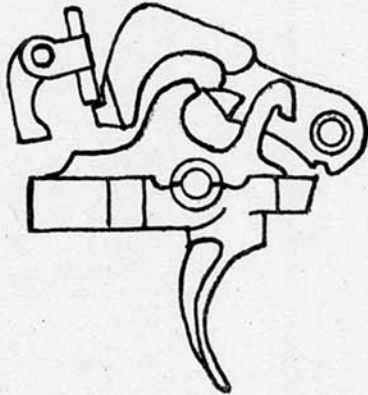
When the Hammer falls, the Second Round is fired.



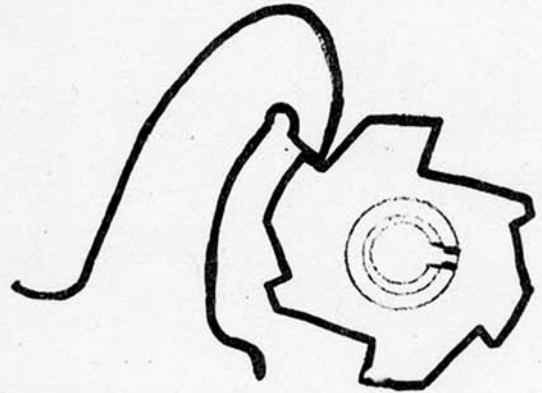
As the Bolt Carrier moves to the rear, the Hammer is forced back to the rear. The Clutch Spring of the Burst Cam clutches against the Cam and causes it to rotate one notch as the Hammer is forced back.



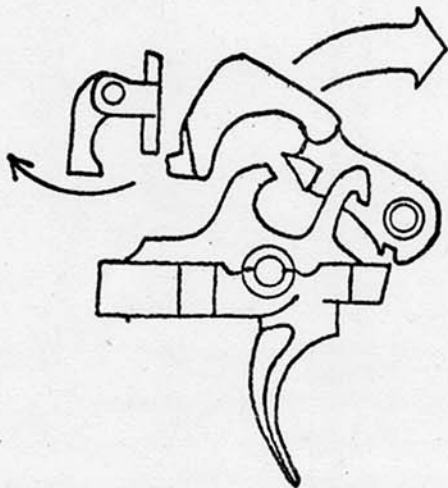
With the Hammer fully to the rear, it is caught by the Automatic Sear.



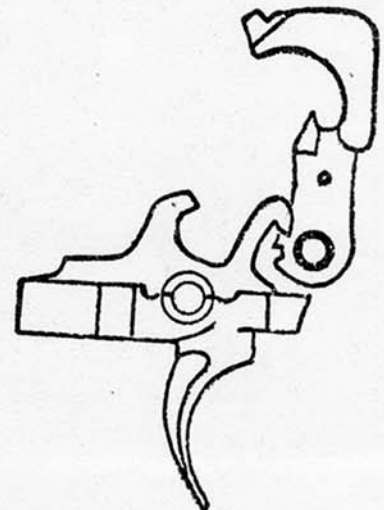
The Front Hook of the Burst Disconnect is now fully in the third notch.



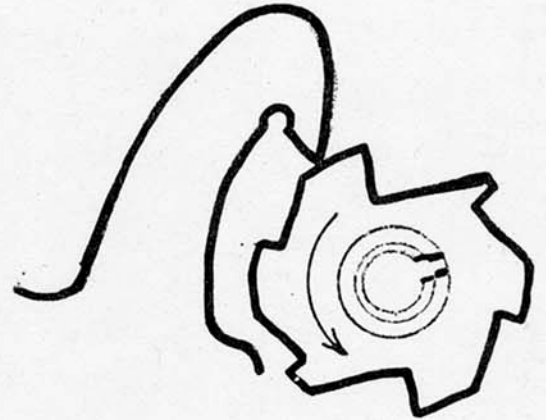
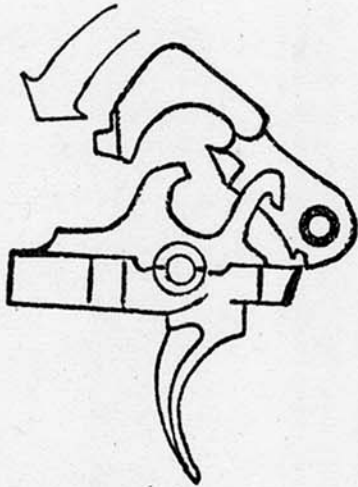
As the Bolt Carrier travels forward, the Automatic Sear releases the Hammer and the Hammer falls.



When the Hammer falls, the Third Round is fired.

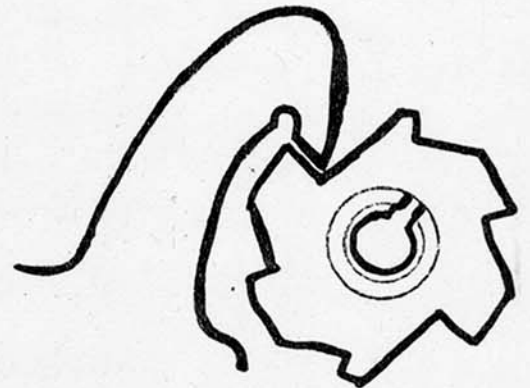
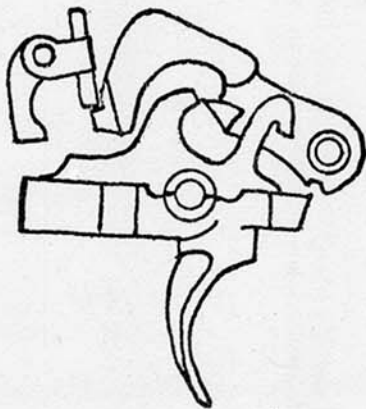


As the Bolt Carrier moves to the rear, the Hammer is forced back to the rear. The Clutch Spring of the Burst Cam clutches against the Cam and causes it to rotate one notch as the Hammer is forced back.

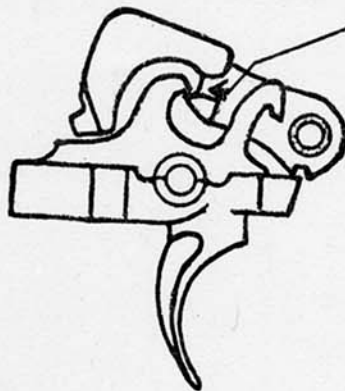


With the Hammer fully to the rear, it is initially caught by the Automatic Sear. However,

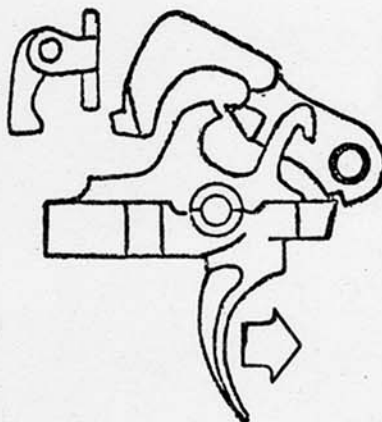
the Front Hook of the Burst Disconnect is now fully in the next Stop Notch which is deeper than the others.



Because a Stop Notch is deeper than the others, it allows the Front Hook of the Burst Disconnect further forward than before. This allows the Rear Hook of the Burst Disconnect to latch on to the Rear Hammer Notch. This holds the Hammer fully to the rear even though the Trigger is still to the rear. This happens when the Burst is over and the firing is stopped.



Once the Trigger is released, the Trigger Nose comes up and holds the Hammer back.



Pulling the Trigger to the rear and holding it back will fire another three round burst. This will continue until the magazine is empty. However, the Trigger must be released between each burst.

4. Disassembly. Start by making sure the rifle is clear, then separate the upper and lower receivers.

(1) Start by removing the automatic sear by drifting out its pin with the 3/32 inch punch. If it resists light taps with a hammer, lubricate the pin and attempt to remove it from the opposite direction. Cock the hammer and place selector on SEM.

(2) Now remove the selector. It is very easy to remove the selector if the pistol grip is first removed and the selector spring and pointed detent are removed from behind and below the trigger on the right side of the receiver. Don't lose these small parts! Attach them to the magnet you used for the adjustable Rear Sight Parts.

(3) Lower the hammer slowly to the un-cocked position. Now, with the proper 1/8 inch punch, push the hammer pin out. Remove the hammer, hammer spring and cam as a module.

(4) Using the "slave pin" mentioned earlier, push out the trigger pin. Center the slave pin in the trigger by pushing it from either side with a 3/32" pin punch. Since the slave pin is exactly the width of the inside of the receiver, the trigger and disconnectors will come out as a group or module.

CAUTION: Now the three round burst trigger/disconnect group is a preassembled module held together with a "slave pin" for ease of removal and installation. Do not allow this "slave pin" to fall out of the trigger/disconnector group until after placing the module in the receiver.

(5) Detailed disassembly of the modules is not recommended. However, referring to the illustrations on the previous pages of the hammer and trigger modules will serve as a guide.

5. Assembly. Begin assembly by wiping out the lower receiver with a dry, lint-free rag. Also clean out the pin holes with a Q-tip and/or pipe cleaner. With a few drops of lubricant applied to the end of a fresh pipe cleaner, lightly lube the inside of the pin holes and selector detent hole. Also apply a light coat of lubricant of the pins and the shaft of the selector.

(1) First, examine the trigger/disconnect group pre-assembled module. You will notice that two disconnects are held in assembly with the trigger, disconnect springs, and auxiliary disconnect spring by a short "slave pin". Do not remove this "slave pin". It is shorter than the width of the trigger and will not interfere with its assembly into the receiver. Place the entire module into the receiver by inserting the end of the trigger into the trigger hole and gently pushing forward and down. Once the module slips down you can line-up the ends of the "slave pin" with the trigger pin holes in the receiver. (This automatically lines up the holes in the trigger and disconnects with the holes in the receiver). Now take the original trigger pin and push it through the hole in the receiver all the way through the module in one smooth motion until it is flush on both sides of the receiver. Save the "slave pin" as it is used in disassembly to drift out the normal trigger pin and thereby maintaining the assembly of the module if it is removed from the lower receiver.

(2) The hammer group is also a pre-assembled module. Examine the module and make sure the small end of the "cam" is flush with the hammer shaft. With the hammer

spring rotated in the proper position (so that the long ends ride over the top of the trigger pin), insert the module into the receiver. You will notice that it will not go right in. It must be "rocked" back and forth as in cocking, so the front hook of the Burst Disconnect enters one of the notches of the cam. Then the module will slip down past the front hook and the hammer pin can be inserted in the normal way when the hole in the hammer shaft lines up with the hammer pin holes of the receiver.

(3) Cock the hammer. Now place the "Selector" in the receiver and replace the pointed selector detent, detent spring, and pistol grip - don't bend the detent spring when tightening the pistol grip screw.

(4) Rotate the selector to the "AUTO" position to be sure of proper assembly. Now the automatic sear is installed in the normal fashion. Again, as in disassembly if the auto sear pin won't easily pass through the receiver, lube the pin and insert from the other side of the receiver. Ensure that the long leg of the automatic sear pin spring is riding in its groove on the selector shaft.

6. Inspection. Inspection of the fully assembled burst control should first consist of a safety check. The safety check of the assembled lower receiver is almost identical to the standard rifle. Perform these checks prior to attaching the upper receiver.

#### Safety Check

(1) With the hammer cocked and the selector on "SAFE", pulling the trigger should not release the hammer.

(2) With the hammer in the cocked position and the selector on "SEMI" pulling the trigger (Keep trigger pulled all the way back) should drop the hammer (block the fall of the hammer with the thumb of your free hand). Now, while continuing to hold the trigger to the rear, rotate the hammer back with your other hand. The semi-automatic disconnect should catch it and keep it held to the rear. Then let go of the trigger. The hammer should now move only slightly (onto the nose of the trigger), i.e., not go all the way forward. Repeat this several times.

(3) The "BURST" setting is checked in the same manner as the "AUTO" except, that when the front hook of the Burst Disconnect enters one of the two deep notches in the cam attached to the hammer, the rear hook of the Burst Disconnect will move up and hold the hammer to the rear after the third round would be fired (i.e., the hammer goes forward for the third time and then your thumb pushes it fully to the rear and it is held by the rear hook of the Burst Disconnect). Releasing the trigger at this point allows the nose of the trigger to engage and hold the hammer to the rear. At this point repeat the process of the three round burst as follows: pull the trigger and hold it to the rear and the hammer falls. This is the first round fired of the three. Rotate the hammer back with your thumb and the auto-sear will catch the hammer. Push on the rear of the auto-sear and the hammer will fall. This is the second round fired of the three. Rotate the hammer back again and the same thing happens. The auto-sear will catch the hammer. Pushing on the rear of the auto-sear will let the hammer fall. This will be the third and last round. As you rotate the hammer back this time, one of the two deep notches of the cam will allow the front hook of the Burst Disconnect to move down. This will allow the rear hook to hold the hammer back. The cycle cannot start again until you release the trigger, push the auto-sear forward and pull the trigger again.

Parts Inspection. This is only required if malfunctions occur or if the mechanism fails the safety check.

(1) First, check for proper assembly, especially assembly of the springs, then always assume that the malfunction is a result of the firer not holding the trigger fully to the rear during the three round burst. Test fire the weapon yourself or at least carefully follow the above safety check procedures.

(2) If the mechanism is truly malfunctioning, remove the modules one at a time and inspect them. Use like modules from a mechanism known to function properly for comparison. What you are looking for is obvious or excess wear and/or broken parts. This should enable you to isolate the problem.

(3) If none of the above problems are found, substitute the suspect module with a new serviceable one and re-inspect. This procedure should isolate the cause of the malfunction to a specific module. If parts are available to repair the module and you have the time, go ahead. But, the preferred method, especially on the range, is to replace the suspect module itself with a serviceable module.