290.9-2 PT

PROGRAMED INSTRUCTION

FOR

THE 5.56-MM RIFLE, M16A1

FUNCTIONING AND MALFUNCTIONING

U.S. ARMY QUARTERMASTER SCHOOL
FORT LEE, VIRGINIA

SUPPLY TRAINING CENTER OF THE ARMY SCHOOL SYSTEM

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INTRODUCTION

A modern learning technique, programed instruction, has been used in the preparation of this text on the 5.56mm. rifle, M16A1. The text has been designed to help you learn the functioning and malfunctioning of the rifle. Words, pictures, and student participation are used to make sure that your learning is complete. For example, a function or malfunction of the weapon is explained in the text, and a table is shown on the opposite page to aid in your better understanding of the material in this text.

The program was developed at the U.S. Army Quartermaster School, Fort Lee, Virginia. Users of this text are encouraged to submit recommended changes or comments to improve it. Comments should be keyed to the specific page, frame, and line of the text in which the change is recommended. Reasons should be provided for each comment to insure understanding and complete evaluation. Comments should be forwarded direct to the Commandant, U.S. Army Quartermaster School, Fort Lee, Virginia, 23801.

New July 1968

Approved By W. J. Sheridan Date July 1968

CONTENTS

STUDENT OBJECTIVES

Upon completion of part two of this programed instruction text, you will be able to perform the following without help:

Upon completion of section I, you will be able to identify the correct steps in the cycle of functioning. You must accomplish this within 5 minutes.

Upon completion of section II, you will be able to perform the following when presented with a malfunction problem:

--determine which of the eight steps in the cycle of functioning is not being accomplished.

--detect the reason that the weapon functioned improperly.

--determine from the troubleshooting chart the corrective action needed.

--determine the level at which the repair is authorized.

--take action, as indicated in the maintenance allocation chart, to correct the malfunction at the organizational level or to evacuate the weapon to a designated support activity.

READING INSTRUCTIONS

This programed text does not follow the conventional format and therefore cannot be read straight down the page. The material is divided into blocks which are called frames. Each frame is numbered. Frame 1 is at the top of page 1, frame 2 is at the top of page 2, and so forth. When you reach the last page in section I, return to page 1 and go completely through section I, reading the center frames on each page. Then you return to page 1 and read the bottom frames on each page. When you reach the end of section I, continue to section II. The frames in section II follow the same sequence as section I.

Each frame contains blanks for you to fill in. Write the correct words in the blanks before turning to the next frame. After you have written what you think is the correct word, turn to the next frame and find out whether or not you are correct. The answer to the previous frame is given in the left margin beside the next frame. Continue through the book until you have answered all frames.

As you read your text, you will have your rifle available. You will also have illustrations in your text which point out parts of the rifle and other facts. These pictures appear immediately opposite the appropriate page of the text.

Whenever you are referred to a figure in a frame, look at the page to your left and you will find the illustration you need.

SECTION I

FUNCTIONING

As an Armorer, you will need to know how the M16A1 rifle functions. A good understanding of its functioning will help you locate the sources of malfunctions.

Turn the page and begin working on frame 1.

	1. To be well oriented on the functioning of the M16 rifle, you must know the eight steps in the cycle of functioning for semiautomatic and automatic fire. By the proper positioning of the Selector Lever, the M16A1 rifle may be fired either _____ or _____.
cycle functioning Firing	20. The M16A1 rifle is capable of semi-automatic and automatic fire. Semiautomatic fire will be discussed first. When the Selector Lever is in the Semi position and the Trigger is squeezed, the Nose of the Trigger is lowered out of the Trigger Notch on the Hammer. When the Tri_____ is squeezed and the Sel_____ L_____ is in the _____ position, the Nose of the Trigger is low_____ out of the Trigger _____ on the Hammer.
Claw Extractor Groove Bolt Chamber	39. The seventh step in the cycle of functioning is Ejecting. Ejecting is the seventh step in the _____ of _____.

semiautomatically automatically	2. When the M16 rifle is being fired automatically, it will continue to fire as long as the Trigger is held to the rear or until the Magazine is empty. For automatic fire, the Selector Lever must be positioned in the Auto position. The M16 rifle will fire multiple rounds each time the Trigger is held to the rear if the Selector Lever is positioned in _____.
Trigger Selector Lever Semi lowered Notch	21. When the Nose of the Trigger is lowered out of the Trigger Notch on the Hammer, the Hammer, under the force of the expanding Hammer Spring, pivots on the Hammer Pin and strikes the Firing Pin, thus forcing the Firing Pin (fig. 4), forward to strike and detonate the primer of the round and to fire it.
cycle functioning	40. The action that takes place when the spent cartridge is thrown from the Receiver is called Ejecting. When the spent cartridge is removed from the Chamber, the base of the cartridge is held against the face of the Bolt by the Extractor (fig. 7). The base of the cartridge compresses the Ejector Spring and Ejector into the Bolt. The E_____ and E_____ S_____ are compressed into the Bolt.

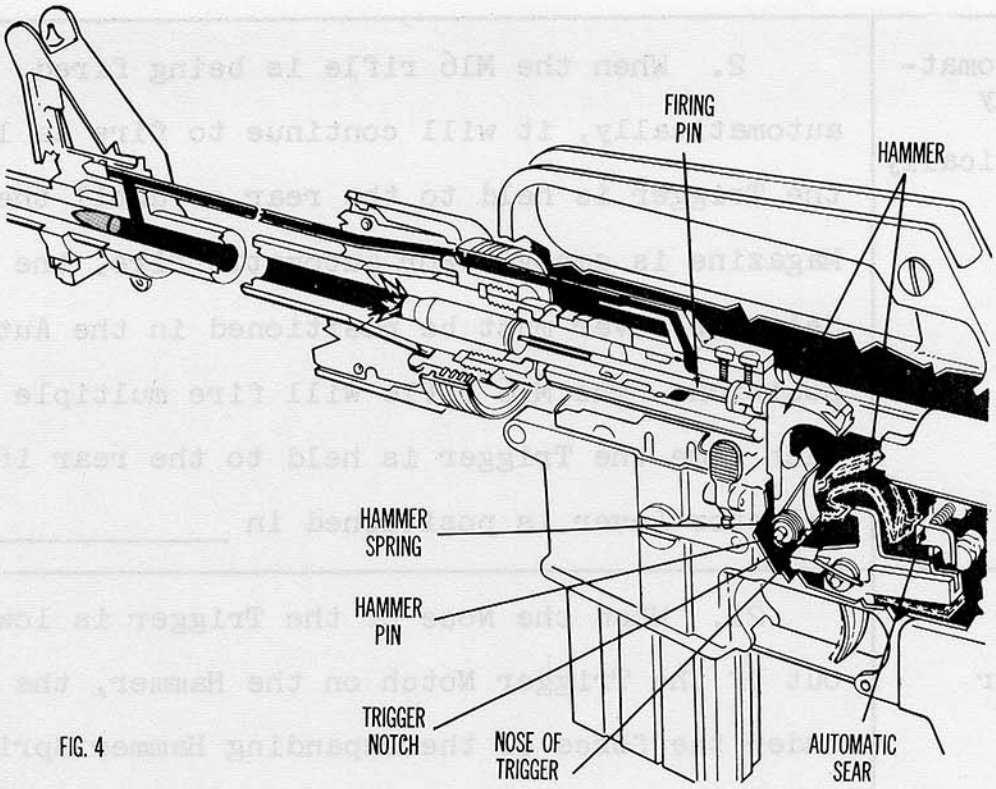
FIRING PIN
HAMMER
HAMMER SPRING
HAMMER PIN
TRIGGER NOTCH
NOSE OF TRIGGER
AUTOMATIC SEAR

FIG. 4

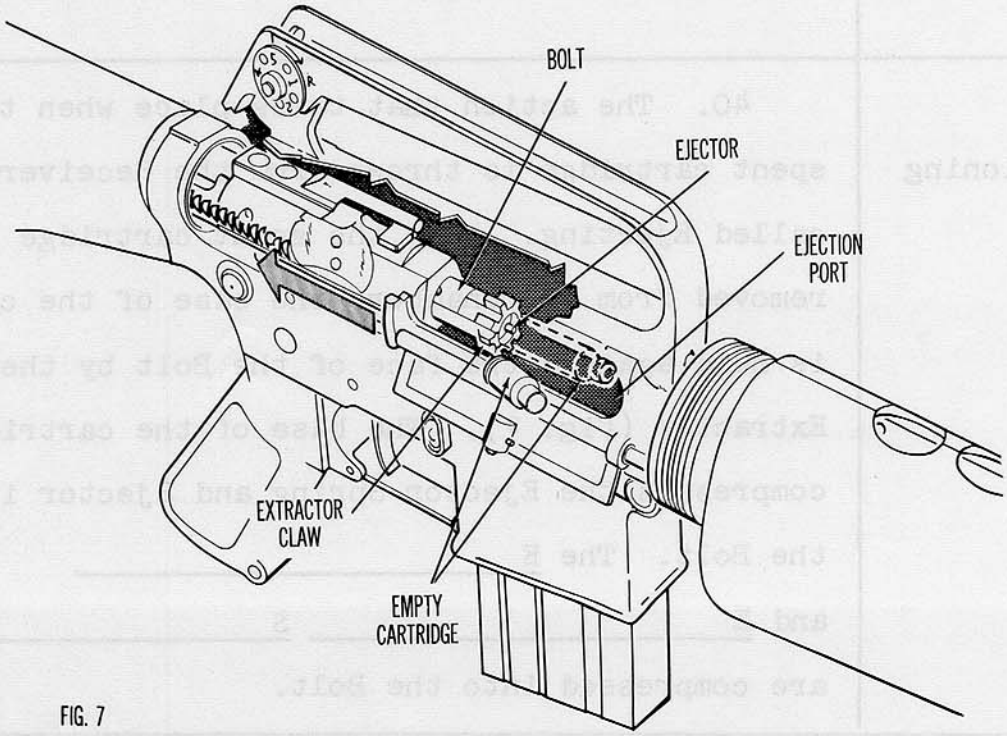
BOLT
EJECTOR
EJECTION PORT
EXTRACTOR CLAW
EMPTY CARTRIDGE

FIG. 7

Auto	3. If the Selector Lever is positioned in Auto, the rifle will fire automatically when the Trigger is squeezed. By positioning the S_____ L_____ in _____, the rifleman may fire multiple rounds by squeezing the Trigger and holding it to the rear.
	22. The Nose of the Tri_____ is lowered out of the Trigger Notch on the Hammer, allowing the Hammer to pivot forward. This action forces the Fir_____ P_____ forward to strike and detonate the primer of the round and _____ it.
Ejector Ejector Spring	41. As the Bolt Carrier clears the Ejection Port, the action of the compressed E_____ and Ejector Spring throws the spent cartridge out of the Receiver, and Ejecting is completed.

Selector Lever Auto	4. If the Selector Lever is positioned in Semi (semiautomatic), only one round can be fired each time the Trigger is squeezed. If the rifleman wants to fire one round at a time, he must position the S_____ L_____ in _____.
Trigger Firing Pin fire	23. Simply stated, Firing occurs when the Tri_____ is squeezed and the Hammer is forced forward by the action of the expanding Ham_____ Spr_____. The Hammer Spring pivots on the Hammer Pin and strikes the Fir_____ P_____, forcing the Firing Pin forward. The Firing Pin strikes and detonates the primer of the round and fires it.
Ejector	42. Simply stated, _____ is throwing the spent cartridge from the Receiver. The eighth step in the cycle of functioning is Cocking. _____ is the eighth step in the _____ of _____.

Selector Lever Semi	5. Positioning the Selector Lever in _____ allows one round to be fired each time the Trigger is squeezed. For multiple rounds to be fired, the S_____ L_____ must be positioned in _____. The rifleman may choose the type of fire he desires by positioning the Selector Lever for single rounds in _____ and multiple rounds in _____. When the Selector Lever is positioned at Safe, the M16 rifle is in the Safe position.
Trigger Hammer Spring Firing Pin	24. During semiautomatic fire, the Trigger must be released before another round can be fired.
Ejecting Cocking cycle functioning	43. On the M16A1 rilfe, there are two phases of Cocking, semiautomatic and automatic. You will cover semiautomatic first. The M16 rifle can be fired s_____ or a_____.

Semi Selector Lever Auto Semi Auto	6. Now, the cycle of functioning for the M16 rifle will be discussed. There are eight steps in the cycle of functioning. Each step is dependent on each preceding step. We shall start with Feeding. The first step in the cycle of functioning is _____.
	25. Now, automatic fire will be discussed. When the Selector Lever is in the Auto position and the Trigger is squeezed, the Nose of the Trigger is lowered out of the Trigger Notch on the Hammer. When the Tri_____ is squeezed and the Sel_____ L_____ is in the _____ position, the Nose of the Trigger is low_____ out of the Trigger _____ on the H_____.
semiautomat-ically automatically	44. For semiautomatic fire, the Selector Lever must be placed at the Semi position and the Trigger must be released after each round is fired. The _____ must be released after each round is fired during _____ fire.

Feeding	7. To be well oriented on the functioning of the M16 rifle, you need to know the eight steps in the cycle of functioning. The first step in the _____ of _____ is Feeding. The action that takes place when the Magazine Spring and Follower push a round into the path of the Bolt is called Feeding.
Trigger Selector Lever Auto lowered Notch Hammer	26. When the Nose of the Trigger is lowered out of the Trigger Notch on the Hammer, the Hammer, under the force of the expanding Hammer Spring, pivots on the Hammer Pin and strikes the Firing Pin. This action forces the Firing Pin (fig. 4), forward to strike and detonate the primer of the round and fire it.
Trigger semiauto- matic	45. As the Bolt Carrier Group moves to the rear, it overrides the Hammer, forcing the Hammer down. The Disconnector temporarily holds the Hammer until the Trigger is released (fig. 8). The B_____ Carrier Group forces the H_____ down. The Hammer is held temporarily by the D_____ until the Trigger is released.

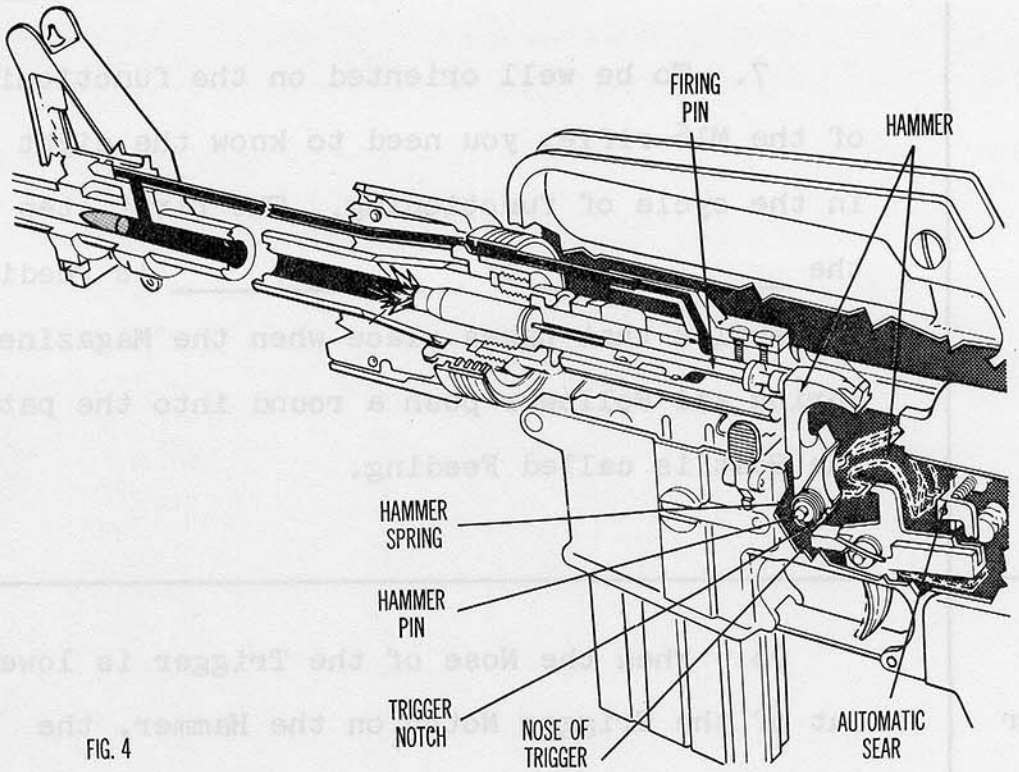
FIRING PIN
HAMMER
HAMMER SPRING
HAMMER PIN
TRIGGER NOTCH
NOSE OF TRIGGER
AUTOMATIC SEAR

FIG. 4

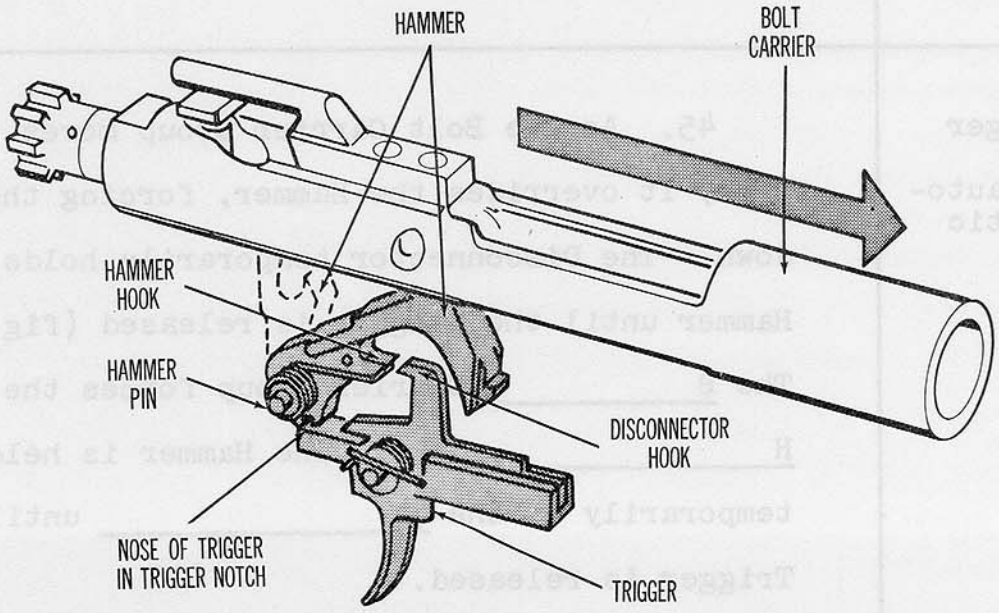
HAMMER
BOLT CARRIER
HAMMER HOOK
HAMMER PIN
DISCONNECTOR HOOK
NOSE OF TRIGGER IN TRIGGER NOTCH
TRIGGER

FIG. 8

cycle functioning	8. The positioning of a round in the M _____ in the path of the Bolt is called Feeding. Feeding takes place when the M _____ S _____ and F _____ push the round into the path of the Bolt (fig. 1).
	27. The Nose of the Trigger is lowered out of the Trigger Notch on the Hammer, allowing the Hammer to pivot forward. This action forces the Fir _____ P _____ forward to strike and detonate the primer of the round and _____ it.
Bolt Hammer Disconnector	46. When the Trigger is released, the Hammer transfers from the Disconnector to the Nose of the Trigger, allowing the Nose of the Trigger to engage the Trigger Notch on the Hammer and hold the Hammer in the Cocked position (fig. 9).

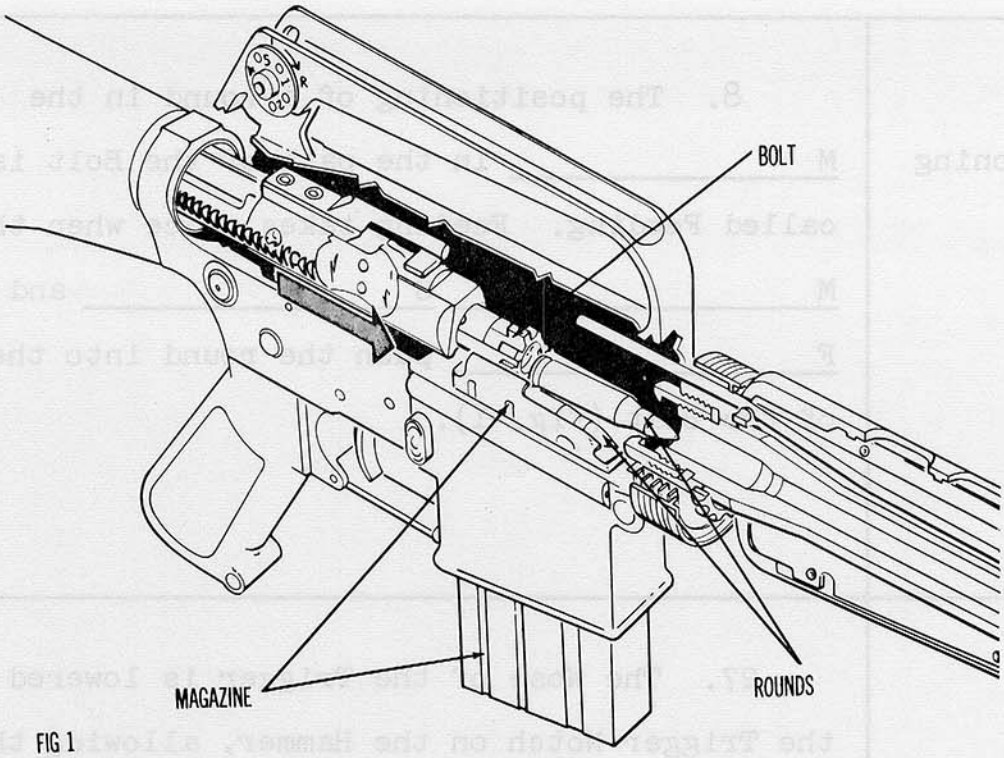
BOLT
MAGAZINE
ROUNDS

FIG 1

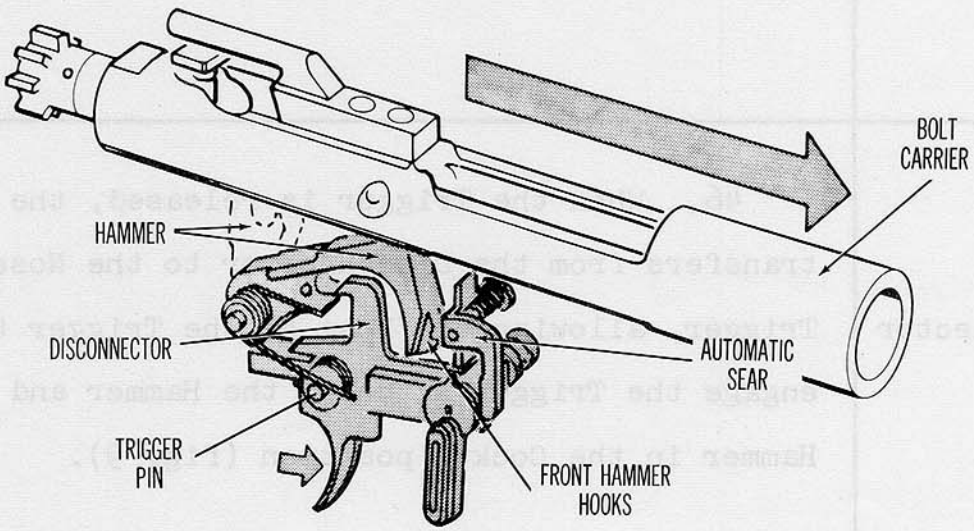
BOLT
CARRIER
HAMMER
DISCONNECTOR
AUTOMATIC
SEAR
TRIGGER
PIN
FRONT HAMMER
HOOKS

FIG. 9

Magazine Magazine Spring Follower	9. Simply stated, _____ takes place when a round is moved into the _____ of the Bolt. The second step in the cycle of functioning is Chambering. Chambering is the second step in the _____ of _____.
Firing Pin fire	28. The Bolt Carrier Key, in its last one-eighth inch of forward movement, strikes the top of the Automatic Sear. This action releases the Hammer and allows it to pivot forward on the Hammer Pin by the force of the expanding Hammer Spring.
	47. When the T_____ is released, the _____ transfers from the D_____, to the Nose of the _____, and the Nose of the _____ engages the T_____ N_____, holding the Hammer in the _____ position until the Trigger is squeezed.

Feeding path cycle functioning	10. The action that occurs when a round is stripped from the Magazine and placed in the Chamber is called Chambering. The forward movement of the Bolt Group strips the top round from the Magazine and pushes it into the Chamber (fig. 2). TheBolt Group is pushed forward by the Action Spring Buffer Assembly. The A_____ S_____ Buffer Assembly pushes the Bolt Group forward.
	29. In the last one-eighth inch of _____ (forward - rearward) movement, the B_____ Car_____ K_____ strikes the top of the Auto_____ S_____. This action releases the Hammer and allows it to pivot forward by the force of the expanding Ha_____ S_____.
Trigger Hammer Disconnector Trigger Trigger Notch Cocked	48. Now, automatic fire will be covered. During automatic fire, the rifle will continue to fire as long as the Trigger is held to the rear. The rifle will continue to fire _____ Until the _____ is released.

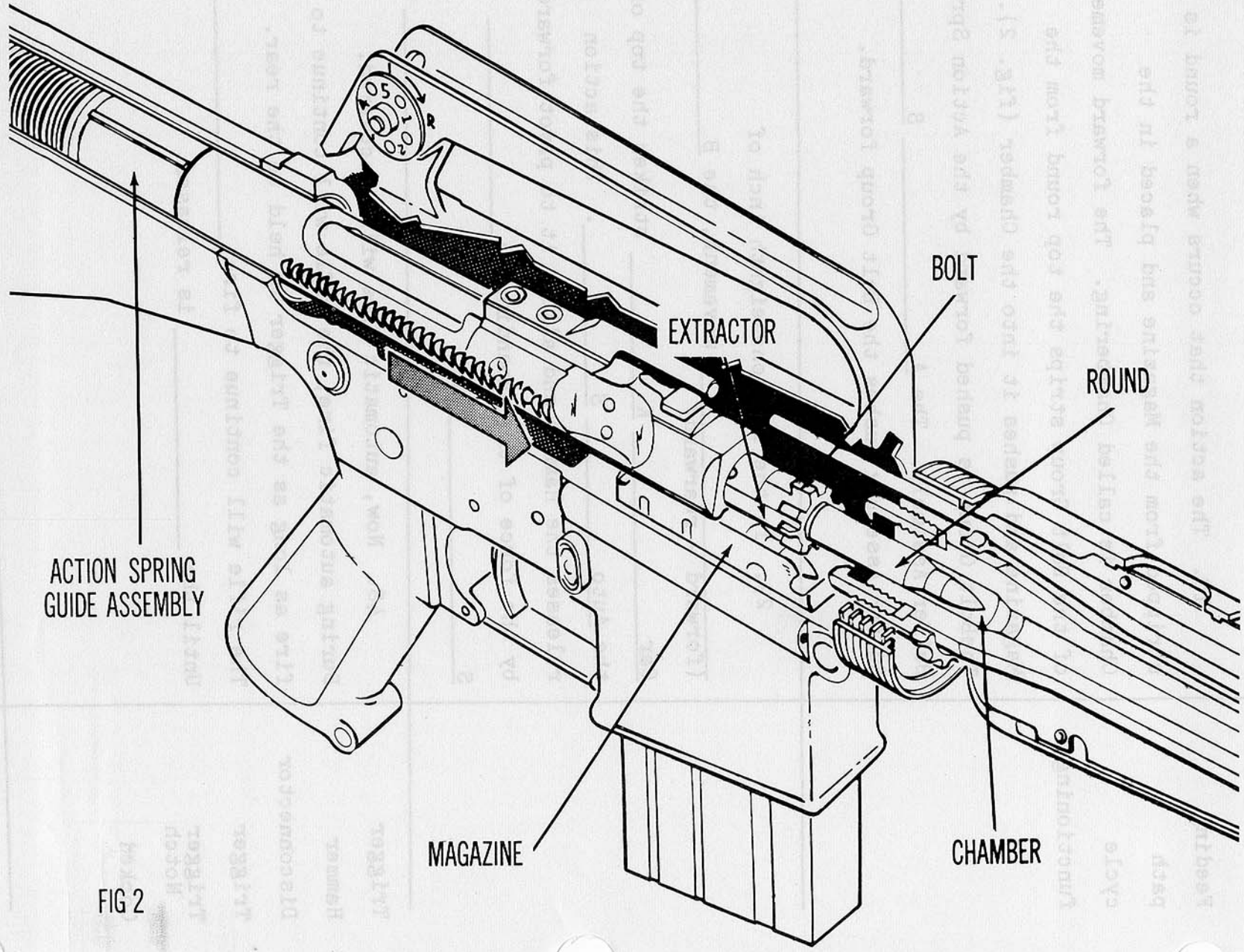
BOLT
EXTRACTOR
ROUND
ACTION SPRING
GUIDE ASSEMBLY
MAGAZINE
CHAMBER

FIG 2

Action Spring	11. You will now proceed in the sequence of Cham_____. As the Action Spring Buffer Assembly (fig. 2) pushes the Bolt Group forward, a round is stripped from the Magazine and placed in the Chamber. Chambering is completed when the Extractor snaps into the Extractor Groove at the base of the cartridge and the Ejector Spring and Ejector are depressed into the face of the Bolt.
forward Bolt Carrier Key Automatic Sear Hammer Spring	30. The fifth step in the cycle of functioning is called Unlocking. This sequence refers to the unlocking of the Bolt from the Locking Recesses in the Barrel. The sequence of Unlocking refers to the _____ of the _____ from the Locking Recesses in the Barrel.
automatically Trigger	49. For automatic fire, the Selector Lever must be placed in the Auto position and the Trigger held to the rear. The S_____ L_____ must be placed in the _____ position and the _____ held to the rear before the weapon will fire automatically.

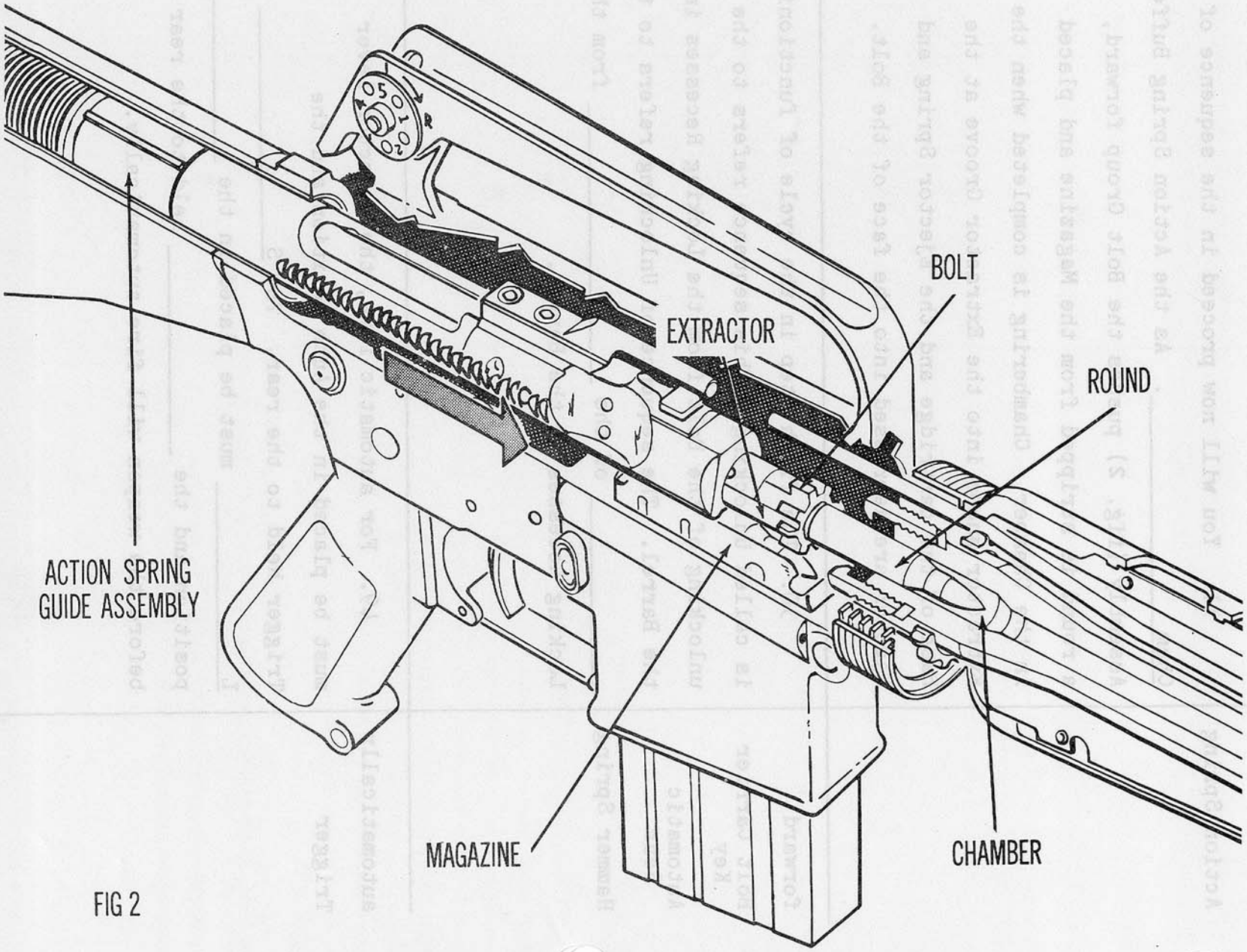
BOLT
EXTRACTOR
ROUND
ACTION SPRING
GUIDE ASSEMBLY
MAGAZINE
CHAMBER

FIG 2

Chambering	12. When the Ext _____ snaps into the Ext _____ Gr _____ at the base of the cart _____ and the Ejector S _____ and Eje _____ are depressed into the face of the Bolt, Ch _____ is completed.
Unlocking Bolt	31. When the Bolt is unlocked from the Locking Recesses, _____ takes place. The sequence of Unlocking will begin in the next frame.
Selector Lever Auto Trigger	50. As the Bolt Carrier Group moves to the rear, it overrides the Hammer and forces the Hammer down (fig. 9). The Front Hammer Hooks engage the bottom of the Automatic Sear, holding the Hammer in the Cocked position. The F _____ H _____ H _____, engaging the b _____ of the A _____ S _____, hold the _____ in the Cocked position.

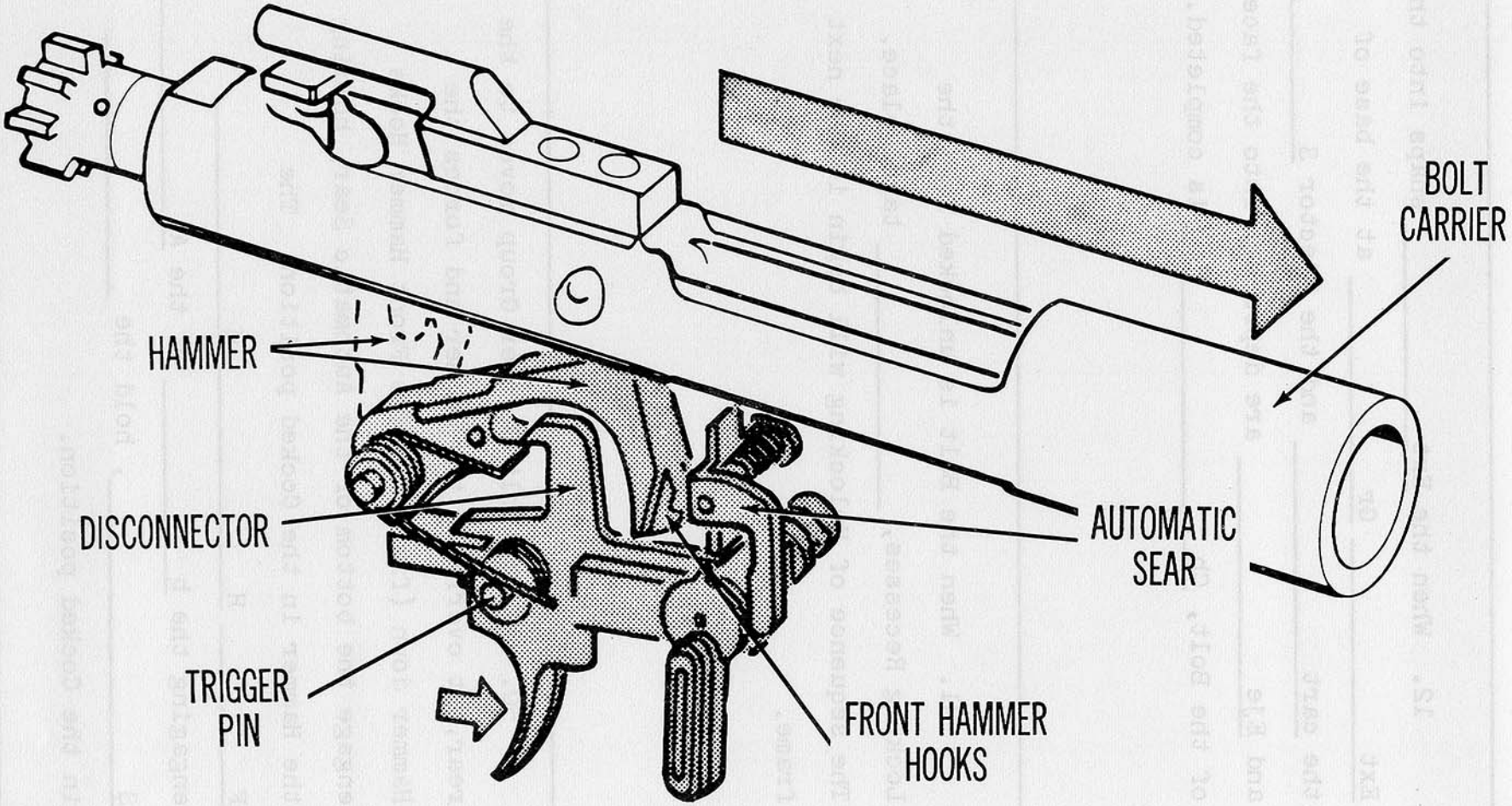
BOLT
CARRIER
HAMMER
DISCONNECTOR
AUTOMATIC
SEAR
TRIGGER
PIN
FRONT HAMMER
HOOKS

FIG. 9

Extractor Extractor Groove cartridge Spring Ejector Chambering	13. The third step in the cycle of functioning is Locking. Locking is the third step in the _____ of _____. This step is the sequence of locking the Bolt inside the Locking Recesses in the Barrel.
Unlocking	32. When the round is ignited, expanding gases force the bullet through the Barrel. As the bullet passes the Gas Port located at the rear of the Front Sight, some of the gases escape into the Gas Port and pass through it into the Gas Tube running along the top of the Barrel. Escaping gases pass through the G_____ Port into the G_____ T_____ running along the _____ of the Barrel.
Front Hammer Hooks bottom Automatic Sear Hammer	51. With the Front Hammer Hooks engaged in the bottom of the Automatic Sear, the Bolt Carrier Group moves forward, strikes the top of the Automatic Sear, and releases the Hammer (fig. 9). The B_____ C_____ G_____ strikes the t_____ of the A_____ S_____ and releases the H_____.

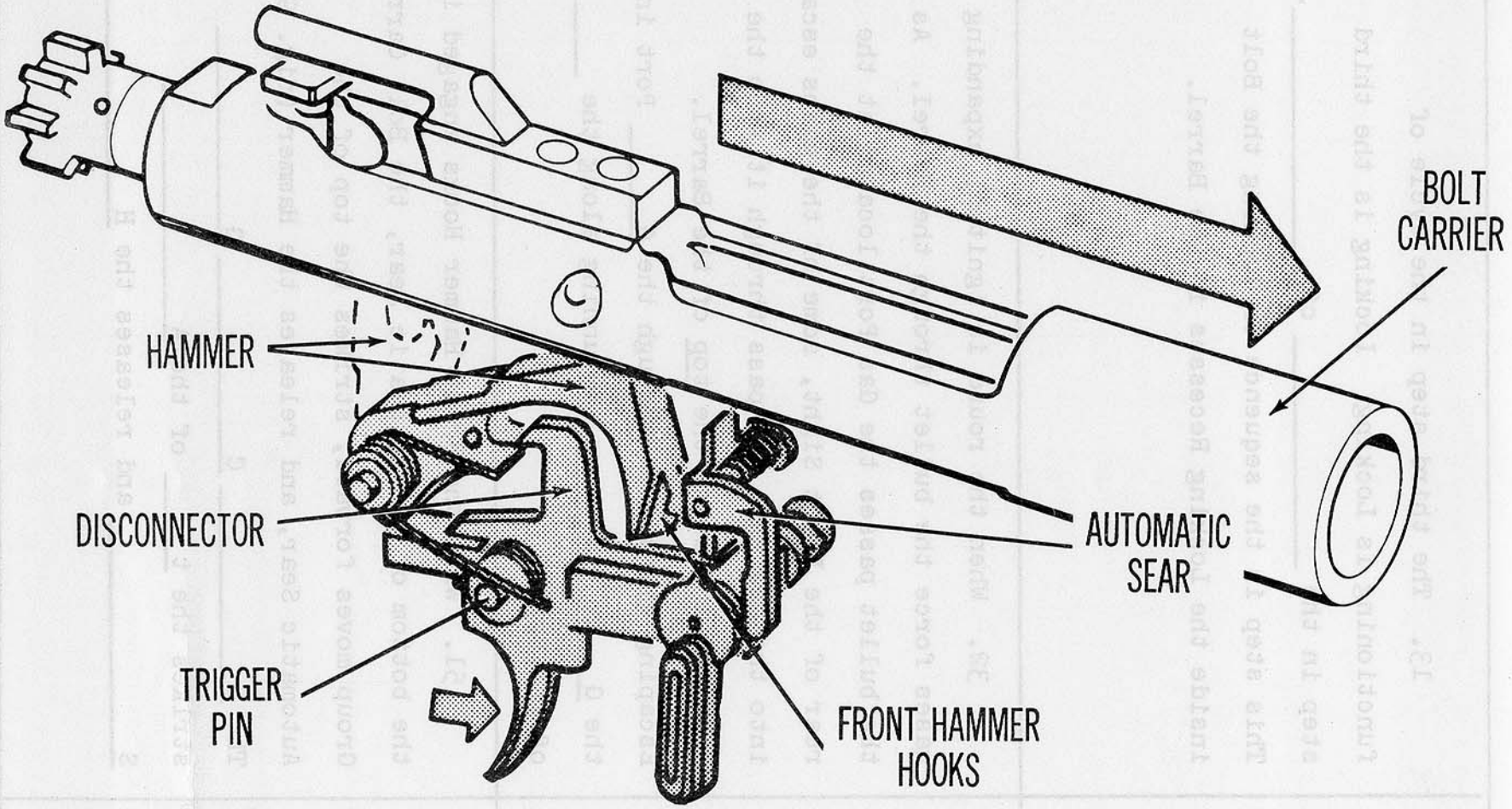
BOLT
CARRIER
HAMMER
DISCONNECTOR
AUTOMATIC
SEAR
TRIGGER
PIN
FRONT HAMMER
HOOKS

FIG. 9

cycle functioning	14. In the cycle of functioning of the M16A1 rifle, the step in which the _____ is locked inside the Lock _____ Rec _____ in the Barrel is called Locking. Locking occurs after the round has been Chambered.
Gas Gas Tube top	33. The Gas Tube directs the gas into the cylinder between the Bolt and Bolt Carrier, forcing the Bolt Carrier to move to the rear. The gas that is directed between the B _____ and B _____ C _____ forces the Bolt Carrier to move to the _____.
Bolt Carrier Group top Automatic Sear Hammer	52. As long as the Trigger is held to the rear, the weapon will continue to fire automatically until the Trigger is released. When the Trigger is released, the Nose of the Trigger moves up into the Trigger Notch on the Hammer, holding the Hammer in the Cocked position.

Bolt Locking Recesses	15. The Action Spring Buffer Assembly pushes forward on the Bolt Group, forcing the Bolt to rotate counterclockwise (fig. 3) inside the Locking Recesses in the Barrel. The B_____ G_____ is pushed forward by the Action S_____ Buffer A_____, forcing the Bolt to rotate _____ (clockwise - counterclockwise) inside the L_____ R_____ in the Barrel.
Bolt Bolt Carrier rear	34. As the Bolt C_____ is moved to the rear, the Cam Slot in the upper surface of the Bolt Carrier causes the Cam Pin and Bolt to rotate, unlocking the Locking Lugs on the Bolt from the Locking Recesses in the Barrel (fig. 5).
	53. For ease of understanding, you have studied the _____ of _____ in eight steps. You must know how the rifle functions in every sequence.

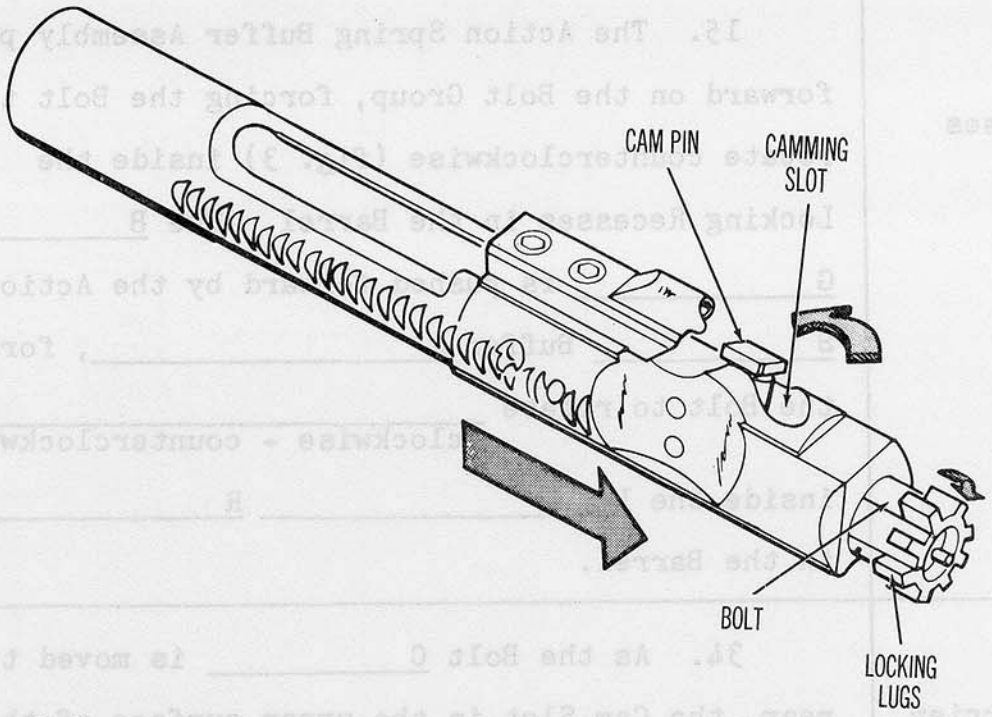
CAM PIN
CAMMING SLOT
BOLT
LOCKING LUGS

Fig. 3

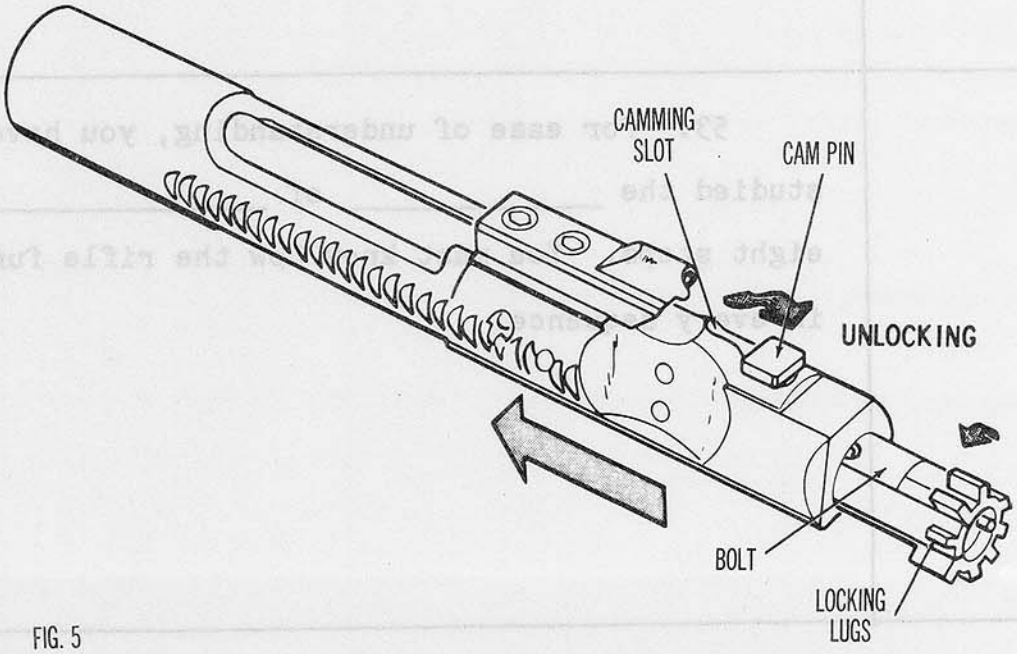
CAMMING SLOT
CAM PIN
UNLOCKING
BOLT
LOCKING LUGS

FIG. 5

Bolt Group Spring Assembly counterclock-wise Locking Recesses	16. In the last one-half inch of forward travel of the Bolt, the Cam Pin (fig. 3) turns in the Caming Slot in the Bolt Carrier and rotates the Bolt, forcing the Bolt Carrier to move forward over the Bolt.
Carrier	35. The Cam Slot in the Bolt _____ causes the Cam P_____ and B_____ to rotate, unlocking the L_____ L_____ on the Bolt from the Locking R_____ in the Barrel.
cycle functioning	54. Let's go over the eight steps in the cycle of functioning once more. When a round is positioned in the Magazine in the path of the Bolt, _____ occurs. When a round is stripped from the Magazine and placed in the Chamber, _____ occurs.

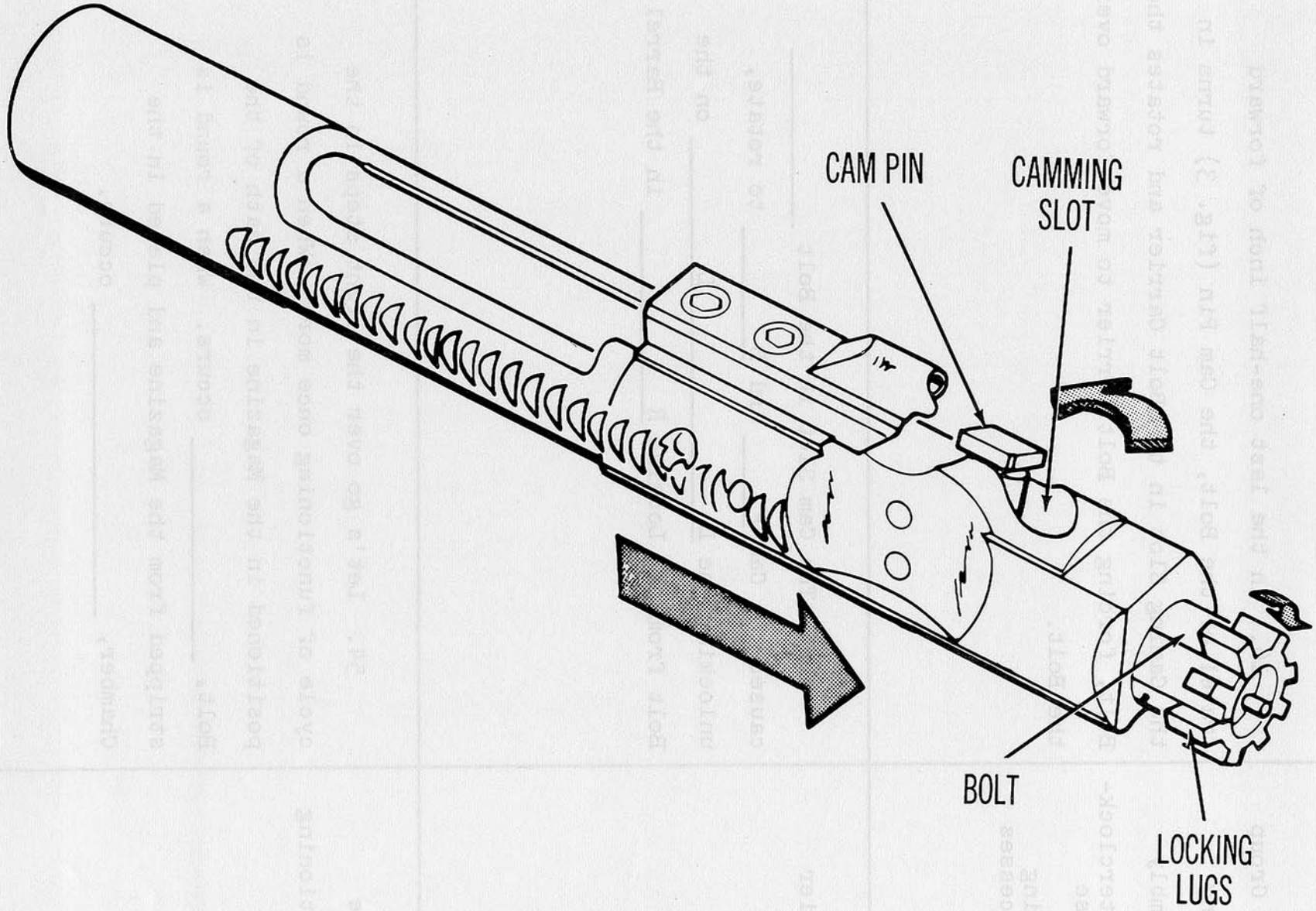

Fig. 3

	17. When the Locking Lugs on the Bolt are seated in the Barrel, the Cam Pin is turned by the Bolt Carrier. This action rotates the Bolt Locking Lugs into the Lo_____ R_____ in the Barrel and moves the Bolt Carrier forward over the Bolt. Thus _____ is completed.
Carrier Pin Bolt Locking Lugs Recesses	36. The sixth step in the cycle of functioning is Extracting. Extracting is the sixth step in the _____ of _____.
Feeding Chambering	55. When the Bolt is locked inside the Locking Recesses in the Barrel, _____ occurs. When the Firing Pin strikes and detonates the primer of the rounds, _____ occurs. When the Bolt is unlocked from the Locking Recesses in the Barrel, _____ occurs.

Locking Recesses Locking	18. By now you should understand Feeding, Chambering, and Locking. If you do not understand the cy _____ of func _____ up to this point, go back to the part that is not clear to you and study the necessary step or steps so that your understanding is complete. If you understand Feeding, Chambering, and Locking, continue in the fourth step in the cycle of functioning which is called Firing.
cycle functioning	37. The action that takes place when the spent cartridge is removed from the Chamber is called extracting. As the Bolt Group moves to the rear, the Extractor Claw grips the Extractor Groove at the base of the cartridge (fig. 6), pulling the cartridge to the rear and out of the Chamber.
Locking Firing Unlocking	56. When the empty cartridge case is pulled from the Chamber, _____ occurs. When the empty cartridge case is thrown from the Receiver, _____ occurs. When the Nose of the Trigger engages the Trigger Notch on the Hammer, _____ occurs.

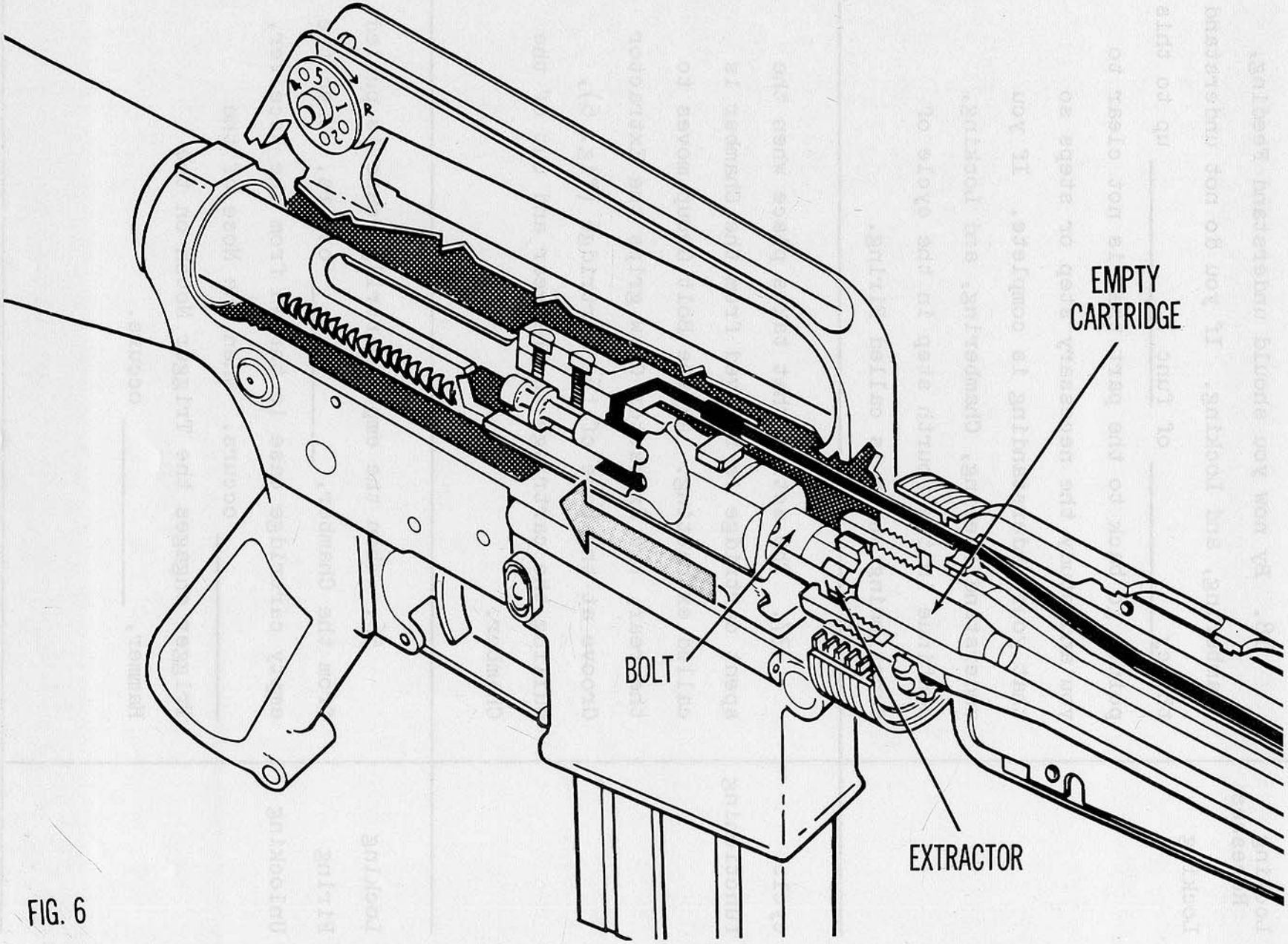

FIG. 6

cycle functioning	19. The fourth step in the _____ of _____ is called Firing. When the Firing Pin strikes and detonates the primer of the round, _____ occurs. RETURN TO PAGE 1.
	38. The Extractor C_____ grips the E_____ G_____ at the base of the cartridge, and as the Bolt Carrier and B_____ move to the rear, pulls the empty cartridge from the _____. When the front of the cartridge case clears the rear of the Chamber, Extracting is completed. RETURN TO PAGE 1.
Extracting Ejecting Cocking	57. This concludes your study on the cycle of functioning. You should now be able to explain each of the eight steps in the cycle of functioning of the M16A1 rifle. If you are in doubt, turn back to the frame or frames that are not clear to you and study the sequence once more. If you understand the cycle of functioning, you are now ready to take the criterion test.

SECTION II

MALFUNCTIONING

All of the information up to this point has given you the background that you will need to detect and correct malfunctions on the M16A1 rifle. This last section, which deals with malfunctions, is intended to teach you to detect and correct malfunctions that you will be authorized to make at organizational level.

Turn the page and begin working on section II.

	1. A malfunction is a failure of a rifle to function satisfactorily. The term used to describe a rifle's failure to perform satisfactorily is "_____." Defective ammunition or improper operation by the rifleman is not considered a malfunction of the rifle.
Chamber	22. According to Table 2, there are six probable causes for a rifle failing to Chamber: a weak or broken _____ _____; a restricted Action Spring _____; a bent Bolt Carrier _____; a bent Gas Tube inside Receiver; a restricted _____; or a frozen _____.
Unlock	43. You would follow the usual safety precautions and disassemble the rifle. According to Table 2, you would check for a burred or _____ Cam Pin or a burred Cam _____ in the Bolt _____.

Table 2 (Continued)

Malfunction	Probable Cause	Corrective Action
Failure to Fire (automatic).....	Firing Pin broken.....	*Replace Firing Pin (fig. 3-5).
	Firing Pin Retaining Pin broken....	*Replace Firing Pin Retaining Pin (fig. 3-5).
	Hammer broken.....	Return to Direct Support Maintenance Personnel.
	Hammer Pin broken.....	Return to Direct Support Maintenance Personnel.
	Hammer Spring weak or broken.....	Return to Direct Support Maintenance Personnel.
	Trigger broken.....	Return to Direct Support Maintenance Personnel.
	Automatic Sear defective on top....	Return to Direct Support Maintenance Personnel.
	Automatic Sear Pin broken.....	Return to Direct Support Maintenance Personnel.
Failure to Unlock...	Gas Port restricted.....	Clean
	Gas Tube on top of Barrel broken or crimped.....	Return to Direct Support Maintenance Personnel.
	Bolt Carrier Key split.....	Return to Direct Support Maintenance Personnel.
	Bolt Rings carboned or broken.....	Clean (par 3-27d). Return to Direct Support Maintenance Personnel.
	Cam Pin burred or broken.....	Replace Cam Pin (fig. 3-5).
	Cam Slot in Bolt Carrier burred....	Return to Direct Support Maintenance Personnel.

*TM 9-1005-249-14

Table 2 Troubleshooting Chart

Malfunction	Probable Cause	Corrective Action
Failure to Feed.....	Magazine Catch Spring weak or broken.....	Return to Direct Support Maintenance Personnel.
	Magazine Catch defective.....	Return to Direct Support Maintenance Personnel.
	Magazine lips burred or broken.....	Replace Magazine.
	Magazine Follower bent.....	Replace Magazine.
	Magazine Spring weak or broken.....	Replace Magazine.
	Magazine dented.....	Replace Magazine.
Failure to Chamber..	Action Spring weak or broken.....	Return to Direct Support Maintenance Personnel.
	Action Spring Guide restricted.....	Return to Direct Support Maintenance Personnel.
	Bolt Carrier Key bent.....	Return to Direct Support Maintanance Personnel.
	Gas Tube bent inside Receiver.....	Return to Direct Support Maintenance Personnel.
	Extractor restricted.....	*Replace Extractor (fig. 3-5).
	Ejector frozen.....	*Clean (par. 3-8). *Replace Ejector (fig. 3-5A).

*TM 9-1005-249-14.

malfunction	2. Improper _____ of the rifle by the rifleman or defective _____ is not considered a malfunction. A misfire, hangfire, or cook-off is not classed as a common malfunction. When correcting any malfunction, whether you study it or not, follow procedures outlined in TM 9-1005-249-14 and FM 23-9. Repair parts, tools, and equipment authorized for an Organizational Armorer are listed in TM 9-1005-249-14.
Action Spring Guide Key Extractor Ejector	23. Refer to Table 2 again. There are four probable causes that do not come within the scope of your responsibility. If after inspection, you find the Action Spring Guide _____ or broken, the Action Spring Guide _____, the Bolt Carrier Key _____, or the Gas Tube _____ the Receiver bent, return the rifle to your S_____ M_____ P_____.
broken Slot Carrier	44. If the C_____ P_____ was burred or _____, you would replace it; if the C_____ S_____ in the _____ Carrier was burred, you would return your rifle to S_____ Maintenance P_____. You would also check for a restricted Gas Port. If the Gas _____ was restricted, you would clean it.

Table 2 Troubleshooting Chart

Malfunction	Probable Cause	Corrective Action
Failure to Feed.....	Magazine Catch Spring weak or broken.....	Return to Direct Support Maintenance Personnel.
	Magazine Catch defective.....	Return to Direct Support Maintenance Personnel.
	Magazine lips burred or broken.....	Replace Magazine.
	Magazine Follower bent.....	Replace Magazine.
	Magazine Spring weak or broken.....	Replace Magazine.
	Magazine dented.....	Replace Magazine.
Failure to Chamber..	Action Spring weak or broken.....	Return to Direct Support Maintenance Personnel.
	Action Spring Guide restricted.....	Return to Direct Support Maintenance Personnel.
	Bolt Carrier Key bent.....	Return to Direct Support Maintanance Personnel.
	Gas Tube bent inside Receiver.....	Return to Direct Support Maintenance Personnel.
	Extractor restricted.....	*Replace Extractor (fig. 3-5).
	Ejector frozen.....	*Clean (par. 3-8). *Replace Ejector (fig. 3-5A).

*TM 9-1005-249-14.

operation ammunition	3. Whenever you use any manual or source of information relating to your official duties as an Armorer, make certain that you are using the latest information. You have studied gen _____ disassembly and assembly, de _____ disassembly and assembly, and cycle of func _____ of the M16 rifle. All of your studies have been for the purpose of preparing you to detect and correct any malfunction within the scope of your responsibilities.
weak restricted bent inside Support Maintenance Personnel	24. According to Table 2, there are two probable causes that come within the scope of your responsibility that could cause a failure to Chamber: a restricted _____; or Ejector _____ in the forward position. If a restricted Extractor caused the failure to Chamber, you must _____ it. If the E _____ was frozen, you must either _____ or _____ it.
Cam Pin broken Cam Slot Bolt Support Personnel Port	45. You refer to the Troubleshooting Chart, Table 2, for further clarification and find that any further trouble is referred to your Support Maintenance Personnel. Failure to Unlock could also be caused by a broken or crimped G _____ Tube, a split Bolt Carrier Key, or carboned or broken B _____ R _____. If any of these malfunctions occurred other than carbon on the B _____ Rings, you would send the rifle to your Support Maintenance Personnel.

Table 2 Troubleshooting Chart

Malfunction	Probable Cause	Corrective Action
Failure to Feed.....	Magazine Catch Spring weak or broken.....	Return to Direct Support Maintenance Personnel.
	Magazine Catch defective.....	Return to Direct Support Maintenance Personnel.
	Magazine lips burred or broken.....	Replace Magazine.
	Magazine Follower bent.....	Replace Magazine.
	Magazine Spring weak or broken.....	Replace Magazine.
	Magazine dented.....	Replace Magazine.
Failure to Chamber..	Action Spring weak or broken.....	Return to Direct Support Maintenance Personnel.
	Action Spring Guide restricted.....	Return to Direct Support Maintenance Personnel.
	Bolt Carrier Key bent.....	Return to Direct Support Maintanance Personnel.
	Gas Tube bent inside Receiver.....	Return to Direct Support Maintenance Personnel.
	Extractor restricted.....	*Replace Extractor (fig. 3-5).
	Ejector frozen.....	*Clean (par. 3-8). *Replace Ejector (fig. 3-5A).

*TM 9-1005-249-14.

Table 2 (Continued)

Malfunction	Probable Cause	Corrective Action
Failure to Fire (automatic).....	Firing Pin broken.....	*Replace Firing Pin (fig. 3-5).
	Firing Pin Retaining Pin broken....	*Replace Firing Pin Retaining Pin (fig. 3-5).
	Hammer broken.....	Return to Direct Support Maintenance Personnel.
	Hammer Pin broken.....	Return to Direct Support Maintenance Personnel.
	Hammer Spring weak or broken.....	Return to Direct Support Maintenance Personnel.
	Trigger broken.....	Return to Direct Support Maintenance Personnel.
	Automatic Sear defective on top....	Return to Direct Support Maintenance Personnel.
	Automatic Sear Pin broken.....	Return to Direct Support Maintenance Personnel.
Failure to Unlock...	Gas Port restricted.....	Clean
	Gas Tube on top of Barrel broken or crimped.....	Return to Direct Support Maintenance Personnel.
	Bolt Carrier Key split.....	Return to Direct Support Maintenance Personnel.
	Bolt Rings carboned or broken.....	Clean (par 3-27d). Return to Direct Support Maintenance Personnel.
	Cam Pin burred or broken.....	Replace Cam Pin (fig. 3-5).
	Cam Slot in Bolt Carrier burred....	Return to Direct Support Maintenance Personnel.

*TM 9-1005-249-14

general detail functioning	4. Under Maintenance Function, Table 1, you will notice columns with numbers 1, 2, or 3. The numbers under the columns of Maintenance Function in the Maintenance All Chart indicate the Maintenance Level responsible for performing a particular maintenance function. The levels of maintenance responsible for a given function are indicated below Table 1.
Extractor frozen replace Ejector clean replace	25. Your unit is still on the range, firing the M16A1 rifle. A rifleman approaches you, the Armorer, and says, "This rifle isn't working right. The rounds come up into the Chamber okay, but the Bolt stops at this point." You immediately realize that the rifle is failing to _____.
Gas Bolt Rings Bolt	46. Your unit remains on the range, firing the M16A1 rifle. A rifleman brings his rifle to you, the Armorer, and says, "When I fire my rifle, the empty cartridge stays in the Chamber." You conclude that the rifle is failing to _____.

MAINTENANCE ALLOCATION CHART
FOR
RIFLES, 5.56-MM, M16 AND XM16E1

Table 1

(1) GROUP NO.	(2) FUNCTIONAL GROUP	(3) MAINTENANCE FUNCTION										(4) TOOLS & EQUIP.	(5) REMARKS
		INSPECT	TEST	SERVICE	ADJUST	ALIGN	CALIBRATE	INSTALL	REPLACE	REPAIR	OVERHAUL	REBUILD	
1	Magazine Assembly	1	-	1	-	-	-	1	1	3	-	-	
2	Bolt Carrier Group	2	-	1	-	-	-	1	3	2	-	-	
3	Upper Receiver Group	2	-	1	-	-	-	3	3	2	-	-	
4	Barrel and Front Sight Assembly	2	-	1	1	-	-	3	3	3	-	-	
5	Rear Sight	2	-	1	1	-	-	3	3	3	-	-	
6	Hand Guard Assembly	2	-	1	-	-	-	1	2	-	-	-	
7	Lower Receiver Group	2	-	1	-	-	-	-	3	2	-	-	
8	Stock Assembly	2	-	1	-	-	-	2	2	3	-	-	
9	Rifle Bipod	2	-	1	-	-	-	1	3	3	-	-	

*Pistol grip and retainer screw only.

Number	Explanation
1	Operator or Crew
2	Organizational
3	Direct Support

Table 2 (Continued)

Malfunction	Probable Cause	Corrective Action
Failure to Lock.....	Bolt Rings broken.....	Return to Direct Support Maintenance Personnel.
	Carbon build up in Bolt Carrier....	*Clean Bolt Carrier. (par. 3-8).
	Locking Lugs on front of Bolt burred.....	Return to Direct Support Maintenance Personnel.
	Locking Recesses in Breech burred.....	Return to Direct Support Maintenance Personnel.
	Action Spring weak or broken.....	Return to Direct Support Maintenance Personnel.
	Cam Pin broken or burred.....	*Replace Cam Pin (fig. 3-5).
	Camming Slot in Bolt Carrier burred.....	Return to Direct Support Maintenance Personnel.
Failure to Fire (semiautomatic)...	Firing Pin broken.....	Replace Firing Pin (fig. 3-5).
	Firing Pin Retaining Pin broken....	Replace Firing Pin Retaining Pin (fig. 3-5).
	Hammer broken.....	Return to Direct Support Maintenance Personnel.
	Hammer Spring weak or broken.....	Return to Direct Support Maintenance Personnel.
	Hammer Pin broken.....	Return to Direct Support Maintenance Personnel.
	Trigger Pin broken.....	Return to Direct Support Maintenance Personnel.

*TM 9-1005-249-14.

Allocation	5. The number 1, 2, or 3 in certain columns indicates the Main _____ Level responsible for performing a particular maintenance function. The number "1" in the chart below Table 1 indicates that Operator or Crew handling the rifle is responsible for a particular maintenance function. The number "2" in a Maintenance Function column indicates your responsibility as Unit Armorer. The number "___" indicates the Maintenance Level of the Organizational Armorer.
Lock	26. According to Table 2, there are several probable causes for a failure to Lock, but only two of them come within the scope of your responsibility. They are: broken or burred C _____ P _____ or carbon buildup in the Bolt C _____. If the Cam Pin is broken or _____, it will cause a failure to _____.
Extract	47. According to Table 2, there are three probable causes for the malfunction: insufficient _____; a broken Ex _____; or a weak or broken Ex _____ Sp _____.

MAINTENANCE ALLOCATION CHART
FOR
RIFLES, 5.56-MM, M16 AND XM16E1

Table 1

(1)	(2)	(3) MAINTENANCE FUNCTION										(4)	(5)
GROUP NO.	FUNCTIONAL GROUP	INSPECT	TEST	SERVICE	ADJUST	ALIGN	CALIBRATE	INSTALL	REPLACE	REPAIR	OVERHAUL	REBUILD	TOOLS & EQUIP.	REMARKS
1	Magazine Assembly	1	-	1	-	-	-	1	1	3	-	-		
2	Bolt Carrier Group	2	-	1	-	-	-	1	3	2	-	-		
3	Upper Receiver Group	2	-	1	-	-	-	3	3	2	-	-		
4	Barrel and Front Sight Assembly	2	-	1	1	-	-	3	3	3	-	-		
5	Rear Sight	2	-	1	1	-	-	3	3	3	-	-		
6	Hand Guard Assembly	2	-	1	-	-	-	1	2	-	-	-		
7	Lower Receiver Group	2	-	1	-	-	-	-	3	*2	-	-		
8	Stock Assembly	2	-	1	-	-	-	2	2	3	-	-		
9	Rifle Bipod	2	-	1	-	-	-	1	3	3	-	-		

*Pistol grip and retainer screw only.

Number	Explanation
1	Operator or Crew
2	Organizational
3	Direct Support

Table 2 (Continued)

Malfunction	Probable Cause	Corrective Action
Failure to Extract..	Insufficient gas.....	Clean.
	Extractor broken.....	*Replace Extractor (fig. 3-5).
	Extractor Spring weak or broken....	*Replace Extractor Spring (fig. 3-5).
Failure to Eject....	Insufficient gas.....	Clean.
	Ejector frozen.....	*Clean or replace Ejector (fig. 3-5A).
	Ejector Spring weak or broken.....	*Replace Ejector Spring (fig. 3-5A).
Failure to Cock (semiautomatic)...	Disconnector broken.....	Return to Direct Support Maintenance Personnel.
	Disconnector Spring weak or broken.	Return to Direct Support Maintenance Personnel.
	Rear Hammer Hook broken.....	Return to Direct Support Maintenance Personnel.
	Nose of Trigger broken.....	Return to Direct Support Maintenance Personnel.
	Trigger Spring weak or broken.....	Return to Direct Support Maintenance Personnel.
	Trigger Notch on Hammer worn.....	Return to Direct Support Maintenance Personnel.
	Trigger Pin broken.....	Return to Direct Support Maintenance Personnel.
	Hammer Pin broken.....	Return to Direct Support Maintenance Personnel.
	Hammer Spring weak or broken.....	Return to Direct Support Maintenance Personnel.

*TM 9-1005-249-14.

Maintenance 2	6. In further preparation for this section on malfunctioning, you should know the four terms used on the Maintenance Allocation Chart which describe your responsibilities as an Armorer. These terms are INSPECT, INSTALL, REPLACE, and REPAIR. As an Armorer, your responsibilities will be to Ins _____, Ins _____, Rep _____, and Rep _____ certain parts on a malfunctioning M16A1 rifle.
Cam Pin Carrier burred Lock	27. Make certain that the weapon is clear and perform a general disassembly of it. Upon inspection of the Bolt you find that the _____ Rings are not broken. If the Bolt Rings were broken, you would send the weapon to your S _____ M _____ P _____.
gas Extractor Extractor Spring	48. Make certain that the rifle is clear and disassemble it down to the Bolt. You must then detail disassemble the Extractor and components from the Bolt Body. If you find a broken Ex _____ or Extractor _____, you must replace the defective part. If you find no further trouble in this area, you will check the other problem, _____ gas.

Inspect Install Replace Repair	7. Your responsibility, as an Armorer, will be to _____, _____, _____, and _____ certain parts on a malfunctioning M16A1 rifle. Inspect means that you will determine the serviceability of an item by comparing its physical and mechanical characteristics with established standards.
Bolt Support Maintenance Personnel	28. While inspecting the Bolt, you would check for burred L_____ L_____ on the front of the Bolt. If the Locking Lugs were _____, you would return the rifle to your S_____ M_____ P_____.
Extractor Spring insufficient	49. Your unit is still on the range, firing the M16A1 rifle, and another problem occurs. A rifleman brings his rifle to you, the Armorer, and says, "My rifle isn't working properly. It seems to fire okay but the spent cartridge fails to kick out of the Ejection Port." You immediately realize that the weapon is failing to _____.

Inspect Install Replace Repair	8. Your second responsibility, Install, is to set up for use in an operational environment such as an emplacement, site, or vehicle. Part of your job as an Organizational Armorer is to Install, that is, to set up for use in an operational environment such as an _____, _____, or _____.
Locking Lugs burred Support Maintenance Personnel	29. If the Locking Lugs on the Bolt were not burred, you would then check for _____ Locking Recesses in the _____. If the Locking _____ in the Breech were burred, you would send the rifle to _____ _____ _____.
Eject	50. The Troubleshooting Chart, Table 2, indicates that the responsibility for correction of this malfunction belongs to your maintenance level. According to the Troubleshooting Chart, the probable causes of the rifle failing to Eject would be a frozen Eje_____, a weak or broken Ejector _____, or insufficient _____.

Table 2 (Continued)

Malfunction	Probable Cause	Corrective Action
Failure to Extract..	Insufficient gas.....	Clean.
	Extractor broken.....	*Replace Extractor (fig. 3-5).
	Extractor Spring weak or broken....	*Replace Extractor Spring (fig. 3-5).
Failure to Eject....	Insufficient gas.....	Clean.
	Ejector frozen.....	*Clean or replace Ejector (fig. 3-5A).
	Ejector Spring weak or broken.....	*Replace Ejector Spring (fig. 3-5A).
Failure to Cock (semiautomatic)...	Disconnector broken.....	Return to Direct Support Maintenance Personnel.
	Disconnector Spring weak or broken.	Return to Direct Support Maintenance Personnel.
	Rear Hammer Hook broken.....	Return to Direct Support Maintenance Personnel.
	Nose of Trigger broken.....	Return to Direct Support Maintenance Personnel.
	Trigger Spring weak or broken.....	Return to Direct Support Maintenance Personnel.
	Trigger Notch on Hammer worn.....	Return to Direct Support Maintenance Personnel.
	Trigger Pin broken.....	Return to Direct Support Maintenance Personnel.
	Hammer Pin broken.....	Return to Direct Support Maintenance Personnel.
	Hammer Spring weak or broken.....	Return to Direct Support Maintenance Personnel.

*TM 9-1005-249-14.

emplacement site vehicle	9. According to the Maintenance Level indicated in the Maintenance Allocation _____, Table 1, your third responsibility is to replace unserviceable items with serviceable assemblies, subassemblies, or parts.
burred Breech Recesses Support Maintenance Personnel	30. A burred C_____ S_____ in the Bolt C_____ could cause a failure to Lock. If the Camming Slot in the _____ Carrier was burred, you would send the weapon to your Support Maintenance Personnel.
Ejector Spring gas	51 You would follow the usual safety precautions and disassemble the rifle until you remove the Ej_____ and Ejector _____. If the Ejector is frozen or damaged, you would have a difficult time removing it in order to replace it, as indicated in the Troubleshooting Chart. If you do not find anything wrong with the Ejector or Ejector Spring, make certain they are clean before you replace them in the Bolt.

MAINTENANCE ALLOCATION CHART
FOR
RIFLES, 5.56-MM, M16 AND XM16E1

Table 1

(1) GROUP NO.	(2) FUNCTIONAL GROUP	(3) MAINTENANCE FUNCTION											(4) TOOLS & EQUIP.	(5) REMARKS
		INSPECT	TEST	SERVICE	ADJUST	ALIGN	CALIBRATE	INSTALL	REPLACE	REPAIR	OVERHAUL	REBUILD		
1	Magazine Assembly	1	-	1	-	-	-	1	1	3	-	-		
2	Bolt Carrier Group	2	-	1	-	-	-	1	3	2	-	-		
3	Upper Receiver Group	2	-	1	-	-	-	3	3	2	-	-		
4	Barrel and Front Sight Assembly	2	-	1	1	-	-	3	3	3	-	-		
5	Rear Sight	2	-	1	1	-	-	3	3	3	-	-		
6	Hand Guard Assembly	2	-	1	-	-	-	1	2	-	-	-		
7	Lower Receiver Group	2	-	1	-	-	-	-	3	*2	-	-		
8	Stock Assembly	2	-	1	-	-	-	2	2	3	-	-		
9	Rifle Bipod	2	-	1	-	-	-	1	3	3	-	-		

*Pistol grip and retainer screw only.

Number	Explanation
1	Operator or Crew
2	Organizational
3	Direct Support

Chart	10. Your fourth responsibility is Repair. When the Maintenance Allocation Chart indicates that a particular malfunction is to be corrected at your maintenance level, you must restore an item to serviceable condition. This includes but is not limited to inspection, cleaning, preserving, and replacing. You, as an Armorer, must repair a mal _____ weapon.
Cam Slot Carrier Bolt	31. After inspecting the M16A1 rifle, and not finding broken B _____ R _____, carbon buildup in the Bolt C _____, burred Locking Lugs on the _____, burred Locking Recesses in the _____, or the Cam Pin or Cam Slot burred, you would then check for a weak or broken A _____ S _____. If the Action Spring was weak or broken, you would return the rifle to your Support Maintenance _____.
Ejector Spring	52. You would also inspect the Ej _____ S _____ carefully to find if it was broken or if it had lost tension. If you found this was the trouble, you would replace the Ejector Spring with a new spring. You will find that the Troubleshooting Chart is a great help to you in performing your duties as an Organizational Armorer.

malfunc-tioning	11. You have studied your responsibilities as designated by the Maintenance _____ Chart. You will now proceed into the heart of your entire course of instruction, TROUBLESHOOTING.
Bolt Rings Carrier Bolt Breech Action Spring Personnel	32. Your unit remains on the range, firing the M16A1 rifle. A rifleman approaches you, the Armorer, and says, "This rifle isn't working right in the semiautomatic position. The rounds come up in the rifle okay, but when I squeeze the Trigger, nothing happens." You immediately realize, of course, that the rifle is failing to _____.
Ejector Spring	53. Here's another problem. Your unit remains on the range, firing the M16A1 rifle. A rifleman brings his rifle to you, the Armorer, and says, "My rifle won't fire. The Trigger doesn't have any tension. I squeeze the Trigger and nothing happens." You realize, of course, that the rifle is failing to _____.

Allocation	12. Troubleshooting includes studying trouble signs systematically, testing to determine the defective component, and taking corrective action. Each malfunction that you study is followed by probable causes and suggested procedures to be followed. The systematic study of trouble signs is called trou_____.
Fire	33. Upon inquiry, the rifleman informs you that he tried several rounds of ammunition in the rifle, but it failed to Fire in each instance. You realize that since the rifleman tried to fire more than one round, the malfunctioning problem _____ (is - is not) defective ammunition.
Cock	54. According to Table 2, there are many reasons for the rifle failing to Cock, but none come within the scope of your responsibility. The rifle may fail to Cock in either the semiautomatic position or the automatic position. Failure to Cock in the semiautomatic position will be covered first.

Table 2 (Continued)

Malfunction	Probable Cause	Corrective Action
Failure to Extract..	Insufficient gas.....	Clean.
	Extractor broken.....	*Replace Extractor (fig. 3-5).
	Extractor Spring weak or broken....	*Replace Extractor Spring (fig. 3-5).
Failure to Eject....	Insufficient gas.....	Clean.
	Ejector frozen.....	*Clean or replace Ejector (fig. 3-5A).
	Ejector Spring weak or broken.....	*Replace Ejector Spring (fig. 3-5A).
Failure to Cock (semiautomatic)...	Disconnector broken.....	Return to Direct Support Maintenance Personnel.
	Disconnector Spring weak or broken.	Return to Direct Support Maintenance Personnel.
	Rear Hammer Hook broken.....	Return to Direct Support Maintenance Personnel.
	Nose of Trigger broken.....	Return to Direct Support Maintenance Personnel.
	Trigger Spring weak or broken.....	Return to Direct Support Maintenance Personnel.
	Trigger Notch on Hammer worn.....	Return to Direct Support Maintenance Personnel.
	Trigger Pin broken.....	Return to Direct Support Maintenance Personnel.
	Hammer Pin broken.....	Return to Direct Support Maintenance Personnel.
	Hammer Spring weak or broken.....	Return to Direct Support Maintenance Personnel.

*TM 9-1005-249-14.

trouble-shooting	13. When you study trou _____ signs, you must _____ to determine the defective components and take corrective action. From time to time you will be referred to Table 2 as you study certain areas in Troubleshooting. Table 2 is a Troubleshooting Chart that is intended to help you study trouble signs, determine the defective component, and take corrective action (if the action is within the scope of your responsibility).
is not	34. According to Table 2, there are six probable causes for an M16 rifle failing to Fire: a broken Fir _____ P _____; a broken Firing Pin Re _____ P _____; a broken Ham _____; a weak or broken H _____ S _____; or a broken H _____ Pin or T _____ Pin.
	55. You would follow the usual safety precautions and disassemble the weapon. According to Table 2, you would inspect the Lower Receiver Group for the following: a _____ Disconnector; a weak or broken Dis _____ Sp _____; a _____ Rear Hammer Hook; the Nose of the Tri _____ broken; or a weak or broken Tri _____ Sp _____. If the Disconnector Spring was broken, the Rear Hammer Hook Broken, the Nose of the Trigger broken, or the Trigger Spring weak or broken, you would return the rifle to your _____ Maintenance Personnel.

Table 2 (Continued)

Malfunction	Probable Cause	Corrective Action
Failure to Lock.....	Bolt Rings broken.....	Return to Direct Support Maintenance Personnel.
	Carbon build up in Bolt Carrier....	*Clean Bolt Carrier. (par. 3-8).
	Locking Lugs on front of Bolt burred.....	Return to Direct Support Maintenance Personnel.
	Locking Recesses in Breech burred.....	Return to Direct Support Maintenance Personnel.
	Action Spring weak or broken.....	Return to Direct Support Maintenance Personnel.
	Cam Pin broken or burred.....	*Replace Cam Pin (fig. 3-5).
	Camming Slot in Bolt Carrier burred.....	Return to Direct Support Maintenance Personnel.
Failure to Fire (semiautomatic)...	Firing Pin broken.....	Replace Firing Pin (fig. 3-5).
	Firing Pin Retaining Pin broken....	Replace Firing Pin Retaining Pin (fig. 3-5).
	Hammer broken.....	Return to Direct Support Maintenance Personnel.
	Hammer Spring weak or broken.....	Return to Direct Support Maintenance Personnel.
	Hammer Pin broken.....	Return to Direct Support Maintenance Personnel.
	Trigger Pin broken.....	Return to Direct Support Maintenance Personnel.

*TM 9-1005-249-14.

Table 2 (Continued)

Malfunction	Probable Cause	Corrective Action
Failure to Extract..	Insufficient gas.....	Clean.
	Extractor broken.....	*Replace Extractor (fig. 3-5).
	Extractor Spring weak or broken....	*Replace Extractor Spring (fig. 3-5).
Failure to Eject....	Insufficient gas.....	Clean.
	Ejector frozen.....	*Clean or replace Ejector (fig. 3-5A).
	Ejector Spring weak or broken.....	*Replace Ejector Spring (fig. 3-5A).
Failure to Cock (semiautomatic)...	Disconnector broken.....	Return to Direct Support Maintenance Personnel.
	Disconnector Spring weak or broken.	Return to Direct Support Maintenance Personnel.
	Rear Hammer Hook broken.....	Return to Direct Support Maintenance Personnel.
	Nose of Trigger broken.....	Return to Direct Support Maintenance Personnel.
	Trigger Spring weak or broken.....	Return to Direct Support Maintenance Personnel.
	Trigger Notch on Hammer worn.....	Return to Direct Support Maintenance Personnel.
	Trigger Pin broken.....	Return to Direct Support Maintenance Personnel.
	Hammer Pin broken.....	Return to Direct Support Maintenance Personnel.
	Hammer Spring weak or broken.....	Return to Direct Support Maintenance Personnel.

*TM 9-1005-249-14.

trouble test	14. Table 2 is intended as a guide in Trou _____. This table does not cover all possible malfunctions that may occur. Only the more common malfunctions are indicated in the Trouble-shooting Chart. The tests and corrective actions noted are within the scope of your responsibility as an Organizational Armorer.
Firing Pin Retaining Pin Hammer Hammer Spring Hammer Trigger	35. Make certain that the weapon is clear, and disassemble it down to the Bolt. Upon inspection of the F _____ P _____, you find no damage. If the Firing Pin had been broken, you would have replaced it, and at the same time, you would have checked the Firing P _____ R _____ P _____. A broken Firing Pin Retaining Pin would cause a failure to _____.
broken Disconnector Spring broken Trigger Trigger Spring Support	56. In the inspection of the Lower Receiver Group, according to the Troubleshooting Chart, there are four more probable causes for a Failure to Cock in the semiautomatic position, and they are: a worn Tri _____ Notch on the Hammer; a broken Tri _____ P _____ or broken Ham _____ P _____; and a weak or broken Ham _____ Sp _____.

Table 2 (Continued)

Malfunction	Probable Cause	Corrective Action
Failure to Extract..	Insufficient gas.....	Clean.
	Extractor broken.....	*Replace Extractor (fig. 3-5).
	Extractor Spring weak or broken....	*Replace Extractor Spring (fig. 3-5).
Failure to Eject....	Insufficient gas.....	Clean.
	Ejector frozen.....	*Clean or replace Ejector (fig. 3-5A).
	Ejector Spring weak or broken.....	*Replace Ejector Spring (fig. 3-5A).
Failure to Cock (semiautomatic)...	Disconnector broken.....	Return to Direct Support Maintenance Personnel.
	Disconnector Spring weak or broken.	Return to Direct Support Maintenance Personnel.
	Rear Hammer Hook broken.....	Return to Direct Support Maintenance Personnel.
	Nose of Trigger broken.....	Return to Direct Support Maintenance Personnel.
	Trigger Spring weak or broken.....	Return to Direct Support Maintenance Personnel.
	Trigger Notch on Hammer worn.....	Return to Direct Support Maintenance Personnel.
	Trigger Pin broken.....	Return to Direct Support Maintenance Personnel.
	Hammer Pin broken.....	Return to Direct Support Maintenance Personnel.
	Hammer Spring weak or broken.....	Return to Direct Support Maintenance Personnel.

*TM 9-1005-249-14.

Trouble-shooting	15. Table 2 should help in your study of malfunctions, tests for defective components, and _____ actions that you will take when you are presented with specific malfunction problems on an M16 rifle. Keep in mind that Table 2 is not the final word in information, but is meant as a guide. Additional information about a malfunctioning weapon is found in TM 9-1005-249-14 and FM 23-9.
Firing Pin Pin Retaining Pin Fire	36. According to Table 2, there are several more probable causes for a failure to Fire: a broken H_____; a weak or broken H_____ S_____; or a broken Ha_____ Pin or T_____ Pin. If after inspection of the rifle you found any of these malfunctions, you would return the rifle to your S_____ M_____ Personnel.
Trigger Trigger Pin Hammer Pin Hammer Spring	57. A worn Trigger _____ on the Hammer, a _____ Firing Pin or Hammer Pin, or a weak or _____ Hammer Spring would cause a Failure to _____ in the semiautomatic position. If any of these was the cause of the malfunction, you would return the rifle to your Support _____ Personnel.

Table 2 (Continued)

Malfunction	Probable Cause	Corrective Action
Failure to Lock.....	Bolt Rings broken.....	Return to Direct Support Maintenance Personnel.
	Carbon build up in Bolt Carrier....	*Clean Bolt Carrier. (par. 3-8).
	Locking Lugs on front of Bolt burred.....	Return to Direct Support Maintenance Personnel.
	Locking Recesses in Breech burred.....	Return to Direct Support Maintenance Personnel.
	Action Spring weak or broken.....	Return to Direct Support Maintenance Personnel.
	Cam Pin broken or burred.....	*Replace Cam Pin (fig. 3-5).
	Camming Slot in Bolt Carrier burred.....	Return to Direct Support Maintenance Personnel.
Failure to Fire (semiautomatic)...	Firing Pin broken.....	Replace Firing Pin (fig. 3-5).
	Firing Pin Retaining Pin broken....	Replace Firing Pin Retaining Pin (fig. 3-5).
	Hammer broken.....	Return to Direct Support Maintenance Personnel.
	Hammer Spring weak or broken.....	Return to Direct Support Maintenance Personnel.
	Hammer Pin broken.....	Return to Direct Support Maintenance Personnel.
	Trigger Pin broken.....	Return to Direct Support Maintenance Personnel.

*TM 9-1005-249-14.

corrective	16. At this point, refer to Table 2 across the page to your left. This table is called a Trou _____ Ch _____, and it is important to you in simplifying the steps you can take in correcting a malfunctioning M16 rifle. For any additional information needed on Table 2, see procedures outlined in TM 9-1005-249-14 and FM 23-9.
Hammer Hammer Spring Hammer Trigger Support Maintenance	37. Are you learning very much about common malfunctions? In your studies on other weapons, you will find similar problems. However, as you become a qualified Organizational Arm _____, remember that the common malfunctions that you are studying on this section are not the final word. There are others which you will be able to detect through practice and experience.
Notch broken broken Cock Maintenance	58. Failure to Cock in the amtomatic position will be covered last. Many of the probable causes for Failure to Cock are the same for automatic and semiautomatic; they are: a weak or broken Tri _____ S _____; a worn Tri _____ Notch on the Hammer; a broken Tri _____ Pin or broken Hammer P _____; and a weak or broken Hammer _____. If any of these caused a failure to Cock, you would return the rifle to your Support Maintenance Personnel.

Table 2 Troubleshooting Chart

Malfunction	Probable Cause	Corrective Action
Failure to Feed.....	Magazine Catch Spring weak or broken.....	Return to Direct Support Maintenance Personnel.
	Magazine Catch defective.....	Return to Direct Support Maintenance Personnel.
	Magazine lips burred or broken.....	Replace Magazine.
	Magazine Follower bent.....	Replace Magazine.
	Magazine Spring weak or broken.....	Replace Magazine.
	Magazine dented.....	Replace Magazine.
Failure to Chamber..	Action Spring weak or broken.....	Return to Direct Support Maintenance Personnel.
	Action Spring Guide restricted.....	Return to Direct Support Maintenance Personnel.
	Bolt Carrier Key bent.....	Return to Direct Support Maintanance Personnel.
	Gas Tube bent inside Receiver.....	Return to Direct Support Maintenance Personnel.
	Extractor restricted.....	*Replace Extractor (fig. 3-5).
	Ejector frozen.....	*Clean (par. 3-8). *Replace Ejector (fig. 3-5A).

*TM 9-1005-249-14.

Trouble-shooting Chart	17. Now you will study the causes and corrections of certain common malfunctions as you use the Trou_____ Chart. Your Unit is on the range, firing the M16 rifle. A rifleman approaches you, the Armorer, and says, "My rifle isn't working right. The round won't feed into the rifle. I've done all that I know to do, but the round still fails to go up into the rifle." You conclude that the rifle is failing to _____.
Armorer	38. Your unit is still on the range, firing the M16 rifle, and the Range Officer gives the command to position the Selector Lever to Automatic fire. A malfunction occurs during firing. A rifleman approaches you, the Armorer, and says, "My rifle fired okay on semiautomatic fire, but when I switched the Selector Lever to automatic and squeezed the Trigger nothing happened." You immediately realize that the rifle is failing to _____ in the auto_____ position.
Trigger Spring Trigger Trigger Pin Spring	59. According to Table 2, there are several more probable causes for a rifle failing to _____. They are: the L_____ on bottom of the Auto_____ S_____ is broken or defective; the Auto_____ Sear Sp_____ is weak or broken; the Leg of the _____ Sear is broken; or the Fr_____ Ham_____ H_____ is broken.

Table 2 (Continued)

Malfunction	Probable Cause	Corrective Action
Failure to Cock (automatic).....	Trigger Spring weak or broken.....	Return to Direct Support Maintenance Personnel.
	Trigger Notch on Hammer worn.....	Return to Direct Support Maintenance Personnel.
	Trigger Pin broken.....	Return to Direct Support Maintenance Personnel.
	Hammer Spring weak or broken.....	Return to Direct Support Maintenance Personnel.
	Hammer Pin broken.....	Return to Direct Support Maintenance Personnel.
	Lug on bottom of Automatic Sear broken or defective.....	Return to Direct Support Maintenance Personnel.
	Automatic Sear Spring weak or broken.....	Return to Direct Support Maintenance Personnel.
	Leg of Automatic Sear broken.....	Return to Direct Support Maintenance Personnel.
	Front Hammer Hook broken.....	Return to Direct Support Maintenance Personnel.

Trouble-shooting Feed	18. CAUTION: Before handling the rifle to any extent, make certain that it is clear. According to Table 2, there are several things that could cause a failure to Feed, but only one would come within the scope of your responsibility to correct. A defective Mag _____ would come within the scope of your _____.
Fire automatic	39. You have studied the probable causes of the malfunctions that could occur during semi _____ fire. According to Table 2, the same malfunctions that occur during semiautomatic fire could occur during automatic fire: a broken Firing _____; a broken Firing Pin Retaining Pin; a broken Hammer or Hammer P _____; a weak or broken Hammer S _____; or a broken Trigger.
Cock Lug Automatic Sear Automatic Spring Automatic Front Hammer Hook	60. If after inspecting the rifle, you found the Automatic Sear Spring weak or _____, the Leg of the Automatic Sear _____, the Lug on the bot _____ of the Automatic Sear broken or _____, or the Front Hammer Hook _____, you would return the rifle to your Support Maintenance Personnel.

Table 2 (Continued)

Malfunction	Probable Cause	Corrective Action
Failure to Fire (automatic).....	Firing Pin broken.....	*Replace Firing Pin (fig. 3-5).
	Firing Pin Retaining Pin broken....	*Replace Firing Pin Retaining Pin (fig. 3-5).
	Hammer broken.....	Return to Direct Support Maintenance Personnel.
	Hammer Pin broken.....	Return to Direct Support Maintenance Personnel.
	Hammer Spring weak or broken.....	Return to Direct Support Maintenance Personnel.
	Trigger broken.....	Return to Direct Support Maintenance Personnel.
	Automatic Sear defective on top....	Return to Direct Support Maintenance Personnel.
	Automatic Sear Pin broken.....	Return to Direct Support Maintenance Personnel.
Failure to Unlock...	Gas Port restricted.....	Clean
	Gas Tube on top of Barrel broken or crimped.....	Return to Direct Support Maintenance Personnel.
	Bolt Carrier Key split.....	Return to Direct Support Maintenance Personnel.
	Bolt Rings carboned or broken.....	Clean (par 3-27d). Return to Direct Support Maintenance Personnel.
	Cam Pin burred or broken.....	Replace Cam Pin (fig. 3-5).
	Cam Slot in Bolt Carrier burred....	Return to Direct Support Maintenance Personnel.

*TM 9-1005-249-14

Magazine responsi- bility	19. Refer to Table 2. It shows four probable causes of a defective Magazine. If the Magazine lips were _____ or broken, the Magazine _____ bent, the _____ Spring weak or broken, or the Magazine rented, you must replace the _____. A defective Magazine could cause a failure to _____.
semiautoma- tic Pin Pin Spring	40. According to Table 2, there are two additional probable causes for the rifle failing to _____ in the automatic position: the Automatic _____ could be defective on _____; or the Automatic _____ _____ could be _____.
broken broken bottom defective broken	61. You have just completed section II of part two on common malfunctions. With the knowledge you now have, you should be able to successfully handle most problems you may encounter on the M16 rifle. If you failed to understand any area of this section on malfunctioning, return to that area and study it again. If you are confident that you have mastered all of the material, you are now ready to start the Criterion Test.

Table 2 Troubleshooting Chart

Malfunction	Probable Cause	Corrective Action
Failure to Feed.....	Magazine Catch Spring weak or broken.....	Return to Direct Support Maintenance Personnel.
	Magazine Catch defective.....	Return to Direct Support Maintenance Personnel.
	Magazine lips burred or broken.....	Replace Magazine.
	Magazine Follower bent.....	Replace Magazine.
	Magazine Spring weak or broken.....	Replace Magazine.
	Magazine dented.....	Replace Magazine.
Failure to Chamber..	Action Spring weak or broken.....	Return to Direct Support Maintenance Personnel.
	Action Spring Guide restricted.....	Return to Direct Support Maintenance Personnel.
	Bolt Carrier Key bent.....	Return to Direct Support Maintanance Personnel.
	Gas Tube bent inside Receiver.....	Return to Direct Support Maintenance Personnel.
	Extractor restricted.....	*Replace Extractor (fig. 3-5).
	Ejector frozen.....	*Clean (par. 3-8). *Replace Ejector (fig. 3-5A).

*TM 9-1005-249-14.

Table 2 (Continued)

Malfunction	Probable Cause	Corrective Action
Failure to Fire (automatic).....	Firing Pin broken.....	*Replace Firing Pin (fig. 3-5).
	Firing Pin Retaining Pin broken....	*Replace Firing Pin Retaining Pin (fig. 3-5).
	Hammer broken.....	Return to Direct Support Maintenance Personnel.
	Hammer Pin broken.....	Return to Direct Support Maintenance Personnel.
	Hammer Spring weak or broken.....	Return to Direct Support Maintenance Personnel.
	Trigger broken.....	Return to Direct Support Maintenance Personnel.
	Automatic Sear defective on top....	Return to Direct Support Maintenance Personnel.
	Automatic Sear Pin broken.....	Return to Direct Support Maintenance Personnel.
Failure to Unlock...	Gas Port restricted.....	Clean
	Gas Tube on top of Barrel broken or crimped.....	Return to Direct Support Maintenance Personnel.
	Bolt Carrier Key split.....	Return to Direct Support Maintenance Personnel.
	Bolt Rings carboned or broken.....	Clean (par 3-27d). Return to Direct Support Maintenance Personnel.
	Cam Pin burred or broken.....	Replace Cam Pin (fig. 3-5).
	Cam Slot in Bolt Carrier burred....	Return to Direct Support Maintenance Personnel.

*TM 9-1005-249-14

burred Follower Magazine Magazine Feed	20. If the Magazine Catch _____ is weak or _____, or the M_____ Catch defective, you must return the rifle to your S_____ M_____ P_____.
Fire Sear top Sear Pin broken	41. If, after inspection, you find either the Automatic Sear _____ on top or the Automatic Sear Pin _____, you would return the rifle to your S_____ M_____ P_____.

Spring broken Magazine Support Maintenance Personnel	21. Your unit is still on the range, firing the M16A1 rifle. A rifleman approaches you, the Armorer, and says, "I can't get this rifle to Chamber. The round comes out of the Magazine, but won't go into the Chamber." You immediately realize, of course, that the weapon is failing to _____. RETURN TO PAGE 21.
defective broken Support Maintenance Personnel	42. Here's another problem! Your unit is still on the range, firing the M16A1 rifle. A rifleman brings his rifle to you, the Armorer, and says, "When I fire my rifle, the Bolt does not come to the rear." You immediately realize that the rifle is failing to _____. RETURN TO PAGE 21.