# FM 23-71

DEPARTMENT OF THE ARMY FIELD MANUAL



# RIFLE MARKSMANSHIP




HEADQUARTERS, DEPARTMENT OF THE ARMY
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HEADQUARTERS
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*** This manual supersedes FM 23–71, 5 September 1957.**

# CHAPTER 1

# INTRODUCTION

## 1. Purpose

*a.* This manual provides training guidance in developing and maintaining the rifle marksmanship proficiency of the individual soldier and is applicable to both nuclear and nonnuclear warfare.

*b.* Users of this manual are encouraged to submit recommended changes or comments to improve the manual. Comments should be keyed to the specific page, paragraph, 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, United States Army Infantry School, Fort Benning, Ga.

## 2. Objectives

The objectives of the United States Army rifle marksmanship program are—

*a.* To develop in every soldier during basic combat training—

(1) The confidence, will, knowledge, and skills required to fire a rifle and hit enemy personnel in combat.

(2) The ability to apply correct techniques of rifle marksmanship when functioning as an individual in a fire unit engaged in combat.

*b.* To insure that every soldier maintains a continuing degree of proficiency in combat rifle firing, consistent with the mission of the unit to which he is assigned.

*c.* To provide in time of peace a broad base of shooters from which potential precision marksmen can be selected and further trained to successfully compete in interservice, civilian, and international competition, and in time of war to provide an instructor base or cadre for sniper training if it is required.

## 3. Scope

This manual contains detailed information on conducting training in fundamentals of individual rifle marksmanship, battlesight zero, field firing, target detection, record firing, individual night firing, and sniping. Information on the mechanical operation, functioning, and nomenclature of rifles may be found in the field manuals appropriate to the particular weapon (app. I).

## 4. Rifle Marksmanship Training Courses

In order to provide maximum flexibility in accomplishing the overall objectives of the United States Army rifle marksmanship program, several marksmanship courses have been developed. These courses can be broadly divided between those designed for active duty personnel and those designed for members of the reserve components. Within each of these categories, there are several distinct courses of instruction, each tailored for specific range facilities and/or the experience level of the soldiers receiving the training. The requirements and a synopsis of instruction for each course are outlined in appendices III and IV. The courses of fire outlined in this manual will not be changed except by permission of the Commanding General, United States Continental Army Command.

## 5. Training Conditions

*a.* The procedures and techniques used in the United States Army rifle marksmanship training program are based on the concept that riflemen must be proficient marksmen capable of effectively applying their shooting skills in combat. Initially during marksmanship training, emphasis is placed on learning or reviewing shooting fundamentals. However, these fundamentals are taught in an environment designed to prepare soldiers for later combat-type exercises. For example, the soldier wears the normal equipment of a combat rifleman during live fire exercises and practices fundamentals while firing from positions approximating those commonly used in combat. Later in the course,

emphasis is gradually focused on the combat applications of marksmanship in addition to the fundamentals. These applications are based on conditions affecting marksmanship on the battlefield. The more common of these are—

(1) Enemy personnel are seldom visible except in the assault.

(2) Most combat targets are linear in nature and will consist of a number of men or objects irregularly spaced along covered or concealed areas such as ground folds, hedges, and borders of woods.

(3) Most combat targets can be detected by smoke, flash, dust, noise, or movement and will only be visible for a brief moment.

(4) Combat targets can be engaged by using nearby objects as reference points.

(5) The range at which individual personnel targets can be detected and effectively engaged will rarely exceed 300 meters.

(6) The nature of the target, irregularities of terrain, and vegetation will generally require a rifleman to use a position other than prone in order to fire effectively on the target. In a defensive situation, the rifleman will usually be firing from a foxhole position or other type defensive emplacement.

(7) Selecting an aiming point in elevation is difficult because of the low outline and obscurity of most combat targets.

(8) The conditions of rifle fire in combat rarely require or permit mechanical adjustments of the rear sight.

*b.* Competition between individuals and units is an effective means of motivating the individual and engendering unit pride, but it should never be fostered at the expense of the ultimate objective of the marksmanship program—to produce well-trained combat riflemen. Should this objective become secondary to obtaining high scores on the range or qualifying the maximum number of soldiers, then it becomes a matter of time before the more difficult aspects of the marksmanship courses are either eliminated or simplified to the point of being useless. None of the marksmanship courses, techniques, requirements, or objectives outlined in this manual are beyond the capability of any individual who has been found physically qualified for military service PROVIDED HE IS GIVEN GOOD INSTRUCTION AND PROPER SUPERVISION.

# CHAPTER 2

# RIFLE MARKSMANSHIP FUNDAMENTALS

## Section I. GENERAL

### 6. Purpose and Scope

*a.* Rifle marksmanship fundamentals training and 25-meter (1000-inch) firing teaches the soldier the habits of good shooting and prepares him for more advanced field firing exercises.

*b.* To be proficient, a combat rifleman must be able to detect targets, determine the ranges to targets, and hit the targets when he fires upon them. There are many variables affecting an individual's ability to detect and determine the range to combat targets. These will be discussed in chapter 5, Target Detection. However, by comparison, the factors affecting a rifleman's ability to fire and hit the target are relatively constant. Essentially, the rifleman must be able to assume a firing position which affords him protection and at the same time permits unrestricted observation of the target area. He must hold the rifle in such a manner that he and his rifle form a single, steady unit. He must know how to correctly align his rifle on the target; and, finally, he must be able to fire his rifle without disturbing this alignment. The skills needed to accomplish these requirements are known collectively as rifle marksmanship fundamentals.

*c.* The degree of proficiency attained by a rifleman is largely dependent upon the correct teaching and application of marksmanship fundamentals. Consequently, the sequence of instruction outlined in Army Subject Schedule 23–31 should be followed.

### 7. Use of .22 Caliber Rifles

Soldiers with little or no previous marksmanship experience should be given fundamentals training on the 25-meter (1000-inch) range using the .22 caliber rifle. By using this rifle, the soldier can focus his attention on learning and practicing the fundamentals of good marksmanship without becoming concerned with the recoil of the weapon. For planning purposes, five rounds of .22 caliber ammunition can be substituted for three rounds of service ammunition. When .22 caliber rifles are used, instructors must exercise close supervision of firers when the transition is made to the service rifle. It is during the first few exercises with the service rifle that firers are most likely to begin "flinching" or "bucking" (par. 9*b*(8)(*b*)) because of the added recoil. Such errors must be quickly identified and corrected before they become habit.

### 8. Early Firing Exercise and Recoil Demonstration

An early firing exercise and recoil demonstration should be conducted for soldiers who have little or no previous marksmanship experience. The early firing exercise is designed to motivate soldiers toward the marksmanship training. The recoil demonstration clearly shows the soldiers that if they handle the weapon properly, they will have nothing to fear from recoil.

*a. Early Firing Exercises.* After receiving a brief orientation on range procedures, safety, and the prone position, each soldier fires five rounds of .22 caliber ammunition (or three rounds of service ammunition if .22 caliber rifles are not used) at a 25-meter target. When all soldiers have completed firing, they are assembled at a central location to witness a well-trained rifleman fire 10 rounds of .22 caliber (or nine rounds of service ammunition) at a 25-meter target. By comparing his target with that of the well-trained rifleman, each soldier will see a definite need for further marksmanship training.

*b. Recoil Demonstration.* A recoil demonstration should be conducted before the soldier

fires the service rifle for the first time. The demonstration is fired by a well-trained rifleman. He fires the first round while holding the rifle to his side, in one hand. Next, he fires a round while holding the butt of the weapon tightly against his thigh. The third round is fired with the rifle butt pressed firmly against the demonstrator's groin. A fourth round is fired with the butt of the rifle placed firmly against the pit of the stomach. The final round will usually convince even the most skeptical since it is fired with the rifle butt pressed firmly against the point of the demonstrator's chin. As long as the demonstrator keeps the rifle butt pressed firmly against his body, he will have no difficulty in performing the demonstration. The soldiers should be instructed in the principle of pressing the butt firmly against the body to avoid the affects of recoil.

## Section II. MARKSMANSHIP FUNDAMENTALS

### 9. The Integrated Act of Shooting

Combat rifle firing is an integrated act involving several techniques and procedures necessary to fire the rifle and hit the target. This means that the procedures used in firing the rifle in combat are applied instinctively and almost simultaneously. The integrated act of shooting can be divided into two parts—aiming and the steady hold.

*a. Aiming.*

(1) In aiming, the firer is concerned with correctly pointing his rifle so the bullet will hit the target when he fires. To do this, he must have the rear sight, the front sight blade, and the target or aiming point in their proper relationship. This relationship is known as sight picture. Sight picture involves two elements—sight alignment and placement of the target or aiming point.

(*a*) *Correct sight alignment.* To obtain correct sight alignment, the sights should be aligned as shown in figure 1. Notice that the top center of the front sight blade is exactly in the center of the rear sight aperture. If an imaginary horizontal line is drawn through the center of the rear sight aperture, the top of the front sight blade will appear to touch this line. If an imaginary vertical line is drawn through the center of the rear sight aperture, the line will appear to bisect the front sight blade.

(*b*) *Correct placement of the target or aiming point.* The aiming point is correctly placed when the target is centered on and tangent to the top of the front sight blade. An imaginary vertical line drawn through the center of the front sight blade will appear to cut the target in half (fig. 2).

(*c*) *Correct sight picture.* Correct sight picture is obtained when the sights are properly aligned and the aiming point is in the correct relationship to the front sight blade (fig. 3).

(2) *Importance of sight alignment.*

(*a*) At some point in his marksmanship training, a soldier may experience

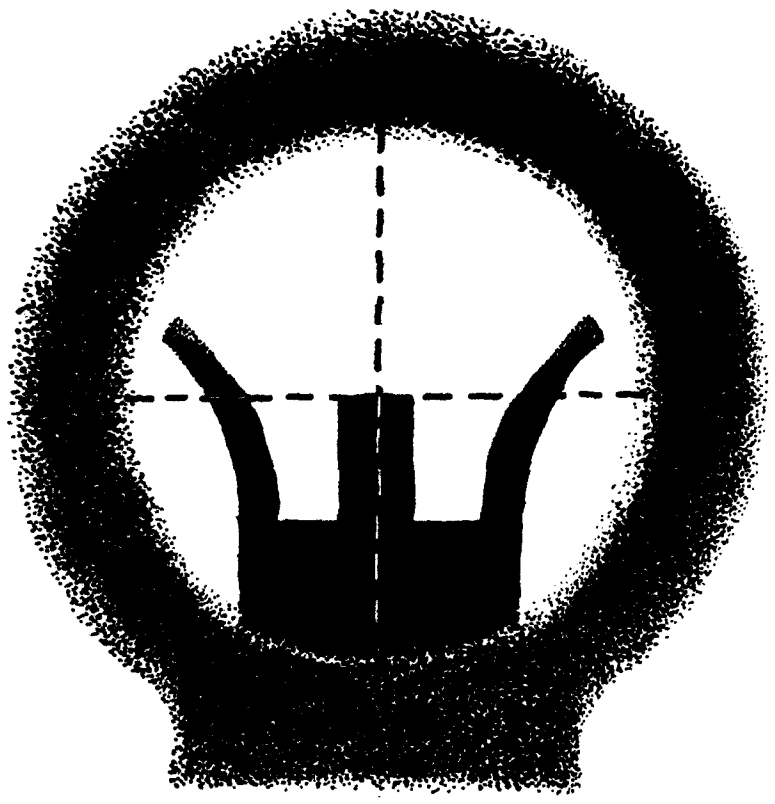


*Figure 1. Correct sight alignment.*

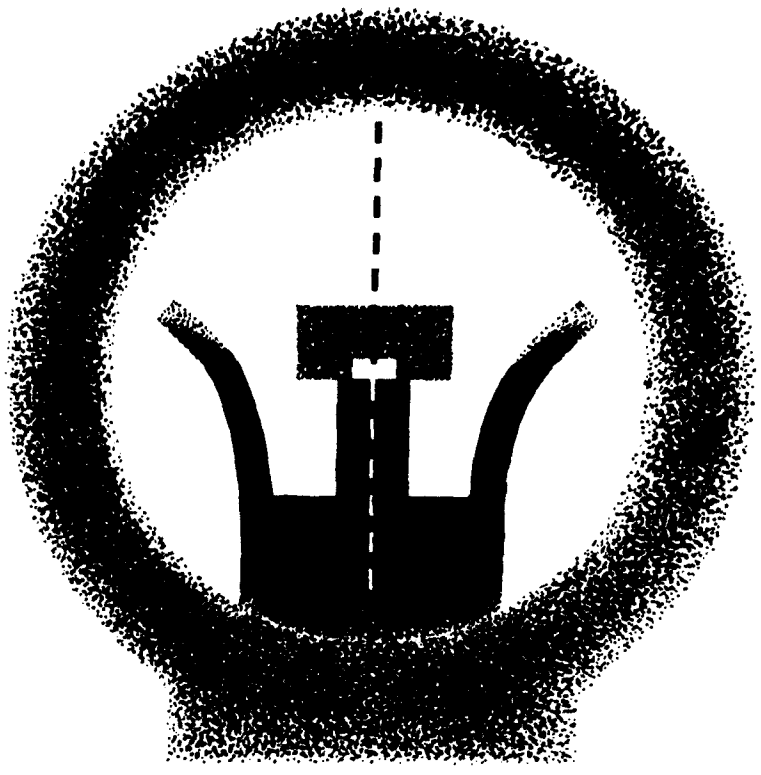


*Figure 2. Correct placement of the aiming point.*

difficulty in hitting the target even though he appears to be applying the proper marksmanship fundamentals. The trouble may be either incorrect sight alignment or improper placement of the aiming point. If the firer understands the principles of aiming, he will rarely commit both errors simultaneously. The reason for this lies in the peculiarities of the eye. The eye cannot focus on two objects at different ranges at the same time. If the firer focuses his eye on the target, the rifle sights will appear hazy and indistinct, greatly increasing the possibility of incorrect sight alignment. Conversely, focusing the eye on the front sight blade causes the target to become indistinct. Therefore, the problem is whether sight alignment or placement of the aiming point is of the greater importance to the firer. An error in either will cause the bullet to miss the aiming point (fig. 4). However, a sight alignment error results in a miss that grows proportionately wider as the range to the target increases. On the other hand, an error in the placement of the aiming point causes a miss that remains constant regardless of the range. On the battlefield, a near miss as a result of an aiming point error can be as effective as a point of aim hit. For example, a soldier is approximately 20 inches wide. Consequently, a rifleman could be several inches off his desired aiming point and still hit an enemy soldier. However, if the error was due to sight alignment, the bullet could miss a man-size target by as much as several feet, depending on the range. Sight alignment, then, is more important than the placement of the aiming point.

(*b*) To insure the correctness of sight alignment the eye must be focused on the front sight blade at the instant the rifle fires. However, the target cannot be ignored, so the firer must alternate the focus of his eye between the target and his front sight blade. Initially, the

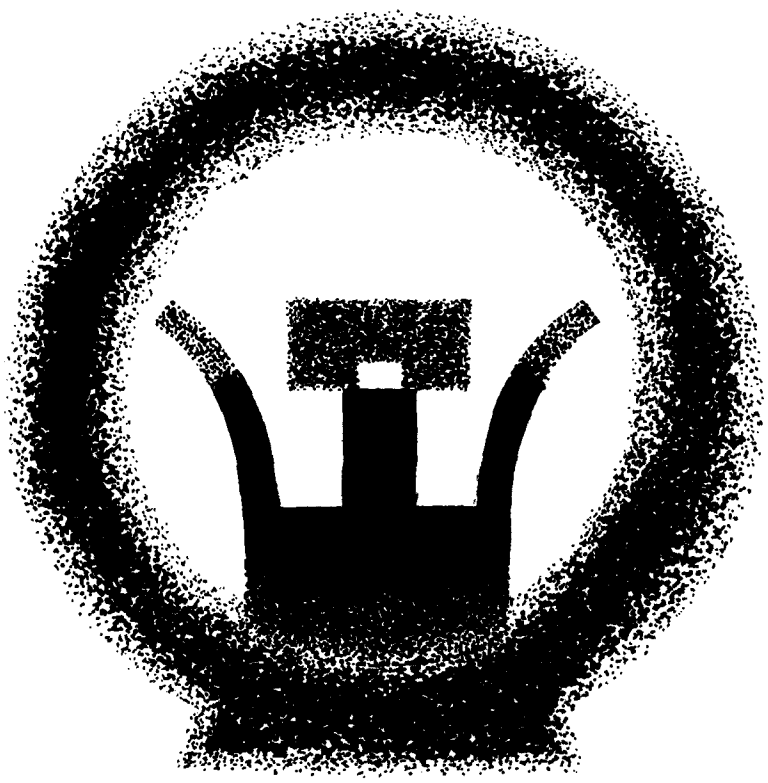


*Figure 3. Correct sight picture.*

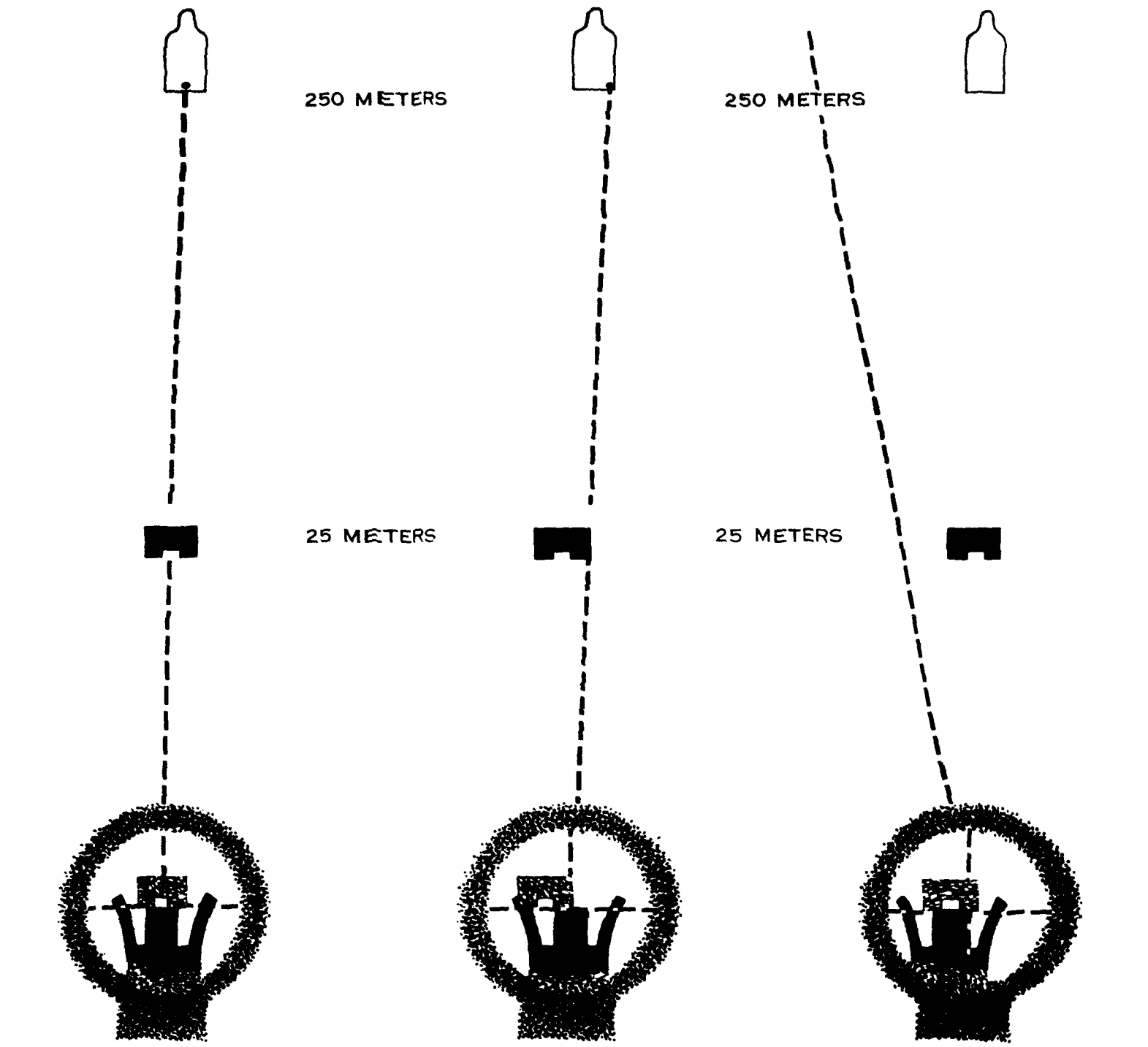



*Figure 4. Importance of correct sight alignment.*

firer should focus on the front sight blade and properly align his sights. Then he shifts his focus to the target and completes the sight picture. Finally, as he presses the trigger, he again shifts the focus of his eye to the front sight blade thus insuring correct sight alignment as the rifle fires. At this moment, the firer should see a sight picture similar to that shown in figure 3. Notice that the front sight blade is distinct while the target and rear sight aperture appear to be slightly blurred.

(3) *Location of the eye in relation to the rear sight aperture.* The firer should keep his eye as close to the rear sight aperture as possible without straining the muscles of the neck to do so. The closer his eye is to the aperture, the more of the target area the firer will be able to see.

(4) *Clean and blackened sights* (fig. 5). A firer can experience difficulty in obtaining a proper sight picture because of shiny or dirty sights. A shiny front or rear sight will glare and partially blind the firer. Dirt can change the distinctive sight outline and cause errors in alignment. Thus, it is important in training and in combat to continually inspect rifle sights, cleaning and blackening them as necessary. During marksmanship training, materials for this purpose should be available on the range. In combat, the soldier can use a cleaning patch or handkerchief to clean the sights, and he can blacken them with an ordinary match.

(5) *Aiming exercises.* There are three aiming exercises which may be used to effectively teach the principles of correct sight picture. These exercises are best conducted by organizing the unit into two distinct groups called "orders." One order is designated as firers, while the other acts as coaches. As each training phase is completed, the orders should exchange functions; that is, the firer becomes the coach and the coach becomes the firer. One cadre assistant instructor should be available for each eight to twelve points to supervise practical work exercises. The first exercise is conducted using an M15 sighting device, the second an aiming bar, and the third a rifle rest and target box.

(*a*) *First aiming exercise.* The instructor explains the proper way to obtain the correct sight picture using the M15 sight device (fig. 6). Each firer is then issued a device and required to establish correct sight alignment and correct placement of the aiming point. The coach checks the firer's results and determines if a correct sight picture has been obtained. Assistant instructors should continually check the work of firers and coaches. The coach and/or assistant instructor points out errors as they occur and instructs the firer on how to correct them. This exercise should be continued until the instructors are satisfied that all soldiers understand the principles and are capable of obtaining a correct sight picture.

(*b*) *Second aiming exercise.* The aiming bar (fig. 7) is designed to teach sight alignment and placement of the aiming point. Continual visual checks are made by the assistant instructors to insure that coaches and firers apply the correct principles of sight alignment and placement of the aiming point. This exercise is conducted as follows:

1. The firer moves the sights on the aiming bar until he considers the sight alignment to be correct. The coach checks the result. If the alignment is incorrect, the coach determines the error and makes


*Figure 5. Importance of clean and blackened sights.*

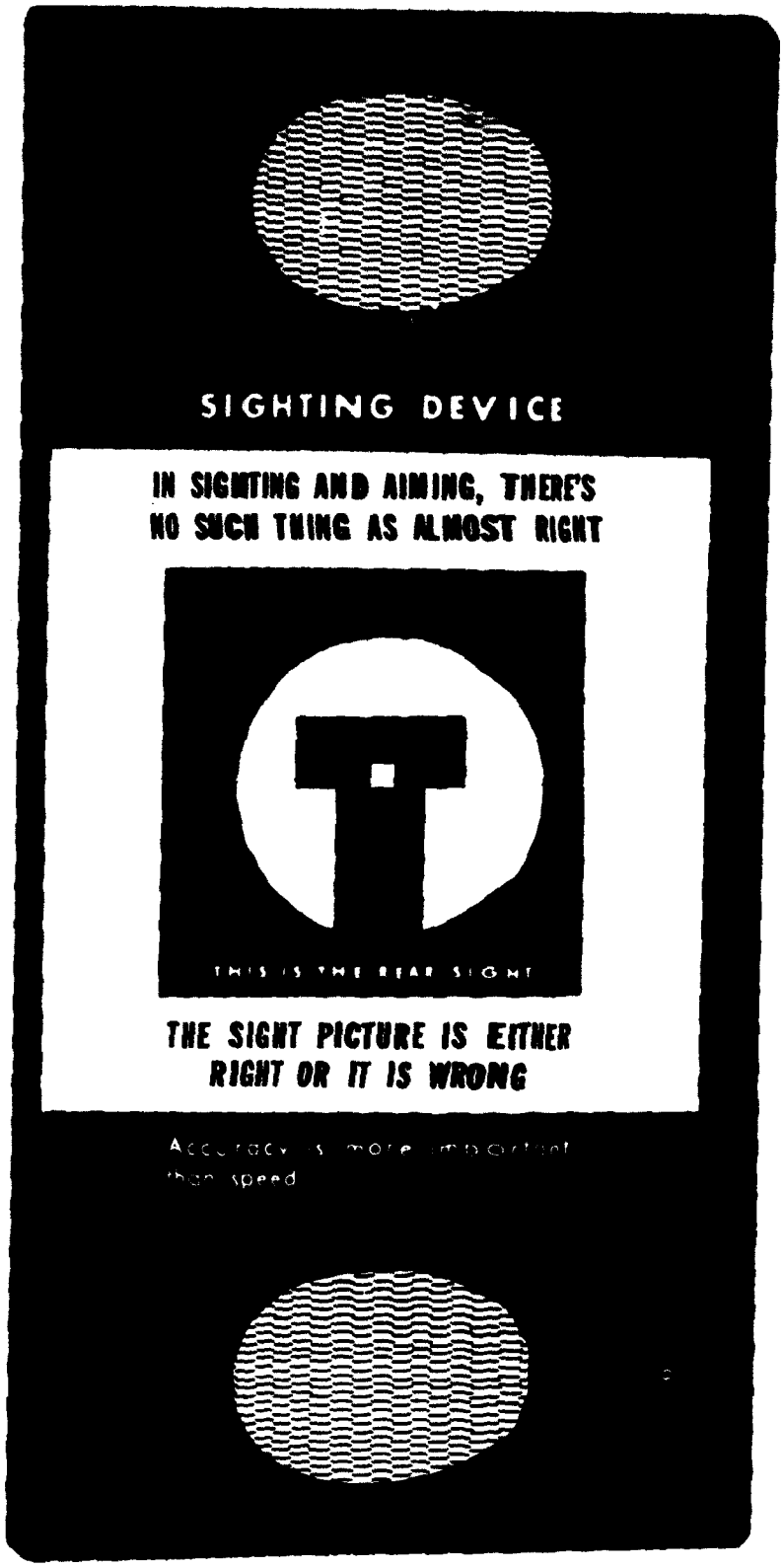



*Figure 6. M15 sighting device.*

the necessary corrections. If the alignment is correct, the coach moves the sights to cause a misalignment and returns the aiming bar to the firer. The firer must then correct the misalignment. Assistant instructors should continually check the performance of coaches and firers. This exercise is continued until the principles of correct sight alignment are clearly understood by both orders.

2. In the second step of the exercise, a small metal target is placed on the aiming bar, and the soldier is required to complete the sight picture by placing the aiming point in correct relation to the sight alignment. As in the first part of the exercise, the firer's completed work is checked by the coach, and both are continually checked by the assistant instructors. The coach again corrects the errors of the firer. If the sight picture is correct, the coach moves the target and sights to cause improper sight alignment and placement of the aiming point. The firer must then repeat the exercise.

(*c*) *Third aiming exercise.* To conduct this exercise, a rifle, a rifle rest, a target box, and a target disc are required for each coach and firer team (fig. 8). Blank paper attached to the target box is used to record sight pictures. A miniature 25-meter (1000-inch) target is painted on the disc. A small hole is made in the center of the disc so the coach can insert the point of a pencil and mark the firer's sight picture. The exercise is conducted as follows:

1. The rear sight is set at 12 clicks of elevation and zero windage, and the rifle is then braced in the rest. The firer assumes a position beside the rifle so his eye is positioned as close as possible to the rear sight without touching the rifle. He places both elbows on the ground and rests his chin in the palm of his left hand. The coach sits on the target box located 15 meters from the firer. The coach holds the target disc against the paper on the target box. The firer signals the coach with his right hand to move the disc until the correct sight picture is obtained. He then gives the command, MARK. The coach records

*Figure 7. Aiming bar.*

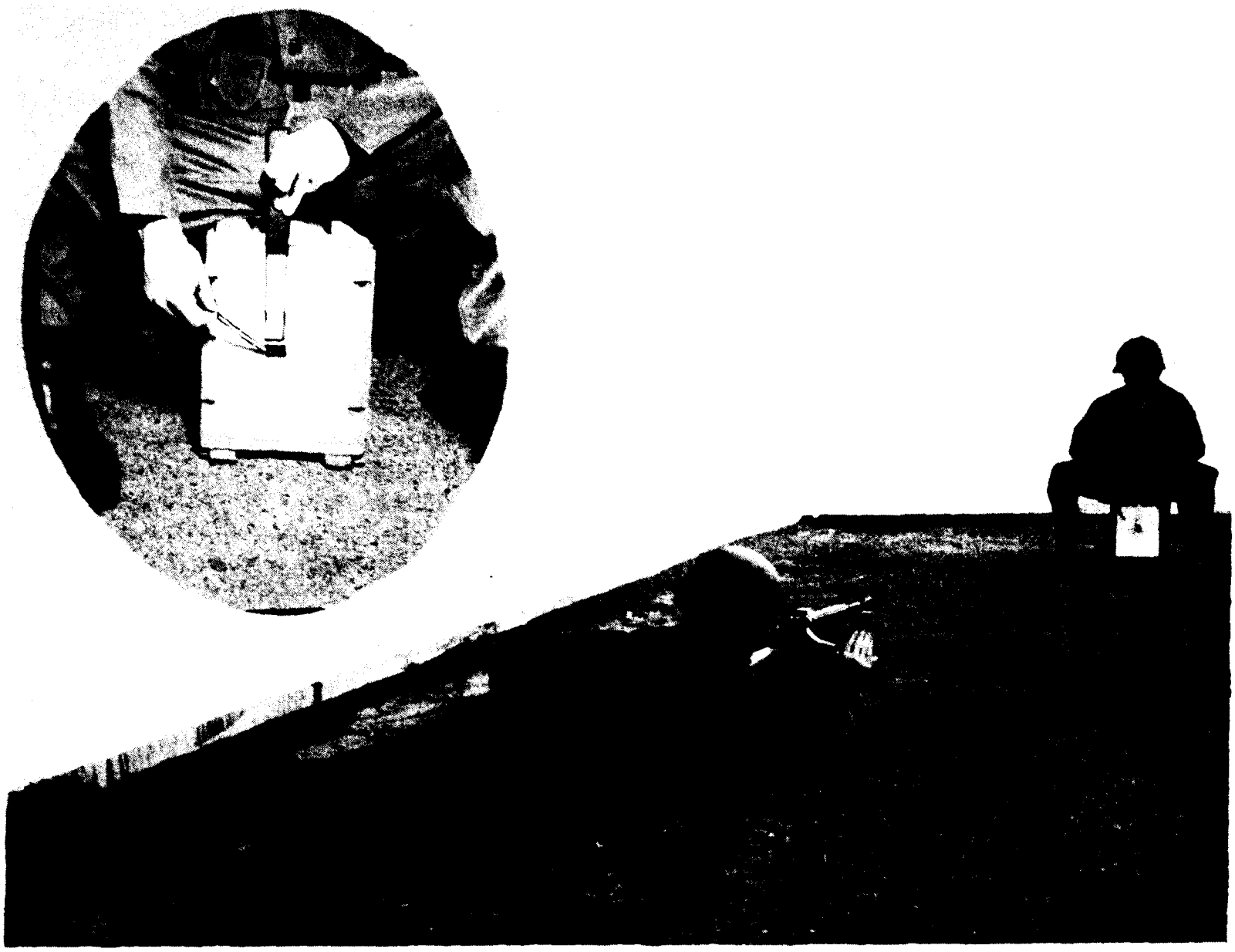


*Figure 8. Setup for third aiming exercise.*

the sight picture by marking the paper with his pencil through the hole in the disc. This procedure is repeated until three sight pictures, called a shot group, have been recorded. The firer must keep his eye in the same position with relation to the sight aperture for each exercise.

***Caution:*** **To obtain valid results, there must be no movement of the rifle, the rifle rest, or the target box until all three sight pictures have been recorded. If any of these items are accidentally moved before three sight pictures have been recorded, the firer must repeat the entire exercise.**

2. An assistant instructor critiques the shot group, using the target analysis card (fig. 25) as a guide. A good shot group can be covered by the unsharpened end of a pencil.

*b. Steady Hold Factors.* As the name implies, steady hold is the technique of holding the rifle as steady as possible while aligning the sights and firing the weapon. There are eight factors which affect holding a rifle steady. These factors are the same for all firing positions; however, the precise manner in which they apply differs slightly with the various positions.

(1) *Grip of the left hand.* The rifle should lie across the heel of the left hand and rest in the "V" formed by the thumb

and forefinger. The grip on the rifle should be relaxed but, at the same time, exert a slight rearward pressure. The rifle is held at a point which suits both the conformation of the firer's body and the location of the target. If the target is high, the left hand is moved closer to the body thereby raising the muzzle of the rifle. Conversely, if the target is low, the left hand is moved forward causing a corresponding drop in the muzzle of the rifle. The left wrist should be as straight as possible. The left elbow should be directly under the receiver of the rifle or as close to this position as the conformation of the firer's body will permit. With the left elbow directly under the rifle, the bones (rather than the muscles) of the arm support the rifle's weight. The further away from this position that the elbow is located, the greater will be the muscular effort needed to support the rifle. The resulting tensed muscles cause trembling and a corresponding movement of the rifle. On the other hand, firers must avoid excessive muscular strain in positioning the elbow as this will also cause trembling. Consequently, inexperienced firers must, of necessity, undergo a trial and error period until they find the position best suited to them.

(2) *Rifle butt in the pocket of the shoulder.* The firer must place the rifle butt firmly into the pocket formed in the right shoulder. The proper placement of the butt lessens the effect of recoil, helps steady the rifle, and prevents the rifle butt from slipping on the shoulder during firing.

(3) *Grip of the right hand.* The firer's right hand should grip the small of the stock firmly but not rigidly. A firm rearward pressure must be exerted by the right hand to keep the rifle butt in its proper position in the pocket of the shoulder, and keep the butt secure enough against the shoulder to avoid effects of recoil. The thumb extends over the small of the stock in order to obtain a spot weld. The trigger finger is positioned on the trigger so there is no contact between the finger and the side of the stock. This permits the trigger to be pressed straight to the rear without disturbing the aim of the rifle.

(4) *Right elbow.* The location of the right elbow is important since it provides balance to the firer's position. Correctly positioned, the elbow helps form a pocket in the shoulder for the rifle butt. The exact location of the right elbow varies in each position and will be described in the explanation of the positions.

(5) *Spot weld.* When the right hand and elbow are in the correct positions, the firer lowers his head until his cheek is touching his right thumb. He presses against his thumb, rolling up a small pad of flesh between the cheek and thumb. There should then be firm contact from the firer's cheek, through his right thumb to the stock of the rifle (fig. 9). Thus, when the rifle is fired, the head and rifle will recoil as one unit. This eliminates the possibility of the thumb striking the cheek or face and perhaps injuring the firer. In addition, it facilitates rapid recovery between shots and assists the firer in habitually keeping his eye the same distance from the rear sight aperture. The soldier should try to place his eye in the same location regardless of his position. In the standing and kneeling positions, a soldier whose arms are relatively short may not be able to obtain the spot weld as described above. In this case, he must press his cheek tightly against the stock of the rifle. He should practice this technique so he will consistently place his cheek against the same spot on the rifle stock. This is necessary so his eye will always be the same distance from the rear sight aperture.

(6) *Breathing.* If the firer continues normal breathing while aiming and firing the rifle, the movement of his chest will cause a corresponding movement of the rifle. To avoid this, the soldier

*Figure 9. Spot weld.*

must learn to hold his breath for the few seconds required to aim and fire the rifle. Initially, the firer takes a normal breath, releases part of it, and holds the remainder in his lungs by locking his throat. He should not hold his breath for more than ten seconds; otherwise, his vision may begin to blur, and lung strain may cause muscular tension.

(7) *Relaxation.* The soldier must learn to relax as much as possible in the various firing positions. Undue muscle strain or tension causes trembling which is transmitted to the rifle. If he finds that a particular position causes excessive strain, he should vary the position slightly until the cause of the strain has been eliminated. The firer must use relaxation to check that he has a natural position. This is accomplished by relaxing when in position and checking to see if the sight picture is correct. If the sight picture is not correct the body is moved until in a relaxed position the desired point of aim is achieved. Muscle tension should not be used to position the weapon.

(8) *Trigger control.*

(*a*) Trigger control is the independent action of the forefinger on the trigger. The trigger must be brought straight to the rear with a heavy initial pressure to take up the slack, followed by a continuous increase of pressure. The trigger finger should contact the trigger at some point between the tip and second joint of the finger (fig. 10).

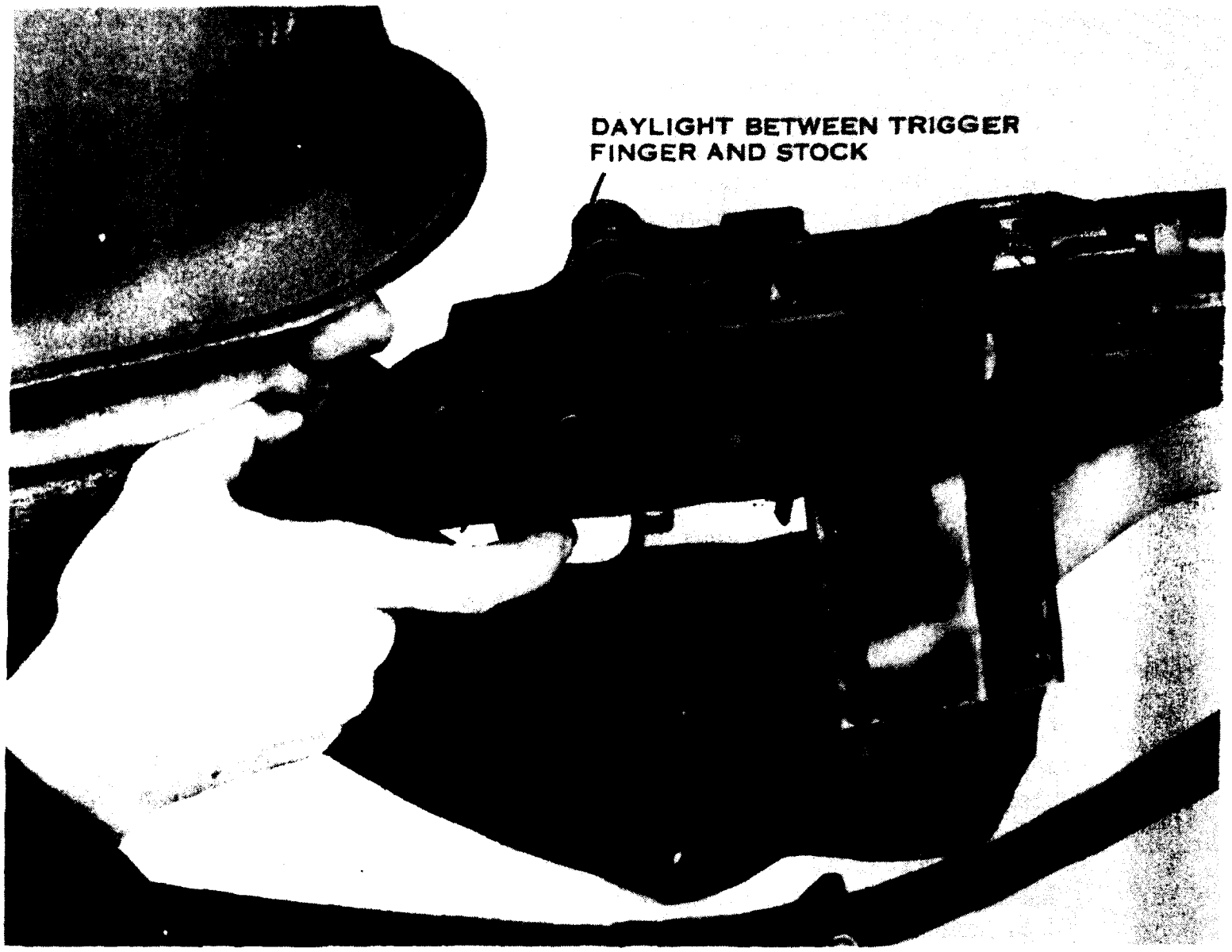



*Figure 10. Correct trigger finger position.*

The finger must not touch the side of the stock as this will cause pressure to be applied at a slight angle rather than straight to the rear. Such a side pressure on the rifle, no matter how slight, will tend to pull the sights off the aiming point. Correctly applied pressure on the trigger causes no movement of the rifle barrel. It also prevents the rifleman from knowing exactly when the rifle will fire, thus helping him to avoid flinching. Trigger control is the most important of the steady hold factors and without its proper application, the other marksmanship skills are practically useless. Therefore, instructors should continually emphasize this fundamental throughout rifle marksmanship training.

(*b*) Since trigger control is not only the most important steady hold factor but is also the most difficult marksmanship fundamental for the inexperienced firer to master, the majority of shooting errors stem directly or indirectly from the improper application of this technique. Failure to hit the target frequently results from the firer jerking the trigger or applying pressure on both the trigger and the side of the rifle. Either of these actions can produce misses. Therefore, instructors should always check for indications of improper trigger control since an

error in this technique can start a chain reaction of other errors. By so doing, the instructor can avoid wasting time correcting a symptom rather than the true cause of a firer's difficulty. Some of the indications of improper trigger control are—

1. *The flinch.* This is the firer's reaction to the anticipated recoil of the exploding round. It is indicated by the firer moving his head, closing his eyes, tensing his left arm, moving his shoulders to the rear, or a combination of these.
2. *The buck.* This is an attempt by the firer to take up the recoil, just before the weapon fires, by tensing his shoulder muscles and moving his shoulder forward.
3. *The jerk.* This is an attempt by the firer to make the rifle fire at a certain time by rapidly applying pressure on the trigger. He may either try to fire the instant he has a correct sight picture, or he has been holding his breath too long, and he rapidly presses the trigger before he has to exhale.

## 10. Firing Positions

*a.* The eight standard firing positions taught in the rifle marksmanship program are prone, prone supported, sitting, kneeling, kneeling supported, squatting, standing, and the foxhole. On the battlefield, a rifleman must assume the steadiest possible position which can provide observation of the target area and some protection and/or concealment. Considering the many variables of terrain, vegetation, and tactical situations, there are innumerable possible positions that might be used. However, in most instances, they will be variations of those listed above.

*b.* Some soldiers will have more difficulty in assuming a particular position than will others. So long as the firer applies the fundamentals of maximum support for his rifle, relaxation, and trigger control, he should be permitted to adjust the position to fit his own body conformation.

*c.* During training in fundamentals, positions are taught as a step-by-step process. That is, the soldier is guided through a series of precise movements until he is in the correct position. The purpose of this is to insure that he correctly applies all of the steady hold factors. Through practice, the soldier will gradually become accustomed to the feel of the positions, and eventually he will know instinctively whether his position is correct. This is particularly important in combat since the soldier must be able to assume positions rapidly. There are any number of intermediate positions a combat rifleman might use before assuming his final firing position. Consequently, he must know instinctively whether his position is correct rather than follow a set sequence of movements to insure its correctness.

*d.* Throughout position training, the soldier should be continually checked on the proper application of the eight steady hold factors, particularly trigger control. This check is the responsibility of the coach who must closely observe the firer's actions during all phases of fundamentals training.

*e.* The methods of assuming the positions and the conditions governing their use are as follows:

(1) *Prone position.* The prone position (fig. 11) is a relatively steady position and is easy to assume. Therefore, it should be the first position the soldier learns. The position presents a low silhouette and is easily adapted to the use of cover and support. However, its effectiveness as a battlefield firing position is frequently limited since vegetation and irregularities of terrain will often limit the soldier's field of vision.

(*a*) *Assuming the prone position.* To assume the prone position, the firer stands facing his target, spreads his feet a comfortable distance apart, and drops to his knees. With his right hand at the heel of the stock, he places the rifle butt well out to his front on an imaginary line drawn between the target and his right knee. Using the rifle butt as a pivot, the firer rolls down on his left side, placing his left elbow as

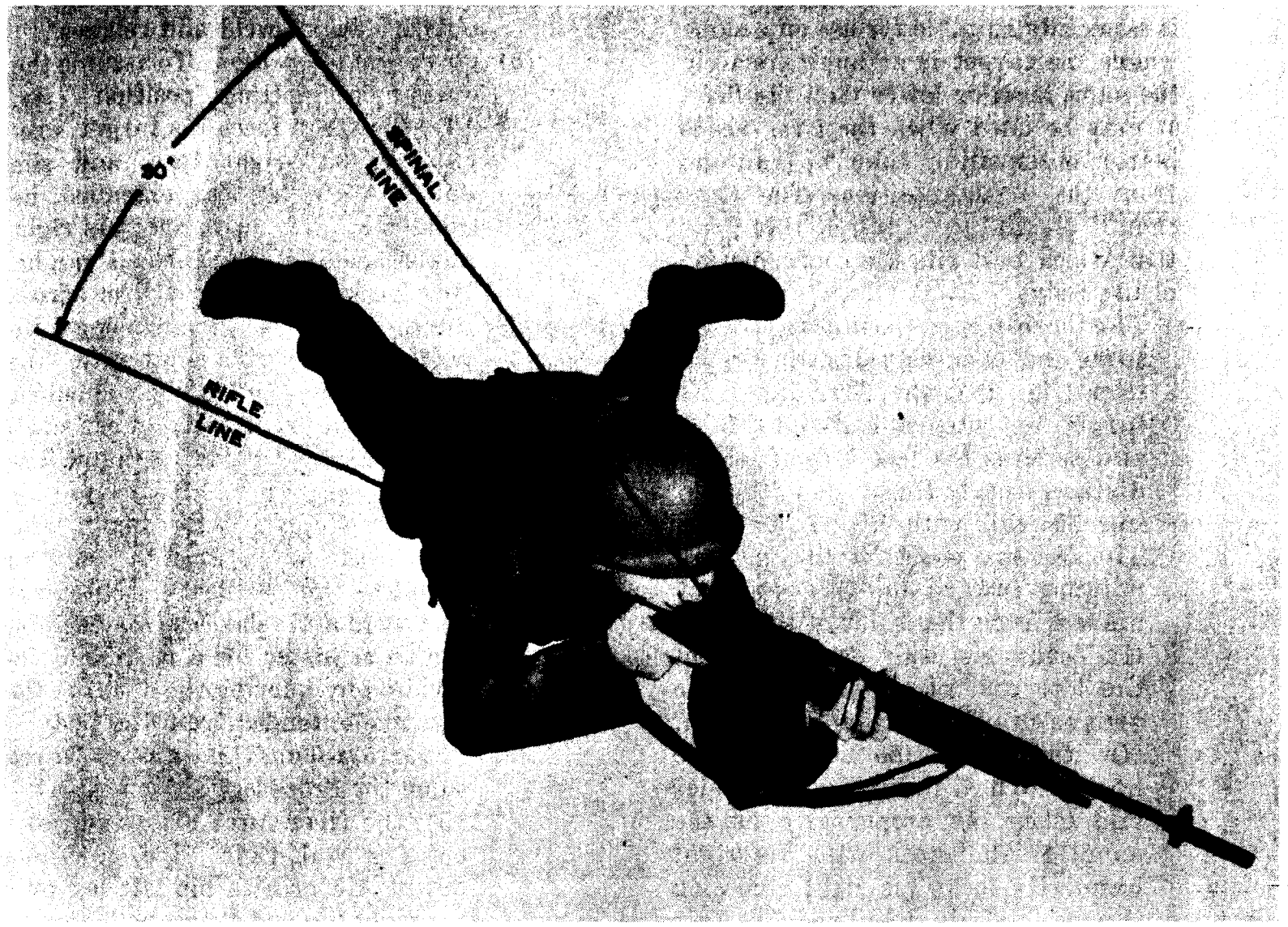



*Figure 11. The prone position.*

nearly under the rifle as possible. He positions the rifle butt into the pocket formed in his right shoulder, grasps the small of the stock with his right hand, and lowers his right elbow. His right elbow should be placed well out from his body and slightly forward so his shoulders are approximately level. The firer exerts a firm rearward pressur with his right hand. To comple' e the position, the firer obtains a spot weld and relaxes. His spine is straight, and his legs are spaced a comfortable distance apart. Normally, the angle made by the firer's spine and the axis of his rifle is approximately 30 degrees. This places enough of the firer's weight behind the rifle to absorb recoil without unduly disturbing his sight picture.

(*b*) *Assuming the prone supported position.* To assume the prone supported position (fig. 12), the firer first assumes the prone position. He then adjusts the position to fit the available support, placing his left forearm against the support. Whether the left elbow is directly under the rifle is of less importance in this position because now the support, rather than the arm, sustains the weight of the rifle. No part of the rifle should be touching the support as this reduces the firer's control of his rifle and hinders rapid recovery between shots.

(2) *Sitting position.* The sitting position is especially suitable for use on a slope where the target is at approximately the same level or lower than the firer. It may be used when the firer needs better observation than he can get from the prone position. The firer should use the variation of this position which best fits the conformation of his body.

(*a*) *The open-legged position.* To assume the open-legged sitting position (fig. 13), the firer faces his target, executes a half-right face, and spreads his feet a comfortable distance apart. He sits down, breaking his fall with his right hand. The feet are placed so the toes are pointing inward and the weight of his legs is on the inside of the heels. He bends his body forward from the hips and places his left upper arm on the flat portion of his shin. He places the rifle butt into the pocket formed in his right shoulder and takes the proper grip on the small of the stock with his right hand. He locks his right elbow on the inside of his right knee. The firer then exerts a slight rearward pressure on the rifle with his right hand. To complete the position, he obtains a spot weld and relaxes.

(*b*) *Cross-ankle position.* To assume the cross-ankle sitting position (fig. 14), the firer faces his target, executes a half-right face, and sits down. With his legs extended, he crosses his left ankle over his right ankle, keeping both ankles straight. He places his left upper arm across the shin bone of his left leg. He positions the rifle butt into the pocket formed in his right shoulder and takes a proper grip on the small of the stock with his right hand. The firer lowers his right elbow so his right upper arm is in contact with the shin bone of his right leg. To complete the position, he obtains a spot weld and relaxes. This position can be adjusted for a particular individual by varying the distance the legs are extended from the body.

(*c*) *The cross-legged position.* To assume the cross-legged position (fig. 15), the firer faces his target, executes a half-right face, and sits down. He crosses his left leg over his right leg and draws both feet up close to his body. He places his left upper arm against the shinbone and

*Figure 12. The prone supported position.*

*Figure 13. The open-legged sitting position.*

his left leg. The rifle butt is placed into the pocket formed in his right shoulder. After properly grasping the small of the stock with his right hand, he lowers his right elbow so his right upper arm is against the shinbone of his right leg. To complete the position, the firer obtains a spot weld and relaxes.

(*d*) *Comparison of the sitting positions.* Notice that in the open-legged position, the body contacts the ground at three distinct points—the heel of each foot and the buttocks. In the cross-ankle position, the body has a two-point contact; and in the cross-legged position, a one-point contact. Firers should use the position which affords them the greatest stability.

(3) *Squatting position.* The squatting position (fig. 16) is a relatively steady position which can be assumed rapidly. Since only the feet contact the ground, it is an excellent position to use in mud, shallow water, or a contaminated area. It is best suited for use on level ground or on ground which slopes gently downward. In assuming the squatting position, the firer faces the target and executes a half-right face. He spreads his feet a comfortable distance apart and squats as low as possible. He must keep both feet flat on the ground. The left upper arm is placed firmly against the inside of the left knee and the rifle butt is positioned in the pocket formed in the right shoulder. He grips the small of the stock with his right hand, lowers his right elbow, and blocks it against

*Figure 14. The cross-ankle sitting position.*

*Figure 15. The cross-legged sitting position.*

*Figure 16. Squatting position.*

the inside of his right knee. To complete the position, the firer obtains a spot weld and relaxes.

(4) *Kneeling position.* This position is suitable on level ground or on ground which slopes gently upward. This position can be adjusted in height and is readily adapted to supports such as trees, corners of buildings, and vehicles.

(*a*) *Kneeling unsupported position.* To assume the kneeling unsupported position (1, fig. 17) the firer faces his target and executes a right face. He places his left foot to his left front with the toe pointing toward the target. He kneels on his right knee, sitting on his right heel as he does so (2, fig. 17). He mounts his left elbow over his left knee so his left upper arm rests on the flat portion of the knee. With his right hand, he places the rifle butt into the pocket formed in the right shoulder. His right elbow should be horizontal or slightly above the horizontal to aid in forming a pocket in the right shoulder. To complete the position, he shifts his weight forward, obtains a spot weld, and relaxes. The inserts in 2, figure 17 show two additional methods of positioning the right foot when assuming the kneeling position. A firer experiencing difficulty with the normal position should try these variations to determine the best position.

(*b*) *Kneeling supported position.* To assume the kneeling supported position (fig. 18), the firer first assumes the kneeling position. He then shifts his weight forward, allowing his left shoulder, left arm, and left leg to

1 Unsupported

*Figure 17. Kneeling position.*

2 Position and alternate positions of right foot

*Figure 17*—Continued.

come in contact with the support. The rifle must not touch or rest on the support since the friction of the rifle against the support would slow recovery between shots and limit the firer's ability to rapidly shift his point of aim.

(5) *Standing position.* The standing position (fig. 19) is used in the assault, to engage targets when no other position can be used and for surprise targets. To assume the standing position, the firer faces his target, executes a right face, and spreads his feet a comfortable distance apart. With his right hand at the small of the stock, he places the rifle butt high against his shoulder so the sights are level with his eyes. He holds his right elbow high to form a good pocket in his right shoulder for the rifle butt. This also permits him to exert a strong upward and rearward pressure with his right arm and hand. He holds most of the rifle weight with his right arm and places his left hand under the rifle in a position to best assist in supporting and steadying the rifle. To complete the position, the firer shifts his feet until he is aiming naturally at the target and distributes his weight evenly on both hips. If the firer cannot obtain a spot weld without straining, he should press his cheek firmly

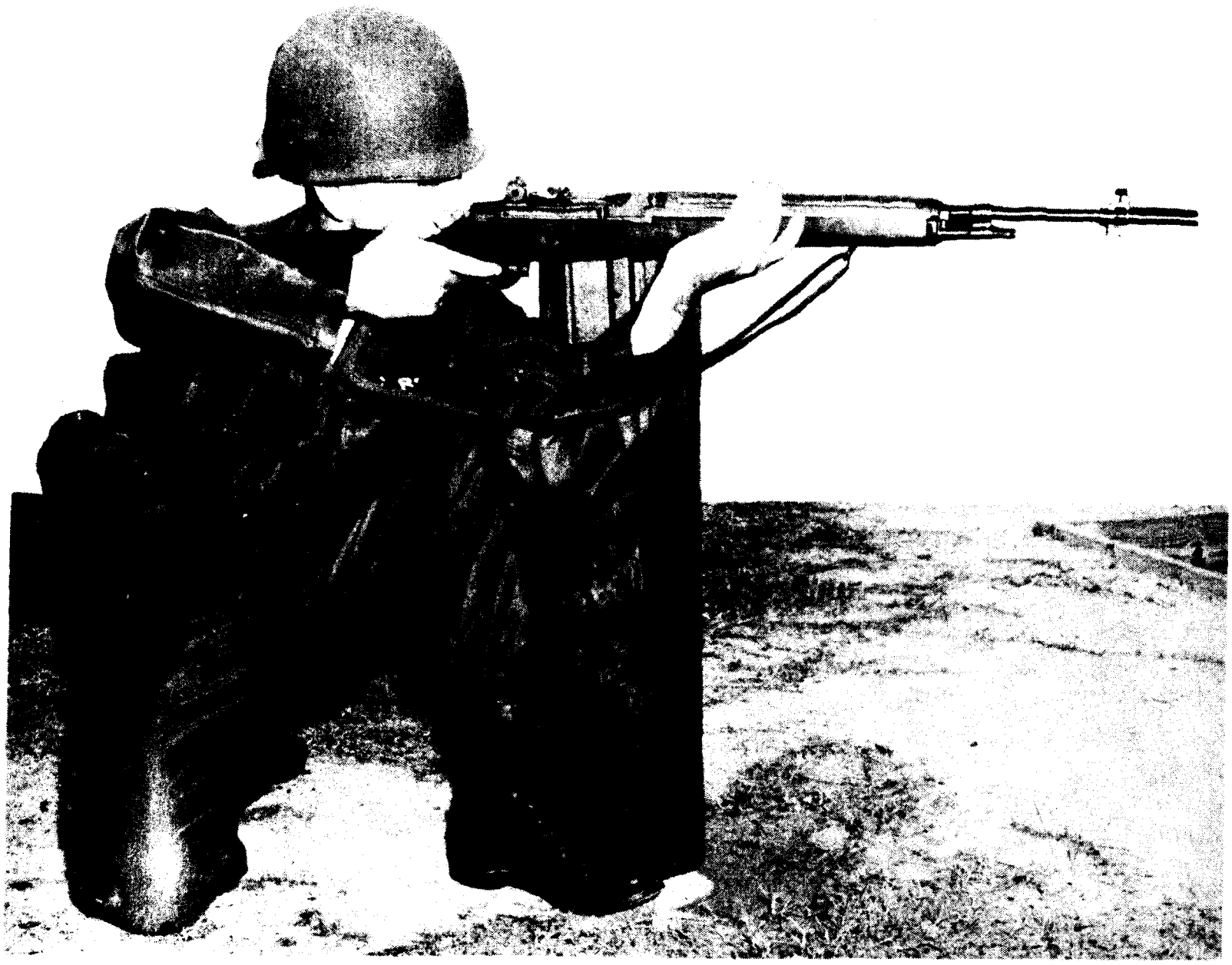


*Figure 18. Kneeling supported position.*

*Figure 19. Standing position.*

against the side of the stock. He should consistently make this contact as far forward as possible without causing undue muscular strain or tension.

(6) *Foxhole position.* The foxhole position (fig. 20) is used whenever such prepared positions are available. The soldier enters the foxhole, adds or removes dirt, sandbags, or other supports to best fit his height, and then assumes a comfortable firing position. He assumes this firing position by placing his right foot to the rear as a brace and then leaning forward until his chest is against the forward wall of the foxhole. He extends his left arm and elbow over the forward side of the foxhole, allowing the parapet or sandbags to support the left forearm. The firer places the rifle butt into the pocket formed in the right shoulder and grasps the small of the stock with his right hand. He places the right elbow on solid support using the parapet of the foxhole or sandbags placed beside the foxhole. Finally, he obtains a spot weld and relaxes. As in the other supported positions, the rifle must not rest on or touch the support.

## 11. Wobble Area

"Wobble" is the slight movement of the rifle that occurs during aiming. "Wobble Area" is the extent of this movement in all directions. From the firer's viewpoint, the wobble area is indicated by the movement of the front sight blade on and around the aiming point. This movement is a natural occurrence and can never be completely eliminated. The size of the wobble area depends upon the firing position.

*a. Firing Positions.* The more support a firer has for his rifle, the smaller his wobble area will be. Therefore, if a firer has a choice of positions, he should select the most stable position that affords observation of the target area.

*b. Trigger Control.* Wobble is a relative matter, the prone position affording more steadiness than standing. Since the body, and thus the weapon will tend to move back and forth and

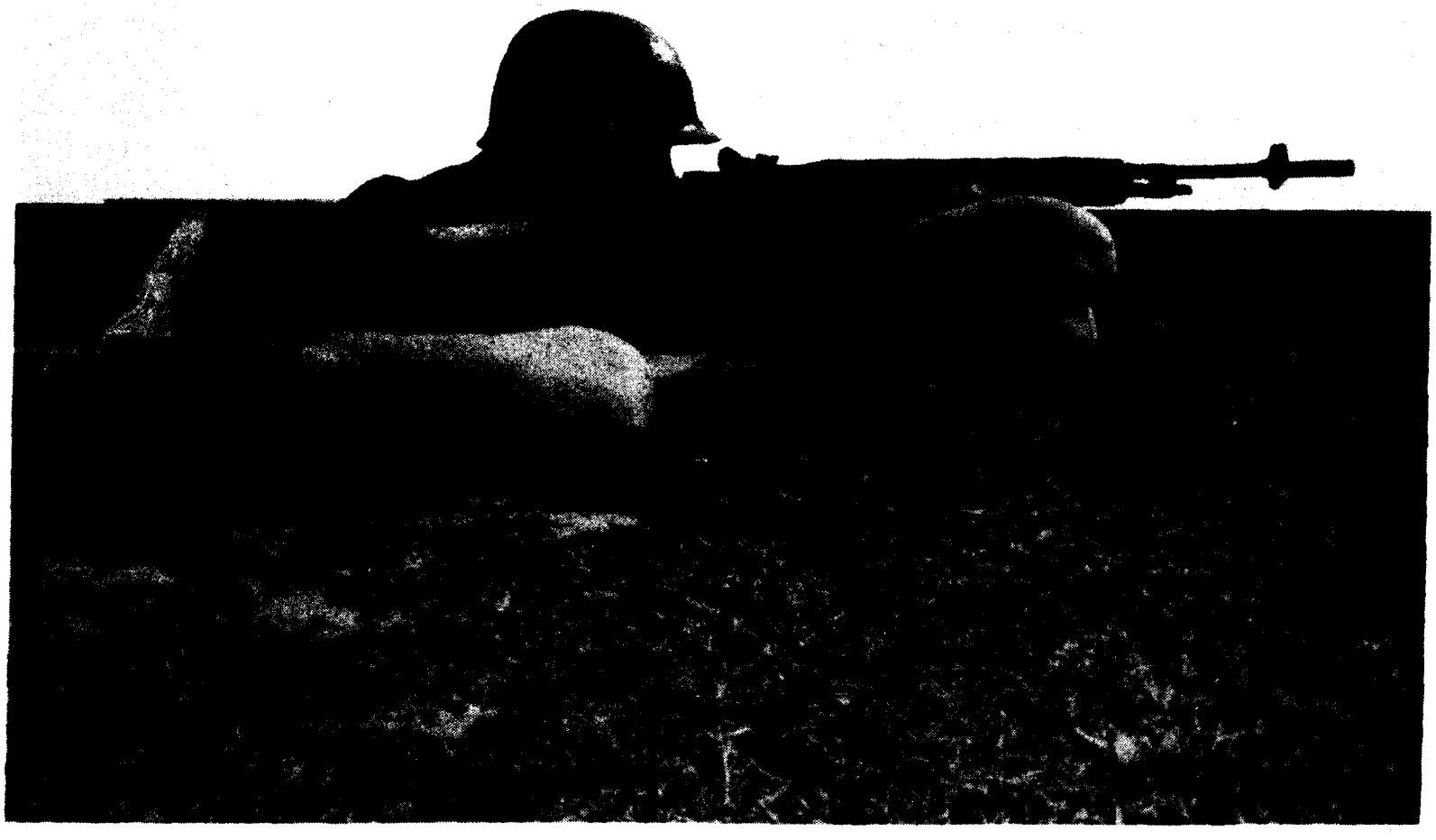


*Figure 20. Foxhole position.*


*Figure 21. Calling the shot.*

or up and down, the inexperienced firer must be taught to apply pressure to the trigger during his wobble and not attempt to jerk the trigger when the sight picture "looks perfect." The application of this principle of squeezing through or during the wobble will greatly reduce the tendency of the shooter to jerk or snap the shot and which may result in a miss. Essentially, the firer must learn to control the pressure on the trigger so the rifle will fire during the few moments it is wobbling the least. As soon as the firer has obtained a correct sight picture, he begins applying pressure to the trigger. Through training, he has learned to shift the focus of his eye to the front sight blade. It is at this time that the wobble area becomes most readily apparent. So long as the size of the wobble area does not exceed the size of the target, pressure should continue to be applied on the trigger. However, if the wobble becomes excessive, causing the front sight blade to move completely off the target, the firer should hold the trigger pressure, reestablish the correct sight picture and again steadily increase the trigger pressure. He should continue applying pressure to the trigger even after the rifle fires. This procedure helps to prevent excessive wobbling at the instant the rifle is fired.

## 12. Follow-Through

Follow-through is the continued application of the fundamentals after each round has been fired. That is, the firer does not shift his position, move his head, or let the muzzle of the rifle drop until a few moments after the rifle has been fired. This procedure will insure that there is no undue movement of the rifle until after the round is fired and from a training viewpoint, can assist the firer to correct his own errors. By knowing his sight picture the instant the round is fired, the soldier can analyze his shot group in relation to this sight picture and correct himself accordingly. In combat, follow-through allows the soldier to observe the strike of his bullet in relation to his aiming point, enabling him, if necessary, to adjust his aiming point and fire a second round.

## 13. Calling the Shot

When a soldier "calls his shot" (fig. 21), he is indicating the place on the target at which he was aiming the instant the rifle fired. In the case of 25-meter or 1000-inch range targets, a shot is "called" by indicating the relationship between where the rifle was pointing at the instant of firing, and the aiming point on the target. If his sights were aligned anywhere on the aiming point, the firer would call "HIT." Over or under the aiming point, the call would be either "High" or "Low" and to the sides, "Right" or "Left." These calls can also be combined, such as "High-right" or "Low-left." As the firer becomes more experienced, he can become even more precise in his "calls." For example, "Hit, high-right" would mean the firer hit the upper right portion of the black rectangular square. "Low, slightly left" would mean the firer was well beneath the aiming point but just barely off its left edge. During 25-meter or 1000-inch firing, the soldier must immediately record his call of the shot on his firing data card.

*a.* Initially, soldiers may have difficulty in

calling their shots. The primary reason for this is that many soldiers will not properly follow-through and thus have no idea of their sight picture at the instant of firing. Such firers must receive close supervision if they are to correct this fault.

*b.* A second problem in calling the shot occurs during the initial firing exercises of marksmanship fundamentals training. These exercises are conducted before the rifles have been zeroed; consequently, a firer might call a hit, but the sight setting on his rifle is such that the bullet strikes the lower left portion of the target paper. Firers should be aware of this fact; otherwise, they are likely to become discouraged and discount the importance of calling their shots. The soldier should be informed that calling the shot is a means to assist him in applying the principles of follow-through, and until he has zeroed his rifle, he cannot expect to hit the point at which he aims. Later in the course, during battlesight zero, calling the shot has a direct and important application. In this type of firing, soldiers who consistently call their shots correctly will have considerably less difficulty and will be able to make much more accurate sight adjustments than will those who neglect this technique. Without the ability to call his shots the firer will never be able to get his zero on a weapon.

## 14. Shot Group Analysis

*a.* A perfect shot group is one in which all rounds hit the target at exactly the same point. However, factors such as wind, the ability of the firer, and the slight manufacturing differences between rounds make such a shot group virtually impossible. Shot groups are analyzed by studying the arrangement of the bullet holes on the target. The distance between these holes and the overall pattern made by the shot group are considered in determining the proficiency of the firer. As a general rule, the smaller the pattern, the better the shot group.

*b.* Most unsatisfactory shot groups are usually elongated, either vertically or horizontally, and are the direct result of incorrect sight pictures. That is, at the instant of firing, the soldier had an error in sight alignment or in the placement of the aiming point, or he may have had a combination of the two errors. However, the fact that an obviously incorrect sight picture occurred at the instant of firing does not necessarily mean that the only mistake was aiming. For example, incorrect application of pressure on the trigger will almost always pull the sights out of alignment and or off the aiming point. Improper breathing or undue muscular strain can also cause aiming errors, although these are less common mistakes than improper trigger control. Coaches and or instructors must keep in mind that any of several improperly applied fundamentals can disarrange the sight picture and cause unsatisfactory shot groups. Consequently, they should carefully observe a firer's application of all fundamentals to insure that the actual mistake is identified.

*c.* Assuming that all fundamentals except aiming have been eliminated as the cause of a firer's unsatisfactory shot groups, the coach or instructor can then use the size and configuration of the shot group patterns to determine the specific type of aiming error. The relationship of these patterns to the type of aiming errors is as follows:

(1) Long, vertical shot groups are the result of improper horizontal sight alignment. That is, the firer has positioned the front sight blade too high or too low in the rear sight aperture (fig. 22).

(2) Long, horizontal shot groups are the result of improper vertical sight alignment. That is, the firer has positioned the front sight blade too far to the right or left in the rear sight aperture (fig. 23).

(3) A small or "tight" shot group indicates proper application of the eight steady hold factors, and correct sight picture (fig. 24).

*d.* During fudamentals training, each soldier should be given a target analysis card (fig. 25) to assist him in determining and correcting his own mistakes. These cards depict several different types of unsatisfactory shot groups, the probable errors that caused them, and the necessary corrective action.

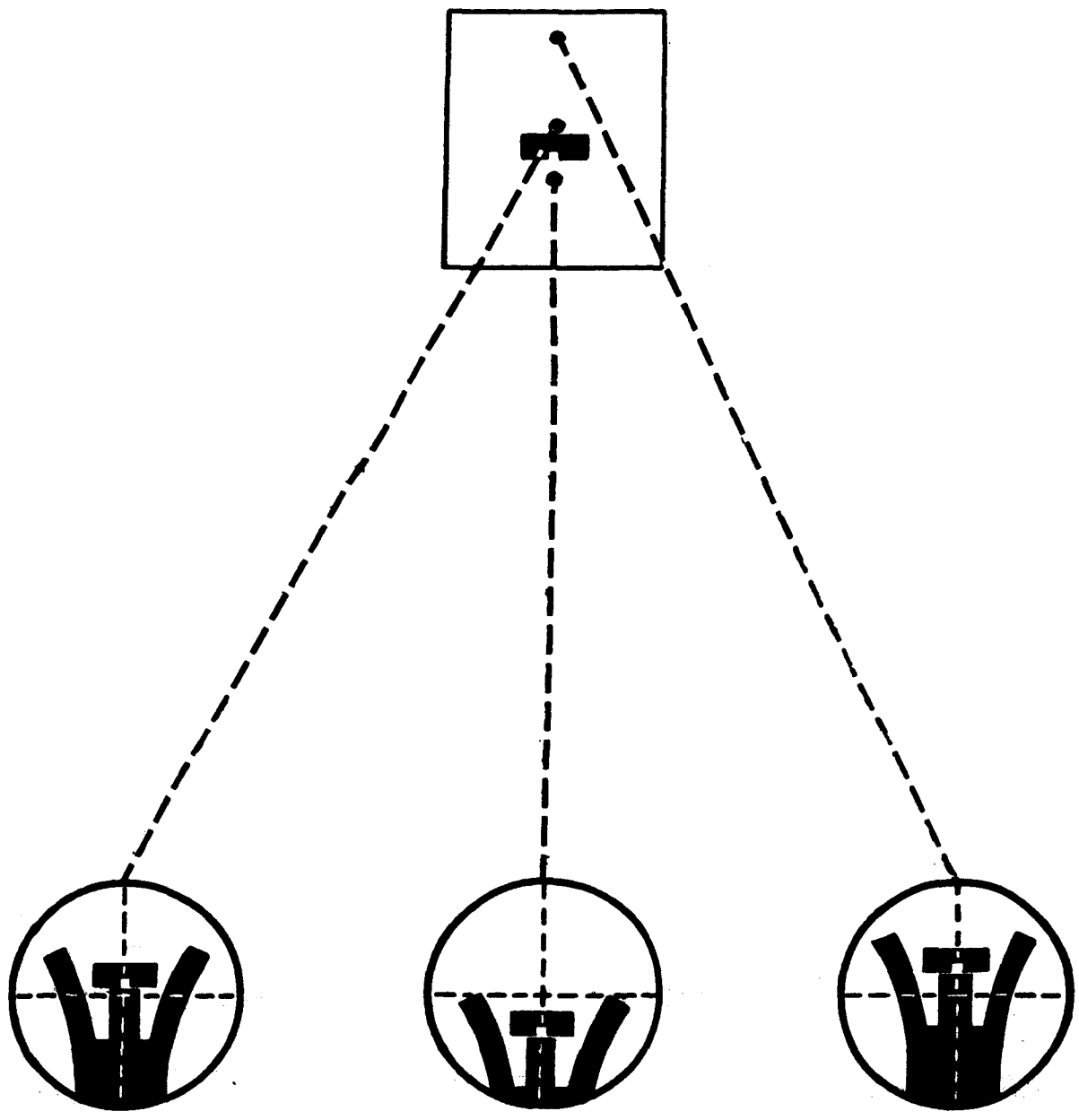


*Figure 22. Long, vertical shot group.*

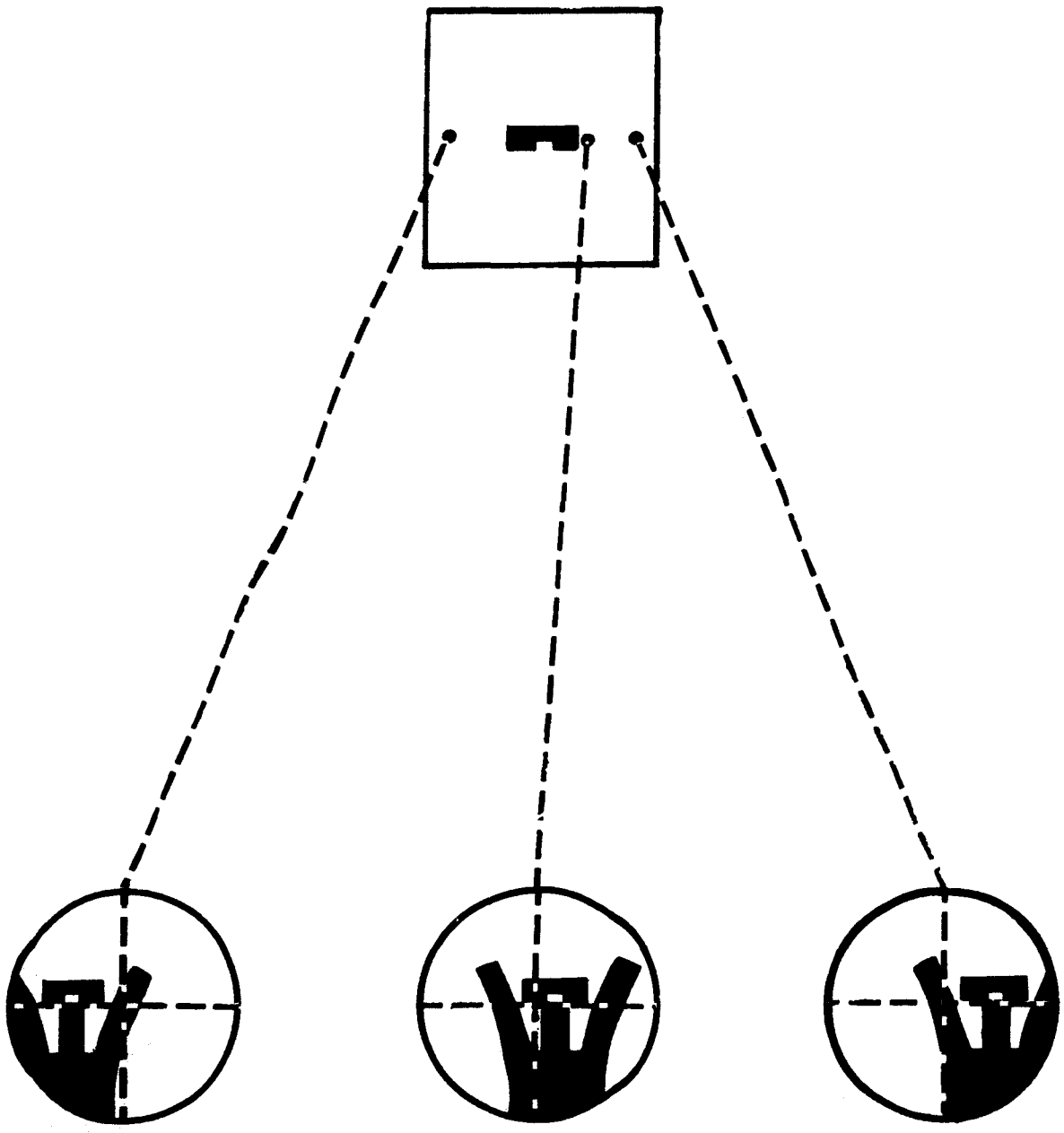


*Figure 23. Long, horizontal shot group.*

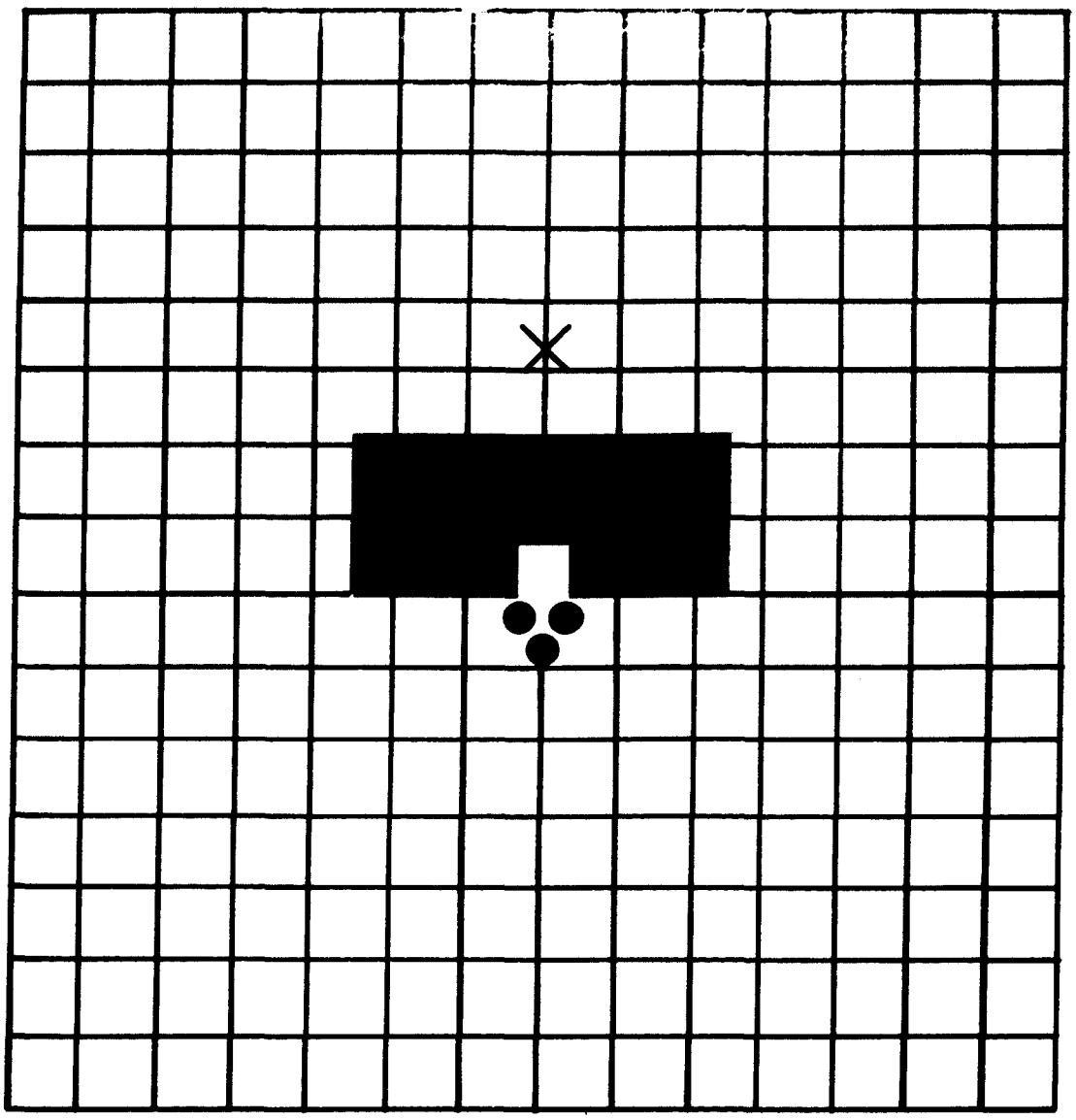
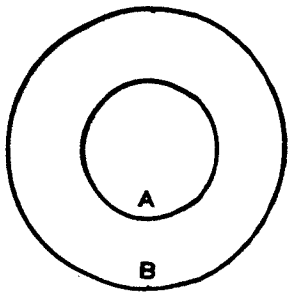


*Figure 24. Good shot group.*

## SHOT GROUP ANALYSIS CARD




SCORING TEMPLATE

CIRCLE "A"–3 CM DIAMETER
SATISFACTORY SHOT GROUPS FIRED FROM THE PRONE SUPPORTED OR FOXHOLE POSITION AT 25 METERS MUST FALL WITHIN OR TOUCH THIS CIRCLE.

CIRCLE "B"–5 CM DIAMETER
SATISFACTORY SHOT GROUPS FIRED FROM THE KNEELING SUPPORTED AND ALL UNSUPPORTED POSITIONS AT 25 METERS MUST FALL WITHIN OR TOUCH THIS CIRCLE.

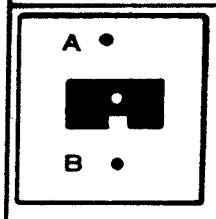
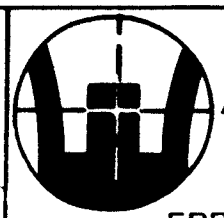
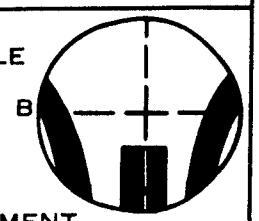
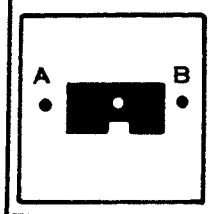
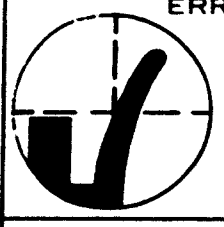
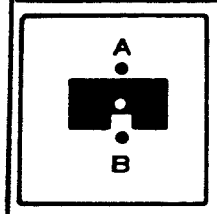
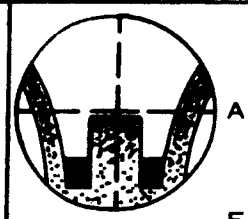
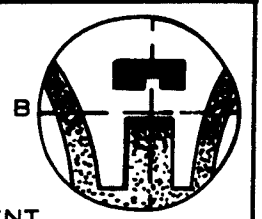
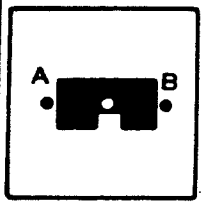
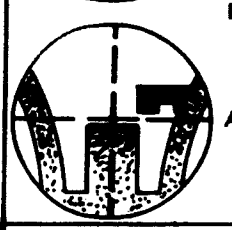
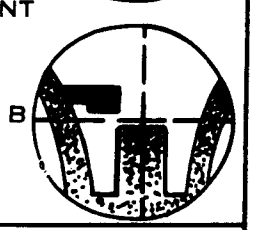
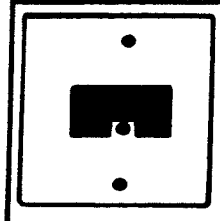
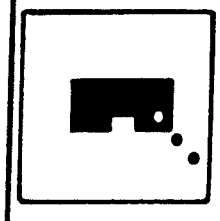
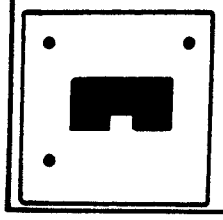
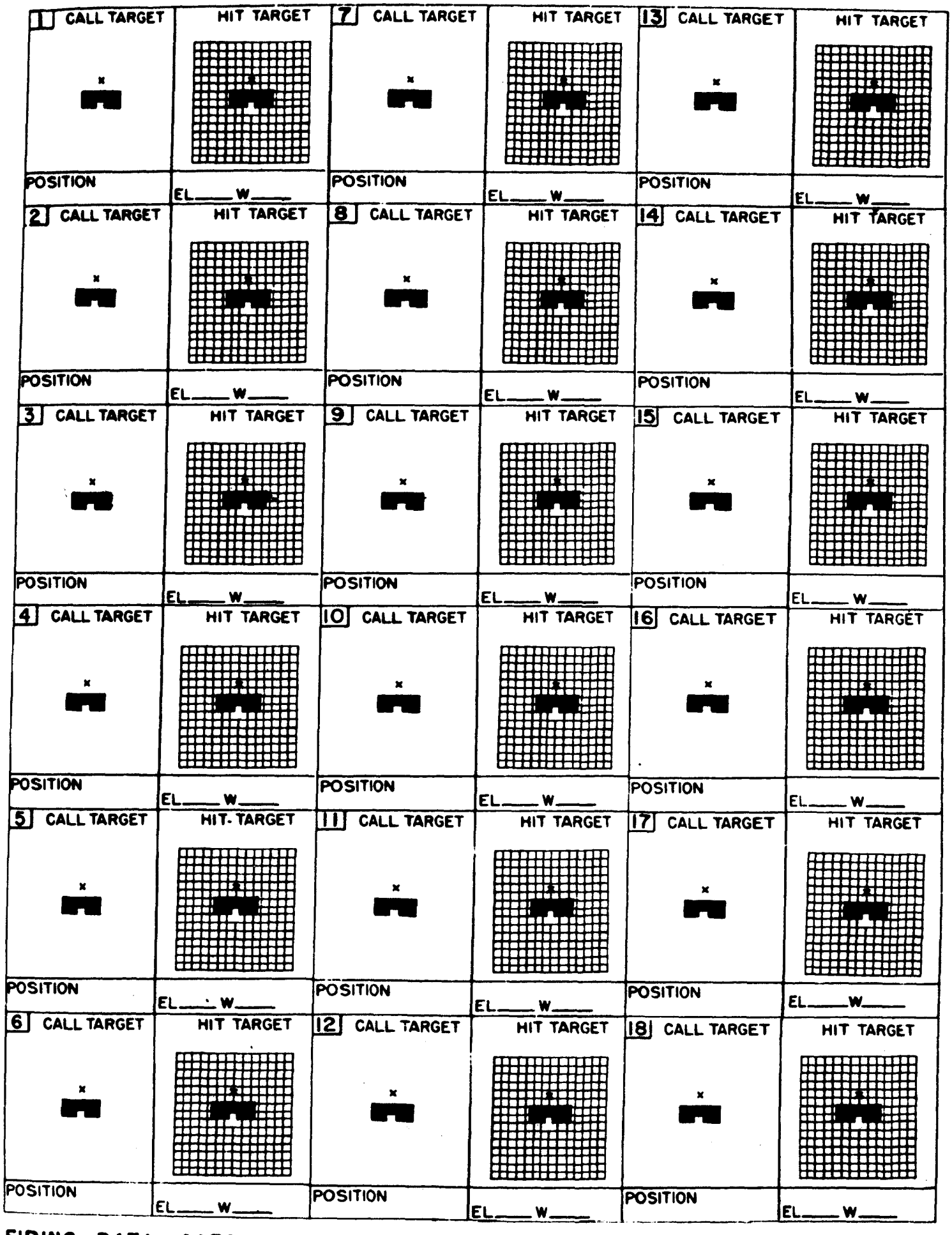
| IF YOUR SHOT GROUP LOOKS LIKE THIS | | THIS IS A POSSIBLE CAUSE | |
|---|---|---|---|
|   | LONG VERTICAL |   | ERROR IN SIGHT ALINEMENT<br>   |
|   | LONG HORIZONTAL |   |   |
|   | SHORT VERTICAL |   |   |
|   | SHORT HORIZONTAL |   | ERROR IN PLACEMENT OF AIMING POINT<br>   |
|  | LONG VERTICAL | IMPROPER BREATHING | |
|  | LOW RIGHT | IMPROPER TRIGGER CONTROL<br>LEFT ELBOW SLIPPING OUT. | |
|  | SCATTERED | RE-EXAMINE ALL STEADY HOLD FACTORS | |

*Figure 25. Target analysis card.*




FIRING DATA CARD

1 Front

*Figure 26. Firing data card.*

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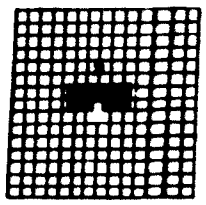
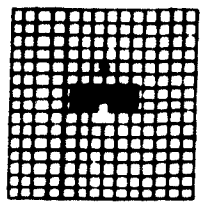
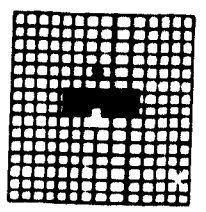
| 19 CALL TARGET  | HIT TARGET  | 25 CALL TARGET  | HIT TARGET  | 31 CALL TARGET  | HIT TARGET  |
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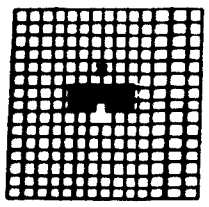
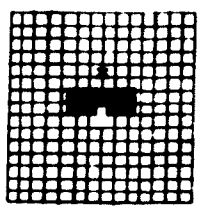
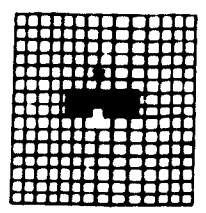
| 20 CALL TARGET  | HIT TARGET  | 26 CALL TARGET  | HIT TARGET  | 32 CALL TARGET  | HIT TARGET  |
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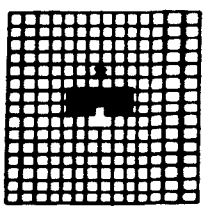
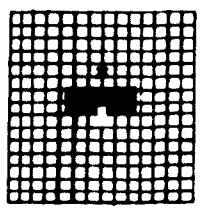
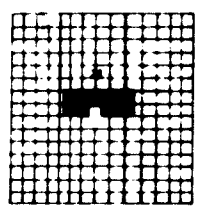
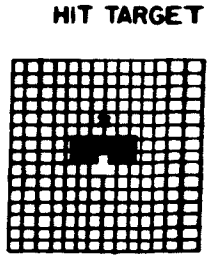
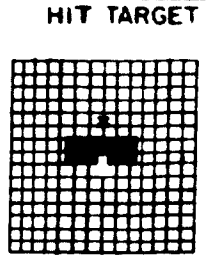
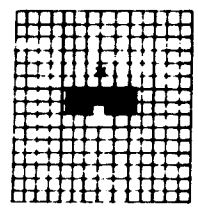
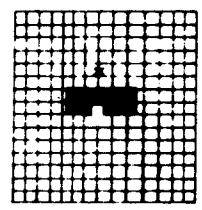
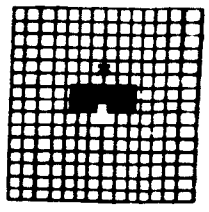
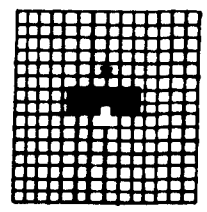
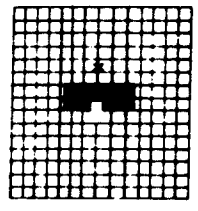
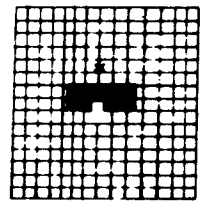
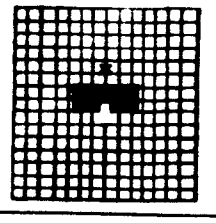
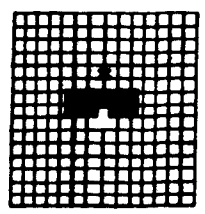
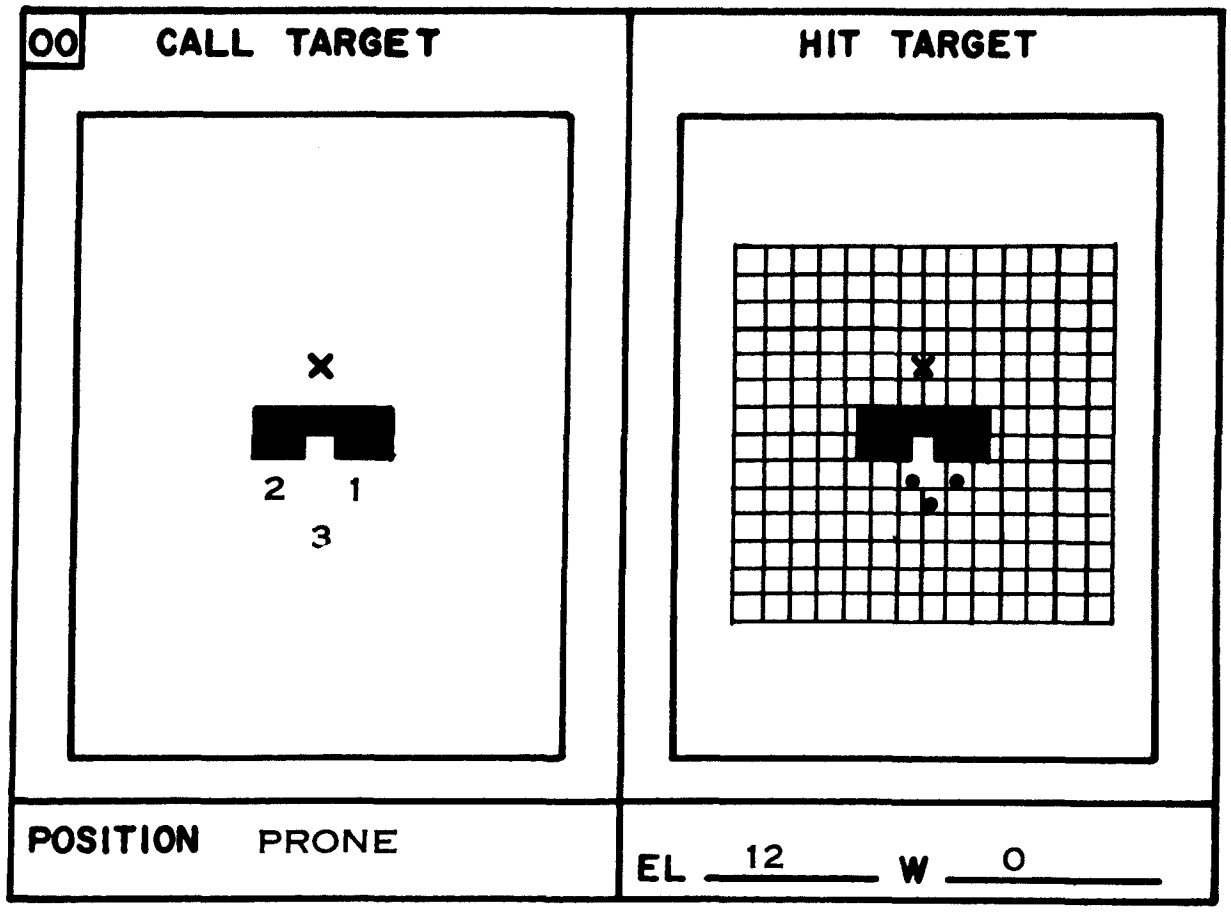
| 21 CALL TARGET  | HIT TARGET  | 27 CALL TARGET  | HIT TARGET  | 33 CALL TARGET  | HIT TARGET  |
| POSITION | EL____ W____ | POSITION | EL____ W____ | POSITION | EL____ W____ |
| 22 CALL TARGET  | HIT TARGET  | 28 CALL TARGET  | HIT TARGET  | BATTLESIGHT ZEROING | |
| POSITION | EL____ W____ | POSITION | FL____ W____ | 1st GROUP  EL____ W____ | 2nd GROUP  EL____ W____ |
| 23 CALL TARGET  | HIT TARGET  | 29 CALL TARGET  | HIT TARGET  | 3rd GROUP  EL____ W____ | 4th GROUP  EL____ W____ |
| POSITION | EL____ W____ | POSITION | EL____ W____ | | |
| 24 CALL TARGET  | HIT TARGET  | 30 CALL TARGET  | HIT TARGET  | NAME Higgins, Sam L.<br>UNIT Co. B, 85th Inf.<br>ASN RA 2004532<br>RIFLE NO. 100745<br>250 METER<br>BATTLESIGHT ZERO<br>EL____ W____ | |
| POSITION | EL____ W____ | POSITION | EL____ W____ | | |

2 Back

*Figure 26*—Continued.




3 Example of firing data card entry

*Figure 26*—Continued.

## 15. Firing Data Card

*a.* The firing data card is used in each firing exercise throughout marksmanship fundamentals training. This card provides a record of the "calls," "hits," positions fired, the sight setting used for each, and the battlesight zero (fig. 26).

*b.* Properly used, the firing data card is a valuable aid to the firer and the instructor. For example, when used in conjunction with the targets retained in the progress envelope (par. 16), the card provides an excellent means for analyzing each soldier's progress and marksmanship proficiency.

*c.* The "call" is plotted on the call target of the firing data card immediately after each shot is fired. "Calls" are plotted in numerical order (i.e., 1, 2, 3, etc.) until all rounds of the shot group exercise have been fired. After the firing line has been cleared, firers will go forward, check their targets, and record the exact location of each hit as a penciled dot on the hit target (3, fig. 26).

## 16. Progress Envelope

Each soldier should be required to maintain a progress envelope throughout his marksmanship training. The envelope should contain all of his 25-meter (1000-inch) range targets, his firing data card, target analysis card, and field firing score cards. With this information, instructors can accurately review a soldier's performance and identify those areas that are causing difficulty.

## 17. Coaches

*a.* During fundamentals training, each soldier will perform the duties of a coach approximately 50 percent of the time. The degree of proficiency attained by the individual firer depends on how well the coach performs his duties. He is the only man who can continually observe the same individual, and, therefore, is in the best position to detect and correct errors as they occur.

*b.* The major obstacle to effective coaching

is the attitude of the individual. Some soldiers may feel that only expert marksmen can perform the duties of a coach with any degree of success while they, as inexperienced firers, are of little value in critiquing and advising their fellow soldiers. This reasoning is completely in error. The purpose of the coach is to continually check and assist the firer in the proper application of marksmanship fundamentals. The coach needs only to be attentive and follow the instructor's directions to satisfactorily perform this duty. He closely observes the firer's position and the manner in which the firer applies the steady hold factors to the various positions. The coach is particularly valuable in checking those factors which the firer is unable to observe for himself. Above all, the coach must prevent the firer from repeating the same errors.

*c.* Initially during an exercise, the coach should be in a location where he can best observe the firer going into position. He then should move to various points at the sides and rear of the firer and check the correctness of the position.

***Caution:*** **During live firing exercises, coaches must never move forward of the firer or the firing line.**

The coach requires the firer to make such adjustments as may be necessary to obtain a correct position. When the coach is satisfied with the firing position, he assumes a coaching position alongside the firer. As a general rule, the coach assumes a position similar to that of the firer (fig. 27).

## 18. Ball and Dummy Exercises

*a.* In ball and dummy exercises, the coach loads a dummy round or a live round into the rifle.

*Note.* If ball and dummy exercises are conducted using caliber .22 rifles, dummy rounds as such are not necessary. The coach simply closes the bolt on an empty chamber.

The firer must not watch the coach load his rifle, since the value of the exercise is based on the firer not knowing if a live round is in the chamber. This is a particularly effective exercise in detecting errors in aiming, trigger control, and those caused by the firer attempting to compensate for recoil.

*b.* Ball and dummy exercises are conducted as follows:

(1) The coach secures dummy rounds and live rounds and assumes the proper coaching position alongside the firer.

(2) The firer is directed to look away while the coach loads a dummy or a live round into the rifle.

(3) The coach allows the bolt to go forward.

(4) The firer is told to aim, apply the steady hold factors correctly, and fire.

(5) The coach observes the firer's eyes and face for evidence of flinching, the trigger finger for improper trigger control, and the back and chest for improper breathing techniques. When a soldier attempts to fire a dummy round, any of these errors will become apparent to an observant coach.

## 19. Rapid Reloading

*a.* A skill of utmost importance to the combat rifleman is the ability to reload his weapon as rapidly as possible. How well the soldier performs this skill on the battlefield cannot only affect the success of his unit, but can also spell the difference between inflicting casualties or becoming one himself.

*b.* Rapid reloading exercises are conducted on the 25-meter (1000-inch) range. The exercise begins with the firers in the standing position. On command from the control tower, one round is loaded into the rifle. On the command to commence fire, firers assume the designated position (prone or sitting) and fire one round. If the M1 rifle is used, the firer reloads an eight-round clip, resumes his position, and fires one additional round.

*Note.* For the initial exercise using M1 rifles, each coach should draw three live and six dummy rounds. One live round will be loaded singly by the firer. The remaining rounds are loaded into a clip so that a live round will be the first and last round of the clip. In this way, the firer need not be concerned with which side of the clip is loaded into the rifle first. For subsequent exercises, only two rounds need be drawn since the clip will still contain one live round from the previous exercise.

If the firer is armed with the M14 rifle, he reloads a magazine containing one round, resumes his position, and fires the second round.

The maximum time to conduct a complete exercise, beginning with the command to commence firing, is 24 seconds.

*c.* Close supervision is essential during this training to insure that all of the correct marksmanship fundamentals, particularly trigger control, are being applied. Firers must learn not to sacrifice accuracy for speed, but at the same time, they must not use excessive time in firing the second shot.

## Section III. CORRECTIVE INSTRUCTION

### 20. Purpose

During some phase of marksmanship fundamentals training, a few soldiers will have more difficulty understanding and applying the various techniques than others. To provide the extra instruction required by the less skillful firers without delaying the progress of the entire unit, a concurrent, corrective training area should be used. If a separate range is not available for this concurrent training, a number of firing points should be set aside on the 25-meter (1000-inch) range for this purpose.

### 21. Conduct

*a.* In practically every instance, the size and configuration of shot groups will identify those firers having difficulty. Once they have been identified, assistant instructors should be assigned to provide individual corrective instruction. Only the best qualified instructors should be designated to conduct corrective instruction. They must be well grounded in marksmanship fundamentals, alert to common shooting errors, and have a thorough understanding of how to quickly correct these errors. In some cases, the instructor can determine the cause of the firers' deficiencies simply by discussing the problem with them and examining their shot groups and other data contained in the progress envelopes. However, in the majority of cases, the instructor must closely observe the soldier fire several rounds before the cause of his errors can be determined. The reason for this is that the instructor might hastily conclude that the firer's poor shot groups are a result of incorrect sight picture when, in fact, the error in sight picture (like the poor shot groups) is actually brought about by improper trigger control. (See par. 9*b*(8) for discussion of trigger control.)

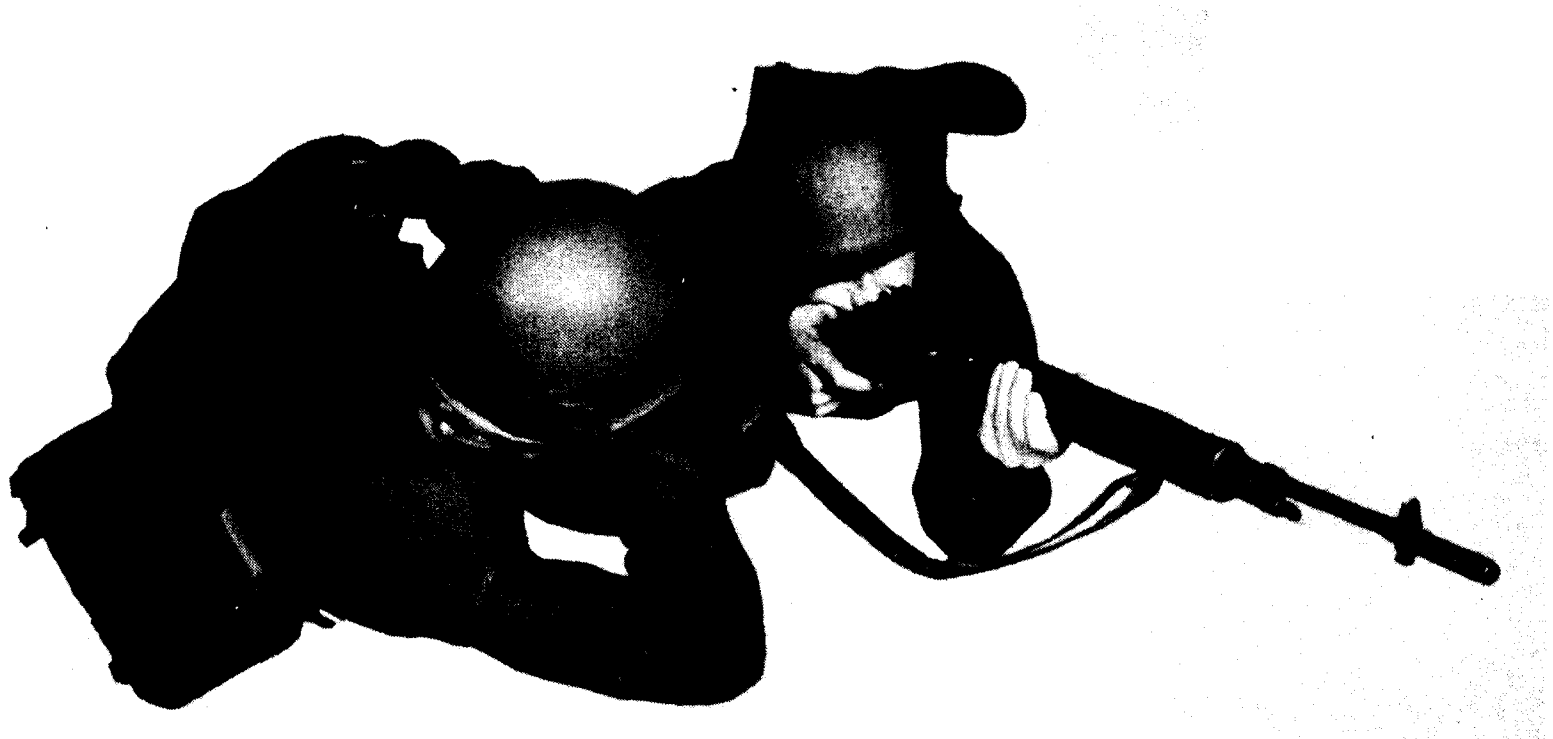


*Figure 27. Positions of the coach.*

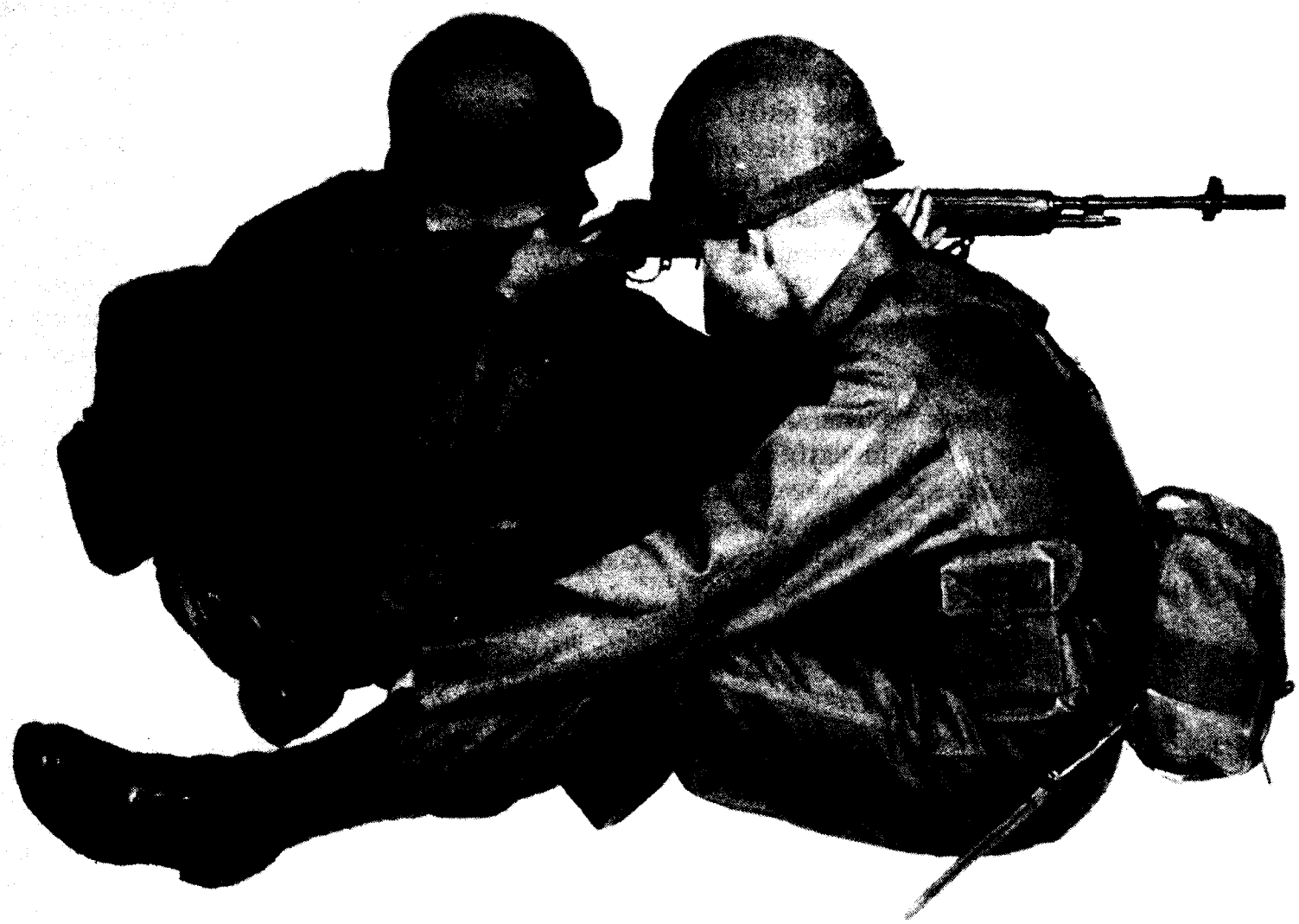


*Figure 27*—Continued.

*Figure 27*—Continued.

*Figure 27*—Continued.

*Figure 27*—Continued.

*b.* Time is a definite factor in corrective instruction. While a firer is receiving corrective instruction, he will, of necessity, miss the regularly scheduled training of his unit. In view of this, the instructors should provide intensified training on those subjects the firer has missed before he rejoins his unit.

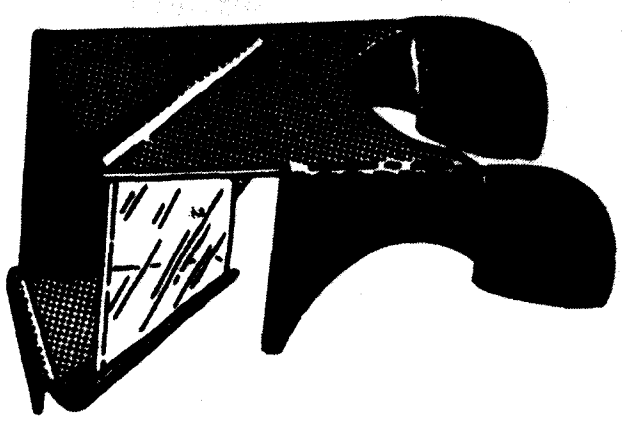
*c.* If the instructor determines improper trigger control to be the source of the firer's difficulty, he may be able to correct this simply by telling the firer his specific error. A firer who flinches can sometimes overcome this tendency by using earplugs. However, if these procedures fail to produce the desired results, the following exercises can be used to improve trigger control techniques:

(1) *Blank target firing exercise.* This exercise is designed to correct firers who jerk the trigger once their sights are aligned on the aiming point (par. 9*b*(8)). The cause of this error is that the firer is concentrating more on the aiming point than he is on either sight alignment or trigger control. In order to correct this error, the firer must learn that the aiming point is of secondary importance to sight alignment and trigger control. This can best be accomplished by removing the aiming point, that is, replacing the standard target with a blank sheet of paper. The blank paper provides a background on which the firer can align his sights; however, there is no specific aiming point which would cause him to hurry his shot. The assistant instructor should carefully check the soldier's trigger control as he fires. If the aiming point was the cause of the firer's error, the assistant instructor should note an almost immediate improvement. If there is no apparent improvement after the soldier has fired several rounds, the assistant instructor should check other possible causes of incorrect trigger control, such as improper breathing or muscular tension. When the assistant instructor is satisfied that the error has been corrected, the soldier should be required to fire one or two more shot groups at a standard target before being released.

(2) *Metal disc exercise (M1 rifle only).* The metail disc exercise is an excellent method of correcting those soldiers who jerk the trigger because of improper breathing or muscular tension. This is a dry fire exercise in which any of the eight standard firing positions can be used. When the firer has cocked his weapon and assumed the designated position, the assistant instructor places a dime size metal disc on the front end of the barrel. The disc must not touch the gas cylinder lock. The soldier then simulates firing trying not to dislodge the disc as he does so. If the firer is in a relaxed position and breathing properly, the disc should remain in position throughout the entire cycle of breathing, sight alignment, firing, and follow-through.

(3) *Trigger.* This exercise is designed to prove the value of proper trigger control. After the firer is in position, he is told to remove his finger from the trigger and grasp the small of the stock with all fingers of his right hand. Using the thumb and forefinger of his right hand, the coach applies pressure to the trigger until the rifle fires. The soldier has no control over when the rifle fires and, therefore, is free to concentrate on obtaining a proper sight picture.

*d. M2 Aiming Device.* This device (fig. 28) operates on the principle of a periscope, fitting over the rear sight so the coach can observe the same sight picture as does the firer. With this device, the coach can check the correctness of the sight picture, the effect of the firer's trigger control on sight alignment, and whether the firer is correctly calling his shots. So far as the coach is concerned, the device reflects images exactly opposite from what the firer sees. That is, if the firer correctly calls his shot "Right," in the device, it will appear to be left. To gain the most benefit from the device, the coach must look directly into the device and continually adjust his position as necessary.



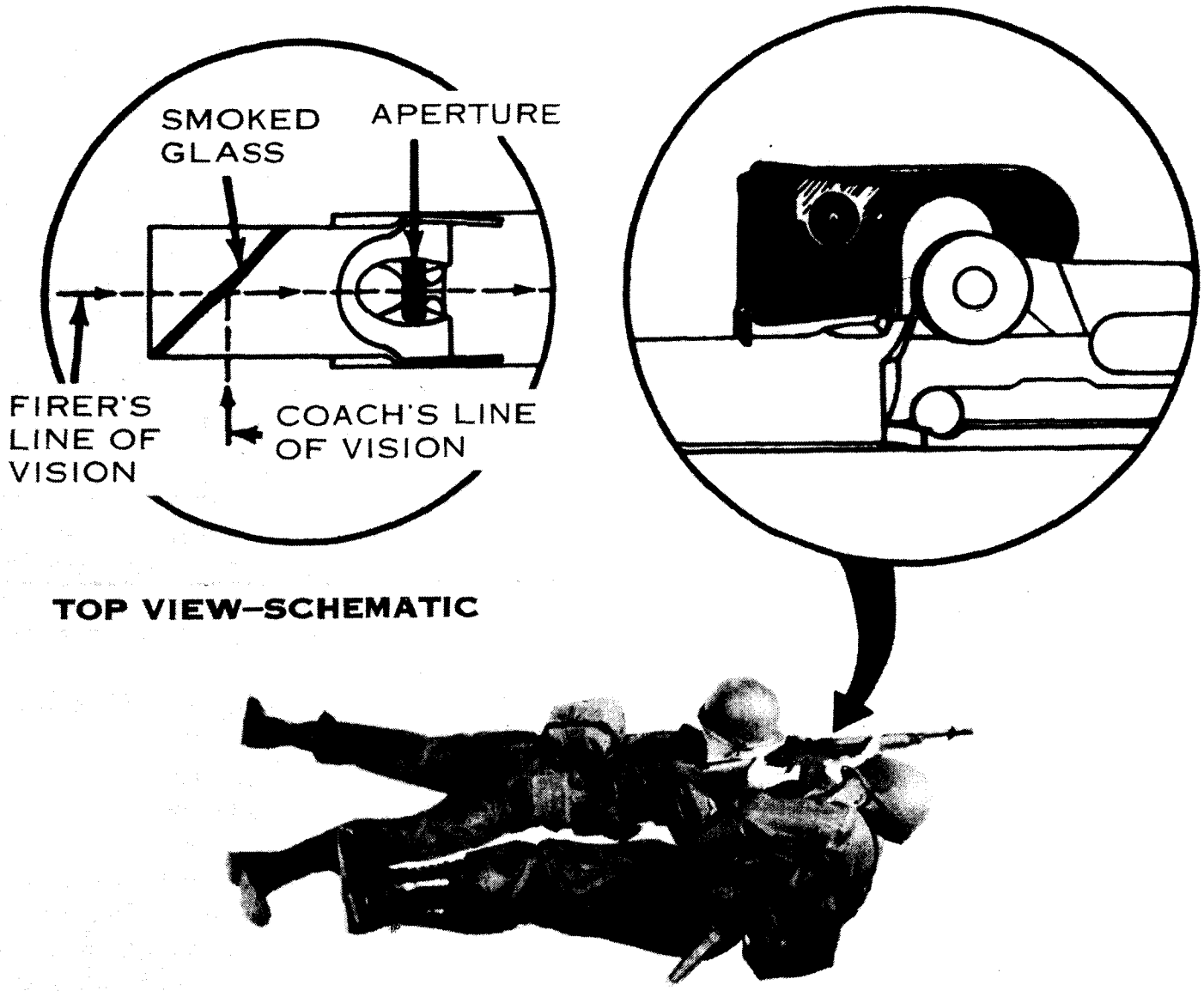



*Figure 28. M2 aiming device.*

Once in position, the coach must hold his breath in order to have minimum body movement while checking the firer's sight picture. Finally, he must watch closely for any sudden changes in sight picture the moment before firing. Any such sudden change will indicate that the firer is either flinching or bucking. This device may be used during any phase of preparatory marksmanship and is particularly valuable in conducting corrective instruction.

*e.* So far as possible, ball and dummy exercises should be used extensively throughout corrective instruction. Initially, some type of exercises, such as positions and aiming, are better conducted without live ammunition. However, regardless of the training technique used, each soldier should be required to fire several ball and dummy exercises before being returned to the regular class. Instructors must closely supervise this firing to insure that the soldier has, in fact, overcome his difficulties.

## Section IV. CONDUCT OF FIRING

### 22. General

*a.* During training in marksmanship fundamentals, all live firing exercises are conducted on either 25-meter or 1000-inch ranges (fig. 29). Determination of battlesight zero and the progress check are also fired on these ranges. Although there is slightly more distance between the firing line and the targets on 1000-inch ranges than on 25-meter ranges, the difference is negligible and may be discounted for purposes of sight adjustment. However, most 25-meter ranges have foxholes and simulated tree stumps constructed along the firing line, whereas 1000-inch ranges do not. Since these features are necessary to conduct firing from supported positions, 25-meter ranges should be used in preference to 1000-inch ranges whenever possible.

*b.* The 25-meter target (fig. 34) is used for all 25-meter or 1000-inch range firing. Targets are fastened to standard target panels or to "E" type silhouettes located 25 meters or 1000 inches from the front numbered stakes.

*c.* Soldiers using service rifles during marksmanship fundamentals training will fire three rounds to form a shot group, while those using .22 caliber rifles will fire five rounds. As each firing exercise is completed, the soldier removes his target from the panel or silhouette and places it in his progress envelope. These targets then serve as a basis for critiques and/or corrective instruction.

*d.* Firing data cards should be filled out by the firer for each exercise conducted on the 25-meter or 1000-inch range.

*e.* Sufficient target analysis cards (fig. 25) should be available so each firer may have one for reference while examining his shot groups.

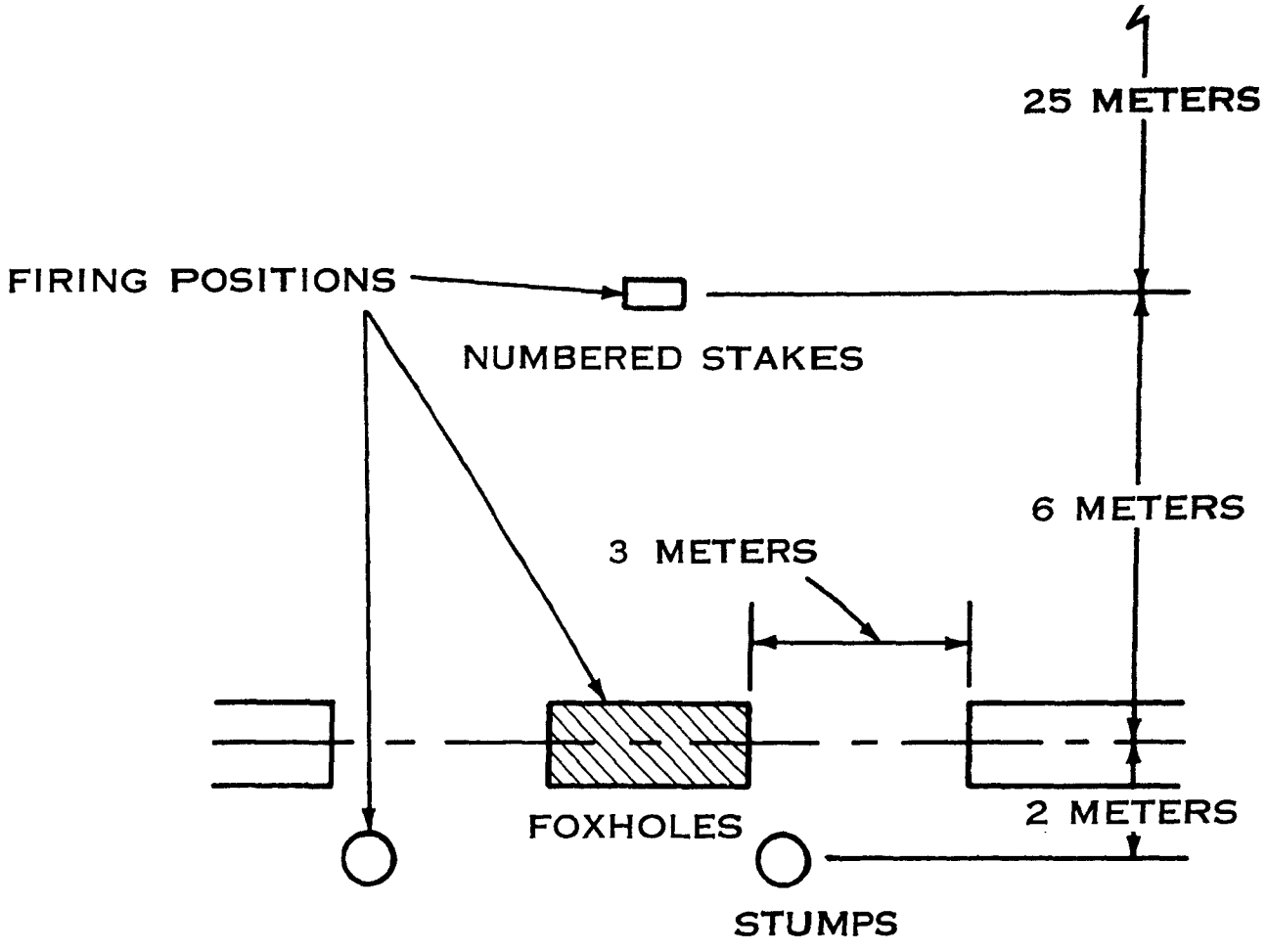
### 23. Range Management

*a. Organization and Procedure.*

(1) Based on a 200-man unit, the range should have 110 firing points. The unit is divided into two orders, and soldiers in the first order are paired with soldiers in the second order. Each pair of soldiers is then assigned a firing point, beginning with point number one and extending through point number one hundred. One order is designated as firers and the other as coaches. The extra ten firing points are used to conduct corrective instruction.

(2) On 25-meter ranges, a foxhole and stump are provided at each firing point so instruction in firing from supported positions can be conducted. Since 1000-inch ranges do not contain these features, exercises involving the foxhole and kneeling supported positions are not conducted on ranges of this type.

(3) A control tower should be centrally located in the rear of the firing line. It should be sufficiently elevated to permit unrestricted observation of the range, both in rear of the firing line and a reasonable distance behind the line of targets. All firing commands are issued from the control tower and must be obeyed immediately. The single exception to this is in the event an unsafe act occurs which escapes the attention of the tower operator. In this case, the first individual to see such an act should command, "CEASE FIRE."



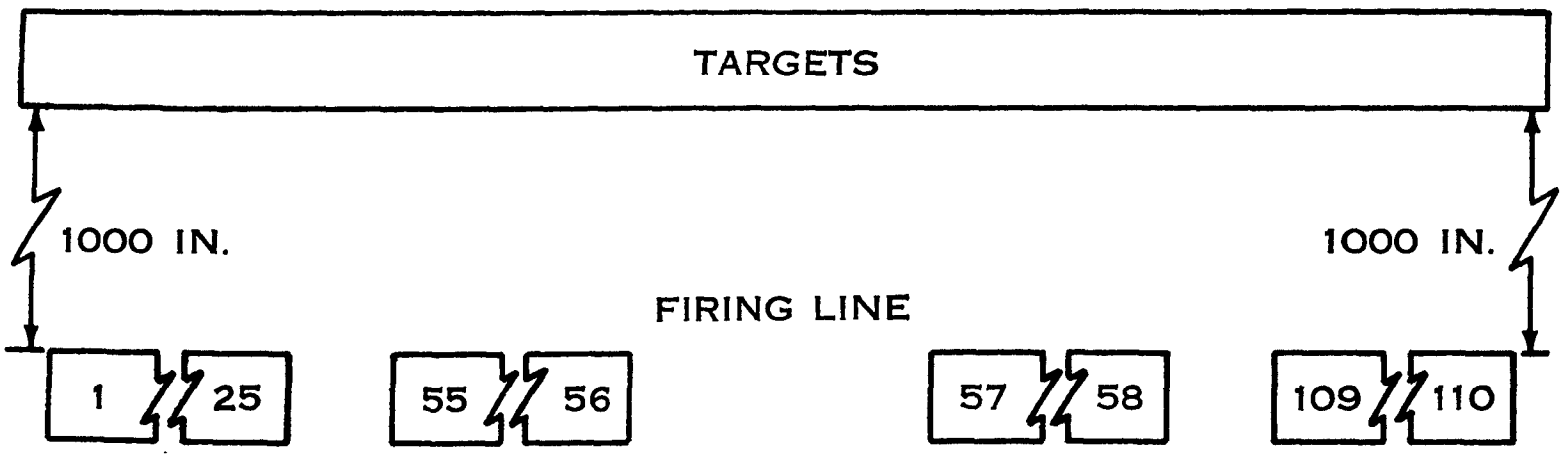




*Figure 29. 25-meter and 1000-inch ranges.*

(4) To provide both efficient range operation and effective instruction, the following personnel are required:
  (*a*) Control officer.
  (*b*) Safety officer.
  (*c*) Noncommissioned officer in charge.
  (*d*) Ammunition detail.
  (*e*) Ordnance small arms repairman.
  (*f*) One assistant instructor per seven to ten points.
  (*g*) Medical personnel.

(5) Prior to beginning each live fire exercise, all personnel must be briefed on the range safety regulations (app. II).

(6) As a soldier completes firing a shot group, his rifle is checked and cleared by an assistant instructor. When all soldiers have completed firing, and their rifles have been individually cleared by the assistant instructors, the control tower operator announces that the firing line is clear, and coaches and firers may move down range and stand by their targets until critiqued by an assistant instructor.

*b. Fire Commands.* In order to simplify firing procedures, fire commands should be brief and standardized as much as possible from one exercise to the next. Type commands for exercises are as follows:

(1) *Shot group exercises.*

FIRERS ASSUME THE _____ POSITION.
COACHES SECURE THREE (OR FIVE) ROUNDS OF AMMUNITION.
THE FIRING LINE IS NO LONGER CLEAR.
LOCK.
ONE EMPTY MAGAZINE LOAD (For magazine fed weapons only).
ONE ROUND LOAD.
YOU WILL FIRE AT THE (NUMBER OR LOCATION) TARGET.
COMMENCE FIRING WHEN READY.
CEASE FIRING.
CLEAR ALL WEAPONS.
CLEAR ON THE RIGHT?
CLEAR ON THE LEFT?
THE FIRING LINE IS CLEAR.
COACHES AND FIRERS MOVE DOWN RANGE AND CHECK YOUR TARGETS.

(To conserve time, instructions for the next exercise may be given as the coaches and firers are returning from the line of targets.)

(2) *Rapid reloading exercise.* Preliminary instructions to describe the exercise should be given prior to the actual fire command. For example, "The next exercise will be from the standing to the prone position. You will be required to assume the prone position, fire one round, reload rapidly and fire a second round. You will have 24 seconds to complete this exercise. Timing begins on the command, COMMENCE FIRING. This is also your command to assume the prone position and fire the exercise."

(*a*) *Fire commands for magazine fed rifles.*

FIRERS STAND.
THE FIRING LINE IS NO LONGER CLEAR.
COACHES SECURE TWO ROUNDS OF AMMUNITION AND TWO MAGAZINES.
LOAD ONE ROUND IN EACH MAGAZINE.
LOCK.
ONE MAGAZINE LOAD.
YOU WILL FIRE AT THE (NUMBER OR LOCATION) TARGET.
READY ON THE RIGHT?
READY ON THE LEFT?
READY ON THE FIRING LINE.
UNLOCK WEAPONS.
COMMENCE FIRING.
CEASE FIRING.
CLEAR ON THE RIGHT?
CLEAR ON THE LEFT?
THE FIRING LINE IS CLEAR.
COACHES AND FIRERS MOVE DOWN RANGE AND CHECK YOUR TARGETS.

(*b*) *Fire commands for clip fed rifles.*

FIRERS STAND.
THE FIRING LINE IS NO LONGER CLEAR.
COACHES SECURE THREE (TWO) ROUNDS OF AMMUNITION.

*Note.* For the initial exercise, each coach should draw three live and six dummy rounds. One live round will be loaded singly by the firer. The remaining two live rounds are loaded as the first and last round of the clip in order that the firer need not be concerned with which side

of the clip is loaded into the rifle first. For subsequent exercises, only two rounds need be drawn since the clip will still contain one live round from the previous exercise.

COACHES LOAD THE CLIP WITH TWO LIVE AND SIX DUMMY ROUNDS—A LIVE ROUND MUST BE THE FIRST ROUND ON BOTH SIDES OF THE CLIP.

FIRERS PLACE THE CLIP IN YOUR BELT.

LOCK.

ONE ROUND LOAD.

YOU WILL FIRE AT THE _____ _____ TARGET.

READY ON THE RIGHT?

READY ON THE LEFT?

THE FIRING LINE IS READY.

UNLOCK WEAPONS.

COMMENCE FIRING.

CEASE FIRING.

CLEAR ON THE RIGHT?

CLEAR ON THE LEFT?

THE FIRING LINE IS CLEAR.

COACHES AND FIRERS MOVE DOWN RANGE AND CHECK YOUR TARGETS.

*c. Range Safety.* See appendix II.

# CHAPTER 3

# SIGHT ADJUSTMENT, BATTLESIGHT ZERO, AND PROGRESS CHECKS

## Section I. SIGHT ADJUSTMENT

### 24. General

Following fundamentals training, the soldier must zero his service rifle. In order to accomplish this, the soldier must first learn the operation of the rear sight, the use of the elevation and windage rule, and how to compute sight changes.

### 25. The Rear Sight

*a.* The rear sight (fig. 30) of the service rifle has an elevation knob and a windage knob which are used to move the rear sight aperture up or down and right or left respectively. Changing the position of the rear sight aperture causes a corresponding change in where a bullet will strike the target. The elevation knob affects the vertical location of the shot while the windage knob affects the horizontal location. Both knobs make an audible click when they are turned. Each click changes the strike of the bullet a definite distance, depending on the range to the target. The elevation knob is adjustable from 0 to 72 clicks. The windage knob can be adjusted to either 16 clicks to the right or 16 clicks to the left of the center index line.

*b.* During training in marksmanship fundamentals, soldiers should conduct all firing exercises with the rear sights of their service rifles set at twelve clicks of elevation and zero windage. This setting should not be changed until the soldier is ready to determine the battlesight zero of his rifle. The reason for this is twofold: first, untrained firers will tend to focus their attention on manipulating the sight rather than learning to properly apply marksmanship fundamentals. Second, during fundamentals training, the precise location of shot groups on the target is unimportant since it is the size of shot groups and not the location that governs the proficiency of the firer.

### 26. Elevation and Windage Rule

One click of elevation or windage will move the strike of a bullet a specific distance at a specific range. For example, at a range of 25 meters, one click of either elevation or windage will move the strike of a bullet .7 centimeter. At 100 meters, one click will move the strike of the bullet approximately 3 centimeters. To compute the distance one click will move the strike of a bullet at any given range, multiply the range in hundreds of meters times 3. For example, to compute the distance one click of elevation or windage will move the strike of the bullet at a range of 250 meters, multiply 2.5 by 3. The answer in this case is 7.5 centimeters.

### 27. Sight Changes

*a.* To make sight changes, the firer first locates the center of his shot group (fig. 31) and then estimates the distance between it and the desired location. The distance in elevation is estimated vertically, while the windage is estimated horizontally. These distances are converted to clicks by using the elevation and windage rule. As a general rule, bold adjustments will prove more advantageous to the firer. For example, if there is a question whether to move two or three clicks, the firer should normally make the adjustment requiring the greater number of clicks.

*b.* To raise the strike of the bullet, the firer must increase the number of clicks of elevation. Conversely, he decreases the elevation to lower the strike of the bullet on the target. Right windage moves the strike of the bullet to the right, and left windage moves it to the left.

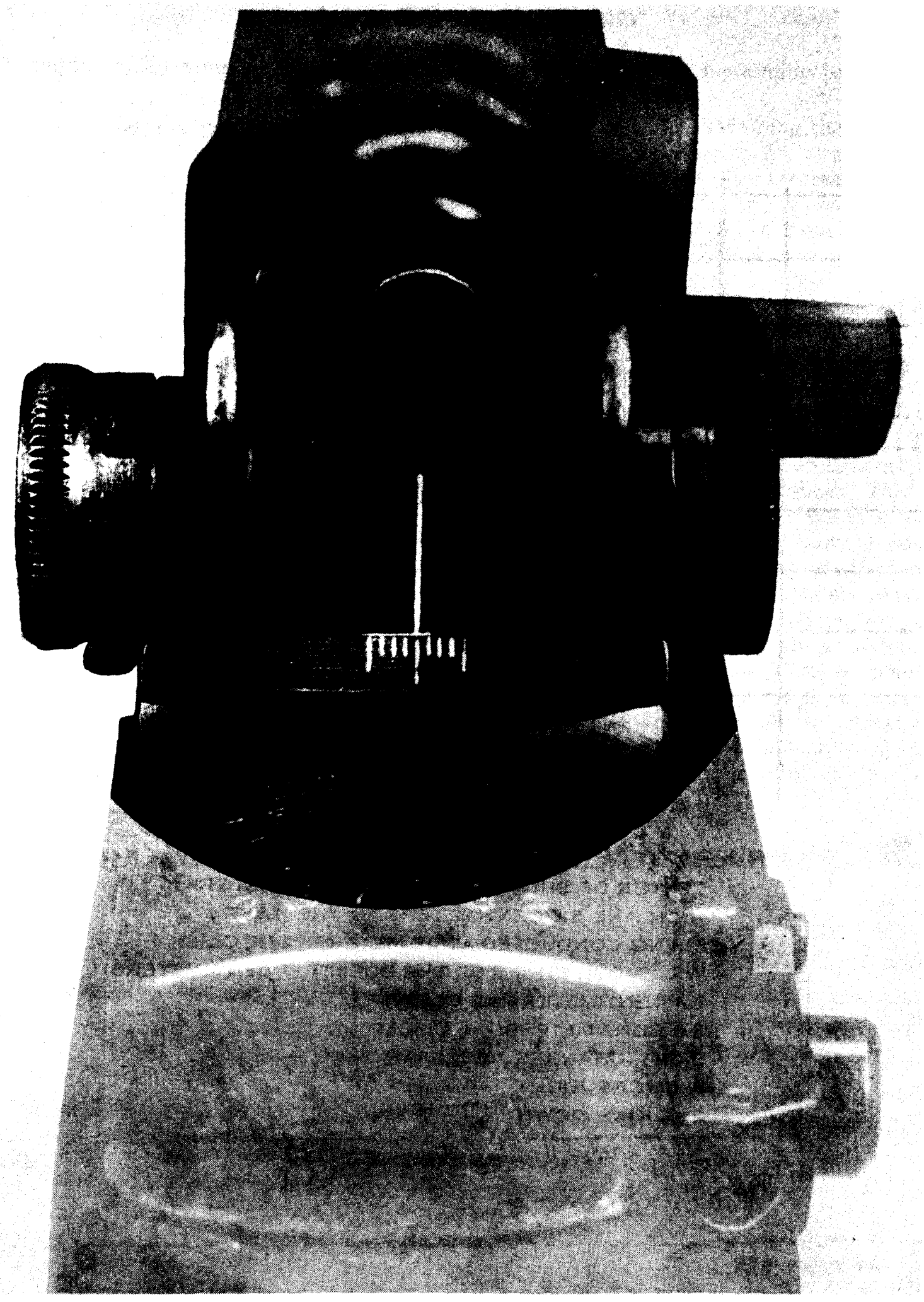
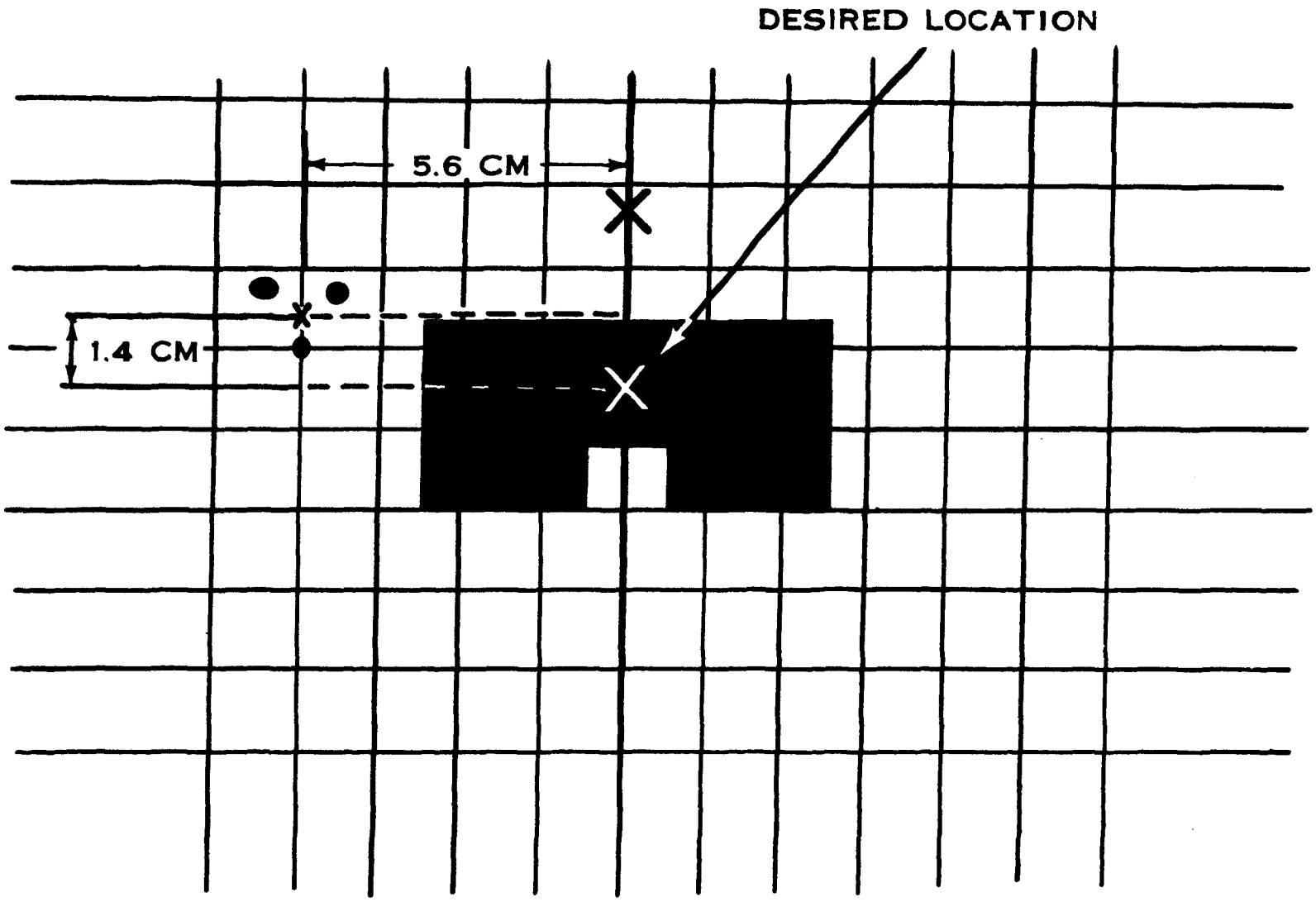


*Figure 30. Rear sight.*




CENTER OF SHOT GROUP IS 1.4 CENTIMETERS
HIGH AND 5.6 CENTIMETERS TO THE LEFT .
FIRING CONDUCTED AT 25 METERS (ONE CLICK
WILL MOVE STRIKE OF THE BULLET .7 CENTIMETERS)
1.4 CENTIMETERS - 2 CLICKS
5.6 CENTIMETERS - 8 CLICKS
SIGHT CHANGES NECESSARY–
8 CLICKS RIGHT
2 CLICKS DOWN

*Figure 31. Example of computing sight changes.*

## Section II. BATTLESIGHT ZERO

### 28. Principles of Zeroing

*a.* In order to understand the principles of zeroing, the soldier should have a basic knowledge of ballistics; specifically, the relationship between the path of the bullet in flight and the line of aim. In flight, a bullet does not follow a straight line but travels in a curve or arc. This curved flight path of the bullet is called its trajectory (fig. 32). The maximum height of a bullet's trajectory depends on the range to the target. The greater the distance a bullet travels before impact, the higher it must travel in its trajectory. On the other hand, the line of aim is a straight line distance through the rear sight aperture, across the front sight, to the aiming point or target.

*b.* After the bullet leaves the rifle, it is initially moving in an upward path, above the line of aim. As the bullet travels farther, it begins to drop and will eventually intersect the line of aim. The range at which this intersection occurs is the zero for that sight setting.

*c.* Current doctrine of the United States Army prescribes a battlesight zero for 250 meters. That is, the rear sight of a rifle should be so adjusted that the trajectory of the bullet and the line of aim intersect at a range of 250 meters. To phrase it another way, a soldier firing a rifle properly zeroed for a range of 250 meters should hit his aiming point at that range.

*d.* One method of determining the 250-meter battlesight zero would be to fire at a 250-meter aiming point, making the necessary adjustments to place the center of the shot group on the aiming point. However, such a method would require extensive terrain and waste training time while firers moved between the firing line and the targets to check the location of shot groups.

*e.* A more suitable method of determining the 250-meter battlesight zero can be accomplished at a range of 25 meters or 1000 inches (fig. 33). This method is based on the principle that bullets of the same type and caliber fired at the same range have the same trajectory. That is, if several bullets were fired from the same rifle and all hit the same 250-meter aiming point, the trajectories of all these bullets are the same. Therefore, when each of these bullets reach a distance of 25 meters or 1000 inches from the muzzle of the rifle, they are all the same height above the firer's line of aim. Thus, by placing an aiming point at a range of 25 meters or 1000 inches, the firer has only to adjust his shot group the prescribed height above his 25-meter or 1000-inch aiming point to obtain a zero for 250 meters.

**TRAJECTORY—LINE OF SIGHT RELATIONSHIP**

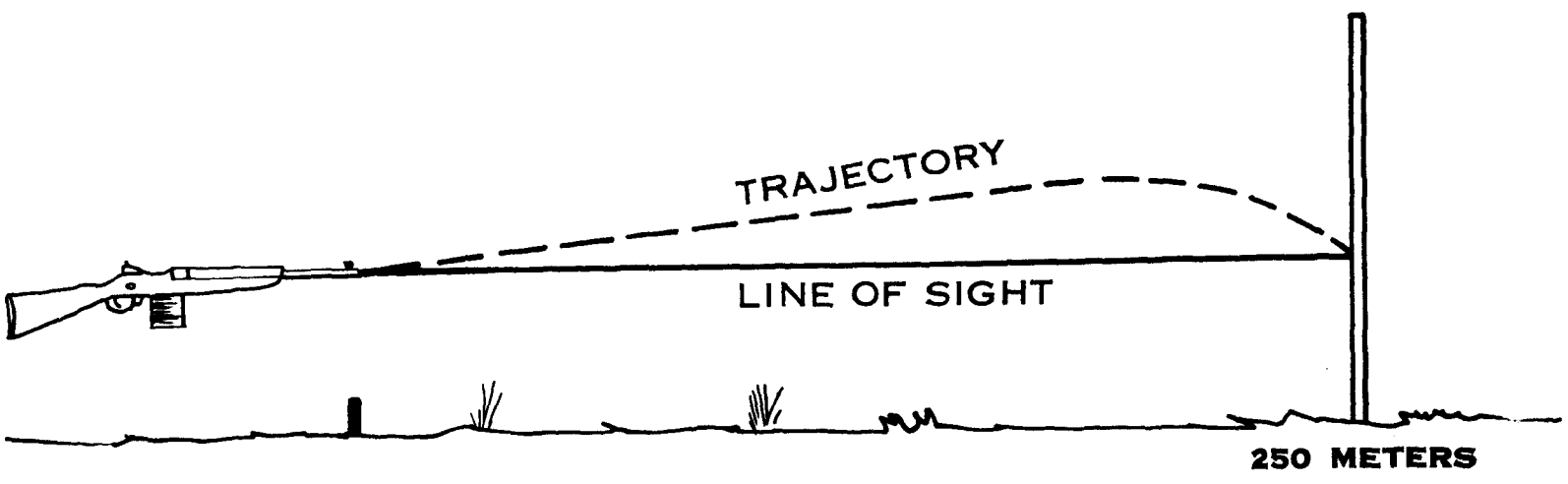



*Figure 32. Trajectory.*

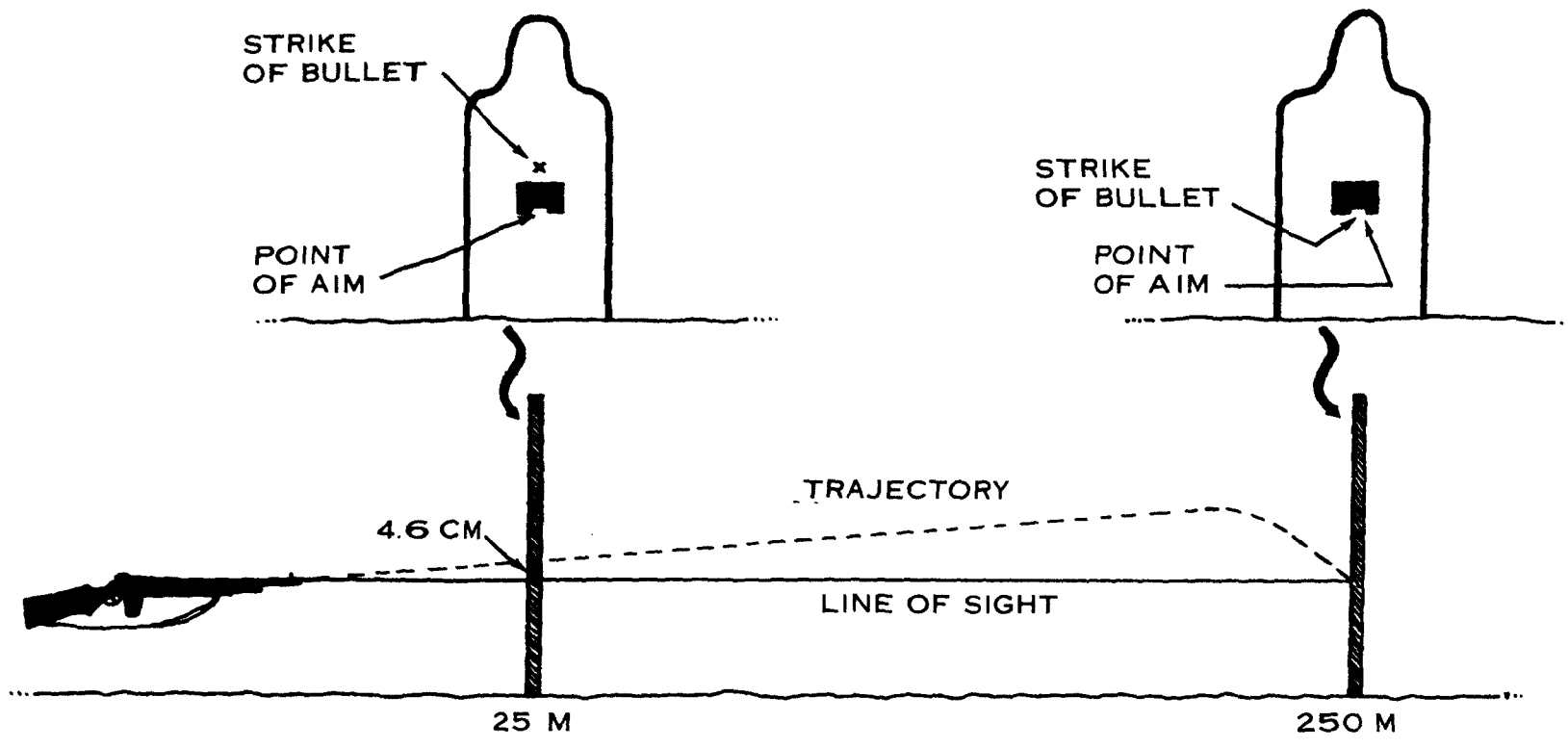



*Figure 33. Principles of battlesight zeroing.*

## 29. Battlesight Zero Target

The battlesight zero target is identical to the 25-meter targets previously used during fundamentals training (fig. 34). However, in order to use the elevation and windage rule effectively, the firer must know the dimensions of the target. Vertical and horizontal lines are printed on the target, forming 1.4 centimeter squares. As indicated in paragraph 26, one click of elevation or windage will move the strike of the bullet .7 centimeter at a range of 25 meters. (Although 25 meters is slightly less distance than 1000 inches, the difference is insignificant and the same adjustment data can be used for 1000-inch firing). Thus, in terms of the 25-meter target, one click of elevation or windage will move the strike of the bullet one-half of one square.

## 30. Determining the Battlesight Zero

*a.* The 250-meter battlesight zero is determined by firing a series of 3-round shot groups at the 25-meter target described in paragraph 29. The firer aims at the distinctive aiming point at the bottom of the black rectangle and adjusts his rear sight until the center of his shot group is located 4.6 centimeters directly above the aiming point. This point is designated by an "X" printed on the target. With this sight setting, an aiming point at a range of 250 meters will coincide with the bullet's point of impact. The average soldier will need to fire three or four shot groups in order to accurately determine the battlesight zero of his rifle.

*b.* Once the zero has been established, there should be no further adjustments of the rear sight. In later field firing exercises, the soldier will learn to hit targets located at ranges other than 250 meters by adjusting his point of aim slightly above or below the desired point of impact.

*c.* Either of the two most stable firing positions, the foxhole or prone supported, may be used for obtaining the battlesight zero. However, the position selected must be located the prescribed 25 meters (1000 inches) from the target.

*d.* Firing is conducted in the same manner prescribed for the other 25-meter (1000-inch) firing exercises.

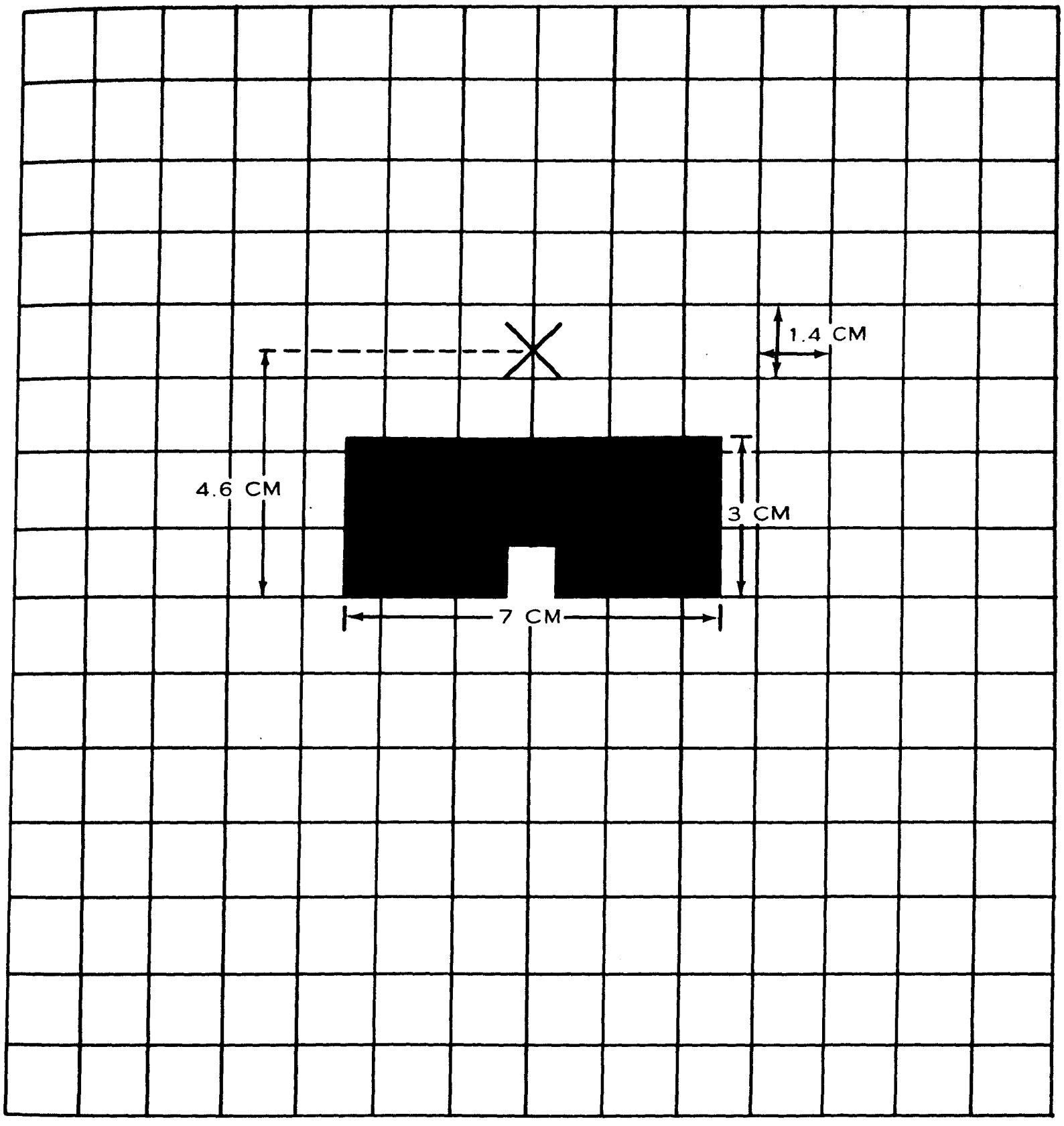



*Figure 34. 25-meter (1000-inch) target.*

## 31. Calibration of the Rear Sight

*a.* After the soldier has obtained the battlesight zero for his rifle, he must calibrate the rear sight. This procedure is necessary since, throughout the marksmanship course, the soldier must continually check the rear sight and, if necessary, reestablish the correct setting if the adjusting knobs have been moved.

*b.* Although the rear sights of all service rifles are essentially the same, some have a locking nut on the elevation knob while others do not. Whether a sight has this locking nut governs the procedure used to calibrate the sight.

(1) Calibration procedure for sights *without locking nuts* on the elevation knob is as follows:

(*a*) Turn the elevation knob forward until the rear sight aperture is at its lowest possible setting. The firer should count the clicks as he does this and compare the number to that recorded on his firing data card as the battlesight zero of his rifle. This procedure is simply a means of checking the accuracy of the information on the firing data card.

(*b*) Loosen the screw in the center of the elevation knob until the knob can again be turned forward.

(*c*) Turn the elevation knob forward until the 250-meter index line (the long line between the numbers 2 and 4 on the elevation knob) is opposite the index line on the receiver.

(*d*) From this point, turn the elevation knob forward the number of clicks of the 250-meter battlesight zero setting.

(*e*) Hold the elevation knob in position and tighten the center screw. Next, turn the elevation knob to the rear until it is at its highest possible setting and again tighten the center screw.

(*f*) To check the adjustment, set the 250-meter index line on the elevation knob opposite the index line on the receiver. Then turn it forward, counting the clicks. The number of clicks will be equal to the battlesight setting if the sight has been calibrated correctly.

(2) Calibration procedure for sights *with a locking nut* on the elevation knob is as follows:

(*a*) Turn the elevation knob forward until the aperture is at its lowest possible setting.

(*b*) Set the 250-meter battlesight zero by turning the elevation knob to the rear the required number of clicks. Lock the rear sight at this setting by tightening the locking nut.

(*c*) Loosen the screw in the center of the elevation knob so the knob can turn without moving the aperture. Turn the knob until the battlesight index is opposite the index line on the receiver.

(*d*) Tighten the screw in the center of the elevation knob.

(*e*) Check the setting as described for the other type of sight in (1) above.

# Section III. PROGRESS CHECK

## 32. Purpose

Prior to beginning field firing, each soldier should fire an exercise to determine his proficiency in correctly applying the fundamentals of marksmanship. This exercise is called a progress check. In addition to identifying errors that may still exist, the results of the progress check enable instructors to take advantage of scheduling procedures in subsequent field firing periods. For some marksmanship courses, the unit is divided into two groups; one group receiving field firing while the other group conducts additional training on the 25-meter range. By placing those firers having the most difficulty in the group remaining on the 25-meter range, many of their errors can be corrected without altering the training sequence of either the individual or the unit. However, this use

of the progress check is of secondary importance to the primary objectives of measuring the fundamental shooting skills of each soldier and identifying specific individual deficiencies.

## 33. Application

As a separate exercise, the progress check is optional except for units conducting basic training. New recruits must receive a formal progress check as an integral part of their marksmanship training. Units which do not conduct a progress check as a separate and distinct exercise, should incorporate the principles and techniques into all marksmanship fundamentals training. That is, the scoring template should be continually used to check and critique shot groups during all 25-meter firing.

## 34. Conduct of Exercise

To conduct a progress check, each soldier must fire one 3-round shot group from each of the eight standard firing positions. Assistant instructors check the results after each shot group is fired, using a scoring template (fig. 35). This template is made of transparent plastic with two circles imprinted on it. One circle is three centimeters in diameter and the other five centimeters. In checking shot groups fired from the two most stable positions, prone supported and foxhole, the three rounds must lie on or within the 3-centimeter circle to be considered satisfactory. The 5-centimeter circle is used to check shot groups fired from the other six positions. Again, the three rounds must lie on or within the 5-centimeter circle to be considered satisfactory. Soldiers should be given an opportunity to refire from those positions found to be unsatisfactory if there is sufficient time and ammunition available.

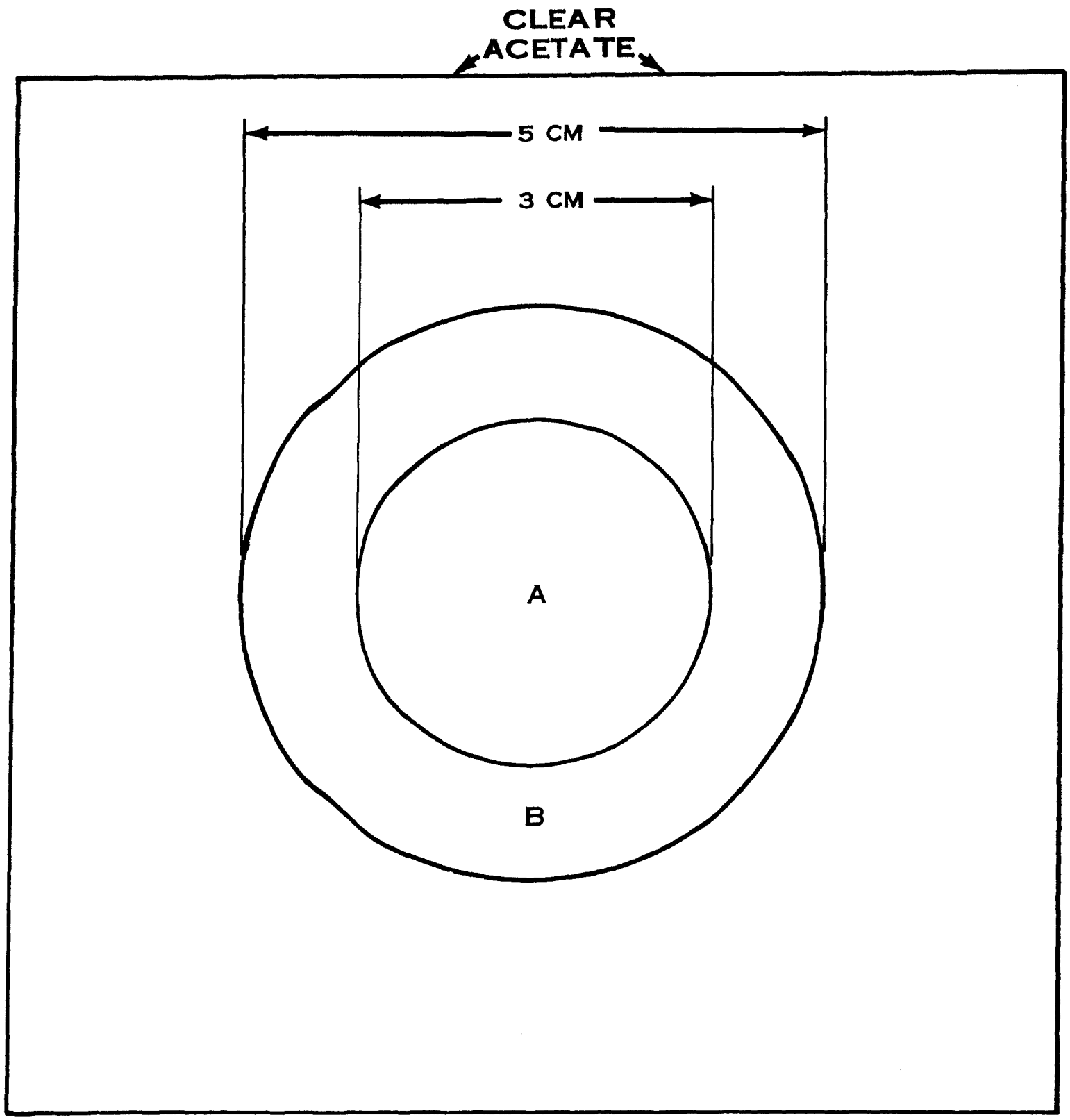



*Figure 35. Scoring template.*

# CHAPTER 4

# FIELD FIRING

## Section I. CONDUCT OF INSTRUCTION

### 35. Purpose and Scope

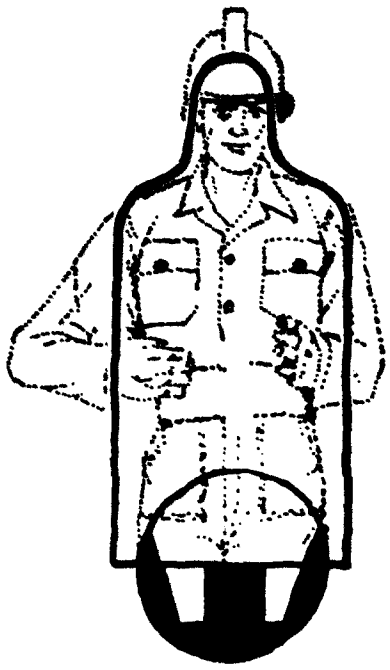
Field firing provides the soldier with practical experience in firing at realistic targets located at ranges comparable to those of the battlefield. Field firing begins with simple exercises designed to familiarize the soldier with the range, the targets, and the scoring system. It is during these initial exercises that the soldier learns to compensate for the sight setting or zero of his rifle by adjusting his point of aim on the target. He does this by firing at targets located at ranges other than 250 meters, the zero established for his rifle. During the first field firing exercise, the soldier will have a reasonable time to check his position, sight picture, and fire at the target. However, in subsequent exercises, speed becomes an increasingly important factor since a time limit is imposed on the firer. In later exercises, there are added requirements such as rapid reloading, reducing a stoppage, and firing at multiple targets. Initially, the soldier fires from the more stable positions and gradually progresses to the less stable positions. Toward the end of his field firing training, he is required to physically advance toward the targets, quickly move into position, and fire when the targets appear.

### 36. Adjusted Aiming Point

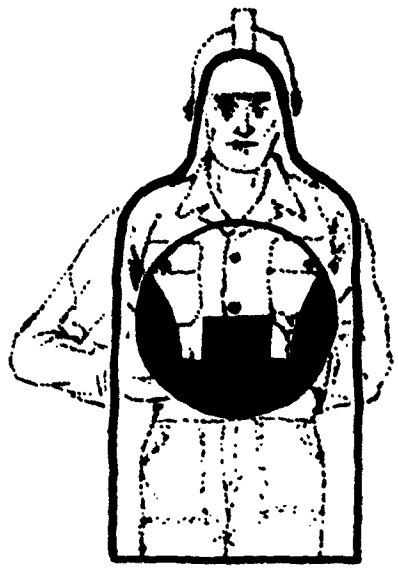
*a. General.* Using an adjusted aiming point means that the firer is compensating for the battlesight zero of his rifle by aiming above or below the actual desired point of impact. The reason for this procedure is that once the soldier has established his battlesight zero for 250 meters, he should not change the sight setting throughout the remainder of the marksmanship course. Thus, he must learn to compensate for his 250-meter sight setting when he fires at targets located at ranges other than 250 meters.

*b. Principle of Using Adjusted Aiming Points.* In zeroing his rifle, the soldier learns that the trajectory of the bullet is above the line of aim until it reaches the range for which the rear sight is set (par. 28). In the case of the battlesight zero, this range is 250 meters. At this point, the trajectory of the bullet and the line of aim intersect. Thus the bullet will be *above* the line of aim until it reaches a distance of 250 meters (fig. 33). Beyond this range, it will be moving *below* the line of aim. Applying this fact to the target then, the soldier should aim below the desired point of impact for targets located at ranges of less than 250 meters. By lowering his point of aim, he also lowers the flight path of the bullet. Conversely, at ranges beyond 250 meters, he should aim above the desired point of impact and subsequently raise the flight path of the bullet. Obviously, pinpoint accuracy is not possible using a technique such as this. A minor error in range determination or selection of an aiming point will cause the bullet to miss the precise point a firer might wish to hit. However, on the battlefield, the job of the rifleman is to eliminate the combat capability of enemy soldiers as quickly as possible. A rifle bullet hitting anywhere on an enemy soldier's body, even the arms and legs will usually accomplish this. Whether a combat rifleman intended to hit an enemy soldier in the chest and actually hit him in the region of the belt buckle is unimportant as long as the enemy has been eliminated from the fight.

*c. Rules for Applying Adjusted Aiming Point.* Considering the problems of range determination and the fact that pinpoint accuracy is not usually required on the battlefield, it is possible to use a "rule of thumb" in teaching the principles of the adjusted aiming point. This rule is: "For targets located at ranges up to 200



200 METERS OR LESS



MORE THAN 200 METERS

*Figure 36. Aiming points at ranges not exceeding 500 meters.*

meters, the rifleman should aim at the bottom of the center of mass. At ranges between 200 and 500 meters, he should aim at the center of mass (fig. 36)." To effectively engage targets beyond 500 meters, the rifleman must apply advanced individual marksmanship techniques (sniping). These techniques are discussed in chapter 8. By aiming at the bottom of center of mass for targets out to a range of 200 meters and at the center of mass for targets between 200 and 500 meters, a rifleman should usually be firing low on the target. It follows then that a miss will probably be short of the target rather than beyond it. Of the two, a short miss is the more desirable since the bullet will frequently ricochet into the target, producing the same effect as a direct hit. A second advantage of hitting short is that the firer is usually better able to see the bullet's actual point of impact. Knowing this, he can quickly readjust his aiming point and fire a second, more accurate round. The range of 200 meters is used as the dividing line for adjusting the aiming point (rather than 250 meters) for the following reasons:

(1) Determining ranges in 100-meter increments is much easier than determining ranges in 50-meter increments.

(2) The point of aim very nearly coincides with the strike of the bullet at 200 meters. The discussion in *b* above, illustrates the lack of practical importance in the small deviation that does exist.

*d. Effects of Wind.* Winds blowing across the firer's front will cause some lateral movement of the bullet while in flight. However, at ranges up to 300 meters (the maximum range for the majority of point targets engaged in combat), it would require a wind of gale force to cause a properly aimed bullet to miss a man-size target. Unless the soldier is engaged in long range sniping (ch. 8), he should discount the effects of wind in selecting an aiming point.

*e. Demonstration of Adjusted Aiming Point.* The need for using an adjusted aiming point can be demonstrated with tracer ammunition. To conduct this demonstration, the class should be assembled on one side of the range so they will have an oblique view of both the demonstrator and the targets. When the demonstrator fires, the class will be able to see the curved path made by the bullet in flight. The demonstration should only be fired at the longer range targets as this will give the most pronounced arc to the trajectory.

*f. Adjusted Aiming Point Training.* The soldier receives initial practical training in applying the principle of the adjusted aiming point during the first field firing exercise. Tar-

gets are located at ranges either greater or lesser than 200 meters, requiring the firer to adjust his aiming point accordingly. In the initial field firing exercise, soldiers are allowed ample time to fire, and should conduct "self-experiments" in selecting aiming points to fit the range of the targets.

## 37. Rapid Reloading

During 25-meter (1000-inch) range firing, the soldier receives initial training and practical exercises in the techniques of rapid reloading. To continue his training in this skill, the soldier will fire several exercises during which he must rapidly reload. To conduct these exercises, the ammunition is issued in two magazines or clips. The rifle is loaded with one of the magazines or clips, and the firer carries the other in his ammunition pouch or belt. As soon as he has expended all of the ammunition in the first magazine or clip, he must rapidly reload and be ready for the appearance of the next target. If the soldier is armed with the M14 rifle, it is possible that he will run out of ammunition and not realize it until he attempts to fire. In such cases he should still attempt to reload and engage the target within the prescribed time limit. In any event, there is no time added to the exercise for the purpose of reloading.

## 38. Reduction of Stoppages

During the later field firing exercises, one dummy round should be placed among the live rounds in the firer's magazine or clip. When this round fails to fire, the soldier must rapidly pull the bolt handle to the rear, eject the dummy round, release the bolt so a new round is loaded, resume his position, and fire at the target. This procedure is known as "immediate action." Unless the soldier learns to perform this action rapidly and instinctively, the target will be gone before he can fire. In combat, a slight hesitation in performing immediate action might well give an enemy soldier just time enough to fire a killing round. Since speed is so important, the firer must not be given additional time during the exercise to perform the immediate action required.

## 39. Positions and Engaging Single Targets

*a.* Field firing continues the soldier's training in firing from both supported and unsupported positions. However, greater emphasis is placed on the combat application of these firing positions. Since the combat rifleman may be moving or in a stationary position when he encounters the enemy, he must be proficient in rapidly assuming a firing position and engaging targets in either situation. Field firing exercises provide practical training in both techniques. In some exercises, the firer engages targets from stationary positions, while in others he is required to walk forward and, when targets appear, rapidly assume a position and fire. Speed is emphasized by limiting target exposure times. As he progresses through field firing, each soldier should eventually be able to effectively engage targets at ranges out to 200 meters within 5 seconds and targets beyond 200 meters within 10 seconds.

*b.* The purpose of imposing different time limits for targets at different ranges is to emphasize the fleeting nature of combat targets, and that a definite correlation exists between the range to the target and the time require to hit it. Through practical experience, firers will find that a slight error in sight picture will still produce a hit at a range of 75 meters, but the same error will cause a miss at a range of 300 meters. Hence, as a general rule, it requires more time to fire an effective round at longer ranges since the firer must take extra care in his application of fundamentals. From the combat rifleman's viewpoint, this relationship between range and time must also take into consideration the degree of personal danger posed by enemy targets. Normally, the closest enemy targets are the most dangerous, and the speed with which they are engaged becomes increasingly important as the range decreases. Considering all of these factors then, the combat rifleman must possess both speed and accuracy in firing on enemy targets. At shorter ranges (200 meters and less) speed must be emphasized and at longer ranges (over 200 meters) accuracy must be emphasized. For soldiers moving in the open, these factors have an added application in determining the best firing position from which to engage surprise enemy targets. In such situations, the standing position is obviously the quickest and easiest firing position to assume. However, it is also the least stable. Experience has shown that in

the standing position, the chances of hitting targets beyond 100 meters within five or ten seconds are extremely remote. The prone position, on the other hand, is the most stable of all the unsupported positions; however, it too has limited application on the battlefield. The reason is that once in the prone position, the firer will usually discover the terrain and/or vegetation has masked the target. Thus, firers moving in the open who detect targets beyond a range of 100 meters should normally assume either the sitting, squatting, or kneeling position to engage them. Through practice, the firer can determine which of the positions provide the best combination of speed, accuracy, and observation for various target situations and his own capabilities.

### 40. Engaging Multiple Targets

If a combat rifleman observes three enemy soldiers, fires, and hits one of them, he can expect the other two to quickly seek cover. Consequently, the rifleman must be able to rapidly shift his point of aim and fire at a second and even a third enemy soldier before they have an opportunity to reach a protected position. The last exercises conducted during field firing training are designed to present just such multiple target situations to the firer. As in the single target exposure exercises, the firer must engage the targets within prescribed time limits and from various firing positions.

### 41. Application of Marksmanship Fundamentals and Corrective Instruction

*a.* Although field firing exercises are primarily designed to teach skills which cannot be logically conducted on 25-meter (1000-inch) ranges, the fundamentals learned during this earlier training phase must continue to be emphasized. Instructors should particularly check firers for indications of improper trigger control. Many soldiers firing under time pressure will develop a tendency to jerk the trigger. This error must be stopped before it becomes a habit.

*b.* A second fundamental frequently slighted on the field firing range is that of position. Continued emphasis must be placed on the importance of correct body position. Since time is a factor in field firing exercises, it is a good technique to emphasize that it requires no longer to assume a correct position than it does an incorrect one, and that firing results are considerably better from a correct position.

*c.* Although coaches are not designated for field firing exercises, assistant instructors should perform this function for firers having unusual difficulty. Trigger control and ball and dummy exercises can be conducted on an individual basis. However, firers committing major errors in fundamentals should be removed from the firing line and returned to the 25-meter range for corrective instruction.

## Section II. RANGE OPERATION

### 42. Range Facilities

Whenever possible, field firing exercises should be conducted on standard field firing ranges constructed for this specific purpose. If such ranges are not available, field firing can be conducted on a known distance range. However, both the known distance range and course of fire must be modified to accomplish this. Even with these modifications, the firing conducted on the known distance range is, at best, expedient training and cannot be considered comparable to the benefits gained from training on standard field firing ranges. Therefore, if there is a need for establishing a priority of range use, the standard field firing range should be given preference over the modified known distance range.

### 43. Operation of Standard Field Firing Ranges

The standard field firing range is constructed on open, flat terrain having a minimum depth of 300 meters (fig. 37). The vegetation is removed so targets will be clearly visible to the firer. The standard range consists of 35 lanes and will accommodate a maximum of 115 soldiers in three 35-man firing orders. Foxholes and stumps are placed along the firing line in order to continue training in firing from both supported and unsupported positions. Control points are also required to regulate the forward progress of firers during movement-type exercises. The stumps and foxholes are used as two of these control points. Numbered stakes are placed forward of the foxholes and other

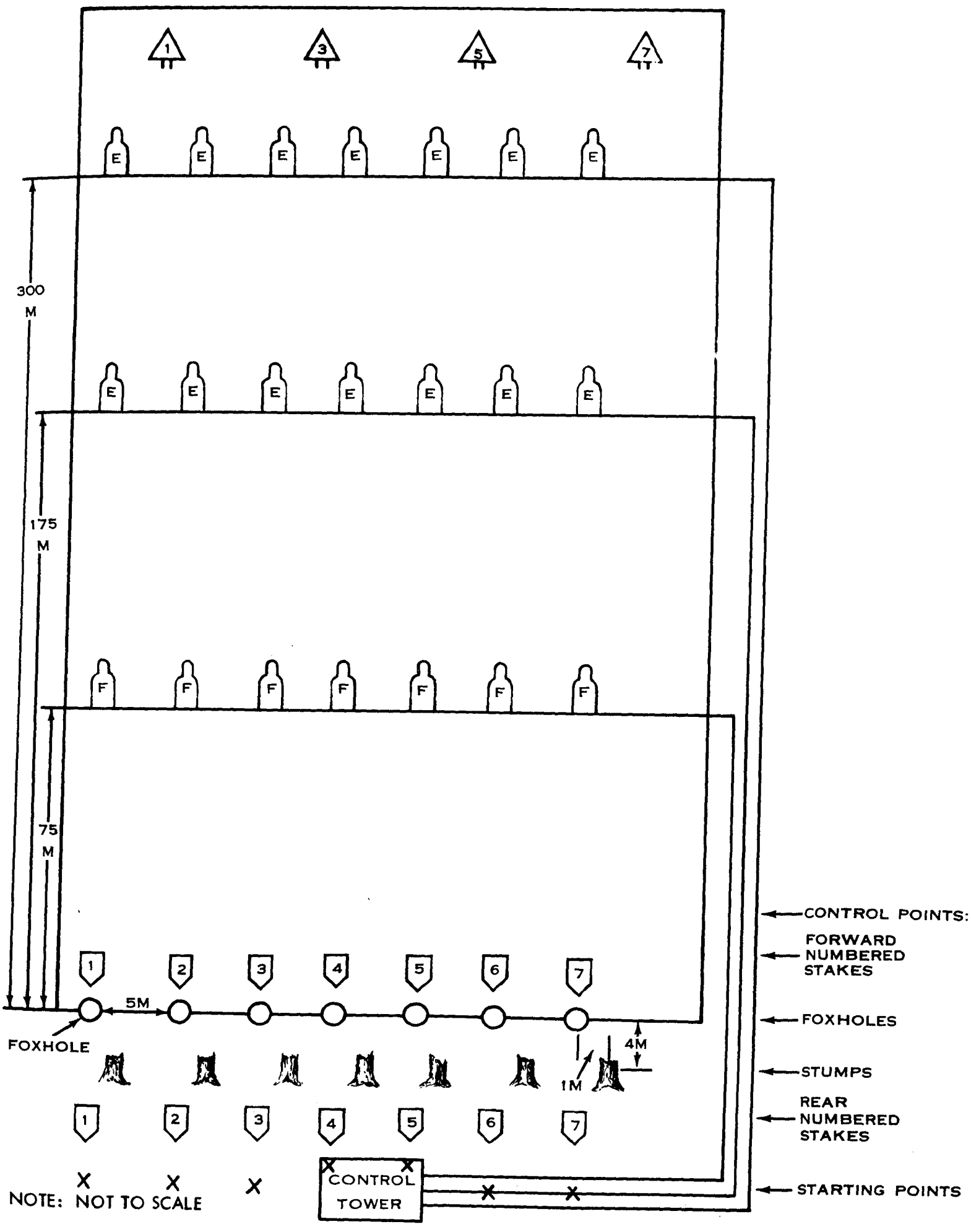



*Figure 37. Standard field firing range.*

stakes are placed in rear of the stumps to provide additional control points. The starting points are located behind the rear numbered stakes and can be designated by stakes, a line placed on the ground, or reference points such as the line of ready chairs.

*a. Targets, Target Devices, and Scoring.*

(1) There are three rows or banks of targets on the standard field firing range. One bank is located at a range of 75 meters, the second at 175 meters, and the third at 300 meters. The targets are silhouettes shaped in the general outline of a man. At the 75-meter range, the "F" type silhouette target is used. This depicts the head and shoulders of an average size man. The "E" type, or full body silhouette, is used at ranges of 175 and 300 meters.

(2) Each target is fastened to an automatic target device (fig. 38). These are electrically operated devices that can be centrally or individually controlled. The most satisfactory control method is to connect all of the targets in one bank into one switch. This switch will then raise or lower the entire target bank at one time. Except for the initial field firing exercise, targets are exposed for a prescribed period of time and then dropped. Since it requires one or two seconds for the mechanism to physically raise the targets, timing should begin when the targets are fully exposed rather than the moment the switch activates the mechanism. Time limits and sequence of target exposures are prescribed by the scorecard for the exercise being conducted.

(3) When a target is hit by a bullet, the vibration activates a mechanism in the device which causes the target to drop or "kill." Each kill is scored as a hit for the firer. If the target does not drop, he receives a miss. During timed exercises, an audible signal such as a buzzer, whistle, or bell should be used to designate the expiration of the time limit. Rounds fired after the signal has sounded are scored as misses.

*Figure 38. Automatic target device (M31A1).*

*b. Range Organization.* The organization of firers and range personnel to conduct field firing is as follows:

(1) *Firers.* Normally, the training schedule requires half of a 200-man unit to receive training on the field firing range while the remainder of the unit either fires on the 25-meter range, receives instruction in target detection, or participates in other training deemed appropriate by the commander. Those on the field firing range are divided into three orders. Initially, the first order is designated as firers, the second as scorers, and the third as the ammunition detail. These duties are rotated at the end of each exercise.

(2) *Range personnel.* For best training results, the following personnel are required to conduct field firing.

(*a*) *Range control officer.* Responsible for all the training and range operation. Responsible for conducting safety orientation prior to each scheduled period of instruction.

(*b*) *Range safety officer.* Responsible for the safe operation of the range. He insures that *all* personnel comply with safety regulations and procedures. This officer should not be assigned any duty except that of safety.

(*c*) *Target control operator.* Responsible for the raising, lowering and timing of the automatic target devices. If possible, two men should be designated to perform this duty so one can maintain the target exposure times while the other controls the targets.

(*d*) *Ammunition detail.* Responsible for the distribution of ammunition to central points behind the firing line. This detail should not be confused with the ammunition men designated from among the firing orders.

(*e*) *Ordnance detail.* Should be composed of two segments, one to conduct small arms repair and the other to perform minor maintenance on the automatic target devices.

(*f*) *One assistant instructor per seven to ten points.* Primarily responsible to insure that all firing personnel observe safety procedures and regulations. They should also assist those firers having unusual difficulty in hitting the targets.

(*g*) *Medical personnel.* Provide medical support as required by regulations governing live fire exercises.

*c. Range Procedures.*

(1) *Orientation.* Prior to beginning live fire exercises, all personnel must receive an orientation on range safety. In addition, the orientation should outline the procedures for conducting the exercise to include the responsibilities of the two nonfiring orders. In general, these responsibilities are:

(*a*) *Scorers.* Responsible for maintaining the score of the firer. He may assist the firer by indicating the impact of the bullet in relation to the target—e.g., "short—right" or "over—left."

(*b*) *Ammunition men.* Issue ammunition to firers and, if necessary, fill empty magazines for subsequent exercises.

(2) *Master score chart.* A master score chart (fig. 39) indicating individual scores for each exercise is an effective method of maintaining a competitive spirit within a unit. It also provides a means of determining those individuals in need of closer supervision and/or corrective instruction.

(3) *Conduct of firing.* During field firing, soldiers will fire from both stationary positions and positions which they assume rapidly while moving forward. In either of these two types of exercises, targets may be exposed singly or in multiples of two or three. The positions of the firer and the sequence, type, and time of target exposures are prescribed on the scoreboard for each exercise (app. III). Unless prescribed otherwise, only one round should be fired at each exposed target regardless of whether or not it is hit.

(*a*) *Stationary position exercises.* On

| NAME | PERIOD 9 SCORE | PERIOD 10 SCORE | PERIOD 11 SCORE | PERIOD 12 SCORE | PERIOD 13 SCORE | PERIOD 14 SCORE | PERIOD 15 SCORE | PERIOD 16 SCORE |
|---|---|---|---|---|---|---|---|---|
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*Figure 39. Master score chart.*

command, firers assume the designated firing position and lock and load their rifles. The exercise begins on the command, WATCH YOUR LANES. At this time, firers unlock safeties and engage targets as they appear in their lane. Firers remain in the same position unless told otherwise.

(*b*) *Movement-type exercises.* In order to conduct movement-type exercises, firers must be thoroughly familiar with the five control points used to regulate the forward progress. These are the starting point, rear numbered stake, stump, foxhole, and the front numbered stake (fig. 37). To begin the exercises, firers move to the starting point and on command, lock and load their rifles. Subsequent fire commands may or may not prescribe the firing position; however, the control point from which firing will be conducted must always be included in the command — e.g., THE KNEELING POSITION BY THE REAR NUMBERED STAKE, MOVE OUT or BY THE FOXHOLE, MOVE OUT. On the command MOVE OUT, the firer, carrying his rifle in the high-port ready position, begins walking slowly forward.

***Caution:*** **Firers must maintain alignment as they advance. Assistant instructors must closely supervise this movement to insure indi-**

**vidual firers do not get ahead of or behind the other firers.**

As the line of firers nears the designated control point, targets are exposed and firers rapidly assume the designated position and engage them. Firers should remain in this position and continue to observe their lanes for other targets to appear. If the firing position is not designated, firers may select their own position (par. 39).

(*c*) *Single and multiple target exercises.* For the first several exercises, targets are exposed singly in each lane and all 35 firers engage the targets in their respective lanes. Later in the training, multiple target exercises are conducted. These exercises require firers to make a major shift in aiming points, both horizontally and in range. Consequently, the firers' zone of responsibility must be increased. To accomplish this, the range operation is modified so only half of the 35 firers are conducting an exercise at any one time. However, this half is responsible for the targets appearing on two lanes. To avoid confusion, not all of the targets are used for multiple target exercises. The odd-numbered 75-meter targets and the even-numbered 175-meter targets are either removed or disconnected. No changes are made to the 300-meter targets. Each firer can have any combination of a 75-meter target, a 175-meter target, and two 300-meter targets presented to him (fig. 40). A training technique to use in conjunction with multiple target exercises is to require the firers on odd-numbered lanes to dry fire while firers on even-numbered lanes are conducting the exercise. Upon completing an exercise, the firers on the odd-numbered lanes fire the exercise while those on the even-numbered lanes dry fire.

(*d*) *Fire commands.* Simple, standardized fire commands are essential to avoid confusion during field firing exercises. Example fire commands are as follows:

1. *Fire commands for exercises fired from stationary positions.*
   (a) FIRERS, ASSUME THE ____ ---------- POSITION.
   (b) LOCK, ---------- ROUNDS LOAD.
   (c) READY ON THE RIGHT?
   (d) READY ON THE LEFT?
   (e) WATCH YOUR LANES.
   (f) CEASE FIRE, LOCK YOUR WEAPON.
   (g) Repeat (a) through (e) above or give (h) through (k) below.
   (h) CEASE FIRING, CLEAR ALL WEAPONS.
   (i) CLEAR ON THE RIGHT?
   (j) CLEAR ON THE LEFT?
   (k) THE FIRING LINE IS CLEAR.
   (l) Give instructions for next exercise.

2. *Fire commands for movement-type exercises.* Before the initial exercise of this type, explain the use of control points and the need for maintaining alignment while advancing.
   (a) FIRERS, MOVE TO THE STARTING POINT
   (b) LOCK, ---------- ROUNDS LOAD.
   (c) READY ON THE RIGHT?
   (d) READY ON THE LEFT?
   (e) THE FIRING LINE IS READY.
   (f) BY THE (control point), THE (position), MOVE OUT. Or BY THE (control point), MOVE OUT.

*Note.* This command is repeated for each control point as prescribed on the scorecard.

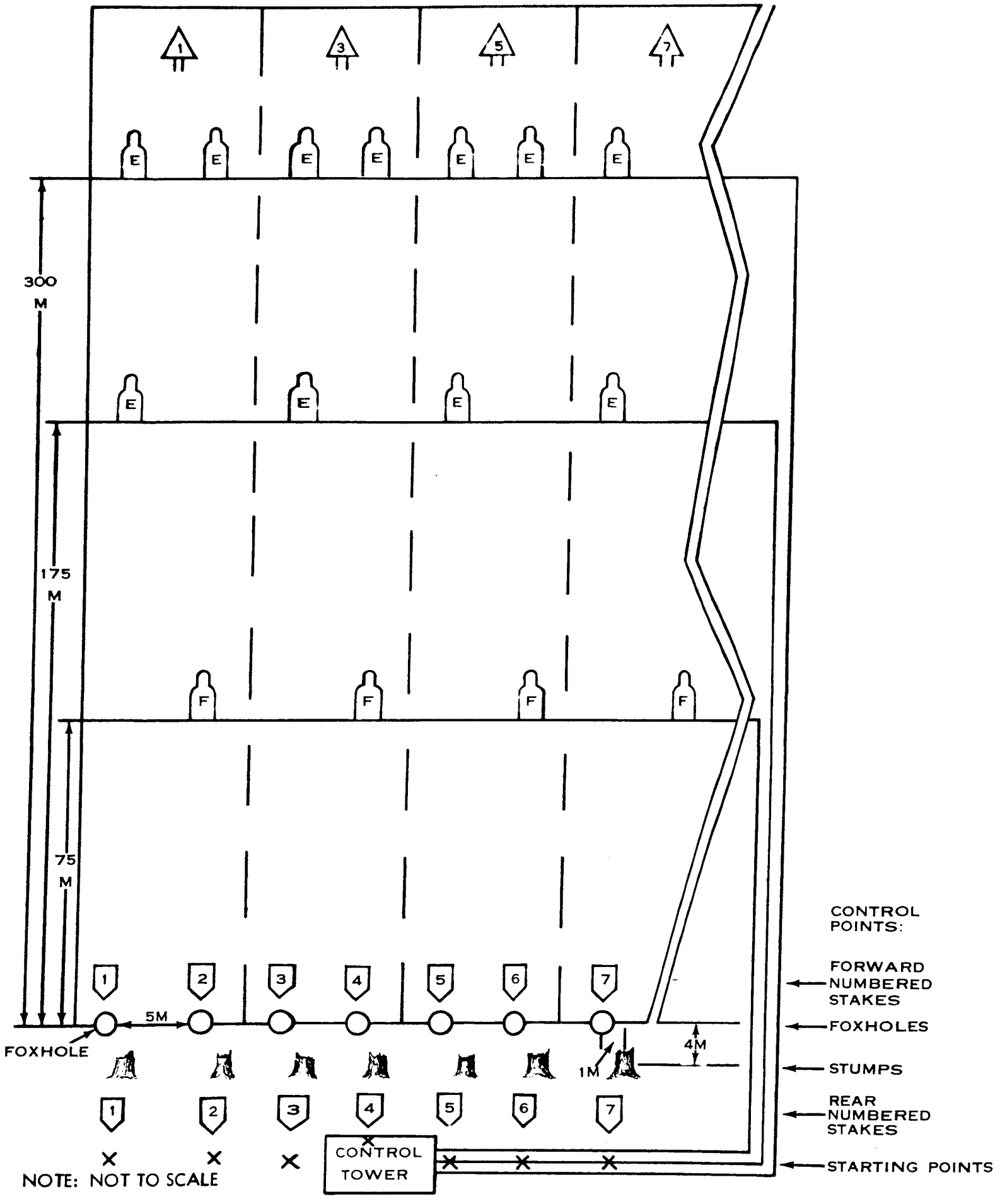



*Figure 40. Field firing range organized for multiple target firing.*

(g) LOCK YOUR WEAPON, FACE ABOUT, KEEPING THE MUZZLE DOWN RANGE, RETURN TO STARTING POINT.

(h) Repeat (c) through (g) above or (i) through (l) below.

(i) CLEAR ALL WEAPONS.

(j) CLEAR ON THE RIGHT?

(k) CLEAR ON THE LEFT?

(l) THE FIRING LINE IS CLEAR.

(m) Give instructions for next exercise.

## 44. Operation of Modified Known Distance Ranges

On known distance ranges, one row or bank of targets is used. Fifty firing points are required to accommodate a 200-man unit. In order to provide practical experience in firing from different ranges, successive exercises are conducted from the 100-yard (92-meter), 200-yard (184-meter), and 300-yard (276-meter) firing lines (fig. 41).

*a. Targets.* When firing at a range of 100 yards, the "F" or half-silhouette target is used. The "E" or full-silhouette is used for the other two ranges.

(1) *Target installation.* Silhouette targets can be attached to either automatic target devices (M31, M31A1) or the standard target holding frames of the known distance range (see app. V for methods of installing devices or modifying target frames). Of the two methods, automatic target devices are the more desirable because they eliminate the need for large pit details. Regardless of the method used, the manner of installing silhouette targets must not interfere with the use of known distance ranges for competitive firing.

(2) *Target operation and scoring.* The operation and scoring of targets depends upon whether automatic target devices or manually operated targets are used.

(*a*) If automatic target devices are used, the operation and scoring of targets is the same as prescribed for standard field firing ranges (par. 43*a*.). On known distance ranges, there is the added requirement of replacing "F"-type silhouette targets with the "E"-type targets when the firing line moves from the 100- to the 200-yard line.

(*b*) If manually operated targets are used, a pit detail is required to raise and lower the targets. Targets are raised at the time designated by the officer in charge of the range. A buzzer in the pits (controlled from the firing line) can be used as a means of control. Upon receiving a signal, target operators raise their targets. When a target is hit, it is lowered by the operator and a chalk mark is made over the bullet hole in the back of the target. At the end of the time limit, a command or signal is given from the firing line and those targets which have not been hit are lowered. Scoring is based on one point for each target hit. At the end of an exercise, the target operator signals the number of misses using a red flag.

(3) *Target exposure time limits.* During all field firing exercises conducted on the known distance range, targets are exposed according to time limits prescribed on the scorecards (app. III). Initially, firers are allowed sufficient time to become accustomed to the new target situations and range procedures. As the training progresses, these time limits are gradually reduced in order to emphasize the necessity for both accuracy and speed in engaging combat targets.

*b. Range Organization.* The organization of firers and range personnel to conduct field firing on known distance ranges is as follows:

(1) *Firers.* Based on a strength of 200 soldiers, a unit scheduled to fire on a known distance should be divided into four platoons of equal size. The two platoons which initially fire the exercise are divided into two orders. One order fires while the other scores. The

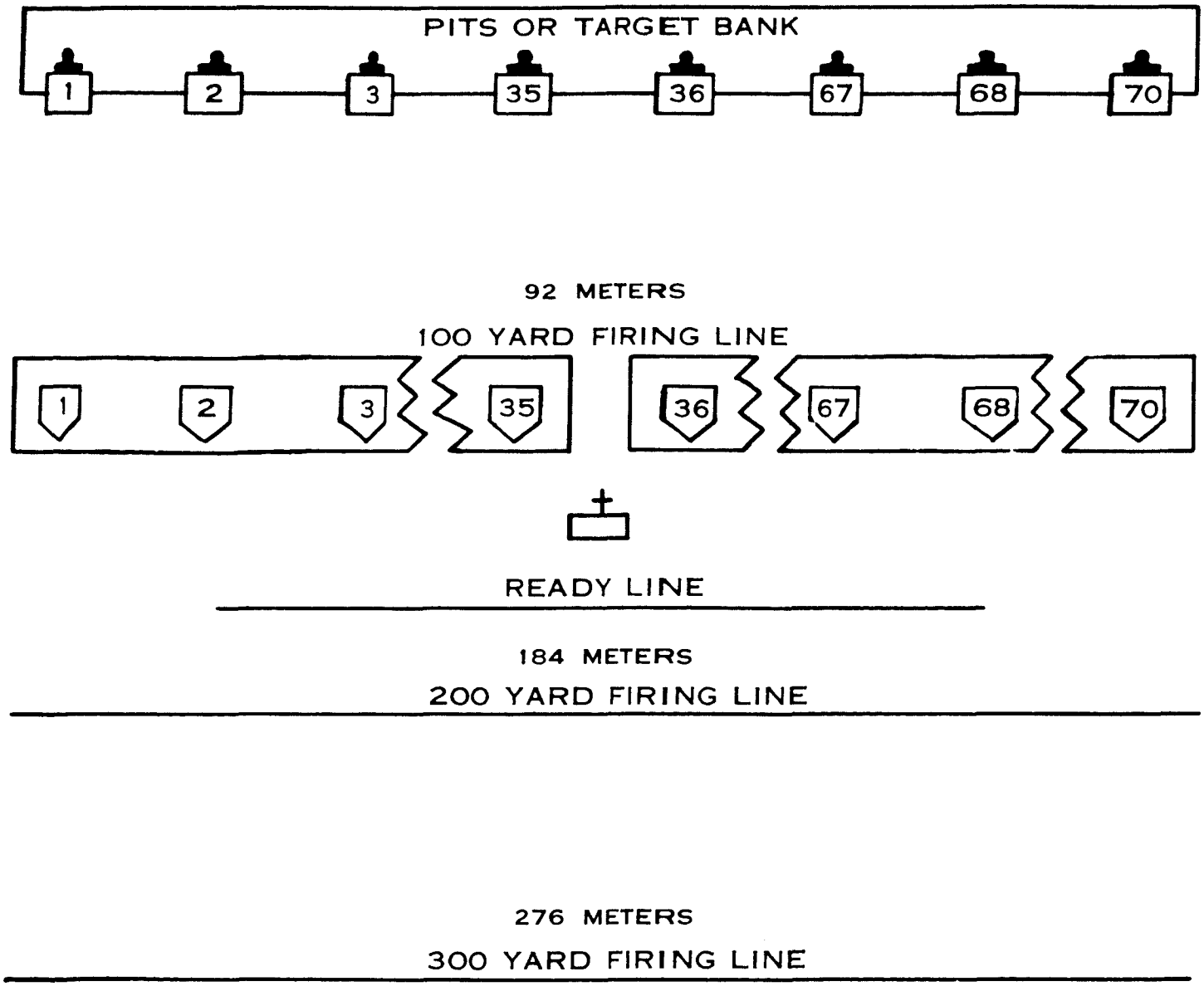



*Figure 41. Known distance range organized for field firing.*

scorers are also used to issue ammunition. If automatic target devices are used on the range, the two nonfiring platoons receive instruction in target detection or such other training as prescribed by the commander. If manually operated targets are used, one platoon must be used as a pit detail to operate the targets, leaving one platoon to conduct target detection or other type training. When a pit detail is required, the schedule should provide for a changeover between the pit detail and the platoon conducting training so each spends equal time performing both activities. Ideally, all four platoons should spend equal time firing, acting as pit detail, and receiving target detection or other training.

(2) *Range personnel.* The range personnel required to conduct field firing on known distance ranges are the same as prescribed for standard field firing ranges with the following additions:

(*a*) If automatic target devices are used, a detail is required to replace the "F"-type silhouette targets with the "E"-type targets when the firing is moved from 100 to 200 yards. This detail should be composed of one noncommissioned officer in charge and one soldier for every three to five targets to be changed.

(*b*) If manually operated targets are used, a pit detail is required as follows:

1. *Pit officer.* Responsible to the range officer for the operation of the pits.
2. *Pit noncommissioned officers.* (One per eight to ten targets.) Supervise target operators.
3. *Target operators.* (One per target.) Raises, lowers and scores targets.

c. *Range Procedures.*

(1) *Orientation.* Prior to beginning live fire exercises, all personnel must receive an orientation on range safety. In addition, the orientation should outline the procedures for conducting the exercise.

(2) *Master score chart.* As prescribed in paragraph 43*c*(2).

(3) *Conduct of firing.* Firing tables and scorecards for known distance field firing are contained in appendix III. The conduct of field firing on modified known distance ranges follows the same general procedures as prescribed for standard field firing ranges. However, because known distance ranges have only one target bank and lack foxholes and stumps for supported position firing, the procedures outlined in paragraph 43*c*(3) must be modified as follows:

(*a*) *Stationary position exercises.* No change in procedures; however, firing is not conducted from either foxhole or kneeling supported positions.

(*b*) *Movement-type exercises.* No change in procedures except in the use of control points. The distance which firers can move on modified known distance ranges depends on the width of the firing lines. If the firing lines are constructed at approximately ground level, it may be possible to use four stakes placed 2 meters apart as control points (fig. 41). The rearmost stake is designated "SP" (starting point), the next two stakes as "A" and "B" respectively (letters rather than numbers are recommended to avoid confusion with firing point numbers), and the forward stake as the "limit of advance" (on most ranges, the stake indicating the firing point number can be used to designate the limit of advance). If the firing line is elevated and relatively narrow, firers may be able to move only a few steps during the entire exercise. In this instance, the only control features required are a starting point and a stake indicating the limit of advance. With only two control features, target control operators must gauge when to expose the targets by the number of steps taken by the firers rather than their nearness to a control point.

(*c*) *Single and multiple target exercises.* No change in procedures except that required by the single bank of targets. During single target exercises, firers engage the same target from each firing line. The organization of the firing line for multiple target exercises is the same as prescribed for standard field firing. That is, firers on the even numbered points engage targets appearing on two lanes while firers in the odd numbered points dry fire the same exercise. Upon completion of the exercise, firers on the odd numbered points conduct the exercise while those on the even numbered points dry fire. Thus each firer can engage two adjacent targets, requiring him to make a lateral shift of his aiming point.

(*d*) *Fire commands.* Fire commands for exercises fired from stationary positions are the same as those outlined for standard field firing (par. 43*c* (3) (*d*)). The same fire commands for movement-type exercises on the standard field firing range can also be used on the modified known distance range provided the firing line can accommodate four control points. If only two control points can be used (starting point and limit of advance), that portion of the fire command designating the control point is eliminated.

*d. Range Safety.* See appendix II.

# CHAPTER 5

# TARGET DETECTION

## Section I. GENERAL

### 45. Purpose

Even the most skilled marksman is useless if he cannot find the target. For the combat rifleman, finding the target can be even more of a problem than hitting it. Except during the assault it is a rare soldier who fails to use some cover and/or concealment when he is in the vicinity of enemy units. Consequently, considerable emphasis must be placed on teaching soldiers the techniques of detecting targets as they will appear on the battlefield. As used in this manual, the term "target detection" means the process of locating, marking, and determining the range to combat targets. These targets may be either single or multiple, stationary or moving. They can also be completely visible, partially visible, or completely hidden. The purpose of this chapter is to outline procedures for teaching soldiers how to detect enemy personnel on the battlefield under varying degrees of mobility and concealment.

### 46. Training Concepts

Target detection training is based on concepts governing the usual behavior and employment of infantry units and the individuals within those units on the battlefield. These concepts are—

*a.* Enemy personnel are seldom seen except in the assault.

*b.* The range at which individual enemy soldiers can be detected rarely exceeds 300 meters.

*c.* There are many indications that can reveal the location of the enemy. Among the more common are movement, sounds of movement, sound and/or muzzle flash of a firing weapon, and reflection of light from shiny objects. However, any of these indications will usually be visible for only a brief moment.

*d.* A combat target does not have to be visible in order to be hit by rifle fire. An enemy soldier who has been observed moving into a concealed position can be effectively engaged by using a nearby terrain feature as a reference point.

## Section II. RANGE ORGANIZATION AND MANAGEMENT

### 47. Location

Since target detection training is usually conducted concurrently with firing exercises, the target detection ranges should be located within ten minutes movement time of the combat firing ranges. It is also essential that target detection ranges be located in areas having good natural vegetation (fig. 42). The observation lines of target detection ranges must be placed on terrain which will approximate good defensive locations for units occupying that particular area.

### 48. Construction

*a.* The observation line should be among the first areas of the target detection range to be constructed. The reason for this is that the location of all down range panels, sound systems, and any necessary trimming of foliage depends on the degree of visibility from the observation line. The observation line should be wide enough to accommodate 50 points. These points are sufficient for 50 two-man teams or half of a 200-man unit.

*b.* The fan of observation should cover the area between 30 degrees left of the left flank point of the observation line to 30 degrees right of the right flank point. Ideally, to provide maximum flexibility in conducting exercises in range determination, the target detection range should have a depth in excess of 500 meters. Installations having limited training space can conduct satisfactory training on ranges having a depth of at least 300 meters.

*c.* Both lettered and numbered panels are placed throughout the observation area. The lettered panels serve two purposes: first, they divide the range into sectors defining a rifleman's area of responsibility; and second, they serve as reference points for marking targets. The numbered panels are used during exercises to locate sound targets only. Consequently, these panels should be constructed so they can be easily raised or lowered as required.

*d.* The number of panels needed depends upon the size of the range. For a range having a 50-point observation line and a depth of 300 meters, approximately seven lettered panels and 14 numbered panels will be required.

*e.* In addition to the panels, numbered stakes are also placed down range. These stakes should not be visible from the observation line since they are for the sole use of instructors and target men in presenting various target situations. As in the case of the panels, the number of stakes required will depend upon the depth of the range. As a guide, a range having a depth of 300 meters should have approximately 150 stakes. In placing numbered stakes, a method should be used to provide easy reference to stake locations. One such method is to divide the range into three sectors, "A," "B," and "C." Stakes are then numbered numerically beginning at the maximum depth of the range and proceeding forward to the observation line. All stakes in one sector would have the sector letter following the number. For example, if the right sector is designated "A," all numbers on stakes in that sector will be followed by the letter "A." Stakes in the center and left sectors will have

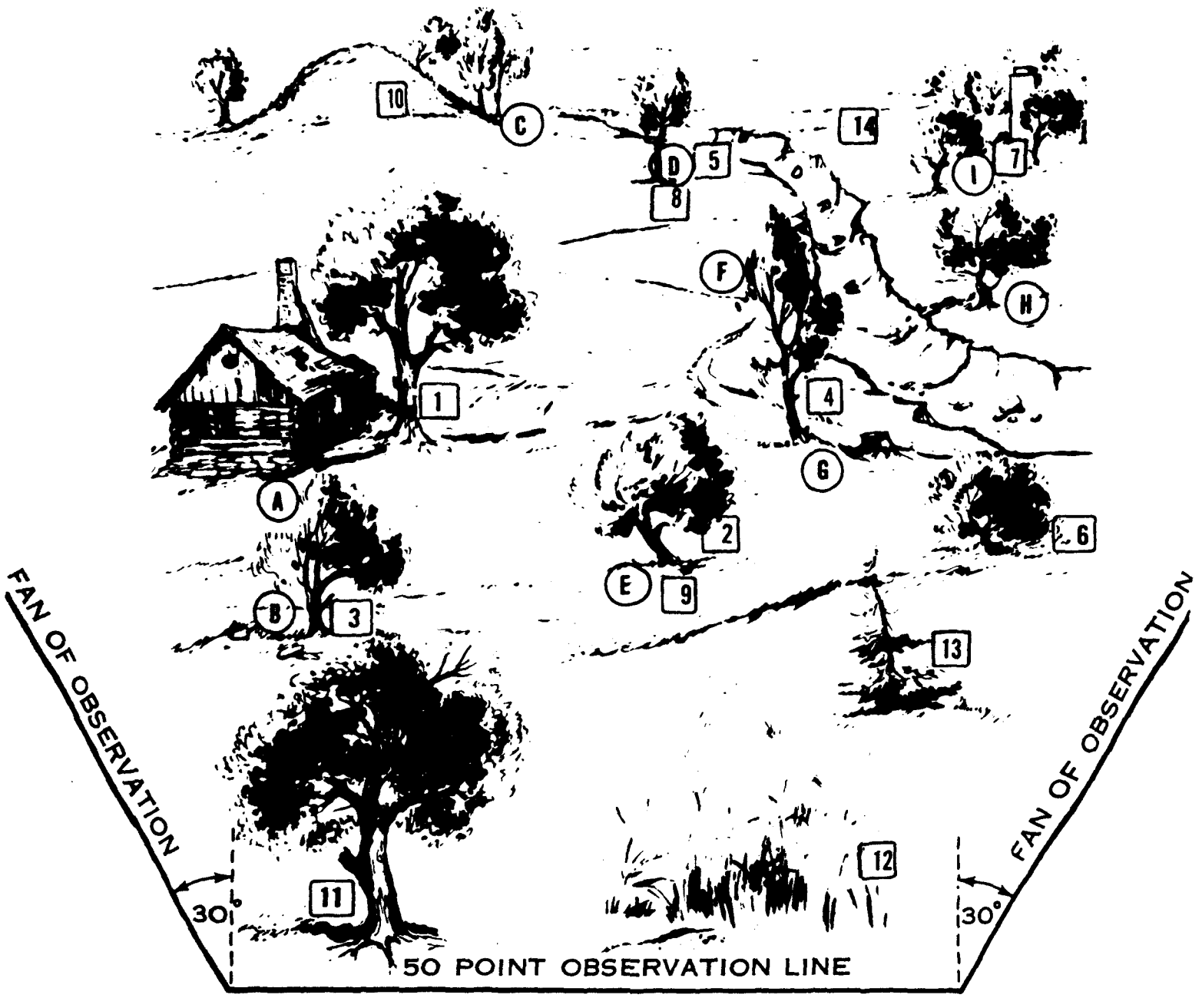



*Figure 42. Target detection range.*

the letters "B" and "C," respectively, after the number.

*f.* The location of all panels and stakes must be recorded on the master trial sheets.

*g.* For proper control of target men, it is necessary to use sound equipment throughout the observation area. Since problems of adequate sound vary according to location, it is best that a sound survey be conducted of each target detection range before the equipment is installed.

*h.* The exact positioning of panels, stakes, and sound equipment should be checked from the observation line. It is desirable that sound equipment be concealed from the observation line; however, this is not an absolute necessity.

## 49. Use of Field Expedient Areas for Target Detection Training

If standard target detection ranges are not available, the principles can be applied to parks, open field, or other sparsely vegetated areas. The following considerations provide a checklist when adapting such areas for target detection training:

*a.* There should be more depth to the range than for a standard target detection range. In addition, the fan of observation should be increased depending on the degree of camouflage in the area.

*b.* Target men should be spaced wider apart in areas having little natural vegetation. In this regard, it may even be necessary to bring in piles of brush, logs, and man-made objects to add to the number of concealed positions.

## 50. Range Personnel and Equipment

*a.* The following personnel are required to conduct and supervise target detection training:

(1) Officer in change and/or principal instructor.

(2) Four assistant instructors (based on 50-point observation line).

(3) Target men as required by the exercise.

(4) Medical personnel.

*b.* The following equipment is required to conduct target detection training:

(1) One master trial sheet per instructor and assistant instructor (fig. 49).

(2) One target trial sheet per target man (fig. 50).

(3) One answer sheet per observer.

(4) One aiming device per observation point as required by the exercise (fig. 51).

(5) One camouflage suit per target man.

(6) Camouflage paint tubes as required (at least one tube with each of the four basic colors).

(7) For exercises in which observers simulate firing on target men, there should be one rifle (which has had the firing pin removed) per observation point.

(8) Target men should have their normal combat field equipment, including steel helmet and rifle.

# Section III. CONDUCT OF TRAINING

## 51. Training Conditions

*a.* As in the case of firing exercises, personnel receiving target detection training should wear combat field equipment, including packs and steel helmets. A portion of the target detection training is devoted to teaching methods of camouflaging this equipment.

*b.* Demonstrators for target detection training should wear combat field equipment, including packs and steel helmets. This will increase their value as target men simulating the movements and appearance of enemy soldiers.

## 52. Fundamentals of Target Detection

Initially, target detection is taught in three distinct phases: first, how to locate a target; second, how to mark the location of the target; and third, how to determine the range to the target. Later, these phases are combined into practical exercises which test the overall target detection ability of the soldier.

*a. Locating Targets.* The ability to locate a combat target depends upon the observer's position, his skill in search and/or maintaining observation over the area, and the type of indications made by the target.

(1) *Selection of a position.*

(*a*) Depending upon the situation, the individual rifleman may or may not select his own position. In most defensive situations, the rifleman is told where to prepare his position. However, there are situations, such as the attack and reorganization of the objective, which require the individual to select his own position. Although target detection training courses prescribe conferences and demonstrations on selection of positions, the instruction does not normally include practical application of this skill. Consequently, instructors must continually refer to and emphasize the importance of the observer's position when conducting practical exercises in other target detection techniques.

(*b*) A good position is one that offers maximum visibility of the area while affording cover and/or concealment. As used in this case, "position" is both the observer's location on the ground and the position of his body at that location.

(2) *Searching and maintaining observation of an area.*

(*a*) When a soldier moves into a new area, he must quickly check for enemy activity which may be of immediate danger to him. This is a very rapid search, lasting approximately 30 seconds. The search should be conducted by making quick glances at various specific points throughout the area rather than just sweeping the eyes across the terrain in one continuous panoramic view. The reason for this is that the eyes are sensitive to any slight movements occurring within a wide arc of the object on which they are focused. This is commonly called "seeing something out of the corner of the eye." However, THE EYES MUST BE FOCUSED ON A SPECIFIC POINT IN ORDER TO HAVE THIS SENSITIVITY. A soldier looking at nothing in particular in his area will generally see nothing in particular. The history of warfare records many examples of positions being surprised and overwhelmed, even during daylight in open terrain, simply because observers were inattentive and failed to use proper searching techniques.

(*b*) If the soldier fails to locate the enemy during the initial search, he must then begin a systematic examination of the same area (fig. 43). Normally, the area nearest the soldier offers the greatest potential danger to him. Therefore, the search should begin with the terrain nearest the observer's position. Beginning at either flank, the soldier should systematically search the terrain to his front in a 180 degree arc, 50 meters in depth. After reaching the opposite flank, the soldier should search the next area nearest his position. This search should cover the terrain located between approximately 40 and 90 meters of his position. The second search of the terrain includes about 10 meters of the area examined during the first search. This technique insures complete coverage of the area. The soldier continues searching from one flank to the other in 50-meter overlapping strips as far out as he can see.

(*c*) To again take advantage of his side vision, the soldier should focus his eyes on specific points as he searches from one flank to the other. He should make mental notes of prominent terrain features and areas that may offer cover and/or concealment to the enemy. In this way, he becomes familiar with the terrain as he searches it.

(*d*) After completing his detailed search, the soldier may be required to maintain observation of the area. To do this, he should use a method similar to his initial quick search of the area. That is, he uses quick

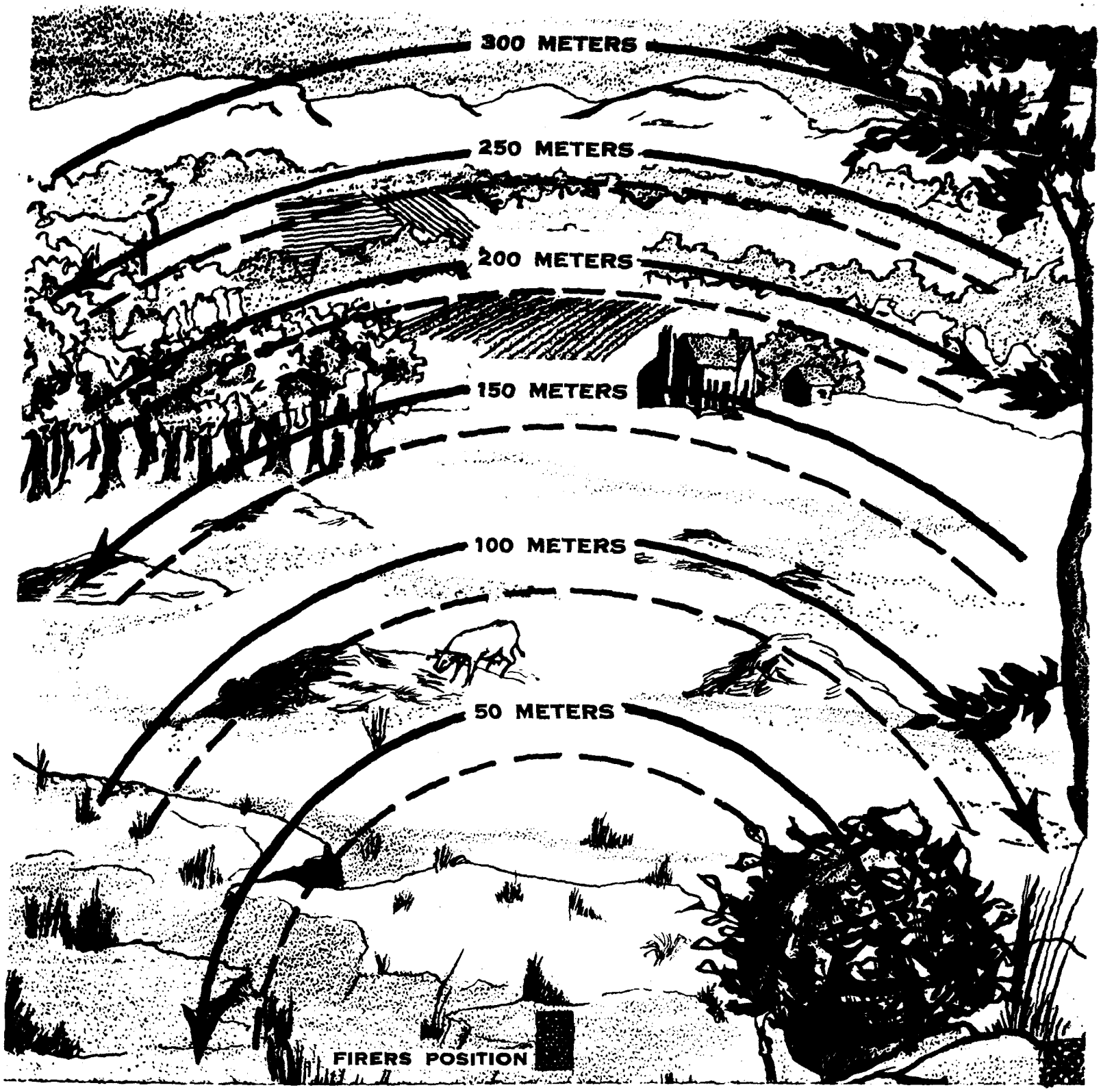



*Figure 43. Searching the terrain in overlapping strips.*

glances at various points throughout the entire area, focusing his eyes on specific features. As he conducts this search, he should devise a set sequence of searching the area to insure complete coverage of all terrain. Since it is entirely possible that this quick search may fail to detect the initial movement of an enemy, the observer should periodically repeat a systematic search of the area as described in (*b*) above. This systematic search should also be conducted anytime the attention of the observer has been distracted from his area of responsibility.

(3) *Target indications.* As a general definition, a target indication is anything a soldier does or fails to do that will reveal his position to an enemy. Since

these indications apply equally to both sides on the battlefield, a soldier must learn target indications from the standpoint of locating the enemy but, at the same time, preventing the enemy from using the same indications to locate him. These indications can be grouped into three general areas for instruction purposes. These are sound, movement, and improper camouflage.

(*a*) *Sound.* Targets indicated by sounds such as footsteps, coughing, or equipment noises provide only a direction and general location. Consequently, it is difficult to pinpoint a target's location by sound alone. However, the fact that a sound has alerted an observer greatly increases the possibility that he will eventually locate the target through subsequent target indications (FM 21–75).

(*b*) *Movement.* The degree of difficulty in locating moving targets depends primarily on the speed of movement. Slow, deliberate movements are much more difficult to notice than those which are quick and jerky. The techniques outlined in (2) (*a*) above are the best procedures for locating moving targets (FM 21–75).

(*c*) *Camouflage.* The lack or improper use of camouflage and/or concealment are indications which reveal the majority of targets detected on the battlefield. Such things as light reflecting from shiny surfaces, presenting a clearly defined outline, or a contrast with the background are indicators easily noticed by an alert observer. For instructional purposes, camouflage indicators are divided into three general groups: shine, regularity of outline, and contrast with background.

*1.* *Shine.* Items such as belt buckles, eyeglasses, or shiny metal surfaces will reflect light and act as a beacon to the soldier's position. This is as true at night as it is during the day. Consequently, objects which reflect light should either be discarded or dulled with mud or camouflage.

*2.* *Regularity of outline.* The human body and most types of military equipment are familiar outlines to all soldiers. The outlines of such things as rifles, steel helmets, and vehicles are all easily identified. The reliability of this indicator depends upon the visibility and the experience of the observers. On a clear day, most soldiers can easily identify enemy riflemen or equipment if a distinctive outline is presented. At night or during other periods of poor visibility, it is not only more difficult to see outlines but inexperienced troops will frequently mistake stumps and rocks for enemy soldiers. This is an added reason for soldiers to become completely familiar with the terrain during periods of good visibility.

*3.* *Contrast with the background.*

(a) Suppose a soldier wearing a dark uniform moved into a position in front of a snowbank. The contrast between the white snow and the dark uniform would make him clearly visible. However, if he is wearing a white (or light-colored) uniform, he will be more difficult to see. Contrast with the background is among the most difficult of the target indicators for a soldier to avoid. The reason for this is that during operations in which the soldier is moving, he is usually exposed to any number of different types and colors of backgrounds. Since there is no one kind of personal camouflage which blends in all areas, a moving soldier must be continually aware of the surrounding terrain and vegetation.

(b) Contrasts in background are also a common deficiency of defensive positions. A parapet of freshly dug earth around a foxhole is as notice-

able as a flag waving over it. Even if the positions are camouflaged, it is still possible to locate them from the very materials used to provide concealment. For example, a hill having no vegetation except a row of evenly spaced bushes along the military crest leaves little doubt in an observer's mind as to the presence of defensive positions. Even camouflage which blends with the area can indirectly disclose a position. Since camouflage materials are usually cut from vegetation within the immediate vicinity, an observer seeing an area which has been stripped of natural growth can logically deduce the presence of nearby camouflaged emplacements. Another problem of using vegetation for camouflage is that it will eventually wilt and turn brown. This produces a contrast similar to those positions having no camouflage at all.

*b. Marking Targets.*

(1) Once a target has been located, the soldier may have to mark its location in relation to some visible terrain feature. There could be several reasons for this. The enemy may have only briefly disclosed his position before again becoming hidden from view. In some situations, the rifleman may be under orders not to fire and disclose his position. Probably the most common reason is that if the soldier observes several targets at the same moment, he can obviously fire on only one of them at a time. Consequently, he must mark the location of the others until he is ready to engage them.

(2) To mark the location of a target, the soldier uses an aiming point or a reference point. An aiming point is a terrain feature directly on line between the soldier and the target. For example, suppose a soldier observes an enemy rifleman moving into a completely concealed position behind a bush. By selecting a proper aiming point on the bush, the soldier should hit the enemy rifleman even though he can't see him. However, suppose the enemy rifleman moves into a concealed position which has no distinguishable terrain feature in front of it. The soldier must then select a nearby feature and determine its range and general direction from the target. Of the two, an aiming point is usually the most effective means of delivering accurate fire.

(3) The difficulty in using reference points or aiming points to mark targets moving from one location to another depends on the following factors.

(*a*) *Number of targets.* If several targets appear and disappear at approximately the same time, it is very difficult to note the point of disappearance of each.

(*b*) *Exposure time of target.* Usually, moving targets are only exposed for a brief moment. Thus, the observer must be alert to note the point of disappearance for all of the targets. In such situations, the soldier should mark the location of as many targets as possible before engaging any of them. By so doing, he will know the location of several targets and can engage each of them in rapid succession.

(*c*) *Spacing of targets.* The greater the interval between targets, the more difficult it is to note the movements of each. When there is considerable distance between targets, the observer should accurately locate the one nearest his position and note the general area of the others.

(*d*) *Good and poor aiming points.* Targets disappearing behind good aiming points can be easily marked for future reference. On the other hand, targets disappearing behind poor aiming points are difficult to mark accurately and are easily lost. If two targets offer about the same degree of danger to the soldier, but one disappears behind a good aim-

ing point and the other behind a poor aiming point, the soldier should mark the location of the target behind the good aiming point and engage the other target first.

*c etermining Range.*

1) Simply stated, range determination is the process of finding the distance between two points. In most situations, one of these points will be the observer's own position. The other point may be a target or prominent terrain feature. THE ABILITY TO ACCURATELY DETERMINE RANGE IS A KEY SKILL NEEDED BY THE COMBAT RIFLEMAN TO ACCOMPLISH HIS VARIOUS MISSIONS. Not only does the accurate determination of range affect his combat marksmanship proficiency, but it is also required in the reporting of information and the adjusting of artillery and mortar fire.

2) There are any number of methods for determining range. Measuring distances on maps, pacing the distance between two points, using an optical range finder, and firing a round at the point in question. However, the combat rifleman does not usually have a map, and he rarely has access to an optical range finder. Pacing the distance between two points is one method a soldier can use, provided the enemy is not in the vicinity. Firing a round just to determine the range is usually not desirable since it immediately reveals the firer's position to enemy observers. For the most part, then, the rifleman must use techniques which require no equipment other than that which he normally carries and which can be accomplished without exposing himself or revealing his position. There are two methods of determining range which meet these requirements; the 100-meter mental unit of measure method and the appearance of objects method.

(a) *100-meter mental unit of measure method.*

*1.* To use this method, the soldier must be able to visualize a distance of 100 meters on the ground. For ranges up to 500 meters, he determines the number of 100-meter increments between the two points he wishes to measure (fig. 44). Beyond 500 meters, the soldier must select a point halfway to the target, determine the number of 100-meter increments to this halfway point, and then double it to find the range to the target (fig. 45).

*2.* During training exercises, the soldier must become familiar with the effect that sloping ground has on the appearance of a 100-meter increment. Ground which slopes upward gives the illusion of greater distance and observers have a tendency to underestimate a 100-meter increment. That is, they may select two points as being 100 meters apart when they are, in fact, 140 or 150 meters apart. Conversely, ground which slopes downward gives the illusion of shorter distances. In this case, the observer's tendency is to overestimate; that is, to apply a 100-meter unit of measure between two points which are actually less than 100 meters apart.

*3.* To become proficient in the 100-meter mental unit of measure method requires constant practice. Throughout the training in this technique, comparisons should be continually made between the range as determined by the soldier and the actual range as determined by pacing or other more accurate means of measurement. The best training technique is to require the soldier to pace the range after he has visually determined it. (For the average soldier, 132 paces equals 100 meters.) In this way, he discovers the actual range for himself, which makes a much greater

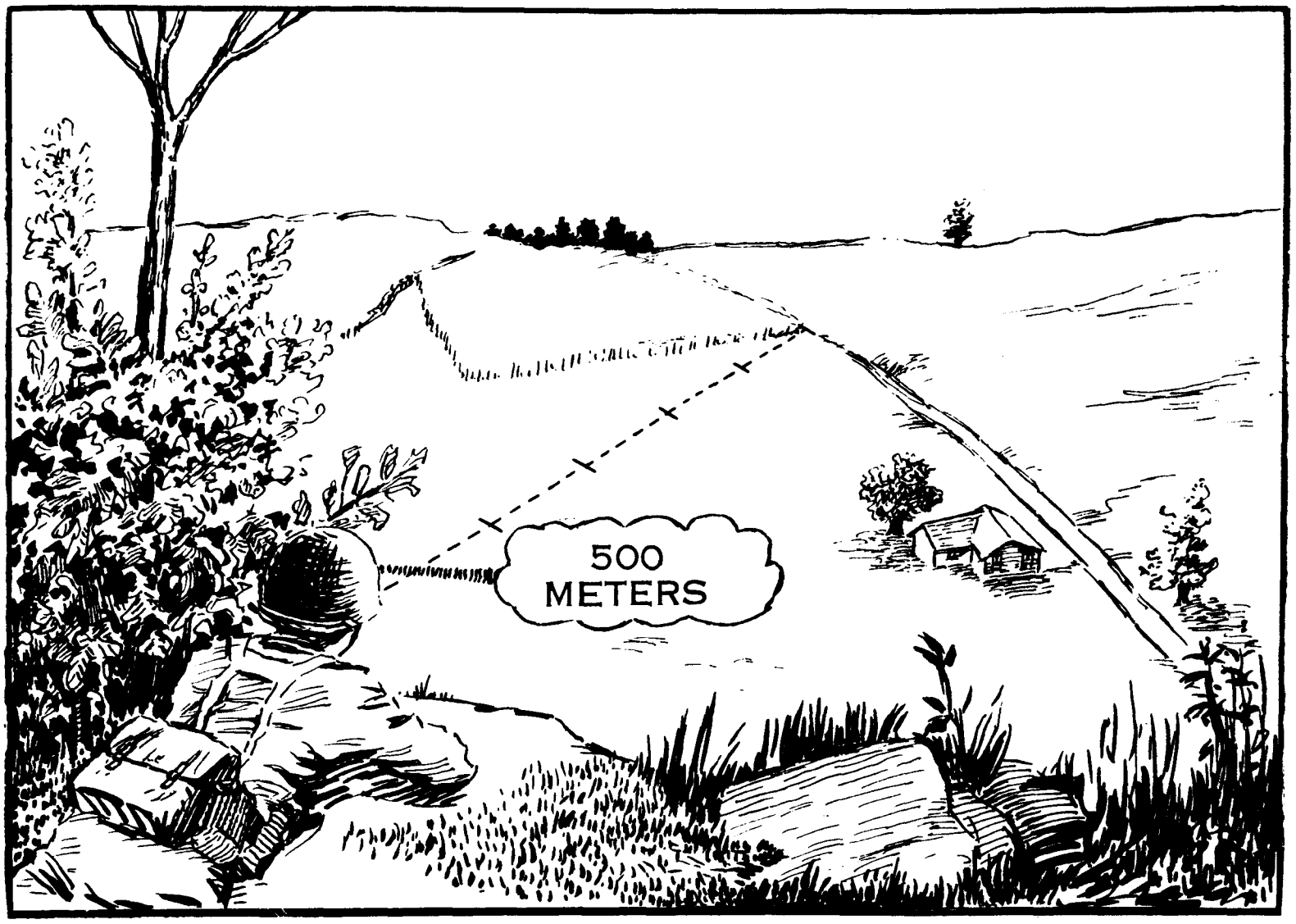



*Figure 44. 100-meter mental unit of measure ranges up to 500 meters.*

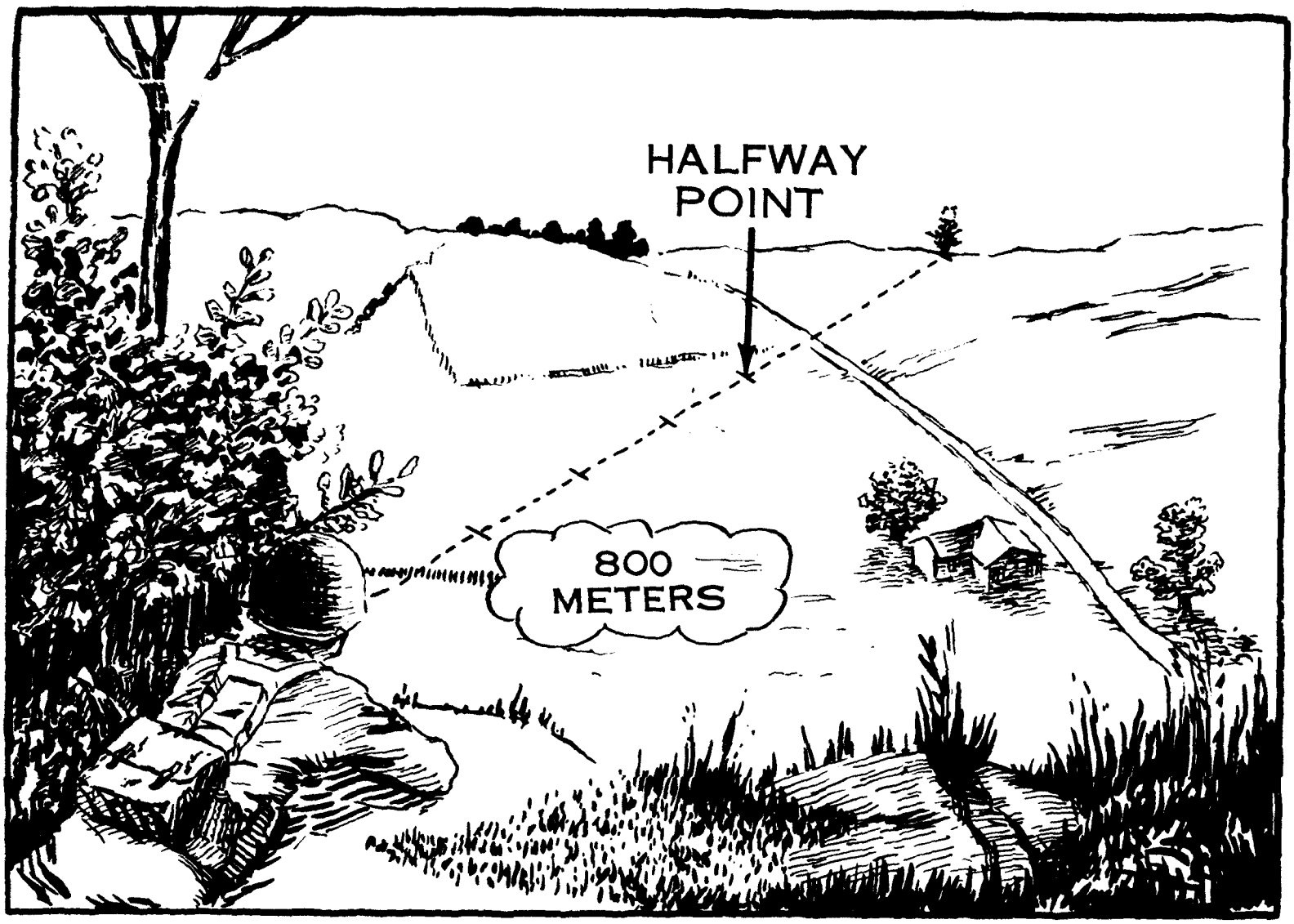



*Figure 45. 100-meter mental unit of measure ranges greater than 500 meters.*

impression than if he is simply told the correct range.

4. The greatest limitation of the 100-meter mental unit of measure is that its accuracy is directly related to how much of the terrain is visible to the observer. This is particularly true at the greater ranges. If a target appears at a range of 500 meters or more and the observer can only see a portion of the ground between himself and the target, it becomes very difficult to use the 100-meter mental unit of measure method of range determination with any degree of accuracy.

(*b*) *Appearance of objects method.*

1. The appearance of objects method is a means of determining range by the size and other characteristic details of the object in question. This is a common method of determining distances and is used by most people in their every-day living. For example, a motorist attempting to pass another car must judge the distance of oncoming vehicles based on his knowledge of how vehicles appear at various distances. Of course, in this example, the motorist is not interested in precise distances, but only that he has sufficient road space to safely pass the car in front of him. Suppose, though, the motorist knew that at a distance of one mile an oncoming vehicle appeared to be one inch wide and two inches high, with about a half inch between the headlights.

Then, any time he saw other oncoming vehicles which fitted these dimensions he would know they were about one mile away. This same technique can be used by riflemen to determine ranges on the battlefield. If he knows the characteristic size and detail of personnel and equipment at known ranges, then he can compare these characteristics to similar objects at unknown ranges. When the characteristics match, so then does the range.

*2.* To use the appearance of objects method with any degree of accuracy, the soldier must be thoroughly familiar with the characteristic details of objects as they appear at various ranges. For example, the soldier should study the appearance of a man when he is standing at a range of 100 meters. He fixes his appearance firmly in his mind, carefully noting details of size and the characteristics of his uniform and equipment. Next, he studies the same man in a kneeling position and then in a prone position. By comparing the appearance of these positions at known ranges from 100 to 500 meters, the soldier can establish a series of mental images which will help him determine range on unfamiliar terrain. Training should also be conducted in the appearance of other familiar objects such as weapons or vehicles. Because the successful use of this method depends upon the visibility, anything which limits the visibility (such as weather, smoke, or darkness) will also limit the effectiveness of this method (fig. 46).

(*c*) Under proper conditions, either the 100-meter mental unit of measure or the appearance of objects method is an effective way of determining range. However, proper conditions do not always exist on the battlefield. Consequently, the soldier will be required to use a combination of methods. The terrain might limit using the 100-meter mental unit of

FACTORS AFFECTING THE APPERANCE OF OBJECTS

| FACTORS TO BE CONSIDERED IN DETERMINING RANGE BY EYE. | OBJECTS APPEAR NEARER THAN THEY REALLY ARE. | OBJECTS APPEAR MORE DISTANT THAN THEY REALLY ARE. |
|---|---|---|
| THE TARGET—ITS CLEARNESS OF OUTLINE AND DETAILS. | WHEN MOST OF THE TARGET IS VISIBLE AND OFFERS A CLEAR OUTLINE. | WHEN ONLY A SMALL PART OF THE TARGET MAY BE SEEN OR IS SMALL IN RELATION TO ITS SURROUNDINGS. |
| NATURE OF THE TERRAIN OR POSITION OF THE OBSERVER. | WHEN LOOKING ACROSS A DEPRESSION, MOST OF WHICH IS HIDDEN FROM VIEW.<br>WHEN LOOKING DOWNWARD FROM HIGH GROUND.<br>WHEN LOOKING DOWN A STRAIGHT, OPEN ROAD OR ALONG A RAILROAD TRACK. | WHEN LOOKING ACROSS A DEPRESSION, ALL OF WHICH IS VISIBILE.<br>WHEN LOOKING FROM LOW GROUND TOWARD HIGH GROUND.<br>WHEN FIELD OF VISION IS NARROWLY CONFINED AS IN TWISTED STREETS, DRAWS, OR FOREST TRAILS. |
| LIGHT AND ATMOSPHERE. | WHEN LOOKING OVER UNIFORM SURFACES LIKE WATER, SNOW, DESERT, OR GRAIN FIELDS.<br>IN BRIGHT LIGHT OR WHEN THE SUN IS SHINING FROM BEHIND THE OBSERVER.<br>WHEN THE TARGET IS IN SHARP CONTRAST WITH THE BACKGROUND OR IS SILHOUETTED BY REASON OF SIZE, SHAPE, OR COLOR.<br>WHEN SEEN IN THE CLEAR ATMOSPHERE OF HIGH ALTITUDES. | IN POOR LIGHT SUCH AS DAWN AND DUSK, IN RAIN, SNOW, OR FOG, OR WHEN THE SUN IS IN THE OBSERVER'S EYES.<br>WHEN THE TARGET BLENDS INTO THE BACKGROUND OR TERRAIN. |

*Figure 46. Factors affecting the appearance of objects.*

measure method and the visibility could limit using the appearance of objects method. However, the soldier might still be able to determine ranges with a reasonable degree of accuracy using both methods. For example, an observer may not be able to see all of the terrain out to the target; however, he may see enough to get a general idea of the distance, say, within 100 meters. A slight haze may obscure many of the target details; however, the observer should still be able to judge its size. Thus by carefully considering the approximate ranges as determined by both methods, an experienced observer should arrive at a figure close to the true range.

*d. Sector Sketch.* A sector sketch is a rough schematic map of an observer's area of responsibility (fig. 47). It shows the range and direction from the observer's position to easily recognizable objects, terrain features, avenues of approach, and possible enemy positions. If practicable, the observer should pace the distance between his position and reference points in order to minimize range errors. By referring to this sketch, the observer can quickly find the range to a target appearing in the vicinity of a reference point.

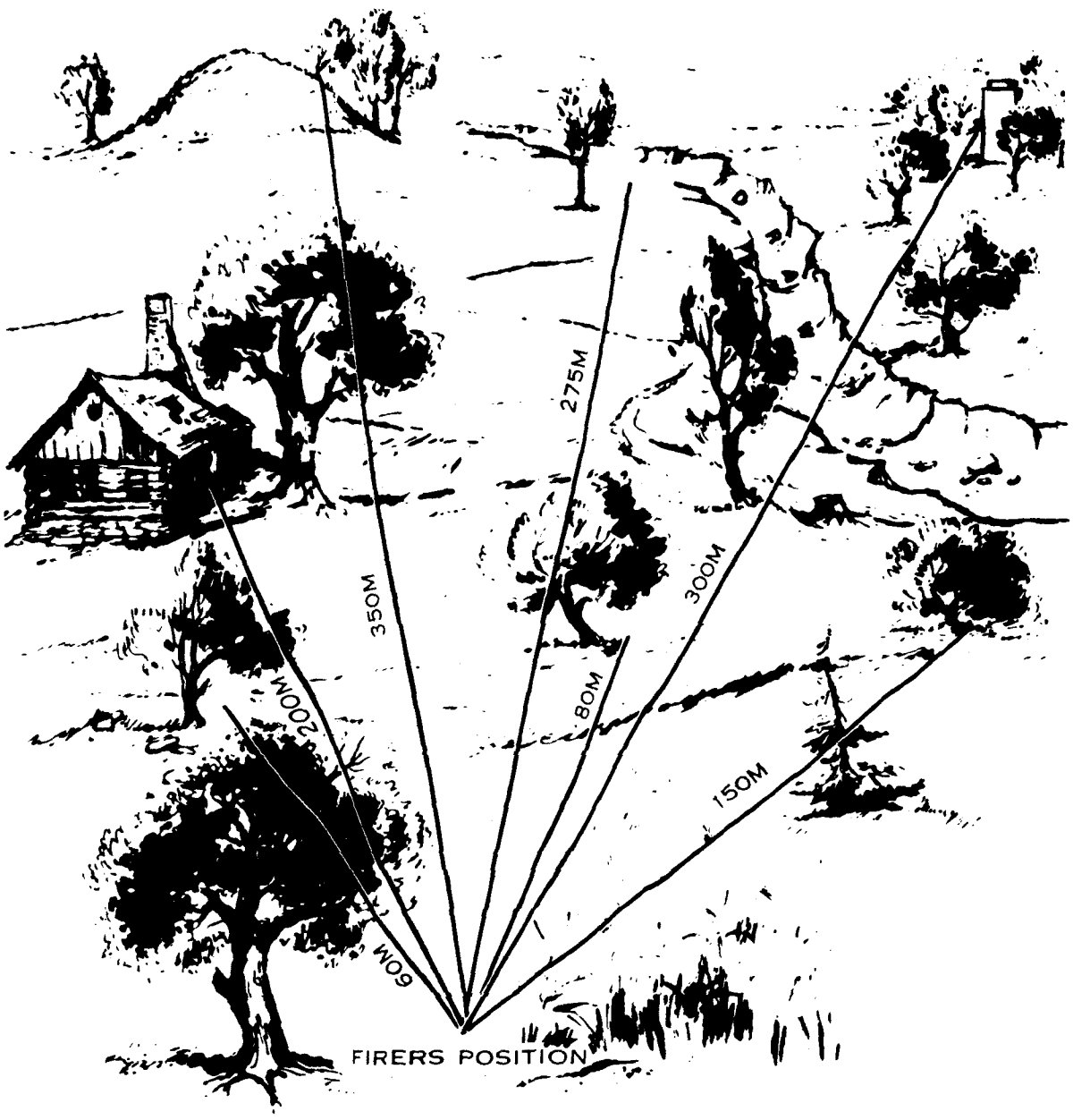



*Figure 47. Sector sketch.*

## 53. Engaging Targets

Unless a rifleman has specific orders to the

contrary, targets are engaged as soon as they are detected. In the case of enemy personnel, there are essentially three types of target situations which confront the rifleman: a stationary target, a rapidly moving target, or a slowly moving target.

*a.* A stationary target can be engaged using reference or aiming points. Since stationary targets are normally in a concealed position, engaging them is usually as much a problem of target detection as it is of marksmanship.

*b.* Although there are less detection problems involved in locating moving targets, the movement itself complicates the selection of an accurate aiming point. Unless the enemy is completely unaware of the rifleman's presence, he will normally move by rushes from one covered or concealed position to another. While making the rush, the enemy soldier presents a rapidly moving target. However, for a brief moment as he begins and ends the rush, the movement is usually slow. The reason for this is that a few steps are needed to gather momentum to begin the rush and, by the same token, a few steps are required to slow down to avoid overrunning the new position. It is at either of these two moments that a moving target is most vulnerable to aimed rifle fire.

*c.* A target moving directly toward the rifleman can be engaged in the same manner as a stationary target. However, to hit a target moving laterally across his front, the rifleman must aim far enough in advance of the target so the bullet will meet the target (fig. 48). To hit a man walking laterally at ranges 200 meters and less, the rifleman should aim at the forward edge of the body. For ranges beyond 200 meters, the rifleman should select an aiming point approximating one body width in front of the target. If the target is running, these target leads are doubled. That is, at ranges less than 200 meters the rifleman aims approximately one body width in front of the target, and beyond 200 meters he aims approximately two body widths in front of the target.

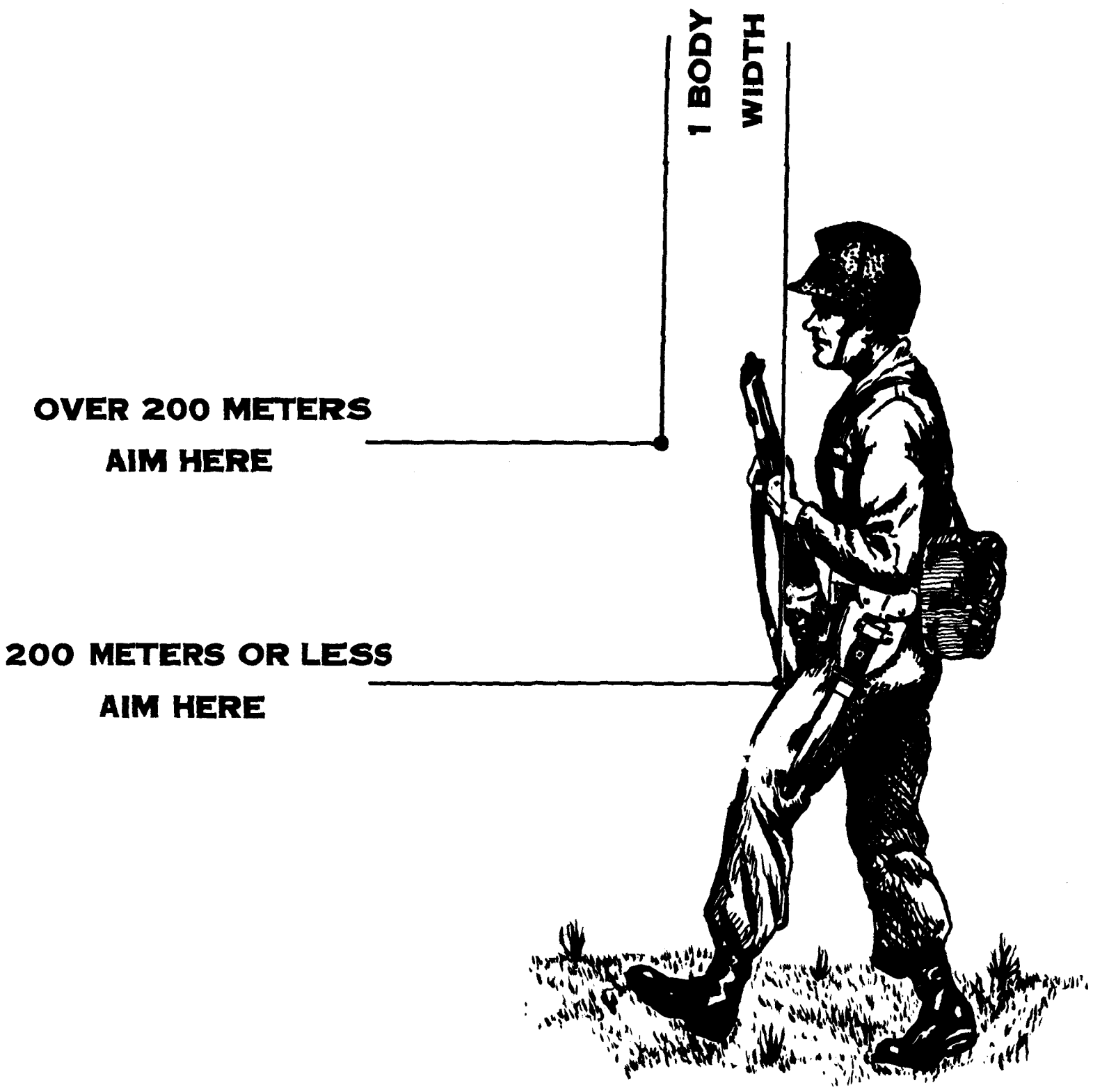



*Figure 48. Target leads.*

## Section IV. PRACTICAL EXERCISES AND TESTS

### 54. Trial Sheets

*a. Master Trial Sheets.* The master trial sheet (fig. 49) shows the number of target men required for an exercise, the actions to be performed by the target men, the duration of the actions, and the panel or stake locations where the actions will occur. A master trial sheet should be made for each exercise.

MASTER TRIAL SHEET

| *Trial No.* | *Range (meters)* | *Description of requirements* |
|---|---|---|
| 1 | 200 | Standing exposed by tree. Down to kneeling, exposed. Slow movement to out-of-sight position. Out-of-sight fire round for smoke indications. |
| 2 | 150 | Same as above with a poor aiming point. |
| 3 | 175 | Start standing. Disappear on command. Reappear in same position. Make five 4-second rushes with a good aiming point. Fire one round from last position. |
| 4 | 300 | Start from kneeling position behind bush. Make five 4- to 5-second rushes. Disappear where there is a poor aiming point. Reappear from same position. 5-3-3-5-5-seconds. Fire round from last position. |
| 5 | 300 | Start prone. Make five 4-5-8 second rushes. Disappear after each rush and roll or crouch to new position. Three-second rush, crawl left. Six-second rush, crawl right. Cross small draw. Appear and make 8-second rush, crawl left. Three-second rush, crawl right. Fire one round from last position. |
| 6 | 175 | Start prone. Make three 4-second and two 6-second lateral rushes to new concealment. Reappear at same point of disappearance. Vary time between rushes. Fire one round from last position. |
| 7 | 175 | Do same in reverse. Crawl or roll tc new position after disappearing. Fire round from last position. |
| 8 | 200 | Run 200 yards from tree to position with a poor aiming point. Fire 2 blanks 1 minute after disappearance. |
| 9 | 300 | Start prone. Three-second rush, crawl left. Five-second rush, crawl right. 5-L-3-3-6-R-4-5, through draw. Fire round from last position. (Numbers indicate duration of rush; letters L and R indicate direction of roll or craw after each rush.) |
| 10 | 300 | Start behind bush. 6-8-R-3-R-4-3. Fire round from last position. |

*Note.* Target trial sheets should be prepared from a master trial sheet similar to the one above containing only the trials and target indications performed by a specific target.

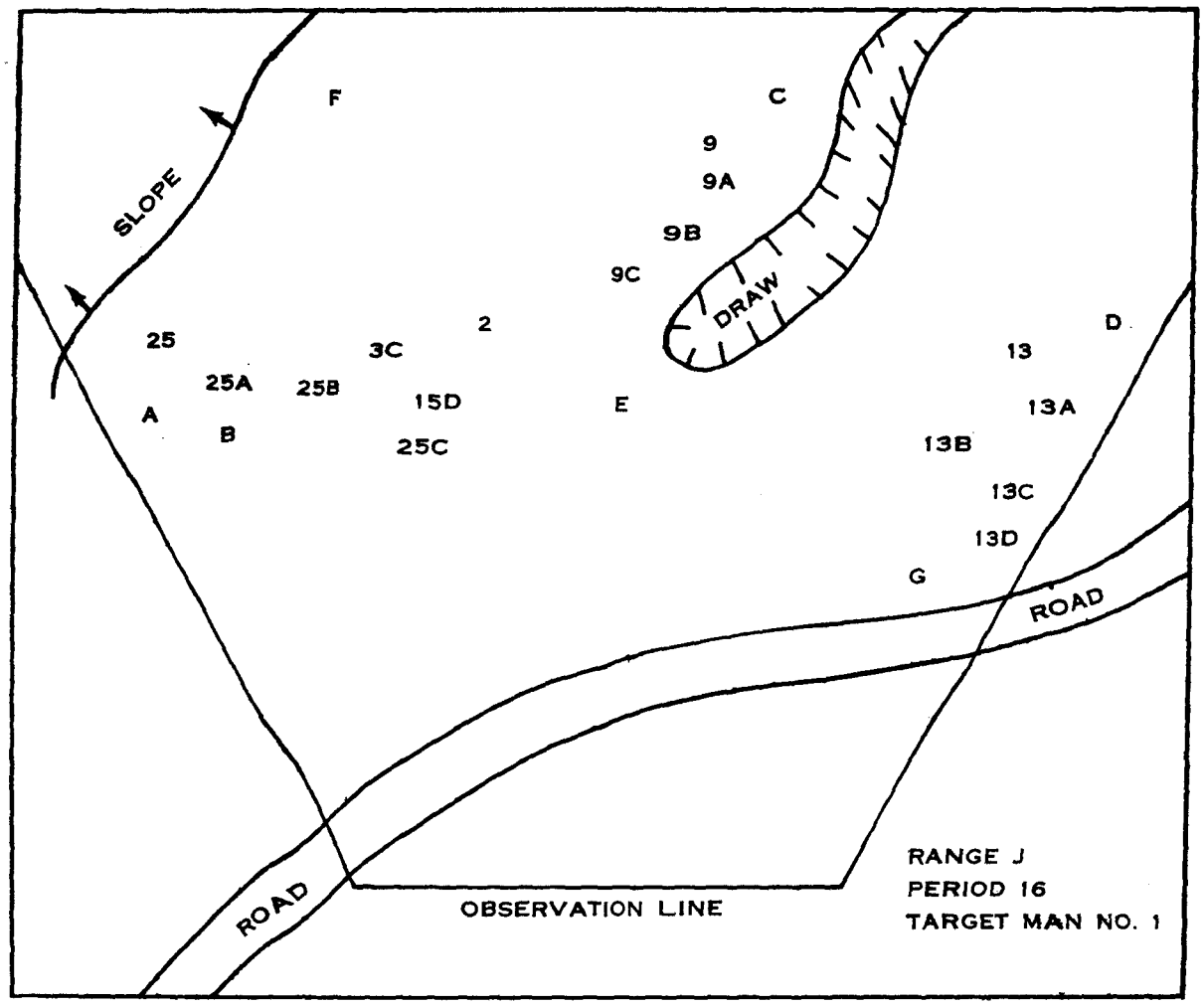
*Figure 49. Master trial sheet.*

*b. Target Trial Sheets.* A target trial sheet (fig. 50) is issued to each man who will act as an enemy target in the area of observation. These men, called "target men," use the target trial sheets as a basis for their location and actions throughout an exercise. All actions performed by a target man which lead to his eventual disclosure are termed a "trial."

### 55. Conduct of Trials

Before a trial is conducted, observers should face away from the range area so target men can assume their positions unobserved. When the target men are in position, the observers are told to again face down range. There are four types of trials conducted during target detection training. These are stationary target trials, moving target trials, stationary sound target trials, and multiple moving and sound target trials.

*a. Stationary Target Trials.* Normally, there are four phases in each stationary trial. The first three phases last 30 seconds each. In phase one, the target man remains motionless in a slightly exposed position that will enable him to observe the heads and chests of soldiers along the observation line. In the second phase, the same target man slowly raises his head and shoulders until he can observe the soldiers on the observation line from the ground up. In phase three, the same target man makes rapid, jerky movements continuously for 30




1 Front

*Figure 50. Target trial sheet.*

TARGET MAN NO. 1

| TRIAL NO. | STAKE LOCATION |
|---|---|
| 1 | 2 |
| 5 | 25-25A-25B-3C-15D-25C |
| 6 | 13-13A-13B-13C-13D |
| 8 | 9-9A-9B-9C |

| TRIAL | (PHASE) | ACTIONS |
|---|---|---|
| 1- | 1- | MOTIONLESS IN PRONE POSITION |
| | 2- | SLOWLY RAISE AND LOWER HEAD AND SHOULDERS |
| | 3- | SLOWLY RAISE HEAD AND SHOULDERS, DROP ABRUPTLY |
| | 4- | FIRE TWO BLANKS |

5-RUSH TO EACH POSITION. AWAIT COMMANDS TO STAND, DISAPPEAR, AND MAKE NEXT MOVEMENT.

6-CRAWL TO EACH POSITION. AWAIT COMMANDS TO STAND, DISAPPEAR, AND MAKE NEXT MOVEMENT.

8-RUSH TO EACH POSITION, STOPPING TWO SECONDS AT EACH.

RANGE J PERIOD 16

BACK SIDE

*Figure 50*—Continued.

seconds. Finally, in phase four, the same target man fires one or two blank rounds toward the observation line (safety permitting). The command to begin a stationary target trial is TRIAL ONE, PHASE ONE, OBSERVE. If, during the first phase, the observer thinks he has located the target, he notes the letter of the panel nearest the target and determines the range from his position to the target. He enters this information on his scoresheet and an assistant instructor checks his solution. A range error of not more than ten percent is considered satisfactory. If the observer has selected the wrong panel or the error in range exceeds ten percent, he should be told his answer is incorrect and to continue his observation. If the answer is correct, the observer should continue his observation of the area, recording the required information on his scoresheet for the subsequent phases. This procedure is followed throughout the four phases of stationary trials. (See app. IV for examples of scoresheets.)

*b. Moving Target Trials.*

(1) The target trial sheets for moving trials must indicate the specific trials in which the target man will participate, the stake location at which he begins the trial and the stake location to which he must move, and finally, the type of movement and/or other specific actions to be performed by the target man. An example target trial sheet for target man number one might indicate that he would participate in trials 1, 3, 5, 9, 12, and 15. In trial one, the instructions state that he will make one long rush from stake 6B to stake 12B. In trial three, he is told to make three short rushes from stake 12 to stake 15B.

(2) In order to check the accuracy of ob-

servers, aiming devices should be used to mark the point of disappearance of multiple moving targets (fig. 51).

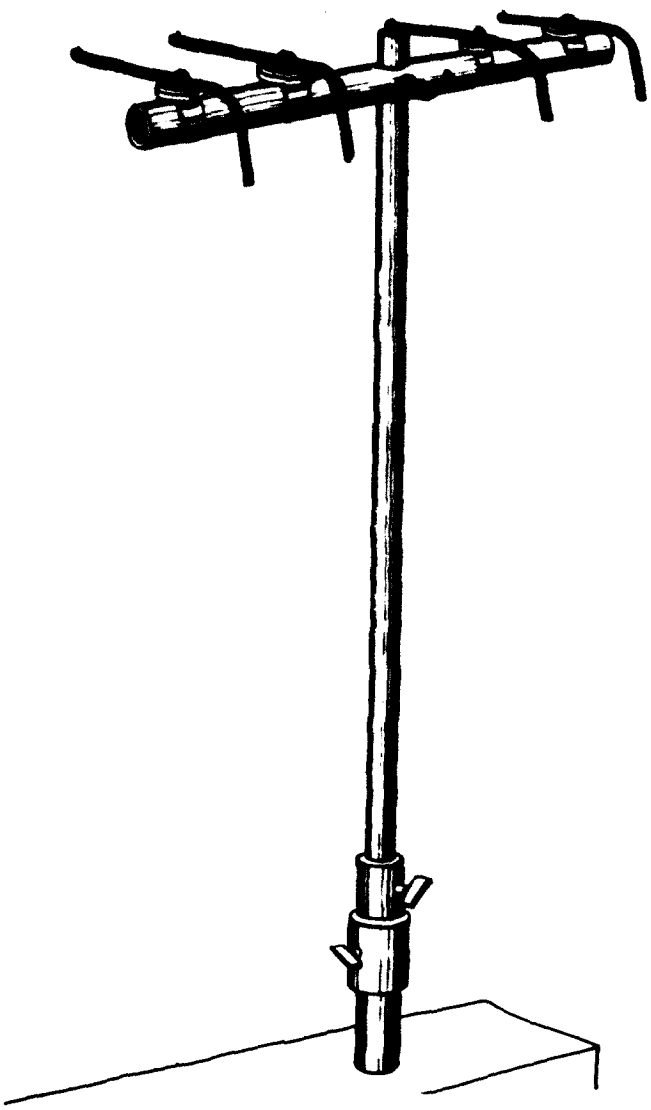


*Figure 51. Aiming device.*

The observer simply aligns the two sight knobs on the bar on the point where he thinks the targets are located. Normally, two students are assigned to an aiming device, one to act as the observer and the other to check the observer's work.

(3) To begin a moving trial, the command is MOVING TARGET(S) STAND UP, DISAPPEAR, AND BEGIN YOUR MOVEMENTS. On these commands, the applicable target men reveal themselves to the observers, move back into their concealed positions, and begin the movements as directed by their target trial sheets. During some exercises, the target men may fire blank rounds after reaching a new location. Observers are allowed 30 seconds to mark the point of disappearance with the aiming device. The instructor then commands, TARGETS STAND UP, ALTERNATE OBSERVERS CHECK ALIGNMENT. The observer then checks the accuracy of his work. This procedure is continued until all of the trials have been conducted.

*c. Sound Target Trials.* Before the trials begin, the observers should draw a sector sketch of the area. All of the numbered panels should then be raised for sound target trials. Each target man occupies a concealed position in the vicinity of one of the numbered panels. The instructor then informs the observer that a shot will be fired from one of the reference points. The observers must determine the panel location nearest the sound and record the information on their scoresheets. The commands to conduct the exercise are, TRIAL NUMBER (ONE): READY, AIM, FIRE. STUDENTS RECORD YOUR ANSWERS. Should it be necessary to reposition target men for subsequent trials, the observers should face away from the range while the movement is taking place. In some trials, several target men should fire simultaneously in order to demonstrate the difficulty in locating similar sounds coming from several directions at the same time.

*d. Multiple Moving and Sound Targets.* To conduct multiple moving and sound target exercises, eight target men are required (two 4-man teams). Observers are divided into coaches and pupils with each pair having one aiming device. The command to begin the exercise is, MOVING TARGETS STAND UP; DISAPPEAR AND BEGIN YOUR MOVEMENT. The moving target men expose themselves, resume their concealed position, and begin their rushes forward. After making their movement, some of the target men should fire one or more blank rounds. The observer acting as the pupil must use the aiming device to mark the point of disappearance of as many moving targets as possible. He also notes the panel location of sound targets on his scoresheet. Upon completing a trial, the instructor commands, TARGETS STAND UP, CHECK

ALIGNMENT USING COACH AND PUPIL METHOD. At this time the target men stand up and the coach checks the accuracy of the pupil's work. In the next trial, the coach becomes the pupil and the pupil becomes the coach.

## 56. Target Detection Tests

As the final stage of their target detection training, soldiers should be tested on their ability to detect and determine ranges to single stationary targets, marking the points of disappearance of single and multiple moving targets, and locating targets by sound.

*a. Test Number One—Stationary Targets.* Test number one is conducted using the same four phases prescribed for the target detection trials of stationary targets (par. 55*a*). In this case, the observer receives points in proportion to the number of phases needed to detect the target. If the observer detects the target in phase one, he receives four points; in phase two, three points; and so on down to zero points if he fails to detect the target after four phases. To be considered correct, the observer must again select the lettered panel nearest the target and then determine the range from his position to the target. A range error of ten percent or less is considered satisfactory. Master trial sheets, target trial sheets, and range procedures are the same as prescribed for the practical exercises in detecting stationary targets. Each observer should be given approximately 16 trials involving detection of stationary targets in order to provide enough information to adequately judge his ability.

*b. Test Number Two—Moving Targets.* Target detection test number two requires the observer to mark the points of disappearance of multiple moving targets. These tests are conducted in the same manner as the practical exercises for moving targets (par. 55*b*). After the target men have completed their movements, observers are allowed 30 seconds to mark the points of disappearance, using the aiming device. Assistant instructors check the results and award one point for each correctly marked target location.

*c. Test Number Three—Sound Targets.* Test number three involves sound targets only. The test is conducted in the same manner as practical exercises for locating sound targets (par. 55*c*). On command, one or two target men fire their rifles, and the observer attempts to locate the sound using the numbered panels as reference points. One point is awarded for each correct answer.

# CHAPTER 6

# RECORD FIRING

## Section I. GENERAL

### 57. Purpose

Record firing is a series of practical exercises which requires the soldier to apply individual rifle marksmanship techniques learned in previous instruction. Although the soldier receives a qualification rating based on the number of targets which he hits, record firing should not be considered so much a test as it is an extremely valuable training exercise. If record firing is correctly organized and conducted, any soldier can gain much valuable experience and become an effective combat rifleman regardless of his qualification rating. Properly used, qualification ratings are important since they provide goals for the individual soldier to literally "shoot for." They also aid the commander in identifying the more proficient marksman of his unit. This can be a significant consideration in the assignment of personnel, since the better marksman should be evenly divided among all elements of a combat unit. However, the ultimate objective of record firing, like all combat marksmanship training, is to produce combat proficient marksmen—not award qualification ratings.

### 58. Record Courses of Fire

Several record courses of fire have been developed in order to provide flexibility in adapting local facilities and training situations to the marksmanship program. Record firing for active Army units can be conducted on either of two types of range complexes: a standard record range specifically constructed for combat record firing or a combination of a modified known distance range and a combat positions range. An expedient-type record course, designed solely for use on modified known distance ranges, may be conducted at those installations which have neither a standard record range nor a combat positions range. Of these record courses, the course conducted on a standard record range provides the greatest training benefit since it requires the soldier to apply all of the combat marksmanship skills. If there is a choice or a need for establishing a priority system, preference should be given the course conducted on the standard record range.

### 59. Training Concepts

*a. Uniform and Equipment.* While firing the record course, soldiers should wear combat equipment, including combat packs and steel helmets.

*b. Assistance to the Firers.*

(1) Record firing is strictly an individual effort of each soldier. The firer should not receive coaching or any other assistance during the exercises. This is particularly true of detecting targets, determining ranges, and locating the impact of bullets. If a rifle sustains a malfunction, it is the firer's responsibility to apply immediate action and attempt to eliminate the stoppage.

(2) The single exception to not assisting the firer is in the interests of safety. A firer attempting to clear a stoppage may inadvertently point the muzzle of his rifle to the flanks or rear. In such instances, the scorer or other range personnel should immediately caution the firer or, if need be, physically take hold of the rifle and correct the danger themselves. During exercises in which the firer is moving, the scorer should also caution the firer to stay on line with adjacent firers.

## Section II. STANDARD RECORD FIRING PROCEDURES AND REQUIREMENTS

### 60. General

The standard record range achieves realism by presenting the firer with various target situations he will likely encounter in combat. Except where modification is necessary to install and maintain targets, the natural cover of the terrain is left undisturbed. Single (Record Firing I) and multiple (Record Firing II) camouflaged targets are exposed briefly, irregularly, and at ranges unknown to the firer. The exercises require firing from the foxhole position and unsupported positions of the firer's own choosing. Upon completion of record firing, the number of targets hit by each firer is totaled. Based on this score, marksmanship qualification ratings are awarded.

### 61. Organization

*a. Firers.*

(1) For scheduling purposes, the average company/battery of approximately 200 men must be divided in half. While half of the unit is firing the record course or is tested on target detection (ch. 5), the other half receives such other training as prescribed by the commander. Since only half of a unit can be scheduled for firing and target detection testing at one time, two training days are required to conduct Record Firing I and II using one record range. To equalize light conditions, the half which conducts Record Firing I in the morning of the first day should fire Record Firing II in the afternoon of the second day. Conversely, the half which conducts Record Firing I in the afternoon of the first day should conduct Record Firing II in the morning of the second day.

(2) The half of the unit scheduled for record firing must be further subdivided into two approximately equal groups. Following the record firing orientation, the first group begins record firing while the second group moves to the target detection range for testing. After the first group completes firing (approximately two hours required), it is moved to the target detection range for testing and the second group moves to the record range for record firing. This procedure is used for both Record Firing I and Record Firing II.

*b. Range and Range Personnel.* There are four general areas needed to form a record range complex. These are an "Orientation area," "ready area," "firing area," and a "retired area." The requirements for these areas to include the necessary range personnel are as follows:

(1) *Orientation area.*

(*a*) *Location and purpose.* The location of the orientation area for Record Firing I should permit soldiers to observe a demonstration of detecting and firing on single targets. The demonstration should be conducted from both supported and unsupported firing positions. The orientation for Record Firing II need not be conducted in the same area since it does not include a demonstration. However, the orientation for both Record Firing I and Record Firing II should include instructions on safety, range operations to include procedures in the ready and retired areas, and scoring procedures.

(*b*) *Range personnel.*

*1. Principal instructor.* Conducts orientation. Can also be officer in charge of record firing.

*2. Safety officer.* Supervises safety requirements for firing demonstration conducted during the Record Firing I orientation. Can also be the safety officer for record firing, however, he should not have any other additional duties except those directly concerned with safety.

*3. Two demonstrators.* Conduct demonstration of firing at single targets from both supported and unsupported positions. One demonstrator is the firer and the other is the scorer. Following the ori-

entation, they can be used as lane scorers or to provide other assistance as required.

(2) *Ready area.*

(*a*) *Location and purpose.* The ready area should be located in the immediate vicinity of the firing range, however; firers should not be able to see the targets on the range from this area. While in the ready area, each soldier should be allowed sufficient time to blacken his rifle sights, check the sight tension and battlesight zero setting, apply rifle grease as needed, and visually check his rifle for any apparent defects which might cause malfunctions. An ordnance small arms repairman should also be available in this area to service those rifles requiring more technical repairs.

(*b*) *Range personnel.*

1. *Noncommissioned officer in charge.* Supervises the activities of firers in the ready area.
2. *Ordnance small arms repairman.* Replaces damaged or broken parts discovered prior to or during record firing.

*Caution:* **The replacement of certain rifle parts will change the battlesight zero of the weapon. The ordnance small arms repairman should so inform the noncommissioned officer in charge of the ready area so provisions for rezeroing the rifle can be made.**

(3) *Firing area.*

(*a*) *Location and construction.* Ideally, a record firing range (fig. 52) should be located on ground which has a gradual slope downward for approximately 200 meters and then a gradual upward slope for an additional 160 meters, giving a total range depth of 360 meters. The standard record range is divided into 16 lanes, each 30 meters wide with one foxhole in each lane. The "E" and "F" type silhouette targets attached to automatic target devices are used for record firing. Seven targets are placed at 50-meter intervals in each lane beginning at a range of 50 meters from the line of foxholes and extending to a range of 350 meters. The "F" type or half-silhouette, is used at ranges of 50 and 100 meters. The "E" type, or full-silhouette, is used at all other ranges. Targets must be camouflaged in positions approximating those which enemy soldiers might occupy. They must not be completely hidden, but rather situated so an alert observer can reasonably expect to detect their location. In the raised position, targets must not provide a distinctive outline against the horizon or any other contrast with the background. In this regard, the color of the target must blend with the surrounding area.

(*b*) *Range personnel.*

1. *Officer in charge.* Senior officer on the range. Responsible for the conduct of firing and the overall operation of the range complex.
2. *Safety officer.* Enforces safety regulations.
3. *Noncommissioned officer in charge.* Supervises and coordinates the actions of the target control operator, lane scorers, ammunition detail, target repairmen, and the noncommissioned officers in charge of the ready and retired areas.
4. *Target control operator.* Responsible for raising and lowering targets within the prescribed time limits as indicated on the scorecard. Issues fire commands and sounds the signal denoting the time limit for a target exposure has expired. Continually checks firing lanes and target areas for safety violations.
5. *Lane scorers.* One lane scorer is required for each lane (total of 16 for the standard record range.) The lane scorers have the following duties:

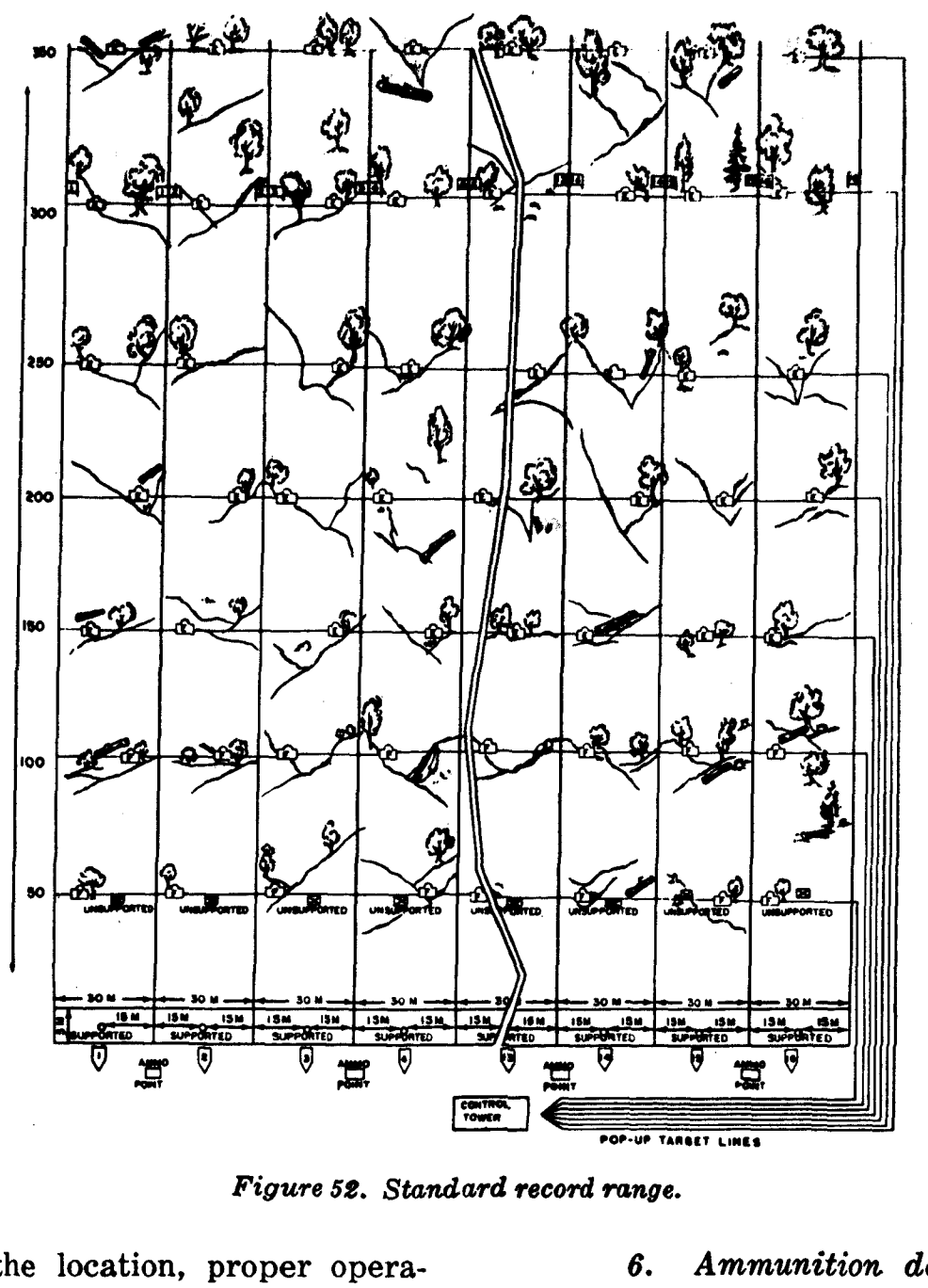



*Figure 52. Standard record range.*

(a) Check the location, proper operation, and camouflage of targets within their lanes before firing begins.

(b) Point out the right and left flank limits of the lane to each firer.

(c) Record the hits, misses, and no fires on the scorecard of each firer. Rule on the validity of alibis and the number of alibis to be fired (par. 62*e*). If in doubt, the lane scorers should request the noncommissioned officer in charge or the officer in charge to rule on the alibi.

(d) Require each firer to observe all safety precautions. During the moving phases of record firing, the lane scorer continually cautions the firer to stay on line with firers in adjacent lanes.

*6. Ammunition detail.* Responsible for the issue and accounting of ammunition.

(4) *Retired area.*

(*a*) *Location and purpose.* The retired area is also located in the immediate vicinity of the firing range, usually about 100 meters behind the ready area. Soldiers completing record firing move to the retired area where they are checked for live ammunition and brass. They may also clean their rifles in this area.

***Caution:*** **Until all phases of record firing have been completed, the firer should not disassemble his rifle because this will affect the zero of the weapon.**

(*b*) *Range personnel.* One noncommis-

sioned officer in charge is required to check firers for live ammunition and brass cartridge cases, and to supervise the cleaning of rifles.

## 62. Conduct of Firing

*a. Target Operation.*

(1) *Control tower.* All targets are operated from the control tower. The control tower should be located in the center and slightly to the rear of the line of foxholes. It should be high enough to permit the target control operator to observe firers conducting both supported and unsupported firing phases. For safety purposes, the tower should also be high enough to permit observation of the entire target area.

(2) *Target exposure times.*

(*a*) In Record Firing I (single target exposures), targets located at ranges of 200 meters and less are exposed for five seconds. Targets beyond 200 meters are exposed for ten seconds.

(*b*) In Record Firing II (multiple target exposure), exposure times are based on the number of targets raised and the range to the targets. The target control operator should follow the time and target sequence prescribed by Record Firing II scorecards for each target situation (app. III).

(3) *Signals.* When the prescribed target exposure time has elapsed, the target control operator sounds a signal such as a bell, buzzer, or whistle which is audible to all firers and scorers. Rounds fired after this signal are scored as misses. To eliminate confusion resulting from targets being hit at the same moment the signal is sounded, target control operators must allow a few seconds interval between the signal and the actual lowering of targets.

*b. Rotation of Firers Between Lanes.* In order to provide several different terrain situations, firers should be rotated between several lanes during the course of Record Firing I and II. To facilitate this movement, a system of rotating four firers between each block of four lanes should be used. For example, in the first block of four lanes, the firer on lane one rotates to lane two. The firers on lanes two and three move to lanes three and four, respectively. The firer on lane four moves to lane one. The same system is followed by the next block of four lanes beginning with lane five. Again, all firers rotate one lane except the firer on lane eight who moves to lane five. There are other rotation systems which can be used; however, the above system is least confusing to firers.

*Note.* In order to provide maximum target and terrain situations, soldiers should fire Record Firing II on lanes different from those on which they conducted Record Firing I.

*c. Record Firing I (single target exposures).* Record Firing I consists of a supported position firing phase followed by an unsupported position firing phase. The same sequence of lane rotation is used throughout both phases.

(1) *Supported position phase of Record Firing I.*

(*a*) After receiving an orientation and completing preparations in the ready area, the soldier moves to the firing area. Unless told otherwise, the soldier moves to his designated lane and stands or sits behind the foxhole facing away from the target area. On command, the firer hands his scorecard to the lane scorer and moves into the foxhole. There should be several sandbags at each foxhole so the firer can adjust the emplacement to fit the conformation of his body. After making these adjustments, the firer should be given time to search his lane, using those techniques learned in target detection training. Although the targets must not be raised while the firer is performing this search, such a procedure will familiarize him with the terrain, likely target locations, and most important, place added emphasis on previous target detection training.

(*b*) On command, the firer is issued eight rounds of ammunition and loads his rifle. The target control operator then gives the command

WATCH YOUR LANES. Immediately following this command, the target operator begins raising and lowering targets according to the time and sequence prescribed by the scorecard. Eight targets are presented singly to the firer in each lane and he may only fire one round at each target. Upon completing this exercise to include alibi firing (par. 62*e*), the target control operator requires a safety clearance of the firing line. At this time, the firer clears his rifle and returns unexpended ammunition to the lane scorer. The lane scorer checks the clearance of the rifle, hands the firer his scorecard, and points out the next lane to which the firer should move. On order, the firer moves to the designated lane and follows the same sequence prescribed for the initial exercise. This procedure is repeated until firers have conducted a supported position exercise on each of four lanes.

(2) *Unsupported position phase of Record Firing I.* When the firer completes the fourth exercise of the supported phase, he again receives the command to rotate. This time, however, he is told to move to a standing position directly in front of the foxhole. The lane scorer takes up a standing position immediately behind the firer. On command, the firer is issued eight rounds of ammunition and loads his rifle. The command to begin the exercise is MOVE OUT. On this command, the firer and scorer begin moving slowly toward the 50-meter targets. The target control operator begins raising and lowering targets singly according to the times and sequence prescribed by the scorecard. As the firer detects a target, he assumes a position of his own choosing and fires at the target. As in the supported phase, he may fire only one round at each target. After firing at a target, the firer may change his position, BUT HE MUST NOT MOVE FORWARD UNTIL HE RECEIVES ANOTHER COMMAND TO MOVE OUT. While waiting for this command, the firer should continue to search his lane since other targets may appear. During movements, the lane scorer should continually caution the firer to maintain alignment with firers in adjacent lanes. The procedures for clearing rifles and rotating to subsequent lanes are the same as prescribed for the supported firing phase.

*d. Record Firing II (multiple target exposure).* The sequence of actions for Record Firing II is similar to that of Record Firing I. The firers receive an orientation prior to moving to the ready area (Record Firing II does not include a demonstration). In the ready area, they again inspect and otherwise prepare their rifles for firing. On order, they move to their designated lanes in the firing area, facing away from the targets until told to move into the foxholes. Firers should again adjust their body position in the foxhole and then be given time to search their lanes. Targets should not be exposed while firers are making this search. Like Record Firing I, Record Firing II also consists of a supported and an unsupported phase. However, the firer is required to engage two or three targets appearing simultaneously in his lane. These targets may be any combination of the 50-meter through the 350-meter targets. Because of the added difficulties of engaging multiple targets, there are more rounds of ammunition issued for each exercise than there are targets. In the first exercise, eight rounds are issued to each firer to engage six targets, 16 rounds are issued to hit 12 targets in the second exercise, and 16 rounds are issued to hit 10 targets in the third exercise. Thus, the firer may fire two rounds at some targets but not at all of them. Each soldier must decide for himself which targets he is most likely to hit with a second round. The firer is not permitted to carry over unexpended ammunition from one exercise to another, nor does he receive an added score for unexpended rounds.

(1) *Supported position phase of Record Firing II.* The supported position phase of Record Firing II consists of two exercises fired from the foxhole

position. In the first of these exercises, only single and double target situations are presented to the firer. Following this exercise, the firer rotates to another lane for the second supported position exercise. In this exercise, double and triple target situations are presented to the firer.

(2) *Unsupported position phase of Record Firing II.* Following the second supported position exercise, the firer rotates to another lane for the unsupported position firing phase. This phase consists of one exercise fired from unsupported positions of the firer's own choosing. The unsupported position phase of Record Firing II begins with the firer and lane scorer standing in front of the foxhole. On the command MOVE OUT, the firer and scorer begin moving toward the 50-meter target. The target control operator activates the targets, creating double and triple target situations as prescribed by the scorecard. When the firer detects the targets, he assumes an unsupported position and begins firing. After firing at those targets he has detected, the firer should continue searching his lane for other targets. UNDER NO CIRCUMSTANCES SHOULD HE MOVE FORWARD UNTIL A FURTHER COMMAND TO MOVE OUT IS GIVEN. Throughout the unsupported firing phase, the lane scorers should continually caution the firer to maintain alignment with firers in adjacent lanes.

*e. Alibi Firing.* If a firer is unable to fire at a target through no fault of his own, he receives an "alibi" for that particular target. This means he will be given another opportunity to fire at a target. For best results, alibi firing should be conducted after each exercise and before the firer rotates to the next lane. To conduct alibi firing, the target control operator first asks, "ARE THERE ANY ALIBIS?" Those scorers whose firers have bona fide alibis give an affirmative signal (raising their hands or holding up the scorecard). If there are alibis, the target control operator commands ALIBI FIRERS WATCH YOUR LANES. Targets are then exposed singly regardless of whether the alibi occurred in Record Firing I or Record Firing II. As a general rule, alibi firing in Record Firing I should be conducted using mid-range targets (150–250 meters) as the majority of the targets exposed during the regular exercises are located at these ranges. In the case of Record Firing II, the difficulties of scoring and providing additional ammunition preclude the use of multiple target situations for alibi firing. Therefore to provide some degree of comparable difficulty to the standard Record Firing II exercises, only the longer range targets (250–350 meters) should be used. Since alibi firing can never approximate the identical target situation of the regular exercise, range personnel must insure alibis are legitimate before they are allowed. Examples of bona fide alibis are—

(1) Malfunctioning of target devices. This includes targets which fail to appear and targets which fail to drop when they are hit.

(2) Malfunctioning of rifles provided the firer attempted to apply correct immediate action to eliminate the malfunction. However, alibis for malfunctions are valid only if they were not due to improper maintenance or failure to prepare the rifle for firing. A general rule to follow in awarding alibis for rifle malfunctions is to allow an alibi for each target appearing during and subsequent to the moment the firer applies immediate action, provided the target drops before the soldier can fire. However, if the firer was slow in taking action to reduce the stoppage, an alibi should not be allowed.

*f. Fire Commands.* Simple, standardized fire commands are essential to avoid confusion and misunderstandings during the conduct of record firing. Type commands which may be used are as follows:

(1) *Supported phases (Record Firing I and II).*

FIRERS ASSUME THE FOXHOLE POSITION.

LANE GRADERS POINT OUT THE LIMITS OF THE LANE.

LOCK, ONE (MAGAZINE OR CLIP) OF EIGHT ROUNDS LOAD.
WATCH YOUR LANES.
CEASE FIRING.
ARE THERE ANY ALIBIS?
*ALIBI FIRERS WATCH YOUR LANES.
*CEASE FIRING.
CLEAR ALL WEAPONS.
CLEAR ON THE RIGHT?
CLEAR ON THE LEFT?
THE FIRING LINE IS CLEAR.
FIRERS ROTATE TO THE NEXT LANE.

(2) *Unsupported phases (Record Firing I and II).*

FIRERS, STAND IN FRONT OF THE FOXHOLE.
LOCK, ONE (MAGAZINE OR CLIP) OF EIGHT ROUNDS LOAD.
MOVE OUT (see scorecards, app. III).
CEASE FIRING.
ARE THERE ANY ALIBIS?
*ALIBI FIRERS WATCH YOUR LANES.
*CEASE FIRING.
CLEAR ALL WEAPONS.
CLEAR ON THE RIGHT?
CLEAR ON THE LEFT?
THE FIRING LINE IS CLEAR.

* Commands given only if alibis are indicated by scorers.

*g. Range Safety.* See appendix II.

## Section III. ALTERNATE RECORD FIRING PROCEDURES AND REQUIREMENTS

### 63. General

Alternate record firing is an expedient course of fire designed for use at installations which do not have standard record ranges. Like the standard record course, the alternate record course also requires soldiers to apply the fundamentals of combat marksmanship learned in previous instruction. From a training viewpoint, alternate record firing is less challenging than the standard course, primarily because targets are easier to detect. However, alternate record firing provides considerable training benefits in other skills and is a fair means of determining the combat marksmanship proficiency of the individual soldier. Alternate record firing is conducted in two phases, each of which requires a specific type of range. Alternate Record Firing I is conducted on a modified known distance range, and Alternate Record Firing II is conducted on a combat positions range.

### 64. Alternate Record Firing I

*a.* Range organization, procedures, target operation, and fire commands are the same as prescribed for known distance field firing (par. 44).

*b.* Sequence and time of target exposures are prescribed by the Alternate Record Firing I scorecards (app. III).

*c.* Procedures for awarding "alibis" are discussed in paragraph 62*e*.

*d.* Range safety procedures are outlined in Appendix II.

### 65. Alternate Record Firing II

*a. Range Characteristics.* The combat positions range required for Alternate Record Firing II is essentially the same facility previously used in conjunction with known distance marksmanship courses. The range has a minimum depth of 400 yards (368 meters) and an approximate width of 100 yards (92 meters). There are two targets in each lane except lane number six which has one target. Figure 53 shows the physical arrangement of the combat positions range for Alternate Record Firing II. A comparison of this arrangement to the combat positions ranges of the known distance marksmanship courses will reveal the following differences—

(1) The "window position" on lane four has been moved to lane ten, and the "log position" on lane ten has been moved to lane four. This change is necessary so firers in the standing position have the closer range targets while those in a prone position fire at the more distant targets.

(2) The "B" type target on lane six has been replaced by an "E" type silhouette target. The "E" target has also been moved forward so the range is reduced to 400 yards (368 meters).

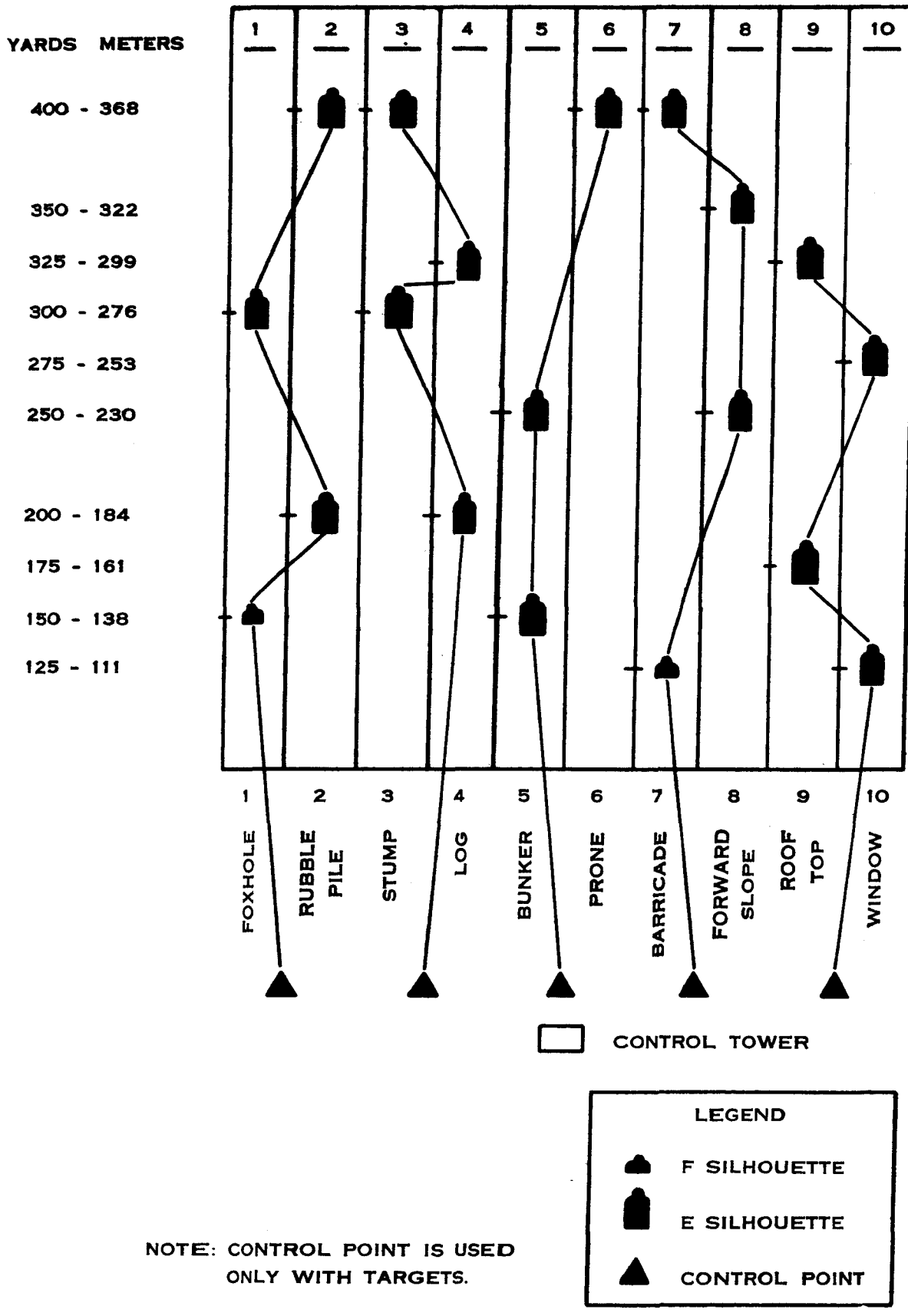



*Figure 53. Combat positions range.*

(3) Other modifications involve replacing some "F" type targets with "E" targets. The arrangement of targets indicated in figure 53 are recommended but may be changed to meet local terrain; however, the range to the furthest target must not exceed 400 yards (368 meters).

*b. Administrative Areas.* In addition to the firing range, a combat positions range complex should include two "orientation areas," a "ready area," and a "retired area."

(1) *Orientation areas.* Ideally, there should be two orientation areas used in connection with the combat positions range. One of these areas must be in the immediate vicinity of the firing area so instructions can be given on safety and range procedures just prior to conducting the exercise. The other orientation area consists of a mock firing line along which all the emplacements and objects of a combat positions range have been constructed. This second orientation area should be located near the modified known distance range. In this way, that portion of a unit not participating in known distance field firing can receive concurrent training on the various positions used on the combat positions range. Since there is no live firing conducted in either orientation area, they may be located on any suitable terrain without regard for impact areas.

(2) *Ready area.* The ready area should be located near the firing area. Here, soldiers waiting to fire check their rifles for serviceability, make necessary adjustments to their rear sights, and blacken the sights. There should also be an ordnance small arms repairman in this area to assist firers in making more technical adjustments and/or repairs.

(3) *Retired area.* Soldiers completing record firing move to a retired area where they are checked for live ammunition and brass. They may also clean their rifles in this area.

***Caution:*** **Until all phases of record firing have been completed, the firer should not disassemble his rifle because this will affect the zero of the weapon.**

*c. Range Organization.*

(1) *Targets.* The "E" and "F" type silhouette targets are used in all lanes of the combat positions range. Targets can be attached to automatic target devices or operated manually by pit details. Of the two methods, automatic target devices are more desirable since they provide for more efficient range operation, eliminate the need for pit details, and facilitate camouflage of the targets. The method of control depends upon whether targets are operated automatically or manually.

(*a*) *Control of automatic target devices.* The target control operators raises and lowers the targets attached to the automatic devices. Depending upon the skill of the operator, it may be feasible to use a second operator to control the target on lane six. The sequence and time of exposure for this target is not the same as targets on the other lanes and might cause confusion if only one operator is available. In either case, target control operators must allow a second or two for targets to become fully exposed before timing is begun.

(*b*) *Control of manually operated targets.* If manually operated targets are used, one down range target operator is required for each target. Each target operator must have telephone communication to a telephone operator on the firing line. Normally, there should be at least one telephone operator for every two lanes. Upon command from the tower operator, the telephone operator notifies the target operators when to raise and lower their targets.

(*c*) *Sequence and time of target exposures.* As prescribed by the Alternate Record Firing II scorecards (app. III).

(2) *Range personnel.* The following range personnel are required to conduct Alternate Record Firing II.

(*a*) *Officer in charge.* Responsible for the conduct of firing.

(*b*) *Safety officer.* Enforces safety regulations.

(*c*) *Noncommissioned officer in charge.* Supervises enlisted range personnel. Coordinates movement of firers between ready area, firing range, and retired area.

(*d*) Target control operator (automatic devices only). Issues fire commands and raises and lowers targets according to the sequence and time prescribed on the scorecard (app. III).

(*e*) *Tower operator (manual targets only).* Issues fire commands and signals telephone operators when to raise and lower targets.

(*f*) *One lane scorer per lane.* Records hits, misses, and no-fires on the scorecard of each soldier firing on his lane.

(*g*) *One telephone operator per two lanes (manual targets only).* Maintains telephone contact with pit details; directs raising and lowering of targets as prescribed by the tower operator.

(*h*) *One target operator per target (manual targets only).* Raises and lowers targets on signal from telephone operators.

(*i*) *Target device repairman (automatic device only).* Performs on-the-spot repairs of target devices which have minor malfunctions.

(*j*) *Ordnance small arms repairman.* Provides technical assistance in repairing rifles. Located in or near the ready area.

(*k*) *Ammunition detail.* Responsible for the issue and accounting of ammunition.

(*l*) *Medical personnel.* Provides medical support during live firing.

*d. Preparation for and Conduct of Firing.*

(1) *Preparatory training.* Soldiers conducting the alternate record course should have completed fundamentals training, known distance field firing, and Alternate Record Firing I before they fire on the combat positions range. Since all of this firing has been conducted on either a 1000-inch or modified known distance range, many soldiers will be unfamiliar with the operation and requirements of firing on a combat positions range. In order that soldiers are not penalized for this lack of familiarity, the following training should be conducted prior to record firing on the combat positions range:

(*a*) The initial combat positions training is conducted in an orientation area near the modified known distance range (*b*(l) above). This training is conducted concurrent with known distance field firing and provides soldiers with practical experience in assuming each of the ten positions used on the combat positions range. For best results, this training should be conducted using the "coach and pupil" method. At least three noncommissioned officers (one principal instructor and two assistant instructors) should be available to conduct the instruction. The orientation should consist of a short conference and demonstration on assuming each position followed by practical exercises.

(*b*) The second training period on combat positions firing should be an actual practice firing of the Alternate Record Firing II course. The average soldier will find the target situations presented on the combat positions range considerably different from those previously encountered. Here, he must locate the target and subsequently determine the range, two skills not required of him on the known distance range. Thus, instructional firing on the combat positions range exposes the soldier to more of the problems of combat marksmanship. Record firing on the combat positions range

provides further training in this technique and tests how well the soldier has adapted to it. For best training results, instruction firing and record firing on the combat positions range should be scheduled on successive days.

(2) *Organization for firing.* Normally, only half of a unit will be firing on the combat positions range while the other half is receiving target detection training or such other instruction prescribed by the commander. The half firing on the range should be divided into 11-man orders. By having one more man in each order than there are firing points, an exercise can be fired while a soldier on point ten is moving to point one.

(3) *Positions.* When a firer arrives at his designated lane, he immediately assumes the position prescribed for that point. The positions, with a brief description of each, are as follows:

(*a*) *Lane No. 1—foxhole position* (fig. 20). The foxhole position is discussed in paragraph 10.

(*b*) *Lane No. 2—rubble pile position* (fig. 54). The firer must present

*Figure 54. Rubble pile position.*

the lowest possible silhouette behind the rubble but at the same time, use the rubble to achieve maximum support.

(*c*) *Lane No. 3—stump position* (fig. 18). The stump position is assumed in the same manner as the kneeling supported position (par. 10).

(*d*) *Lane No. 4—log position* (fig. 55). Soldiers who are right-handed should fire from the right end of the log and those who are left-handed from the left end of the log. This insures a comfortable position while making maximum use of the cover provided by the log. Firers should not rest their rifles against the log.

*Figure 55. Log position.*

(*e*) *Lane No. 5—bunker position* (fig. 56). The firer leans against the forward wall of the bunker. The parapet supports his left arm and hand, and his right arm. The rifle must not rest against any part of the bunker.

(*f*) *Lane No. 6—prone position* (figs. 11 and 12). The prone position is discussed in paragraph 10.

(*g*) *Lane No. 7—barricade position* (fig. 57). The barricade represents a wall. The firer assumes a position which permits him to fire over the wall while presenting a low silhouette. The height of his position will depend on his own height in relation to the height of the wall.

(*h*) *Lane No. 8—forward slope (sitting) position* (fig. 58). Firers adapt the standard sitting position to the slope of the mound. The sitting position is discussed in paragraph 10.

(*i*) *Lane No. 9—rooftop position* (fig. 59). The firer places his left arm over the apex of the roof in such a manner that he can hold the weight of his body but not expose too much of head and shoulders.

(*j*) *Lane No. 10—window position* (fig. 60). The window is constructed high enough so the firer must use the standing position. This position is explained in paragraph 10. To conceal his position from the enemy, the firer must stand well back from the window so his rifle does not protrude through the window.

(4) *Conduct of firing.*

(*a*) *Range operation.* Four targets will be exposed to the firer on each lane.

With the exception of lane number six, the two targets in each lane will first be exposed singly and then simultaneously. The single target in lane six is exposed four times. Firers are allowed four rounds of ammunition per lane or a total of 40 rounds. Upon completing an exercise, firers rotate to the lane with the next higher number, except the firer on lane ten who moves to lane one. Since one exercise is fired while the soldier on lane ten is moving to lane one, it requires eleven exercises to complete firing for one order.

(*b*) *Alibis.* See paragraph 62*e*.

(*c*) *Fire commands.* Simple standardized fire commands are essential to avoid confusion and misunderstandings on the combat positions range. A type fire command which may be used is as follows:

THE FIRING LINE IS NO LONGER CLEAR.
LOCK, (ONE CLIP OR MAGAZINE) LOAD.
READY ON THE RIGHT?
READY ON THE LEFT?
THE FIRING LINE IS READY.
WATCH YOUR LANES.
CEASE FIRE.
ARE THERE ANY ALIBIS?
*ALIBI FIRERS WATCH YOUR LANES.
**CEASE FIRE.*
CLEAR ALL WEAPONS.
CLEAR ON THE RIGHT?
CLEAR ON THE LEFT?
THE FIRING LINE IS CLEAR.
ROTATE.

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* Commands given only if a scorer indicates his firer has an alibi.

(5) *Range safety.* See appendix II.

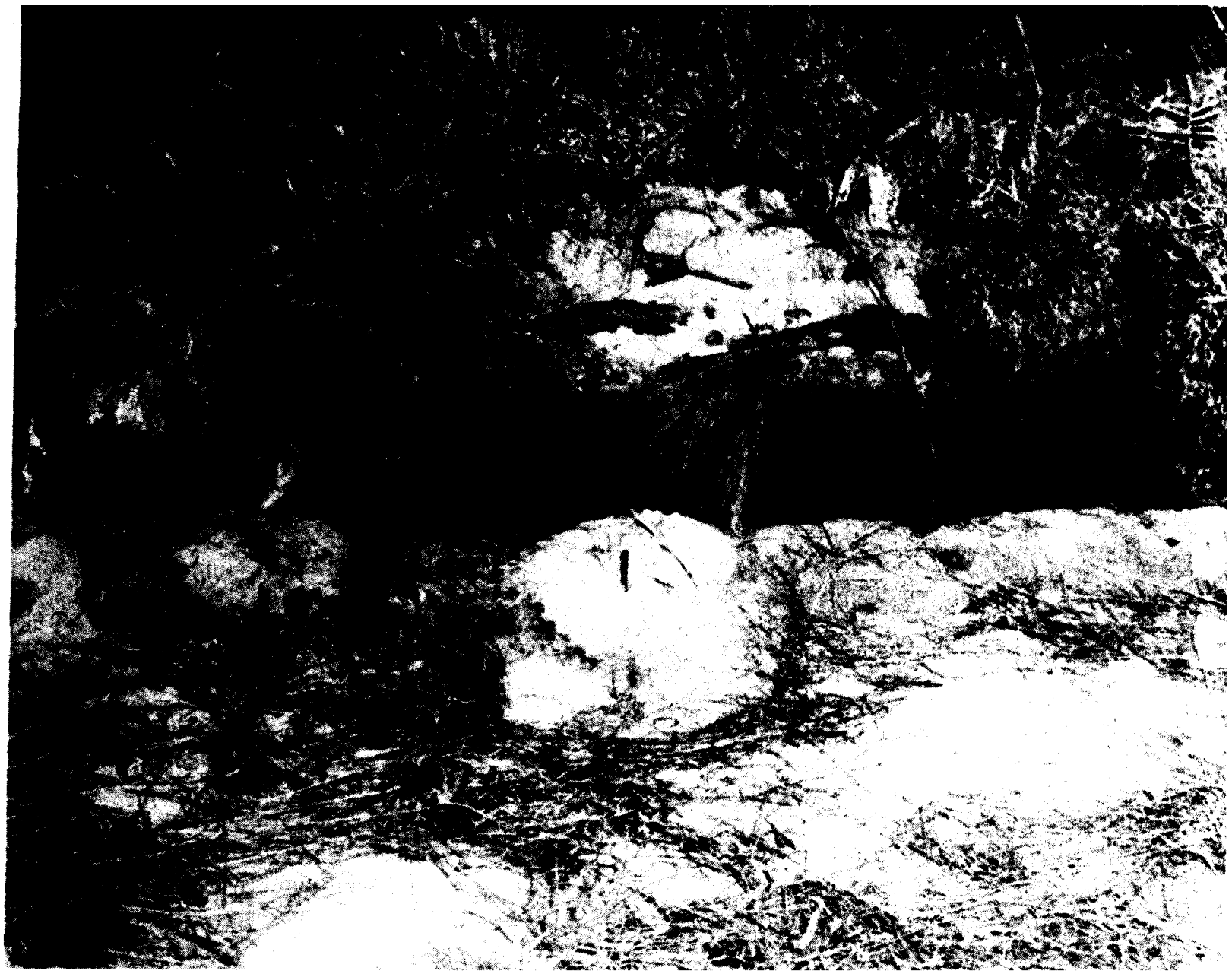

*Figure 56. Bunker position.*

*Figure 57. Barricade position.*

*Figure 58. Forward slope (sitting) position.*

*Figure 59. Rooftop position.*

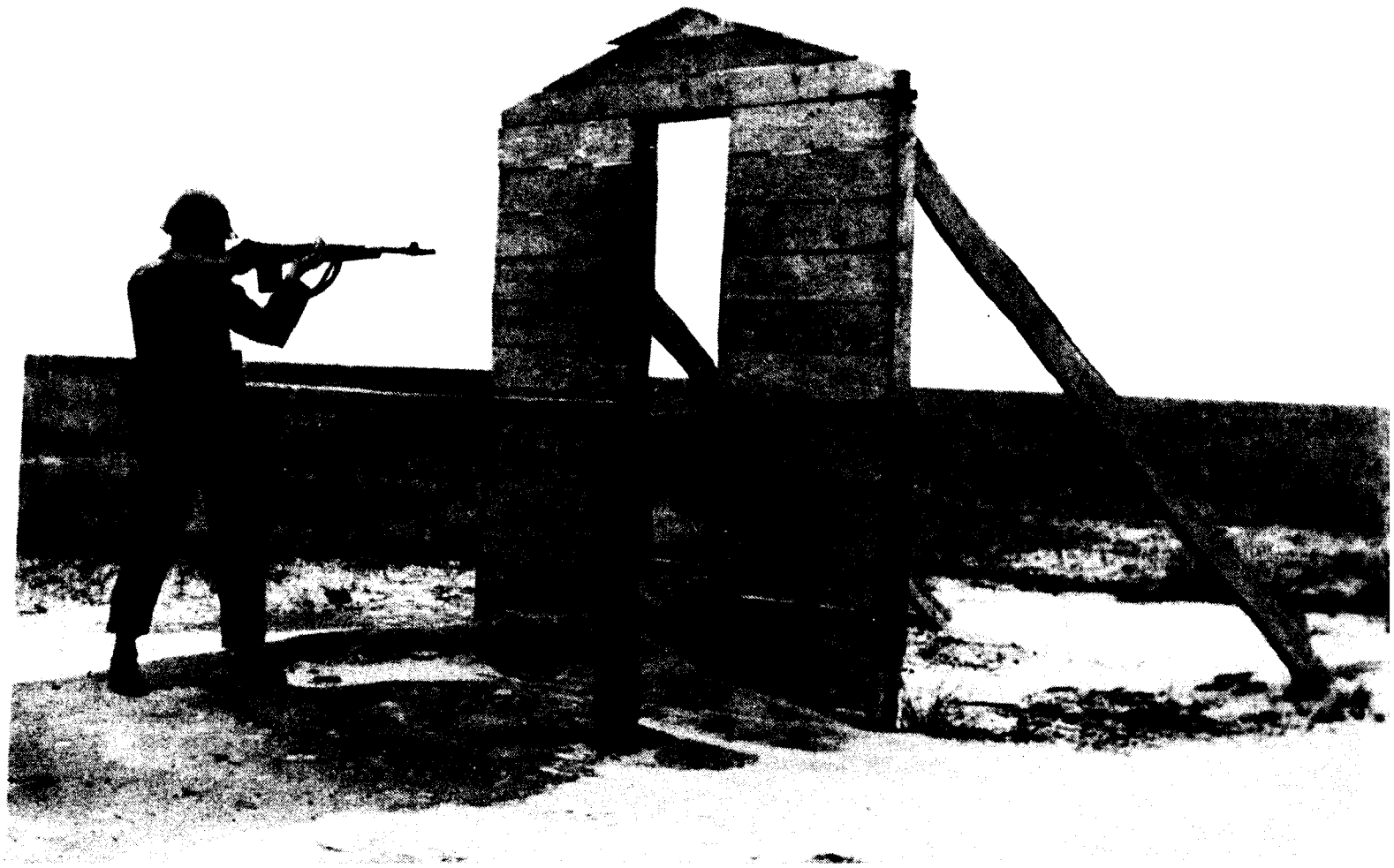

*Figure 60. Window position.*

# CHAPTER 7

# INDIVIDUAL NIGHT FIRING

## Section I. GENERAL

### 66. Purpose

Individual night firing training teaches the soldier to detect and hit targets at night or during other periods when conditions of limited visibility prevent the conventional use of sights; e.g., smoke or fog.

### 67. Training Conditions

*a.* Individual night firing training should be conducted immediately following daytime marksmanship training since many of the procedures used at night are the same or very similar to those used during the day.

*b.* Night firing training should be scheduled only under conditions of half-moonlight or less. If there is greater light intensity, some individuals will discover they can use their sights in the same manner as in daytime firing. By so doing, they will fail to learn the proper night firing techniques and thus be ineffective during periods of limited visibility.

*c.* Individual night firing courses, ammunition requirements and scorecards are contained in appendix III.

## Section II. FUNDAMENTALS

### 68. General

Firing a rifle at night is similar in many respects to firing during the daytime. With the single exception of "spot weld," the steady hold factors discussed in chapter 2 apply equally as well at night as during the day. Although target detection and weapon alignment can be a problem during the day, the absence of light makes these two techniques even more difficult at night. Consequently, night firing training is focused on teaching soldiers the night application of target detection and weapon alignment.

### 69. Target Detection

*a. Principles of Night Vision.* The principles of night vision are dark adaptation, off-center vision, and scanning. These principles are discussed in chapter 2, section V, FM 21–75. Appendix II, FM 21–75 outlines facilities and exercises required to conduct night vision training. This training is a necessary prerequisite to night firing exercises.

*b. Application of Night Vision to Night Firing.* Once the soldier understands the principles of night vision, he must learn to apply these principles in firing his weapon. Essentially, this involves two techniques, hold the head high above the rifle and keep both eyes open at all times.

(1) *Hold the head high.* If the head is held close to the rifle (such as in daytime firing), the rifle will tend to block the firer's view of the target area. By raising the head so the eyes are well above the weapon, the field of vision is increased and sharpness of detail is improved.

(2) *Keep both eyes open.* By keeping both eyes open and applying the principles of night vision, the firer uses his "night eyes" to their full potential and has maximum visual coverage of the target area. Another important consideration is that depth perception depends to a great extent on the use of both eyes.

### 70. Weapon Alignment

*a.* A natural pointing technique is used to align the rifle on the target (fig. 61). The

*Figure 61. Night firing prone position.*

sights cannot normally be seen at night, and any attempt to use them in the conventional manner will usually cause the firer to lose the target. The pointing technique can be applied to any position; however, for training, either the foxhole or prone supported position should be used. The reason for this is that these positions are the most difficult from which to detect targets at night and therefore offer the greatest challenge to the individual's night firing ability.

*b.* To assume a correct firing position at night, the soldier first assumes the position just as he would during the daytime. However, once in position, he must make the following changes:

(1) He raises his head high above the rifle (par. 69*b*). A good technique is to rest the chin on the comb of the stock. This serves two purposes: first, it insures that the eyes are well above the rifle; and second, it assists the firer to obtain correct horizontal alignment on the target. If the firer places his chin on either side of the stock, he will have a tendency to pull the muzzle of the rifle to the right or left to intersect his line of sight to the target. This will cause the bullet to go right or left of the target.

(2) He must keep both eyes open at all times (par. 69*b*).

(3) He makes a bold depression of the muzzle of the rifle. Because his eyes are above the rifle, the firer will have a natural tendency to raise the muzzle until it intersects his line of sight to the target. This will cause the bullet to pass over the target. A method of avoiding this error is to slide the left hand slightly forward just prior to aligning the rifle on the target. This action forces the muzzle to drop.

## Section III. CONDUCT OF TRAINING

### 71. Training Facilities and Equipment

*a. Ranges.*

(1) The night firing range (fig. 62) should be constructed on level or slightly rolling terrain. It should be located away (or shielded) from artificial light sources.

(2) The range should have an approximate depth of at least 100 meters. Targets are placed at ranges of either 25 and 50 meters or 50 and 75 meters, depending upon the light conditions.

(3) To support the targets, canisters are sunk into the ground at ranges of 25, 50, and 75 meters from each firing point.

(4) The range should have a dark background (such as a tree line) to prevent skylining of targets.

(5) There should be at least ten meters between firing points. With this interval, there is less chance of individuals firing on the wrong targets.

(6) A seventy-point range will accommodate a maximum of 210 firers divided into three orders.

(7) The firing line should not be elevated. The higher the firer is located above ground level, the easier it is for him to see the target.

(8) Only red or black lights should be used for orientations, charts, and demonstrations prior to the practical exercises in night firing. White lights should be used only after all firing is completed or in event of an emergency.

*b. Targets.* The "M" type silhouette targets are used for all live firing conducted as part of the night firing training program, including daytime instruction firing.

*c. Equipment.* The equipment needed to conduct night firing training is listed below. The designation "day" or "night" after each item

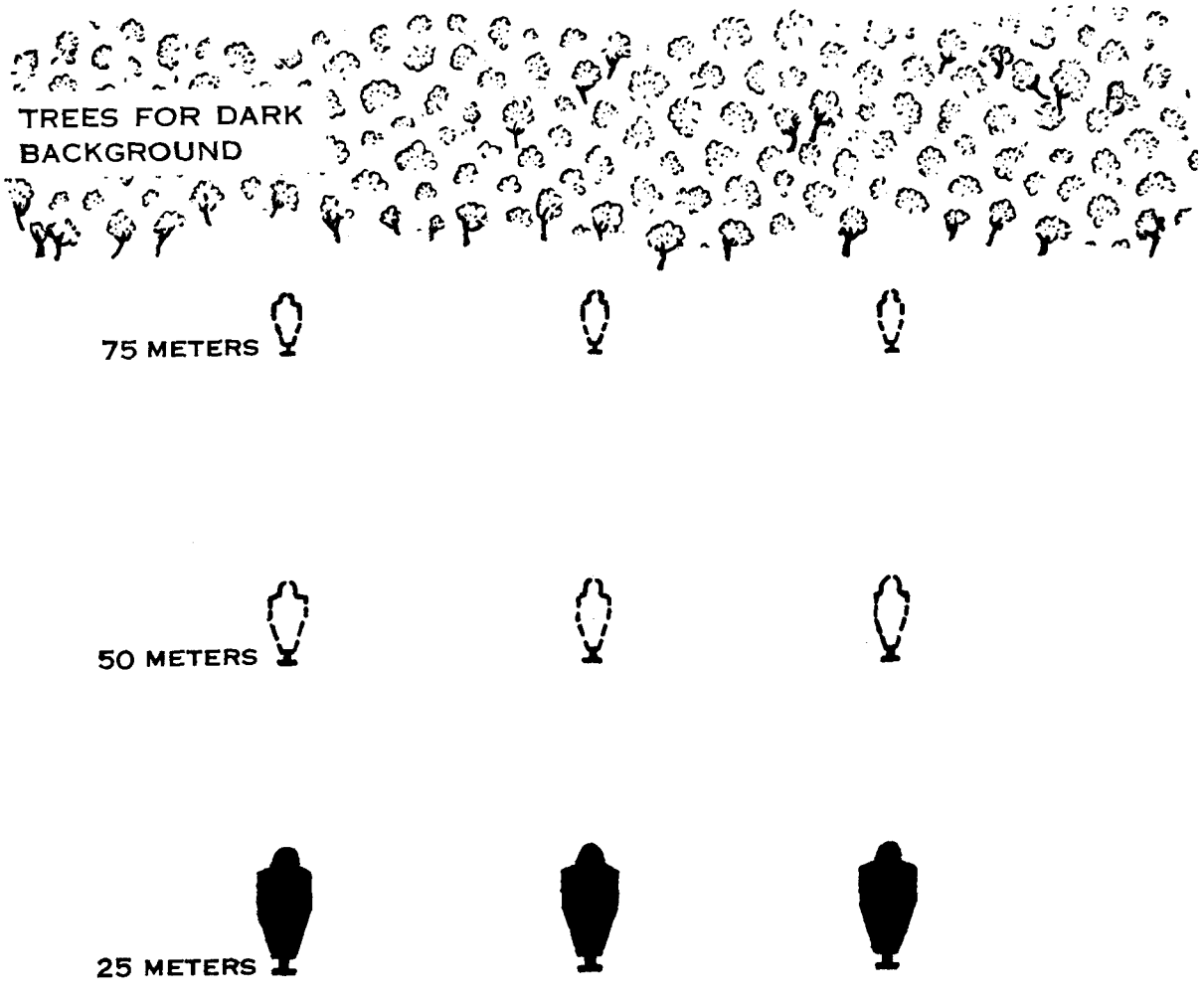


*Figure 62. Night firing range.*

indicates whether it is required for daytime instruction firing, night firing, or both.

| Item | Day | Night |
|---|---|---|
| One "M" type silhouette target per point | X | X |
| Three white spotters per target | X | |
| White chalk | X* | X* |
| One empty magazine per firing point (M14 only) | X | |
| Public address system | X | X |
| One flashlight with red filter per safety officer and noncommissioned officer | | X |
| Safety equipment as required by AR 385–63 and local regulations | X | X |

* For students during daytime firing and for range NCO's during night firing.

## 72. Daytime Instruction Firing

*a. Organization.*

(1) *Range personnel.*

(*a*) One officer in charge of the range.

(*b*) One safety officer.

(*c*) One noncommissioned officer in charge.

(*d*) One instructor (NCO) per five firing points.

(*e*) Ammunition detail.

(*f*) Medical personnel.

(2) *Organization of firers.* Firers are divided into three orders. Initially, the first order is designated the firers, the second order the coaches, and the third order the ammunition men. When the first order completes firing, it becomes the ammunition men; the second order becomes the firers; and the third order becomes the coaches. This procedure is continued until all orders have completed firing.

*b. Conduct of Firing.*

(1) Prior to beginning the practical live fire exercises, the firers should receive an orientation on the pointing technique, range procedures, and range safety. Following this orientation, firers are divided into three orders and moved to the firing line. Targets are placed at a range of 50 meters. The order acting as ammunition men are directed to secure one empty magazine and three loose rounds of ammunition and issue them to the firer. The firer loads all three rounds into the magazine and on command, fires at the "M" type silhouette target using night firing techniques. (If M1 rifles are used, rounds are loaded singly.) Following each three-round shot group the firing line is cleared, and the firer is directed to move down range and check his target. The firer draws a chalkline through each hole on the target and then places the spotters in the holes. By analyzing the location of the bullet holes, the firer will be able to determine how he has been holding his rifle and adjust his position accordingly. For example, if all rounds struck high on the target, the firer knows he must lower his rifle muzzle. Holes on the extreme right or left edge of the target indicate a need for better horizontal alignment. After noting the type of correction needed to move the shot group into the center of the target, the firer returns to the firing line and on command, fires another 3-round shot group. When the shot group falls within the center of target mass, the firer attempts to duplicate the exact same relationship between his head and the alignment of his weapon in firing subsequent exercises. When the firer is able to do this consistently, he has determined his own "feeling zero." That is, he will be able to hit the same general area on the target regardless of the light conditions just by knowing how his weapon "feels" when it is properly aligned.

(2) During daytime instruction firing, the coaches assume a coaching position alongside the firers. They should observe the firers for proper application of all steady-hold factors except "spot weld." Again, special emphasis must be placed on trigger control.

*c. Fire Commands.* Fire commands should be simple and include only the information and instructions required to conduct the exercise. A type fire command for daytime instruction firing is as follows:

---------- ORDER, MOVE TO THE FIRING LINE AND ASSUME A (FOXHOLE) (PRONE SUPPORTED) POSITION.

---------- ORDER, ASSUME THE COACHES' POSITION.
---------- ORDER, SECURE (*ONE EMPTY MAGAZINE AND) THREE ROUNDS OF AMMUNITION.
THE FIRING LINE IS NO LONGER CLEAR.
LOCK, (*ONE MAGAZINE OF THREE ROUNDS) (**ONE ROUND) LOAD.
THIS WILL BE YOUR (FIRST) (SECOND) (THIRD) (FOURTH) (FIFTH) SHOT GROUP.
COMMENCE FIRING WHEN READY.
CLEAR ON THE RIGHT?
CLEAR ON THE LEFT?
THE FIRING LINE IS CLEAR.
FIRERS AND COACHES MOVE DOWN RANGE, MARK AND SPOT YOUR TARGETS.

* M14 rifles only.
** M1 rifles only.

## 73. Night Practice and Record Firing

*a. Organization.* Night firing can be extremely hazardous unless the range is properly organized and the firers closely supervised. For this reason, the range organization and supervisory personnel listed below are essential for the safe conduct of night firing. Although some modifications in the organization of the range may be required, night firing should not be attempted without an adequate number of supervisory personnel.

(1) *Range organization* (fig. 63).

(*a*) The firing points on the night firing range (fig. 62) should be divided into three alphabetical sections. There are 20 firing points each in "Alfa" and "Bravo" sections, and 30 firing points in "Charlie" section. Each section is further subdivided into blocks of five firing points. These blocks are given a let-

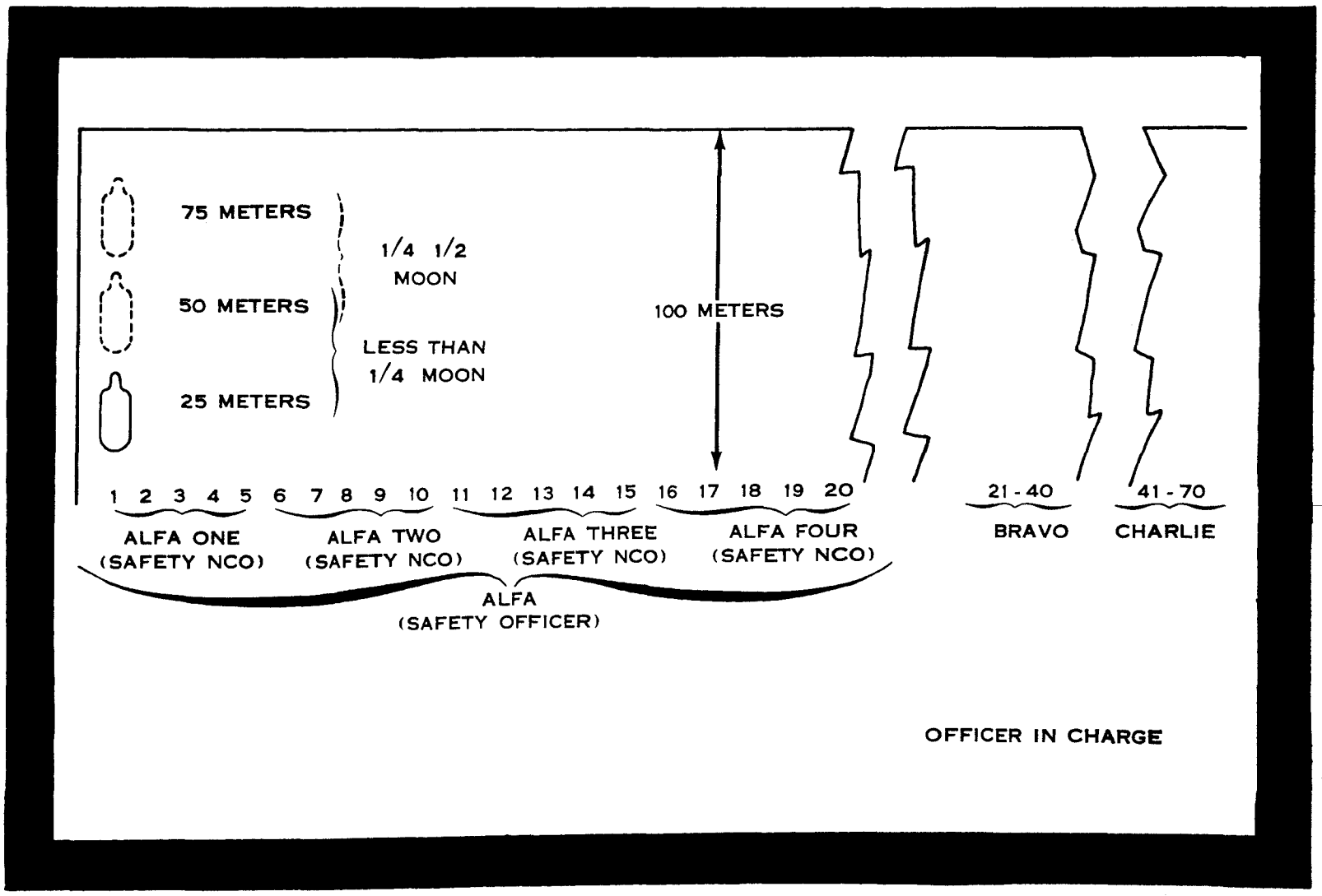


*Figure 63. Organization of night firing range.*

ter and numerical designation. For example, there are 20 firing points or four 5-point blocks in Alfa section. The first block is designated "Alfa One"; the second, "Alfa Two"; and so on.

(*b*) A safety officer should be assigned responsibility for each alphabetical section, and one safety noncommissioned officer should be assigned responsibility for each numerical block.

(2) *Range personnel.*

(*a*) One officer in charge of the range.
(*b*) One safety officer per alphabetical section.
(*c*) One noncommissioned officer in charge.
(*d*) One safety NCO per numerical block.
(*e*) Ammunition detail.
(*f*) Medical personnel.

(3) *Organization of firers.* Firers are divided into three orders. However, unlike daytime instruction firing, the nonfiring orders remain on the ready line until called forward to fire. There is no coaching of firers at night, and ammunition is issued to the firer by the block safety noncommissioned officer.

*b. Conduct of Firing.* Night practice firing and night record firing are conducted in the same manner except that during record firing block safety NCO's record the number of hits on the firer's scorecards.

(1) The range at which targets are placed at night depends upon the degree of illumination. If there is one-quarter or less moonlight, targets are placed at ranges of 25 and 50 meters. If there is more than one-quarter moonlight but less than half-moonlight, targets are placed at 50 and 75 meters. Night firing training cannot be effectively conducted under light conditions greater than half-moonlight.

(2) Initially, firers should receive a review on the pointing technique. This should be followed by an orientation on safety and range procedures.

(3) For the first exercise, targets are placed at the closest range permitted by the light conditions, and each soldier fires eight rounds at this target. Following the first eight rounds, the firing line is cleared and the firer is directed to move down range and stand by his target until it is scored by the block safety NCO. The block safety NCO uses a red filtered flashlight to check the results of the firers within his block. Upon completion of scoring, all firers and safety NCO's return to the firing line and the next order is called forward to fire the exercise. After the third order has completed firing, they are directed to remove the targets from the canisters and move them to the further range. When the third order and safety NCO's have returned to the firing line, the first order is again called forward to fire. The firing procedures outlined above are repeated until the three orders have completed all of the exercises.

*c. Fire Commands.* Fire commands should be simple and include only the information and instruction required to conduct the exercise. A type fire command for night practice and night record firing is as follows:

ARE RANGE PERSONNEL READY TO FIRE? (Block safety NCO's signify "up" to the section safety officer. Safety officers in turn signify "up" to the officer in charge; e.g., "Alfa is up," "Bravo is up," etc.)
IS THERE ANYONE DOWN RANGE? (Repeat three times.)
THE FIRING LINE IS NO LONGER CLEAR.
---------- ORDER, MOVE TO THE FIRING LINE AND ASSUME A FOXHOLE (PRONE SUPPORTED) NIGHT FIRING POSITION.
---------- ORDER AND ---------- ORDER, REMAIN ON THE READY LINE.
SAFETY NCO's ISSUE (*ONE MAGAZINE) (**ONE CLIP) OF EIGHT ROUNDS.

LOCK, ONE (*MAGAZINE) (**CLIP) OF EIGHT ROUNDS, LOAD.
COMMENCE FIRING WHEN READY.
(When firing is completed, each section safety officer signifies his section is clear; e.g., ALFA IS CLEAR, BRAVO IS CLEAR, CHARLIE IS CLEAR.)
THE FIRING LINE IS CLEAR.

FIRERS MOVE DOWN RANGE AND STAND BY YOUR TARGETS UNTIL CHECKED BY THE SAFETY NCO.
(After third order completes firing on the near targets) FIRERS MOVE TARGETS TO (50) (75) METERS.

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* M14 rifles only.
** M1 rifles only.

# CHAPTER 8

# ADVANCED INDIVIDUAL MARKSMANSHIP (SNIPING)

## Section I. GENERAL

### 74. Purpose

The ability of an individual rifleman to hit selected targets at long range has long been recognized as an effective means of disrupting enemy morale and delaying his operations. The history of warfare records many examples of one or two expert riflemen delaying large numbers of enemy troops simply through their ability to consistently hit whatever or whomever they wished. The purpose of advanced individual marksmanship training is to teach selected riflemen the techniques of hitting targets at long ranges.

### 75. Selection of Personnel

Each individual selected to receive advanced marksmanship training should be carefully screened to insure he possesses the skills and personal attributes necessary to become an effective sniper. He should be intelligent, self-reliant, and an expert marksman. In addition to firing at enemy personnel, snipers are an excellent source of intelligence information. Consequently, they must know or learn how to use a map and compass and the proper methods and means of reporting information. Perhaps the most important personal attribute of a sniper is patience, for he may be required to occupy one position for several days. A detailed discussion of the duties and tactical employment of snipers is contained in chapter 8, FM 21–75.

### 76. Scope

*a. Training Program.*

(1) The advanced marksmanship training program is prescribed by ATP 7–18–1. This program is optional during peacetime. During mobilization, sniper training is mandatory for a minimum of three riflemen per rifle platoon or a rifle company.

(2) Although proficiency in marksmanship is the principal basis for selecting a sniper, it is but one of the skills required of an effective sniper (ch. 8, FM 21–75). Information on subjects other than marksmanship which relate to sniper training are contained in other training publications (app. I).

*b. Sniper Marksmanship Training.* The success of sniper marksmanship training is contingent upon the detailed application of fundamentals. Although these fundamentals are the same for any marksmanship course, snipers must pay closer attention to details if they are to consistently deliver accurate fire at all ranges. In addition to a thorough knowledge and proficiency in the application of fundamentals, snipers must have an understanding of external ballistics, sight adjustments, and target detection. The ability to accurately determine ranges is a particularly important sniping skill.

## Section II. TECHNIQUE OF SNIPING

### 77. Positions

*a.* The sniper fires from any position that allows him to obtain support and steadiness for himself and his rifle. The steady hold factors outlined in chapter 2 have an even greater application when firing at the longer ranges. A slight error in trigger control which would cause a round to strike a few inches higher than the point intended at 100 meters, would be several feet over the target at 600 meters. The same holds true for the application of the other steady hold factors. An error which would be

insignificant at the shorter ranges will result in a complete miss at the longer ranges.

*b.* In preliminary firing, the sniper uses a sandbag rest to provide support. In field firing, he uses whatever support that is available.

## 78. Application of the Integrated Act of Shooting

*a.* Riflemen who have become sufficiently expert with the rifle to be selected as snipers will have already developed individual shooting characteristics. In most cases, these characteristics will be based on their application of the integrated act of shooting (par. 9).

*b.* Because of his method of employment, the sniper will frequently have an opportunity to engage enemy personnel who are unaware of his presence. In such situations, there is usually no necessity for him to fire as quickly as possible, and speed becomes much less important than precision. Therefore, the sniper should take extra care in checking his position and proper application of fundamentals to insure the greatest possible accuracy. This is best accomplished by following a set sequence of procedures as follows:

(1) Locate the aiming point.

(2) Relax enough to avoid muscular and mental tension. In this connection, once the firer has obtained a steady, relaxed position but finds the sights are slightly off in elevation, he can make minor adjustments by either inhaling or exhaling enough to bring the sights to the aiming point.

(3) Lock the breath in the throat as the aim is completed.

(4) Take up the slack in the trigger and apply a continuous increase in pressure without disturbing the sight alignment.

(5) Shift the focus of the eye from the target to the front sight blade to insure proper sight alignment.

(6) As the rifle fires, follow through (still relaxed) and pick up the target or target area as quickly as possible. Depending on the range to the target, the firer may or may not be able to see the strike of his bullet. If not, he should continue to observe the target for signs of movement.

## 79. Sight Adjustments

*a. External Ballistics.* When a rifleman begins sniper training, he will have already determined the 250-meter zero of his rifle. With this sight setting, he can deliver highly effective fire on combat targets appearing out to ranges of 350 meters. He has also learned that within this range span, he can compensate for range differences (trajectory) by using an adjusted aiming point. The effects of wind need not be considered for targets at ranges of 350 meters or less. However, as a sniper, he must be able to consistently hit targets at ranges beyond 350 meters. At these ranges, both the trajectory and the wind must be given due consideration if the sniper is to hit the target.

(1) *Trajectory (par. 28).* In firing at targets beyond 350 meters, it is possible for a soldier whose rifle is zeroed for 250 meters to compensate for the trajectory (fig. 64) by using an adjusted aiming point. However, from a practical standpoint, such a procedure introduces the possibility of too many human errors for the consistent delivery of accurate fire. For example, to hit a 600-meter target using a rifle zeroed for 250 meters would require a firer to select an aiming point over two meters (six feet plus) above the desired point of impact. A vertical measurement of this size at such a far range is extremely difficult to judge. To avoid this wide difference between aiming points and points of impact, the sniper must be able to adjust his rear sight for a range as near that of the target as possible. Known sight adjustments for 400, 500, and 600 meters in addition to the 250-meter zero, provide sufficient flexibility in sight settings for the majority of target situations occurring out to a range of 600 meters.

(2) *Effects of wind.* If a soldier fired at a 250-meter target while a 15 mile per hour wind was blowing from his right flank, the bullet would strike the target approximately six inches to the left of his line of aim. Since the average soldier is approximately 20 inches wide, such a shot would still hit an

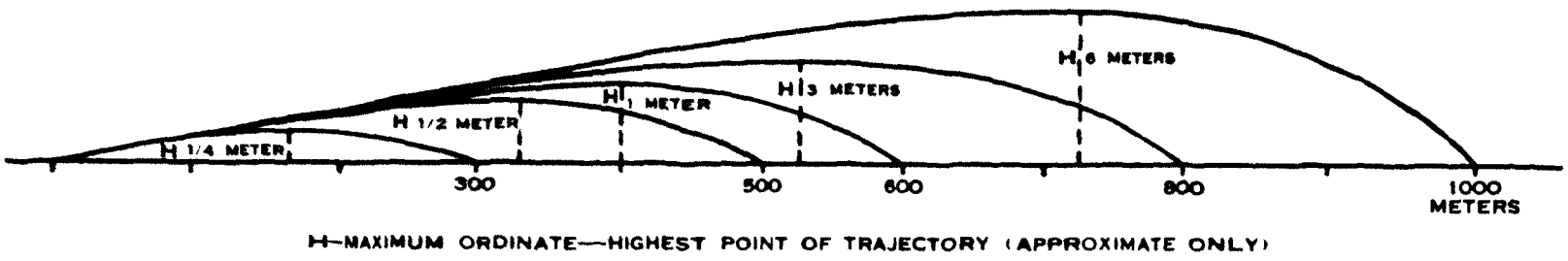



*Figure 64. Trajectory.*

enemy soldier. However, if a soldier fired at a 600-meter target under the same wind conditions, the round would strike approximately 36 inches to the left of his line of aim, or almost twice the width of an average soldier. Consequently, the sniper must compensate for the effects of wind at ranges beyond 350 meters. To do this, he must be able to "classify" the wind, determine its velocity, and finally, convert this information into "clicks" which can be placed on the rear sight.

(*a*) *Classification of winds.* Winds are classified according to the direction from which they are blowing in relation to the direction of fire. The "clock system" (fig. 65) is used to indicate this direction. A wind blowing from right to left directly across the firer's front is called a "3-o'clock wind." A wind blowing toward the firer from his left front is called an "11-o'clock wind." The direction from which the wind is blowing also denotes the value of the wind. Winds from either flank are "full-value winds," those from the oblique are "half-value winds," and winds blowing from either the front or rear are "no-value winds." A half-value wind will affect the bullet approximately half as much as a full-value wind. That is, a 1-o'clock wind having a velocity of 10 miles per hour is equivalent to a 5-mile per hour 3-o'clock wind. For combat firing, the effect of a no-value wind on the bullet is negligible and may be discounted.

(*b*) *Wind Velocity.* There are three common field expedient methods of determining wind velocities. Since the tactical situation may limit the use of some methods, snipers must be thoroughly familiar with all techniques.

1. *"Flag" method* (fig. 66). If a sniper can observe a flag (or any clothlike material similar to a flag) hanging from a pole, he should estimate the angle (in degrees) formed at the juncture of the flag and the pole. Dividing this angle by the constant number "4" will give the wind velocity in miles per hour.
2. *"Pointing" method* (fig. 67). If no flag is visible, a piece of paper or other light material may be dropped from the shoulder. By pointing directly at the spot where it lands, the angle (in degrees) can be estimated. This figure is again divided by the number "4" to determine the approximate wind velocity in miles per hour.
3. *"Observation" method.* If the tactical situation prevents the use of the above two methods, snipers can use the following information

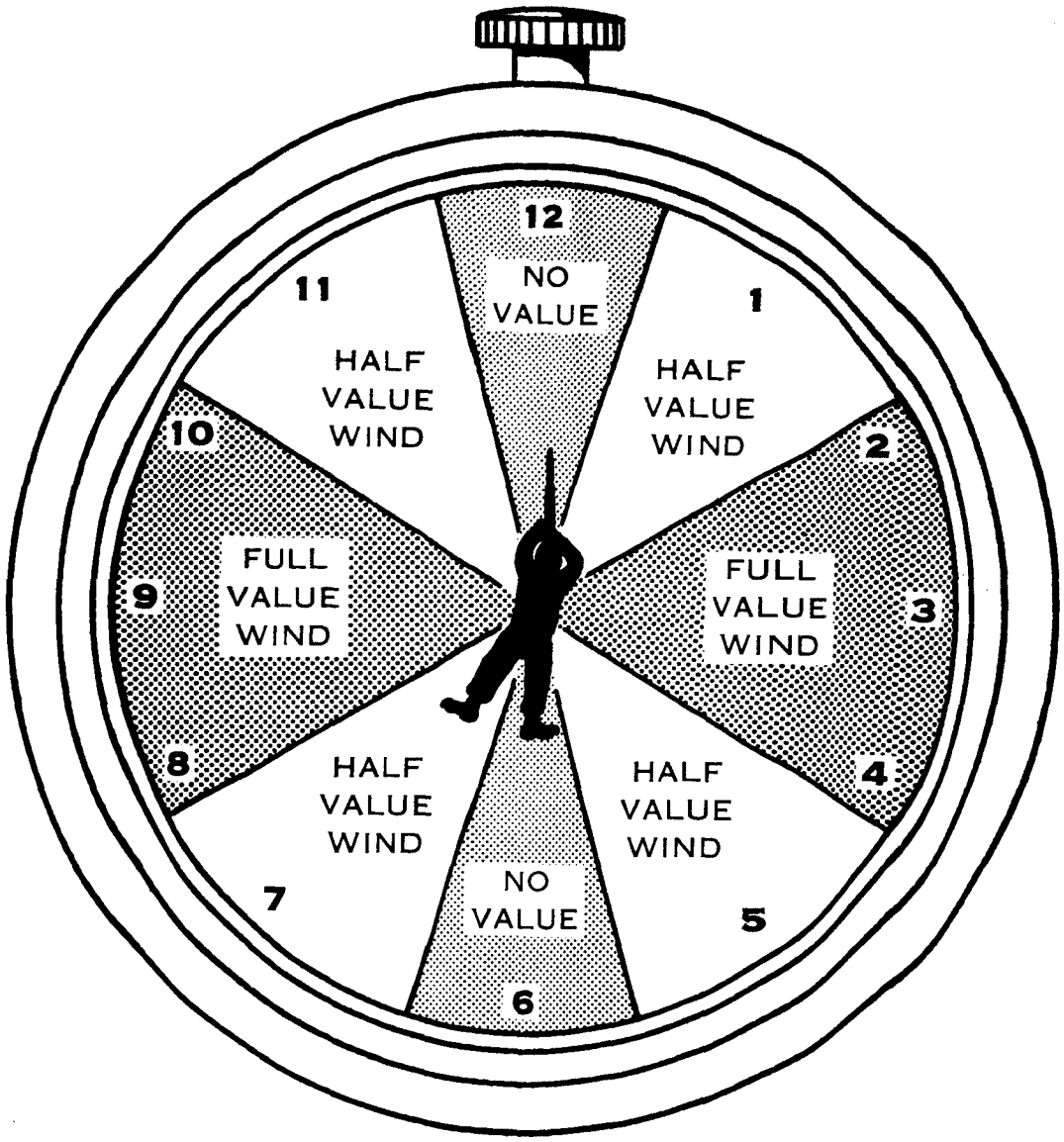



*Figure 65. Wind direction by the clock system.*

in determining wind velocities.

(a) Under three miles per hour, winds can hardly be felt, but the presence of slight wind can be determined by drifting smoke.

(b) A three to five mile per hour wind can just be felt on the face.

(c) Winds of five to eight miles per hour keep tree leaves in constant motion.

(d) At eight to twelve miles per hour, winds will raise dust and loose paper.

(e) A 12- to 15-mile per hour wind will cause small trees to sway.

(c) *Determination of windage adjustment.* After finding the wind direction and velocity, the windage correction to be placed on the rear sight is determined by the formula $\frac{R \times V}{15} =$ number of clicks of windage to be placed on the rear sight for a full-value wind. In this formula R = range in hundreds of meters, V = velocity in miles per hour, and the number "15" is a constant figure computed mathematically. For half-value winds, divide the answer by two. In placing the computed adjustment on the rear sight, THE REAR SIGHT APERTURE MUST ALWAYS BE MOVED INTO THE WIND. That is, for winds blowing from 12:30 through 5:30 o'clock, the rear sight aperture must be moved to the right. Conversely, the rear sight aperture must be moved to the left for winds blowing from 6:30 to

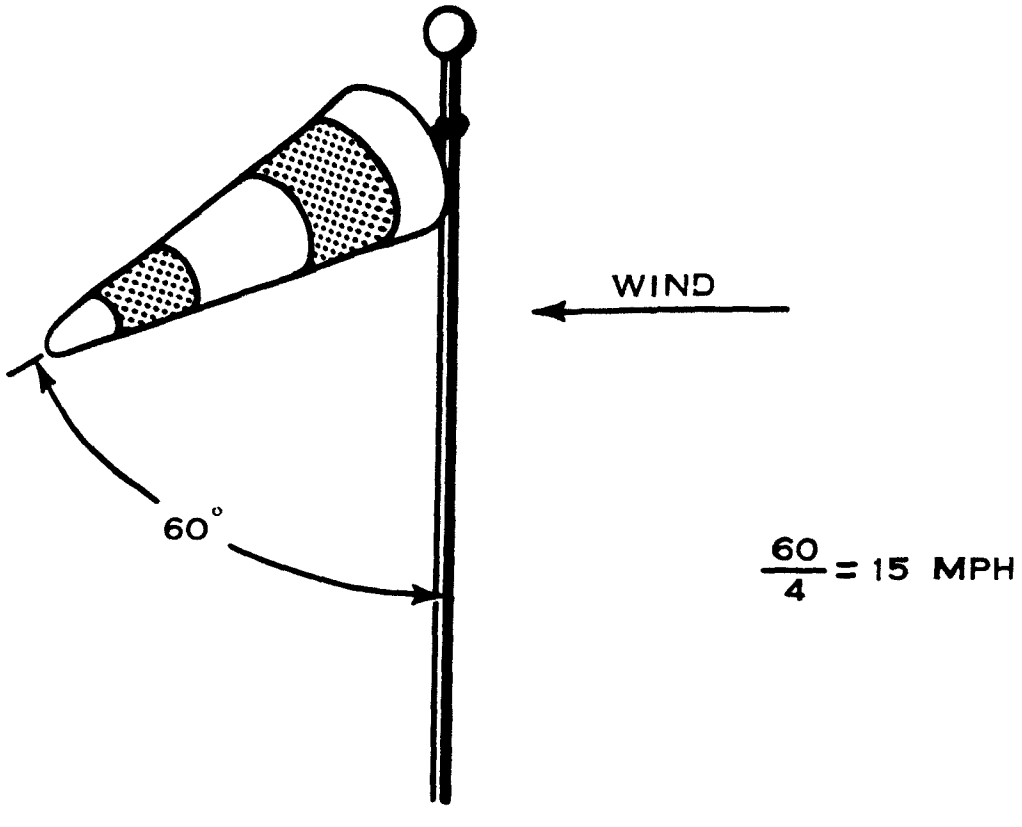



*Figure 66. Determining wind velocity by the flag method.*

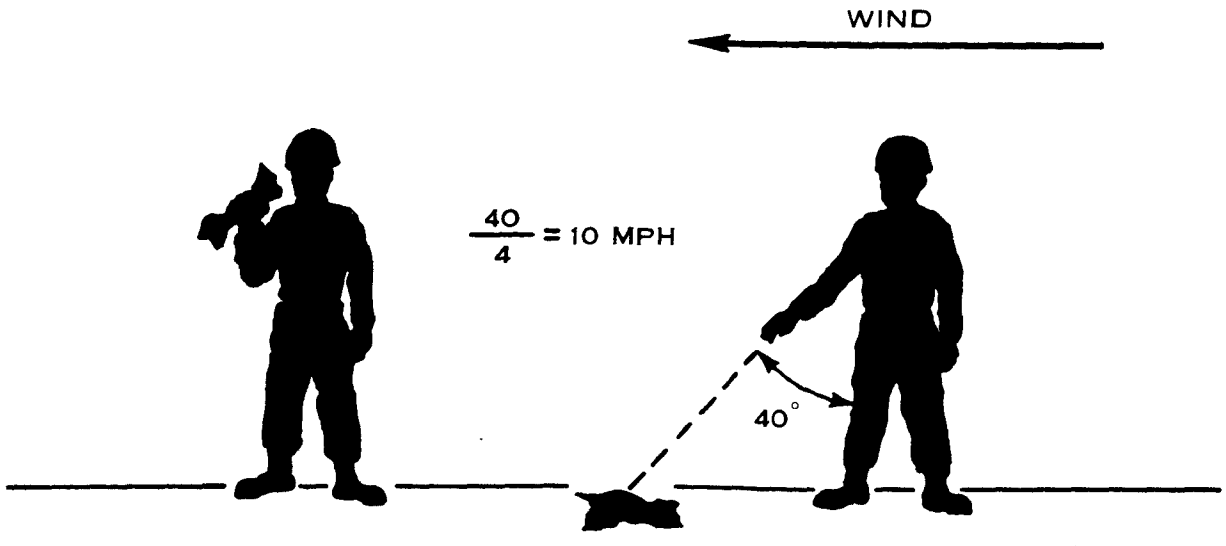



*Figure 67. Determining wind velocity by the pointing method.*

11:30 o'clock. An example of computing a windage adjustment is as follows: A 10-mile per hour wind is blowing from 9 o'clock. The range to the target is 600 meters. Converting this information for use in the wind formula, R — 6 and V — 10. Thus,

$$\frac{R \times V}{15} \quad \frac{6 \times 10}{15} \quad \frac{60}{15}$$

four clicks (left windage). To place this adjustment on the sight, the windage knob is turned four clicks to the rear, moving the rear sight aperture four clicks to the left or into the wind.

*b. Sight Manipulation.* The ability to properly manipulate the rear sight is extremely important to the sniper. When a shot or shot group is fired and is not in the desired location in relation to the aiming point, the sights must be moved in order to move the shot or group to the correct location. Training in this skill must include an explanation and demonstration of the elevation and windage rule and the characteristics of the rear sight (paras. 25, 26, and 27). Following this, the sniper should practice rear sight manipulation until the procedure becomes second nature to him.

## 80. Zeroing

*a.* In addition to the 250-meter battlesight zero, snipers must know the proper adjustment for ranges of 400, 500, and 600 meters. These zeros can be obtained by using one or a combination of the following methods:

(1) *Measured distance.* The most precise method of zeroing a rifle is to place distinctive aiming points at measured ranges of 250, 400, 500, and 600 meters. The sniper then fires 3-round shot groups at each aiming point, adjusting the rear sight until the center of the shot group and the aiming point coincide at each range.

(2) *25-meter zero.*

(*a*) The principles of firing at a 25-meter aiming point in order to obtain a zero for greater ranges are discussed in paragraph 28. The computed distances between a 25-meter aiming point and the point of impact necessary to obtain a zero for ranges of 400, 500, and 600 meters are listed below. The method for obtaining a 250-meter zero is discussed in chapter 3.

*1.* 400 meters: point of impact 7.3 centimeters above the aiming point.

*2.* 500 meters: point of impact 9.2 centimeters above the aiming point.

*3.* 600 meters: point of impact 11 centimeters above the aiming point.

(*b*) Firing at a range of 25 meters to obtain a zero sight setting for greater ranges is not as precise as firing at the actual range. Characteristic differences between firers, their weapons, and the ammunition cause the exact relationship between the 25-meter aiming point and the point of impact for a precise zero at a specific range to vary between each firer. In the case of the 250-meter battlesight zero, these variances are insignificant and may be discounted. However, at greater ranges the small error at 25 meters becomes greatly magnified and could result in a miss even though the sniper fired a well-aimed shot. Therefore, when possible, zeros obtained on the 25-meter range should be confirmed by firing at the actual range.

(3) *Field expedient zeroing.* A third method of zeroing may be used under field conditions. The sniper will require an observer equipped with fieldglasses to assist him in this procedure. This method is conducted as follows:

(*a*) The sniper and observer pick out an aiming point in the center of an area where the observer can see the strike of the bullet. This can be a hillside, a brick house, or any dry surface where the strike of the bullet can be observed. The range to this point can be determined by map survey, the range card of another weapon, or by ground measurement.

(*b*) The sniper sets the estimated range and windage adjustment on his rear sight and fires one round. The ob-

server notes the strike of the bullet and gives the elevation and windage change necessary to bring it to the point of aim. He does this by estimating the distance between the bullet strike and the aiming point—right or left, high or low. He converts these distances to clicks by dividing the error in inches by the number of inches one click will move the strike of the bullet at that range. For example, a sniper fires at a chimney on the side of a brick house at a range of 400 meters. The left edge of the chimney, even with the top of the second story windows is his aiming point. The sniper sets the elevation knob at 400 meters and the windage knob at zero and fires one shot. The observer sees a puff of brick dust about four feet to the right and two feet low of the aiming point. He gives these corrections: "up six clicks (24 inches at that range) and left 12 clicks" (48 inches at that range). The sniper places these corrections on his sight and fires a confirming round.

*Note.* It is extremely important when zeroing or confirming a zero by this field expedient method that the shot be well aimed and correctly fired, because the sniper is making a sight change on the basis of one shot. He should use the best support available. If he feels that he has jerked the trigger or if he calls it a "bad shot," it should be disregarded.

*b.* As the sniper obtains the proper sight adjustment for each range, he should count the number of clicks back to zero to determine the correct sight setting for that range. If a full- or half-value wind is blowing at greater than one mile per hour, he should also recompute his windage setting on the basis of zero or no-value wind. For example, suppose during zero firing at 400 meters there is a 15-mile per hour wind blowing from 9 o'clock. Using the wind formula, the sniper finds that this would require four clicks left windage to compensate for drift. In checking the actual windage adjustment of his rear sight, the sniper finds it required six clicks left windage to obtain the correct zero. By subtracting four clicks from six clicks, the sniper then knows that the 400-meter zero of his rifle on a day when there is no wind is two clicks left windage. This procedure is very important since the sniper must make adjustments for winds of different velocities and from different directions on subsequent days.

## 81. Adjusted Aiming Point

Even though the sniper has zeroed his rifle for various ranges, it would be virtually impossible for him to determine the precise sight setting for every target appearing on the battlefield. In addition, the fleeting nature of some combat targets may prevent the sniper from computing and setting the correct windage adjustment on his rear sight in sufficient time to fire. Consequently, snipers must understand and be able to apply adjusted aiming points at all ranges and under various wind conditions.

*a. Adjusting Aiming Points for Range.* For targets appearing at ranges other than those for which he has a prezeroed sight setting, e.g., 450 meters, 575 meters, the sniper should use the nearest sight adjustment which is beyond the range to the target. In this way, the adjusted aiming point will be below the desired point of impact. Besides being an easier point to locate, this procedure increases the probability of a ricochet hit if the round strikes short of the target.

*b. Adjusting Aiming Points for Wind.*

(1) Under field conditions, winds may be hastily characterized as either medium or strong. A medium full-value wind has a velocity of approximately 10 to 15 miles per hour and is characterized by leaves and grass being in constant motion. A full-value strong wind has an approximate velocity of 15 to 20 miles per hour and is characterized by the swaying trees and bushes. The sniper adjusts his aiming point by aiming into the wind. That is, if the wind is blowing from the right, he aims to the right of the target or if the wind is blowing from the left, he aims to the left of the target. The firer can use the width of the front sight post as a measure to obtain the approximate distance he should aim into the wind. The scale below indicates the approximate widths to be used at various ranges in a full-value wind.

| Range (meters) | Number of post widths to use | |
|---|---|---|
| | Medium winds | Strong winds |
| 100 | 0 | 0 |
| 200 | 0 | 0 |
| 300 | 0 | 0 |
| 400 | 1 | 2 |
| 500 | 2 | 3 |
| 600 | 2 | 4 |

*Example:* A sniper firing at an enemy target at a range of 400 meters with a strong wind blowing from 9 o'clock would aim to the left twice the width of the front sight post.

(2) If there is a constant wind from a given direction, the sniper may set the proper windage adjustment for the range at which targets are most likely to appear.

(3) Windage adjustments, whether through sight manipulation or use of an adjusted aiming point, are always based on an estimate of the wind velocity. Only practice in wind shooting will develop proficiency in determining the proper sight setting or using the proper adjusted aiming point. If the situation permits, the best method of determining the effects of wind is to fire a well-aimed shot at the target. The observed lateral error between the aiming point and the point of impact will be the distance to change the sights or adjust the aiming point.

## Section III. SNIPER EXERCISES

### 82. Range Determination Exercises

Range determination exercises follow the procedures and precepts outlined in chapter 5. These exercises can be conducted on a target detection range; however, the standard target detection range and the exercises for range determination should be modified to permit practice in determining ranges out to 1,000 meters. Greatest emphasis should be placed on determining target ranges of 600 meters and less.

### 83. Selection of Position, Movement, and Sight Adjustment Exercises

*a. Methods.*

(1) A specific target is designated to the sniper. He must then select and occupy the best sniping position in the immediate vicinity from which to engage the target. He adjusts the rear sight based on his determination of the range and wind velocity and simulates firing a shot at the target. The instructor then comments on the good and bad points of the sniper's actions, the position he selected, and his sight adjustment. In subsequent exercises, the situation can be expanded by informing the sniper whether the target is likely to remain visible or quickly disappear.

(2) Prior to the start of this exercise, several sniper posts are predesignated on the terrain by panels or flags. Each sniper is directed to select the two best positions as a primary and alternate sniping post. They must then give the reasons which caused them to select or reject each of the possible positions. After each sniper has given his solution, the instructor discusses the advantages and disadvantages of each position, summarizing by giving his own selection of the best positions. This exercise should be repeated on varied and unfamiliar terrain. Eventually, the panels used to designate sniper positions should be eliminated. An added requirement could be to determine the sight setting based on the location of the position, the terrain, and a simulated enemy situation.

(3) The sniper is shown a sector assumed to be occupied by the enemy. The sniper is then told to study the terrain, select a route forward, and move to a designated sniping position. Upon arriving at the sniping post, a target situation is indicated to the sniper, and he must perform the necessary actions to simulate firing a round. Following this simulated shot, the sniper must select a new position and a route to it. When the sniper has presented his solution

to this last requirement, the exercise is concluded, and the sniper's actions and decisions are critiqued.

*b. Common Errors.* The following are the most common errors committed by inexperienced personnel. Instructors may use this list as a checksheet in critiquing individual performance.

(1) The selected route and/or position is too exposed or conspicuous.

(2) The selected position does not have good observation and/or fields of fire.

(3) The sniper is not properly concealed from all directions and can be detected by the outline of his helmet, shoulder, forearm, or leg; depending upon the angle from which he is seen.

(4) The selected position is in the sunlight instead of the shade.

(5) The sniper's movements to and from a position are jerky and abrupt, thus attracting attention.

(6) The selected position does not have a covered route of withdrawal.

## 84. Firing Exercises

*a. Zeroing.* Zero firing is conducted as indicated in paragraph 80.

*b. Field Firing.*

(1) *Sniper's equipment.* In addition to normal combat equipment, each sniper must be equipped with field glasses.

(2) *Range organization.*

(*a*) Ideally, a sniper range should be located on terrain which has been left primarily in its natural state. The range should be at least 600 meters in depth and, if possible, 1,000 meters. There should be provisions along the firing line for several sniper positions, each situated to provide a slightly different perspective of the target area.

(*b*) "E" and "F" silhouette targets are used for all field firing. "F" targets are placed at ranges of 100 through 200 meters. "E" targets are used from 200 meters through 600 meters. Targets should be arranged to provide varying degrees of concealment at various ranges. Automatic devices (fig. 38) provide the most efficient target operation; however, pit details can be used if the devices are not available.

(*c*) Considering the magnitude of the sniper range requirement in relation to the number of snipers to be trained and the time required to conduct such training, it will probably be necessary to superimpose this facility over a range designed for other type training. Consequently, the target arrangement and the requirements for range and safety officers, safety NCO's, and other supervisory and support personnel must be based on the type of facility available and the number of snipers to be trained.

(3) *Range procedures.* In order to provide the most realistic training environment, range commands to commence and cease firing are not used in sniper exercises. The only exception to this is in the event of an unsafe condition, the command CEASE FIRE should be given immediately. Snipers must be given a thorough orientation on each exercise to include safety requirements before they are permitted to move into position. Any time after the sniper has assumed his firing position in the designated location, he should be permitted to fire without further command. Therefore, the range must be cleared for firing before the exercises actually begin. An NCO (assistant instructor) must accompany each sniper as a scorer and to insure the safe conduct of the exercise. When the sniper completes firing, the NCO clears the sniper's rifle and signals the range officer that the weapon is clear.

(4) *Conduct of field firing.*

(*a*) *Adjusted aiming point exercise.* Snipers initially set their sights for a range of 400 meters. Without changing this sight setting, they fire at various targets appearing at ranges between 100 and 600 meters. The sniper is required to determine the range to each target and the proper adjusted aiming point for that range in relation to his setting.

If there is a wind of sufficient velocity, snipers should be required to make mechanical sight adjustments for some targets and use adjusted aiming points for others. Similar exercises should be conducted with the sights set for 250, 500, and 600 meters.

(*b*) *Instruction firing.* Instruction firing is designed to develop speed in locating various targets, determining their range, selecting adjusted aiming points, and accurately engaging them. In order to provide training under various light conditions, the exercises should be conducted at least three times by each sniper — once at dawn, once at midday, and once at dusk. Instruction firing is composed of three exercises as follows:

1. *First exercise.* The sniper is allowed 16 rounds of ammunition to hit eight targets. (Four "F" and four "E" silhouette targets are used for this exercise.) Targets are exposed singly without time limit; however, after the target is hit or two rounds have been fired at it, the target should be dropped. The interval between target exposures and the location of targets should be continuously changed so the sniper does not know when or where the next target will appear. The scorer continually checks the sniper's position to insure he is properly concealed. If he is not, the scorer does not let the sniper fire. The sniper is scored as follows:

| | |
|---|---|
| For each target hit with the first round | 10 points |
| For each target hit with the second round | 5 points |
| Possible score | 80 points |

2. *Second exercise.* This exercise is conducted and scored the same as the first exercise except that the sniper is allowed only 30 seconds to locate and fire at targets out to 200 meters and one minute for targets located between 200 and 600 meters.

3. *Third exercise.* In this exercise, the sniper is allowed 12 rounds to hit four "E" silhouette targets placed at ranges between 400 and 600 meters. For each target situation, the sniper is required to adjust his rear sight based on his own determination of the range and wind conditions. Target operation is the same as in the first exercise. Scoring is conducted as follows:

| | |
|---|---|
| For each target hit with the first round | 10 points |
| For each target hit with the second round | 5 points |
| For each target hit with the third round | 2 points |
| Possible score | 40 points |

(*c*) *Record firing.* The same three exercises outlined above are fired once for record. Range operation and scoring are the same as prescribed for the instruction firing exercises. Qualification scores and ratings are contained in appendix III.

(*d*) *Range safety.* See appendix II.

# APPENDIX 1

# REFERENCES

| | |
|---|---|
| AR 370–5 | Qualification and Familiarization. |
| AR 385–63 | Regulations for Firing Ammunition for Training, Target Practice, and Combat. |
| FM 21–6 | Techniques of Military Instruction. |
| FM 21–75 | Combat Training of the Individual Soldier and Patrolling. |
| FM 23–5 | U. S. Rifle, Caliber .30, M1. |
| FM 23–8 | U. S. Rifle, 7.62-mm, M14. |
| TM 9–1005–223–12 | Operator and Organizational Maintenances Manual; 7.62-mm Rifle, M14 and Rifle Bipod M2. |
| TM 9–1005–223–34 | Field Maintenance Manual; 7.62-mm Rifle, M14 and Rifle Bipod M2. |
| TM 9–1275 | Ordnance Maintenance; U. S. Rifles, Caliber .30, M1, M1C (Sniper's), and M10 (Sniper's). |
| TM 9–1305–200 | Small Arms Ammunition. |
| TM 9–2205 | Fundamentals of Small Arms. |
| TM 9–6920–210–14 | Operator, Organizational and Field Maintenance Manual: Targets, Target Material, and Training Course Layout. |
| ATP 7–18–1 | Rifle Company, Infantry Airborne and Mechanized Infantry Battalions. |
| ATP 21–114 | Male Military Personnel Without Prior Service. |
| ASubjScd 23–31 | Rifle Marksmanship. |
| DA Pam 23–2 | Hits Count. |
| DA Pam 108–1 | Index of Army Motion Pictures, Film Strips, Slides and Phono-Recordings. |

# APPENDIX II

# SAFETY

## 1. Purpose

This appendix lists the standard safety precautions to be observed during rifle marksmanship training. These safety precautions have general application and must therefore be supplemented by local regulations governing the operation of specific facilities, e.g., night firing ranges.

## 2. Mechanical Training

*a.* All rifles must be cleared prior to conducting mechanical training.

*b.* A careful check of dummy rounds must be made to insure that no live ammunition is among them.

*c.* Toolboxes, spare parts boxes, or other containers in the vicinity of the training area must be checked to insure the absence of live ammunition.

## 3. Range Firing

*a.* Dummy rounds must be checked to insure no live ammunition is among them.

*b.* Each rifle will be inspected by an officer or NCO prior to firing to insure there is no obstructions in the bore. Upon completion of firing, each rifle will be inspected to insure that all live ammunition has been removed from the weapon.

*c.* Except while being used to conduct live or dry fire exercises, all rifles will have bolts open and safeties locked to the rear in any area where live ammunition is being used or is available.

*d.* When carrying a rifle on the range, the muzzle will be pointed up and down range.

*e.* During live fire exercises, all rifles present on the range will be presumed to be loaded and must therefore never be pointed at anyone or anything except the authorized targets.

*f.* During daytime live fire exercises, a red streamer will be displayed from a prominent location on the range.

*g.* During night firing exercises, a red flashing light and a red streamer will be displayed from prominent locations.

*h.* Live firing will not be conducted until all prescribed roadblocks have been established and all necessary range guards posted.

*i.* Ammunition will be issued only on command from the control tower.

*j.* Rifles will be loaded (or simulated loaded) only on command from the control tower.

*k.* Prior to firing, all individuals to include range personnel will be informed of the safety limits of the range.

*l.* When not being used, rifles will be placed in racks or in such a position as to be easily inspected to insure bolts are open and safeties engaged.

*m.* Dry firing will not be conducted in rear of the firing line unless supervised by an officer or NCO.

*n.* Smoking is not permitted on the firing line or near ammunition.

*o.* Running is not permitted on the range.

*p.* Personnel will not move forward of the firing line until given clearance by the officer in charge.

*q.* Anyone observing an unsafe condition during firing exercises is authorized to give the command, CEASE FIRING. When this command is given, it will be relayed immediately to the control officer who will command, CEASE FIRING. The range safety officer is then responsible for investigating the unsafe condition, taking necessary corrective action, and verifying to the officer in charge that the unsafe condition has been corrected and firing may be resumed.

*r.* All personnel will be inspected for brass and ammunition and their weapons cleared prior to leaving the range.

## 4. Pit Operation

*a.* The command to commence firing will not be given until clearance has been received from the pit officer.

*b.* All members of the pit detail will wear steel helmets.

*c.* Target operators will remain at their targets unless they have been granted permission to leave by supervisory personnel.

*d.* No one will leave the pits until clearance has been granted by the officer in charge of the range.

*e.* Target operators must not expose any part of their bodies above the protective berm while marking or otherwise handling the targets and target frames.

## 5. Exercises Which Require Movement of Firers

*a.* During any exercise requiring firers to move with loaded rifles, safety NCO's or scorers will accompany the firers to insure their proper alignment and that rifle muzzles are pointed down range at all times.

*b.* If a rifle fails to fire during a movement exercise, the firer must move forward when so directed regardless of whether or not he has cleared the stoppage.

## 6. Safety Noncommissioned Officers

*a.* The principal duty of safety NCO's is to enforce safety regulations to include inspecting weapons upon completion of firing to insure they can be safely removed from the firing line. Safety NCO's may also be used to critique and correct the firers' application of fundamentals provided this duty does not interfere with their principal task of enforcing safety regulations.

*b.* Safety NCO's must understand the various signals necessary to insure safe operation of the range. If possible, each safety NCO should be equipped with a safety paddle (fig. 91) to assist in giving these signals. Methods of giving signals with and without safety paddles are as follows:

(1) *With safety paddles.*

(*a*) NOT READY or NOT CLEAR—The safety paddle is held over the head with the red side facing the control tower.

(*b*) READY or CLEAR—The safety paddle is held over the head with the white side facing the control tower.

(2) *Without safety paddles.*

(*a*) NOT READY or NOT CLEAR—The safety NCO faces the tower and extends both arms over his head with his hands clasped.

(*b*) READY or CLEAR—The safety NCO faces the tower and extends his arms up and to his front with the palms of his hands toward the control tower.

# APPENDIX III

# RIFLE MARKSMANSHIP COURSES

## Section I. BASIC RIFLE MARKSMANSHIP COURSE

### 1. General

The marksmanship courses outlined below are designed for company battery size units having a personnel strength of 200 men. Units having greater or lesser strength should adjust the prescribed training hours accordingly. Detailed description of subjects and time breakdown of training periods are contained in Army Subject Schedule 23–31.

### 2. Scope

The basic rifle marksmanship course is conducted as part of ATP 21–114. Range facilities required to conduct this course are one 110-point 25-meter range (with foxholes and stumps along the firing line), one 35-point field firing range, two 50-point target detection ranges, and one 16-lane record range. The course consists of 75 hours of instruction as follows:

| | |
|---|---|
| Orientation | 1 hour. |
| Mechanical training | 4 hours. |
| Preparatory marksmanship | 32 hours. |
| Target detection | 14 hours. |
| Field firing | 16 hours. |
| Record firing and target detection testing | 8 hours. |
| Total marksmanship training | 75 hours. |
| ATP subjects (conducted concurrently with, but not included as part of, individual marksmanship instruction) | 12 hours. |

### 3. Ammunition

*a. Ammunition Required by Period or Exercise.*

(1) *Preparatory marksmanship and 25-meter firing.*

| Period | Position | Rounds per soldier | Rounds for demonstration | Notes |
|---|---|---|---|---|
| 1, 2, and 3[a] | ..... | None | | [a]Orientation, mechanical training and introduction to marksmanship training. |
| 4 | Prone ..... | *5 | *10/10(20)[b] | [b]10 rounds rehearsal, 10 rounds demonstration. Total: 20 rounds. |
| 5 | Prone supported ..... | *30 | | |
| 6 | Prone ..... | *10 | | |
| 6 | Sitting ..... | *10 | | |
| 6 | Squatting ..... | *10 | | |
| 6 | Kneeling ..... | *10 | | |
| 7 | Kneeling supported ..... | *10 | | |
| 7 | Standing ..... | *10 | | |
| 7 | Foxhole ..... | 9 | 4/4(8)[c] | [c]4 rounds rehearsal, 4 rounds demonstration. Total: 8 rounds. |
| 7 | [d]Standing to prone ..... | 4 | 4/4(8)[c] | [d]Two exercises. 2 rounds and 24 seconds per exercise. |
| 8 | [e]Foxhole or prone supported.. | 12 | | [e]Battlesight zero. Position must be 25 meters from targets. |
| 9 | [f]Prone supported ..... | 3 | | [f]Progress check. |
| 9 | [f]Prone ..... | 3 | | |
| 9 | [f]Sitting ..... | 3 | | |
| 9 | [f]Squatting ..... | 3 | | |
| 9 | [f]Kneeling ..... | 3 | | |
| 9 | [f]Kneeling supported ..... | 3 | | |
| 9 | [f]Standing ..... | 3 | | |
| 9 | Refire weak positions ..... | 9 | | |
| 10 | Refire weak positions ..... | 18 | | |
| 13 | Sitting ..... | 6 | | |
| 13 | Squatting ..... | 6 | | |
| 13 | Kneeling ..... | 6 | | |
| 13 | Standing ..... | 6 | | |
| 15 | [g]Foxhole or prone supported.. | 6 | | [g]Confirmation of zero. |
| 15 | [d]Standing to sitting ..... | 4 | | |

*Note.* The asterisk (*) denotes rounds of caliber .22 ammunition required. All subsequent exercises are conducted using service ammunition. If caliber .22 rifles are not used during periods 4 through 7, substitute three rounds of service ammunition for each five rounds of caliber .22 ammunition listed.

(2) *Field firing exercises.*

| Period | Rounds per soldier | Rounds for demonstration | Notes |
|---|---|---|---|
| 10 | 48 | 3/9(12)[a] | [a]Tracer rounds required for demonstration. 3 rounds rehearsal, 9 rounds demonstration. Total: 12 rounds. |
| 11 | 36 | | |
| 12 | 36 | | |
| 13 | 24 | 4/8(12)[b] | [b]4 rounds rehearsal, 8 rounds demonstration. Total: 12 rounds. |
| 14 | 40 | | |
| 15 | 40 | | |
| 16 | 36 | | |

(3) *Target detection.*

| Period | Corresponds to target detection period—[1] | Number of presentations | Blank rounds required [2] |
|---|---|---|---|
| 6 | 1 | 8 | 200 |
| 7 | 2 | 8 | 200 |
| 10 | 3 | 4 | 55 |
| 11 | 4 | 4 | 288 |
| 12 | 5 | 4 | 276 |
| 14 | 6 | 4 | None |
| 16 | 7 | 4 | 540 |
| 17 | 8 | 8 | 153 |
| 18 | 9 | 8 | 270 |

[1] See appendix VI.
[2] Includes rounds for rehearsals.

(4) *Record firing.*

| Period | Rounds per soldier | Rounds for demonstration | Notes |
|---|---|---|---|
| 17 | 56 | 8/32(40) | 8 rounds rehearsal, 16 rounds per demonstration (2). Total: 40 rounds. |
| 18 | 40 | | |

*b. Recapitulation of Ammunition Requirements.*

| | |
|---|---|
| Caliber .22 rounds per soldier | 95 |
| Caliber .22 rounds per unit (demonstration) | 20 |
| Caliber 7.62-mm (or .30) rounds per soldier | 463 |
| Caliber 7.62-mm (or .30) rounds per unit (demonstration) | 68 |
| Caliber 7.62-mm (or .30) rounds tracer (demonstration) | 12 |
| Caliber 7.62-mm (or .30) rounds blank per unit | 1,982 |

## 4. Scorecards and Qualification Scores

*a. Scoreboards.*

## PERIOD TEN

## SCORECARD

Firer's Name_____
(Last) (First)

Platoon_____ Firing Point_____ Date_____

Scorer's Name_____
(Last) (First)

*Phase 1. Foxhole position.

| Range (meters) | Round | Hit | Miss |
|---|---|---|---|
| 75 | 1 | | |
| 75 | 2 | | |
| 75 | 3 | | |
| 175 | 4 | | |
| 175 | 5 | | |
| 175 | 6 | | |
| 175 | 7 | | |
| 300 | 8 | | |
| 300 | 9 | | |
| 300 | 10 | | |
| 300 | 11 | | |
| 300 | 12 | | |
| 300 | 13 | | |
| 300 | 14 | | |
| 300 | 15 | | |
| 300 | 16 | | |
| Total | | | |

*Phase 2. Prone supported position.

| Range (meters) | Round | Hit | Miss |
|---|---|---|---|
| 75 | 1 | | |
| 175 | 2 | | |
| 175 | 3 | | |
| 175 | 4 | | |
| 300 | 5 | | |
| 300 | 6 | | |
| 300 | 7 | | |
| 300 | 8 | | |
| Total | | | |

Total for period 10.

| | Hit | Miss |
|---|---|---|
| Phase 1 | | |
| 2 | | |
| 3 | | |
| 4 | | |
| 5 | | |
| Total | | |

*Phase 3. Kneeling position.

| Range (meters) | Round | Hit | Miss |
|---|---|---|---|
| 75 | 1 | | |
| 175 | 2 | | |
| 175 | 3 | | |
| 175 | 4 | | |
| 300 | 5 | | |
| 300 | 6 | | |
| 300 | 7 | | |
| 300 | 8 | | |
| Total | | | |

*Phase 4. Squatting position.

| Range (meters) | Round | Hit | Miss |
|---|---|---|---|
| 75 | 1 | | |
| 175 | 2 | | |
| 175 | 3 | | |
| 175 | 4 | | |
| 300 | 5 | | |
| 300 | 6 | | |
| 300 | 7 | | |
| 300 | 8 | | |
| Total | | | |

*Phase 5. Sitting position.

| Range (meters) | Round | Hit | Miss |
|---|---|---|---|
| 75 | 1 | | |
| 175 | 2 | | |
| 175 | 3 | | |
| 175 | 4 | | |
| 300 | 5 | | |
| 300 | 6 | | |
| 300 | 7 | | |
| 300 | 8 | | |
| Total | | | |

* No time limit.

## PERIOD ELEVEN

## SCORECARD

Firer's Name_____
(Last) (First)

Platoon_____ Firing Point_____ Date_____

Scorer's Name_____
(Last) (First)

Phase 1. Foxhole position.

| Range (meters) | Time (seconds) | Round | Hit | Miss |
|---|---|---|---|---|
| 300 | 10 | 1 | | |
| 175 | 10 | 2 | | |
| 75 | 5 | 3 | | |
| 300 | 10 | 4 | | |
| 175 | 10 | 5 | | |
| 75 | 5 | 6 | | |
| 175 | 10 | 7 | | |
| 75 | 5 | 8 | | |
| | | Total | | |

Phase 2. Sitting position.

| Range (meters) | Time (seconds) | Round | Hit | Miss |
|---|---|---|---|---|
| 300 | 10 | 1 | | |
| 175 | 10 | 2 | | |
| 75 | 5 | 3 | | |
| 300 | 10 | 4 | | |
| 175 | 10 | 5 | | |
| 75 | 5 | 6 | | |
| 175 | 10 | 7 | | |
| 75 | 5 | 8 | | |
| | | Total | | |

Total for period 11.

| | Hit | Miss |
|---|---|---|
| Phase 1 | | |
| 2 | | |
| 3 | | |
| 4 | | |
| 5 | | |
| Total | | |

Phase 3. Kneeling position.

| Range (meters) | Time (seconds) | Round | Hit | Miss |
|---|---|---|---|---|
| 300 | 10 | 1 | | |
| 175 | 10 | 2 | | |
| 75 | 5 | 3 | | |
| 300 | 10 | 4 | | |
| 175 | 10 | 5 | | |
| 75 | 5 | 6 | | |
| | | Total | | |

Phase 4. Kneeling supported position

| Range (meters) | Time (seconds) | Round | Hit | Miss |
|---|---|---|---|---|
| 300 | 10 | 1 | | |
| 175 | 10 | 2 | | |
| 75 | 5 | 3 | | |
| 300 | 10 | 4 | | |
| 175 | 10 | 5 | | |
| 75 | 5 | 6 | | |
| 175 | 10 | 7 | | |
| 75 | 5 | 8 | | |
| | | Total | | |

Phase 5. Standing position.

| Range (meters) | Time (seconds) | Round | Hit | Miss |
|---|---|---|---|---|
| 300 | 10 | 1 | | |
| 175 | 10 | 2 | | |
| 75 | 5 | 3 | | |
| 300 | 10 | 4 | | |
| 175 | 10 | 5 | | |
| 75 | 5 | 6 | | |
| | | Total | | |

## PERIOD TWELVE

## SCORECARD

Firer's Name _____
(Last) (First)

Platoon _____ Firing Point _____ Date _____

Scorer's Name _____
(Last) (First)

Phase 1. Foxhole position.

| Range (meters) | Time (seconds) | Round | Hit | Miss |
|---|---|---|---|---|
| 75 | 5 | 1 | | |
| 300 | 10 | 2 | | |
| 300 | 10 | 3 | | |
| 175 | 7 | 4 | | |
| 175 | 7 | 5 | | |
| 300 | 10 | 6 | | |
| | | Total | | |

Phase 2. Kneeling position.

| Range (meters) | Time (seconds) | Round | Hit | Miss |
|---|---|---|---|---|
| 300 | 10 | 1 | | |
| 175 | 7 | 2 | | |
| 175 | 7 | 3 | | |
| 300 | 10 | 4 | | |
| 300 | 10 | 5 | | |
| 75 | 5 | 6 | | |
| | | Total | | |

Phase 3. Kneeling support position.

| Range (meters) | Time (seconds) | Round | Hit | Miss |
|---|---|---|---|---|
| 75 | 7 | 1 | | |
| 75 | 5 | 2 | | |
| 300 | 10 | 3 | | |
| 175 | 7 | 4 | | |
| 300 | 10 | 5 | | |
| 300 | 10 | 6 | | |
| | | Total | | |

Phase 4. Prone position.

| Range (meters) | Time (seconds) | Round | Hit | Miss |
|---|---|---|---|---|
| 75 | 5 | 1 | | |
| 175 | 7 | 2 | | |
| 300 | 10 | 3 | | |
| 300 | 10 | 4 | | |
| 175 | 7 | 5 | | |
| 300 | 10 | 6 | | |
| | | Total | | |

Phase 5. Sitting position.

| Range (meters) | Time (seconds) | Round | Hit | Miss |
|---|---|---|---|---|
| 300 | 10 | 1 | | |
| 300 | 10 | 2 | | |
| 175 | 7 | 3 | | |
| 300 | 10 | 4 | | |
| 75 | 5 | 5 | | |
| 175 | 7 | 6 | | |
| | | Total | | |

Phase 6. Squatting position.

| Range (meters) | Time (seconds) | Round | Hit | Miss |
|---|---|---|---|---|
| 75 | 5 | 1 | | |
| 300 | 10 | 2 | | |
| 300 | 10 | 3 | | |
| 175 | 7 | 4 | | |
| 175 | 7 | 5 | | |
| 300 | 10 | 6 | | |
| | | Total | | |

Total for period 12.

| | Hit | Miss |
|---|---|---|
| Phase 1 | | |
| 2 | | |
| 3 | | |
| 4 | | |
| 5 | | |
| 6 | | |
| Total | | |

## PERIOD THIRTEEN

## SCORECARD

Firer's Name_____
(Last) (First)

Platoon_____ Firing Point_____ Date_____

Scorer's Name_____
(Last) (First)

Phase 1

| Place | Position | Range (meters) | Time (seconds) | Round | Hit | Miss |
|---|---|---|---|---|---|---|
| Rear stake | Standing | 75 | 5 | 1 | | |
| By stump | Standing | 75 | 5 | 2 | | |
| By foxhole | Standing | 75 | 5 | 3 | | |
| By front stake | Prone | 75 | 5 | 4 | | |
| Rear stake | Squatting | 175 | 7 | 5 | | |
| By stump | Kneeling supported | 175 | 7 | 6 | | |
| By foxhole | Kneeling | 175 | 7 | 7 | | |
| By front stake | Sitting | 175 | 7 | 8 | | |
| Rear stake | Sitting | 300 | 10 | 9 | | |
| By stump | Kneeling supported | 300 | 10 | 10 | | |
| By foxhole | Kneeling | 300 | 10 | 11 | | |
| By front stake | Squatting | 300 | 10 | 12 | | |
| Rear stake | Kneeling | 175 | 7 | 13 | | |
| By stump | Kneeling supported | 300 | 10 | 14 | | |
| By foxhole | Squatting | 175 | 7 | 15 | | |
| By front stake | Sitting | 300 | 10 | 16 | | |

Phase 2

| | | | | | | |
|---|---|---|---|---|---|---|
| Rear stake | Sitting | 300 | 10 | 1 | | |
| By stump | Kneeling supported | 175 | 7 | 2 | | |
| By foxhole | Squatting | 300 | 10 | 3 | | |
| By front stake | Standing | 75 | 5 | 4 | | |
| Rear stake | Kneeling | 175 | 7 | 5 | | |
| By stump | Kneeling supported | 300 | 10 | 6 | | |
| By foxhole | Standing | 75 | 5 | 7 | | |
| By front stake | Squatting | 175 | 7 | 8 | | |

Total for period 13

| | Hit | Miss |
|---|---|---|
| Phase 1 | | |
| 2 | | |
| Total | | |

## PERIOD FOURTEEN

## SCORECARD

Firer's Name_____
(Last) (First)

Platoon_____ Firing Point_____ Date_____

Scorer's Name_____
(Last) (First)

Phase 1

| Place | Position | Range (meters) | Time (seconds) | Round | Hit | Miss |
|---|---|---|---|---|---|---|
| Rear stake | Kneeling | 175 | 7 | 1 | | |
| By stump | Kneeling supported | 75 | 5 | 2 | | |
| By foxhole | Prone | 300 | 10 | 3 | | |
| By front stake | Standing | 75 | 5 | 4 | | |
| Rear stake | Squatting | 175 | 7 | 5 | | |
| By stump | Kneeling supported | 300 | 10 | 6 | | |
| By foxhole | Standing | 175 | 7 | 7 | | |
| By front stake | Sitting | 300 | 10 | 8 | | |

Phase 2 (positions optional with firer)

| Place | Range (meters) | Time (seconds) | Round | Hit | Miss |
|---|---|---|---|---|---|
| Rear stake | 300 | 10 | 1 | | |
| Rear stake | 175 | 7 | 2 | | |
| By stump | 300 | 10 | 3 | | |
| By foxhole | 300 | 10 | 4 | | |
| By front stake | 175 | 7 | 5 | | |
| Forward of stake | 75 | 5 | 6 | | |
| Rear stake | 175 | 7 | 7 | | |
| Rear stake | 75 | 5 | 8 | | |
| By stump | 175 | 7 | 9 | | |
| By stump | 300 | 10 | 10 | | |
| By foxhole | 300 | 10 | 11 | | |
| By foxhole | 175 | 7 | 12 | | |
| By front stake | 300 | 10 | 13 | | |
| Forward of stake | 300 | 10 | 14 | | |
| Forward of stake | 300 | 10 | 15 | | |
| Forward of stake | 300 | 10 | 16 | | |

**Phase 3 (positions optional with firer)**

| Place | Range (meters) | Time (seconds) | Round | Hit | Miss |
|---|---|---|---|---|---|
| Behind stump | 175 | 7 | 1 | | |
| Behind stump | 300 | 10 | 2 | | |
| By stump | 300 | 10 | 3 | | |
| By stump | 300 | 10 | 4 | | |
| By foxhole | 75 | 5 | 5 | | |
| By front stake | 175 | 7 | 6 | | |
| By front stake | 300 | 10 | 7 | | |
| Forward of stake | 175 | 7 | 8 | | |
| Behind stump | 300 | 10 | 9 | | |
| Behind stump | 300 | 10 | 10 | | |
| By stump | 75 | 5 | 11 | | |
| By foxhole | 175 | 7 | 12 | | |
| By foxhole | 300 | 10 | 13 | | |
| By front stake | 300 | 10 | 14 | | |
| Forward of stake | 75 | 5 | 15 | | |
| Forward of stake | 300 | 10 | 16 | | |

Total for period 14

| | Hit | Miss |
|---|---|---|
| Phase 1 | | |
| 2 | | |
| 3 | | |
| Total | | |

## PERIOD FIFTEEN
## SCORECARD

**Firer's Name**_____
(Last) (First)

**Platoon**_____ **Firing Point**_____ Date_____

Scorer's Name_____
(Last) (First)

Phases 1 and 2 fired from foxhole position

Phase 1

| Range (meters) | Time (seconds) | Hit | | Miss |
|---|---|---|---|---|
| | | First round | Second round | |
| 75 | | | | |
| 175 | 20 | | | |
| 175 | | | | |
| 300 Left | 30 | | | |
| 300 Right | | | | |
| 175 | | | | |
| 300 Left | 30 | | | |
| 300 Right | | | | |
| Total | | | | |

Ammunition 12 rounds.

Phase 2

| Range (meters) | Time (seconds) | Hit | | Miss |
|---|---|---|---|---|
| | | First round | Second round | |
| 75 | | | | |
| 175 | 20 | | | |
| 175 | | | | |
| 300 Left | 30 | | | |
| 300 Right | | | | |
| 175 | | | | |
| 300 Left | 30 | | | |
| 300 Right | | | | |
| Total | | | | |

Ammunition 12 rounds.

Phase 3 (advancing exercises)

| Place | Position | Range (meters) | Time (seconds) | Hit | | Miss |
|---|---|---|---|---|---|---|
| | | | | First round | Second round | |
| Rear stake | Kneeling | 75<br>175 | 20 | | | |
| By stump | Kneeling supported | 175<br>300 Left<br>300 Right | 30 | | | |
| By foxhole | Sitting | 175<br>300 Left<br>300 Right | 30 | | | |
| Front stake | Squatting | 75<br>175 | 20 | | | |
| Total | | | | | | |

Ammunition 16 rounds.

Totals for period 15

| First round hits | Second round hits | Miss |
|---|---|---|
| | | |

| Total hits | |
|---|---|

## PERIOD SIXTEEN

## SCORECARD

Firer's Name _____
(Last) (First)

Platoon _____ Firing Point _____ Date _____

Scorer's Name _____
(Last) (First)

**Phases 1 and 2 fired from foxhole position**

**Phase 1**

| Range (meters) | Time (seconds) | Hit | | Miss |
|---|---|---|---|---|
| | | First round | Second round | |
| 75 | 30 | | | |
| 300 Left | | | | |
| 300 Right | | | | |
| 75 | 20 | | | |
| 175 | | | | |
| 175 | 30 | | | |
| 300 Left | | | | |
| 300 Right | | | | |
| Total | | | | |

Ammunition 12 rounds.

**Phase 2**

| Range (meters) | Time (seconds) | Hit | | Miss |
|---|---|---|---|---|
| | | First round | Second round | |
| 75 | 20 | | | |
| 175 | | | | |
| 75 | 40 | | | |
| 175 | | | | |
| 300 Left | | | | |
| 300 Right | | | | |
| 300 Left | 25 | | | |
| 300 Right | | | | |
| Total | | | | |

Ammunition 12 rounds.

**Phase 3 (advancing exercises, optional positions)**

| Place | Range (meters) | Time (seconds) | Hit | | Miss |
|---|---|---|---|---|---|
| | | | First round | Second round | |
| By stump | 75 | 30 | | | |
| | 300 Left | | | | |
| | 300 Right | | | | |
| By foxhole | 75 | 20 | | | |
| | 175 | | | | |
| Front stake | 175 | 30 | | | |
| | 300 Left | | | | |
| | 300 Right | | | | |
| Total | | | | | |

Ammunition 12 rounds.

**Total hits for period 16**

| First round hits | Second round hits | Miss |
|---|---|---|
| | | |
| Total hits | | |

## PERIOD SEVENTEEN

## SCORECARD

Firer's Name_____ ASN_____
(Last) (First)

Unit_____ Order No._____ Weather: Record I_____
Record II_____

Time: Record I (AM PM) Cross Out One
Record II (AM PM) Cross Out One

### RECORD I

**Foxhole position**

**Table 1. Firing Point No.**

| Round | Range (meters) | Time (seconds) | Hit | Miss | No Fire |
|---|---|---|---|---|---|
| 1 | 250 | 10 | | | |
| 2 | 300 | 10 | | | |
| 3 | 200 | 5 | | | |
| 4 | 150 | 5 | | | |
| 5 | 50 | 5 | | | |
| 6 | 350 | 10 | | | |
| 7 | 100 | 5 | | | |
| 8 | 200 | 5 | | | |

**Table 2. Firing Point No.**

| | | | | | |
|---|---|---|---|---|---|
| 1 | 100 | 5 | | | |
| 2 | 250 | 10 | | | |
| 3 | 300 | 10 | | | |
| 4 | 150 | 5 | | | |
| 5 | 50 | 5 | | | |
| 6 | 350 | 10 | | | |
| 7 | 100 | 5 | | | |
| 8 | 200 | 5 | | | |

**Table 3. Firing Point No.**

| | | | | | |
|---|---|---|---|---|---|
| 1 | 250 | 10 | | | |
| 2 | 150 | 5 | | | |
| 3 | 100 | 5 | | | |
| 4 | 200 | 5 | | | |
| 5 | 250 | 10 | | | |
| 6 | 300 | 10 | | | |
| 7 | 350 | 10 | | | |
| 8 | 200 | 5 | | | |

**Table 4. Firing Point No.**

| | | | | | |
|---|---|---|---|---|---|
| 1 | 50 | 5 | | | |
| 2 | 200 | 5 | | | |
| 3 | 100 | 5 | | | |
| 4 | 200 | 5 | | | |
| 5 | 150 | 5 | | | |
| 6 | 250 | 10 | | | |
| 7 | 300 | 10 | | | |
| 8 | 150 | 5 | | | |

*Note.* MO—Move Out.

### RECORD I

**Unsupported positions**

**Table 5. Firing Point No.**

| Round | Range (meters) | Time (seconds) | Hit | Miss | No Fire |
|---|---|---|---|---|---|
| MO 1 | 150 | 5 | | | |
| 2 | 350 | 10 | | | |
| MO 3 | 100 | 5 | | | |
| MO 4 | 200 | 5 | | | |
| 5 | 300 | 10 | | | |
| 6 | 200 | 5 | | | |
| MO 7 | 250 | 10 | | | |
| MO 8 | 150 | 5 | | | |

**Table 6. Firing Point No.**

| | | | | | |
|---|---|---|---|---|---|
| MO 1 | 250 | 10 | | | |
| MO 2 | 300 | 10 | | | |
| 3 | 150 | 5 | | | |
| 4 | 250 | 10 | | | |
| MO 5 | 100 | 5 | | | |
| MO 6 | 200 | 5 | | | |
| 7 | 300 | 10 | | | |
| MO 8 | 250 | 10 | | | |

**Table 7. Firing Point No.**

| | | | | | |
|---|---|---|---|---|---|
| MO 1 | 200 | 5 | | | |
| MO 2 | 300 | 10 | | | |
| MO 3 | 150 | 5 | | | |
| 4 | 350 | 10 | | | |
| MO 5 | 300 | 10 | | | |
| 6 | 200 | 5 | | | |
| 7 | 250 | 10 | | | |
| MO 8 | 150 | 5 | | | |

| | Hit | Miss | No Fire |
|---|---|---|---|
| Record I Totals | | | |

## PERIOD EIGHTEEN

## SCORECARD

### RECORD II

**Foxhole position**

**Table 1. Firing Point No.**

| Phase | Range (meters) | Time (seconds) | Hit | Miss | No Fire |
|---|---|---|---|---|---|
| 1 | 150 | 5 | | | |
| 2 | 300 | 10 | | | |
| 3 | 100 | 15 | | | |
| | 250 | | | | |
| 4 | 50 | 15 | | | |
| | 200 | | | | |

Ammunition eight rounds.

**Table 2. Firing Point No.**

| Phase | Range (meters) | Time (seconds) | Hit | Miss | No Fire |
|---|---|---|---|---|---|
| 1 | 100 | 15 | | | |
| | 350 | | | | |
| 2 | 200 | 15 | | | |
| | 250 | | | | |
| 3 | 100 | 15 | | | |
| | 150 | | | | |
| 4 | 100 | 25 | | | |
| | 250 | | | | |
| | 300 | | | | |
| 5 | 50 | 25 | | | |
| | 200 | | | | |
| | 350 | | | | |

*Ammunition 16 rounds.

### RECORD II

**Unsupported positions**

**Table 3. Firing Point No.**

| Phase | Range (meters) | Time (seconds) | Hit | Miss | No Fire |
|---|---|---|---|---|---|
| MO 1 | 100 | 15 | | | |
| | 200 | | | | |
| MO 2 | 150 | 15 | | | |
| | 300 | | | | |
| MO 3 | 100 | 25 | | | |
| | 200 | | | | |
| | 300 | | | | |
| MO 4 | 150 | 25 | | | |
| | 250 | | | | |
| | 350 | | | | |

Ammunition 16 rounds.

* Load one magazine (clip) of eight rounds in the weapon and place the other magazine (clip) of eight rounds in the belt. *Reload when necessary.*

*Note.* Unexpended ammunition from one table cannot be used for the next table.

| | Hit | Miss | No Fire |
|---|---|---|---|
| Record II | | | |
| Totals | | | |

Grand total hits Record I and II

| | Rounds | Targets Exposed |
|---|---|---|
| Record I | 56 | 56 |
| Record II | 40 | 28 |
| Totals | 96 | 84 |

Qualification (circle one): Expert Sharpshooter Marksman Unqualified

Scorer's signature _____

Officer's signature _____

*b. Qualification Scores and Ratings.* Qualification scores are based on the total number of target hits obtained in Record Firing I and II. Scores and qualification ratings are as follows:

| | |
|---|---|
| Possible | 84 |
| Expert | 51 and above. |
| Sharpshooter | 40 to 50 inclusive. |
| Marksman | 27 to 39 inclusive. |
| Unqualified | Below 27. |

## Section II. ALTERNATE BASIC RIFLE MARKSMANSHIP COURSE

### 5. Scope

The alternate basic rifle marksmanship course is conducted as part of ATP 21-114. Range facilities required to conduct this course are one 100-point 1000-inch range, one known distance range having at least 50 firing points, two 50-point target detection ranges, and one combat positions range. This course should be conducted only if the range facilities required for the basic rifle marksmanship course are not available. The alternate basic rifle marksmanship course consists of *81 training hours as follows:

| | |
|---|---|
| Orientation | 1 hour. |
| Mechanical training | 4 hours. |
| Preparatory marksmanship | 26 hours. |
| Known distance field firing | 12 hours. |
| Known distance record firing | 4 hours. |
| Target detection | 16 hours. |
| Combat positions firing | 4 hours. |
| Combat positions record firing | 2 hours. |
| *Pit details | 12 hours. |
| Total hours | 81. |
| ATP subjects (conducted concurrently with, but not included as part of, individual marksmanship instruction) | 6 hours. |

* If automatic target devices are not used on the known distance or combat positions range.

### 6. Ammunition

*a. Ammunition Required by Period or Exercise.*

(1) *Preparatory marksmanship and 1000-inch firing.*

| Period | Position | Rounds per soldier | Rounds for demonstrations | Notes |
|---|---|---|---|---|
| 1, 2, and 3[a] | | None | | [a]Orientation, mechanical training and introduction to marksmanship. |
| 4 | Prone | *5 | *10/10 (20)[b] | [b]10 rounds rehearsal, 10 rounds demonstration. Total: 20 rounds. |
| 5 | Prone supported | *30 | | [c]This exercise is omitted if service rifles have been used for previous exercises. |
| 6 | Prone | *10 | | |
| 6 | Sitting | *10 | | |
| 6 | Squatting | *10 | | [d]4 rounds rehearsal, 4 rounds demonstration. Total: 8 rounds. |
| 6 | Kneeling | *10 | | |
| 7 | Standing | *10 | | [e]Two exercises. 2 rounds and 24 seconds per exercise. |
| 7 | [c]Prone supported | 6 | 4/4 (8)[d] | |
| 7 | [e]Standing to prone | 4 | 4/4 (8)[d] | [f]Battlesight zero. |
| 7 | [e]Standing to sitting | 4 | | [g]Progress check. |
| 8 | [f]Prone supported | 12 | | [h]One exercise conducted in 24 seconds. |
| 9 | [g]Prone supported | 3 | | |
| 9 | [g]Prone | 3 | | |
| 9 | [g]Sitting | 3 | | |
| 9 | [g]Squatting | 3 | | |
| 9 | [g]Kneeling | 3 | | |
| 9 | [g]Standing | 3 | | |
| 9 | [h]Standing to prone | 2 | | |
| 9 | [h]Standing to sitting | 2 | | |
| 9 | Refire weak positions | 9 | | |

* The asterisk (*) denotes rounds of caliber .22 ammunition required. All subsequent exercises are conducted using service ammunition. If caliber .22 rifles are not used during periods four through seven, substitute 3 rounds of service ammunition for each 5 rounds of caliber .22 ammunition listed.

(2) *Known distance field firing exercises.*

| Period | Position | Rounds per soldier | Rounds for demonstrations | Notes |
|---|---|---|---|---|
| 10 | See scorecard | 52 | [a]3/9 (12) | [a]3 rounds tracer, rehearsal. 9 rounds tracer, demonstration. Total: 12 rounds. |
| 11 | See scorecard | 48 | [b]10/10 (20) | [b]10 rounds rehearsal. 10 rounds demonstration. Total: 20 rounds. |
| 12 | See scorecard | 48 | | |
| [c]13 | See scorecard | 50 | | [c]Record Firing I |

(3) *Combat position firing exercises.*

| Period | Position | Rounds per soldier | Rounds for demonstrations | Notes |
|---|---|---|---|---|
| 13 | As prescribed | None | | Orientation on combat positions range. |
| 14 | See scorecard | 40 | | Practice firing. |
| 15 | See scorecard | 40 | | Record firing II |

(4) *Target detection.*

| Period [1] | Corresponds to target detection period: [2] | Number of presentations | Blank rounds required |
|---|---|---|---|
| 6 | 1 | 8 | *200 |
| 7 | 2 | 8 | *200 |
| **10 | 3 and 4 | 2 | *225 |
| **11 | 3 and 4 | 2 | 118 |
| **12 | 5 | 2 | *184 |
| **13 | 5 | 2 | 92 |
| 14 | 6 | 4 | None |
| 14 | 7 | 4 | *540 |
| 14 | 8 and 9 | 8 | *423 |

[1] Scheduling based on requirement for pit details.
[2] See appendix VI.
* Includes rounds for rehearsals.
** One-half of unit.

*b. Recapitulation of Ammunition Requirements*

| | |
|---|---|
| Caliber .22 rounds per soldier | 85 |
| Caliber .22 rounds for demonstrations (unit) | 20 |
| Caliber 7.62-mm (or .30) per soldier | 335 |
| Caliber 7.62-mm (or .30) for demonstrations (unit) | 36 |
| Caliber 7.62-mm (or .30) tracer | 12 |
| Caliber 7.62-mm (or .30) blank | 1,982 |

## 7. Scorecards and Qualification Ratings

*a. Scorecards.*

## PERIOD TEN

## SCORECARD

Firer's Name _____
(Last) (First)

Platoon _____ Firing Point _____ Date _____

Scorer's Name _____
(Last) (First)

### ALL TARGETS EXPOSED SINGLY

**Phase 1. 100 yards (92 meters)**

| Rounds per Exercise | Position | Time (seconds) | Score | | |
|---|---|---|---|---|---|
| | | | * Round | Hit | Miss |
| 4 | Prone | 30 | 1 | | |
| | | 30 | 2 | | |
| | | 30 | 3 | | |
| | | 30 | 4 | | |
| 8 | Standing | 30 | 5 | | |
| | | 30 | 6 | | |
| | | 30 | 7 | | |
| | | 30 | 8 | | |
| | | 30 | 9 | | |
| | | 30 | 10 | | |
| | | 30 | 11 | | |
| | | 30 | 12 | | |
| Total | | | | | |

**Phase 2. 200 yards (184 meters).**

| Rounds per Exercise | Position | Time (seconds) | Score | | |
|---|---|---|---|---|---|
| | | | * Round | Hit | Miss |
| 4 | Prone | 30 | 1 | | |
| | | 30 | 2 | | |
| | | 30 | 3 | | |
| | | 30 | 4 | | |
| 4 | Kneeling | 15 | 5 | | |
| | | 15 | 6 | | |
| | | 15 | 7 | | |
| | | 15 | 8 | | |
| 4 | Squatting | 15 | 9 | | |
| | | 15 | 10 | | |
| | | 15 | 11 | | |
| | | 15 | 12 | | |
| 4 | Sitting | 15 | 13 | | |
| | | 15 | 14 | | |
| | | 15 | 15 | | |
| | | 15 | 16 | | |
| Total | | | | | |

**Phase 3. 300 yards (276 meters).**

| Rounds per Exercise | Position | Time (seconds) | Score | | |
|---|---|---|---|---|---|
| | | | * Round | Hit | Miss |
| **8 | Prone | 30 | 1 | | |
| | | 30 | 2 | | |
| | | 30 | 3 | | |
| | | 30 | 4 | | |
| | | 30 | 5 | | |
| | | 30 | 6 | | |
| | | 30 | 7 | | |
| | | 30 | 8 | | |
| **8 | Kneeling | 15 | 9 | | |
| | | 15 | 10 | | |
| | | 15 | 11 | | |
| | | 15 | 12 | | |
| | | 15 | 13 | | |
| | | 15 | 14 | | |
| | | 15 | 15 | | |
| | | 15 | 16 | | |
| **8 | Sitting | 15 | 17 | | |
| | | 15 | 18 | | |
| | | 15 | 19 | | |
| | | 15 | 20 | | |
| | | 15 | 21 | | |
| | | 15 | 22 | | |
| | | 15 | 23 | | |
| | | 15 | 24 | | |
| Total | | | | | |

### TOTALS FOR PERIOD TEN

| | Hit | Miss |
|---|---|---|
| Phase 1 | | |
| 2 | | |
| 2 | | |
| Total | | |

* One round per target.

** Plus one dummy round loaded in magazine or clip to simulate stoppage.

## PERIOD ELEVEN

## SCORECARD

Firer's Name_____
(Last) (First)

Platoon_____ Firing Point_____ Date_____

Scorer's Name_____
(Last) (First)

### ALL TARGETS EXPOSED SINGLY

Phase 1. 100 yards (92 meters).

| Rounds per Exercise | Position | Time (seconds) | Score | | |
|---|---|---|---|---|---|
| | | | * Round | Hit | Miss |
| 2 | Standing to kneeling | 8 | 1 | | |
| | | 8 | 2 | | |
| 2 | Standing to squatting | 7 | 3 | | |
| | | 7 | 4 | | |
| 4 | Standing to standing | 6 | 5 | | |
| | | 6 | 6 | | |
| | | 6 | 7 | | |
| | | 6 | 8 | | |
| Total | | | | | |

Phase 2. 200 yards (184 meters).

| Rounds per Exercise | Position | Time (seconds) | Score | | |
|---|---|---|---|---|---|
| | | | * Round | Hit | Miss |
| 2 | Standing to sitting | 12 | 1 | | |
| | | 12 | 2 | | |
| 2 | Standing to kneeling | 12 | 3 | | |
| | | 12 | 4 | | |
| 2 | Standing to squatting | 12 | 5 | | |
| | | 12 | 6 | | |
| 2 | Standing to optional | 12 | 7 | | |
| | | 12 | 8 | | |
| | MO. Standing to optional | 12 | 9 | | |
| | | 12 | 10 | | |
| | | 12 | 11 | | |
| **8 | MO. Standing to optional | 12 | 12 | | |
| | | 12 | 13 | | |
| | MO. Standing to optional | 12 | 14 | | |
| | | 12 | 15 | | |
| | | 12 | 16 | | |
| Total | | | | | |

Phase 3. 300 yards (276 meters).

| Rounds per Exercise | Position | Time (seconds) | Score | | |
|---|---|---|---|---|---|
| | | | * Round | Hit | Miss |
| 4 | Standing to squatting | 12 | 1 | | |
| | | 12 | 2 | | |
| | | 12 | 3 | | |
| | | 12 | 4 | | |
| 4 | Standing to sitting | 12 | 5 | | |
| | | 12 | 6 | | |
| | | 12 | 7 | | |
| | | 12 | 8 | | |
| 4 | Standing to kneeling | 12 | 9 | | |
| | | 12 | 10 | | |
| | | 12 | 11 | | |
| | | 12 | 12 | | |
| 4 | Standing to prone | 12 | 13 | | |
| | | 12 | 14 | | |
| | | 12 | 15 | | |
| | | 12 | 16 | | |
| | MO. Standing to optional | 12 | 17 | | |
| | | 12 | 18 | | |
| | | 12 | 19 | | |
| | MO. Standing to optional | 12 | 20 | | |
| | | 12 | 21 | | |
| **8 | MO. Standing to optional | 12 | 22 | | |
| | | 12 | 23 | | |
| | | 12 | 24 | | |
| Total | | | | | |

TOTALS FOR PERIOD ELEVEN

| | Hit | Miss |
|---|---|---|
| Phase 1 | | |
| 2 | | |
| 3 | | |
| Total | | |

* One round per target.

** Plus one dummy round loaded in magazine or clip to simulate stoppage.

MO—Move Out.

## PERIOD TWELVE

## SCORECARD

Firer's Name_____
(Last) (First)

Platoon_____ Firing Point_____ Date_____

Scorer's Name_____
(Last) (First)

### SINGLE AND DOUBLE TARGET EXPOSURES

Phase 1. 200 yards (184 meters).

| Rounds per exercise | Position | * Time (seconds) | Target | ** Round | Score Hit | Miss |
|---|---|---|---|---|---|---|
| ***8 | Standing to prone | 25 | Left | 1 | | |
| | | | Right | 2 | | |
| | | 10 | Left | 3 | | |
| | | | Right | 4 | | |
| | | 10 | Left | 5 | | |
| | | | Right | 6 | | |
| | | 10 | Left | 7 | | |
| | | | Right | 8 | | |
| 2 | Standing to sitting | 15 | Left | 9 | | |
| | | | Right | 10 | | |
| 4 | Standing to kneeling | 15 | Left | 11 | | |
| | | | Right | 12 | | |
| | | 10 | Left | 13 | | |
| | | | Right | 14 | | |
| 2 | Standing to sitting | 15 | Left | 15 | | |
| | | | Right | 16 | | |
| 4 | Standing to kneeling | 10 | | 17 | | |
| | | 5 | | 18 | | |
| | | 5 | | 19 | | |
| | | 5 | | 20 | | |
| Total | | | | | | |

* Time is based on 10 seconds for first round, after assuming position, 10 seconds to reload (if applicable), and 5 seconds for each succeeding round.

** One round per target.

*** Firer loads one live round. When targets appear, he assumes designated position, fires, and reloads a magazine (clip) containing seven live and one dummy round.

**Phase 2. 300 yards (276 meters).**

| Rounds per exercise | Position | * Time (seconds) | Target | Score | | |
|---|---|---|---|---|---|---|
| | | | | ** Round | Hit | Miss |
| 4 | Standing to prone | 10 | | 1 | | |
| | | 5 | | 2 | | |
| | | 5 | | 3 | | |
| | | 5 | | 4 | | |
| ***8 | Standing to prone | 25 | Left | 5 | | |
| | | | Right | 6 | | |
| | | 10 | Left | 7 | | |
| | | | Right | 8 | | |
| | | 10 | Left | 9 | | |
| | | | Right | 10 | | |
| | | 10 | Left | 11 | | |
| | | | Right | 12 | | |
| 4 | Standing to kneeling | 15 | Left | 13 | | |
| | | | Right | 14 | | |
| | | 10 | Left | 15 | | |
| | | | Right | 16 | | |
| 4 | Standing to squatting | 15 | Left | 17 | | |
| | | | Right | 18 | | |
| | | 10 | Left | 19 | | |
| | | | Right | 20 | | |
| 4 | Standing to sitting | 15 | Left | 21 | | |
| | | | Right | 22 | | |
| | | 10 | Left | 23 | | |
| | | | Right | 24 | | |
| 4 | Standing to prone | 15 | Left | 25 | | |
| | | | Right | 26 | | |
| | | 10 | Left | 27 | | |
| | | | Right | 28 | | |
| | | | Total | | | |

* Time is based on 10 seconds for first round, after assuming position, 10 seconds to reload (if applicable), and 5 seconds for each succeeding round.

** One round per target.

*** Firer loads one live round. When targets appear, he assumes designated position, fires, and reloads a magazine (clip) containing seven live and one dummy round.

TOTALS FOR PERIOD TWELVE

| | Hit | Miss |
|---|---|---|
| Phase 1 | | |
| 2 | | |
| Total | | |

## PERIOD THIRTEEN

## SCORECARD

Firer's Name_____
(Last) (First)

Platoon_____ Firing Point_____ Date_____

Scorer's Name_____
(Last) (First)

### RECORD FIRE I

Phase 1. 100 yards (92 meters).

| Rounds per exercise | Position | * Time (seconds) | Target | Score | | |
|---|---|---|---|---|---|---|
| | | | | ** Round | Hit | Miss |
| 8 | MO Standing to standing | 10 | Single target exposures | 1 | | |
| | | 5 | | 2 | | |
| | | 5 | | 3 | | |
| | MO Standing to standing | 10 | | 4 | | |
| | | 5 | | 5 | | |
| | MO Standing to standing | 10 | | 6 | | |
| | | 5 | | 7 | | |
| | | 5 | | 8 | | |
| Total | | | | | | |

* Time is based on 10 seconds for first round, after assuming position, 10 seconds to reload (if applicable), and 5 seconds for each succeeding round.

** One round per target.

*** Firer loads single round. When targets appear, he assumes designated position, fires, and reloads a magazine (clip) containing eight rounds.

MO—Move Out.

## Phase 2. 200 yards (184 meters).

| Rounds per exercise | Position | * Time (seconds) | Target | Score | | |
|---|---|---|---|---|---|---|
| | | | | ** Round | Hit | Miss |
| 8 | MO Standing to sitting | 10 | Single target exposures | 1 | | |
| | | 5 | | 2 | | |
| | | 5 | | 3 | | |
| | | 5 | | 4 | | |
| | | 5 | | 5 | | |
| | | 5 | | 6 | | |
| | | 5 | | 7 | | |
| | | 5 | | 8 | | |
| 8 | MO Standing to squatting | 10 | Single target exposures | 9 | | |
| | | 5 | | 10 | | |
| | | 5 | | 11 | | |
| | MO Standing to squatting | 10 | | 12 | | |
| | | 5 | | 13 | | |
| | MO Standing to squatting | 10 | | 14 | | |
| | | 5 | | 15 | | |
| | | 5 | | 16 | | |
| ***9 | MO Standing to kneeling | 25 | Left | 17 | | |
| | | | Right | 18 | | |
| | MO Standing to kneeling | 15 | Left | 19 | | |
| | | | Right | 20 | | |
| | | 10 | Left | 21 | | |
| | | | Right | 22 | | |
| | MO Standing to kneeling | 15 | Left | 23 | | |
| | | | Right | 24 | | |
| | | 5 | (single) | 25 | | |
| | | | Total | | | |

* Time is based on 10 seconds for first round, after assuming position, 10 seconds to reload (if applicable), and 5 seconds for succeeding round.

** One round per target.

*** Firer loads single round. When targets appear, he assumes designated position, fires, and reloads a magazine (clip) eight rounds.

MO—Move Out.

## Phase 3. 300 yards (276 meters).

| Rounds per exercise | Position | * Time (seconds) | Target | Score | | |
|---|---|---|---|---|---|---|
| | | | | ** Round | Hit | Miss |
| 2 | MO Standing to prone | 10 | Single target exposures | 1 | | |
| | | 5 | | 2 | | |
| 3 | MO Standing to sitting | 10 | | 3 | | |
| | | 5 | | 4 | | |
| | | 5 | | 5 | | |
| 3 | MO Standing to kneeling | 10 | | 6 | | |
| | | 5 | | 7 | | |
| | | 5 | | 8 | | |
| **9 | MO Standing to prone | 25 | Left | 9 | | |
| | | | Right | 10 | | |
| | | 10 | Left | 11 | | |
| | | | Right | 12 | | |
| | | 10 | Left | 13 | | |
| | | | Right | 14 | | |
| | | 10 | Left | 15 | | |
| | | | Right | 16 | | |
| | | 5 | (Single) | 17 | | |
| Total | | | | | | |

### TOTALS FOR PERIOD THIRTEEN

| | Hit | Miss |
|---|---|---|
| Phase 1 | | |
| 2 | | |
| 3 | | |
| Total | | |

* Time is based on 10 seconds for first round, after assuming position, 10 seconds to reload (if applicable), and 5 seconds for each succeeding round.

** One round per target.

*** Firer loads single round. When targets appear, he assumes designated position, fires, and reloads a magazine (clip) containing eight rounds.

MO—Move Out.

Signature of firer_____

Signature of scorer_____

Signature of officer_____

## PERIOD FOURTEEN/FIFTEEN

## SCORECARD

Firer's Name_____
(Last) (First)

Platoon_____ Order_____ Date_____

Scorer's Name_____
(Last) (First)

### PRACTICE AND RECORD

| Position | Round | Time (seconds) | Target | Range meters / yards | | Hit | Miss |
|---|---|---|---|---|---|---|---|
| Foxhole | 1 | 10 | F | 138 | 150 | | |
| | 2 | 10 | E | 276 | 300 | | |
| | 3, 4 | 15 | F-E | 276 | 300 | | |
| Rubble pile | 5 | 10 | E | 184 | 200 | | |
| | 6 | 10 | E | 368 | 400 | | |
| | 7, 8 | 15 | 2-E | 368 | 400 | | |
| *Stump | 9 | 10 | E | 276 | 300 | | |
| | 10 | 10 | E | 368 | 400 | | |
| | 11, 12 | 15 | 2-E | 368 | 400 | | |
| *Log | 13 | 10 | E | 184 | 200 | | |
| | 14 | 10 | E | 299 | 325 | | |
| | 15, 16 | 15 | 2-E | 299 | 325 | | |
| Bunker | 17 | 10 | E | 138 | 150 | | |
| | 18 | 10 | E | 230 | 250 | | |
| | 19, 20 | 15 | 2-E | 230 | 250 | | |
| *Prone | 21 | 10 | E | 368 | 400 | | |
| | 22 | 10 | E | 368 | 400 | | |
| | 23 | 10 | E | 368 | 400 | | |
| | 24 | 10 | E | 368 | 400 | | |
| *Barricade | 25 | 10 | E | 111 | 125 | | |
| | 26 | 10 | E | 368 | 400 | | |
| | 27, 28 | 15 | 2-E | 368 | 400 | | |
| *Forward slope | 29 | 10 | E | 230 | 250 | | |
| | 30 | 10 | E | 322 | 350 | | |
| | 31, 32 | 15 | 2-E | 322 | 350 | | |
| Roof top | 33 | 10 | E | 161 | 175 | | |
| | 34 | 10 | E | 299 | 325 | | |
| | 35, 36 | 15 | 2-E | 299 | 325 | | |
| *Window | 37 | 10 | E | 111 | 125 | | |
| | 38, 40 | 10 | E | 253 | 275 | | |
| | 39, 40 | 15 | 2-E | 253 | 275 | | |
| | | | | Total | | | |

* Starting position is the standing ready position.

**Record Fire Only**

| | Hit | Miss |
|---|---|---|
| Record fire I | | |
| Record fire II | | |
| Total | | |

**Qualification rating (circle one): EXPERT SHARPSHOOTER MARKSMAN UNQUALIFIED**

**Firer's signature** _____

**Scorer's signature** _____

**Officer's signature** _____

*b. Qualification Scores and Ratings.* Qualification ratings are based on the total number of target hits obtained during record firing (periods 13 and 15). Qualification scores and ratings are as follows:

| | |
|---|---|
| Possible | 90. |
| Expert | 60 and above. |
| Sharpshooter | 50 to 59 inclusive. |
| Marksman | 35 to 49 inclusive. |
| Unqualified | Below 35. |

## Section III.

## COMBAT READINESS MARKSMANSHIP PROFICIENCY STANDARD COURSE "A1"
**(For personnel having less than 10 years active service)**

## COMBAT READINESS MARKSMANSHIP PROFICIENCY STANDARD COURSE "A2"
**(For personnel having more than 10 years active service)**

## COMBAT READINESS MARKSMANSHIP PROFICIENCY MODIFIED COURSE "A1"
**(For personnel having less than 10 years active service)**

## COMBAT READINESS MARKSMANSHIP PROFICIENCY MODIFIED COURSE "A2"
**(For personnel having more than 10 years active service)**

### 8. General

The combat readiness marksmanship proficiency "A" courses provide annual marksmanship training and qualification firing for soldiers of the active Army. Each course is tailored to specific range facilities and to the experience level of the soldiers to receive the training. In this case, experience level is based on an individual having either more or less than 10 years of active service.

### 9. Combat Readiness Marksmanship Proficiency standard courses "A1" and "A2"

These marksmanship courses must be conducted on the same range facilities prescribed for the basic rifle marksmanship course (par. 2). Standard course "A1" consists of 36 hours of instruction. Standard course "A2" consists of 18 hours of instruction. To provide maximum use of training facilities and facilitate unit scheduling, standard course "A2" is designed to be conducted in conjunction with standard course "A1."

*a. Combat Readiness Marksmanship Proficiency Standard Course "A1."* This course is designed for personnel with less than 10 years of active service.

(1) *Scope.*

| | |
|---|---|
| Orientation | 1 hour. |
| Mechanical training | 1 hour. |
| Preparatory marksmanship and 25-meter firing | 14 hours. |
| Target detection exercises | 6 hours. |
| Field firing | 4 hours. |
| Record firing and target-detection tests 1, 2, and 3 | 8 hours. |
| Night firing | 2 hours. |

### (2) *Ammunition required by period or exercise.*

#### (a) *Preparatory marksmanship and 25 meter firing.*

| Period | Position | Rounds per soldier | Rounds for demonstrations | Notes |
|---|---|---|---|---|
| 1 | ..... | -- | -- | Orientation. |
| 1 | ..... | -- | -- | Mechanical training. |
| 3 | ..... | -- | -- | Introduction to 25-meter firing. |
| 3 | Prone supported ..... | 9 | | Periods 3 through 5 conducted on 25-meter range. |
| 3 | Prone ..... | 9 | | [a]3 exercises. 2 rounds and 24 seconds per exercise. |
| 3 | Sitting ..... | 9 | | |
| 4 | Squatting ..... | 9 | | [b]8 rounds rehearsal, 4 rounds demonstration. Total: 12 rounds. |
| 4 | Kneeling ..... | 9 | | |
| 4 | Standing ..... | 9 | | [c]Position must be 25 meters from targets to correctly determine battlesight zero. |
| 4 | Kneeling supported ..... | 9 | | |
| 5 | Foxhole ..... | 9 | | |
| 5 | [a]Standing to prone ..... | 6 | [b]8/4(12) | [d]Progress check. |
| 5 | [a]Standing to sitting ..... | 6 | | |
| 5 | [c]Foxhole or prone supported .. | 12 | | |
| 5 | [d]Prone supported ..... | 3 | | |
| 5 | [d]Prone ..... | 3 | | |
| 5 | [d]Sitting ..... | 3 | | |
| 5 | [d]Squatting ..... | 3 | | |
| 5 | [d]Kneeling ..... | 3 | | |
| 5 | [d]Standing ..... | 3 | | |
| 5 | [d]Kneeling supported ..... | 3 | | |
| 5 | [d]Foxhole ..... | 3 | | |
| 5 | Refire weak positions ..... | 12 | | |
| | Total ..... | 132 | 12 | |

#### (b) *Field firing.*

| Period | Position | Rounds per soldier | Rounds for demonstrations | Notes |
|---|---|---|---|---|
| 6 | See scorecard ..... | 56 | [a]8/8(16) | [a]8 rounds rehearsal, 8 rounds demonstration. Total: 16 rounds. |

#### (c) *Target detection.*

| Period | Corresponds to target detection period: [1] | Number of presentations | Blank rounds required [2] |
|---|---|---|---|
| 5 | 1 | 4 | 120 |
| 6 | 4 and 7 | 4 | 828 |
| 7 | 8 | 8 | 153 |
| 8 | 9 | 8 | 270 |

[1] See appendix VI.
[2] Includes rounds for rehearsals.

*(d) Record firing.*

| Period | Position | Rounds per soldier | Rounds for demonstrations | Notes |
|---|---|---|---|---|
| 7 | See scorecard | 56 | [a]8/32 (40) | [a]8 rounds rehearsal, 32 rounds demonstration. Total: 40 rounds. |
| 8 | See scorecard | 40 | | |
| | Totals | 96 | 40 | |

*(e) Night firing.*

| Period | Position | Rounds per soldier | Rounds for demonstrations | Notes |
|---|---|---|---|---|
| 9 | Foxhole or prone supported | 32 | [a]4/8 (12) | [a]4 rounds rehearsal, 8 rounds demonstration. Total: 12 rounds. |

(3) *Recapitulation of ammunition requirements*

Caliber 7.62-mm (or .30) per soldier ..... 316 rounds.
Caliber 7.62-mm (or .30) for demonstration ..... 80 rounds.
Caliber 7.62-mm (or .30) blank ..... 1,371 rounds.

(4) *Scorecards and qualification ratings.*

*(a) Field firing scorecard.*

FIELD FIRING SCORECARD

COMBAT READINESS MARKSMANSHIP PROFICIENCY COURSE A

Firer's Name_____ (Last) (First)

Platoon_____ Order_____ Firing Point_____ Date_____

Scorer's Name_____ (Last) (First)

Phase 1

(No time limit)

| Position | Range (meters) | Round | Hit | Miss |
|---|---|---|---|---|
| Foxhole | 75 | 1 | | |
| Foxhole | 175 | 2 | | |
| Foxhole | 175 | 3 | | |
| Foxhole | 175 | 4 | | |
| Foxhole | 300 | 5 | | |
| Foxhole | 300 | 6 | | |
| Foxhole | 300 | 7 | | |
| Foxhole | 300 | 8 | | |
| | | Total | | |

Phase 2

| Position | Range (meters) | Time (seconds) | Round | Hit | Miss |
|---|---|---|---|---|---|
| Sitting | 300 | 10 | 1 | | |
| Sitting | 75 | 5 | 2 | | |
| Sitting | 175 | 7 | 3 | | |
| Sitting | 300 | 10 | 4 | | |
| Kneeling | 75 | 5 | 5 | | |
| Kneeling | 300 | 10 | 6 | | |
| Kneeling | 175 | 7 | 7 | | |
| Kneeling | 175 | 7 | 8 | | |
| | | Total | | | |

## Phase 3

| Place | Position | Range (meters) | Time (seconds) | Round | Hit | Miss |
|---|---|---|---|---|---|---|
| Behind stump | Standing | 75 | 5 | 1 | | |
| By stump | Kneeling supported | 175 | 5 | 2 | | |
| By foxhole | Squatting | 175 | 5 | 3 | | |
| By front stake | Sitting | 300 | 10 | 4 | | |
| Behind stump | Kneeling | 175 | 5 | 5 | | |
| By stump | Standing | 75 | 5 | 6 | | |
| By foxhole | Sitting | 300 | 10 | 7 | | |
| By front stake | Prone | 300 | 10 | 8 | | |
| Behind stump | Optional | 175 | 5 | 9 | | |
| By stump | Optional | 75 | 5 | 10 | | |
| By foxhole | Optional | 300 | 10 | 11 | | |
| By foxhole | Optional | | 5 | 12 | | |
| By front stake | Optional | 175 | 5 | 13 | | |
| By front stake | Optional | 300 | 10 | 14 | | |
| Forward of stake | Optional | 175 | 5 | 15 | | |
| Forward of stake | Optional | 300 | 10 | 16 | | |
| | | | | Total | | |

## Phase 4

(From foxhole)

| Range (meters) | Time (seconds) | Hits | | Miss |
|---|---|---|---|---|
| | | First Round | Second Round | |
| 75 | | | | |
| 175 | 20 | | | |
| 175 | | | | |
| 300 Left | 60 | | | |
| 300 Right | | | | |
| 175 | | | | |
| 300 Left | 60 | | | |
| 300 Right | | | | |
| Total | | | | |

**Phase 5**

| Place | Range (meters) | Time (seconds) | Hits First Round | Hits Second Round | Miss |
|---|---|---|---|---|---|
| Behind stump | 75 | 20 | | | |
| | 175 | | | | |
| By stump | 175 | 60 | | | |
| | 300 Left | | | | |
| | 300 Right | | | | |
| By foxhole | 175 | 60 | | | |
| | 300 Left | | | | |
| | 300 Right | | | | |
| | Total | | | | |

| | Hit | Miss |
|---|---|---|
| Phase 1 | | |
| 2 | | |
| 3 | | |
| 4 | | |
| 5 | | |
| Total | | |

(*b*) *Record firing scorecards.* The scorecards for Record Firing I and II are identical to those prescribed for Record Firing I and II of the Basic Rifle Marksmanship Course (par. 4*a*.).

(*c*) *Qualification scorecards and ratings.* As prescribed in par. 4*b*.

(*d*) *Night firing scorecards and qualification ratings.* See par. 21.

*b. Combat Readiness Marksmanship Proficiency Standard Course "A2."* This course is designed for personnel with more than 10 years of active service.

(1) *Scope.*

| | |
|---|---|
| Preparatory marksmanship and 25-meter firing | 4 hours. |
| Target detection | 4 hours. |
| Field firing | 4 hours. |
| Record Firing I or Record Firing II and target detection test 1 | 4 hours. |
| Night firing | 2 hours. |

(2) *Ammunition required by period or exercise.*

(*a*) *Preparatory marksmanship and 25-meter firing.*

| Period | Position | Rounds per Soldier | Notes |
|---|---|---|---|
| [a] 1 | Prone supported | 3 | Period 1 conducted on 25-meter range. |
| [a] 1 | Prone | 3 | [a] May be integrated with period 3, Standard Course "A1." |
| [a] 1 | Sitting | 3 | |
| [b] 1 | Squatting | 3 | [b] May be integrated with period 4, Standard Course "A1." |
| [b] 1 | Kneeling | 3 | [c] May be integrated with period 5, Standard Course "A1." |
| [b] 1 | Standing | 3 | |
| [b] 1 | Kneeling supported | 3 | [d] One exercise conducted within 24 seconds. |
| [c] 1 | Foxhole | 3 | [e] Two exercises. 2 rounds and 24 seconds per exercise. |
| [c] 1 | [d]Standing to prone | 2 | |
| [c] 1 | [e]Standing to sitting | 4 | [f] Position must be 25 meters from targets to correctly determine battle-sight zero. |
| [c] 1 | [f]Foxhole or prone supported | 12 | |
| | Total | 42 | |

(*b*) *Field firing.* As prescribed in Standard Course "A1" (par. *a* (*2*) (*b*) above).

(*c*) *Target detection.*

*1.* If target detection training for this course is integrated into periods 6 and 7 of Standard Course "A1" (*a* (2) (*c*) above), no additional ammunition is required.

*2.* If target detection training for this course is conducted separately, blank ammunition is required as follows:

| Period | Corresponds to target detection period: [1] | Number of presentations [2] | Blank rounds required [3] |
|---|---|---|---|
| 2 | 4 and 7 | 1 | 276 |
| 4 | 8 | 1 | 34 |

[1] See appendix VI.
[2] Based on one presentation on one target detection range.
[3] Includes rounds for rehearsals.

(*d*) *Record firing.* To provide flexibility in integrating this period with the record firing of Standard Course "A1" (*a* above), either Record Firing I or Record Firing II may be conducted.

| Period | Position | Rounds per Soldier |
|---|---|---|
| 4 | See scorecard | 56 rounds if Record Firing I is conducted.<br>40 rounds if Record Firing II is conducted. |

(*e*) *Night firing.* The night firing course is the same as prescribed for Standard Course "A1" (*a* above).

(3) *Recapitulation of ammunition requirements.*

| | |
|---|---|
| Caliber 7.62-mm (or .30) per soldier | 186 or 170* |
| Caliber 7.62-mm (or .30) blank | None or 310** |

* Difference of 16 rounds depends upon whether Record Firing I or Record Firing II is conducted.
** See (2)(*c*) above.

(4) *Scorecards.* Scorecards are the same as those prescribed for Standard Course "A1" (*a* (4) above).

(5) *Qualification ratings.*

(*a*) If Record Firing I is conducted:

| | |
|---|---|
| Possible | 56. |
| Expert | 34 or above. |
| Sharpshooter | 27 to 33 inclusive. |
| Marksman | 18 to 26 inclusive. |
| Unqualified | Below 18. |

(*b*) If Record Firing II is conducted:

| | |
|---|---|
| Possible | 28. |
| Expert | 18 and above. |
| Sharpshooter | 14 to 17 inclusive. |
| Marksman | 9 to 13 inclusive. |
| Unqualified | Below 9. |

## 10. Combat Readiness Marksmanship Proficiency Modified Courses "A1" and "A2"

These marksmanship courses must be conducted on the same range facilities prescribed for the Alternate Basic Rifle Marksmanship Course (par. 5). Modified Course "A1" requires *36 training hours and Modified Course "A2" requires 18 hours. To provide maximum use of training facilities and facilitate unit scheduling, Modified Course A2 is designed to be conducted in conjunction with Modified Course "A1."

*a. Combat Readiness Marksmanship Proficiency Modified Course "A1."* This course is designed for personnel with less than 10 years of active service.

(1) *Scope.*

| | |
|---|---|
| Orientation | 1 hour. |
| Mechanical Training | 1 hour. |
| Preparatory Marksmanship and 1000-inch Firing | 8 hour. |
| Known Distance Field Firing (Instruction and Record Firing) | 8 hour. |
| Target Detection | 6 hour. |
| Combat Positions Firing (Instruction and Record Firing) | 4 hour. |
| Night Firing | 2 hour. |
| *Pit Details | 6 hour. |

*Based on normal number and size of range facilities, units may be divided into four groups during firing periods. Therefore, pit details must be shown separately. If pit details are not used this time may be used for such other training deemed necessary by the commander.

(2) *Ammunition required by period of exercise.*

### (a) *Preparatory marksmanship and 1000-inch firing.*

| Period | Position | Rounds per soldier | Rounds for demonstrations | Notes |
|---|---|---|---|---|
| 1 | ..... | .. | .. | Orientation. |
| 2 | ..... | .. | .. | Mechanical training. |
| 3 | Prone supported ..... | 6 | | [a]3 exercises. 2 rounds and 24 seconds per exercise. |
| 3 | Prone ..... | 6 | | |
| 3 | Sitting ..... | 6 | | |
| 3 | Squatting ..... | 6 | | [b]8 rounds rehearsal, 4 rounds demonstration. Total: 12 rounds. |
| 3 | Kneeling ..... | 6 | | |
| 3 | Standing ..... | 6 | [b]8/4(12) | |
| | | | | [c]Battlesight zero. |
| 3 | [a]Standing to prone ..... | 6 | | [d]Progress check. |
| 3 | [a]Standing to sitting ..... | 6 | | |
| 4 | [c]Prone supported ..... | 12 | | |
| 4 | [d]Prone supported ..... | 3 | | |
| 4 | [d]Prone ..... | 3 | | |
| 4 | [d]Sitting ..... | 3 | | |
| 4 | [d]Squatting ..... | 3 | | |
| 4 | [d]Kneeling ..... | 3 | | |
| 4 | [d]Standing ..... | 3 | | |
| 4 | Refire weak positions ..... | 9 | | |
| | Total ..... | 87 | 12 | |

### (b) *Known distance field firing.*

| Period | Positions | Rounds per soldier | Rounds for demonstrations | Notes |
|---|---|---|---|---|
| 5 | See scorecard ..... | 50 | [a]10/10(20) | Instruction firing. |
| 5 | See scorecard ..... | 50 | .. | Record firing. |
| | | | | [a]10 rounds rehearsal, 10 rounds demonstration. Total: 20 rounds. |
| | Totals ..... | 100 | 20 | |

### (c) *Combat positions firing.*

| Period | Positions | Rounds per soldier | Notes |
|---|---|---|---|
| 6 | See scorecard | 40 | Instruction firing. |
| 6 | See scorecard | 40 | Record firing. |
| | Total | 80 | |

### (d) *Target detection.*

| Period | Corresponds to target detection period[1] | Number of presentations | Blank rounds required[2] |
|---|---|---|---|
| 5 | 1 | 8 | 200 |
| 6 | 4 and 7 | 4 | 828 |

[1] See appendix VI.
[2] Includes rounds for rehearsals.

### (e) *Night firing.*

| Period | Positions | Rounds per soldier | Rounds for demonstration | Notes |
|---|---|---|---|---|
| 7 | Foxhole or prone supported.. | 32 | [a]4/8 (12) | [a]4 rounds rehearsal, 8 rounds demonstration. Total: 12 rounds. |

(3) *Recapitulation of ammunition requirements.*

| | |
|---|---|
| Caliber 7.62-mm (or .30) per soldier | 299 |
| Caliber 7.62-mm (or .30) for demonstrations | 44 |
| Caliber 7.62-mm (or .30) blank | 1,028 |

(4) *Scorecard and qualification ratings.*

(*a*) *Scorecards.* The scorecards for periods five and six are the same as those prescribed for periods 13 and 14, respectively, of the alternate basic rifle marksmanship course (par. 7).

(*b*) *Qualification scores and ratings.* Qualification scores and ratings are the same as prescribed for the alternate basic rifle marksmanship course (par. 7*b*).

(*c*) *Night firing scorecards and Qualification ratings.* See paragraph 21.

*b. Combat Readiness Marksmanship Proficiency Modified Course "A2." This course is* designed for personnel with more than 10 years of active service.

(1) *Scope.*

| | |
|---|---|
| Preparatory marksmanship and 1000-inch firing | 4 hours*. |
| Known distance field firing (practice and record) | 8 hours. |
| Target detection | 4 hours. |
| Night firing | 2 hours. |

* Additional hours in preparatory marksmanship or mechanical training may be scheduled as deemed necessary by the commander.

(2) *Ammunition required by period or exercise.*

(*a*) *Preparatory marksmanship and 1000-inch firing.*

| Period | Position | Rounds per soldier | Notes |
|---|---|---|---|
| 1 | [a] Prone supported | 3 | Period 1 conducted on 1000-inch range. |
| 1 | [a]Prone | 3 | [a]May be integrated with period 3 Modified Course "A1." |
| 1 | [a]Sitting | 3 | [b]3 exercises. 2 rounds and 24 seconds per exercise. |
| 1 | [a]Squatting | 3 | |
| 1 | [a]Kneeling | 3 | [a]May be integrated with period 4, Modified Course "A1." |
| 1 | [a]Standing | 3 | |
| 1 | [a]Standing to prone | [b]6 | |
| 1 | [a]Standing to sitting | [b]6 | |
| 1 | [c]Prone supported | 12 | Battlesight |
| | Total | 42 | |

(*b*) *Known distance field firing (practice and record).* Practice and record known distance field firing is the same as that prescribed for modified course "A1" (*a*(2) above).

(*c*) *Target detection.*

1. If target detection training for this course is integrated with period 6 of modified course "A1" (*a* above), no additional blank ammunition is required.
2. If target detection training for this course is conducted separately, blank ammunition is required as follows:

| Period | Corresponds to target detection period[1] | Number of presentations[2] | Blank rounds required[3] |
|---|---|---|---|
| 4 | 4 and 7 | 1 | 276 |

[1] See appendix IV.
[2] Based on one presentation on one target detection range.
[3] Includes rounds for rehearsals.

(*d*) *Night firing.* The night firing course is the same as precribed in modified course "A1" (*a* above).

(3) *Recapitulation of ammunition requirements.*

| | |
|---|---|
| Caliber 7.62-mm (or .30) per soldier | 17 |
| Caliber 7.62-mm (or .30) blank | None or 276* |

* See (2) (*c*) above.

(4) *Scorecards.* The scorecard for periods 2 and 3, known distance field firing (practice and record), is the same as that prescribed for period 13 of the Alternate Basic Rifle Marksmanship Course (par. 7).

(5) *Qualification ratings.*

| | |
|---|---|
| Possible | 50. |
| Expert | 33 and above. |
| Sharpshooter | 27 to 32 inclusive. |
| Marksman | 22 to 26 inclusive. |
| Unqualified | Below 22. |

## Section IV. FUNDAMENTALS PROFICIENCY COURSE "B"

### 11. General

Fundamentals proficiency course "B" is designed for active Army units which have access to 1000-inch and known distance ranges but no combat positions range. Because this course requires minimum application of combat marksmanship skills, individual soldiers should not be permitted to fire this course for qualification more than three consecutive years.

### 12. Scope

Fundamentals proficiency course "B" requires *27 training hours as follows:

| | |
|---|---|
| Orientation and mechanical training | 1 hour. |
| Preparatory marksmanship and 1000-inch firing | 8 hours. |
| Known distance field firing (practice) | 4 hours. |
| Known distance field firing (record) | 4 hours. |
| Target detection | 4 hours. |
| Night firing | 2 hours. |
| *Pit details | 4 hours. |

* Based on normal number and size of range facilities units must be divided into four groups during firing periods on the known distance range. Therefore, pit details must be scheduled separately. If pit details are not required because of the use of automatic target devices, this time may be used for such other training as deemed appropriate by the commander.

### 13. Ammunition Required by Period or Exercise

*a. Preparatory Marksmanship and 1000-Inch Firing.*

| Period | Position | Rounds per soldier | Rounds for demonstrations | Notes |
|---|---|---|---|---|
| 1 | | | | Orientation and mechanical training. |
| 2 | Prone supported | 6 | | Periods 2 and 3 conducted on 1000-inch range. |
| 2 | Prone | 6 | | |
| 2 | Sitting | 6 | | [a]3 exercises. 2 rounds and 24 seconds per exercise. |
| 2 | Squatting | 6 | | |
| 2 | Kneeling | 6 | | [b]8 rounds rehearsal, 4 rounds demonstration. Total: 12 rounds. |
| 2 | Standing | 6 | | |
| 2 | [a]Standing to prone | 6 | [b]8/4 (12) | [c]Battlesight zero. |
| 2 | [a]Standing to sitting | 6 | | [d]Progress check. |
| 3 | [c]Prone supported | 12 | | |
| 3 | [d]Prone supported | 3 | | |
| 3 | [d]Prone | 3 | | |
| 3 | [d]Sitting | 3 | | |
| 3 | [d]Squatting | 3 | | |
| 3 | [d]Kneeling | 3 | | |
| 3 | [d]Standing | 3 | | |
| 3 | Refire weak positions | 9 | | |
| | Total | 87 | 12 | |

*b. Known Distance Field Firing.*

| Period | Position | Rounds per soldier | Rounds for demonstrations | Notes |
|---|---|---|---|---|
| 4 | See scorecard | 50 | [a]10/10 (20) | Instruction firing. |
| 5 | See scorecard | 50 | | Record firing. |
| | | | | [a]10 rounds rehearsal, 10 rounds demonstration. Total: 20 rounds. |
| | Totals | 100 | 20 | |

*c. Target Detection.*

| Period | Corresponds to target detection period [1] | Number of presentations | Blank rounds required [2] |
|---|---|---|---|
| 5 | 4 and 7 | 4 | 828 |

[1] See appendix VI.
[2] Includes rounds for rehearsals.

*d. Night Firing.*

| Period | Position | Rounds per soldier | Rounds for demonstrations | Notes |
|---|---|---|---|---|
| 6 | Foxhole or prone supported | 32 | [a]4/8 (12) | [a]4 rounds rehearsal, 8 rounds [illegible] onstration. Total: 12 rounds. |

## 14. Recapitulation of Ammunition Requirements

Caliber 7.62-mm (or .30) rounds per soldier ..... 219.
Caliber 7.62-mm (or .30) rounds for demonstrations (per unit) .. 44.
Caliber 7.62-mm (or .30) rounds blank ... 828.

## 15. Scorecards and Qualification Ratings

*a. Scorecards.* The scorecard for periods 4 and 5, known distance field firing (practice and record) is the same as that prescribed fo[r] period 13 of the alternate basic rifle marks[m]ship course (par. 7).

*b. Qualification Ratings.*

Possible ..... 50.
Expert ..... 33 and abo[ve]
Sharpshooter ..... 27 to 32 inc[lusive]
Marksman ..... 22 to 26 inc[lusive]
Unqualified ..... Below 22.

*c. Night Firing Scorecards and Qualificati[on] Ratings.* See paragraph 27.

# Section V. EMERGENCY PROFICIENCY COURSE

## 16. General

The emergency proficiency course is designed to provide minimum marksmanship training in order to POR qualify selected active Army personnel. It should only be conducted under emergency conditions when pressing personnel movement schedules limit the available training time. There are two separate courses of fire, each of which requires 8 training hours. Emergency Proficiency Course One is conducted on standard range facilities. Emergency Proficiency Course Two is conducted on modified known distance ranges.

## 17. Emergency Proficiency Course One

*a. Scope.*

Orientation and battlesight zero .... 2 hours.
Field firing ..... 1½ hours.
Record firing ..... 1½ hours.
*Target detection ..... 3 hours.

* Target detection is conducted in conjunction with field firing and record firing.

*b. Ammunition Required for Firing Exercises.*

| Period | Position | Rounds per soldier | Notes |
|---|---|---|---|
| 1 | Foxhole or prone. supported | 12 | Battlesight zero. |
| 2 | See scorecard | 36 | Field firing. |
| 3 | See scorecard | 40 | Record firing (II). |
| | Total | 88 | |

*c. Blank Ammunition Required for Target Detection.*

| Period | Target detection period [1] | Number of presentations | Blank [illegible] required [2] |
|---|---|---|---|
| 2 | 3 | 4 | 55 |
| 3 | [3]9 | 4 | 150 |

[1] See appendix VI.
[2] Includes rounds for rehearsals.
[3] Conducted as conference, demonstration, and practical exer[cise] rather than as a test.

*d. Recapitulation of Ammunition Requir[e]ments.*

Caliber 7.62-mm (or .30) rounds per soldier .....
Caliber 7.62-mm (or .30) blank .....

*e. Scorecards.*

(1) *Field firing.* As prescribed for period 11, basic rifle marksmanship cours[e] (par. 4*a*).

(2) *Record firing.* As prescribed for record firing II, (period 18), basic rifle marksmanship course (par. 4*a*).

*f. Qualification Scores and Ratings.*

Possible ..... 28.
Expert ..... 18 and above.
Sharpshooter ..... 14 to 17 inclusive.
Marksman ..... 9 to 13 inclusive.
Unqualified ..... Below 9.

## 18. Emergency Proficiency Course Two

*a. Scope.*

| | |
|---|---|
| Orientation and battlesight zero | 2 hours. |
| *Known distance field firing (practice) | 1½ hours. |
| *Known distance field firing (record) | 1½ hours. |
| **Target detection | 3 hours. |

* Based on having personnel other than the firers to be the pit detail.

** Conducted in conjunction with field firing.

*b. Ammunition Required for Firing Exercises.*

| Period | Position | Rounds per soldier | Notes |
|---|---|---|---|
| 1 | Foxhole or prone supported. | 12 | Battlesight zero. |
| 2 | See scorecard | 50 | Practice field firing. |
| 3 | See scorecard | 50 | Record field firing. |
| | Total | 112 | |

*c. Ammunition Required for Target Detection.*

| Period | Corresponds to target detection period [1] | Number of presentations | Blank rounds required [2] |
|---|---|---|---|
| 2 | 3 | 4 | 55 |
| 3 | [3]9 | 4 | 150 |

[1] See appendix VI.

[2] Includes rounds for rehearsals.

[3] Conducted as conference, demonstration, and practical exercise rather than as a test.

*d. Recapitulation of Ammunition Requirements.*

| | |
|---|---|
| Caliber 7.62-mm (or .30) rounds per soldier | 112. |
| Caliber 7.62-mm (or .30) blanks | 205. |

*e. Scorecard.* The scorecard for periods 2 and 3 known distance field firing (practice and record) is the same as that prescribed for period 13 of the alternate basic rifle marksmanship course (par. 7).

*f. Qualification Scores and Ratings.*

| | |
|---|---|
| Possible | 50. |
| Expert | 33 and above. |
| Sharpshooter | 27 to 32 inclusive. |
| Marksman | 22 to 26 inclusive. |
| Unqualified | Below 22. |

# Section VI. INDIVIDUAL NIGHT FIRING

## 19. General

There are two individual night firing courses: An 8-hour course designed to be conducted as part of ATP 21–114 and a 2-hour course designed to maintain the night firing proficiency of soldiers in the active Army.

## 20. 8-Hour Individual Night Firing Course

*a. Scope.*

| | |
|---|---|
| Night vision and techniques of night firing | 1 hour. |
| Daytime instruction firing | 3 hours. |
| Night practice firing | 2 hours. |
| Night record firing | 2 hours. |

*b. Ammunition Required by Exercise.*

| Exercise | Rounds per soldier | Rounds for demonstrations | Notes |
|---|---|---|---|
| Night vision and techniques of night firing. | None | None | All firing is conducted from either foxhole or prone supported position. |
| Daytime instruction firing | 15 | [a] 9/9 (18) | [a] 9 rounds rehearsal, 9 rounds demonstration. Total: 18 rounds. |
| Night practice firing | 16 | [b] 4/8 (12) | [b] 4 rounds rehearsal, 8 rounds demonstration. Total: 12 rounds. |
| Night record firing | 16 | | |
| Total | 47 | 30 | |

*c. Scorecard and Qualification Rating.*

**NIGHT FIRING**

*Firer's name* _____
(Last) (First)

Platoon _____ Order _____ Firing Point _____ Date _____

Scorer's name _____
(Last) (First)

PRACTICE

| Range | Rounds | Hits |
|---|---|---|
| 25/50 | 1–8 | |
| 50/75 | 9–16 | |
| | Total | |

RECORD

| Range | Rounds | Hits |
|---|---|---|
| 25/50 | 1–8 | |
| 50/75 | 9–16 | |
| | Qualification score | |

Expert ..... 10 and above.
Sharpshooter ..... 7 to 8 inclusive.
Marksman ..... 5 or 6.
Unqualified ..... Below 5.

## 21. 2-Hour Individual Night Firing Course

*a. Scope.*

Review of night vision and techniques of night firing ..... ½ hour.
Night instruction and night record firing ..... 1½ hours.

*b. Ammunition Required by Exercise.*

| Exercise | Rounds per soldier | Rounds for demonstrations | Notes |
|---|---|---|---|
| Night practice firing ..... | 16 | [a]4/8(12) | [a] 4 rounds rehearsal, 8 rounds demonstration. Total: 12 rounds. |
| Night record firing ..... | 16 | | |
| Totals ..... | 32 | 12 | |

*c. Scorecard and Qualification Rating.* As prescribed in paragraph 20*c* above.

## Section VII. ADVANCED INDIVIDUAL MARKSMANSHIP (SNIPING)

### 22. Scope

| | |
|---|---|
| Orientation | 2 hours. |
| Early Firing (Zero) | 4 hours. |
| Target Detection | 4 hours. |
| Map reading | 8 hours. |
| Instruction Firing | *26 hours. |
| Record Firing | *4 hours. |

* Exact number of hours required depends upon the size of range facilities and the number of snipers to be trained.

### 23. Ammunition Required by Exercise

*a. Early Firing (Zero).*

| Range (meters) | Rounds per sniper (ball) | Rounds per sniper (tracer) |
|---|---|---|
| 250 | 9 | 0 |
| 400 | 6 | 3 |
| 500 | 6 | 3 |
| 600 | 8 | 4 |
| Totals | 29 | 10 |

*b. Instruction Firing*

(1) *Adjusted aiming point exercises.*

| Using sight setting of— | Rounds per sniper (ball) | Rounds per sniper (tracer) |
|---|---|---|
| 400 | 10 | 5 |
| 500 | 10 | 5 |
| 600 | 10 | 5 |
| *250 | 10 | 5 |
| Totals | 40 | 20 |

* Conducted if time and ammunition are available.

(2) *Field firing exercises.*

| Exercise | Rounds per sniper per exercise | Rounds per sniper per three exercises |
|---|---|---|
| * First exercise | 16 | 48 |
| * Second exercise | 16 | 48 |
| * Third exercise | 12 | 36 |
| Totals | 44 | 132 |

* Each exercise is fired three times; once at dawn or first light, once at midday, and once at dusk.

*c. Record Firing.* Each of the three field firing exercises (*b*(2) above) is fired once for record. Forty-four rounds of ammunition per sniper are required for record firing.

*d. Recapitulation of Ammunition requirements.*

| | |
|---|---|
| Caliber 7.62-mm (or .30) rounds per sniper | 245. |
| Caliber 7.62-mm (or .30) rounds, tracer, per sniper | 30. |

### 24. Scorecards

A recommended scorecard for sniper training is depicted below. This card must be reproduced locally.

SNIPER'S SCORECARD

Firer's name _____
(Last) (First)

Unit _____ Date _____

| Zero Firing | | | | |
|---|---|---|---|---|
| Range (meters) | Sight Setting | | | |
| | First Shot Group | Second Shot Group | Third Shot Group | * Fourth Shot Group |
| 250 | EL W | EL W | EL W | EL W |
| 400 | EL W | EL W | EL W | EL W |
| 500 | EL W | EL W | EL W | EL W |
| 600 | EL W | EL W | EL W | EL W |

| | 250 meters | 400 meters | 5,000 meters | 600 meters |
|---|---|---|---|---|
| Zero sight adjustment: | EL____W____. | EL____W____. | EL____W____. | EL____W____. |

* If required.

## Field Firing

| First Exercise | | | | | | |
|---|---|---|---|---|---|---|
| | First Trial | | Second Trial | | Third Trial | |
| Target Number | 1st Rd Hits | 2d Rd Hits | 1st Rd Hits | 2d Rd Hits | 1st Rd Hits | 2d Rd Hits |
| 1 | | | | | | |
| 2 | | | | | | |
| 3 | | | | | | |
| 4 | | | | | | |
| 5 | | | | | | |
| 6 | | | | | | |
| 7 | | | | | | |
| 8 | | | | | | |
| Totals | | | | | | |
| | X10 | X5 | X10 | X5 | X10 | X5 |
| Points | | | | | | |
| Total Points | | | | | | |

| Second Exercise | | | | | | |
|---|---|---|---|---|---|---|
| | First Trial | | Second Trial | | Third Trial | |
| Target Number | 1st Rd Hits | 2d Rd Hits | 1st Rd Hits | 2d Rd Hits | 1st Rd Hits | 2d Rd Hits |
| 1 | | | | | | |
| 2 | | | | | | |
| 3 | | | | | | |
| 4 | | | | | | |
| 5 | | | | | | |
| 6 | | | | | | |
| 7 | | | | | | |
| 8 | | | | | | |
| Totals | | | | | | |
| | X10 | X5 | X10 | X5 | X10 | X5 |
| Points | | | | | | |
| Total Points | | | | | | |

| Third Exercise | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | First Trial | | | Second Trial | | | Third Trial | | |
| Target Number | 1st Rd Hits | 2d Rd Hits | 3d Rd Hits | 1st Rd Hits | 2d Rd Hits | 3d Rd Hits | 1st Rd Hits | 2d Rd Hits | 3d Rd Hits |
| 1 | | | | | | | | | |
| 2 | | | | | | | | | |
| 3 | | | | | | | | | |
| 4 | | | | | | | | | |
| Totals | | | | | | | | | |
| | X10 | X5 | X2 | X10 | X5 | X2 | X10 | X5 | X2 |
| Points | | | | | | | | | |
| Total points | | | | | | | | | |

| Exercise | Points First Trial | Points Second Trial | Points Third Trial |
|---|---|---|---|
| First Exercise | | | |
| Second Exercise | | | |
| Third Exercise | | | |
| Scores per trial | | | |

| | Time of Day | Weather Conditions |
|---|---|---|
| First Trial | | |
| Second Trial | | |
| Third Trial | | |

| Record Firing | | | | | | | |
|---|---|---|---|---|---|---|---|
| Target Number | First Exercise | | Second Exercise | | Third Exercise | | |
| | 1st Rd Hits | 2d Rd Hits | 1st Rd Hits | 2d Rd Hits | 1st Rd Hits | 2d Rd Hits | 3d Rd Hits |
| 1 | | | | | | | |
| 2 | | | | | | | |
| 3 | | | | | | | |
| 4 | | | | | | | |
| 5 | | | | | | | |
| 6 | | | | | | | |
| 7 | | | | | | | |
| 8 | | | | | | | |
| Totals | | | | | | | |
| | X10 | X5 | X10 | X5 | X10 | X5 | X2 |
| Points | | | | | | | |

Total Points Record Firing _____

Qualification _____

Time of Day _____

Weather _____

Scorer's name _____

| | |
|---|---|
| Expert | 170 and above. |
| Sharpshooter | 150 to 169 inclusive. |
| Marksman | 120 to 149 inclusive. |
| Unqualified | Below 120. |

# APPENDIX IV

# PREMOBILIZATION READINESS PROFICIENCY "C" COURSES

## 1. General

*a.* There are three separate and distinct courses of fire which fall in the category of a Premobilization Readiness Proficiency Course "C." These courses are designed for use by reserve components. The principal difference between the three courses of fire is the type of range facility on which each is conducted. These are as follows:

(1) *Standard course "C."* This course is conducted on either a 25-meter range or a 1000-inch range (fig. 29.).

(2) *Alternate course "C."* This course is designed for reserve components which do not have access to, or sufficient area for constructing standard 25-meter ranges. A 25-meter range must be specially constructed so each firing lane is inclosed. In this way, ricochets cannot escape the immediate range area, thus eliminating the need for a large impact area.

(3) *Modified known distance course "C."* All firing during this course is conducted from the 200-yard/180-meter firing line of a known distance range.

*b.* Although range facilities and firing procedures prescribed in these courses may differ from those prescribed for active Army units, the fundamentals of marksmanship and the techniques for teaching these fundamentals are the same. Consequently, the principles and techniques outlined in chapter 2, should be followed as closely as possible regardless of the course of fire being conducted.

## 2. Standard Course "C"

*a. Scope.* Standard Course "C" is a 16-hour course of instruction as follows:

| | |
|---|---|
| Mechanical training | 1 hour. |
| Marksmanship fundamentals | 3 hours. |
| 25-meter zero and practice firing | 4 hours. |
| Record firing and 250-meter battlesight zero | 4 hours. |
| Target detection | 4 hours. |

*b. Range Organization.*

(1) *Organization of firers and range personnel.* See chapter 2, paragraph 23*a*.

(2) *Targets.*

(*a*) The target sheet used for practice and record firing consists of a 25-meter zero target and eight target blocks, each containing small black silhouettes superimposed on a white background (fig. 68). The zero target is used to zero the rifle for a range of 25 meters. The slow fire silhouette targets are in blocks one and two. The timed-fire targets are in blocks three through six. The rapid-fire targets are in blocks seven and eight. The silhouette targets are purposely arranged within each block so the firer must adjust his aiming point horizontally and vertically when he shifts from one target to another. The numbers in each block of silhouette targets correspond to the number of the exercise indicated on the practice and record scorecards.

(*b*) Upon completion of record firing, each soldier must establish the 250-meter battlesight zero of his rifle. The standard 25-meter target (fig. 34) is used for this purpose.

*c. Conduct of Firing.*

(1) *25-meter zero.* Initially, firers set their rear sights at 12 clicks of elevation and zero windage. Firers assume a prone supported (or foxhole) position and fire a 3-round shot group at the 25-meter zero target. The cutaway portion of the black paster serves as a distinctive aiming point. Firers should "call" each shot and record this call on the target diagram portion of the practice scorecard. After all firers

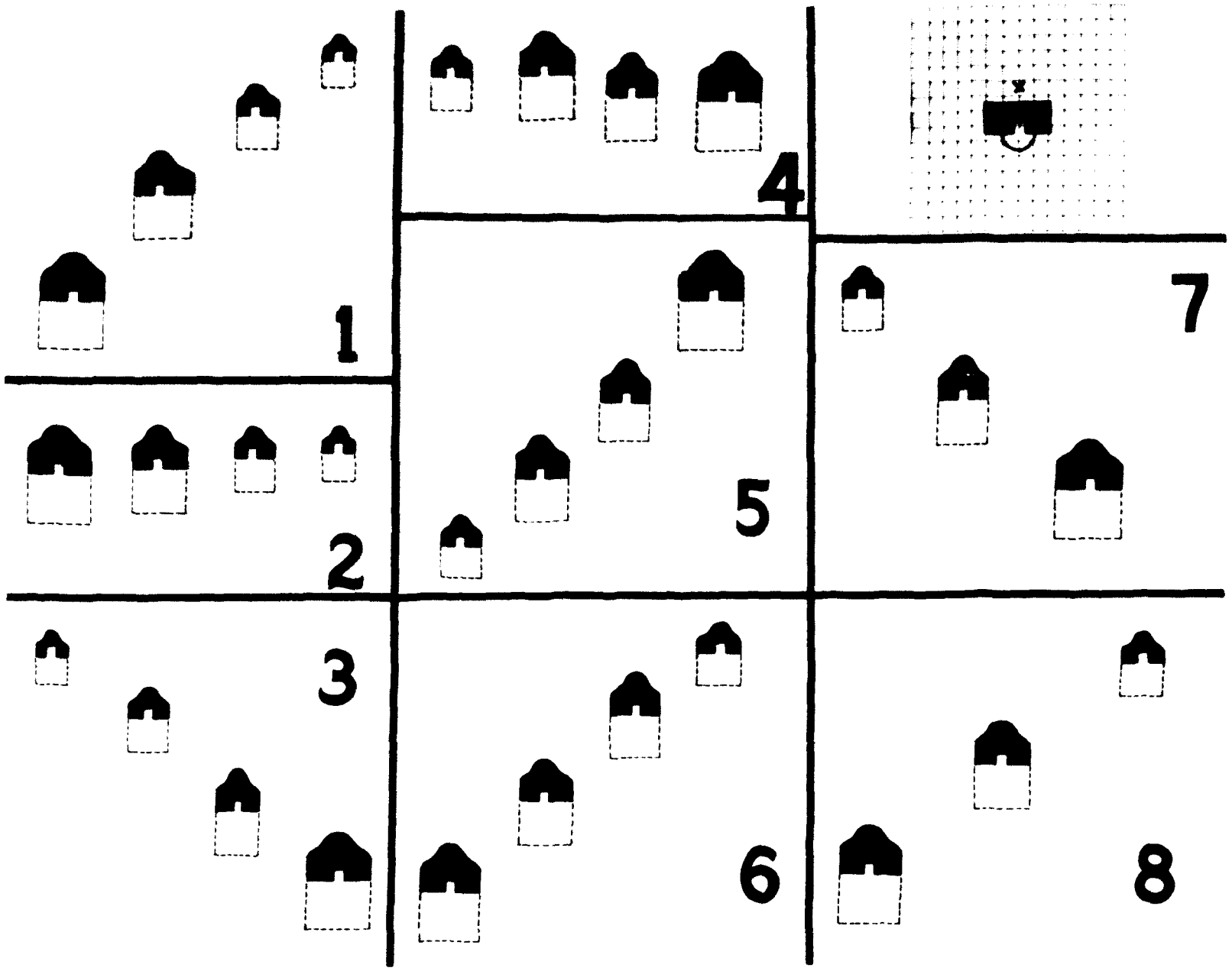



*Figure 68. Course "C" 25-meter/1000-inch target sheet.*

have completed firing one 3-round shot group, the firing line is cleared and firers move forward to check their targets. Firers record the actual location of shot groups on the same target diagram used to record the "call." Upon returning to the firing line, firers make the necessary sight adjustments to move the center of their shot groups into the center of the zero circle. This new sight setting is then recorded on the practice scorecard. This procedure is repeated until three 3-round shot groups have been fired. The final sight setting is recorded on the scorecard as the zero for 25 meters. The orders then exchange duties; that is, the firer becomes the coach, and the coach the firer. The exercise is then repeated.

(2) *Practice firing.* Practice firing consists of six timed-fire exercises and two rapid-fire exercises. These exercises are conducted as follows:

(*a*) *Timed-fire exercises.* Each round is loaded singly and only one round is fired at each silhouette target. When the time limit for an exercise has expired, the firing line is cleared and firers and coaches move forward to score targets. A maximum of one point is awarded for each

silhouette target hit. If a soldier inadvertently fires two or more rounds at one silhouette, he receives only one point regardless of how many times the target has been hit. This procedure is repeated until all six exercises have been fired. Scores are recorded on the practice fire scorecard (fig. 69).

(*b*) *Rapid fire exercises.* Each firer is issued one magazine or clip of eight rounds and one loose round for each exercise. The firer places the magazine or clip in his belt and holds the loose round in his hand. On command, the firer loads the loose round and assumes the designated position (prone or sitting). He fires the loose round, loads the magazine or clip, and fires the remaining eight rounds. Three rounds are fired at each silhouette target in blocks seven and eight. After each nine rounds, the firing line is cleared and the firer and coach move forward to score targets. Scoring is based on one point per silhouette target hit, a maximum of three hits or points allowed for each silhouette.

(3) *Record firing.*

(*a*) The same six timed-fire and two rapid-fire exercises conducted as practice firing are repeated for record firing. However, the firer's score is recorded on the record fire scorecard (fig. 70).

(*b*) Qualification scores are based on the total number of points obtained in the eight exercises. There is a total possible score of 42 points. The scores required for each qualification rating are as follows:

| | |
|---|---|
| Expert | 31 and above. |
| Sharpshooter | 24 to 30 inclusive. |
| Marksman | 11 to 23 inclusive. |
| Unqualified | Below 11. |

(4) *250-meter battlesight zero.* Immediately upon completing record firing, each soldier must determine the 250-meter battlesight zero of his rifle. This firing is conducted the same as the 25-meter zero exercise, except that the standard 25-meter battlesight zero target is used (fig. 34). Each soldier fires three 3-round shot groups, adjusting the rear sight until the center of his shot group falls on the "X" printed on the target. Shot group locations and elevation and windage settings are recorded on the record fire scorecard (fig. 70).

*d. Ammunition Required by Period or Exercise.*

(1) *25-meter zero and practice firing*

| *Period* | *Exercise* | *Position* | *Rounds per Soldier* |
|---|---|---|---|
| 1 | Mechanical training | | M |
| 2 | Preparatory marksmanship | All | M (dry m |
| 3 | 25-meter zero | Foxhole or prone supported | |
| 3 | [a]1 | [b]Foxhole or prone supported | |
| 3 | [a]2 | Prone | |
| 3 | [a]3 | [c]Kneeling supported or sitting | |
| 3 | [a]4 | Squatting | |
| 3 | [a]5 | Kneeling | |
| 3 | [a]6 | Standing | |
| 3 | [d]7 | Standing to prone | |
| 3 | [d]8 | Standing to sitting | |
| | | Total | 51 |

a Four rounds fired within 4 minutes.

b Foxhole used on 25-meter range, prone supported u 1,000-inch range.

c Kneeling supported used on 25-meter range, sitting u 1,000-inch range.

d Nine rounds fired within 60 seconds on standard 25-meter 1,000-inch ranges. If Alternate Course "C" (inclosed firing is conducted, time limit is increased to 65 seconds.

(2) *Record firing and 250-meter battlesight zero.*

| *Period* | *Exercise* | *Position* | *Rounds per Soldier* |
|---|---|---|---|
| 4 | Repeat 1 through 8 of practice firing | As indicated in exercises 1 through 8 | |
| 4 | 250-meter battlesight zero | Foxhole or prone supported | |
| | | Total | 51 |

PRACTICE

SCORE CARD- STANDARD/ALTERNATE COURSE C (25 METERS/1000 INCHES)

| LAST NAME | FIRST NAME | MIDDLE INITIAL | GRADE |
|---|---|---|---|
| | | | |

| SERVICE NUMBER | UNIT |
|---|---|
| | |

| EXERCISE ONE - TIMED FIRE | MISSES | NO FIRES | HITS |
|---|---|---|---|
| FOXHOLE POSITION (*PRONE SUPPORTED)<br>4 ROUNDS<br>4 MINUTES | | | |

| EXERCISE TWO - TIMED FIRE | MISSES | NO FIRES | HITS |
|---|---|---|---|
| PRONE POSITION<br>4 ROUNDS<br>4 MINUTES | | | |

| EXERCISE THREE - TIMED FIRE | MISSES | NO FIRES | HITS |
|---|---|---|---|
| KNEELING SUPPORTED POSITION<br>4 ROUNDS (* SITTING)<br>4 MINUTES | | | |

| EXERCISE FOUR - TIMED FIRE | MISSES | NO FIRES | HITS |
|---|---|---|---|
| SQUATTING POSITION<br>4 ROUNDS<br>4 MINUTES | | | |

| EXERCISE FIVE - TIMED FIRE | MISSES | NO FIRES | HITS |
|---|---|---|---|
| KNEELING POSITION<br>4 ROUNDS<br>4 MINUTES | | | |

| EXERCISE SIX - TIMED FIRE | MISSES | NO FIRES | HITS |
|---|---|---|---|
| STANDING POSITION<br>4 ROUNDS<br>4 MINUTES | | | |

| EXERCISE SEVEN - RAPID FIRE | MISSES | NO FIRES | HITS |
|---|---|---|---|
| STANDING TO PRONE<br>9 ROUNDS<br>** 60/65 SECONDS | | | |

| EXERCISE EIGHT - RAPID FIRE | MISSES | NO FIRES | HITS |
|---|---|---|---|
| STANDING TO SITTING<br>9 ROUNDS<br>** 60/65 SECONDS | | | |

NOTES: * FOR USE ON 1000 INCH RANGES

| ** TIME INCREASED TO 65 SECONDS FOR ALTERNATE (INCLOSED FIRING LANE) COURSE "C". | MISSES | NO FIRES | HITS |
|---|---|---|---|
| COURSE "C" TOTALS | | | |

| RECORD QUALIFICATION | |
|---|---|

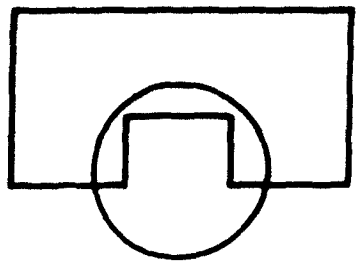
SIGNATURE OF SCORER

SIGNATURE OF FIRER

SIGNATURE OF OFFICER

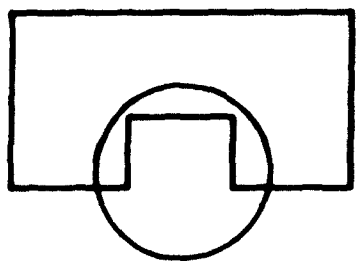
25 METER ZERO

1ST SHOT GROUP



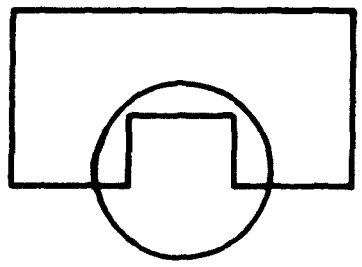
| ELEVATION | WINDAGE |
|---|---|
| | |

2ND SHOT GROUP



| ELEVATION | WINDAGE |
|---|---|
| | |

3D SHOT GROUP



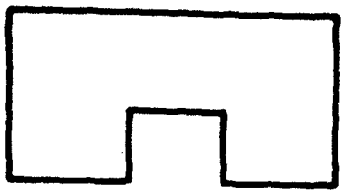
25 METER ZERO

ELEVATION _____

WINDAGE _____

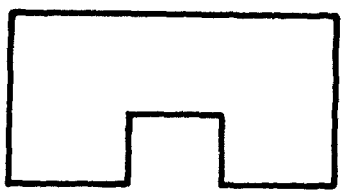
*Figure 69. Practice fire scorecard.*

250 METER ZERO
(BATTLE SIGHTS)



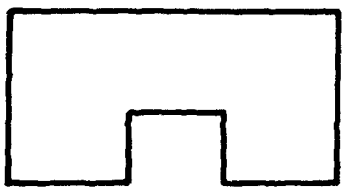
1ST SHOT GROUP

| ELEVATION | WINDAGE |
|---|---|
| | |



2ND SHOT GROUP

| ELEVATION | WINDAGE |
|---|---|
| | |



3D SHOT GROUP

250 METER ZERO
(BATTLE SIGHTS)

ELEVATION _____

WINDAGE _____

| | |
|---|---|
| EXPERT | 31 AND ABOVE |
| SHARPSHOOTER | 24 TO 30 |
| MARKSMAN | 11 TO 23 |
| UNQUALIFIED | BELOW 11 |

RECORD
SCORE CARD- STANDARD/ALTERNATE COURSE C (25 METERS/1000 INCHES)

| LAST NAME | FIRST NAME | MIDDLE INITIAL | GRADE |
|---|---|---|---|
| | | | |

| SERVICE NUMBER | UNIT |
|---|---|
| | |

| EXERCISE ONE - TIMED FIRE | MISSES | NO FIRES | HITS |
|---|---|---|---|
| FOXHOLE POSITION ( * PRONE SUPPORTED)<br>4 ROUNDS<br>4 MINUTES | | | |

| EXERCISE TWO - TIMED FIRE | MISSES | NO FIRES | HITS |
|---|---|---|---|
| PRONE POSITION<br>4 ROUNDS<br>4 MINUTES | | | |

| EXERCISE THREE - TIMED FIRE | MISSES | NO FIRES | HITS |
|---|---|---|---|
| KNEELING SUPPORTED POSITION<br>4 ROUNDS ( * SITTING)<br>4 MINUTES | | | |

| EXERCISE FOUR - TIMED FIRE | MISSES | NO FIRES | HITS |
|---|---|---|---|
| SQUATTING POSITION<br>4 ROUNDS<br>4 MINUTES | | | |

| EXERCISE FIVE - TIMED FIRE | MISSES | NO FIRES | HITS |
|---|---|---|---|
| KNEELING POSITION<br>4 ROUNDS<br>4 MINUTES | | | |

| EXERCISE SIX - TIMED FIRE | MISSES | NO FIRES | HITS |
|---|---|---|---|
| STANDING POSITION<br>4 ROUNDS<br>4 MINUTES | | | |

| EXERCISE SEVEN - RAPID FIRE | MISSES | NO FIRES | HITS |
|---|---|---|---|
| STANDING TO PRONE<br>9 ROUNDS<br>** 60/65 SECONDS | | | |

| EXERCISE EIGHT - RAPID FIRE | MISSES | NO FIRES | HITS |
|---|---|---|---|
| STANDING TO SITTING<br>9 ROUNDS<br>** 60/65 SECONDS | | | |

NOTES: * FOR USE ON 1000 INCH RANGES

| ** TIME INCREASED TO 65 SECONDS FOR ALTERNATE (INCLOSED FIRING LANE) COURSE "C". | MISSES | NO FIRES | HITS |
|---|---|---|---|
| COURSE "C" TOTALS | | | |
| RECORD QUALIFICATION | | | |

SIGNATURE OF SCORER

SIGNATURE OF FIRER

SIGNATURE OF OFFICER

*Figure 70. Record fire scorecard.*

(3) *Target detection.*

| Period | Corresponds to target detection period—[1] | Number of presentations | Blank rounds required[2] |
|---|---|---|---|
| 5 | 3 and 9[3] | 4 | 205 |

[1] See appendix VI.
[2] Includes rounds for rehearsals.
[3] Target detection period 9 should be modified to be conducted as a conference, demonstration, and practical exercise rather than as a test.

(4) *Recapitulation of ammunition requirements.*

Caliber 7.62-mm (or .30) rounds per soldier ..... 102
Caliber 7.62-mm (or .30) blank ..... 205

*e. Fire Commands.* Fire commands must be simple and uniform to avoid confusion. Type fire commands which can be used for standard course "C" are as follows:

(1) *Zero firing (25-meter and battle-sight).*

FIRERS ASSUME THE PRONE SUPPORTED (FOXHOLE) POSITION.
COACHES SECURE THREE LOOSE ROUNDS OF AMMUNITION.
THE FIRING LINE IS NO LONGER CLEAR.
LOCK.
*ONE EMPTY MAGAZINE LOAD.
ONE ROUND LOAD.
**THIS WILL BE THREE ROUNDS SLOW FIRE TO DETERMINE THE (25-METER) (BATTLE-SIGHT) ZERO OF YOUR RIFLE.
COMMENCE FIRING WHEN READY.
CEASE FIRE.
CLEAR ALL WEAPONS.
CLEAR ON THE RIGHT?
CLEAR ON THE LEFT?
THE FIRING LINE IS CLEAR.
COACHES AND FIRERS MOVE DOWN RANGE AND CHECK YOUR TARGETS.

(Repeat above sequence for subsequent shot groups and firing orders.)

* If personnel are armed with M14 rifles.
** Only give for the initial 3-round shot group fired by each order.

(2) *Timed-fire exercises.*

FIRERS ASSUME THE ..... POSITION.
COACHES SECURE (*ONE MAGAZINE OF FOUR ROUNDS) (**-ONE CLIP AND FOUR ROUNDS).
THE FIRING LINE IS NO LONGER CLEAR.
LOCK.
(*ONE MAGAZINE OF FOUR ROUNDS) (**ONE PARTIAL CLIP OF FOUR ROUNDS) LOAD.
READY ON THE RIGHT?
READY ON THE LEFT?
THE FIRING LINE IS READY.
(A whistle, buzzer, horn, or other audible signal should be sounded to begin the exercise and again to cease fire.)
CEASE FIRE (given simultaneously with signal).
ARE THERE ANY ALIBIS? (See ch. 6, par. 62*e*.)
(ALIBI FIRERS COMMENCE FIRING.)
(CEASE FIRE.)
CLEAR ALL WEAPONS.
CLEAR ON THE RIGHT?
CLEAR ON THE LEFT?
THE FIRING LINE IS CLEAR.
COACHES AND FIRERS MOVE DOWN RANGE AND CHECK YOUR TARGETS.

* If personnel are armed with M14 rifles.
** If personnel are armed with M1 rifles.

(3) *Rapid fire exercises.* Preliminary instructions to describe the exercise should be given prior to the actual fire command. For example, "the next exercise will be nine rounds rapid fire in which you move from the standing to the prone position. You will load the first round while in the standing position. When the (whistle, buzzer, or horn) sounds, you will assume the prone position and fire the single round. Reload as quickly as possible with the (magazine) (clip) of eight rounds and resume firing. Fire three rounds at each silhouette target in block seven on the target sheet. You

will have 60 seconds to complete this exercise. Timing begins and ends when you hear this signal (sound signal). When you hear the second signal, you must cease fire even if you have not fired all of your rounds."

FIRERS ASSUME A (PRONE) (SITTING) POSITION.

RISE, KEEPING YOUR FEET IN PLACE.

COACHES SECURE ONE LOOSE ROUND AND ONE (*MAGAZINE) (**CLIP) OF EIGHT ROUNDS.

THE FIRING LINE IS NO LONGER CLEAR.

LOCK, ONE ROUND LOAD.

YOU WILL FIRE THREE ROUNDS AT EACH SILHOUETTE IN BLOCK NUMBER (SEVEN) (EIGHT).

READY ON THE RIGHT?

READY ON THE LEFT?

THE FIRING LINE IS READY.

(A whistle, buzzer, horn, or other audible signal should be sounded to begin the exercise and again to cease fire.)

CEASE FIRE (given simultaneously with signal).

ARE THERE ANY ALIBIS? (See ch. 6, par. 62*e*.)

(ALIBI FIRERS COMMENCE FIRING.)

(CEASE FIRE.)

CLEAR ALL WEAPONS.

CLEAR ON THE RIGHT?

CLEAR ON THE LEFT?

THE FIRING LINE IS CLEAR.

COACHES AND FIRERS MOVE DOWN RANGE AND CHECK YOUR TARGETS.

---

* For personnel armed with M14 rifles.
** For personnel armed with M1 rifles.

*f. Range Safety.* See appendix II.

## 3. Alternate Course "C"

The principal difference between alternate course "C" and standard course "C" is tha the alternate course requires a specially c structed 25-meter range. The course of instru tion, targets, ammunition requirements, an scoring are the same for both marksmanshi courses. The firing procedures for zero an timed-fire exercises are also the same. F safety reasons, the procedures for conductin rapid fire exercises require minor modification

*a. Scope.* As prescribed in paragraph 2 above.

*b. Range Characteristics.*

(1) The alternate course "C" 25-met range is designed for reserve compo nents which have only limited space in which to construct the facility. T eliminate the need for large im areas, targets are placed in front of large impact berm, and bulletproof in closures are constructed around eac firing lane (figs. 71 and 72). In thi way, a ricochet cannot escape fro the immediate range area.

(2) Foxholes are constructed in two leve so firing can be conducted from eithe the standing position or the foxhol position (fig. 73). Each firing poi has a removable post to enable exe cises to be conducted from both th kneeling supported position and all the unsupported positions (figs. 7 77). For a discussion of the characte istics of each firing position, see cha ter 2, paragraph 10.

*c. Range Organization.* As prescribed in Standard Course "C," paragraph 2*b* abo.

*d. Conduct of Firing.* Except for rapid fi exercises, the procedures for conducting alte nate course "C" are the same as prescribed fo standard course "C" (par. 2*c* above). In th rapid fire exercises of the alternate course, th firer must not load his initial round until he ha assumed the designated firing position. This i a safety requirement to avoid accidental firin before the rifle muzzle is within the bulletproo inclosure. Because of this added loading re quirement, the time for a rapid fire exercise in the alternate course is increased from 60 to 65 seconds.

*Figure 71. Firing lane for alternate course "C."*

*Figure 72. Target as seen through the inci*

*Figure 73. Standing position.*

*Figure 74. Prone supported position.*

*Figure 75. Kneeling supported position.*

*Figure 76. Sitting pos*

*Figure 77. Squatting position.*

*e. Ammunition Required by Period or Exercise.* As prescribed for Standard Course "C," paragraph 2*b* above.

*f. Fire Commands.*

(1) Fire commands for zero and timed-fire exercises are the same as prescribed for Standard Course "C," paragraph 2*e* above.

(2) Fire commands for rapid fire exercises differ from those used in the standard course because of the change in loading procedures. Preliminary instructions to describe the exercise should be given prior to the actual fire command. For example, "The next exercise will be nine rounds rapid fire. You will move from the standing to the prone position. When in position, load one round, fire, reload with the magazine of eight rounds and resume firing. Fire three rounds at each silhouette target in block number seven. You will have 65 seconds to fire this exercise. The exercise begins and ends on this signal [sound signal]. When you hear the signal the second time, you must cease fire even if you have not fired all of your rounds."

FIRERS ASSUME A (PRONE) (SITTING) POSITION.

RISE, KEEPING YOUR FEET IN PLACE.

COACHES SECURE ONE LOOSE ROUND AND ONE (*MAGAZINE) (**CLIP) OF EIGHT ROUNDS.

THE FIRING LINE IS NO LONGER CLEAR.

YOU WILL FIRE THREE ROUNDS AT EACH SILHOUETTE IN BLOCK NUMBER (SEVEN) (EIGHT).

READY ON THE RIGHT?

READY ON THE LEFT?

THE FIRING LINE IS READY.

(A whistle, buzzer, horn, or other audible signal should be sounded to begin the exercise and sounded again to signal cease fire.)

CEASE FIRE (given simultaneously with signal).

ARE THERE ANY ALIBIS? (See ch. 6, par. 62*e*.)

(ALIBI FIRERS COMMENCE FIRING.)

(CEASE FIRE.)

CLEAR ALL WEAPONS.

CLEAR ON THE RIGHT?

CLEAR ON THE LEFT?

THE FIRING LINE IS CLEAR.

COACHES AND FIRERS MOVE DOWN RANGE AND CHECK YOUR TARGETS.

* If personnel are armed with M14 rifles.
** If personnel are armed with M1 rifles.

*g. Range Safety.* The safety precautions outlined in appendix II also apply to this marksmanship course. However, the extreme hazards posed by accidental discharges of rifles and the difficulty in maintaining observation over the range area because of its manner of construction require that range personnel maintain very close supervision of the firers and range area throughout the firing exercises.

## 4. Modified Known Distance Course "C"

*a. Scope.* This course requires 20 training hours as follows:

| | |
|---|---|
| Orientation and mechanical training | 1 hour |
| Preparatory marksmanship | 3 hours |
| Known distance field firing | 8 hours |
| *Target detection and pit detail | 4 hours |
| Known distance record firing | 4 hours |

* To be conducted concurrently with firing exercises. Based on four platoon unit, two platoons conduct firing while one platoon receives target detection training and other acts as the pit detail. Platoons are rotated between these activities each half-day.

*b. Range Organization.*

(1) *Organization of firers and range personnel.* See chapter 4, paragraph 44.

(2) *Targets.* The "E" type silhouette target is used for all firing conducted in this course. Methods of installing these targets on known distance ranges are outlined in appendix V.

*c. Conduct of Firing.* The firing exercises conducted in this marksmanship course consist of zeroing, timed-firing, and rapid firing. The

range procedures outlined in chapter 4, paragraph 44 are applicable to this marksmanship course with the following modifications:

(1) *Zeroing.* Zeroing is conducted from the 200-yard/184-meter firing line. A distinctive aiming point such as the "4-ring" and "bullseye" from a standard known distance target should be fastened to the "E" silhouette target. The exercise is fired in 3-round shot groups and the firer adjusts his rear sight until the center of his shot group coincides with his point of aim. To assist the firer, targets should be pulled after each three rounds and "spotters" placed on the bullet holes.

(2) *Timed fire exercises.* These exercises are conducted in essentially the same manner as the timed-fire exercises of Standard Course "C" (par. 2*c*(2) (*a*) above). The primary procedural difference is that scores are checked from the firing line by having the pit detail place spotters in the targets.

(3) *Rapid fire exercises.* To conduct these exercises, the firer is issued one loose round and one magazine or clip of eight rounds. On command, the firer loads the single round. On the command or signal to commence firing, the firer assumes the designated position, fires the single round, reloads, and fires the remaining eight rounds. The firer distributes his fire between the two silhouette targets; however, he must not fire more than six rounds into one target.

*d. Ammunition Required by Period or Exercise.*

(1) *Known distance field firing.*

| Period | Position | Rounds per soldier | Notes |
|---|---|---|---|
| 1 | | None | Orientation and mechanical training. |
| 2 | All | None | Preparatory marksmanship training. |
| 3 | [a] Prone supported | 9 | In period 3, 27 rounds required for demonstration of rapid fire (9 rounds rehearsal, 18 rounds demonstration). |
| 3 | [b] Prone | 8 | [a] Zero. 60 seconds per shot. |
| 3 | [c] Sitting | 8 | [b] 13 seconds per shot. |
| 3 | [c] Kneeling | 4 | [c] 12 seconds per shot. |
| 3 | [d] Squatting | 4 | [d] 11 seconds per shot. |
| 3 | [d] Standing | 8 | [e] Each soldier fires on two targets (par. 44*d* (3) (*d*), ch. 4). Exercise conducted within 60 seconds. |
| 3 | [e] Standing to prone | 9 | |
| 4 | [f] Prone | 8 | |
| 4 | [f] Sitting | 8 | [f] 10 seconds per shot. |
| 4 | [f] Kneeling | 8 | |
| 4 | [f] Squatting | 4 | |
| 4 | [f] Standing | 4 | |
| 4 | [e] Standing to prone | 9 | |
| 4 | [e] Standing to sitting | 9 | |
| | Total | 100 | 27 (demonstration) |

(2) *Target detection.*

| Period | Corresponds to Target Detection Period—[1] | Number of Presentations | Blank Rounds Required [2] |
|---|---|---|---|
| 3 | 3 and 9[3] | 4 | 205 |

[1] See appendix VI.
[2] Includes rounds for rehearsals.
[3] Target detection period 9 should be modified to be conducted as a conference, demonstration, and practical exercise rather than as a test.

*e. Scorecards and Qualification Ratings.*

## SCORECARD

## MODIFIED KNOWN DISTANCE COURSE "C"

Firer's Name _____
(Last) (First)

Platoon_____ Order_____ Firing Point_____ Date_____

Scorer's Name _____
(Last) (First)

*Zero*

| First Shot Group | Second Shot Group | Third Shot Group |
|---|---|---|
| Elevation_____ | Elevation_____ | Elevation_____ |
| Windage_____ | Windage_____ | Windage_____ |

*Practice Firing*

| Position | Timed Fire Hits Scored | | | | | | | | Total |
|---|---|---|---|---|---|---|---|---|---|
| Prone | | | | | | | | | |
| Sitting | | | | | | | | | |
| Kneeling | | | | | | | | | |
| Squatting | | | | | | | | | |
| Standing | | | | | | | | | |

Total hits timed fire

| Position | | Rapid Fire Hits | Total |
|---|---|---|---|
| Standing to Prone | Right Target | | |
| | Left Target | | |
| Standing to Sitting | Right Target | | |
| | Left Target | | |
| Total hits rapid fire | | | |

## SCORECARD

## MODIFIED KNOWN DISTANCE COURSE "C"

Firer's Name _____
(Last) (First)

Platoon_____ Order_____ Firing Point_____ Date_____

Scorer's Name _____
(Last) (First)

*Record Firing*

| Position | Timed Fire Hits Scored | | | | | | | | Total |
|---|---|---|---|---|---|---|---|---|---|
| Prone | | | | | | | | | |
| Sitting | | | | | | | | | |
| Kneeling | | | | | | | | | |
| Squatting | | | | | | | | | |
| Standing | | | | | | | | | |
| | Total hits time fire | | | | | | | | |

| Position | | Rapid Fire Hits Scored | | | | | | Total |
|---|---|---|---|---|---|---|---|---|
| Standing to Prone | Right Target | | | | | | | |
| | Left Target | | | | | | | |
| | | | | | | | | |
| Standing to Sitting | Right Target | | | | | | | |
| | Left Target | | | | | | | |
| | | | | | | | | |
| | Total hits rapid fire | | | | | | | |

Qualifications Ratings: Possible

Expert .....33 and above.
Sharpshooter ..27 to 32.
Marksman ....22 to 26.
Unqualified ....Below 22.

Hits timed fire _____
Hits rapid fire _____
Total hits _____

Scorer's signature _____

Officer's signature _____

*f. Fire Commands.* Fire commands must be simple and uniform to avoid confusion. Type fire commands for modified known distance course "C" are as follows:

(1) *Zero firing.*

FIRERS ASSUME THE PRONE SUPPORTED POSITION.
COACHES SECURE THREE LOOSE ROUNDS OF AMMUNITION.
THE FIRING LINE IS NO LONGER CLEAR.
LOCK.
*ONE EMPTY MAGAZINE LOAD.
ONE ROUND LOAD.
**THIS WILL BE THREE ROUNDS SLOW FIRE TO DETERMINE THE ZERO OF YOUR RIFLE. YOU WILL HAVE THREE MINUTES TO FIRE THREE ROUNDS.
COMMENCE FIRING WHEN READY.
CEASE FIRE.
CLEAR ALL WEAPONS.
CLEAR ON THE RIGHT?
CLEAR ON THE LEFT?
THE FIRING LINE IS CLEAR.
COACHES AND FIRERS MOVE DOWN RANGE AND CHECK YOUR TARGETS.
(Repeat above sequence for subsequent shot groups and firing orders.)

---

* If personnel are armed with M14 rifles.
** Only given for the initial 3-round shot group fired by each order.

(2) *Timed fire exercises.*

FIRERS ASSUME THE _____ POSITION.
COACHES SECURE _____ ROUNDS OF AMMUNITION.
THE FIRING LINE IS NO LONGER CLEAR.
LOCK.
_____ ROUNDS LOAD.
THIS EXERCISE WILL BE _____ ROUNDS TIMED FIRE. YOU WILL HAVE _____ SECONDS IN WHICH TO FIRE EACH SHOT.
READY ON THE RIGHT?
READY ON THE LEFT?
THE FIRING LINE IS READY.
(A whistle, buzzer, horn, or other audible signal should be sounded to begin the exercise and again to cease fire.)
CEASE FIRE (given simultaneously with signal).
ARE THERE ANY ALIBIS? (See ch. 6, par. 62*e*.)
(ALIBI FIRERS COMMENCE FIRING.)
(CEASE FIRE.)
CLEAR ALL WEAPONS.
CLEAR ON THE RIGHT?
CLEAR ON THE LEFT?
THE FIRING LINE IS CLEAR.
COACHES AND FIRERS MOVE DOWN RANGE AND CHECK YOUR TARGETS.

(3) *Rapid fire exercises.* Preliminary instructions to describe the exercise should be given prior to the actual fire command. For example, "the next exercise will be nine rounds rapid fire in which you move from the standing to the prone position. You will load the first round while in the standing position. When the (whistle, buzzer, or horn) sounds, you will assume the prone position and fire the single round. Reload as quickly as possible with the (magazine) (clip) of eight rounds and resume firing. Distribute your fire between the two targets so that at least three but no more than six rounds are fired at each target. You will have 60 seconds to complete this exercise. Timing begins and ends when you hear this signal (sound signal). When you hear the second signal, you must cease fire even if you have not fired all of your rounds."
FIRERS ASSUME A (PRONE) (SITTING) POSITION.
RISE, KEEPING YOUR FEET IN PLACE.
COACHES SECURE ONE LOOSE ROUND AND ONE (*MAGAZINE) (**CLIP) OF EIGHT ROUNDS.
THE FIRING LINE IS NO LONGER CLEAR.
LOCK, ONE ROUND LOAD.
YOU WILL FIRE NINE ROUNDS

AT THE TWO SILHOUETTE TARGETS IN YOUR LANES OF RESPONSIBILITY.
READY ON THE RIGHT?
READY ON THE LEFT?
THE FIRING LINE IS READY.
(A whistle, buzzer, horn, or other audible signal should be sounded to begin the exercise and again to cease fire.)
CEASE FIRE (given simultaneously with signal).
ARE THERE ANY ALIBIS? (See ch. 6, par. 62e.)
(ALIBI FIRERS COMMENCE FIRING.)
(CEASE FIRE.)
CLEAR ALL WEAPONS.
CLEAR ON THE RIGHT?
CLEAR ON THE LEFT?
THE FIRING LINE IS CLEAR.
COACHES AND FIRERS MOVE DOWN RANGE AND CHECK YOUR TARGETS.

---

* For personnel armed with M14 rifles.
** For personnel armed with M1 rifles.

*g. Range Safety.* See appendix II.

# APPENDIX V

# INSTALLATION OF SILHOUETTE TARGETS ON KNOWN DISTANCE RANGES

## 1. General

The installation of silhouette targets on known distance ranges, using either automatic target devices or manually operated targets, must be accomplished so as to retain the normal known distance type firing capability of the ranges.

## 2. Installation of Automatic Target Devices

In order to provide the proper distance between the firing lines and the targets, the target devices must be located in the immediate vicinity of the target berm—either on top of the berm, immediately in front of the berm, or at some point on the forward slope of the berm.

*a. Placing Target Devices on Top of the Berm.* The principal consideration in placing the target devices on top of the target berm (fig. 78) is whether the impact area behind the targets will be visible to the firers. On many known distance ranges, the height of the

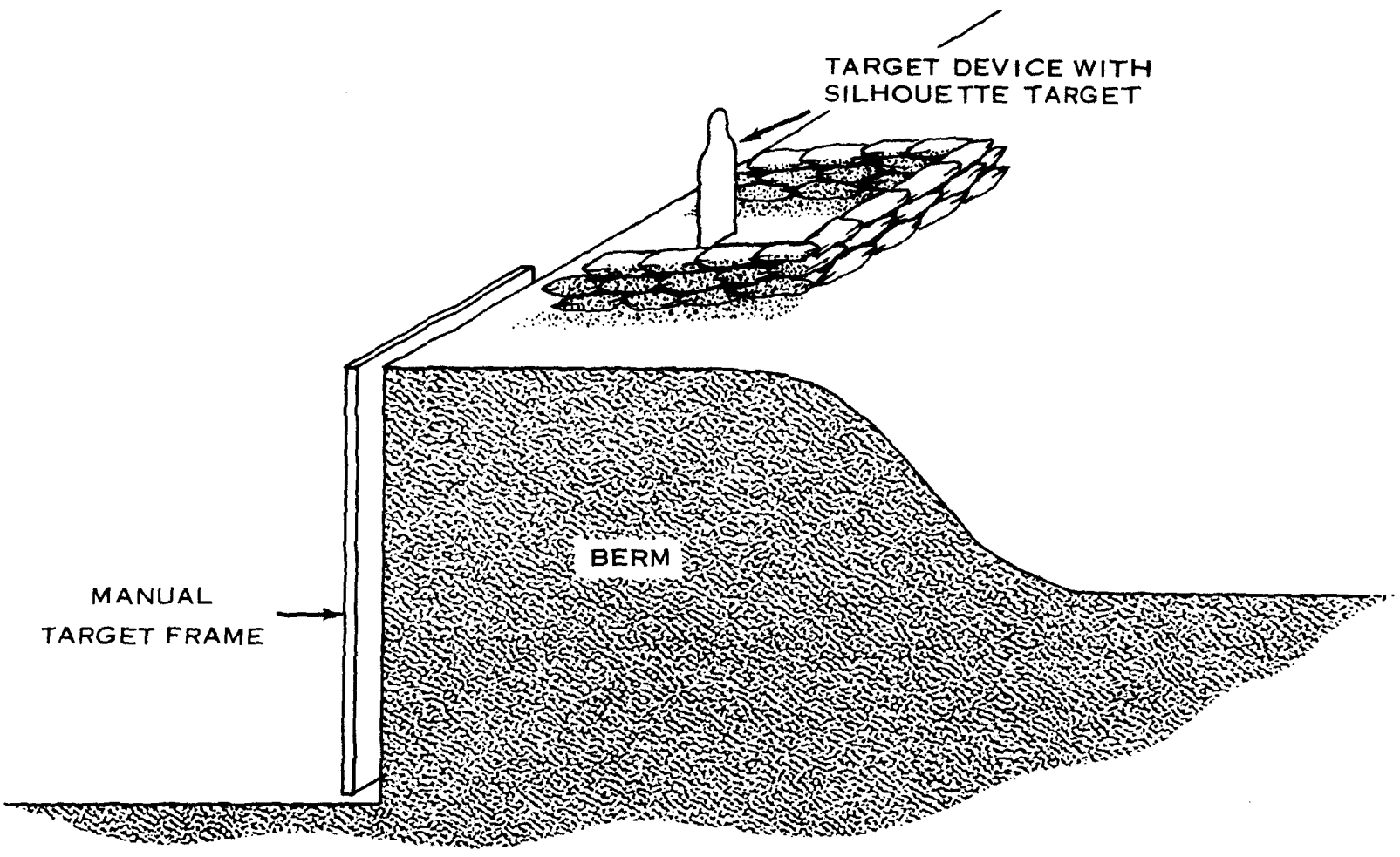



*Figure 78. Installation of automatic target devices on top of the target berm.*

berm completely masks the impact area. Since a principal objective of known distance combat target firing is teaching the use of the "adjusted aiming point," firers must be able to see the strike of their bullets. Therefore, this location should only be selected if the impact area, such as an impact berm behind the targets, is visible from the firing lines.

*b. Placing Target Devices Immediately in Front of the Target Berm.* On those known distance ranges which do not have visible impact areas, first consideration should be given to placing the target devices immediately in front of the target berm (fig. 79). With the devices in this location, the target berm becomes the impact area and the firer is able to observe the strike of his rounds. However, if the range has elevated firing lines, the 100-yard firing line may mask the targets from firers located on the 200- or 300-yard firing lines. Therefore, the visibility of targets from each firing line must be carefully checked prior to installing targets in this location.

*c. Placing Target Devices on the Forward Slope of the Target Berm.* Target devices should only be placed on the forward slope of the target berm (fig. 80) if the range has no impact berm, but does have elevated firing lines which mask the area in front of the berm. The reason for this is that installing the devices on the slope of the berm requires the most extensive modification to the range. In addition to this method being the most expensive, placing target devices in this location causes the greatest problem of range maintenance. In order to service the devices, range personnel must walk up and down the face of the berm, thus increasing the eroding effect on the slope.

### 3. Installation of Manually Operated Targets

Manually operated silhouette targets are installed on the standard target frames of the known distance range. These frames must be modified as shown in figure 81. This modification does not preclude the use of the frames for normal known distance type targets. If there is no impact berm behind the target berm, target cloth is placed on the target frames behind the silhouettes (fig. 82). Thus if a firer misses the silhouette but hits the target cloth, the pit detail places a spotter in the hole so the firer can apply the principle of the "adjusted aiming point."

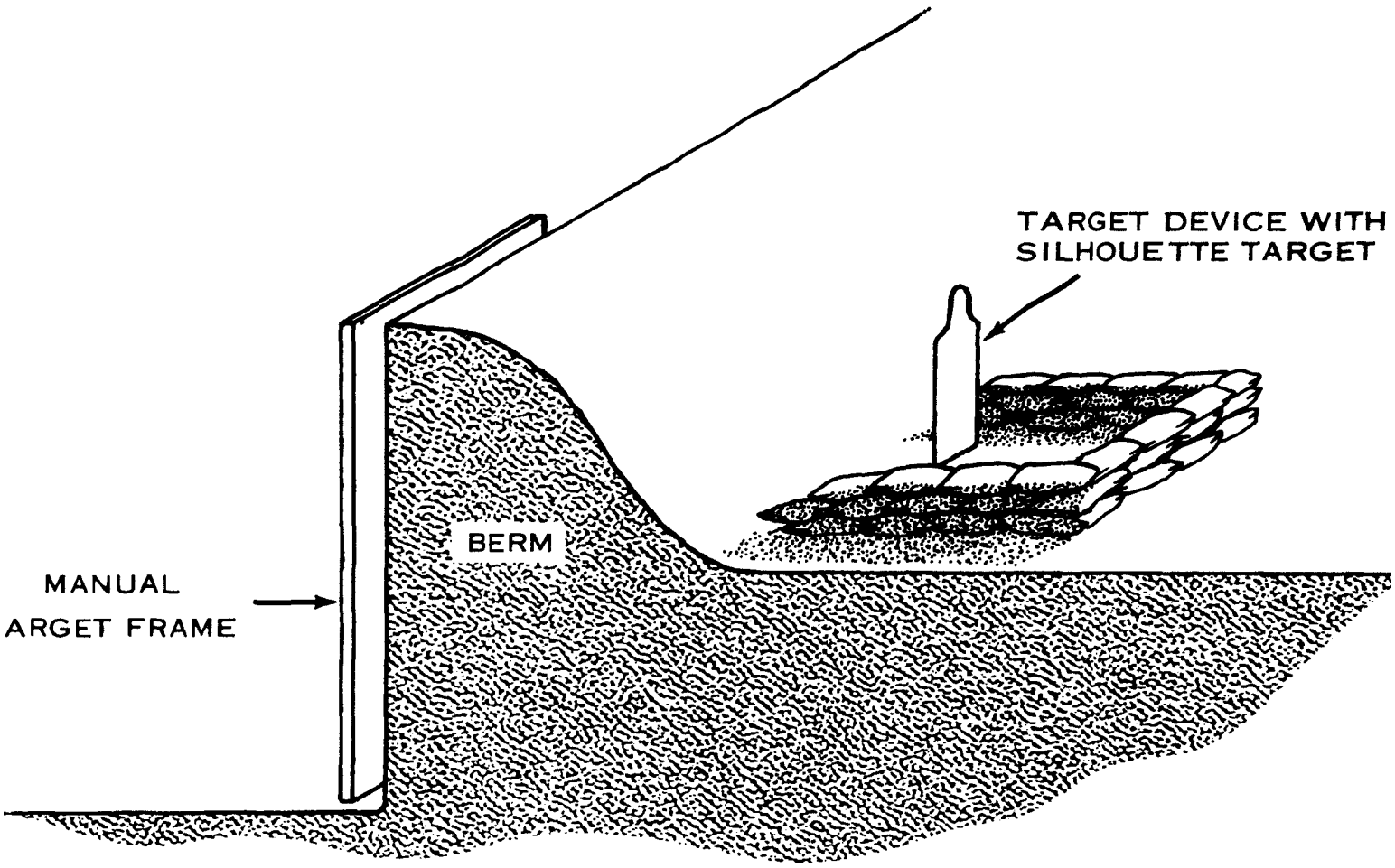



*Figure 79. Installation of automatic target devices in front of the target berm.*

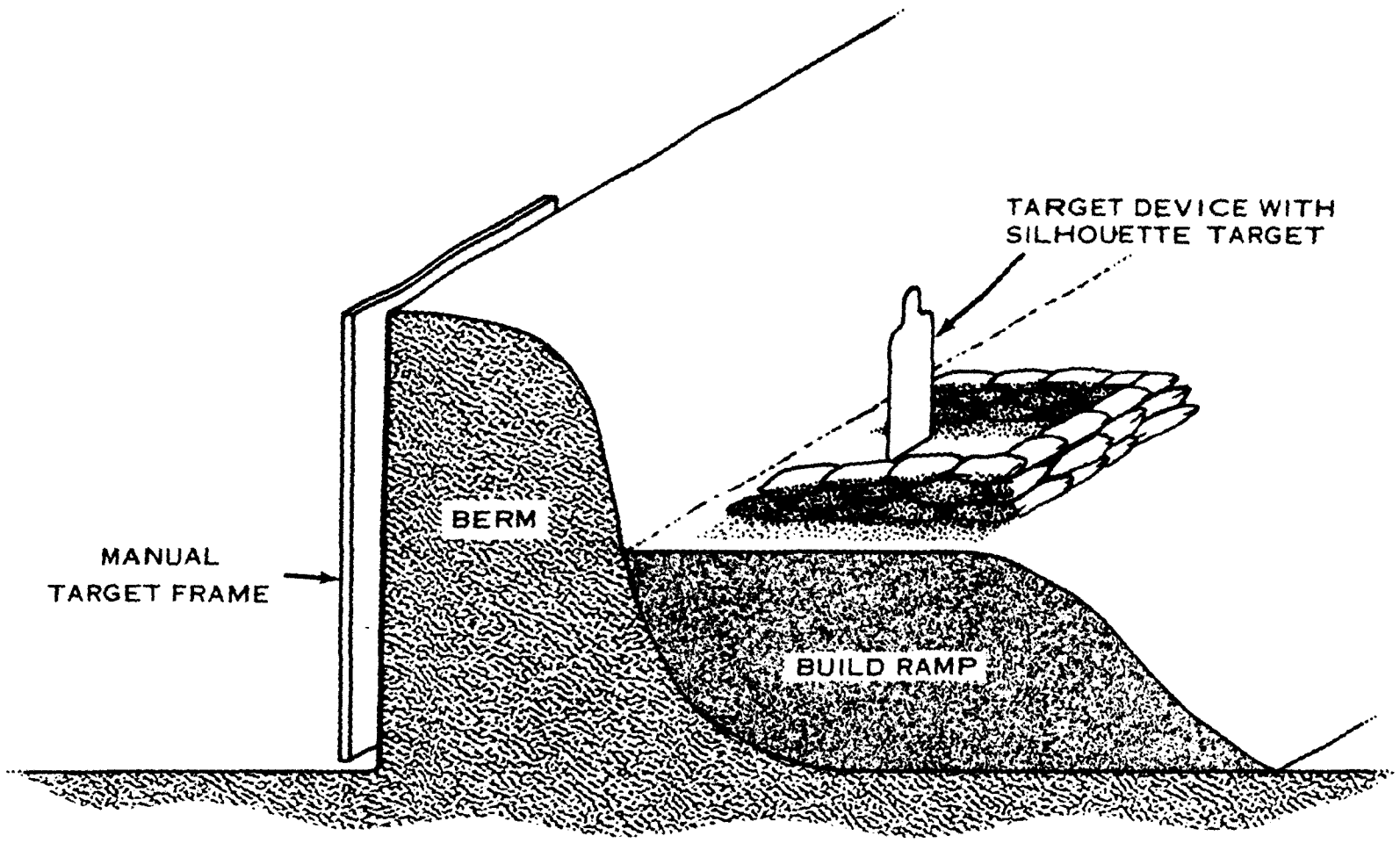



*Figure 80. Installation of automatic target devices on the forward slope of the target berm.*

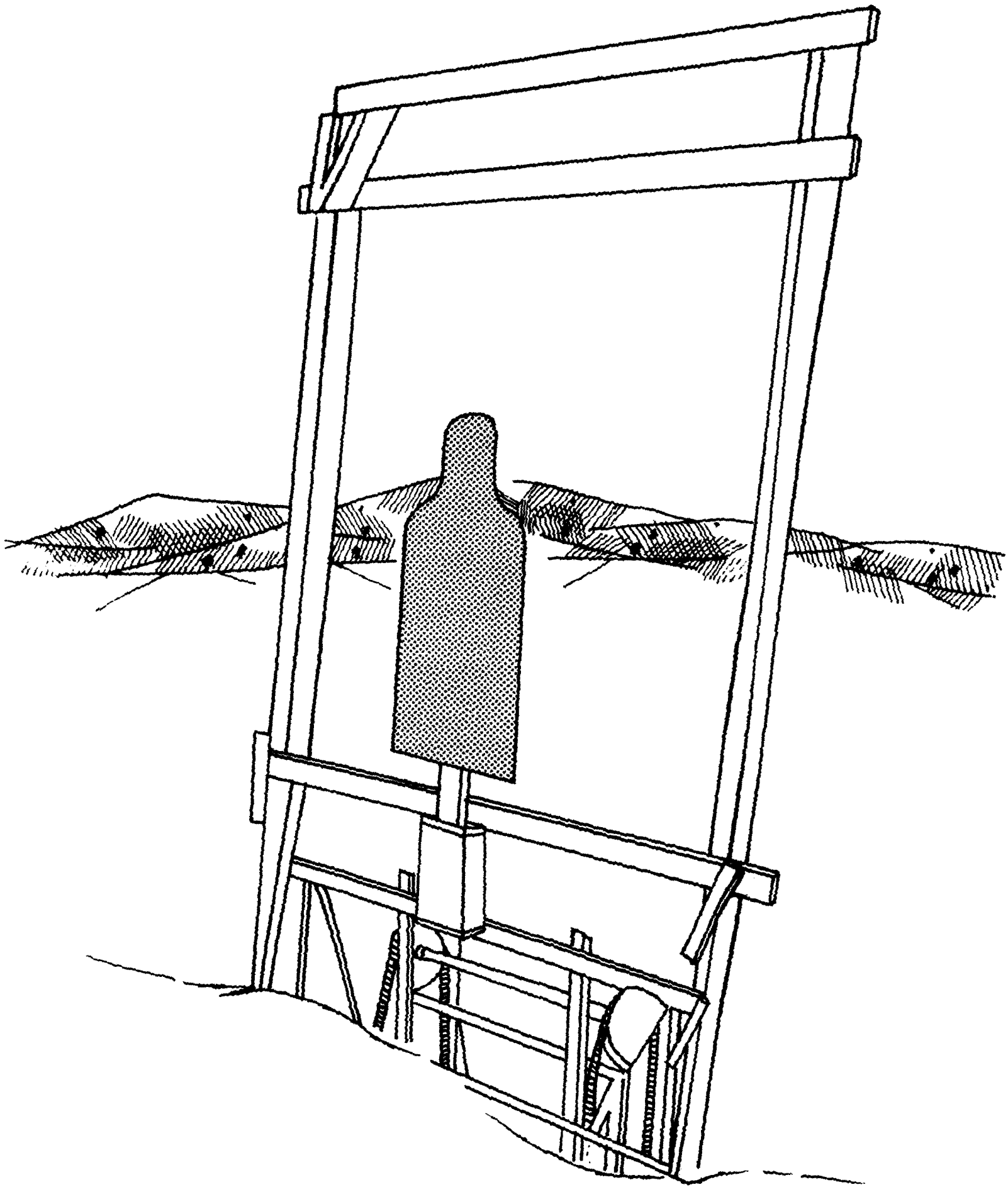


*Figure 81. Modification of target frame for silhouette targets.*

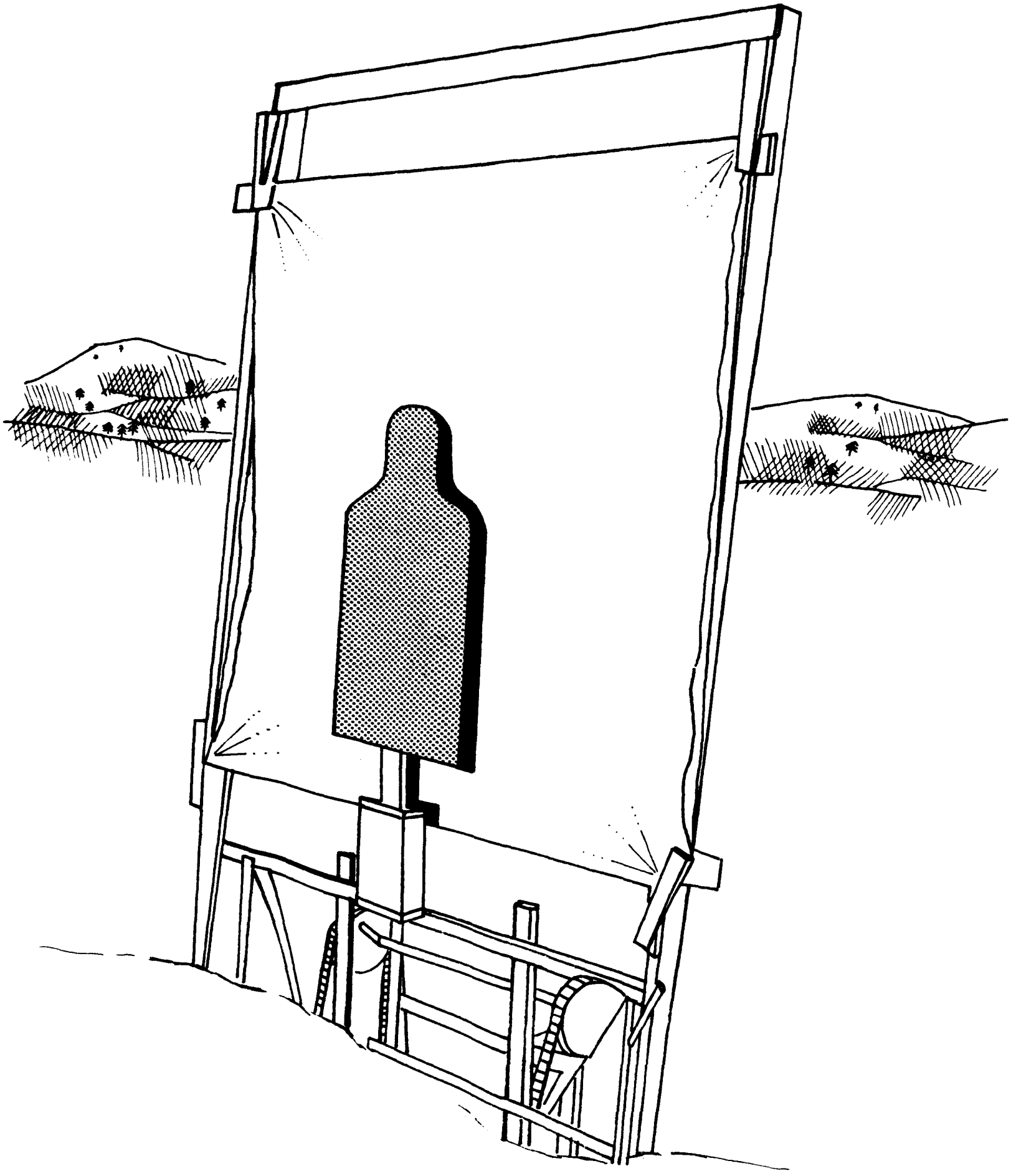


*Figure 82. Silhouette target with target cloth background.*

# APPENDIX VI

# TARGET DETECTION EXERCISES

## 1. General

*a.* The exercises outlined in this appendix serve as the basis for the target detection training conducted in conjunction with any of the rifle marksmanship courses listed in appendix III. Target detection periods of instruction are listed in numerical sequence, however, this denotes only the recommended sequence of instruction and has no relation to the numerical periods of a specific marksmanship course.

*b.* Training aids, equipment, and detailed time breakdown for each target detection period listed in this appendix are outlined in Army Subject Schedule 23–31.

*c.* Each marksmanship course outlined in appendix III indicates the target detection periods applicable to that course. For example, Combat Readiness Marksmanship Proficiency Course A1 prescribes six hours of target detection training and two hours of target detection tests. This training is to be conducted during periods five through eight of the marksmanship course. As indicated in paragraph 9*a*(2)(*c*), appendix III, target detection period one is conducted during period five of the Combat Readiness Marksmanship Proficiency Course A1. Target detection periods four and seven are conducted during period six of the marksmanship course and so forth.

## 2. Target Detection Exercises

*a. Period One, Introduction to Target Detection* (2 hours). The purpose of this period is to teach each soldier the necessary skills and methods of detecting, marking, and estimating the range to realistic battlefield targets.

(1) *Range facilities.* Two target detection ranges.

(2) *Personnel.*

(*a*) Two principal instructors (one for each range).

(*b*) Eight assistant instructors (four for each range).

(*c*) Six target men (three for each range).

*Note.* One principal instructor is needed at both ranges. They have the responsibility for setting up the range, training target men, and conducting the class. Four assistant instructors are needed for each range. They control the observers, assist in scoring, and must be thoroughly familiar with the position of the targets. The six target men, three for each range, must be trained to perform the duties of "targets." Each one is assigned a number of target placements within a certain area, and all target men are given a target sheet containing only the trial numbers and the indications he is to perform.

(3) *Organization.* One order of observers is assigned to each range.

(4) *Blank ammunition requirements.*

Rounds per presentation ..... 20
Rounds for rehearsal (on two ranges) .. 40

(5) *Master trial sheet.*

| *Trial No.* | *Where* | *Range (meters)* | *Target indications by phases* |
|---|---|---|---|
| 1 | A, B | 22 | (1) Be slightly exposed; remain still.<br>(2) Raise and lower head and shoulders slowly.<br>(3) Move head and shoulders from side to side slowly.<br>(4) Fire blank. |
| 2 | B, D | 66 | (1) Be slightly exposed at start of trial; remain still.<br>(2) Move head and shoulders from side to side.<br>(3) Raise head slowly, drop abruptly.<br>(4) Fire one blank. |
| 3 | E, F | 161 | (1) Be exposed but partly hidden, remain still.<br>(2) Move forward and back 1 yard each 10 seconds.<br>(3) Step out and back quickly each 10 seconds. |

| Trial No. | Where | Range (meters) | Target indications by phases |
|---|---|---|---|
| | | | (4) Fire two blanks (10 seconds apart). |
| 4 | J, K | 44 | (1) Be slightly exposed at start, remain still.<br>(2) Shake bush gently (each 5 seconds).<br>(3) Raise and lower head slowly with shiny helmet liner.<br>(4) Fire one blank round. |
| 5 | B | 119 | (1) Be exposed at start of trial (kneeling); remain still.<br>(2) Move head and shoulders from side to side.<br>(3) Jump out and back each 5 seconds.<br>(4) Fire two blanks from exposed position (10 seconds apart). |
| 6 | F, H | 95 | (1) Be exposed at start of trial, remain still.<br>(2) Assume kneeling position slowly and stand slowly.<br>(3) Come up slowly; go down fast.<br>(4) Fire two blanks from exposed position (10 seconds apart). |
| 7 | B | 91 | (1) Be exposed (kneeling) at start of trial; remain still.<br>(2) Raise head slowly, drop abruptly, repeat every 5 seconds.<br>(3) Same as (2) but with shiny helmet liner.<br>(4) Fire two blanks from kneeling position (10 seconds apart). |
| 8 | D | 51 | (1) Be slightly exposed in prone position.<br>(2) Raise head slowly, drop abruptly; repeat every 5 seconds.<br>(3) Move to side and back every 5 seconds.<br>(4) Fire blank (kneeling). |
| 9 | A, D | 41 | (1) Raise and lower head and shoulders.<br>(2) Raise head slowly, drop abruptly; repeat every 5 seconds.<br>(3) Repeat with shiny helmet liner.<br>(4) Fire blank. |
| 10 | D, E | 88 | (1) Be slightly exposed; remain still.<br>(2) Move side to side slowly.<br>(3) Same as (2) with shiny helmet liner.<br>(4) Fire two blanks from prone position (10 seconds apart). |

*Note.* Target Trial Sheets should be prepared from a Master Trial Sheet similar to the one above; it should contain only the trials and target indication performed by a specific target. Although each target man has been thoroughly rehearsed, the target trial sheets will insure that no mistakes are made. For example, you may assign your trials in the following manner: 1st target man—extract trials 1, 4, 8, 9 as shown in the Master Trial Sheet; 2d target man—extract trials 2, 7, 10; 3d target man—extract trials 3, 5, 6.

### (6) *Answer sheet.*

ANSWER SHEET

Name____ _____ ____ Platoon___ Squad___ Date___
(Last) (First)

Instructions

1. Do not change your answers to indicate anything not actually seen.
2. There will be four phases during each trial. Although the target remains in the same location, each phase will consist of a different target indication. Targets will each be presented four times. In the appropriate space for each phase of each trial, place either a √ if you saw the target or an X if you failed to see it.
3. Under the "WHERE," mark the identifying letter of the landmark nearest the target. If you are in doubt as to the identity of the nearest landmark, hold up your hand and the instructor will check with you.
4. Under range enter your estimate to the target in meters. Estimations within 25 meters will be considered correct.

| Trial No. | Phase number 1 | 2 | 3 | 4 | Where (letter of nearest landmark) | Range (meters) |
|---|---|---|---|---|---|---|
| 1 | | | | | | |
| 2 | | | | | | |
| 3 | | | | | | |
| 4 | | | | | | |
| 5 | | | | | | |
| 6 | | | | | | |
| 7 | | | | | | |
| 8 | | | | | | |
| 9 | | | | | | |
| 10 | | | | | | |
| 11 | | | | | | |
| 12 | | | | | | |
| 13 | | | | | | |
| 14 | | | | | | |
| 15 | | | | | | |
| 16 | | | | | | |
| Total | | | | | | |

*b. Period Two, Detection of Realistic Battlefield Targets* (2 hours). This period is conducted in the same manner as period one. Range facilities, personnel, organization, ammunition requirements, master trial sheet, and answer sheet are the same as outlined for period one.

*c. Period Three, Detection of Single Moving Targets* (2 hours). The purpose of this period is to give the soldier practice in detecting and marking single, combat-type moving targets.

(1) *Range facilities.* One target detection range.

(2) *Personnel.*

(*a*) One principal instructor.

(*b*) Three target men.

(3) *Blank ammunition requirements.*

Rounds per presentation ..... 11.
Rounds for rehearsal ..... 11.

(4) *Master trial sheet.*

SAMPLE MASTER TRIAL SHEET

| *Trial No.* | *Range (meters)* | *Description of requirements* |
|---|---|---|
| 1 | 200 | Standing exposed by tree. Down to kneeling, exposed. Slow movement to out-of-sight position. Out-of-sight fire round for smoke indications. |
| 2 | 150 | Same as above with a poor aiming point. |
| 3 | 175 | Start standing. Disappear on command. Reappear in same position. Make five 4-second rushes with a good aiming point. Fire one round from last position. |
| 4 | 300 | Start from kneeling position behind bush. Make five 4- to 5-second rushes. Disappear where there is a poor aiming point. Reappear from same position. 5-3-3-5-5-seconds. Fire round from last position. |
| 5 | 300 | Start prone. Make five 4-5-8-second rushes. Disappear after each rush and roll or crouch to a new position. Three-second rush, crawl left. Six-second rush, crawl right. Cross small draw. Appear and make 8-second rush, crawl left. Three-second rush, crawl right. Fire one round from last position. |
| 6 | 175 | Start prone. Make three 4-second and two 6-second lateral rushes to new concealment. Reappear at same point of disappearance. Vary time between rushes. Fire one round from last position. |
| 7 | 175 | Do same in reverse. Crawl or roll to new position after disappearing. Fire round from last position. |
| 8 | 200 | Run 200 yards from tree to position with a poor aiming point. Fire |

| Trial No. | Range (meters) | Description of requirements |
|---|---|---|
| | | two blanks 1 minute after disappearance. |
| 9 | 300 | Start prone. Three-second rush, crawl left. Five-second rush, crawl right. 5-L-3-3-6-R-4-5, through draw. Fire round from last position. (Numbers indicate duration of rush; letters L and R indicate direction of roll or crawl after each rush.) |
| 10 | 300 | Start behind bush. 6-8-R-3-R-4-3. Fire round from last position. |

*Note.* Target trial sheets should be prepared from a master trial sheet similar to the one above containing only the trials and target indications performed by a specific target.

(5) *Answer sheet.*

ANSWER SHEET

Name_____ Platoon___ Squad___ Date___

| Trial No. | Where (letter of nearest landmark) | Range (meters) |
|---|---|---|
| 1 | | |
| 2 | | |
| 3 | | |
| 4 | | |
| 5 | | |
| 6 | | |
| 7 | | |
| 8 | | |
| 9 | | |
| 10 | | |

*d. Period Four, Detection of Multiple Moving Targets* (2 hours). The purpose of this period is to give the soldier practice in detecting, marking, aiming at, and engaging multiple, combat-type moving targets.

(1) *Range facilities.* Two target detection ranges.

(2) *Personnel.*

(*a*) Two principal instructors (one for each range).

(*b*) Eight assistant instructors (four for each range).

(*c*) Sixteen target men (eight for each range).

(3) *Organization.* One order of observers is assigned to each range.

(4) *Blank ammunition requirements.*

Rounds per presentation ..... 48.
Rounds for rehearsal (on two ranges) ..... 96.

(5) *Master trial sheet.* (Observers use target aiming device to mark the locations of moving targets.)

SAMPLE MASTER TRIAL SHEET

| Trial No. | No. men | Range (meters) | Description of requirements |
|---|---|---|---|
| 1 | 2 | 75 | Kneeling exposed. Crawl to new position in four 5-meter crawling movements. Fire round from each. Good aiming points. |
| 2 | 3 | 100 | Same as above. Poor aiming points, but reference points available. Reference points increase in difficulty each time. |
| 3 | 4 | 300 | Start with targets walking through woods or other partial cover. Disappear when fired on. Make five 4-second rushes to positions with good aiming points. Fire round from last position. |
| 4 | 2 | 200 | Start from kneeling position behind bush. Make five 2- to 4-second rushes. Disappear where there is a poor aiming point. Reference points available but not easy. 4-2-2-4-4 seconds. Fire round from last position. |
| 5 | 3 | 300 | Start prone. Make five 2- to 6-second rushes, good and poor aiming points. 2-4-6-6-2. Fire round from last position. |
| 6 | 4 | 175 | Start at tree. Make five 2- to 4-second lateral rushes to new positions affording good |

| Trial No. | No. men | Range (meters) | Description of requirements |
|---|---|---|---|
| | | | and poor aiming points. Fire round from last position. |
| 7 | 3 | 175 | Start at different distances. Make five 2- to 4-second approach rushes. Varied good and poor aiming points. Fire round from last position. |
| 8 | 3 | 200 | Make four 5-meter crawling movements to positions without good aiming points. Reference points increase in difficulty each time. Fire round from last position. |
| 9 | 3 | 300 | Start walking in woods. Make five 2- to 6-second rushes. 4-2-2-6-4. Fire round from last position. |
| 10 | 4 | 150 | Make five 2- to 6-second rushes. 4-3-6-2-3. Fire round from last position. |

*Note.* Target Trial Sheets should be prepared from a Master Trial Sheet similar to the one above, containing only the trials and indications performed by a specific target or targets.

**SAMPLE MASTER TRIAL SHEET**

| Trial No. | Sound position | Trial No. | Sound position |
|---|---|---|---|
| 1 | H | 15 | G–C |
| 2 | A–J | 16 | F |
| 3 | C–L | 17 | A–C |
| 4 | E–H | 18 | C–J |
| 5 | A | 19 | I |
| 6 | G | 20 | E–I |
| 7 | D–B | 21 | G–A |
| 8 | I–G | 22 | E |
| 9 | C | 23 | D |
| 10 | K–A | 24 | I–B |
| 11 | B–F | 25 | B–D |
| 12 | J–I | 26 | F–N |
| 13 | H–K | 27 | J–F |
| 14 | J | 28 | B |

*Note.* Target trial sheets should be prepared from a Master Trial Sheet similar to the Master Trial Sheet shown above, containing only the trials and indications performed by a specific target or targets.

*e. Period Five, Locating Hostile Firing Positions by Sound* (2 hours). The purpose of this period is to give the soldier practice in locating targets by the sound of firing from hostile firing positions.

(1) *Range facilities.* Two target detection ranges.

(2) *Personnel.*

(*a*) Two principal instructors (one for each range).

(*b*) One assistant instructor per ten observers.

(*c*) Ten target men (five for each range).

(3) *Organization.* One order of observers is assigned to each range.

(4) *Blank ammunition requirements.*

| | |
|---|---|
| Rounds per presentation | 46 |
| Rounds for rehearsal (on two ranges) | 92 |

(5) *Master trial sheet.*

(6) *Answer sheet.*

ANSWER SHEET
SOUND DETECTION

| Trial No. | Sound position | Trial No. | Sound position |
|---|---|---|---|
| 1 | | 15 | |
| 2 | | 16 | |
| 3 | | 17 | |
| 4 | | 18 | |
| 5 | | 19 | |
| 6 | | 20 | |
| 7 | | 21 | |
| 8 | | 22 | |
| 9 | | 23 | |
| 10 | | 24 | |
| 11 | | 25 | |
| 12 | | 26 | |
| 13 | | 27 | |
| 14 | | 28 | |

Total_____RIGHT_____WRONG_____

Observer's Name_____ _____ Platoon_____
(Last) (First)

Observation Point_____ Date_____

*f. Period Six, Detection and Movement by Opposing Teams, Personal Camouflage.* The purpose of this period is to give soldiers practical work in target detection and movement as target teams, and to conduct demonstrations and practical work in personal camouflage.

(1) *Range facilities.* Two target detection ranges.

(2) *Personnel.*

(*a*) Two principal instructors (one for each range).

(*b*) One assistant instructor per ten observers.

(*c*) Four demonstrators with camouflage suits (two for each range).

(3) *Organization.* One order of observers is assigned to each range.

(4) *Blank ammunition requirements.* There is no blank ammunition required for this period.

(5) *Master trial sheet.*

MOVEMENTS BY TRIAL

| Soldier targets Trial No.: | (1) 6-sec rush | (2) 2-sec rush | (3) 5-m low crawl | (4) 4-sec rush | (5) 5-m low crawl | (6) 4-sec rush | (7) 10-m high crawl | (8) 2-sec rush | (9) 6-sec rush | (10) 50-m bound |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | X | | | X | X | | | X | X |
| 2 | X | | X | | | X | | X | | X |
| 3 | | X | | | | X | X | | X | X |
| 4 | X | | X | X | | | | X | | X |
| 5 | | | | X | X | | | X | X | X |
| 6 | X | | X | | | X | | X | | X |
| 7 | X | X | | X | | | X | | | X |
| 8 | | | | X | | | X | X | X | X |
| 9 | | X | | | | X | X | | X | X |
| 10 | X | | | X | X | | | X | | X |
| 11 | | X | | | | X | X | X | | X |
| 12 | | X | | X | X | | | | X | X |
| 13 | X | | X | | | X | | X | | X |
| 14 | | X | | X | X | | | | X | X |

*Note.* The above Sample Master Trial Sheet reflects 14 trials for 10 soldiers acting as targets. Units may revise the above Master Trial Sheet to include additional target requirements so as to insure maximum participation when larger squads are used, or have one squad of ten men or less perform trials 1–7 and second squad of ten men or less perform trials 8–14.

(6) *Target trial sheets.*

Target Trial Sheet No. 1.

Trials: (2) 2-sec rush; (5) 5-m low crawl; (6) 4-sec rush;

(9) 6-sec rush; (10) 50-m bound.

Target Trial Sheet No. 2.

Trials: (1) 6-sec rush; (3) 5-m low crawl; (6) 4-sec rush;

(8) 2-sec rush; (10) 50-m bound.

Target Trial Sheet No. 3.
Trials: (2) 2-sec rush; (6) 4-sec rush; (7) 10-m high crawl;
(9) 6-sec rush; (10) 50-m bound.

Target Trial Sheet No. 4.
Trials: (1) 6-sec rush; (3) 5-m low crawl; (4) 4-sec rush;
(8) 2-sec rush; (10) 50-m bound.

Target Trial Sheet No. 5.
Trials: (4) 4-sec rush; (5) 5-m low crawl; (8) 2-sec rush;
(9) 6-sec rush; (10) 50-m bound.

Target Trial Sheet No. 6.
Trials: (1) 6-sec rush; (3) 5-m low crawl; (6) 4-sec rush;
(8) 2-sec rush; (10) 50-m bound.

Target Trial Sheet No. 7.
Trials: (1) 6-sec rush; (2) 2-sec rush; (4) 4-sec rush;
(7) 10-m high crawl; (10) 50-m bound.

Target Trial Sheet No. 8.
Trials: (4) 4-sec rush; (7) 10-m high crawl; (8) 2-sec rush;
(9) 6-sec rush; (10) 50-m bound.

Target Trial Sheet No. 9.
Trials: (2) 2-sec rush; (6) 4-sec rush; (7) 10-m high crawl;
(9) 6-sec rush; (10) 50-m bound.

Target Trial Sheet No. 10.
Trials: (1) 6-sec rush; (4) 4-sec rush; (5) 5-m low crawl;
(8) 2-sec rush; (10) 50-m bound.

Target Trial Sheet No. 11.
Trials: (2) 2-sec rush; (6) 4-sec rush; (7) 10-m high crawl;
(8) 2-sec rush; (10) 50-m bound.

Target Trial Sheet No. 12.
Trials: (2) 2-sec rush; (4) 4-sec rush; (5) 5-m low crawl;
(9) 6-sec rush; (10) 50-m bound.

Target Trial Sheet No. 13.
Trials: (1) 6-sec rush; (3) 5-m low crawl; (6) 4-sec rush;
(8) 2-sec rush; (10) 50-m bound.

Target Trial Sheet No. 14.
Trials: (2) 2-sec rush; (4) 4-sec rush; (5) 5-m low crawl;
(9) 6-sec rush; (10) 50-m bound.

*g. Period Seven, Combination of Sound Localization and Multiple Moving Targets* (2 hours). The purpose of this period is to give soldiers practice in detecting, marking, aiming at, and engaging combinations of firing and moving combat-type targets.

(1) *Range facilities.* Two target detection ranges.

(2) *Personnel.*
(*a*) Two principal instructors (one for each range).
(*b*) One assistant instructor per ten observers.
(*c*) Sixteen target men (eight for each range).

(3) *Organization.* One order of observers assigned to each range.

(4) *Blank ammunition requirements.*

| | |
|---|---|
| Rounds per presentation | 90. |
| Rounds for rehearsal (on two ranges) | 180. |

(5) *Master trial sheet.*

| Trial No. | Range (meters) | Description of requirements |
|---|---|---|
| 15 | 225 | Two targets spaced far apart make 3-second rush; two targets close together fire 2 rounds each. Positions with good aiming points. |
| 16 | 275 | Four targets make 1-, 2-, 3-, 4-second rushes after being fired on from observation line. Each target fires 1 round 2 seconds after disappearing. Positions with varied good and poor aiming points. |
| 17 | 125 | Four targets fire 1, 2, 3, 4 rounds from positions with varied good and poor aiming points. |
| 18 | 300 | Two targets make 1-second rush; two targets fire 1 round. Positions without good aiming points. |
| 19 | 125 | Two targets make two 3-second rushes; one target makes 5-meter crawl; one target fires 1 round. Positions with varied good and poor aiming points. |
| 20 | 175 | One target makes 5-meter crawl; three targets fire 1, 2, 3 rounds. Positions with varied good and poor aiming points. |

*Note.* Target Trial Sheets should be prepared from a Master Trial Sheet similar to the one above, containing only the trials and target indications performed by a specific target.

PERIOD SEVEN
ANNEX III
ANSWER SHEET

COMBINATION OF SOUND LOCALIZATION AND MULTIPLE MOVING TARGETS
(Observers check each other's alignment and place number of targets correctly aligned in space opposite appropriate trial number.)

Name_____ Platoon__ Squad__ Date__

| Trial No. | No. correct | Trial No. | No. correct |
|---|---|---|---|
| 1 | | 12 | |
| 2 | | 13 | |
| 3 | | 14 | |
| 4 | | 15 | |
| 5 | | 16 | |
| 6 | | 17 | |
| 7 | | 18 | |
| 8 | | 19 | |
| 9 | | 20 | |
| 10 | | Total | |
| 11 | | correct | |

Targets representing fire support should be located in a tactically sound position. Moving targets should be located generally to the flank of the maneuver area. Where rushing targets are widely separated (100 meters or more), fire support may be centrally located.

| Trial No. | Range (meters) | Description of requirements |
|---|---|---|
| 1 | 150 | Two targets make clumsy 5-meter crawling movements; two targets fire 4 rounds each toward the observation line. All positions at good aiming points. Targets located within 10 meters of each other. |
| 2 | 200 | Three targets make skilled 5-meter crawling movements; one target fires 2 rounds after start of movement. All positions lack good aiming points and require use of reference points. Distance between targets is 25 meters. |
| 3 | 300 | Two targets walking through bush until fired on from observation line. Targets disappear and then make 4-second rush. |

(6) *Answer sheet.*

ANSWER SHEET

COMBINATION OF SOUND LOCALIZATION AND MULTIPLE MOVING TARGETS
(Observers check each other's alignment and place number of targets correctly aligned in space opposite appropriate trial number.)

Name_____ Platoon__ Squad__ Date__

| Trial No. | No. correct | Trial No. | No. correct |
|---|---|---|---|
| 1 | | 12 | |
| 2 | | 13 | |
| 3 | | 14 | |
| 4 | | 15 | |
| 5 | | 16 | |
| 6 | | 17 | |
| 7 | | 18 | |
| 8 | | 19 | |
| 9 | | 20 | |
| 10 | | Total | |
| 11 | | correct | |

*h. Period Eight, Target Detection Test One* (1 hour). The purpose of this period is to test the soldier's ability to detect and estimate range to single, stationary battlefield targets.

(1) *Range facilities.* One target detection range.

(2) *Personnel.*

(*a*) One principal instructor.

(*b*) Three assistant instructors.

(*c*) Three target men.

(3) *Blank ammunition requirements.*

| | |
|---|---|
| Rounds per presentation | 17 |
| Rounds for rehearsal | 17 |

(4) *Master trial sheet.*

SAMPLE MASTER TRIAL SHEET, TARGET DETECTION TEST NO. 1

| *Trial No.* | *Where* | *Range (meters)* | *Target indications by phases* |
|---|---|---|---|
| 1 | B | 20 | (1) Be slightly exposed at start of trial; remain still.<br>(2) Raise and lower head and shoulders slowly.<br>(3) Move head and shoulders from side to side slowly.<br>(4) Fire one blank. |
| 2 | G | 67 | (1) Be slightly exposed in prone position at start of trial, remain still.<br>(2) Raise and lower head and shoulders slowly.<br>(3) Do same with shiny helmet liner.<br>(4) Fire one blank. |
| 3 | A | 149 | (1) Be exposed, crouching and motionless.<br>(2) Raise up slowly and go down slowly.<br>(3) Step to side slowly, remain still, then step back (each five seconds).<br>(4) Fire two blanks (standing position). |
| 4 | G | 135 | (1) Be slightly exposed (kneeling) at start of trial, remain still.<br>(2) Raise head and shoulders slowly, drop quickly.<br>(3) Rustle bush every five seconds.<br>(4) Fire one blank. |
| 5 | H, F | 150 | (1) Be exposed in kneeling position, motionless.<br>(2) Drop head abruptly, raise slowly every five seconds.<br>(3) Do same with shiny helmet liner.<br>(4) Fire 2 blanks (kneeling position). |
| 6 | E | 33 | (1) Be slightly exposed (in prone position) at start of trial, remain still.<br>(2) Raise and lower head and shoulders slowly.<br>(3) Move head and shoulders slowly from side to side.<br>(4) Fire one blank. |
| 7 | I | 160 | (1) Be partially exposed at start of trial; remain motionless.<br>(2) Move out and back from chimney slowly.<br>(3) Move out and back fast (each five seconds).<br>(4) Fire two blanks (side of chimney). |
| 8 | A | 110 | (1) Be exposed in standing position at start of trial; remain motionless.<br>(2) Walk forward slowly, one yard each 10 seconds.<br>(3) Up and down fast, each five seconds.<br>(4) Fire two blanks (standing). |
| 9 | E | 42 | (1) Be slightly exposed (prone) at start of trial.<br>(2) Move head and shoulders from side to side slowly.<br>(3) Raise head slowly, then drop abruptly.<br>(4) Fire one blank. |
| 10 | C | 200 | (1) Be exposed in standing position at start of trial, remain motionless.<br>(2) Drop quickly, raise head slowly (each five seconds).<br>(3) Step to side (each five seconds).<br>(4) Fire two blanks (standing). |
| 11 | H | 150 | (1) Be exposed in kneeling position, remain motionless.<br>(2) Move forward one meter (each five seconds) very slowly. |

| *Trial No.* | *Where* | *Range (meters)* | *Target indications by phases* |
|---|---|---|---|
| | | | (3) Move to side and back every five seconds. |
| | | | (4) Fire one blank (kneeling). |
| 12 | E | 24 | (1) Be slightly exposed (prone at start of trial), remain still. |
| | | | (2) Move head and shoulders up and down slowly. |
| | | | (3) Move head and shoulders slowly from side to side. |
| | | | (4) Fire one blank. |

*Note.* Target Trial Sheets should be prepared from a Master Trial Sheet similar to the sample shown above. It should contain only the trials and target indications performed by a specific target. Although each target man has been thoroughly rehearsed, the Target Trial Sheets will insure that no mistakes are made.

(5) *Answer sheet.*

TARGET DETECTION TEST NO. 1

ANSWER SHEET

Name_____ Platoon__ Squad__ Date__
(Last) (First)

*Instructions*

1. *Do not* change your answers to indicate anything not actually seen.
2. There will be four phases during each trial. Although the target remains in the same location, each phase will consist of a different target indication. Targets will each be presented four times. In the appropriate space for each phase of each trial place either a √ if you saw the target or an X if you failed to see it.
3. Under the WHERE, mark the identifying letter of the landmark nearest the target. If you are in doubt as to the identity of the nearest landmark, hold up your hand and the instructor will check with you.
4. Under RANGE enter your range determination to the target in yards. Estimations within 25 meters will be considered correct.

| Trial No. | Phase number 1 | 2 | 3 | 4 | Where (letter of nearest landmark) | Range (meters) |
|---|---|---|---|---|---|---|
| 1 | | | | | | |
| 2 | | | | | | |
| 3 | | | | | | |
| 4 | | | | | | |
| 5 | | | | | | |
| 6 | | | | | | |
| 7 | | | | | | |
| 8 | | | | | | |
| 9 | | | | | | |
| 10 | | | | | | |
| 11 | | | | | | |
| 12 | | | | | | |
| 13 | | | | | | |
| 14 | | | | | | |
| 15 | | | | | | |
| 16 | | | | | | |
| Total | | | | | | |

*i. Period Nine, Target Detection Tests Two and Three* (1 hour). The purpose of this period is to test the soldier's ability in detecting and marking single and multiple moving targets and his ability to locate sound of firing from one or more positions.

(1) *Range facilities.* One target detection range.

(2) *Personnel.*

(*a*) One principal instructor.

(*b*) Four assistant instructors.

(*c*) Four target men.

(3) *Blank ammunition requirements.*

Rounds per presentation ..... 30
Rounds for rehearsal ..... 30

(4) *Master trial sheet and answer sheet, target detection test 2.*

SAMPLE MASTER TRIAL SHEET,
TARGET DETECTION TEST NO. 2

| *Trial No.* | *No. men* | *Range (meters)* | *Description of requirements* |
|---|---|---|---|
| 1 | 1 | 300 | Man kneeling by tree, up on command. 10-meter bound. Poor aiming point. |
| 2 | 3 | 75 | Men rush 15 meters. Poor aiming points. |
| 3 | 4 | 200 | Men rush 10 meters. Poor aiming points. |
| 4 | 4 | 150 | Men rush 10 meters laterally. Good aiming points. |
| 5 | 2 | 200 | 10-meter rush. One man left, the other man right. Poor aiming points. |
| 6 | 3 | 75<br>100<br>125 | Three men making 10-meter rush. One good aiming point, two without aiming points. |
| 7 | 3 | 75 | Three men making 5-meter rush. Poor aiming points. |
| 8 | 1 | 200 | Man making 20-meter rush. Poor aiming point. |
| 9 | 2 | 300 | Two men, one making 5-meter rush, one making 10-meter rush. One good and one poor aiming point. |
| 10 | 2 | 150 | Two men making 5-meter lateral rush. Poor aiming points. |

*Note.* Target Trial Sheets should be prepared from a Master Trial Sheet, similar to the Sample Master Trial Sheet shown above.

TARGET DETECTION TEST NO. 2

ANSWER SHEET

OBSERVER'S NAME_____ PLATOON___
(Last) (First)

OBSERVATION POINT_____ DATE_____

| Trial number | No. of targets presented | Right | Wrong |
|---|---|---|---|
| 1 | 1 | | |
| 2 | 3 | | |
| 3 | 4 | | |
| 4 | 4 | | |
| 5 | 2 | | |
| 6 | 3 | | |
| 7 | 3 | | |
| 8 | 1 | | |
| 9 | 2 | | |
| 10 | 2 | | |

25 targets presented

Total_____ Right_____ Wrong_____

(5) *Master trial sheet and answer sheet, target detection test 3.*

SAMPLE MASTER TRIAL SHEET,
TARGET DETECTION TEST NO. 3

| Trial No. | Sound position | Trial No. | Sound position |
|---|---|---|---|
| 1 | B | 11 | I–H |
| 2 | A–G | 12 | C |
| 3 | D–B | 13 | H |
| 4 | G | 14 | B–I |
| 5 | J–F | 15 | E |
| 6 | A | 16 | G–J |
| 7 | F | 17 | H–E |
| 8 | C–D | 18 | D |
| 9 | J | 19 | I |
| 10 | E–A | 20 | F–C |

ANSWER SHEET
SOUND DETECTION

| Trial No. | Sound position | Trial No. | Sound position |
|---|---|---|---|
| 1 | | 11 | |
| 2 | | 12 | |
| 3 | | 13 | |
| 4 | | 14 | |
| 5 | | 15 | |
| 6 | | 16 | |
| 7 | | 17 | |
| 8 | | 18 | |
| 9 | | 19 | |
| 10 | | 20 | |

Total ..... RIGHT_____ WRONG_____

Observer's Name_____ Platoon_____
(Last) (First)

Observation Point_____ Date_____

# APPENDIX VII

# TRAINING AIDS

Properly used, training aids are of invaluable assistance in teaching rifle marksmanship. Models, pictures, and/or charts can be used to teach principles or techniques which would otherwise require lengthy explanations. The training aids listed in this appendix have been found particularly useful for rifle marksmanship training. They are by no means the only training aids which can be or should be used. Specific areas and/or situations may require special type training aids. Consequently, instructors should be encouraged to develop new training aids which will best support their own training program.

*Note.* The following additional training aids should be made from figures listed in previous chapters.

1. *Charts.*
   Figure 4. Importance of sight alignment (ch. 2).
   Figure 33. Principles of zeroing (ch. 3).
2. *Training aids.*
   Figure 28. Aiming device (ch. 2).
   Figure 35. Scoring template (ch. 3).
3. *Films.*
   *a. Training Films.*
      (1) 9–1172—U.S. Rifle, Cal. .30, M1 —Principles of Operation.
      (2) 9–2970—U.S. Rifle, Cal. 7.62-mm. M14—Operation and Cycle of Functioning.
   *b. Miscellaneous Film.* 7–918—This Is The Infantry.

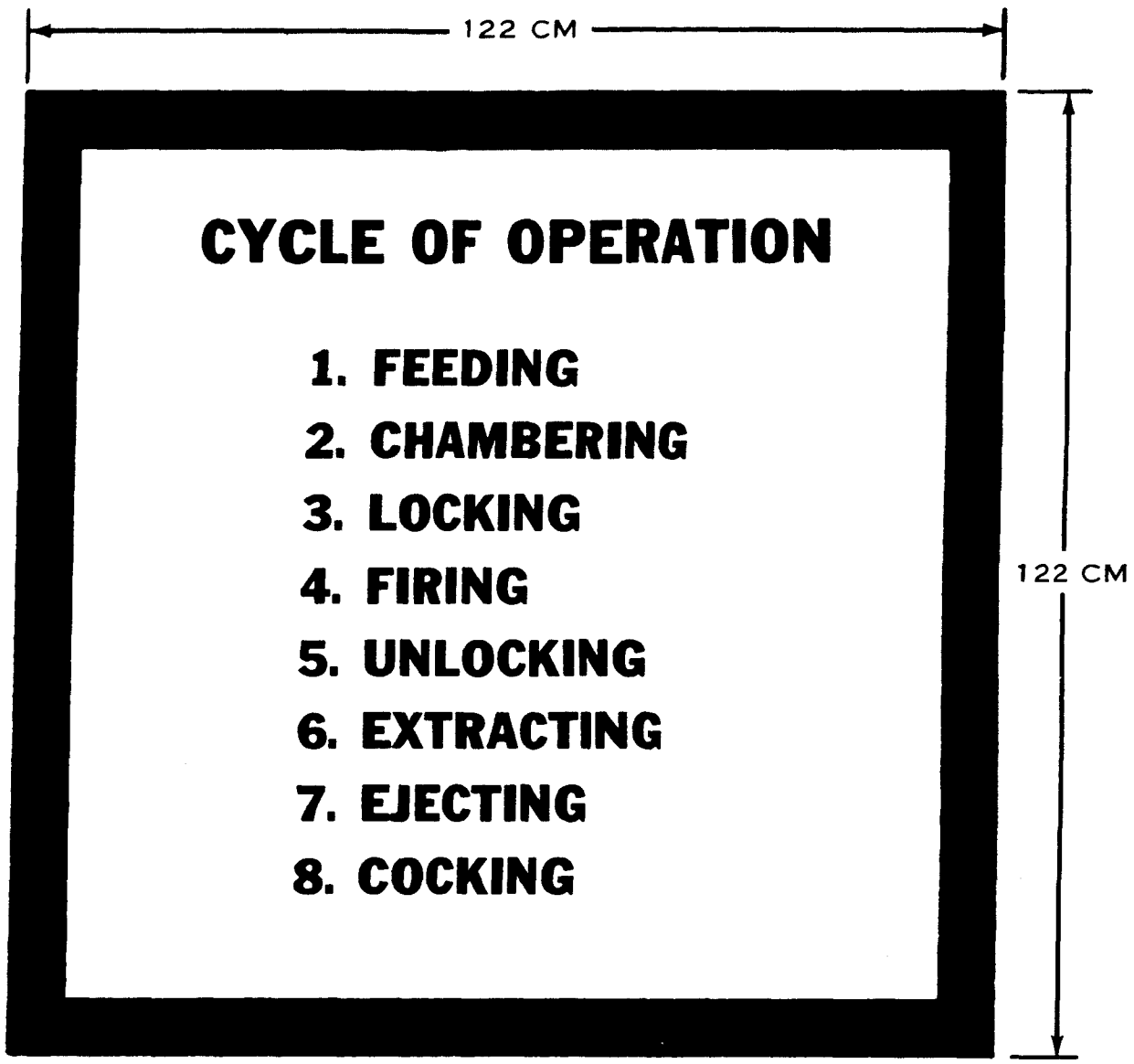



*Figure 83. Chart, cycle of operation, M14 rifle.*

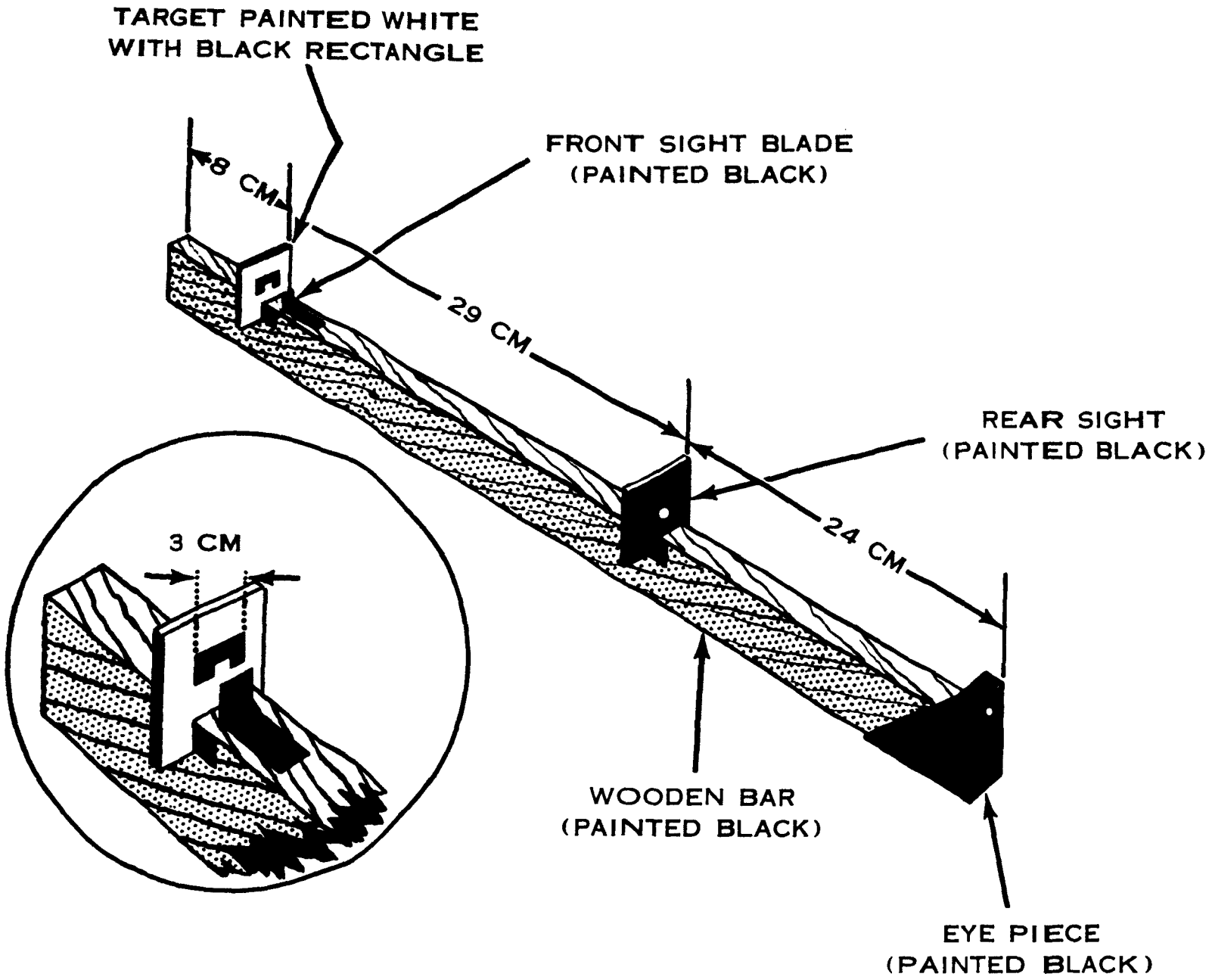



*Figure 84. Aiming bar.*

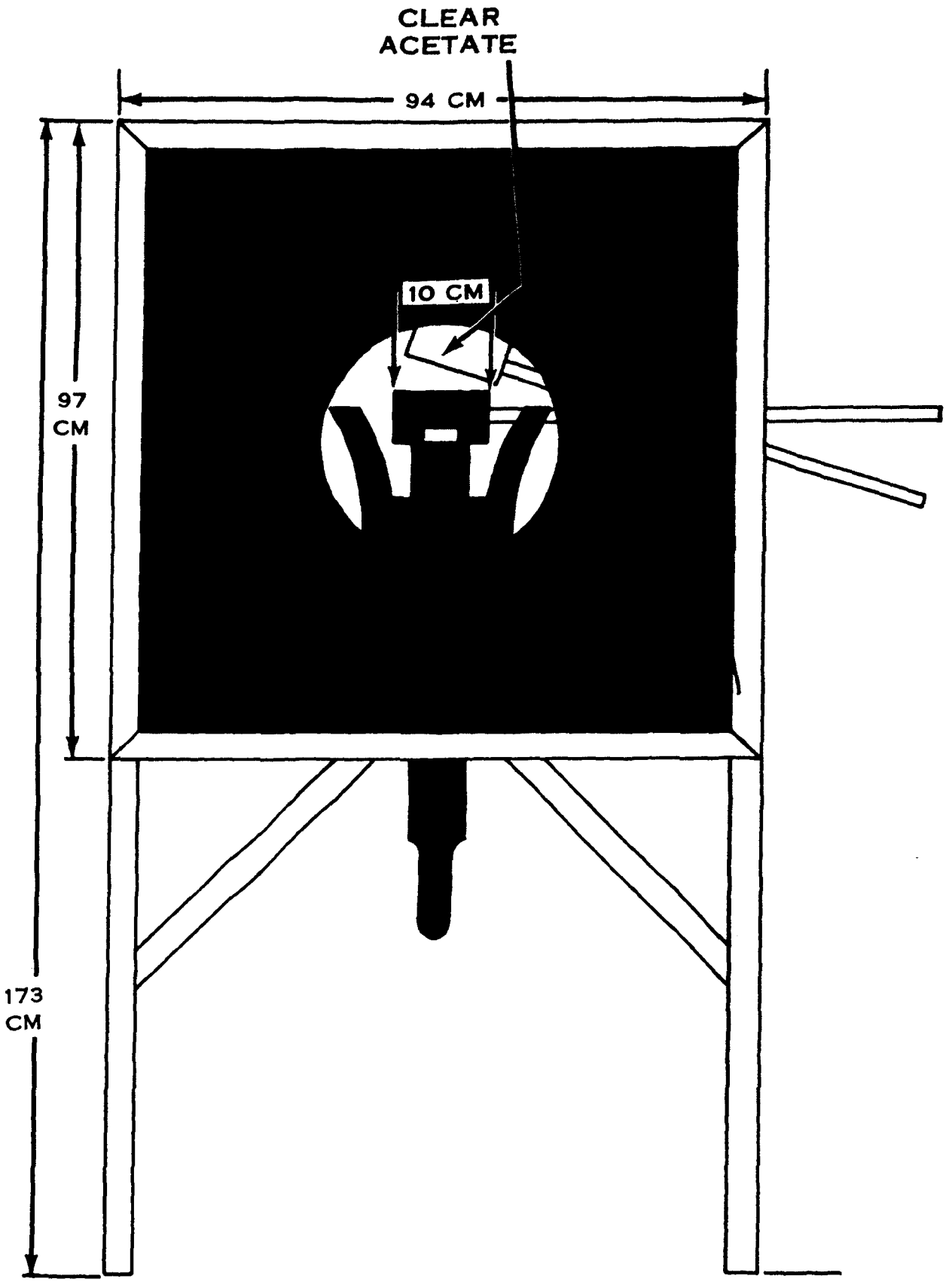



*Figure 85. Sight picture model.*

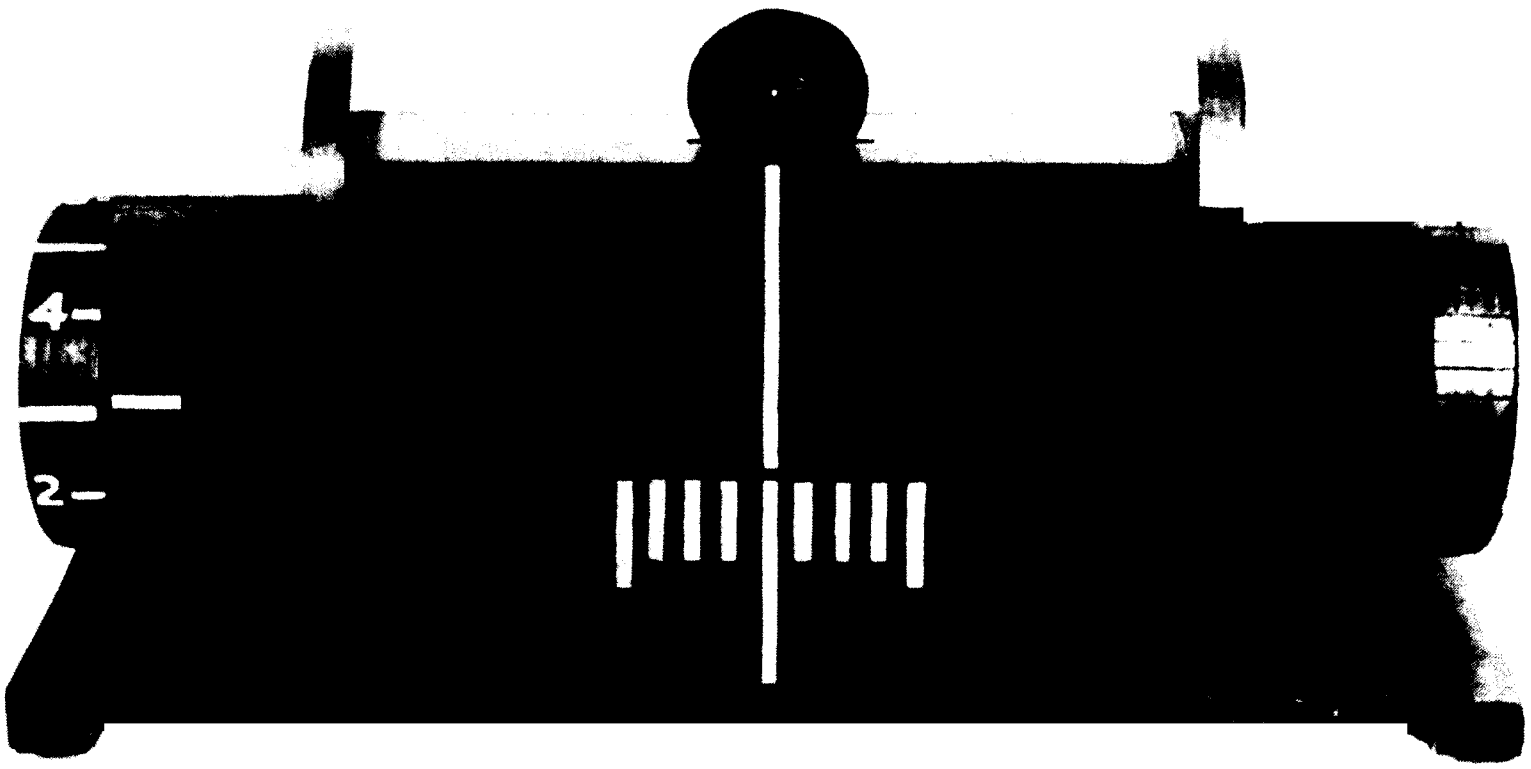



*Figure 86. Rear sight model.*

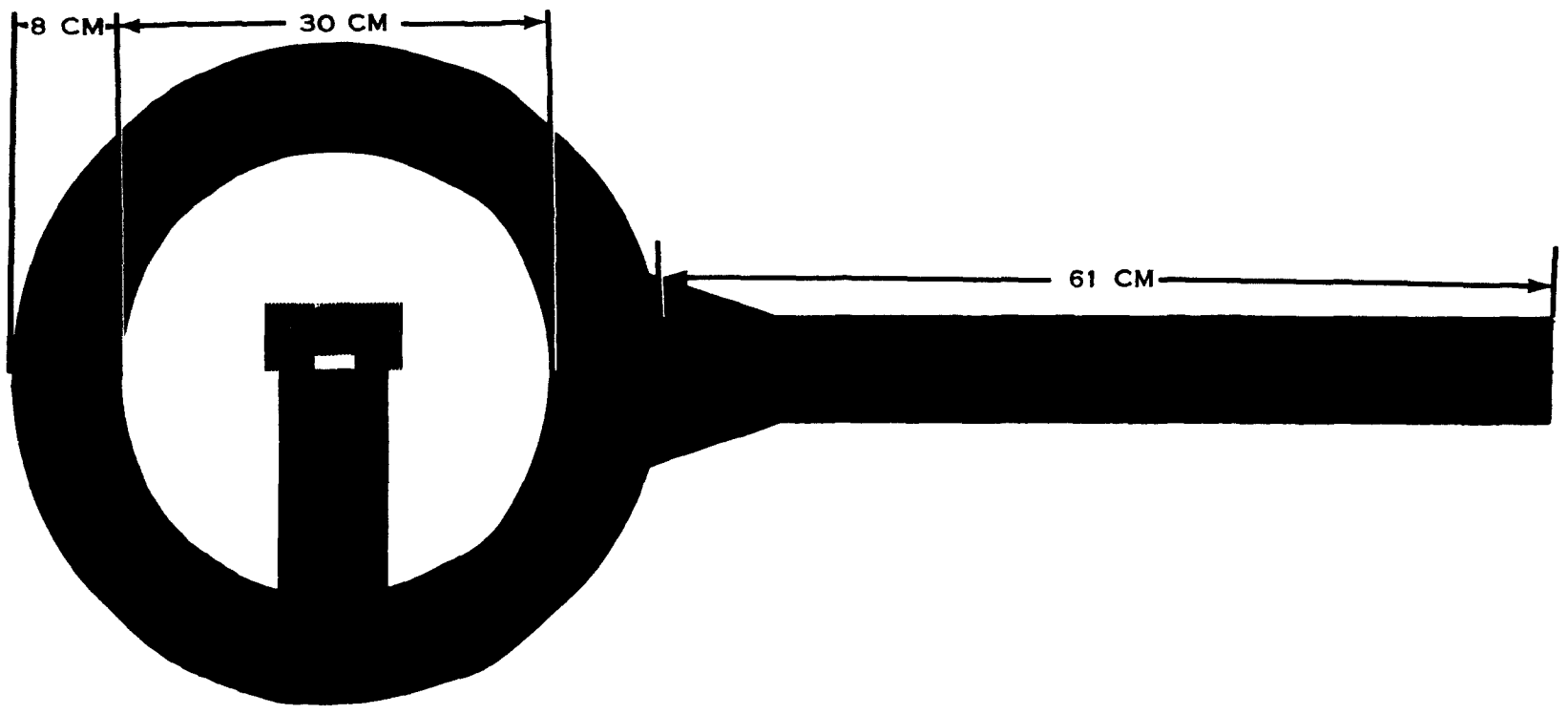



*Figure 87. Fixed sight alignment device.*

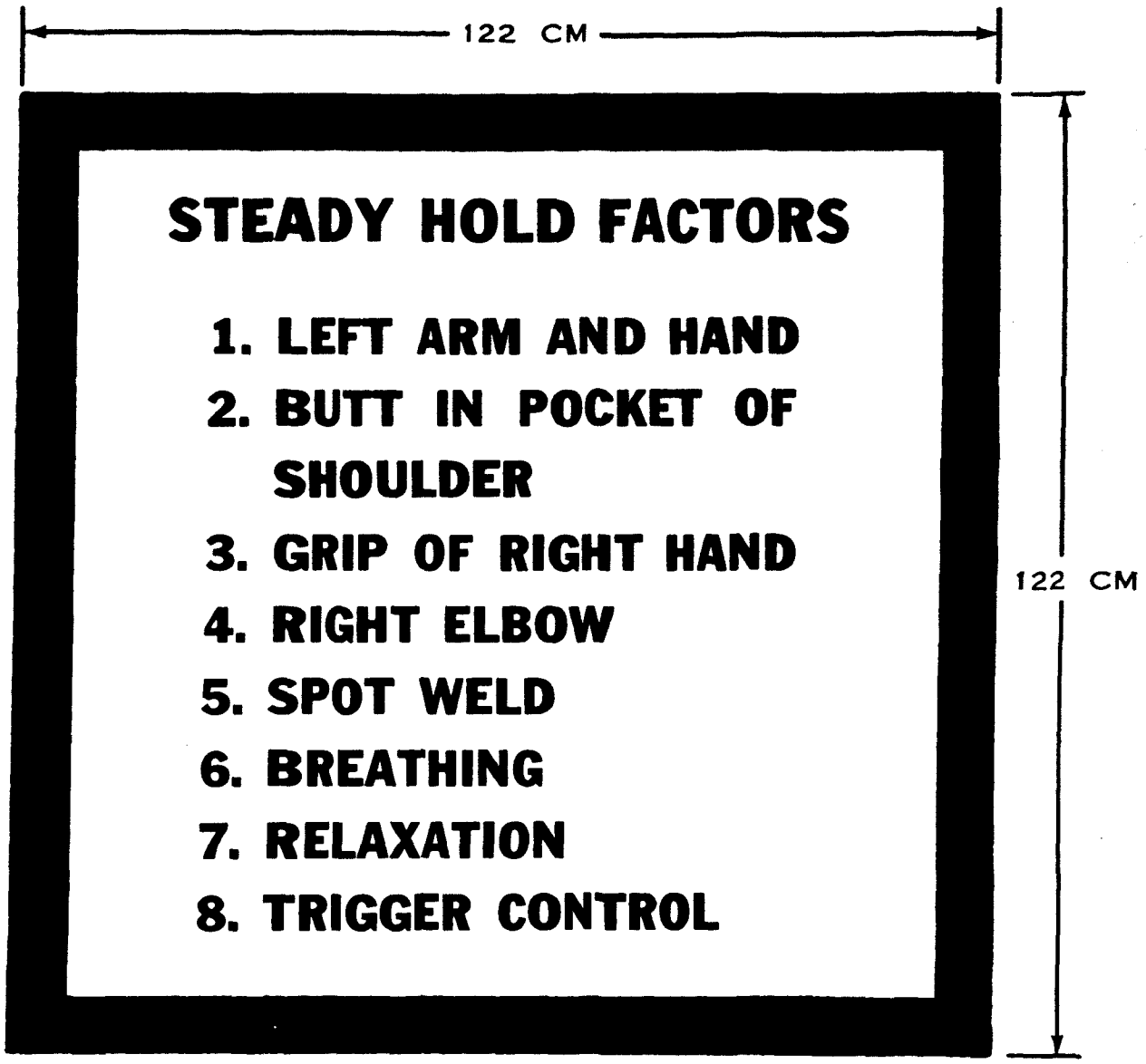



*Figure 88. Chart, eight steady hold factors.*

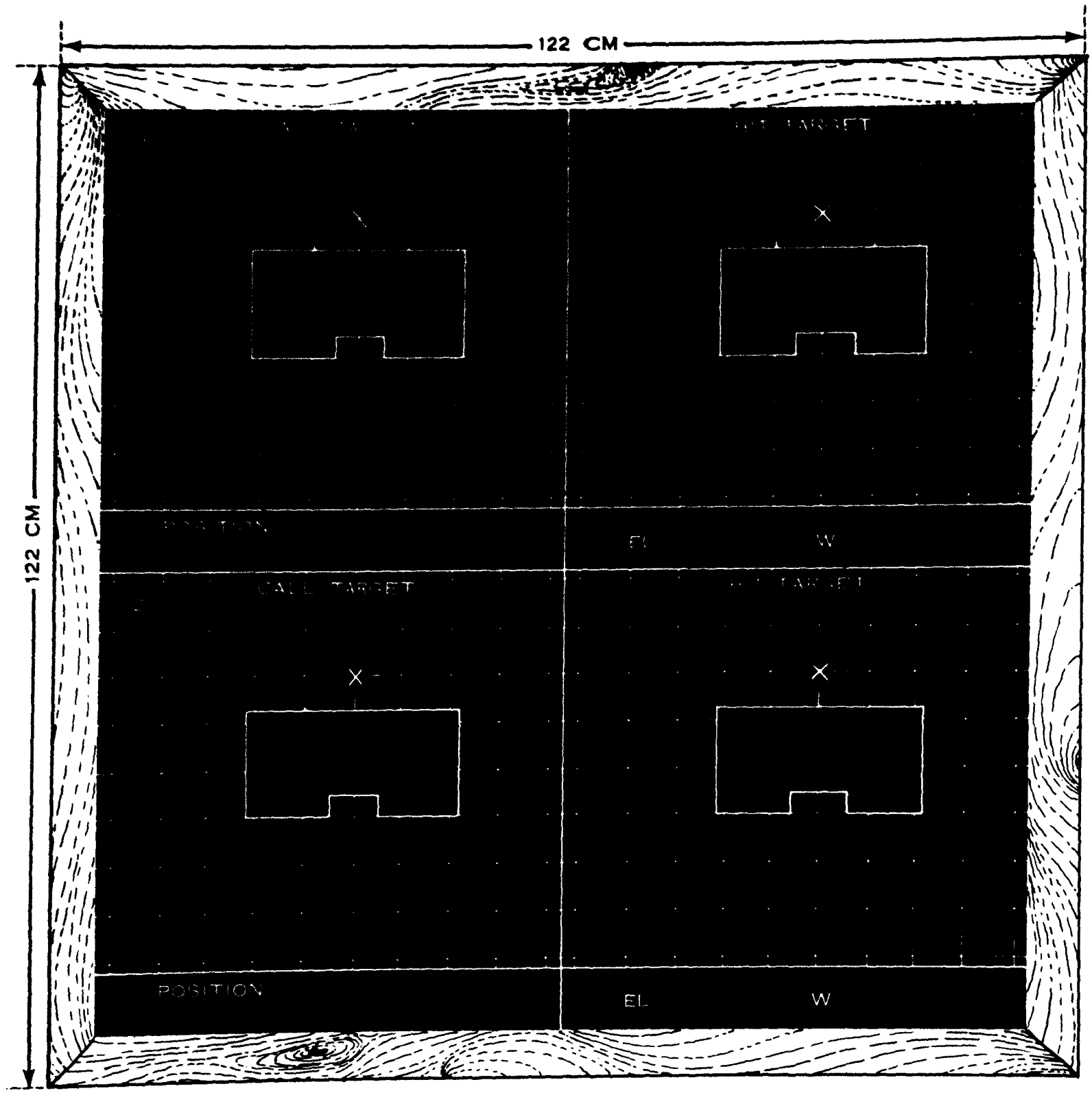



*Figure 89. Blackboard with firing data card.*

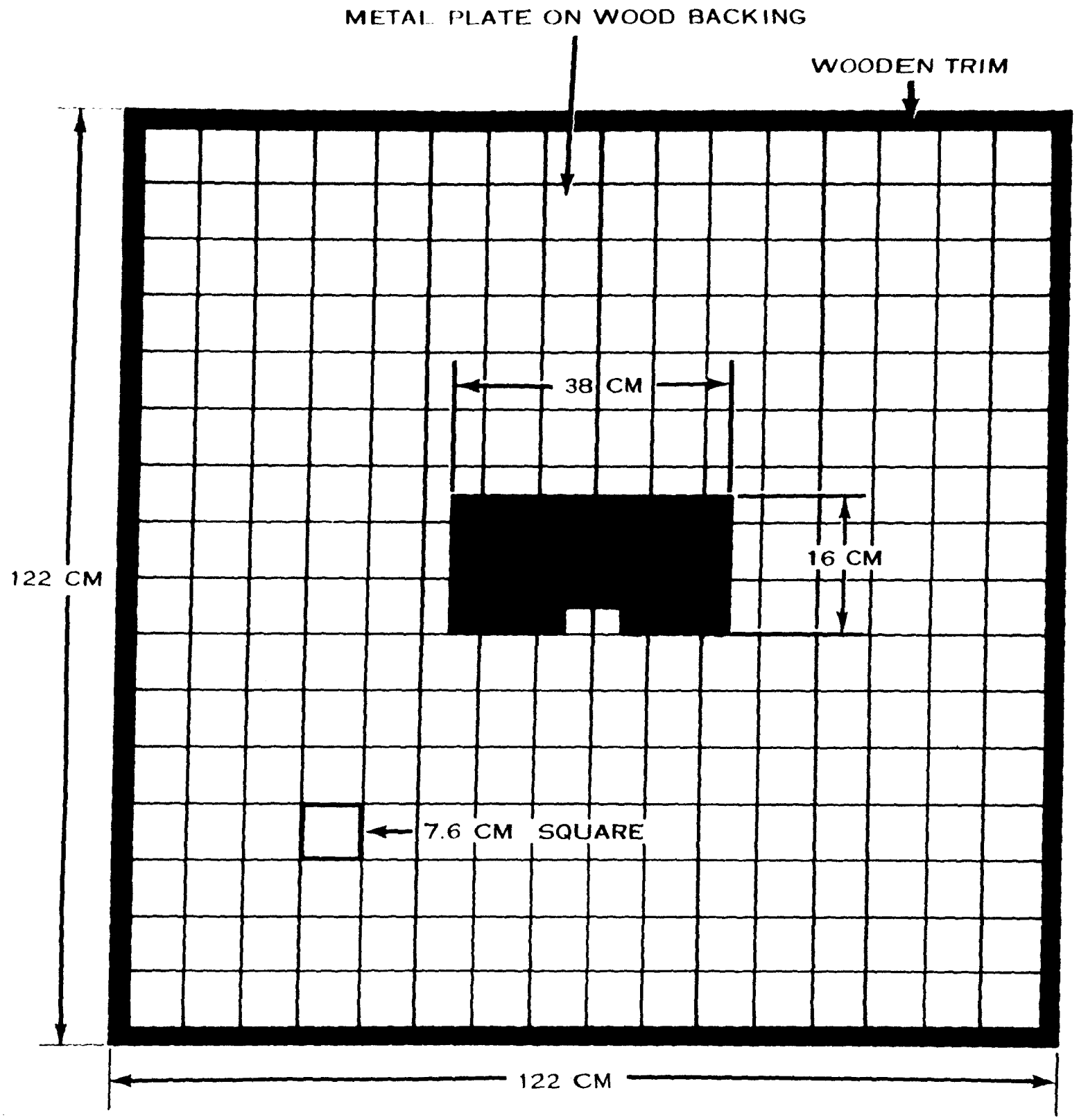
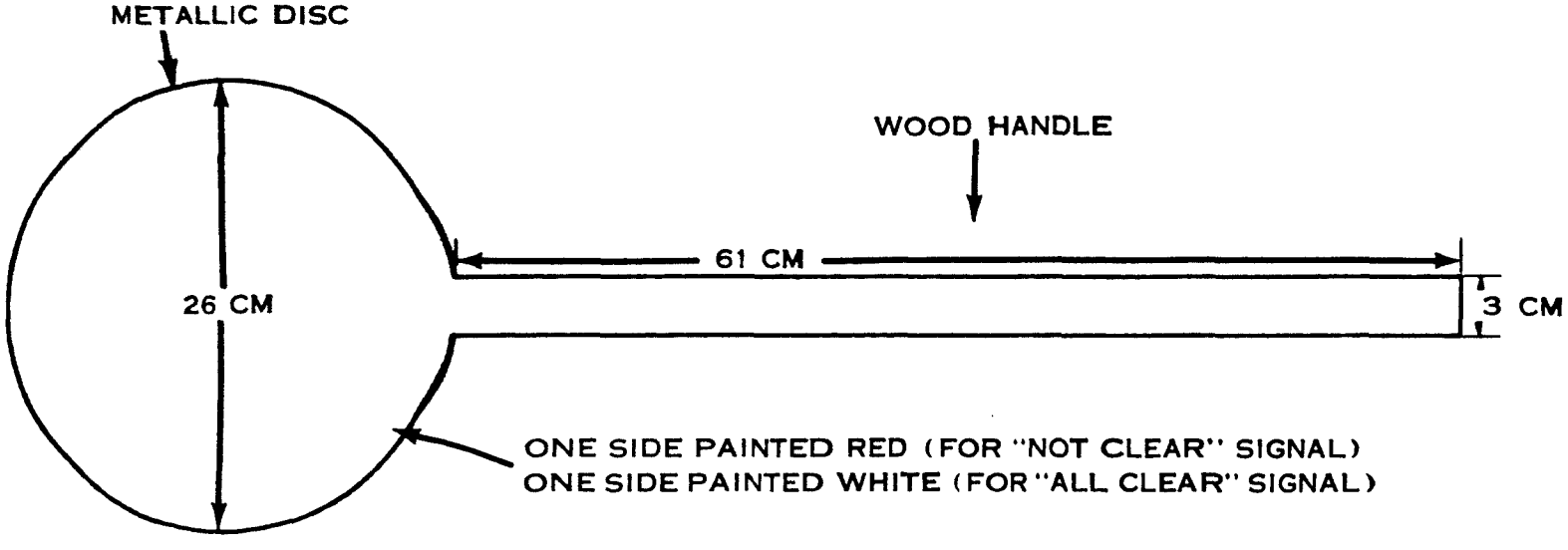



*Figure 90. Metallic target.*




SAFETY PADDLE

*Figure 91. Safety paddle.*

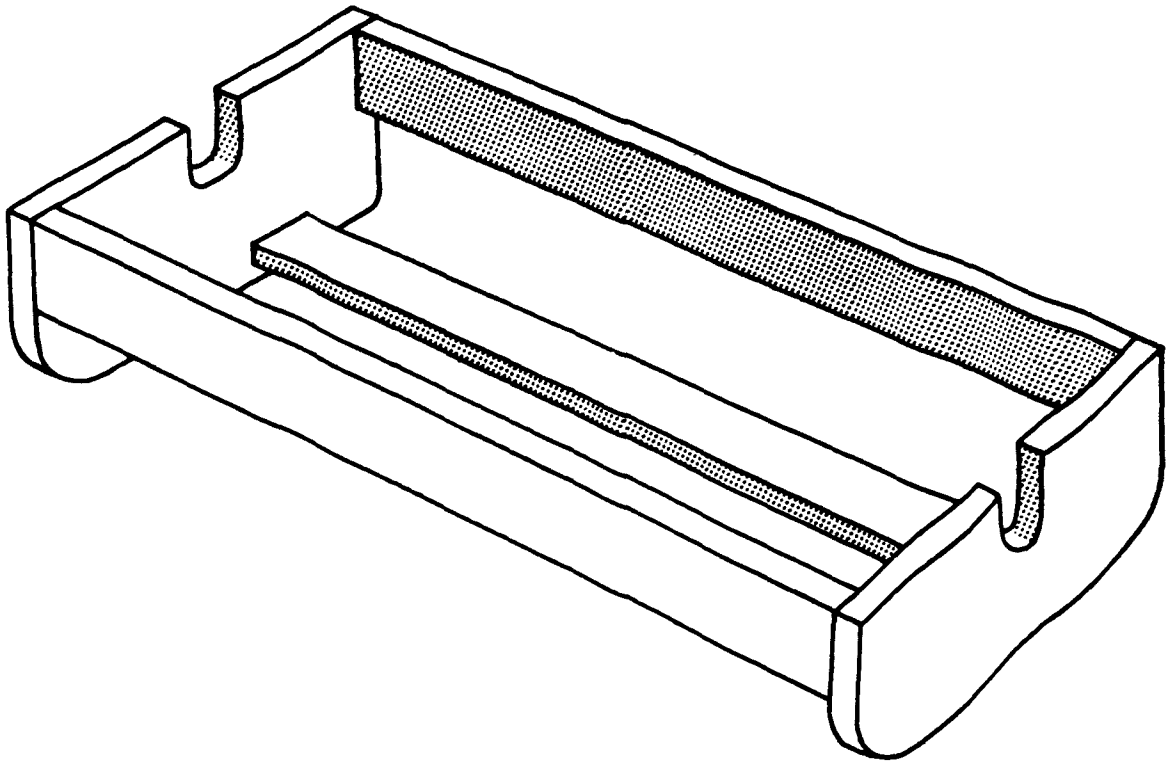


*Figure 92. Rifle rest.*

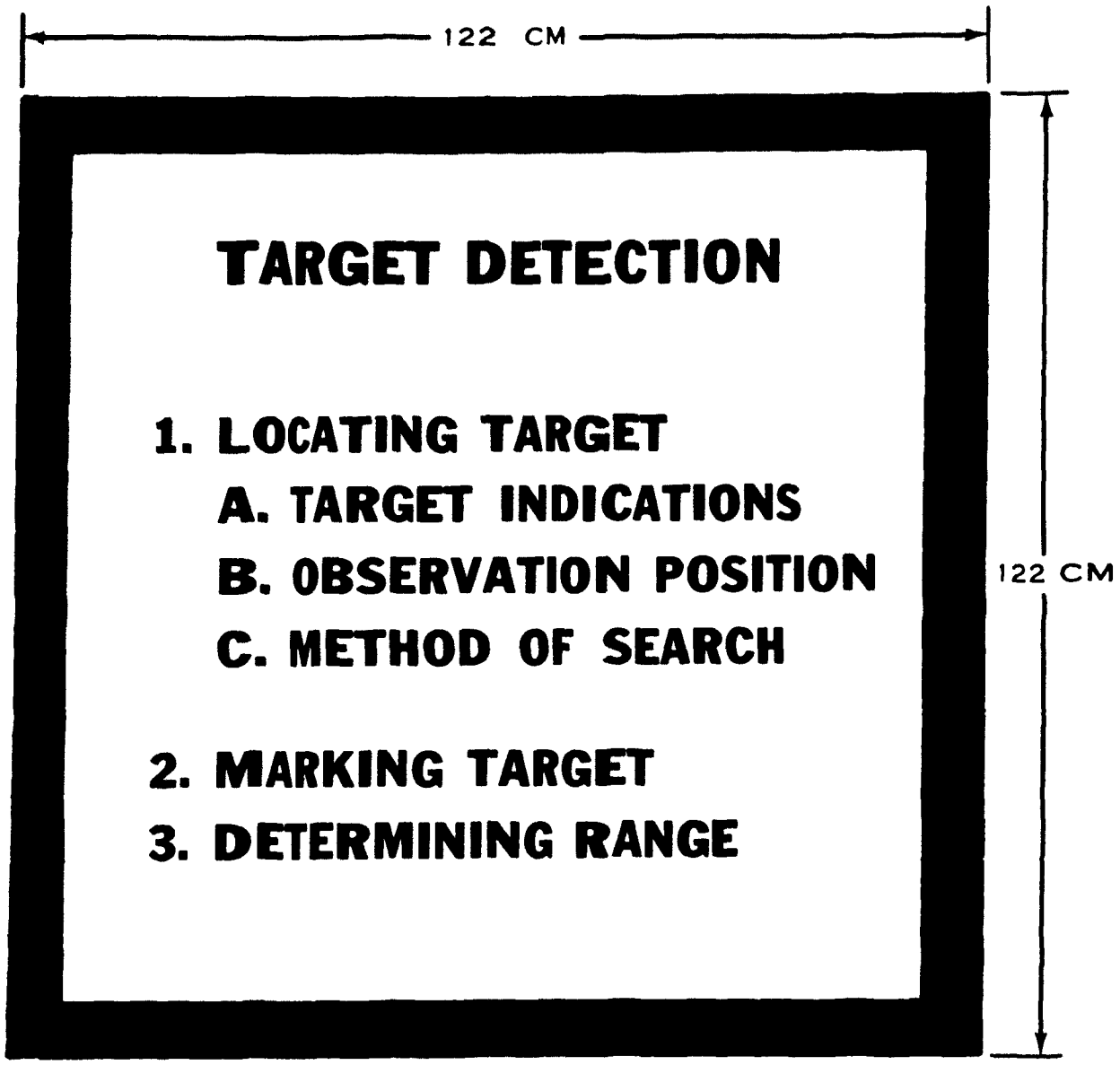



*Figure 93. Chart, target detection.*

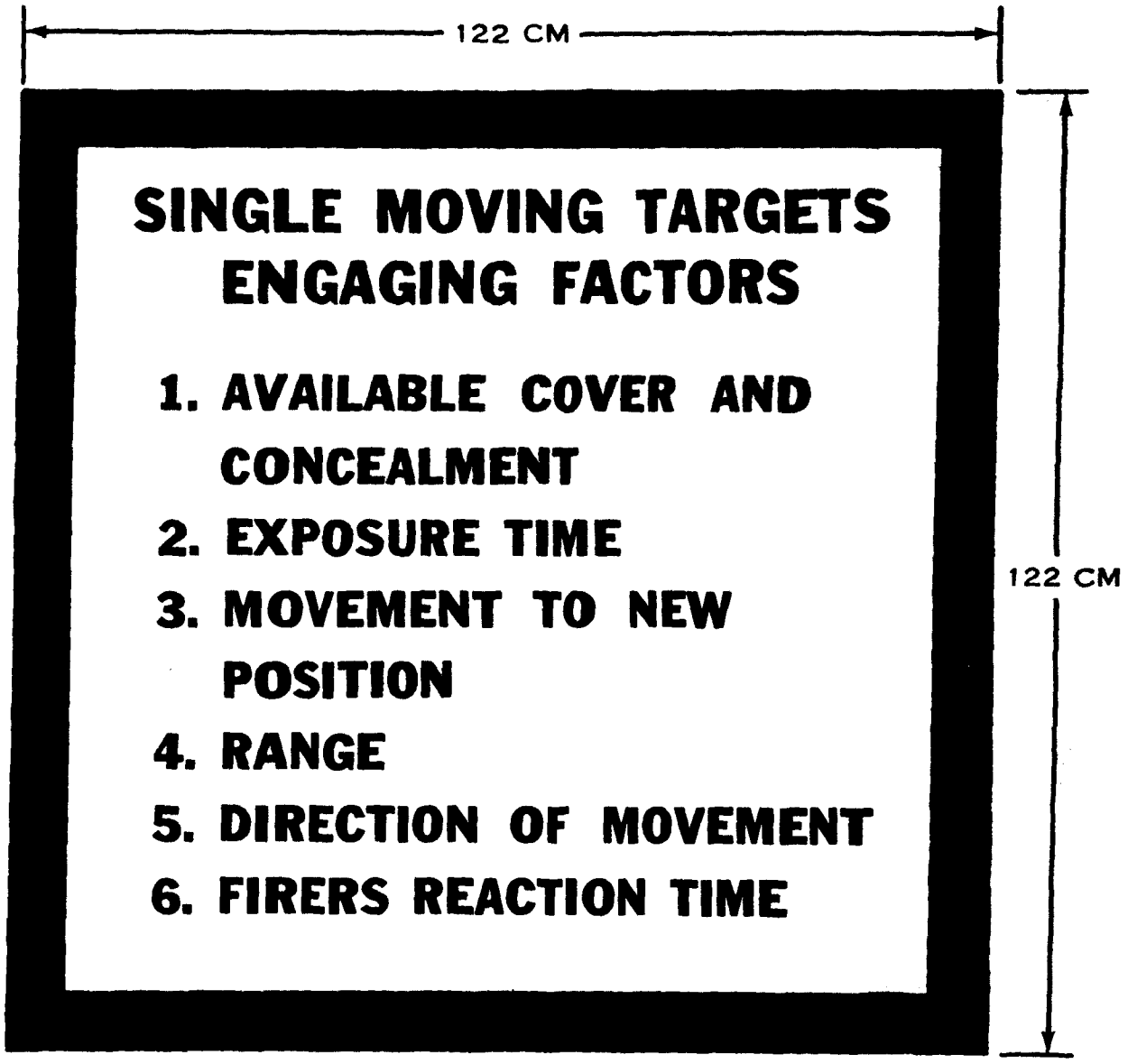



*Figure 94. Chart, single moving targets.*

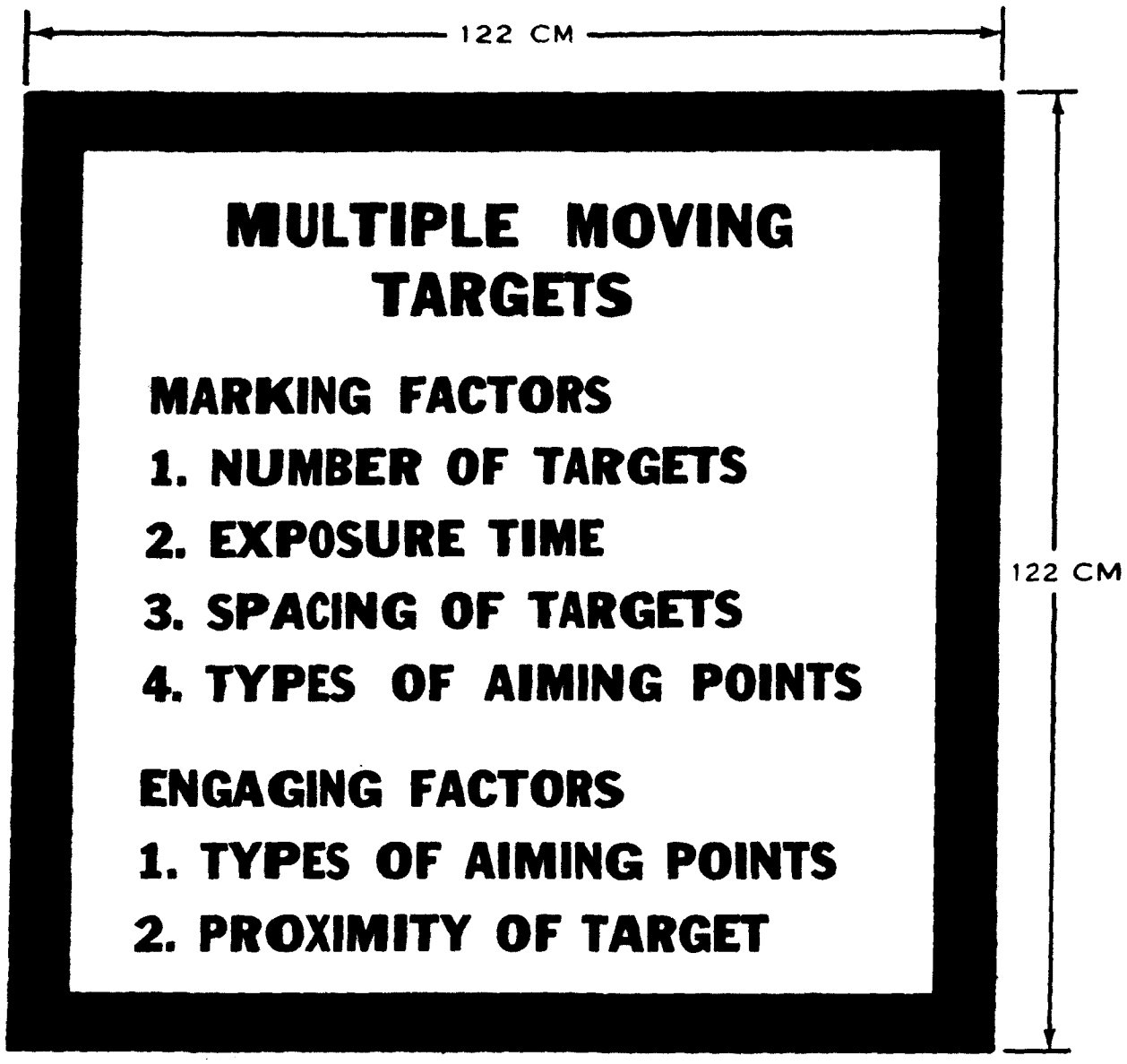



*Figure 95. Chart, multiple moving targets.*

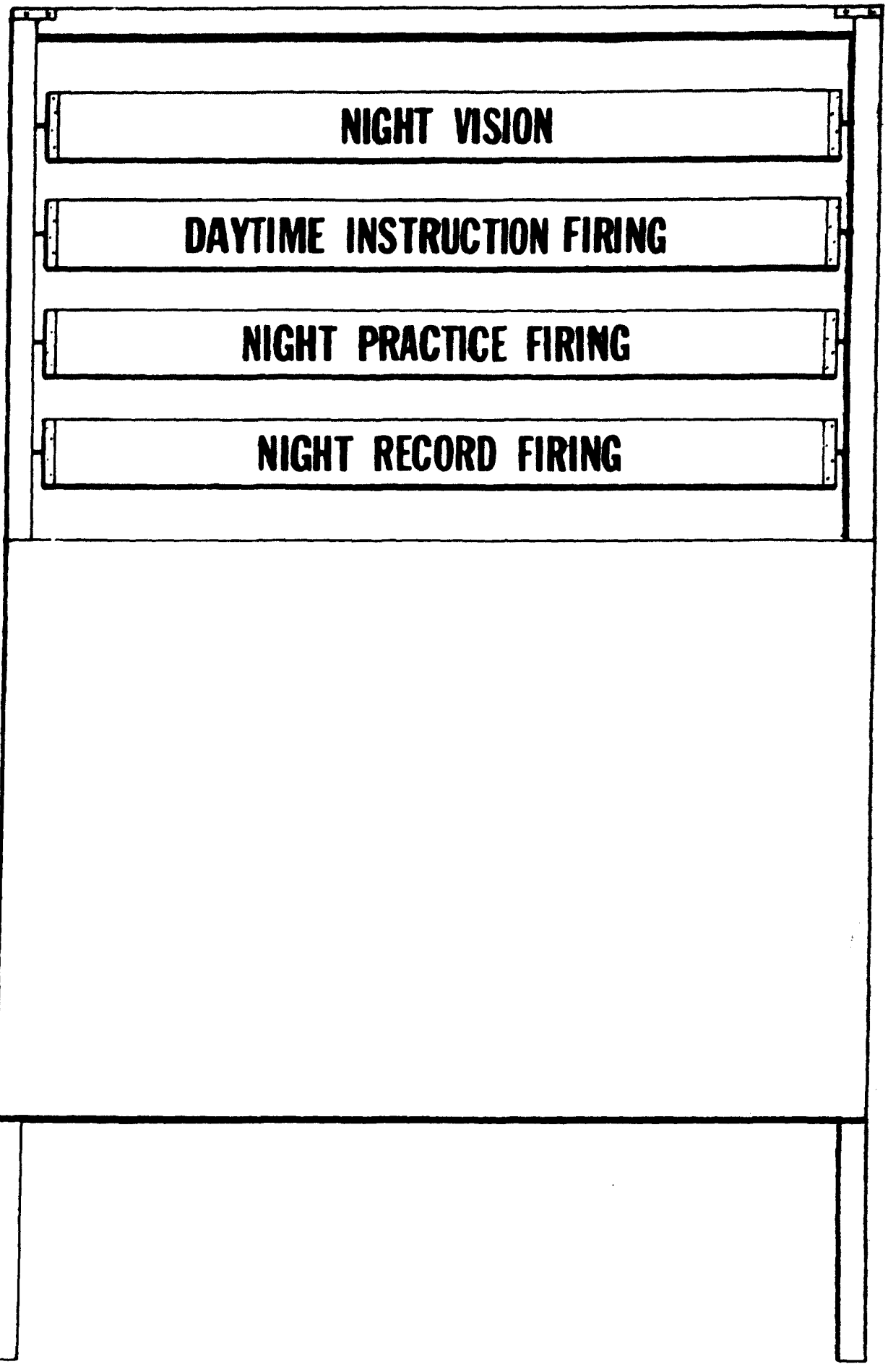



*Figure 96. Chart, phases of night firing instruction.*

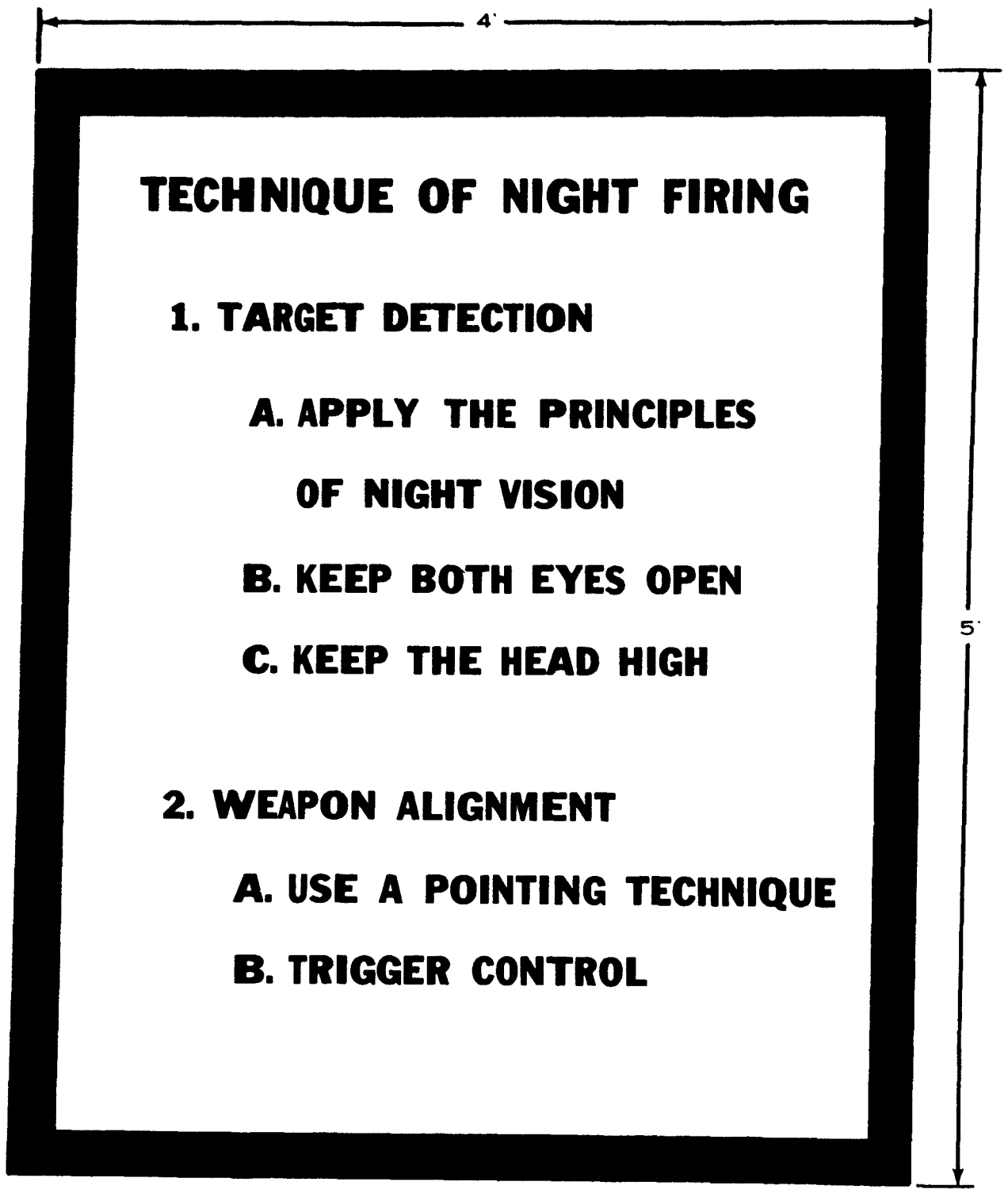
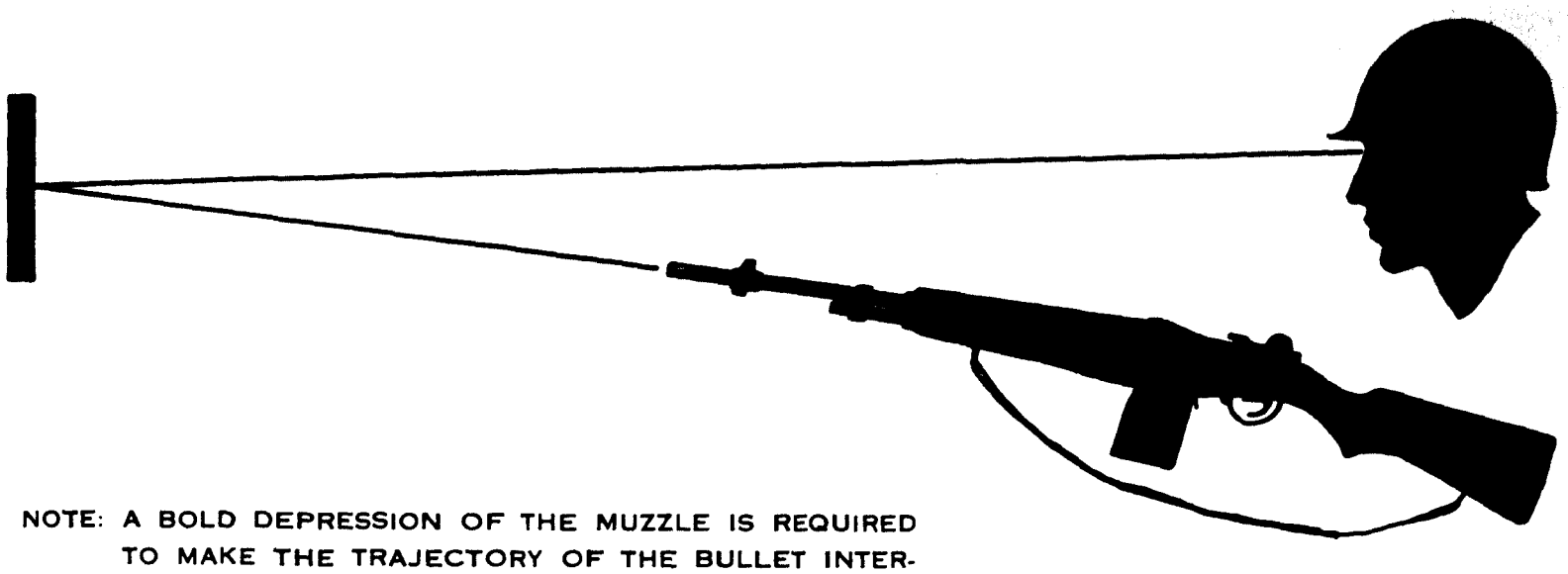
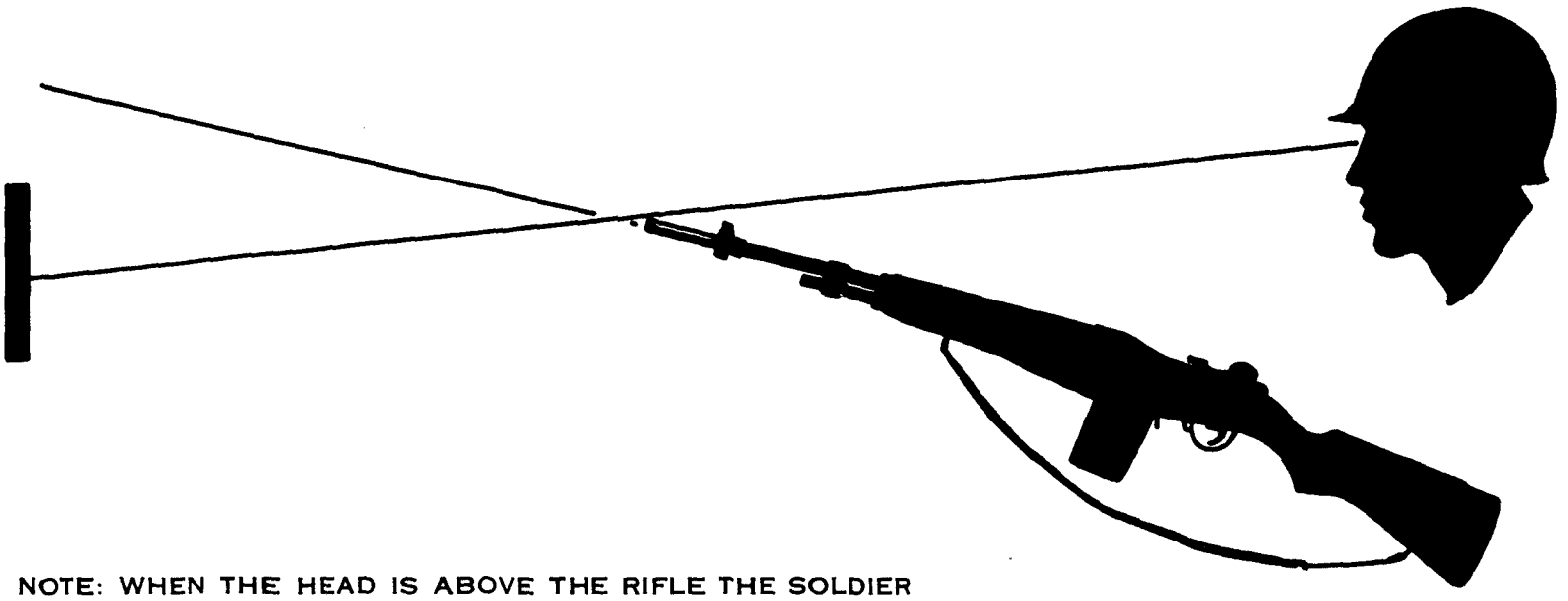



*Figure 97. Chart, technique of night firing.*



NOTE: A BOLD DEPRESSION OF THE MUZZLE IS REQUIRED TO MAKE THE TRAJECTORY OF THE BULLET INTERSECT THE LINE OF SIGHT AT THE TARGET. RICHOCHETS WILL KILL OR WOUND AND ASSIST IN ALIGNING THE RIFLE ON THE TARGET.

*Figure 98. Chart, correct pointing technique.*



NOTE: WHEN THE HEAD IS ABOVE THE RIFLE THE SOLDIER OFTEN RAISES THE MUZZLE SLIGHTY SO THAT THE FRONT SIGHT INTERSECTS HIS LINE OF SIGHT TO THE TARGET AND HE WILL FIRE OVER THE TARGET.

*Figure 99. Chart, tendency to raise muzzle.*

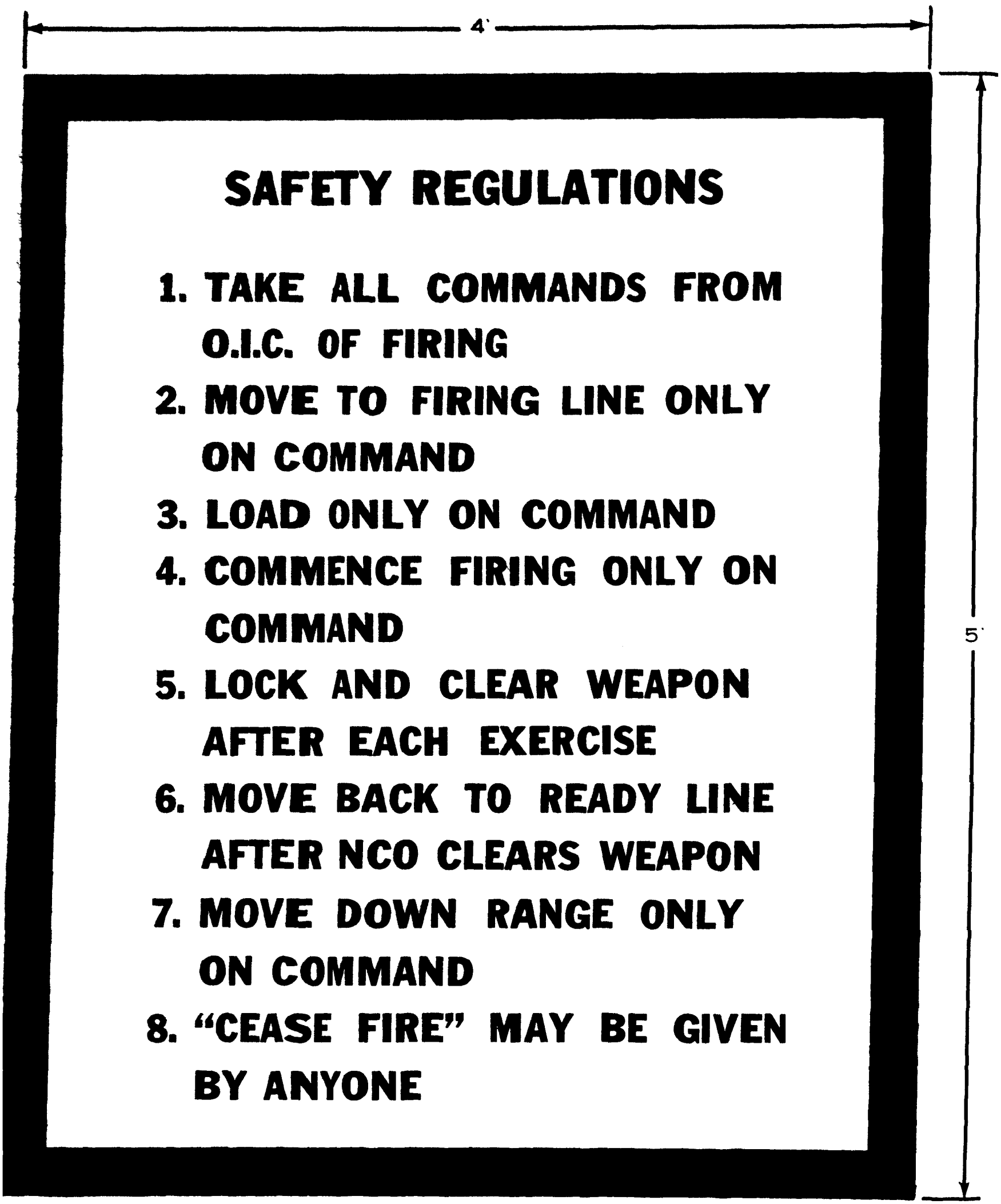



*Figure 100. Chart, safety regulations.*

# APPENDIX VIII

# EVOLUTION OF INDIVIDUAL WEAPONS

1. Military rifles were not always as excellent as they are today. In the early days, black powder and lead balls were used by every nation. Black powder was smoky, dirty, and inefficient compared with modern propellants. When one of these early rifles was fired, a cloud of white smoke disclosed the rifleman's position, and a thick residue, like carbon and soot, was deposited in the bore of the rifle. Black powder has a lower energy content per cubic centi-meter compared with modern rifle powders which have high velocities.

2. When the lead ball was fired from the rifle it began to lose speed very quickly. A sphere is poorly shaped for fast travel. Lead balls from some of our early military rifles fired at a muzzle speed (velocity) as high as 2,000 feet per second. But at a distance of 100 meters they would slow to about 1,500 feet per second; whereas a bullet from our M1 or M14 rifle today, at an initial velocity of 2,800 feet per second, loses only about 300 feet per second the first 100 meters.

3. The lead balls of these early military rifles were often "patched," that is, greased linen, fiannel, or thin soft leather was wrapped (and sometimes tied) over the ball. When this greased patch was used it served as a lubricant to ease loading, reduce escaping gas, and keep the ball from losing lead onto the bore as it traveled through it. But sometimes the lead ball was used bare, in which case the bore frequently picked up a lead coating which grew progressively thicker, decreasing the accuracy with each shot fired until the lead deposit was removed.

4. The same problem arose from the rough residue left by the burning of black powder. Unless the bores of those early rifles were washed after each shot, the residue became progressively thicker, making the diameter of the bore smaller. Since most early rifles were muzzle-loaders, it became increasingly difficult to load, and accuracy diminished, due to constantly reduced bore diameter. The effort required just to ram a lead ball, patched or not, down 32 or more inches of barrel became first exhausting and then all but impossible.

5. The inefficiency of black powder and early projectiles led early rifle makers to build their weapons with longer barrels and in larger caliber bores than our rifles of today. This combination gave as high velocity as could be obtained without making rifles completely awkward to handle and gave the desired killing effect needed for fighting infantry and cavalry. When you cannot propel a missile at high velocity, you must increase the weight in order to get adequate effect. Any increase in weight with a ball projectile results from an increase in diameter.

6. In time the round projectile gave way to the elongated one. It had been discovered as early as the late 1700's that elongated missiles were more efficient in flight and traveled to tremendously greater maximum ranges. Massed squad and platoon fire with elongated bullet rifles could be effective at 1,000 meters or more. Several years prior to the war of 1861–65, the elongated bullet rifle was adopted almost worldwide because it permitted faster loading. Successful methods of making metal cartridge cases had not yet been found, so most of the first bullet rifles were muzzle-loaders too. The early Sharps rifle was one of the exceptions. It was a breech-loader taking a linen cartridge. Because there was no metal cartridge case, such as is used in modern rifles, a portion of the gas generated by the powder flashed out at the juncture of breech-block and receiver of this rifle.

7. By 1870 nearly all armies had adopted breechloading infantry rifles (usually single shot) which usually fired fixed, metallic, black powder, lead bullet cartridges in calibers ranging from .40 to .45. These improved firearms

could be fired by a trained soldier 15 or more times a minute. Lever action repeating rifles had been developed to a level of real usability by 1861, but had to be held to lesser powder levels (for design reasons) than was desirable for infantry use. The Spencer and Henry lever-action rifles were used in the war of 1861–65 by many cavalry units. The Spencer carried seven cartridges and the Henry carried 16. Both weapons had a reach of about 225 meters, and the rate of fire was five shots to one, compared with the standard muzzle-loader.

8. The year 1886 was an historic one in infantry rifle design. France adopted a manually operated bolt-action rifle of caliber .32 (8-mm) jacketed bullet design (to prevent melting and failure to spin in the rifling grooves) for use with nitrocellulose (smokeless) powder. The ancient bondage to black powder had been dissolved. Soldiers using these newer rifles found that very little smoke was given off in firing to disclose their positions. By 1888 Britain and Germany used similar new designs. And in 1892 the United States followed suit. By 1898 no modern army was without a smaller caliber repeating rifle of the new type. The new arms were of 5- to 10-shot capacity, ranging in caliber from .32 to .26 as compared to the older .40 to .45 caliber sizes. Nitrocellulose propellants and advances in metallurgy had permitted a reduction in bullet diameter, a retention of adequate shocking power, an increase in average accuracy and penetration, and a flattening of trajectory (extension of the limit of grazing fire) by as much as 50 percent or more. Logistically, the weight of individual rifle cartridges had dropped by as much as 40 percent.

9. The Springfield 1903 rifle reflected the era of high development in rifles operated manually, which ended in 1936 with the introduction into U.S. service of the Garand design, designated M1. This first of the successful gas-operated rifles of full infantry power outgunned enemy rifles in Europe and the Pacific in the ratio of 3 to 1. It was rugged, sure functioning, powerful, and accurate. The tiring bolt manipulation, so painfully learned by former generations of American soldiers, was no longer necessary.

10. The M1 rifle ushered in an era that saw foreign nations scrambling for semiautomatic designs in individual infantry weapons. Britain and France discarded their old, time proven bolt actions and took up the Belgian FN design. Soviet Russia developed as her now standard infantry weapon, a rifle-powered submachine-gun of 30 shot capacity (the AK). And the U.S., exploiting the potential of John G. Garand's M1, has modernized it as the M14 for increased cartridge capacity (20 shots instead of 8) and quick and simple adaptation to the automatic rifle role.

11. On 1 May 1957, the Secretary of the Army announced the adoption of the new rifle. The M14 is equipped with a light barrel and is designed primarily to replace the M1 rifle in a semiautomatic fire role. It can be converted to automatic fire by merely replacing the selector lock with a selector lever. The M14 weighs approximately 11 pounds when combat loaded. A bipod will add an additional pound when the M14 is used in the automatic rifle role.

12. The M14 is basically the same in design as the M1 rifle. Design changes, in nearly all instances, were made to accommodate the shorter 7.62-mm cartridge and to allow for the use of a magazine instead of a clip for holding ammunition. Consequently, the receiver, bolt, and firing pin are shorter, and the floor plate of the trigger housing is cut away to allow for the magazine. The most significant advantage of the M14 design is that it offers an increase of 12 rounds in magazine capacity over the M1 rifle with NO INCREASE IN WEIGHT. The most significant advantage of the M14 with bipod (in the automatic rifle role) is that it offers the same magazine capacity as the BAR with a DECREASE IN WEIGHT. The weight saving of the M14 with bipod is about 10 pounds.

13. The new 7.62-mm cartridge is approximately ½-inch shorter than the caliber .30 M2 cartridge and 12 percent lighter. New developments in powder permit the use of less powder in a shorter case without sacrificing velocity or increase in permissible pressure.

*Relationship of Individual Weapon Design to Combat Use of the Weapon.*

14. To fully understand rifle marksmanship and rifle marksmanship training, it is neces-

sary to know something of rifles, their characteristics and combat usefulness. The rifle is the primary individual weapon for all armies because it is the most versatile and effective weapon which can be carried and used by a soldier in combat. The rifle can fire ordinary bullets to kill enemy soldiers; it can fire armor-piercing bullets to wreck truck engines; it can fire tracer bullets to point out targets; and it can fire incendiary bullets to start fires in inflammable materials. Add to this the fact that the rifle can also shoot signal flares and powerful grenades and you can see that the rifle is one of the most important weapons in the army.

15. But why the rifle? Isn't a hand weapon such as a pistol, revolver, or a hand grenade more convenient in combat? A hand weapon is far more convenient but it cannot do the wide and far-reaching job of a shoulder weapon. The rifle is a weapon that can kill or destroy at a considerable distance so that the enemy can be prevented from getting too close. If individual weapons can reach out a considerable distance it is easier to keep the enemy where larger, more powerful supporting weapons can smash him. The rifleman's weapon must be so constructed that it can be held with steadiness while he directs accurate fire, powerful enough to kill enemy soldiers, as far away as marksmanship skill and the precision of the weapon will allow.

16. Here is where the sciences enter the picture. Man's scientific level today is such that it still takes the relatively long, steel barrel and wooden or plastic stock of a rifle to obtain the desired performance. It takes a certain quantity of today's rifle powder to move a certain size rifle bullet at a certain speed so that it will have a certain desired effect on the targets appropriate to it.

17. Closely related to the sciences of metallurgy, chemistry, and ballistics, which give us our firearms, is the related field of human mechanics. Human mechanics evaluates man's anatomy to deduce the best systems of weapon configuration. Such items as length of rifle stock, distance between handgrip (pistol grip on a rifle) surface to pressure surface of the trigger, shape of operating handles, and a thousand other minute and often undreamed of details go into the design of a rifle.

18. Many scientific and mechanical factors influence marksmanship in some way. Metallurgy has a large share in determining the weight and bulk of a rifle, as well as its mechanism. Chemistry dictates heavily the ballistic qualities of the rifle. Ballistics in turn fuses together the knowledge of metallurgy and chemistry and adds physics in the design of a cartridge and projectile that will satisfy combat requirements.

19. The complex package called a "rifle" is what soldiers live by on the battlefield. If the design is well done, the rifle will fit the average man very well and will deliver accurate and deadly fire on targets. Seven essential qualities of a modern combat rifle are:

*a.* It must be accurate.
*b.* Its trajectory must be flat.
*c.* Its recoil must be moderate.
*d.* It must be powerful.
*e.* It must be easy to master.
*f.* Its mechanism must be unfailing.
*g.* It and its ammunition (in quantity) must be light enough to carry under combat conditions.

20. We are now in an era of "Emphasis on Accuracy." The vast numbers of our potential enemies clearly point up the fact that accurate rifle fire is the key to success. A soldier who merely "sprays" shots in the vicinity of the enemy produces little effect. Against an unseasoned enemy such fire may be temporarily effective, but the result is not lasting. The mission of the rifleman is to *kill* the enemy. Against seasoned troops, spraying shots have little effect. Someone once gave what is perhaps the best definition of firepower when he said that, "firepower is bullets hitting people!" The M1 rifle and the M14 rifle are accurate weapons.

21. Trajectory-wise, the M1 and M14 rifles are "flat-shooting." That is, their bullets travel very fast, so they can't fall very much below the line of sight over their usable range. And because the bullets don't "drop" much below the extended line of the bore over combat ranges, it is relatively easy to make hits with them. Moderate recoil means that the muzzle climb in firing is moderate, which makes for fast recovery between shots. This is very important in rapid fire in combat against numbers of enemy.

22. The U.S. military rifle must be powerful. That means it must be able to kill an enemy soldier as far away as the rifleman can surely hit him. It must penetrate enemy helmets and body armor easily up to the same range. It should have enough punch to tear through the side of enemy trucks to kill personnel riding within, or to destroy the truck engine. The bullets of the caliber .30 or 7.62-mm rifles are relatively small and light—fine for high speed; yet they are heavy enough and large enough in diameter to deliver a killing blow when they get where they are going.

23. The M1 and M14 rifles are extremely simple in design, allowing for quick mastery even by those with no previous knowledge of firearms design. As for functioning, the exhaustive tests of Ordnance personnel, who put these designs through their developmental paces and field testing by using units, have confirmed the reliability of the weapons mechanisms.

24. Lightness of rifle and ammunition is a highly controversial issue. By some standards the M1 and M14 (and indeed *all* military arms) are heavy, but it must be remembered that the ruggedness of a military weapon is something which precludes matching the six-pound weight of a commercial hunting rifle. And the much-argued-for superiority of lightweight alloys, plastics, and glass compounds must be balanced against the yet-to-be confirmed field observations of their wearing qualities and stress resistances.

25. The 7.62-mm NATO cartridge, standard for our M14 rifles and M60 machineguns, *is* actually lighter than the older caliber .30 cartridge by approximately 12 percent. This means that our fighting men carry more ammunition than before with no increase in total weight of field load.

26. All in all, U.S. service rifles are admirable weapons; very accurate, very deadly. They are the backbone of our land power.

# INDEX

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HAROLD K. JOHNSON,
*General, United States Army,*
*Chief of Staff.*

Official:

J. C. LAMBERT,
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*The Adjutant General.*

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For explanation of abbreviations used, see AR 320-50.

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