CHAPTER 5

MARKSMANSHIP TRAINING

Marksmanship training is conducted in three phases. Section I of this chapter discusses the first phase, preliminary marksmanship training (nonfiring individual skill proficiency). Section II discusses the second phase, basic gunnery, during which the soldier learns to apply the fundamentals of gunnery and to zero the M203 during qualification exercises in day, NBC, and night conditions. The third phase, advanced gunnery, is discussed in Chapter 6. Every phase has the same three objectives: to teach each grenadier to hit the target accurately with the first round, to adjust fire, and to do both quickly.

WARNING

BEFORE ALLOWING ANYONE TO MOVE BETWEEN STATIONS, ENSURE THAT ALL RIFLES AND GRENADE LAUNCHERS HAVE BEEN CLEARED, THAT BOLTS REMAIN TO THE REAR, AND THAT BARREL ASSEMBLIES REMAIN IN THE OPEN POSITION. ANYONE OBSERVING AN UNSAFE ACT SHOULD CALL "CEASE FIRE" AND NOTIFY RANGE PERSONNEL IMMEDIATELY.

Section I. PRELIMINARY MARKSMANSHIP TRAINING

Grenadiers and leaders must master marksmanship fundamentals before firing individually or collectively. During preliminary marksmanship training, grenadiers learn and demonstrate the individual skills that prepare them to fire live ammunition. After learning the characteristics and mechanics of the weapon (Chapters 2 through 4), they learn the four fundamentals of marksmanship. These are followed by sight manipulation and response to fire commands. Dry-fire exercises are excellent for training to proficiency. Good preliminary marksmanship instruction (PMI) improves individual proficiency, which in turn improves the proficiency of collective fire.

5-1. FOUR FUNDAMENTALS OF MARKSMANSHIP

The four fundamentals of M203 marksmanship are steady position, aiming, breathing, and trigger control. When the soldier changes his position, only the first fundamental (steady position) varies. The other three remain the same.

a. **Steady Position.** This varies according to the position.

(1) ***Prone position.*** If you fire prone, try to use a prone supported position (Figure 5-1).

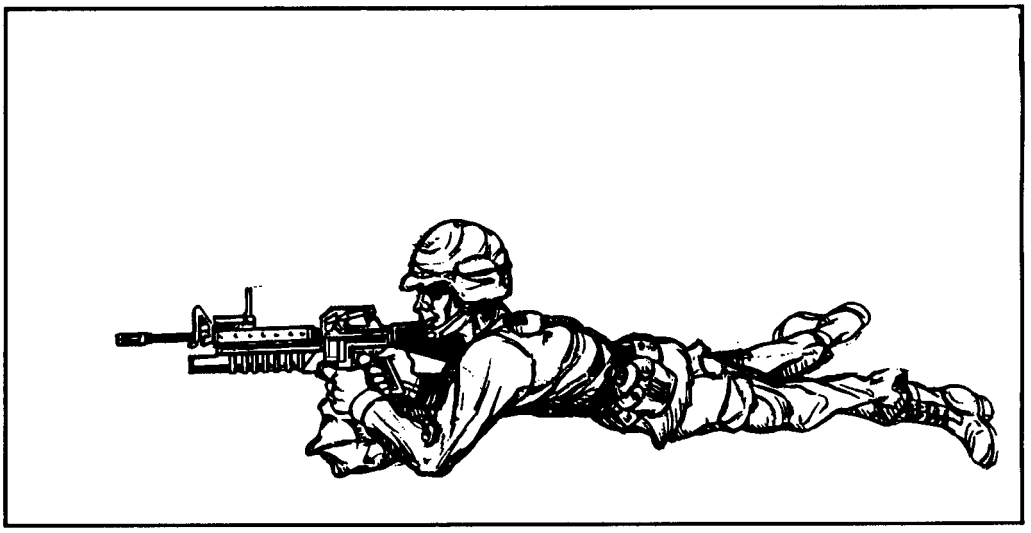

Figure 5-1. Prone supported position.

(a) Lie face down, grasp the M16 pistol grip with your right hand and place the butt of the rifle into the pocket of your right shoulder.

(b) Lower your right elbow to the ground so your shoulders are level. This places the weight of your body behind the weapon, which enables you to recover quickly each time you fire.

(c) Grasp the rifle magazine with your left hand. Straighten your upper body, and spread your legs a comfortable distance apart. Try to point your toes outward and relax your ankles, so your heels will rest on the ground. Relax the weight of your upper body forward onto your left arm.

(d) For ranges greater than 150 meters, lower the buttstock of the weapon to obtain the proper sight alignment and sight picture. Grip firmly to prevent this from moving the weapon from your shoulder pocket.

WARNING

ENSURE THE SLING IS CLEAR OF THE WEAPON MUZZLE BEFORE FIRING.

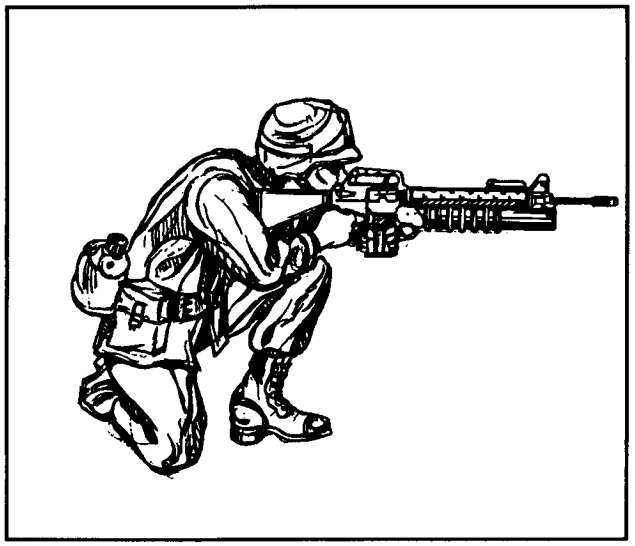

Figure 5-2. Kneeling position.

(2) ***Kneeling position.*** Figure 5-2 shows the kneeling position.

(a) Kneel on your right knee while facing the target, with your left hand on the magazine and your right grasping the rifle's pistol grip.

(b) Place your left foot about .45 meter (18 inches) to your left front, with your toes pointing in the general direction of the target.

(c) Keeping your right toe in place, sit on your right heel.

(d) Place your left elbow forward of your left knee, resting the flat portion of your upper arm on your knee.

(e) Move the rifle butt into the pocket of your right shoulder, pulling the rifle pistol grip with your right hand.

(f) With your left hand on the rifle magazine, place your left forefinger in the trigger guard of the grenade launcher.

(g) Pull the rifle firmly into your shoulder.

(h) Pull your right elbow in close to your body to help you apply rearward pressure to the weapon. Ensure that your leg completes a solid, three-point base for your position. For ranges greater than 150 meters, lower the buttstock of the weapon to obtain the proper sight alignment and sight picture. Grip firmly to prevent this from moving the weapon from your shoulder pocket.

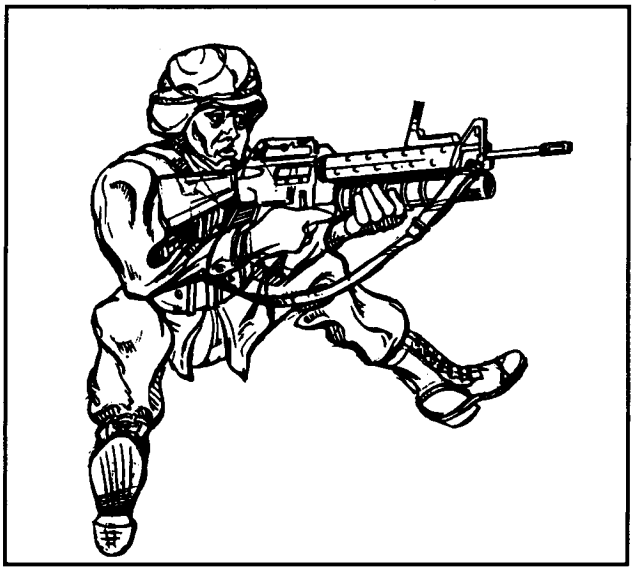

Figure 5-3. Sitting position (open-legged).

(3) ***Sitting position, open-legged.*** Figure 5-3 shows the open-legged sitting position. To assume this position—

(a) Sit down, breaking your fall with your right hand, and slide your

Figure 5-4. Sitting position (cross-ankled).

buttocks well to the rear. Face the target half right, and spread your feet wide.

(b) Grasp the rifle magazine with your left hand and the pistol grip with your right hand.

(c) Bend forward from your hips, and rest your left upper arm against the inside of your left knee.

(d) Move the butt of the rifle into the pocket of your right shoulder, still holding the rifle pistol grip with your right hand.

(e) Rest your right elbow on the inside of your right knee.

(f) Pull the weapon down slightly with your left hand, and pull it to the rear firmly with your right hand.

(g) For ranges greater than 150 meters, lower the buttstock of the weapon to obtain the proper sight alignment and sight picture. Grip firmly to prevent this from moving the weapon from your shoulder pocket.

(4) ***Wing position, cross-ankled.*** Figure 5-4 shows the cross-ankled sitting position. To assume this position—

(a) Sit facing the target half right.

(b) Extend your legs from your body, and cross your left ankle over your right ankle.

(c) Keep both ankles straight.

(d) Grasp the rifle magazine with your left hand and the rifle pistol grip with your right.

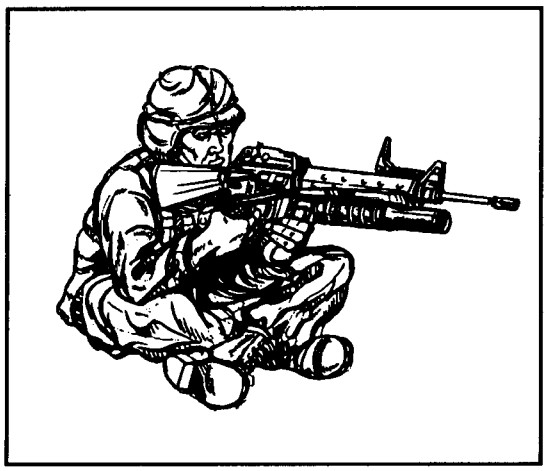

Figure 5-5. Sitting position (cross-legged).

(e) Place your left upper arm across your left knee.

(f) Move the butt of the rifle into the pocket of your right shoulder.

(g) Lower your right elbow so that your upper right arm is in contact with your right knee.

(h) For ranges greater than 150 meters, lower the buttstock of the weapon to obtain the proper sight alignment and sight picture. Grip firmly to prevent this from moving the weapon from your shoulder pocket.

(5) ***Sitting position, cross-legged.*** Figure 5-5 shows the cross-legged sitting position. To assume this position—

(a) Sit down facing the target half right.

(b) Cross your left leg over your right leg, and draw both feet close to your body.

(c) Grasp the rifle magazine with your left hand.

(d) Place your left upper arm against your left knee.

(e) Move the butt of the stock into the pocket of your right shoulder, and grasp the rifle pistol grip properly.

(f) Lower your right elbow so that your right upper arm is against your right knee.

(g) For ranges greater than 150 meters, lower the buttstock of the weapon to obtain the proper sight alignment and sight picture. Grip firmly to prevent this from moving the weapon from your shoulder pocket.

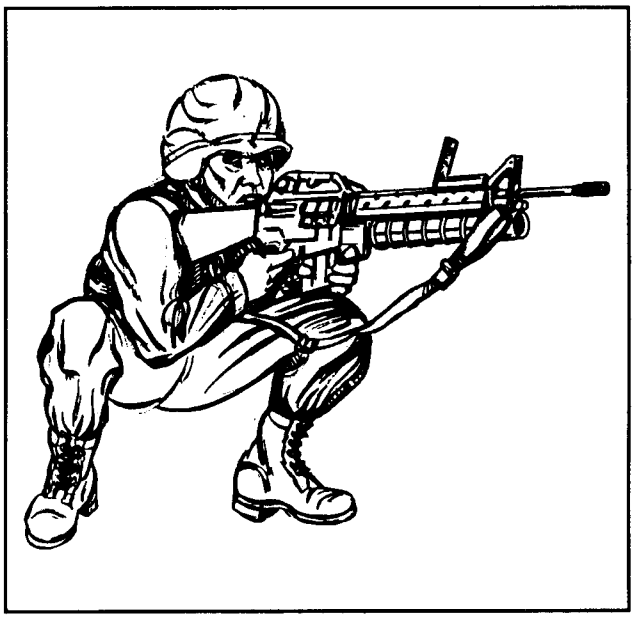

Figure 5-6. Squatting position.

(6) ***Squatting position.*** Figure 5-6 shows the squatting position.

(a) Turn half right to the target, and with your feet a comfortable distance apart, squat as low as you can, keeping both feet flat on the ground.

(b) Grasp the rifle magazine with your left hand.

(c) Place your left upper arm inside your left knee and the butt of the stock into the pocket of your right shoulder, then grasp the rifle pistol grip properly.

(d) Lower your right elbow against the inside of your right knee.

(e) For ranges greater than 150 meters, lower the buttstock of the weapon to achieve proper sight alignment and sight picture. Grip firmly to prevent this from moving the weapon from your shoulder pocket.

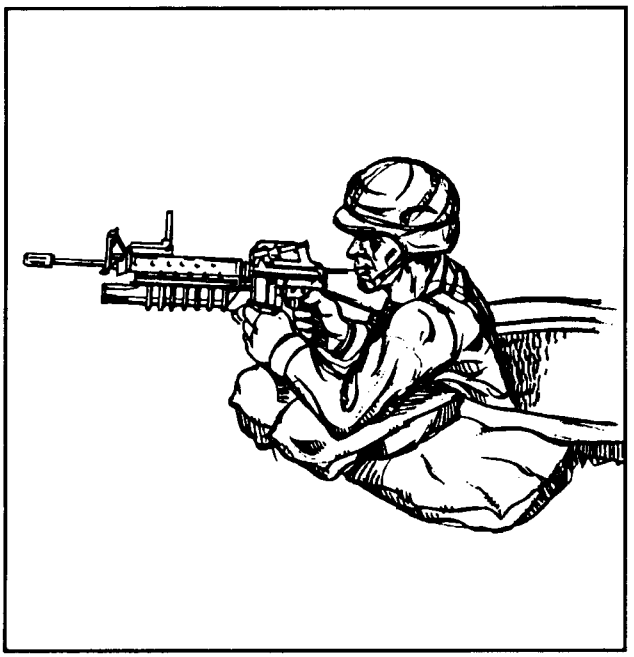

Figure 5-7. Fighting position, supported.

(7) ***Fighting position.*** If you fire from a fighting position, try to use support (Figure 5-7).

(a) Place your right foot against the rear of the fighting position, then lean forward until your chest is against its forward edge.

(b) Grasp the magazine with your left hand.

(c) Place your left elbow on or against solid support.

(d) Use your right hand to position the butt of the stock in the pocket of your right shoulder, then grasp the rifle pistol grip properly.

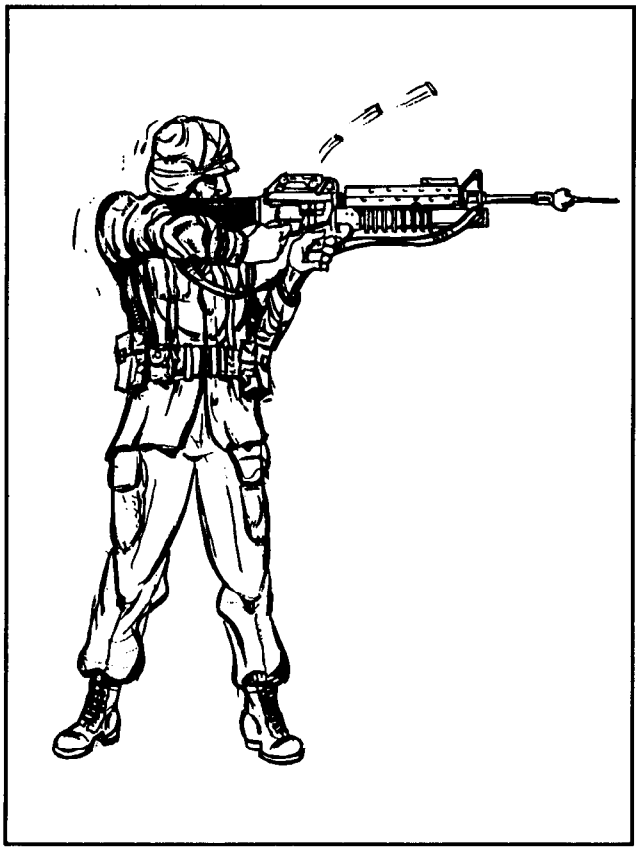

Figure 5-8. Standing position.

(e) Place your right elbow on or against a solid support, and relax into a comfortable firing position.

(f) For ranges greater than 150 meters, lower the buttstock of the weapon to achieve proper sight alignment and sight picture. Grip firmly to prevent this from moving the weapon from your shoulder pocket.

NOTE:

The weapon must not touch the support.

(8) ***Standing position.*** Figure 5-8 shows the standing position.

(a) Face the target standing, and spread your feet a comfortable distance apart.

(b) Grasp the rifle pistol grip with your right hand and the rifle magazine with your left hand. Then place the butt of the stock into your right shoulder so that the sight is level with your eyes.

(c) Hold your right elbow high to forma good pocket for the butt of the stock and to permit a strong rearward pressure with your right hand.

(d) Hold most of the weight of the weapon with your left hand.

(e) Shift your feet until you achieve a natural aiming stance.

(f) For ranges greater than 150 meters, lower the buttstock of the weapon to obtain the proper sight alignment and sight picture. Grip firmly to prevent this from moving the weapon from your shoulder pocket.

b. **Aiming.** Aiming procedures for every position areas follows:

(1) ***Aligning sight.*** When using the leaf sight, align it with the front sight post of the M16. When using the quadrant sight, align its rear sight aperture with its front sight post. Picture a horizontal line through the center of the leaf sight or rear sight aperture. The top of the M16's front sight post should touch this line. Picture a vertical line through the center of the leaf sight or rear sight aperture. This line should vertically dissect the front sight post (Figure 5-9).

(2) ***Focusing.*** For either sight, focus on the front sight post; a good firing position places your eye directly on line with the center of the leaf sight or rear sight aperture. Your eye's natural ability to center objects in a circle and seek the point of greatest light will help you align the sight correctly.

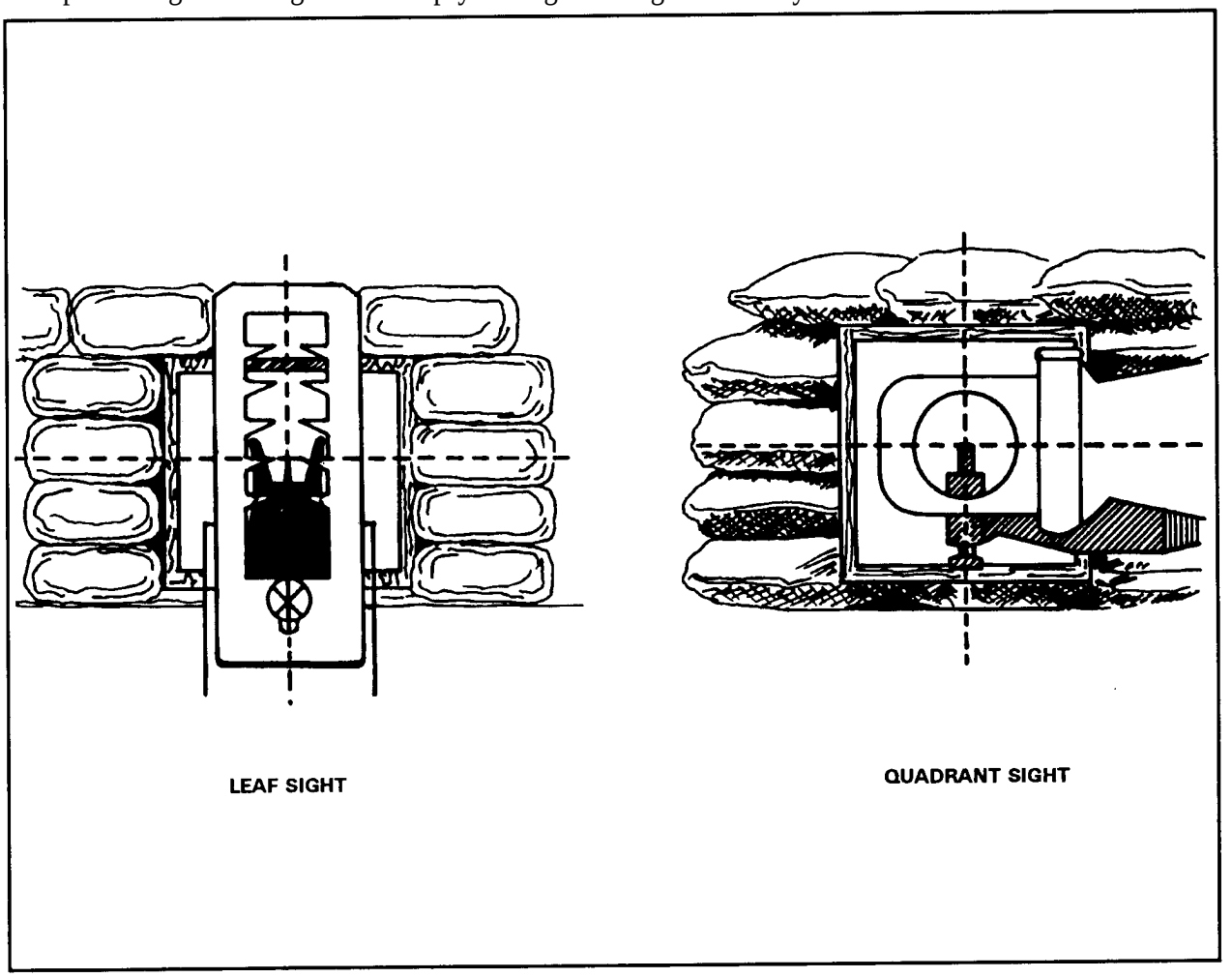

Figure 5-9. Sight pictures for leaf and quadrant sights.

(3) ***Obtaining sight picture.*** To achieve a correct sight picture, align the front sight post and leaf sight or rear sight aperture with the target. For area targets, aim where the round's bursting radius will make the round most effective. For point targets, aim at the target's center of mass.

c. **Breathing.** The technique for breathing is the same for every position: Breathe naturally. Exhale most of your air, hold your breath, and fire before you become uncomfortable. In combat, just choke off your breath before firing.

d. **Trigger Control.** The technique for trigger control is the same for every position. Place your trigger finger (the index finger of your left hand),

between the first joint and the tip of your finger (not at the extreme end of your finger) on the trigger. Adjust for your hand size and grip. Then, squeeze your trigger finger to the rear without disturbing the lay of the weapon.

5-2. LIMITED VISIBILITY

The fundamentals of marksmanship are almost the same in limited visibility as in normal visibility. The best field-expedient method for firing the M203 grenade launcher is the marked-sling method.

a. **Steady Position.** An M203 with an AN/PVS-4 mounted on it leans to the left. When assuming a steady position, the grenadier must apply more rearward pressure to compensate for the lean, then steady the weapon.

b. **Aiming.** The grenadier sights with the reticle of the AN/PVS-4 rather than with the M203's iron sights. Sighting this way requires him to change position, which breaks his stock weld and makes the weapon seem heavier.

c. **Breathing.** Though breathing itself is affected little by limited visibility, using night vision devices (NVDs) that magnify the field of view increases the effect of weapon movement caused by breathing.

d. **Trigger Control.** This is the same regardless of visibility conditions. The objective is to keep the weapon aligned with the target.

e. **Night Vision Devices.** The AN/PVS-7 is issued for use with the M203, whereas the AN/PVS-4 is normally issued for use with crew-served weapons. M203 gunners may qualify with either device. In a defensive position, the gunner identifies targets during daylight and constructs aiming or elevation stakes, or both. Because the AN/PVS-7 rear sight must be set to the far setting to sense rounds, the gunner cannot see both the M203 sights and the target at the same time. Therefore, stakes are more important with the AN/PVS-7 than with the AN/PVS-4. (On the rear sight of the M16A1, the far setting is "L." On the rear sight of the M16A2, the far setting is "02.")

f. **Marked-Sling Method.** To use this method, the grenadier must—

(1) Loosen the sling, assume a kneeling position, and place the forward foot in the sling.

(2) Ensure the sling is taut and vertical between the front sling swivel and the boot. If not, the rounds will impact at a greater range than desired. To check this, tie one end of a string or thread to a weight, such as a cartridge case, and tie the other to the sling swivel. Let it hang freely, and align the edge of the sling with it to ensure the sling is vertical.

(3) Fire several rounds to determine the desired range.

(4) Where the sling is held to the ground by the foot, mark the sling with colored tape, paint, ink, or whatever is available. Mark the position of the buckles so that, if either is moved, the grenadier can return them to their original positions and be assured of constant range accuracy.

(5) If the sling gets wet, it may stretch or shrink, indirectly causing the rounds to impact closer or farther than desired.

5-3. NBC ENVIRONMENT

The fundamentals of marksmanship remain valid in the NBC environment, but some modifications may be needed to accommodate the equipment.

a. **Steady Position.** Bulky NBC wear requires the grenadier to press the stock of the weapon more firmly into his shoulder pocket.

b. **Aiming.** This is affected little by NBC.

c. **Breathing.** Wearing the protective mask makes breathing more difficult. Grenadiers must try to breathe normally to avoid hyperventilating while firing.

d. **Trigger Control.** All soldiers must wear rubber gloves.

5-4. FIRE COMMANDS

Standard fire commands are explained to grenadiers, then used during all gunnery training that follows. Trainers give the appropriate elements before each dry-fire or live-fire exercise. The grenadier performs as directed and repeats each element as it is announced. (Chapter 6 provides a detailed explanation of fire commands.)

a. **Alert.** The trainer gives the alert as a fire mission. On hearing this, the grenadier loads the weapon and moves the safety lever to FIRE.

b. **Direction.** The trainer gives the direction to target.

c. **Description.** The trainer describes the target, for example, “bunker” or “machine gun position,” and the grenadier lays on the target.

d. **Range.** The trainer gives the (estimated) range to the target, for example, “150.”

e. **Method of Fire.** The method of fire for either target is three rounds. On the basic range, grenadiers fire at both point and area targets.

f. **Command to Open Fire.** To open fire, the trainer commands COMMENCE FIRING or AT MY COMMAND. When ready, the grenadier announces "Up" and fires or waits for the command to fire. When all grenadiers are ready, the trainer gives the actual command to fire.

5-5. DRY-FIRE EXERCISES

Dry-fire exercises train grenadiers in the techniques of loading, unloading, immediate action, fundamentals of marksmanship, and sight manipulation.

These exercises are conducted with training practice (TP) or dummy rounds. The trainer gives fire commands as appropriate.

a. **Loading and Unloading Exercise.** This trains the grenadier to operate and clear the weapon proficiently. Loading and unloading procedures (Chapter 2) should be practiced with dummy ammunition.

b. **Immediate Action Exercise.** This exercise is conducted with a dummy round and the basic grenade launcher target.

(1) Load the weapon with a dummy round, and aim the it at one of the targets on the basic grenade launcher range.

(2) Maintain the sight picture while you pull the trigger to simulate firing.

(3) When you are informed that you have a misfire, apply misfire procedures, then continue to fire (Chapter 4).

c. **Aiming Exercise.** This exercise requires the grenadier to simulate firing a dummy round at a target on the basic grenade launcher range.

(1) Maintain your sight picture throughout the firing cycle.

(2) If, after firing, you note that the sight picture has moved, then you were unsteady when you fired.

(3) After each shot, apply immediate action procedures to extract and eject the dummy cartridges. Then recock the barrel assembly.

d. **Sight Setting and Sight Changing Exercises.** These exercises train the grenadier to operate and adjust both quadrant and leaf sights.

(1) ***Range.*** Manipulate the sights to different range settings (quadrant sight—50 to 400 meters; leaf sight—50 to 250 meters). To learn to make fine adjustments for elevation, manipulate the sights from the minimum to the maximum setting. When you do not have time to adjust the sights, you may adjust the aiming point instead.

(2) ***Windage.*** Depress the rear sight aperture left and right, and traverse the windage screw across the entire scale.

e. **Dry-Fire Proficiency (Performance) Exam.** Grenadiers practice the dry-fire tasks until they become proficient in operating the weapon; then they take the dry-fire proficiency exam (Appendix C). This exam emphasizes learning by doing. Before he can progress to live firing, each grenadier must demonstrate skill in every task in the exam.

f. **Remedial Training.** Soldiers who do not pass the performance exam must attend remedial training, after which they are retested. The soldiers who pass may help train those having difficulty.

5-6. SENSING AND ADJUSTMENT OF FIRE

The grenadier determines (senses) where the grenade landed relative to the target, then adjusts elevation and deflection.

a. **Sensing.** As soon as the grenade explodes, determine where it exploded with respect to the target. This is called "sensing" (the impact) and has two aspects: range and deviation. Because the casualty radius of the HE round is 5 meters (5 1/2 yards), determine both range and deviation to the nearest 5 meters.

(1) ***Range.*** Sense the range as one of the following:

- Short. The grenade burst between you and the target.
- Over. The grenade burst beyond the target.
- Target. The grenade hit any part of the target.
- Range correct. The grenade burst slightly left or right of the target, but at the correct range.
- Doubtful. The grenade burst left or right of the grenadier, but you cannot sense the range.

(2) ***Deviation.*** Announce a deviation sensing as either—

- Right or left of the target.
- On line with the target.

b. **Adjustment of Fire.** To ensure a second-round hit, adjust your fire by sensing the impact of the round and manipulating the sight.

(1) If time allows, whether using the AN/PVS-4 or AN/PVS-7, adjust the sights, but if time is critical, adjust the point of aim instead.

(2) If the grenade lands *more* than 25 meters over or short of the target, adjust the *range quadrant* to bring the next grenade on target.

(3) If the grenade explodes *less* than 25 meters from the target, adjust the *point of aim* to bring the next grenade on target.

(4) If the launcher is properly zeroed, deviation errors will be small, and you can easily correct them by adjusting the aiming point. However, a wind strong enough to move the grenade out of its normal trajectory will increase the size of the deviation errors. After observing the effect of the wind on the strike of the grenade, compensate for the effect of the wind by aiming into it. This should help bring the next grenade on target— for example, if the grenade bursts to the left and short of the target, sense the strike of the round relative to the target, then adjust an equivalent distance to the right arid over the target to achieve a target hit. *Watch the flight of the grenade to the target.* This will help determine the effect of the wind on the grenade as it moves toward the

target. Evaluating and compensating for the wind before firing increases your chances of achieving a first-round hit.

5-7. GRENADE LAUNCHER RANGE LAYOUT

The grenade launcher range is designed for all grenade launchers. Because soldiers can qualify on this range in all conditions, it prepares grenadiers for combat situations. The range has four stations. Figure 5-10 shows the range layout. Minimum range personnel and their duties are the same for M203 qualification firing as they are for other grenadier firing. These personnel include an OIC, NCOIC, safety officer, ammunition NCO, tower operator, station NCOs, primary trainer, and concurrent training trainers. Local policy may require more personnel. (Appendix D discusses range safety; FM 25-7 provides a detailed setup and target configuration for this range.)

5-8. DESCRIPTION OF RANGE AND TARGETS

The range has four self-contained stations. It is 30 meters wide by 500 meters deep, and has a no-HE fire zone out to 165 meters. (Grenadiers can fire HE *only* on Stations 1, 3, and 4.) Targets should be built from a durable material to reduce downrange target maintenance. Those within each station must be grouped and spaced so that the grenadier may fire on close-range, midrange, and long-range targets, in that order. The following description of the stations and targets is included to help trainers maintain control during zeroing, practice, and record fire:

> **NOTE:** To simplify the task of finding and destroying duds, trainers must ensure the impact area is free of any vegetation other than short grass.

a. Station 1 consists of a prone fighting position with a log or sandbag support and a zeroing target at 200 meters. The target should be constructed of logs or other suitable material. It must have a surface at least 2 meters high by 2 meters wide (6 feet by 6 feet). The target should be clearly marked with a large “Z” painted in a color that contrasts with the surrounding background, and that is visible in different sun or glare conditions.

b. Station 2 consists of an upright log or log wall, a kneeling firing position about 4 feet high, and two point-type targets. The targets include a simulated window or door of a building at 90 to 100 meters and a small bunker or fighting position, with overhead cover, at 125 meters. The targets maybe constructed of logs, sandbags, or other suitable material.

c. Station 3 consists of a fighting position and two targets. The targets are a two-person bunker at 150 meters and an automatic weapon position at 175 meters. The bunker represents a point target, and the automatic weapon position

represents a target that can be engaged with area-type fire. The targets may be constructed of logs, sandbags, or other suitable material.

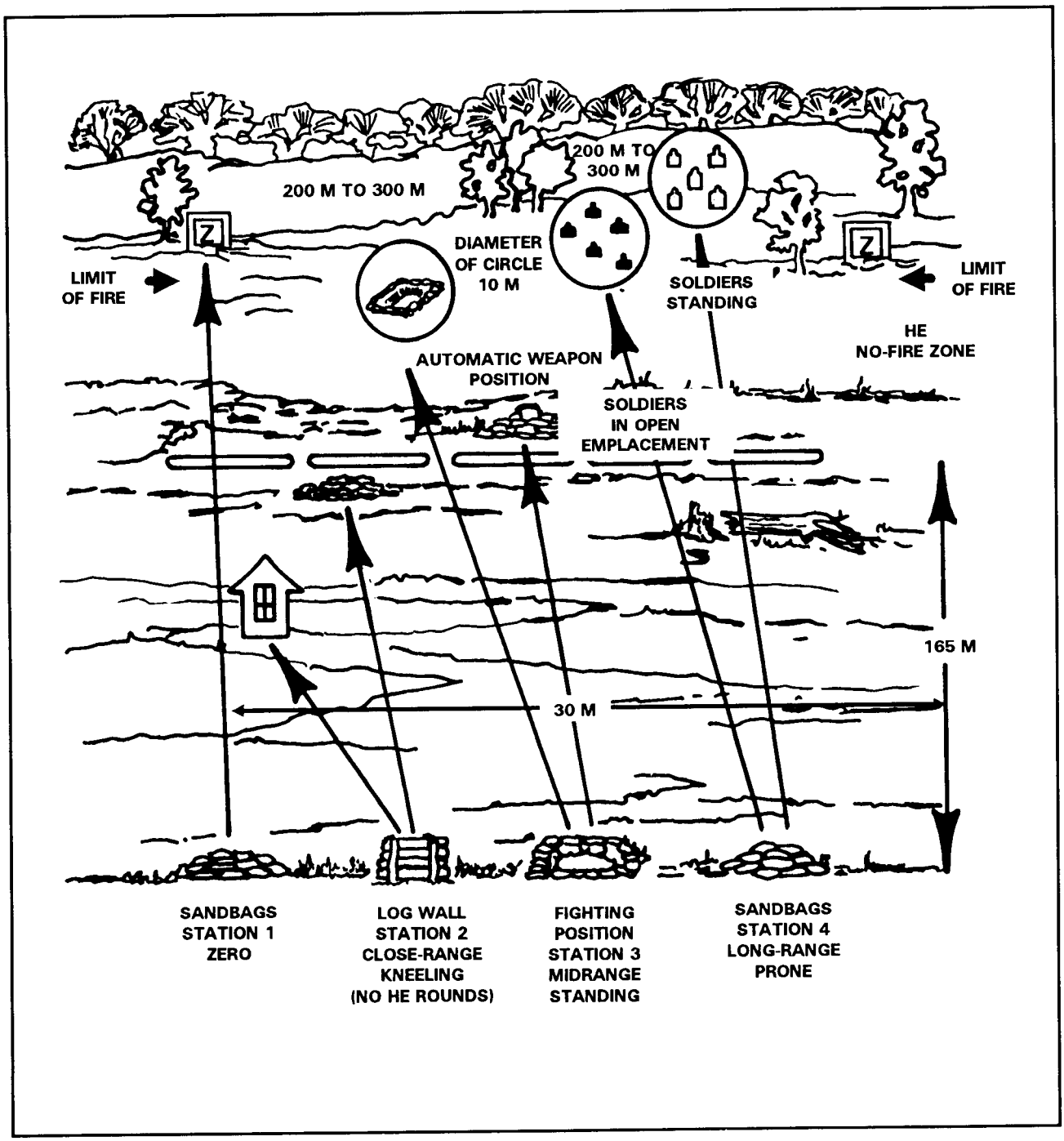

Figure 5-10. Grenade launcher range.

d. Station 4 consists of a prone fighting position with a log or sandbag support and two area-type targets (with personnel targets in the open) at 250 and 350 meters. The log or sandbags at the firing position are used for support and cover. The targets are E-type (NSN 6920-00-795-1086) and F-type (NSN 6920-00-071-4589) silhouettes.

Section II. BASIC GUNNERY

Basic gunnery allows the grenadier to zero and apply the fundamentals of marksmanship during live-fire exercises in day, night, and NBC conditions.

5-9. ZEROING THE M203 GRENADE LAUNCHER

A correct zero consists of the elevation and windage sight settings that enable the grenadier to hit the point of aim at a given range with one of the three sighting systems: leaf, quadrant (discussed here), or nightsight (discussed later in the chapter). To zero the M203 using either the leaf sight or quadrant sight, the grenadier engages a target at 200 meters. (The M203 is normally zeroed using only the quadrant sight, but may be zeroed with only the leaf sight, or with both sights):

a. **Zeroing the Leaf Sight.** A red mark at 50 meters on the leaf sight reminds the grenadier not to zero at this range.

(1) Select a target at 200 meters.

(2) Place the sight in the upright position.

(3) Place the center mark of the windage scale on the index line on the rear of the sight base.

(4) Loosen the elevation adjustment screw on the leaf sight; place the leaf sight's index line on the sight mount's center elevation mark.

(5) Tighten the elevation adjustment screw.

(6) Assume a prone supported firing position.

(7) Load one round of 40-mm HE or TP ammunition.

(8) Use correct sighting and aiming procedures to align the target with the front leaf sight.

(9) Fire a round, sense the impact, and adjust the sight.

(a) *Windage.* Turn the sight windage screw clockwise to move the leaf sight to the left, and vice versa. One increment moves round impact 1 1/2 meters at a range of 200 meters.

(b) *Range.* Use a 40-mm cartridge case and turn the elevation adjustment screw to raise the leaf sight (this increases range) or to lower the leaf sight (this decreases range). Turning the screw one increment moves round impact 10 meters at a range of 200 meters.

(10) Fire two more cartridges, readjusting the sight after each. Once a round impacts within 5 meters of the target, the weapon is zeroed.

(11) After you have zeroed the weapon, record the zero data on your scorecard. As soon as you can, transfer the information to a separate (small) piece of paper, and tape this inside the M16 pistol grip.

b. **Zeroing the Quadrant Sight.**

(1) Select a target at 200 meters.

(2) Ensure that the quadrant sight is correctly mounted on the rifle's carrying handle.

(3) Open the front sight post and rear sight aperture.

(a) Move the *front sight post* to its highest position, then back 2 1/2 turns.

(b) Depress the rear sight retainer. Slide the *rear sight aperture* to the left until its white index line aligns with the edge of the sight aperture arm.

(4) Move the sight latch rearward, and reposition the quadrant sight arm to zeroing range (200 meters).

(5) Assume a prone supported firing position.

(6) Use correct sighting and aiming procedures to align the target with the front sight post and rear sight aperture.

(7) Load one round of 40-mm HE or TP ammunition.

(8) Fire a round, sense the impact, and adjust the sight.

(a) *Elevation.* Turn the front sight post right to decrease or left to increase elevation. At a range of 200 meters, one full turn equals 5 meters.

(b) *Windage.* Press the sight aperture retainer; move the rear sight aperture away from the barrel to move the trajectory to the left, or vice versa. At a range of 200 meters, one notch on the rear sight aperture equals 1 1/2 meters.

(9) Fire two more cartridges, readjusting the sights after each. If the round lands within 5 meters of the target, the weapon is zeroed.

(10) After you have zeroed the weapon, record the zero data on your scorecard. As soon as you can, transfer this information to a separate (small) piece of paper, and tape this inside the M16 pistol grip.

5-10. OVERALL QUALIFICATION STANDARDS

To qualify with an M203, a grenadier must perform to prescribed standards and must score at least 60 of 90 possible points. Each target hit is worth 10 points. Zeroing is not included on the scorecard, because the weapon must be zeroed before qualification firing. However, the zero data should already have been entered on the scorecard when the weapon was zeroed. HE familiarization maybe included in qualification firing, but is not scored. DA Form 2946-R (40-MM Grenade Launcher Scorecard) is used for qualification firing and is provided in the back of this manual. This form must be locally reproduced on 8 1/2 by 11-inch paper. Figure 5-11 (page 5-16) shows an example completed scorecard. Ratings are awarded based on the point chart on the scorecard.

40-MM GRENADE LAUNCHER SCORECARD

For use of this form, see FM 23-31; the proponent agency is TRADOC

FM 23-31, Chapter 5 provides instructions for using this form and an example of a completed form.

NAME: RAGER, RONALD — QUALIFICATION RATING: EXPERT

SSN: XXX-XX-XXXX — DATE: 12 APR 93 — GRADE: E-5

ORGANIZATION: CSC 2/2 INF — ZERO LEAF SIGHT: DEFILADE ____ ELEVATION ____ — ZERO QUADRANT SIGHT: DEFILADE L4 ELEVATION R1

DATA REQUIRED BY THE PRIVACY ACT OF 1974

AUTHORITY: 10 USC 3012(g)/Executive Order 9397. **PRINCIPAL PURPOSE(S):** Record individual performance. **ROUTINE USES:** Evaluate individual proficiency and determine proficiency level. SSN is used for positive identification purposes only. **MANDATORY OR VOLUNTARY DISCLOSURE AND EFFECT ON INDIVIDUAL NOT PROVIDING INFORMATION:** Voluntary. Individuals not providing information cannot be rated or scored on a mass basis.

TASK NUMBER	DAY AND NBC RECORD FIRE	TIME
1	TGT 1 HIT X MISS ____ POINTS 10 TGT 2 HIT X MISS ____ POINTS 10	3 MIN
2	TGT 1 HIT ____ MISS X POINTS 0 TGT 2 HIT X MISS ____ POINTS 10	3 MIN
3	TGT 1 HIT X MISS ____ POINTS 10 TGT 2 HIT X MISS ____ POINTS 10	3 MIN
4	HIT X MISS ____ POINTS 10	3 MIN

TASK NUMBER	DAY AND NBC RECORD FIRE (CONT'D)	TIME
5	HIT X MISS ____ POINTS 10	3 MIN

TASK NUMBER	NIGHT RECORD FIRE	TIME
6	HIT X MISS ____ POINTS 10	3 MIN

TOTAL POINTS: 80

EXPERT	80 - 90
GRENADIER, FIRST CLASS	70 - 75
GRENADIER, SECOND CLASS	60 - 65
UNQUALIFIED	0 - 55

GRADER'S SIGNATURE: Daniel Sell

OIC'S SIGNATURE: Billy Greer

DA FORM 2946-R, AUG 94 — EDITION OF 1 JUL 74 IS OBSOLETE

Figure 5-11. Example completed DA Form 2946-R, 40-mm Grenade Launcher Scorecard.

5-11. DAY RECORD FIRE

Day record fire gives the grenadier the confidence and experience he needs to progress from dry-fining exercises to record fire. Day record fire includes two NBC tasks (Tasks 4 and 5). All soldiers must be prepared to accomplish their missions, even in protective clothing. This exercise is conducted on a grenade launcher range IAW Firing Table I (Table 5-1). Before they fire for qualification, grenadiers must first zero their weapons. They receive instruction on the objectives, range, targets, and qualification standards. Each firing order consists of two grenadiers, one of whom assists. The unit is organized in firing orders based on range constraints. Grenadiers fire this exercise from the following fighting positions: kneeling supported, midrange supported, long-range supported, NBC midrange point target, and NBC midrange area target. For each of these tasks, the grenadier can designate which target he will engage first.

WARNING

BEFORE ALLOWING ANYONE TO MOVE BETWEEN STATIONS, ENSURE THAT ALL RIFLES AND GRENADE LAUNCHERS HAVE BEEN CLEARED, THAT BOLTS REMAIN TO THE REAR, AND THAT BARREL ASSEMBLIES REMAIN IN THE OPEN POSITION. ANYONE OBSERVING AN UNSAFE ACT SHOULD CALL "CEASE FIRE" AND NOTIFY RANGE PERSONNEL IMMEDIATELY.

a. **Station 1, Zeroing.** The grenadier zeroes with both quadrant and leaf sights at Station 1.

(1) ***Leafsight.*** From a prone supported firing position, fire to zero the weapon. This reinforces the experience gained during dry fining and allows practice in loading and firing with the most accurate sensing and adjustments obtainable. If you zero in three rounds, use the other two rounds to confirm the zero, If you cannot zero with five rounds, you are removed from the firing line for remedial training.

(a) Prepare the sight for zeroing.

(b) Assume a good prone supported firing position.

(c) When you receive the following fire command, repeat each element as it is given:

GRENADIER
FRONT
200 (ZERO PANEL)
ONE ROUND
COMMENCE FIRING

(d) Load one round, obtain the proper sight picture, and announce “Up” to your assistant.

(e) When the tower operator gives the command to commence firing, fire one round at the panel marked “Z.”

(f) Sense the impact of the round. If the round did not land within 5 meters of the zero panel, adjust the sights for windage and elevation.

(g) Repeat until a round lands within 5 meters of the zero panel.

(h) Once you have zeroed the weapon, record the zero data on your scorecard. As soon as you can, transfer the information to a separate (small) piece of paper, and tape this inside the M16 pistol grip.

(2) ***Quadrant sight.*** From a prone supported firing position, fire to zero the weapon. This reinforces the experience gained during dry firing and gives you practice in loading and firing with the most accurate sensing and adjustments you can obtain. The steps for zeroing with the quadrant sight are the same as those for zeroing with the leaf sight.

b. **Station 2, Task 1, Kneeling Position.** (Only TP rounds maybe used at this station.)

(1) When you receive the command DESIGNATE THE TARGET, identify the target you intend to engage by announcing "Window" or "Bunker."

(2) When you receive the command DETERMINE THE RANGE, announce the range to the target.

(3) Load one of the three rounds allotted. Because HE may not be fired at ranges of less than 165 meters on the basic grenade launcher range, use only TP rounds.

(4) When you receive the following fire command, repeat each element as it is given:

GRENADIER
FRONT
3 ROUNDS
100 (WINDOW) OR 115 (BUNKER)
COMMENCE FIRING

(5) Acquire the proper sight picture and announce “Up” to the grader.

(6) Engage the target given in the fire command until you hit it. Fire any remaining rounds at the second target. You need no other fire command. For each round you free, your assistant announces “Hit” or “Miss.”

	Time	Rounds	Type	Target and Range
Task 1	2 minutes	3	TP	Window at 90 to 100 meters; bunker at 105 to 115 meters
Task 2	2 minutes	3	TP	Bunker at 135 to 150 meters; automatic weapon at 200 to 250 meters
Task 3	2 minutes	3	TP	Troops in open emplacement at 275 to 300 meters; troops in open at 325 to 350 meters
Task 4	2 minutes	3	TP	Bunker at 135 to 150 meters
Task 5	2 minutes	3	TP	Automatic weapon at 200 to 250 meters

Table 5-1. Firing Table I, day record fire qualification.

c. **Station 3, Task 2, Midrange Position.**

(1) When you receive the command DESIGNATE THE TARGET, identify the target you intend to engage by announcing "Bunker" or "Automatic weapon."

(2) When you receive the command DETERMINE THE RANGE, announce the range to the target.

(3) Load one of the three rounds allotted.

(4) When you receive the following fire command, repeat each element as it is given:

GRENADIER
FRONT
3 ROUNDS
150 (BUNKER) or 250 (AUTOMATIC WEAPON)
COMMENCE FIRING

(5) Acquire the proper sight picture, and announce “Up” to the grader.

(6) Engage the target given in the fire command until you hit it. Fire any remaining rounds at the second target. You need no other fire command. For each round you fire, your assistant announces “Hit” or “Miss.”

d. **Station 4, Task 3, Long-Range Supported Position.**

(1) When you receive the command DESIGNATE THE TARGET, identify the target you intend to engage by announcing “Troops in the open emplacement” or “Troops in the open.”

(2) When you receive the command DETERMINE THE RANGE, announce the range to the target.

(3) Load one of the three rounds allotted.

(4) When you receive the following fire command, repeat each element as it is given:

GRENADIER
FRONT
3 ROUNDS
300 (TROOPS IN THE OPEN)
COMMENCE FIRING

(5) Acquire the proper sight picture, and announce “Up” to the grader.

(6) Give the command to FIRE.

(7) Engage the target given in the fire command until you hit it. Fire any remaining rounds at the second target. You need no other fire command. Before firing, you must know the procedure to follow in the event of a stoppage. For each round you fire, your assistant announces “Hit” or “Miss.”

e. **Station 3, Task 4, Midrange Position (NBC), Point Target.**

(1) Put on, clear, and check your mask within nine seconds. Within the next six, pull the hood over your head and zip the front of it closed.

(2) Load one of the three rounds allotted.

(3) When you receive the following fire command, repeat each element as it is given:

FIRE MISSION
FRONT
3 ROUNDS
150 (BUNKER)
AT MY COMMAND

(4) Acquire the proper sight picture, and announce “Up” to your assistant.

(5) Have your assistant signal the tower operator that you are ready.

(6) When the tower operator gives the command to commence firing, engage the target given in the fire command until you hit it. For each round you fire, your assistant announces “Hit” or “Miss.”

f. **Station 3, Task 5, Midrange Position (NBC), Area Target.**

(1) Load one of the three rounds allotted.

(2) When you receive the following fire command, repeat each element as it is given:

FIRE MISSION
FRONT
3 ROUNDS
200 (AUTOMATIC WEAPON POSITION)
AT MY COMMAND

(3) Acquire the proper sight picture, and announce “Up” to your assistant.

(4) Have your assistant signal the tower operator that you are ready.

(5) When the tower operator gives the command to FIRE, engage the target. Engage the target given in the fire command until you hit it. For each round you fire, your assistant announces “Hit” or “Miss.”

5-12. DAY RECORD FIRE QUALIFICATION STANDARDS

Before firing, each grenadier must know the tasks, the time and ammunition required, the procedures to follow if a stoppage occurs, the penalties for failure to stop firing when commanded or signaled to do so, and the method used for scoring targets.

a. **Time and Ammunition.** Each grenadier determines the target and its distance before loading any rounds. When the grenadier receives the command to FIRE, the time allotted for that task in Firing Table I begins.

b. **Stoppages.** The grenadier must apply immediate action procedures if a stoppage occurs. If he can reduce the stoppage, he can continue to fire the course. The trainers allow each grenadier an extra 15 seconds for each application of immediate action.

(1) If a stoppage occurs that you cannot reduce by immediate action, raise your hand and announce "Time."

(2) When you say "Time," the assistant trainer notes the time, ensures that a real stoppage exists, and tries to clear the stoppage. If he clears it, you can complete firing. If he is unable to clear it, the grader will clear it, and you will be allowed 15 seconds for each round remaining to complete firing.

(3) If you made an error that caused the stoppage, you do not receive extra time, and your score consists only of whatever you had earned when the stoppage occurred.

(4) If the grenade launcher must be replaced, you are allotted 10 rounds to zero a new one, then you may repeat the exercise.

(5) If malfunctions prevent you from finishing the exercise in the time allowed, you can finish it in an "alibi run'' after all other grenadiers complete firing.

c. **Penalties.** Five points are deducted from the score of any grenadier who fails to stop firing when the trainer commands or signals to do so. If a grenadier fires at the wrong target, he loses the rounds allotted for the other target, which leaves him only the remainder of his rounds to expend on both targets.

d. **Target Scoring.** The trainer or assistant trainer records scores on DA Form 2946-R. They determine whether each grenade fired is a hit or miss, then assign 0 points for a miss or 10 points for a hit. Tasks 1 through 3 each consist of two targets, so the total available for each of these tasks is 20 points. The grenadier may select which of the two targets to engage first. If he scores a hit on the first, the trainer permits him to engage the second, and he returns all unexpended rounds to the assistant trainer. Tasks 4 and 5 each consist of firing one target, for a total of 10 points each.

(1) ***Window or door.*** To score a hit on a window or door, the grenade must either strike the target or go through the opening in the center of the target.

(2) ***Bunker.*** To score a hit on the bunker, the grenade must strike anywhere on the face of the bunker.

(3) ***Automatic weapon.*** To score a hit on an automatic weapon, the grenade must strike within 10 meters of the target.

(4) ***Troops.*** To score a hit on troops, the grenade must strike within 10 meters of the target.

5-13. MOUNTING THE AN/PVS-4

The grenadier must mount the AN/PVS-4 to the weapon before he zeroes it, and he must do both before he can qualify with the M203 grenade launcher. To mount the scope, he must—

a. Remove the quadrant sight.

b. Position the mounting bracket assembly on the left side of the rifle so that the two clamps project through the opening under the handle. Loosen the wing nuts completely (Figure 5-12).

c. Turn the clamp plates so that the pointed ends are in the UP position and are seated against the handle.

d. Tighten the wing nuts clockwise until the mounting bracket is secure against the weapon.

e. Position the sight in the groove on top of the bracket, and align the threaded hole in the base of the sight mounting adapter with the lever screw assembly. Tighten the screw clockwise firmly to secure the sight to the bracket.

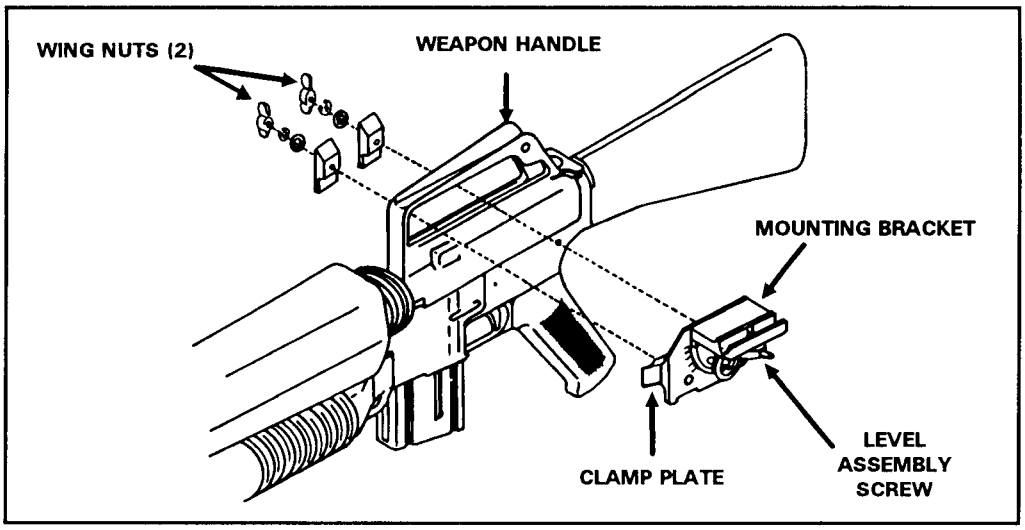

Figure 5-12. Installing the mounting bracket.

5-14. ZEROING THE AN/PVS-4 TO THE M203

After the nightsight is mounted on the M203, it is zeroed to the M16. This must be done *before* the nightsight can be zeroed to the M203. FM 23-9 provides instructions for doing this. Then the M 16 is used to zero the nightsight to the M203. The grenade launcher rounds are fired only to confirm the zero. To zero the nightsight to the M203—

a. **Center the Reticle Pattern.** Use the aiming points on the nightsight reticle (Figure 5-13) and the range settings on the mounting bracket. Center the nightsight's reticle pattern within the field of view (FOV). Note that it may not be centered even if it appears to be. To ensure it is, rotate the *azimuth control knob* either way until it stops. Then, rotate it back the opposite way, counting the number of clicks until it stops again (this may be any number of clicks between 200 and 600). Divide the number of clicks in half, and rotate the knob in the original direction by that number of clicks. For example, if the total number of clicks is 500, rotate the knob back 250 clicks in the original direction. Center the elevation using the same procedure with the *elevation control knob.* The total amount of elevation clicks also varies between 200 and 600.

b. **Adjust the Reticle Pattern.** Before adjusting the reticle pattern, the grenadier should fire three 5.56-mm rounds, then retighten the mount wing nuts to securely seat the sight. Once this is done, the grenadier fires at a 10-meter target, because hitting and spotting this target is easier than hitting a 25-meter target. This procedure may be performed in daylight using the daylight cover:

(1) Turn the sight on and adjust the reticle intensity to the desired level of illumination.

(2) Place an M16 25-meter target at 10 meters and stabilize the weapon.

(3) Fire a 5.56-mm round at the center of the target and mark the hole the round makes.

(a) If the round misses the entire target, reseat the sight exactly as previously described.

(b) If the round hits the target but not within 20 centimeters (8 inches) of the center, adjust the azimuth and elevation controls to bring the impact point toward the center of the target, then fire a second round. Continue to fire single rounds and adjust the controls until the rounds strike within the desired distance from the center.

(4) Once the reticle is adjusted, move the 25-meter target out to 25 meters and zero the grenade launcher. DO NOT REMOVE the nightsight from the weapon until you have obtained a zero.

c. **Zero at 25 Meters.** This zero is not recorded. To obtain a 25-meter zero, the grenadier must—

(1) Stabilize the weapon.

(2) Center the reticle's zeroing range aiming point on the target aiming point (center of the target) (Figure 5-13). Fire until you obtain a good three-round shot group. Triangulate and locate the center of the shot group.

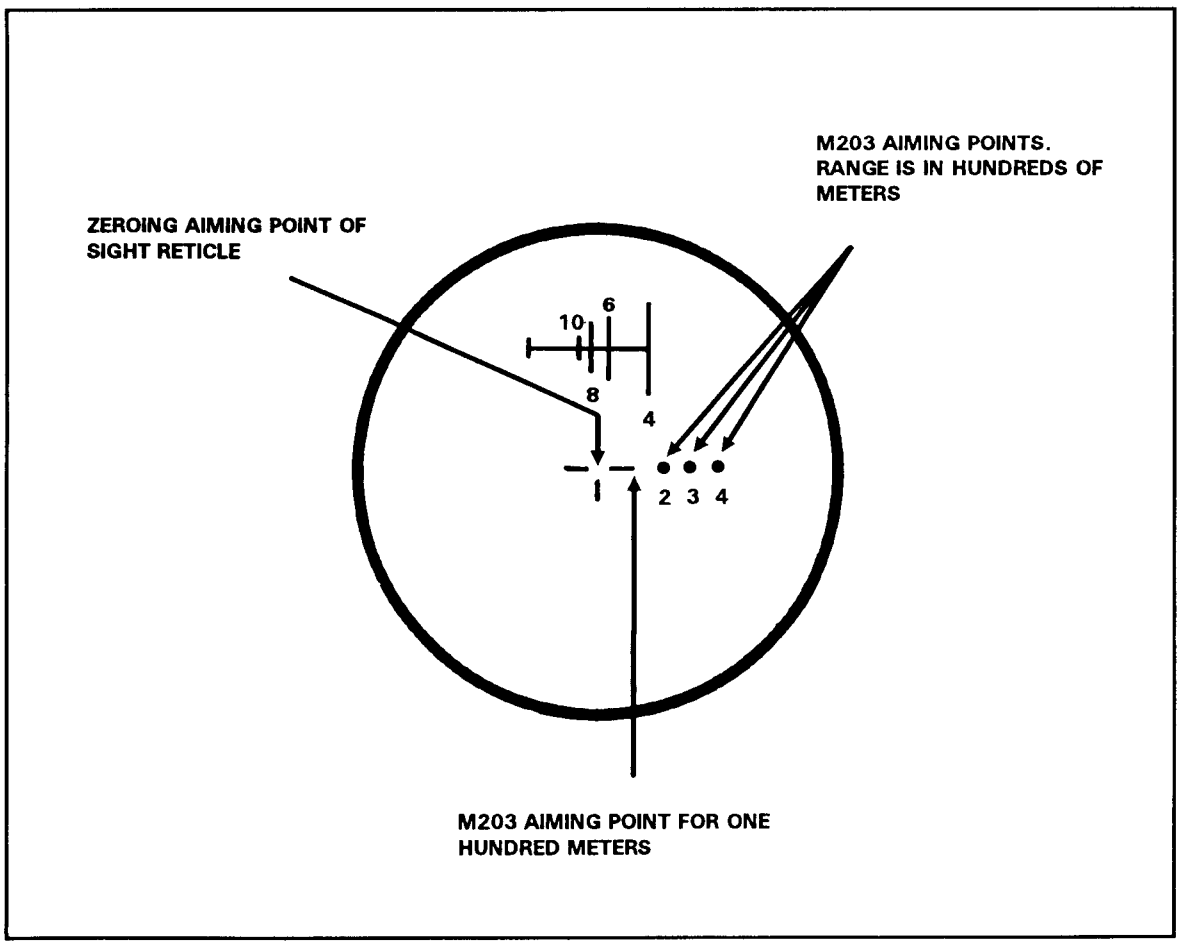

Figure 5-13. Aiming points.

NOTE: Even if the nightsight is dismounted and remounted on the same weapon, some changes in its zeroing will occur, so it must be zeroed again.

(3) Turn the azimuth and elevation control knobs to adjust the sight reticle. Move the center of the shot group 9.8 centimeters (3 7/8 inches) below and 4.2 centimeters (1 5/8 inches) to the right of the target aiming point (Figure 5-14). For example, if the shot group is high and to the left of the desired impact point, adjust the elevation down (DN) and the azimuth right (RT). One click of the azimuth or elevation adjustment moves the strike of the round .63 centimeter (1/4 inch) at a range of 25 meters. Two clicks move the reticle about one square on the target.

(4) After adjusting the reticle, assume a stable position. Place the reticle aiming point on the target aiming point, and fire three more rounds.

(5) Repeat Steps 4 and 5 until the rounds strike within a 3.2 centimeter (1 1/4 inch) circle in the desired location 9.8 centimeters (3 7/8 inches) below and 4.2 centimeters (1 5/8 inches) to the right of the aiming point, or until you have fired 12 rounds, whichever occurs first. If you are unable to zero the AN/PVS-4 after 12 rounds, the trainer must send you to remedial training.

(6) Confirm the zero on the grenade launcher range using a 200-meter target. Place the nightsight into operation and use its reticle, which has two parts. Use the vertical line in the upper part of the reticle to estimate range and the lower part to aim the weapon.

(a) Set the range as estimated on the range indicator of the mounting bracket (Figure 5-13).

(b) Engage the target, placing the aiming point of the sight reticle on the target's center of mass (Figure 5-14). Fire the weapon using all your marksmanship skills. You have confirmed the zero if two of three rounds strike within 5 meters of the target.

5-15. NIGHT RECORD FIRE

Night or limited visibility firing trains grenadiers to apply the fundamentals of grenade launcher marksmanship while using the AN/PVS-4 nightsight. This training increases the grenadiers' confidence. Each grenadier learns to zero the M203 to the AN/PVS-4 on the 25-meter range, then fires at one area target on the M203 grenade launcher range. The grenadiers are instructed before night firing in its objectives, fundamentals, fire commands, and targets. The unit is organized in firing orders based on the range constraints. Each firing order should consist of a grenadier and assistant. The assistant performs his duties in

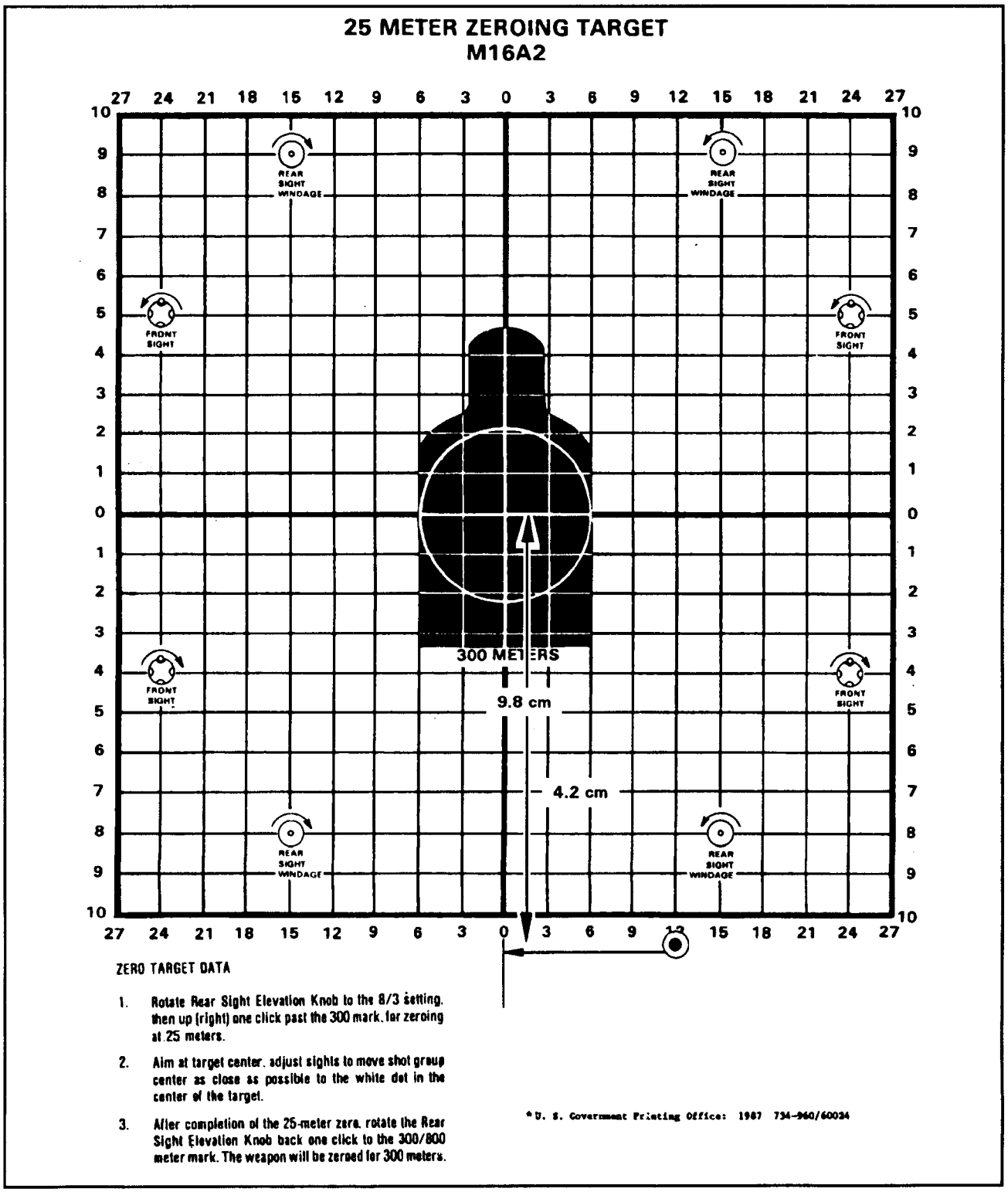

Figure 5-14. Adjustment of rounds.

a manner similar to day record fire. Night record fire consists of one task: Station 3, Task 6, midrange fighting position (night), area target.

a. Load one of the three rounds allotted.

b. When you receive the following fire command, repeat each element as it is given:

GRENADIER
FRONT
3 ROUNDS
200 (AUTOMATIC WEAPON POSITION)
AT MY COMMAND

c. Acquire the proper sight picture, and announce "Up" to the grader.

d. When the grader gives the command FIRE, engage the target given in the fire command until you hit it. Fire any remaining rounds at the second target. You need no other fire command. For each round you fire, your assistant announces “Hit” or “Miss.”

5-16. NIGHT RECORD FIRE QUALIFICATION STANDARDS

Before firing, each grenadier must know the tasks, the time and ammunition required for each, the procedures to follow if a stoppage occurs, the penalties for failure to stop firing when commanded or signaled to do so, and the method used for scoring targets.

a. **Time and Ammunition.** Firing Table II (Table 5-2) provides the night firing task and its time and ammunition requirements.

b. **Stoppages.** The procedure for stoppages is the same as for other qualification firing exercises.

c. **Penalties.** The procedure for penalties is the same as for other qualification firing exercises.

d. **Target Scoring.** The target-scoring procedure is the same as for other qualification firing exercises.

e. **Conditions.** Night record fire trains the grenadier to engage targets between 150 and 250 meters under ideal moonlight conditions.

Time	Rounds	Type	Target and Range
2 minutes	3	HE	Automatic weapon at 200 to 250 meters

Table 5-2. Firing Table II, night firing qualification.