

WEAPONS EMPLOYMENT AND EFFECTS

Introduction. When Marines have completed individual marksmanship training and before they commence combat firing in tactical situations, they must understand the capabilities and limitations of their weapon systems. They must also learn the techniques of rifle, automatic weapon, and grenade launcher fire. Techniques of fire refer to the application and control of the combined fire of a unit. This class will focus on units of fire team and squad size.

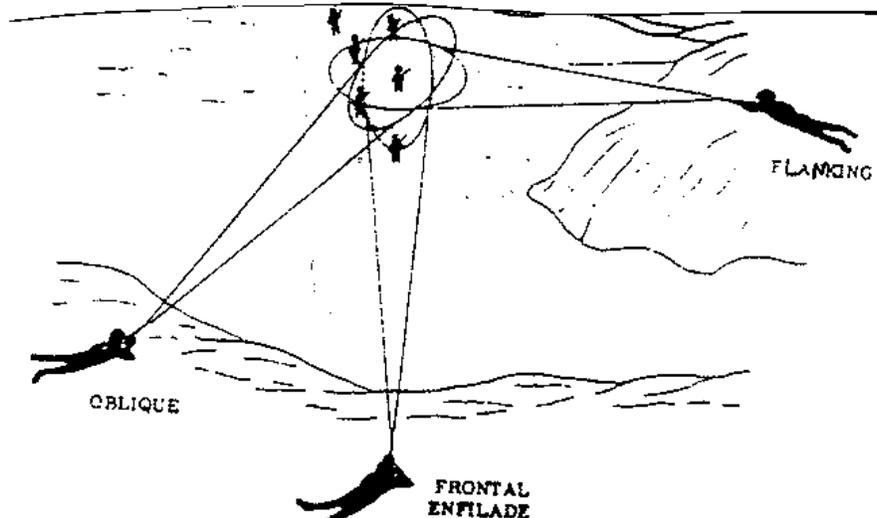
Characteristics of Fire. The table below describes different characteristics of fire.

Characteristic	Description
Trajectory	<ul style="list-style-type: none"> • Is the path of the bullet as it moves through the air (see diagram below) • Due to the muzzle velocity of the rifle, the trajectory as the bullet leaves the weapon is very flat. As the bullet loses its velocity at greater ranges, the trajectory begins to fall sharply. • When engaging a target at <ul style="list-style-type: none"> • 100 m, the trajectory is going to be quite flat and close to the ground • 1000 meters, the trajectory has considerably more curve and rises quite a distance above the ground <div style="text-align: center; margin-top: 10px;"> </div>
Cone of fire	<ul style="list-style-type: none"> • Each bullet fired from the rifle follows a slightly different trajectory due to <ul style="list-style-type: none"> • Small ballistic changes in different rounds of ammunition • Human error of the person firing the weapon • Is the pattern formed by these varying trajectories in the air (see diagram above)
Beaten zone	<ul style="list-style-type: none"> • Is area on the ground in which the bullets within the cone of fire strike (see diagram above) • At short ranges the beaten zone will be <ul style="list-style-type: none"> • Long because of the initial trajectory • Narrow because of the relatively short distance the bullet travels before it strikes the ground • As the range increases, the beaten zone will <ul style="list-style-type: none"> • Decrease in length because the bullets will be falling at a steeper angle. The slope of the trajectory will cause the beaten zone to be shorter • Increase in width as the rotation of the bullet further affects the dispersion • Ground which slopes downward with the trajectory will cause the beaten zone to be longer.

Characteristic	Description
Danger space	<ul style="list-style-type: none"> • Is the space between the rifle and the target in which the trajectory does not rise above the height of the average standing man (1.8m) • At a range <ul style="list-style-type: none"> • Of 600 meters, a bullet fired from the rifle from the prone position will not rise over 68 inches from the ground, providing the ground is uniformly sloping or level for that 600 meters. The result is a continuous danger space over level or uniformly sloping ground up to a range of 600 meters • Greater than 600 meters, danger space varies based on distances from the <ul style="list-style-type: none"> – Muzzle – Target • At different ranges a portion of the trajectory rises above the height of the average man, so no danger space is in that particular area.
Dead space	<ul style="list-style-type: none"> • Is “an area within the maximum effective range of a weapon that cannot be covered by fire from a given position because of <ul style="list-style-type: none"> • Intervening obstacles • The nature of the ground • The characteristics of the trajectory, or • The limitations of the pointing capabilities of the system” (FM 101-5-1) • When standing in the dead space, a passing round will not strike an average-height man (see diagram below.). <div data-bbox="430 888 1421 1123" style="text-align: center;"> <p>DEAD SPACE MUST BE COVERED BY OTHER WEAPONS</p> </div>

Classes of Fire.

With Respect to Target. The table below describes the four classes of fire with respect to target (see diagram below).



Class of Fire With Respect to Target	Description
Frontal	Fire delivered to the front of an enemy unit whether it is <ul style="list-style-type: none"> • In column • Deployed as skirmishers
Flanking	Fire delivered on the flank of an enemy unit whether it is <ul style="list-style-type: none"> • In column • Deployed as skirmishers
Oblique	Fire delivered in such a manner that the long axis of the beaten zone strikes the long axis of the target obliquely without regard to the direction of the enemy's front
Enfilade	<ul style="list-style-type: none"> • Fire delivered in such a manner that the long axis of the beaten zone coincides, or nearly coincides, with the long axis of the target • Is the most desirable type of fire with respect to a target because along the axis of the beaten zone is a greater chance of causing casualties

With Respect to Ground. The table below describes the four classes of fire with respect to ground (see diagram below).

Class of Fire With Respect to Ground	Description
Grazing	<ul style="list-style-type: none"> • Fire in which the center of the cone of fire does not rise above one meter from the ground • Over level or uniformly sloping terrain, the rifle will deliver grazing fire to a range of 550 meters
Plunging	Fire in which the bullets strike the ground from a high angle so that <ul style="list-style-type: none"> • The danger space is practically confined to the beaten zone, and the length of the beaten zone is materially shortened (see diagram below) • Fire at longer ranges becomes increasingly plunging because the angle at which the bullets strike the ground is steeper <div data-bbox="532 1157 1312 1535" style="text-align: center;"> </div>
Overhead	<ul style="list-style-type: none"> • Any of the above classes of fire that is delivered over the heads of friendly troops • Considered safe when the <ul style="list-style-type: none"> • Ground offers protection to the friendly troops • Ground troops are a sufficient distance below the line of fire • Its use in any case depends on <ul style="list-style-type: none"> • Necessity • Sound judgment

Fire Control. Fire control is simply the initiation and supervision of the fire of the unit by its leader. How does a leader exercise fire control? By issuing an appropriate fire command when the Marines must engage the enemy. Use the acronym, "ADDRAC" to initiate and control fires:

- Alert
- Direction
- Target Description
- Range
- Target Assignment
- Fire Control

Alert. Alert is the method of letting your unit know that a target is to be engaged.

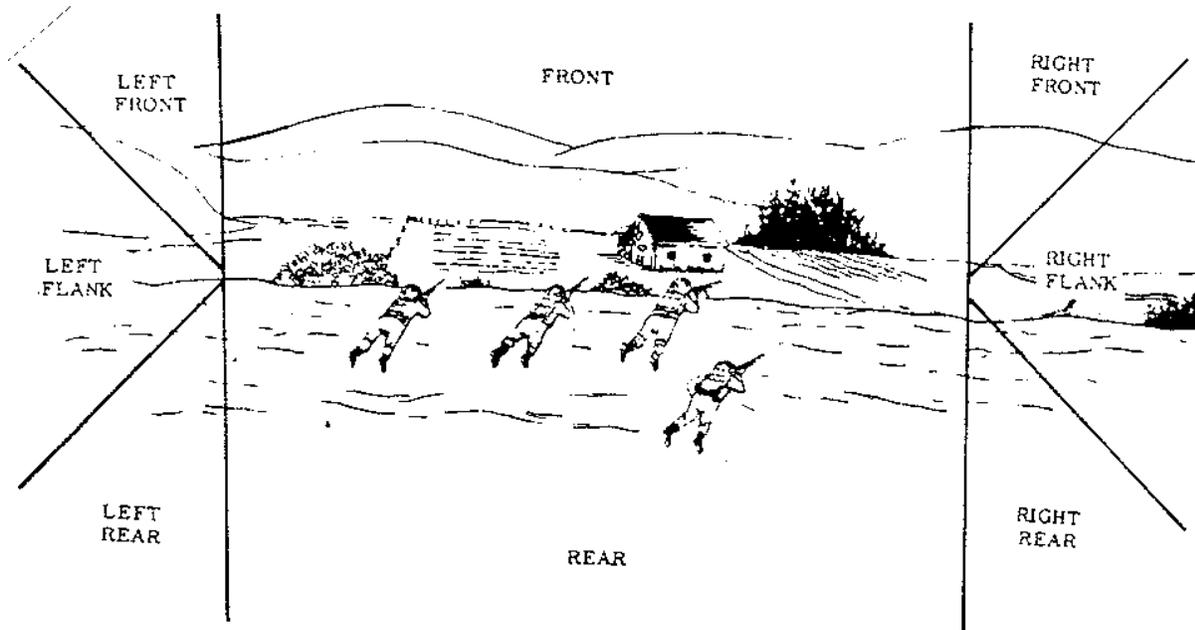
Let's assume that you are working with a T/O rifle squad. The alert would consist of one word, "Squad." If you, as a squad leader, desire to alert only part of your unit, you might say, "Third Team." or "Jones and Smith."

Normally though, you will want to alert your entire unit, even if the target appears to be a small one. Should the target turn out to be bigger than you first estimated, you could bring the fire of your other Marines to bear without repeating the fire command.

A technique to quickly alert your unit is to give the "squad" hand and arm signal.

Direction. The surrounding terrain is divided into eight sections (see diagram below):

- Left front
- Left flank
- Left rear
- Front
- Rear
- Right front
- Right flank
- Right rear



Direction may be indicated

- Orally. All the squad leader has to say then is right front, front, left flank, or rear. When possible, give cardinal directions to alleviate possible confusion between unit members.
- By pointing. When it is impossible to give direction orally or when it is necessary to retain the element of surprise, use your arm or a weapon to point in the indicated direction.
- By using a reference point. Most of the time you will not have time to indicate clearly by pointing, and you will not want to give away the element of surprise by using tracer fire.
 - If these conditions exist, and the target cannot be adequately indicated by saying, front, left flank, or rear, amplify the oral method of indicating direction by use of a reference point. For example, the unit leader's fire command would simply be "front, reference lone tree." This method is satisfactory as long as the target is on the line between the reference point and the observers.
 - However, you need a method to measure right and left from a reference point to a target that might not be on this line. Use your hand and fingers for angular deviation where speed is essential by fully extending your arm with the palm of your hand pointed toward the reference point. Using your fingers for angular deviation to indicate the target's location. An example would be "front, reference lone pine tree, two fingers right."

Target Description. The third element of fire is the description of the target. Normally, during a firefight the battle conditions make the possibility of confusion and strain greater. Therefore, to avert further or greater confusion, you must keep the target description as brief and as accurate as possible.

For instance, you do not ever need to use the word "enemy" in describing a target; enemy is assumed. If a target is a mortar, don't say, "Enemy 81 mm mortar." Simply, say, "Mortar." The use of any adjective in the description of a target is seldom, if ever, necessary.

Range. Range is the fourth element of the fire command. The two methods of indicating the range to a target are

- Orally. Range may be expressed orally. To lessen any chance of being misunderstood, give ranges of 100, 200, or 300 meters, etc. as "One hundred; two hundred; or three hundred." Give ranges other than these number by number, (i.e., one two five, two five zero, or three seven five).
- Hand and arm signals. In the event silence is necessary or if the firing unit leader cannot be heard, range may be given by hand and arm signal. The hand and arm signal used to indicate range is simple: the balled fist extended at arms length, with the appropriate numbers of fingers raised to indicate the meters. One finger indicates one hundred meters; two fingers, two hundred; etc.

Target Assignment. The assignment element tells who is to fire on the target. In many cases it is not desirable that the entire unit engage the target. Therefore, specific individuals or subordinate units must be assigned.

If you desire one fire team only to fire, the command would be, "First team." In the case of a rifle squad, you have already given the command, "Squad," in the alert. If you want the whole squad to fire, you do not have to repeat the command, "Squad," in the assignment element. The squad members all know that they are all to fire when this element is omitted.

Fire Control. The fire control element consists of a command or signal to open fire. If the leader desires

- Immediate fire on the target and if the element of surprise is of little importance, the command, "Commence firing," is given immediately after assigning the target.
- An initial volume of fire to be as great as possible and to retain the element of surprise, the command would be "On my command" or "At my signal." After ensuring that all members of the unit are ready to fire, the leader then gives the command, "Commence firing."
- To control the number of rounds the members of the unit fire, the leader can prescribe the number of rounds or magazines to be fired by the riflemen and the AR men. For instance; "Riflemen, two magazines; AR men, one drum."

Arm and hand signals can be used in the fire control element also. Usually the noise of a fire fight is of such proportion that the leader has a very difficult time being heard, much less understood. In these cases, it is important to use hand and arm signals. The signals are described in the table below.

Arm and Hand Signal	Description
Commence firing	<ul style="list-style-type: none"> • Extend arm forward, waist high, palm downward • Move arm through a wide horizontal arc several times
Fire slower	<ul style="list-style-type: none"> • Extend arm and hand as in commence firing • But move arm through the horizontal arc in a slower motion
Fire faster	<ul style="list-style-type: none"> • Extend arm and hand as in commence firing • But move arm through the horizontal arc with a much faster motion
Cease-fire	<ul style="list-style-type: none"> • Raise forearm in front of face, palm outward • Swing arm up and down several times in front of face

Examples of Fire Commands. The three tables below give examples of fire commands.

Point Target to the Front.

Sequence	Command
1	Squad (or fire team.
2	Front
3	Machine gun
4	Three hundred
5	Commence firing

Notice that the target assignment was omitted. The unit leader wants the entire squad to fire on the target. Also notice that the leader did not desire surprise fire since the order was to commence firing immediately.

Linear Target to the Left Front.

Sequence	Command
1	Squad
2	Left front, reference: lone pine tree
3	Troops on line extending two fingers right
4	Two five zero
5	At my signal commence firing

In this example, a reference was used to describe the target, along with finger measurements. Again the target assignment element was omitted because the entire squad was to engage the target. Also, the command to commence fire was preceded by the command, "At my signal" because surprise fire was desired. Naturally, an appropriate interval is given between the two commands to allow the squad to prepare to open fire as accurately as possible.

Point Target to the Right Front.

Sequence	Command
1	Squad
2	Right front, reference: large white boulder, three fingers to the left
3	Rocket position
4	One five zero
5	Second team
6	Commence firing

Here the reference point and finger measurements were used in the direction element of the fire command to pinpoint the target. In this case, the target assignment element was included; the leader decided that he wanted his second fire team to fire on the target

Rates of Fire. The rates of squad weapons combine to form the firepower of the squad. Weapons employment and squad firepower is not determined by how fast Marines can fire their weapons but how fast they can fire accurately. The squad or fire team leader must be able to control the rate and effect of his men's fire; otherwise, ammunition is wasted. The rate of fire for weapons is expressed in rounds per minute (RPM). The following rates of fire apply to the weapons of the rifle squad.

- Average rate: The average rate of aimed fire a Marine can deliver with semi-automatic rifle or with an M203 grenade launcher. The following average rates apply to squad weapons:
 - M-16: 10 to 12 RPM
 - M203: 5 to 7 RPM
- Sustained rate: Applies to rifles, automatic weapons, and machine guns; is the actual rate of well-directed fire a weapon can deliver for an indefinite length of time without causing a stoppage or malfunction due to overheating. The sustained rate for the
 - SAW is 50 RPM
 - M16A2 is 12 to 15 RPM
- Rapid rate: Applies to automatic weapons and machine guns; is the maximum amount of controlled fire which can be delivered on target for a short period of time (usually not more than two minutes) without causing a stoppage or malfunction due to overheating. The rapid rate for the SAW is 100 RPM.

Types of Unit Fire.

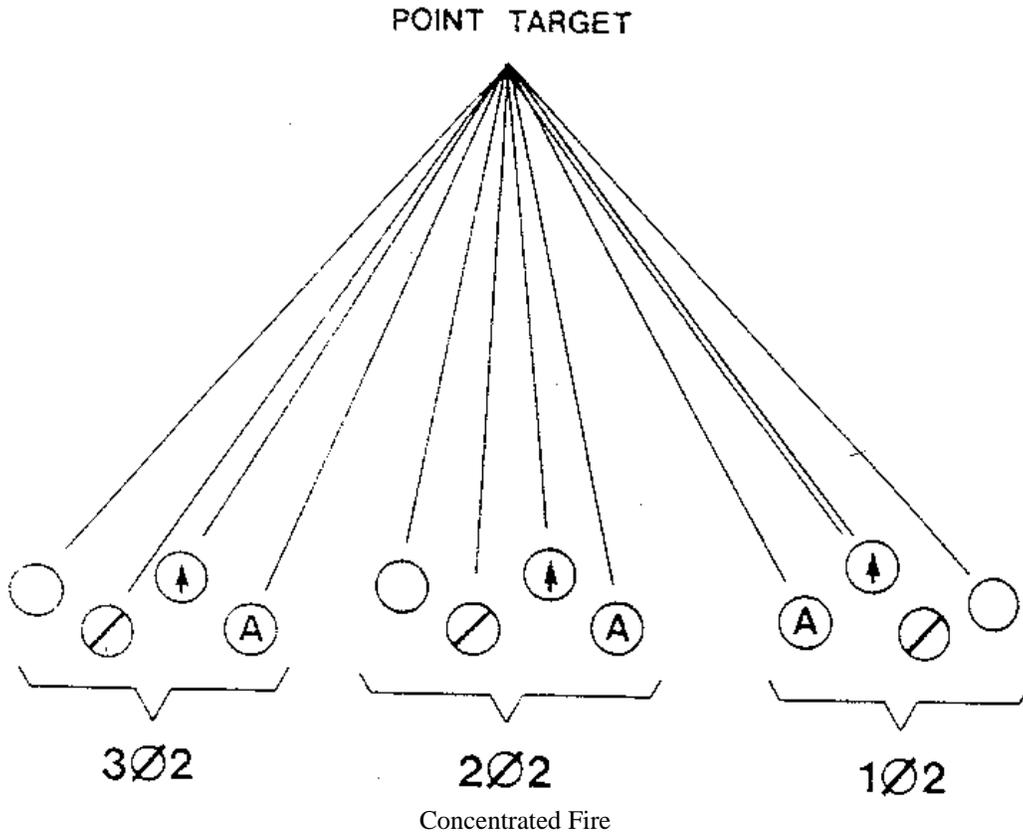
General. The size and nature of a target may call for the firepower of the entire unit or only parts of it. The type of target suggests the type of unit fire to be employed against it. The squad leader receives his orders from the platoon commander who may establish engagement criteria and target precedence (refer to B0326, *Combat Orders I*). It is usually desirable for each squad to cover a portion of the platoon frontage that overlaps with adjacent squads.

A fire team distributes its fire as designated by the squad leader. Normally, the squad leader orders a fire team leader

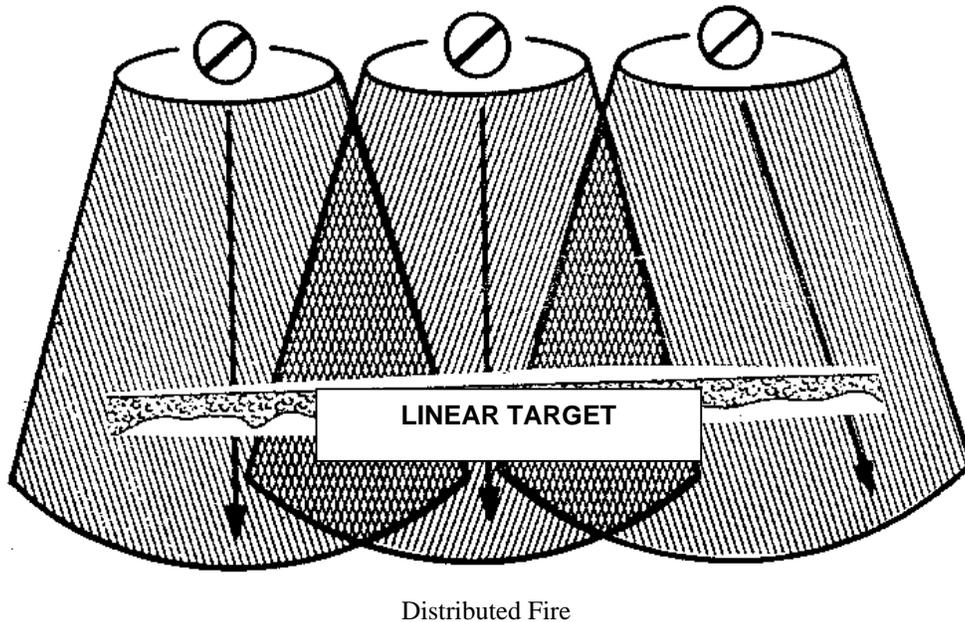
- To limit the fire of his team to a sector of the squad target
- To engage a separate target
- To shift to a target of opportunity

Concentrated Fire. Concentrated fire is fire delivered from a deployed unit at a single point target. A large volume of fire delivered at the target from different directions causes the beaten zones of the various weapons to meet and overlap giving maximum coverage of the target.

An enemy automatic weapon that has gained fire superiority over an element of a particular unit can often be neutralized by concentrated fire from the remaining elements that are not under direct fire (see diagram below).



Distributed Fire. Distributed fire is fire spread in width and/or depth to keep all parts of the target under fire. Each rifleman and assistant automatic rifleman fires his first shot on that portion of the target that corresponds to his position in the squad. He then distributes his remaining shots over the remainder of the target, covering that portion of the target on which he can deliver accurate fire without changing his position (see diagram below).



In the offense, sectors of fire are established, particularly in a support by fire position, to cover an entire target area. In the defense, fire team sectors must be interlocking and combine to cover the entire squad's frontage.

Distributed fire permits unit leaders to place the fire of their units on target so that the enemy, whether visible or not, is kept under fire. Distributed fire is the quickest and most effective method of ensuring that all parts of the target are brought under fire. When it becomes necessary to engage other targets, the squad leader shifts the fire of one or two fire teams as required.

Combination of Concentrated and Distributed Fire. The fire team organization of the Marine rifle squad permits the squad leader to combine both concentrated and distributed fire in engaging two or more targets at the same time. For example, the squad leader of a squad delivering distributed fire on a target could shift the fire of one or two fire teams to engage a target of opportunity with concentrated fire.

The type of target determines whether a unit (squad or fire team) delivers concentrated or distributed fire. If the target description indicates

- A point target (i.e., machine gun, sniper, etc.), the unit will fire concentrated fire
- An area target (i.e., squad in open or dug in, or a target which the squad leader has marked the flanks), the unit will fire distributed fire.

Potential Firepower. The potential firepower of the 13 man squad with all members firing is conservatively estimated at

- 400 well-aimed rifle and automatic rifle shots
- 370 well-aimed rifle and automatic rifle shots and 15 rounds from the grenade launchers per minute

The terms used when discussing application of fire are

- Suppress: To degrade the enemy's ability to return effective fire.
- Neutralize: To render enemy personnel incapable of interfering with a particular operation.
- Destroy: To render an enemy combat ineffective.
- Support by fire: Fire on an objective that allows a maneuver element to close with the enemy.

Requirements of Position. In occupying a firing position, individuals and units are located to satisfy these requirements:

- Be capable of delivering desired fire support.
- Possess good fields of fire to the front.
- Have adequate cover and concealment.
- Permit fire control by the unit leader.

Range Determination. One of the most important requirements in bringing effective fire to bear upon an enemy is accurate determination of the range to the enemy. The methods for determining range are

- Estimation by eye
- Observation of fire
- Range card method
- Five-degree method

Estimation by Eye. This method of determining range depends heavily on your observation skills relative to

- A mental unit of measure
- Appearance of objects

Errors of 25 to 40 percent are common among inexperienced estimators. You must be able to identify a mental unit of 100 meters on the ground:

- Under 500 meters, the mental unit of 100 meters is used to estimate the entire range
- Over 500 meters, the range is mentally divided in half, and the range is estimated to the halfway point and then doubled

By remembering what people or vehicles look like at different known ranges, you can accurately estimate the range to the enemy when the conditions of the intervening terrain do not permit the use of the mental unit of 100 meters. The table below lists conditions under which objects will seem nearer or more distant.

Objects Seem Closer	Objects Seem Farther Away
In bright light	When only a small part of the target can be seen
When the target contrasts sharply with the background	When looking over a visible depression
When looking over uniform surfaces, like snow or water	When looking upward from low ground
When looking downward from a hill into a valley	When vision is narrowly confined, as in a draw or forest trail
When looking over a depression, most of which is hidden	In poor light; at dusk; during rainy, snowy, or foggy weather
In the clear atmosphere of high altitude	When the target blends with the background
When looking down a straight open road or a railroad track	

Observation of Fire. This method is the most accurate method of range estimation. To use this method, you set sights for estimated range, fire, and correct from there. The principal disadvantage is the loss of surprise against the enemy. Other factors that affect this method of range determination are that

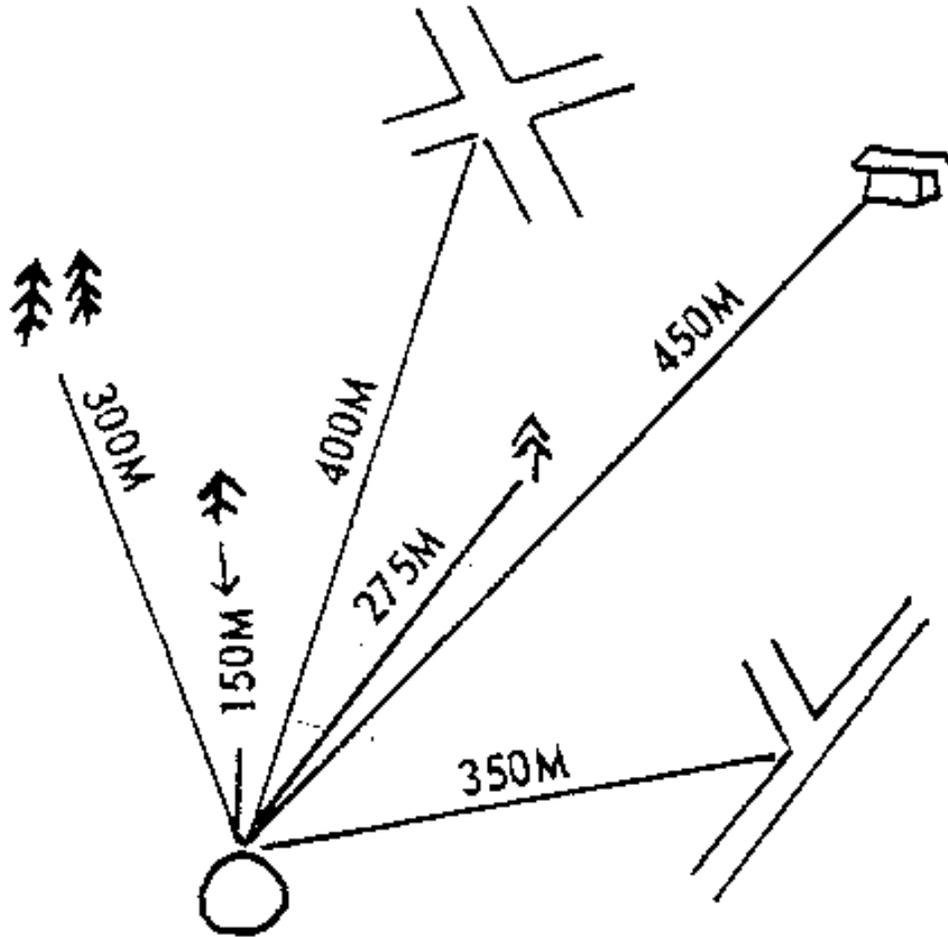
- Tracers may be used effectively under most conditions. Bright light reflected from snow may render tracer rounds unobservable.
- The terrain must lend itself to the use of ball or AP ammunition: It must be dry and clear enough to observe the strike of the bullet.
- An observer may be necessary because it is difficult for a rifleman to follow his own tracer and see its impact.

Range Card Method. Another method for determining range is the range card method. A range card is a rough drawing of an individual area of responsibility. It shows the

Range and direction from the observer's position to easily recognizable objects

- Terrain features
- Avenues of approach
- Possible enemy positions

If practical, pace the distances or refer to a map to rapidly estimate the range to a target appearing in the vicinity of a reference point. Although this method can be used during the offense, its primary application is during the defense (see diagram below).



Five-Degree Method. This method

- Utilizes the lensatic compass
- Requires a clear line of sight to the target
- Is the most time-consuming method
- May expose the observer to the target

To utilize the five-degree method execute the steps in the table below.

Step	Action
1	Shoot an azimuth from observer to the target.
2	Walk at a 90-degree angle from the azimuth to the target until an azimuth to the target attains a five-degree difference.
3	Once you have a five-degree difference and while counting your steps, walk back to the starting point.
4	Multiply the number of steps you counted in step 3 by 11 to get the range to the target in meters.

Air Defense. In the Korean Conflict, the U.S. Air Force lost 544 planes to small arms and machine gun fire, almost five times the number lost in all air-to-air combat. In South Vietnam, U.S. forces lost 410 fixed wing and 2100 helicopters to small arms fire. Small arms air defense is a necessary skill for every unit; the successful employment of these tactics will result in a direct decrease of the number of friendly casualties we incur and a proportional increase in the enemy's casualties.

Psychological Awareness. Expect air attacks and prepare for them by

- Establishing air sentinels
- Assigning sectors of observation

Maximize the use of cover and concealment in all movement and position selection to avoid being acquired from the air.

Early Warning. Prior to commencing any operation, the unit should be provided the air defense condition for that area. The air defense conditions are

- Red - air attack imminent or in progress
- Yellow - air attack probable or likely
- White - air attack not likely

Set up a unit signal for air attack/sighting ensuring that it is easily recognizable and passed to all members of the unit.

Fight Back. The "hard kill" is the desired outcome when any aircraft dares to inflict damage on the men who occupy the ground. If a "hard kill" is not obtained, the next best result is to drive the aircraft higher and thereby decrease its accuracy.

Either way, the key to success is the volume of fire or "metal density" of the air. Remember, *uncoordinated fires are a waste of ammunition.*

Rules of Engagement. Immediately engage all

- Attacking enemy aircraft
- Helicopters positively identified as hostile
- Aircraft that you see friendly air defense units engaging

Only after ordered to do so, engage hostile jet aircraft not attacking your position.

Friend or Foe?—Be *sure* before you fire. Drill your Marines on aircraft and vehicle recognition as a matter of routine.

Firing Back. The two methods for firing back are

- Aiming point
- Reference point

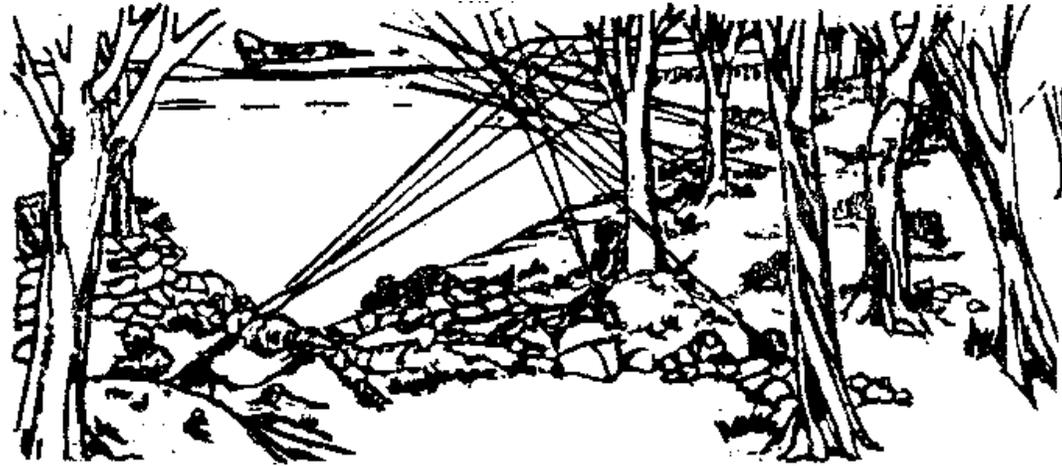
In the aiming point method, the unit leader selects a point ahead of the aircraft and begins to fire as the aircraft approaches; the rest of the unit joins in on the general deflection and elevation. Remember, "metal density" is our goal, not accuracy. *Shoot him down or drive him off, but take positive action! If he's allowed to leave when he wants, it could be very bad for you!* The table below provides guidance on determining the aim point..

Type of Aircraft	Course	Aim Point
Jet	Crossing	2 football fields in front of the nose
	Overhead	2 football fields in front of the nose
	Directly at you	Slightly above the nose
Helicopter	Crossing	½ of a football field in front of the nose
	Hovering	Slightly above the helicopter body
	Directly at you	Slightly above the helicopter body

The reference point method is usually applied

- In the defense
- When a unit is stationary for a brief period of time

The leader selects and points out several target reference points (TRPs) and ensures the unit is informed of them. As the aircraft approaches the TRP, it announces the TRP in a fire command. The unit fires on order; unit members raise their weapons to approximately a 45-degree angle over the TRP, fire until the aircraft flies through the TRP, and then cease-fire (see diagram below).



Night Firing Techniques. Factors that affect night vision are

- Dietary deficiencies. Troops who do not have a balanced diet or who are underfed will suffer from poor night vision.
- Exposure to bright light. If bright light enters the eye, night vision is quickly destroyed. You can decrease the effect by entering lighted areas with one eye closed to preserve the night vision in that eye.
- Other factors. Colds, headaches, fatigue, narcotics, tobacco, and alcohol impair night vision.

Principles of Night Vision. The four principles of night vision are described in the table below.

Principle	Description
Dark adaptation	<ul style="list-style-type: none"> • The power the eye has of adjusting to conditions at and below the level of the moonlight • The eye is constructed primarily for daytime use. The central area contains cones that recognize colors and detail as long as sufficient light is available. Outside the central area of the retina are areas that contain rods, which are sensitive to very small amounts of light but do not recognize color or detail. The rods are the part of the eye we use for night vision. The rods require approximately 30 minutes to warm up and begin to function rather slowly during this time. • Once a person becomes adapted to the dark, only an instant of exposure to light is required to regain normal daytime vision.
Off-center vision	<ul style="list-style-type: none"> • Looking straight at an object during darkness is not effective because the cones in the center of the eye only register in good light. Therefore, effective night observation requires the use of off-center vision that employs the use of the rods. • Your concentration must be kept on the object, but your vision axis must be focused <ul style="list-style-type: none"> • From 6 to 10 degrees to the left or right • Over or under the object you are viewing
Scanning	<p>Used in conjunction with off-center vision to bring a fresh set of rods into use so you can continue seeing.</p> <p>A chemical sensitizes the rods for a very short time (4 to 10 seconds); it then bleaches out, and other sets of rods must be brought into use.</p> <p>If you do not scan the target area, the target object will appear to fade away.</p>
Confidence	Results when a person practices and applies the first three principles of night vision

Fire Control and Discipline. When Marine units become engaged in combat at night, the same principles of fire control and discipline apply, day or night. There is no substitute for a fire command; tell the Marine rifleman what to do, and he will do it.

Night Vision Devices. Night vision devices, such as the

- Individual night vision sight (AN/PVS-4)
- Night vision goggles (AN/PVS-5A and AN/PVS-7B)

are valuable assets for the platoon commander. You may utilize these devices to achieve first-round kills at night without resorting to the use of illumination assets. Additionally, night aiming devices such as the AN/PEQ 2A provide the ability to actually put an invisible beam of light on your target to get pinpoint accuracy during periods of complete darkness.

Establishing and Employing Battle Sights in the Field. Battle sights are defined as a predetermined sight setting that will enable a Marine to engage targets effectively at battle ranges up to 300 meters when conditions do not permit exact sight settings.

Establishing Battle Sights. Establishing battle sights is nothing more than zeroing the rifle for 300 meters. Depending on firing space available, a unit leader, using the following field expedient techniques, can establish the 300 meter battle sight zero on a rifle at one of two ranges:

- 33 meters
- Or if space is available, 300 meters

Range	Type Rifle and Trajectory Data
33 meters	M16A2 (with elevation set at 300m) Strike of bullet and point of aim are the same
300 meters	Strike of bullet and point of aim are the same

NOTE: For the M16A2, point of aim is the same as point of impact at both 33 and 300 meters.

These techniques are based on the physics of the M16A2 rifle trajectory in relation to the line of sight. A platoon commander can quickly and easily establish battle sights on every rifle in his platoon with

- Cardboard from an MRE carton
- A "grease" pencil
- 33 meters of space

The result will be a significant increase in both the accuracy of aimed fire and the confidence of each Marine as a marksman.

You can set battle sights for the SAW in a similar fashion using a 10 m range and elevation set at 500 m.

Employing Battle Sights. With the enemy in view, at a range

- Up to 300 meters, aim for a center point (belt buckle); the bullet will strike at the center point or within centimeters of that point.
- Over 300 meters using the M16 rifle, retain the battle sight setting on the front sight, but rotate the rear sight elevation scale to the desired range.

In emphasizing battle sights, each Marine must be proficient in range estimation. This proficiency is easily developed using the 100-meter unit measure method, appearance-of-objects method, or the range card method.

Offense.

Fire and Maneuver. Fire and maneuver is the process whereby elements of a unit establish a base of fire to engage the enemy, while another element maneuvers to an advantageous position from which to close with and destroy or capture the enemy. Supporting fires from weapons not organic to the unit may be provided. Supporting fires should be followed closely by the advancing troops of the maneuver unit so that the shock effect of the fire upon the enemy will not be lost.

Fire and Movement. Once the maneuver element meets enemy opposition and can no longer advance under the cover of the base of fire, it employs fire and movement to continue its forward movement to a position from which it can assault the enemy position. In a maneuvering squad, fire and movement consists of individuals or fire teams providing covering fire, while other individuals or fire teams advance toward the enemy or assault the enemy position.

When the squad reaches the assault position, the squad leader, fire team leaders, and squad members must quickly make final preparations for the assault:

- Unit leaders issue last minute instructions to their Marines.
- Squad members armed with the M16A2, to include the fire team leader/grenadier, will ensure they have a full magazine inserted.
- Riflemen, assistant automatic riflemen, and squad leaders should fix bayonets.
- Fire team leaders should load the M203 with the type of ammunition directed by the squad leader.
- Automatic riflemen ensure that their weapons contain sufficient ammunition for the assault:
 - If the 200 round ammunition box is being used, a quick determination as to the amount of ammunition remaining in the box must be made. If there are less than thirty rounds in the box, reload the weapon with a new box or a magazine.
 - The important thing is not to run out of ammunition during the assault.
- All members of the squad ensure that hand grenades are within easy reach, so they can be used during the upcoming assault.

Rate of Fire. The Marine is trained to fire approximately 10 to 12 aimed shots per minute (average rate). Difficulties encountered in battle usually make a slower rate advisable. The fastest rate at which any rifleman or automatic rifleman should fire is determined by his ability to

- Select targets
- Align the sights
- Squeeze off accurate shots

The SAW is particularly valuable against targets such as machine guns and automatic weapons. The rapid rate of fire for the automatic rifle is 200 rounds per minute. The sustained rate of fire is 85 rounds per minute. The nature of the target determines the rate of fire for the SAW.

When beginning a firefight, the first few rounds of automatic rifle fire should be delivered at the rapid rate in order to gain fire superiority and to fix the enemy. Thereafter, the rate should be slowed to the sustained rate, which is normally sufficient to maintain fire superiority.

Support by Fire. A support by fire covers and protects the advance of maneuvering units with its fire. Whenever possible, the unit that is to establish the support by fire moves undetected into a firing position.

A high volume of surprise fire from an unexpected direction has a much greater psychological and physical effect than fire delivered from a known position. The leader of the unit establishing the support by fire makes every effort to select a position that allows flanking or oblique fire to be delivered into the enemy position.

When the support by fire unit is in position, the following usually takes place:

- A heavy volume of distributed fire is placed on the enemy position to gain fire superiority.
- When fire superiority has been gained and the enemy is fixed in position, the rate of fire is reduced. However, fire superiority must be maintained.
- When the maneuver element nears its final coordination line, the rate of fire is increased to cause the enemy to button up tightly and to allow the maneuver element to move out of the assault position and initiate its assault before the enemy has time to react.
- When the assaulting maneuver element is in the assault, the support by fire position (SBF) is signaled to either
 - Cease
 - Shift its fire to another target area
 - Lead the assault unit across the objective and then cease or shift

M203 Employment. The fire team leader/grenadier employs the grenade launcher in the offense to

- Destroy groups of enemy personnel
- Provide close fire support in the assault in conjunction with, and to supplement, other supporting fires

The fire team leader personally selects targets and delivers the fires of the grenade launcher during the attack. In the last 35 meters of the assault, the fire team leader will stop employing the HEPD projectile so as not to endanger friendly troops. (HEPD rounds require an arming distance of approximately 14-27 meters.)

During the assault, the fire team leader/grenadier may employ his rifle until

- Suitable targets appear
- He has time to reload the M203

Suitable M203 targets are

- Enemy automatic rifle positions
- Machine gun positions
- Other crew-served weapons within the fire team sector
- Troop concentration

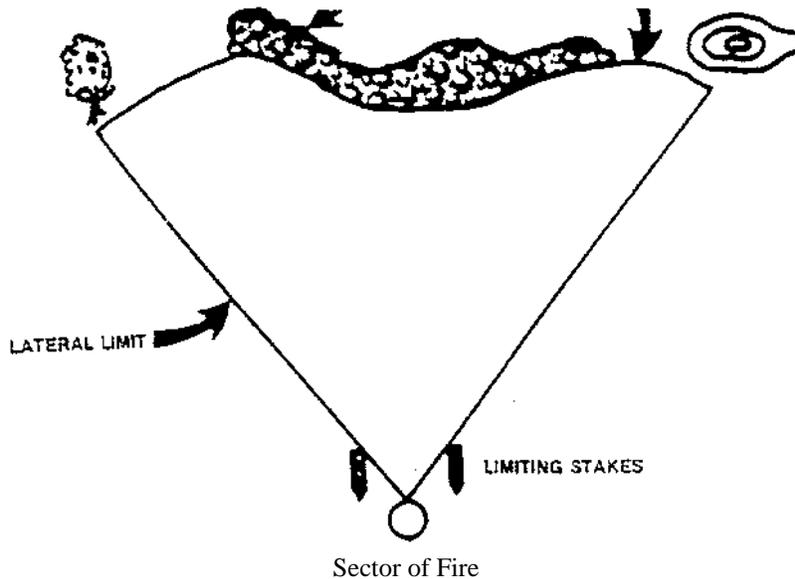
This method of employment is used when a heavy volume of fire is needed.

M249 SAW. In the offense, the SAW will engage targets depending on the type of target (point, linear, area) as discussed earlier in this handout.

Defense.

Sector of Fire. A sector of fire (see diagram below) is

- An area that is required to be covered by fire by
 - An individual
 - A unit (squad or fire team)
 - A crew-served weapon
- Is a pie-shaped area enclosed by
 - Two lateral limits
 - A forward limit



Within a rifle platoon, a sector of fire is assigned to individual weapons, fire teams, and squads. Squad leaders are not normally assigned individual sectors of fire since their primary duty during the conduct of the defense is directing and controlling the fires of their units.

The sector of fire is used to

- Clearly indicate the area to be covered by fire
- Provide for the best distribution of available firepower and complete coverage of the area to the front
- Ensure mutual support by the overlapping of adjacent sectors of fire

Rifle platoons are assigned battle positions to be defended. The rifle platoon battle position is defended by the overlapping sectors of fire of the squads. The squad sector of fire is covered by the overlapping sectors of fire of the fire teams.

Principal Direction of Fire (PDF). The principal direction of fire is that assigned or designated as the main direction in which a weapon will be oriented. As stated in FM 101-5-1, the principal direction of fire is selected based on the

- Enemy
- Mission
- Terrain
- Weapons capability

Within a rifle squad, a principal direction of fire is assigned to automatic weapons and when applicable, M203s. Units are not assigned principal directions of fire. Riflemen may be assigned principal directions of fire for periods of reduced visibility. Squad leaders and fire team leaders are not assigned a principal direction of fire, nor can an automatic rifle be assigned more than one principal direction of fire.

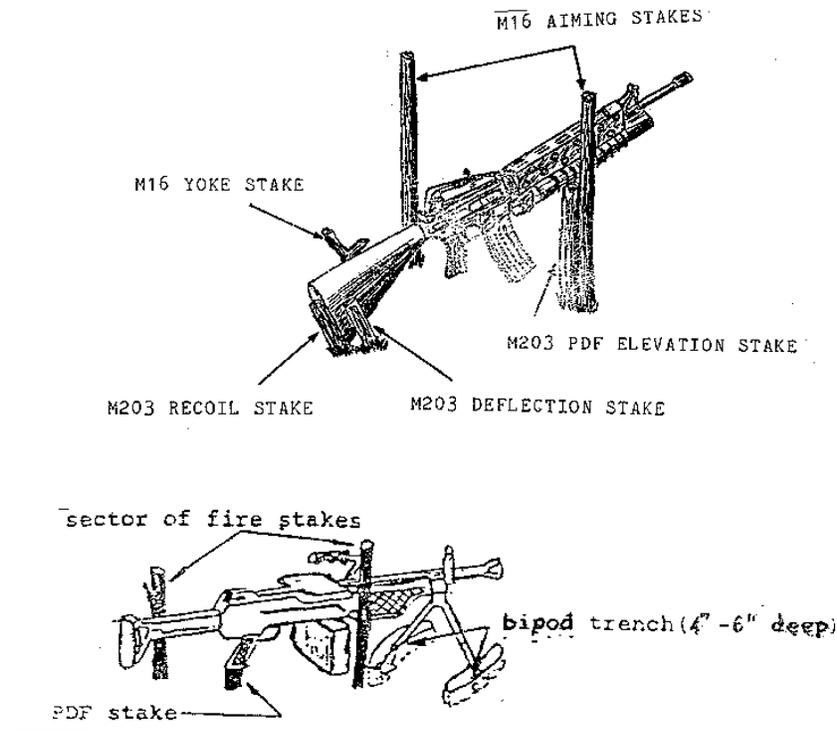
Indicate the principal direction of fire by pointing out a readily identifiable terrain feature. This terrain feature may

- Be the target itself
- Indicate the line of sight when no target is assigned

The limits of the target should be pointed out on the ground when distributed fire is required along the principal direction of fire.

Utilizing PDF stakes (see diagram below), which ensures the proper direction and elevation, is a sound technique when employing the SAW or M203 in the defense. These stakes should include

- For the M203, an elevation stake, recoil stake and a deflection stake
- For the SAW, a PDF stake

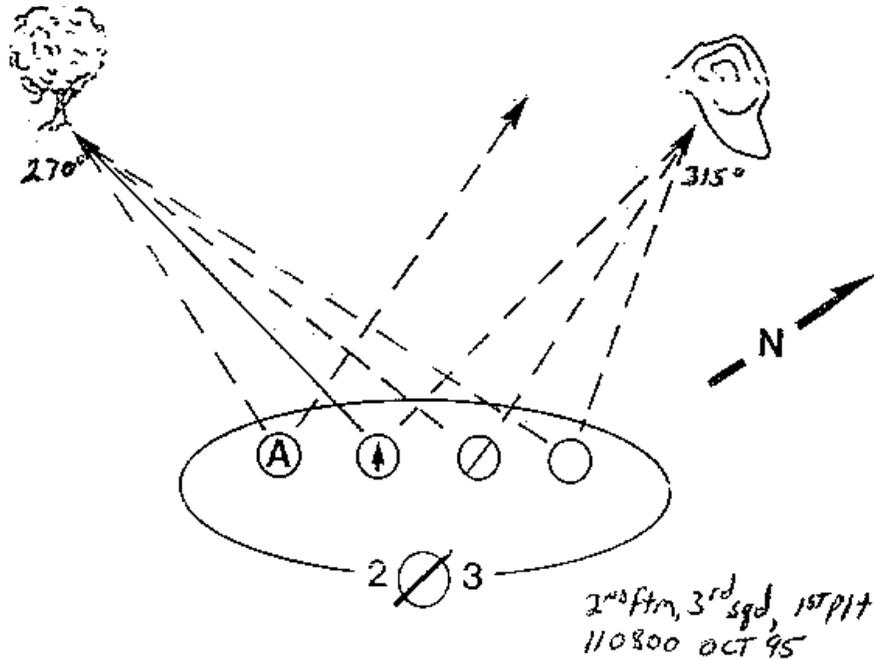


PDFs are used to

- Cover dead space in a final protective line (FPL) of a machine gun. (FPL is a predetermined line along which grazing fire is placed to stop an enemy assault. The fire is usually fixed as to direction and elevation.)
- Cover a specific terrain feature endangering the company or platoon battle position, such as a draw that may serve as an avenue of approach, or hilltop that may serve as a possible enemy vantage point. This terrain feature is not necessarily a point on which fixed fire is placed; however, it is intended that coverage of the feature should require little distribution of fire. The principal direction of fire may be anywhere within the sector of fire.
- Protect a crew-served weapon by firing across its front.
- Augment the final protective lines of machine guns placed immediately in front of the battle position.

Fire Plan. The fire team leader formulates the team's fire plan to cover the entire sector assigned by the squad leader with the heaviest possible volume of fire (see diagram below). The fire plan includes assignment of

- Individual sectors of fire
- Individual fighting positions
- Firing positions
- A principal direction of fire for the automatic rifle as assigned by the squad leader
- The position of the fire team leader



Fire Plan

The fire team is the basic fire unit of the rifle platoon, and when practicable, each individual's sector of fire covers the entire fire team sector of fire. The same terrain features are used to indicate the limits.

In the defense, it is impractical for each automatic rifleman to cover the entire squad sector of fire. Each automatic rifleman is assigned to cover only the fire team sector.

The fire team leader is assigned an individual sector of fire for the employment of the M203 grenade launcher. The fire team leader covers the entire fire team sector and may be assigned a PDF, as discussed earlier in this handout.

Fire Team Leader/Grenadier. In assigning the sectors of fire for employing the M203 grenade launcher, the fire team leader must consider the overall fire plan, specifically the

- Sectors of fire assigned to the automatic rifleman
- Need to furnish support to the automatic rifleman and to adjacent units

The fire team leader then positions himself where he can best control the fire team and deliver the most effective M203 fire.

M203s may be assigned principal directions of fire to

- Cover dead space
- Provide illumination to the unit's front

In some instances the platoon commander or squad leader may assign this PDF. This position may not always be in the center of the fire team's position.

As the enemy approaches the platoon defensive position, he is subjected to an ever-increasing volume of fire from weapons in the defensive position and from supporting arms. Unless restrictions are placed on the firing of the M203, the fire team leaders open fire with the M203 on lucrative targets as they come in range.

In some situations, the squad leader or platoon commander may desire to withhold M203 fires until the enemy has reached a specific area, at which time the fire team leader opens fire. The massed surprise fires from the grenade launcher, in conjunction with the fires of the other squad and platoon weapons, can have a devastating effect upon the enemy, particularly in the assault phase of the enemy attack.

During final protective fires, the fire team leader engages the largest mass of enemy infantry within his assigned sector with the M203.

The fire team leader's fighting position should enable him to cover the entire fire team sector of fire. Primary and supplementary fighting positions may be assigned by higher. Firing positions are selected to provide maximum cover and concealment consistent with the assigned mission. Extreme care must be taken to ensure that fields of fire are cleared of obstructions that might cause premature detonation of the projectile, thereby endangering friendly personnel.

The M203 is employed to cover the most likely avenues of approach for enemy infantry into the defensive position.

Automatic Rifles. The platoon commander designates the general fighting positions and principal directions of fire for specific automatic rifles.

Since the automatic rifles are the backbone of the squad's defense, the squad leader selects the exact fighting position for the automatic rifle. The remainder of the fire team is then positioned around it.

The platoon commander will indicate the principal direction of fire for the automatic rifle. If the platoon commander does not designate the PDF for the automatic rifle, the squad leader should assign it.

Rifleman. The rifleman is positioned so he can cover the entire fire team sector, if possible. His position must provide support and protection for the automatic rifleman.

Assistant Automatic Rifleman. Normally, the assistant automatic rifleman participates in the defense as a rifleman. He is positioned near or with the automatic rifleman because he must be prepared to assume the duties of the automatic rifleman.

Opening Fire and Fire Control. The squad withholds its fire on approaching enemy troops until they come within effective small arms range of the squad's fighting position. Squad members open fire on the approaching enemy on the squad leader's command or when the enemy reaches a predetermined line, normally the forward limit of the fire team's sector of fire. When the squad opens fire, rifles are fired at the average rate.

When the enemy enters the M203's range, the fire team leader delivers grenade launcher fire at the average rate. Automatic weapons normally fire at the sustained rate. The squad leader determines the appropriate rate of fire for the situation.

Automatic riflemen are usually assigned target precedence to include, but not limited to, enemy automatic weapons, rocket launchers, and other crew-served weapons. Once the squad opens fire, direct control passes to the fire team leaders.

The fire team leaders, in accordance with the squad leader's previous plan,

- Designate new targets
- Change rates of fire when necessary
- Give the order to cease-fire when the attack is defeated

The goal of the squad is to defeat the enemy attack as far forward of the squad fighting position as possible. If the enemy is not stopped and continues to close on the squad fighting position, the automatic riflemen will continue to increase their rate of fire as the enemy comes closer.

Final Protective Fires. If the enemy's attack is not broken and he begins his assault, final protective fires are called. Final protective fires are the final attempt to stop the enemy assault before he reaches the platoon's defensive position.

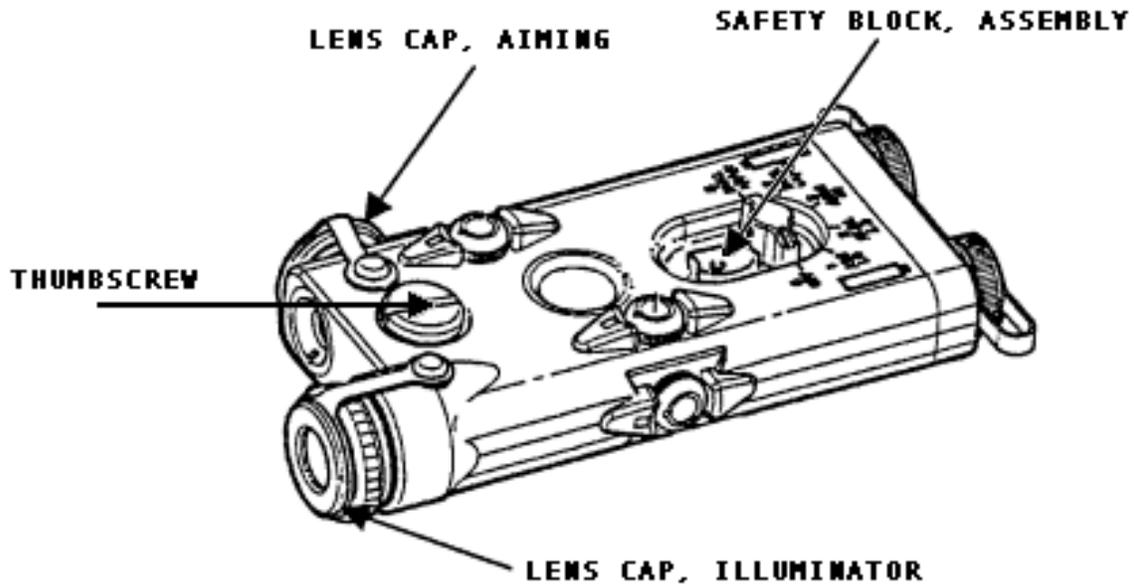
When final protective fires are called for, all squad members fire in their assigned sectors (normally the fire team's sector of fire). Rifles and M203s commence firing at the sustained rate; the automatic riflemen will increase their volume of fire to the rapid rate (if they have not yet reached this rate prior to the calling for final protective fires). Riflemen engage enemy personnel within the fire team sector; fire team leaders fire the M203 at the largest concentration of enemy personnel within the fire team sector. Normally, the largest concentrations will be along the PDFs of the automatic rifles.

Summary. Knowing your weapon systems and how to employ them is one of the first steps to becoming technically proficient. A great deal that is taught in this introductory class will be built upon throughout the program of instruction. You must ensure you know the material and understand the concepts prior to continuing on with weapons employment and tactics.

AN/PEQ-2A Night Aiming Device

Description. The AN/PEQ-2A assembly (see diagram below) is a lightweight, compact, advanced electro-optical assembly, which provides both

- A highly collimated beam of infrared energy for weapon aiming
- An adjustable focus infrared beam for target illumination



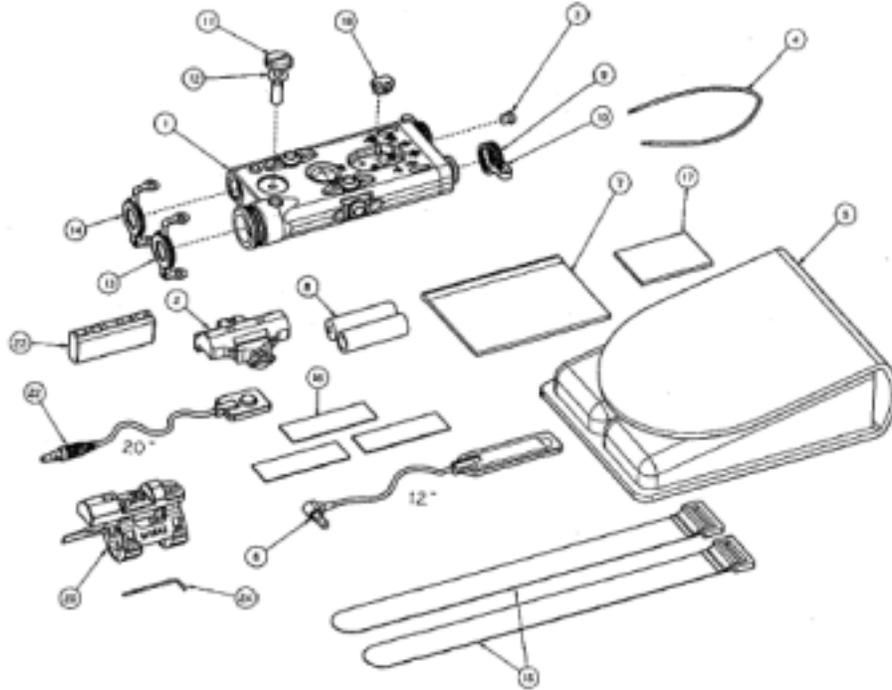
The AN/PEQ-2A replaces the PAQ-4 family of night aiming devices (most recently the PAQ-4C). The specifications of the AN/PEQ-2A TPIAL are listed in the table below.

Characteristic	Dimension
Weight	.5 ounces
Length	6.4 inches
Width	2.4 inches
Height	1.4 inches
Output Power	
• Aim	25 milli watts
• Illuminator	30 milli watts

Capabilities. The AN/PEQ-2A can “illuminate” a target at these maximum ranges, depending on weather conditions (fog, rain, etc.):

- Identify targets with the illuminator (“point”): out to 1200 m
- Spotlight targets (20 feet x 20 feet area) with the illuminator: at 300-600 m

Nomenclature. The diagram below shows the components of the AN/PEQ-2A, which are described in the table below.



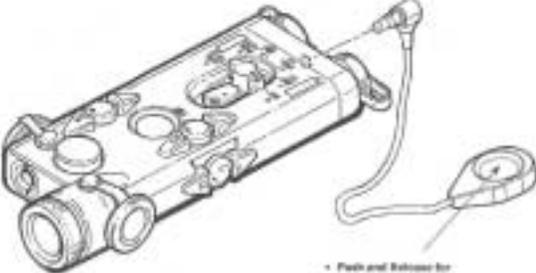
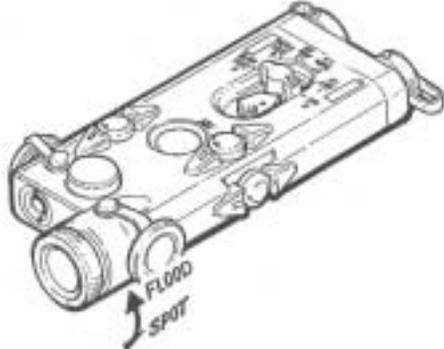
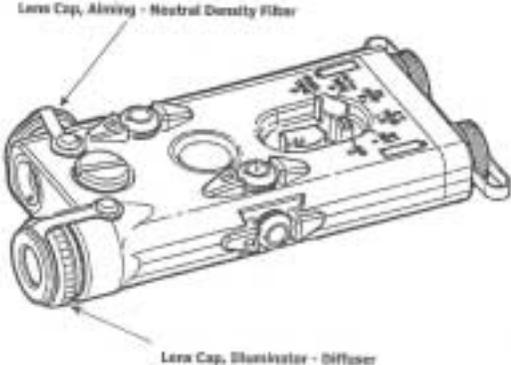
Item	Part	Description
1	TPIAL Assembly	
2	Rail Grabber Mounting Bracket	Enables the optic to be attached to all standard weapon mounting rails.
3	Jack Plug	
4	Neck Cord	Enables the user to safely secure the optic to a wrist or around the neck.
5	Carrying Bag	A safe storage place for all the components of the optic.
6	Cable Switch, 12", membrane	Provides fingertip control of the optic utilizing a 2" membrane pad. This pad is normally attached on the hand guard in a position comfortable to the operator.
7	Operator's Manual	
8	Battery, 2 AA	
9	Battery Cap Assembly	
10	Retainer/Gasket	
11	Thumbscrew	Used to secure the optic to various weapon systems.
12	Washer, Conical Spring	
13	Lens Cap, Diffuser, Illuminator	Provides a highly dispersed beam of general illumination of an area 10 feet in diameter at a distance of 10 meters.
14	Lens Cap, Neutral Density	
15	Strap	Provides a convenient means of attaching the cable switch to the weapon.
16	Fastener tape, Loop	
17	Lens Tissue	
18	Safety Block Assembly	Prevents the operator from selecting the high power mode in training.
20	M16A2 Bracket Assembly	
22	Cable Switch, 20" remote, button	Provides fingertip control of the optic using a rubber domed push button. This remote button is normally positioned on the pistol grip.
23	Bracket Adapter	Provides compatibility between the optic and the mounting brackets of other weapon systems.
24	Key, socket head screw (3mm)	

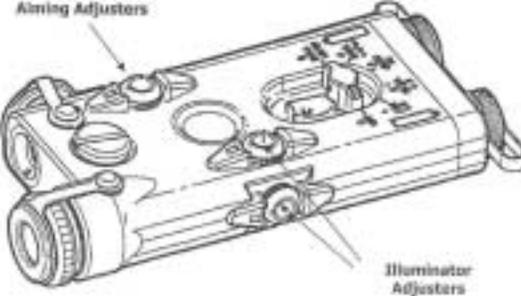
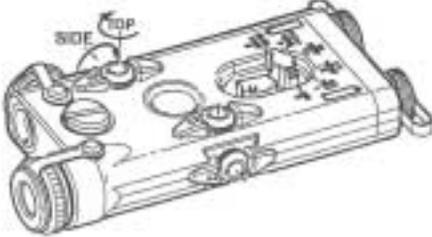
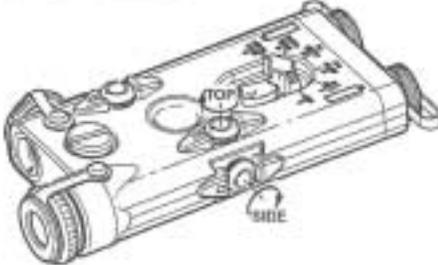
Mode Selector Switch Functions. The mode selector switch sets the mode in which the AN/PEQ2A will operate when the cable switch button or push button is depressed. The mode selector has six positions described in the table below.

Knob Position	Operation	Additional Remarks
0/OFF	AN/PEQ-2A will not operate.	When under water, mode switch should be OFF to preclude water pressure on the button switch from inadvertently turning on the unit.
1/AIM LO	Aiming beam operates at low power.	Low power is useful <ul style="list-style-type: none"> • To reduce night vision device blooming of the aiming spot on close targets • For training because the beam power meets the criteria of an eye safe laser
2/DUAL LO	Aiming and illuminating beams operate at low power.	Low power aiming and illuminating is useful <ul style="list-style-type: none"> • To reduce the effects of blooming when engaging targets at close range • For training because it meets the criteria of an eye safe laser
3/AIM HI*	Aiming beam operates at high power.	High power is useful for aiming at distant targets.
4/DUAL LO/HI*	<ul style="list-style-type: none"> • Aiming beam operates at low power. • Illuminating beam operates at full power. 	<ul style="list-style-type: none"> • The DUAL mode enables a target to be illuminated and fired upon using an aiming beam. • Illuminator operates at full power in all DUAL modes of operation.
5/DUAL HI/HI*	Aiming and illuminating beams operate at full power.	<ul style="list-style-type: none"> • The DUAL mode enables a target to be illuminated and fired upon using an aiming beam. • Illuminator operates at full power in all DUAL modes of operation.

*Positions 3, 4, and 5 can only be accessed with the safety block installed in the tactical mode.

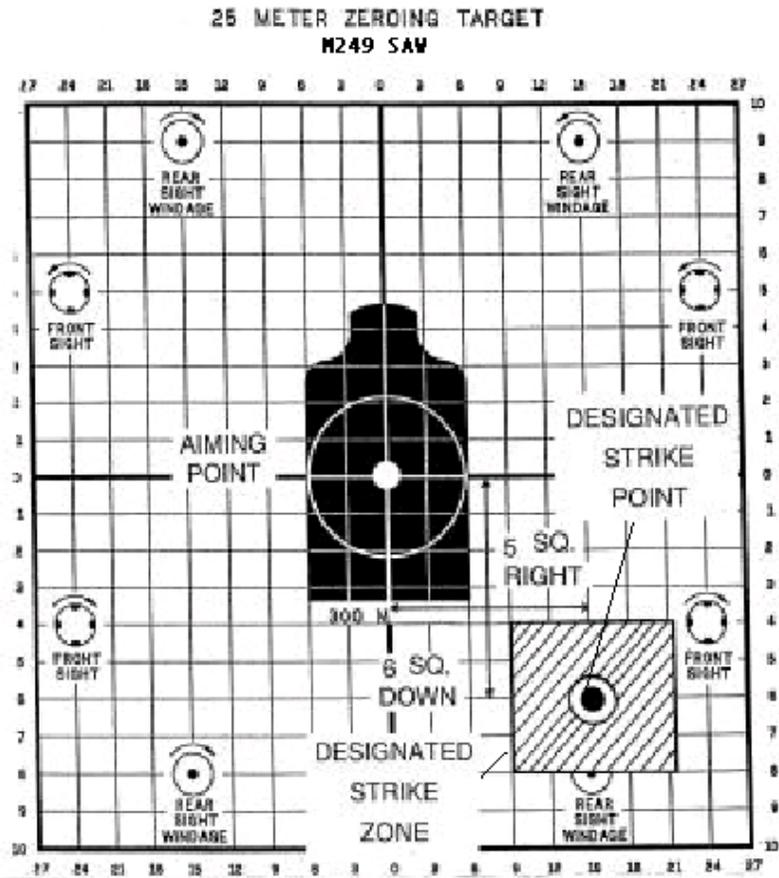
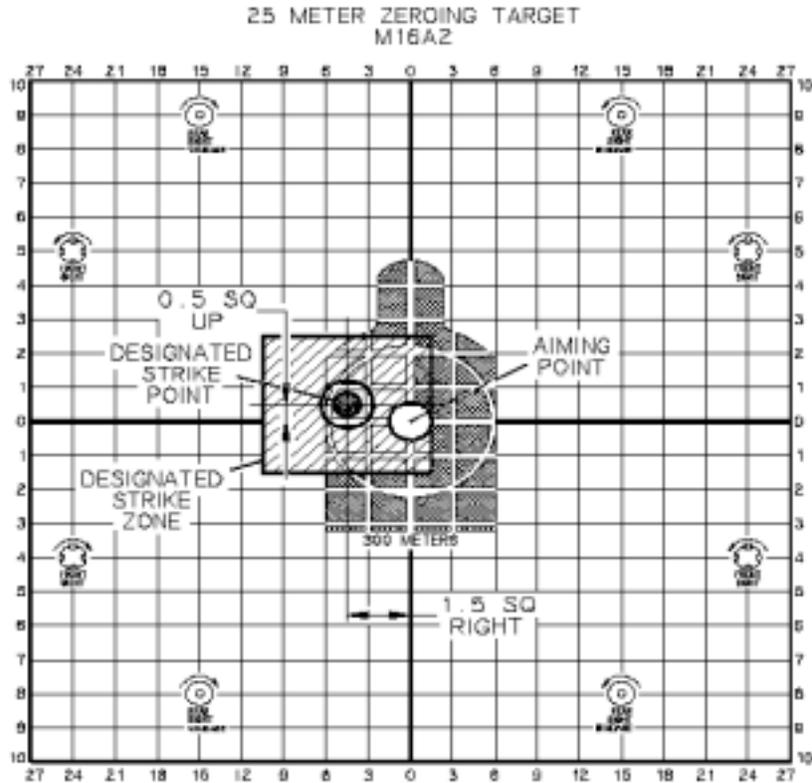
Operating Instructions. The table below lists additional instructions for the various parts of the AN/PEQ-2A.

Part	Instructions	Picture
<p>Button switch</p>	<p>Used when AN/PEQ-2A is hand held. When the button is</p> <ul style="list-style-type: none"> • Pressed, AN/PEQ-2A operates in the operational mode set by the mode selector • Push and release for momentary operation • “Double-tap” for steady on operation • Released, AN/PEQ-2A turns off. 	 <p>Green LED illuminates when either Laser is ON</p>
<p>Cable switch</p>	<ul style="list-style-type: none"> • Used when AN/PEQ-2A is mounted on a weapon. • Plugs into the back of AN/PEQ-2A (see diagram at right). Velcro secures the cable to the weapon. • When the button at the end is <ul style="list-style-type: none"> • Pressed, AN/PEQ-2A operates in the operational mode set by the mode selector <ul style="list-style-type: none"> – Push and release for momentary operation – “Double-tap” for steady on operation • Released, AN/PEQ-2A turns off 	 <p>• Push and Release for Momentary operation</p>
<p>Illuminator focus knob</p>	<p>Used to vary the beam spread of illuminate beam based on the range and size of area to be illuminated.</p>	 <p>FLOOD SPOT</p>
<p>Lens caps</p>	<ul style="list-style-type: none"> • Illuminator lens cap contains a diffuser to enable illuminator laser to emit in a 45-degree cone (10 feet at 10 feet). • Aiming lens cap contains a neutral density filter to <ul style="list-style-type: none"> • Enable aiming laser to be operated in low power • Eliminate blooming effects on the target during zeroing. • Caps are <ul style="list-style-type: none"> • Stored on AN/PEQ-2A sides • Used by pulling out and over the front of the aiming beam or focus knob 	 <p>Lens Cap, Aiming - Neutral Density Filter Lens Cap, Illuminator - Diffuser</p>

Part	Instructions	Picture														
Adjusters (bore sight knobs), aiming and illuminating	<ul style="list-style-type: none"> Equipped with elevation/windage adjusters for zeroing aiming and illuminating beams. When zeroing, best to zero the aiming beam to the weapon and then align illumination beam to aiming beam. 	 <p>A line drawing of the AN/PEQ-2A device. Two callout lines point to specific adjustment knobs: one labeled 'Aiming Adjusters' pointing to a knob on the left side, and another labeled 'Illuminator Adjusters' pointing to a knob on the right side.</p>														
Aiming adjusters	<p>Table below and diagram at right indicate direction of adjuster rotation and resultant shot group movement for zeroing the aiming beam to the weapon when AN/PEQ-2A is mounted on top of weapon.</p> <table border="1" data-bbox="391 730 854 1066"> <thead> <tr> <th>Zeroing the Aiming Spot</th> <th>Adjuster Movement</th> <th>Shot Group Movement</th> </tr> </thead> <tbody> <tr> <td rowspan="2">Top adjuster elevation</td> <td>Clockwise (CW)</td> <td>Up</td> </tr> <tr> <td>Counter-clockwise (CCW)</td> <td>Down</td> </tr> <tr> <td>Side adjuster azimuth (windage)</td> <td>CW</td> <td>Right</td> </tr> <tr> <td></td> <td>CCW</td> <td>Left</td> </tr> </tbody> </table>	Zeroing the Aiming Spot	Adjuster Movement	Shot Group Movement	Top adjuster elevation	Clockwise (CW)	Up	Counter-clockwise (CCW)	Down	Side adjuster azimuth (windage)	CW	Right		CCW	Left	 <p>A line drawing of the AN/PEQ-2A device. Two callout lines point to adjustment knobs: one labeled 'TOP' pointing to a knob on the top surface, and another labeled 'SIDE' pointing to a knob on the side surface.</p>
Zeroing the Aiming Spot	Adjuster Movement	Shot Group Movement														
Top adjuster elevation	Clockwise (CW)	Up														
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Illuminating adjusters	<p>Table below and diagram at right indicates direction of adjuster rotation and resultant illumination beam movement for centering the illumination area on the aiming beam when AN/PEQ-2A is mount on top of weapon.</p> <table border="1" data-bbox="391 1255 854 1493"> <thead> <tr> <th>Zeroing the Illumination Beam</th> <th>Adjuster Movement</th> <th>Shot Group Movement</th> </tr> </thead> <tbody> <tr> <td rowspan="2">Top adjuster elevation</td> <td>CW</td> <td>Down</td> </tr> <tr> <td>CCW</td> <td>Up</td> </tr> <tr> <td rowspan="2">Side adjuster azimuth (windage)</td> <td>CW</td> <td>Right</td> </tr> <tr> <td>CCW</td> <td>Left</td> </tr> </tbody> </table>	Zeroing the Illumination Beam	Adjuster Movement	Shot Group Movement	Top adjuster elevation	CW	Down	CCW	Up	Side adjuster azimuth (windage)	CW	Right	CCW	Left	 <p>A line drawing of the AN/PEQ-2A device. Two callout lines point to adjustment knobs: one labeled 'TOP' pointing to a knob on the top surface, and another labeled 'SIDE' pointing to a knob on the side surface.</p>	
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	CCW	Left														

Zeroing Procedures. To zero the AN/PEQ-2A to your weapon system, you must have the appropriate BZO target for that weapon. After correctly mounting the AN/PEQ-2A to your weapon, follow one of the three recommended techniques to zero your weapon system described below.

BZO Targets. Illustrated below are the BZO targets for various weapons.



Zero Preset. The AN/PEQ-2A incorporates a unique zero preset feature that enables the aiming and illumination beams to be nearly zeroed when the AN/PEQ-2A is initially attached to the weapon. To establish this zero preset after correctly mounting the AN/PEQ-2A to your weapon, follow the steps in the table below.

Step	Action
1	Rotate each adjuster clockwise to its end travel.
2	Rotate each adjuster back approximately 5.5 turns.
3	Align the white dot on the adjuster with the center of the adjuster flange as shown below.



Laser Bore Light Kit. This kit is used in conjunction with the AN/PEQ-2A. It contains a visible red aiming light that slides into the barrel of the weapon system by means of a mandrel. To use the bore light kit for zeroing, use the appropriate BZO target for your weapon and follow the steps in the table below. The mandrel is the metal rod that is pushed into the end of the appropriate weapon system

Step	Action
1	Insert the mandrel from the bore light kit into the muzzle end of the weapon system.
2	“Zero” the mandrel by turning it on, aiming in on the target or a piece of paper downrange, and marking the spot of its laser.
3	Rotate the mandrel 180 degrees while still in the barrel and mark a second spot.
4	Split the difference between the marks and make any needed correction to the bore light kit until the laser dot is centered.
5	Turn on the AN/PEQ -2A and make corrections to move the AN/PEQ-2A aiming light to the “aiming point” while having the bore light kit aimed in on the “designated strike point.”

36-Yard BZO. To use the 36-yard BZO to zero the AN/PEQ-2A, follow the steps in the table below.

Step	Action
1	Set up a 36-yard BZO range with the appropriate target (see BZO targets above).
2	Install the aiming side lens cap with neutral density filter to eliminate excess blooming.
3	Turn the aiming beam on in the low setting (AIM LO). NOTE: In high light conditions, use AIM HI.
4	While looking through your night vision device, press the cable switch button to activate the aiming beam—aim center mass on the BZO target.
5	Fire a three-shot group and note the center of the shot group relative to the designated strike point.
6	Adjust the aiming beam adjusters to move the center of the shot group to the designated strike point.
7	Once the aiming beam is zeroed, rotate the selector knob to the DUAL LO mode to observe both aiming and illuminating beams.
8	Rotate the illuminating beam adjusters to align the illuminating beam with the aiming beam.

Reference.

- TM-10470A-12&P1, *Technical Manual for the AN/PEQ-2A TPIAL*

Study Questions

True or False. Select the correct answer to these three questions.

1. The AN/PEQ-2A is visible to an enemy wearing night vision devices. True False
2. The AN/PEQ-2A incorporates a unique zero preset feature that enables both the aiming and illumination beams to be nearly zeroed when the AN/PEQ-2A is initially attached to the weapon. True False
3. When zeroing the AN/PEQ-2A, it is best to zero the aiming beam to the weapon and then align the illuminating beam to the aiming beam. True False

Short Answer. Write the answers to these seven questions in the space provided.

4. List three safety considerations with the AN/PEQ-2A.

5. What is the purpose of the safety block?

6. How many positions are on the mode selector and what are they?

7. Which positions on the mode selector cannot be accessed when the safety block is in the training mode?

8. What mode selector setting allows the aiming beam to operate at high power?

9. What mode selector setting allows the aiming beam to operate at low power and the illuminating beam to operate at full power?

10. What allows the operator to vary beam spread of the illumination beam?

Study Question Answers

True or False.

1. The AN/PEQ-2A is visible to an enemy wearing night vision devices. True False
2. The AN/PEQ-2A incorporates a unique zero preset feature that enables both the aiming and illumination beams to be nearly zeroed when the AN/PEQ-2A is initially attached to the weapon. True False
3. When zeroing the AN/PEQ-2A, it is best to zero the aiming beam to the weapon and then align the illuminating beam to the aiming beam. True False

Short Answer.

4. List three safety considerations with the AN/PEQ-2A.

- Avoid direct exposure to the laser beam.
- Do not stare into the infrared laser beam.
- Do not look into the infrared laser beam through binoculars or telescopes.
- Do not shine the infrared laser beam into other individual's eyes.
- Be sure the weapon to which the AN/PEQ-2A is to be attached or detached is clear and on safe before proceeding.
- Avoid prolonged activation of the AN/PEQ-2A to avoid detection by an enemy using night vision devices or when using in smoke, fog, or rainy conditions
- Do not store the AN/PEQ-2A with batteries installed.
- Do not overadjust the adjusters.

5. What is the purpose of the safety block?

Prevents the AN/PEQ-2A from being placed in the "DUAL HI" mode during training in order to keep a lower level of laser hazard.

6. How many positions are on the mode selector and what are they?

The five positions on the mode selector are:

- 0/OFF
- 1/AIM LO
- 2/DUAL LO
- 3/AIM HI
- 4/DUAL LO/HI
- 5/DUAL HI/HI

7. Which positions on the mode selector cannot be accessed when the safety block is in the training mode?

3/AIM HI
4/DUAL LO/HI
5/DUAL HI/HI

8. What mode selector settings allow the aiming beam to operate at high power?

3/AIM HI and 5/DUAL HIGH

9. What mode selector setting allows the aiming beam to operate at low power and the illuminating beam to operate at full power?

4/DUAL LO/HIGH

10. What allows the operator to vary beam spread of the illumination beam?

Illuminator focus knob