Chapter 10. Individual Tactical Measures
Section I. Squad in the Defense

Objectives: Upon completion of this section, you should, as a member of a unit conducting a defense and having been assigned a primary position, supplementary position, and sector of fire, be able to:

1. Construct a fighting hole.
2. Clear fields of fire and mark right and left lateral limits of fire.
3. Demonstrate the correct application of camouflage to a fighting position.
4. Demonstrate the correct application of camouflage to the individual Marine and his equipment.
5. Properly defend a fighting position against infantry and/or armor mechanized attack by notifying the unit leader of any enemy activity observed, commencing fire on command, and defending the position by fire and close combat as required.

A. PLANNING THE DEFENSE

The defensive mission of the Marine rifle squad is to repel the enemy's assault by fire and close combat. This requires that the squad be assigned a definite position and sector of fire so as to take advantage of the expected attack. Certain tasks must be accomplished to prepare the assigned position for the actual conduct of the defense. The tasks are carried out concurrently, if possible, but the situation may require that priorities be established.

1. ESTABLISH SECURITY. Ensure enough squad members are kept alert to maintain an effective warning system.

10-1
a. During daylight with the enemy not close, a minimum of one sentinel is posted in each squad area.

b. When contact with the enemy is probable or during periods of limited visibility, additional security will be necessary. If one-man fighting holes are employed, alternate men will be posted; if two-man fighting holes, one man per hole will be posted.

c. Depending on the situation, members of the squad may be required to patrol areas outside the squad’s position.

d. The frequency of relief for sentinels and listening posts is affected by considerations such as the physical condition of the men, effects of weather, morale, and unit strength. As a guide, relief occurs whenever the commander orders it.

2. ASSIGN POSITIONS. The squad leader positions his fire teams to cover the front and flanks of the squad area by overlapping sectors of fire and observation.

a. The squad leader, in conjunction with the fire team leaders, selects firing positions for each rifleman and assigns sectors of fire.

b. The squad leader selects firing positions and sectors of fire for the squad automatic weapons which includes assignment of a principal direction of fire (PDF) covering a likely avenue of approach or deadspace in machinegun final protective lines (FPL). The PDF is within the sector of fire or on one edge of the sector. Each member of the unit will mark the left and right limits of his sector of fire. The method used should be an aid to delivering pre-planned fires during periods of reduced visibility. Figure 10-1 illustrates two expedient methods for marking limits.
c. If not previously selected by the platoon commander, the firing positions and sectors of fire for the grenadiers will be assigned by the squad leader.

3. ORGANIZE THE GROUND. This begins immediately after positions have been assigned. The tasks involved are: clearing fields of fire, digging fighting holes, and camouflaging.

--- Fig 10-1. Aids for marking lateral limits of sector of fire. ---
a. CLEARING FIELDS OF FIRE. In clearing fields of fire forward of each fighting-hole, the following principles are observed:

- Do not disclose the squad's position by excessive or careless clearing.
- Start clearing near the forward edge of the fighting hole and work forward to the limits of effective small arms fire.
- In all cases, leave a thin natural screen of foliage to hide defensive positions.
- In sparsely wooded areas, remove the lower branches of scattered, large trees. It may be desirable to remove entire trees which might be used as reference points for enemy fire.
- In heavy woods, complete clearing of the field of fire is neither possible nor desirable. Restrict work to thinning undergrowth.
- If practical, demolish other obstructions to fire, such as buildings and walls.
- Move cut brush to points where it will neither furnish concealment to the enemy, nor disclose the position. A possible use is to camouflage the defensive position with the cut brush.
- Extreme care must be taken by the grenadier to ensure that fields of fire are cleared of obstructions which might cause premature detonations of the projectile.

b. DIGGING FIGHTING HOLES. Fighting holes provide excellent protection against small-arms fire, shell fragments, airplane strafing or bombing, effects of nuclear detonations, and the crushing action of tanks. The one-man and two-man fighting holes are basic types. The choice of type rests with the squad leader if not
prescribed by higher authority. The type of fighting hole used is based on squad strength, fields of fire, and size of the squad sector.

(1) Construction of two-man fighting hole (figs 10-2 & 10-3). In most types of soil, the fighting hole gives protection against the crushing action of tanks provided the occupants crouch at least two feet below the ground surface. In sandy or soft soils, it may be necessary to revet the sides with sandbags to prevent caving in. The soil is piled around the hole as a parapet, approximately three feet thick and six inches high, leaving a shelf wide enough to be used as an elbow rest by a Marine firing his weapon.

Fig 10-2. Two-man fighting hole (side-view).
(2) Advantages and disadvantages of two-man fighting hole. Since it is longer than the one-man type, it offers somewhat less protection against tanks crossing the long axis, as well as protection against strafing, bombing, and shell fragments. Some advantages of the two-man fighting hole are continuous observation (one man rests while the other man maintains security), assistance and reassurance for each other, and redistribution of ammunition between the two Marines.

c. Camouflage and concealment. Camouflage is protection from energy observation. Concealment is protection from enemy fire. Camouflage measures are strictly carried out from the moment the position is occupied.

(1) POSITION.

(a) Do not disclose the position by excessive clearing of fields of fire.

(b) Use the same turf or topsoil that has been removed from the area of the fighting hole to camouflage the parapet.

(c) Dispose of all soil from the fighting hole not used on the parapet. Carry the soil away in sandbags or shelter halves. Dispose of it under low bushes, on dirt roads or paths, in streams or ponds, or camouflage it.

(d) Avoid digging in next to an isolated bush, tree, or clump of vegetation.

(e) Conceal the fighting hole from observation, both from overhead and from ground level, by the use of a camouflaged cover. Construct the cover from natural materials.
(f) Replace natural material used in camouflage before it wilts or changes color.

(g) Avoid creating fresh paths near the position. Use old paths or vary the route followed to and from the position.

(h) Avoid littering the area near the position with paper, tin cans, and other debris.

(2) EQUIPMENT. The outline of the helmet is one of the striking characteristics of a Marine's equipment. Take steps to change the form of the helmet (fig 10-4). If your pack or other 782 gear has faded, darken it
with mud or burnt cork. You can change the shape of your weapon by wrapping it with strips of burlap, but be sure not to interfere with its sighting or firing.

Rubber bands, or expedient bands made from old inner tubes or burlap strips, secure natural materials. (Note position of band.)

Slits in burlap allow insertion of natural material.

Form disrupted by burlap bows tied into slitted cover.

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_Fig 10-4. Techniques of camouflaging the helmet._
Be especially careful with shiny objects such as belt buckles, mess gear, goggles, binoculars, and personal items such as rings and watches.

(3) **BODY AND CLOTHING.** Your face, neck and hands should be toned down by painting them with a disrupted pattern. Pay particular attention to areas that will reflect light, such as nose, cheekbones, chin, and eye sockets. Use camouflage paint or burnt cork, (fig 10-5).

![Fig 10-5. Camouflaging the face.](image)

(4) **SELECT AND PREPARE SUPPLEMENTARY POSITIONS.** These positions are organized the same as the primary positions. They are used by the squad to fire on targets that cannot be engaged from the primary position. For example, firing on enemy troops attacking the
flanks or rear of the platoon defense area. This constitutes a mission other than the primary mission. These should not be confused with alternate positions which are additional positions from which the primary mission may be accomplished.

B. CONDUCTING THE DEFENSE

1. INFANTRY ATTACK.

a. ENEMY PREPARATORY BOMBARDMENT. The enemy will normally precede his attack with fire from any or all of the following weapons: artillery, naval gunfire, mortars, machineguns, tanks, and aircraft. During this attack, the squad will take cover in its prepared position, maintaining surveillance of the squad's sector to determine if the enemy is advancing closely behind their supporting fires. Any member of the squad who observes enemy activity will report it immediately to his unit leader. Local security will be withdrawn to the friendly lines when ordered, under the cover of the other members in the squad position.

b. OPENING FIRE AND FIRE CONTROL. Fire is withheld on approaching enemy troops until they come within effective small arms range of the squad's position. Squad members open fire upon the approaching enemy on command of the squad leader, or when the enemy reaches a predetermined line. Once fire is opened, 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, and give the order to cease fire.

c. FINAL PROTECTIVE FIRES. If the enemy's attack is not broken and he begins his assault, final protective
fires are called for by the company commander. These are fires delivered immediately in front of the defensive lines. When final protective fires are called for, all squad members fire in their individual sectors at a maximum effective rate until told to stop.

d. ENEMY REACHES THE SQUAD POSITION. Enemy infantry reaching the squad position are driven out by fire, grenades, and the bayonet (close combat). The success of the defense depends upon each rifle squad defending in place. A stubborn defense by frontline squads breaks up enemy attack formations and makes him vulnerable to counterattack by reserve units. The squad does not withdraw except when specifically directed by higher authority.

2. INFANTRY/MECHANIZED ATTACK. When tanks or other armored vehicles support an enemy infantry attack, the primary target of the squad is the hostile infantry. When hostile infantry does not afford a target, the squad directs its small-arms fire against the aiming devices and vision slits of enemy armor. Under no circumstances will the squad be diverted from its basic mission of engaging and destroying the hostile infantry. Antitank weapons are used against armor. Every effort is made to separate the tanks from dismounted enemy infantry.
For additional training in this area, references are provided below:

1. FM 5-15  
   Field Fortifications

2. FM 5-20  
   Camouflage

3. FM 5-34  
   Engineer Field Data

4. TEC Lsn 937-061-0130-F  
   Camouflage, Cover and Concealment Part I

5. TEC Lsn 937-061-0131-F  
   Camouflage, Cover and Concealment Part II

6. TEC Lsn 937-061-0132-F  
   Camouflage, Cover and Concealment Part III

7. TEC Lsn 010-071-1044-F  
   Hasty Fighting Positions

8. TEC Lsn 010-071-1072-F  
   Supervise the Preparation of a Squad Defensive Position

9. MCI Course 03.7  
   Tactics of the Marine Rifle Squad

10. MCI Course 03.15  
    Individual Protective Measures

11. MCI Course 03.34  
    The Marine Infantry Small Unit in Defensive Operations

12. MCI Course 03.61  
    Marine Rifleman

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Section II. Hand Grenades

Objectives: When provided with grenades, you will be able to:

1. Identify the shape and designation and explain the purpose of the standard fragmentation hand grenade and illumination hand grenade.

2. Properly employ hand grenades against targets at ranges to twenty-five meters.

A. PURPOSE

Hand grenades are designed for projection to a target by means of throwing. They assist the individual Marine in the accomplishment of the following missions:

- Producing casualties
- Signaling
- Screening
- Illuminating
- Producing incendiary effects
- Riot control (gas only)

B. IDENTIFICATION

You should be able to identify, by sight and touch (for night employment), the fragmentation hand grenade M67 (fig 10-6a) and the illuminating hand grenade MK1 (fig 10-6b). The fragmentation hand grenade is baseball-shaped with a smooth body while the illuminating hand grenade is elliptical with a flat bottom and a flange running around the center.
C. THROWING

1. REMOVAL OF THE SAFETY CLIP (fig 10-7). The safety clip must be removed before you attempt to throw the M67 fragmentation grenade.

   a. Snap safety clip handle around fuze safety lever.
   b. Remove small loop of safety clip from slot on fuze body.
   c. Remove safety clip.
2. HOLDING THE GRENADE (fig 10-8). Safety is the primary factor to be considered when determining the proper method of holding the grenade.

a. Right-handed thrower.

b. Left-handed thrower.

c. Holding the riot control grenade.

Fig 10-8. Holding the grenade.

3. TECHNIQUE.

a. Observe the target to fix the throwing distance in your mind.

b. Hold the grenade at shoulder level and grasp the safety ring or clip with the index finger of your opposite hand. Pull the pin with a twisting motion.

c. Look back at the target.
d. Throw the grenade with an overhand motion that is most natural to you and that will allow the grenade to spin in flight.

e. Follow through as you release the grenade.

4. POSITIONS. The positions illustrated are used primarily for training purposes to ensure uniformity and control. In combat, your position will be dictated by the amount of cover and distance to the target.

a. STANDING (fig 10-9).

Fig 10-9. Standing position.
b. KNEELING (fig 10-10).

(a) Kneel comfortably.

(b) Look at the target.

(c) Throw naturally. Push off with foot.

(d) Take cover.

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Fig 10-10. Kneeling position.
c. PRONE TO KNEELING (fig 10-11).

(a) Hold grenade forward so that you can see the safety pin.
(b) Assume kneeling position. Throw and take cover as above.

Fig 10-11. Prone to kneeling.

d. ALTERNATE PRONE (fig 10-12).

(a) Body perpendicular to intended flight.
(b) Brace right foot firmly on ground. Pull pin and hold grenade away from your body, arm cocked for throwing.

Fig 10-12. Alternate prone.
(c) Throw grenade by pushing off with foot and pulling downward with outstretched left arm.

(d) Follow through. Take cover.

Fig 10-12. Contd

For additional training in this area, references are provided below:

1. FM 23-30  
   Grenades and Pyrotechnic Signals

2. TEC Lsn 645-093-7315-F  
   Identification of Hand Grenade and Grenade Ammunition

3. MCI Course 03.15  
   Individual Protective Measures

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Provided by www.marines.cc
Section III: Mines and Boobytraps

Objectives: When operating in an environment where the enemy is known or suspected to be employing mines and boobytraps, you will be able to:

1. Employ physical protective, detection, and avoidance countermeasures.
2. Upon tripping a mine or boobytrap, apply immediate action.

A. PHYSICAL PROTECTIVE COUNTERMEASURES

1. Wear body armor and helmet.
2. Sandbag vehicle flooring.
3. Keep arms and legs inside vehicle.
4. Maintain an appropriate distance from other personnel.
5. Don't travel alone.
6. Don't pick up souvenirs.

B. DETECTION COUNTERMEASURES

The three detection countermeasures can be categorized as visual inspection, probing, and mine detection.

1. VISUAL INSPECTION. Be alert and observant for:
   - Mud smear, mudballs, dung, or boards on a road.
   - Apparent road repair.
• Wire leading away from the side of a road.
• Tripwires across trails.
• Unusual terrain features.
• Suspicious items in trees or bushes.
• Enemy markings (the enemy will mark most boobytrap locations in some way).

2. PROBING (fig 10-13). Suspicious spots must be probed with a pointed stick. All metal should be removed from an individual who is probing an area to ensure metal sensitive mines are not accidentally activated.

![Fig 10-13. Probing.](image)

C. AVOIDANCE COUNTERMEASURES

1. Stay off trails, footpaths, etc., as much as possible.

2. Move where local inhabitants move.

3. Avoid patterns.
4. Maintain appropriate intervals.

5. Move slowly if possible.

6. Be alert when pursuing the enemy.

7. Use artillery and mortar fire to help neutralize boobytraps.

8. Mark detected mines and boobytraps.

9. If on roads, stay in well-used portions.

10. Follow tracks of vehicle ahead.

11. Avoid holes, depressions, and objects lying on the road.

D. IMMEDIATE ACTION

On command, or upon tripping a mine or boobytrap device, take immediate action.

1. Warn others.

2. Drop to ground immediately.

3. If possible, present the smallest target to the force of the explosion by pointing the feet in the direction of the charge.

For additional training in this area, references are provided below:

1. FM 20-32 Mine/Counter Mine Operations at Company Level

2. MCI Course 03.4 Landmine Warfare Demolitions

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Chapter 11. Security of Military Information

Section I. Security Classification, Classified Information, and Access to Classified Documents

Objectives:
1. Name and define three levels of security classification.
2. Define classified information and explain how it must be protected, stored, and destroyed.
3. State who should have access to classified documents.

Security is a protective condition that prevents unauthorized persons from obtaining information of military value. Such information is afforded a greater degree of protection than other material, and is given a special designation or classification.

A. SECURITY CLASSIFICATION

Classified matter which requires protection in the interest of national defense shall be limited to three categories of classification and will carry one of the following designations: TOP SECRET, SECRET, CONFIDENTIAL.

1. TOP SECRET—a “Top Secret” classification is limited to information or material which requires the highest degree of protection of the three categories. The defense of this material is vital and unauthorized disclosure could result in exceptionally grave damage to the nation. Examples of “exceptionally grave damage” in-
clude war against the United States or its allies, the breaking down of foreign relations vitally affecting the national security, the compromise of vital national defense plans or complex cryptologic and communications intelligence systems, the revealing of sensitive intelligence operations, and the disclosure of scientific or technological developments vital to national security.

2. SECRET—The “Secret” classification is limited to information or material the unauthorized disclosure of which could result in serious damage to the nation. Examples of “serious damage” include the breaking down of foreign relations significantly affecting national security.

3. CONFIDENTIAL—The “Confidential” classification is limited to information or material the unauthorized disclosure of which could cause “identifiable damage” to the nation, including the compromise of information which indicates the strength of ground, air, and naval forces in the United States and overseas areas; the disclosure of technical information used for training, maintenance, and inspection of classified munitions of war; the revealing of performance characteristics, test data, design, and production data on munitions of war.

B. CLASSIFIED INFORMATION

Classified information is any official information which has been determined to require, in the interest of national security, protection against unauthorized disclosure and which has been so designated.

1. PROTECTING CLASSIFIED INFORMATION. Custodians of classified material shall be responsible for safeguarding classified material at all times and particularly for locking classified material in appropriate security containers.
whenever it is not in use or under direct supervision of authorized persons. During working hours when classified information is removed from storage for use by authorized persons in officially designated offices or working areas, the material shall be kept under constant surveillance and face down when not in use. Classified information or material shall not be removed from officially designated office or working areas for the purpose of working on such material during off duty hours unless specifically approved by the commanding officer or his representative who must be designated in writing. At the end of the working day, commanding officers will require a security check of all work spaces to ensure that all classified material is properly secured.

a. Each individual is responsible for assuring that classified information which they prepare, receive, or handles is properly accounted for and made available only to those who have the appropriate clearance and the need to know. The individual having knowledge and/or custody of classified matter is responsible for any failure, on his part, which may contribute to its loss, compromise, or unauthorized disclosure.

b. Effective physical security is attained only when all the established methods and procedures are carefully carried out. These include: the proper storage of material when not in use; the proper handling when in use, to include constant surveillance and accountability; and by ensuring that classified information is not discussed over the telephone or in an area where unauthorized persons may overhear the discussion.

2. STORAGE, DISPOSAL AND DESTRUCTION OF CLASSIFIED INFORMATION. Whenever classified information is not under the personal control and observation of an authorized person, it will be protected or stored in
a locked security container. Those Marines who serve in billets in which classified information is used receive detailed instruction on their responsibilities regarding the storage, disposal, and destruction of that information. Most Marines, however, rarely come in contact with classified information, but should know that all classified information, regardless of its classification, should be safeguarded, properly stored, and disposed of or destroyed in accordance with OPNAVINST 5510 Series. All Marines should be aware that it is their responsibility to report any apparent violation of the safeguarding of military information.

3. ACCESS TO CLASSIFIED DOCUMENTS. Access is the ability and opportunity to obtain knowledge or possession of classified information.

a. The Department of Defense employs a security system based on the simple principle of circulation control; i.e., control of access to classified information. Knowledge or possession of classified information shall be permitted only to individuals whose official duties require access in the interest of promoting national security and only if they have been determined to be trustworthy.

b. To have access to classified information, one must have a “need to know” in addition to possessing the proper level of clearance.

c. These principles are equally applicable if the prospective recipient is an organizational unit, including commands, other Federal agencies, defense contractors, foreign governments, and others.
4. Commanding officers should ensure that personnel under their jurisdiction are briefed in accordance with chapter 3, OPNAVINST 5510 Series before granting access to classified information.

For additional training in this area, references are provided below:

1. DOD 5200.1-R  
   Information Security Program Regulations  
   Dec. 78

2. OPNAVINST 5510 Series  
   Department of the Navy Information Security Program Regulations  
   Sep. 78


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Section II. Collection and Use of Military Information

Objectives:
1. Identify the various types of unclassified and classified information of value to foreign nations.
2. Name six methods by which foreign nations collect information on U.S. Forces.
3. Explain how foreign nations make use of seemingly insignificant military facts.

Intelligence collection activities are directed toward obtaining detailed knowledge concerning our forces. Spies or intelligence officers, as they are officially known, and their agents are at this moment gathering information within the United States. A nation such as the United States can be weakened by the theft of its vital information, and its enemies can be strengthened by the acquisition of that information, whether it be classified or unclassified. It is the responsibility of each individual who has been entrusted with sensitive information to protect America’s military information.

A. TYPES OF UNCLASSIFIED AND CLASSIFIED INFORMATION OF VALUE

1. Valuable unclassified information. Unclassified information most likely sought by intelligence officers or agents is:

- Names, duties, personal data, and characteristics of military personnel,
- Technical orders, manuals, or regulations.
• Base directives.
• Personnel rosters.
• Unit manning tables.
• Information about the designation, strength, mission, or combat posture of a unit.
• Development of ships, aircraft, and weapons systems.
2. Classified Information. Classified information most likely to be sought by intelligence officers or agents includes:

- Military plans, weapons, or operations
- Foreign government information.
- Intelligence activities, sources, or methods.
- Foreign relations or foreign activities of the United States.
- Scientific, technological, or economic matters relating to national security.
- United States Government programs for safeguarding nuclear materials or facilities.
- Communications security material to include: cryptographic systems, their codes, cipher devices, and machines.
B. METHODS BY WHICH FOREIGN NATIONS COLLECT INFORMATION

1. Methods by which foreign nations obtain information are as follows:

   • Air, sea, and ground reconnaissance and surveillance.
   • Communications intelligence through intercepting unsecure telephone, radio, and microwave telecommunications.
   • Electronic surveillance using devices which monitor conversations.
   • Eavesdropping or wiretapping.
   • Prisoners of war and refugees.
   • Documents, newspapers, and magazines.
   • Press and radio/television releases, photographs and editorials.
   • Careless talk.

2. Agents, both male and female, will use several of the above sources to obtain intelligence and will resort to other subversive actions such as:

   • Cultivating friendships with U.S. citizens to the extent of placing personnel under obligation which may prove embarrassing or by offering money to obtain information.
   • Coercion of personnel by blackmail, threats, or promises of harm to relatives living in foreign countries.
   • Exploitation of personnel who may be dissatisfied or in personal difficulties.
   • Intimidation, harassment, entrapment, discrediting, searching, spying on, or recruiting personnel traveling in unfriendly countries.

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- Persuading personnel to defect.
- Obtaining information from personnel by correspondence (including “pen pals”), questionnaires, amateur radio activities, and other forms of communications.

C. USE OF SEEMINGLY INSIGNIFICANT MILITARY FACTS

Foreign agents use many single, seemingly insignificant facts to piece together a total picture of an operation or plan. As the illustrations below show, each single fact, by itself, means little, but once put together these seemingly insignificant facts could prove to be very damaging.

*Man, what a day, we had to issue 900 sets of cold weather gear to 2d BN 6th Marines*
Bill's unit is leaving for Norway for a five week operation.

Well,... business should be slow for you all next week with 2/6 leaving Monday.
KGB INTELLIGENCE REPORT:

UNIT 2d Bn 6th Marines
STRENGTH 900
DESTINATION Norway
DATE OF DEPARTURE Monday 17 Jan 1983
LENGTH OF OPERATION 5 Weeks

The agent of a foreign intelligence service need not be a foreigner. The individual you meet at a disco could be a foreign diplomat or a fellow American who has been recruited as an agent. Do not expect the agent to expose his role. Usually there is a long period of cultivation during which your conversations could be completely normal. However, at any time someone may begin to inquire into activities which are classified. Then you should stop to consider whether the inquiry is innocent curiosity or the beginning of an attempt to secure intelligence information.

You should report the circumstances to a responsible official, e.g., your OIC, security manager, or commanding officer.

For additional training in this area, references are provided below:

1. FM 30-17 Counterintelligence Operations
2. FMFM 2-4 Counterintelligence
3. OPNAVINST 5510.1 Department of the Navy Information Security Program Regulations Sep. 78

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Section III. Information Used to Gain Tactical Advantage in Combat and How It Is Collected During Peace and War

Objective: Name three types of information, concerning U.S. Forces, that the enemy can use to gain tactical advantage in combat and state how such information is collected in peace and war.

Combat intelligence is derived from the evaluation of information on the enemy (both his capabilities and his weaknesses), the weather, and the terrain. The objective of combat intelligence is to minimize uncertainty concerning the effects of these factors on the accomplishment of the mission.

A. INFORMATION CONCERNING U.S. FORCES THAT WILL GIVE AN ENEMY TACTICAL ADVANTAGE IN COMBAT

The following are four examples of information that would give an enemy tactical advantage over U.S. Forces.

1. COMPOSITION (the identification and organization of a unit). This type of information identifies the unit's size and type.

   a. In combat, this information can be collected from captured U.S. military personnel, by intercepting and analyzing radio messages from U.S. Forces, or by ground or air reconnaissance.

   b. In peacetime, this type of information can be collected by intercepting unsecure telephone, radio, or microwave communications; from careless talk by members of a unit or the news media; or by air reconnaissance.

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2. **TACTICS** (the manner in which U.S. Forces conduct an operation).

   a. During combat, this information can be collected through prisoners of war or by studying the tactics used by a U.S. Force during a previous encounter.

   b. During peacetime, this information can be collected by observing U.S. Forces during training operations or by obtaining copies of unit SOP's and Training Manuals (TM's) or Field Manuals (FM's) or Fleet Marine Force Manuals (FMFM's).

3. **STRENGTH** (in terms of men, weapons and equipment).

   a. During war, this information may be collected from prisoners, air and ground reconnaissance, and by intercepting foreign radio communications.

   b. During peacetime, this information can be collected by observing U.S. Forces during training operations, by obtaining copies of unit tables of organization (T/O's) and tables of equipment (T/E's), or by gaining information from unit members (loose talk).

4. **LOGISTICS** (the ability to support combat operations).

   a. During war, this information can be collected by air and ground reconnaissance, from U.S. prisoners or civilians who have been within U.S. controlled areas, from captured U.S. documents, or by intercepting unsecure radio communications.

   b. During peacetime, this information can be collected by observing U.S. Forces during training opera-
ions; from loose talk by unit personnel; or from intercepting unsecure radio, telephone, or microwave communications.

There are other types of information which would give the enemy tactical advantages over U.S. Forces such as disposition or location of U.S. Forces, training status and combat effectiveness. This information can be collected by enemy forces in the same way as in items 1-4 above.

For additional training in this area, a reference is provided below:

1. FM 30-5 Combat Intelligence

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Section IV. Hypothetical Situations and Your Responsibility as a Marine to Safeguard Military Information

Objective: When given hypothetical situations, recognize and explain the responsibilities of a Marine to safeguard military information.

A. SITUATION 1

While attending a party with several of your friends (both civilian and military), you overhear a member of your unit discussing classified information with a group of people.

YOUR RESPONSIBILITY:

- Attempt to protect the classified information from further compromise or risk of compromise.
- Report the circumstances to a responsible official, e.g., your section head, OIC, security manager, or commanding officer.

B. SITUATION 2

You have been assigned duty at the battalion/squadron headquarters. At 1930 all offices are empty and you have started your security check. While checking the S-3 office, you find a Secret document which has been left out on the top of a desk.

YOUR RESPONSIBILITY:

- Safeguard the document.
- Call the OOD, security manager/unit S&C files NCO, or commanding officer and report
the finding of an unsecured classified document.

C. SITUATION 3

While waiting to use the public phone located in your barracks, you overhear the person using the phone discussing your unit’s pending deployment.

YOUR RESPONSIBILITY:

- You stop the person from making any other comments, and advise him that such information is not to be discussed over a telephone.
- Report the unauthorized disclosure to your unit’s security manager, your OIC, or commanding officer.

D. SITUATION 4

You are a stereo hobbyist and you frequently do business at the stereo store just outside the main gate. The storekeeper is a likeable person and enjoys chatting with Marines about their work. On your next visit he strikes up a conversation about military electronics and asks if he could borrow one or two military electronic technical manuals.

YOUR RESPONSIBILITY:

- You are not a counterintelligence agent. Your first responsibility is to simply tell the store owner that it will not be possible for you to obtain the technical manuals.

- Your second responsibility is to immediately report to your OIC that you have been asked to supply military information.
Chapter 12. Substance Abuse

Section I. Illegal Drug Use

Objectives:
1. State the Marine Corps policy on illegal drug use.
2. State at least three effects of illegal drug use for each of the following: stimulants, depressants, narcotics, hallucinogens, cannabis, and inhalents.
3. State the Marine’s responsibility to himself and to his fellow Marines concerning illegal drug use.
4. State the purpose of the Marine Corps Voluntary Drug Disclosure Program.
5. State the eligibility criteria for a Marine to receive assistance under the Voluntary Drug Disclosure Program.
6. State the benefits of participating in constructive off-duty activities.
7. State the legal consequences of use, possession, or distribution of illegal drugs.
8. State the purpose of the Marine Corps Urinalysis Testing Program.
9. State the administrative actions that can result from use, possession, or distribution of illegal drugs.

A. MARINE CORPS POLICY ON ILLEGAL DRUG USE

The distribution, possession, or use of illegal drugs is not tolerated in the United States Marine Corps. Distribution means selling or giving drugs to another person in any given quantity. It is also illegal to own roach clips, coke spoons, syringes, wrapping papers, and any other items intended to illegally use drugs.

12-1

Provided by www.marines.cc
B. DEFINITION OF ILLEGAL DRUG USE

A drug is a substance that changes the functions of the body or mind when taken. Many drugs are legal and can be bought “off-the-shelf.” Others are controlled by law. Of these controlled substances, some have no known medical use and are illegal. Examples of these are heroin, LSD, and hashish. Other controlled substances are available with a doctor’s prescription. Using prescription drugs when you have no prescription, or taking more than the prescribed amount is also illegal.

C. DRUGS AND THE INDIVIDUAL

1. Most drugs that are used illegally affect the body’s central nervous system. The central nervous system controls our senses of sight, hearing, taste, smell, and touch; our movements and thoughts; and our hearts and lungs. The effects of drugs depend on the type of drug and the amount taken, and can range from mild changes in sensation or mood to death.

2. The human body has the capacity to develop a tolerance to many drugs. When this happens, larger and larger doses of drugs are required to achieve the same effect. This results in physical dependence. The body requires the drug in order to function normally. If the drug is not taken, withdrawal symptoms (which can be very dangerous) occur. After withdrawal, the body returns to normal if no damage has been done.

3. Another kind of dependence is psychological. The mind needs the drug. This is caused by the desire to repeat the artificial sensations of illegal drug use, and results in more and more frequent use. Nearly all illegal drug use can result in psychological dependence.
4. The chart (Table 12-1) on the following pages gives the effects of each general class of drug on the body. Notice that some legal drugs (caffeine, nicotine, and alcohol) are included as a reference. The effects listed are for use of a single drug. When different drugs are taken at the same time, they can often multiply each other’s effects. This is called the synergistic effect, and is extremely dangerous. It makes drug overdose easy, and makes treatment by medical personnel more difficult.

<table>
<thead>
<tr>
<th>STIMULANTS</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Common Names</strong></td>
</tr>
<tr>
<td><strong>Immediate Effects</strong></td>
</tr>
<tr>
<td><strong>After Effects</strong></td>
</tr>
</tbody>
</table>

Table 12-1. Drug Classes and Effects
<table>
<thead>
<tr>
<th>Long Term Effects</th>
<th>weight loss, nervousness, heart or circulatory complications severe headaches, mental illness, tolerance development</th>
</tr>
</thead>
<tbody>
<tr>
<td>Danger of Dependency</td>
<td>physical: possible, psychological: high probability</td>
</tr>
<tr>
<td><strong>DEPRESSANTS</strong></td>
<td></td>
</tr>
<tr>
<td>Common Names</td>
<td>barbituates, downers, methaqualone, quaalude, chloral hydrate, alcohol, tranquilizers, valium, librium, goofballs, reds, yellow jackets</td>
</tr>
<tr>
<td>Immediate Effects</td>
<td>decreased heart rate and blood pressure, drowsiness, loss of coordination, slurred speech, mood changes, confusion, nausea, difficulty in breathing, unconsciousness, loss of memory</td>
</tr>
<tr>
<td>Note: These effects are severely magnified when different depressants are used together.</td>
<td></td>
</tr>
<tr>
<td>After Effects</td>
<td>depression, nausea, headache, anxiety, insomnia</td>
</tr>
<tr>
<td>Long Term Effects</td>
<td>tolerance, addiction</td>
</tr>
<tr>
<td>Danger of Dependency</td>
<td>physical: high probability, psychological: high probability, withdrawal very dangerous</td>
</tr>
</tbody>
</table>

Table 12-1. Contd
### NARCOTICS

<table>
<thead>
<tr>
<th>Common Names</th>
<th>heroin, morphine, codeine, methadone, H, junk, smack, snow, horse, loads</th>
</tr>
</thead>
<tbody>
<tr>
<td>Immediate Effects</td>
<td>Insensitivity to pain, euphoria, sedation, initially acts as a stimulant and then as a depressant</td>
</tr>
<tr>
<td>After Effects</td>
<td>depression, itching, nervousness, sweating, hunger, watery eyes, runny nose, constipation</td>
</tr>
<tr>
<td>Long Term Effects</td>
<td>tolerance, addiction</td>
</tr>
<tr>
<td>Danger of Dependency</td>
<td>physical: high probability psychological: high probability, withdrawal dangerous</td>
</tr>
</tbody>
</table>

### CANNABIS

<table>
<thead>
<tr>
<th>Common Names</th>
<th>marijuana, hashish, THC, pot, grass, weed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Immediate Effects</td>
<td>mild intoxication, mild euphoria, sense of well being, relaxation, impaired memory, altered depth and time perception, occasional nausea and lack of coordination, red eyes, increased heart rate, hunger, sweating</td>
</tr>
</tbody>
</table>

Table 12-1. Contd
<table>
<thead>
<tr>
<th>After Effects</th>
<th>possible drowsiness, withdrawn behavior, mild withdrawal symptoms</th>
</tr>
</thead>
<tbody>
<tr>
<td>Long Term Effects</td>
<td>increased tolerance, impaired lung function, respiratory illness, hormone imbalance, loss of sex drive in males, loss of motivation, brain damage</td>
</tr>
<tr>
<td>Danger of Dependency</td>
<td>physical: possible psychological: moderate probability</td>
</tr>
</tbody>
</table>

**HALUCINOGENS**

<table>
<thead>
<tr>
<th>Common Names</th>
<th>LSD, PCP, peyote, mesca- line, STP, DMT, morning glory seeds, mushrooms</th>
</tr>
</thead>
<tbody>
<tr>
<td>Immediate Effects</td>
<td>mood and perception altered, hallucination, possible paranoia, experience varies from one time to another</td>
</tr>
<tr>
<td>After Effects</td>
<td>confusion, weakness, possible nausea</td>
</tr>
<tr>
<td>Long Term Effects</td>
<td>varies widely depending on drug used; flashbacks, genetic defects, brain damage, mental illness, increased tolerance</td>
</tr>
<tr>
<td>Danger of Dependency</td>
<td>physical: none known, psychological: moderate probability</td>
</tr>
</tbody>
</table>

Table 12-1 Contd
INHALENTS

<table>
<thead>
<tr>
<th>Common Names</th>
<th>Nitrous Oxide, Butyl Nitrite, Amyl Nitrite, Chlorohydrocarbons, Hydrocarbons, poppers, aerosol, cleaning fluid, propellents, glue, paint thinner, whippets</th>
</tr>
</thead>
<tbody>
<tr>
<td>Immediate Effects</td>
<td>excitement, euphoria, giddiness, loss of inhibitions, aggressiveness, delusions, depression, drowsiness, headache, nausea, watery eyes, runny nose, loss of coordination, slurred speech, bad breath</td>
</tr>
<tr>
<td>After Effects</td>
<td>insomnia, loss of appetite, depression, irritability, headache</td>
</tr>
<tr>
<td>Long Term Effects</td>
<td>possible tolerance; damage to liver, kidneys, blood, bone marrow, and brain; heart failure</td>
</tr>
<tr>
<td>Danger of Dependency</td>
<td>physical: possible psychological: moderate probability</td>
</tr>
</tbody>
</table>

Table 12-1. Contd

D. DRUGS AND THE UNIT

1. A Marine under the influence of drugs cannot do his job effectively. Other Marines will have to carry the
weight of the illegal drug user, thus impairing unit efficiency. In combat, one Marine illegally using drugs endangers the survival of the entire unit.

2. Illegal drug use itself is a breach of unit discipline. Since drugs are fairly expensive, their use often leads to theft and other offenses in order to raise the money needed to buy drugs. The result is a breakdown in discipline and morale that can leave a unit ineffective.

3. Trafficking means distributing, either selling or giving drugs to someone else. By providing the drugs that are used illegally, the trafficker contributes to problems of the illegal drug user and the unit. The trafficker wants to increase his business and profits. He takes advantage of the weaknesses of individuals and causes the problem of illegal drug use to grow.

E. YOUR RESPONSIBILITY AS A MARINE

Most people who are well informed about the effects of drugs rarely abuse them. You owe it to yourself to learn what the effects of drugs really are and to avoid them. Do not be satisfied, though, with avoiding drugs yourself. Marines take care of their own. If you cannot convince your fellow Marines that they should not use drugs, report them. Do not let friendship or negative peer pressure stop you from doing what you know is right. In the long run, it is best for all concerned.

F. VOLUNTARY DRUG DISCLOSURE PROGRAM

The Marine Corps has a program that permits Marines who have used illegal drugs, and who sincerely intend to discontinue that use, to obtain assistance. The purpose of the Marine Corps Voluntary Drug Disclosure Program is to provide a method through which Marines can stop
using illegal drugs. Any Marine with a drug use problem may obtain treatment or rehabilitation by means of voluntary disclosure. A Marine can obtain assistance under this program only once during his career.

Marines who seek assistance for drug use may initiate the evaluation and treatment process by voluntarily disclosing the nature and extent of their personal drug use to the unit Substance Abuse Control Office (SACO). Voluntary disclosure made to the SACO relating to the Marine's past or present drug use is a privileged communication and may not be used in any disciplinary action under the Uniform Code of Military Justice. Information disclosed to persons other than drug screening, counseling, treatment, or rehabilitation personnel is not privileged.

For a Marine to receive assistance under this program, specific eligibility criteria must be met:
1. The Marine must clearly demonstrate a sincere desire to seek help to eliminate personal drug use.
2. Traffickers in illegal drugs are not eligible.
3. The Marine must not have previously been identified as a drug user, regardless of the means of identification, including pre-service illegal drug use waiver.
4. A Marine identified as a drug user during the disclosure process of another Marine is not eligible.
G. ALTERNATIVE AND PUNISHMENT OF ILLEGAL DRUG USE

1. Off-duty activities such as sports, education, music, hobbies, and volunteer work provide a creative outlet for relief of stress and boredom, and thus are a positive alternative to illegal drug use. Not only do they help you as an individual, but they also build fellowship and camaraderie, strengthen the unit, and help others.

2. Since illegal drug use is illegal, it may result in non-judicial punishment or a court martial under the Uniform Code of Military Justice (UCMJ). The results can be restriction, loss of rank or pay, confinement at hard labor, and even a bad conduct discharge. More importantly, as a Marine, you are responsible for your actions whether you use drugs or not. Even if you are not charged with illegal drug use, your actions while under the drug's influence may cause you to find yourself charged with assault, destruction of government property, or any other misconduct that occurred while you were "high."

H. ADMINISTRATIVE ACTIONS

1. Commanding officers have been instructed by the Commandant of the Marine Corps to use every lawful means at their disposal to identify those who illegally use drugs. One way that commanders do this is by conducting urinalysis tests on a regular basis. Others include random vehicle searches, health and welfare inspections, marijuana dogs, undercover agents, and review of logbook entries and incident reports.
2. Commanding officers have a wide variety of administrative actions available to discourage illegal drug use and to prevent illegal drug use from harming others. Some of these are:

- Unmarried Marines may be denied the privilege of living off base.
- Married Marines may be evicted from government quarters.
- On base driving privileges may be revoked.
- Confirmed incidents of illegal drug use may be recorded in the Service Record Book (or be reported on a Special Fitness Report for Sergeants and above).
- Any Marine trafficking in illegal drugs will be discharged.
- A Marine found illegally using drugs is not eligible for promotion for a period of six months.
- A Marine who illegally uses drugs the first time may be discharged if the commander decides that a pattern of misconduct has been established.
- Marines who illegally use drugs a second time will usually be discharged.
- Any Marine who illegally uses drugs a third time will be discharged.
THE COMMANDANT OF THE MARINE CORPS HAS SAID, "THERE SHOULD BE NO QUESTION IN ANYONE'S MIND THAT THOSE WHO DO NOT MEET THESE STANDARDS WILL BE SEPARATED FROM THE MARINE CORPS. I EXPECT THE FULL SUPPORT OF EVERY MARINE IN COMBATING THE ILLEGAL USE OF DRUGS."

For additional training in this area consult the unit Substance Abuse Control Officer (SACO) or see the references provided below:

1. MCO 5255.1 Marine Corps Drug Abuse Administration and Management Program
2. MCO 5355.2 Marine Corps Urinalysis Testing Program
3. MCO P5300. Marine Corps Substance Abuse Program
4. SECNAVINST 5300.28 Alcohol and Drug Abuse Control
5. ALMAR 246/81 Marine Corps Policy Concerning Illegal Drugs
6. NAVMC 2750 Marine's War on Drugs

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Provided by www.marines.cc
Section II. Alcohol Abuse

Objectives:
1. State the Marine Corps policy on alcohol abuse.
2. Define alcohol abuse.
3. State at least five symptoms of alcohol abuse.
4. State the Marine’s responsibility to himself and fellow Marines concerning alcohol abuse.
5. State the administrative actions that can result from alcohol abuse.
6. State how a Marine may obtain assistance for himself and/or his dependents in controlling alcohol abuse.
7. Name the Unit Substance Abuse Control Officer.

A. MARINE CORPS POLICY ON ALCOHOL ABUSE

Alcohol abuse is not tolerated in the United States Marine Corps.

B. DEFINITION OF ALCOHOL ABUSE

Alcohol abuse, as defined in MCO 5370.6A, is any irresponsible use of alcohol which leads to misconduct, unacceptable social behavior, or impairment of an individual’s performance of duty, physical or mental health, financial responsibility, or personal relationships.

C. ALCOHOL AND ITS SYMPTOMS

1. Alcohol is the most frequently abused drug in our society. It is listed in table 12-1 as a depressant. Like other depressants, alcohol abuse dangerously affects one’s reasoning ability, coordination, social behavior, and performance. It is dangerously addictive both physically
and mentally. Over a period of time, alcohol abuse usually leads to serious illness involving the heart, liver, and other organs. Alcohol abuse can lead to alcoholism, which is a progressive, treatable disease, however, if left untreated, it will result in death or permanent brain damage.

2. Alcohol is legal, but all too often, resulting actions while intoxicated are not. This is the other side of the effects of alcohol. Misconduct, accidental injuries, motor vehicle accidents, and arrest are some of the results of alcohol abuse.

D. SIGNS OF ALCOHOL ABUSE

A few of the many recognizable signs of alcohol abuse are:

1. HANGOVER. The nausea, headache, and drymouth following heavy drinking are signs of the irritation of the body that alcohol abuse has caused. A Marine in this condition does not perform well on the job.

2. BLACKOUT. Blackout is a loss of memory while drinking. If a Marine cannot remember how he arrived home after a drinking session, then that Marine has had a blackout.

3. FATIGUE. The depressant effect of alcohol plus the late night on the town can leave a Marine tired. This might cause the Marine to be late for work or to be absent entirely, jeopardizing the Marine's effectiveness and reliability.

4. FREQUENT SICK CALLS. The frequent alcohol abuser may be severely “hungover” and require medical
assistance. Additionally, that trip to sick bay might be used to cover-up a problem with being constantly late for work.

§. SOCIAL PROBLEMS. Sometimes the alcohol abuser is the "life of the party," but the frequent abuser becomes embarrassing to himself and to others. Ultimately, this can lead to the loss of family and friends.

E. ALCOHOL AND THE UNIT

A Marine under the influence of alcohol is just as dangerous to the unit as a Marine under the influence of any other drug. Incidents of violent crime, motor vehicle accidents, spouse and child abuse are frequently alcohol related. Drunk drivers are an especially dangerous menace who take the lives of many innocent victims each year. Substandard performance, financial irresponsibility and unacceptable behavior all adversely impact organizational efficiency.

F. YOUR RESPONSIBILITY AS A MARINE

1. Alcohol is legal. However, misconduct as a result of alcohol abuse is illegal. Every Marine is responsible for his or her own actions whether under the influence of alcohol or not and will be held strictly accountable for those actions under the Uniform Code of Military Justice. If you don't drink, don't start. If you do drink, learn not to drink too much. If you think that you need to prove something to your friends, prove that you are responsible for taking care of yourself and avoiding the problems of alcohol abuse.

2. Marines take care of their own. Alcohol abuse by any Marine, on liberty or in garrison, is the responsibility of every other Marine. Alcohol abuse must be avoided or
corrected. Stopping alcohol abuse by Marines is a responsibility of all Marines.

G. ADMINISTRATIVE ACTIONS

In order to protect Marines from the effects of alcohol abuse, the commanding officer may take several administrative actions. Some of these are:

- If a Marine is an alcohol abuser, it is quite possible this abuse will have a negative effect on his proficiency and conduct marks. This can delay promotions.
- Authorization to operate a government vehicle can be denied.
- Base driving privileges for private vehicles will be suspended for one year for any Marine convicted of driving under the influence of alcohol on or off base.
- Unmarried Marines may be denied the privilege of living off base.
- Married Marines may be evicted from government quarters if that Marine’s alcohol abuse affects quarters residents.
- Confirmed incidents of alcohol abuse will be entered in the service record book. The Marine involved will be formally counseled by the Commanding Officer.
- Continued alcohol abuse will result in separation from the Marine Corps for reasons of unsuitability.

THE COMMANDANT OF THE MARINE CORPS HAS SAID, “THOSE WHO DO NOT MEET THESE STANDARDS WILL BE SEPARATED FROM THE MARINE CORPS. THE PRIVILEGE OF BEING A MARINE IN-

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CLIDES THE RESPONSIBILITY FOR MAINTAINING THE HIGHEST STANDARDS OF DISCIPLINE, CONDUCT, AND PERFORMANCE. ALCOHOL ABUSE IS A FORM OF IN-DISCIPLINE THAT CAN SERIOUSLY REDUCE THE OVERALL VALUE AND EFFECTIVENESS OF THE INDIVIDUAL MARINE AND DEGRADE THE OPERATIONAL EFFECTIVENESS OF THE MARINE’S ORGANIZATION. THOSE WHO CHOOSE TO ABUSE ALCOHOL WILL BE IDENTIFIED AND ASSISTED TO THE DEGREE POSSIBLE, BUT IN ALL CASES, HELD ACCOUNTABLE FOR THEIR ACTIONS.”

H. ASSISTANCE

A Marine may obtain help for himself, his family, or another Marine by contacting the unit Substance Abuse Control Officer, medical personnel, or the Chaplain. These persons have access to a large number of agencies and publications designed to assist those who abuse alcohol.

For additional training in this area, consult the unit Substance Abuse Control Officer, (SACO) or see references provided below:

1. SECNAVINST 5300.28 Alcohol and Drug Abuse Control

2. MCO 5370.6A Marine Corps Alcohol Abuse Administrative and Management Program

3. NAVMC 2662A Marine Corps Policy on Alcohol Abuse

4. ALMAR 125/82 A Seminar on Alcohol and Alcoholism

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Provided by www.marines.cc
Chapter 13. Land Navigation

Section I. Terrain Features, Colors, and Use of Grid System

Objective: Given a standard military map (scale 1:50,000) identify and record the location, using six-digit coordinates, of a hill, saddle, steep slope, gradual slope, dirt road, junction of two roads, and three manmade objects.

A. TERRAIN AND VEGETATION FEATURES

1. HILL. A hill is shown on the standard military map by a number of closed contour lines. Figure 13-1a shows the hills as they would appear when looking at them at ground level. Figure 13-1b shows them as they would appear on the map. Contour lines are BROWN.

Fig 13-1. Hills.
2. **SADDLE.** A saddle is formed when two hills are close together and the area between the hills is lower than the hill tops but not as low as the surrounding area. Figure 13-2a shows saddles as they would appear from ground level and figure 13-2b shows them as they would appear on the map.

![Fig 13-2. Saddles.](image)

3. **SLOPES.** You can tell how steep a slope is by how close the contour lines on the map are to each other (Refer to figure 13-3). A steep slope is shown in figure 13-3a as you see it on a map and in figure 13-3b as you would see it from ground level. A gradual slope is shown in figure 13-3c as you see it on the map and in figure 13-3d as you would see it from ground level. One slope is steeper than another if its contour lines are closer together.
4. TREES AND OTHER VEGETATION. Trees and other types of vegetation are shown on the map in GREEN. In most cases when the countryside is shown with its normal covering of vegetation, it is colored an overall light green. At times when orchards, heavy forest or grasslands are shown, they will be shown as illustrated in figure 13-4. Remember that they are GREEN.
B. WATER FEATURES

Streams, swamps, lakes, and intermittent streams are shown on the map in BLUE. Aside from the color, each is drawn on the map in a certain way. Remember that the color is BLUE.

1. STREAMS. Streams are shown on the map by either a solid, single BLUE line for smaller streams or by two solid BLUE lines with a lighter shade of BLUE in between for larger streams (fig 13-5a).

![Diagram showing a. Streams, b. Swamp, c. Lakes, d. Intermittent Stream]

Fig 13-5. Water features.

2. SWAMPS. Swamps are shown on a map by grass features with broken lines mixed in. The lines and grass features are BLUE (fig 13-5b).

3. LAKES. Lakes and ponds are shown on the map by a single, solid BLUE line encircling an area of lighter BLUE (fig 13-5c).

4. INTERMITTENT STREAMS. Intermittent streams are shown on the map by a series of three dots, then a dash (fig 13-5d). Remember that these as well as all water features are shown in BLUE.

13-4  

Provided by www.marines.cc
C. ROADS AND ROAD JUNCTIONS

Normally, major highways and main thoroughfares are shown on the military map in solid RED lines (fig 13-6a). Secondary roads are shown by two parallel BLACK lines (fig 13-6b), and dirt or gravel roads are shown by two parallel broken BLACK lines (fig 13-6c). Road junctions are formed where roads meet.

Fig 13-6. Roads and road junctions.

D. MANMADE FEATURES

Manmade features are shown on the military map in BLACK. Since it would be difficult for each building in a city to be shown on the map, normally larger towns or cities will be shaded in RED with only the prominent or main buildings shown such as schools, hospitals, churches, etc. Figure 13-7 shows some common manmade features which might be found on the military map.

Fig 13-7. Manmade features.
E. SUMMARY OF MAP COLORS

1. BROWN ........ Contour lines, plowed fields, cuts,

2. GREEN ........ Trees, orchards, grasslands, and

3. BLUE ........... Streams, swamps, lakes, and

4. RED ............ Main roads, built-up areas, and

5. BLACK .......... Manmade features.

NOTE: As of 1982, all new maps are printed with four colors: red-brown, blue, black, and green. Red and brown have been blended together to make the map red light readable.

1. GRID SQUARE. Grid lines are superimposed on the military map. Each line, both horizontal and vertical, is numbered. To find the location of a certain grid square, combine the numbers of the grid lines that form the lower left corner of that square, first the vertical, then the horizontal. If you wanted to find the correct designation of the grid square that contains the A in figure 13-8, FIRST read RIGHT until you come to vertical grid line 29, then read UP until you come to grid line 48. The grid square contains A would be identified as 2948. Remember always read RIGHT, then UP. The four numbers used to identify a grid square are known as a four-digit coordinate.

2. SIX-DIGIT COORDINATE. To locate a feature more closely on the map, you would use a six-digit coordinate. To find a six-digit coordinate, you would first have to divide the grid square down into tenths so that its appearance
would be as pictured in figure 13-9. Again, you read all the way RIGHT FIRST so that the first three numbers of the coordinate for points B would be 309; then read all the way UP so that the second three numbers would be 503 or a six-digit coordinate of 309503. It is not recommended that you actually draw the lines within grid square 3050 since such lines obstruct other map information. Use the map scale located on the protractor as shown in figure 13-10. You can make your own scale on a paper corner. With practice you can learn to estimate the tenths in a grid square with fair accuracy.

**Fig 13-8. Grid square system.**

**Fig 13-9. Six-digit coordinate.**

**Fig 13-10. Use of map scale.**

For additional training in this area, references are provided below:

1. FM 21-26 Map Reading
2. TEC Lsn 930-071-0016-F Terrain Features

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Provided by www.marines.cc
Section II. Terrain Association

Objective: Given a standard military map (scale 1:50,000), and shown present location, orient the map to surrounding terrain; identify the four primary directions, compute the distance to a designated point at least 6000 meters distant, and use the map to navigate to that point.

A. MAP ORIENTATION

To orient your map by the terrain association method, pick several ground terrain features around you which are shown on the map. Hold your map in a horizontal position and rotate it until the features on the map are aligned with the same features on the ground (see fig 13-11). Linear features are better to use with this method. If point features are used, at least three widely separated features have to be used to improve accuracy. You should practice orienting your map so that you can orient it to within 5° of true orientation.

Fig 13-11. Map orientation.
B. PRIMARY DIRECTIONS

Once the map is oriented correctly, the four primary directions can be identified and pointed out very easily. Once the map is oriented, the top of the map will be aligned in a northerly direction. If you were standing at the bottom of the map and facing toward the top, as it lies on the ground, north would be to your front, east to your right, west to your left, and south directly to your rear (see fig 13-12).

![Image of map showing primary directions]

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**Fig 13-12. Identifying primary directions.**

C. DISTANCE COMPUTATION

1. Straight-line measurement is the first method used to establish a ground distance from the map. Once two points have been identified on the map sheet, it is a simple matter to use a straightedge of paper to tick off the distance between the two points. When making map measurements, it is important that all measurements be made from the center of the topographic symbol concerned.
as that point most accurately designates the true location of that feature on the ground (see fig 13-13).

![Diagram showing pencil tick marks on a paper strip.](image)

**Fig 13-13. Straight line measurement.**

2. Irregular or road distance is the second method used to establish ground distance from the map. To measure irregular distance along a road, stream, or any other irregular route, place a tick mark on the map at one end of the irregular route to be measured. Place a paper strip or other material with a straightedge along the center of the irregular feature, and extend the map tick mark onto the paper strip. The straightedge will eventually leave the center of the irregular feature. At the exact point where this occurs, place a tick mark on the map and extend it onto the paper. Rotate the paper strip until its straightedge once again is running along the center of the linear feature. Be sure to align the last tick mark on your straightedge with the last tick mark on the irregular feature again. Place a tick mark where the straightedge leaves the center of the irregular feature. Repeat this procedure until you have ticked off the desired distance (see fig 13-14).
3. To convert the map distance to ground distance, place the paper strip with the tick marks along the appropriate graphic scale at the bottom of the map sheet and determine the ground distance (see fig 13-15).

4. The average pace count of a Marine is 120 paces to each 100 meters. The average rate of march for the individual Marine is 4 kilometers per hour. These averages will vary to some degree according to the individual and terrain, but may be used as a guide until each Marine has established an individual pace count and rate of march.

D. LAND NAVIGATION BY TERRAIN ASSOCIATION

1. In employing terrain association, the following points should be remembered:
1. Always begin from a location you can identify on the map and the ground.

2. Orient your map before each terrain association is made.

3. Before you start any portion of your march, complete a mental picture of the prominent terrain features you will encounter and the approximate distances between them.

4. As you move along, remember that the actual distance between two points should equal the ground distance determined from the map. For example, if the map indicates you should cross a stream 200 meters after passing a hill, you should in fact cross a stream at that distance. If you go only 100 meters and come to a stream, you know that it is not the right one and is not shown on the map. This emphasizes that an accurate distance determination, through pacing, is very important when navigating by terrain association.

5. When you arrive at a checkpoint of the objective, conduct a detailed comparison between the ground position and the map position to make sure you are in the right place. Use three or more terrain features to check your position.

6. Navigation by terrain association depends on your ability to visualize what a terrain feature on the ground looks like from its representation on the map.

For additional training in this area, references are provided below:

1. FM 21-26 Map Reading

2. TEC Lsn 930-071-0164-F Determine Distance While Moving

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Section III. Land Navigation by Dead-Reckoning

Objective: Given a lensatic compass, a protractor, and a map of the local area, follow a given azimuth for 1,500 meters on the ground to an area of approximately 20 meters in diameter. Both the starting point and the objective must be identifiable on the map.

A. MAP ORIENTATION

Orient your map using the procedure described in section II of this chapter.

B. ROUTE SELECTION

1. Your first step in selecting your route is to locate and plot the starting point (SP) and objective (OBJ) on your map; then draw a straight line between the two points (see fig 13-16).

![Fig 13-16. Starting point and objective.](image)
2. Next you should plot all areas which you wish to avoid on the map; then draw the general routes which may be used (lines A, B, and C on fig 13-17).

![Fig 13-17. General routes.](image)

3. The general route that you choose is your decision. You will normally end up with a small number of possible routes to choose from such as routes A, B, and C in figure 13-17. You should select the route which best suits your particular mission with thought given to the tactical situation and ease of navigation. If time permits, a logical choice would be route A because it detours all enemy activity and has several good checkpoints which may be used as aids to navigation.

C. CHECKPOINT SELECTION

1. Planning your route in detail will consist of converting the curved general route you have chosen into a route consisting of a number of straight line segments called "legs." Each leg should begin and end on an easily iden-
tifiable terrain feature, if possible. These terrain features are called checkpoints (CP) because they will enable you to check your navigation and location periodically during your movement (fig 13-18). Using route A, the first leg could be from the starting point (SP) to the bridge on the dirt road north of the starting point. The second leg could be from the bridge, which is checkpoint one, to the junction of the stream just south of the hill along grid line 62. This will be checkpoint two. The third leg could go from checkpoint two to the objective. In all instances when legs of a route are drawn, they should be drawn or extended long enough so that you can measure a grid azimuth for them.

2. There are two basic types of checkpoints: line checkpoints and point checkpoints. A line checkpoint is a natural or manmade linear feature which crosses your line of march (fig 13-19). Point checkpoints are specific
objects or terrain features which, if located and properly identified, help to positively indicate your exact location (fig 13-20). The primary advantage of a point checkpoint over a linear checkpoint is that once you have located a line checkpoint, you still must figure out your exact location along that feature. The ideal checkpoint is one that is a combination of either two line checkpoints (fig 13-21), or a point checkpoint located along a line checkpoint (fig 13-22).

<table>
<thead>
<tr>
<th>LINE CHECK POINTS</th>
<th>POINT CHECK POINTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>ROADS</td>
<td>HILLTOPS</td>
</tr>
<tr>
<td>TRAILS</td>
<td>BUILDINGS</td>
</tr>
<tr>
<td>STREAMS</td>
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<td>RIDGES</td>
<td>SURVEYORS</td>
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<tr>
<td></td>
<td>BENCH MARKS</td>
</tr>
<tr>
<td>TEL TEL</td>
<td>SMALL LAKES</td>
</tr>
<tr>
<td>POWER LINES</td>
<td>OR PONDS</td>
</tr>
<tr>
<td>RAILROADS</td>
<td></td>
</tr>
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</table>

**Fig 13-19. Line checkpoints.**

**Fig 13-20. Point checkpoints.**

<table>
<thead>
<tr>
<th>INTERSECTION OF LINE CHECKPOINTS</th>
<th>LINE AND POINT CHECKPOINTS</th>
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<tbody>
<tr>
<td>ROAD JUNCTION</td>
<td>ROAD AND BUILDING</td>
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<tr>
<td>STREAM JUNCTION</td>
<td>ROAD AND HILLTOP</td>
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<td>STREAM AND ROAD JUNCTION</td>
<td>ROAD AND SADDLE</td>
</tr>
</tbody>
</table>

**Fig 13-21. Intersection of line checkpoints.**

**Fig 13-22. Line and point checkpoints.**
D. AZIMUTHS

1. AZIMUTH DEFINITION. An azimuth is an "angle" measure within a circle clockwise from the base direction, north. When used with land navigation, the directional circle is broken up into 360 possible azimuths or degrees (fig 13-23).

2. AZIMUTHS AND LAND NAVIGATION. When we speak of following an azimuth in land navigation, think of yourself in the center of a circle at the start or origin. A line drawn from you to the objective would be on a certain angle or azimuth, in this case 60 degrees, when measured within a circle from a base direction, north. This system of finding and following an azimuth to an objective is universal within the U.S. military and assures that the objective is found with accuracy each time (fig 13-24).

3. BASE DIRECTION (North).
   a. There are two base directions or norths used when navigating over land with the aid of the map and compass. These base directions are known as GRID and
MAGNETIC NORTH. The difference between these two points is known as the Grid-Magnetic or G-M angle and is shown on all military maps by what is called a declination diagram (fig 13-25). When navigating over land with the aid of the map and compass, TRUE NORTH, the actual direction of the North Pole, is seldom used so it will not be discussed.

b. MAGNETIC NORTH is measured with a lensatic compass. The north-seeking arrow on the compass points to an area in the Hudson Bay region of Canada where the magnetic attractions from the earth's core are the strongest in the northern hemisphere. This is known as magnetic north and is shown by a half arrow on the declination diagram (fig 13-25). Whenever you use an azimuth from a compass to plan or follow a route in the field, keep in mind that it is a magnetic azimuth.

c. The vertical grid lines on the map run from south at the bottom of the map to north (called GRID NORTH) at the top of the map (fig 13-26). Because the grid lines are placed on each map sheet in the same way, very seldom will the base directions, grid and magnetic north, be on the same angle. The grid north angle is
shown in the declination diagram as GN (fig 13-26). Whenever you plot an azimuth with a protractor on a map, keep in mind that it is a grid azimuth (fig 13-27).

Fig 13-26. Grid north (GN).
Fig. 13-27. Grid azimuth.

4. G-M ANGLE CONVERSION. Before you begin to navigate, it is very important that you determine whether the initial direction you are given to follow is expressed as a magnetic azimuth or a grid azimuth. The angle between the two may vary as much as 20° in some parts of the United States. If an azimuth is determined with the map and protractor, it is called a grid azimuth and cannot be followed on the ground with a compass until it is converted to a magnetic azimuth. By the same token, an
azimuth determined with the lensatic compass is a magnetic azimuth and cannot be correctly plotted on the map until it has been converted to a grid azimuth. When converting from one type of azimuth to another, a convenient "tool" provided by the map maker is the declination diagram mentioned (fig 13-28). Your first concern in converting an azimuth when using the declination diagram is to determine how much difference there is between grid and magnetic north, the G-M angle (fig 13-28). If a newer type map is in use, it will have instructions with the declination diagram as shown in figure 13-28. However, if an older type map is used which does not have instructions for converting azimuths, follow this procedure:

![Diagram](image)

**Fig 13-28. Using the declination diagram.**

a. Determine the amount of the G-M angle for your map which would be the number of degrees difference between grid and magnetic north.

b. Place your finger on the symbol for the base direction you are converting from (grid north or magnetic north).

c. Move your finger to the symbol for the base direction to which you wish to convert.
d. Apply the **LEFT ADD, RIGHT SUBTRACT (LARS)** rule. This means that if your finger moves to the Left, Add the amount of the G-M angle to the given azimuth. If it moves to the Right, Subtract the amount of the G-M angle from the given azimuth.

e. Using the declination diagram (fig 13-28), a grid azimuth of 36° when converted to a magnetic azimuth would be 30° (RIGHT SUBTRACT, 6° from 36° = 30°). Convert a magnetic azimuth of 16° to a grid azimuth (answer: 16° + 6° = 22°).

5. THE PROTRACTOR.

a. **DESCRIPTION.** A protractor is basically a ruler for measuring angles. It may be circular, semicircular, square, or rectangular. Regardless of its shape, the protractor will consist of an index point, a base line, and a scaled outer edge (fig 13-29). The scaled edge has two sets of numbers: 0 to 180, representing the right side of a circle, and 180 to 360 representing the left side of a circle. As a result, by rotating a semicircular or rectangular protractor it can be made to represent a complete circle. It is important to remember that if the outer edge of such a protractor is to the right, the azimuth is read or plotted using readings between 0° to 180°. If the outer edge is to the left, the values of the readings will be between 180° to 360°.

b. **MEASURING A GRID AZIMUTH** (map direction). To determine the direction from one point to another on the map, you first draw a straight line through the two points, making sure that the line is long enough (3 to 4 inches) to extend beyond the outer edge of the protractor. Then you position your protractor on the map so that the index point is on the starting point and the protractor
baseline (0° line) is exactly parallel to the nearest vertical grid line on the map. Then you read the grid azimuth at the point where the line you drew between the two points crosses the protractor scale. For example, in figure 13-29 the line between the points A and B crosses the protractor scale at 40° mark; therefore, the grid azimuth from point A to point B is 40°.

**NOTE:** it is essential that the protractor straightedge be exactly parallel to a vertical grid line. Even a slight variation from parallel will result in a measurement error of several degrees. It is often difficult to achieve this parallel alignment by visual inspection. Therefore, the following expedient method is suggested for greater accuracy; extend the line between the two points (such as C and D in figure 13-30), until it intersects the nearest vertical grid line. Then place the index arrow exactly at the point of intersection and align the protractor straightedge exactly on the grid line.

![Fig 13-29. Protractor.](image)

![Fig 13-30. Locating grid azimuth with protractor.](image)

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c. PLOTTING AN AZIMUTH WITH THE PROTRACTOR. To plot a grid azimuth from a certain point on a map, place the protractor index at the point and rotate the protractor until the base line exactly parallels the nearest north-south grid line. Make a tick mark on the map at the point indicated by the desired azimuth on the protractor. Remove the protractor and use some form of straightedge to draw a line from the starting point to the tick mark. Figure 13-30 shows a grid azimuth of 215° plotted from point C to point D.

6. SETTING MAGNETIC AZIMUTHS.

a. Setting magnetic azimuths onto the lensatic compass can be accomplished by two methods. The first method is commonly referred to as the "day" method but can be accomplished any time as long as there is sufficient light. With the day method, first rotate the compass until the desired azimuth is under the black index line; then turn the bezel ring until the luminous line is directly over the north arrow. Once this is done, follow a line formed by the black index line and the sighting wire in the compass cover, ensuring that the luminous line remains directly over the north arrow (Use figure 13-31 to clarify the names of the compass components).
b. The second method of setting a magnetic azimuth on the lensatic compass is commonly referred to as the "night" method, as no light is required. Around the base of the bezel ring is a series of 120 notches. On the forward edge of the body of the compass is a bezel detent spring with its tip seated in one of the notches (fig 13-31). As the bezel ring is turned, the spring moves notch to notch producing a click. Each click of the bezel ring is equal to 3° of change in direction. To set an azimuth of 51° onto the lensatic compass at night:

1. Rotate the bezel ring until the luminous line is over the black index line.

2. Rotate the bezel ring counterclockwise 17 clicks (51°/3° = 17, remember each click equals 3°).

3. Turn the compass until the north arrow is directly under the luminous line. The azimuth is now set; that is, the 51° azimuth is directly under the black index line, and you would go in the direction indicated by a line formed on the two luminous dots in the compass cover.

E. ROUTE RECORD

1. Using the skills you have learned, you can now complete a route record to be used during navigation. First you should make sure that the "legs" of the routes are extended long enough to be measured with the protractor (fig 13-32). For the recording of this route record, a G-M angle of 6° will be used. The figure is drawn so that the 1:25,000 map scale on the protractor may be used to locate features within the grid square.
2. Now that the starting point, checkpoints, objective, and legs of your route have been established on the map, it is a simple matter to use the skills that you have already learned to get the information needed for a route record (fig 13-33).

<table>
<thead>
<tr>
<th>FROM</th>
<th>TO</th>
<th>MAGNETIC AZIMUTH</th>
<th>DISTANCE (480)</th>
<th>REMARKS</th>
</tr>
</thead>
<tbody>
<tr>
<td>SP(614313)</td>
<td>CP(614318)</td>
<td>353°</td>
<td>400M</td>
<td>BRIDGE</td>
</tr>
</tbody>
</table>

Fig 13-33. Route record format.

a. For each leg of the route to be navigated, you should record the location of the point you are starting from and the location of the point to which you will be proceeding, in this case, from the starting point (grid coordinates 614313), to checkpoint 1 (grid coordinates 614318). Next you will need to find the magnetic azimuth of the leg, in this case 353°. This magnetic azimuth is arrived at by first determining the grid azimuth, in this case 359°, then using the G-M angle of the declination diagram.
from figure 13-32 which is 6°, convert the grid azimuth to a magnetic azimuth. Remember the rule Left Add and Right Subtract (LARS). In this case, you would subtract the G-M angle from the grid azimuth as the magnetic azimuth line is shown to the right of the grid north-line. Next, using a straightedge and the graphic scale in figure 13-32, measure the map distance between the starting point and checkpoint 1. This would be 400 meters. Record this on the route record, then figure using 120 paces to each 100 meters, and record the number of paces required in parentheses immediately above the route distance. Then finally under remarks, record a brief description of the feature you will be going to for that leg of the march (fig 13-34).

b. Now that you have been given a description of how to record a route record, use the protractor and figure 13-32 to complete a route record. It should match the route record shown in figure 13-34 when completed.

<table>
<thead>
<tr>
<th>FROM</th>
<th>TO</th>
<th>MAGNETIC AZIMUTH</th>
<th>DISTANCE</th>
<th>REMARKS</th>
</tr>
</thead>
<tbody>
<tr>
<td>SP (614313)</td>
<td>CP1 (614318)</td>
<td>353°</td>
<td>(480)</td>
<td>BRIDGE</td>
</tr>
<tr>
<td>CP1 (614318)</td>
<td>CP2 (619321)</td>
<td>51°</td>
<td>(720)</td>
<td>STREAM JUNCTION</td>
</tr>
<tr>
<td>CP2 (619321)</td>
<td>OBJ (627326)</td>
<td>51°</td>
<td>(190)</td>
<td>CROSS STREAM AFTER 425m</td>
</tr>
</tbody>
</table>

**Fig 13-34. Completed route record.**

**G. LENSTATIC COMPASS**

1. Success or failure of land navigation by map and compass will depend largely on your ability to determine
from your map the best routes to follow, to plot these routes, and, during actual movement, to follow your desired azimuth with the aid of the lensatic compass.

2. The center hold technique of using the lensatic compass should be used while navigating (fig 13-35). It is easier to use during navigation and more accurate than the compass to eye method. The center hold method can also be used during the day and at night. The center hold method is applied in the following manner:

a. You need not remove your helmet. If armed with a rifle, it should be slung well back on your shoulder.
All metal objects such as grenades, magazines, etc. should be removed from the front of your body.

b. Open the compass completely. The cover and eyepiece should be completely raised so that it will not obstruct your view of the dial and so that the dial can rotate freely.

c. Hold the compass level in both hands at a point midway between your chin and your belt; then lock your elbows in place so that if a turn must be made, your entire body turns—not just your arms.

d. Holding the compass in this manner, set your compass using the "day" or "night" method as appropriate. If you have correctly set your compass, the desired azimuth will be under the black index line when you have turned the compass so that the north arrow is under the long luminous line.

e. The luminous sighting dots and sighting wire on the compass cover now form a line that points in the direction you want to move. Your body should also be facing in the same direction.

3. When following azimuths during land navigation, steering marks should be used to help stay on course. As you begin your march, sight along the direction you will be going for points that stand out (fig 13-36). A steering mark may be any well defined object in your line of march such as a big tree, big rock, or even another Marine. Steering marks should be selected as the navigation progresses so that you may select the best mark for each leg of the march. Remember when navigating, check your azimuth of march with the compass, select the best steering mark on that azimuth, then head for it.

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Fig 13-36. Selecting and heading for steering mark.

For additional training in this area, references are provided below:

1. FM 21-26 Map Reading
2. TEC Lsn 930-071-0014-F Measuring Distances and Azimuths