MARINE CORPS INSTITUTE
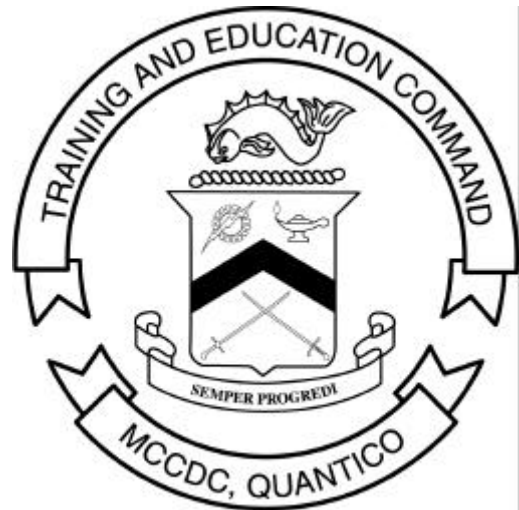
THE MARINE RIFLEMAN: COMBAT SKILLS

MARINE BARRACKS
WASHINGTON, DC

UNITED STATES MARINE CORPS
MARINE CORPS INSTITUTE
912 CHARLES POOR STREET SE
WASHINGTON NAVY YARD DC 20391-5680

From: Director
To: Marine Corps Institute Student

Subj: MCI 0370B, THE MARINE RIFLEMAN: COMBAT SKILLS

1. <u>Purpose</u>. MCI course 0370B, *The Marine Rifleman: Combat Skills*, has been published as a part of the Marine Corps continuing education program to provide the individual rifleman with a basic knowledge of fire and movement, defense, cover, and concealment, communications, and security and intelligence.

2. <u>Scope</u>. MCI course 0370B, *The Marine Rifleman: Combat Skills*, is designed to provide the skills and knowledge to help the basic rifleman while on patrol or in the defense. This course provides basic communication skills.

3. <u>Applicability</u>. This course is intended for instructional purposes only. It is designed for use by Marines in the ranks of private through sergeant in MOS 03XX.

4. <u>Recommendations</u>. Comments and recommendations on the contents of the course are invited and will aid in subsequent course revisions. Please complete the course evaluation questionnaire at the end of the final examination. Return the questionnaire and the examination booklet to your proctor.

                              T.M. FRANUS
                              By direction

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Student Information

Number and Title	MCI 0370B THE MARINE RIFLEMAN: COMBAT SKILLS
Study Hours	12
Course Materials	Text
Review Agency	The Basic School, Quantico, Virginia School of Infantry, Camp Lejeune, North Carolina School of Infantry, Camp Pendleton, California
Reserve Retirement Credits (RRC)	4
ACE	Not applicable to civilian training/education
Assistance	For administrative assistance, have your training officer or NCO log on to the MCI home page at www.mci.usmc.mil. Marines CONUS may call toll free 1-800-MCI-USMC. Marines worldwide may call commercial (202) 685-7596 or DSN 325-7596.

Study Guide

Congratulations Congratulations on your enrollment in a distance education course from the Distance Learning and Technologies Department (DLTD) of the Marine Corps Institute (MCI). Since 1920, the Marine Corps Institute has been helping tens of thousands of hard-charging Marines, like you, improve their technical job performance skills through distance learning. By enrolling in this course, you have shown a desire to improve the skills you have and master new skills to enhance your job performance. The distance learning course you have chosen, MCI 0370B, *The Marine Rifleman: Combat Skills,* provides the individual rifleman with basic instruction on fire and movement, defense, cover and concealment, communications, and security and intelligence. Designed for Pvt-Sgt in all MOSs.

Your Personal Characteristics

- **YOU ARE PROPERLY MOTIVATED.** You have made a positive decision to get training on your own. Self-motivation is perhaps the most important force in learning or achieving anything. Doing whatever is necessary to learn is motivation. You have it!

- **YOU SEEK TO IMPROVE YOURSELF.** You are enrolled to improve those skills you already possess, and to learn new skills. When you improve yourself, you improve the Corps!

- **YOU HAVE THE INITIATIVE TO ACT.** By acting on your own, you have shown you are a self-starter, willing to reach out for opportunities to learn and grow.

- **YOU ACCEPT CHALLENGES.** You have self-confidence and believe in your ability to acquire knowledge and skills. You have the self-confidence to set goals and the ability to achieve them, enabling you to meet every challenge.

- **YOU ARE ABLE TO SET AND ACCOMPLISH PRACTICAL GOALS.** You are willing to commit time, effort, and the resources necessary to set and accomplish your goals. These professional traits will help you successfully complete this distance learning course.

Study Guide, Continued

Beginning Your Course

Before you actually begin this course of study, read the student information page. If you find any course materials missing, notify your training officer or training NCO. If you have all the required materials, you are ready to begin.

To begin your course of study, familiarize yourself with the structure of the course text. One way to do this is to read the table of contents. Notice the table of contents covers specific areas of study and the order in which they are presented. You will find the text divided into several study units. Each study unit is comprised of two or more lessons, lesson exercises, and finally, a study unit exercise.

Leafing Through the Text

Leaf through the text and look at the course. Read a few lesson exercise questions to get an idea of the type of material in the course. If the course has additional study aids, such as a handbook or plotting board, familiarize yourself with them.

The First Study Unit

Turn to the first page of study unit 1. On this page, you will find an introduction to the study unit and generally the first study unit lesson. Study unit lessons contain learning objectives, lesson text, and exercises.

Reading the Learning Objectives

Learning objectives describe in concise terms what the successful learner, you, will be able to do as a result of mastering the content of the lesson text. Read the objectives for each lesson and then read the lesson text. As you read the lesson text, make notes on the points you feel are important.

Completing the Exercises

To determine your mastery of the learning objectives and text, complete the exercises developed for you. Exercises are located at the end of each lesson, and at the end of each study unit. Without referring to the text, complete the exercise questions and then check your responses against those provided.

Study Guide, Continued

Continuing to March

Continue on to the next lesson, repeating the above process until you have completed all lessons in the study unit. Follow the same procedures for each study unit in the course.

Preparing for the Final Exam

To prepare for your final exam, you must review what you learned in the course. The following suggestions will help make the review interesting and challenging.

- **CHALLENGE YOURSELF.** Try to recall the entire learning sequence without referring to the text. Can you do it? Now look back at the text to see if you have left anything out. This review should be interesting. Undoubtedly, you'll find you were not able to recall everything. But with a little effort, you'll be able to recall a great deal of the information.

- **USE UNUSED MINUTES.** Use your spare moments to review. Read your notes or a part of a study unit, rework exercise items, review again; you can do many of these things during the unused minutes of every day.

- **APPLY WHAT YOU HAVE LEARNED.** It is always best to use the skill or knowledge you've learned as soon as possible. If it isn't possible to actually use the skill or knowledge, at least try to imagine a situation in which you would apply this learning. For example make up and solve your own problems. Or, better still, make up and solve problems that use most of the elements of a study unit.

- **USE THE "SHAKEDOWN CRUISE" TECHNIQUE.** Ask another Marine to lend a hand by asking you questions about the course. Choose a particular study unit and let your buddy "fire away." This technique can be interesting and challenging for both of you!

- **MAKE REVIEWS FUN AND BENEFICIAL.** Reviews are good habits that enhance learning. They don't have to be long and tedious. In fact, some learners find short reviews conducted more often prove more beneficial.

Study Guide, Continued

Tackling the Final Exam

When you have completed your study of the course material and are confident with the results attained on your study unit exercises, take the sealed envelope marked **"FINAL EXAM"** to your unit training NCO or training officer. Your training NCO or officer will administer the final examination and return the examination and the answer sheet to MCI for grading. Before taking your final examination, read the directions on the DP-37 answer sheet carefully.

Completing Your Course

The sooner you complete your course, the sooner you can better yourself by applying what you've learned! HOWEVER--you do have 2 years from the date of enrollment to complete this course.

Graduating!

As a graduate of this distance education course and as a dedicated Marine, your job performance skills will improve, benefiting you, your unit, and the Marine Corps.

Semper Fidelis!

STUDY UNIT 1

FIRE AND MOVEMENT

STUDY UNIT OBJECTIVE: WITHOUT THE AID OF REFERENCES, YOU
WILL BE ABLE TO IDENTIFY FORMATIONS, INDIVIDUAL
MOVEMENT WITHIN CHANGING FORMATIONS, THE CONSTRUCTION
AND IMPROVEMENT OF FIGHTING POSITIONS, AND THE USES OF
FIRE DISCIPLINE AND FIRE CONTROL

* *

MISSION

The mission of the rifle squad is to locate, close with, and destroy the enemy by fire and
maneuver, or repel the enemy's assault by fire and close combat.

The squad is composed of 13 men (fig 1-1): one sergeant (squad leader) and three fire
teams of four men each. Each fire team consists of a corporal (fire team leader/grenadier), a
lance corporal (automatic rifleman), and two privates or privates first class (assistant
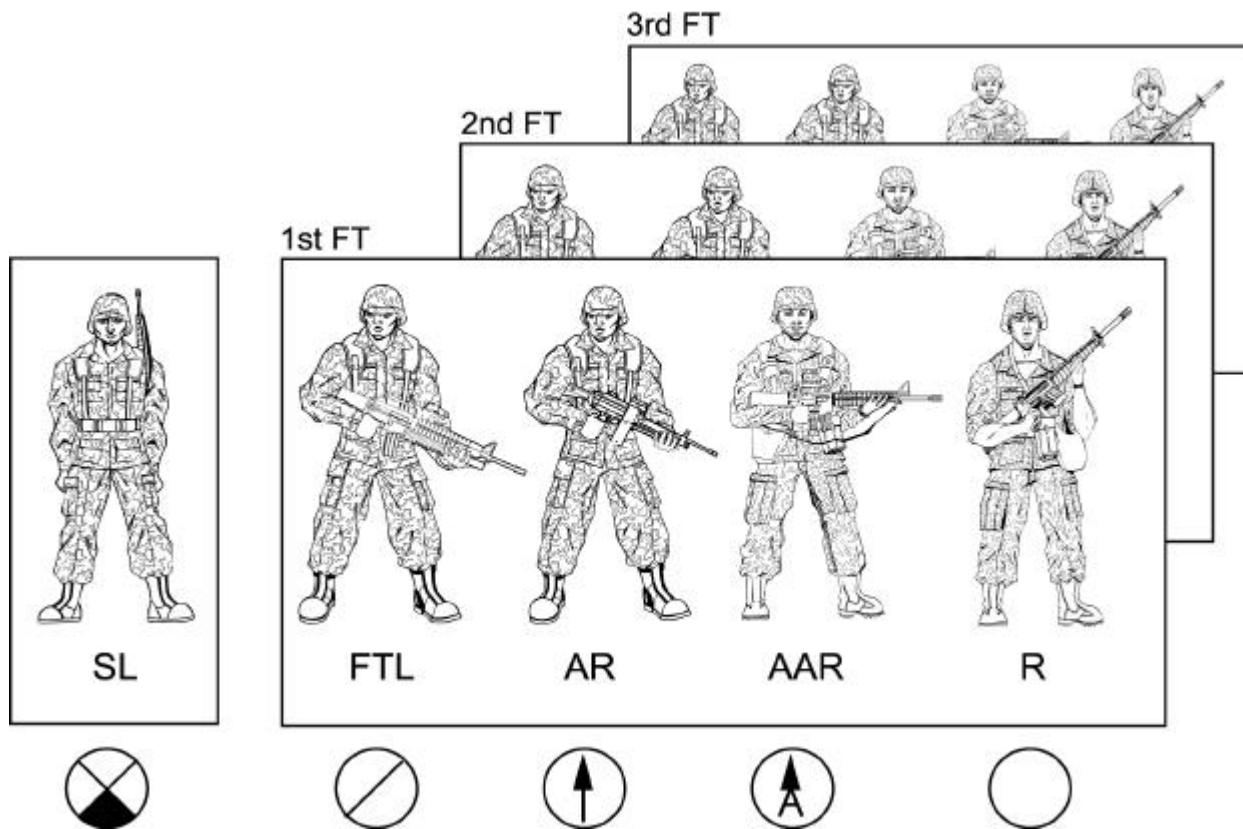automatic rifleman and rifleman).

Fig 1-1. Members, Marine Rifle Squad.

DUTIES OF INDIVIDUALS

Each member of a fire team must know the duties of the other team members. The fire team leader and the squad leader should be able to assume the duties of their next superior.

Squad leader. The squad leader carries out the orders issued by the platoon commander. The squad leader is responsible for the discipline, appearance, training, control, conduct, and welfare of the squad at all times. Additionally, the squad leader is responsible for the condition, care, and economical use of its weapons and equipment. In combat, the squad leader ensures the squad to use the correct tactical employment, fire discipline, fire control, and maneuver. The squad leader – armed with an M16A2 – takes the best position to carry out the orders of the platoon commander, observe, and control the squad.

Fire team leader. The fire team leader carries out the orders of the squad leader. The fire team leader is responsible for the fire discipline and control of the fire team and for the condition, care, and economical use of its weapons and equipment. In carrying out the orders of the squad leader, the fire team leader takes a position to best observe and control the fire team. Normally, fire team leader is close enough to the squad automatic rifleman to exercise effective control of the fires. In addition to the primary duties as a leader, the fire team leader – armed with an M16A2 – provides timely and accurate support to the fire team. The senior fire team leader in the squad serves as the assistant squad leader.

Automatic rifleman. The automatic rifleman carries the squad automatic weapon (SAW), and carries out the orders of the fire team leader. Additionally, the automatic rifleman is responsible for the effective employment of the automatic weapon and for the condition and care of its weapons and equipment.

Assistant automatic rifleman. The assistant automatic rifleman – armed with an M16A2 – carries additional equipment and ammunition for the SAW. The rifleman's primary mission is to not only remain close enough to the automatic rifleman, but also ensure that additional ammunition is available to assist in target location and engagement. The assistant automatic rifleman is responsible for the condition and care of its weapons and additional equipment for the SAW. The assistant automatic rifleman is prepared to assume the duties of the automatic rifleman.

Rifleman. The rifleman in the fire team carries out the orders of the fire team leader. Trained as a scout, the rifleman is responsible for the condition and care of its weapons and equipment.

Section I. OFFENSE

Work Unit 1-1. FIRE TEAM FORMATIONS

GIVEN FIGURES OF FIRE TEAM WEDGE, COLUMN, ECHELON
(RIGHT/LEFT), AND SKIRMISHERS (RIGHT/LEFT) FORMATIONS,
IDENTIFY EACH FORMATION AND THE MEMBER PLACED AT EACH
POSITION.

* *
Note: Arrows depict direction of movement.

Fire teams and squad combat formation are groupings of individuals and units for efficient
tactical employment. The factors influencing your squad/fire team leader's decision as to the
selection of a particular formation are the mission, terrain, situation, weather, speed, and degree
of flexibility. Combat formations and signals enable the squad/fire team leader to control the
fire and maneuver when moving to and assaulting an enemy position.

Fire Team. Normally, the fire team leader will determine the formation for each unit. A squad
may contain a variety of fire team formations at any one time, and these formations MUST NOT
MASK (block) the fire of the other fire teams. Maintain control between fire teams and
individuals, and exact distance and intervals are secondary. Maintain sight or voice contact
within the fire team and between fire team leaders and squad leaders at all times. The
characteristics of the fire team formations are shown on pages 1-4 through 1-8 (figs 1-2 through
1-5b).

1. Column

    a. Permits rapid, controlled movement
    b. Favors fire and maneuver to the flanks
    c. Vulnerable to fire from the front
    d. Fire to the front is limited
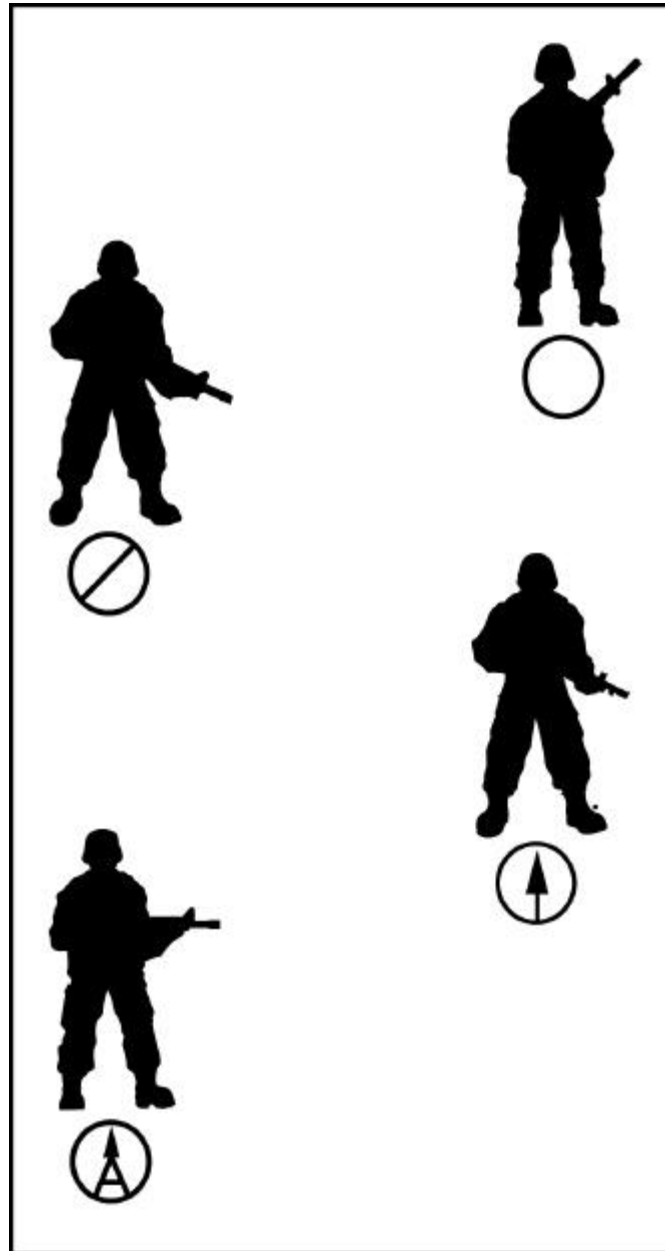   e. Used when speed and control are governing factors such as through woods, fog smoke, and along roads and trails

Fig 1-2. Fire team column.

2. Wedge

    a. Facilitates control
    b. Provides all-round security
    c. Formation is flexible
    d. Fire is adequate in all directions
    e. Used when the enemy situation is uncertain, and terrain and visibility require dispersion

    Note: The fire team leader and the assistant automatic rifleman can place themselves in either position.
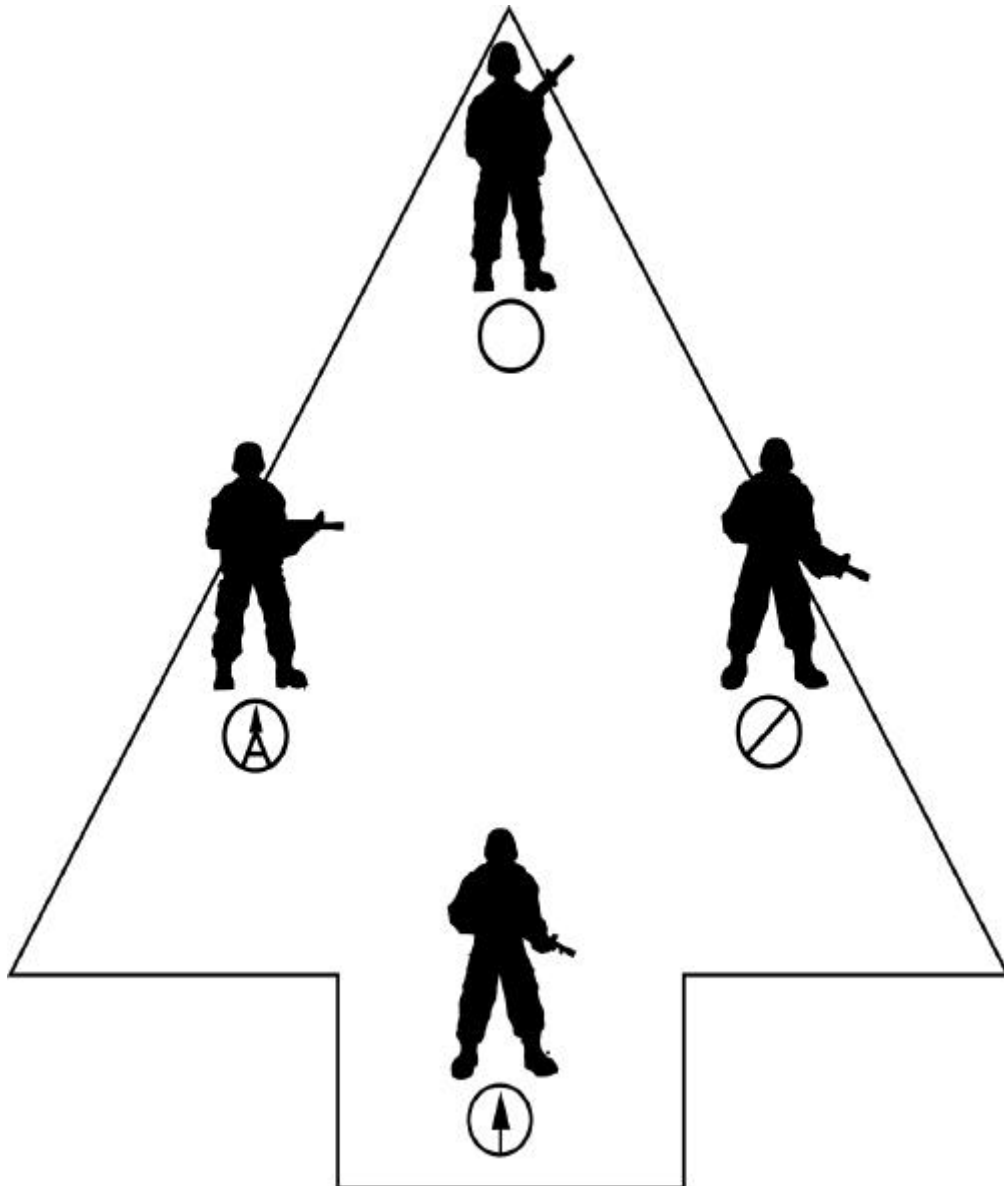
Fig 1-3.   Fire team wedge.

3. <u>Skirmishers (right/left)</u>

   a. Difficult to control
   b. Maximum firepower to the front
   c. Used when the location of the enemy known, during the assault, mopping up, and crossing short open areas
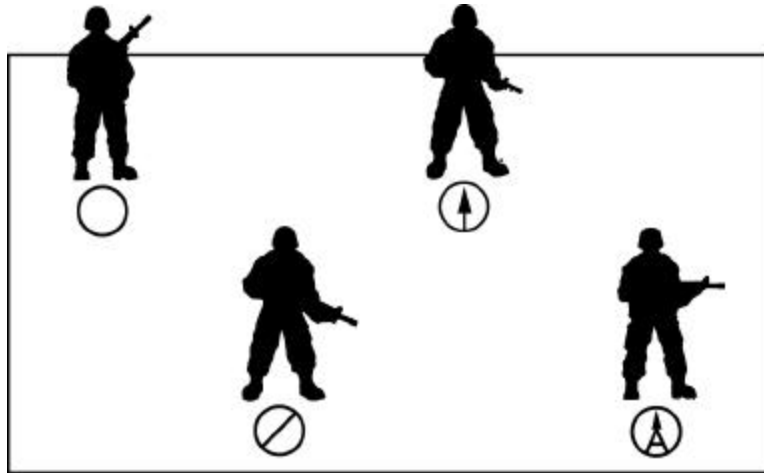
Fig 1-4a. Fire team skirmishers right.
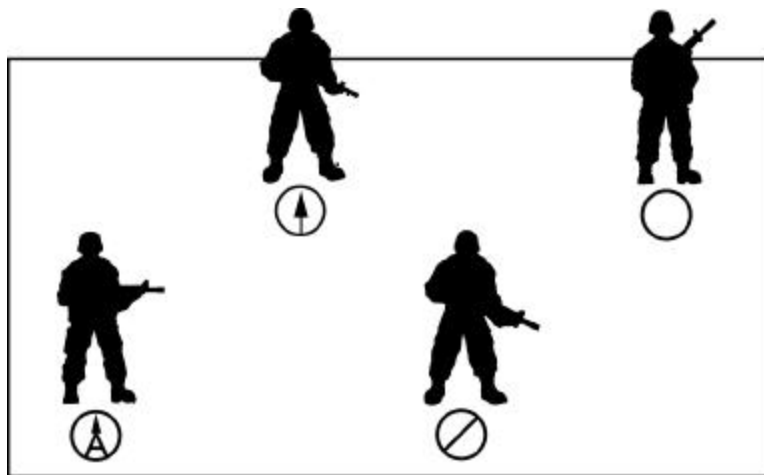
Fig 1-4b. Fire team skirmishers left.

4. Echelon (right/left)

   a. Difficult to control
   b. Movement is slow, especially under conditions of reduced visibility
   c. Provides heavy firepower to the front and echeloned flank
   d. Used to protect an open or exposed flank
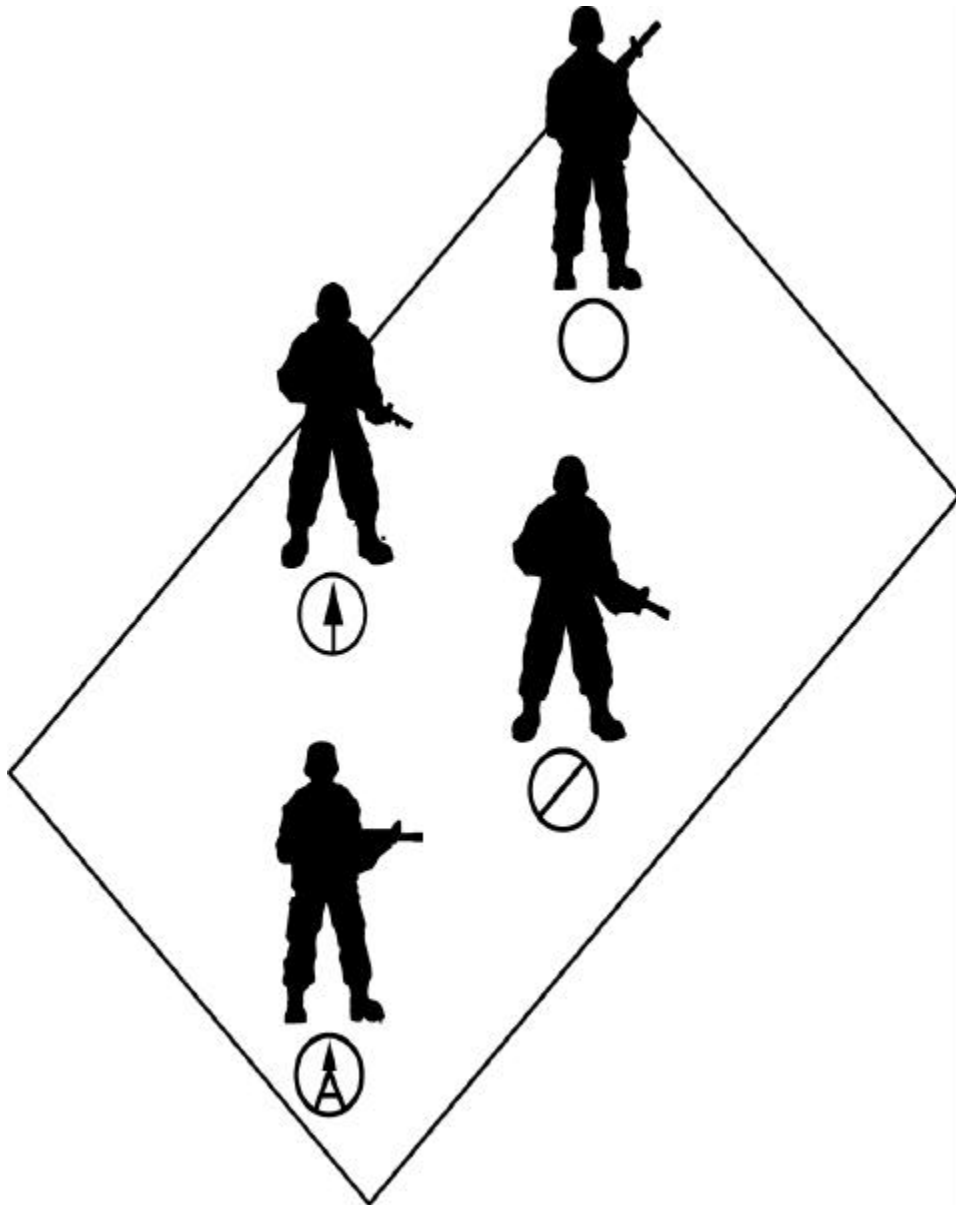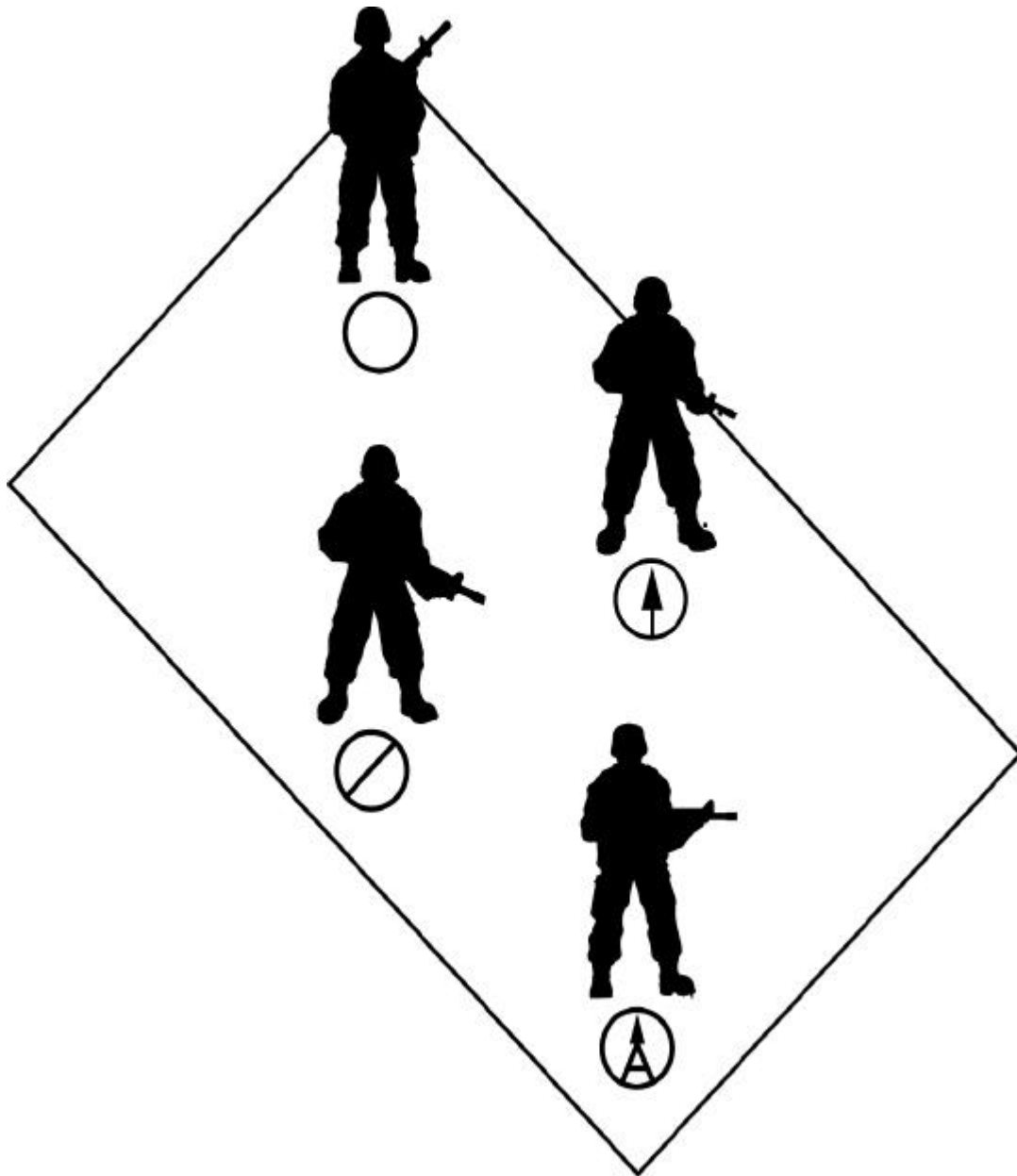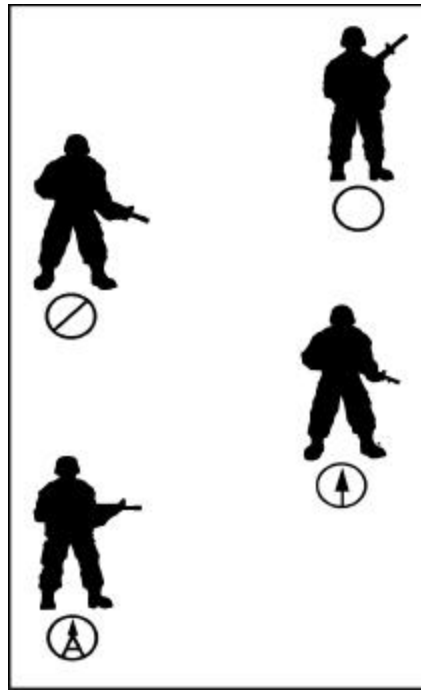
Fig 1-5a. Fire team echelon left.
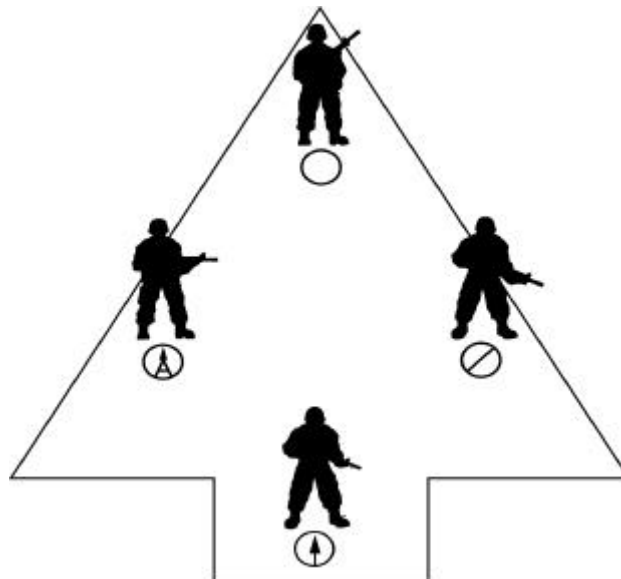
Fig 1-5b. Fire team echelon right.

EXERCISE: Answer the following questions and check your responses against those listed in the figures given for each question.

For each of the following figures, identify the formation and member placed in each position. Arrows indicate direction of movement.
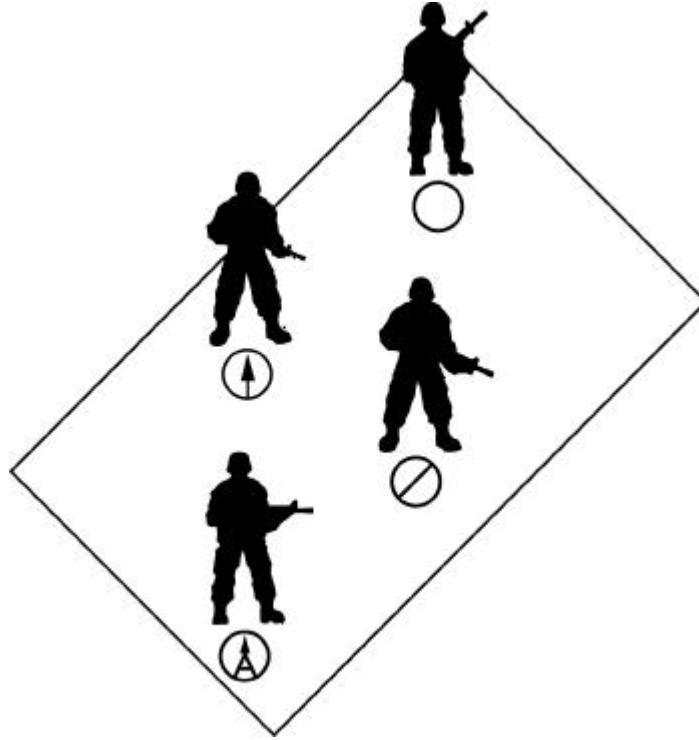
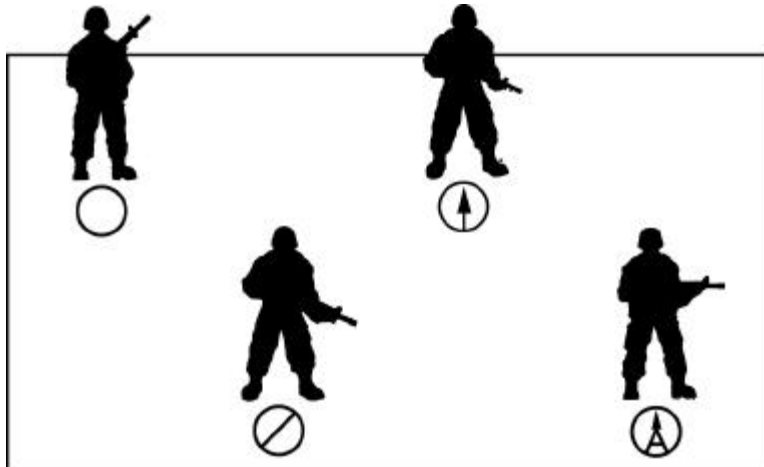1. The formation below is a _____.
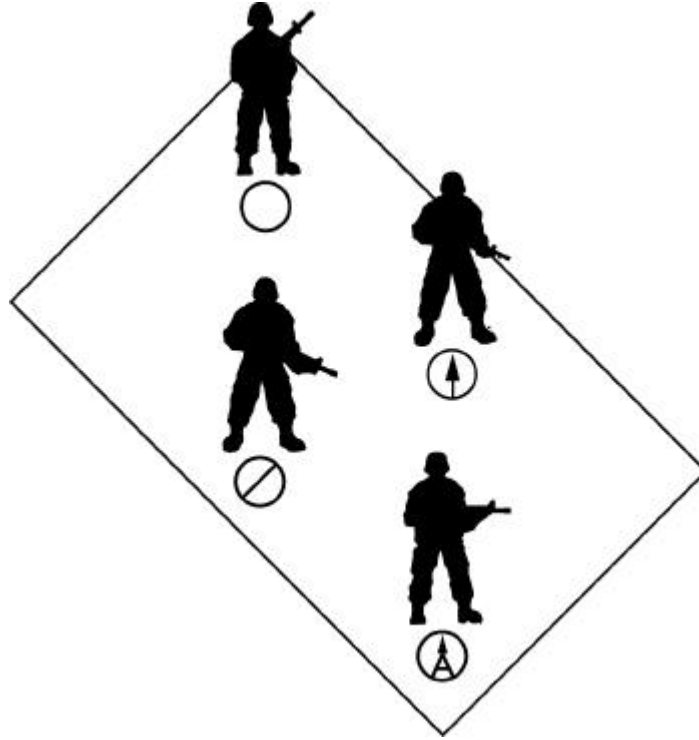

2. The formation below is a _____.
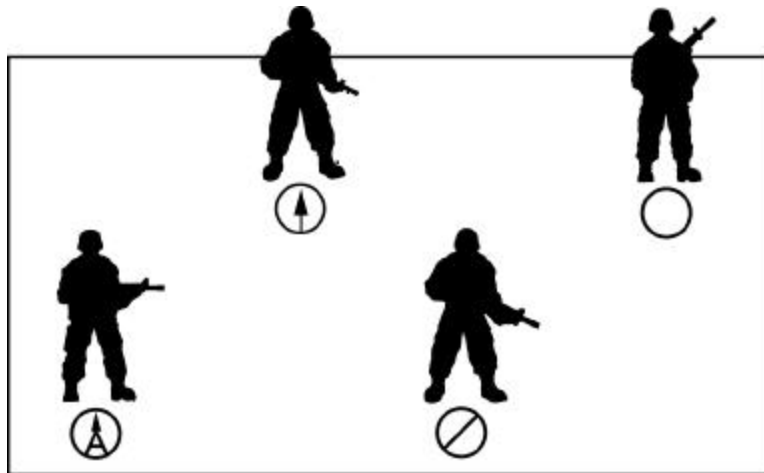
3. The formation below is a _____.

4. The formation below is a _____.

5. The formation below is a _____.

6. The formation below is a _____.

Work Unit 1-2.   MOVEMENT AS A MEMBER OF A FIRE TEAM

GIVEN AN INITIAL FORMATION, INDICATE THE ROUTE OF EACH
MEMBER TO THE PROPER POSITION INTO A NEW FORMATION

* *

Formations may be changed by the squad leader and fire team leaders to reduce casualties from hostile fire, present a less vulnerable target, or get over difficult or exposed terrain. Formation changes in varying or rough terrain are frequent in order to get over manmade and natural obstacles such as rivers, swamps, jungles, woods, and sharp ridges.

The direction of movement for members of the fire team when the leader signals for changes of formation are shown on pages 1-13 through 1-33 (figs 1-6 through 1-26). When the team is to execute a movement, the fire team leader will signal using arms and hands to indicate the squad formation. Remember, the fire team may be in any fire team formation within the squad formation.

The routes followed by individual Marines in changing formations are the most direct routes. Movement is minimized by Marines by simply adjusting their speed or sliding left or right, in order to get to the new position most directly.
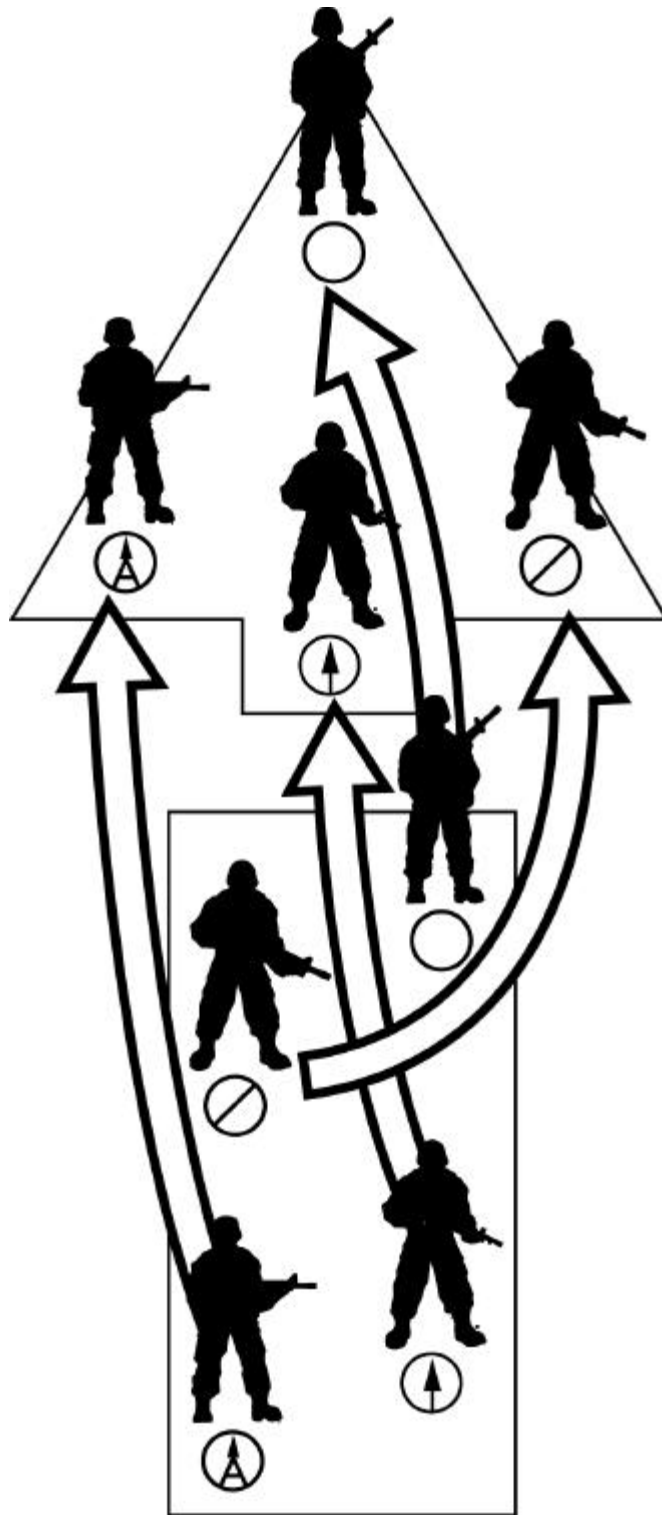
Fig 1-6. Changing formations: Column to wedge.

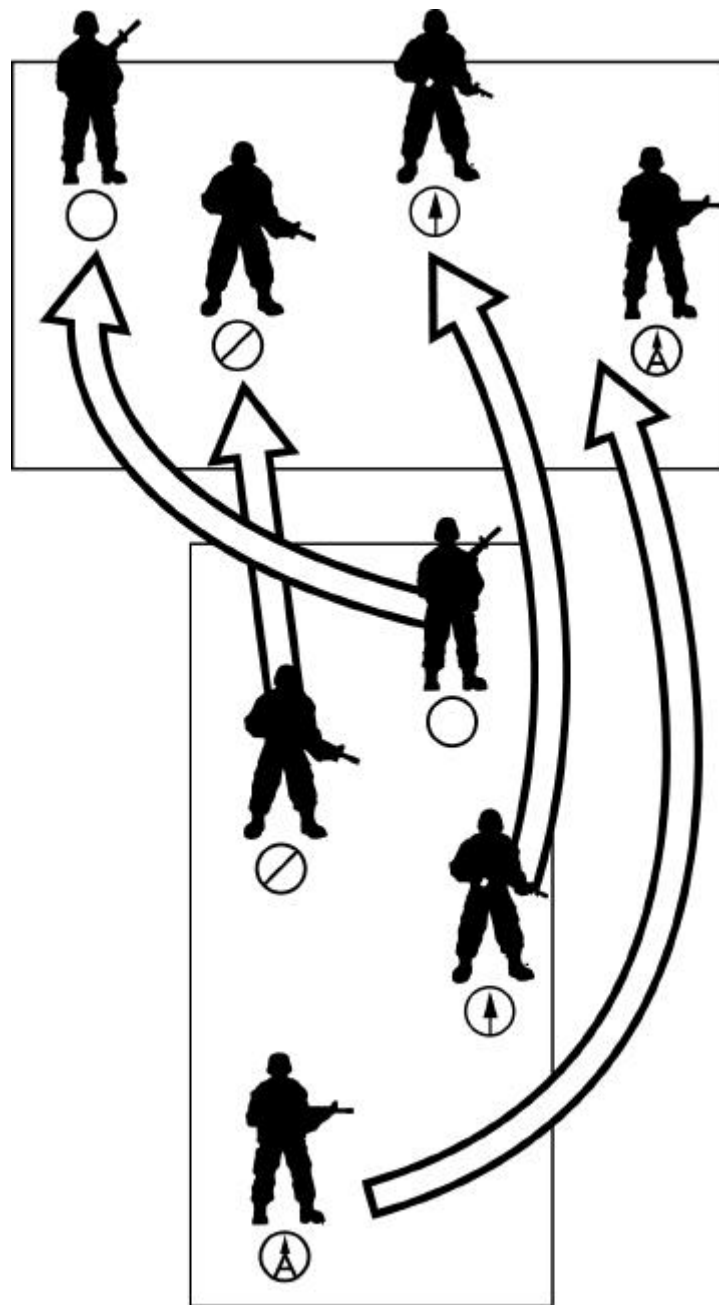Fig 1-7. Changing formations: Column to skirmishers right.

Fig 1-8. Changing formations: Column to skirmishers left.
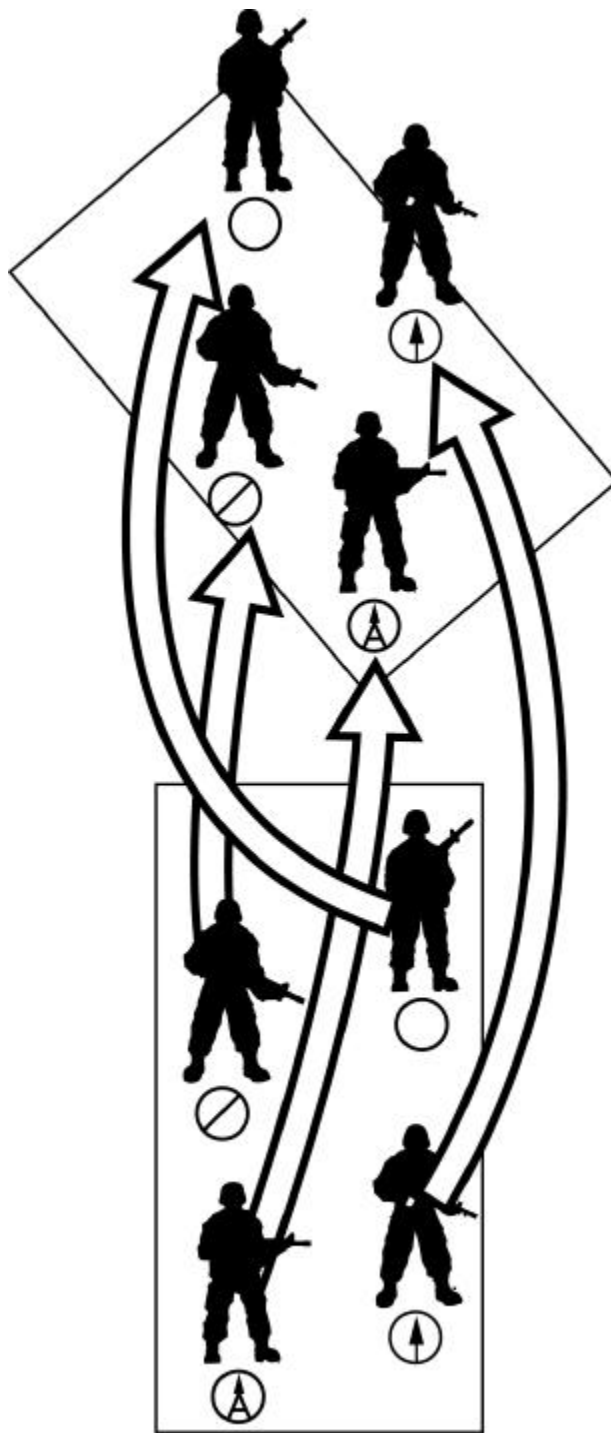
Fig 1-9. Changing formations: Column to echelon right.
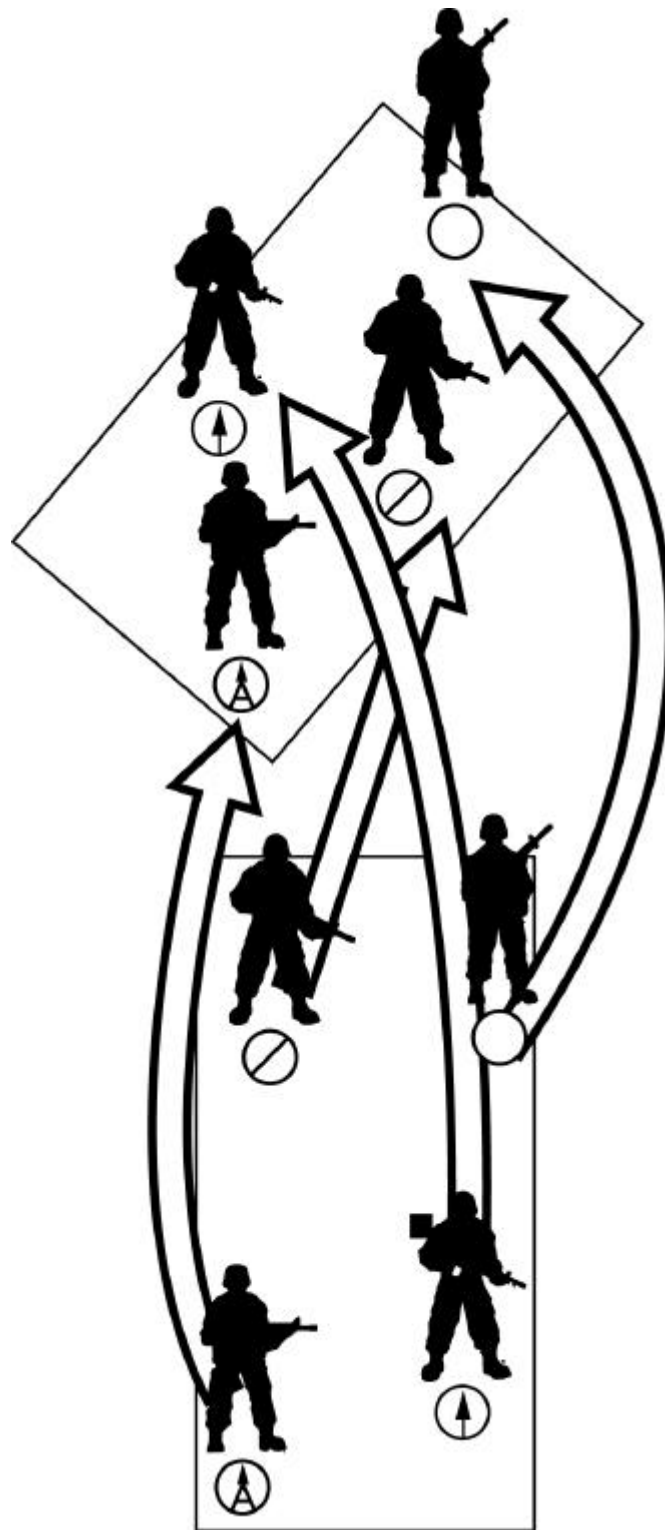
Fig 1-10. Changing formations: Column to echelon left.
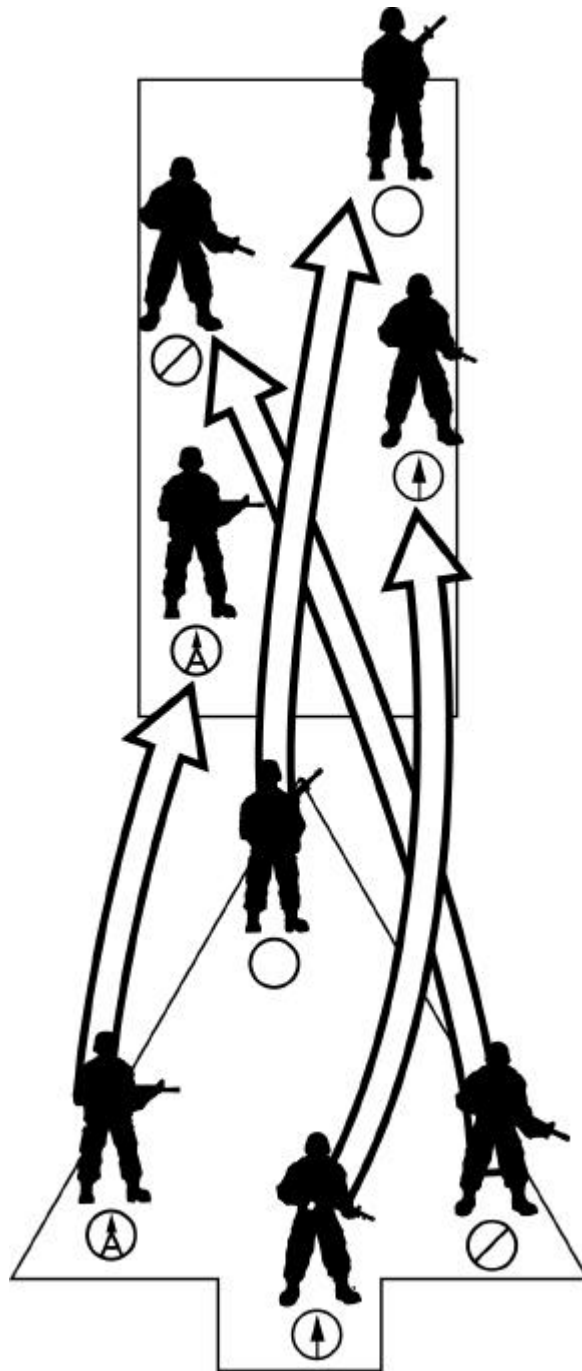
Fig 1-11. Changing formations: Wedge to column.

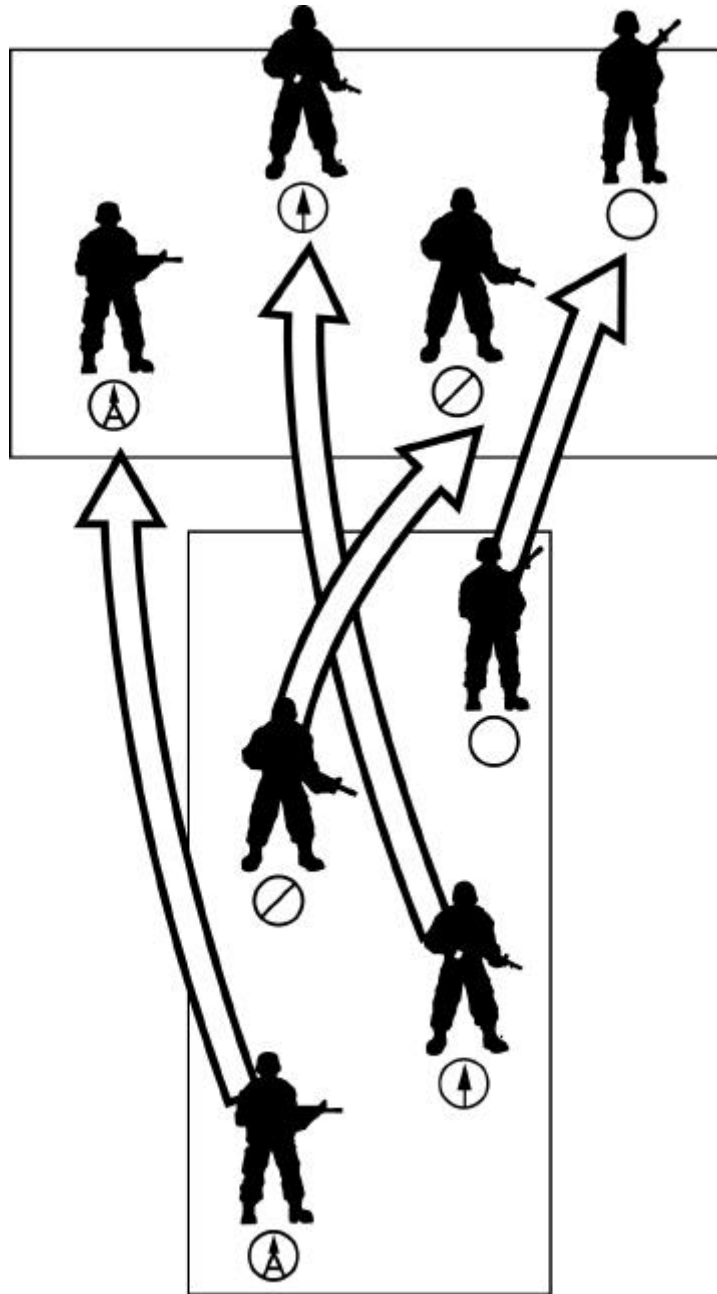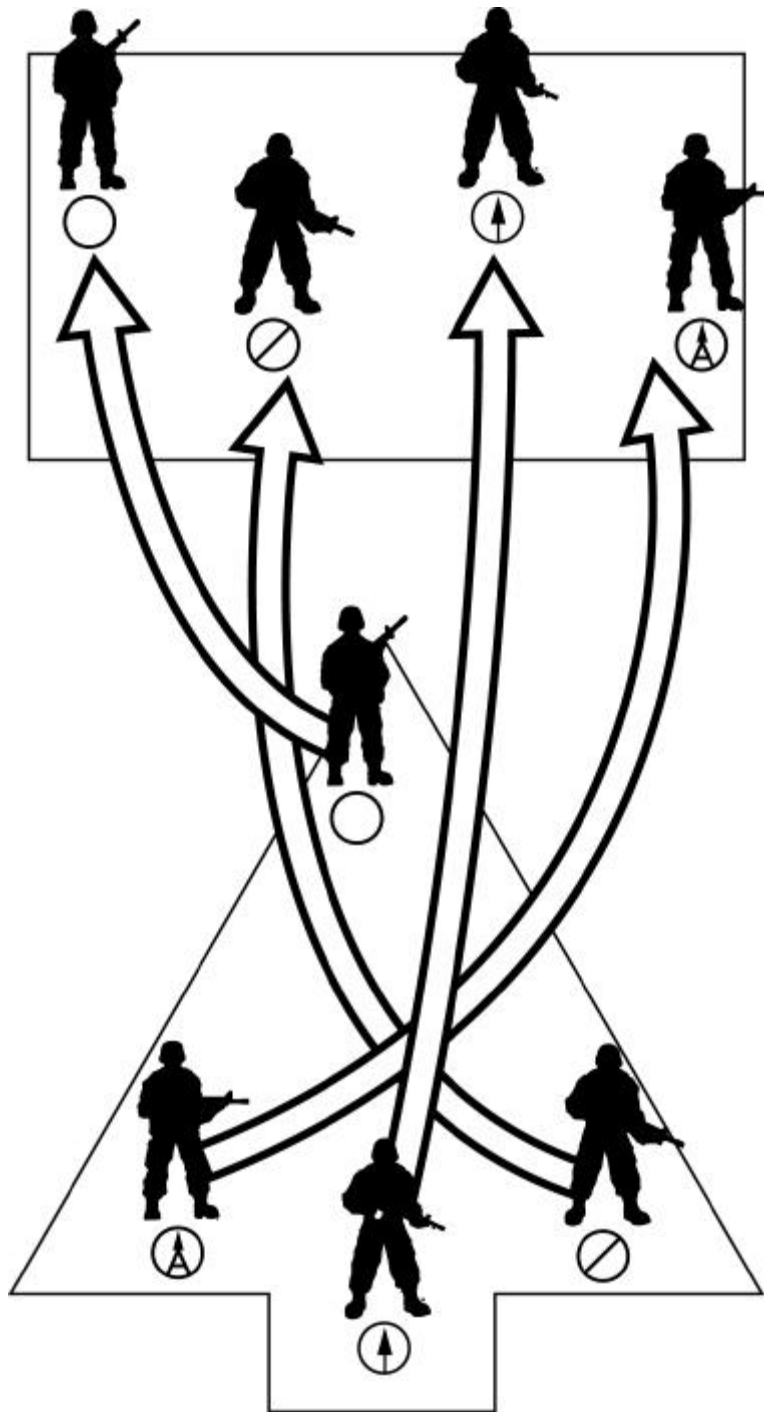Fig 1-12. Changing formations: Wedge to skirmishers right.
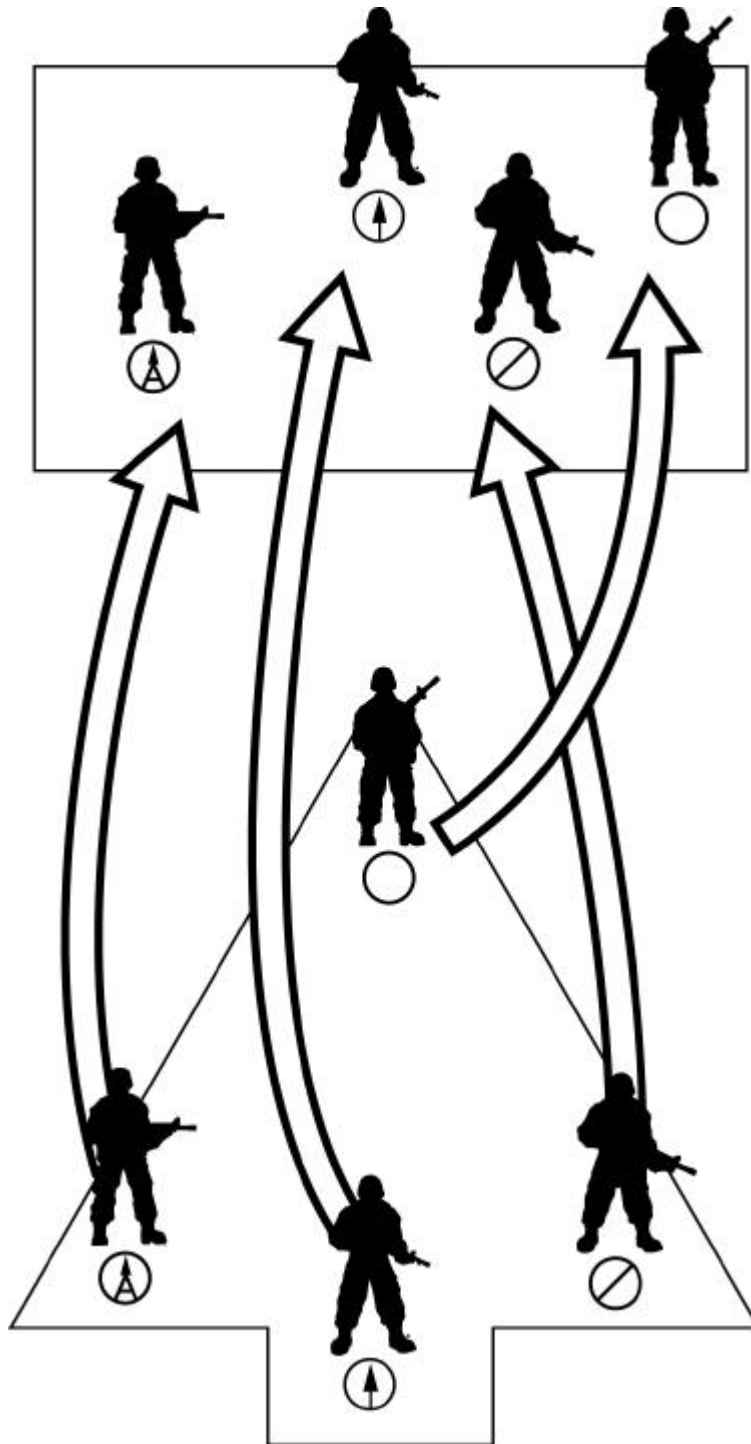
Fig 1-13. Changing formations: Wedge to skirmishers left.
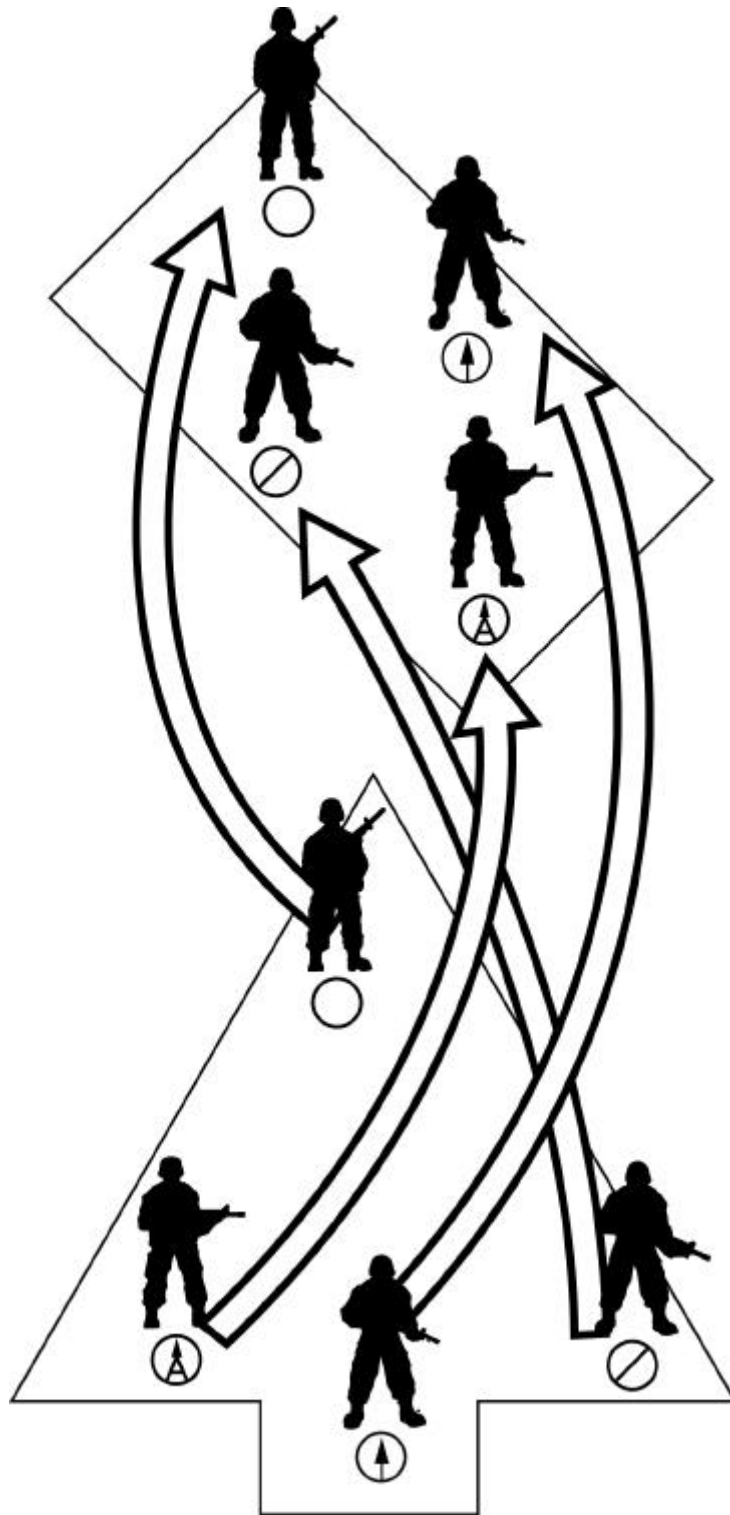
Fig 1-14. Changing formations: Wedge to echelon right.
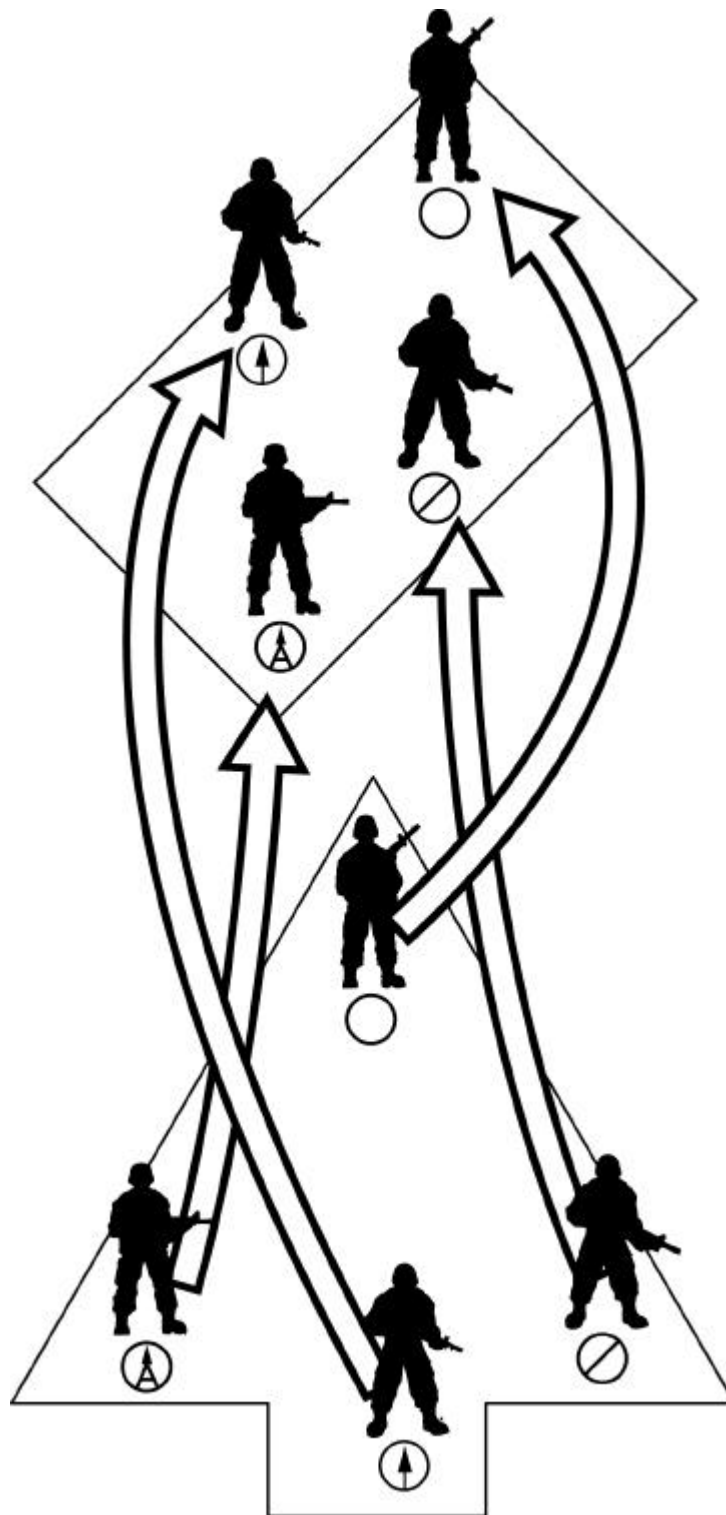
Fig 1-15. Changing formations: Wedge to echelon left.
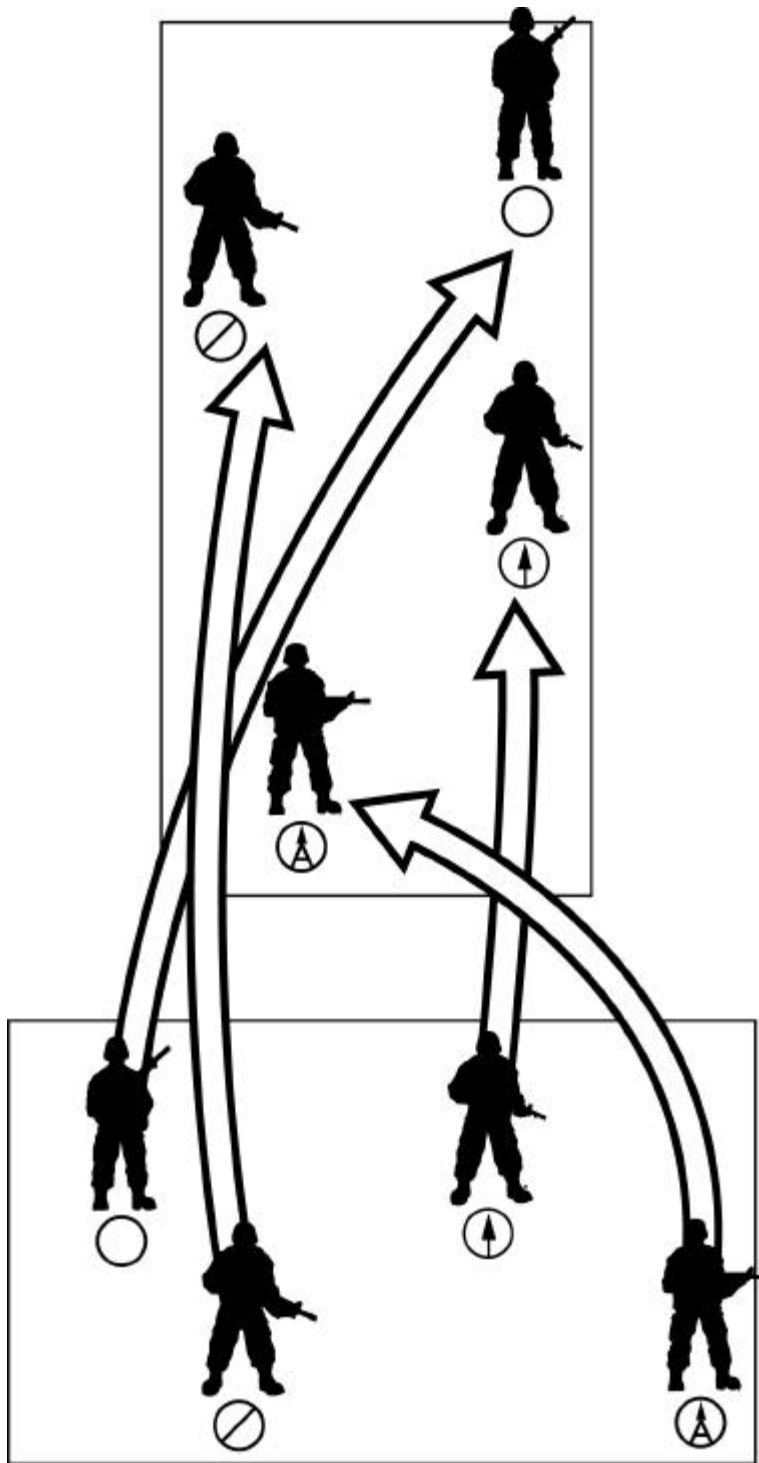
Fig 1-16. Changing formations: Skirmishers right to column.
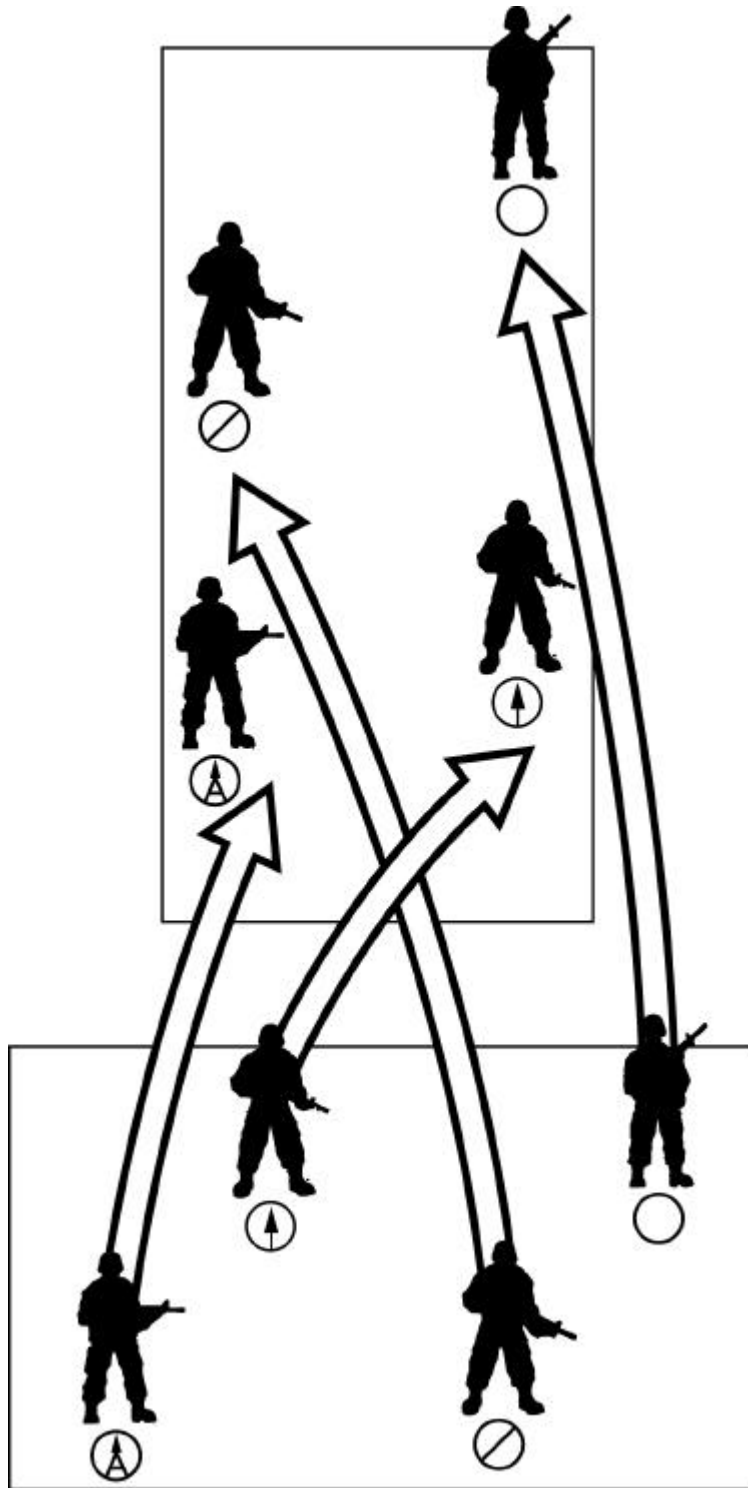
Fig 1-17. Changing formations: Skirmishers left to column.
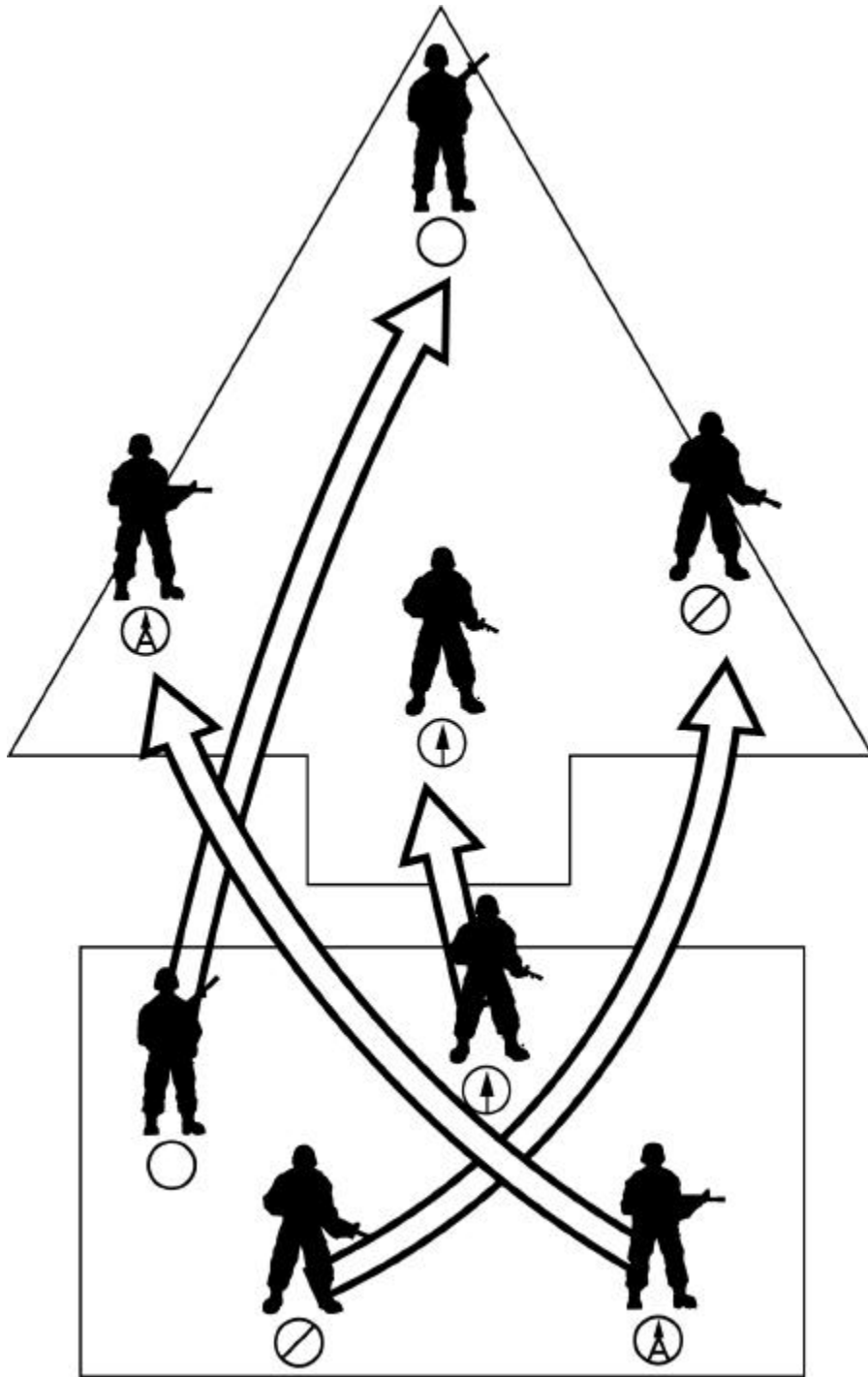
Fig 1-18. Changing formations: Skirmishers right to wedge.
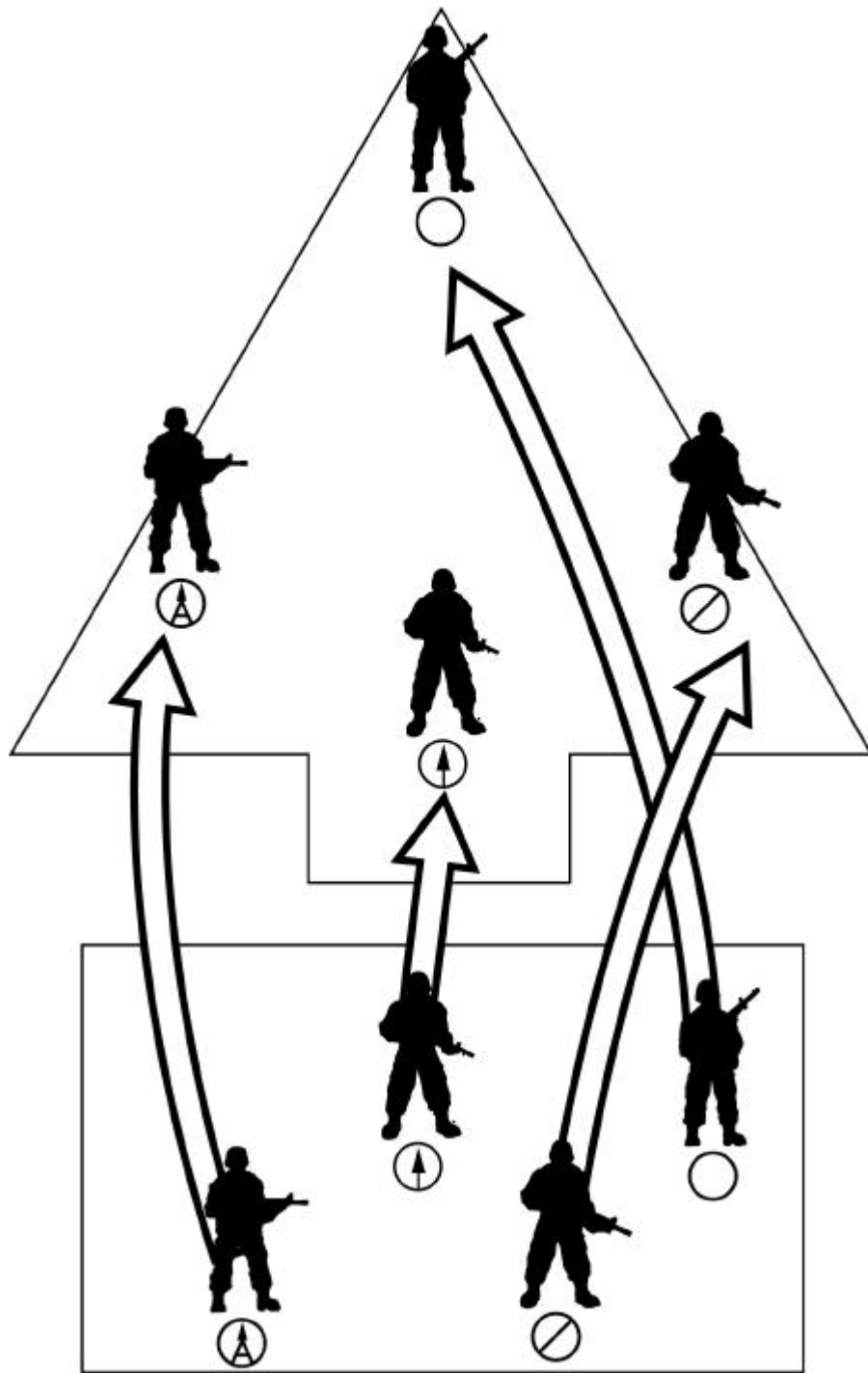
Fig 1-19. Changing formations: Skirmishers left to wedge.
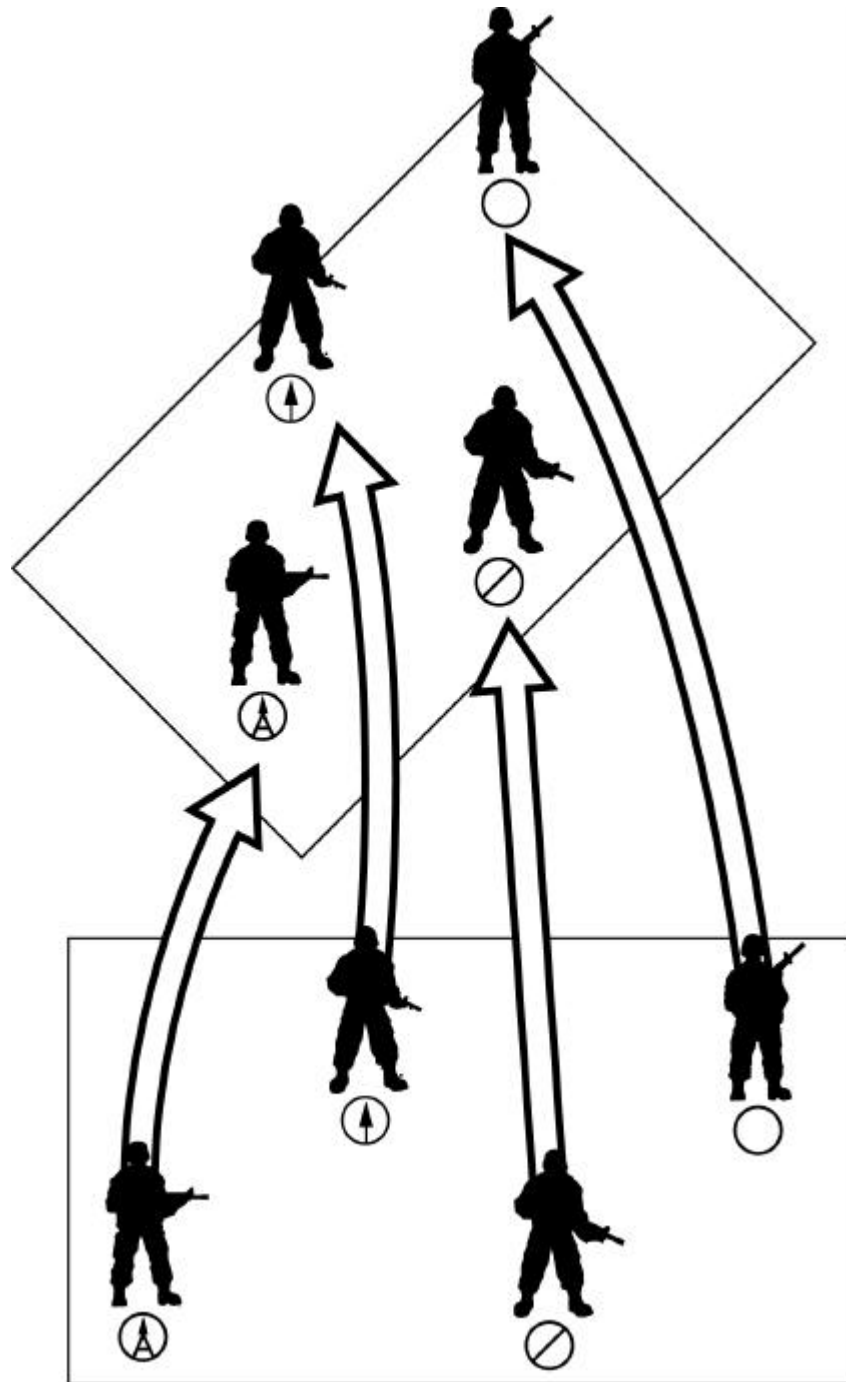
Fig 1-20. Changing formations: Skirmishers left to echelon left.
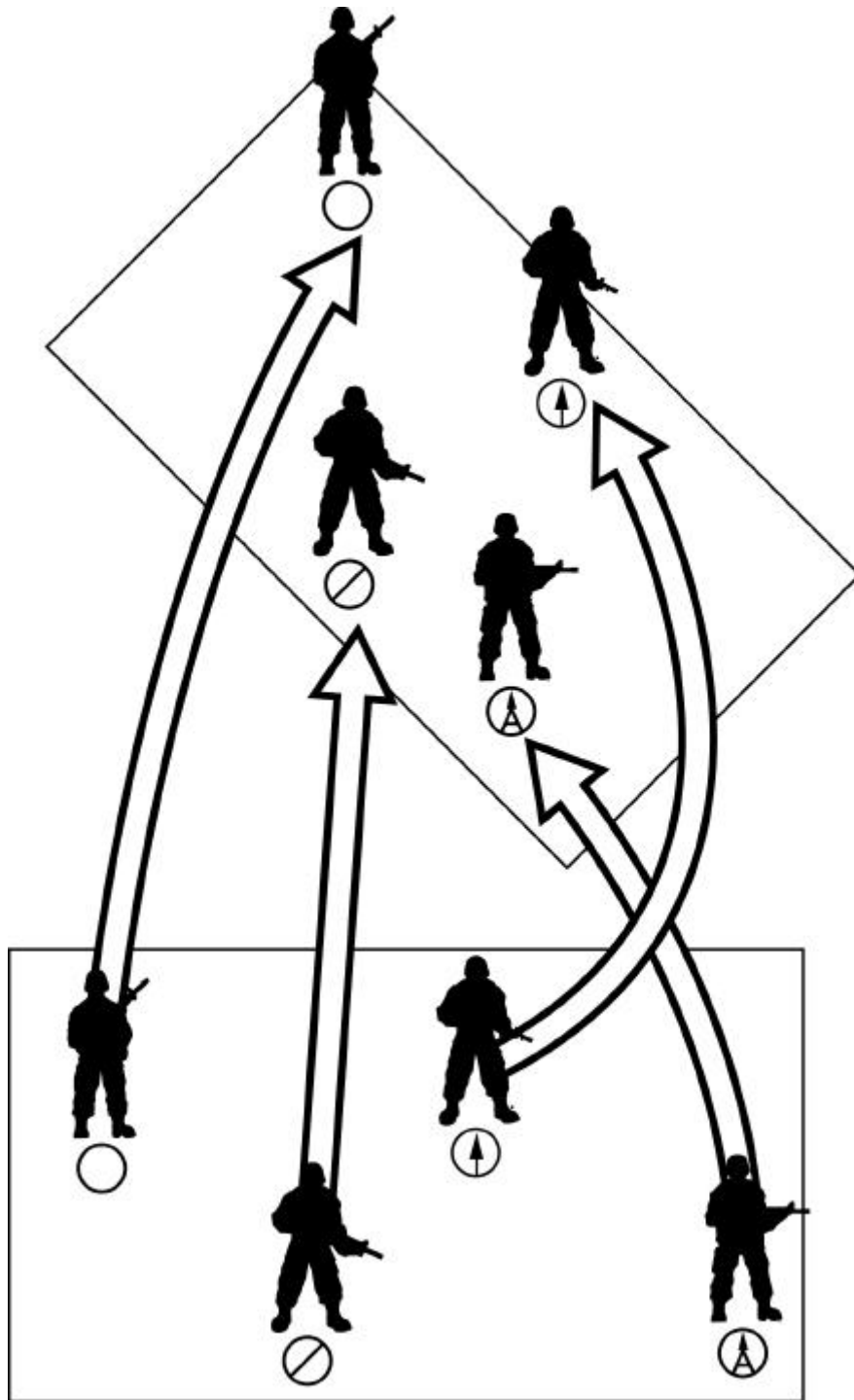
Fig 1-21. Changing formations: Skirmishers right to echelon right.
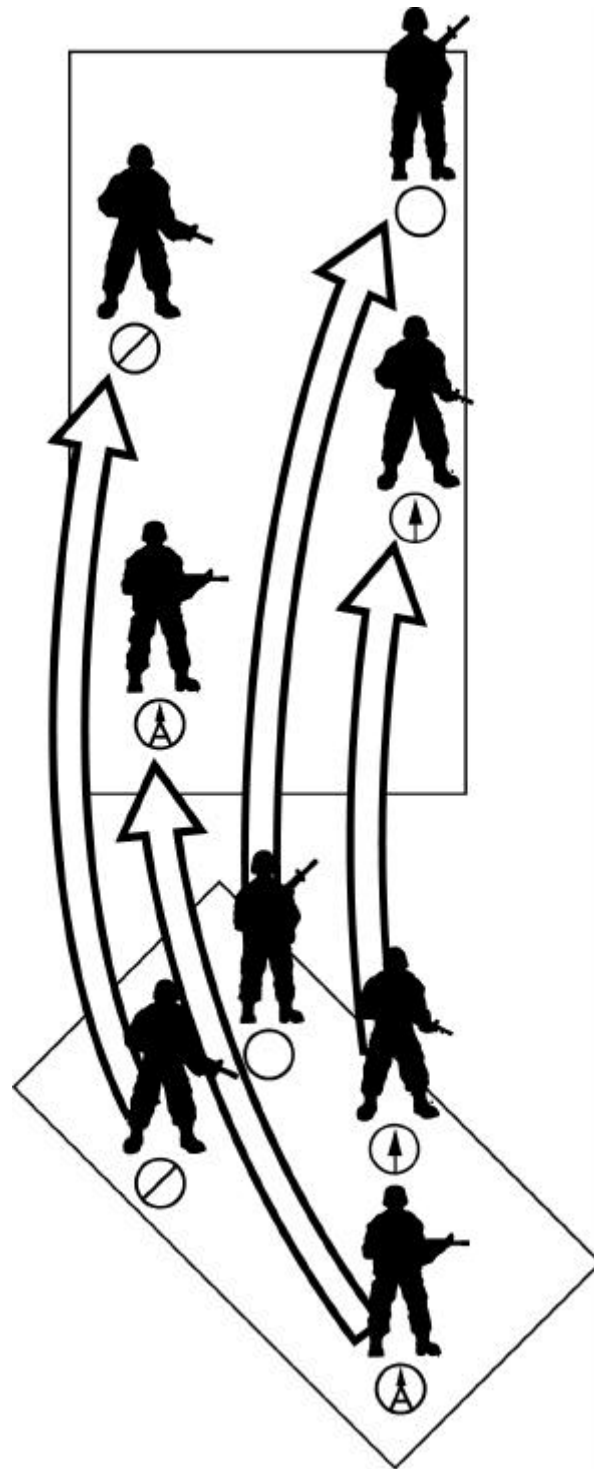
Fig 1-22. Changing formations: Echelon right to column.
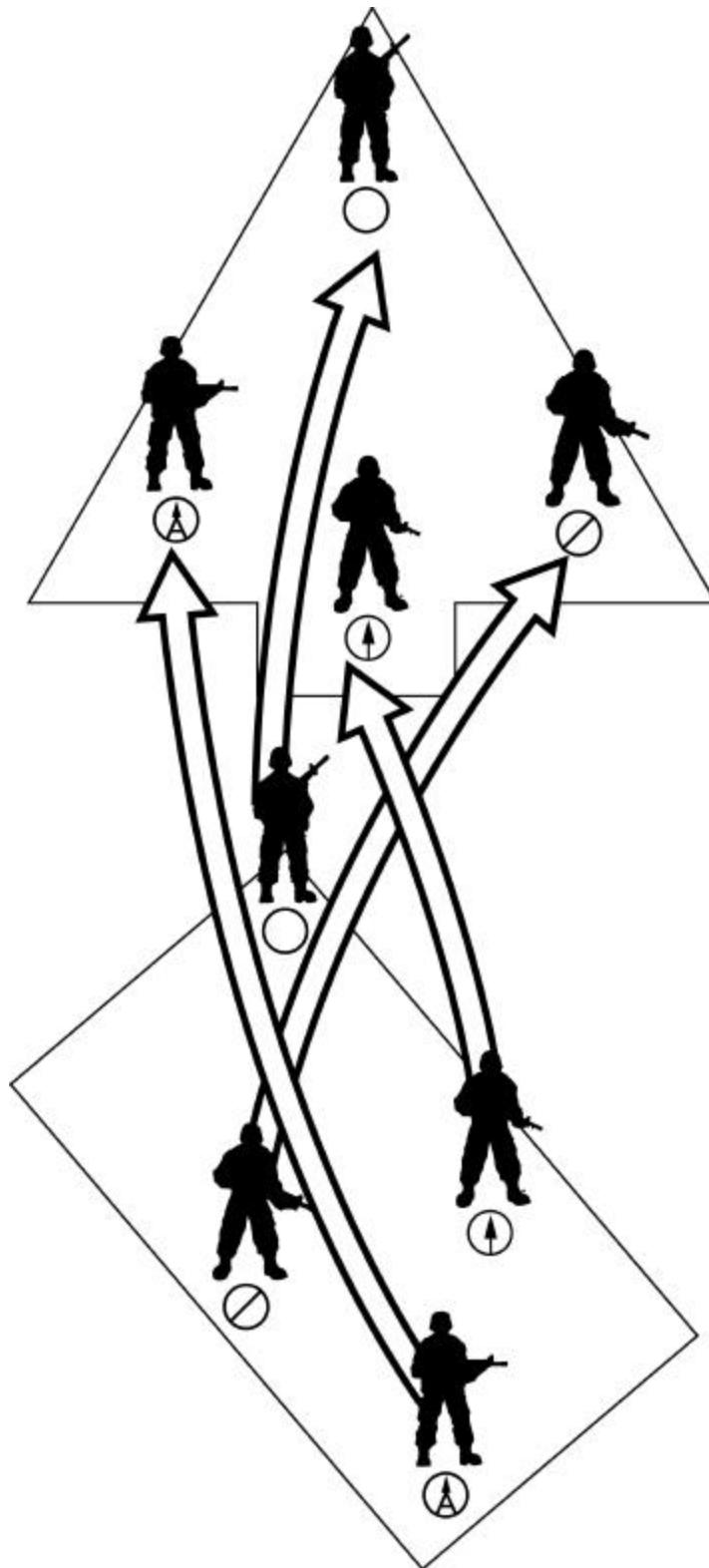
Fig 1-23. Changing formations: Echelon right to wedge.
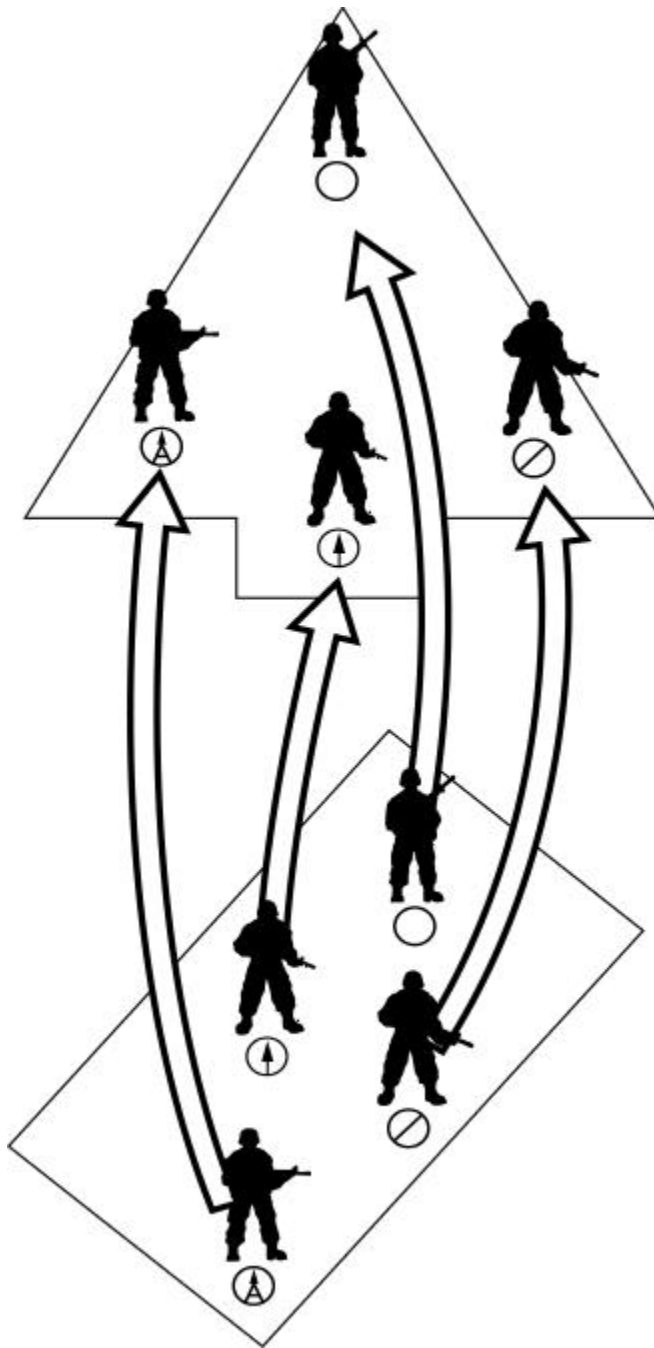
Fig 1-24. Changing formations: Echelon left to wedge.
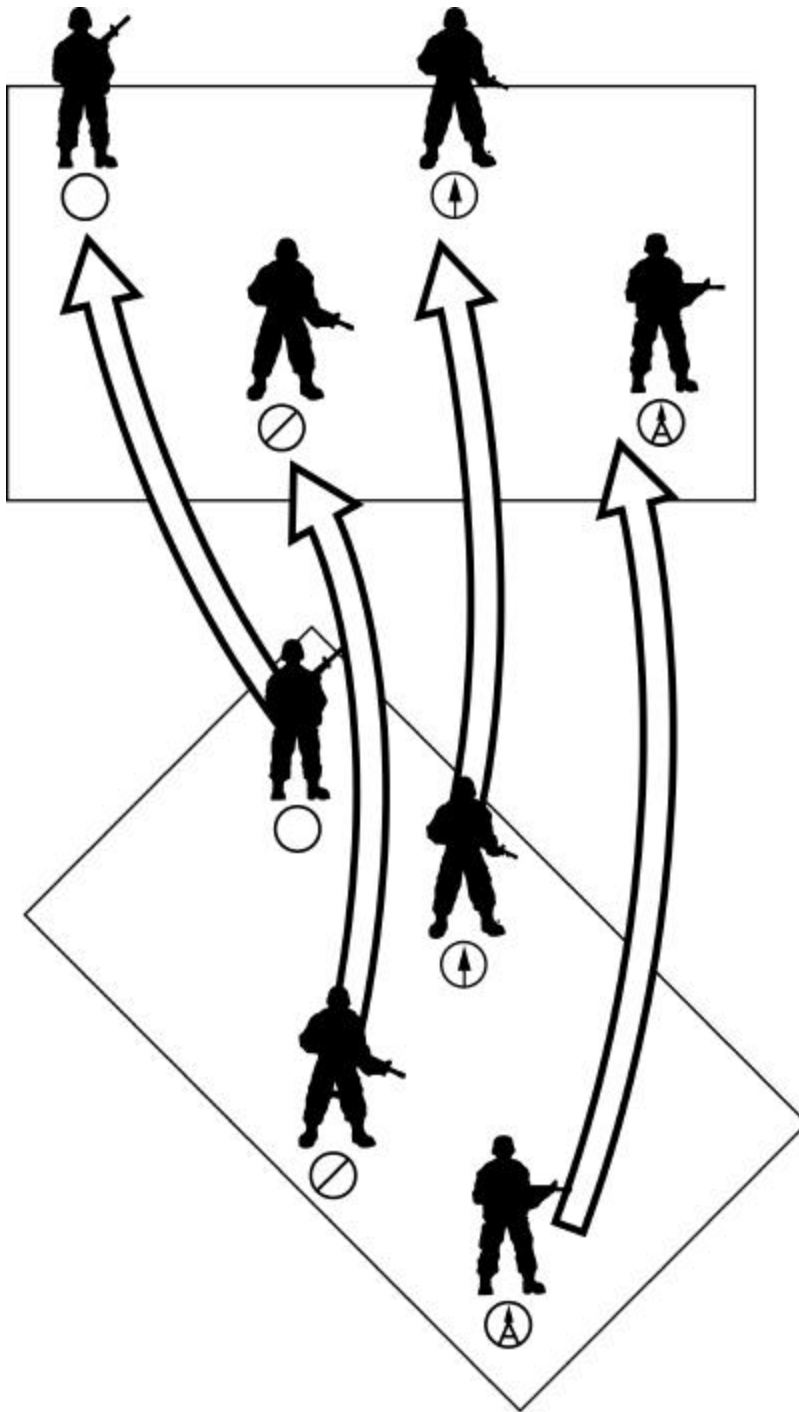
Fig 1-25. Changing formations: Echelon right to skirmishers right.
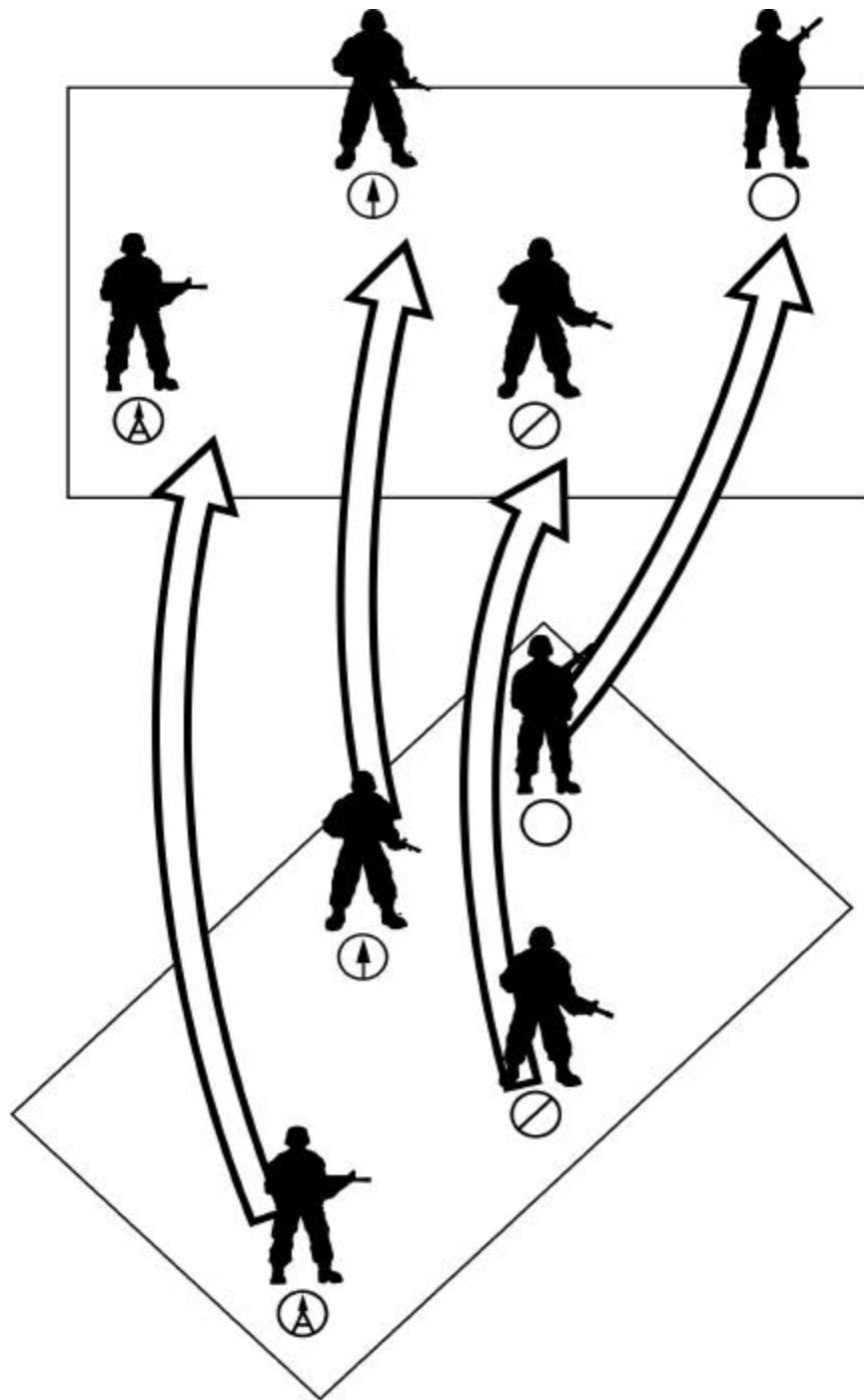
Fig 1-26. Changing formations: Echelon left to skirmishers left.

EXERCISE: Answer the following questions and check your responses against the figure
reference given in the text of this work unit.

Name the formation path for each pair of formations below, for example COLUMN
TO SKIRMISHERS RIGHT.

1. _____
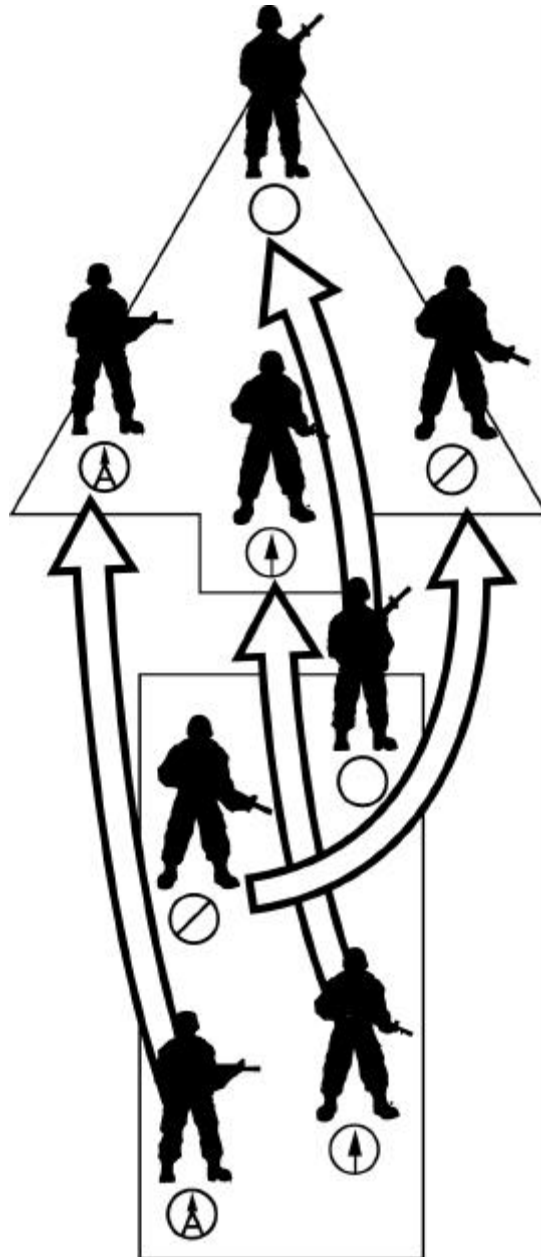
2. _____
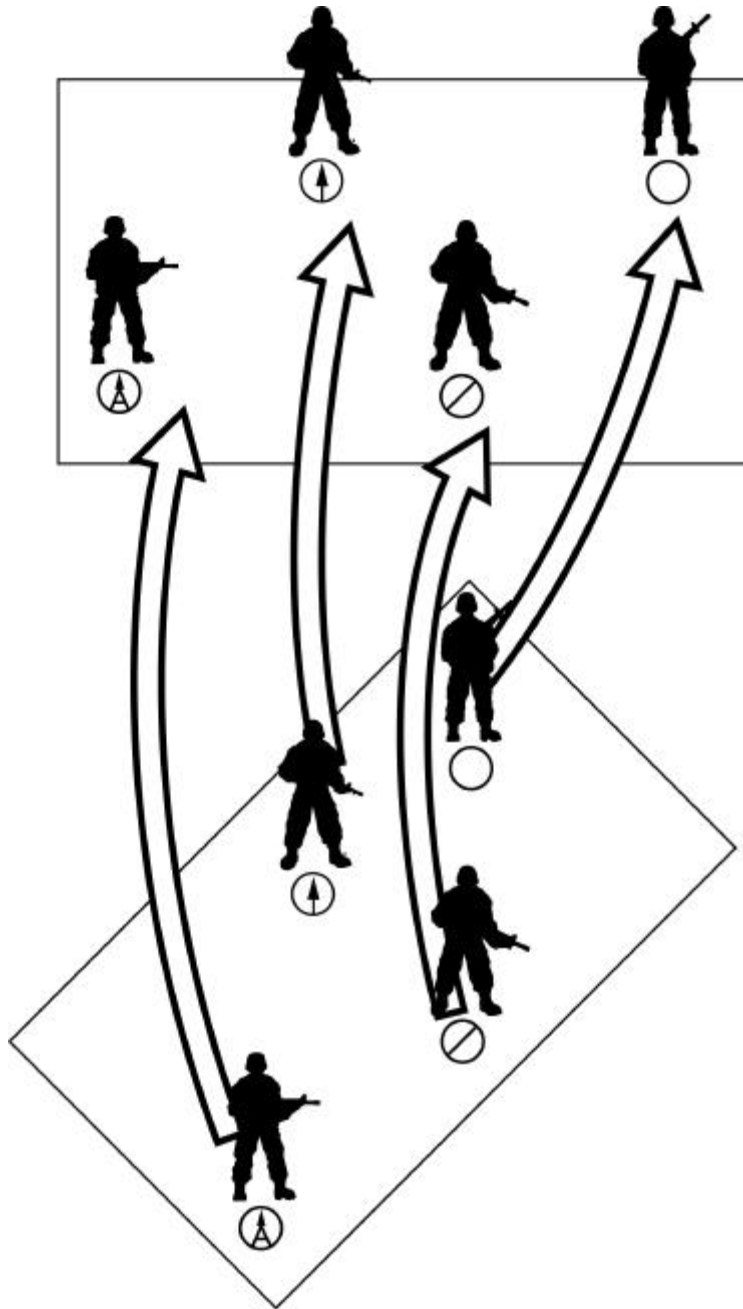
3. _____
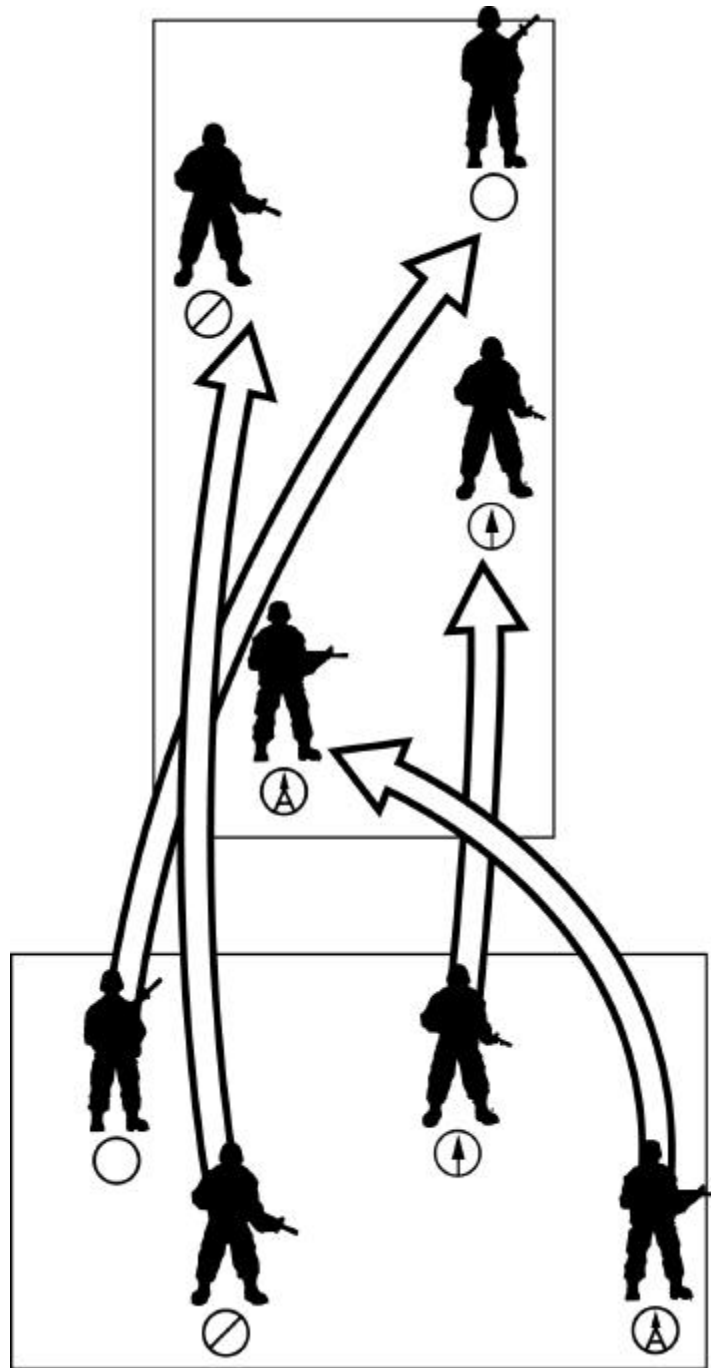
4. _____
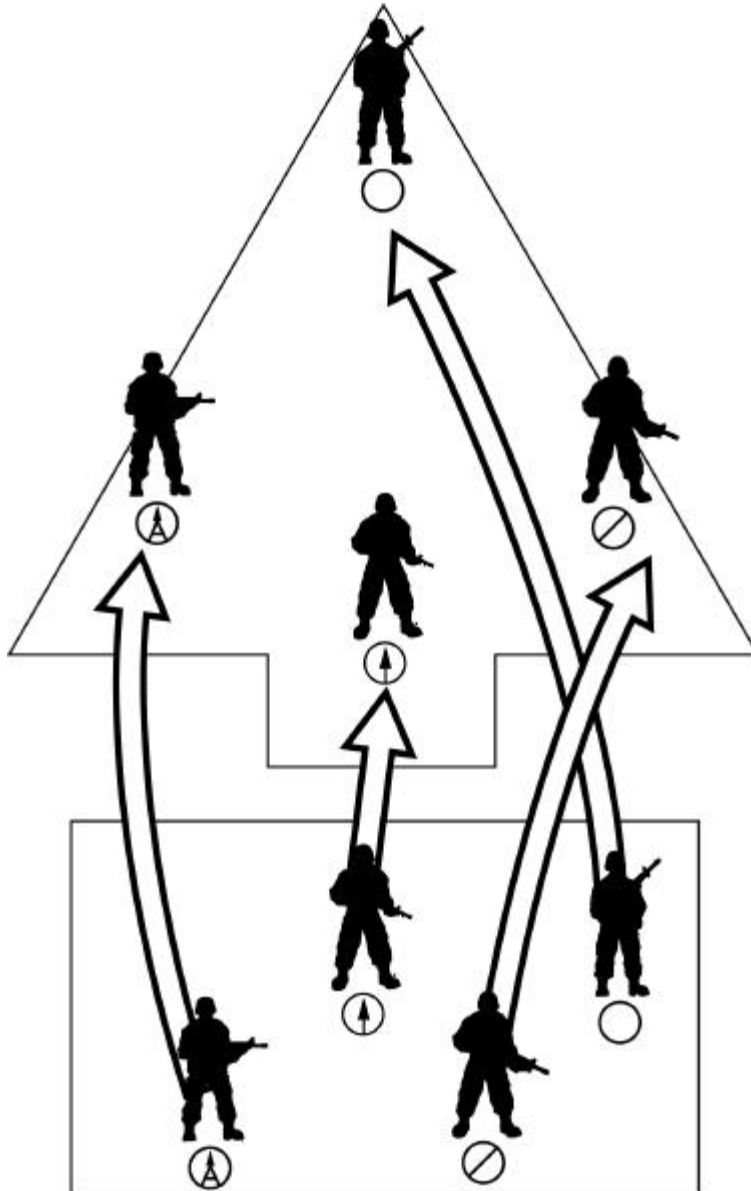
5. _____
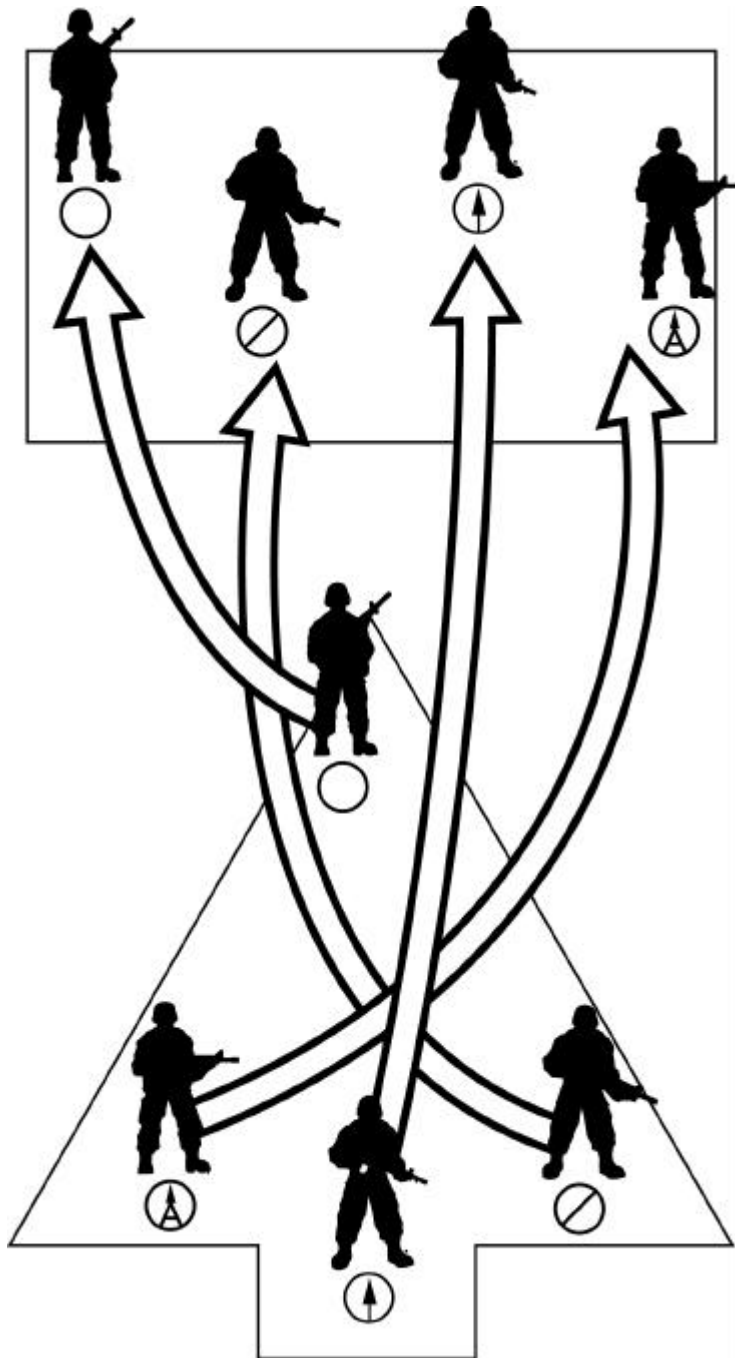
6. _____
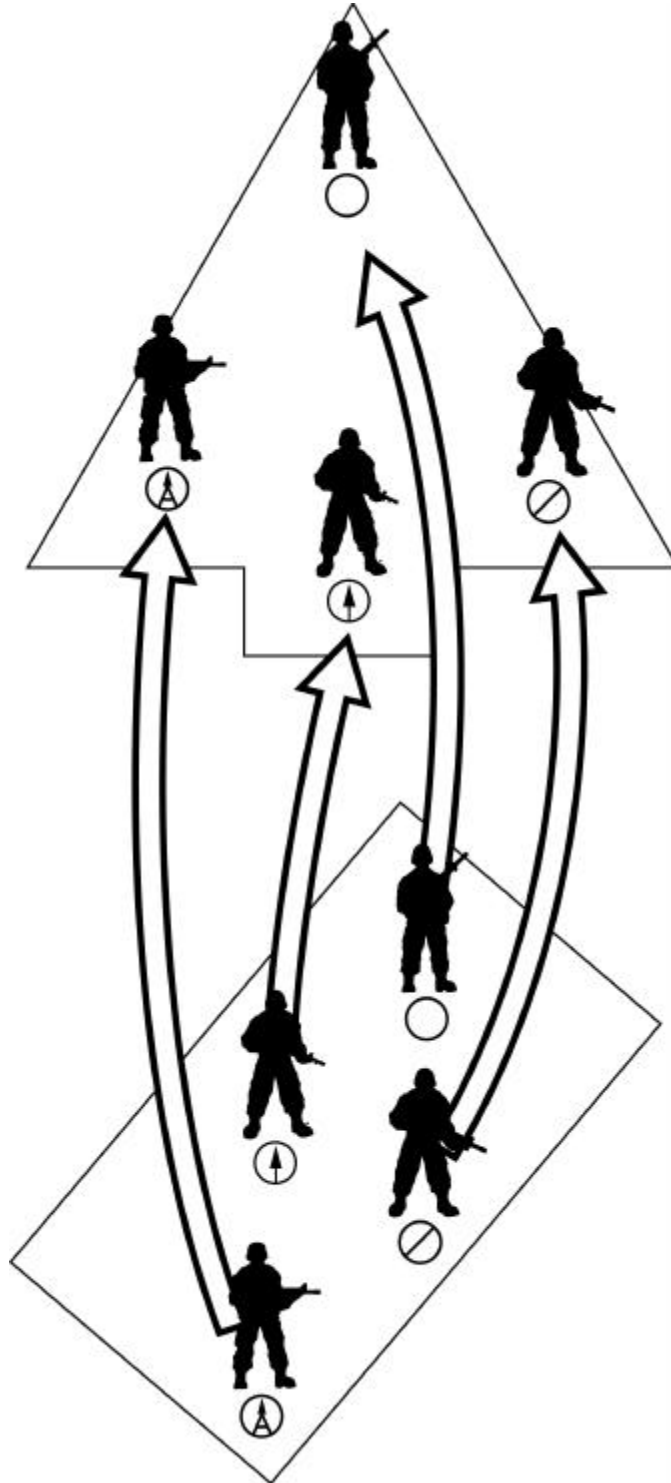
7. _____
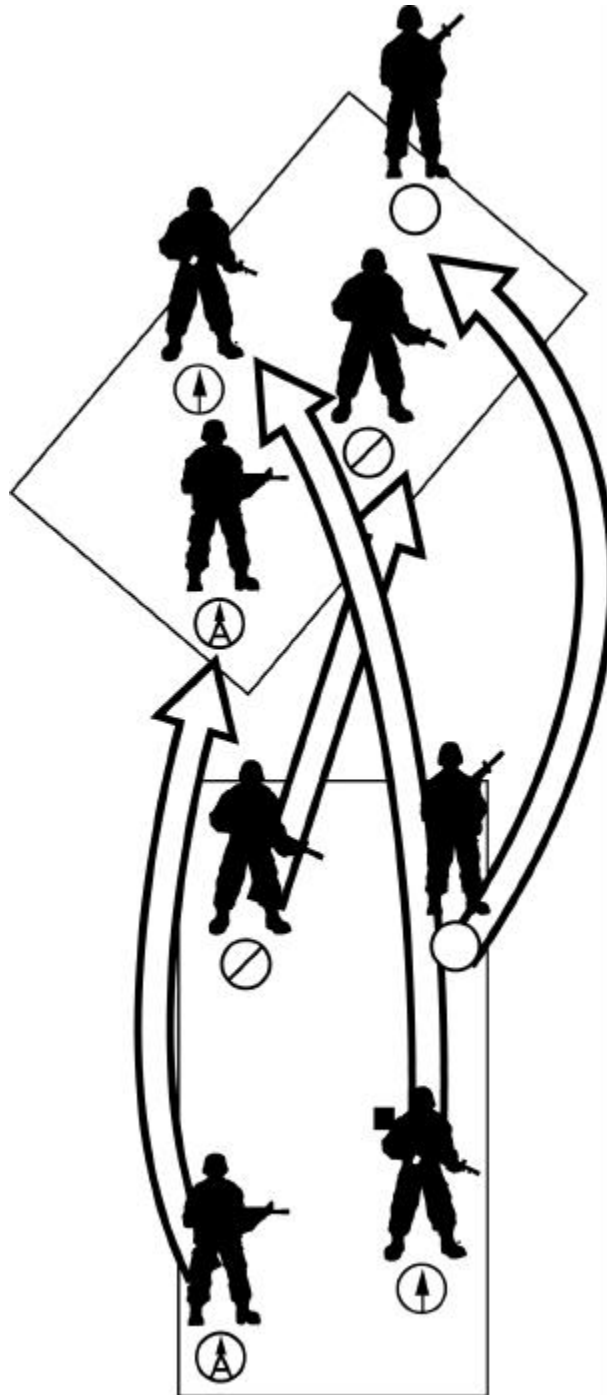
8. _____
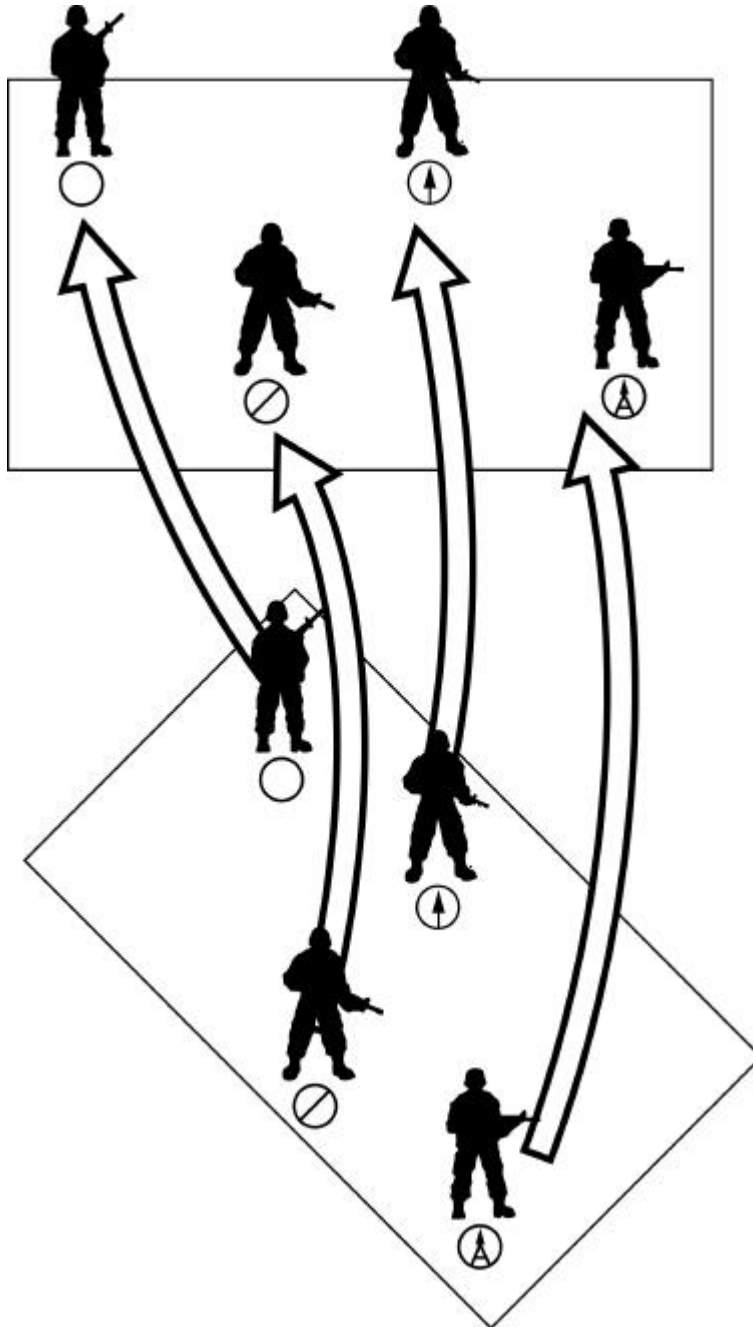
9. _____
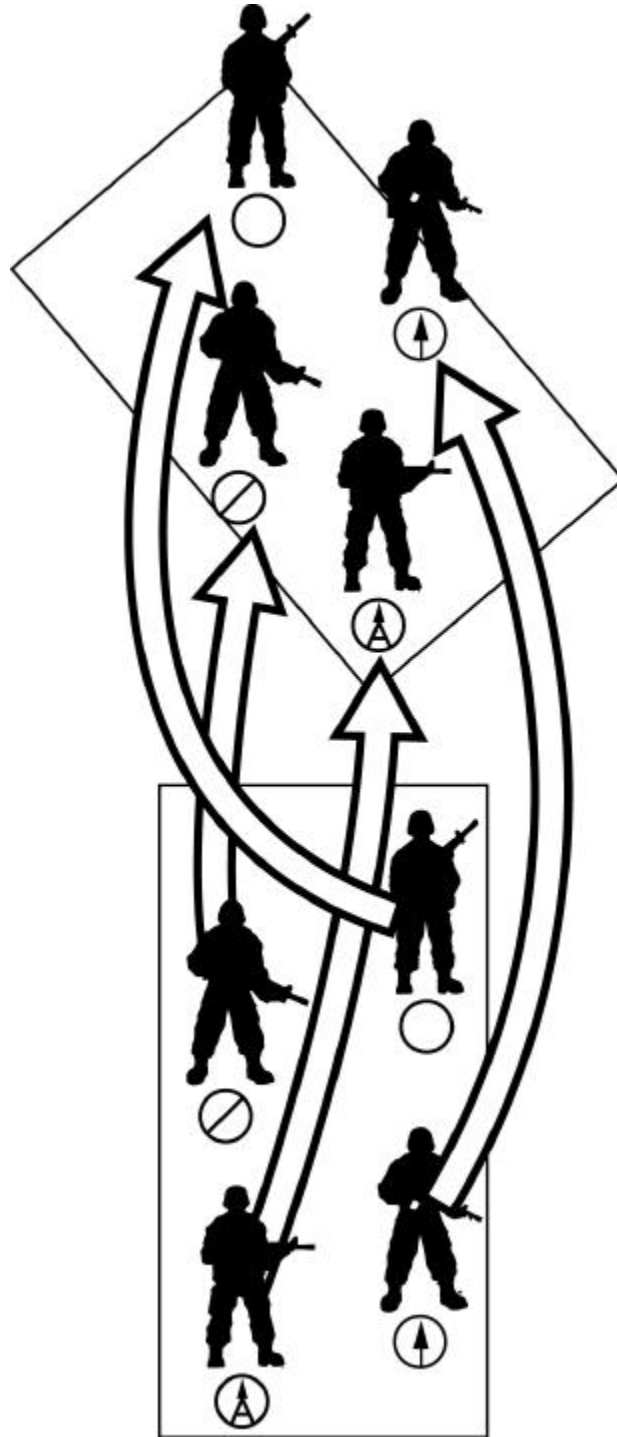
10. _____
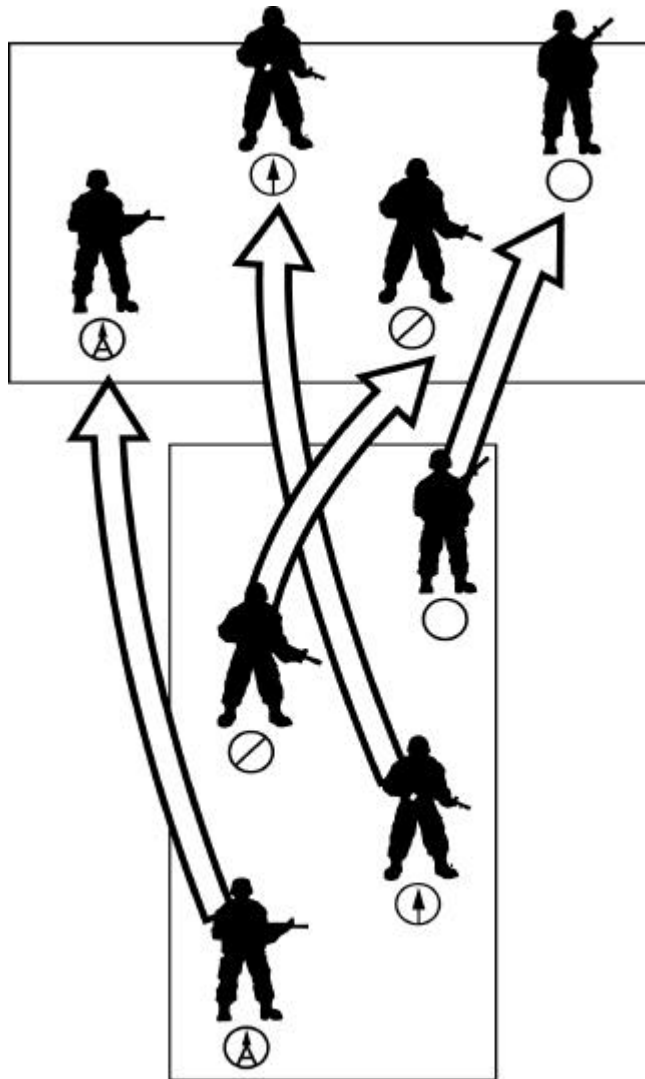
11. _____
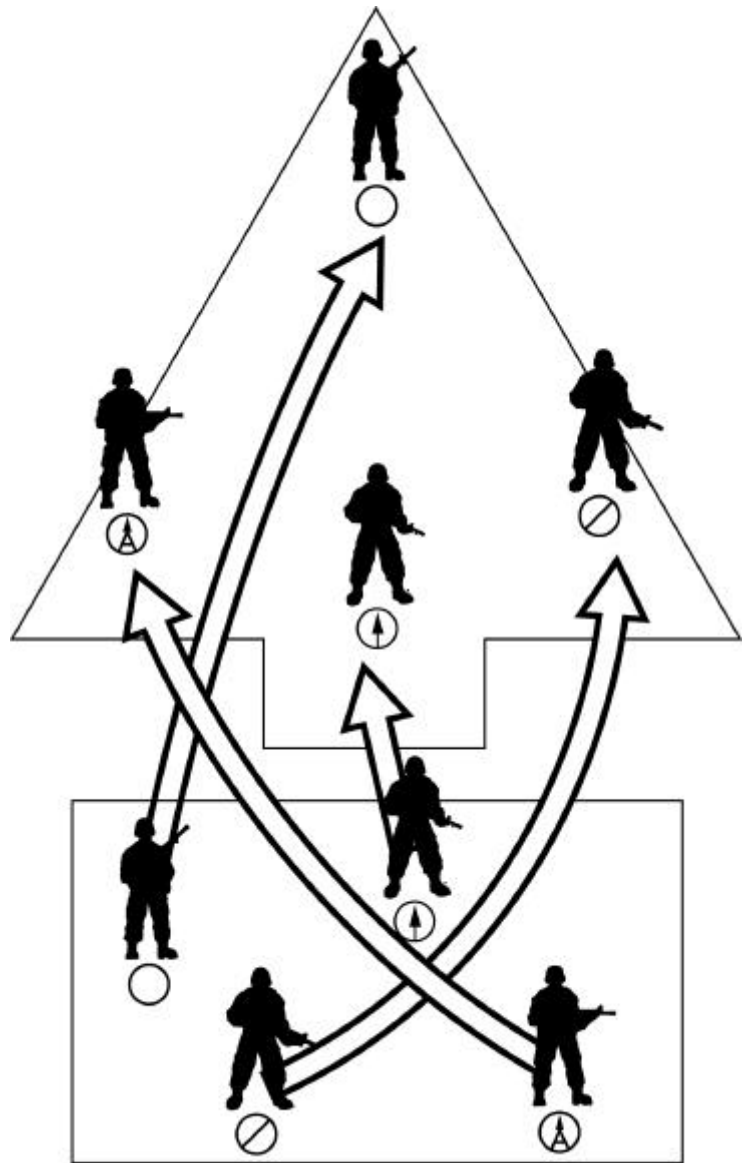
12. _____
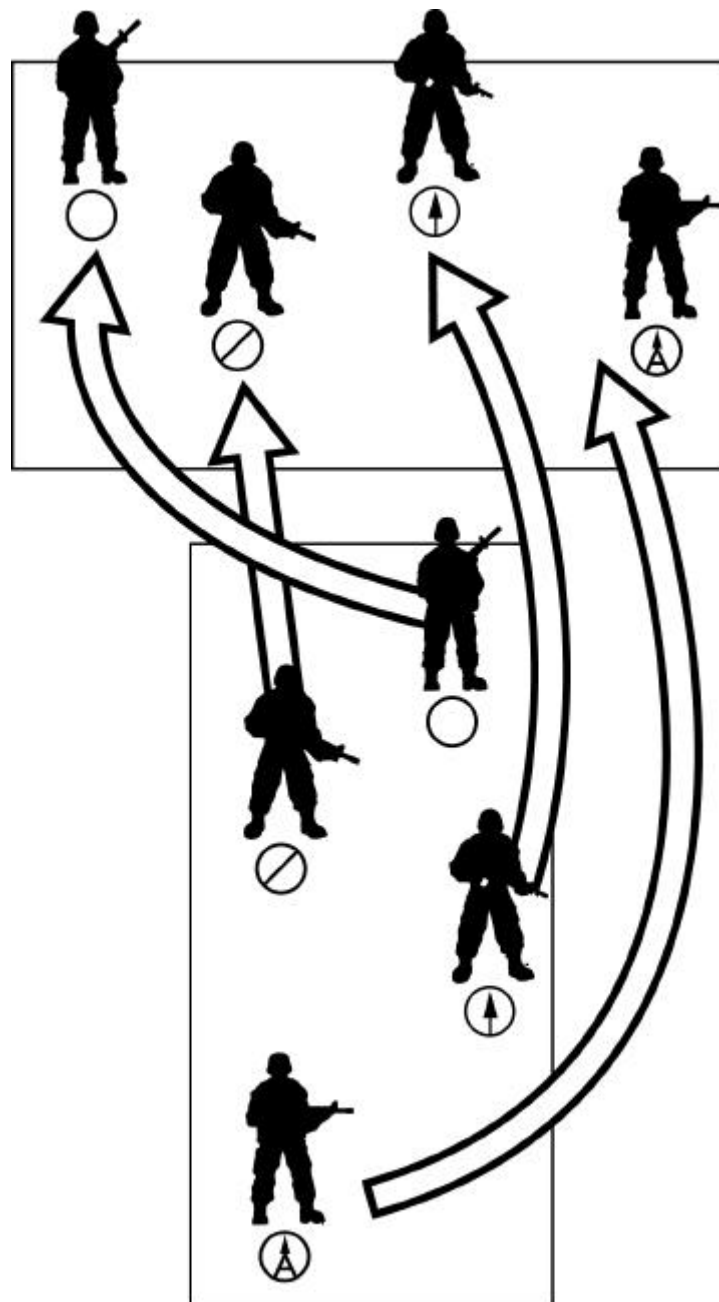
13. _____
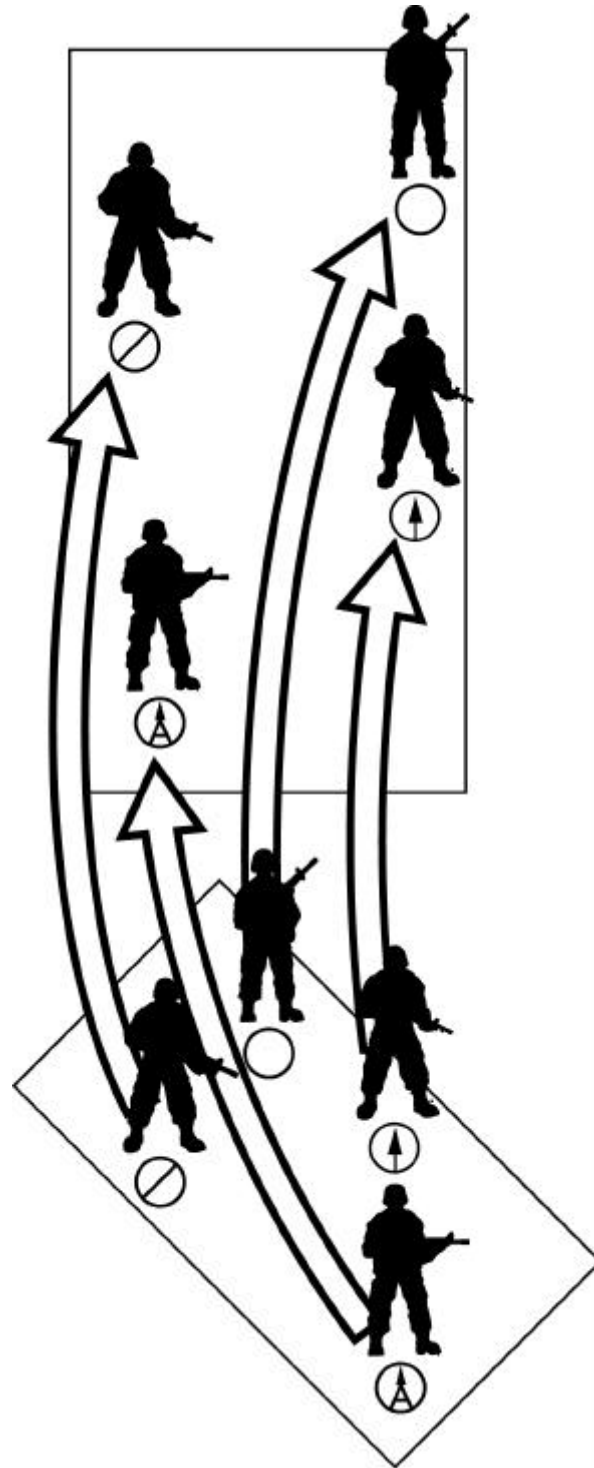
14. _____
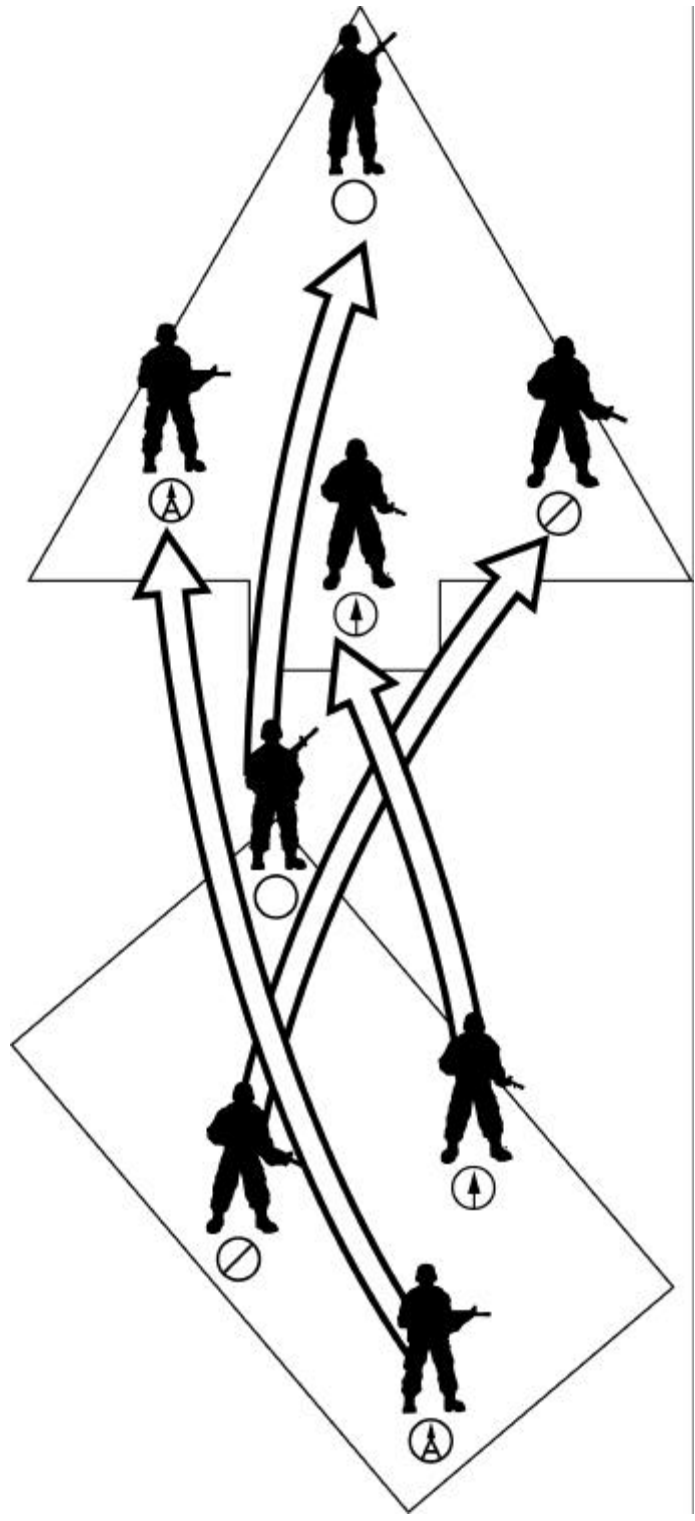
15. _____
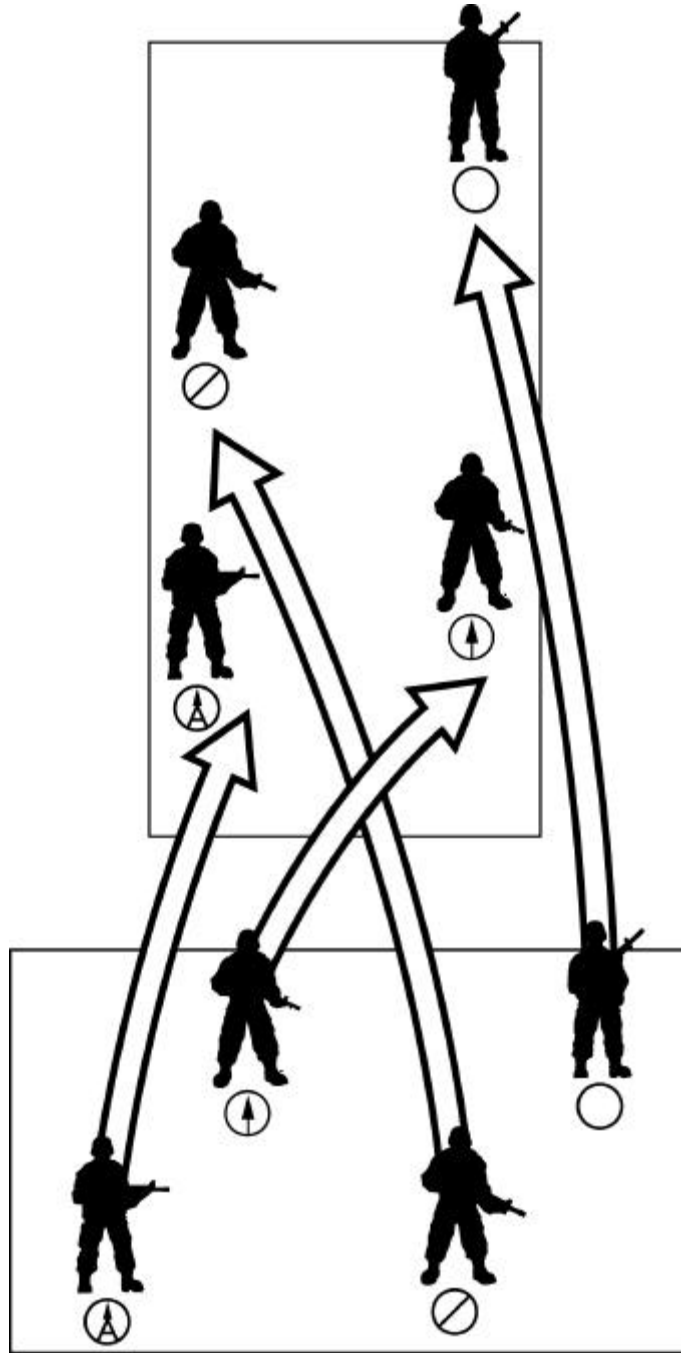
Work Unit 1-3. MOVEMENT UNDER DIRECT FIRE

STATE THE PROCEDURES FOR IMMEDIATE ACTION UNDER DIRECT FIRE

* *

Offensive action is made when a decision is gained in combat. It is accomplished by fire, maneuver, and shock action. Offensive action requires superiority over the enemy; however, superiority in numbers or firepower alone is not necessarily the deciding factor. The offensive mission of the squad is to attack and destroy the enemy. The movement to contact is a tactical movement to gain or reestablish contact with the enemy.

When the maneuver element meets enemy opposition and can no longer advance, it employs fire and movement to continue its forward movement to a position from which it can assault the enemy position. The four things you must do upon enemy contact are take cover, return fire, rush forward, and continue to move. They are covered in more detail below.

- As the maneuvering element, when making contact with the enemy, <u>take cover</u> behind any obstacle or obstruction that will put a barrier between you and the enemy's fire.

- <u>Return fire</u> if possible to stop the enemy's advance. Attempt to achieve fire superiority by laying a good, concentrated volume of fire.

- On the fire team leader's command or signal, move in pairs or individually <u>rush forward</u> for a short distance, running in a zig-zag motion, hit the deck, and take up a firing position using natural or manmade obstacles as cover.

- <u>Continue to move</u> on command or signal until you are within 100 meters of the enemy's position. Reload your weapons with full magazines and prepare to launch the final assault.

- On the fire team leader's command or signal, get up and <u>assault</u> on line through the enemy's position firing your weapon and maintaining alignment with the rest of the fire team members.

You will only assault on line if the enemy opposition is light and you have gained fire superiority. If you have not gained fire superiority, you will have to continue to fire and move through to objective.

EXERCISE: Answer the following question and check your response against that listed at the end of this study unit.

    1.   State the procedures for immediate action under direct fire.

        a. _____

        b. _____

        c. _____

        d. _____

        e. _____

Work Unit 1-4. ACTION UNDER INDIRECT FIRE

      STATE THE IMMEDIATE ACTION STEPS TAKEN WHEN YOU ARE
      UNDER INDIRECT FIRE

*   *

Aggressive action executed by you and your fire team catches the enemy off guard and lessen the chances to plan and prepare to attack you. The harder you hit the enemy on the battlefield, the more protection you will have.

When subjected to an indirect fire attack, there is a good chance you will have some form of warning before the first shell explodes in your area. This warning may be any of the following:

- The sound of incoming shells.
- A shouted warning of "INCOMING" from someone who hears the shells coming before you do.
- The sound of shells passing overhead or exploding nearby, but not zeroed in on your location.

When you hear any of the warnings, the first thing you should do is shout or repeat "INCOMING." This is standard procedure for incoming indirect fire and it will alert others who might not hear the warning. Indirect fire will normally be from artillery, mortars, rockets, or similar weapons.

- <u>Hit the deck</u> using the best cover available.
- Wait on your fire team leader's command or signal to get up and <u>move through the impact area</u>, moving very rapidly.
- If you are in a defensive position and you hear any of the warnings, shout "<u>Incoming</u>" and remain in your position. Take advantage of your available cover. Any movement away from your position could let the enemy know exactly where you are.

Incoming indirect fire (zeroed in on your position) may be an indicator of a coming attack by ground forces, so be prepared.

EXERCISE: Answer the following question and check your response against those listed at the end of this study unit.

1. What immediate action steps are taken when under indirect fire?

a. _____

b. _____

c. _____

Work Unit 1-5. SELECT AND USE A TEMPORARY FIRING POSITION

> LIST IN ORDER THE PRIORITIES FOR SELECTING A TEMPORARY
> FIRING POSITION
>
> IDENTIFY THE CORRECT WAY TO FIRE YOUR WEAPON FROM BEHIND
> OBSTACLES

* *

In selecting a temporary firing position, consider the availability of usable natural obstacles. Try to select and occupy a firing position that allows good observation and fields of fire, and provides in order of priority:

1. Cover and concealment
2. Cover only
3. Concealment only

Observe and fire around the side of an object and remain as low as possible. This will conceal most of your head and body. Stay low to observe and fire whenever possible. You can aim better and take advantage of concealing vegetation to present the smallest possible target to enemy observation and fires.

Select a good background before observing. A good background does not silhouette the individual and reduces chances of detection. Notice the differences between correct and incorrect firing positions in figure 1-27.
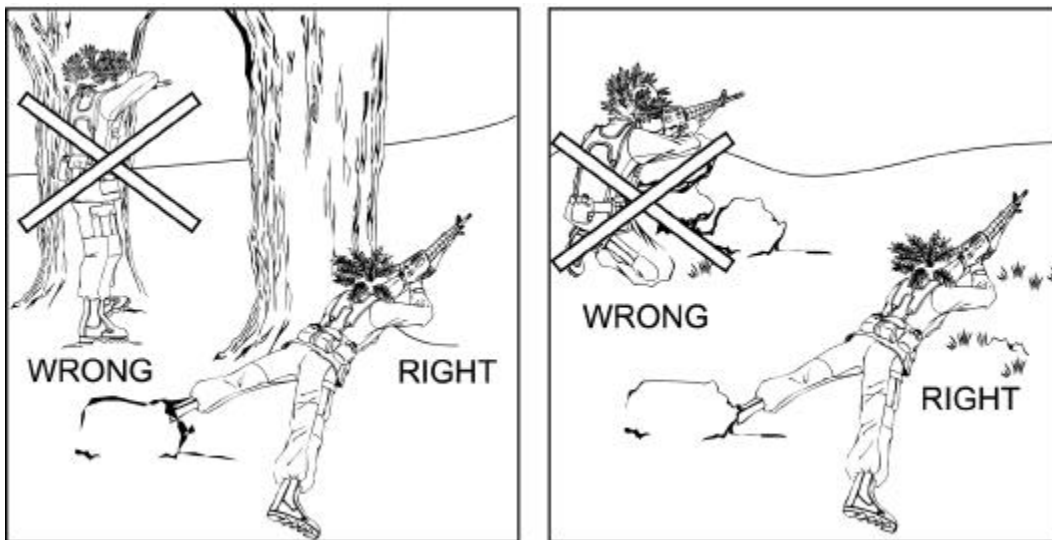
Fig 1-27. Right and wrong firing positions.

EXERCISE: Answer the following questions and check your responses against those listed at the end of this study unit.

    1. Identify whether each firing position is right or wrong from the figures below.
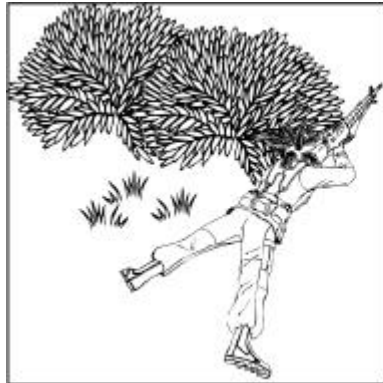
a._____
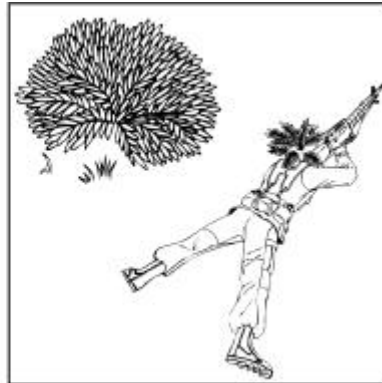
b._____
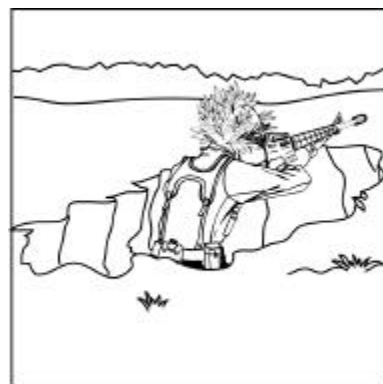
c._____
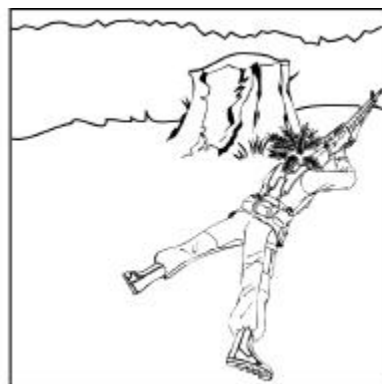
d._____

Work Unit 1-6. REACTION TO FLARES

>DESCRIBE THE IMMEDIATE ACTION FOR REACTING TO GROUND
>FLARES
>
>DESCRIBE THE IMMEDIATE ACTION FOR REACTING TO GROUND AND
>OVERHEAD FLARES BOTH WITH AND WITHOUT WARNING

* *

A night attack can be considered in the category of special tactics and techniques because of the significant differences from a daylight attack. At night, there is a decrease in the ability to place aimed fire on the enemy as well as increased difficulty in movement and control. In addition, there is an increase in the importance of close combat, volume of fire, and the registration of fires during daylight.

Surprising the enemy is the most important reason for a night attack. It is best to attack the enemy when he/she least expects it. In order to gain surprise, an attack may be conducted any time during the night. Just as you try to surprise the enemy, there are times when you are caught by surprise at night. The enemy may have his/her defenses covered by fire and flares. There are a few procedures to follow if an enemy flare goes off during a night attack.

Reaction to ground flares

- Move out of the illuminated area, and

  1. When alone, reorient yourself and continue the mission.
  2. As a member of a combat element, regroup, and continue the mission.

Reaction to overhead flares with warning (sound of rising flare)

- Assume a prone position (behind concealment when available) before the flare bursts.

Reaction to overhead flare without warning

- Assume a prone position, making maximum use of nearby cover, concealment, and shadows until the flare burns out.

- Close one eye to protect your night vision; observe with the other.

- When crossing wire obstacles where the prone position is not possible, crouch low until the flare burns out.

Reaction to overhead flare while under direct enemy fire or followed by direct enemy fire

- Use fire and maneuver as you would during daylight.

EXERCISE: Answer the following questions and check your responses against those listed at the end of this study unit.

1. What immediate action do you use against ground flares?

   _____

   _____

2. What is your immediate reaction to an overhead flare with warning?

   _____

   _____

3. What immediate action do you take for overhead flares without warning?

   _____

   _____

Work Unit 1-7. MOVE OVER, THROUGH, OR AROUND OBSTACLES (EXCEPT
         MINEFIELDS)

      DESCRIBE THE PROPER METHOD FOR CROSSING OVER OR UNDER
      BARBED WIRE

      STATE THE SPECIAL CHECK YOU SHOULD MAKE BEFORE CROSSING
      OVER OR UNDER BARBED WIRE

      FROM FIGURES PROVIDED, IDENTIFY THE PROPER METHOD FOR
      CROSSING DANGER AREAS (ROADS, TRAILS, OR SMALL STREAMS)

      FROM FIGURES PROVIDED, IDENTIFY THE PROPER METHOD FOR
      CROSSING OVER WALLS

*   *

Crossing barbed wire obstacles

    Warning: Check barbed wire for boobytraps or early warning devices.

    Always conduct a special check for boobytraps when crossing over or under barbed wire.
Threat doctrine is to attach tripwire-activated mines to barbed wire. Use a grappling hook with a
length of rope attached first to pull the wire. Before pulling wire, check for early warning
devices attached to the wire.

    To cross barbed wire (fig 1-28), you may put a wood or grass mat, or chicken wire netting
over it. Cross carefully because such a mat or net forms an unstable path.
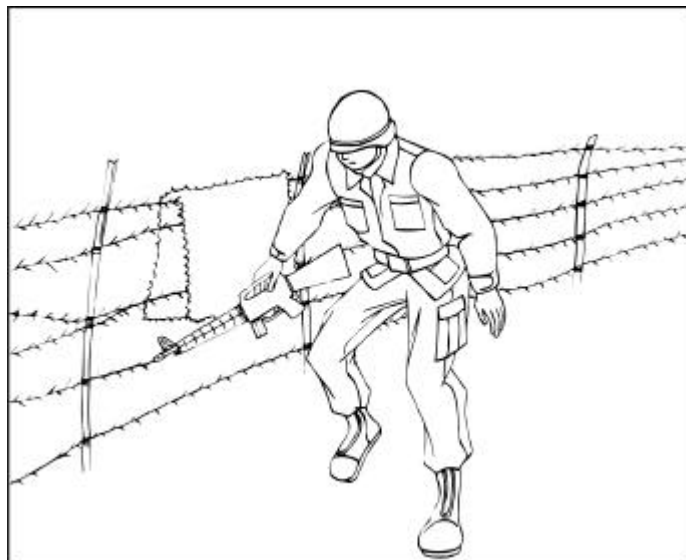
Fig 1-28. Crossing barbed wire.

To cross under barbed wire, slide headfirst under the bottom strands on your back and push yourself forward with your shoulders and heels (fig 1-29). Carry your weapon lengthwise on your body and let the wire slide on the weapon to keep the wire from catching on clothing and equipment. Inch your way along, holding the wires with one hand. If it is necessary to cut your way **through barbed wire,** cut only the lower strands (fig 1-30). Leave the top wire in place to reduce the enemy's chances of discovering the gap. Wrap cloth, such as rifle **patches, around the wire between** your hands and cut partly through the wire. Quietly bend the wire back and forth until it separates.
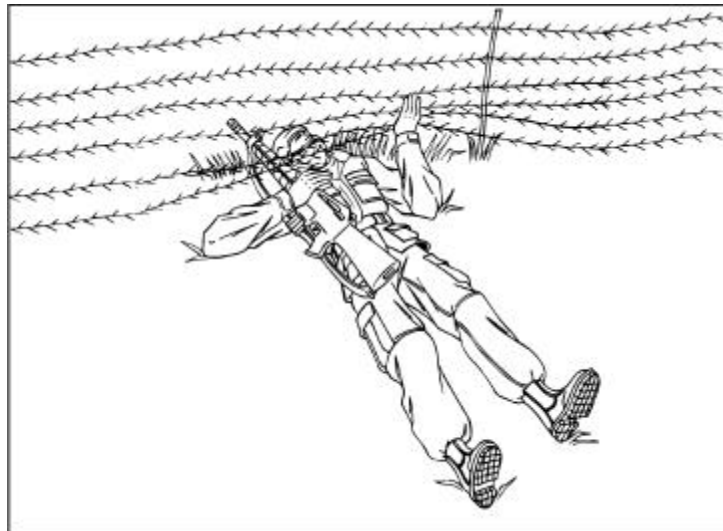
Fig 1-29. Crossing under barbed wire.
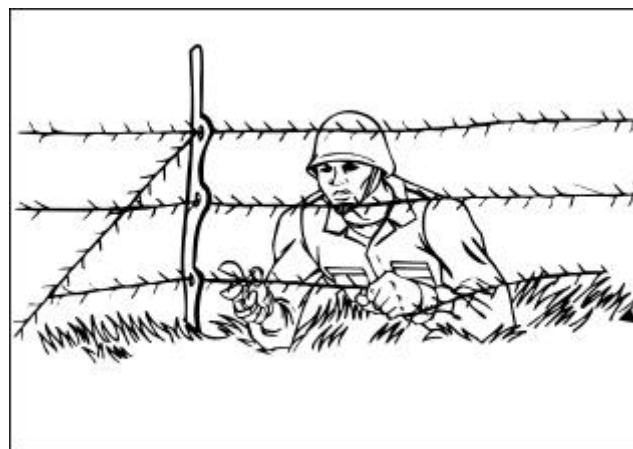
Fig 1-30. Cut only lower strands of wire.

Crossing Danger Areas (roads, trails, or small streams)

Select a point near a bend in the danger area (road, trail, or stream), and if possible, a *bend* that has concealment and cover on both sides. Crawl up to the edge of the danger area and observe the other side carefully, then down either side for enemy positions or movement before crossing. Cross rapidly but quietly. Get down on the other side; check the area around you.

Going over walls

Roll quickly over the top of the wall to avoid going over upright. When crossing an obstacle such as a wall, use the buddy system. The buddy system is when one-man covers while the other crosses.

EXERCISE: Answer the following questions and check your responses against those listed at the end of this study unit.

    1. How do you cross over barbed wire?

       _____

       _____

    2. What procedure should you use to cross under wire?

       _____

       _____

    3. What special check should you make before you attempt to cross barbed wire?

       _____

       _____

    4. Which figure below represents the right way to cross a road, trail, or stream?
       ___A
       ___B
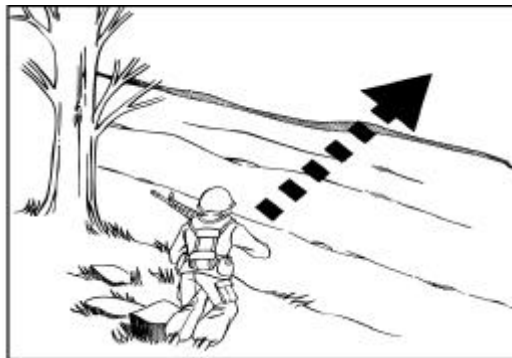
A   B

5. Which figure below represents the best way to cross a wall? _____A ____ B

A
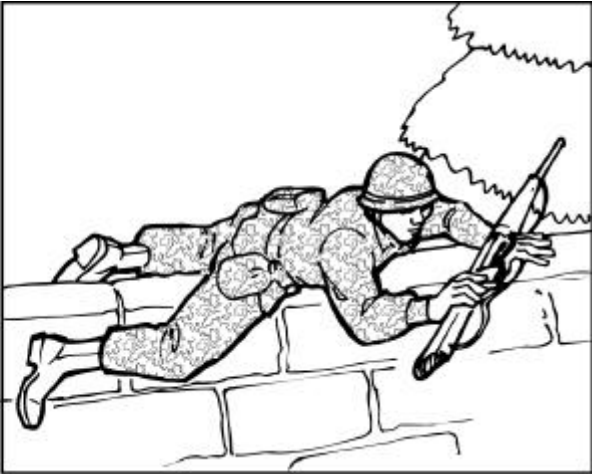
B

Section II. DEFENSE

Work Unit 1-8. CLEARING FIELDS OF FIRE

FROM FIGURES PROVIDED, SELECT AN AREA THAT IS PROPERLY CLEARED

* *

In preparing defensive positions for expected contact with the enemy, you must clear fields of fire in front of your position (fig 1-31). Before clearing the field of fire, make a careful estimate as to how much clearing can be done in the time available. This estimate **often determines** the nature and extent of the clearing to be undertaken. A field of fire improperly cleared may afford the enemy better concealment and cover than if you left the area in its natural state.

- Do not disclose your position by excessive or careless clearing.

- Start clearing near the forward edge of the battle position and work toward the limit of effective small arms fire. In areas organized for close defense, start clearing near your position and work forward at least 100 meters.

- Leave a thin natural screen of vegetation to hide your defense position.

- In sparsely wooded areas, remove lower branches of large scattered trees.

- If necessary, remove entire trees as reference points for enemy fire. Cover cuts on trees and bushes forward of the position with mud, dirt, or snow.

- In heavy woods, complete clearing of the fields may not be possible **or desirable within the** time available. Restrict work to thinning undergrowth and removing lower branches of large trees. Clear narrow lanes of fire for automatic weapons, making sure that you clear in an irregular pattern that will not reveal the weapon's position.

- Remove or thin out dense brush, because it is not a suitable obstacle and blocks the field of fire. Cut weeds only where they block your view. **Drag away** cut brush, limbs, and weeds to points where they will not be noticed by the enemy or furnish them with concealment.

- If practical, demolish other obstructions to fire, such as buildings and walls, by using explosives, or report to the squad leader to request assistance from the platoon commander.

- Insure that no trails are made in your sector of fire as lanes are cleared.
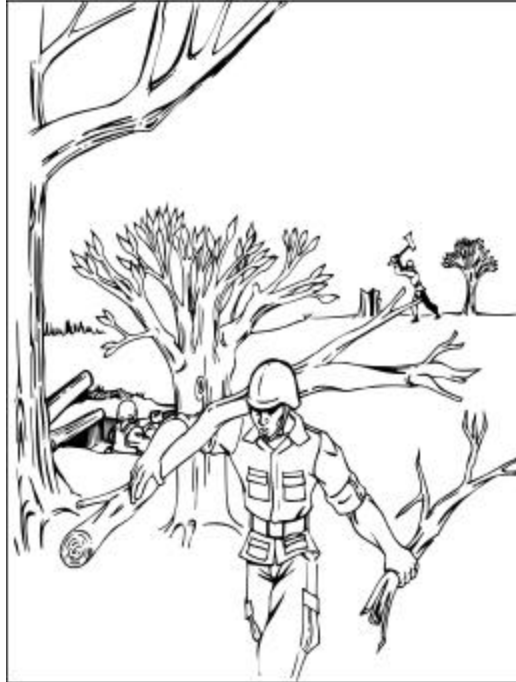
Fig 1-31. Clearing positions.

EXERCISE: Answer the following questions and check your responses against those listed at
the end of this study unit.

1. Which of the figures below shows a properly cleared area? ___A ___B

2.   Which of the figure below shows a properly cleared area? A___ B___ C___
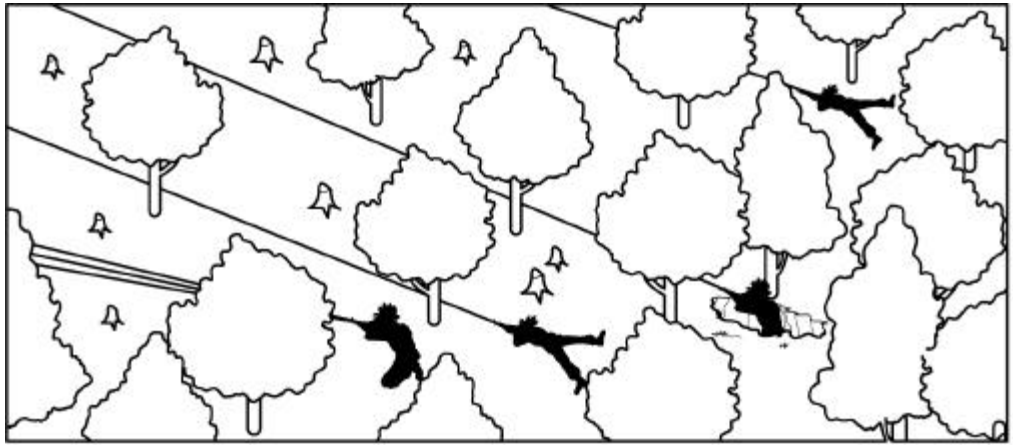
A
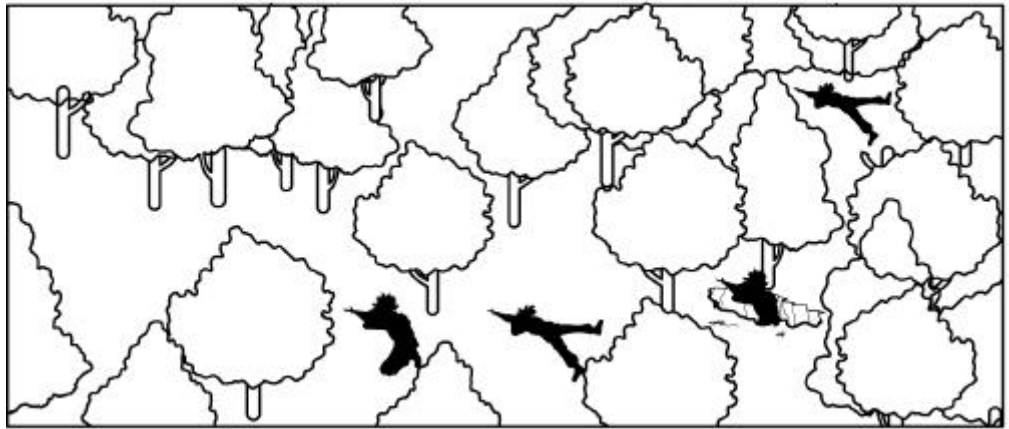
B
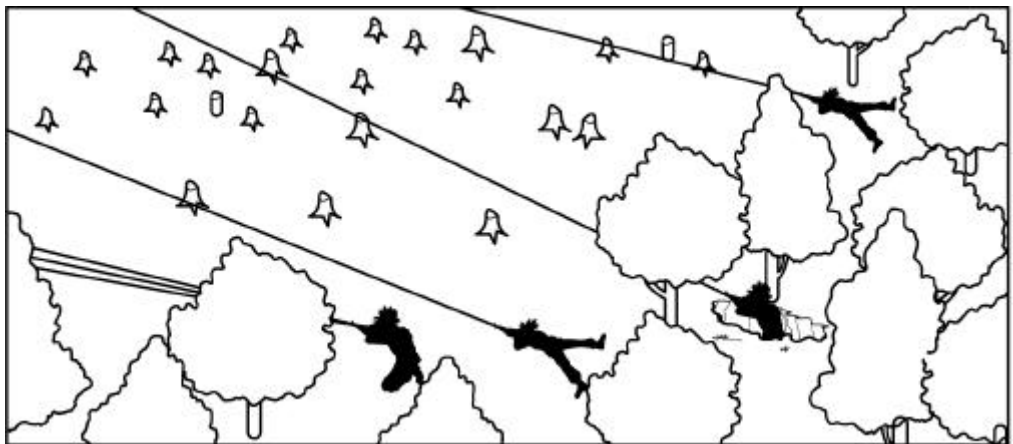
C

Work Unit 1-9. CONSTRUCTING AN INDIVIDUAL FIGHTING POSITION

LIST THE DIMENSIONS OF A ONE-MAN FIGHTING POSITION

LIST THE COMPONENTS OF A FIGHTING POSITION

* *

The fighting position is the best all-around entrenchment for individual protection. Fighting holes provide excellent protection from small arms fire, artillery shell fragments, aircraft strafing or bombing, and the crushing action of tanks. Even when partially completed, fighting positions afford limited protection, depending upon the depth to which the digging has progressed. The fighting position may be either the one-man or two-man type. The squad leader or fire team leader may select the type of fighting position to be constructed, if the kind of entrenchment has not already been specified by higher authority.

A hasty fighting position is prepared when there is little or no time to prepare fighting positions. It is behind whatever cover is available. It should give frontal protection from direct fire, but also allow firing to the front and oblique. For protection from indirect fire, dig a hasty fighting position in a small depression or hole at least half a meter (18 in) deep (fig 1-32).
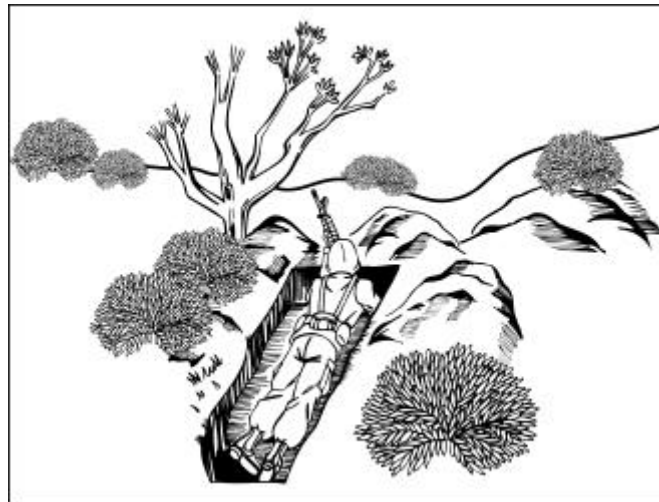
Fig 1-32. Hasty fighting position.

The term "hasty position" does not mean that there is no digging. Even if there are only a few minutes, you can scrape out or dig a prone shelter to give you some protection.

One-man fighting position

A one-man fighting position allows flexibility in the use of cover, as the hole only has to be large enough for one Marine and his/her gear. It does not have the security of a two-man position. Figure 1-33 shows the components of a one-man fighting position.
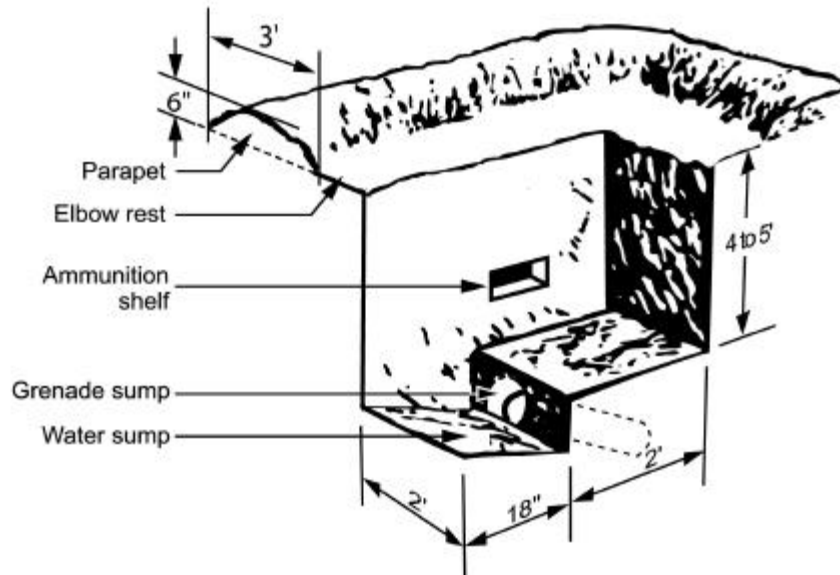
Fig 1-33. One-man fighting position.

- Parapet. A mound of soil around the hole about three feet wide and six inches high. The parapet should be out away from the edge of the hole far enough to allow room for resting the elbow when you are firing.

- Water Sump. A hole dug in the rearward end of the floor of the fighting hole to drain off water.

- Firing Step. A step, dug out of the floor, high enough to allow the Marine standing on it to be able to fire his/her weapon with very little exposure.

- Grenade Sump.   A tubular hole dug into the face of the firing step. The hole should be dug at an angle and the floor of the fighting hole should be sloped so that a grenade dropped into the fighting hole could readily be kicked into the sump hole.

- Ammunition Shelf.   A shelf used to hold extra ammunition. This shelf can be dug in a side of the wall where it is convenient to reach.

- Dimensions. The dimensions of your one-man fighting position depend, to a large degree, on your size. The hole should be shoulder wide and armpit deep to the firing step, and provide room for your normal firing position. It will have to be long enough to allow the use of the entrenching tool. The type of soil may require some variations.

Construction of a fighting hole

When using turf or topsoil to camouflage the parapet, skim off the topsoil over an area 10-feet square before you start to dig and set it aside for future use. Upon completion of the fighting position, place this camouflage material over the soil so that it looks like the surrounding ground.

Pile the dirt removed from the fighting position around the hole as a parapet, leaving a shelf wide enough for you to rest your elbow while firing your weapon. The soil should be spread low and packed very hard, and the parapet should be at least 3-feet thick to provide protection against small arms fire. An all-around parapet made of the soil excavated from the fighting position should be approximately 6 inches high.

Dig additional depth for a water sump in one end to provide space for your feet so that you may sit comfortably with adequate clearance and have a drain for rainfall. Dig a tubular grenade sump at the bottom of the water sump sloping at 30-degree angle under the firing step. The bottom of the fighting position should funnel toward the grenade sump. If a grenade is thrown into the fighting position, it may be kicked into the grenade sump.

In most types of soil, a properly constructed fighting position gives positive protection against the crushing action of tanks which pass directly over it in any direction, provided you crouch down in the hole so that there is a 1-foot clearance between yourself and the ground surface.

An alternate method of constructing a fighting hole is to use natural cover and available materials to construct frontal protection. Natural frontal cover (trees, rocks, logs, rubble, etc.) is best. The frontal cover must be thick enough (at least 18 in/46 cm of dirt) to stop small arms fire, high enough to cover the heads of the Marines firing from it, and far enough in front of the hole to allow room for elbow rests and sector stakes so that the men can fire to the oblique. It must be long enough to give cover to two men and to hide the muzzle blasts of their weapons when firing to the oblique.

When under frontal fire, Marines in position can move behind the frontal cover and fire to the oblique.

Complete protection comes from the addition of overhead, flank, and rear cover. This protects against indirect fire that bursts overhead or to the flanks, or rear of the position and against the effects of friendly weapons supporting from the rear.

Crawl spaces left in the rear cover will allow Marines to enter and exit positions without exposing themselves to enemy observation and fire.

The fighting hole should not be too large. The smaller a position, the less likely that enemy rounds, grenades, or airburst fragments will get into it. However, it should extend as far beyond the edges of the frontal protection as necessary to let the men fire to the front when not suppressed. The extension of the hole is usually straight, but may curve around the frontal protection if necessary.

Frontal Fires (fig 1-34). Firing positions must have good fields of fire to the front so defenders can see and engage the enemy as soon as they are within effective small arms range. This breaks up the enemy's attack formations and disrupts his/her control.
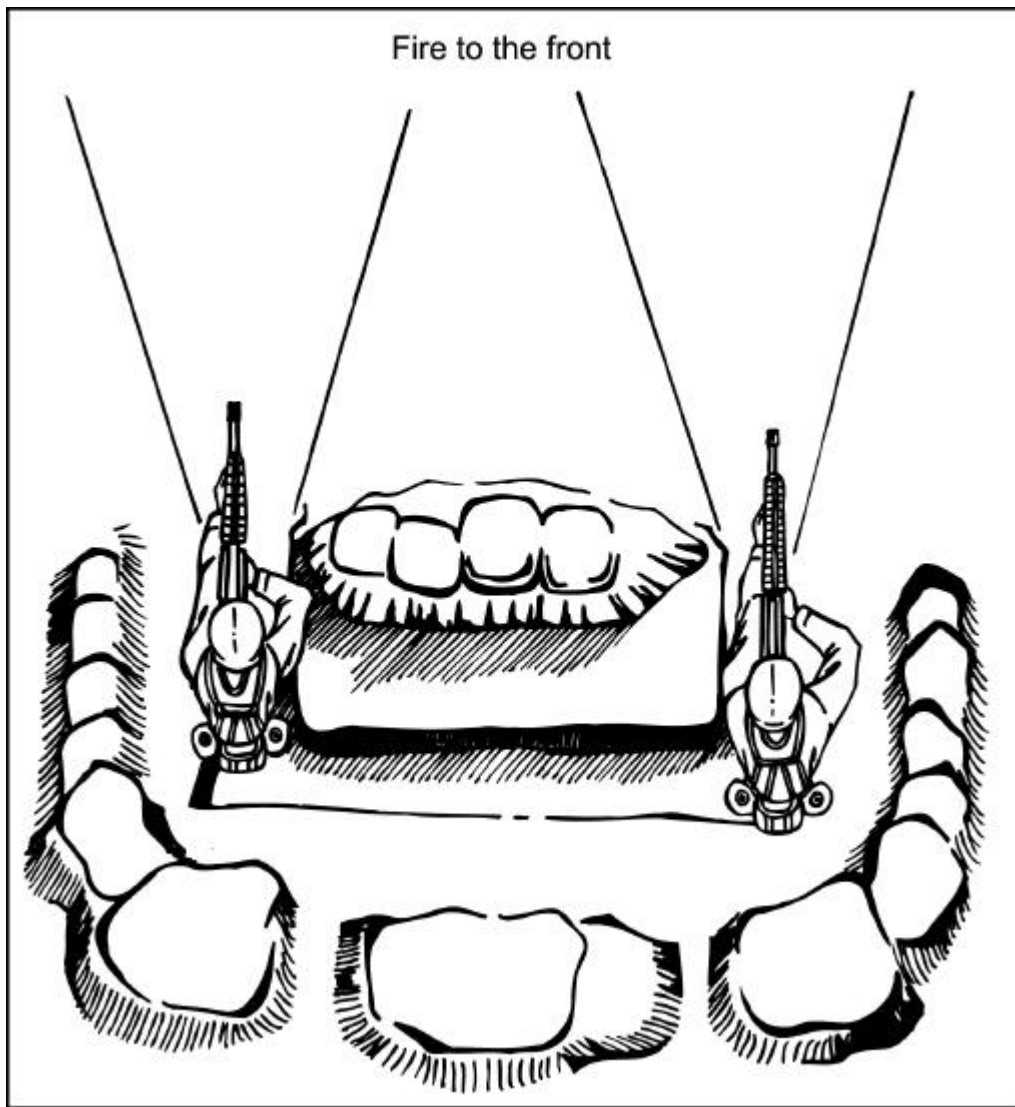
Fig 1-34. Frontal fires.

Oblique Fires (fig 1-35). Firing positions must also have good fields of fire to the oblique so each Marine can support other positions on either side. Firing to the oblique from behind frontal cover lets the Marine continue to fire even when the enemy is firing at his/her position to suppress it. Oblique fires of the M16A2, AT-4, SAW, M249G, and Claymore provide the most lethal fire, as it hits the enemy from an unexpected angle.
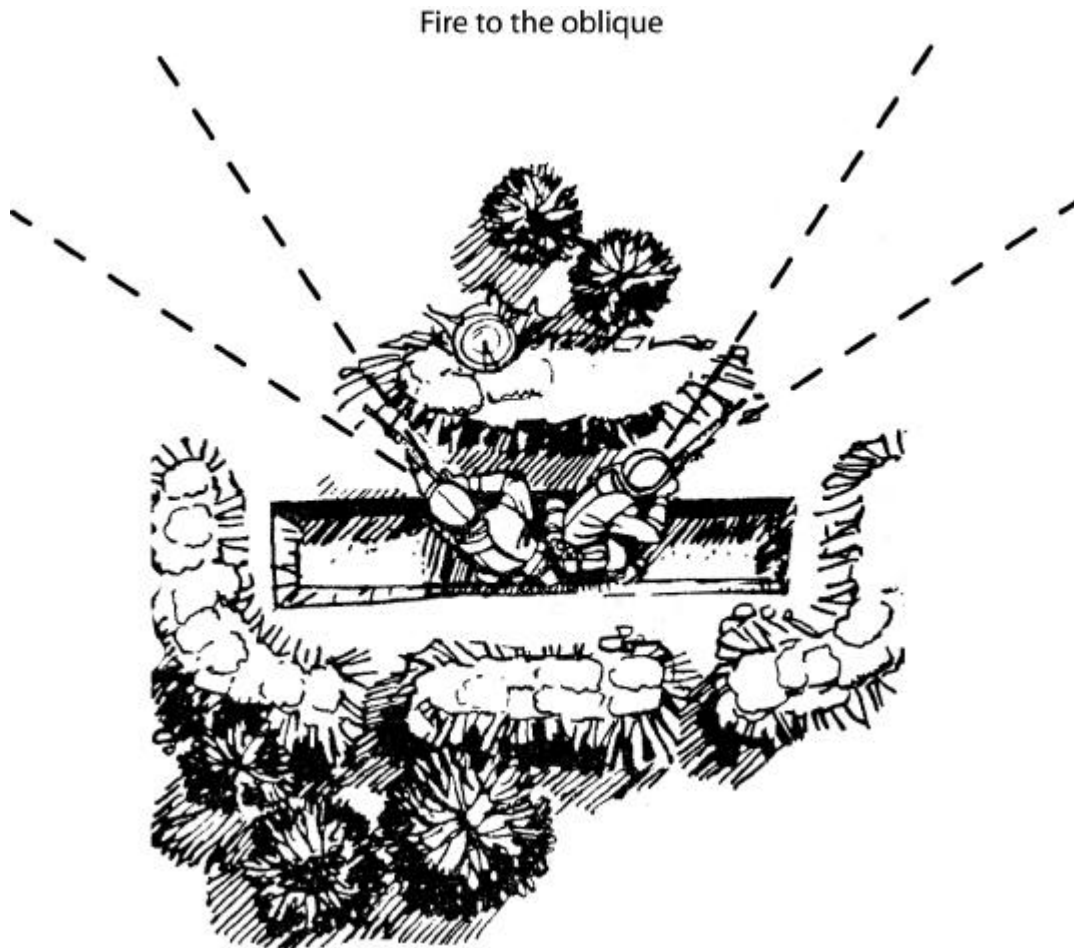
Fig 1-35. Oblique fires.

The size and shape of this fighting hole is the same as the one previously stated and is affected by certain considerations. It is as small as practical, exposing a minimum target to enemy fire; wide enough to accommodate the shoulders of one or two Marines sitting on the firing step and long enough to permit the use of an entrenching tool.

- Dig your fighting hole at least armpit deep to the firing step from which the standing occupant should be able to fire.

- The distance between the hole and the frontal cover should be enough to allow for an elbow rest (fig 1-36).
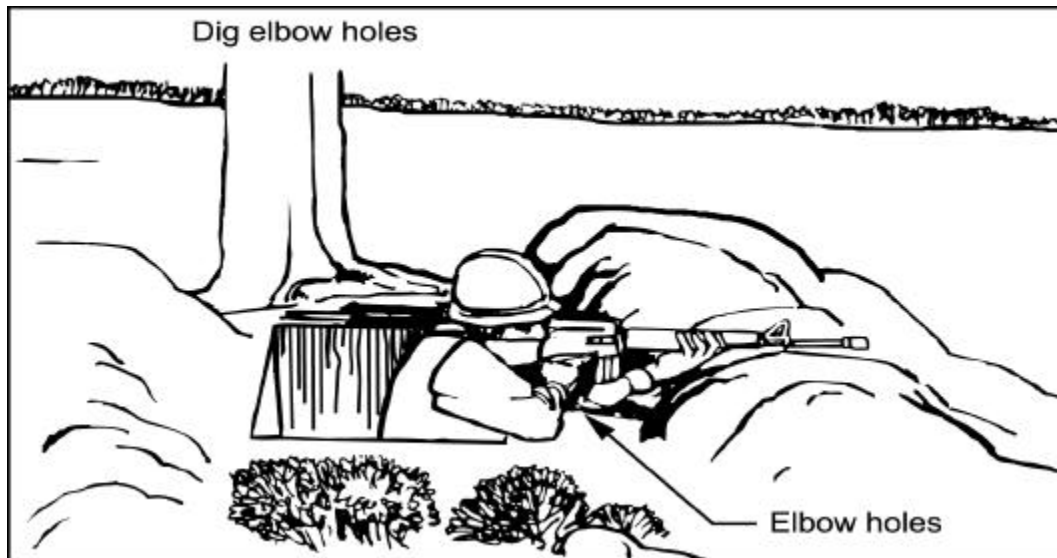
Fig 1-36. Elbow rest.

- Dig trenches on either side of the frontal cover (fig 1-37) for the bipod legs of the SAW to get it close to ground level.
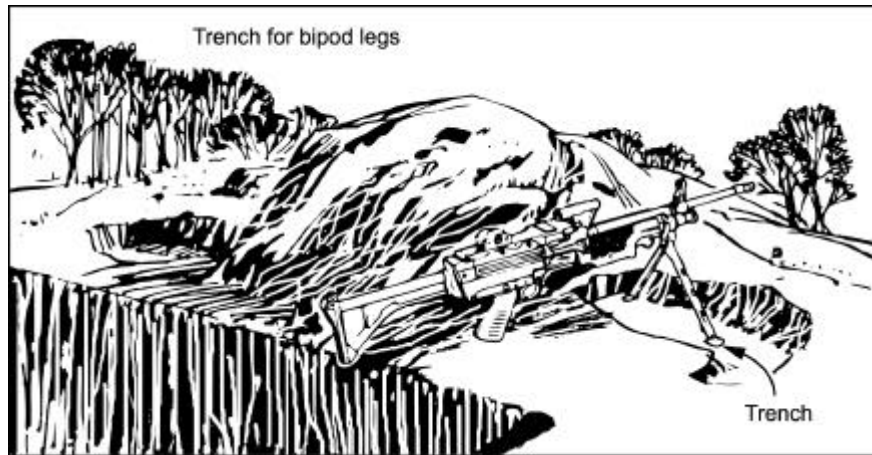
Fig 1-37. Bipod placement.

- Aiming stakes and sector stakes (fig 1-38) define the sector of fire and allow the individual Marine to fire accurately under periods of reduced visibility or darkness.
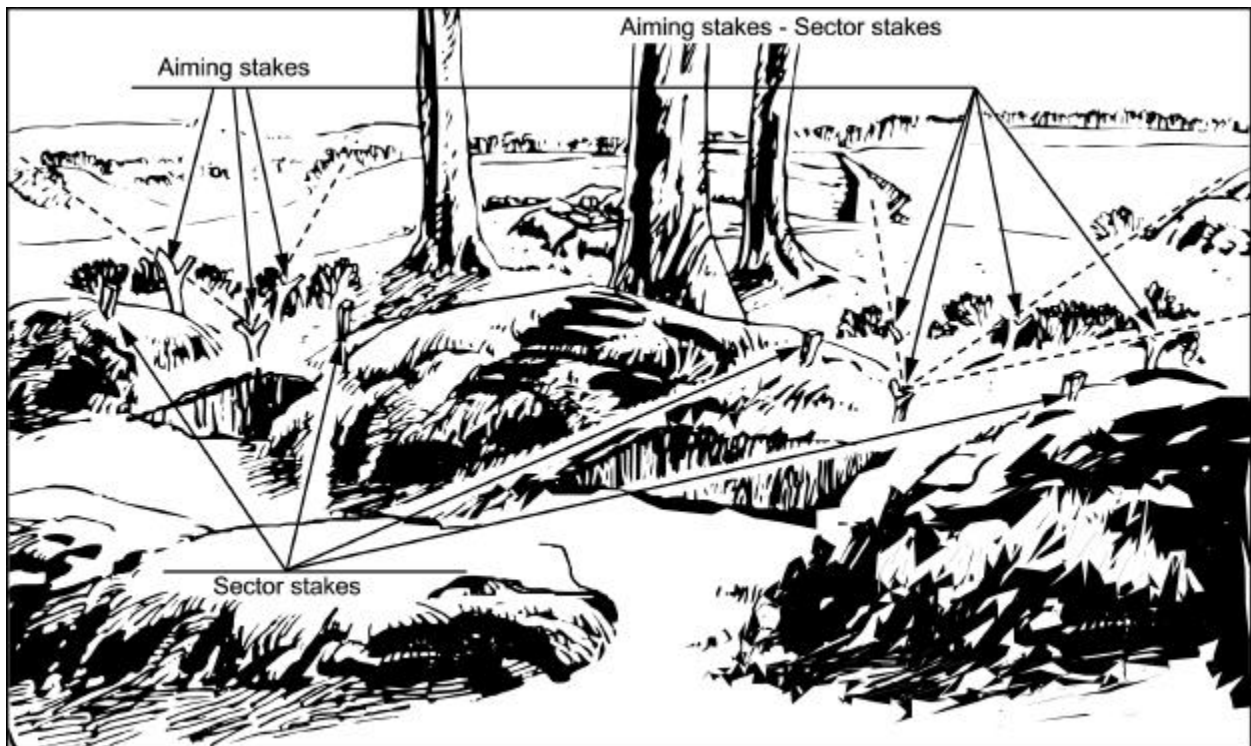
Fig 1-38. Aiming and sector stakes.

- Slope the floor of the hole (fig 1-39). The floor should slope toward the grenade sumps. Water will run into the sumps and grenades may roll or be kicked into the sumps. Dig trenches as wide as an entrenching tool blade, as deep as the entrenching tool and as long as the position is wide.
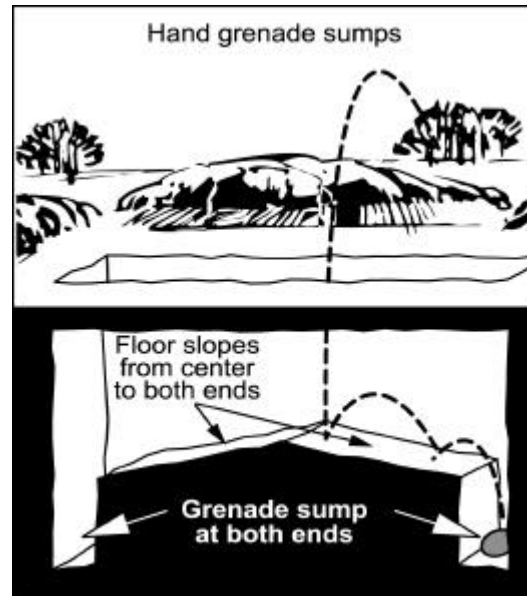
Fig 1-39. Grenade sump.

- Build support for overhead cover (fig 1-40) by placing logs l0 to 15 cm (4 to 6 in) on top of each other along the entire length of the frontal and rear cover. The front supports are high enough so Marines can fire from beneath the overhead cover when it is complete. Place a water-repellent layer such as waterproof packing material from MRE's or ammunition packing over the logs. To blend with the slope of the terrain, add and mold about 15 to 20 cm (6 to 8 in) of dirt.
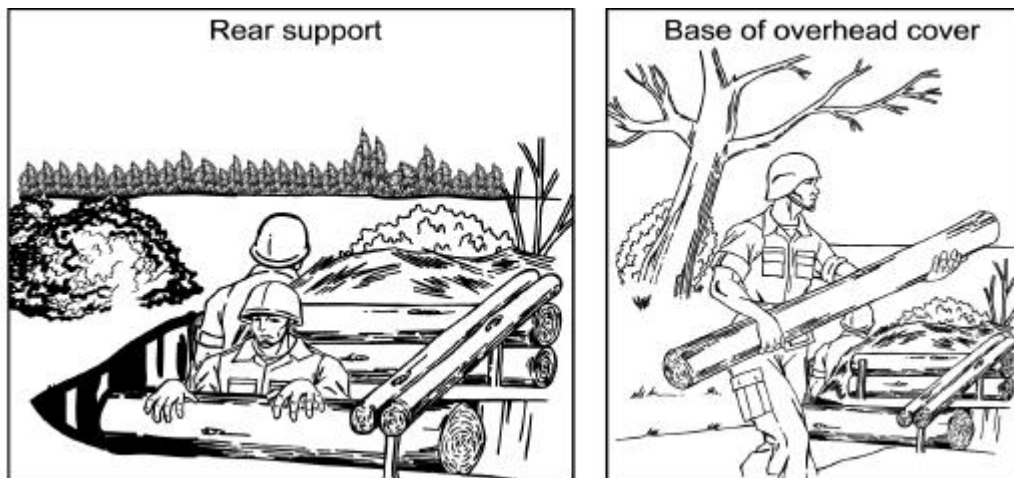
Fig 1-40. Support for overhead cover.

- Finally, camouflage the overhead cover. When it is complete, the Marine in the position will have protection from shell fragments and still be able to fire effectively.

Once your fighting positions are completed, you will be capable of delivering accurate frontal fire on the enemy as he/she advances in his/her assault formation out to the maximum effective range of your weapon.

As the enemy advances and you are required to pull back behind your frontal cover (fig 1-41), your position allows you to:

- Observe and fire to the oblique, protecting adjacent positions with interlocking fire.

- Remain protected from enemy indirect fire fragmentation by the overhead cover.

- Remain protected from enemy detection of movement or muzzle flash by the frontal protection.

- Employ hand grenades and Claymore mines to the flanks of their assault.

- Using teamwork, Marines in adjacent positions can direct the use of these weapons to the front of their buddies' positions.
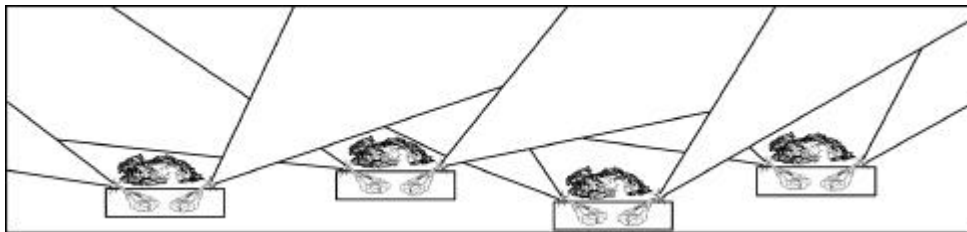
Fig 1-41. Frontal cover fire.

- When the ends of the position extend forward, AT4's can fire in pairs from the same position (fig 1-42).
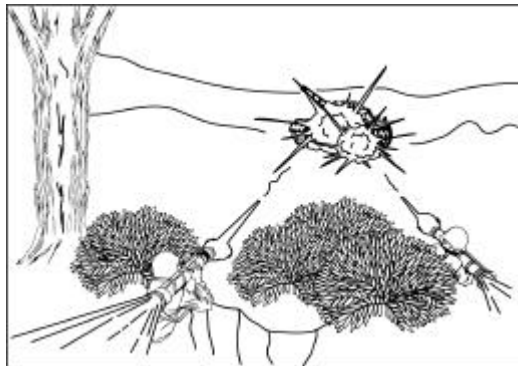
Fig 1-42. AT4's engaging targets from forward extended position.

The results of a properly organized and constructed defense are stopping the enemy's assault forward of the battle area and the accomplishment of the MISSION.

EXERCISE: Answer the following questions and check your responses against those listed at the end of this study unit.

1. List the components of a one-man fighting position.

a. _____

b. _____

c. _____

d. _____

e. _____

2. List the dimensions of a one-man fighting position.

a. Width _____

b. Depth _____

c. Length _____

Work Unit 1-10. CONSTRUCTING OBSTACLES

NAME FIVE EXAMPLES OF NATURAL OBSTACLES

LIST TEN GUIDELINES FOR EMPLOYING ARTIFICIAL OBSTACLES

* *

Obstacles

An obstacle is any tactical obstruction, natural terrain feature, soil condition, or manmade device which: denies the enemy entry into your position, delays advance, confines approach to a definite route, or forces the enemy to deploy troops prematurely. For an obstacle to be most effective, it must be covered by observation and fire. Obstacles are classified as natural or artificial.

Natural obstacles. These are obstacles such as steep banks, streams, canyons, swamps, and heavy woods. Natural features are manmade obstacles such as buildings or walls not originally erected to serve as obstacles. Existing natural obstacles in the area can be strengthened by the use of artificial obstacles. Consider natural obstacles when selecting a defensive position. For example, an unfordable stream or deep ravine adjacent to the position provides antitank protection for that particular side.

Artificial obstacles. These are passive defensive measures constructed and positioned by the unit itself for its own defense. These obstacles are barbed wire entanglements, minefields, roadblocks, and antitank ditches. Engineers may offer technical advice and construct obstacles, but it is actually the unit's responsibility to construct them. Barbed wire serves a good advantage in the defense of a position. It can be used to close gaps between natural obstacles, strengthen other obstacles, or provide obstacles where none exist. Below is a list of ten guidelines for constructing artificial obstacles.

1. Locate obstacles beyond hand grenade range of your position.

2. Keep obstacles under observation at all times.

3. Cover obstacles by fire.

4. Conceal obstacles by taking advantage of natural irregularities of ground and growth.

5. Use flares and other illuminating devices in connection with obstacles.

6. Employ obstacles which can be erected quickly, even in the dark and in the presence of the enemy.

7. Construct obstacles so that they present a confused and irregular appearance and are difficult to see.

8. Make the obstacle dense enough to prevent easy penetration, but not so thick as to be readily visible on aerial photographs.

9. Erect the enemy side of the obstacle first. This will provide immediate protection while the obstacle is under construction.

10. Locate obstacles so that they afford neither cover nor concealment to the attacker while being held up.

Entanglements. Tactical, protective, or supplementary are classified entanglements. The employment of these types in a defensive area is shown schematically in figure 1-43.

Fig 1-43. Three dimensional view, wire entanglements.

1. Tactical. Tactical wire entanglements (fig 1-44) are sited parallel to and along the friendly side of the final protective line. They are used to break up enemy attack formations and to hold the enemy in areas covered by the most intense defensive fire. Tactical entanglements extend across the entire front of a position but are not necessarily continuous.

2. Protective. Protective wire entanglements (fig 1-44) are located to prevent surprise assaults from points close to the defensive area. As in the case of all antipersonnel obstacles, they are close enough to the defensive area for day and night observation and far enough away to prevent the enemy from using hand grenades effectively from points just beyond the obstacle, normally 40 to 100 meters. Protective wire surrounds the individual units of a command, usually the platoons. These entanglements should be connected to entanglements around other platoons by supplementary wire to enclose the entire defensive positions. Protective entanglements are erected around rear-area installations in the same manner and to serve the same purpose as protective wire around defensive positions in forward areas. Protective wire also includes the installed entanglements goes over the tops of installations provided with overhead cover.

3. Supplementary. Use supplementary wire entanglements (fig 1-44) in front of the forward battle positions to conceal the exact line of the tactical wire. To the rear of these positions, use supplementary wire to enclose the entire defensive position by connecting the protective wire entanglements. Supplementary wire entanglements used to break up the line of tactical wire should be identical to the tactical wire entanglements and constructed simultaneously with them whenever possible.

LEGEND
xxxxxxxxx Tactical wire
x—x—x—x Protective wire
x—x—x Supplementary wire
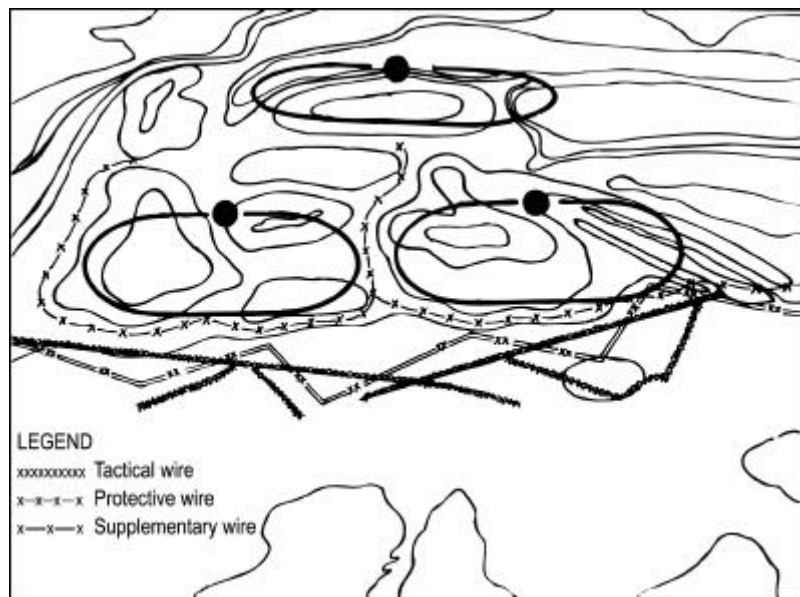
Fig 1-44. Topographical view, wire entanglements.

Note: Minefields are the best form of artificial obstacles, as they tend to inflict casualties as well as stop or delay the enemy's movement. The emplacement of minefields improves the strength of the defensive position. However, since landmine warfare is too involved for discussion in this course, you are referred to the MCI course on this subject.

EXERCISE: Answer the following questions and check your responses against those listed at the end of this study unit.

1. Name five examples of natural obstacles.

   a. _____

   b. _____

   c. _____

   d. _____

   e. _____

2. List 10 guidelines for employing artificial obstacles.

   a. _____

   b. _____

   c. _____

   d. _____

   e. _____

   f. _____

   g. _____

   h. _____

   i. _____

   j. _____

Work Unit 1-11. PREPARE ALTERNATE AND SUPPLEMENTARY POSITIONS

STATE THE PURPOSE OF ALTERNATE POSITIONS

STATE THE PURPOSE OF SUPPLEMENTARY POSITIONS

*   *

<u>Alternative position</u>. Alternate positions are prepared so that you may move to them when ordered and accomplish the primary mission. This position is constructed in the same way as the primary fighting position. It includes a fighting hole with fields of fire, sectors of fire, and fire lanes. Even though this position accomplishes the same fire mission as the primary position, it is normal to reserve the assignment of alternate positions for crew-served weapons.

<u>Supplementary position</u>. Supplementary positions are locations from which an entirely different defensive mission is accomplished. It is necessary to have positions on your flanks and rear since the enemy may envelop your position. Through the use of supplementary positions, defense in depth and flexibility are gained.

EXERCISE: Answer the following questions and check your responses against those listed at the end of this study unit.

    1. What is the purpose of the alternate position?

        _____

    2. What is the purpose of the supplementary position?

        _____

Section III.   APPLICATION OF FIRE

Work Unit 1-12. USE OF FIRE DISCIPLINE AND FIRE CONTROL

DEFINE FIRE DISCIPLINE

STATE THE RATE OF FIRE FOR THE MARINE RIFLEMAN AND THE MARINE AUTOMATIC RIFLEMAN

LIST THE SIX ELEMENTS OF THE FIRE COMMAND

*   *

Fire discipline. Fire discipline is the state of order, coolness, efficiency, and obedience existing among Marines engaged in a firefight. It implies careful attention to instructions relative to the use of the rifle, automatic rifle, and grenade launcher in combat and the exact execution of fire orders. Fire discipline is necessary for proper control, and upon this control depends the effectiveness of collective unit fire. Training in fire discipline starts with your first drill and continues throughout your military training. Alertness and the habit of obedience are essential. Fire discipline is maintained by leaders chiefly by their example of coolness and courage. The responsibility for fire discipline in the squad rests with the squad and fire team leaders. If you are separated from your squad or fire team, you fight on your own initiative only when you have reason to believe that your single effort will accomplish some important result. Otherwise, you report to the nearest squad leader at once.

Rates of fire. A trained Marine rifleman can fire approximately 10 to 12 aimed shots per minute. Difficulties encountered in battle usually make a slower rate advisable. The maximum rate at which a rifleman or automatic rifleman should fire is determined by the ability to select distinct targets, set the sights, and squeeze off accurate shots. To exceed this rate of fire is to waste ammunition. Effectiveness of fire depends on obtaining the maximum number of hits per total rounds fired. The rapid rate of fire for the automatic rifleman is 100 rounds per minute. The automatic rifleman's rate of fire is governed by the nature of the target. At the beginning of a firefight, the first few rounds of rifle fire and automatic rifle fire should be delivered at the rapid rate in order to pin the enemy to the ground. Thereafter, the rate should be reduced to the sustained rate (85 rounds per minute), which is just sufficient to maintain fire superiority. This permits adjustment of the fire by the squad leader and fire team leaders and conserves ammunition. In order to maintain an effective rate of fire in combat, the unit must have achieved in training a high degree of fire discipline and fire control.

Fire commands. Since enemy troops are trained in the use of cover and concealment, targets are often indistinct, or invisible, seen only for a short time, and rarely remain uncovered for long. When a target is discovered, leaders and squad members must define its location rapidly and clearly. Squad members must identify the target area quickly and accurately placing a high volume of fire on it, even though no enemy personnel may be visible. A small point target like an enemy sniper might be assigned to only one or two riflemen, while a target of considerable width like an enemy skirmish line, requires the combined fires of the entire squad. As an aid in

designating various types of targets, all members of the squad must become familiar with the topographical terms frequently used in designating targets; for example: crest, hill, cut, and skyline (fig 1-45). When your squad or fire team leader has decided to fire on a target, certain instructions are given on how to engage the target. These instructions form the fire command. The leader of the fire unit directs and controls the fire by fire commands.
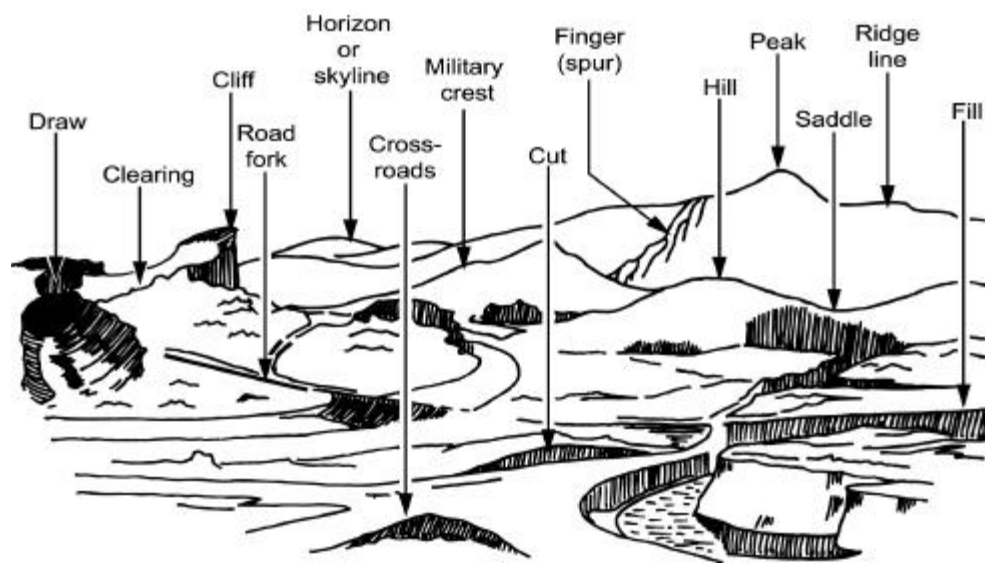
Fig 1-45. Topographical terms.

A fire command contains six basic elements that are always announced or implied. Fire commands for all weapons follow a similar order and include similar elements. Only essential elements are included. The six elements (ADDRAC) of the fire command are:

- **A**lert
- **D**irection
- Target **D**escription
- **R**ange
- Target **A**ssignment
- Fire **C**ontrol

1. Alert. This element alerts the fire unit to be ready to receive further information. It may also tell who is to fire. Usually it is an oral command, "SQUAD" or "FIRE TEAM." The leader may alert only a few individuals by calling them by name. The alert may be given by signals, personal contact, or any other method as the situation may dictate.

2. <u>Direction</u>. The direction element tells which way to look to see the target. Indicate the direction of the target in one of the following ways:

   a. <u>Orally</u>. The general direction to the target may be given orally and should indicate the direction to the target from the unit. Figure 1-46 shows the general directions used to indicate direction orally; for example, "RIGHT FRONT."
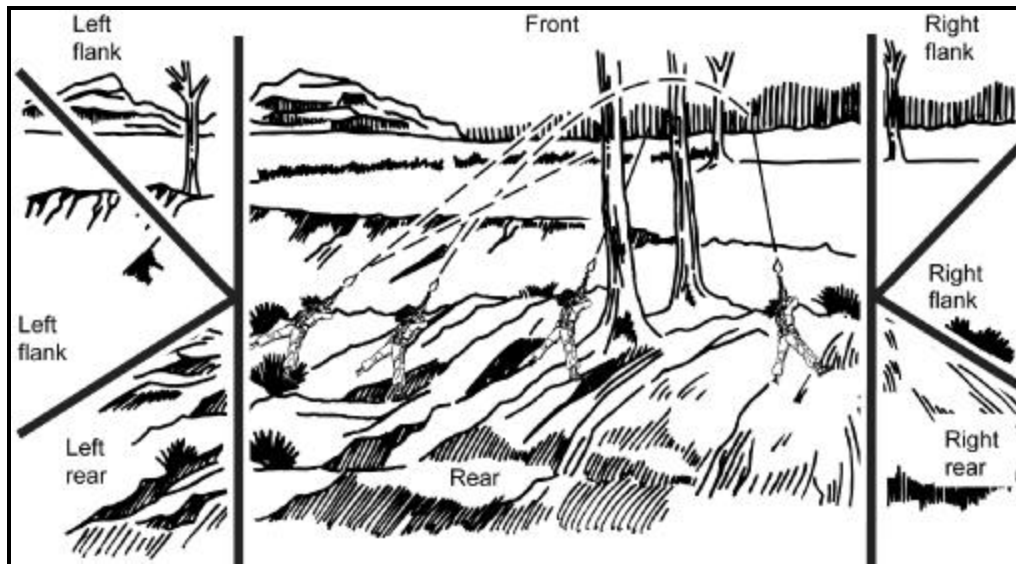
Fig 1-46. General direction.

   b. <u>Tracer ammunition</u>. Tracer ammunition is a quick and sure way to indicate direction and is the most accurate method of pinpointing targets. Whenever possible, the leader should give the general direction orally. This will direct the squad's attention to the desired area; for example:

   "FRONT"
   "WATCH MY TRACER" (Fire first round)
   "LEFT FLANK"

   Firing tracer ammunition to designated targets may give the firer's position away, and it will most certainly alert the enemy and reduce the advantage of surprise. To minimize the loss of surprise, the leader may wait until all other elements of the fire command are given before firing the tracer. In this case, the firing of the tracer can be the signal to commence firing.

c. <u>Reference points</u>. To help the members of the fire unit locate indistinct targets, the leader may use reference points to give direction to the target. The leader also selects a reference point that is near the target and easy to recognize.

When using a reference point, the word "REFERENCE" in describing the reference point and the word "TARGET" in describing the target are used. This prevents the members of the fire unit from confusing the two; for example:

"SQUAD"
"FRONT"
"REFERENCE: ROCK PILE IN DRAW"
"TARGET: SNIPER IN FIRST TREE TO THE RIGHT, ONE-FIVE-ZERO"

When using a reference point, the direction refers to the reference point, but the range is the range to the target.

Sometimes a target can best be located by using successive reference points, for example:

"FIRST TEAM"
"REFERENCE: STONE HOUSE RIGHT OF STONE HOUSE, SMALL SHED
"TARGET: MACHINEGUN IN FIRST HAYSTACK RIGHT OF SHED, TWO-FIVE-ZERO"

d. <u>Finger measurements</u>. Distances across the front, known as lateral distances, are difficult to estimate in terms of meters. To measure the distance right or left of a reference point, or to measure the width of a target from one flank to another, finger measurements may be used. The method of using finger measurement is as follows:

- Hold the hand at arm's length directly in front of your face, palm facing away from you, index finger pointing upward.

- Close one eye.

- Select a reference point.

- Place one finger between the reference point and the target and then fill that space by raising more fingers until the space is covered.

An example of the use of finger measurements is as follows:

"SQUAD"
"FRONT"
"REFERENCE: TALL TREE AT EDGE OF HEDGEROW, RIGHT TWO FINGERS"
"TARGET: MACHINEGUN, THREE HUNDRED"

3. <u>Target description</u>. The third element of the fire command is a brief and accurate description of the target.

4. <u>Range</u>. Range gives the information needed to set the sight or to adjust the point of aim. The word "RANGE" is not used. Examples of range are "ONE-SEVEN-FIVE," "TWO-FIVE-ZERO," or "FOUR HUNDRED."

5. <u>Target assignments</u>. The target assignment element tells who is to fire on the target and is broken down into the two sub-elements below:

   a. First, the squad leader prescribes whether the entire squad will fire on the target or whether only one fire team will fire. If the unit to fire is the same as announced in the alert element, it may be omitted from the target assignment element. When the squad leader intends to alert the entire unit, but plans to use only one fire team to fire on a target, the target assignment element is included.

   b. The leader also uses this element to determine what weapons will be fired and the rate of fire for the squad automatic weapon. Riflemen always fire at the average rate. Fire team leaders normally do not fire their rifles unless it is necessary. They may engage targets of opportunity or mark targets with the M203 grenade launchers, at their own discression or when ordered by the squad leader. Fire team leaders direct the fires of the members of their fire team on various targets within the assigned sector of fire and remain ready to transmit subsequent fire commands from the squad leader to their fire team. The following rules apply:

      (1) <u>Fire Team Leader/Grenadier.</u> If the squad leader desires fire team leaders/grenadiers to fire the M203, the squad leader commands "GRENADIERS." If the command "GRENADIERS" is not given, the fire team leaders direct the fire and movement of their teams.

      (2) <u>Squad Automatic Rifleman</u>. If the squad leader wants the squad automatic weapons fired at the rapid rate, the squad leader commands "RAPID." If the command "RAPID" is not given, automatic weapons are fired at the sustained rate. In response to the command "RAPID," the squad automatic rifleman fires initially at the rapid rate for two minutes and then changes the rate of fire to the sustained rate. This prevents the weapon from overheating.

   c. In the following examples of the target assignment element, let us assume that in the alert element, the command "SQUAD" was given.

      (1) If the target assignment element is omitted completely, the fire teams prepare to fire as follows:

         (a) The riflemen and assistant automatic riflemen fire their rifles at the average rate.

(b) Automatic riflemen fire their weapons at the sustained rate.

(2) "GRENADIER; RAPID" All fire teams prepare to fire as follows:

(a) Riflemen and assistant automatic riflemen prepare to fire their rifles at the average rate.

(b) Fire team leaders/grenadiers prepare to fire their M203's at the average rate.

(c) Automatic riflemen prepare to fire their weapon at the rapid rate.

(3) "FIRST TEAM; GRENADIER; RAPID" The first fire team prepares to fire as follows:

(a) Riflemen fire their rifles at the average rate.

(b) Fire team leader/grenadier fire their M203's at the average rate.

(c) Automatic riflemen fire their weapons at the rapid rate.

6. Fire control. The fire control element consists of a command or signal to open fire. If surprise fire is not required, give the command, "COMMENCE FIRING," without a pause as the last element of the fire command. When the leader wants all the weapons to open fire at once in order to achieve maximum surprise and shock effect, the leader will say, "AT MY COMMAND" or "ON MY SIGNAL." When all teams are ready, the leader gives the command or signal to commence firing.

a. Signals. Since oral commands are likely at times to be unheard because of battle noise, it is essential that the members of fire units understand visual and other signals. Use these signals constantly in training. Standard arm-and-hand signals applicable to fire commands are described in study unit 3.

b. Deliver of fire commands. Examples of complete fire commands are below:

(1) The squad leader wants to place a heavy volume of surprise rifle and automatic rifle (sustained rate) fire of the entire squad on an easily recognized target:

"SQUAD"
"FRONT"
"TROOPS"
"THREE"
"HUNDRED"
"AT MY SIGNAL"

(2) The squad leader desires to designate the target to the entire squad, but wants only the second fire team to engage it. The squad leader also desires M203 fire on the target and the automatic rifleman to fire at the rapid rate. Because the target is indistinct, the squad leader uses a reference point.

"SQUAD"
"RIGHT FRONT"
"REFERENCE: STONE HOUSE, RIGHT TWO FINGERS"
"TARGET: MACHINEGUN TWO-FIVE-ZERO"
"SECOND TEAM; GRENADIER; RAPID"
"COMMENCE FIRING"

c. Subsequent fire commands. A subsequent fire command is used by the squad leader to change an element of the initial command or to cease-fire.

(1) To change an element of the initial command, the squad leader gives the alert and then announces the element to be changed. Normally, the elements that require changing are the target assignment and/or the fire control. The following example illustrates the use of a subsequent fire command:

In the following initial fire command, the squad leader alerted the entire squad but only assigned one fire team to engage the target with rifle and automatic rifle (sustained rate) fire.

"SQUAD"
"FRONT"
"TROOPS"
"THREE HUNDRED"
"SECOND TEAM"
"COMMENCE FIRING"

(2) The squad leader now desires the entire squad to fire on the target: Fire team leaders/grenadiers to fire their M203, and automatic riflemen to fire at the rapid rate. Note that the squad leader does not repeat 'SQUAD' in the target assignment since the entire squad was on alert and wants the entire squad to fire. The squad leader's subsequent command will be as follows:

"SQUAD"
"GRENADIER; RAPID"
"COMMENCE FIRING"

(3) To have the squad cease fire, the squad leader simply commands "CEASE FIRE."

(4) In issuing subsequent fire commands, the squad leader must keep in mind that in most cases the noise of the battlefield will prevent the squad members from hearing the squad leader's commands. In most cases, the squad leader will pass subsequent fire commands through the fire team leaders. This is the reason that fire team leaders do not fire and remain attentive to the directions of the squad leader.

EXERCISE: Answer the following questions and check your responses against those listed at the end of this study unit.

1. Define fire discipline.

   _____

2. What is the rate of fire for the rifleman?

   _____

3. What is the rate of fire for the automatic rifleman?

   _____

4. List the elements of the fire command.

   a. _____

   b. _____

   c. _____

   d. _____

   e. _____

   f. _____

Answers to Study Unit 1 Exercises

Work Unit 1-1

(Check answers in figures indicated)

Work Unit 1-2

(Check answers in figures indicated)

Work Unit 1-3

1. a. Take cover
    b. Return fire
    c. Rush forward
    d. Continue to move
    e. Assault

Work Unit 1-4

1. a. Shout "INCOMING"
    b. Hit the deck
    c. Move through the impact area

Work Unit 1-5

1. a. Cover and concealment
    b. Cover only
    c. Concealment only

2. a. Right
    b. Wrong
    c. Right
    d. Right

Work Unit 1-6

1. Move out of the illuminated area; continue the mission
2. Assume a prone position before the flare bursts
3. Assume a prone position; close one eye

Work Unit 1-7

1. Use a mat or netting over it
2. Slide headfirst on your back; carry your weapon lengthwise
3. Check for boobytraps
4. A
5. B

Work Unit 1-8

1. B
2. A

Work Unit 1-9

1. a. Parapet
   b. Water sump
   c. Fire step
   d. Grenade sump
   e. Ammunition shelf
2. a. Shoulder width
   b. Armpit depth to the fire step
   c. Allow use of entrenching tool

Work Unit 1-10

1. a. Steep banks
   b. Streams
   c. Canyons
   d. Swamps
   e. Heavy woods
2. a. Locate obstacles beyond hand grenade range of your position
   b. Keep obstacles under observation at all times
   c. Cover obstacles by fire
   d. Conceal obstacles in natural irregularities of ground and growth
   e. Use flares and other illuminating devices in connection with obstacles
   f. Employ obstacles, which can be erected quickly
   g. Construct obstacles so they present a confused and irregular appearance and are hard to see
   h. Make obstacles dense enough to prevent easy penetration, but yet not too visible
   i. Erect the enemy side of the obstacle first
   k. Locate obstacles, so they do not provide cover for the attacker

Work Unit 1-11

    1. So that you may move to it when ordered and accomplish the primary mission.
    2. To have positions on your flank or rear mission

Work Unit 1-12

    1. The state of order, coolness, efficiency, and obedience existing among Marines in a
        fire fight.
    2. 10 to 12 aimed shots per minute
    3. 100 rounds per minute
    4. a. Alert
       b. Direction
       c. Target Description
       d. Range
       e. Target Assignment
       f . Fire Control

STUDY UNIT 2

CAMOUFLAGE

STUDY UNIT OBJECTIVE: TO IDENTIFY METHODS FOR EMPLOYING
CAMOUFLAGE WITHOUT THE AID OF REFERENCES

Work Unit 2-1.   CAMOUFLAGE POSITIONS

NAME THE THREE METHODS TO PROPERLY EMPLOY CAMOUFLAGE
MEASURES

*   *

Camouflage consists of the measures you take to conceal yourself from the enemy.
Camouflage reduces casualties by denying the enemy knowledge of the exact location of
positions and emplacements. Surprise in the defense is as important as surprise in the offense,
and camouflage helps to attain the element of surprise. Camouflage measures begin as soon as
you move into a position and continue as long as you occupy the position.

1.   Methods. The enemy is capable of direct observation through scouts, observers, and
indirect observation by the use of aerial photographs. Deny or deceive the enemy observer
by using one or more of the following methods of camouflage:

a.   Hiding (fig 2-1). Hiding is to conceal an object by constructing overhead cover
and lateral screening.

Fig 2-1. Hiding (note shadows help hide Marine nearest the tree).

b. Blending (fig 2-2). Blending is making an object indistinguishable from its surroundings by breaking up its form and shadow.
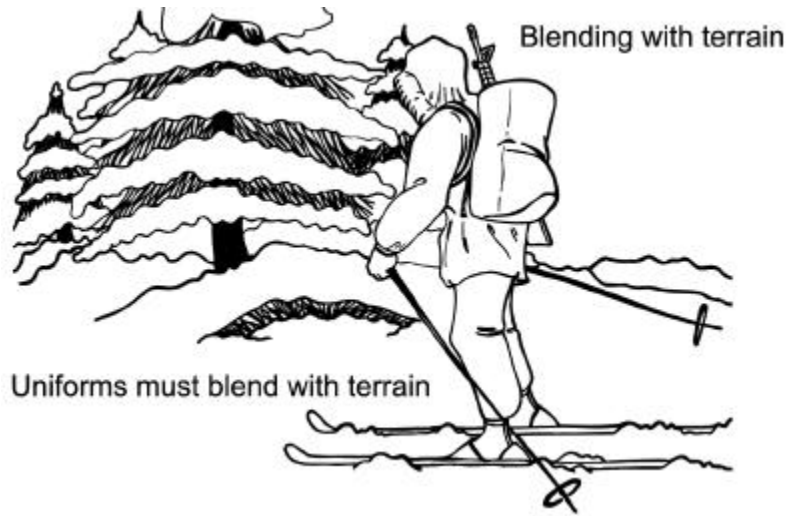
Fig 2-2. Blending

c. Deceiving. Deceiving consists of making an object appear to be something else. Causing military installations to resemble buildings typical of the area, or using dummies to mislead the enemy as to troop or weapons dispositions, and to draw the enemies attention away from actual positions are examples of deceiving.

2. Individual camouflage (fig 2-3)

a. Paint or darken your face and hands with camouflage paint, burnt cork, or dirt. This breaks up the outline of the face and reduces the reflection of light.

b. Paint or darken your clothing and equipment so that they blend with the terrain.

c. Break up the outline of your helmet and rifle with leaves, strips of cloth, or tape.

d. Blend with your background. Make use of trees, bushes, grass, or anything else that will help conceal your outline.

e. Stay in the shadows. This helps to hide you from enemy observation.

f. Stay off the skyline. Your silhouette makes a good target, which can be seen from a long distance.

g. Do not expose shiny objects such as mess gear, wristwatches, lighters, etc.

h. Whether natural or manmade, ensure the material used is indigenous to the area of operation.

Fig 2-3. Individual camouflage

3. <u>Position camouflage</u> (fig 2-4)

   a. Locate your fighting hole so that it will blend with the terrain and not contrast with the background.

   b. Do not dig near an isolated tree, a clump of bushes, or any object that stands out from the surrounding terrain.

   c. Do not disclose your position by careless clearing of fields of fire or by leaving tracks to and around the position.

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

   e. Carefully remove the topsoil and use it to camouflage the parapet of your fighting hole.

   f. Camouflage materials often since they quickly wilt and change color.

g.   Dispose of excess dirt by placing it under bushes, on dirt roads, or in streams, ponds or ravines.

h.   Do not litter the area with paper, ration cans, or equipment.

i.   Conceal the fighting hole from overhead observation by constructing a camouflage cover.

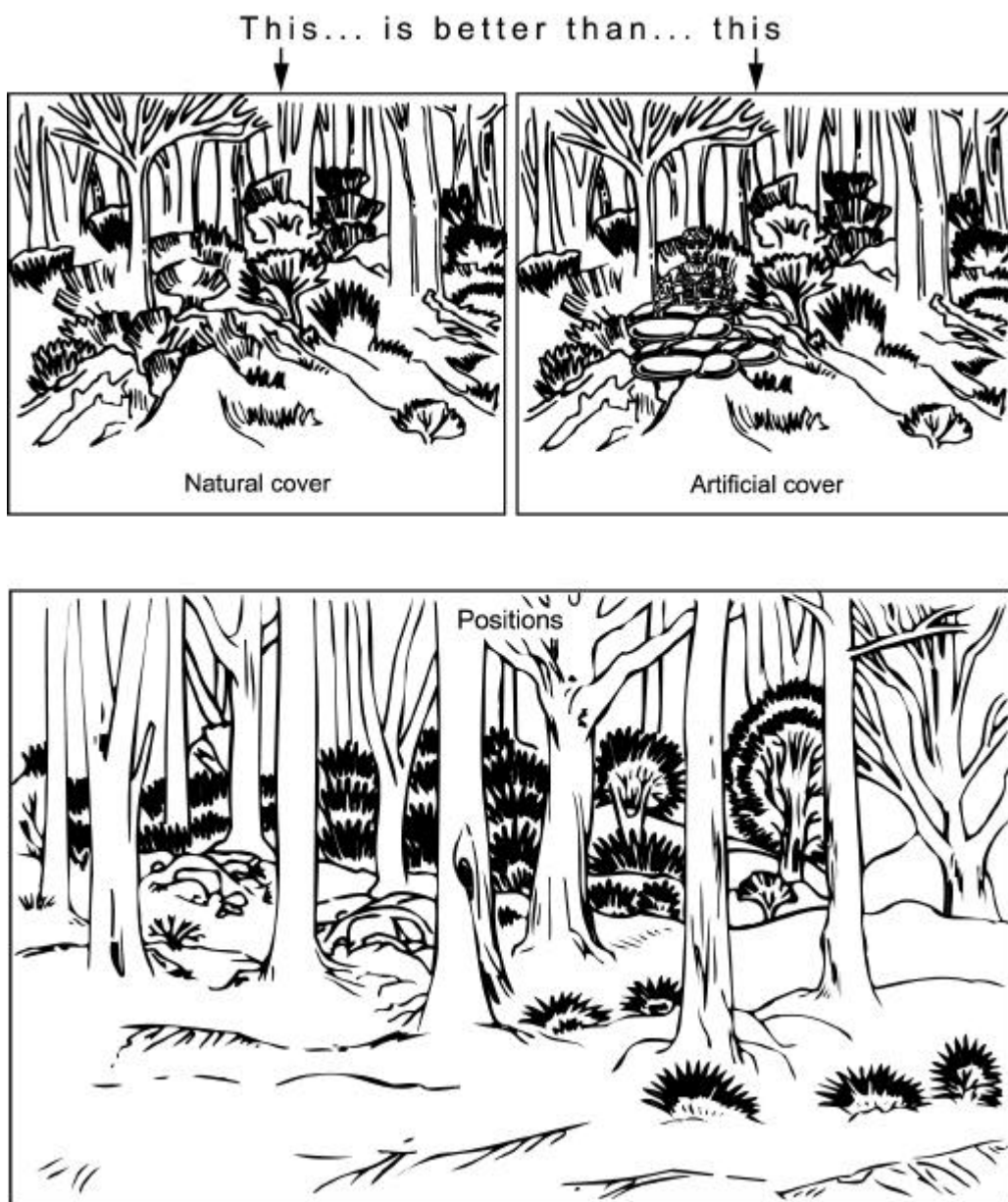j.   Use old paths or vary the route.

Fig 2-4. Position camouflage

EXERCISE: Answer the following questions and check your responses against those listed at the end of this study unit.

1.   What are the three methods used to properly employ camouflage measures?

a.   _____

b.   _____

c.   _____

Answers to Study Unit #2 Exercises

Work Unit 2-1

1. a. Hiding
    b. Blending
    c. Deceiving

STUDY UNIT 3

COMMUNICATIONS

STUDY UNIT OBJECTIVE: WITHOUT THE AID OF REFERENCES,
IDENTIFY THE KEY CHARACTERISTICS, COMPONENTS, OPERATING
AND MAINTENANCE PROCEDURES FOR THE TA-1/PT FIELD
TELEPHONE, AN/PRC-68, AND AN/PRC-119 RADIOS.

Work Unit 3-1. TA-1/PT, FIELD TELEPHONE

LIST THE KEY CHARACTERISTICS

IDENTIFY THE COMPONENTS

IDENTIFY THE OPERATING PROCEDURES

IDENTIFY OPERATOR MAINTENANCE PROCEDURES

* *

The TA-1/PT (fig 3-1) is a complete sound-powered telephone set in handset form. It is small, lightweight, and is used for local security.

CHARACTERISTICS

Weigh .... 3.5 pounds

Range .... 4 to 7.5 miles

Power source .... Sound

COMPONENTS

The parts of the TA-1/PT are mounted in a two-part magnesium case. One part of the case is the outer shell, and the other is a base piece on which the electrical parts of the set are mounted. Four machine screws are used to fasten the two parts together to form a watertight seal. Additional components are listed below and illustrated in figure 3-1.

1. Audible signal. A buzzer signal can be heard on incoming calls. A volume control on the base piece or bottom of the set can be set between OFF to LOUDER as needed.

2. Transmitter. This sound-powered microphone requires no batteries. In an emergency when the transmitter is not working, you can transmit by talking into the receiver.

3. <u>Generator</u>. The hand generator is used to ring distant stations. A squeeze-bar on the side of the case operates the generator. A rubber boot over the squeeze-bar protects the set from water.

4. <u>Visual signal</u>. A signal disk located just below the receiver in the handset turns white when a call comes in. This disk is painted so that it glows in the dark. The signal disappears when the call is answered.

5. <u>Cord</u>. The handset cord is a two-wire, rubber covered, curled cord. There are two spring-loaded binding parts at the end of the cord. After taking off about 1/2 inch of insulation from the ends of the field wire, put one wire into each binding post.

6. <u>Press-to-talk switch</u>. The press-to-talk (PTT) switch must be pressed to talk and released to listen. The visual signal will disappear when the PTT switch is pressed.

7. <u>Receiver</u>. The receiver is sound-powered. If your receiver fails to work, you can hear through the transmitter if you push the PTT switch.

8. <u>Carrying case</u>. There are two types of carrying cases. One is a canvas bag with a zipper and the other is a hard plastic case with a hinged cover. Both come with a carrying strap. The handset TA-1/PT also has a belt clip so that you can wear it on your belt.
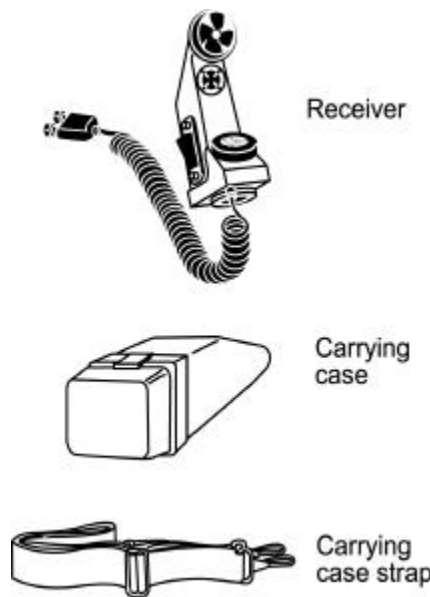

Fig 3-1. TA-1/PT Field Telephone.

INSTALLATION, OPERATION, AND MAINTENANCE

1. <u>Installation</u>. To install the TA-1/PT for operations, connect the communication wire by following the steps listed below:

   a. Strip one inch of insulation from the end of the two wires of the communication wire to be connected.

   b. Fold back the stripped wires about 1/2 inch from the end.

   c. Push down on one of the binding posts and insert the bare end on one wire into one post slot and the other wire into the other post slot (fig 3-2). Make sure the wire is securely clamped.
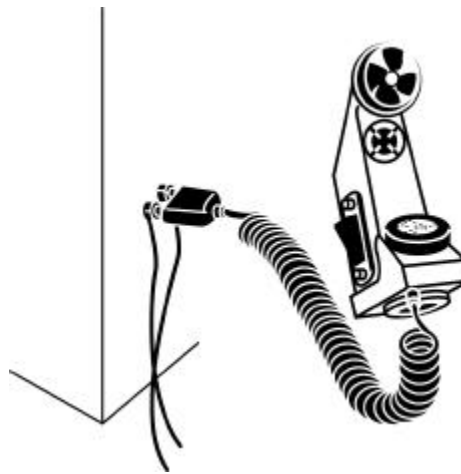
Fig 3-2. Connecting Communication Wire.

2. <u>Operation</u>.

   a. Set the volume control knob between OFF and LOUDER.

   b. Press the generator lever rapidly four or five times to ring the distant station.

   c. Press the PTT switch and request a "Line Check." Release the switch to listen.

   d. Request the distant station to ring you back to ensure that your TA-1/PT is working properly.

3. <u>Maintenance</u>. Operator maintenance of the TA-1/PT is limited to:

   a. Brushing away dirt and sand with a general purpose brush and drying moisture with a clean rag.

   b. Wiping dry the interior and exterior of the carrying case.

EXERCISE: Answer the following questions and check your responses against those listed at the end of this study unit.

1. The operating range of the TA-l/PT is

   a. 4 to 7.5 miles.
   b. 6 miles.
   c. 7.5 to 10 miles.
   d. 10 miles.

2. Power is supplied to the TA-1/PT by

   a. BA-183/U batteries.
   b. BA-249/U batteries.
   c. sound.
   d. two "D" cell batteries.

3. The volume control for the TA-1/PT is located just below the receiver.
   a. up near the visual signal disk.
   b. on the left side of the magnesium case.
   c. on the base piece or bottom of the set.

4. Where must the volume control knob be set for operation?

   a. On setting five
   b. Between OFF and LOUDER
   c. On setting ten
   d. Between OFF and SOFT

5. After requesting a "LINE CHECK" on the TA-1/PT, how do you determine if your equipment is working properly?

   a. No further testing is required.
   b. Request a ring back from the distant station.
   c. Press the generator lever rapidly four times.
   d. Request a radio check from the distant station.

6. Operator maintenance of the TA-1/PT is limited to brushing dirt and sand from the equipment, drying moisture with a clean rag, and

   a. properly lubricating metal parts.
   b. removing the BA-349/U batteries before storage.
   c. wiping dry the interior and exterior of the carrying cases.
   d. insuring that communications wire is clean and properly rewrapped.

Work Unit 3-2. AN/PRC-68

IDENTIFY THE KEY CHARACTERISTICS

LIST THE COMPONENTS

IDENTIFY THE OPERATING PROCEDURES

IDENTIFY OPERATOR MAINTENANCE PROCEDURES

* *

INTRODUCTION

The AN/PRC-68 (fig 3-3) is a lightweight, pocket-sized, VHF/FM transceiver, designed specifically for short-range communication within fire teams, squads, patrols, listening posts, and observation posts. Weighing only 46 ounces (3 lbs), it may be carried in the utility pocket or in a special harness. It is compatible with the Marine Corps' other VHF equipment with the same frequency range. When used with the proper equipment, it provides secure voice communications.

You cannot select any of the 1,000 available channels with the flick of a knob like you do with the other VHF radios. There are ten preset channels available to you—the operator. These ten channels must be adjusted by a technician. When you check out an AN/PRC-68 radio for use, you must ensure that your ten preset channels are adjusted to the frequencies you desire to use. Remember, there are 1,000 channels available and you can only preset ten channels. You must verify that your preset channels match those of adjacent friendly units.
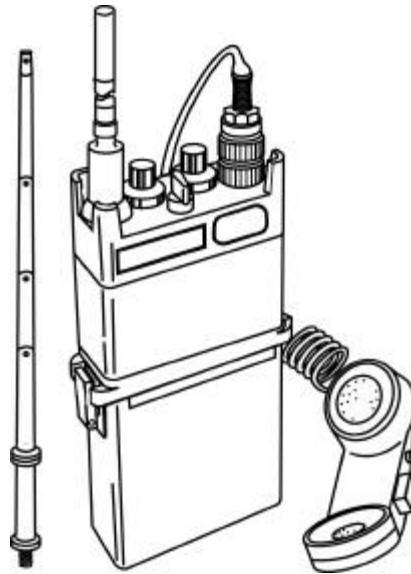
Fig 3-3. AN/PRC-68

CHARACTERISTICS

Frequency .... 30 to 79.95 MHz

Available channels 1,000

Preset channels 10

Operating Mode .... Voice

Modulation .... FM

Battery 1 life .... about 24 hours

Dimensions:
    Height .... 6.7 inches
    Weight .... 3.5 inches
    Depth .... 1.5 inches
    Weights .... 3 pounds with battery

Range .... 300 yards to one mile

COMPONENTS

The components of the AN/PRC-68 (fig 3-4) are enclosed in a watertight, dust-tight case, except for the battery, which is in a separate watertight battery case. The components of the AN/PRC-68 are:

1. <u>Antenna</u>. The antennas used with the radio are the MXP/N 917933 (short, for standard operation), and the AT-892/PRC-25 (long).

2. <u>RT Unit</u>. The receiver transmitter unit contains all necessary controls for operation, i.e., volume control, power/off/on/squelch control, a headset connector, channel selector, microphone-headset connector, and antenna connector. The transmission button is located on the side.

3. <u>Battery</u>. The battery for the radio is the BA-588, which has a life expectancy of 24 hours and a maximum power output of one watt.

4. <u>Battery Case</u>. The battery case houses the battery and provides two latches to secure the RT unit to the battery case.

5. <u>Lanyard</u>. The lanyard is used to attach the radio set to clothing or an accessory belt. Pass the loop end of the lanyard through the hole in the radio next to the AUDIO connector. Pass the hook end of the lanyard through the loop and pull tight.
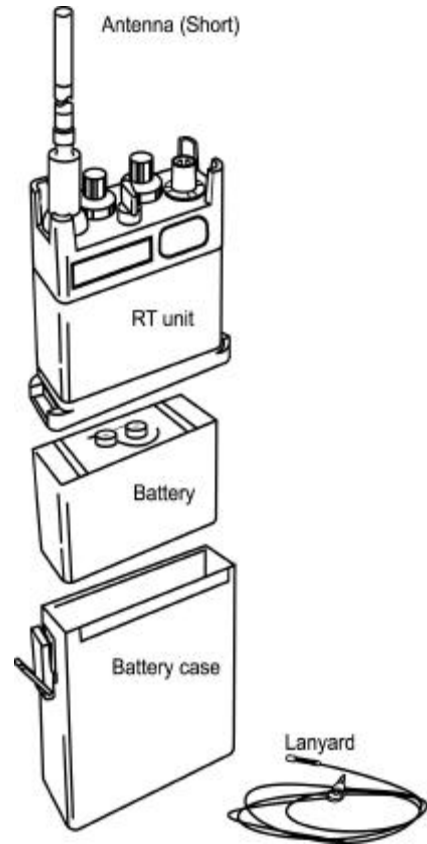
Fig 3-4. Components

OPERATING PROCEDURES

Figure 3-5 illustrates the location of the controls on the AN/PRC-68 and Table 1 provides a description of each control function. Operating procedures are listed in Table 2.
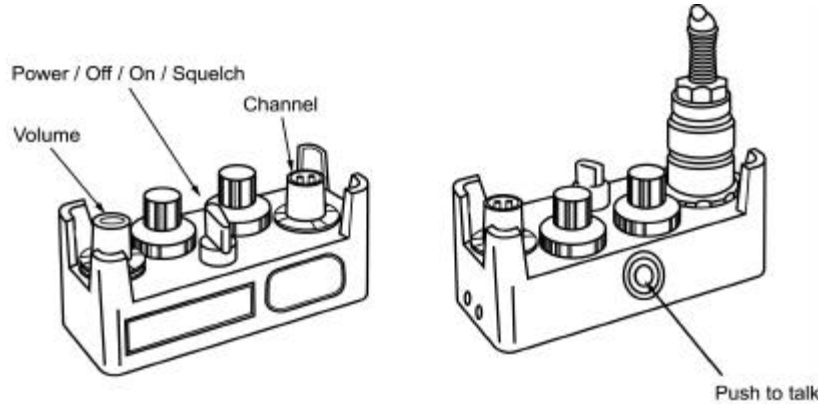

Fig 3-5. Controls

TABLE 1

FUNCTIONS OF CONTROLS AND INDICATORS

Reference Figure 3-4	Name of Control or Indication	Description	Function
1	Channel	10-position switch	Selects 1 of 10 preset channels.
2	PWR/OFF/ON squelch	3-position toggle	Activates radio set and enables or disables squelch.
3	VOL	Potentiometer	Adjusts audio output level of speaker or earphone.
4	Push-to-talk	Push button switch	Activates transmit function when switch is depressed (internal speaker/microphone only).

TABLE 2

OPERATING PROCEDURES

Desired Function	Control	Reference Figure 3-4	Procedure
Energize equipment	PWR/OFF/ON SQUELCH	2	Turn control one position clockwise until audible click is heard.
Adjust volume	VOL	3	Turn control clockwise until desired volume is attained with the PWR/OFF/ON/SQ switch in the ON position.
Activate squelch	PWR/OFF/ON SQUELCH	2	Place switch in SQUELCH position.
Transmit	PTT (Internal mike/earphone use only)	4	Depress for duration of transmission.
De-energize equipment	PWR/OFF/ON SQUELCH	2	Turn control counter clockwise until audible click is heard.
Operating channel	CHANNEL	1	Set switch to desired channel number 1-10.

OPERATOR MAINTENANCE

Operator maintenance for the AN/PRC-68 is limited to the replacement of the battery pack. The procedure to replace the battery pack is listed below.

1. Turn the fasteners on the bottom of the battery cover 1/4 turn counterclockwise and pull the battery cover from the radio set.

2. Remove the battery pack from its socket.

3. Plug in the replacement battery.

4. Reinstall the battery cover; turn the fasteners 1/4 turn clockwise.

EXERCISE: Answer the following questions and check your responses against those listed at the end of the study unit.

1. How many channels may be preset on the AN/PRC-68 by a communication technician before it is issued?

   a. 5
   b. 10
   c. 15
   d. 20

2. The average battery life for the AN/PRC-68 is

   a. 8 hours.
   b. 10 hours.
   c. 24 hours.
   d. 48 hours.

3. The maximum expected range for the AN/PRC-68 is

   a. 1 mile.
   b. 5 miles.
   c. 10 miles.
   d. 15 miles.

4. What component of the AN/PRC-68 contains the controls for operation?

   a. BR Unit
   b. Antenna assembly
   c. RT Unit
   d. Battery case

5. Operating the AN/PRC-68 requires setting the

   a. channel switch to the_____
   b. power switch one_____
   c. volume control to the_____
   d. push-to-talk switch_____

6. Operator maintenance for the AN/PRC-68 is limited to replacement of the

   a. RT Unit.
   b. battery pack.
   c. antenna unit.
   d. lower connecting unit.

Work Unit 3-3. SINGLE CHANNEL GROUND AIRBORNE RADIO SYSTEM

IDENTIFY THE KEY CHARACTERICTERISTICS

LIST THE COMPONENTS

IDENTIFY THE OPERATING PROCEDURES

IDENTIFY THE OPERATOR MAINTENANCE

* *

INTRODUCTION

The Single Channel Ground Airborne Radio System (SINCGARS), also known as the AN/PRC-119, is designed to provide secure voice and data communications in a frequency hopping (FH) or single channel (SC) mode. When operated in the SC mode, it is compatible with the AN/VRC-12 family of radios, which includes the AN/PRC-77. The SINCGARS radio is replacing the AN/PRC-77 radio.

The SINCGARS radio provides flexible means to support the transmission of voice and data information during highly mobile operations. The SINCGARS is an integral part of Marine Air Ground Task Force (MAGTF) command and control support system.

The greatest improvement over the older generation radio is the SINCGARS ability to automatically change frequencies (frequency hop) in constant and rapid succession (about 100 frequencies per second while transmitting) using a random pattern. The SINCGARS also has SC capability that allows interconnectivity with older radios and is compatible with most allied nations' VHF equipment.

CHARACTERISTICS

Frequency Range .... 30 MHz to 87.975 MHz

Number of Operating Frequencies................ 2,320

Channel Spacing .... 25 KHz

Frequency Offset Ability............................. Plus or Minus 5 and 10 KHz in SC mode

Type of Modulation..................................... Frequency Modulation (FM)

Types of Operation...................................... Push-To-Talk (PTT) and Release to
Receive Retransmit: Automatic
Remote: PTT, Release To Receive
Data: Automatic Via Data Device

Tuning .... Electronic, SC frequency entered manually
by using keyboard. Up to eight SC and six
FH channels can be loaded and later selected
using channel (CHAN) switch.

Rated Range.. <u>Low (LO)</u> –   0 to 330 yards
<u>Medium (M)</u> – 330 yards to 2.5 miles
<u>High (HI)</u> – 2.5 miles to 5 miles
<u>Power Amplifier (PA)</u> – 22 miles

Power Source .... <u>Dry Batteries</u>
- BA-5590 – A lithium battery that provides
  up to 72 hours of operational life.
- BB-590 – A NiCad battery that provides
  up to 12 hours of operational life.
- BB-390 – A NiCad battery similar to the
  BB-5590 except this battery has a power
  level indicator and is rechargeable.

<u>Hold Up Battery (HUB) BA-1372/BA-5372</u>

These batteries serve as a memory battery.
HUB power cuts in automatically if main
power is disrupted for any reason. It also
becomes operational whenever the function
(FCTN) switch is set to STANDBY.

Neither the dry batteries nor HUB is supplied
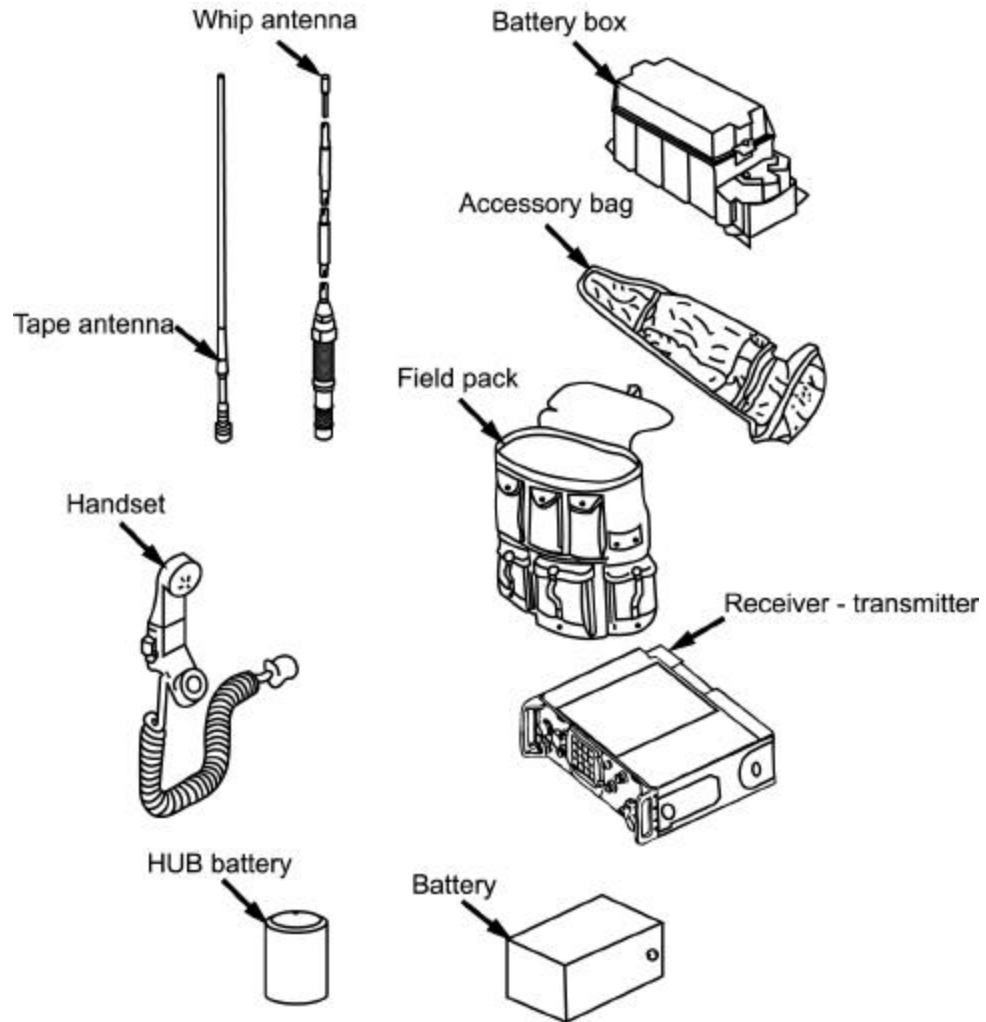as part of the SINCGARS. They must be
requisitioned separately.

Fig 3-6. Components

COMPONENTS

The components of the AN/PRC-119 (fig 3-6) are:

1. <u>Receiver-Transmitter RT-1523</u>. The electronic components are housed in the top part of the receiver-transmitter (RT) case. Also, this is where the controls, switches, connectors, keyboard, and display window are located.

2. <u>Battery Box</u>. The battery box makes up the lower portion of the case. The battery box is a lightweight plastic case that protects and houses the dry battery that attaches to the receiver-transmitter case by two butterfly clips.

3. <u>Antenna AS-3683 (Tape)</u>. This 3-foot-long tape antenna has a flexible spring at its base. This spring allows the antenna to be positioned vertically at all times regardless of the position of the radio set. The AS-3683 is used for general short-range service (3-5 miles). Its steel tape construction allows it to be folded into a small space. The distance of transmission and reception is enhanced by the position of the antenna (fig 3-7). Consider the following positions when using the tape antenna:

   a. Vertical position – your transmission and reception capability is 360 degrees (omni directional).

   b. Horizontal position – your radio's capabilities are restricted to right angles to the antenna.

   c. Prone position – If your communication is desired to the front or rear, rotate your body or the antenna so that the right angles of the antenna coincide with the receiving stations.
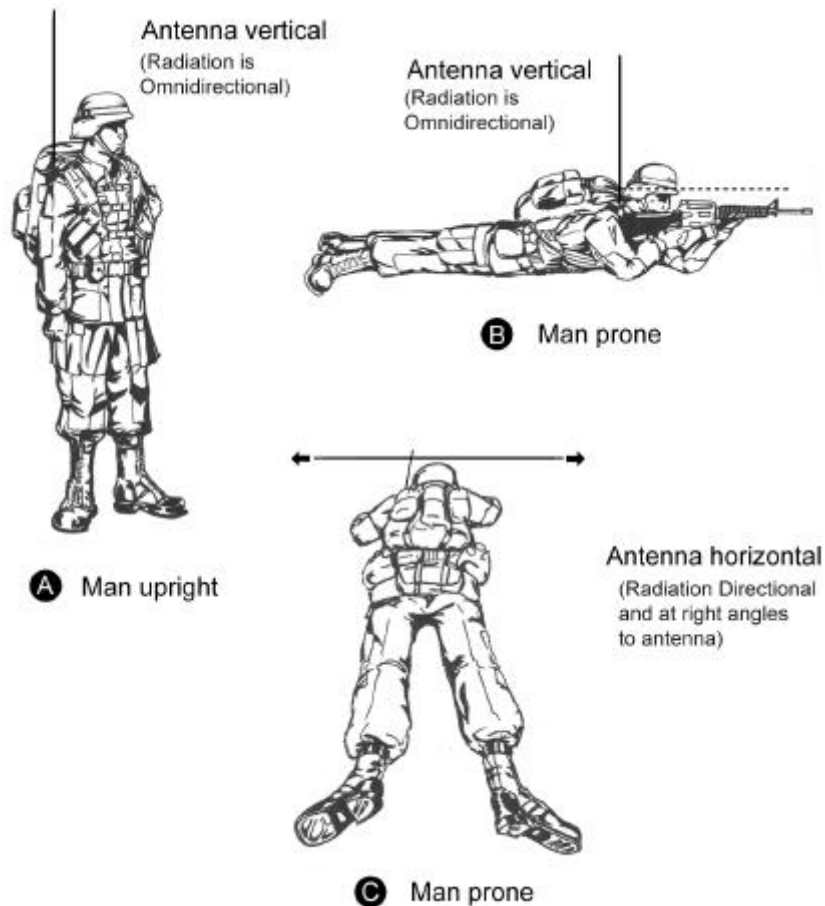
Fig 3-7. Antenna positions

4. Antenna AS-4266 (Whip). This multisectioned, 10-foot-long whip antenna is held together by a stainless-steel, plastic-covered cable under spring tension, which is threaded through the sections with each section fitting into the end of the wider section to hold them together in the operating condition. When the sections are folded, the cable keeps them together as a group to prevent the loss of an individual section. Spring tension is provided by a spiral spring located in the base section. The AS-4266 is used when additional range is required.

5. Field Pack. This device is used to transport the AN/PRC-119. Field packs may differ in design.

6. Handset, H-189/GR or H-250. The handset consists of a microphone and receiver section, with a retractable cord terminating in a 5-pin connector. A PTT switch is mounted in the handle.

7. Accessory Bag CW-503. This is sectionalized into several pockets that are used to store the antennas, the antenna support, and handset H-189/GR when not in use.

CONTROL FUNCTIONS

1. Panel Controls, Indicators and Connectors. Figure 3-8 shows the location of all the controls, indicators and connectors on the front panel of the AN/PRC-119. Their functions are described in Table 1.
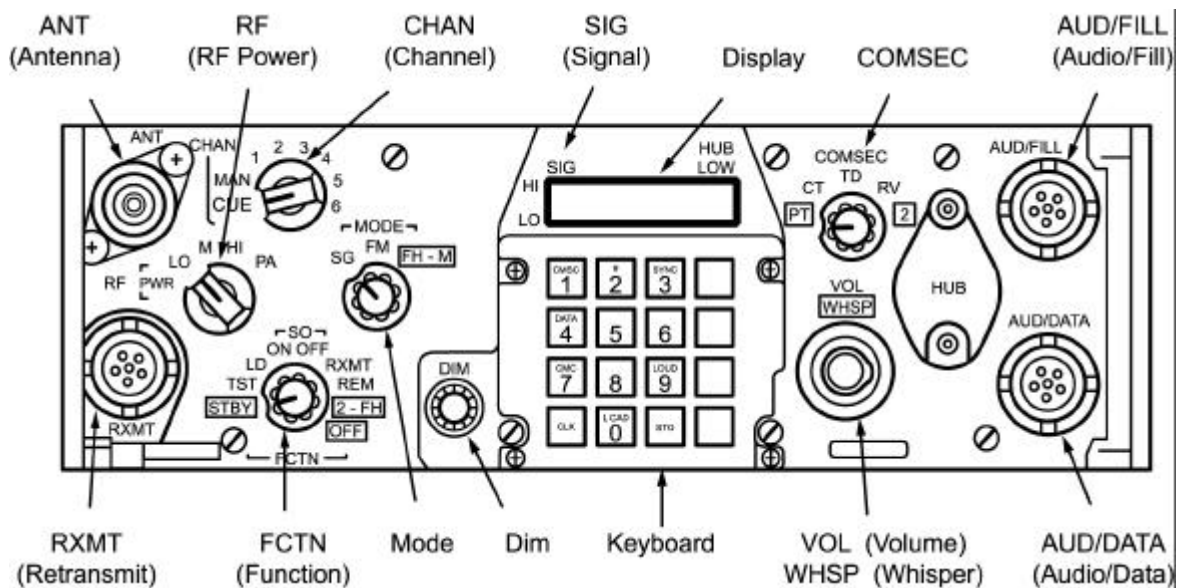
Figure 3-8. Control Panel

TABLE 1

**AN/PRC-119 CONTROLS, INDICATORS,
CONNECTORS AND FUNCTIONS**

Control, Indicator, and Connector	Function
ANT (antenna) connector	Connection for man pack or vehicle antennas.
RF (radio frequency) power switch	The RF power switch adjusts the transmission distance. | Switch Position	Action
LO	0-330 yards
M	330 yards-2.5 miles
HI	2.5 miles-5 miles	
CHAN switch	Use the CHAN switch to select manual preset and CUE frequencies. | Switch Position	Action
CUE	Contact a frequency hop net when you are not a member.
MAN	To perform COLD START net openings
1-6	Preset channels used for SC, FH, or COMSEC key data.	
SIG (signal) display	Used to show the approximate signal strength. The marker will illuminate from dim (LO) to high (HI). The variation will tell you the strength of the signal that is being transmitted. The stronger the illumination appears the stronger the transmission.
Keyboard display window	Provides you with a variety of information for the operator. It displays SC frequencies, error messages, FH data, data rates, etc. It will also respond to keyboard entries according to the operation you are performing. A diamond-shaped light flashes if HUB is weak (a steady light indicates that HUB is extremely weak or missing). The light only appears if the keyboard display is active.
COMSEC (communication security) switch	Sets the COMSEC mode in which the RT will operate. | Switch Position	Action
PT (plain text)	Nonsecure mode of operation.
CT (cipher text)	Secure mode of operation.
TD (time delay)	Used to compensate for transmission delays between communication links.
RV (receive variable)	Used to receive remote COMSEC fills.
Z (zeroize)	Used to zeroize COMSEC fills. This will remove all crypto software data.	

Control, Indicator, and Connector	Function
AUD/FIL (audio/fill) connector	Connects to fill device using a fill cable during FH data loading and COMSEC key loading. Can be used to connect handset when RT is mounted in power supply adapter.
RXMT (retransmit) connector	Connects retransmit cable during retransmission operations.
FCTN switch	The FCTN switch allows you to set the function for the RT.

The FCTN switch allows you to set the function for the RT.

Switch Position	Action
OFF	Turns off all power to the RT, including HUB. Clears all memory after 5 seconds.
TST (test)	Starts RT self-tests. Circuits tested include electronic counter counter-measures, data, and RT. Displays show results.
LD (load)	Used for loading SC frequencies, FH data, and COMSEC key data.
SQ (squelch) ON	Turns on RT and squelch. Used for communication with similar radios. Prevents rushing noise in handset or loudspeaker.
SQ (squelch) OFF	Turns on RT, but not squelch. Used with SC communications with radios having different squelch systems. May be helpful when RT is being jammed during SC operations.
REM (remote)	Disables RT front panel controls. Used for control monitor and remote control unit operation.
RXMT (retransmit)	Used for retransmit operations.
STBY (stand by)	For loading SC frequencies, FH data, and COMSEC key data. Used to receive electronic remote fills. Turns off primary power to the RT, HUB remains operational. In STBY radio draws HUB power to maintain memory and sync time for 24 hours. Use SQ ON rather than STBY listening silence.
Z-FH	When FCTN is set to this position, all FH data is cleared after 5 seconds. Procedure for radio out of operation: pause in the Z-FH position for 5 seconds before going to the OFF position. This ensures that the RT is completely cleared of FH data.

Control, Indicator, and Connector	Function
MODE switch	The MODE switch allows you to set the mode in which you will operate the radio transmitter. | Switch Position	Action
SC	Used for single channel mode.
FH	Used for frequency hopping mode.
FH-M	Used for frequency hopping master.	
DIM switch	Adjusts display brightness.
Keyboard	The keyboard is used for entering, holding, and checking data.
VOL/WHSP (volume/whisper) control	Adjusts audio volume. Whisper control allows you to speak softly during transmit, and to receive at a normal level. Pull knob to turn on whisper function.
AUD/DATA (audio/data) connector	Connects to handset or mounting adapter during normal operations. During data operations, it connects to external data devices, or to mounting adapter for TAC-FIRE operation.

COMSEC DATA PRINCIPLES

Your SINCGARS radio is capable of two modes of operation: Single channel and frequency hopping.

1. Single Channel. When using the SC mode of operation, the RT communicates on one frequency that has been loaded into the RT. The SC frequency can be cleared or offset as desired.

2. Frequency Hopping. SINCGARS also has the ability to secure transmissions through the use of a transmission security key and FH to reduce or eliminate the threat of jamming and direction-finding equipment. In order for your RT to use the FH mode of operation, it must be loaded with FH data.

The two methods used for loading FH data are "local fill" and "electronic remote fill (ERF)."

1. Local Fill. Local fill makes use of an ECCM fill device or a tape reader.

2. Electronic Remote Fill. ERF does not make use of a fill device. Instead, the net control station (NCS) transmits lockout sets and/or hopsets to net member radios.

There are two devices used to load COMSEC Data for FH. They are the KYK-13 fill device and AN/CYZ-10 data transfer device (DTD).

1. The KYK-13 fill device. This is an electronic transfer/fill device used for loading COMSEC data into the RT-1523 during local fill operations. The fill cable, ON-512424, (fig 3-9) is used to connect the KYK-13 fill device to the RT-1523 so that data can be transferred. This device is not used as often as the AN/CYZ-10 DTD, but there may be a situation when it has to be used.
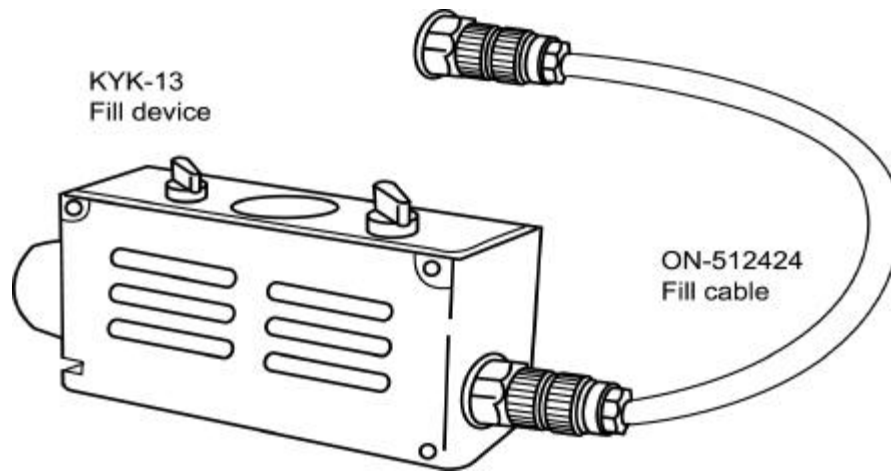
Fig 3-9. KYK-13 Fill Device

2. The AN/CYZ-10 data transfer device (DTD). This device is hand held and computer compatible (fig 3-10). It is menu driven, making it easy to use. It provides MODE 1 and MODE 2 fills for SINCGARS equipment. The MODE 2 method will load your radio with the COMSEC variable needed to communicate in cipher text while in the SC mode.
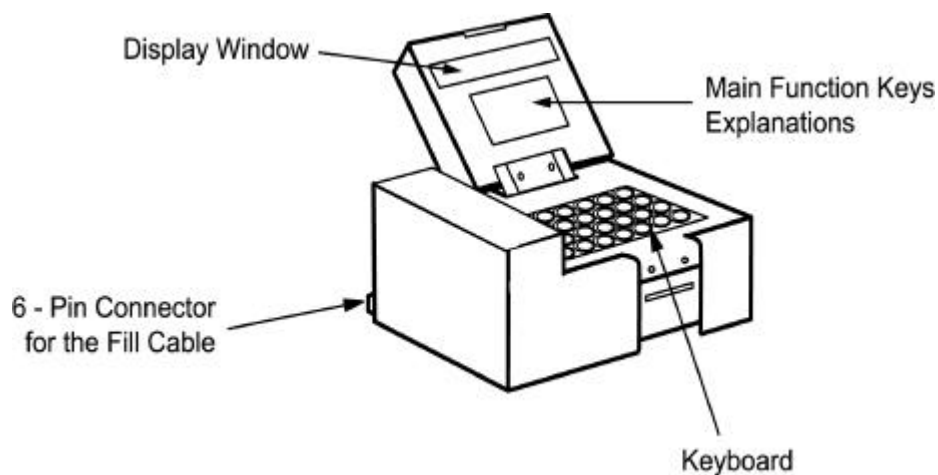
Fig 3-10.   AN/CYZ-10 Data Transfer Device

The three (3) methods used to load local fills for FH are:

1. Load COMSEC data using the KYK-13.
2. MODE 1 fill load COMSEC data and COMSEC variable using the AN/CYZ-10.
3. MODE 2 fill load FH data and COMSEC variable using the AN/CYZ-10. This type of fill is the most desirable. This lesson will review the MODE 2 fill method. The other methods can be found in MCI 25.38, SINGARS.

PREPARATION FOR OPERATION

1. Installing Batteries

   a. Battery BA-5590/BB-590/ BB-390 (fig 3-11). Place the FCTN switch on the RT in the OFF position. Stand the RT on its front panel guards. This will make installation of the battery and the battery box easier. Inspect the battery box for dirt, and check the connecting pins for damage. Place the battery on its side and then insert the battery in the battery box. Ensure you match the connectors on the battery with those inside the battery box. Secure the battery box cover by latching the butterfly clips located on each side of the battery box. Attach the battery box to the RT using the hold down latches.
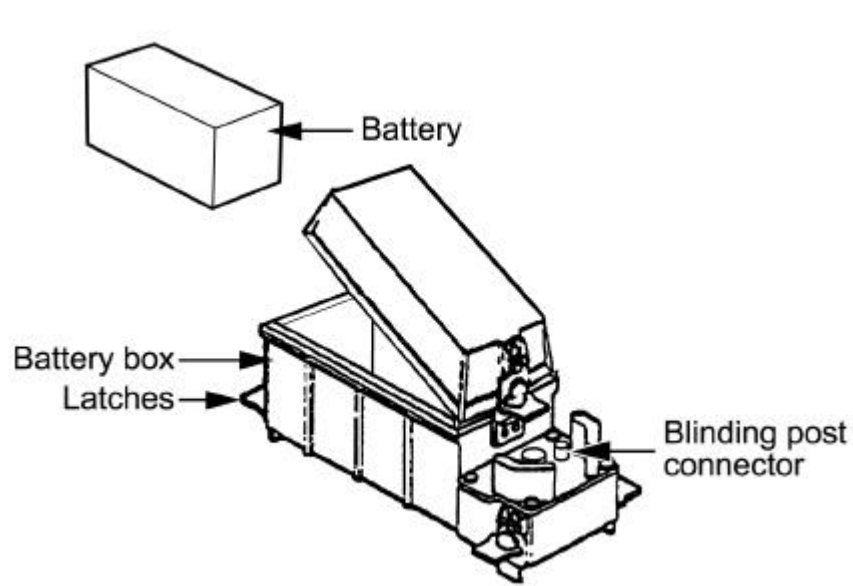
Fig 3-11. Battery and box

   CAUTION: DO NOT use force when installing the battery. This may crack the plastic connector in the battery.

b. <u>HUB Battery BA-1372/BA-5372</u>. To remove the HUB cover (fig 3-12), loosen and remove the two screws. Lift the cover off the panel. Position the battery with the flat end positioned first. Reposition the HUB cover and secure it using the two screws you removed previously. Secure the screws snugly enough to keep out moisture.
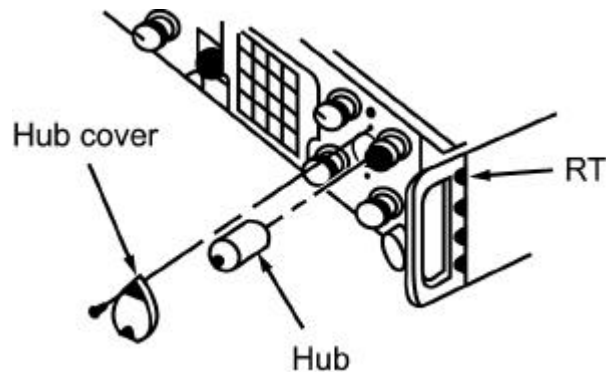
Fig 3-12. Hub Battery

CAUTION: Do not cross thread the screws. It will damage the equipment.

2. <u>Installing antennas</u>

a. <u>Antenna AS-3683 (Tape)</u>. Used when maximum range is not required. Remove the cover from the ANT mount and screw the bottom of the antenna into the ANT base, then hand tighten. Carefully mate antenna base with RT ANT connector. Position the antenna as needed by bending gooseneck.

CAUTION: Do not over-tighten.

b. <u>Antenna AS-4266 (Whip)</u>. Remove the cover from the ANT mount and screw the bottom of Antenna Support AB-591 into the ANT mount. Extend the whip antenna by holding the base (heaviest section) and carefully opening it outward so that each section is securely connected to the next section. When the antenna is fully extended, secure it into the antenna support on the radio set.

CAUTION: Do not use antenna as a handle. Equipment damage may result.

3. <u>Installing Handset</u>. Moisten the "0" ring of the handset by wetting the tip of your little finger and wiping it on the "0" ring and place the plug on either audio connector. Align the flat portion of the plug with the red dot on the audio connector. Secure the ring by giving the plug a clockwise twist and pulling up on it to make sure it is secured (fig 3-13).
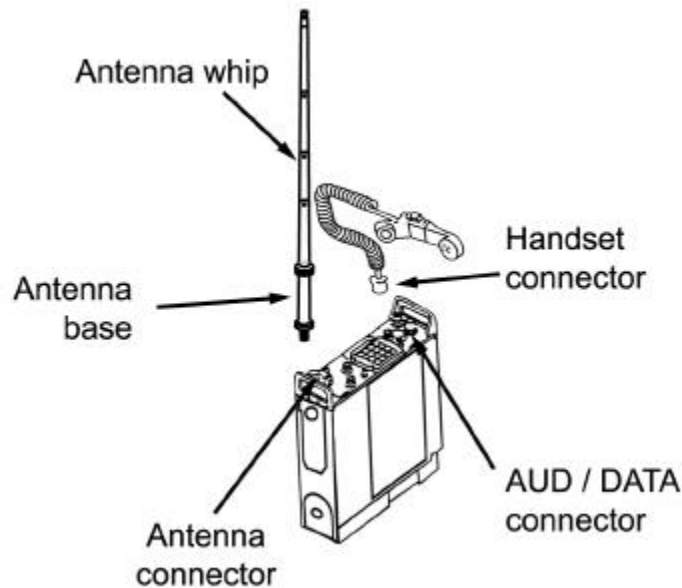
Fig 3-13. Handset Installation

4. <u>Conduct a self-test of the RT</u>

   a. Set the FCTN switch to Z-FH. Result: "GOOD" will appear in the display window.

   b. Set the FCTN switch to (LD) load.

   c. Ensure the data function is OFF by pressing the DATA key, the #4 key on the keyboard. Result: The word OFF will appear on the display window.

   d. Place the CHAN switch in the manual position.

   e. Place the FCTN switch in the TST position. Result: The RT will go through a series of test and a final appearance of the word "GOOD" will appear on the display window.

   f. Once the self-test is complete place the FCTN switch in the normal operating position (SQ ON).

5. Assemble the manpack

    a. After you have installed the battery and antenna, place the AN/PRC-119 into the field pack as follows:

        (1) Place RT in field pack with antenna on the left (fig 3-14).

        (2) Fold top flap of the field pack over RT and secure flap using the straps and buckles.

        (3) Put on field pack.

    b. Before placing the radio set on the operator's back, install the desired antenna and connect the handset to one of the audio connectors on the front panel of the AN/PRC-119.
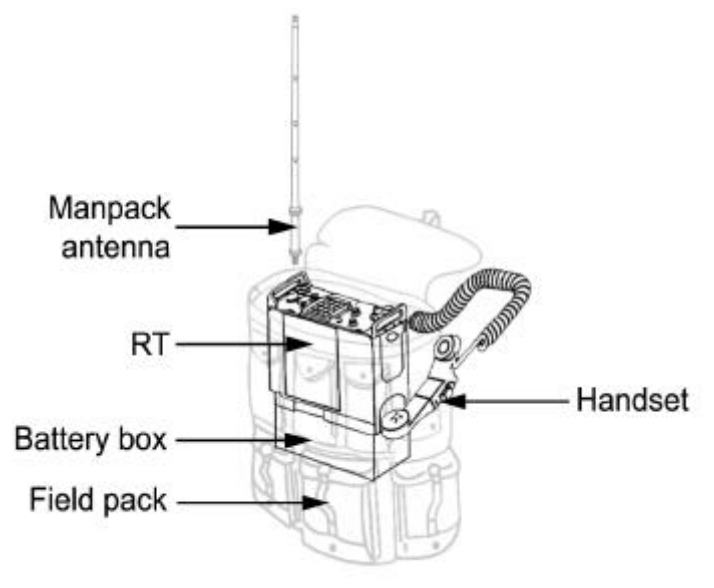
Fig 3-14. Manpack Assembly

6. SC Frequencies. Loading SC frequencies requires setting the proper switches, pressing the correct number keys for the frequency you wish to load, and storing the load in RT permanent memory by pressing STO button.

    a. Load SC frequencies.

        (1) Obtain authorized operating frequency from standing operating procedure or NCS.

        (2) Set FCTN switch in the LD position.

        (3) Set MODE to SC.

(4) Set CHAN to MAN, CUE, or desired channel (1-6) where frequency is to be stored.

(5) Press FREQ key. Result: display will show "00000," or the frequency the RT is currently tuned.

(6) Press CLR key. Result: display will show five lines.

(7) Enter the numbers of the new frequency. If you make a mistake while entering a frequency, press CLR (this action will delete the last digit entered).

Note: It is important that you enter another number, or store the frequency within 7 seconds. Otherwise, the display will go blank, and you will have to re-enter the numbers. If you require more than 7 seconds to perform a step, continue to press the last button, and the 7-second clock will be stopped.

(8) Press STO key. Result: Display will blink and show the frequency you just stored.

(9) Repeat steps 1 through 8 for additional frequencies that you wish to load.

(10) Set FCTN switch to SQ ON (or normal operating position).

b. Clear SC frequencies.

(1) Set CHAN to MAN, CUE, or desired channel (1-6) where frequency is to be stored.

(2) Press CHG until "00" is displayed. Result: The SC frequency will return to the original frequency before the offset was loaded. If no offset is desired, press CHG until "00" is displayed.

7. Load COMSEC data using the AN/CYZ-10 for MODE 2 Fill.

a. Prepare the RT-1523.

(1) Place MODE switch in SC position.

(2) Move CHAN switch to the MAN position.

(3) Place FCTN switch to the LD position.

(4) Move COMSEC switch to the CT position.

Note: Clear the COMSEC alarm by pressing the handset PTT button twice.

b. Prepare the AN/CYZ-10.

 (1) Turn on the AN/CYZ-10 by pressing the ON/OFF key in the top right corner of the keyboard to start the system's loading sequence.

 (2) The AN/CYZ-10 display window will give you the MAIN MENU to start the "MODE 2" fill procedures.

 (3) Observe the display window.

 (4) Select Appl on the screen, and press ENTER.

 (5) Select the highlighted CSEP by pressing the ENTER key. The CSEP data is now being loaded.

 (6) Read the directions displayed on the display window.

 (7) Press the downward arrow key on the keyboard. Notice the change on the display screen to read XMT, Rcv Dbs (CSEP set up the highlighted).

 (8) Select the highlighted XMT by pressing the ENTER key.

 (9) Select SINC by pressing the ENTER key.

 (10) Select ICOM by pressing the ENTER key.

 (11) Select "MODE 2" by pressing the ENTER key. Result: Instructions will be given to direct you to connect the RT-1523 and to press the downward arrow key.

 (12) Press the downward arrow key on the AN/CYZ-10 keyboard.

 (13) Ensure the fill cable is connecting the AN/CYZ-10 to the RT-1523.

c. Load MODE 2 Fill.

 (1) Press the LOAD/0 key on the RT-1523 keyboard. Result:

  • "LOAD" will appear on the RT-1523 display window and the AN/CYZ-10 display window will read, "Transfer in Progress."

  • Upon completing transfer, "DONE" will appear on the RT-1523 display window and the AN/CYZ-10 display window will read ICOM transfer successful with a downward arrow.

 (2) Press the downward arrow key on the AN/CYZ-10. Result:

  • Pressing the key allows you to return to the screen before selecting the transfer "MODE TWO ONE."

  • At this point, you are capable of filling additional data without restarting the process.

(3) To fill additional data, select radio type. Result: The word ICOM is highlighted.

(4) Press the ENTER key.

(5) Place the FCTN switch to the SQ ON position for normal operating procedure.

d. Clear data from RT. The procedure below allows you to clear FH data from your RT.

Note: You cannot clear the channel you are operating on.

(1) Set FCTN switch to LD.

(2) Set MODE to FH.

(3) Press CLR followed by the number of the channel that contains the data you wish to clear. Result: Display window will show changes and a beep is heard.

(4) Press CLR followed by LOUT; then press the left digit of the data you wish to clear (1-8). Result: Display window will show changes and a beep is heard.Set RT switches to normal operating positions.

Note: Clear all memory by setting the FCTN switch to OFF and waiting five seconds. When your radio has a good HUB installed, setting FCTN to STBY causes no loss of memory.

8. Operating procedures

a. Prepare RT for operation.

(1) Set the FCTN switch at SQ ON, SQ OFF, or LD.

Note: Use LD setting if loading a frequency manually.

(2) Set MODE to SC.

(3) Set CHAN to MAN, CUE, or desired channel (1-6).

Note: If a preset channel is not used, enter the desired frequency by performing steps 4 through 7 for loading SC frequencies.

(5) Set the VOLUME control at about half volume. Re-adjust for the desired sound level in the headset.

(6) To eliminate a rushing noise when no signal is received, set the FCTN switch at SQ ON.

b. Transmit as follows:

 (1) Press the PTT switch on the handset.

 (2) Speak into the handset.

c. To receive, release the PTT switch on the handset.

9. <u>Secure the AN/PRC-119</u>

a. Turn the FCTN switch to the OFF position.

b. Remove the handset and store it in the accessory bag.

c. Unscrew the antenna from the antenna support. Beginning with the tip section of the antenna, pull out each section from the next and fold it alongside the next lower section.

d. Unscrew the antenna support and store it along with both antennas and the handset in the accessory bag.

e. Remove the power source.

OPERATOR MAINTENANCE

 Do routine checks whenever you see the need or while performing preventive maintenance checks and service (PMCS). Preventive maintenance can prevent or delay equipment breakdown. The operator can locate and correct trouble in many cases through a function check and the use of a troubleshooting checklist without tools or test equipment.

1. <u>Maintenance</u>. First check to see that your radio is complete. Check all major components: receiver-transmitter, battery box, antennas and support bases, harness and accessory bag, and headset. Then clean and inspect as follows:

a. <u>Receiver-transmitter</u>

 (1) <u>Exterior</u>. Remove all dust and dirt with a clean rag and the general-purpose brush. Next, clean the controls and check them for looseness or other damage. Keep radio controls and connectors as clean as possible, especially the display window and keyboard.

 (2) <u>Interior</u>. Remove the battery and inspect it for leakage, corrosion, and swelling. Clean the gasket on the battery box using the general-purpose brush and wipe the interior clean of dirt and moisture.

b. <u>Antennas/Support bases</u>. Wipe the antennas and support bases clean. Inspect for loose fit and corrosion.

c. <u>Field pack/Accessory bag</u>. Brush and wipe clean. Inspect for mildew and tears in the material.

d. <u>Handset</u>. Wipe the handset clean of all dust and dirt and inspect the cord for fraying, cuts, kinks, and broken insulation. Check the rubber boot on the PTT switch for holes or cuts.

2. <u>Function check</u>. When the AN/PRC-119 fails to operate properly, turn the FCTN switch to OFF and check for incorrect setting of switches and controls. Also, check connections of the handset, antenna, and battery. A new battery can be installed at this time. If your radio gives you a strange, unexplained message that does not automatically clear:

a. Set FCTN switch to STBY then return to SQ ON. This action may clear your problem.

b. If problem is not cleared and the situation permits:

   (1) Set FCTN switch to Z-FH and wait for "GOOD."

   (2) Then set to OFF and wait 10 seconds.

   (3) Set back to Z-FH and again wait for "GOOD."

   (4) Now run self-test. If "GOOD" results, reload radio and re-enter net. If problem still exists, contact unit maintenance.

3. <u>Troubleshooting checklist.</u> If the function check does not locate the trouble, use the troubleshooting checklist (Table 2). If a problem is found during a check, turn in radio to unit maintenance for repair. Inspect the equipment often. If you have difficulty communicating, take the time to perform the following checks before you decide that there is something wrong with your radio.

- Make sure you have all switches set properly.
- Check all cable connections to ensure that they are tight.
- Make sure your antenna is properly connected and positioned.
- Try to verify that you have line-of-sight with other stations.
- Change position to see if communication improves.
- If you have not heard traffic in some time, perform passive late net entry.
- Make sure your radio has adequate power (especially manpack).
- Look and see if another net station is co-located in your area (called co-site interference).
- Determine if the enemy is jamming you. If so, take appropriate action.

TABLE 2

TROUBLESHOOTING CHECKLIST for RADIO SET AN/PRC-119

Problem	Procedure	Corrective Action
Radio power source	a. Set FCTN to operating position. b. Press BATT. Display must show 11 or less.	If display shows 11 or more, replace battery. (Applies to combat and critical missions only: otherwise, battery is used until it is exhausted.)
Radio self-test	a. Set COMSEC to CT. If alarm is heard, see Loading COMSEC Keys in the operator's handbook. b. Set FCTN to TST. c. Watch as displays cycle in the following sequence: IE C • ▌■■■■■ • IGOOD • SIGNAL STRENGTH CYCLES FROM LO TO HI	If any display is not as shown, or if a low level rushing noise is not heard: (1) Rerun self-test. (2) Set FCTN to STBY and rerun self-test. (3) Disconnect all cables from RT, go to STBY and rerun self-test. (4) If result is "GOOD", perform PMCS on cables, reconnect them, and rerun self-test. (5) If fail message now appears, contact unit maintenance.
Signal display during transmit	a. Set FCTN to SQ ON. b. Set MODE to SC. c. Press handset PTT and watch SIG marker as you set RF switch to LO, M, HI, and PA.	1. If SIG display flutters, replace manpack. 2. If SIG marker is not as shown, rerun self-test. If SIG marker indications remain incorrect, see unit maintenance. 3. If SIG display does not drop back to LO after FCTN is taken out of TST, rerun self-test. 4. If SIG marker remains high after self-tests, have unit maintenance check radio.

Problem	Procedure	Corrective Action
Sidetone	a. Set RF to HI. b. Turn VOL full right (clockwise). c. Press handset PTT and talk; then listen for sidetone.	1. If you do not hear sidetone, make sure ANT connector is secure; then trouble-shoot the handset. 2. If there is sidetone, go to communication trouble-shooting.
Radio Communi-cation	a. Set FCTN to SQ OFF. b. Set RF to HI. c. Set COMSEC to PT d. Turn VOL full right (clockwise). e. Using the correct frequency or hopset, contact a local station or distant station.	1. If contact is not made with a local station, change your location and antenna positioning. 2. If you cannot contact a station, have unit main-tenance check radio. 3. COLD START: if contact is not made when set up for cold start, set MODE switch to SC; check for correct MAN frequency, and correct cold start TSK. If contact is not made, troubleshoot for power source. 4. If you are in secure net, set COMSEC switch to CT. Repeat this check. 5. If it was good using plain text but was bad using CT, have unit maintenance check radio.
	f. When a rushing noise and/or COMSEC alarm are heard during communications:	1. After approximately 7 seconds, radio should automatically clear. 2. If it does not, pressing PTT twice should clear radio immediately. 3. If rushing noise/COMSEC alarm continues, set FCTN to STBY, back to SQ ON, and press PTT twice. 4. If problem continues, have unit maintenance check radio.

Problem	Procedure	Corrective Action
Radio Handset	When possible, substitute faulty handsets for ones that you know are good; then troubleshoot for sidetone again.	If you troubleshoot for sidetone again, and still do not hear sidetone, have unit maintenance check radio.
Radio display	Normal displays are not shown here, but are in the operating instructions. Perform this procedure if you have no trouble communicating in your net, but the RT display is not responding to keyboard actions.	
	BAD	- Indicates RT does not accept fill. Check fill device and procedures.
	FAILn	- RT faulty. Get unit maintenance to check RT. (The letter "n" represents a numeral).
	L7 L8 L7 L8	- Required lockout set(s) missing. RT cannot transmit or receive on hopset without loading lockout set(s).
	TOD	- Indicates FH sync time needs to be loaded to send ERF.
	FQMER	- Frequency management error resulting from attempt to load wrong type of hopset.

EXERCISE: Answer the following questions and check your responses against those listed at the end of this study unit.

1. What is the number of operating frequencies on the SINCGARS?

   a. 200
   b. 2,320
   c. 6,000
   d. 8,000

2. The maximum rated range in miles for the AN/PRC-119 is

   a. 2.
   b. 22.
   c. 1-5.
   d. 3-10.

3. Which component attaches to the receiver-transmitter case by two butterfly clips?

   a. Battery box
   b. RT-1523
   c. Field pack
   d. Accessory bag

4. Which component has a PTT switch mounted in the handle?

   a. RT 1523
   b. Tape antenna
   c. Battery box
   d. Handset

5. The fill device used to load MODE 2 fills into the SINCGARS radio is the

   a. AN/CYZ-10.
   b. RT-1523.
   c. KYK-13.
   d. AN/PRC-77.

6. To eliminate a "rushing" noise when operating the AN/PRC-119, set the FCTN switch to

   a. TST.
   b. LD.
   c. SQ ON.
   d. RXMT.

7. The operator can locate and correct trouble in many cases through _____ and the use of a troubleshooting checklist, without tools or test equipment.

   a. annual inspection
   b. proper lubrication to internal parts
   c. proper adjustments to internal parts
   d. function check

8. What is the 1st step performed to prepare the RT-1523 for COMSEC data?

   a. Place FCTN switch to the LD position.
   b. Place MODE switch in SC position.
   c. Move CHAN switch to the MAN position.
   d. Move COMSEC switch to the CT position.

Work Unit 3-4. SIGNALS

GIVEN A LIST OF DESCRIPTIONS OF ARM AND HAND SIGNALS AND A SERIES OF FIGURES, MATCH EACH DESCRIPTION WITH ITS APPROPRIATE FIGURE.

* *

Signals are used to transmit commands or information when voice communications are difficult, impossible, or silence must be maintained. Subordinate leaders repeat signals to their units whenever necessary to ensure prompt and correct execution.

- Whistle. The whistle is an excellent signal device for the small unit leader. It provides a fast means of transmitting a message to a large group. There is, however, the danger that will whistle signals from adjacent units may be compromising. Unless the signal is **prearranged and understood,** it may be misinterpreted. The whistle's effectiveness may be reduced by normal noises that exist on the battlefield.

- Special. Special signals consist of all special methods and devices used to transmit commands or information. The squad leader, operating at night, may use taps on his helmet or rifle butt to signal "halt," "danger," "move forward," or "assemble here." These signals must be understood and rehearsed prior to their use. Various pyrotechnic and smoke signals may be used as signals to attack, withdraw, mark frontlines, indicate targets, and cease or shift fire. Before leaders devise others, they should check with their platoon commander to make sure that they are not using a signal that already has a set meaning.

- Arm and Hand. Explanations and diagrams of standard arm-and-hand signals are given on the next few pages.

1. <u>DECREASE SPEED</u>. Extend the arm horizontally sideward, palm to the front, and front, and wave arm downward several times, keeping the arm straight. Arm does not move above the horizontal.
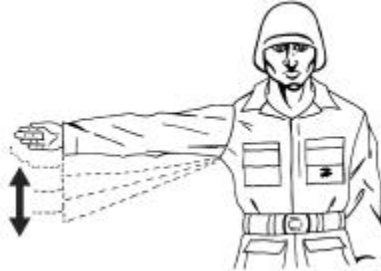
2. <u>CHANGE DIRECTION, OR COLUMN (RIGHT OR LEFT)</u>.   Extend arm horizontal to the side, palm to the front.
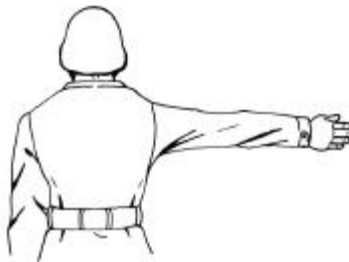
3. <u>ENEMY IN SIGHT</u>. Hold the rifle horizontally with the stock in the shoulder, the muzzle pointing in the direction of the enemy.

4. <u>RANGE</u>. Extend the arm fully toward the leader or Marine for whom the signal is intended with fist closed. Open the fist exposing one finger for each 100 meters of range.

5. <u>COMMENCE FIRING</u>. Extend the arm in front of the body, hip high, palm down, and move it through a wide horizontal arc several times.

6. <u>FIRE FASTER</u>. Execute rapidly the signal COMMENCE FIRING. For machineguns, a change to the next higher rate of fire is prescribed.

7. <u>FIRE SLOWER</u>. Execute slowly the signal COMMENCE FIRING. For machineguns, a change to the next lower rate of fire is required.

8. <u>CEASE FIRING</u>. Raise the hand in front of the forehead, palm to the front, and swing the hand and forearm up and down several times in front of the face.

9. <u>ASSEMBLE</u>. Raise the hand vertically to the full extent of the arm, fingers extended and joined, palm to the front, and wave in large horizontal circles with the arm and hand.

10. <u>FORM COLUMN</u>. Raise either arm to the vertical position. Drop the arm to the rear, describing complete circles in a vertical plane parallel to the body. The signal may be used to indicate either a troop or vehicular column.
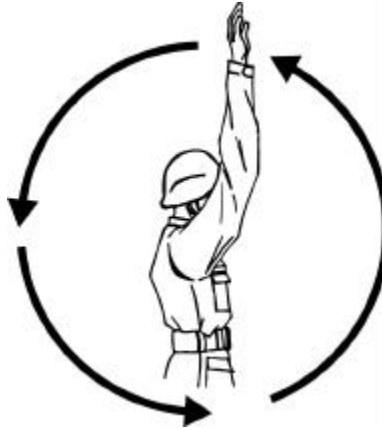
11. <u>ARE YOU READY</u>? Extend the arm toward the leader for whom the signal is intended, hand raised, fingers extended and joined, then raise the arm slightly above horizontal, palm facing outward.

12. <u>I AM READY</u>. Execute the signal, ARE YOU READY?

13. <u>SHIFT</u>.   Raise the hand that is on the side toward the new direction across the body, palm to the front; then wing the arm in a horizontal arc, extending arm and hand to point in the new direction.

14. <u>ECHELON (RIGHT/LEFT)</u>. The leader may give this signal either facing towards or away from the unit. Extend one arm 45° below the horizontal, palms to the front.   The lower arm indicates the direction of echelon. (Example: For echelon right if the leader is facing in the direction of forward movement the right arm is lowered; if the leader is facing the unit, the left is lowered). Supplementary commands may be given to ensure prompt and proper execution.

15. <u>SKIRMISHERS (FIRE TEAM), LINE FORMATION (SQUAD)</u>. Raise both arms laterally until horizontal, arms and hands extended, palms down. If it is necessary to indicate a direction, move in the desired direction at the same time.

16. <u>WEDGE</u>. Extend both arms downward and to the side at an angle of 45° below the horizontal, palms to the front.

17. <u>VEE</u>. Extend arms at an angle of 450° above the horizontal forming the letter "V" with arms and torso.

18. <u>FIRE TEAM</u>. The right arm should be placed diagonally across the chest.

19. <u>SQUAD</u>. Extend the hand and arm toward the squad leader, palm of the hand down; distinctly move the hand up and down several times from the wrist, holding the arm steady.

20. <u>PLATOON</u>. Extend both arms forward, palms of the hands down, toward the leader or unit for whom the signal is intended and describe large vertical circles with hands.

21. <u>CLOSE UP</u>. Start signal with both arms extended sideward, palms forward, and bring palms together in front of the body momentarily. When repetition of this signal is necessary, return the arms to the starting position by moving them along the front of the body.

22. <u>OPEN UP, EXTEND</u>. Start signal with arms extended in front of the body, palms together, and bring arms to the horizontal position at the sides, palms forward. When repetition of this signal is necessary, the arms are returned along the front of the body to the starting position and the signal is repeated until understood.

23. <u>DISPERSE</u>. Extend either arm vertically overhead; wave the hand and arm to the front, left, right, and rear the palm toward the direction of each movement.
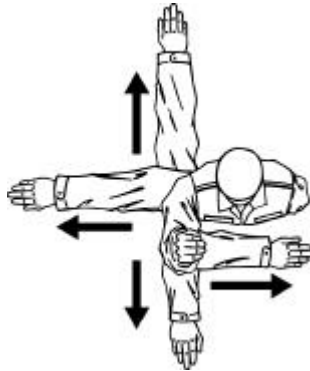
24. <u>I DO NOT UNDERSTAND</u>. Face toward source of signal; raise both arms sideways to the horizontal at hip level, bend both arms at elbows, palms up, and shrug shoulders in the manner of the universal "I do not know."

25. <u>FORWARD, ADVANCE, TO THE RIGHT/LEFT, TO THE REAR.</u> Face and move in the desired direction of march; at the same time extend the arm horizontally to the rear; then swing it overhead and forward in the direction of movement until it is horizontal, palm down.

26. <u>HALT</u>. Carry the hand to the shoulder, palm to the front; then thrust the hand upward vertically to the full extent of the arm and hold it in that position until the signal is understood.

27. <u>FREEZE</u>. Make the signal for "HALT" and make a fist with the hand.

28. <u>DOWN, TAKE COVER</u>. Extend arm sideward at an angle of 45° above horizontal, palm down, and lower it to side. Both arms may be used in giving this signal. Repeat until understood.

29. <u>INCREASE SPEED, DOUBLE TIME</u>. Carry the hand to the shoulder, fist closed; rapidly thrust the fist upward vertically to the full extent of the arm and back to the shoulder several times. This signal is also used to increase gait or speed.

30. <u>HASTY AMBUSH (RIGHT/LEFT)</u>. Raise fist to shoulder level and thrust it several times in the desired direction.
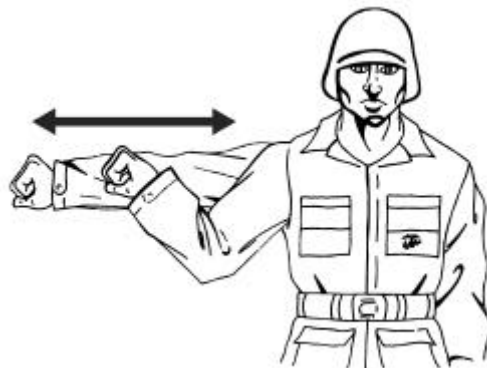
31. <u>RALLY POINT</u>. Touch the belt buckle with one hand then point to the ground.
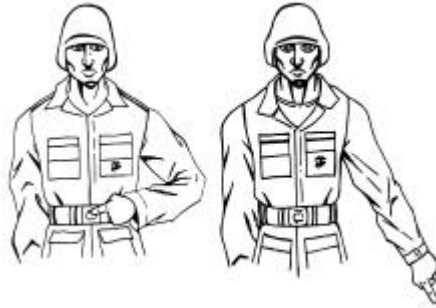
32. <u>OBJECTIVE RALLY POINT</u>. Touch the buckle with one hand, point to the ground, and make a circular motion with the hand.
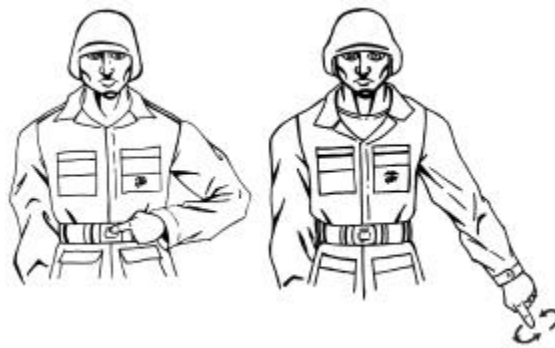
EXERCISE: Answer the following questions and check your responses against those listed at the end of this study unit.

Matching: Match the figures of arm-and-hand signals (items 1-10) in column 1 with their correct description in column 2. Place your answers in the spaces provided.

<u>MATCHING SET I</u>
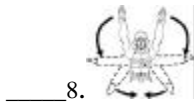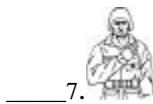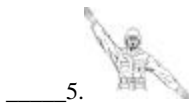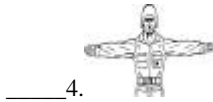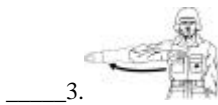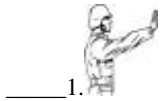
Column 1 Arm-and-Hand Signals	Column 2 Descriptions
_____1.	a. Squad
_____2.	b. Are you ready?
_____3.	c. Echelon right
_____4.	d. Fireteam
_____5.	e. Skirmishers
_____6.	f. Close up
_____7.	g. Platoon
_____8.	h. Shift
_____9.	i. Wedge
___10.	J. Enemy in sight
	k. Take cover, down

Matching: Match the figures of arm-and-hand signals (items 1-10) in column 1 with their correct description in column 2. Place your answers in the spaces provided.

MATCHING SET II

Column 1
Arm-and-Hand Signals

Column 2
Descriptions

____1.

a. Freeze

____2.

b. Halt

____3.

c. Rally point

____4.

d. Hasty ambush

____5.

e. Down Take cover

____6.
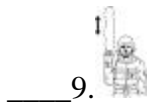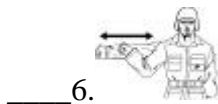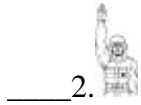
f. I do not understand

____7.

g. Disperse

____8.

h. Forward, advance

____9.

i. Objective rally point

____10.

j. Increase speed, run

k. Open up

Answers to Study Unit 3 Exercises

Work Unit 3-1

1. a
2. c
3. d
4. b
5. b
6. c

Work Unit 3-2

1. b
2. c
3. a
4. c
5. a. Desired channel
   b. Position clockwise until audible click is heard
   c. Desired volume is attained
   d. Depress for duration of transmission
6. b

Work Unit 3-3

1. b
2. b
3. a
4. b
5. a
6. d
7. d
8. b

Work Unit 3-4

Matching Set I

1. b
2. j
3. h
4. e
5. c
6. i
7. d
8. g
9. a
10. f

Matching Set II

1. f
2. b
3. k
4. g
5. e
6. d
7. c
8. i
9. j
10. h
11. a

STUDY UNIT 4

SECURITY AND INTELLIGENCE

STUDY UNIT OBJECTIVE: WITHOUT THE AID OF REFERENCES,
IDENTIFY PROCEDURES FOR THE USE OF CHALLENGE AND
PASSWORD; ENFORCING NOISE, LIGHT, AND LITTER DISCIPLINE;
CONDUCTING DAY AND NIGHT SURVEILLANCE, AND PROCESSING
ENEMY PRISONERS

Work Unit 4-1.   USE OF CHALLENGE AND PASSWORD

LIST THE PROCEDURES FOR CHALLENGING AN INDIVIDUAL USING
A PASSWORD

LIST THE PROCEDURES FOR CHALLENGING A GROUP USING A
PASSWORD

*   *

When you see or hear someone approaching your position, before that person gets close
enough to pose a threat, command the person to "HALT" (fig 4-1). Use a clear low voice, loud
enough to be heard. When you see the stranger halt, without exposing yourself, keep the
stranger covered with your weapon and ask, "Who is there?" When the stranger identifies him
or herself, such as, "Private Willard, messenger," order the stranger to "advance to be
recognized." When the stranger gets within two or three meters of you, again order, "HALT!"
If you still do not recognize the stranger, issue the challenge in a soft voice and wait for the
stranger to reply with the correct password. Give him/her permission to pass, if you have no
further reason for doubt. If doubt still exists, demand further identification or ask a question
only a friendly person would be able to answer.

If a group desires passage through your position:

You should have been notified by higher authority, but if you were not, have
the leader of the group advance to be recognized. Once identified, and you
are satisfied he/she is friendly, have the rest of the group advance one by
one and let the leader count and identify each person.

Disarm and detain, if possible, any person who is not able to give the proper password or
identification to your satisfaction. Then notify your immediate superior. This is done prior to a
group or an individual rifleman ever passing.

Fig 4-1. Establishing communications

EXERCISE: Answer the following questions and check your responses against those listed at the end of this study unit.

1. List the procedures for challenging an individual using a password.

   a. _____

   b. _____

   c. _____

   d. _____

2. List the procedures for challenging a group using a password.

   a. _____

   b. _____

   c. _____

Work Unit 4-2.   ENFORCING NOISE, LIGHT, AND LITTER DISCIPLINE

LIST THE THREE TYPES OF SECURITY DISCIPLINE IN A COMBAT SITUATION

*   *

Noise Discipline

Avoid all unnecessary vehicular and foot movement.

Tape or secure metal parts (weapon slings, canteen cups, ID tags, etc.) to prevent them from making noise during movement. Do not restrict moving parts of weapons. This could prevent their operation.

Talk only when necessary to conduct or explain operations. Use radios only when necessary. Keep volume low so only the operator can hear them.

Light Discipline

Do not smoke. The enemy can see and smell smoke, and at night a burning cigarette can be seen from some distance.

Filter or conceal flashlights or other light sources, such as under a poncho. Always cover anything that reflects light (metal surface, vehicles, glass, etc.). Use all available natural concealment, and camouflage all vehicles and equipment.

Litter Discipline

When occupying a position, take all litter (empty food containers, empty ammunition cans or boxes, and old camouflage) to an established collection point, if none designated keep on person. During movement carry all litter until it can be disposed of without leaving any trace of the unit's passage.

EXERCISE: Answer the following questions and check your responses against those listed at the end of this study unit.

1.   What are the three types of security discipline in a combat situation?

a.   _____

b.   _____

c.   _____

Work Unit 4-3.   CONDUCT DAY AND NIGHT SURVEILLANCE WITHOUT THE AID
                 OF ELECTRONIC DEVICES

                 LIST THE PROCEDURE FOR CONDUCTING A VISUAL SEARCH IN
                 DAYLIGHT

                 LIST THE PROCEDURE FOR PRESERVING YOUR NIGHT VISION

                 LIST THE PROCEDURE FOR SCANNING AT NIGHT

*   *

Visual Search

       To conduct a visual search in daylight, make a fast overall search of the entire area by
quickly raising your eyes from just in front of your position to the maximum range you wish to
observe. Observe 50-meter-deep strips of terrain in detail alternately searching left to right, right
to left. Search suspicious spots thoroughly.

       To identify improperly camouflaged personnel, equipment, and positions, look for:
camouflage foliage that does not match, dead foliage, and outlines that should be obscured.
Always look for bright colors and reflections that should be subdued. Look for tracks,
footpaths, and piles of dirt and litter, and over cleaning of fields of fire and observations.

Preservation of Night Vision

       To conduct surveillance at night, accustom your eyes to low levels of light before night
operations by either staying in a secure darkened area for 30 minutes, or staying in a red-lighted
area for 20 minutes, followed by 10 minutes of darkness, if possible.

Scanning

       To scan the area at night, move your eyes in short, quick irregular movement. To observe
specific objects, look about 6 to 10 degrees right, above or below them.

       To preserve your night vision when exposed to bright light, close both eyes. If
surveillance must be maintained, close one eye only and observe with the other.
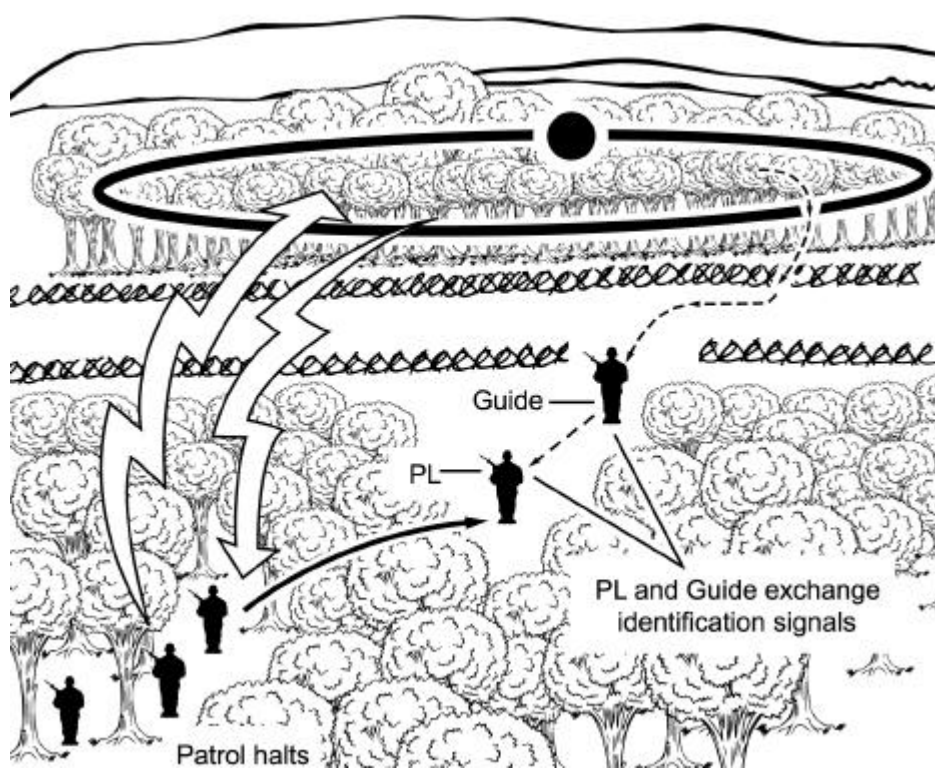
EXERCISE: Answer the following questions and check your responses against those listed at the end of this study unit.

1. List the procedure for conducting a visual search in daylight.

   _____

   _____

2. List the procedure for adjusting your eyes for night vision.

   _____

   _____

3. List the procedure for scanning at night.

   _____

   _____

Work Unit 4-4.   PROCESSING KNOWN OR SUSPECTED ENEMY PERSONNEL

LIST THE FIVE S's & T FOR PROCESSING ENEMY PRISONERS

*   *

The five S's and "T" for processing enemy prisoners are search, segregate, silence, speed, safeguard, and tag.

1. <u>Search</u> for weapons and documents as soon as you capture them, and take any weapons to prevent resistance. Take all documents except individual identification papers to prevent the prisoners from destroying them. Give the prisoner a written receipt. Tag all personal property and documents to identify which prisoner they came from.

2. <u>Segregate</u> prisoners into groups: officers, noncommissioned officers, privates, deserters, civilians, females, and political indoctrination personnel. This prevents the leaders from organizing for a mass escape and from making the rest of the prisoners security minded.

3. <u>Silence</u> prisoners. Do not allow them to talk to each other. Keeping them silent will prevent plans for escape.

4. <u>Speed</u> all prisoners and captured gear and documents to the rear as soon as possible so all information can be processed properly.

5. <u>Safeguard</u> prisoners as you take them to the rear. Do not allow anyone to abuse them, nor allow anyone to give them food, water, or cigarettes.

6. <u>Tag</u> all POW's and include the following information:

    a. The capturing unit's complete identification
    b. Date and time of capture
    c. Place of capture (grid coordinates or reference from a known point)
    d. Circumstances of capture, (how POW was captured)
    e. All weapons, documents, and equipment tagged

Tags may be printed before combat or made out of materials at hand on the battlefield.

EXERCISE: Answer the following questions and check your responses against those listed at the end of this study unit.

1.   What do the five S's and T stand for when processing POW's?

    a. _____

    b. _____

    c. _____

    d. _____

    e. _____

    f. _____

Work Unit 4-5.   EMPLACE AND RECOVER FIELD EXPEDIENT WARNING DEVICES

LIST THE COMPONENTS NEEDED FOR CONSTRUCTING A WARNING DEVICE

LIST THE FOUR STEPS FOR CONSTRUCTING A WARNING DEVICE

* *

Field expedient warning devices you can create are limited only by your imagination. Three basic components are needed:

1.   A container such as a discarded can, metal ammunition box, or any other metal container without a bright, shiny finish.

2.   Pebbles, stones, brass ammunition casings, or any other small, hard object can be used as a noisemaker. When put into a container, they will make a noise when the container is shaken.

3.   Tripwire can be used or any other similar wire to trigger a warning device. Attach a small piece of wire, string, cloth, etc., to tie the container to the tripwire.

Constructing a field expedient warning device is very easy:

1.   Cut holes in the side and bottom of the container to reduce wind resistance and allow water drainage.

2.   Attach the container to the tripwire. If there is already a wire barrier in place, use it; if not, string a tripwire across likely avenues of approach at knee level or below.

3.   Attach the container at a spot where natural vegetation will conceal it from enemy detection.

4.   Place noise-making objects in the container, then take a position at a defensive listening post and have another fire team member brush against the wire holding the cans to make sure you can hear the noise produced.

Before leaving your defensive position, recover your devices in the reverse order that you constructed them, ensuring that you leave nothing behind that can be used against you by the enemy.

EXERCISE: Answer the following questions and check your responses against those listed at the end of this study unit.

    1. What are three components needed for constructing a warning device?

        a. _____

        b. _____

        c. _____

    2. What are the four steps in constructing a warning device?

        a. _____

        b. _____

        c. _____

        d. _____

Work Unit 4-6.   COLLECT AND REPORT INFORMATION - SALUTE

STATE THE MEANINGS OF THE WORD "SALUTE"

*   *

      Report information concerning the enemy quickly, accurately, and completely as possible. An established method to remember how and what to report about the enemy is by use of the acronym "SALUTE."

      Size - of enemy unit
      Activity - what the enemy is doing
      Location - where the enemy is when observed
      Unit - enemy unit may be derived from unit markings, type of uniform worn, or through
            POW interrogation
      Time - when observed
      Equipment - of each enemy soldier and stored or stockpiled equipment

EXERCISE: Answer the following questions and check your responses against those listed at the end of this study unit.

1. State the meanings of the word SALUTE.

a. _____

b. _____

c. _____

d. _____

e. _____

f. _____

Answers to Study Unit 4 Exercises

Work Unit 4-1.

1. a. Halt
    b. Who is there?
    c. Advance to be recognized
    d. Halt

2. a. Have the leader advance to be recognized
    b. Have the rest advance one by one
    c. Have the leader count and identify each person

Work Unit 4-2.

1. a. Noise
    b. Light
    c. Litter

Work Unit 4-3.

1. Make a fast overall search of the entire area.
2. Stay in a secure darkened area for 30 minutes.
3. Move your eyes in short, quick irregular movement.

Work Unit 4-4.

1. a. Search
    b. Segregate
    c. Silence
    d. Speed
    e. Safeguard
    f. Tag

Work Unit 4-5.

1. a. Container
    b. Pebbles
    c. Wire

2. a. Cut holes in container.
    b. Attach container to tripwire.
    c. Attach the container to natural vegetation.
    d. Place noisemaking objects in container.

Work Unit 4-6.

1. a. Size
    b. Activity
    c. Location
    d. Unit
    e. Time
    f. Equipment

THE MARINE RIFLEMAN: COMBAT SKILLS

REVIEW LESSON EXAMINATION

Review Lesson

Introduction   The purpose of the review lesson examination is to prepare you for your final examination. We recommend that you try to complete your review lesson examination without referring to the text, but for those items (questions) you are unsure of, restudy the text. When you finish your review lesson examination and are satisfied with your responses, check your responses against the answers provided at the end of this review lesson examination.

Directions   Select the ONE answer that BEST completes the statement or that answers the item. For multiple-choice items, circle your response. For matching items, place the letter of your response in the space provided.

Item 1   Identify the diagram below.

    a. Column
    b. Skirmishers left
    c. Echelon right
    d. Skirmishers right
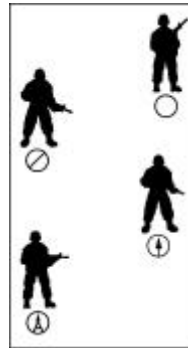
Review Lesson, Continued

Item 2   Identify the diagram below.
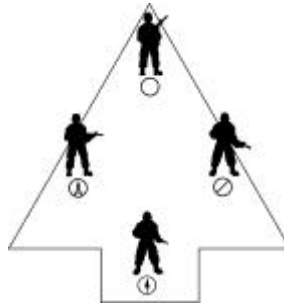
    a. Wedge
    b. Echelon
    c. Column
    d. Skirmishers

Item 3   Identify the diagram below.
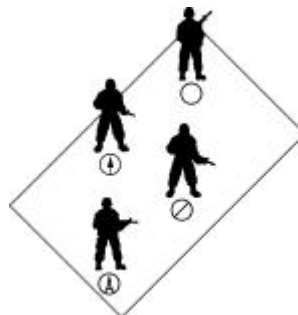
    a. Wedge
    b. Echelon
    c. Column
    d. Skirmishers

Item 4   Identify the diagram below.

a. Echelon
b. Skirmisher
c. Wedge
d. Column
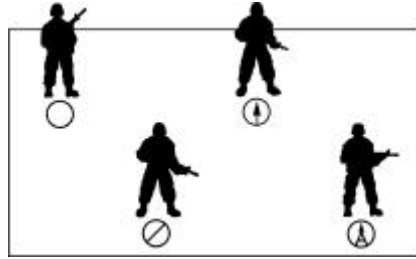
Item 5   Identify the diagram below.

a. Column to wedge
b. Wedge to skirmishes right
c. Echelon left to skirmishes left
d. Echelon right to column

Review Lesson, Continued

Item 6   Identify the diagram below.

    a. Column to wedge
    b. Wedge to skirmishes right
    c. Echelon left to skirmishes left
    d. Echelon right to column
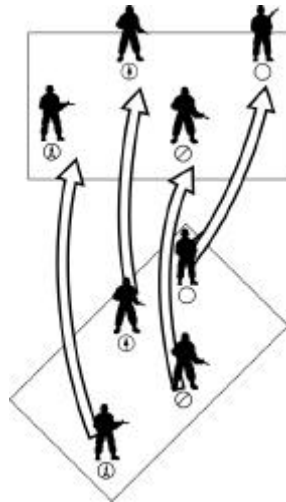
Item 7   What should you do first when making contact with the enemy?

    a. Assault
    b. Rush forward
    c. Take cover
    d. Return fire

Item 8   The first thing to do when you hear an incoming round is

    a. shout INCOMING.
    b. continue with the mission.
    c. hit the deck.
    d. move out of the area.

Review Lesson, Continued

Item 9　　　　When selecting a temporary firing position, consider using

　　　　　　　　　a. natural obstacles.
　　　　　　　　　b. manmade obstacles.
　　　　　　　　　c. buildings.
　　　　　　　　　d. trees.

Item 10　　　The best firing position provides

　　　　　　　　　a. cover and concealment.
　　　　　　　　　b. cover.
　　　　　　　　　c. concealment.
　　　　　　　　　d. a place to hide.

Item 11　　　The first thing to do when hearing the sound of a rising flare is

　　　　　　　　　a. move out of the illuminated area.
　　　　　　　　　b. continue the mission.
　　　　　　　　　c. close one eye to protect night vision.
　　　　　　　　　d. assume a prone position.

Item 12　　　When reacting to ground flares with warning, the first thing to do is

　　　　　　　　　a. move out of the illuminated area.
　　　　　　　　　b. continue the mission.
　　　　　　　　　c. close one eye to protect night vision.
　　　　　　　　　d. assume a prone position.

Item 13　　　Without warning, the first thing to do when reacting to overhead flare is

　　　　　　　　　a. move out of the illuminated area.
　　　　　　　　　b. continue the mission.
　　　　　　　　　c. close one eye to protect night vision.
　　　　　　　　　d. assume a prone position.

Review Lesson, Continued

Item 14 Before crossing over or under barbed wire, check for

    a. boobytraps.
    b. early warning devices.
    c. boobytraps and early warning devices.
    d. natural obstacles.

Item 15 Which is NOT a consideration for clearing fields of fire?

    a. Make trails to and from your position
    b. Leave a thin natural screen of vegetation
    c. Remove or thin out dense brush
    d. Remove lower branches of large scattered trees

Item 16 The dimensions of a one-man fighting position depends on

    a. type of soil.
    b. body size.
    c. shoulder size.
    d. armpit length.

Item 17 Three components required in constructing a fighting hole are

    a. fire step, water slump, and wire.
    b. water sump, lumber, and parapet.
    c. parapet, water sump, and grenade sump.
    d. parapet, grenade sump, and lumber.

Item 18 Identify the natural obstacle.

    a. Road
    b. Bridge
    c. Canyon
    d. Landmine

Review Lesson, Continued

Item 19   A guideline for employing artificial obstacles . . .

a. Employ obstacles, which can be erected quickly.
b. Construct obstacles so that they present a confused and irregular
   appearance.
c. Make the obstacle dense enough to prevent easy penetration.
d. Erect your side of the obstacle first.

Item 20   An alternate position's purpose is to

a. move to it when ordered.
b. have positions on your flank and rear.
c. have a good background for observing.
d. move to it when attacked.

Item 21   Identify the two types of firing positions.

a. First and second
b. Alternate and secondary
c. Primary and secondary
d. Alternate and supplementary

Item 22   The state of order, coolness, efficiency, and obedience existing among
Marines engaged in a firefight pertains to

a. fire discipline.
b. rates of fire.
c. fire commands.
d. direction.

Review Lesson, Continued

Item 23   The rate of fire for the Marine rifleman is approximately _____ aimed shots per minute, and _____ rounds per minute for the automatic rifleman.

a. 10 to 12, 100
b. 12 to 20, 100
c. 10 to 12, 200
d. 12 to 20, 200

Item 24   Which are two elements of a fire command?

a. Range and column
b. Alert and decision
c. Alert and direction
d. Fire control and reaction

Item 25   Three methods used to properly employ camouflage measures are

a. deceiving, hiding, and cover.
b. hiding, blending, and seeking.
c. blending, hiding, and fighting.
d. hiding, blending, and deceiving.

Item 26   What power source operates the TA-1/PT field telephone?

a. Sound
b. BA-249/C
c. BA-182/U
d. Two "D" cell batteries

Item 27   Before transmitting, using the TA-1/PT field telephone, the volume control knob must be set

a. on setting ten.
b. between OFF and SOFT.
c. on setting five.
d. between OFF and LOUDER.

Continued on next page

Review Lesson, Continued

Item 28   What is the maximum range in miles for the AN/PRC-68 squad radio?

a. 1
b. 5
c. 10
d. 15

Item 29   Operator maintenance on the AN/PRC-68 is limited to replacement of the

a. antenna.
b. lower connecting unit.
c. RT unit.
d. battery pack.

Item 30   What is the maximum rated range in miles for the AN/PRC-119 radio?

a. 2.5
b. 5
c. 22
d. 40

Item 31   Which radio uses the HUB battery for a power source?

a. TA-1/PT
b. AN/PRC-68
c. AN/PRC-77
d. AN/PRC-119

Review Lesson, Continued

Item 32   Which radio uses the AN/CYZ-10 for MODE 2 fills?

a. TA-1/PT
b. AN/PRC-68
c. AN/PRC-77
d. AN/PRC-119

Item 33   The hand signal below represents

a. assemble.
b. range.
c. I am ready.
d. halt.

Item 34   Which is the proper sequence when challenging an individual using a password?

a. Who is there, halt, advance to be recognized, halt.
b. Halt, advance to be recognized, halt, who is there.
c. Halt, who is there, advance to be recognized, halt.
d. Who is there, halt, halt, advance to be recognized.

Continued on next page

Review Lesson, Continued

Item 35	When a group desires passage through your position, what is the first thing you do?

a. Let the leader count and identify each person.
b. Have the group advance one by one.
c. Have the leader of the group advance to be recognized.
d. Disarm and detain any person who is not able to give the proper password.

Item 36	What are the three types of security discipline in a combat situation?

a. Noise, light, and sanitation
b. Noise, light, and smoke
c. Noise, light, and litter
d. Noise, light, and camouflage

Item 37	When conducting a visual search in daylight, how many meter-deep strips of terrain do you observe?

a. 25
b. 50
c. 75
d. 100

Item 38	How many minutes should you stay in a darkened area to adjust your eyes for night vision?

a. 15
b. 30
c. 45
d. 60

Continued on next page

Review Lesson, Continued

Item 39

Of the five S's for processing enemy prisoners, the first "S" represents

a. Silence.
b. Safeguard.
c. Speed.
d. Search.

Item 40

The components needed to construct a warning device are

a. container, pebbles, and wire.
b. pebbles, wire, and cloth.
c. pebbles, wire, and noisemaker.
d. container, string, and box.

Item 41

The "S" and "A" in the acronym SALUTE represent

a. Size and Activity.
b. Sustainment and Activity.
c. Situation and Activity.
d. Size and Accountability.

Review Lesson Solutions

Review Lesson Solutions

The table below lists the answers to the review lesson examination items. If you have questions about these items, refer to the reference page.

Item Number	Answer	Reference
1	a	1-4
2	a	1-5
3	b	1-7
4	b	1-6
5	a	1-13
6	c	1-33
7	c	1-49
8	c	1-51
9	a	1-53
10	a	1-53
11	d	1-55
12	a	1-55
13	d	1-55
14	c	1-57
15	a	1-61
16	b	1-65
17	c	1-65
18	c	1-76
19	d	1-76
20	a	1-80
21	d	1-80
22	a	1-80
23	a	1-81
24	c	1-82
25	d	2-1
26	a	3-1
27	d	3-3
28	a	3-6
29	d	3-10
30	c	3-13

Continued on next page

Review Lesson Solutions, Continued

Review Lesson Solutions, continued

31	d	3-13
32	d	3-21
33	a	3-38
34	c	4-1
35	c	4-1
36	c	4-3
37	b	4-4
38	b	4-4
39	d	4-5
40	a	4-7
41	a	4-8