CONSTRUCTION BATTALION
BATTLE SKILLS GUIDE

BOOK 2

E4 - E6
Individual Skills

OCTOBER 2005
CONSTRUCTION BATTALION BATTLE SKILLS GUIDE

FOREWORD

1. The Construction Battalion Battle Skills Guide (CBBSG) is published as a series of four books. Each book consists of tasks required by Naval Construction Force personnel to gain knowledge and skills ranging from individual weapons, crew served weapons, patrolling, tactical measures, hand grenades, mines, and pyrotechnics, NBC defense, first aid and field sanitation, land navigation, and communications.

   Book 1  Construction Battalion Battle Skills Guide, All Hands, E1 and Above, Individual Skills contain combat skills tasks applicable for proficiency testing of pay grade E1 through E3.


   Book 3  Construction Battalion Battle Skills Guide, E7 and Above, Individual Skills contains combat skills tasks applicable for proficiency testing of pay grade E7 and above.

   Book 4  Construction Battalion Battle Skills Guide, Crew / Team Skills contains combat skills tasks applicable for proficiency testing of specialized billets.

2. Following each individual training standard (ITS), you will find a box containing the words EVALUATION GUIDELINES TO BE USED DURING TRAINING. The purpose of this box is to provide the Seabee with information regarding exactly what is expected of him/her during evaluation of the ITS. It also provides the trainer/evaluator-expanded conditions, standards, and sometimes notes to help train the Seabee and assess individual proficiency. When administrative notes are included, they explain, orient, and otherwise provide additional task-specific information, as reference tasks that train the base performance required of the instruct/conduct refresher training tasks. For example, task 2-24, requires the Seabee to "Implement Mission-Oriented Protective Posture (MOPP)". The Administrative Note refers to the base performance required in task 1-35, Don Individual Protective Clothing to MOPP 4. Usually the base performance task provides the steps necessary to instruct or refresh the training objective. Some instruct/conduct refresher training tasks have no base performance task in the CBBSG, and for those tasks the individual performance steps are listed following the evaluation box.

3. Summary of CBBSG can be found on page vi through ix.

4. Comments on the CBBSG should be forwarded to the Commanding Officer, Naval Facilities Expeditionary Logistics Center, Training Standards Department N7, Port Hueneme, CA 93043.

5. This publication is certified as an official Command publication and has been reviewed and approved in accordance with NAVFAC Instruction 5600.2G, June 1996.

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## SUMMARY OF CONSTRUCTION BATTALION BATTLE SKILLS GUIDE

### BOOK 1

*Construction Battalion Battle Skills Guide, Book 1, All Hands, E1 and Above, Individual Skills* consists of the following:

**INDIVIDUAL WEAPONS**
- Weapons Handling, Shoulder Fired Weapons
- Weapons Handling, Handguns
- Maintain the M16A3 Service Rifle
- Zero the M16A3 Service Rifle
- Engage Targets with the M16A3 Service Rifle
- ATTACHMENT (A1) Fundamentals of Marksmanship
- Maintain the M9 Service Pistol
- Engage Targets with the M9 Service Pistol

**PATROLLING**
- Participate in a Security Patrol
- Perform as a Member of a Convoy

**TACTICAL MEASURES**
- Prepare Individual Combat Equipment for Tactical Operations
- Perform Individual Movement
- Prepare a Fire Team Fire Plan and Fire Plan Sketch
- React to Enemy Indirect Fire
- Assume Field Firing Positions
- React to Enemy Direct Fire
- Construct Fighting Position
- Camouflage Self and Individual Equipment
- Participate in Squad-Size Defense
- Operate Night Vision Goggles (NVG)
- Employ Techniques of Unaided Night Vision
- Report Intelligence Information
- Conduct Vehicle Search Procedure
- Process Enemy Personnel
- Submit a Spot Report
- Perform as a Member of NMCB Interior Guard
- Perform as a Fire Team Member in Civil Disturbance Situations

**HAND GRENADES, MINES, AND PYROTECHNICS**
- Engage Targets with Hand Grenades
- Employ the M49A1 Trip Flare
- Employ the M18A1 Claymore Mine
- Locate Possible Mine/Boobytrap Sites

**NBC DEFENSE**
- Identify NATO NBC Markers
- Maintain the MCU-2A/P Protective Mask
- Don the MCU-2A/P Protective Mask with Hood
- Perform Basic Body Functions while in MOPP 4
- Identify Chemical Agents
- Decontaminate Skin and Personal Equipment Using the M291 Decontamination Kit
- Exchange MOPP Gear
- React to Nuclear Attack
- React to a Chemical or Biological Attack
- Treat a Chemical Agent Casualty

**FIRST AID AND FIELD SANITATION**
- Apply Basic First Aid
- Perform Basic First Aid Preventive Measures
- Practice Basic Field Sanitation
- Transport Casualties Using Manual Carries and Improvised Stretchers

**LAND NAVIGATION**
- Perform Basic Map Reading
- Navigate with a Map Using Terrain Association
- Navigate with a Map Using a Compass
- Orient a Map Using Hasty Field Expedient Techniques
- Locate an Unknown Point by Resection
- Locate an Unknown Point by Intersection
- Navigate Around an Obstacle Using the Box Method
- Convert Azimuths
- Determine the Elevation of a Point on the Ground Using a Map

**COMMUNICATIONS**
- Repair (Splice) Wire
- Operate a TA-1 Telephone Set
- Operate a TA-312 Telephone Set
- Operate an AN/PRC-119F Radio Set
- Communicate Using a Radio
- ATTACHMENT (A2) Phonetic Alphabet and Numeric Pronunciation
- ATTACHMENT (A3) Prowords and Warning Words and their Explanations
BOOK 2

Construction Battalion Battle Skills Guide, Book 2, E4 - E6, Individual Skills consists of following

INDIVIDUAL WEAPONS
Conduct Refresher Training on How to Maintain the M16A3 Service Rifle

PATROLLING
Assist in the Conduct of a Squad-Sized Security Patrol
Issue a Patrol Warning Order
Issue a Patrol Order
Conduct Patrol Inspections
Conduct Patrol Rehearsals
Conduct Patrolling Immediate Action Drills
Prepare Patrol Routes

TACTICAL MEASURES
Conduct Refresher Training on Fire Team-Size Combat Formations
Prepare a Terrain Model
Control Movement of Fire Team-Size Unit
Establish Defensive Positions for a Fire Team-Size Unit
Establish an Observation Outpost (OP) / Listening Post (LP)
Direct Erection of Wire Obstacles
Control Unit Fires
Control Movement of a Squad-Size Unit
Establish Defensive Positions for a Squad-Size Unit

NBC DEFENSE
Adjust Indirect Fire
Establish a Landing Zone
Direct a Helicopter Landing Zone
Direct the MEDEVAC of a Casualty

FIRST AID AND FIELD SANITATION
Enforce Proper Field Sanitation

COMMUNICATIONS
Install a Hot Loop
Operate an AN/PRC-150(C) HF Field Radio Set

TRAINING
Conduct Refresher Training on How to Operate the AN/PRC-119F/150(C) Radio Sets
Conduct Refresher Training on How to Operate Field Telephones
Supervise Operator Level Maintenance of Portable Communications Equipment
BOOK 3

*Construction Battalion Battle Skills Guide, Book 3, E-7 and Above, Individual Skills* consists of the following:

**CREW-SERVED WEAPONS**
- Employ Machine Guns
- Select M240B Machine Gun Firing Positions
- Select M2/MK19 Machine Gun Firing Positions
- Assign a Machine Gun FPL/PDF

**TACTICAL MEASURES**
- Issue a Fragmentary Order for a Defensive Mission
- Prepare a Fire Plan for Platoon-Size Defensive Position
- Control Defensive Fires
- Direct the Placement of Wire Obstacles
- Establish a Company-Size Command Post
- Prepare Operation Overlay
- Direct Casualty Evacuation
- Direct the Handling of Captured Enemy Personnel

**NBC DEFENSE**
- Supervise Conduct of Mask Confidence Exercise
- Assist Commander on Unmasking Procedures
- Execute Protective Measures for a Nuclear Attack
- Execute Protective Measures for a Biological and Chemical Attack
- Prepare NBC 4 Report (Reconnaissance, Monitoring, and Survey Results)
- Lead MOPP Gear Exchange

**COMMUNICATIONS**
- Apply the Elements of Communications
- Supervise Unit's Individual Training in Communications
Construction Battalion Battle Skills Guide, Book 4, Crew/Team Skills consists of the following:

**INDIVIDUAL WEAPONS**
- Employ NMCB Organic Weapons
- Maintain the M203 Grenade Launcher
- Engage Targets with M203 Grenade Launcher
- Engage Targets with the AT4

**CREW-SERVED WEAPONS**
- Maintain the M240B Machine Gun
- Engage Ground Targets with the M240B Machine Gun
- Maintain the M2 Machine Gun
- Engage Ground Targets with the M2 Machine Gun
- Maintain the MK19 Machine Gun
- Engage Ground Targets with the MK19 Machine Gun
- Perform as an M240B Machine Gun Team Leader
- Perform as an M2/MK9 Machine Gun Team Leader
- Construct Machine Gun Positions
- Determine Range
- Prepare a Range Card
- Control Machine Gun Team Fires
- Lay an M240B/M2 Machine Gun
- Lay an MK19 Machine Gun
- Zero the M240B Machine Gun
- Zero the M2 Machine Gun
- Zero the M2 Machine Gun Using Night Vision
- Zero the MK19 Machine Gun
- Zero the MK19 Machine Gun Using Night Vision Sight
- Supervise the Construction of Machine Gun Positions
- Control Machine Gun Squad Fires
- Supervise Maintenance of Machine Guns
- Determine the Error in a Lensatic Compass
- Supervise Unit Individual Weapons Training
- Supervise Unit Crew-Served Weapon Training
- Prepare a Fire Support Plan for Platoon-Size Defensive Operations
COMBAT SKILLS TASKS

BOOK 2
TASK: CONDUCT REFRESHER TRAINING ON HOW TO MAINTAIN THE M16A3 SERVICE RIFLE (2-1)

CONDITIONS: PROVIDED A TRAINING SITE, TRAINING SUPPORT EQUIPMENT (SMALL ARMS EQUIPMENT CASE, (NSN 8465-00-781-9564), PROJECTOR, CHALKBOARD, ETC.), THE REFERENCES, AND AN ASSISTANT.

STANDARD: INSTRUCT CARE AND CLEANING OF THE SERVICE RIFLE, PER THE REFERENCES.

EVALUATION GUIDELINES TO BE USED DURING TRAINING:

Conditions: The Seabee is provided a training site, training support equipment, a Seabee to instruct, and the resources listed at the end of this task.

Standard: The Seabee must refamiliarize other Seabees on the procedures to maintain the M16A3 service rifle. The training must include safe weapons handling, inspecting, maintenance, cleaning, fieldstripping and assembling, and performing function checks on the weapon. The Seabee must evaluate the instructed Seabees, then record and report the evaluation results.

Administrative Note: See TASKS: MAINTAIN THE M16A3 SERVICE RIFLE (1-3)

REFERENCES:
FMFM 0-1, Unit Training Management Guide
FMFM 0-1A, How to Conduct Training
TM 05538C-10/1, U.S. Marine Corps Operator’s Manual w/Components List
TASK: ASSIST IN THE CONDUCT OF A SQUAD-SIZED SECURITY PATROL (2-2)

CONDITIONS: PROVIDED THE REQUIREMENT TO ASSIST IN THE CONDUCT OF A SECURITY PATROL FOR EITHER STATIC OR MOVING UNITS.

STANDARD: IN ACCORDANCE WITH THE REFERENCES AND THE PATROL LEADER'S GUIDANCE, ASSIST IN THE CONDUCT OF A SECURITY PATROL TO DETECT INFILTRATION BY THE ENEMY AND TO PROTECT AGAINST SURPRISE AND AMBUSH.

EVALUATION GUIDELINES TO BE USED DURING TRAINING:

Conditions: The Seabee, acting as an assistant patrol leader, is provided a tactical scenario in any combat environment (day or night), a warning order, a patrol order, individual combat equipment, TOA weapon with blank ammunition, and a squad with weapons and equipment.

Standard: The Seabee must direct acquisition of blank ammunition, supplies, and equipment, and will make necessary coordination with friendly units as directed. The Seabee must keep the patrol leader informed of progress and problems encountered during the preparation of the patrol and continually account for personnel. The Seabee must follow the patrol leader's directions at all times. The Seabee must be thoroughly familiar with the patrol order and be prepared to assume command and continue the mission at any time during the patrol.

PERFORMANCE STEPS:

1. Assist the patrol leader in planning and coordination.
   a. Ensure that all patrol members are present to receive the patrol warning order.
   b. Requisition the required ammunition, supplies, and equipment.
   c. Request maps and aerial photographs of the area of operation, as directed.
   d. Coordinate for fire support, communications, and the tactical situation, as directed.
   e. Coordinate with adjacent units for times of departure and return, and the routes of other patrols, as directed.
   f. Plan primary and alternate routes, checkpoints, and rally points, as directed.

   NOTE: The patrol leader may delegate the preparation of routes to the navigator. He/She will provide guidance for the general location of routes, but may leave the final selection of routes, checkpoints, and rally points to the discretion of the navigator or the assistant patrol leader.

2. Prepare patrol.
   a. Ensure that the patrol has obtained the required ammunition, supplies, and equipment.
b. Ensure that the patrol leader's delegated tasks are being accomplished, e.g., planning of routes, construction of terrain models, diagrams, etc.

c. Ensure that patrol members comply with the time schedule.

d. Keep the patrol leader informed of the patrol's progress.

3. **Receive the patrol order.**

   a. Ensure that all members are present.

   b. Ensure that all patrol members remain alert and attentive during the patrol order.

   c. Have Seabees hold all questions until the end of the patrol order, unless otherwise instructed by the patrol leader.

4. **Supervise final preparations.**

   a. Ensure that all equipment is operational.

   b. Ensure that the prescribed loads of ammunition, rations, water, and special equipment are carried.

   c. Ensure that the time schedule is being followed and notify the patrol leader of any problems.

   d. Conduct inspections.

   e. Conduct patrol rehearsals.

   f. Report to the patrol leader when the patrol is prepared for the mission.

5. **Conduct movement of the patrol.**

   a. Establish tactical control.

   b. Maintain contact with the patrol leader.

   c. Ensure that patrol members maintain contact with one another.

   d. Enforce light and noise discipline

   e. Ensure that Seabees remain alert at security halts.

   f. Pass the count up after halts, and after crossing danger areas.

6. **Assume command of the patrol in event the patrol leader is killed or wounded.**

   a. Reestablish security of the patrol as soon as the situation allows.

   b. Inform subordinate leaders that you have assumed command of the patrol and brief them on any changes in the situation.
c. Reestablish the chain of command within the patrol.
d. Confirm the patrol's location through map inspection, if necessary.
e. Obtain the equipment that the patrol leader carried in order to do his job, e.g. map, notebook, etc.
f. Inform higher authority of changes in the situation via radio.
g. Continue the mission.

REFERENCES:
FMFM 6-5, Marine Rifle Squad
FMFM 6-7, Scouting and Patrolling for Infantry Units
**TASK:** CONDUCT A SQUAD-SIZED SECURITY PATROL (2-3)

**CONDITIONS:** PROVIDED COMMANDER'S GUIDANCE AND THE REQUIREMENT TO CONDUCT A SECURITY PATROL FOR EITHER STATIC OR MOVING UNITS.

**STANDARD:** IN ACCORDANCE WITH THE REFERENCES AND THE COMMANDER'S GUIDANCE, CONDUCT A SECURITY PATROL TO DETECT INFILTRATION BY THE ENEMY AND TO PROTECT AGAINST SURPRISE AND AMBUSH.

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**EVALUATION GUIDELINES TO BE USED DURING TRAINING:**

**Conditions:** The Seabee, acting as a patrol leader, is provided a tactical scenario in any combat environment (day or night), a warning order, a patrol order, individual combat equipment, TOA weapon with blank ammunition, and a squad with weapons and equipment.

**Standard:** The Seabee must plan and conduct a security patrol to prevent/detect infiltration by the enemy and to protect the unit from surprise attack and ambush. The Seabee will receive the fragmentation order and must use the troop leading steps to plan and prepare their patrol for action. During conduct of the patrol, the Seabee must control their squad and maintain security at all times.

**Administrative Notes:** Security patrols protect a moving unit by screening the flanks, the areas through which the unit will pass, and the route over which the unit will travel. This task focuses on the conduct of a security patrol unit, which requires more detailed planning and coordination.

See **TASKS:** ISSUE A PATROL WARNING ORDER (2-4)

ISSUE A PATROL ORDER (2-5)

CONDUCT PATROL INSPECTIONS (2-6)

CONDUCT PATROL REHEARSALS (2-7)

CONDUCT PATROLLING IMMEDIATE ACTION DRILLS (2-8)

PREPARE PATROL ROUTES (2-9)

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**PERFORMANCE STEPS:**

1. Receive the platoon commander's order (SMEAC) (Figure 1), which should include the following:
BEGIN PLANNING
ARRANGE FOR RECONNAISSANCE
MAKE RECONNAISSANCE AND COORDINATION
COMPLETE THE PLAN
ISSUE THE ORDER
SUPERVISE

MISSION
ENEMY
ERRAIN AND WEATHER
ROOPS AND FIRE SUPPORT AVAILABLE
IME AVAILABLE
PACE
LOGISTICS

SITUATION
a) ORIENTATION
b) ENEMY FORCES (SALUTE/DRAW-D)
c) FRIENDLY FORCES (HAS)
d) ATTACHMENTS
MISSION
EXECUTION
ADMINISTRATION AND LOGISTICS
COMMAND AND SIGNAL

SIZE
ACTIVITY
LOCATION
UNIT
IME
EQUIPMENT

KEY TERRAIN
OBSESSION AND FIELDS OF FIRE
COVER AND CONCEALMENT
OBSTACLES
VENUES OF APPROACH

Figure 1
2-6
a. The squad mission
   1) A clear, concise statement of the task which the squad must accomplish
   2) The general area of operation
b. Disposition and capabilities of the enemy (known and suspected)
c. Disposition of friendly troops, including:
   1) The front line units
   2) Security elements through which the patrol must pass
   3) Units providing fire support
      a) Types of fire support available (mortars, artillery, close air, etc.)
      b) Means of requesting fire support
      c) Location of firing units (if known)
d. Terrain and weather, and their effects on the patrol
e. Friendly patrols operating in your area, including their:
   1) Missions and routes
   2) Frequencies and call signs
f. Time of departure and return
g. The method of reporting information
h. Challenge and password
i. Essential Elements of Information (EEI), e.g., minefields, verification of existing maps, etc.
j. Non organic personnel (attachments), e.g., machine gunners, corpsman, engineers, etc.
k. Equipment available, e.g., binoculars, night vision goggles, etc.
l. Logistics available
j. Review the mission with the platoon commander and ask questions, if necessary.
2. Prepare for the patrol using the acronym BAMCIS (Figure 1).

a. Begin planning.
   - Issue the Patrol Warning Order. (See TASK: ISSUE A PATROL WARNING ORDER (2-4).)

b. Arrange for reconnaissance and coordination.
   1) Acquire the necessary maps and aerial photos for a map or photoreconnaissance.
   2) Coordinate with other units the movement of the patrol within, through, and beyond friendly lines.
      a) Provide patrol information, including
         (1) Size
         (2) Routes
         (3) Time of departure and return
         (4) Challenge and password
         (5) Call signs and frequencies
      b) Request information on the following:
         (1) Known or suspected enemy activity
         (2) Friendly positions and activity
            (a) Locations of Forward Observers (FO), LPs and OPs.
            (b) Signals for firing the Final Protective Fires (FPF)
         (3) Call signs and frequencies
         (4) Challenge and password, and the running password

NOTE: A running password is used during passage of friendly lines when enemy contact prohibits the more time-consuming process of the challenge and password procedure. A running password is usually comprised of a short, two-word phrase that is continuously shouted by a Seabee who is running back through friendly lines. This alerts Seabees who are manning the defensive position that friendly troops are coming back through the lines.
c) Verify locations of the point of departure (POD), point of return (POR), and the assembly area.

d) Request that a guide be provided for crossing friendly lines, if necessary.

e) Coordinate the plan for reentry.

3) Request ammunition, special equipment, water, and rations.

4) Coordinate the method for casualty evacuation.

5) Collect intelligence about the enemy.

c. **Make the reconnaissance.**

- Study the terrain on the map and/or aerial photographs and identify:
  -- Terrain features that could be navigation aids
  -- Danger areas and obstacles
  -- Tentative checkpoints and rally points

d. **Complete the plan.**

1) Assign each fire team and individual a specific duty.
   a) Ensure that at least one Seabee is assigned as a navigator.
   b) Ensure that at least two Seabees are assigned as pace counters.

2) Finalize the route selection. (See **TASK: PREPARE PATROL ROUTES (2-9).**)
   - Make frequent changes to the route if the patrol is to be conducted daily or periodically.

3) Finalize procedures for the following:
   a) Patrol formation and order of movement
   b) Departure and reentry of friendly lines
   c) Actions at checkpoints, rally points, danger areas, and upon enemy contact

4) Ensure that arms and ammunition have been obtained.

5) Ensure that patrol members have the required uniform and equipment.
6) Determine the procedures for handling enemy prisoners of war (EPWs).

7) Determine the type of signals to be used. (Use the standard hand and arm signals on page 2-52 through 2-54).

8) Identify communication security measures, call signs, frequencies, code words, and reporting times used for communications with the higher authority.

9) Determine the challenge and password for use within the patrol.

10) Determine your position as the Patrol Leader (PL) and the position of the Assistant Patrol Leader (APL) within the patrol.

   a. Issue the Patrol Order. (See TASK: ISSUE A PATROL ORDER (2-5).)

   b. Supervise preparations.

      1) Check with team leaders to verify that assigned tasks are being accomplished.

      2) Conduct initial and final inspections. (See TASK: CONDUCT PATROL INSPECTIONS (2-6).)

      3) Conduct rehearsals. (See TASK: CONDUCT PATROL REHEARSALS (2-7).)

3. Review your plan with the platoon commander.

   a. Brief the platoon commander on the patrol and answer questions, as necessary.

   b. Inform the platoon commander when the patrol is ready to depart.

4. Conduct the patrol.

   a. Lead the patrol to the assembly area.

      NOTE: The assembly area is within the friendly unit commander’s area of responsibility. It is a secure area that has been designated by the patrol leader and approved by the unit commander.

   b. Conduct passage of friendly lines.

      1) Direct the APL to take charge of the patrol and leave him a five point contingency plan by telling him:

         a) Where you are going

         b) Who you are taking with you

         c) How long you plan to be gone
d) What to do if you do not return

e) Actions to be taken in the event of enemy contact:

(1) What the APL should do if the PL makes enemy contact while he is away from the patrol

(2) What the APL should do if the patrol makes enemy contact while the PL is away

2) Make final coordination with the friendly unit commander or his representative.

a) Ascertain any changes from the initial coordination.

b) Determine if there has been any recent enemy activity.

3) Return to the assembly area and brief the patrol.

4) Select an initial rally point (IRP).

a) The IRP is a secure area offering the best possible cover and concealment available and is as close to the point of departure (POD) as possible.

b) The IRP is a control measure that the patrol leader may use to rally the patrol if enemy contact is made while crossing friendly lines.

c) The assembly area may be used as the IRP, if the patrol leader chooses.

5) Lead or have a guide from the friendly unit lead the patrol through friendly positions.

6) Direct the APL to count patrol members as they depart friendly lines.

7) Notify higher authority that the patrol has departed friendly lines.

c. Conduct a short security halt once the patrol is a safe distance from friendly lines to allow the Seabees to become accustomed to the sights and sounds of the battlefield.

d. Lead the patrol in the appropriate formations along the designated route.

- Switch to the alternate route when necessary.

   NOTE: Patrol members should maintain visual contact with the patrol leader at all times.

e. Control movement of the patrol.

1) Post security at halts.

2) Account for personnel after halts and after crossing danger areas.
3) React to enemy contact as required. (See **TASK: CONDUCT PATROLLING IMMEDIATE ACTION DRILLS (2-8)**.)

f. Halt the patrol occasionally to observe and listen for enemy activity.

g. Detect and report any enemy activity using a SALUTE report (Figure 1).

h. Maintain communications with the parent unit in accordance with the communications plan.

i. Designate enroute rally points during movement.

j. Ensure personnel are continuously accounted for during the patrol.

k. Return to friendly lines.

   1) Halt the patrol at the designated reentry rally point (RRP).

   **NOTE:** The site chosen for the RRP should offer cover, concealment, and be out of the direct line of friendly small arms fire.

   2) Contact the friendly unit in the manner previously determined.

   3) Move the patrol to the point of return (POR) and link up with the guide.

   4) Direct the APL to identify and count patrol members as they reenter friendly lines.

5. **Report to higher authority for debriefing.**

6. **Review with the patrol lessons learned.**

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**REFERENCES:**

FMFM 6-5, *Marine Rifle Squad*

FMFM 6-7, *Scouting and Patrolling for Infantry Units*
**TASK:** ISSUE A PATROL WARNING ORDER (2-4)

**CONDITIONS:** PROVIDED COMMANDER'S GUIDANCE AND THE REQUIREMENT TO LEAD A PATROL.

**STANDARD:** ISSUE A PATROL WARNING ORDER USING A MODIFIED FIVE PARAGRAPH ORDER FORMAT.

---

EVALUATION GUIDELINES TO BE USED DURING TRAINING:

*Conditions:* The Seabee, acting as a patrol leader, is provided a fragmentation order and a patrol warning order form.

*Standard:* The Seabee must prepare and issue a warning order using a modified five-paragraph order. The warning order must contain the situation, mission, and general instructions, to include general and special organization; uniform and equipment common to all; weapons, ammunition, and equipment each will carry; the chain of command, a time schedule, and special instructions to subordinate leaders, special teams, and key individuals.

---

**PERFORMANCE STEPS:**

1. *Estimate the situation using the acronyms METT-T and KOCOA.*
   a. Analyze **METT-T** by considering:
      1) The **Mission** tasks and goals
      2) What is known about the **Enemy** (SALUTE and DRAW-D)
      3) What is known about the **Terrain** and weather conditions (KOCOA)
      4) The availability of **Troops** and fire support
      5) **Time** allotted for preparation and movement
   b. Analyze **KOCOA** by considering:
      1) **Key** terrain and weather
      2) **Observation** points and fields of fire
      3) **Cover** and concealment
      4) **Obstacles**
      5) **Avenues** of approach
2. Plan available time using the reverse planning method.
   a. Prepare a schedule that includes every event, which you must accomplished before the patrol departs.
   b. Begin with the last event (departure) and plan backward to the present time.

   **EXAMPLE:**
   - 1000 Time of departure
   - 0945 Final inspection
   - 0920 Rehearsal
   - 0900 Initial inspection
   - 0800 Issue the patrol order
   - 0745 Complete planning
   - 0700 Make reconnaissance
      - Make necessary coordination
      - Arrange reconnaissance
   - 0630 Issue the warning order
   - 0600 Receive the order

3. Prepare the warning order.
   a. Use a warning order form (Figure 1).
   b. Use the modified five-paragraph order to organize the warning order.

   1) Situation
      - Provide a brief outline of the enemy and friendly situations.

   2) Mission
      - State what the patrol is to accomplish.

   3) Execution
      a) Describe general patrol organization and assignment of responsibilities.

      **NOTE:** If specifics concerning the assignment of responsibilities are not known at the time of the warning order, cover them in the patrol order.

      b) Assign subordinate leaders to the patrol, which require preparation prior to departure.

      c) Provide coordinating instructions.

         1) Make a time schedule with locations for patrol preparation.

         2) Specify the time, place, uniform, and equipment for receiving the patrol order.
(3) Assign tasks for subordinate leaders to direct and supervise in the initial patrol preparation.

**NOTE:** Tasks may include drawing ammunition, rations, and special equipment; conducting immediate actions drills or other necessary individual or unit training; meeting and briefing attachment personnel; reconnoitering the area for passage of lines; and coordinating with the necessary unit leaders.

---

**Patrol Warning Order**

<table>
<thead>
<tr>
<th>Name</th>
<th>Chain of Command</th>
<th>General Organization</th>
<th>Duties</th>
<th>Weapons and Ammo</th>
<th>Special Gear Equipment</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1</td>
<td>SQ. LDR.</td>
<td>P. L.</td>
<td>M-16 / 40</td>
<td>Bino's, Map, Compass, Whistle</td>
</tr>
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</tr>
</tbody>
</table>

**General Instructions:** (uniforms, etc) (if posted notify PL or APL of receipt)

---

**Time (when)** | **What**
--- | ---
Pick up Intel and Weather
Draw Maps
Draw Weapons
Draw and Test Comm. Gear
Draw Compass, Binos, NVG's
Draw Ammo.
Write Patrol Order w/ Overlays
Create Patrol Model
Fed / Local Unit Coordination
FSC/FDC Coordination
Chow/MRE’s
Issue Ammo / Initial Inspection
Patrol Order Issued
Rehearsals
Final Intel
Head Call
TOD/Step-off / Test Comm Gear
TOR
Debrief
Patrol Evaluation

* Plan Time in REVERSE

---

Figure 1

---

2-15
(4) Provide preliminary guidance to key individuals regarding their roles and organization within the patrol.

4) Administration and logistics
   a) List the uniform and equipment (gear) common to all.

   NOTE: The uniform and equipment specified in the warning order form (Figure 1) is standard for a patrol. This list may be modified by the patrol leader based upon the mission requirements.

   b) Specify individual weapons, prescribed load of ammunition, rations, and water.

   c) Designate crew-served weapons (if required) and provide guidance regarding distribution of weapons and ammunition during movement.

   d) Identify restricted or prohibited items.

5) Command and signal
   a) Specify the chain of command.
      - Indicate, by number, each Seabee’s seniority within the patrol.
   b) Designate the assistant patrol leader and his role in preparation.
   c) Designate the navigator, pace counters, and radio operators (if required).
   d) Provide a brief outline of the patrol leader’s schedule for preparation and where he can be reached.

4. Issue the warning order.
   a. Ensure that all patrol members are present to receive the patrol warning order.
   b. Issue the warning order verbally or post the written warning order for all Seabees to read.

REFERENCES:
FMFM 1-2, Marine Troop Leaders Guide
FMFM 6-5, Marine Rifle Squad
FMFM 6-7, Scouting and Patrolling for Infantry Units
TASK: ISSUE A PATROL ORDER (2-5)

CONDITIONS: PROVIDED COMMANDER'S GUIDANCE AND THE REQUIREMENT TO LEAD A PATROL.

STANDARD: ISSUE A PATROL ORDER USING A FIVE PARAGRAPH ORDER FORMAT.

EVALUATION GUIDELINES TO BE USED DURING TRAINING:

Conditions: The Seabee, acting as a patrol leader, is provided a tactical scenario in any combat environment (day or night), commander's guidance, a patrol order format, individual combat equipment, TOA weapon with blank ammunition, and a squad of Seabees with weapons and equipment.

Standard: The Seabee must prepare and issue a patrol order in accordance with the commander's guidance. The Seabee will receive an order from the platoon commander and must use the troop leading steps to organize the plan into a five-paragraph patrol order. The Seabee must ensure that the patrol order contains the situation, mission, execution, administration and logistics, and command and signal. The Seabee must then issue the detailed plan to a squad of Seabees.

Administrative Note: See TASK: CONDUCT PATROLLING IMMEDIATE ACTION DRILLS (2-8)

PERFORMANCE STEPS:

1. Prepare the patrol order using a patrol order format (Table 1).

   a. Provide the situation.

   1) Determine the enemy situation.

      a) Identify known enemy activity using the acronym "SALUTE" (Size, Activity, Location, Unit or Uniform, Time and date, Equipment).

      b) Anticipate enemy intentions using the acronym "DRAW-D" (Defend, Reinforce, Attack, Withdraw, and Delay).

      c) Give the weather conditions and their expected effects on the patrol, including the times for sunrise, sunset, Begin Morning Nautical Twilight (BMNT), End of Evening Nautical Twilight (EENT), and the % of illumination (moon phase).

      d) Describe the terrain in the area of operation and note its probable effects on the patrol.

   2) Determine the friendly situation by using the acronym "HAS" (Higher, Adjacent, Supporting) and identify the following:

      a) Mission of the next higher unit and the commander's intent

      b) Unit, location, mission, and planned actions of adjacent friendly units
c) Location of any friendly FOs, LPs, OPs and patrols

d) Missions and routes of other patrols

e) Unit, location, type, and coordination measures with available friendly fire support

1. SITUATION
   a. Enemy forces: Weather, terrain, identification, location, activity and strength
   b. Friendly forces: Mission of next higher unit, commander's intent, location and planned actions of units on right and left, fire support available, and missions and routes of other patrols
   c. Attachments and detachments

2. MISSION

3. EXECUTION
   a. Concept of operation:
      1) Scheme of maneuver
      2) Missions of units, teams, and individuals
      3) The fire support plan
   b. Tasks: For units, teams, and individuals. Included are such tasks as navigation, security during movement, and security at halts.
   c. Coordinating instructions
      1) Times of departure and return
      2) Primary and alternate routes
      3) Departure and reentry of friendly areas
      4) Organization for movement
      5) Actions at danger areas
      6) Actions on enemy contact
      7) Ralling points and actions at rallying points
      8) Actions in area of operation
      9) Debriefing
      10) Other actions
      11) Rehearsals and inspections

4. ADMINISTRATION AND LOGISTICS
   a. Rations
   b. Arms and ammunition
   c. Uniform and equipment (state which members will carry and use)
   d. Method of handling wounded and prisoners

5. COMMAND AND SIGNAL
   a. Signal
      1) Signals to be used within the patrol
      2) Communication with higher headquarters--radio call signs, primary and alternate frequencies, times to report, and special codes to be used
      3) Challenge and password
      4) Running Password
   b. Command
      1) Chain of Command
      2) Location of leaders at various times--during movement, at danger areas

Table 1

2-18
3) List units attached and detached.

b. State the **mission**, which includes the following (Who, What, Where, When):
   1) A clear and concise statement of the task that must be accomplished
   2) The location or area in which the patrol must operate

c. Explain **execution** by providing the following:
   1) Concept of operation
      a) Scheme of maneuver is a brief overview of the entire patrol that covers the following:
         (1) Task organization of the patrol
         (2) Movement to the various checkpoints
         (3) Actions in the various checkpoints
         (4) Return movement
      b) Outline in details the fire support plan.
      c) Cover the missions of units, teams, and individuals at various checkpoints.
   2) Tasks for units, teams, and individuals during movement
   3) Coordinating instructions:
      a) State the time of departure and time of return.
      b) Give the primary and alternate routes to and from the various checkpoints.
      c) Identify locations of departure and reentry points and cover the actions associated with departure and reentry of friendly lines.
      d) Explain details on formations and order of movement.
      e) Detail the process for crossing danger areas.
      f) Explain the actions to be taken in the event of enemy contact. (See **TASK: CONDUCT PATROLLING IMMEDIATE ACTION DRILLS (2-8).**)
      g) Identify known rallying points and actions to be taken at rallying points.
      h) Cover in detail actions at the checkpoints.
      i) Provide the time and procedure for patrol debriefing upon return.
      j) Cover any other actions not listed elsewhere, which are unique to the patrol.
k) Give the time of inspections and rehearsals.

d. Determine administration and logistic requirements by identifying the following:

1) Rations that each Seabee will carry

2) Uniform and equipment common to all

3) Arms and ammunition that each Seabee will carry

4) Instructions for handling wounded and enemy prisoners of war (EPWs).

5) Methods of handling friendly dead and wounded.

6) MEDEVAC procedures

e. Cover command and signal.

1) Identify the chain of command and succession of command.

2) Identify the challenges and passwords, hand-and-arm and special signals, radio frequencies, call signs and running passwords.

3) Identify the position of the patrol leader within the patrol organization during the approach and return and at the objective.

2. Issue the patrol order.

NOTE: A patrol order is a supplement to the patrol warning order and will usually address only those items of information which have not previously been published. Any of the elements which have been addressed in the warning order MAY be omitted, if time is limited.

a. Assemble all patrol members, including attachments.

b. Review the status of patrol preparations.

- Postpone issuing the patrol order only if a critical task is not being satisfactorily accomplished.

c. Orient the patrol, using a terrain model, sketch, or map.

NOTE: During planning of the warning order, task the navigator and a pace counter to construct terrain models of the ground which the patrol will cover. Terrain model should display the entire route.

1) Point out which direction is North.

2) Give the grid coordinates of the present location.

3) Point out and give the grid coordinates of key terrain features, checkpoints and on-call targets.
4) Point out and give the grid coordinates (when applicable) of control measures such as traces of friendly lines, points of departure and reentry, rally points, and check points.

d. Read each paragraph of the prepared order.

e. Conclude with a question and answer session.

f. Synchronize watches with all members of the patrol.

REFERENCES:

FMFM 6-4, Marine Rifle Company/Platoon
FMFM 6-5, Marine Rifle Squad
FMFM 6-7, Scouting and Patrolling for Infantry Units
**TASK:** CONDUCT PATROL INSPECTIONS (2-6)

**CONDITIONS:** PROVIDED COMMANDER'S GUIDANCE AND THE REQUIREMENT TO LEAD A PATROL.

**STANDARD:** CONDUCT INITIAL AND FINAL INSPECTIONS IN ORDER TO DETECT AND CORRECT ALL DISCREPANCIES.

---

**EVALUATION GUIDELINES TO BE USED DURING TRAINING:**

**Conditions:** The Seabee, acting as a patrol leader/assistant patrol leader, is provided commander's guidance, individual combat equipment, TOA weapon with blank ammunition, and a patrol with weapons and equipment.

**Standard:** The Seabee must conduct initial and final inspections of his patrol and correct any discrepancies in camouflage, prescribed uniform, equipment, weapons, ammunition, and knowledge prior to the patrol departing on its assigned mission.

---

**PERFORMANCE STEPS:**

1. *Conduct the initial inspection before rehearsals.*

   a. Physically inspect every member of the patrol (including attachments) for the following:

   **NOTE:** For larger patrols, the patrol leader may delegate conduct of the inspections to his subordinate leaders. If so, the patrol leader should inspect his subordinate unit leaders thoroughly and spot check random members of each subordinate unit.

   1) Prescribed uniform, weapons, ammunition, ordnance, food, water and equipment

   2) Silence of equipment by taping adjustable clips on pack, excess shoulder straps, etc.

   3) Identification tags and Geneva Convention cards

   4) Camouflage

   5) Unnecessary equipment (excess weight) and items such as transistor radios and personal letters

   b. Question patrol members to ensure that each Seabee knows the following:

   1) The mission, routes (primary and alternate), and the fire support plan

   2) What he is to do and when he is to do it (both on the move and at the check point and rally point.

   3) What others are to do, as far as their actions concern him
4) Challenges and passwords, running passwords, code words, radio call signs, frequencies, reporting times, and other pertinent details

2. **Conduct a final inspection (if time allows) before departure.**
   
a. Ensure that all discrepancies found in the initial inspection have been corrected.

b. Ensure that all mission-essential equipment is present and in working order.

   **NOTE:** Test-fire weapons just before departure, when feasible.

   1) Prepare and arrange gear for silent movement.

   2) Fasten equipment securely to the body.

   3) Ensure that nothing is left behind.

   c. Inspect camouflage measures thoroughly.

   d. Check knowledge of patrol members by asking random questions regarding their individual, team, and squad missions.

   e. Check for physical and mental well being.

**REFERENCES:**

FMFM 6-5, *Marine Rifle Squad*

FMFM 6-7, *Scouting and Patrolling for Infantry Unit.*
**TASK:** CONDUCT PATROL REHEARSALS (2-7)

**CONDITIONS:** PROVIDED COMMANDER’S GUIDANCE AND THE REQUIREMENT TO LEAD A PATROL.

**STANDARD:** CONDUCT PATROL REHEARSALS TO ENSURE THE OPERATIONAL PROFICIENCY OF THE PATROL.

---

**EVALUATION GUIDELINES TO BE USED DURING TRAINING:**

**Conditions:** The Seabee, acting as a patrol leader/assistant patrol leader, is provided commander’s guidance, a patrol order for a day or night patrol, individual combat equipment, TOA weapon with ammunition, and a patrol with weapons and equipment.

**Standard:** The Seabee must plan for and conduct patrol rehearsals for actions at the check points, actions at danger areas, actions on enemy contact, actions at rally points, departure and reentry of friendly lines, communications, visual signals and movement of the patrol.

*Administrative Note: See TASK: CONDUCT PATROLLING IMMEDIATE ACTION DRILLS (2-8)*

---

**PERFORMANCE STEPS:**

1. *Plan patrol rehearsals.*
   a. Coordinate with the Platoon/Company Commander to schedule a secure area for rehearsals.
   b. Select rehearsal site and time for rehearsals. If possible, conduct rehearsals on terrain similar to that of the patrol’s area of operation.
   c. If the patrol is to operate at night, schedule both day and night rehearsals.

2. *Conduct rehearsals to ensure the operational proficiency of the patrol.*
   a. Rehearse the following actions:
      1) Actions at checkpoints
      2) Actions at danger areas
      3) Actions on enemy contact (Immediate action drills) (See TASK: CONDUCT PATROLLING IMMEDIATE ACTION DRILLS (2-8).)
      4) Actions at rally points
      5) Movement in the area of operation.
      6) Departure and reentry of friendly lines
7) Communications and visual signals

8) Movement of the patrol

   NOTE: If time is limited, rehearse the most critical areas. Immediate actions are critical should always be rehearsed.

b. Talk the patrol through each phase of the patrol.
   - Describe all actions of elements, teams, and individuals.

c. Walk the patrol through all phases.
   1) Physically walk the patrol through each phase.
   2) Have each Seabee perform his assigned duty.
   3) Give directions and corrections as needed.

d. Rehearse all phases of the patrol, using only the signals and commands that will be used during the actual conduct of the patrol.

e. Continue rehearsals until the patrol is thoroughly familiar with the plan.

3. Use the rehearsals to test the soundness of the patrol order and patrol organization.
   a. Test the feasibility of the plan and patrol organization.
   b. Check the suitability of selected equipment.

4. Make final adjustments to the plan and organization based on lessons learned from the rehearsal.

REFERENCES:
FMFM 1-2, Marine Troop Leaders Guide
FMFM 6-5, Marine Rifle Squad
FMFM 6-7, Scouting and Patrolling for Infantry Units
**TASK:** CONDUCT PATROLLING IMMEDIATE ACTION DRILLS (2-8)

**CONDITIONS:** PROVIDED COMMANDER'S GUIDANCE AND THE REQUIREMENT TO LEAD A PATROL.

**STANDARD:** DIRECT THE PATROL IN IMMEDIATE ACTION DRILLS WHEN UNEXPECTED CONTACT IS MADE WITH ENEMY FORCES.

---

**EVALUATION GUIDELINES TO BE USED DURING TRAINING:**

- **Conditions:** The Seabee, acting as a patrol leader/assistant patrol leader, is provided commander's guidance, individual combat equipment, TOA weapon with blank ammunition, and a patrol with weapons and equipment that is subject to unexpected enemy contact.

- **Standard:** The Seabee must direct their patrol in the conduct of immediate action drills when unexpected contact is made with enemy forces by chance contact, ambush, simulated artillery fire and air observation/attack.

---

**PERFORMANCE STEPS:**

1. *Conduct an immediate halt drill.*
   
   a. "First Seabee to visually detect the enemy", give the silent signal for **FREEZE**.

   b. "Each member of the patrol", immediately halt in place with weapon at the ready; remain absolutely motionless and quiet.

   c. Determine your course of action.

      1) **Engage the enemy.**

         - Conduct an immediate assault or a hasty ambush. (See performance steps 2 and 3.)

      2) **Avoid contact.**

         a) Keep weapons at the ready.

         b) Observe the enemy until out of sight.
2-27

IF

| The enemy detects the patrol. | Engage by fire and maneuver, or
|                             | Conduct an immediate assault, or
|                             | Break contact

| The enemy does not detect the patrol. | Determine immediate actions based upon mission or situation

---

d. Submit a SALUTE report on the enemy.

e. Continue the mission.

2. **Conduct an immediate assault drill.**

   **NOTE:** Immediate assault is used in two ways. Defensively, immediate assault makes and quickly breaks undesirable but unavoidable enemy contact. Offensively, it is used to decisively engage the enemy. The patrol leader will decide what action to take based upon the assigned mission.

   a. "Seabee nearest the enemy", open fire and shout CONTACT, FRONT (RIGHT, LEFT, OR REAR).

   b. Move the patrol swiftly into a line formation and assault the enemy.

<table>
<thead>
<tr>
<th>IF IMMEDIATE ACTION IS</th>
<th>AND THE ENEMY</th>
<th>THEN</th>
</tr>
</thead>
<tbody>
<tr>
<td>Defensive in nature</td>
<td>Stands fast</td>
<td>Continue the assault until contact is broken</td>
</tr>
<tr>
<td></td>
<td>Withdraws</td>
<td>Stop the assault</td>
</tr>
<tr>
<td>Offensive in nature</td>
<td>Stands or withdraws</td>
<td>Continue the assault and pursue the enemy until they are destroyed</td>
</tr>
</tbody>
</table>

c. Establish a hasty security position.

d. Account for all personnel.

e. Move the patrol rapidly out of the area.

f. Submit a SALUTE report and continue the mission.
3. *Conduct a hasty ambush drill.*
   a. Signal for a hasty ambush.
   b. Direct the Seabees to move quickly to the right or left of the line of movement and take up the best available concealed firing positions.
   c. Allow the enemy to move into the most vulnerable position.
   d. Initiate the ambush by opening fire and shouting "FIRE."

<table>
<thead>
<tr>
<th>IF THE PATROL IS</th>
<th>THEN</th>
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</thead>
<tbody>
<tr>
<td>Defensive in nature</td>
<td>Do not initiate the ambush, unless detected.</td>
</tr>
<tr>
<td>Offensive in nature</td>
<td>Initiate the ambush, unless the enemy has a superior force.</td>
</tr>
</tbody>
</table>

4. *Conduct drills for breaking contact.*
   a. Break contact from direct fire.
      1) Direct one fire team to lay down a base of fire on the enemy position.
      2) Direct the fire team closest to the enemy position to move back under the covering fire.
      3) Have that fire team lay down a base of fire once it moves back to the best-covered and concealed position available.
      4) Continue this fire and maneuver until contact is broken.
      5) Establish a hasty security position.
      6) Account for all personnel.
      7) Move the patrol rapidly out of the area.
      8) Submit a SALUTE report on the enemy sighting and continue the mission.
   b. Break contact from indirect fire.
      1) Shout a direction and distance.
         - Specify direction using the clock system.
         **NOTE:** Twelve o'clock is the patrol's direction of movement, 3 o'clock is directly to the right, 9 o'clock is directly to the left, 6 o'clock is to the rear, etc.
      2) Move the patrol rapidly out of the impact area in the specified direction and distance.
3) Ensure that the Seabees maintain their relative positions as they move.

4) Establish a hasty security position once out of the impact area.

5) Account for all personnel

6) Move the patrol rapidly out of the area.

7) Report the enemy contact and continue the mission.

5. Conduct counter ambush drills (See Figures 1 and 2).
   
a. Determine your course of action.

<table>
<thead>
<tr>
<th>IF CAUGHT IN A</th>
<th>THEN</th>
</tr>
</thead>
<tbody>
<tr>
<td>Near ambush (See Figure 1)</td>
<td>Direct those in the killing zone to immediately assault the ambush position, to occupy it, and to continue the assault or to break contact.</td>
</tr>
<tr>
<td><strong>NOTE: Within 50 meters of the patrol</strong></td>
<td>Direct those not in the killing zone to maneuver against the attack force and other elements of the ambush.</td>
</tr>
<tr>
<td></td>
<td>Continue the assault to either eliminate the enemy or break contact.</td>
</tr>
<tr>
<td>Far ambush (See Figure 2)</td>
<td>Direct those in the killing zone to return fire and to take the best available positions.</td>
</tr>
<tr>
<td><strong>NOTE: Beyond 50 meters of the patrol</strong></td>
<td>Direct the men not in the killing zone to maneuver against the ambush force.</td>
</tr>
<tr>
<td></td>
<td>Continue the assault to either eliminate the enemy or break contact.</td>
</tr>
</tbody>
</table>
b. Establish a hasty security position.

c. Account for all personnel.

d. Move the patrol rapidly out of the area.

e. Submit a SALUTE report and continue the mission.

6. **Conduct air observation/attack drills.**

   a. Air observation drill

      1) *(First Seabee to detect the aircraft)* Give the signal for **FREEZE**.

      2) *(Each member of the patrol)* Immediately halt in place and remain absolutely motionless.

      3) Identify the aircraft.
IF THE AIRCRAFT IS

<table>
<thead>
<tr>
<th>Friendly</th>
<th>Continue with the mission.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Enemy</td>
<td>Remain motionless until the aircraft leaves the area.</td>
</tr>
<tr>
<td></td>
<td>Submit a SALUTE report on the enemy sighting.</td>
</tr>
</tbody>
</table>

| WARNING: | Do not engage unless the aircraft attacks. |

b. Air attack drill (See Figure 3)

**Figure 3**

1) *(The first Seabee sighting an attacking aircraft)* Shout AIRCRAFT, FRONT (RIGHT, LEFT, OR REAR).

2) Direct the patrol to move quickly into a line formation, well spread out and at a right angle to the aircraft's direction of travel.

**NOTE:** As each Seabee comes on line, he hits the ground, using any available cover, and positions his body perpendicular to the aircraft's direction of flight. This is to present the most shallow target.

3) Quickly determine if the aircraft should be fired on.
<table>
<thead>
<tr>
<th>IF THE AIRCRAFT IS</th>
<th>THEN</th>
</tr>
</thead>
<tbody>
<tr>
<td>Friendly</td>
<td>Do not engage</td>
</tr>
<tr>
<td>Enemy</td>
<td>Engage</td>
</tr>
</tbody>
</table>

**NOTE:** To effectively engage moving aircraft, the point of aim should lead the aircraft by 100 meters for a helicopter or propeller-driven aircraft and 300 meters for a jet aircraft.

4) Direct patrol members into better-covered and concealed positions between attacks.

5) Establish a hasty security position after the attack.

6) Account for all personnel.

7) Move the patrol rapidly out of the area.

8) Submit a **SALUTE** report and continue the mission.

**REFERENCES:**

FMFM 6-5, *Marine Rifle Squad*

FMFM 6-7, *Scouting and Patrolling for Infantry Units*
TASK: PREPARE PATROL ROUTES (2-9)

CONDITIONS: PROVIDED COMMANDER’S GUIDANCE, A 1:25,000 MAP, OVERLAY MATERIAL, WRITING INSTRUMENTS, COMPASS, PROTRACTOR, AND THE REQUIREMENT TO LEAD A PATROL.

STANDARD: PLAN PRIMARY AND ALTERNATE ROUTES ON AN OVERLAY BASED ON THE MISSION, COMMANDER’S GUIDANCE, TIME OF DEPARTURE/TIME OF RETURN, AND THE ENEMY SITUATION.

EVALUATION GUIDELINES TO BE USED DURING TRAINING:

Conditions: The Seabee is provided commander's guidance, a 1:25,000 scale map, overlay material, writing instruments, compass, overlay material, writing instruments, compass and a protractor.

Standard: The Seabee must plan primary and alternate routes based on the mission, commander’s guidance, times of departure and return, and the enemy situation. The Seabee must prepare an overlay showing the routes chosen and the preplanned targets selected.

PERFORMANCE STEPS:

1. Make a terrain analysis and estimate enemy capabilities based on the enemy situation.
   a. Analyze the terrain and vegetation, and plan routes that will offer the most cover and concealment.
   b. Consider the patrol's ability and the time available to conduct the patrol.

2. Select primary and alternate routes based on the information available.
   a. Divide routes into "legs" for ease of navigation.
      - Start each leg at a point which can be recognized on the ground and identified on the map, if possible.
   b. Select locations for rally points during map study or reconnaissance.
      1) Select a tentative Initial Rally Point (IRP) and Reentry Rally Point (RRP) for departure and reentry of friendly lines.

      NOTE: Rally points should be easily recognizable, away from natural lines of drift, and have cover and concealment, if possible.

      2) Look for suitable places for enroute rally points to be used later, when on patrol.
      3) Plan for the selection of rally points on both near and far sides of danger areas, such as trails and steams that cannot be bypassed.

3. Prepare a clear, concise overlay (Figure 1).
Figure 1
a. Mark the grid designators at opposing corners of the overlay.

b. Trace the patrol route on the overlay and indicate checkpoints.

c. Indicate the point of departure (POD) and the point of return (POR), which may be the same point.

d. Indicate checkpoints (CP) on both the primary and the alternate routes.

e. Prepare a tentative list of on-call targets for fire support coordination.

1) Analyze routes to determine the best locations for on-call targets.

   **NOTE:** On-call targets should be requested at locations where enemy contact is probable.

   a) Known and suspected enemy positions

   b) Danger areas

      (1) Trails and roads

      (2) Stream or river crossings

      (3) Open areas

   c) Prominent terrain features

      (1) Hilltops

      (2) Fingers

   d) Easily identifiable, manmade objects

      (1) Road intersections

      (2) Isolated building or water tower

      (3) Bridges

2) Plot target selections on the overlay.

f. Make fire support coordination through your Fire Direction Center (FDC).

   **NOTE:** On-call target selection is tentative until the patrol leader makes his fire support coordination with the (FDC).

g. Display a legend and marginal information on the overlay.

1) Enter the patrol leader's name, unit, and the date of the patrol.
2) Enter the map sheet name and scale.

3) List all radio frequencies, the patrol call signs, code words, and any abbreviated codes used.

4) Submit to platoon leader for approval.

REFERENCES:

FMFM 6-5, Marine Rifle Squad
FMFM 6-7, Scouting and Patrolling for Infantry Units
TASK: CONDUCT TRAINING ON FIRE TEAM-SIZE COMBAT FORMATIONS (2-10)

CONDITIONS: PROVIDE A FIRE TEAM-SIZE UNIT AND THE REQUIREMENT TO OPERATE TACTICALLY.

STANDARD: INSTRUCT SEABEES SO THAT THEY WILL BE ABLE TO MOVE IN SQUAD/FIRE TEAM COMBAT FORMATIONS AND CONTROLLED BY HAND AND ARM SIGNALS, PER THE REFERENCES.

EVALUATION GUIDELINES TO BE USED DURING TRAINING:

**Conditions:** The Seabee is provided a training site, training support equipment, Seabees to instruct, and the resources listed at the end of this task.

**Standard:** The Seabee must instruct Seabees in a fire team size unit to respond quickly and correctly to hand and arm signals to move to their individual assignments in the following fire team formations: wedge, skirmishers right and left, column, echelon right and echelon left

PERFORMANCE STEPS:

1. Prepare and rehearse for the training.

2. Conduct the training.

   a. Describe the types of fire team formations and show the individual positions.

   **NOTE:** The individual positions within the fire team are represented by the following symbols (Figure 1).

   - FIRE TEAM LEADER
   - AUTOMATIC RIFLEMAN
   - RIFLEMAN ONE
   - RIFLEMAN TWO

   Figure 1

   1) Use the wedge formation (Figure 2) to

      a) facilitate control.
b) provide all-round security.

c) be flexible.

d) provide adequate fire in all directions.

e) deal with the enemy situation when it is uncertain and the terrain and visibility require dispersion.

**NOTE:** The position of the fire team leader and rifleman number one are interchangeable.

![Figure 2](image1.png)  ![Figure 3](image2.png)

2) Demonstrate the hand-and-arm signal for the wedge formation (Figure 3).

   a) Extend both arms downward and to the side at an angle of 45° below the horizontal.

   b) Turn the palms to the front.

3) Use skirmishers left and skirmishers right formations (Figure 4) to

   a) provide maximum firepower to the front.

   b) deal with the enemy when location and strength are known.

   c) make an assault.

   d) mop up, and cross short open areas.
4) Demonstrate the hand-and-arm signal for skirmishers left and right (Figure 5).
   a) Raise both arms laterally until horizontal, arms and hands extended.
   b) Turn palms down.
   c) Move wrist up and down.

5) Use the column formation (Figure 6) to:
   a) facilitate speed, control, and ease of movement.
   b) deal with dense vegetation or reduced visibility.
   c) maneuver through narrow covered routes of advance, gaps between areas receiving enemy artillery fire, and areas of limited observation.
   d) favor fire and maneuver to the flanks.

6) Demonstrate the hand-and-arm signal for the column formation (Figure 7).
a) Raise either arm to the vertical position.

b) Drop the arm to the rear, describing complete circles in a vertical plane parallel to the body.

7) Use the echelon left and echelon right (Figure 8) formations to
   a) provide maximum firepower to the front and the echeloned flank.
   b) protect an open or exposed flank.

8) Demonstrate the hand-and-arm signals for echelon left and echelon right formations (Figure 9).
   - Extend one arm 45° below the horizontal, palms to the front.

   **NOTE:** The lower arm indicates the direction of the echelon. 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 arm is lowered.

b. Move the fire team members in designated formations.
   1) Maintain visual contact with fire team members.
   2) Use arm-and-hand signals to communicate.
   3) Cover assigned sectors of observation and fire.
   4) Maintain light and noise discipline.
   5) Camouflage themselves and their equipment.
   6) Stop, look, and listen before moving.
      a) Take advantage of cover and concealment.
      b) Move from covered position to covered position, if possible.
7) Avoid creating visible paths that would reveal the fire team's presence.

8) Cross roads and trails at places that have the most cover and concealment.

9) Avoid cleared, open areas and tops of hills and ridges.

10) Use battlefield noises to conceal movement noises.

11) Conduct immediate action drills if contact is made with the enemy.

12) Conduct fire and maneuver movement as necessary.

c. Explain that the fire team changes formation to:

1) Make an assault.

2) Reduce casualties from hostile fire.

3) Present a less vulnerable target.

4) Get over difficult or exposed terrain.

5) Get over or around manmade or natural obstacles.

d. Direct individuals in moving to their individual assignments when the fire team formation changes (Figures 10 and 11).
Figure 10
3. Evaluate Seabees to determine individual proficiency.

4. Record and report training completed.

REFERENCES:

FMFM 0-1, Unit Training Management Guide
FMFM 0-1A, How to Conduct Training
FMFM 1-2, Marine Troop Leaders Guide
FMFM 6-5, Marine Rifle Squad
FM 21-75, Combat Skills of the Soldier
TASK: PREPARE A TERRAIN MODEL (2-11)

CONDITIONS: PROVIDED A WARNING ORDER, AN AREA OF OPERATION, A ROUTE OVERLAY, A 1:25,000 MAP, A COMPASS, AND MATERIALS TO CONSTRUCT A TERRAIN MODEL.

STANDARD: PREPARE A TERRAIN MODEL THAT REPRESENTS THE AREA OF OPERATION TO BE USED WHEN ISSUING AN ORDER.

EVALUATION GUIDELINES TO BE USED DURING TRAINING:

Conditions: The Seabee is provided an warning order, an area of operation, a 1:25,000 scale military map, a compass, a squad of Seabees and materials (e.g., dirt, sand, moss, rocks, twigs, MRE containers, ammunition boxes), paper and pencil to prepare a legend and construct a terrain model.

Standard: The Seabee must prepare a terrain model of an area of operation and brief other Seabees on the mission.

PERFORMANCE STEPS:

1. Select a secure area large enough to accommodate terrain model(s) and Seabees during briefing.
   a. Clear ground area to build the model, and conduct the briefing.
   b. Use materials to illustrate pieces of tactical information.
   c. Use data gathered from evaluation of Mission, Enemy, Terrain, Troops-Time, Space, and Logistics (METT-TSL).
      1) Consider what the unit must accomplish.
      2) Consider factors that will affect mission accomplishment.
         a) Known enemy location.
         b) Activities, and strength of enemy.
         c) Environmental impact on the unit and enemy forces.
         d) Locations, planned actions, mission and routes, and supporting fires of adjacent units.
         e) Time, space, and logistics.
2. **Orient terrain model to North, and draw a North-seeking arrow in the model.**

   a. Show the direction that the unit team is facing (magnetic North).

   b. Show the relation to general direction to be taken, i.e., from the present position to the area of operation.
      - Orient North to move East, West, or South.

3. **Show all major terrain features and landmarks on the terrain model.**

   a. Indicate the terrain over which the unit will operate.

   b. Specify **Key terrain**, **Observation and fields of fire**, **Cover and concealment**, **Obstacles**, and **Avenues of approach (KOCOA)**.

   1) **Key terrain**
      a) Identify critical terrain features which occupied by either the enemy or friendly forces, would allow them to control the surrounding area.
      b) Select areas (small clearings, bends in trails, and steep grades) that retard movement, prevent reinforcement, and/or deny access to other areas.

   2) **Observation and fields of fire**
      - Identify favorable fields of fire.

   3) **Cover and concealment.**

   4) **Obstacles**
      a) Identify man-made or natural obstacles (channeling, confinement).

      b) Use natural obstacles to impede progress such as cliffs, stream embankments, or steep grades, which force vehicles to slow down.

      c) Use man-made obstacles such as fallen trees, barbed wire, landmines, and boobytraps, and cratered roads to supplement natural obstacles.

   5) **Avenues**
      a) Identify the most likely avenue of approach.

      b) Outline possible primary and alternate routes.

      c) Emphasize likely danger areas.
4. **Show all grid lines, routes, on-call targets, and checkpoints.**
   
   a. Mark all grid lines, routes, on-call targets, and checkpoints.
   
   b. Mark all friendly and enemy positions known.
   
   c. Provide a legend, indicating which item it represents.

5. **Use the terrain model in conjunction with a map, as necessary to visualize, to confirm, to clarify, and to supplement information provided by the map, aerial photographs, and other sources.**

**REFERENCES:**

FMFM 6-5, *Marine Rifle Squad*

FMFM 6-7, *Scouting and Patrolling for Infantry Units*
TASK: CONTROL MOVEMENT OF A FIRE-TEAM SIZE UNIT (2-12)

CONDITIONS: PROVIDED A UNIT, AND A MISSION.

STANDARD: MAINTAIN THE CONTROL AND DISCIPLINE OF THE UNIT DURING THE MISSION, ENSURING THE PROPER DISPERSION AND FORMATION IS USED AT ALL TIMES.

EVALUATION GUIDELINES TO BE USED DURING TRAINING:

Conditions: The Seabee, acting as a fire team leader, is provided a tactical scenario, a fire team size unit with their appropriate gear and equipment, mission statement, and an area of operation.

Standard: Based on the situation provided in the fragmentation order, the Seabee must coordinate and organize for movement, maintain fire control and unit discipline during movement, ensure proper dispersion is being maintained, and the correct formations are utilized. The Seabee must use proper voice commands and visual signals during the execution of this mission.

Administrative Note: See TASK: CAMOUFLAGE SELF AND INDIVIDUAL EQUIPMENT (1-18)

PERFORMANCE STEPS:

1. Review the mission.
   a. Review the unit formation and order of movement.
      1) Consider the mission, available cover and concealment, observation and fields of fire, key terrain features, obstacles, and danger areas along the route of advance.
      2) Select formations.

      NOTE: The characteristics of fire team formations are similar to corresponding squad formations. The two commonly used fire team formations are the column and wedge

      a) Use the column formation to (Figure 1):
         (1) permit rapid, controlled movement.
         (2) favor fire and maneuver to the flanks.
b) Use the wedge formation to (Figure 2):

(1) permit good all around control.
(2) provide all around security (overlap sectors of observation or fire).
(3) make formations flexible.
(4) ensure that fire support is adequate in all directions.

**NOTE:** The fire team leader may change formations to reduce casualties from hostile fire, to present a less vulnerable target, or to get over difficult or exposed terrain and man-made and natural obstacles.

b. Review primary and alternate routes, areas to be avoided, and routes that conceal movement from enemy observation, and provide cover from direct enemy fire.

c. Review actions in the area of operation.

d. Review location and activities of other team members.

e. Review the enemy situation, known or suspected enemy dispositions, and their capabilities.

2. **Ensure that the unit performs immediate action drills during movement.**

a. Plan and rehearse immediate action drills.

1) Air observation drill.
   a) Locate the aircraft.
   b) Give the hand-and-arm signal, **FREEZE** (Figure 13).
   c) Remain motionless and quiet for further signals or orders.
2) Air attack drill.

   a) Locate the aircraft.

   b) Give verbal command, AIRCRAFT, LEFT, RIGHT, FRONT, or REAR.

   c) Move into line formation, positioning your body perpendicular to the aircraft's direction of travel.

   d) Hit the ground, use available cover, and seek better cover between attacks.

b. Practice immediate reactions to take upon enemy sighting.

1) First man who sights the enemy gives the hand and arm signal, FREEZE (Figure 13).

2) The remainder of the patrol remains motionless and quiet for further signals and orders.

3) The Patrol Leader (PL) moves forward to estimate the situation.

   (1) Demonstrate immediate action for hasty ambush (Figure 3).

   - The patrol leader gives the hand and arm signals for hasty ambush (HASTY AMBUSH, RIGHT or LEFT)(Figure 14).

![Figure 3](image-url)
3. *Maintain communications with key personnel while moving.*
   
a. Maintain communications with the appropriate supporting units, based on the mission order and the commander's intent.

b. Indicate methods of reporting, where messengers are to be sent, and where to report upon mission completion.

4. *Maintain line of sight with unit.*
   
a. Ensure that team members can see the leader at all times.

b. Keep all team members in sight.

5. *Provide cover and concealment, using terrain analysis (KOCOA) data and recommended camouflages, and cover procedures to ensure concealment from the enemy.*

6. *Ensure that members maintain proper intervals for the terrain, visibility, and movement technique.*
   
a. Disperse individuals as required by the likelihood of enemy contact, terrain, mission, and selected movement technique.

b. Observe individuals to ensure they remain approximately 10 meters apart.

   **NOTE:** Intervals can be increased or decreased based on the terrain and visibility

7. *Establish en route rally points.*
   
   - Designate en route rally points every 100 - 500 meters, unless terrain dictates otherwise during movement.

8. *Ensure that the unit maintains proper camouflage*

   **NOTE:** Study the terrain and vegetation of the area of operation. Use the materials that best blend with that area.
   
a. Ensure that team members camouflage themselves and personal equipment.

b. Ensure all exposed skin is camouflaged, and that the outline of equipment is not detectable by the enemy.

9. *Ensure that the unit maintains discipline throughout the movement.*
   
a. Enforce noise, litter, light and movement discipline.

b. Demonstrate methods for silencing equipment, dulling shiny equipment, shielding light, and collecting and storing trash.
10. Ensure that the unit is alert and prepared to react.
   a. Issue commands using
      1) audible (voice/whistle),
      2) visual (hand-and-arm signals or pyrotechnics), or
      3) personal contact
   b. Ensure that the unit reacts to orders and instructions.
11. Ensure that the unit maintains observation in their individual sector of responsibility.
   a. Provide all around security; assign teams sectors of observation (Figure 4).

   ![Figure 4]

   Figure 4

   b. Individual sectors of observation, weapons are carried (tactical) ready for instant use. (Figure 5).
c. Coordinate all security measures with adjacent units and leaders.

d. Report any activity within your assigned sector.

12. **Transmit commands or convey information using audible/visual commands and signals.**

   a. Use standard hand and arm signals.

   b. Use pre-arranged signals

   1) **ENEMY IN SIGHT** (Figure 6) - Point the muzzle of the rifle in the direction of the enemy.
2) FORM COLUMN (Figure 7) - Raise arm to the vertical position, and drop back to the rear to describe complete circles.

3) WEDGE (Figure 8) - Extend both arms downward and to your side at 45-degree angles, palms to the front.

4) CLOSE UP (Figure 9) - Extend both arms sideways, palms forward; bring palms together in front of your body, momentarily.

5) OPEN UP/EXTENDED (Figure 10) - Extend both arms in front of your body, palms together; bring arms to the horizontal position at your sides, with palms forward, momentarily.

6) DISPERSE (Figure 11) - Extend either arm vertically overhead; wave your hand and arm to the front, left, right, or rear, with your palm toward the direction of each movement.

7) HALT/STOP (Figure 12) - Thrust your hand upward (vertically) to its full extend, palm to the front, and hold until signal is understood.
8) FREEZE (Figure 13) - Make the signal for HALT or STOP, but make a fist with your hand.

9) HASTY AMBUSH (Figure 14) - Raise your fist to shoulder level, and thrust it several times in the desired direction.

10) DANGER AREA (Figure 15) - Move right hand, palm down, across your neck in a throat-cutting motion.
11) DOWN; TAKE COVER (Figure 16) - Extend the arm at a 45-degree angle from the side, above the horizontal, with palm down; and then lower your arm to your side.

Figure 16

13. Look for the correct response to these signals.

REFERENCES:

FMFM 6-5, *Marine Rifle Squad*
FMFM 6-7, *Scouting and Patrolling for Infantry Units*
TASK: ESTABLISH DEFENSIVE POSITIONS FOR A FIRE TEAM-SIZE UNIT (2-13)

CONDITIONS: PROVIDED A FIRE TEAM-SIZE UNIT, AND FIRE TEAM SECTORS OF FIRE, AND A GENERAL LOCATION OF THE FIRE TEAM'S FIGHTING POSITION.

STANDARD: ORGANIZE THE GROUND AND ESTABLISH DEFENSIVE POSITIONS BASED ON THE REFERENCES AND COMMANDER'S GUIDANCE.

EVALUATION GUIDELINES TO BE USED DURING TRAINING:

Conditions: The Seabee is provided a fire team-size unit, a fire team sector of fire, and a general location of the fire team's fighting position.

Standard The Seabee must organize the ground, assign sectors of fire, and establish defensive positions based on the commander's guidance.

Administrative Note: See TASKS: CONSTRUCT FIGHTING POSITIONS (1-17)
CAMOUFLAGE SELF AND INDIVIDUAL EQUIPMENT (1-18)

PERFORMANCE STEPS:

1. Ensure that the team's fire plan covers the entire sector assigned by the squad leader with the heaviest possible volume of fire (Figure 1).

a. Assign individual sectors of fire to each member of the team.

b. Identify the types of fighting positions (two-man or one-man).

   - Prepare alternate and supplementary positions.

c. Identify firing positions and principle direction of fire for the automatic rifle as assigned by the squad leader.
d. Position yourself where you can:
   1) Observe the entire fire team and its sector of fire.
   2) Direct the fire of the automatic rifleman.
   3) Observe the squad leader, if possible.

2. Ensure that fighting positions are dug properly and camouflage is consistent with the existing environmental conditions.

3. Complete a fire plan sketch and submit it to the squad leader (Figure 2).

![Figure 2](image)

4. Direct and control the fire and movement of the team members.
   a. Ensure that the signal to commence firing is understood by all team members.
   b. Ensure that all team members have the appropriate ammunition, equipment, and their weapons are serviceable.
   c. Ensure that the signal to commence final protective fires is understood by all team members.
   d. Direct and control all fire-team fires.
   e. Ensure that location and routes to alternate or supplementary positions are established.

REFERENCES:
FMFM 6-5, *Marine Rifle Squad*
FMFM 6-7, *Scouting and Patrolling for Infantry Units*
TASK: ESTABLISH AN OBSERVATION OUTPOST (OP)/LISTENING POST (LP) (2-14)

CONDITIONS: PROVIDED A UNIT AND THE REQUIREMENT TO ESTABLISH AN OBSERVATION OUTPOST (OP)/LISTENING POST (LP).

STANDARD: SELECT AND EMBPLACE AN OP/LP WHICH PROVIDES THE BEST VIEW OF THE AVENUES OF APPROACH, HAS THE BEST COVER AND CONCEALMENT AVAILABLE, HAS PRIMARY AND ALTERNATE MEANS OF COMMUNICATION, AND HAS PROPER EQUIPMENT TO ASSIST SEABEES IN THEIR OBSERVATION.

EVALUATION GUIDELINES TO BE USED DURING TRAINING:

Conditions: The Seabee is provided a squad size unit and the requirement to establish an OP/LP.

Standard: The Seabee must select and emplace an OP/LP that provides the best view of the avenues of approach, has the best cover and available concealment, has primary and alternate means of communication, and has proper equipment to assist Seabees in their observation.

Administrative Note: See TASK: REPORT INTELLIGENCE INFORMATION (1-22)

PERFORMANCE STEPS:

NOTE: OPs/LPs furnish local and close-in security for squads, platoons, and companies. The platoon commander or company commander designates the general vicinity to be occupied. Usually an OP/LP consists of two to four men located up to 500 meters forward of the platoon position or as the terrain dictates (OPs during the day and LPs during the night). As the enemy approaches, the security post personnel give warnings and observe the enemy strength, actions, and routes of approach. They avoid combat and withdraw as the enemy closes.

1. Select a tentative position.
   a. Choose a location that allows good observation of the enemy and provides early warning of the enemy's approach.
   b. Choose a location which has maximum observation of surrounding area.
   c. Choose a location which has the best cover and available concealment.
   d. Choose a location which has concealed routes to and from the security post.

   NOTE: Security of the OP/LP is the primary consideration for site selection.

2. Coordinate passage through friendly lines and re-entry through friendly lines.
   a. Determine whether guides will be used and what challenge and passwords will be used.
b. Make a quick reconnaissance of the exact point of departure.

c. Make a quick reconnaissance of the exact point of re-entry.

d. Ascertain the exact entry and re-entry map coordinates.

e. Coordinate the times and places of the departure and re-entry.

3. **Inspect Seabees for the proper equipment.**

   a. Ensure all equipment is available and serviceable.

      1) Binoculars
      2) Radios
      3) Field telephone and wire
      4) Extra batteries
      5) Night observation devices
      6) Other required equipment, depending on the mission

   b. Replace or perform necessary maintenance on any item of equipment that is not working properly.

4. **Ensure Seabees understand the conduct of the OP/LP.**

   a. Inform personnel that they must move carefully when going to and from security post to avoid revealing the location of the security post to the enemy.

   b. Question personnel on assignments to ensure that each know areas of responsibilities.

   c. Review the conduct of OP/LP.

      1) Use the designated points for entry and exit.
      2) Notify members of any personnel entering and exiting the secure area.
      3) Maintain cover and concealment at all times.
      4) Use alternate routes of withdrawal from enemy fire.
      5) Maintain a "watch" schedule for each member of the OP/LP.
      6) Be alert (100 per cent).
      7) Have all gear ready for hasty movement in case of attack.
      8) Practice movement and light discipline to avoid being detected by the enemy.
9) Use various routes to and from the OP/LP, taking advantage of cover and concealment.

10) Notify security of friendly patrols, their time of departure and re-entry, and their patrol routes.

11) Notify members of routes through minefields and concertina wire.

5. Lead Seabees to positions that were tentatively selected, looking over the area selected to ensure that the location is advantageous to the mission.

6. Confirm that the position meets mission requirements; make changes if necessary.

7. Make final selection of position.
   a. Communicate mission requirements.
   b. Accept recommendations from team leaders.
   c. Consider data from METT-T and KOCOA analysis.

8. Establish and maintain communications with the defensive position.
   a. Prepare telephone lines to be laid whenever possible.
   b. Set up radio gear and establish communications.
      1) Ensure that wire lines to the security post do not reveal location to enemy observers.
      2) Ensure that the antennas are carefully positioned and concealed.
   c. Review mission requirements with subordinates.
   d. Establish communications with unit position, using a quick and quiet signal.
   e. Maintain CONTINUAL COMMUNICATIONS with higher headquarters.

9. Return to the defensive positions and report the establishment of the post and the exact location to the unit commander.
   a. Withdraw on predetermined route and signals to the Forward Line Of Troops (FLOT).
   b. Provide immediate notification of the establishment and location of the OP/LP.
   c. Report information, regarding the enemy, as soon as it is known to the commander who originally ordered the OP/LP, using the SALUTE REPORT FORMAT

   EXAMPLE: Seven enemy troops, unit unknown, traveling SW, crossed road junction on Black Ridge Road at 1300, 21 August, carrying one machine gun and one rocket launcher.

REFERENCE:

FMFM 6-7, Scouting and Patrolling for Infantry Units
TASK: DIRECT ERECTION OF WIRE OBSTACLES (2-15)

CONDITIONS: PROVIDED A DEFENSIVE POSITION, CONCERTINA WIRE, ENGINEER STAKES, LEATHER GLOVES, SLEDGEHAMMER, AND BARBED WIRE.

STANDARD: DIRECT CONSTRUCTION OF TACTICAL, PROTECTIVE, AND SUPPLEMENTARY WIRE OBSTACLES.

EVALUATION GUIDELINES TO BE USED DURING TRAINING:

Conditions: The Seabee is provided a training site, training support equipment, concertina wire, barbed wire, U-shaped pickets, leather gloves or gauntlets (wire working gloves), stake drivers or sledge hammers, etc.

Standard: The Seabee must direct the construction of tactical, protective, and supplementary wire obstacles. The Seabee must ensure that the pickets are firmly positioned in the ground, and that wires are properly secured and tight.

PERFORMANCE STEPS:

1. Direct the construction of tactical wire.

NOTES: Tactical wire entanglements 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 wire is normally constructed using the triple strand concertina fence.

Construct all wire obstacles while facing the enemy.

Never become trapped between your wire obstacle and the enemy; always keep the wire obstacles between you and the enemy.

All Seabees must remain on the friendly side of the pickets.

a. Install the front row of long pickets at 5 pace intervals on the line of the proposed fence, with the U-shape of the pickets pointing toward the enemy.

b. Install an anchor picket at the beginning and end of each line, 5 feet from the long picket.

c. Place a roll of concertina at the third picket in the front row and at every fourth picket thereafter.

d. Install the front row of concertina and horizontal wire (barbed wire) (Figure 1).

NOTE: While you are installing the front row of concertina and horizontal wire, have other Seabees lay down the rear row of long pickets, centered between the front row pickets and at a distance of 3 feet from the front row pickets, as shown in Figure 1.
NOTE: Run barbed wire through concertina before extending.

1) Stretch the concertina approximately 50 feet (5 pickets and four 12' 6” length open spaces) of distance.

2) Lift the concertina and drop it over the pickets.

3) Join the ends of concertina by placing the bottom of the first coil (Figure 2) over the picket. Then place the bottom and top portion of the second coil over the picket. Lastly, place the top portion of the first coil over the picket.

4) Start the horizontal wire (barbed wire) at the anchor picket using the post tie and work your way through the concertina, tying off at the pickets as you go.

NOTE: Stretch the horizontal wire tight as you fasten it.

e. Place two rolls of concertina at the third picket in the second row and two at every fourth picket thereafter.

f. Install the back row pickets, anchor pickets, concertina, and horizontal wire in the same manner as the front row (Figure 3).

NOTE: Make sure the back row pickets are three feet from and centered between (not aligned, but staggered) from the front row pickets.
g. Install the top row of concertina wire (Figure 4).

**NOTE:** Tie off the top row of concertina to the rear row of concertina using short pieces of barbed wire.

2. **Direct the construction of protective wire.**

**NOTES:** Protective wire entanglements are located to prevent surprise assaults from points close to the defensive area. They are close enough to the defense 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 50 to 100 meters.

Protective wire is normally constructed using the triple standard concertina fence or the double apron fence.

The double apron fence requires much more time and skill to construct than the triple standard concertina fence. Because it requires more time, in most cases the triple standard concertina fence will be used over the double apron fence.

a. To construct the triple strand concertina fence for protective wire, refer to Performance Step 1.
b. To construct the double apron fence for protective wire, see Chapter 6 of FM 5-15, Field Fortifications and Chapter 3 of FM 5-34, Engineer Field Data.

3. *Direct the construction of supplementary wire.*

a. Supplementary wire in front of the forward edge of defensive perimeter.

   1) Supplementary wire in front of the defensive perimeter is used to conceal the exact line of tactical wire.

   2) Supplementary wire in front of the defensive perimeter will be constructed the same as tactical wire (concertina). Refer to Performance Step 1.

      **NOTE:** When possible, construct the supplementary wire at the same time you construct your tactical wire.

b. Supplementary wire to the rear of the defensive perimeter.

   1) Supplementary wire to the rear of the defensive perimeter is used to enclose the entire defensive position by connecting the protective wire entanglements.

   2) Supplementary wire to the rear of the defensive perimeter is often constructed the same as protective wire (apron fence). Refer to Performance Step 2.

      **NOTES:** Supplementary wire to the rear of the defensive perimeter can be of several combinations: tripwire, tanglefoot, 4-strand cattle fence, low wire entanglements, high wire entanglements, or the same as protective wire as long as the entanglements enclose the entire defensive position by connecting the protective wire and it must prevent the enemy from throwing hand grenades into the defensive positions.

      For further information, see Chapter 6, FM 5-15 Field Fortifications.

**REFERENCES:**

FMFM 0-1, *Unit Training Management Guide*
FMFM 0-1A, *How to Conduct Training*
FMFM 6-4, *Marine Rifle Company/Platoon*
FM 5-15, *Field Fortifications*
FM 5-34, *Engineer Field Data*
TASK: CONTROL FIRE TEAM-SIZE UNIT (2-16)

CONDITIONS: PROVIDED A FIRE TEAM-SIZE UNIT AND A MISSION THAT REQUIRES FIRE CONTROL AND DISTRIBUTION.

STANDARD: DIRECT THE ENGAGEMENT OF ALL TARGETS IN THE SECTOR AND MAINTAIN THE FIRE DISCIPLINE OF THE UNIT.

EVALUATION GUIDELINES TO BE USED DURING TRAINING:

Conditions: The Seabee is placed in a field environment and is provided a fire team-size unit, necessary equipment, and the mission to control and distribute fires.

Standard: The Seabee must direct the engagement of targets and must maintain fire discipline and control (rate and effect of fire), using voice commands, hand-and-arm signals, or prearranged audible and visual signals (pyrotechnics or whistles).

PERFORMANCE STEPS:

NOTE: Fire control relates to the leader's ability to have a unit commence, shift, or cease fire on a given target. Fire discipline is achieved when the unit pays strict attention to the instructions regarding the use of weapons and can collectively execute fire commands with precision.

1. Inspect each Seabee to ensure he/she is prepared and his/her weapon is properly loaded.
2. Ensure that Seabees are in a ready position and that they are oriented in the direction of the enemy.
   a. Select firing positions and assign sectors of fire.
      1) Maintain good fields of fire to the front and flanks.
      2) Overlap assigned sectors of fire to ensure entire coverage of an assigned sector.
   b. Ensure that each sector of fire is covered with an automatic weapon.
   c. Ensure that the fire team has adequate cover and concealment.
3. Issue fire commands using the acronym ADDRAC.
   a. Alert the unit to receive further information.
      1) Give the voice command, "FIRE TEAM."
      2) Use the hand-and-arm signal for fire team.
   b. Indicate the Direction to the target.
      1) Give a general direction to the target by saying, "RIGHT FRONT."
2) Use hand-and-arm signals to designate and point out the target.

3) Fire tracer ammunition to pinpoint targets.

   EXAMPLE: FRONT, WATCH MY TRACERS
             FIRST ROUND, RIGHT FLANK OF THE TARGET,
             SECOND ROUND, LEFT FLANK OF THE TARGET.

4) Use reference points to locate indistinguishable targets.
   a) Select a reference that is near the target and easy to recognize.
   b) Use the word REFERENCE to describe the reference point and the word TARGET to describe the target.

   EXAMPLE: FIRST TEAM
             FRONT
             REFERENCE: ROCK PILE IN THE DRAW
             TARGET: SNIPER IN FIRST TREE TO THE RIGHT, ONE FIVE ZERO.

   NOTES: When using a reference point, the direction refers to the reference point and the range is the range to the target.
   Sometimes a target can be located by using successive reference points to better distinguish it.

5) Use the finger method to measure lateral distances (i.e., distances across the front).
   a) Hold your hand at arm's length directly in front of your face, palm facing away, and index finger pointing upward.
   b) Close one eye.
   c) Select a reference point.
   d) Place one finger between the reference point and the target and fill that space by raising more fingers until the space is filled.

c. Give Description of the target.

   NOTE: If the target is obvious, this portion is not necessary.

d. Give Range information to set the weapons sights or to adjust the fire team's point of aim.

   EXAMPLE: "ONE SEVEN FIVE", "TWO FIVE ZERO", or "FOUR HUNDRED."

1) Estimate range to target and inform the unit.

   NOTE: In a fire command, range is given in meters without verbalizing "range" or "meters." If the target is obvious, this portion is not necessary.
2) Indicate range to target, using your fingers.

3) Extend your arm forward, fist closed.

**NOTE:** This is the signal that range is to be announced. If no other signal follows, the sight setting will be battlesight. Otherwise, show one finger for each one hundred meters of range to be set on the sights.

e. Make target assignments.

1) Indicate target assignments by announcing the entire unit or announcing individuals (i.e. automatic rifleman) to engage a target.

2) Determine what weapons will be fired and the rates of fire (average or rapid rate of fire).

f. Direct and control fires.

1) Give the verbal command or prearranged signal to commence firing.

**EXAMPLE:** "COMMENCE FIRING", "AT MY COMMAND", or "ON MY SIGNAL."

2) Control the fire by issuing voice commands or hand-and-arm signals.

4. *Deliver subsequent fire commands to adjust fire control.*

**NOTE:** In issuing subsequent fire commands, the noise of the battlefield will more than likely prevent members from hearing the leader. When voice communications are difficult or impossible, or when battlefield noise reduces the effectiveness of a verbal command, use hand-and-arm signals, pyrotechnics, and other audible signals to ensure prompt and correct execution.

a. Use hand-and-arm signals and voice commands.

1) Give the hand-and-arm signal to shift fire.

**NOTE:** Shift fires by pointing your weapon in a new direction and providing the signal for the new range to that target.

2) Give the voice command to shift or establish a new target assignment.

3) Increase or decrease the rate of fire by exaggerating your hand-and-arm signal (very slow for decrease or very rapid for an increase).

b. Use prearranged pyrotechnic signals to shift fires.

5. *Mark the target.*

a. Fire at the center of the target and assign right and left limits of fire.

b. Fire on the target using tracers to mark it.
6. **Properly distribute fires on the target.**
   a. Direct the engagement of targets.
      1) Regulate volume, density, and coverage of the fire.
      2) Ensure high probability of hits.
   b. Direct the engagement of exposed enemy positions.
      1) Define the location of target area.
      2) Deliver effective fire on the target even if enemy personnel are not visible.
   c. Direct the destruction of the most dangerous targets first.
      1) Keep all parts of the target under the suppressive fire.
      2) Subject the enemy to fire until his fires cease or become ineffective.
   d. Direct the engagement of (probable or potential) enemy positions.

7. **Control the rate of fire.**
   a. Establish rate of fire.
   b. Increase rate of fire.
   c. Continue the rate of fire to destroy or repulse the enemy.

8. **Terminate engagements of targets.**
   a. Give the command "HOLD FIRE" to have the unit stop firing and to remain alert.
   b. Give the command "CEASE FIRE" to have the unit stop firing and stand easy.
      1) Alert the unit using a voice command.
      2) Signal "CEASE FIRE" using hand-and-arm signals or prearranged signals.

**REFERENCE:**

FMFM 6-5, *Marine Rifle Squad*
TASK: CONTROL MOVEMENT OF A SQUAD-SIZE UNIT (2-17)

CONDITIONS: THE SEABEE IS PROVIDED A UNIT, A MISSION ORDER AND A MOVEMENT TO CONTACT.

STANDARD: MAINTAIN THE CONTROL AND DISCIPLINE OF THE UNIT DURING THE MOVEMENT, ENSURING THE PROPER DISPERSION AND FORMATION IS USED AT ALL TIME.

EVALUATION GUIDELINES TO BE USED DURING TRAINING:

Conditions: The Seabee is provided a tactical scenario in any combat environment (day or night), an operations order, individual combat equipment (782 gear), TOA weapon with blank ammunition, a squad of Seabees with weapons and equipment, and the requirement to conduct the mission.

Standard: The Seabee must maintain the control and discipline of the unit during the movement, ensuring that the proper dispersion, security measures, and formations are maintained at all times.

PERFORMANCE STEPS:

1. Brief the squad members on the movement and identify the:
   a. Objective of the move
   b. Routes to be followed
   c. Actions on the objective
   d. Locations of key personnel during the movement
   e. Enemy situation

2. Identify the types of squad formations.

   NOTE: Fire team formations may vary within the squad formation.

   The positions within the squad are represented by the following symbols (Figure 1):

   ![Figure 1]

   Figure 1
a. Describe the wedge formation (Figure 2).

1) Facilitates control
2) Provides all-around security
3) Flexible
4) Provides adequate fire in all directions
5) Use when the enemy situation is uncertain and the terrain and visibility require dispersion.

b. Describe the VEE formation (Figure 3).
1) Facilitates movement into squad line
2) Provides excellent firepower to the front and flanks
3) Provides all-around security
4) Use when the enemy is to the front and his strength and locations are known
5) Use when crossing large open areas Figure 3

c. Describe the line formation (Figures 4 and 5).
1) Provides maximum firepower to the front

2) Difficult for the squad leader to control due to the wide dispersion of the Seabees

3) Use when the location and strength of the enemy are known, during the assault, mopping up, and crossing short open areas.

d. Describe the column formation (Figure 6).
1) Designed for speed, control and ease of movement.

2) Best employed through dense vegetation or when visibility is greatly reduced.

3) Suitable for narrow covered routes of advance, maneuvering through gaps between areas receiving enemy artillery fire, and moving through areas of limited observation.

4) Vulnerable to hostile fire from the front.

5) Excellent for speed of movement and when strict control is desired by the squad leader.

e. Describe the echelon right (Figure 7) and echelon left (Figure 8) formations.
1) Movement is slow and difficult to control by the squad leader
2) Use to provide maximum firepower to the front and to the exposed flank
3) Use to protect an open or exposed flank

3. Control movement of squad in designated formations.
   a. Take up a position within the squad where you can best control squad movement.
      
      **NOTES:** As battlefield noises increase, rely on the fire team leaders to exercise more control of their fire team.
      
      To maintain control of the squad under heavy enemy fire, position yourself near the fire team leader of the designated base fire team. The base fire team leader controls the actions of his fire team; and other fire team leaders base their actions on those of the base fire team. Use the base fire team to control the direction, position, and the rate of movement of the squad.
   
   b. Maintain visual contact with fire team leaders.
   c. Use arm-and-hand signals to communicate with fire team leaders.
   d. Maintain contact with the chain of command.
   e. Designate initial squad formation.
   f. Maintain security of squad by assigning sectors of observation for each fire team.
   g. Ensure light and noise discipline.
   h. Ensure that individuals and equipment are camouflaged.
   i. Stop, look, and listen before moving.
   j. Take advantage of cover and concealment to direct squad's movement.
   k. Move squad from covered position to covered position, if possible.
   l. Avoid creating visible paths that would give away the squad's presence.
   m. Control intervals between fire teams.
   n. Cross roads and trails at places that have the most cover and concealment.
   o. Avoid cleared, open areas and tops of hills and ridges.
   p. Use battlefield noises to conceal movement noises.
   q. Conduct immediate action drills if contact is made with the enemy. (See **TASK: CONDUCT PATROLLING IMMEDIATE ACTION DRILLS (2-8).**)
r. Conduct fire and maneuver movement, as necessary.
s. Maintain assault formation and momentum of assault through the assigned objective.
t. Ensure correct use of the challenge and password.

4. **Signal fire team leaders to change formation to accomplish the following:**
   
a. Assault the enemy
   
b. Reduce casualties from hostile fire
   
c. Present a less vulnerable target
   
d. Move over difficult or exposed terrain
   
e. Move over or around manmade or natural obstacles

5. **Ensure that the squad changes formations quickly and correctly.**
   
a. Change from a column to a wedge formation (Figure 9).

![Figure 9](image)
b. Change from a wedge to a column formation (Figure 10).

![Figure 10](image)

(FIRE TEAMS IN WEDGE, TEAM LEADERS POSITIONED FOR EASE IN COMMUNICATING WITH SQUAD LEADER)

c. Change from a wedge to an echelon right formation (Figure 11)

![Figure 11](image)

(FIRE TEAMS IN WEDGE, TEAM LEADERS POSITIONED FOR EASE IN COMMUNICATIONS)
d. Change from skirmishers right to a wedge (Figure 12)

![Figure 12](image)

(Fire teams in wedge. Team leaders positioned for ease in communicating with squad leader.)

(Fire teams in skirmishers right: second fire team in skirmishers left)

Figure 12

e. Change from a skirmishers left to an echelon formation (Figure 13).

![Figure 13](image)

(Fire teams in wedge)

REFERENCES:

FMFM 1-2, Marine Troop Leaders Guide
FMFM 6-5, Marine Rifle Squad
FMFM 6-7, Scouting and Patrolling for Infantry Units
FM 21-75, Combat Skills of the Soldier

2-77
TASK: ESTABLISH DEFENSIVE POSITIONS FOR A SQUAD-SIZE UNIT (2-18)

CONDITIONS: PROVIDED A SQUAD-SIZE UNIT, PRIMARY AND SUPPLEMENTARY POSITIONS AND SECTORS OF FIRE.

STANDARD: ORGANIZE THE GROUND AND ESTABLISH DEFENSIVE POSITIONS BASED ON THE REFERENCES AND COMMANDER'S GUIDANCE.

EVALUATION GUIDELINES TO BE USED DURING TRAINING:

Conditions: The Seabee is provided a squad-size unit with individual combat equipment (782 gear), TOA weapons, sectors of fire, and the FLOT.

Standard: The Seabee must "organize the ground" using the acronyms SMEAC and KOCOA, and establish defensive positions that can cover the sectors of fire based on guidance from the platoon leader.

Administrative Note: See TASK: CONSTRUCT FIGHTING POSITIONS (1-17)

PERFORMANCE STEPS:

1. Review the guidance from the platoon leader.

2. Issue a squad defensive order in a five paragraph order format, using the acronym "SMEAC."

3. Organize the ground by assigning squad defensive positions, using the acronym "KOCOA."
   a. Organize the fire teams by specifying the sectors of fire and the Principal Direction of Fire (PDF) for the automatic rifles.
   b. Select the terrain feature to establish the lateral and forward limits of the sectors of fire.
   c. Ensure that the fire teams physically occupy their fighting positions and can cover their assigned sectors of fire.

4. Formulate the squad fire plan to physically occupy the assigned primary fight position and to be able to defend the sector of fire.

5. Indicate the general locations for the fire teams.
   a. Distribute the locations to ensure that the fire teams physically occupy the assigned fighting position and are able to cover by fire the assigned sector of fire.
   b. Maximize depth and mutual support.
   c. Orient fire teams to the direction of the expected enemy attack with a view toward all-around security.
d. Coordinate fire-team positions with the location of crew-served weapons, in the squad fighting position so as to provide for close-in protection of the weapons.

6. Indicate automatic rifle positions.
   a. Assign a PDF for each automatic rifle not assigned by the platoon leader.
   b. Select the best fighting position for each automatic rifle with a view toward tactical employment, grazing, flanking fires, and covering as much frontage as possible.

7. Ensure that you accomplish the following before detailed preparation of the fighting positions:
   a. Verify the sector of fire of each fire team and the ability of the fire team to observe its assigned sector.
   b. Ensure that the sectors of fire overlap and that the desired density of fire can be delivered on the avenues of approach.
   c. Ensure that obstacles do not mask the sectors of fire.
   d. In conjunction with the fire team leader, inspect the fighting position of each team member verifying the ability to cover the fire team sector of fire.
   e. Verify each automatic rifleman's ability to cover the assigned sector of fire, ensuring the PDF is covering as much of the frontage as possible.

8. Supervise the preparation of fighting holes and the clearing of the fields of fire. (See TASK: CONSTRUCT FIGHTING POSITIONS (1-17).)
   a. Provide security by assigning observation posts.
   b. Coordinate all security measures with adjacent squads and the platoon leader.
   c. Inspect fighting positions to ensure that camouflage and overhead cover are satisfactory.

9. Supervise the preparation of alternate and supplementary fighting positions.

10. Establish a system of signals for fire, control, and alerts.

11. Ensure that your position allows you to do the following:
   a. Observe the squad's assigned sector of fire.
   b. Observe as many of the squad's fighting positions as possible, particularly the positions of the fire team leaders.
   c. Maintain contact with the platoon leader.
   d. Control the squad.
   e. Influence the action.
12. Collect the fire team leaders’ fire plan sketches; complete and submit them to the platoon leader.

13. Direct and control all squad fires by ensuring that the signals to:
   a. Commence firing is understood by all squad members
   b. Commence final protective fires is understood by all squad members
   c. Cease final protective fires is understood by all squad members

14. Inform all fire team leaders of night security measures covering movement, light and noise discipline, and the challenge and passwords.

15. Coordinate logistics support.
   a. Obtain ammunition, food, and water.
   b. Identify the location of the corpsman and the battalion aid station.
   c. Coordinate how and when the squad is relieved.

REFERENCE:
FMFM 6-5, Marine Rifle Squad
TASK: ADJUST INDIRECT FIRE (2-19)

CONDITIONS: PROVIDED BINOCULARS, RADIO, AND APPROPRIATE CALL SIGNS, MAP, COMPASS, AND COORDINATE SCALE.

STANDARD: THE SEABEE MUST CALL FOR FIRE USING THE GRID, POLAR COORDINATE, AND SHIFT-FROM-A-KNOWN POINT MISSIONS, AND ADJUST ON TARGET USING BOTH BRACKETING AND CREEPING METHODS. THE INITIAL CALL FOR FIRE MUST BE PREPARED FOR TRANSMISSION WITHIN 1 MINUTE AFTER THE TARGET IS IDENTIFIED. SUBSEQUENT CORRECTIONS MUST BE TRANSMITTED TO THE FIRE DIRECTION CENTER (FDC) WITHIN 20 SECONDS AFTER IMPACT OF ADJUSTING ROUNDS.

EVALUATION GUIDELINES TO BE USED DURING TRAINING:

Conditions: The Seabee is provided binoculars, a radio, call signs to a Fire Direction Center (FDC), a map, a compass, a coordinate scale, pencil and paper, and a target.

Standard: The Seabee must use target location data to prepare and transmit a call for fire, adjust rounds onto the target, assess damage to the target, and notify the FDC at the end of the mission. The Seabee must send the initial call for fire within 1 minute after the target is designated and must transmit subsequent corrections within 20 seconds after adjusting rounds impact.

Administrative Notes: See TASK: ORIENT A MAP USING HASTY ORIENTATION/FIELD EXPEDIENT TECHNIQUES (1-50)

Due to the location and mission of various units, the actual adjusting of indirect fire may not be possible. In these cases, if a Training Set Forward Observer (TSFO) is available, it should be utilized. If not then qualified personnel can set up simulated scenarios for the Seabees to complete.

PERFORMANCE STEPS:

1. Locate the target.

   NOTE: The Seabee must now select a method of target location based on three factors: whether his position is known by the firing unit, the availability of known reference points on the battlefield, and his tools available for target location. There are three methods of target location: polar plot, grid, and shift from a known point.

   a. Use the polar plot method.

      NOTE: This method is used when the firing unit knows the exact location of your position.

      1) Shoot an azimuth from your position to the target to establish direction or Observer-Target (OT) line (Figure 1).
2) Estimate the distance from your position to the target.

NOTE: The firing unit will use your range estimate from your position to measure the grid azimuth and to measure distance from your position along the azimuth to the target.

![Diagram showing T-62 Tank with Dismounted Infantry, direction 0370, distance 3200, and note that the FO has determined there is no obvious altitude difference.]

b. Use the grid coordinate method.

1) Orient the map to the terrain. (See TASK: ORIENT A MAP USING FIELD EXPEDIENT TECHNIQUES (1-50).)

2) Locate the target on the map.

3) Determine the grid coordinates to be used.

c. Use the shift from a known point method.

NOTE: The firing unit does not need to know your position; however, known points, planned target locations, or prominent terrain features should be identified prior to the mission.

1) Identify the known point to be used.

2) Determine the OT direction.
3) Determine the lateral distance between the known point and the OT to the nearest 10 meters.

4) Convert the lateral distance in mils to lateral shift in meters using the MIL Relation Formula or WERM rule (Figure 2).

\[
\text{OT DISTANCE} = \frac{\text{OT FACTOR}}{1000}
\]

a) Determine the deviation adjustment using the formula.

<table>
<thead>
<tr>
<th>EXAMPLE</th>
<th>OT DISTANCE (METERS)</th>
<th>OT FACTOR</th>
<th>SPOTTING</th>
<th>DEVIATION CORRECTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>4,000</td>
<td>4</td>
<td>45S</td>
<td>LEFT 180</td>
</tr>
<tr>
<td>2</td>
<td>2,500</td>
<td>2</td>
<td>100L</td>
<td>RIGHT 200</td>
</tr>
<tr>
<td>3</td>
<td>3,400</td>
<td>3</td>
<td>55L</td>
<td>RIGHT 160</td>
</tr>
<tr>
<td>4</td>
<td>1,500</td>
<td>2</td>
<td>20R</td>
<td>LEFT 40</td>
</tr>
<tr>
<td>5</td>
<td>700</td>
<td>0.7</td>
<td>45L</td>
<td>RIGHT 30</td>
</tr>
</tbody>
</table>

b) \((\text{Observer})\) Determine the angular deviation in mils between the two (target and known point).

c) \((\text{Observer})\) Using the mil relation formula, multiply the angular deviation \((m)\) by the range \((r)\) to the known point to determine the lateral shift \((w)\) in meters (Figure 3).
d) Transmit the lateral shift in the call for fire as a "left" or "right."

(1) "Right 110"

(a) Determine the range shift in meters between the known point and the target to the nearest 100 meters.

(b) Transmit the range shift in the call for fire as an "add" if the target is further away from the observer than is the known point, or a drop if the target is closer.

**NOTE:** Meters are understood and need not be specified.

(2) "Add 500"

(a) Determine the vertical difference between the known point and the target.

(b) Transmit the vertical difference in the "call for fire" as an "up" or "down" shift from the altitude of the known point to the altitude of the target. Any vertical shift determined will be transmitted to the nearest 5 meters (or 20 feet), if possible.

(3) "Up 35"
2. Prepare and transmit a call for fire.

   a. Send a call for fire to the firing unit via three separate radio transmissions, using the following formats as guides:

      1) TRANSMISSION 1 -- Observer Identification and Warning Order (Figure 4).
         a) Send the firing unit call sign and your call sign.
         b) Send the type of mission (Adjust Fire, Fire for Effect, Suppress Fire, or Immediate Suppression).
         c) Send the size of the element to the firing unit.

            NOTE: This is an optional request as the firing unit determines the actual size of the unit to fire for effect.

         d) Send the method used for the target location (Grid, Polar, Shift).

            NOTE: The word "grid" does not need to be sent, as this is the standard mission.
SITUATION 1
GRID METHOD OF TARGET LOCATION

OBSERVER: "R2S this is W2P
Adjust Fire, Over."

FIRING UNIT: "W2P this is R2S
Adjust Fire, Out."

SITUATION 2
(POLAR PLOT METHOD OF TARGET LOCATION)

OBSERVER: "R2S this is W2P
Adjust Fire, Polar, Over."

FIRING UNIT: (Firing unit reads back), Out.

SITUATION 3
(SHIFT FROM A KNOWN POINT METHOD OF TARGET LOCATION)

OBSERVER: "R2S this is W2P
Fire for Effect,
Shift AB1037, Over."

FIRING UNIT: (Firing unit reads back), Out.

NOTE: The observer used the fire for effect type of mission in situation 3 since he had a good target location.

Figure 4

2) TRANSMISSION 2 -- Target Location (Figure 5).

- Announce to the firing unit the location of the target, using one of the following:
  (1) Grid Coordinate Method
      - Send six-digit coordinate.
  (2) Polar Plot Method
      - Send grid direction and distance.
  (3) Shift From Known Point Method
      - Send the identification number for the known point, direction, and lateral shift.
### SITUATION 1

GRID METHOD OF TARGET LOCATION

**OBSERVER:** "347689, Over."

**FIRING UNIT:** "347689, Out."

### SITUATION 2

(POLAR PLOT METHOD OF TARGET LOCATION

**OBSERVER:** 
- Direction 1680
- Distance 3500
- Down 35, Over."

**FIRING UNIT:** (Firing unit reads back), Out.

### SITUATION 3

(SHIFT FROM A KNOWN POINT METHOD OF TARGET LOCATION

**OBSERVER:** "Direction 0680
- Right 250, Add 200, Over"

**FIRING UNIT:** (Firing unit reads back), Out.

---

3) TRANSMISSION 3 -- Target Description, Method of Engagement, and Method of Fire and Control (Figure 6).

a) Send description of target (how identified).

b) Send method of engagement (how the target should be attacked and/or fire should be adjusted).

c) Send method of fire and control (how and when fire should be delivered).

**NOTE:** After you transmit the CALL FOR FIRE, the firing unit will determine how the target will be attacked and will notify you in the form of a “message to observer” regarding the method and whether any changes have been made to your request.
SITUATION 1

GRID METHOD OF TARGET LOCATION

(Observer desires to adjust with High Exposure/Quick (HE/Q), then fire for effect with White Phosphorous (WP)

OBSERVER: "Five trucks refueling in the open, White Phosphorous in Effect, Over."

FIRING UNIT: (Firing unit reads back), Out.

SITUATION 2

POLAR PLOT METHOD OF TARGET LOCATION

(The target is danger close. Observer desired HE/Q, or to let the firing unit select the projectile/fuse)

OBSERVER: "Infantry platoon in open, Danger Close, Over."

FIRING UNIT: (Firing unit reads back), Out.

SITUATION 3

SHIFT FROM A KNOWN POINT METHOD OF TARGET LOCATION

(The observer selects a sheaf to concentrate the fires on a specific point and he desires to control the timing of the fires)

OBSERVER: "Machine gun position, Converged Sheaf, At My Command, Over."

FIRING UNIT: (Firing unit reads back), Out.

Figure 6

3. Adjust rounds onto target.

a. Use either the bracket or creeping method to adjust fire according to the location of friendly troops (Figure 7).

<table>
<thead>
<tr>
<th>METHOD</th>
<th>SITUATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bracketing</td>
<td>If friendly troops are at least 600m from the target</td>
</tr>
<tr>
<td>Creeping</td>
<td>If &quot;DANGER CLOSE&quot; situation exists or if Final Protective Fires are necessary</td>
</tr>
</tbody>
</table>
b. Adjust fire using either the bracket or creeping method.

1) Use the bracket method.

a) Determine the deviation adjustment.

   - Spot each round to determine whether it is too far to the right or to the left of the target (Figure 8).

   NOTE: Rounds that impact on the OT line are spotted as LINE.

b) Use the horizontal scale of the binocular reticle to measure the angle of the deviation from the target to the OT line to the nearest 5 mils.

   NOTE: Begin the measurement from the center of a single round or a group of rounds.

c) Determine the distance in meters to which the burst should move, e.g., to the right or to the left.

   NOTE: Compute the deviation width using the WERM rule.

d) Determine the range adjustment.

   (1) Spot each round to determine whether it is over or under the target (Figure 9).

   NOTE: Rounds that impacted are spotted as TARGET or RANGE CORRECT.
(2) If a range correction is necessary, add or subtract meters that would result in the next round impacting on the target, establishing a bracket when adjusting range, using the guide below.

<table>
<thead>
<tr>
<th>ROUND IMPACT FROM TARGET</th>
<th>ADD OR DROP</th>
</tr>
</thead>
<tbody>
<tr>
<td>Greater than 400m</td>
<td>+ or - 800m</td>
</tr>
<tr>
<td>Between 200 - 400m</td>
<td>+ or - 400m</td>
</tr>
<tr>
<td>Between 100 - 200m</td>
<td>+ or - 200m</td>
</tr>
<tr>
<td>Less than 100m</td>
<td>+ or - 100m</td>
</tr>
</tbody>
</table>

(3) Transmit DEVIATION and RANGE corrections to the firing unit.

(4) Look through your binoculars as you call for fire adjustments.

2) Use the creeping method.

**NOTE:** Use the creeping method if friendly troops are determined to be in a DANGER CLOSE situation: Mortars within 400m, artillery within 600m, or naval guns within 750m.

a) Creep the rounds to the target when making range changes, using corrections of 100m or less.

b) Track the location of adjacent friendly troops to ensure that round corrections do not endanger them.

c) Adjust firing elements individually.

d) Initiate the fire for effect phase when round corrections are within 50m of the target or if the target is actually engaged (Figure 10).
**FIRE FOR EFFECT PHASE**

<table>
<thead>
<tr>
<th>YOU SAY</th>
<th>FIRING UNIT SAY</th>
</tr>
</thead>
<tbody>
<tr>
<td>&quot;ADD 50, FIRE FOR EFFECT, OVER.&quot;</td>
<td>&quot;ADD 50, FIRE FOR EFFECT, OUT.&quot;</td>
</tr>
<tr>
<td>&quot;SHOT, OUT.&quot;</td>
<td>&quot;SHOT, OVER.&quot;</td>
</tr>
<tr>
<td>&quot;END OF MISSION, 20 CASUALTIES, REST OF PLATOON DISPERSED, OVER.&quot;</td>
<td>&quot;END OF MISSION, 20 CASUALTIES, REST OF PLATOON DISPERSED, OUT.&quot;</td>
</tr>
</tbody>
</table>

---

4. **Assess and report target damage.**
   
a. Announce "END OF MISSION" (EOM).
   
b. Observe results of the fire for effect.
   
c. Report effects to the firing unit, using Battle Damage Assessment (BDA).
      1) Report rounds having an effect on the target (percentage).
      2) Report the damage (percentage) (e.g., BDA 20/40 or 50/100 target destroyed).

5. **Recognize a danger close mission.**
   
a. Announce "DANGER CLOSE" to the FDC in the initial call for fire when friendly troops are within 400m.
   
b. Report initial target location on the enemy side of the target with respect to the friendly troops.
   
c. Adjust danger close fire, using creeping procedures only.
      1) Correct range not in excess of 100m.
      2) Do not bracket; it could cause friendly casualties.

---

**REFERENCE:**

FMFM 6-8, *Supporting Arms Observer, Spotter, and Controller*
TASK: ESTABLISH A LANDING ZONE (2-20)

CONDITIONS: PROVIDED THE NEED TO ESTABLISH A PICKUP AND LANDING ZONE (LZ) FOR A SPECIFIC TYPE OF HELICOPTER DURING THE DAY OR NIGHT, AND PROVIDED SMOKE GRENADES, FLASHLIGHTS, AIR PANELS, MAP, PROTRACTOR, AND STROBE LIGHTS (IF AVAILABLE).

STANDARD: SELECT A SITE WHICH MEETS THE LISTED CRITERIA, ESTABLISH DEFENSIVE POSITIONS, AND SUPERVISE THE CLEARING/PREPARATION OF THE ZONE.

EVALUATION GUIDELINES TO BE USED DURING TRAINING:

Conditions: The Seabee, acting as a squad leader, is provided a tactical environment (day or night), a squad of Seabees, the appropriate amount and color of smoke grenades, flashlights, air panels, map, protractor, vehicle lights or strobe lights (if available), a specified helicopter type, and the equipment to clear a landing zone when required.

Standard: The Seabee must select a site that meets the criteria for the establishment of a helicopter-landing zone, establish a defensive perimeter to secure the zone, and supervise the preparation of the landing zone. The Seabee must ensure that the site is properly marked for both day and night landings.

Administrative Note: Due to limited access to aircraft, simulated training is authorized.

PERFORMANCE STEPS:

1. Select the proper site for the landing zone.
   a. Locate the appropriate size ground area to support a helicopter landing (Table 1).

<table>
<thead>
<tr>
<th>TYPE AIRCRAFT</th>
<th>ROTOR BLADE LENGTH FEET</th>
<th>LANDING ZONE DIAMETER DAYLIGHT (+100)</th>
<th>LANDING ZONE DIAMETER NIGHT (+150)</th>
</tr>
</thead>
<tbody>
<tr>
<td>UH-1E/N</td>
<td>60</td>
<td>160</td>
<td>210</td>
</tr>
<tr>
<td>CH-46</td>
<td>85</td>
<td>185</td>
<td>235</td>
</tr>
<tr>
<td>CH-53</td>
<td>100</td>
<td>200</td>
<td>250</td>
</tr>
</tbody>
</table>

   Table 1

   b. Ensure that the surface conditions of the site are free of major obstacles which might obstruct landings or takeoffs (tall trees, telephone poles, or power lines).
      1) Mark or identify obstacles that cannot be removed.
      2) Position the landing point at a distance 10 times as far from an obstacle as the obstacle is high (10:1 ratio).
c. Check the site for adequate space for approach and departure.
   1) Ensure that takeoffs and landings can take place over the lowest obstacles.
   2) Ensure that the direction is into the wind with maximum crosswinds of 10 knots and tailwinds of no more than 5 knots.
   3) Ensure that the helicopter can ascend or descend vertically when fully loaded.

d. Select the proper ground surface.
   1) Ensure that the ground condition is firm enough to support a helicopter landing.
   2) Ensure that the ground area is free of heavy dust, loose snow, logs, rocks, dry grass, or other obstacles.

e. Ensure that the ground slope does not exceed 14 percent or 8 degrees.
   NOTE: A slope greater than 8 degrees may result in tipping the helicopter or insufficient rotor clearance on the uphill side for safe operation.
   1) When the ground slope is less than 7 degrees, ensure that the helicopter lands upslope.
   2) When the ground slope is between 7 and 14 degrees, ensure that the helicopter lands sideslope.

f. Choose a site that can be identified from the air.

g. Check the enemy position or the situation to ensure that the site can be secured.

h. Ensure that the landing site can be defended in a 360-degree perimeter defense.

2. Secure the landing zone.
   - Establish a 360-degree perimeter defense around the landing zone.

3. Improve the landing zone if required.
   a. Lower the wires to the ground.
   b. Clear the area of rocks, debris, stumps, and other obstacles over 1 foot high.

4. Mark the landing zone.
   a. Mark the zone for daylight landing.
      1) Set off smoke grenades, or use colored air panels to mark the landing site and show wind direction.
      2) Mark or identify immovable obstacles with colored air panels or other markers.
CAUTION: Stake panels to ensure that they are not uprooted by rotor wash.

b. Mark the zone for night landing, using the "T" lighting pattern (Figure 2).

![Figure 2]

1) Position expedient lights (lanterns, flashlights, strobe lights, vehicle lights).

   NOTE: Lights at the top of the "T" must be at least five meters apart; lights in the stem must be at least eight meters apart.

   a) Point the beam in the direction where the helicopter is approaching.

   b) Position the lights to show the wind direction.

      (1) Place the blinking light farthest upwind.

      (2) Place the steady lights downwind.

2) Mark or identify immovable obstacles with colored lights.

   CAUTION: All lights should be hooded or turned upside down until aircraft is known to be inbound.

3) Designate a touchdown point on the landing site.

REFERENCES:

FMFM 5-3, Assault Support
FM 57-38, Pathfinder Operations
**TASK:** DIRECT A HELICOPTER IN A LANDING ZONE (2-21)

**CONDITIONS:** PROVIDED AN ESTABLISHED LANDING ZONE (LZ), RADIO WITH APPROPRIATE CALL SIGNS/FREQUENCIES, AND TWO FLASHLIGHTS WITH WANDS.

**STANDARD:** DIRECT THE HELICOPTER SO THE PILOT WILL BE ABLE TO LOCATE THE LANDING ZONE, LAND WHERE DIRECTED, AND TAKEOFF WHEN DIRECTED.

---

**EVALUATION GUIDELINES TO BE USED DURING TRAINING:**

**Conditions:** The Seabee, acting as a squad leader, is provided a tactical environment (day or night), an established landing zone, a radio with appropriate call signs and a frequency, two flashlights with wands, smoke grenades, air panels, strobe lights (if available), and a helicopter to guide.

**Standard:** The Seabee must establish and maintain communications with the helicopter pilot, direct the pilot to enable him to locate the landing zone, and guide the helicopter into (landing) and out of (take off) the landing zone using the appropriate hand and arm signals. The Seabee must fully explain to the pilot the marking system used when initial communication contact is made.

**Administrative Notes:** Due to limited access to aircraft, simulated training is authorized.

See: **TASK: ESTABLISH A LANDING ZONE (2-20)**

---

**PERFORMANCE STEPS:**

1. *Mark the landing zone, as required.* (See **TASK: ESTABLISH A LANDING ZONE (2-20).**)

2. *Establish and maintain radio communication with the helicopter (pilot).*
   a. Make initial radio contact with the pilot giving the correct unit identification (call sign).
      
      **EXAMPLE:** "ALPHA FOUR WHISKEY, THIS IS FOXTROT TWO NOVEMBER."
   
   b. Give the LZ brief to the pilot (Table 1).
SAMPLE LANDING ZONE BRIEF

<table>
<thead>
<tr>
<th>TRANSMISSION ITEM</th>
<th>YOU SAY</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. MISSION NUMBER</td>
<td>(Provided by higher authority)</td>
</tr>
<tr>
<td>2. LOCATION: COOR/RAD/DME</td>
<td>Grid 456129</td>
</tr>
<tr>
<td>3. UNIT CALL SIGN</td>
<td>AAF</td>
</tr>
<tr>
<td>4. FREQUENCY</td>
<td>Primary FM 30.50,</td>
</tr>
<tr>
<td></td>
<td>Secondary FM 45.10</td>
</tr>
<tr>
<td>*5. LANDING ZONE MARKING</td>
<td>Signal Mirror, Air Panels</td>
</tr>
<tr>
<td>**6. WIND DIRECTION/VELOCITY</td>
<td>Wind From East at 15 Knots</td>
</tr>
<tr>
<td>7. ELEVATION/SIZE</td>
<td>Elevation 2,300 Feet</td>
</tr>
<tr>
<td></td>
<td>Size 180 Feet in Diameter</td>
</tr>
<tr>
<td>8. OBSTACLES</td>
<td>40 Foot Tree 90 Meters South of Landing Zone</td>
</tr>
<tr>
<td>9. FRIENDLY POSITIONS:</td>
<td>Friendlies Southeast 100 Meters</td>
</tr>
<tr>
<td>DIRECTION/DISTANCE</td>
<td></td>
</tr>
<tr>
<td>10. ENEMY POSITIONS:</td>
<td>Enemy Southeast 500 Meters</td>
</tr>
<tr>
<td>DIRECTION/DISTANCE</td>
<td></td>
</tr>
<tr>
<td>11. LAST FIRE RECEIVED</td>
<td>1800, Small Arms</td>
</tr>
<tr>
<td>12. DIRECTION OF FIRE/</td>
<td>Enemy Fire From Southeast 500 Meters</td>
</tr>
<tr>
<td>DISTANCE</td>
<td></td>
</tr>
<tr>
<td>13. CLEARANCE TO FIRE;</td>
<td>South and Southeast 150 Meters From</td>
</tr>
<tr>
<td>DIRECTION/DISTANCE</td>
<td>Landing Zone</td>
</tr>
<tr>
<td>14. APPROACH/RETIREMENT</td>
<td>Approach Heading 90°</td>
</tr>
<tr>
<td>(RECOMMENDED)</td>
<td>Return Heading 350°</td>
</tr>
<tr>
<td>15. PERSONNEL/EQUIPMENT</td>
<td>Six Personnel with Alice Packs &amp; Rifles</td>
</tr>
<tr>
<td>16. OTHER</td>
<td>5° Slope</td>
</tr>
</tbody>
</table>

* CAUTION: As a security caution, if you use smoke to mark landing zone, DO NOT tell pilot what color smoke will be. Ask pilot to acknowledge color after grenade is set off.

** Determine and report wind condition and direction:

For angle of smoke method, observe smoke blowing if the wind is blowing.

<table>
<thead>
<tr>
<th>SMOKE STRAIGHT UP</th>
<th>NO WIND</th>
</tr>
</thead>
<tbody>
<tr>
<td>SMOKE 30°</td>
<td>WIND AT 3-5 KNOTS</td>
</tr>
<tr>
<td>SMOKE 60°</td>
<td>WIND AT 5-7 KNOTS</td>
</tr>
<tr>
<td>SMOKE ALONG GROUND</td>
<td>WIND IN EXCESS OF 8 KNOTS</td>
</tr>
</tbody>
</table>

Table 1

3. Use arms and hand signals to direct landing or takeoff.

NOTES: Flashlights are ALWAYS used at night to enhance arm and hand signals.

When you make helicopter-to-Seabee contact, NEVER take your eyes off the helicopter until it has landed safely. Always wear eye protection.

Helicopter landing should ALWAYS be directed into the wind.

2-96
<table>
<thead>
<tr>
<th>PREPARE FOR GUIDANCE</th>
<th>FORWARD</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. Extend your arms above your head with your palms facing inboard (Figure 1).</td>
<td>b. Raise your hands to your shoulder level in front of your body with your palms facing away from the helicopter. Move your hands in a motion that will simulate pulling (Figure 2).</td>
</tr>
</tbody>
</table>

![Figure 1](image1)
![Figure 2](image2)

<table>
<thead>
<tr>
<th>BACKWARD</th>
<th>MOVE RIGHT</th>
</tr>
</thead>
<tbody>
<tr>
<td>c. Extend your arms downward beside your body with your palms facing the helicopter. Move your hands backward and forward to simulate pushing (Figure 3).</td>
<td>d. Extend your arms horizontally sideways in the direction of movement. Swing your other arm over your head in the same direction (Figure 4).</td>
</tr>
</tbody>
</table>

![Figure 3](image3)
![Figure 4](image4)
<table>
<thead>
<tr>
<th>MOVE LEFT</th>
<th>UPWARD</th>
</tr>
</thead>
<tbody>
<tr>
<td>e. Extend your arm horizontally sideways in the direction of movement. Swing the other arm over your head in the same direction (Figure 5).</td>
<td>f. Extend your arms horizontally sideways, beckoning upward with your palms turned up (Figure 6).</td>
</tr>
</tbody>
</table>

![Figure 5](image1) ![Figure 6](image2)

<table>
<thead>
<tr>
<th>DOWNWARD</th>
<th>LAND</th>
</tr>
</thead>
<tbody>
<tr>
<td>g. Extend your arms horizontally sideways beckoning downward with your palms turned down (Figure 7).</td>
<td>h. Cross and extend your arms downward in front of your body (Figure 8).</td>
</tr>
</tbody>
</table>

![Figure 7](image3) ![Figure 8](image4)
<table>
<thead>
<tr>
<th>TAKE OFF</th>
<th>WAVE OFF</th>
</tr>
</thead>
<tbody>
<tr>
<td>i. Circle your right hand overhead, ending in a throwing motion into the wind (Figure 9).</td>
<td>j. Cross your arms overhead, and wave rapidly (Figure 10).</td>
</tr>
</tbody>
</table>

**Figure 9**

**Figure 10**

<table>
<thead>
<tr>
<th>Hover</th>
</tr>
</thead>
<tbody>
<tr>
<td>k. Extend your arms horizontally sideways with your palms down (Figure 11).</td>
</tr>
</tbody>
</table>

**NOTE:** Do not give this signal until the helicopter is approximately 5 feet off the ground and just short of the desired landing point depending on its forward speed.

**Figure 11**

**REFERENCES:**

FMFM 5-3, *Assault Support*
FM 57-38, *Pathfinder Operations*
TASK: DIRECT THE MEDEVAC OF A CASUALTY (2-22)

CONDITIONS: PROVIDED A CASUALTY IN A FIELD ENVIRONMENT, GIVEN A TEAM OF SEABEES, A RADIO, CALL SIGNS/FREQUENCIES, AND A DESIGNATED AREA THAT CAN HANDLE A HELICOPTER.

STANDARD: DIRECT THE MEDICAL EVACUATION OF THE CASUALTY FROM THE AREA, EXECUTE THE PERFORMANCE STEPS IN SEQUENCE.

EVALUATION GUIDELINES TO BE USED DURING TRAINING:

Conditions: The Seabee is provided a tactical environment (day or night), a simulated casualty, a medical evacuation helicopter, a squad of Seabees, a radio with call signs and frequencies, a litter, and a designated landing zone that can support helicopter landing and takeoff. The Seabee is also provided the Medical Evacuation (MEDEVAC) request as per local SOP.

Standard: The Seabee must ensure that the casualty is moved from the immediate danger area and emergency first aid treatment is provided. The Seabee must evaluate the injuries and determine MEDEVAC precedence. The Seabee must prepare and transmit the MEDEVAC request according to the local SOP, establish and maintain secure communications with the pilot in the helicopter, and guide the helicopter into the landing zone. The Seabee must ensure that the landing zone is properly marked and defended and that the casualty is quickly loaded and secured aboard the helicopter. The Seabee must submit a MEDEVAC request to higher headquarters.

Administrative Notes: Due to limited access to aircraft, simulated training is authorized.

See TASKS: APPLY BASIC FIRST AID (1-43)

ESTABLISH A LANDING ZONE (2-20)

DIRECT A HELICOPTER IN A LANDING ZONE (2-21)

PERFORMANCE STEPS:

1. Evacuate the casualty from the area of immediate danger.

2. Administer emergency first aid. (See TASK: APPLY BASIC FIRST AID (1-43).)

3. Determine the appropriate precedence assigned to the casualty.
<table>
<thead>
<tr>
<th>IF</th>
<th>THEN</th>
</tr>
</thead>
<tbody>
<tr>
<td>Casualty must be moved immediately to save life or limb, or to</td>
<td>URGENT MEDEVAC is required.</td>
</tr>
<tr>
<td>prevent complication of a serious illness</td>
<td></td>
</tr>
<tr>
<td>Casualty requires prompt medical care, casualty</td>
<td>PRIORITY MEDEVAC is required.</td>
</tr>
<tr>
<td>must be picked up within 24 hours</td>
<td></td>
</tr>
<tr>
<td>Casualty has minor injury, KIA casualty must be picked up within</td>
<td>ROUTINE MEDEVAC is required.</td>
</tr>
<tr>
<td>72 hours</td>
<td></td>
</tr>
</tbody>
</table>

4. *Establish and secure a landing area.* (See **TASK: ESTABLISH A LANDING ZONE (2-20)**.)

5. *Request MEDEVAC support, using the proper procedures.*

   a. Collect and record the information needed for evacuation.

      1) Gather the grid coordinate data.

      2) Obtain a radio frequency and a call sign.

      3) Report the amount and types of wounds, injuries, and illnesses.

   b. Contact the medical unit that is controlling evacuation.

   c. Prepare a written Medical Evacuation Request using the appropriate brevity codes (Table 1).

   ```
   MEDEVAC REQUEST
   LINE 1: LOCATION
   LINE 2: RADIO FREQUENCY, CALL SIGN AND SUFFIX
   LINE 3: PRECEDENCE:
   URGENT ______ PRIORITY ______ ROUTINE ______ TAC IMMED
   LINE 4: SPECIAL EQUIPMENT
   (HOIST, JUNGLE PENEITRATOR)
   LINE 5: NUMBER OF PATIENTS BY TYPE
   LITTER ______ AMBULATORY ______
   LINE 6: SECURITY OF PICKUP SITE
   LINE 7: METHOD OF MARKING PICKUP SITE
   LINE 8: PATIENT’S NATIONALITY AND STATUS
   LINE 9: NBC CONTAMINATION
   ```

   Table 1
1) Record the location of the pick-up zone (six-digit grid coordinates) on line 1.
2) Record the radio frequency, call sign, and suffix at the pick up zone on line 2.
3) Record the number of casualties by precedence on line 3.
4) Record special equipment needs on line 4.
5) Record the number of patients by type on line 5.
6) Record the security of the pick up site on line 6.
7) Record the method of marking the pick up site on line 7.
8) Record the patient's nationality and status on line 8 e.g., American Sailor, American Marine.
9) Record any NBC contamination on line 9.

6. Prepare the casualty for the flight.
   a. Perform casualty preparation and consolidation.
      - Direct team members to gather casualties within an assigned area.
   b. Assign litter teams to load aircraft and to work the special equipment.

7. Establish and maintain communications with the helicopter (pilot).
   a. Keep the radio on.
   b. Monitor and respond to additional instructions or further contact.
   c. Maintain communications with the pilot during the entire operation.

8. Give a zone brief to the pilot, using the Landing Zone Brief format. (See TASK: DIRECT A HELICOPTER IN A LANDING ZONE (2-21).)

9. Mark the landing zone to the pilot, using the Landing Zone Brief format. (See TASK: ESTABLISH A LANDING ZONE (2-20).)

10. Guide the MEDEVAC helicopter to or from the landing site. (See TASK: DIRECT A HELICOPTER IN A LANDING ZONE (2-21).)

11. Ensure accountability of the casualty's weapon and individual equipment.

12. Submit the MEDEVAC request to higher headquarters.

REFERENCES:
FMFM 6-4, Marine Rifle Platoon/Company
FMFM 5-3, Assault Support
TASK: PREPARE NUCLEAR, BIOLOGICAL, CHEMICAL (NBC) 1 REPORT
(OBSERVER'S REPORT) (2-23)

CONDITIONS: PROVIDED A CBR ATTACK, MAP, WATCH, COMPASS, PROTRACTOR, WRITING INSTRUMENT, PAPER, AND AN NBC 1 REPORT FORMAT.

STANDARD: IN ACCORDANCE WITH THE REFERENCE, COMPLETE AN NBC 1 REPORT NUCLEAR OR BIOLOGICAL OR CHEMICAL ATTACK) WITH AT LEAST THE MANDATORY LINES (BRAVO, DELTA, HOTEL, AND EITHER CHARLIE OR FOXTROT) AND ALL OTHER APPROPRIATE INFORMATION.

EVALUATION GUIDELINES TO BE USED DURING TRAINING:

Conditions: The Seabee is provided a scenario in which a CBR attack has just occurred in the area, a map, a watch, a compass, a protractor, a pencil and paper, a field message book, and the NBC Warning and Reporting System, (current edition) and the resources listed at the end of this task.

Standard: The Seabee must complete an NBC 1 report with applicable heading information and mandatory line items (B, D, H, and either C or F). The Seabee must include additional data provided and ensure that each report is in the correct message format. The Seabee must submit the completed NBC 1 report to the unit leader for evaluation or transmit the message via the chain of command.

Administrative Note: See TASKS: NAVIGATE WITH A MAP AND A COMPASS (1-49)

COMMUNICATE USING A FIELD RADIO (1-60)

PERFORMANCE STEPS:

NOTES: The NBC 1 report is the most widely used CBR report. The observing unit uses this report to provide CBR attack data. All units must be completely familiar with the NBC 1 report format and its information. The preparer must quickly and accurately complete the report and submit it to the next higher headquarters.

When reporting CBR attacks, all units are responsible for the collection, processing, and analysis of data; however, specific units, called designated observers, are responsible for reporting NBC 1 Nuclear attacks up the chain of command. This will preclude all units from reporting simultaneously and allow those units with necessary angle-measuring equipment to report more accurate and timely data. No such restrictions exist for a biological or chemical attack. These attacks generally occur closer to the ground, thus, they are more difficult to detect. All units are required to report any and all biological and chemical attacks.
Basic information, line items B, D, H, and either C or F (line C for nuclear and line F for either biological or chemical), is essential for completing the attack analysis. Other attainable data should be reported and recorded as available. Additional line items may include E, G, I, J, K, L, and M.

1. Place mandatory data into report format.
   a. Record appropriate heading information (precedence, date-time group, security classification, from, to, and type of report).

   NOTES: Data should be recorded in a field message book. (See TASK: COMMUNICATE USING A RADIO (1-60).)

   A date-time group consists of 6 numerals and one alphabetic character. The first two numerals indicate the day of the month and the last four the time of the day in the military 24-hour clock. State the time in which the time was recorded. Record all time in Zulu time. The alphabetic character you use will indicate the time zone.

   NBC 1 reports are sent by FLASH precedence.

   Use current edition of NBC Warning and Reporting System.

   b. Complete line Bravo.

      - Record your location using an 8-digit grid coordinate (See TASK: NAVIGATE WITH A MAP AND A COMPASS (1-49).)

   c. Complete line Charlie.

      1) Determine the direction of attack (See TASK: NAVIGATE WITH A MAP AND A COMPASS (1-49).)

         a) Use a compass or aiming circle to determine the azimuth to the attack.

         b) Specify mils or degrees (magnetic or grid).

            NOTE: This line item also applies to a biological or chemical attack when the attack did not occur on your position and you can observe and report the attack.

      2) Record the location of attack as line Foxtrot if the attack occurs on or near your position.

         a) Provide an 8-digit grid coordinate.

         b) State the location as "actual" or "estimated" in the report.
d. Complete line Delta.
   1) If a nuclear detonation occurs
      - Record the date and time of detonation (recorded as a date-time group).
   2) If a biological/chemical attack occurs
      - Record the start time of the attack.

e. Complete line Hotel (type of attack).
   1) If a nuclear detonation occurs
      - Record the type of burst (surface, subsurface, air, or unknown).
   2) If a biological/chemical attack occurs
      - Record the type of agent, if known. Specify whether it was a ground or airburst.

2. Place other known data into the report, if available.

a. Complete line Echo.
   1) If a nuclear detonation occurs
      - Report illumination time in seconds.

      NOTE: Illumination time can be defined as that brief period following a nuclear detonation in which a brilliant and intense light is produced; it ranges from the moment of detonation until the light dims and the cloud begins to form.

   2) If a biological/chemical attack occurs
      - Record time that the attack ended.

b. Complete line Golf.
   1) If a nuclear detonation occurs
      - Record the means of delivery (ICBM or artillery).
   2) If a biological/chemical attack occurs
      - Record the means of delivery (artillery, bombs, rockets, or spray).
c. Complete line India (biological/chemical only).
   - Record the number of munitions or aircraft used to deliver the weapon.

d. Complete line Juliet (nuclear only).
   1) Record flash-to-bang time in seconds.
   2) To determine the flash-to-bang time, at the moment of weapon detonation (a brilliant "blue white flash"), you should
      a) Cover your eyes
      b) Take immediate action
      c) Start counting slowly, 1,000 and 1, 1,000 and 2, 1,000 and 3, 1,000 and so on, until the arrival of the shock wave or bang.

      NOTE: Flash-to-bang time is used by the COC to calculate size of the weapon.

e. Complete line Kilo.
   1) If a nuclear detonation occurs
      - Record the presence or absence of a crater and the diameter (in meters).
   2) If a biological/chemical attack occurs
      - Provide a brief description of terrain and vegetation.
f. Complete line Lima (nuclear only).

![Figure 1](image)

- Record the cloud width measurement (Figure 1) (specify degrees or mils) at H+5 minutes.
  a) Measure angular cloud width five minutes following the detonation.
  b) Shoot an azimuth to the left side of the cloud and one to the right side of the cloud.
  c) The numerical difference between the values of these azimuths is the angular cloud width.

g. Complete line Mike.

- If a nuclear detonation occurs
  -- Record the cloud top or cloud bottom angle measurement (Figure 2) (in degrees or mils) at H+10 minutes.
    a) A **vertical angle** is required.
    b) An M2 aiming circle, M65 or M43 battery command periscope should be used. Similar equipment can be used.
    c) Measure the angular cloud top height.
d) Measure the angular cloud bottom height.

e) The numerical difference between the values of these azimuths is the cloud top and bottom angles.

Figure 2

3. Submit or transmit the completed NBC 1 report to your unit leader or COC via your chain of command.

REFERENCES:
FM 3-3, Chemical and Biological Contamination Avoidance
NBC Warning and Reporting System (current edition)
TASK: IMPLEMENT MISSION-ORIENTED PROTECTIVE POSTURE (MOPP) (2-24)

CONDITIONS: PROVIDED AN NBC HAZARD OR THREAT OF A HAZARD, MOPP GEAR, AND THE REQUIREMENT TO ASSUME AN APPROPRIATE MOPP LEVEL.

STANDARD: AS PER THE REFERENCE, ENSURE SEABEES ASSUME THE APPROPRIATE MOPP LEVEL BASED ON COMMANDER’S GUIDANCE.

EVALUATION GUIDELINES TO BE USED DURING TRAINING:

Conditions: The Seabee is provided a simulated CBR hazard or threat of a hazard, MOPP gear, a group of Seabee, and the requirement to have the unit assume the appropriate MOPP level.

Standard: The Fire Team Leader or above must ensure proper attainment of appropriate MOPP level established by the unit commander or competent authority based on available CBR intelligence.

Administrative Note: See: TASK: DON INDIVIDUAL PROTECTIVE CLOTHING TO MOPP 4 (1-35)

REFERENCES:

FMFM 11-1, Nuclear, Chemical, and Defensive Biological Operations in the FMF
FM 3-4, NBC Protection
**TASK:** CONTROL THE SPREAD OF CONTAMINATION (2-25)

**CONDITIONS:** PROVIDED A SITUATION OF THE UNIT BEING CBR CONTAMINATED.

**STANDARD:** AS PER THE REFERENCES, TAKE ACTIONS TO CONTROL THE SPREAD OF CONTAMINATION.

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**EVALUATION GUIDELINES TO BE USED DURING TRAINING:**

**Conditions:** The Seabee is provided a tactical CBR scenario where the unit has been contaminated with a simulated CBR hazard.

**Standard:** The Seabee must take appropriate actions to reduce and control the spread of contaminants. Those procedures that cannot be simulated must be explained by the Seabee in detail.

**Administrative Notes:** See: **TASKS:** IDENTIFY NATO NBC MARKERS (1-32)

DECONTAMINATE SKIN AND PERSONAL EQUIPMENT USING THE DECONTAMINATION KIT (1-38)

LEAD MOPP GEAR EXCHANGE (3-18)

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**PERFORMANCE STEPS:**

1. *Ensure that Seabees perform basic skills decon (also known as immediate decon) as soon as possible.* (See **TASK:** DECONTAMINATE SKIN AND PERSONAL EQUIPMENT USING THE DECONTAMINATION KIT (1-38).)

2. *Request operational decon (MOPP gear exchange, vehicle washdown, etc.) as soon as your mission permits.* (See **TASKS:** LEAD MOPP GEAR EXCHANGE (3-18).)

3. *Limit personnel and equipment entering the contaminated areas.*

4. *Mark all contaminated areas.*

5. *Supervise medical personnel.*

   - Ensure that medical personnel take protective measures when evacuating contaminated casualties.


   a. Mark vehicles in conspicuous locations (e.g., windows and doors) with a waterproof writing instrument such as a grease pencil or similar item.

   - Unit SOPs will outline specific locations on where to mark contaminated vehicles and equipment.
b. Remove air filters and other parts where contamination may settle.

c. Ensure personnel removing or handling contaminated vehicle parts take necessary precautions.

d. Dispose of air filters and other contaminated material immediately.

7. *Decon as far forward as possible within your area of responsibility.*

8. *When your unit is moving to a clean area, decon personnel and equipment at the edge of the contaminated area.*

9. *When possible, decontaminate by weathering (leaving the materials).*

10 *Decon mission essential material immediately.*

- Move gear and equipment as short a distance as necessary to decon.

11. *Transport contaminated personnel or equipment, when necessary.*

   a. Coordinate your unit's movement with the Command Operation Center (COC).

   b. Use as few vehicles as possible to accomplish the mission.

   c. Ensure personnel, including the drivers, wear MOPP gear.

   d. Use one route, preferably one established by the COC.

   e. Cover contaminated equipment to prevent contamination from blowing off.

12. *Dispose of contaminated materials.*

   a. Bury the materials.

      - Cover with a minimum of three feet of earth.

   b. Burn the materials.

      1) When burning chemical contaminates, this can produce a downwind vapor hazard.

      2) Burning chemical contamination should be done in conjunction of the COC.

      3) Coordinate with higher headquarters (via your COC) to warn downwind units.

   c. Mark disposal sites. (See TASK: IDENTIFY NATO NBC MARKERS (1-32).)

REFERENCES:

FM 3-3, Chemical and Biological Contamination Avoidance
FM 3-4, NBC Protection
TASK: MINIMIZE ADVERSE EFFECTS OF WEARING MOPP GEAR FOR PROLONGED PERIODS (2-26)

CONDITIONS: PROVIDED THE REQUIREMENT TO WEAR MOPP GEAR FOR PROLONGED PERIODS.

STANDARD: AS PER THE REFERENCES, TAKE ACTIONS TO MINIMIZE THE ADVERSE EFFECTS OF THE PROLONGED WEARING OF MOPP GEAR.

EVALUATION GUIDELINES TO BE USED DURING TRAINING:

Conditions: The Seabee is provided with MOPP gear and the requirement to wear the equipment in accordance with prescribed CBR regulations, including the field protective mask, for prolonged periods of time.

Standard: The Seabee must take action to minimize adverse effects of wearing MOPP gear for long periods of time. Those steps that cannot be performed must be explained by the Seabee in detail.

Administrative Note: See TASK: DON INDIVIDUAL PROTECTIVE CLOTHING TO MISSION-ORIENTED PROTECTIVE POSTURE (MOPP) LEVEL 4 (1-35)

PERFORMANCE STEPS:

1. Consider the adverse effects of prolonged wearing of MOPP gear.
   a. Consider the physical effects:
      1) Elevated body temperatures will cause a rapid decrease in performance.
      2) Dehydration can be rapid.
      3) Wearing the mask narrows a Seabee's field of vision.
      4) Wearing the hood impairs hearing.
      5) The mask makes speech difficult to understand.
   b. Consider the psychological effects:
      1) Claustrophobia
      2) Disorientation
      3) Distorted body sensations
      4) Confusion
2. Take actions to minimize adverse effects.
   a. Take action before operating in an CBR environment.
      1) Ensure Seabees are physically conditioned to provide the following:
         a) Increase in endurance
         b) Decrease the stress of wearing the MOPP gear
      2) Conduct extensive concurrent training in MOPP gear to:
         a) Instill confidence
         b) Increase length of the time MOPP gear can be worn
         c) Decrease the psychological stresses of wearing MOPP gear
      3) Conduct the following types of training in all MOPP levels:
         a) Unit mission-related training
         b) Firing weapons
         c) Battle drills
         d) Communicating
         e) Maintenance
         f) Personal hygiene
         g) Eating and drinking
         h) Sleeping
   b. Take actions in a CBR environment.
      1) Plan for tasks to take longer to accomplish.
      2) Take breaks more frequently and for longer periods of time.
      3) Ensure Seabees increase water intake to avoid dehydration heat injuries.
      4) Speak slowly.
      5) Hold the microphone close to the voicemitter when using radios.
      6) Repeat orders to ensure they are understood.
      7) Wear MOPP gear directly over underwear in hot weather.
8) In MOPP 1 through 3, jacket or hood may be opened for ventilation.

9) Move the Seabees to a contamination-free area for short unmasking periods and eating.

REFERENCES:

FM 21-20, Physical Fitness Training
FM 3-3, Chemical and Biological Contamination Avoidance
FM 3-4, NBC Protection
TASK: ENFORCE PROPER FIELD SANITATION (2-27)
CONDITIONS: PROVIDED A UNIT IN A FIELD ENVIRONMENT.
STANDARD: THE SEABEE MUST PROPERLY ENFORCE FIELD SANITATION IN ACCORDANCE WITH THE REFERENCES.

EVALUATION GUIDELINES TO BE USED DURING TRAINING:

Conditions: The Seabee is provided a unit in a field environment, iodine tablets, calcium hypochlorite, boiled water, tools for digging catholes and straddle trenches, and support materials.

Standard: The Fire Team Leader (FTL) and above must ensure and inspect (if required) that their Seabees use proper field sanitation in accordance with safety precautions. The FTL must ensure that Seabees dig and use catholes and straddle trenches, that Seabees purify water, and that the Seabees practice personal field hygiene. The Seabee must identify discrepancies and take corrective actions as needed.

Administrative Note: See TASK: PRACTICE BASIC FIELD SANITATION (1-45)

REFERENCES:
FMFM 0-1, Unit Training Management Guide
FMFM 0-1A, How to Conduct Training
FM 21-10, Field Hygiene and Sanitation
FMFM 21-20, Field Hygiene and Sanitation
NAVMED P 5010 CHAPTER 9 (for sanitation)
**TASK:** CONDUCT REFRESHER FIRST AID AND FIELD SANITATION TRAINING (2-28)

**CONDITIONS:** PROVIDED A TRAINING SITE, TRAINING SUPPORT EQUIPMENT (PROJECTOR, POWER POINT PRESENTATION, CHALKBOARD, ETC.), AND THE REFERENCES.

**STANDARD:** PER THE REFERENCES, INSTRUCT REFRESHER TRAINING IN FIRST AID AND FIELD SANITATION.

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**EVALUATION GUIDELINES TO BE USED DURING TRAINING:**

**Conditions:** The Squad Leader and above is provided a training site, training support equipment including a projector power point presentation and a chalkboard, Seabees to instruct, and the references listed at the end of this task.

**Standard:** The Squad Leader (SL) and above must instruct how to apply basic first aid, and how to perform basic first aid preventive measures. The instruction must also include how to practice basic field sanitation and how to transport casualties using manual carriers and improvised stretchers. The SL must evaluate the instructed Seabees, then record and report the evaluation results.

**Administrative Notes:** See TASKS:  
- APPLY BASIC FIRST AID (1-43)  
- PERFORM BASIC FIRST AID PREVENTIVE MEASURES (1-44)  
- PRACTICE BASIC FIELD SANITATION (1-45)  
- TRANSPORT CASUALTIES USING MANUAL CARRIES AND IMPROVISED STRETCHERS (1-46)

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**REFERENCES:**

FMFM 0-1, Unit Training Management  
FMFM 0-1A, How To Conduct Training  
FM 21-11, First Aid For Soldiers
TASK: INSTALL A HOT LOOP (2-29)

CONDITIONS: THE SEABEE IS GIVEN A MINIMUM OF 3 FIELD TELEPHONES (EITHER A TA-1/PT OR TA-312/PT), A SPOOL OF WIRE, AND EQUIPMENT.

STANDARD: THE SEABEE MUST INSTALL A HOT LOOP SO THAT EACH SUBORDINATE UNIT HAS WIRE COMMUNICATION WITH THE COMMAND UNIT. THE SEABEE MUST RECOVER THE WIRE WHEN THE LOOP IS NO LONGER NECESSARY.

EVALUATION GUIDELINES TO BE USED DURING TRAINING:

Conditions: The Seabee is given a minimum of 3 field telephones (either a TA-1/PT or TA-312/PT), a spool of wire and equipment.

Standard: The Seabee must install a hot loop so that each subordinate unit has wire communication with the command unit. The Seabee must recover the wire when the loop is no longer necessary.

Administrative Notes: See TASK: REPAIR (SPLICE) WIRE (1-56), OPERATE THE TA-312 TELEPHONE SET (1-58), and OPERATE A TA-1 TELEPHONE SET (1-57).

PERFORMANCE STEPS

1. Install the hot loop (Field Wire Loop) for the points that require telephones (Figure 1).

![Figure 1](image)

Notes: The hot loop is designed for internal wire communications; it is field expedient and can be fully installed and operational within 15 minutes. It is used to interconnect all firing position to the FDC.
The hot loop is set up so that anyone can talk to everyone in the loop; if a line should be cut or broken somewhere, you can continue to talk with everyone because there are two separate routes to each phone.

a. Tie the field wire to some fixed object where the line begins and where it ends.

Note: Lay out the field wire from the originating position to each station in the loop. Allow enough slack at these points for lead-in wire to the switchboard, if available, or to the telephone (Figure 2).

b. Lay the field wire line loosely with plenty of well-spaced slack allowing the line to lie flat on the ground.

Note: Keep the wire behind individual positions. Bury it where needed to prevent wire from being cut or broken by vehicle traffic. This simplifies later maintenance.

c. Tie the field wire to trees or posts at several places along the line to prevent passing troops and vehicles pulling the wire into traffic lanes.

Note: Make all ties at ground level and well off the shoulders of the road. Secure the wire at each position and leave enough slack in the wire to make connections.

d. Attach wire tags to the lines (Figure 3).
2. Connect telephones.
   
a. Connect a TA-1PT to the hot loop.
   
   1) Connect the telephone from the last position laid to the new position.
   2) Conduct a communications check between the two positions.
   3) Connect the other positions in the center of the loop.
      
      a) Remove 2-inches of insulation to seize the wire ends.
      b) Separate the four copper strands from the three steel strands.
      c) Starting from the end with the plastic, tightly wrap the copper strands around the steel strands.
      d) Cut the steel strands at the end of the copper twist.
      e) Place the seized wire into the push buttons of phones, switchboard or junction panel.
      f) Release the binding posts, making sure the insulation is not in the grasp of the binding posts.

   e. Test the wire line before connecting the line to the telephone or switchboard.
b. Connect a TA-312/PT to the hot loop.

1) Strip one inch of insulation off the two wires at each end of the hot loop.

2) Connect one of the wires from each end of the hot loop to each binding post of the telephone (Figure 4).

![Diagram showing binding posts and wires](image)

Figure 4

3. Perform a communication check.

4. Repair damaged (cut or shorted) wire.

   **Notes:** Remove any foreign matter, such as enamel, by carefully scraping the wire with the back of a knife or other suitable tool.

5. Recover the field wire when appropriate.

REFERENCE:

*TC 24-20 Tactical Wire and Cable Techniques*
TASK: OPERATE AN AN/PRC-150(C) HF FIELD RADIO SET (2-30)

CONDITIONS: GIVEN A TACTICAL SCENARIO IN ANY COMBAT ENVIRONMENT (DAY AND NIGHT), AN AN/PRC-150(C), OPERATOR MAINTENANCE EQUIPMENT), A BA-5590 BATTERY, FREQUENCY ASSIGNMENT, AND A RADIO STATION WITHIN RANGE.

STANDARDS: THE SEABEE MUST OPERATE AN AN/PRC-150(C) AS PER THE REFERENCES.

EVALUATION GUIDELINES TO BE USED DURING TRAINING:

Conditions: The Seabee is provided a complete AN/PRC-150(C), BA-5590 (battery), call signs/frequency and a radio net within range of the AN/PRC-150(C).

Standard: The Seabee must install and operate the AN/PRC-150(C) radio as follows: turn the radio upside down and install the battery, install the antenna, connect the handset, dial an assigned frequency, turn the radio on, and establish communication. The Seabee must also describe in their own words the basic characteristics of the AN/PRC-150(C).

Administrative Notes: See TASK: COMMUNICATE USING A RADIO (1-60)

PERFORMANCE STEPS:

WARNING: DO NOT permit manpack or vehicular whip antennas to come in contact with high-power lines or other sources of electricity; injury or death could result.

1. Describe the AN/PRC-150(C).
   a. The AN/PRC-150(C) is portable, lightweight, HF transceiver for medium to long range communication.
   b. Three uses:
      1) Manpack operation
      NOTE: FOR THIS PURPOSE, ONLY THE MANPACK OPERATION WILL BE COVERED.
      2) Vehicle mounted
      3) Base station
   c. The frequency range is 1.6 to 59.9999 MHZ in 100 Hz steps.
   d. Power output is 1, 5, 20 watts PEP.
   e. Antenna tuning is automatic (3 seconds average time for completion).
   f. Power source is 20 to 32 VDC. Uses 2 BA-5590 or 2 BB-590 batteries or a 28 VDC power supply.
   f. Operating range is 10 miles with a 10 ft. whip, 300 miles with AS-2259, or 1K miles plus w/dipole antenna.
g. Modulation is AM amplitude modulated.

h. Transmission is single sideband. USB- upper sideband; LSB-lower sideband.

i. Modes of operation

1) **FIX**

**NOTE:** FOR THIS PURPOSE, ONLY PLAIN TEXT FIX MODE OPERATION WILL BE COVERED.

2) Automatic Link Establishment (ALE)

3) 3G

4) HOP

2. Identify the components of AN/PRC-150(C) (Figure 2).
a. Receiver/transmitter (RT-1694(P)(C)/U) – receives and transmits amplitude modulated radio waves.

b. Battery Box.

c. OE-505 Whip Antenna Kit.
   1) Antenna base for 10 ft. whip - supports antenna.
   2) 10 ft. whip antenna - radiates and receives waves.
   3) Base Whip Adapter.
   4) Antenna Bag.

d. Keypad Display Unit (KDU) Extension Cable.

e. Ground Stake Kit.


g. Y-Adapter Assembly.

h. ASYNC Data Cable.

i. CW Key.

j. Alice pack- lightweight individual carrying equipment.


3. Identify controls and indicators Receiver/Transmitter (RT-1694(P)(C)/U)(Figure 3)

   a. GPS Interface Connector - for an external GPS unit
b. Audio Connector - provides connection for audio handset

c. LCD – displays operational and programming displays

d. Fill Connector – use to connect Type I encryption fill devices (AN/CYZ-10)

e. Antenna connector – Provides 50-ohm antenna port for whip antenna.

f. Ground Post – provides grounding reference for connecting a grounding source

g. Accessory connector – provides connection for power amplifiers, external keyline, external power

h. Function switch

  a. OFF – turns RT off

  b. PT – Places RT in Plain Text (PT) mode

  c. CT – Places RT in Cipher Text (CT) mode for secure operations

  d. CC – Places RT in Citadel encryption (not used by US)

  e. LD – Used to load Type I crypto variables

  f. RV – Receive variable using Over-the-Air Rekey (OTR)

  g. Z – zeroizes the RT including encryption keys

i. Keypad Display Unit (KDU) – used for operations, programming and monitoring RT

j. Data Connector – provides connection for data device (Dolch computer) or auxiliary audio

4. Set-up Procedures for Manpack

  a. Install Battery for Manpack

  **WARNINGS:** THE LITHIUM BATTERY USED WITH YOUR MANPACK RADIO IS HAZARDOUS IF MISUSED OR TAMPERED WITH BEFORE, DURING, AND AFTER DISCHARGE. STRICTLY OBSERVE THE FOLLOWING PRECAUTIONS TO PREVENT INJURY TO PERSONNEL OR DAMAGE TO EQUIPMENT:

  - DO NOT DISCHARGE BATTERY AFTER USE BY PRESSING THE DISCHARGE BUTTON.

  - DO NOT HEAT, INCINERATE, CRUSH PUNCTURE, DISASSEMBLE, OR OTHERWISE MUTILATE BATTERY.

  - DO NOT SHORT CIRCUIT, RECHARGE, OR BYPASS ANY INTERNAL FUSE.

  - DO NOT STORE BATTERY IN EQUIPMENT DURING PERIODS OF NON USE.
1) Install batteries in battery box.

2) Attach battery box to transceiver.

3) Remote KDU from RT.

4) Connect handset.

5) Attached antenna.

6) Connect grounding kit if required.

b. Rotate function switch from OFF to PT.

**WARNING:** ENSURE THAT AN ANTENNA IS CONNECTED TO THE ANTENNA CONNECTOR PRIOR TO POWERING UP THE RADIO OR POSSIBLE INTERNAL DAMAGE COULD RESULT.

c. Condition batteries.

1) Set radio to low power.

2) Key transmitter 15-20 seconds.

3) Set radio to medium power.

4) Key transmitter 15-20 seconds.

d. Conduct Self Test.

1) Press OPT

2) Select TEST using L/R Arrow keys.

3) Press ENT

4) Select ALL using L/R Arrow keys.

5) Press ENT.

6) Press CLR after test complete.

4. **General Operating Procedures**


      1) Press PGM.

      2) Select CONFIG using L/R Arrow keys.
3) Press ENT.
4) Select RADIO using L/R Arrow keys.
5) Press ENT.
6) Select TX POWER option.
7) Press ENT.
8) Select BFO option using U/D Arrow keys.
9) Press ENT.
10) Select SQUELCH option.
11) Press ENT.
12) Select SQUELCH LEVEL option.
13) Press ENT.
14) Select FM SQUELCH TYPE option.
15) Press ENT.
16) Select RADIO SILENCE option.
17) Press ENT.
18) Select INTERNAL COUPLER option.
19) Press ENT.
20) Select FM DEVIATION option.
21) Press ENT.
22) Select CW OFFSET option.
23) Press ENT.
24) Select RX NOISE BLANKING option.
25) Press ENT.
26) Select COMPRESSION option.
27) Press ENT.
28) Select EXTERNAL 20WPA/COUPLER option.
29) Press ENT.
30) Select RADIO SELF ID option.

31) Enter unique eight character ID.

32) Press ENT.

33) Select ERROR BEEPS option.

34) Press ENT.

35) Press CLR.

b. Audio Configuration Programming

1) Select AUDIO using L/R Arrow keys.

2) Press ENT.

3) Select AUX AUDIO option.

4) Press ENT.

5) Select SIDETONE AUDIO option.

6) Press ENT.

7) Press CLR.

c. Program Channel Presets.

1) Press PGM.

2) Select MODE.

3) Press ENT.

4) Select PRESET.

5) Press ENT.

6) Select CHANNEL.

7) Press ENT.

8) Enter CHANNEL NUMBER TO CHANGE.

9) Press ENT.

10) Enter RX FREQUENCY.

11) Press ENT

12) Press ENT

13) Select MODULATION option.
14) Press ENT.
15) Select AGC SPEED option.
16) Press ENT.
17) Select IF BANDWIDTH option.
18) Press ENT.
19) Select RX ONLY option.
20) Press ENT.
21) Select LIMIT MAX TX POWER option.
22) Press ENT.
23) Select ENABLE HAIL TX option.
24) Press ENT.
25) Enter MAX TX POWER desired.
26) Press ENT.
27) Select ENABLE SSB SCAN option.
28) Press ENT.
29) Press CLR.

d. Program System Presets.
1) Press PGM.
2) Select MODE.
3) Press ENT.
4) Select PRESET.
5) Press ENT.
6) Select SYSTEM.
7) Press ENT.
8) Select SYSTEM PRESET TO CHANGE.
9) Press ENT.
10) Enter PRESET NAME.
11) Press ENT.
12) Select RADIO MODE option.
13) Press ENT.
14) Enter CHANNEL NUMBER to use.
15) Press ENT.
16) Select MODEM PRESET option.
17) Press ENT.
18) Selection ENCRYPTION TYPE option.
19) Press ENT.
20) Select CRYPTO MODE.
21) Press ENT.
22) Select PT VOICE MODE option.
23) Press ENT.
24) Select CC VOICE MODE option.
25) Press ENT
26) Press CLR to return to main screen.

e. FIX PT Mode Operations.
   1) Set function switch to PT.
   2) Press MODE button to select FIX.
   3) Press ENT
   4) Press handset PTT to transmit/release to receive.

REFERENCE:

Publication Number 10515-0103-4100 AN/PRC-150(C) Advanced Tactical HF Radio
TASK: CONDUCT REFRESHER TRAINING ON HOW TO OPERATE THE AN/PRC-119F/150(C) RADIO SET (2-31)

CONDITIONS: PROVIDED A TRAINING SITE, TRAINING SUPPORT EQUIPMENT (RADIOS, BATTERIES, CLEANING EQUIPMENT, ETC.), AND THE REFERENCES.

STANDARD: AS PER THE REFERENCES, INSTRUCT SEABEES SO THAT THEY ARE ABLE TO OPERATE THE AN/PRC-119F/150(C) RADIO SETS.

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EVALUATION GUIDELINES TO BE USED DURING TRAINING:

**Conditions:** The Seabee is provided a training site, training support equipment, Seabees to instruct, and the resources listed at the end of this task.

**Standard:** The Seabee must instruct how to operate and maintain communications using the AN/PRC-119F/150(C) radio. The instruction must include how to assemble the radio, establish communications, troubleshoot problems, and perform Preventive Maintenance Checks and Services (PMCS). The Seabee must evaluate the instructed Seabees, then record and report the evaluation results.

**Administrative Notes:** See TASKS: OPERATE THE AN/PRC-119F RADIO SET (1-59)

OPERATE THE AN/PRC-150(C) RADIO SET (2-30)

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REFERENCES:

FMFM 0-1, Unit Training Management Guide
FMFM 0-1A, How to Conduct Training
TM-11-5820-1046-12 Operator and Organizational Maintenance Manual
FM 24-18, Tactical, Single Channel, Radio Communication Techniques
TM 11-5820-890-10-8, SINCGARS Ground Combat Net Radio
Publication Number 10515-0103-4100 AN/PRC-150(C) Advanced Tactical HF Radio
TASK: CONDUCT REFRESHER TRAINING ON HOW TO OPERATE FIELD TELEPHONES (2-32)

CONDITIONS: PROVIDED A TRAINING SITE, TRAINING SUPPORT EQUIPMENT (TELEPHONE, BATTERIES, CLEANING EQUIPMENT, ETC.), AND THE REFERENCES.

STANDARD: AS PER THE REFERENCES, INSTRUCT SEABEES SO THAT THEY ARE ABLE TO OPERATE THE FIELD TELEPHONES.

EVALUATION GUIDELINES TO BE USED DURING TRAINING:

Conditions: The Seabee is provided a training site, training support equipment, Seabees to instruct, and the resources listed at the end of this task.

Standard: The Seabee must instruct how to operate and maintain communications on the TA-1/PT and TA-312 field telephone sets. The instruction must include a description of the two telephones, installation procedures, and procedures for conducting a line check and a ring back. The Seabee must evaluate the instructed Seabees, then record and report the evaluation results.

Administrative Notes: See TASKS: OPERATE THE TA-312 TELEPHONE SET (1-58) 
OPERATE A TA-1 FIELD TELEPHONE SET (1-57)

REFERENCES:

TM 11 5805-243-13, Operator and Organizational Maintenance Manual, Telephone Set TA-1/PT
TM 11-5805-201-12, Operator and Organizational Maintenance Manual, Telephone Set TA-312/PT
TC 24-20, Tactical Wire and Cable Techniques
TASK: SUPERVISE OPERATOR LEVEL MAINTENANCE OF PORTABLE COMMUNICATIONS EQUIPMENT (2-33)

CONDITIONS: PROVIDED RADIOS WITH EQUIPMENT BAGS AND THE REQUIREMENT TO SUPERVISE OPERATOR LEVEL MAINTENANCE.

STANDARD: ENSURE THE RADIOS ARE PROPERLY MAINTAINED AS PER THE REFERENCE.

EVALUATION GUIDELINES TO BE USED DURING TRAINING:

Conditions: The Seabee is provided radios, accessories, and the requirement to supervise operator level maintenance on portable communications equipment.

Standards: The Seabee must ensure that operators perform the appropriate level of maintenance. The operators must conduct a SL-3 inventory and ensure that all items are present and serviceable. The Seabee must ensure that operators disassemble, clean, dry, and reassemble the radios. The Seabee must also ensure that operators use only authorized cleaning equipment and methods and that a function check is performed. The Seabee must ensure that all maintenance and SL-3 deficiencies are identified and reported.

REFERENCES:

TM 11-5820-890-10-8, SINCgars Ground Combat Net Radio, ICOM
Publication Number 10515-0103-4100 AN/PRC-150(C) Advanced Tactical HF Radio