

Radar Section TLP and RSOP TTP

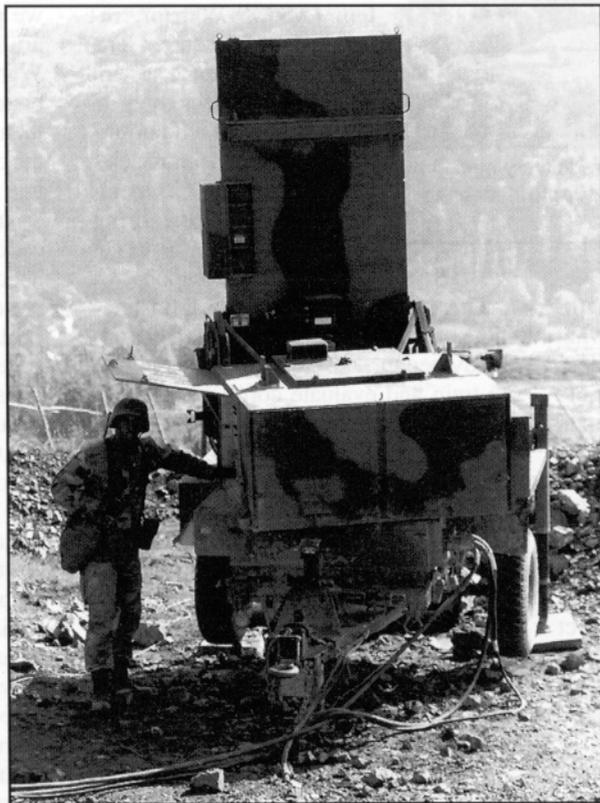
by Chief Warrant Officer Three Donald F. Cooper

Employing Firefinder radar systems (AN/TPQ-36 and the Q-37) most effectively has become more important as our Army's structure has changed. The reorganized Army has less in which to execute more. To compensate, the Army must make the most of Firefinder, one of its premiere combat multipliers.

Based on challenges in Bosnia-Herzegovina during Operation Joint Endeavor and feedback from the combat training centers (CTCs), two problem areas are apparent in radar operations. First, some targeting technicians assigned as radar section leaders aren't proficient in troop leading procedures (TLP). The radar section leader's execution of those procedures and involvement as a key planner and leader during the tactical decision-making (orders) process is critical to successful radar employment and, ultimately, responsive counterfire. Second, we need to improve skills in reconnaissance, selection and occupation of radar positions (RSOP)—critical to employing the radar.

Radar units need additional training in these areas. One reason is because home-station training tends to be predominately on friendly fire missions. This mode of training calls only for degraded combat leadership skills and doesn't teach the tactical decision-making process to our junior warrant officers. In addition, occupying known radar sites and tracking friendly unit fire missions doesn't challenge Redlegs to find the best site and select the radar position (based on the radar's operational parameters) or implement survivability measures.

Our radar manuals have tactics, techniques and procedure (TTP) holes. Although the new *FM 6-121 Field Artillery Target Acquisition* to be fielded this summer includes TLP, the manual has very little TTP for RSOP. Each site is unique and presents unique prob-



In Bosnia a soldier pulls maintenance on the Q-36 antenna trailer group (ATG). (Photo by SGT Nicole Smith, 135th PAD, Steel Castle Base, Bosnia)

lems—problems our radar section leaders need to learn to solve in training, not in combat.

Radar Section Leader TLP

The new FM 6-121 includes TLP taken from *FM 71-123 Tactics and Techniques for Combined Arms Heavy Forces: Armored Brigades, Battalions/Task Forces and Company/Team* that has been modified for a radar section. (See Figure 1.)

The TLP in Figure 1 serves as a general guide for developing unit-specific radar section troop leading procedures. Each division should have standardized radar section TLP based on its mission, enemy, terrain, troops and time available (METT-T). For example, the steps may happen simultaneously instead of se-

quentially, as METT-T dictates. Units can modify the procedures for their missions and then test and refine them before including them in their standing operating procedures (SOPs).

The ability to develop and issue clear warning orders, develop time lines, conduct pre-combat checks and inspections and determine priorities of work are key to the success of any mission. The radar employment plan and section preparation time line must be integrated and synchronized with the scheme of maneuver. The S3, along with the brigade fire support officer (FSO) or division artillery counterfire officer, must ensure the radar's movement plan and the planned radar zones are included on both the fire support execution matrix (FSEM) and the artillery battalion's execution matrix—the decision support template (DST).

The radar section leader should receive the same information and products a battery commander receives at the Field Artillery support plan (FASP) briefing.

The radar section leader then will have what he needs to refine the initial section order developed during the mission's analysis, course-of-action (COA) development and war-gaming. He must be a key planner and troop leader during the entire tactical decision-making process. In addition, a precise, concise section order increases the team's ability to maximize the radar for the specific mission and encourages initiative at all levels.

Troop leading procedures focus the section's planning, preparation and execution of the radar employment plan. If done correctly, the threat will be clearly identified to the section that also understands the mission, knows who has what responsibilities and knows the time each has to carry out those responsibilities.

Part of those responsibilities is to conduct RSOP.

Radar RSOP

Performance and feedback indicate that too many radar section leaders and their leaders don't understand technical radar site parameters and RSOP require-

ments. If a firing battery commander or platoon leader executed poor RSOP procedures resulting in improper positioning of a firing element, their leaders have the knowledge to identify the problem immediately and teach the Redleg the correct procedures. In contrast, some

of our radar section leaders are failing in this critical area, and we look to other resources and improved technologies to solve the problem.

At Fort Sill, Oklahoma, the Radar Branch of the Field Artillery School is reviewing how this critical warfighting task is trained and testing improved technologies for fielding now and integration into future systems. But the immediate fix rests in a combination of technology and improved training. The radar RSOP TTP outlined in this article will help units fix problems in radar site selection.

Radar site selection begins as soon as the supported unit receives the mission. At this time (mission analysis), the radar section leader must be an active member of the planning process and help identify the radar position areas required to support the developing COAs. As the staff is considering the METT-T factors for employing FA assets, the radar section leader must carefully analyze *technical* and *tactical* requirements for radar positioning. Once a sufficient number of position areas are identified, the direct support (DS) battalion S2 or counterfire officer, along with the radar section leader, must select the best position areas for the COAs during the war-gaming process. Figure 2 on Page 36 shows some technical and tactical factors to consider.

This process generates a prioritized list of position areas from which triggers for radar movement can be developed. Together, these form the positioning plan the radar section leader uses to plan and execute his reconnaissance operations.

The majority of the map reconnaissance requirements should have been completed as a result of COA development and war gaming. The minimum map reconnaissance information must include an analysis of the terrain for technical requirements, routes of approach, selection of landmarks to aid navigation and all known threat data that could affect reconnaissance.

A ground reconnaissance is then conducted to confirm the map reconnaissance, sweep the area and select sites that meet both technical and tactical requirements to support the mission. To ensure a successful ground reconnaissance, the radar section leader must organize and time his reconnaissance effort to meet his supported unit's time line of critical events.

There are four key steps in ground reconnaissance: select multiple sites in

1. **Receive the mission (RDO, SITTEMP, operations graphics and FSEM).**
 - Perform mission analysis/assess the threat (S2, Radar Section Leader and Radar Section Chief).
 - Review critical tasks, positioning guidance and planned zones (S2, Radar Section Leader and Radar Section Chief).
 - Prioritize PCC/PCIs (Radar Section Leader and Radar Section Chief).
 - Make a time line (Radar Section Leader and Radar Section Chief).
2. **Issue a concise warning order to your section (Radar Section Leader). Include—**
 - Section's Mission
 - Positioning Guidance
 - Threat and Countermeasures/Immediate Action Statuses
 - PCC/PCI Priorities
 - Priorities of Work
 - Time Line
3. **Make a tentative plan (Radar Section Leader, Radar Section Chief and Senior Radar Operator). Take into consideration—**
 - METT-T
 - Logistical Resupply
 - Survivability Measures
 - Section Rehearsals, (Site Occupations/Displacements, Defense, etc.)
4. **Initiate movement (Radar Section Leader and Radar Section Chief).**
 - Conduct PCC/PCIs.
 - Conduct rehearsals.
 - Issue movement order and perform risk assessment.
5. **Conduct reconnaissance (Radar Section Leader).**
 - Select sites to support mission requirements.
 - Perform/coordinate for survey requirements.
 - Assess the site for survivability (MTF, site defend ability, etc.).
6. **Complete the plan (Radar Section Leader and Radar Section Chief).**
 - Report site assessments to DS FA battalion S2 or division artillery CFO.
 - Prepare a verbal order for the section.
 - Develop route strip maps and the preliminary site defense plan.
 - Develop battle tracking overlays for reconnaissance vehicle and shelter.
7. **Issue the order (Radar Section Leader). This should be a huddle—each player must understand his role.**
 - Focus on movement, positioning, site defense and survivability measures.
 - Be clear and concise.
 - Require a back brief from the section chief and senior radar operators.
 - Ensure adjacent unit coordination for security and medical support is conducted.
8. **Supervise (Radar Section Leader).**
 - Conduct final PCIs.
 - Conduct crew drill rehearsals for occupations, site defense, shelter configuration, NBC operations and hasty medical care and treatment.
 - Execute.

Legend:

CFO = Counterfire Officer
DS = Direct Support
FSEM = Fire Support Execution Matrix
METT-T = Mission, Enemy, Terrain, Troops
and Time Available
MTF = Manual Terrain Following

NBC = Nuclear, Biological and
Chemical
PCC = Pre-Combat Checks
PCIs = Pre-Combat Inspections
RDO = Radar Deployment Order
SITTEMP = Situational Template

Figure 1: Guidelines for Radar Section Troop Leading Procedures. Based on METT-T, each division should standardize its radar section troop leading procedures and include them in its standing operating procedures (SOP). The products listed in this guideline can be altered to fit the individual unit's mission.

1. **Enemy Electronic and Signals Intelligence (ELINT/SIGINT) Capabilities**
2. **Survivability Measures (Adjacent Friendly Units, Casualty Collection Points, Decontamination and Counter ELINT/SIGINT Procedures, etc.)**
3. **Terrain (Slope, Severely Restrictive/Restrictive, Screening Crest, Tunneling, Back Drop) and Weather Effects**
4. **Critical Times and Events the Radar is in Position to Support the Scheme of Maneuver**
5. **Integration of the Radar Positioning and Sector of Search into the Divisional (or Higher) Headquarters TA Coverage Plan**

Figure 2: Technical and Tactical Radar Positioning Considerations. These are the RSOP factors the S2 (or counterfire officer) and the radar section leader must consider to position the radar most effectively for a course-of-action.

each area, measure the screening crest with an aiming circle, use a compass to determine masking problems in search sectors and develop a complete battle-tracking map.

1. Select multiple sites within a position area. By picking multiple sites, the radar section leader builds flexibility into his battle plan. Multiple sites allow the section to quickly maneuver into a viable position and limit the time required to move and occupy a position.

2. Measure the screening crest with an aiming circle. The aiming circle measures the screening crest (manual terrain-following) and identifies a potential site's blind spots. (See "Firefinder Mask Considerations" on Page F-1 of FM 6-121.) In addition, this manual terrain-following information should be loaded into the radar during initialization to supplement the radar's selection of a mask angle. (See "Manual Terrain-Following Mask Angles" on Page 2-246 of *TM 11-5840-378-10 Operator's Manual for Radar Sets AN/TPQ-36(V) and AN/TPQ-38(V)5.*)

3. Use a compass for hasty elimination of sites with masking problems in planned search sectors. The compass can quickly eliminate sites that pose obvious masking problems. The radar section leader simply stands in the proposed location of the radar antenna trailer group (ATG), faces toward the selected primary azimuth and moves to the right and left limits. Obvious masking problems should be apparent immediately, eliminating a site and allowing the radar section leader to move on to a new location.

4. Develop a complete battle-tracking map to ensure routes and positions match the scheme of maneuver. This map is a crucial component of site selection and invaluable in the cyclic site selection process required to keep a radar in the fight. Enemy information—avenues of approach, chemical strikes,

family of scatterable mines (FASCAM) and obstacles—are posted and updated on this map. Additionally, the map reflects friendly information, such as casualty collection points, aid stations, decontamination routes, etc. Finally, selected radar position areas with friendly adjacent units (all units, not just artillery) and terrain restrictions are posted on the map to facilitate the ground reconnaissance. Armed with this information, the radar section leader can select initial and subsequent radar positions that best support the operation.

These four steps help the radar section leader optimize tunneling, screening crests and other site technical parameters to reduce the radar's generation of false or unwanted target acquisitions. A properly selected radar site combined with situational awareness—awareness of such things as helicopters flying through the search sector, ricocheting tank rounds and shrapnel from explosions—enables the radar section and target production section (TPS) or DS battalion S2 to identify as false any of the remaining reported targets.

Once site selection is complete, the radar section leader reports an assessment of the site to the controlling tactical operations center (TOC). He assesses survivability factors (tunneling, screening crest, defendability, trafficability, etc.) so the TOC staff can plan movement triggers and evaluate risk versus mission requirements in issuing the radar section movement instructions.

At this point, the radar section focuses on occupying the site. The radar section leader issues a movement order and organizes his section to support the order and site occupation. A planned occupation or series of occupations must be tailored to mission requirements and the identified threat. Offensive operations requiring rapid and multiple moves require different load plans and occupation crew drills than defensive opera-

tions. The radar section leader must clearly articulate to the section the differences during movement and warning orders and rehearse procedures to ensure successful occupations.

The involvement of the radar section leader during the supported unit's tactical decision-making process and corresponding rehearsals is critical to the radar's integration into the scheme of maneuver. Each fire support coordinator (FSCOORD) or S3 should have the radar section leader back brief his positioning and movement plan at the earliest opportunity. This back brief should be similar to a battery commander's briefing to the FSCOORD once the FASP is issued.

This ensures the radar section leader understands his critical events and triggers and has planned, rehearsed and performed reconnaissance in preparation for the battle. This also allows the senior Field Artilleryman an opportunity to mentor his junior leader and improve the radar section leader's warfighting skills.

The commander, S3, S2, counterfire officer and radar section leader all play vital roles in radar employment. Accordingly, the commander must ensure home station training prepares the battle staff, radar section and its radar section leader for success on the battlefield. Radar sections should drill on RSOP in varying terrain and conditions, preparing them to maximize their radars for any mission.

The Field Artillery community must take every opportunity to integrate the targeting technician into all phases of the planning, preparation and execution of the mission. For, the Field Artillery targeting technician assigned as the radar section leader is exactly that, a *leader*.



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