'New' Fundamentals Remain Fundamental:
Preparing Leaders and Units in Contested Electromagnetic Environments

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A brigade tactical group (BTG) is preparing to conduct a counterattack to regain lost territory while serving as the division tactical group's (DTG) reserve. The DTG had lost key terrain and was vertically enveloped by elements of a U.S. airborne division. The reserve BTG's attack aims to stop the U.S. advance and allow the DTG to regain the initiative. The BTG commander designates two battalion detachments (BDETs) as assault forces and aligns capabilities at echelon to support these subordinate commanders. The lead assault force commander needs to penetrate elements of a U.S. brigade which seized key road intersections north of a U.S. objective. The lead BDET assault force commander plans, as part of his obscuration plan, to employ both smoke and jamming capabilities. With this equipment, they can jam frequency modulation (FM) radios, locate command and control (C2) nodes, and spoof signals, all aimed at confusing the defenders and facilitating the breach. These enablers can disrupt mission command and allow C2 nodes to be targeted throughout the defense.

The assault force commander understands that the smoke may blind the defending force, but even if they can see, the defenders are effectively blind if they cannot communicate amongst themselves. The elements from the U.S. brigade remain precariously exposed until the trail armored units can complete their seizure and maneuver forward to reinforce them. The internal dispersion and distance from their higher headquarters leave these light infantry forces particularly vulnerable. The assault force commander effectively leverages his own strengths while maintaining his tempo. He cannot permanently conduct these jamming operations as the different equipment creates its own signature that the defending force can detect and target, but if employed at the correct time and place, the assault force's decisive operation can seize the initiative.

Leader's Responsibilities

"REC's [radio electronic combat's] most salient feature was its emphasis on integration, entailing the simultaneous combination of multiple protective and disruptive means into a 'greater than the sum of its parts' whole, in support of the ground scheme of maneuver. In time, American doctrines would appropriate REC's integrating precept, and it remains today a definitional feature of information operations."
— COL Mark D. Vertuli and LTC Bradley S. Loudon[1]

Information connects leaders to their units and enables commanders to drive the operations process. Adversaries use electronic warfare (EW) capabilities to disrupt the operations process. This disruption creates a mental obscuration on the battlefield — the eyes can see and the brain can function, but the two remain disconnected. Leaders must rigorously enforce standards and apply our doctrine consistently; well-disciplined Soldiers who adjust to operating in accordance with doctrine will excel in any environment and overcome the difficulties associated with the EW threat.

The emergence of new technology and the resulting tactics, techniques, and procedures (TTPs) will improve formations over time, but current leaders should focus on fundamental skills already written into doctrine as they prepare their formations to act in a contested electromagnetic environment. The introduction of wireless communication during the interwar period — combined with armor, infantry, and fires — created the conditions for rapid maneuver. The ability to contest that communication threatens to undermine our ability to combine arms and maneuver. These concerns have existed since the first radios were installed in vehicles. "Information" is a part of the Army's elements of combat power because it underpins everything done in large-scale combat operations. Soldiers understand that good information drives good decisions and bad or late information costs lives. Leaders across the Army must understand this and prepare their units appropriately.

So, what can leaders do? They can ensure they have communication redundancy through both maintenance and training. Commanders can ensure their units are well trained to identify EW attacks and have a plan to react to this contestation. Key to this is a well-rehearsed primary, alternate, contingency, emergency (PACE) plan where individual vehicles, squads, and platoons acknowledge the contact and execute the appropriate battle drill. These drills take training and effort to gain proficiency. Additionally, commanders can ensure subordinates both speak in brevity and understand how to use signal flags. Commanders must practice mission command because only through mission orders and fighting products will subordinates be able to act when communications are jammed and decisions must be made. Leaders can train for this threat just as they would for any other action on contact. Commanders can train the ability to operate in a contested electromagnetic environment across the institutional, operational, and self-development domains. It can also be reinforced during command maintenance as well as sergeant's/leader's time training.

Maintenance

"Units train to maintain to keep personnel, equipment, and systems in the fight. Leaders ensure units conduct maintenance under all conditions to sustain effective combat power over time and significant distances."

— Field Manual (FM) 7-0, *Training*[2]

The best defense against an electronic warfare threat is a robust PACE plan, and leaders start building this capability in the motor pool. Leaders must take command maintenance seriously. A mechanized rifle company within an armored brigade combat team (ABCT) owns multiple FM radios, Joint Battle Command-Platforms (JBCPs), and high frequency (HF) radios. Signal flags can also be ordered. Leaders must ensure that all equipment is fully mission capable and routinely trained upon. A proper command maintenance discipline program involves more than just the vehicles; it involves maintaining the entire inventory of equipment.

A company commander should run weekly maintenance meetings. Leaders all the way down the chain of command should track the status of their equipment, including their communication equipment. Every sub-hand receipt holder and end user should understand what is full mission capable (FMC), what is not mission capable (NMC), and the status of the parts against the fault. This type of knowledge represents a formation that embraces command maintenance and is more likely to have a higher operational readiness rate. Leaders who handwave maintenance and formations that do not track their equipment at echelon are more likely to see everything break the first time they need to use them in the field or in a combat environment. The key to maintenance is engaged leaders and subordinates who take ownership of their equipment.

The S6 must fully participate in command maintenance including the battalion maintenance meetings. Operators conduct C2 systems maintenance, and the combat net radio shop verifies the faults and ensures the correct national stock number (NSN) is ordered against the faults. Regardless of formation type, always defaulting to runners as the alternate form of communication is wrong and favors the adversary. The S6's role is vital because Soldiers who feel like their maintenance efforts are for naught will stop over time. Additionally, the S6's equipment is vital for creating redundancy within the battalion's PACE plan. Those long hours in the motor pool are essential and will pay dividends when under contact.

Sergeant's/Leader's Time Training

"Sergeant's time training is standards-based, is performance-oriented, and supports unit mission-essential tasks and battle tasks. Mutual trust and confidence between Soldiers and their first line leaders are absolutely critical outcomes to sergeant's time training."

— FM 7-0[3]

Once a formation's Soldiers understand that their equipment works, they can properly train in the environment. The

A platoon leader in the 2nd Stryker Brigade Combat Team, 4th Infantry Division communicates over radio during an exercise at Fort Carson, CO, on 29 March 2022.

Photo by MAJ Jason Elmore

first question new commanders should ask their NCOs is: What is the difference between communications security (COMSEC) compromise and jamming? The two different situations result in two different battle drills. Yet many subordinate leaders do not know the difference. Commanders are the primary trainers within a formation, and it is imperative that commanders evaluate their formation's EW knowledge. Commanders can then empower their NCOs to train their individual Soldiers, crews, and small teams. Knowledge deficits undermine trust throughout the entire formation, and units can rectify this through thoroughly resourcing sergeant's/ leader's time training.

Leaders should reference doctrine as well as those subject matter experts within the brigade combat team. They should also read the applicable EW publications, specifically on offensive and defensive preparation. While leaders cannot be subject matter experts in everything, they should not be ignorant either. It is easy to recognize something is wrong with the radios, but leaders at all echelons must consider how the enemy can bring to bear the full spectrum of their equipment and capabilities.

Chapter 7 of Army Techniques Publication 3-12.3, *Electronic Warfare Techniques*, spells out the measures to take prior to a threat's EW employment in addition to how to identify and react to an active EW threat.[4] It also contains information on executing an EW jamming battle drill and more in-depth information on how higher subject matter experts can enable success. The threat can contest across the spectrum; intelligence preparation of the battlefield (IPB) enables a leader to determine when and where it will be employed. The S6 must build redundancy into the PACE plan.

Leaders must understand when and how the enemy is contesting them in an EW environment for them to effectively respond. The enemy can intrude, probe, pulse, and jam. Commanders and first sergeants must develop leader development programs that account for the different types of EW attacks. Radio wave theory is a fundamental skill that units can routinely train on. Leaders can reach out to the staff EW officers and NCOs early in the training progression and combine their knowledge with what information already exists in references like the Ranger Handbook. Leaders can train the rest of the formation on how to tell if radios are just having issues or are actively being jammed. Combine this with a maintenance program where Soldiers and leaders learn how to properly maintain their equipment, as discussed earlier.

Are your Soldiers following the technical manuals when it comes to encrypting all of the assigned communication? Do they understand the associated tasks? Are leaders across the formation trained on the specified tasks from their applicable Soldier training publication? Leaders need to ensure they are building Soldiers capable of operating in these environments and that is possible by training them to the standard spelled out in doctrine.

> **A well-trained unit with a current SOP, built in conjunction with the EW experts, can quickly respond and act against the threat. The time gained is time the enemy hoped to use to their advantage.**

Standard Operating Procedures (SOPs)

"Shared understanding of the situation, along with the flow of information to the lowest possible level, forms the basis for unity of effort and subordinates' initiative. Effective decentralized execution is not possible without shared understanding."

— **Army Doctrine Publication (ADP) 6-0**, *Mission Command: Command and Control of Army Forces*[5]

Leaders must invest the time to build, refine, and distribute standard operating procedures. An SOP, at echelon, should include cards dedicated to the electronic warfare environment. Multiple doctrinal references encourage units to build SOPs. These cards can cover those tasks trained as part of the leader development time, TTPs for troubleshooting equipment, proper encryption steps, and associated battle drills. An SOP creates shared understanding, meaning anyone within the formation can reference it. SOPs also enable subordinates because they understand the commander's intent and can act. Subordinates no longer have to wait around to guess at their actions. Units being jammed along the FM band can immediately start acting because they understand what the battle drill is.

SOPs buy units time, free leaders up, and minimize confusion. Even the best-trained formations cannot be expected to remember everything at once. A well-trained unit with a current SOP, built in conjunction with the EW experts, can quickly respond and act against the threat. The time gained is time the enemy hoped to use to their advantage. A unit without solid SOPs is more likely going to need leaders at echelon to step in and make decisions because subordinates are not trained or enabled through their SOPs. These leaders are now not doing their job but managing their subordinates' jobs. The second and third order effects mean leaders at echelon will degrade their ability to enable and think of the next fight.

Training Events

"A standard is the proficiency required to accomplish the task under a specific set of conditions that reflect the dynamic complexities of operational environments to include cyber, electronic warfare, and hybrid threats."

— **FM 7-0**[6]

Leaders should enforce the principles of training at all times. They should build the dynamic and complex environment outlined and built in a contested EW environ-

ment throughout their training progression for both mission command nodes and subordinate units. This can be as easy as turning off radios or JBCPs at certain key times, forcing subordinates to react. These conditions force leaders to use mission orders and provide clear intent to their subordinates. Radio transmissions should not be long extended messages that do nothing but allow the enemy to triangulate positions. A well-synchronized plan can be fought with short burst transmissions on the proper power settings using a synchronization matrix and pro-words.

This forces units to validate or update their SOPs. Squad leaders who cannot reach their platoon leader need to understand both how to troubleshoot their radios and when to send a runner. A mission command node's Soldiers need proper training on all systems so when the primary option is blocked, they can seamlessly start reporting on the alternate or contingent option. Leaders should ensure we are using terrain to mask omnidirectional whenever possible and offset radios with cables from their platforms. Leaders must decide where to allocate dig assets because the enemy can and will conduct IPB as well to determine those ideal locations for C2 assets and aim to target them with indirect fires.

Mission Command

"There are few shortcuts to gaining the trust of others. Trust

Photo by Antonio Bedin

A 173rd Airborne Brigade Soldier assembles a single-channel ground and airborne radio system during training in Italy on 5 April 2022.

is given by leaders and subordinates, and [it is] built over time based on common shared experiences. It is the result of upholding the Army values, exercising leadership consistent with Army leadership principles, and most effectively instilled by the leader's personal example."

— ADP 6-0[7]

Mission command involves six mutually supporting principles: build cohesive teams through mutual trust, create shared understanding, provide a clear commander's intent, exercise disciplined initiative, use mission orders, and accept prudent risk. Mission command is woven throughout this article because it underpins everything leaders should be doing to prepare their subordinates for this environment.

Cohesive teams have outstanding SOPs, are knowledgeable on their equipment, and are built in both the motor pool and the training area. Trust is a two-way street and is reinforced constantly. The mental obscuration originally described at the beginning of this article can be alleviated with empowered subordinates whose leaders trust them to act within their intent when they cannot be reached. The enemy may disconnect leaders from their subordinates, but the enemy did not stop the ability for decisions to happen. The principles of mission command reinforced constantly will ensure units will survive and win in all environments.

This is only possible through maintenance, SOPs, development, and rigorous training. Leaders have everything they need to prepare their Soldiers for a contested EW environment. It is woven throughout our doctrine; leaders should enforce the systems and train their Soldiers properly.

Notes

[1] COL Mark D. Vertuli and LTC Bradley S. Loudon, eds., *Perceptions are Reality: Historical Case Studies of Information Operations in Large-Scale Combat Operations* (Fort Leavenworth, KS: Army University Press, 2018), 6.

[2] Field Manual (FM) 7-0, *Training*, June 2021, paragraph 1-13.

[3] Ibid, paragraph 4-28.

[4] Army Techniques Publication (ATP) 3-12.3, *Electronic Warfare Techniques*, July 2019, Chapters 6 and 7.

[5] Army Doctrine Publication (ADP) 6-0, *Mission Command: Command and Control of Army Forces*, July 2019, paragraph 1-36.

[6] FM 7-0, paragraph 1-10.

[7] ADP 6-0, paragraph 1-30.

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