HANDBOOK

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JOINT READINESS TRAINING CENTER

HEAVY TEAM HANDBOOK: INTEGRATION WITH THE LIGHT BRIGADE COMBAT TEAM

CENTER FOR ARMY LESSONS LEARNED (CALL)
U.S. ARMY TRAINING AND DOCTRINE COMMAND (TRADOC)
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FOREWORD

Integration, coordination, and synchronization of diverse Battlefield Operating Systems (BOS) challenge every unit and every leader, whether they are at a Combat Training Center or in combat.

In 1998 CALL published **CALL Newsletter No. 98-10,** ***Fighting Light/Heavy in a Restricted Terrain.*** It was written from the perspective of a light brigade combat team reinforced with a heavy battalion. Typical rotations at JRTC add a heavy team consisting of both Abrams tanks and Bradley fighting vehicles. The 1998 newsletter does not reflect that reality nor does it examine the integration of heavy forces from the perspective of their team leader.

This handbook is intended to bridge that gap. It examines the heavy team's roles at the JRTC by phase. It also offers suggestions on planning, time management, and preparation for a rotation at the training center.

We also offer the lessons herein with an eye to the future as the Stryker Brigade Combat Team is fielded. Light/heavy integration, coordination, and synchronization will remain a challenge when it becomes an issue of light/medium forces working together.

MICHAEL A. HIEMSTRA
COL, FA
Director, Center for Army Lessons Learned

HEAVY TEAM HANDBOOK: INTEGRATION WITH THE LIGHT BRIGADE COMBAT TEAM

TABLE OF CONTENTS

	Page
INTRODUCTION	1
CHAPTER1: AN OVERVIEW OF JRTC ROTATIONS	3
JRTC FOR ARMOR MECH TEAM LEADERS AND THEIR MENTORS *by CPT Rich Rouleeau*	4
LEADERS MAKE THE DIFFERENCE *by CPT Andrew Poznick*	6
LIGHT/HEAVY INTEGRATION AT THE JOINT READINESS TRAINING CENTER *by SFC Paul E. Thompson, Jr.*	8
CHAPTER 2: AN OVERVIEW OF THE OPPOSING FORCES (OPFOR) AT JRTC	13
THE OPFOR AT JRTC *by the 1-509th Geronimos*	14
CHAPTER 3: THE HEAVY TEAM IN LOW-INTENSITY CONFLICT	37
ROUTE CLEARANCE IN LOW-INTENSITY CONFLICT - "A WAY" *by CPT Andrew Poznick*	38
ARMOR AND MECHANIZED INFANTRY OPERATIONS IN RESTRICTIVE TERRAIN *by CPT Rich Rouleau*	42
CHAPTER 4: THE SYNCHRONIZATION OF LIGHT/HEAVY FORCES IN MOUT	45
ARMOR AND MECHANIZED INFANTRY IN BUILT-UP AREAS *by CPT Rich Rouleau, SFC Wesley Wyatt, and SFC Martino Barcinas*	46
MOUNTAIN CAVALRY RECON IN BUILT-UP AREAS *by CPT Rich Rouleau*	56
BUSTING THE BARRICADES: HOW ARMOR WAS EMPLOYED IN THE URBAN BATTLE OF SEOUL *by CPT Matthew H. Fath*	60
CHAPTER 5: THE DEFENSE	67
THE DEFENSE AND THE HEAVY TEAM AT JRTC *by CPT Andrew Poznick*	67
CHAPTER 6: SPECIAL TOPICS	75
TIME MANAGEMENT AND SMALL UNIT LEADERSHIP *by CPT Andrew Poznick*	76
A TECHNIQUE FOR PREPARING THE M1 SERIES TANK FOR MOUT OPERATIONS *by SFC Carl A. Pope*	78
LNOs AND THE HEAVY TEAM *by MAJ James Anibal*	80
THE HEAVY TEAM COMPANY COMMAND POST *by CPT Andrew Poznick*	85
APPENDIX A: ARMOR INTEGRATION IN URBAN OPERATIONS	87
APPENDIX B: URBAN OPERATIONS: A GUIDE	97
APPENDIX C: HEAVY COMMAND POST CHARTS	105
APPENDIX D: WEAPONS SYSTEMS AND AMMUNITION SELECTION	133

Center for Army Lessons Learned

Director	*Colonel Michael A. Hiemstra*
Managing Editor	*Dr. Lon Seglie*
Project Managers	*Mr. George Mordica* *Mr. Tom Odom, JRTC*
Editor plus Layout and Design	*Mrs. Jenny Solon*
Labels and Distribution	*Mrs. Mary Lee Wagner*

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INTRODUCTION

Heavy + Light = Stryker Brigade Combat Team (SBCT)

The heavy forces eyed their objective, a rising slope that dominated the low ground between them and the enemy infantry. The attacking commander saw that he would have to attack uphill, hemmed in by swamps on his right and dense woods to his left. The wandering shallow stream in front of his forces would delay him, but once across he knew the open ground was in his favor. He was singularly confident that his shock forces could break the flimsy defense at the top of the ridge and scatter the defenders. He expected that his own infantry would mop up behind him and protect his flanks. He considered prepping the objective with fire support, but discarded the idea as unnecessary. The defenders had either gone to ground or were in a reverse slope posture. Why waste the rounds?

Once across, the heavy forces reformed to charge the defenses. As they did so, the enemy reoccupied their positions on the forward slope and began harassing fires. Still the attackers formed confidently as they had done so many times in the past. And they charged with equal confidence.

The initial speed of their attack soon outstripped the following infantry and made their own fire support lethal. The clear slope they had viewed from across the stream held waiting traps that either stopped them or forced them into fire sacs. Slowed and finally stopped, the attackers were swarmed by the defending infantry. The attack ended in disaster.

The place was Bannockburn, Scotland. The date June 24, 1314. The heavy forces were the heavy knights of the English. Their fire support – deadly for its time – were the English long bowmen. Out of position and poorly directed, the English archers played a large role in stopping their own attack. The Scots used the soft terrain to channel the knights into closely packed hedgerows where defending infantry had the advantage. Led by Robert the Bruce, the Scots had defeated the forces of their arch enemy, Edward II of England. His army lost 15,000 men, many from his heavy cavalry. Overconfidence can be deadly!

Integrating heavy and light forces and synchronizing their combat power is hardly a new idea. Ancient armies were composed of heavy cavalry, light cavalry, heavy infantry, and light infantry. All served on the same battlefields with the same aim: combining strengths inherent in their force designs to defeat the enemy. As the enemy changed, so did the mix of forces arrayed against him. And as weapons, threats, and strategic environments evolved, so did the force structures of the armies of old.

The same evolutionary pattern remains true today. The U.S. Army is in a critical stage of transformation. The heavy forces of the Cold War are too heavy for the strategic environment. The light forces of the same era are too light for emerging threats. The Stryker Brigade Combat Team (SBCT) seeks to fill the immediate need for a deployable medium force until a more modern Objective Force can be developed.

That said, the doctrine, tactics, techniques, and procedures that emerge to support the SBCT, and ultimately the Objective Force, will draw heavily on the Army's current abilities to integrate heavy and light forces in combat operations. Bluntly stated, we are not where we need to be in heavy-light operations. Trends at the Joint Readiness Training Center (JRTC) for the past decade document that maneuver commanders – both heavy and light – do not understand their counterpart's capabilities. Therefore, those commanders are unable to effectively integrate heavy and light forces.

The U.S. Army has used a mix of forces in the past and has done so very effectively. Unfortunately, that success has often been bought at great expense. In 1998, the Chief of Staff of the Army, General Dennis Reimer, directed that the armor and light infantry communities develop tactics, techniques and procedures (TTPs) for light

company commanders to use tanks. The Center for Army Lessons Learned (CALL) published the results of that effort as **CALL Newsletter No. 98-10,** ***Fighting Light/Heavy in a Restrictive Terrain.***

That newsletter remains quite useful, but unfortunately, units still experience difficulty in their rotations at JRTC. Part of the problem is that the newsletter speaks from an infantry perspective, offering the light commander TTPs on how to use tanks. It does not target the heavy team commander who comes to a JRTC rotation to support a light brigade combat team. This handbook is designed to help those heavy team leaders better prepare for heavy/light integration.

CHAPTER 1

An Overview of JRTC Rotations

This chapter provides an overview of the Joint Readiness Training Center (JRTC). The first article addresses the components of the training center, its mission, and the opportunities it offers to the heavy team leader willing to take on a challenge. The second article emphasizes how leadership at the small unit level is critical to success at the JRTC. It offers a capsule glance of a typical rotation and addresses common leadership failures in each phase. The third article is a reprint from the 1998 edition of ***Armor***, which focuses on light/heavy integration at the JRTC. A detailed overview of the training center and rotational trends are included, with convincing commentary on the future of the light/heavy integration with an eye towards the Stryker Brigade Combat Team.

JRTC for Armor Mech Team Leaders and their Mentors

by CPT Rich Rouleau, Heavy Team O/C, JRTC Ops Group

In an environment of combat teams, task forces, and expeditionary forces, understanding combined arms operations continues to challenge leaders in real world contingency missions and at the Joint Readiness Training Center (JRTC). The armor/mech teams, which normally train for the expanses of the National Training Center (NTC), arrive at the JRTC with little time to train with the combat team they will support, much less train on tasks in which they need to be proficient to meet operational requirements. The intent of this article is to briefly outline what the JRTC is and what it has to offer the armor/mech community.

Mission

The mission of the JRTC is to provide realistic joint and combined arms training that is focused on developing soldiers, leaders, and units of joint contingency forces for success on future battlefields. Units train under tough, realistic, combat-like conditions across a wide range of likely tactical operations and mission rehearsal exercises, capable of fully integrating into higher-level exercises and scenarios.

Organization

JRTC has several different divisions and sections within its organization (see box on page 5). The Plans/Exercise Maneuver Control (EMC) division is the first division rotational units have contact with, and that usually occurs at or about the D-270 mark from the start of the rotation. The mission of Plans/EMC is to develop, coordinate, execute, and supervise the advanced, collective training conducted during JRTC rotations to include joint, conventional, Ranger, and special operations forces. The planners integrate all battlefield operating systems (BOS) into every aspect of the rotation, while maintaining a realistic and positive training environment. The D-180 brief is the initial brief by Plans/EMC to the rotational unit. At that time Plans/EMC receives the unit's mission essential task list (METL) and training objectives, as well as the rotational commanding general's guidance for his subordinate units. This conference, along with a concept brief, interim program reviews (IPRs), and a laydown, allows JRTC to develop the rotation.

Environment

JRTC develops each rotation to be a unique training event. With observer/controllers (O/Cs) on the ground to coach, teach, and mentor, and Plans/EMC to plan, coordinate, and execute, rotational units face a real challenge; the learning curve is steep. JRTC offers the armor/mech team the ability to train and execute missions as part of a brigade combat team (BCT) during low- and mid-intensity conflicts in the offense and defense. Whether it is route clearance, MOUT, or defense of a battle position, the training environment for the armor/mech team in CONUS is definitely an opportunity for a team commander. The training center replicates conditions in a third world environment with an asymmetric threat. Reliance on air lines of communications for supplies and movement make it extremely challenging for the armor/mech team and the BCT. JRTC's assault airfields and C-17 aircraft give some on the team their first opportunity to prepare their vehicles for air movement into the theater of operations, a task that does not occur often. The addition of villages, role playing, and media on the battlefield contribute to an already stressful situation.

The JRTC Operations Group

The Operations Group is the executing agent for the Joint Readiness Training Center's rotations. The Operations Group is responsible for planning, executing, and observing and controlling each JRTC rotation. The Operations Group is organized into divisions consisting of:

- Brigade Command and Control
- Battalion Task Forces 1 and 2
- Fire Support
- Intelligence
- Aviation
- Combat Service and Support
- Special Operations Division
- Live Fire
- Plans/EMC
- CALL Cell

The Operations Group provides realistic training to refine doctrine and training focus for units, not only in the U.S. military services, but also four our Allied forces around the world. The main technique for doing this is the use of observer/controllers (O/Cs) and their after-action reviews (AARs).

O/Cs make the JRTC effective. The O/Cs have a duty to the training unit and the Army to observe unit performance, control engagements and operations, teach doctrine, coach to improve unit performance, monitor safety and conduct professional AARs. O/Cs are required to have successfully performed the duties of their counterpart. They constantly strive for personal and professional development, and are well versed in current doctrine and tactics, technques, and procedures.

AARs provide immediate feedback for each element, from platoon through BDE task force. AARs provide inpartial feedback that encourages interaction and discussion of unit strengths and weaknesses by all members of the unit. Every AAR orients on a specific mission and/or system, identifying good and bad trends, and provides the units the opportunity to determine not only what their weaknesses are, but also who is going to fix that weakness.

Live Fires

The JRTC offers a tremendous opportunity for live fires for the armor/mech team coming to JRTC. There are 11 live fires offered to the BCT, and at least 4 are within in the scope of the armor/mech team. The armor/mech live fire is specifically designed for an element of the armor/mech team, and O/Cs provide feedback on the operation. The remaining three live fires are combined arms live fires integrating engineers, light infantry, mechanized infantry, armor, and attack aviation.

Leaders Training Program (LTP)

LTP is another opportunity for armor/mech team integration in the light brigade combat team's rotation to the JRTC. It gives the team commander the opportunity to participate in the brigade's planning cycle for the mission.

Conclusion

The Joint Readiness Training Center offers the armor/mech team a unique training opportunity for heavy team leaders. Armor/mech battalion commanders must continue to support their subordinate unit commanders in their ability to train and prepare for their rotation. Resources must be allocated and every opportunity to train with the BCT must be available to allow success.

Leaders Make the Difference

by CPT Andrew Poznick, Heavy Team O/C, JRTC Ops Group

A rotation at the Joint Readiness Training Center (JRTC) is challenging for a light platoon leader; for an attached heavy platoon leader, the JRTC can be an unbroken whirl of disasters. A rotation has three phases. They may deviate, but in most rotations, Phase 1 is the *Insertion/Low Intensity Conflict (LIC)* phase, Phase 2 is the *Defense* phase, and Phase 3 is the *Military Operations in Urban Terrain (MOUT) Attack* phase. All three hold particular challenges not found at the National Training Center (NTC) for heavy units. Success in meeting those challenges rests on leadership, training, and materiel preparation.

Planning and Preparation

Armor/mech platoon leaders need to re-examine the essentials of leadership. They have a good understanding of the troop-leading procedures and the orders process, but they have a tendency to do everything themselves. This is the sign of an immature or an ill-trained platoon leader. It is also a strong indicator that the platoon sergeant is either not doing his job – training the lieutenant – or is being ignored. Rarely are the duties and responsibilities of individuals in the platoon clear during troop-leading procedures. Platoon leaders fail to use all the tools they have at hand, such as time, troops, intelligence, or sand table kits, which means that the planning and planning-related products are incomplete or missing. The platoon suffers as a result. Platoon leaders often fail to even complete a simple concept sketch much less brief an order off a sand table. Using these assets aids in visualizing the operation, a critical element in establishing a common understanding when presenting a FRAGO or OPORD.

As a result of that internal focus, platoon leaders often do not understand the big picture. Often attached or OPCON'd to battalions at the JRTC, platoon leaders receive missions and react to them in a vacuum. They do not understand the intent of the battalion commander in generating that mission and, as a result, often fail in their role for the battalion. All too often the platoon leaders do not know what is happening with the units to their left and right. That ignorance makes it almost impossible to forecast where or how they might be used. There are some things that can be done to alleviate this problem, a common one for attachments. The first relates to the platoon leader's role in the platoon's internal planning process. The platoon leader must have the time to fully understand his mission if he is to translate it into a workable platoon order. That means talking to the battalion commander and staff during the battalion military decision-making process (MDMP).

Once planning is complete, the platoon leader needs to stay inside that information circle. He cannot afford to sit back and wait for a FRAGO. One possible solution is for the platoon leader to "eavesdrop" on the nets of the light battalions and even the brigade net. The platoon leader should also listen in on the O&I net. The platoon leader who knows what is happening and is ready to respond is one that the battalion leadership will come to trust. Platoon leaders have to "sell" themselves and the capabilities of their platoon to the unit they support. If they do not, the platoon may be used improperly or not at all. More importantly, the platoon leader who keeps his situational awareness high is more likely to safeguard the lives of his men.

Low-Intensity Conflict (LIC) Phase

In the JRTC LIC phase, units routinely give the heavy team an initial mission of route clearance, with a follow-on mission of keeping the route clear. Platoon leaders often show a lack of training in this area. The platoons fail to organize their elements in a way that is conducive for clearance operations. Breach teams are not trained well enough to accomplish their mission in the event that engineer support is unavailable. Mechanized infantry platoon leaders lack the experience or knowledge necessary to use the assets typically attached to them in this phase. Mech platoon leaders are often given armor countermine equipment and/or an engineer section or squad.

The same holds true for the platoon leader's knowledge of mines and minefields. They may know where the minefields are, or may even have the minefields plotted on their maps, but they do not know how the minefields look. Often the platoon leaders expect to see wire in conjunction with the minefields and end up inside the minefield before they realize their error. The platoon leadership (the platoon leader, platoon sergeant, and all subordinate leaders) do not know the tactics, techniques, and procedures (TTPs) for clearing minefields once they find them, which means that platoons often halt at an obstacle for an extended period. That is the EXACT reason for an

obstacle: they are to slow, channel, or halt movement long enough to allow the enemy to bring the unit under effective fire. This should be imprinted on the platoon leader's mind, but all too often they fail to use or even think of *suppress, obscure, secure, reduce, and assault* (SOSRA). When stationary or at a checkpoint, platoons fail to do planned dismounted patrols. The mounted sections often do not know where the dismounted infantry are and cannot support them if needed. The commo plan is nonexistent and does not allow the dismounted elements to talk with the mounted elements. In summary, the heavy teams on JRTC rotations repeatedly show a combination of tactical planning ignorance and sloppy execution in route clearance operations.

Defense Phase

The same problems involving knowledge and experience carry over into the defense phase at JRTC. Platoon leaders may not know how to build engagement areas (EAs) to standard, but their platoon sergeants should have it memorized. Yet, when platoons are tasked to develop section or platoon EAs, they often fail to do so correctly. Platoon leaders fail to shape their EAs with obstacles and do not use terrain to their advantage. The terrain at the JRTC is quite different from that at NTC and presents different challenges that are often ignored by platoon leaders when planning their defense. The terrain at the JRTC is not conducive to platoonsized EAs. In some areas, the terrain is not conducive for section-sized EAs. The platoon leader needs to be able to develop individual EAs that tie into each other and accomplish the platoon mission.

The implied task here is that all track or tank commanders need to understand the process in developing an EA. One of those challenges is the security of lines. Platoons often fail to conduct security patrols, or even when they do, the patrols are not properly planned. This failure allows recon elements from the OPFOR to move through the sector undetected while developing an excellent picture of friendly forces in sector. Platoons also neglect their security against less conventional and more lethal attacks. Units fail to emplace M8 alarms in the defense, allowing no early warning in the event of a chemical attack. Plainly stated, the heavy platoons tend to show a lack of tactical expertise in establishing themselves in the defensive phase.

MOUT Attack Phase

Often the heavy team is ordered to conduct a breach in the MOUT attack. If organized properly and if the team is aggressive, then the breach is successful. If not, the breach can become a disaster. Once inside the city, the heavy team is forgotten and not used to support in the clearing and securing of the city. Considering the firepower and protection available in a heavy team, this failure is serious. The heavy team could be used to isolate the objective, or they could be used in conjunction with the light infantry elements to cover their movement and to provide suppressive fires. Communication between the heavy team and the light infantry forces is typically nonexistent. This lack of communication leads to chaos and does not allow for a concerted effort inside the city.

General

The teams coming to JRTC must prepare for combat. That means leadership, training, and materiel preparation. Platoons are not conducting thorough PCIs/PCCs, and arrive at JRTC without all their equipment or supplies. Power cables and battery adapters for the pluggers are often left behind. M8 alarms, 256 kits, and M8 or M9 paper are also forgotten. Headspace and timing gauges for the .50 cal are forgotten or missing. Armor platoons arrive without the basic knowledge of how to mount the roller, and have even less knowledge of how to employ it. Even basic soldier and team skills need work. Dismounted infantry squads are aggressive. This aggressiveness is a key to success, but the squads are poorly trained or execute the basic battle drills ineffectively.

Of all the problems evidenced at JRTC, leadership is the most serious, and not just leadership at the junior officer level. Senior leaders at the battalion and brigade level need to prepare their platoon leaders more for the rotation. Leaders of the supported units need to challenge and properly support the attached heavy units. And NCO leaders need to train themselves and their young officers in the challenges of operating as an attached unit in a JRTC rotation.

Light/Heavy Integration At the Joint Readiness Training Center

by Sergeant First Class Paul E. Thompson Jr.

PHOTO: Fort Polk PAO

"I see a whole lot of Albanias in the future; a whole lot of Haitis and Mogadishus. That's because of this globalization of information, globalization of population, birth and migration, a certain amount of expectation and fascination."[1]

Yes, we still have to be ready for our Desert Storm-type scenario, but in the next decade we are expecting more Haitis, Panamas, Somalias, and Bosnias than we are problems with Saddam. It is this type of contingency mission that armor soldiers must accomplish along with the Desert Storms.

The Joint Readiness Training Center (JRTC) specializes in low- to mid-intensity conflict of the type today's armored force will encounter during many deployments. JRTC's mission is to provide an advanced level of joint training for Army, Navy, Air Force, and Marine Corps contingency forces under tough, realistic conditions of low- to mid-intensity combat. It is also the premier light infantry training center in the world. This claim is proven by the number of countries who send observers to JRTC in order to set up their own training centers replicating the battlefield realism and effective observer controller coverage demonstrated at JRTC. However, many people, Armor soldiers included, don't know that there is a heavy team attached to the light brigade task force executing a JRTC rotation. The heavy team usually consists of a balanced company/team of two M1 platoons and two Bradley platoons led by either a tank or a mechanized infantry company commander. Occasionally, there is a heavy cavalry troop with a standard mix of tanks and Bradleys, maintenance support, logistical support, and 120mm mortars.

At JRTC, rotations include a light brigade task force consisting of two light, airborne, or air assault infantry battalions, one CPX battalion, a field artillery battalion, aviation task force, one forward support battalion, and one heavy team. The OPFOR is from the 1/509th Airborne Infantry Battalion, which includes three infantry companies and a cavalry troop augmented by the 2nd Armored Cavalry Regiment.

The OPFOR is a 24-hour-a-day, 360-degree type of enemy that gives no break to the BLUEFOR once they are "in the box." They are there in the morning, during the day, in the evening, and they are there all night. They are truly a worthy foe. There are also 11 MOUT villages and cities in the "box," along with three flight landing strips. Some of the MOUT sites are fully instrumented and provide the heavy team with full-scale, realistic training in urban combat. MOUT operations includes sites fitted with MILES on the outside of buildings and equipped for both live fire and force-on-force operations. Many buildings are equipped with cameras to provide film footage to integrate into the after-action reviews.

Battlefield realism is pervasive at JRTC. Actual Soviet Bloc helicopters are used. There is a Hind-D, a Hip, a Helix, and a Hoplite. Also present are UH-1Hs replicating those found in military forces throughout the world. An actual Soviet AN-2 Colt is used to insert enemy parachutists or to resupply enemy forces. Visually modified M551 Sheridans replicate T-62 tanks, VISMODs on HMMWVs replicate BRDMs and on M113s replicating BMPs. Fire markers place all indirect fire missions for both BLUEFOR and OPFOR. They also pro-

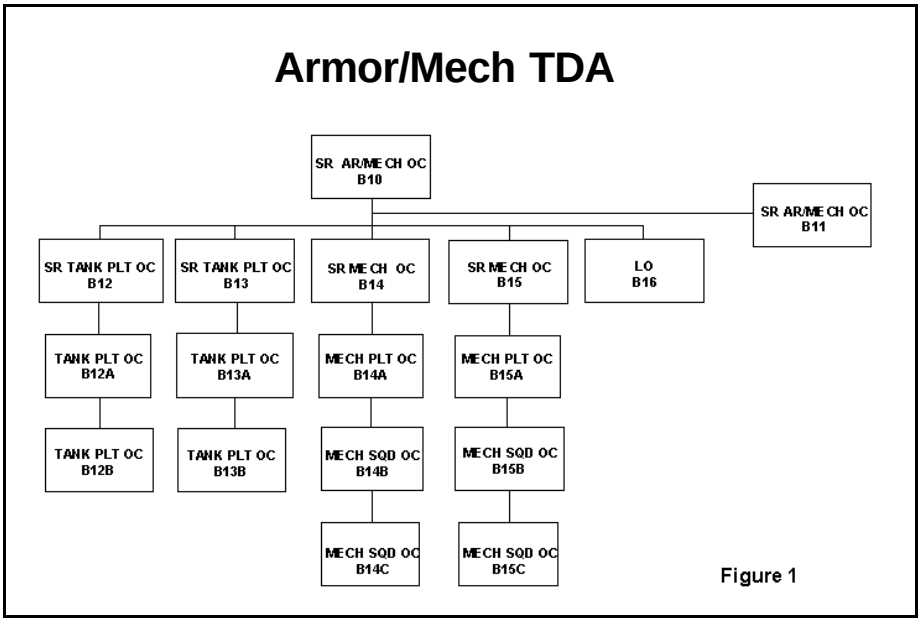


Figure 1

vide effects for minefields if a vehicle or soldier wanders into one. Secondary burns are set up to simulate vehicles or equipment burning. Terrorist bombs or rucksack bombs are a favorite tactic for the OPFOR. Simulated casualties must be evacuated through the CSS system, all the way to the deployed corps area support hospital if the injury requires that level of treatment. Civilians on the battlefield add their presence with village and city mayors, non-governmental organizations, host nation police, and host nation armed forces. Add battlefield clutter, civilian vehicles destroyed in minefields, and uncontrolled refugee traffic, and the result is a battlefield closely resembling the conditions the armor force will likely encounter in today's environment just about anywhere.

In order to be effective in such an environment, tanks and infantry must mesh. Unfortunately, our Army must re-learn this on a conflict-to-conflict basis. At JRTC, the armor/mech team package of observer controllers focuses on armor operations supporting light infantry operations in restrictive terrain. (A copy of the armor/mech team TDA is included in Figure 1.) It is readily apparent during rotations that tankers are not used to working with light infantry. The reverse is even more apparent, but we must learn to do so again, as we have in the past. Since the first British tanks crossed no-man's land at the Battle of the Somme in 1916, we've known that tanks without infantry support in restrictive terrain can lead to a disastrous situation. The reverse can also lead to disaster, as we found out the hard way in Somalia.

The following are some observations I offer to my fellow armor soldiers based on my tour as an observer controller:

Light/Heavy Integration Observations

Heavy force commander involvement in the planning process. A major or branch-qualified captain must accompany the company/team as a liaison officer/special staff officer to interface between the brigade commander and the company/team. The LNO and the commander are the brigade commander's "subject matter experts" on armor employment, capabilities, and limitations of the force. Many light infantry commanders and staffs possess only limited knowledge of the capabilities and limitations of armored forces. The LNO and the commander are there to answer those critical questions which are vital to a light brigade since the heavy team represents roughly a third of the brigade's combat power.

Insufficient time provided to the heavy force commander for rehearsals. As we are so often taught in the heavy community, the last of the troop-leading procedures is perhaps the most important. That is supervise, refine, and rehearse. Light infantry troops can conduct rehearsals and go. In tanks, we like to do as a minimum a walk-through, and also a mounted rehearsal, if possible, to work out any bugs. In the fluid and quick world of the light infantry, you may not have time for the mounted rehearsal. In fact, all you may have time for is a FRAGO over the radio.

Heavy teams not adapting well to restrictive terrain and the enemy dismounted threat. At Fort Polk, there are dense forests, low, marshy ground, and generally poor visibility. Not a perfect place for tanks, but we may have to deploy to a similar place in the future. Think about it. In WWII, the tankers that went before us fought in such imperfect places as Saipan, Okinawa, and the Philippines. Neither Korea nor Vietnam are ideal "tank country," either. Today's tankers are used to dealing with tanks as a threat and troops as a secondary target. How would it be to have to deal with troops as a primary target for the better part of a CTC rotation? Easy? Think again. It is not as easy as you might think, especially when the troops are laying mines, sniping at you, and basically taking every chance they can to disrupt your every routine. Local security without Bradley dismounts can be a real problem if you come here tank-pure.

An effective technique here is to hit the trees during the day so you will not be exposed to OPFOR air, dismounted observation, or the summer sun. At night, occupy an open area where it is easier to spot OPFOR dismounts with night vision devices and you have a better kill zone. Make full use of trip flares, OPs, and the TIS for early warning. The important thing is to move around and not get too comfortable in an AA where you can be targeted by OPFOR mortars or infiltration. Adjust your TIS by sending a dismount out in the woods during the day, adjusting it for brightness, contrast, and sensitivity, and marking those settings. Do the same at night and remember to place the TIS on the daylight settings for the day and the night settings at night. You can make adjustments to compensate for light levels, but just be aware there is a difference and the adjustments give you a starting point to observe enemy dismounts during day or night operations.

Teams not establishing OP/LPs. OP/LPs can earn big money for local security and early warning against a dismounted attack. This is where task organization with light infantry soldiers can be a big plus. If tankers spend all day and all night on their night vision, their performance will degrade in a few days to the point they will be just about useless. If you have infantry dismounts in an assembly area, put three men in a fighting position outside of the perimeter and put them at 33%. You can then go to 25% or 50% on the tanks and Brads, depending on the enemy situation. Use one fighting position during the day, then after dark, set up trip flares around that position and pull your OP/LPs closer to the perimeter. If your dismounts are discovered during the day, the OPFOR will have a surprise waiting for them at night. Just before daylight the next day, move back to your day hole, disarm the trip flares, and take up residence again if you are going to stay at the same place.

Deconfliction of SOPs prior to linkup. It is always nice to work off the same sheet of music. Many times armor and mech platoons deploy to JRTC never having worked together. The company team commander must determine the brigade's SOPs, (especially reports and reporting procedures) prior to linkup with the brigade and establish a common SOP for the company team. This should include reporting procedures as it seems that no two units in the U.S. Army have the same reports or reporting procedures. Of course, I am being facetious, but the statement is not so far from the truth that we can't all wryly smile at it.

Overtasking the heavy force because of its mobility. The heavy force can usually get anyplace on the battlefield in a very timely manner. Throw in a few minefields, snipers, and convoy escorts combined with a quick reaction force mission in support of a light infantry unit, and the heavy team is overwhelmed in a few days of continuous operations. The LNO and the commander must closely monitor the company/team and allocate time for rest and maintenance.

Tired soldiers can accomplish a mission, but exhausted soldiers become a menace to themselves and others. The heavy team can only handle so much.

Underestimating the amount of logistical support required to sustain the heavy force. Many light brigades have never worked with a heavy team and have little idea of the size of the logistic demands it can place on their supply system. The support platoon leader of the heavy team must provide accurate logistics estimates to the brigade. The entire light brigade will probably not use as much fuel in an entire rotation as the heavy team does in three days.

Battalion/brigade commanders and staff do not understand how to employ the heavy team in the attack or defense. Many times the heavy force is piecemealed into the attack or the defense. There are times when individual tanks are split from their platoons to do missions when OPCON to a light battalion or company. Tanks should NEVER be split down past section level. The tanks need each other for mutual support and security. Two tanks or Brads together should be the minimum slice traveling the battlefield. Mass is still critical to success; however, sometimes mass can be defined as a tank or Bradley section when facing dismounts.

Poor adjacent unit coordination. There is a real problem with adjacent unit coordination at JRTC. Light infantry units are always moving on the battlefield. We believe that there is a need for the heavy team to have a TOC for battletracking. They should get continuous updates from the brigade on unit movements, contacts, mine strikes, and upcoming operations. This way, when a platoon leader gets a mission, he can step into the TOC and get an updated situation from the TOC officer or NCO. This can help to reduce fratricide and continually running into minefields that have been re-seeded by the OPFOR.

LNOs not able to maintain 24-hour operations. A typical LNO team that comes to JRTC is an officer and his driver. We recommend a more robust LNO team that can execute 24-hour operations. This should include two officers (at least one field grade and one company grade), two NCOs, and one driver. An LNO from the FSB could be put to good use also, relieving the brigade LNO from chasing down parts and fuel. This is the minimum package needed for continuous operations. At least one M113 and one HMMWV should be included in the package. A good LNO team can iron out many details before they become problems. They participate in wargaming and targeting meetings. They can also assign the correct task and purpose by translating "Infantryese" into an armor mission. It is also helpful to have a field grade officer from the home battalion around to visit the crewman in the field.

Fratricide, inflicting and receiving. As tankers, we are used to engaging targets at long range and having some sort of a sense of lines on a battlefield. At JRTC, you cannot take this for granted. Correct target ID is important for vehicles and for dismounts. Armor forces have inflicted fratricide and been on the receiving end. Situational awareness and adjacent unit coordination are two main causes, but poor target ID is also a factor.

Inability to coordinate direct fires within a MOUT environment. On many occasions when M1s and Bradleys enter a MOUT environment they have an "unleash the hounds" mentality. This "shoot anything that moves" mindset may have been OK in the past, but many groups take a dim view of it today. Soldiers need to get used to working with tactical rules of engagement and, on the JRTC battlefield, they will be held accountable for willful collateral damage. There are civilians, churches, and schools in the MOUT environments here, and soldiers have to be careful with the shots they take and the type of ammunition that they use. As tankers, we are not used to treading lightly, but in a case involving innocent civilians we must tread a bit lighter in this environment. Fire discipline is critical. If you train at a training center to level a city, chances are you will do it in an actual situation.

Inability to execute combined arms breaching in restrictive terrain. Combined arms breaching is one of the critical tasks that will make or break a company/team. Using the mineroller to detect the leading edge of a minefield, the roller tank strikes or sights a possible minefield. He then backs off and provides overwatch with the rest of his section. The infantry goes out to the flanks under cover and the engineers go forward to breach. SOSR is that very important but little practiced set of breach fundamentals that stands for suppress, obscure, secure, and reduce the obstacle minefield. We are responsible for the first three in combined arms breaching, and the engineers take care of the last one. Unfortunately, at JRTC a lot of engineers are "killed" because we do not execute the first three properly.

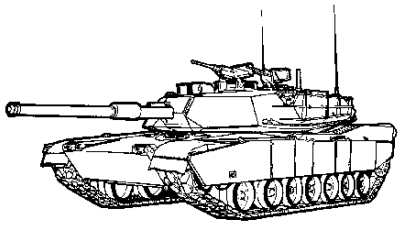
In the last 81 years, warriors in the armor and cavalry field have derived many good ideas. Unfortunately, as the lessons from Panama, Desert Storm, and Somalia get farther away in time many of the lessons from them fade into the history of the totally forgotten lessons from earlier wars. These are the very same lessons we continually learn and re-learn at the CTCs as shown below:

- When a minefield is cleared there is a good chance that there has been, or is, enemy activity in the area, and a better than even chance that the minefield will be re-seeded. After you've searched the area for mine caches, consider an ambush position around the old minefield to prevent the reseeding. Remote sensors can tell you if there is someone up to old tricks. If allowed by the rules of engagement, targeting the area with artillery or mortars might bag you a couple of bad guys.

- When traveling tank-pure in restrictive terrain, it is a good idea for wingmen to occasionally check each other out for enemy dismounts who try to at-

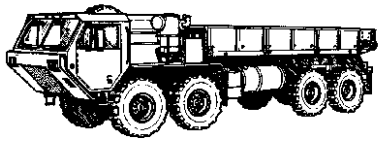
Proposed Unit Equipment Density

COMBAT VEHICLES:
M1A1: 10 each
M2A2: 8 each



SUPPORT VEHICLES:
M113A2 (ENG) 4 each
M2 BSFV: 2 each
MICLIC: 2 each
FISTV
CME: 2-Rollers/2-Plows

LOGISTICS VEHICLES:
M88A2 Recovery Vehicle: 2 each
M113A2 (MAINT): 2 each
M977 (Cargo): 4 each
M978 (Fueler): 4 each
HEMTT Wrecker: 1 each
M925A2 (5 ton) (DS)
M925A2 (5 ton) (Supply,
Tool, PLL, Mess, (EN) 6 each
M113A2 (Medic): 2 each



Proposed Unit Personnel Density

Heavy Team		
Company HQ	15	15
Mechanized Infantry Plt (x2)	64	64
Armor Platoon (x2)	32	32
Company FIST	0	8
Transportation Sec (-)	0	5
Tank Co III/V Squad	0	10
Food Service Section (-)	0	5
Maintenance Supply Section (-)	0	1
Recovery Section (-)	0	3
Maintenance/Service Section	0	6
Ambulance Squad	0	4
BFV Co Maintenance Tm	0	6
Tank Co Maintenance Tm (-)	0	6
FSB (DS) Maintenance Slice	0	10
FSB Transportation Support	0	12
ADA Section	0	13
MAX: 3xBSFV w/PL and 2 Stinger Tms		
LNO to Brigade TOC w/driver	0	6
LNO to BSA w/driver	0	6
Engineer Plt w/Equipment Sec	0	46
MAX: 2xACE; 2xAVLMs; 1xVOLCANO		
Heavy Team Total	**111**	**258**

Figure 3

tach themselves to the back decks and turrets in an attempt to destroy the tank with satchel charges or Molotov cocktails.

Your wingman will understand if you let him know over the radio that you are going to "scratch his back" with your coax.

This will take care of those pesky "growths," and your wingman will be no worse for the wear.

- Keep plenty of fragmentation grenades in your basic load for local protection. Tanks in Vietnam used this technique very effectively. Another similar technique was strapping Claymore mines to the outside armor of the tank with the clackers marked as to position inside the driver's compartment.

- Canister ammunition was very effective in all theaters of WWII, Korea, and Vietnam. With the amount of missions that have taken place in Third World countries in the last few years and the significant amount of dismount threat associated with them, it is good to hear there is a 120mm canister round in the works. HE also has a serious antipersonnel effect but it is nowhere near as effective as canister. Until the introduction of the new round, the Bradley 25 MM HEI-T is also very effective, with a killing burst radius of five meters.

- In Vietnam, we modified the M113, eventually giving birth to the Armored Cavalry Vehicle (ACAV). At first it came out with a .50 cal. machine gun. Later an armored shroud was added around the .50 cal. Later, two M60 7.62 MGs with armor plating on the mount were added as wing guns. A variation of the ACAV was used by the Vietnamese, and turned out to be very useful. Between 11 June and 30 September, 1962, which was soon after the Vietnamese fielded the M113, the original two companies killed 502 Viet Cong and took 184 prisoners at a cost to themselves of 4 dead and 9 wounded.[2]. With the loss of the Sheridan, there are rumblings across the armor community that the ACAV may be resurrected for use in the 82nd Airborne Division. Currently, M113s are equipped without armor shielding around the .50 cal. We learned it once. We should not have to learn it again.

- At Tarawa Atoll during WWII, only two out of six M4A2 tanks landed actually picked their way across a coral reef to shore.[3] Those two tanks played a major part in turning the tide of the battle on the western tip of the island. If armor vehicles will help save lives in any situation, then we should not hesitate to use them when we have to deploy our troops.

- When tanks were used during Vietnam as relief platoons (known currently as a quick reaction force (QRF)), the QRF force was used to relieve units under attack or who had been ambushed. It was a common practice for the relief platoons themselves to be ambushed by

the Viet Cong. Plan on it, because someone in the future will find the guts to try it. Air/ground coordination is useful in this situation, and many others, to scout the route and warn the QRF of any surprises. Air/ground coordination can be used for many situations in light/heavy integration. Most cavalry units we have seen are very good at it, and it is not a bad idea for all units.

- Fascines are devices that have been used to cross ditches since the time of the Roman legions. Most recently, they were employed in Operation Desert Storm by the British. They used huge bundles of PVC piping to fill in ditches for armored vehicles to cross. No, we currently have no way to move fascines, but if there are trees around you have the ability to build one by cutting them down and throwing them into the ditch until it is filled enough to cross. I have seen it used only once at JRTC, and the idea came from a corporal. Yes sir, NCOs can think also! (By the way, for the ecologically minded, the unit used already dead logs and limbs to fill in the ditch and did not cut down any live trees. It is against the EXROE to cut or knock down trees bigger than three inches.)

- When in a static position use chain link fence around an area to protect vehicles from RPG rounds. These RPG screens will pre-detonate the rounds before they reach the vehicle. There is still the danger of fragmentation, so other appropriate measures are also in order

- Use sandbags on top of vehicles to protect from top-attack weapons and attack air. Also use it in the floors and cab roofs of lightly skinned vehicles for mine protection and additional ballistic protection.

- In a fight against dismounted forces, one tank with an infantry platoon can be considered mass. However, splitting the armor below section level should be resisted at all costs. The armor platoon is designed to fight as a platoon. Section level should be the lowest level that tanks are employed. In Vietnam, it was not uncommon to have an armor company headquarters in one place with one platoon undergoing maintenance services. The other two platoons could be 50-100 miles away, supporting operations with the infantry or providing strongpoint defense on bridges or other such critical locations. In this situation, the headquarters supply sergeant always had slings prepared with a platoon basic load so that they could be quickly resupplied by air if they came into contact and depleted their basic load. Regular supplies had to either be sent from that base camp or begged from the infantry.

- In Vietnam the air cavalry units found the enemy, dismounted troops to fix the enemy, and then the armor was called in to finish them. Sounds like a good way to conduct search and attack.

- When going into an area with a heavy dismounted threat, load up on MG ammunition. If you have to go into the trees, machine guns can be useful for reconnaissance by fire, not to mention the snipers you may end up taking out. This should only be used if there is a known threat in the area, but it is better to waste ammunition than one of your men's lives.

- In Vietnam, armor and mech forces would circle the wagons at night and dig in to prepare for enemy attacks. By this time, in 1968, the enemy had learned to bypass armor forces. American forces countered this enemy tactic by blanketing an area with four-man ambush patrols. Since M113s had patrol routes they had to cover every night anyway, the ambush patrols were loaded on the M113s and, immediately after dark, would drop off the ambush patrols without stopping. This made it very difficult for the enemy to pinpoint ambush positions because the vehicles never stopped moving during their reconnaissance. If one of the patrols bit off a little too much for them to chew, the ACAVs and tanks could get there quickly as a reaction force. It made the enemy think twice about their infiltration and minelaying efforts.

- In the past, all soldiers learned to be infantrymen in basic training, and then went on to AIT to learn their individual job. Then in PNCOC or PLC, infantry skills were again stressed so that small unit leaders could hold their own if they had to pick up that rifle and use it. Today, basic training and PLDC do not teach enough of those skills. We need more of an emphasis on those basic skills. As evidenced in Bosnia and Macedonia, tankers may not always have their armored beasts around them. They need to be able to succeed on foot also. Yes, we have had tankers on foot patrols and in HMMWVs running around Bosnia. These are but a few lessons learned. There are plenty of old tankers and cavalrymen out there that could undoubtedly teach us more. If you have any comments, please forward them to:

Operations Group-Bde C2
Attn: Armor/Mech Team
7154 Alabama Ave.
Fort Polk, LA 71459-5313

E-mail at chevaljh@polk-emh2.army.mil

Light/heavy integration has been around for a long time, although not always called such. There is a light/heavy handbook coming out as a pocket help for commanders to do planning. Perhaps an FM may be in the offing to help us permanently establish doctrine that will carry us into the missions we will face in the next 10 years or so. Tankers, get ready for light/heavy integration, because it is not only coming, it is here. "No tank is to be surrendered or abandoned to the enemy. If you are left alone in the midst of the enemy, keep shooting. If your gun is disabled, use your pistols and squash the enemy with your tracks... in any case, remember that you are the first American tanks. You must establish the fact that American tanks do not surrender...." orders to the first American tankers from then Major George Patton as quoted in *Tank Aces*, by Ralph Zumbro (an old tanker whom I admire). With a combination of American tankers and American light infantrymen, you will have an unbeatable team.

A proposed unit equipment density is in Figure 2. In Figures 3, there is a list of possible company/team missions that may be encountered during a JRTC rotation.

Notes

[1]GEN John J. Sheehan,USMC.

[2]CMH Pub 90-17 Vietnam Studies: Mounted Combat in Vietnam, 1978.

[3]*Tank Aces,* Ralph Zumbro, January, 1997.

SFC Paul E. Thompson Jr. enlisted in the Army in 1976 as an Indirect Fire Infantryman. His assignments include 2-325 AIR, 82nd Airborne Division; 4-333 FA, 428th FA Brigade; 2-64 Armor, 3rd Infantry Division; Cincinnati Recruiting Battalion, Recruiting Command; and 4-67 Armor, 1st Armored Division. He is currently assigned as an Armor Platoon Observer Controller at the Joint Readiness Training Center at Fort Polk, Louisiana.

Chapter 2

An Overview of the Opposing Forces (OPFOR) at JRTC

If you want to succeed at the JRTC, you must first understand the nature of the Opposition Forces (OPFOR). This chapter offers two articles that look into OPFOR operations. Both were composed by the OPFOR. The first article is an overview of the 1st Battalion (ABN), 509th Infantry, including its mission, concept of the operation, and its organization. There is an analysis of major equipment and the roles that equipment plays "in the box" at the JRTC. The second article is written by a senior OPFOR NCO and describes in detail what makes the OPFOR so successful. After reading that article, repeat the following until it becomes a familiar mantra:

Well-Executed Basic Tactics to Kill BLUFOR = Commander's Intent!

GERONIMO!

The OPFOR at JRTC

by the 1-509th Geronimos

Mission

The 1st Battalion (ABN) 509th Infantry conducts combat operations as an opposing force to provide realistic, stressful, and challenging combat conditions for rotational units.

Concept of the Operations

The 1-509th provides a variety of opposing force units during training rotations at JRTC. (See slides on pages 19-20.)

Low-Intensity Phase

During the low-intensity phase of the rotations, the 1-509th fights as Cortinian Liberation Front (CLF) main force (guerrilla) units, Leesville Urban Group (LUG) terrorist cells, and special operations forces from the Atlantican People's Special Operations Command (PSOC). CLF guerrillas are well-armed, highly trained, uniformed forces seeking to "liberate" the local population from the Cortinian government.

Wearing civilian clothes, the LUGs establish operational cells among the population to target key personnel, equipment, or facilities. During the LIC phase, PSOC detachments insert by airborne assault or helicopter to train the CLF guerrillas, resupply the guerrillas, or conduct unilateral attacks on key systems on orders from the Atlantican government and military. Finally, during the LIC phase, the PDRA resupplies CLF units using either helicopters delivering mortar rounds, mines, missiles, and small arms ammunition to small secure LZs in the area, or AN-2 Colt-delivered bundle drops. (See slides on pages 21-25.)

Mid-Intensity Phase

When the rotation progresses to a mid-intensity fight, the 1-509th changes roles and fights as motorized infantry, mechanized infantry, tank forces, PSOC detachments, and terrorists. The PSOC detachments insert by airborne assault or helicopter into rear areas to disrupt support operations, while the terrorists continue to target other key systems. A majority of the battalion, often augmented by additional infantry as well as cavalry troops from 2nd ACR, will fight as a motorized infantry brigade (MIB). The MIB is often given the mission to attack and destroy the defending U.S. forces. The MIB may also have the mission of defending key terrain. During the mid-intensity phase, a variety of fixed wing and helicopters support the 1-509th, providing CAS and interdiction. The 509th also uses an extensive array of air defense weapons, including ZSU 23-4, SA-8s, and SA-9s. (See slides on pages 26-29.)

Military Operations in Urban Terrain (MOUT) Phase

After the completion of the mid-intensity phase, the 509th transitions to the MOUT phase, conducted at the Shugart-Gordon complex. It is a defense on three-dimensional terrain. Civilians on the battlefield are integrated into the scenario as human shields for sensitive areas, creating targeting dilemmas for the aggressor. Counter-recon, obstacles, indirect fire, and ADA assets are integrated and brought to bear upon the invasion force. (See slide on page 30.)

Ground Equipment

Tanks: The 1-509th's heaviest armored vehicle is the T-72. The T-72 can engage main gun targets out to two kilometers. Given the nature of the terrain, the tank crews are well trained in immediate action drills. They do not shy from close range fights; T-72s often engage enemy tanks within 300-500 meters. Mine plows and rollers can also be mounted on the front of the T-72 to clear enemy minefields. About one-third of the People's Democratic Republic of Atlantic's (PDRA's) T-72s have night-vision equipment.

T-72

Armored Cars: The V-150 armored car often supports reconnaissance missions with long-range communications. Its larger and younger sister, the V-300, provides communications and reconnaissance to battalion and brigade commanders in contact. The BRDM is a wheeled armored vehicle, which has a number of uses in the PDRA. Assigned to recon units, it provides transportation and long-range communications during their missions. In motorized infantry battalions, it is used to carry mortars.

V150

V300

BRDM

Personnel Carriers: The BMP provides troop transport for a squad of infantry and supporting fires with its organic heavy machine guns and anti-tank missiles. The BMP-1 has an organic 7.62mm MG, 14.5mm HMG, and AT-5, where as the BMP-2 has an organic 7.62mm MG, 30mm, and AT-7.

BMP

Aircraft

Fixed Wing: The AN-2 Colt provides combat support and combat service support, to include reconnaissance, airborne, or airland resupply, as well as airborne insertion of PSOC detachments. The crew consists of two pilots, and can accommodate eight passengers. The AN-2 is night-capable, but the cockpit is not adapted for night-vision goggle use.

AN-2

Rotary Wing: The UH-1 is the PDRA's primary aircraft for night operations. Many of the PDRA UH-1s are configured for NVGs, and their pilots are trained to fly under goggles at night. Primary uses of the UH-1 are night reconnaissance, resupply, and air insertion of PSOC detachments. It can be armed with two light machine guns mounted on each side.

UH-1

The MI-24 is the PDRA's most lethal attack helicopter. Because of its provocative nature, the MI-24 is generally not assigned to support the CLF. Instead, it is reserved to support MIB operations, both offensive and defensive. The MI-24 HIND provides fire support and accommodates eight armed troops. The crew consists of one pilot, one weapons operator, and one flight mechanic. The MI-24 is armed with rocket pods and a 12.7mm Gatling gun. (Note: Wheels down replicate the aircraft being destroyed. In the JRTC EXROE, when the MI-24's wheels are up (not visible), then it is alive and ready to attack. When it has been "killed," the pilot will lower its wheels so that ground troops can see them, and exit the maneuver area. Remember: Wheels up, shoot it! Wheels down, let it go.)

HIND

The MI-17 is another multi-role helicopter used to resupply CLF guerrillas or insert People's Special Operations Command (PSOC) detachments. It can also be very heavily armed with an extensive array of rockets, missiles, and guns. It is often used to air assault infantry forces to attack the point of penetration, reinforce units in contact, or disrupt counterattacks.

MI-17

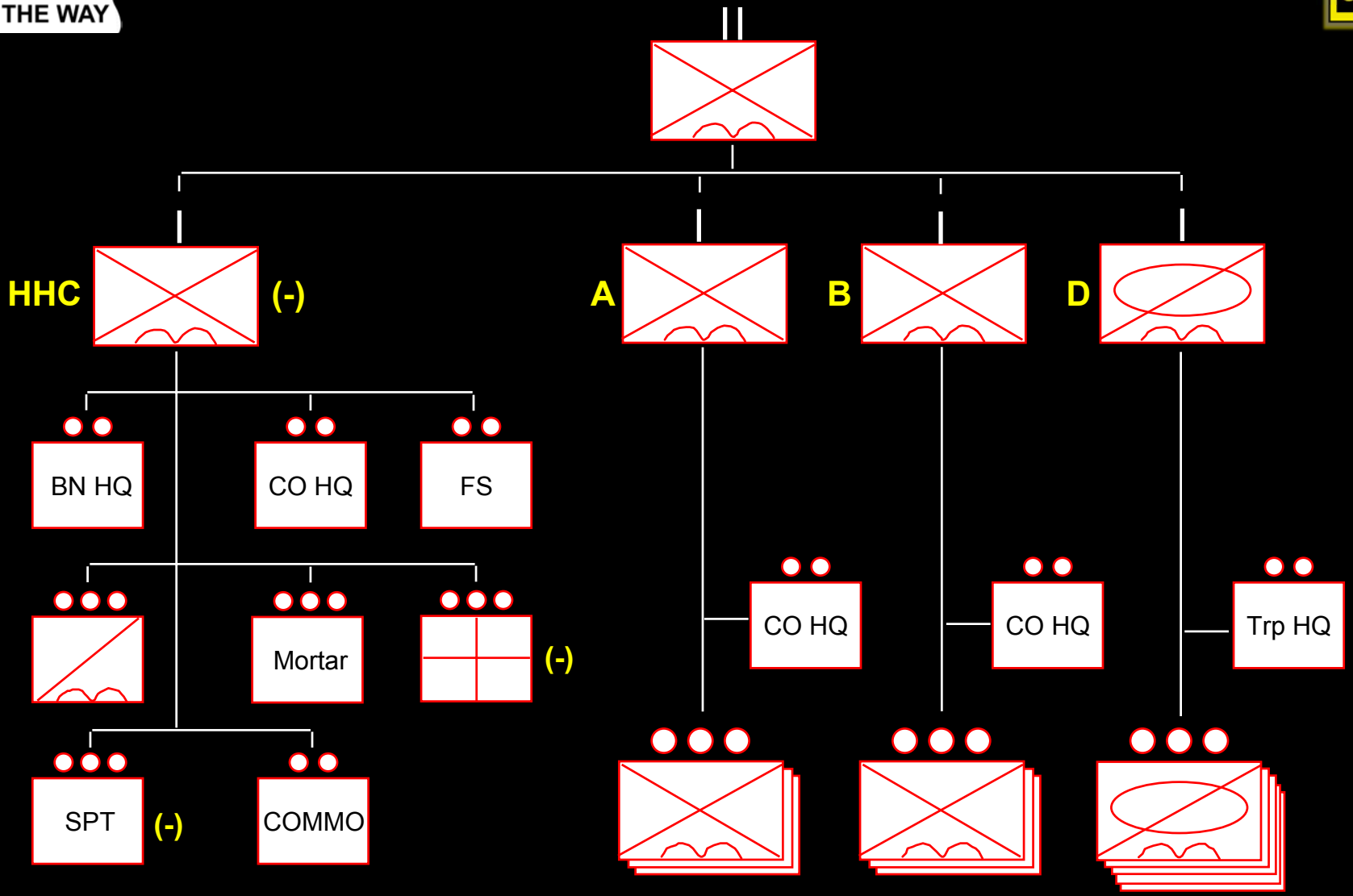
The MI-2 can conduct reconnaissance, resupply CLF guerrillas, and provide close air support with 57mm rockets. It can also mount a smoke generator to provide wide area smoke screening in front of PDRA units. The MI-2 Hoplite is armed with 57mm rockets. The crew consists of one pilot, and can accommodate eight passengers.

HOPLITE

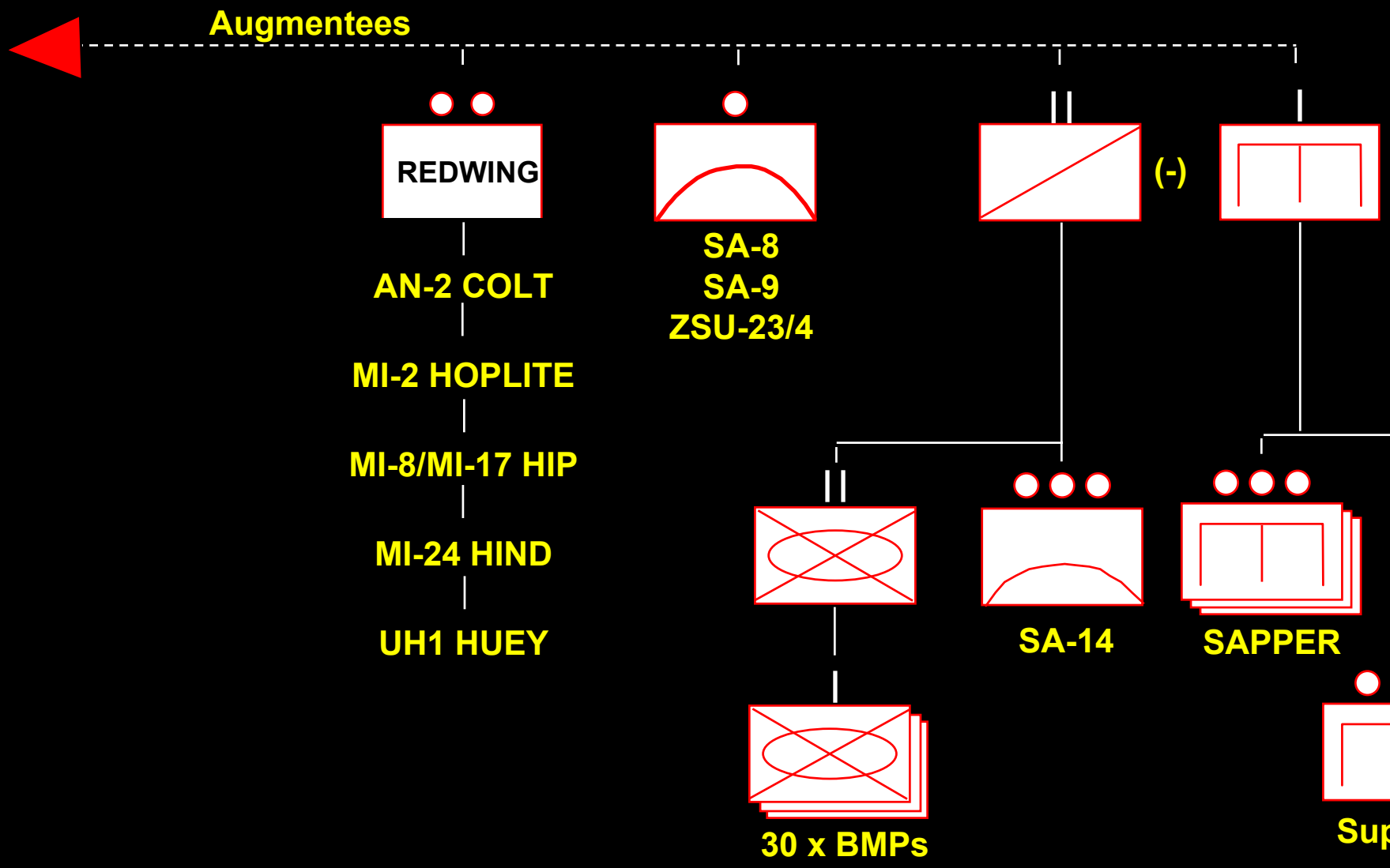
Conclusion

The above summarizes the general operational concepts that frame OPFOR operations at the JRTC (see slide on page 31). Those concepts, while repeatedly validated, are not the key to the 1-509th's success at the JRTC. The next article unveils that "secret."

OPFOR Organization



OPFOR Organization



OPFOR Elements
Portrayed in LIC

91st Assault Battalion

- Establish an Area of Operation
- Harass and Interdict
- Limited Offensive Operations
- An elusive guerrilla opponent, seeks political goal through military violence

OPFOR Elements
Portrayed in LIC

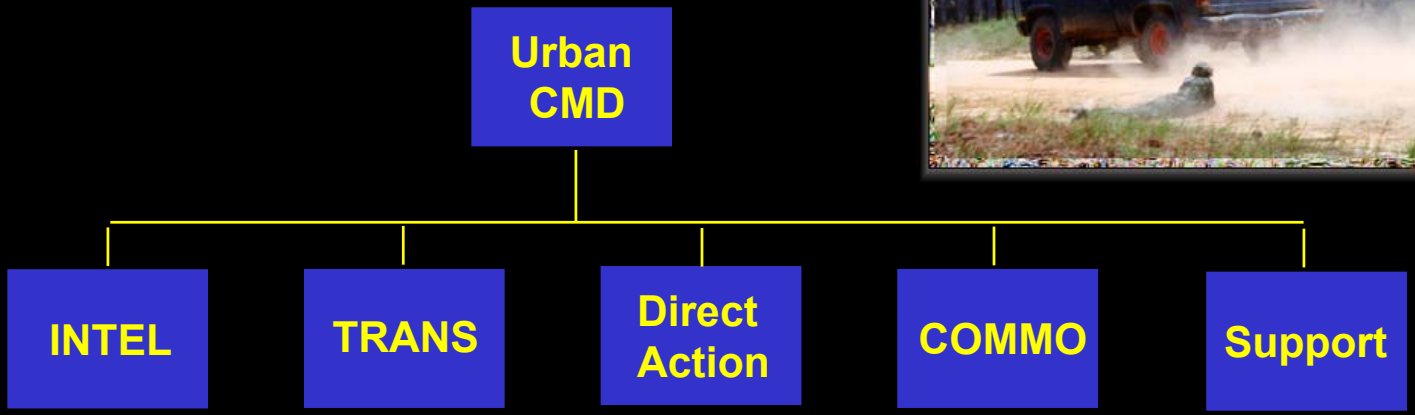
140th Special Operations Brigade

- Part of Atlantican Army
- Infiltrate, Recon
- Harass and Interdict
- Utilizes advanced “State of the Art” COMMO, Weapons, and OPTICS

OPFOR Elements
Portrayed in LIC

Leesville Urban Group

- Provides Intelligence
- Conducts Terrorists Activities
- Establishes Logistical Support



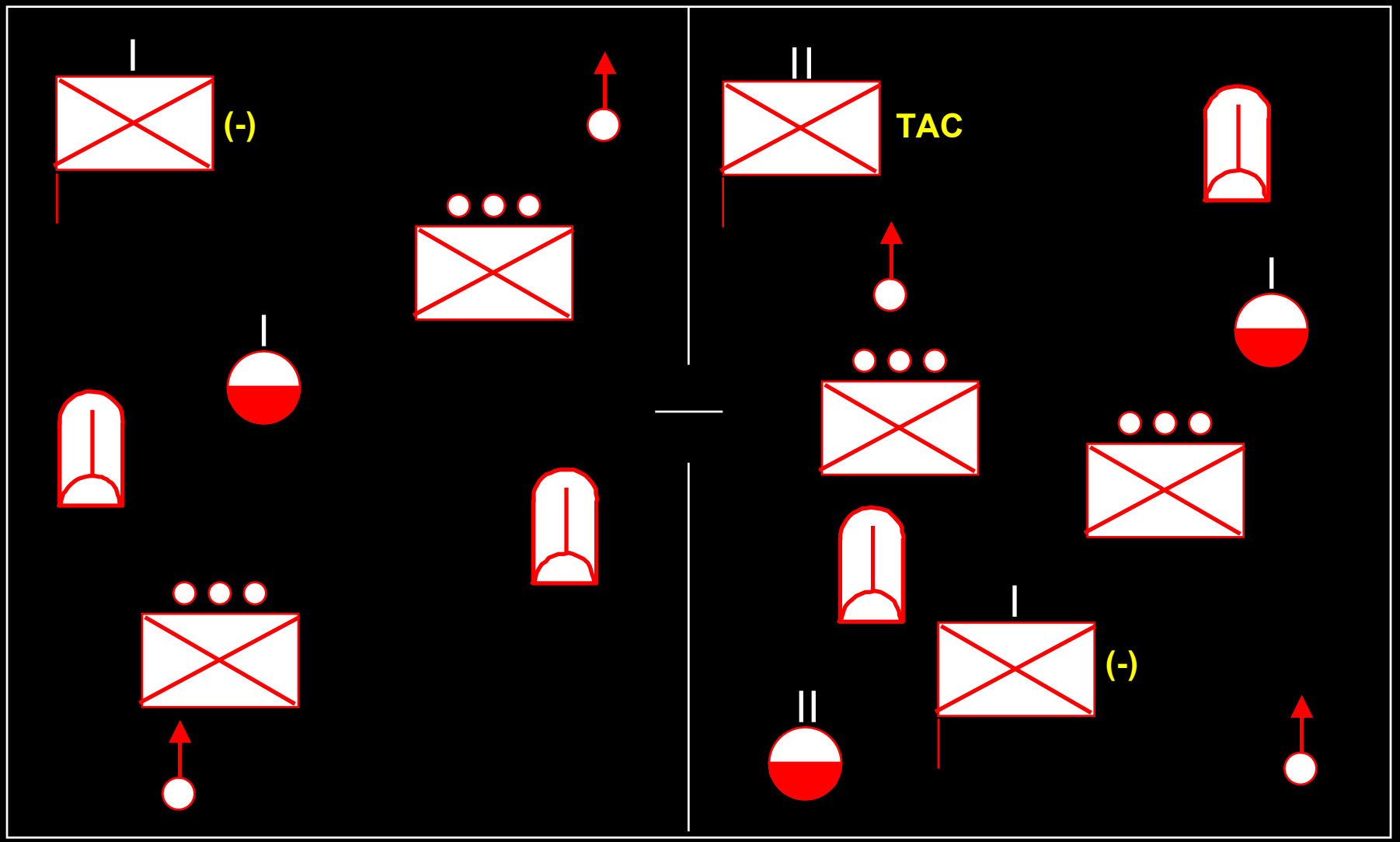
Insurgency Levels

Level - I - Reconnaissance and Mining

Level - II - Fire Team Size Ambushes
- Sniper Operations
- Mortar Attacks

Level - III - Mass to Squad Level
- Destroy High Payoff Targets

Insurgency



Offense Task Organization

DIV/BDE Control
61st DIV Recon CO
61st MIB Recon Plt
61st BDE Arty Group
6th DIV Arty Group

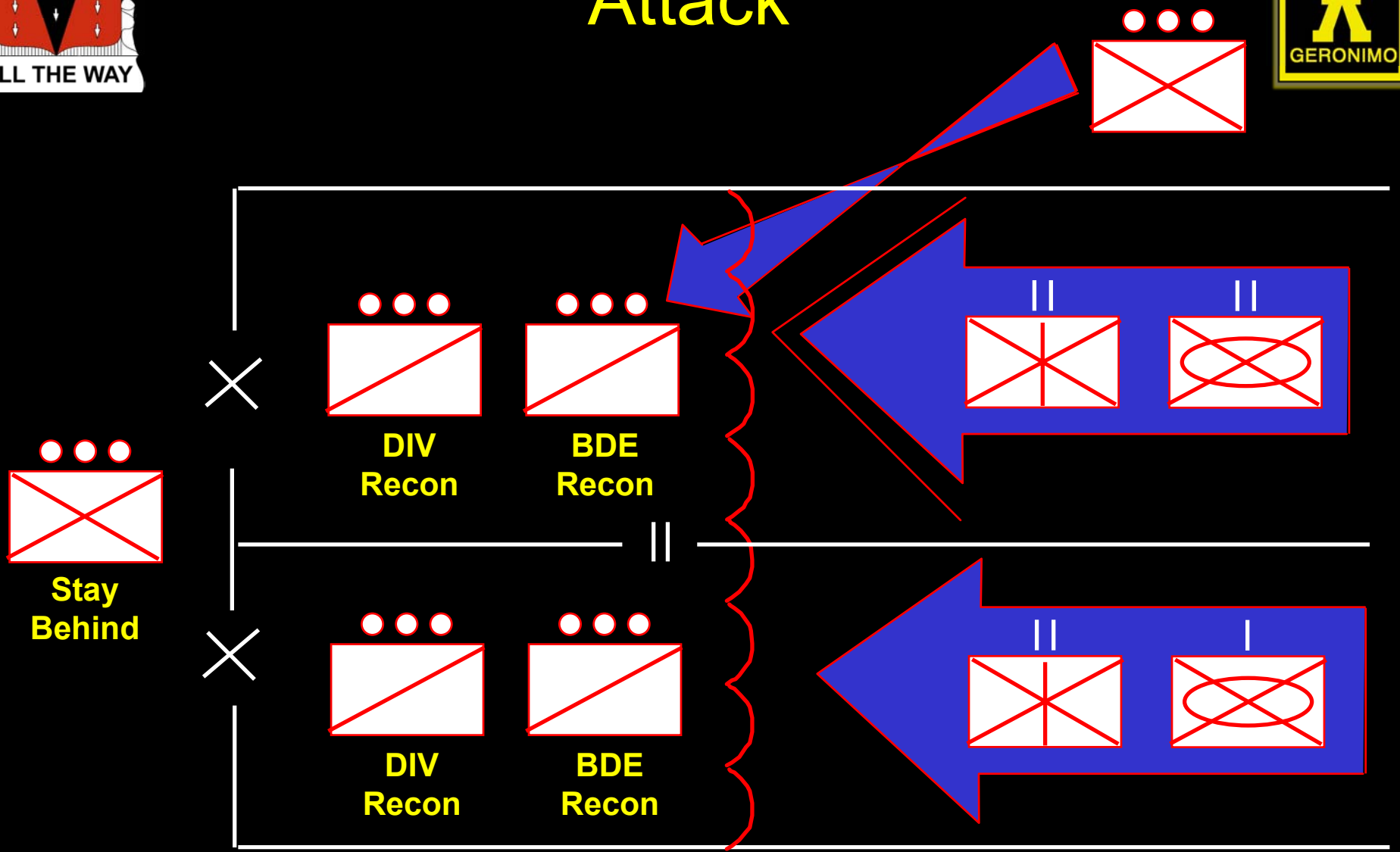
611th Mtrz BN
1st Mtrz CO
2d Mtrz CO
3d Mtrz CO

613 Mech BN (30 x BMPs)
1st Mech CO (10 x BMPs)
2d Mech CO (10 x BMPs)
3d Mech CO (10 x BMPs)
1/609th AR CO (10 x T62s)
2/609th AR CO (10 x T62s)
ENGR Plt
2 x ZSU 23-4 (ASET IV)
2 x SA-9 (ASET IV)
1 x SA-8 (ASET IV)

Plt/140th SOF BDE
1ST Plt
1 x 82mm
1 x SA-14

612th Mtrz IN BN
1st Mtrz CO
2d Mtrz CO
3d Mtrz CO

Attack



Defense Task Organization

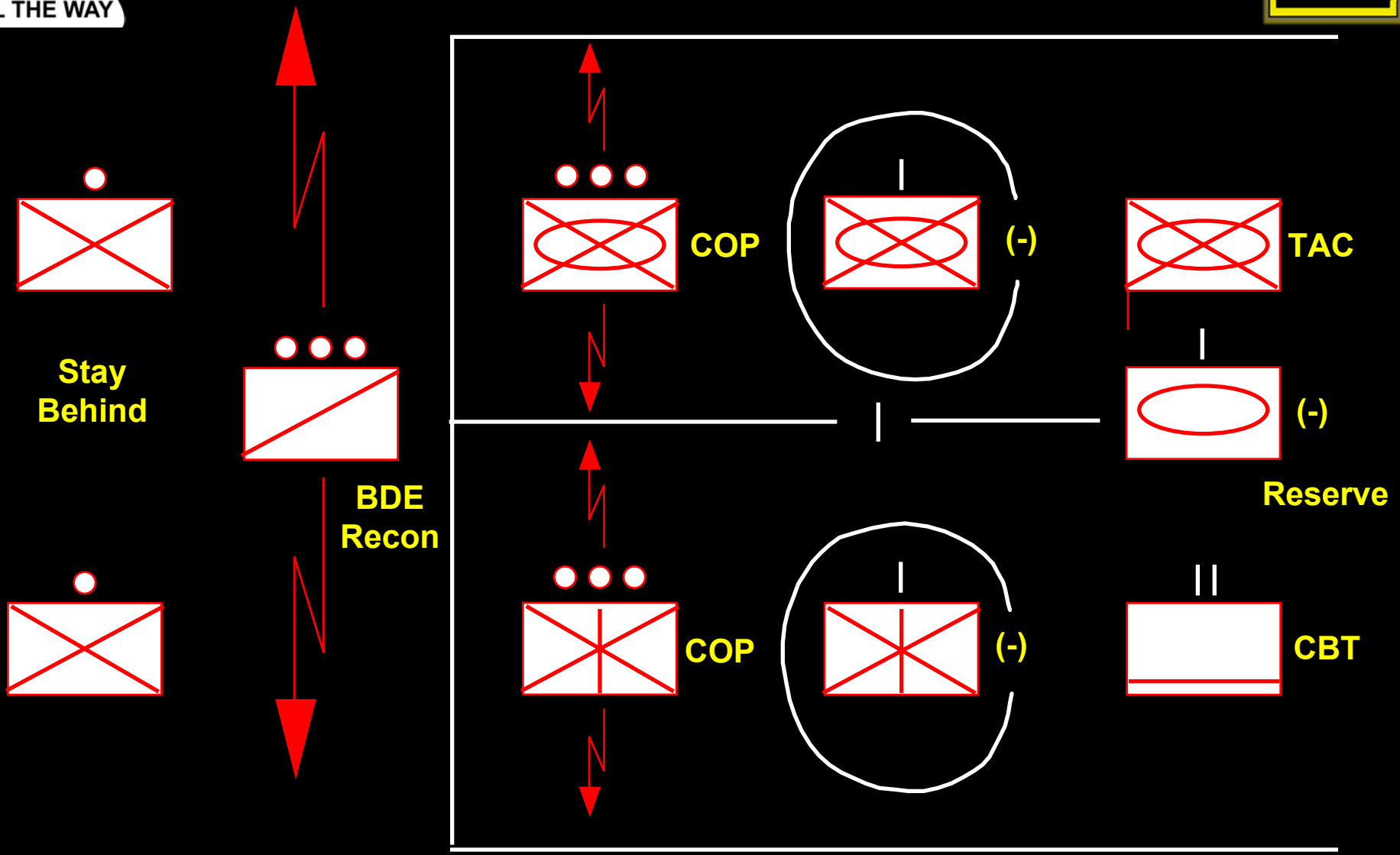
1/3-11 MIB
3 x Mech Plt (10 BMPs)
1 x TANK Plt (4 T62s)
1 x SAPPER Sqd
2 x 82mm
2 x SA-14
1 x ZSU 23-4 (ASET IV)

1 TANK CO/11th MIB
1 x TANK Plt (4 T62s)
1 x Mech Plt (3 BMPs)

2/3-11th MIB
3 x RIFLE Plt
1 x TANK SEC (2 T62s)
1 x SAPPER SQD
2 x 82mm
2 x SA-14
2 x ZSU 23-4 (ASET IV)

1/B/2-144
1 x 82mm
1 x SA-14

Defense



OPFOR MOUT Fighting TTPs

- MOUT Terrain Analysis 3D (not 2D) to select key terrain
- Key positions shielded by detained COBs
- When CLF, will break contact and attempt to flee once down to 30% - 20%
- Counterrecon, Obstacles, Fires, and ADA integrated to make getting to Shughart-Gordon difficult and disruptive

Summary

- Organization
  - 1 x HHC (-)
  - 2 x RIFLE CO
  - 1 x CAV Trp
  - 2 x RIFLE CO (AUG)
  - 1 x ENG CO (AUG)
- Training
  - Marksmanship
  - Decentralized Operations
  - Battle Drills
  - Field Craft
- Fights
  - LIC
  - MIC Attack
  - MIC Defense

How the OPFOR Fights and Wins at JRTC

by MSG Matthew J. West

An infantry platoon sits in the cool morning air, waiting for the attack. The element they are waiting for has been maneuvering throughout the area and is most likely coming their way. A soldier scans his sector and observes movement on his right flank. He takes careful aim, places his selector switch on fire, and then squeezes the trigger. This action signals three or four personnel to his left and right flank to do the same. Once the firing ceases, the soldiers watch in horror as a wild horse moves out from behind the trees and casually walks away. Then as they stare in disbelief, a fire team from the Cortinian Liberation Front (CLF) slips behind their lines and destroys the platoon.

This is a common occurrence at the Joint Readiness Training Center (JRTC) located at Fort Polk, Louisiana. The 1st Battalion (ABN), 509th Infantry serves as the "World Class Opposing Force" (OPFOR) at the JRTC. For ten months each year, approximately 450 paratroopers assigned to the battalion become CLF forces and People's Democratic Republic of Atlantica (PDRA) regulars and insurgents. This transformation is not easy; all are actually active U.S. Army soldiers who pretend they are from another country. And they do it very well! With the issue of the operation order, the soldiers of the 1-509th become long-term inhabitants of the Island of Aragon. As natives of a mythical land, they are well versed in its culture and history. They are also accomplished warriors. Subject matter experts on the exercise rules of engagement (EXROE), they know how to fight the terrain they live on. Admittedly, this is an advantage to the 1-509th, but knowing the terrain does not always mean victory.

Let's look at numbers. A standard U.S. airborne infantry battalion task force may enter combat with nearly 800 soldiers. Not so the 1-509th! As stated earlier, the OPFOR battalion has approximately 450 assigned personnel. At full strength, this includes two infantry companies of 118 personnel each, an armored calvary troop of 96 personnel, and a headquarters and headquarters company (HHC) of 135 personnel, which includes all staff and support personnel, S1 through S4, the support platoon, and the battalion maintenance office. Units are rarely at full strength, and one would be hard pressed to find more than 350 OPFOR soldiers on the JRTC battlefield during any given phase. Now consider that a brigade combat team brings 3,500 to 5,000 personnel, including support, to fight at the JRTC. Those are 10 to 1 odds! And we have not even addressed the disparity in technological superiority. Still the 1-509th continues to inflict casualties at an alarming rate on its foes in the box at JRTC. There has to be a secret, right?

Wrong! There are no secrets, just basic soldiering done well. First and foremost is the training. The 1-509th spends 17 days a month in and around rotations. From D-4 (Deployment Day -4 days) to E+2 (End of Exercise +2 days), OPFOR soldiers are preparing for and conducting a standard JRTC rotation. The key to training is repetition and evaluation. There are four basic tenets that frame OPFOR's training plan:

- Marksmanship
- Decentralized Operations
- Battle Drills
- Field Craft

Marksmanship

Marksmanship is one of the most important training events conducted in the OPFOR battalion. The ability to hit what they shoot is paramount to OPFOR's success. There is a very stringent standard for the Multiple Integrated Laser Engagement System (MILES) marksmanship training. Once a soldier has demonstrated his ability to shoot a single sensor from 150-300 meters, they are considered "zeroed." Soldiers also take painstaking steps to ensure that their weapons are cared for and re-zeroed as required. This enables the OPFOR soldier the "one shot, one kill" method of fighting. This also allows "guerrilla" forces to conserve on ammunition due to the lack of support available during the low-intensity conflict (LIC) phase of the rotation.

Decentralized Operations

Decentralized operations are a very important part of OPFOR's "way of life." Team and squad leaders are given a lot of responsibility and command authority. Since they break down into small groups and fight from all over the "box," units have the ability to maneuver freely and use all the assets available to them. The indirect fire assets available to the companies are 82mm mortar systems. These 2-to-3-man mortar teams maneuver throughout the "box" on foot and on MULES (4x4 golf cart-type vehicles). They have the ability to receive missions, set up the gun, fire, and displace within 2 to 4 minutes depending on the mission. They do this every month, so they are very good. Their data is checked through the Joint Tactical Operations Center (JTOC) and is historically proven to be very accurate. The infantry team leader has the ability to call for fire once he believes he is losing the tactical advantage or once high-payoff targets (HPTs) have been located. The platoon leader and sergeant have direct command and control of their subordinate units and report to the company commander. The company is given an area of operations (AO) where they cover most likely avenues of approach, obstacles, low-water crossings, and key terrain. Since limited resupply assets are available, units use caches and hide sites to provide ease of movement and to not be burdened by heavy loads.

Battle Drills

The third and equally important tenet is battle drills. Every unit in the Army conducts battle drills. A battle drill is action rapidly executed without applying a deliberate decision-making process. It is an instinct that should be executed to perfection by all members of the unit. The OPFOR battalion has four basic battle drills:

- **Baited Ambush** - The baited ambush gives the OPFOR soldiers the ability to maneuver on a larger element and produce a high casualty rate on the BLUFOR. They do this by breaking down into three elements – two ambush elements and the "bait." Once the "bait" makes contact, they immediately break contact. The BLUFOR element normally pursues the "bait" and gets pulled into the kill zone of the ambush elements. (See diagram on page 34.)

- **Box Attack** - The box attack also requires three elements. An element makes contact with the BLUFOR and then lays down a base of fire. The other two elements will then flank around the BLUFOR on both sides and hit from the flanks and/or the rear. This is especially successful during casualty evacuation (CASEVAC) and during consolidation and reorganization. (See diagram on page 35.)

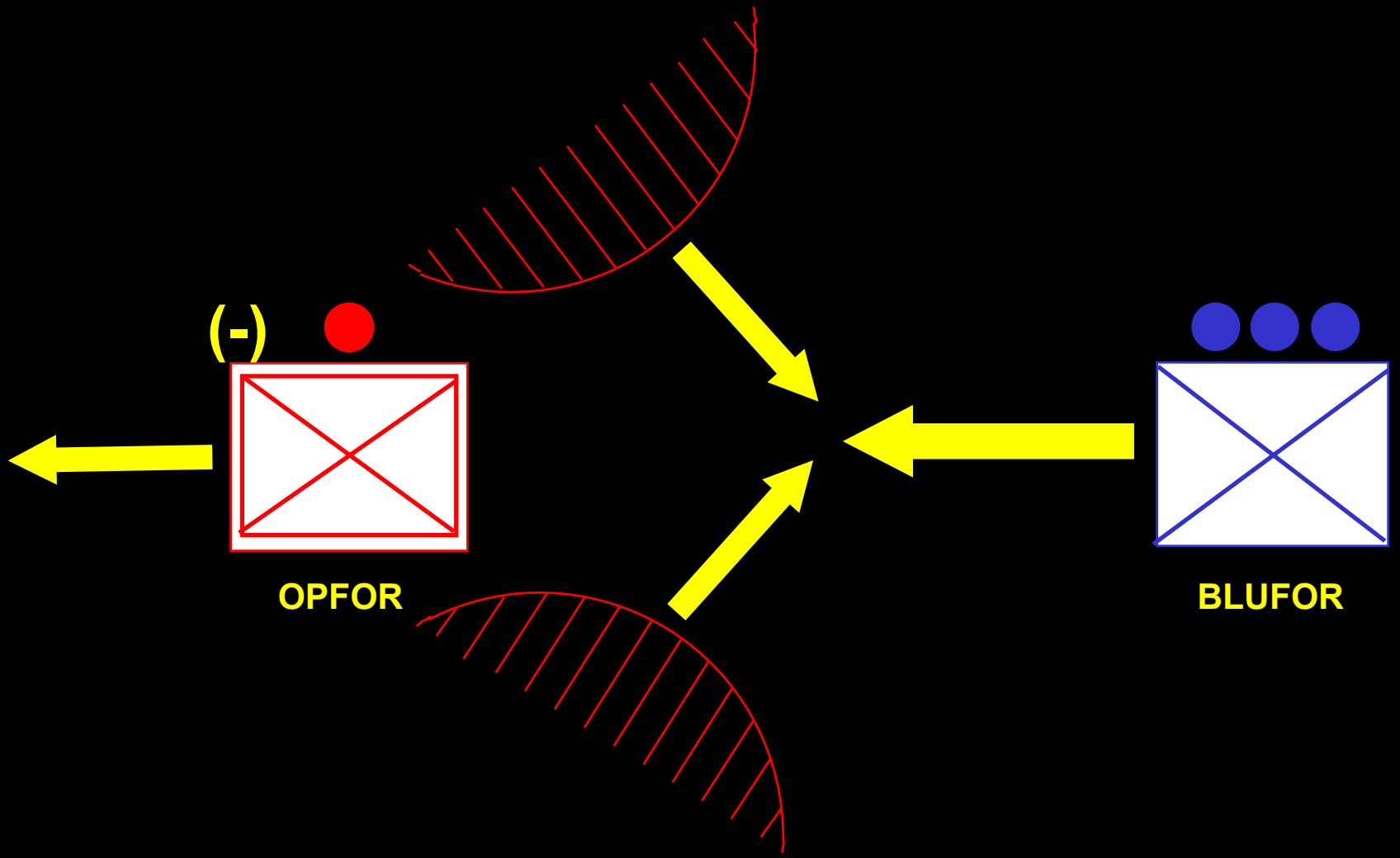
- **Break Contact** - The OPFOR is always going to be the smaller element, so breaking contact when the BLUFOR has gained fire superiority is essential to "live to fight another day." Normally, the OPFOR will break contact and then call in fire on the previous location. At that point, while the BLUFOR is conducting CASEVAC, they will resort back to battle drill 1 or 2.

- **Hasty Vehicular Ambush** - The OPFOR moves many miles on foot, so it is advantageous for them to capture vehicles. This battle drill also provides intelligence and eases maneuverability on the battlefield.

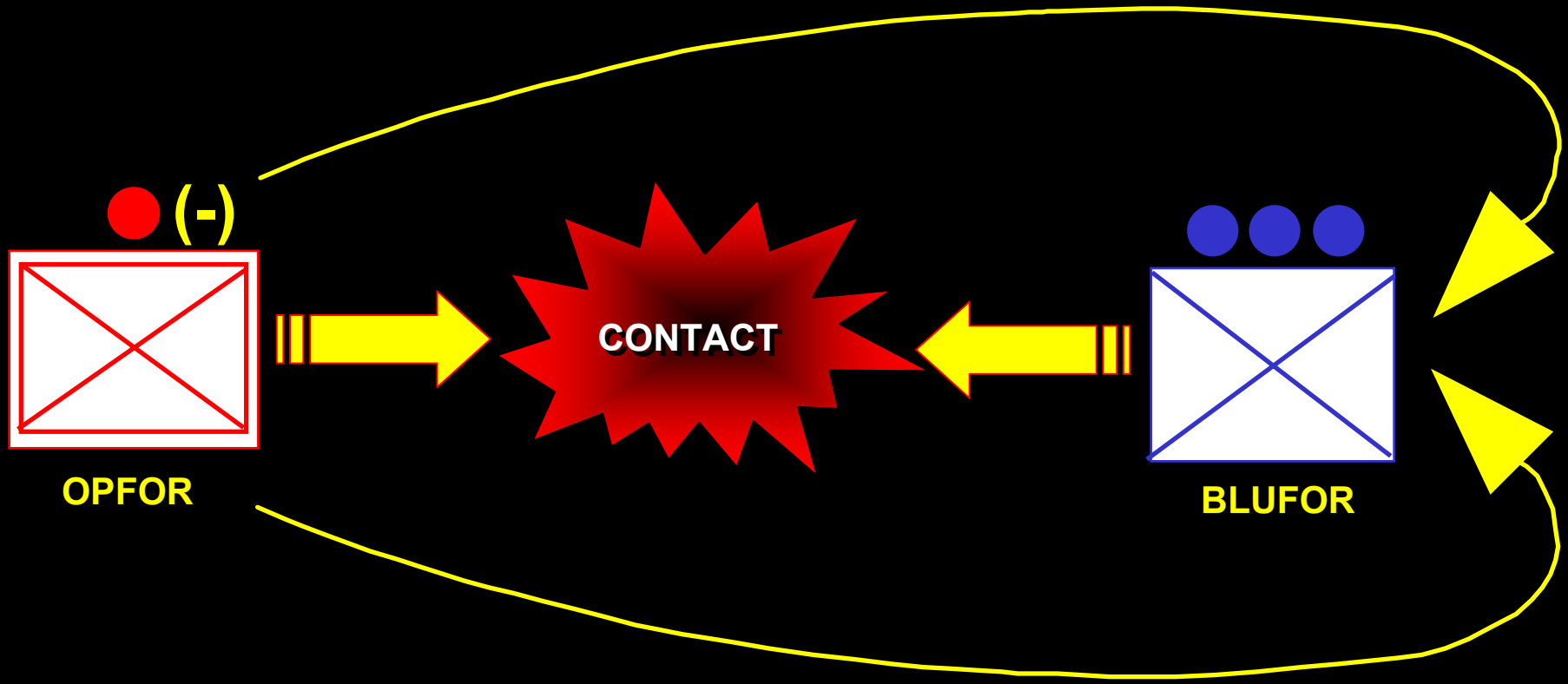
Field Craft

The final tenet is field craft. OPFOR's ability to live and survive on the JRTC battlefield is crucial to its success. Unlike their BLUFOR counterparts, when soldiers die on the battlefield, they do not get reinstated or reconstituted 24 hours later. They are out of play until the next phase. The use of field craft greatly increases an OPFOR soldier's life expectancy and probability of survival. Field craft consists of anything an OPFOR soldier does to protect himself from "harm" during the rotation, such as establish cache positions, hide sites, and link-up points. OPFOR uses field expedient means for communications and water resupply. They use the civilian populous to assist them in and around the villages to gain information from the villagers, and assist the villagers when BLUFOR units treat them inappropriately. Knowledge of terrain and how to deal with the effects of the changing weather conditions greatly assist in accomplishing OPFOR's mission.

Battle Drills
(Baited Ambush)



Battle Drills
(Box Attack)



The common thread that ties those tenets together and makes them so devastating "in the box" is the commander's intent. A BLUFOR team, squad, platoon, or even company may flounder if it loses a key leader in battle. **A 509th trooper knows what his commander expects: continue to kill BLUFOR until wounded, captured, or killed. Period!** When you combine that clarity of intent with the tenets stated above and add a minimum of 170 days a year in the field, the "secret" behind OPFOR's success becomes clear.

Conclusion

Through these actions month in and month out, the 1st Battalion (ABN), 509th Infantry conducts combat operations at the Joint Readiness Training Center. The 1-509th does everything possible to provide BLUFOR units the toughest, most realistic fight short of combat. Units come to JRTC and learn the hard lessons so they don't have to learn them in combat.

The next time your unit participates in a JRTC rotation, you should have a better understanding of your enemy and will be more successful than in rotations of the past.

Well-Executed Basic Tactics to Kill BLUFOR = Commander's Intent!

GERONIMO!

Chapter 3

The Heavy Team in Low-Intensity Conflict

This chapter looks at some typical and not so typical roles for heavy forces in a low-intensity conflict (LIC) at the JRTC. In the first article, the roles and capacities of a standard heavy team to clear routes in a LIC environment are examined. Note that the article emphasizes the 2 + 2 heavy team. In the second article, the author offers some historical insights on the use of armor in Viet Nam and transposes them against operations at the JRTC. Consider the first section the typical mission profile; the second is non-typical. Both can be effective.

Route Clearance in Low-Intensity Conflict (LIC) – "A Way"

by CPT Andrew Poznick, Heavy Team O/C, JRTC Ops Group

The young platoon leader was at once excited, happy, and scared. A few hours earlier he had been given the route clearance mission. Those hours seemed like precious minutes now as the M-1 rumbled along. He wondered what he had forgotten; those doubts were the source of his fears. Yet he was also elated. This clearance operation was an independent "command" of sorts. As such, it was also an opportunity to demonstrate to his own commander that the spirit of Patton was alive and well. The lieutenant scanned the road ahead for potential barriers or mines, expecting rolls of concertina and hedgerows like those once found on Omaha Beach. He never even noticed the cow patty on the road as the track rolled forward. The bang of a Hoffman device told him his 70-ton track was going nowhere soon. The almost simultaneous crump of simulated mortars announced that "George Jr." was dead…at least for this phase of the exercise.

During the LIC phase, the heavy team is often given the task to clear multiple routes. Once the routes are cleared, the heavy team then gets the job to secure the routes so the OPFOR cannot reseed the minefield. Commanders normally have a general understanding of what they must do to accomplish a single route clearance mission, but they stumble when handed simultaneous missions. Notable problems arise in task organization in particular. This article provides a standard method for a unit to accomplish the mission of clearing two routes simultaneously.

Task Organization

The standard solution lies in the JRTC-recommended task organization for the heavy team. It is recommended that a heavy team come to their rotation with two Bradley platoons and two tank platoons. This gives the team two plows and two rollers. It should also have an engineer platoon with two dozers, two medic tracks, two M88, and the remainder of the support package. If the number of vehicles seems repetitive, there is a good reason: A heavy team with a two-two mix can break down into two clearance forces with the same equipment for two simultaneous clearance missions (see Figure 1).

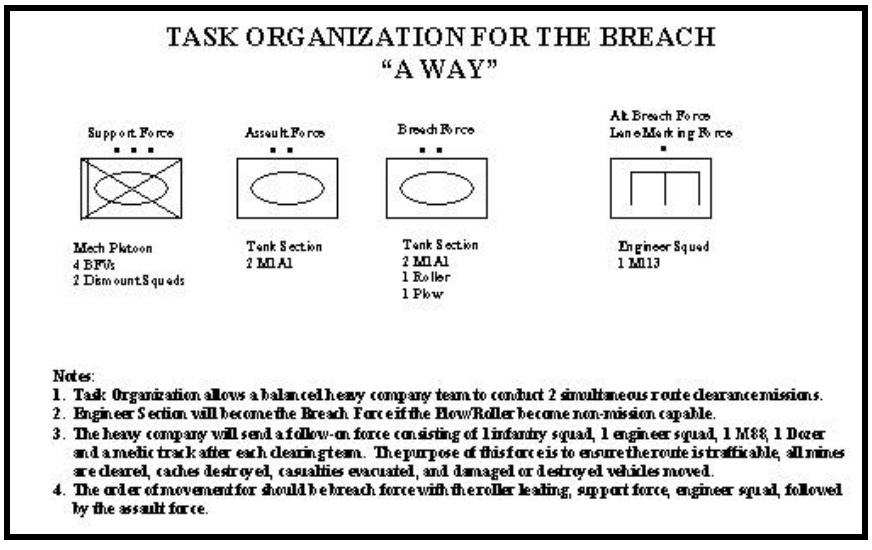


Figure 1

The JRTC heavy team recommends a route clearance force be task organized with one mechanized platoon and two dismounted infantry squads from the mechanized infantry platoon as a support force. The route clearance force should have a tank platoon with one plow and one roller. The tank platoon is split into sections with the plow and roller in the breach force and the other section with just two M1s as the assault force. Command and control for the clearance teams is provided by the commander and the XO, each going with one of the teams. A follow-on force makes up the remainder of the clearance team. This element includes a dozer, one M88, and the engineer squad. The engineer component should include a demo team to destroy caches. The follow-on force should include a dismounted infantry squad and a medic track. Command and control for the follow-on forces is provided by the first sergeant and the headquarters platoon sergeant.

Intelligence Preparation of the Battlefield (IPB)

IPB is often overlooked as a key to clearance operations. Many commanders lack experience in clearance operations and how IPB affects them. That means that units may not know where an obstacle might be placed or how it might look. Moreover, the unit may not know what signs indicate an obstacle is present. During the LIC phase, the OPFOR is a guerilla insurgency force. It has limited resupply capabilities and even more limited supply transport. That means the OPFOR is more or less self-contained. What the OPFOR brings forward has to be light enough to carry. Supplies will most likely, therefore, be cached as closely as possible to where they will be used. That basic knowledge should help commanders and intelligence staffs template where obstacles are likely and suggest how the obstacles may look. Yet, heavy commanders and their soldiers often enter the area of operations expecting obstacles to be large and complex. Typically, they look for a combination of wire and mines.

Light insurgents cannot pack large quantities of mines and wire. This means that the majority of obstacles at the JRTC are simple obstacles, usually basic minefields. The minefields include 2-10 mines, with a mixture of TM62 anti-tank mines and OZM-3 anti-personnel mines. The OPFOR usually places the minefields at intersections or bends along the route. They may use concertina wire. The mines can be buried or on the side of the road. Sometimes they simply lay them on the surface. The mines may or may not have anti-handling devices. The OPFOR may cover the minefields with a mortar. They reseed the minefields continually, which means that mine caches are typically located within 300 meters of the minefields. The minefields may be used to support possible ambushes to allow the OPFOR to steal vehicles and supplies.

The minefield indicators are common sense. Likely areas for a minefield include avenues of approach, approaches and exits to bridges and fords, key intersections and turnouts, and depressions and ditches. Visual indicators include loose dirt, tall grass, tripwires, mines exposed by shifting soil, signs of road repairs, holes filled in on the route, mud smears, grass, sticks, loose dirt or other material on roads, any unusual or out of place material, or areas that civilians avoid. As mentioned earlier, the insurgency force has limited resources, so he will do what he can to get the most bang for his minefield dollar.

Execution

The purpose of the route clearance force is to ensure route trafficability – all mines are cleared, caches are destroyed, casualties are evacuated, and damaged or destroyed vehicles are moved. The order of movement for the route clearance force is the breach force, support force, and assault force, then the follow-on force following 300-500 meters (or a terrain feature) behind (see Figure 2 on page 40).

The roller tank is the first vehicle in the order of movement. When the roller strikes the first mine at the lead edge of the field, the tank commander will pull the tank back and off to the right or left side. If necessary, likely targets in or around the minefield are suppressed by direct and indirect fires. The OPFOR may have the area covered with direct or indirect observed fires. The clearance force commander should consider obscuring the area using smoke delivered by artillery or mortars, smoke grenades, or a smoke pot. As the roller tank halts, the plow tank moves back 100 meters from the mine strike, drops its plow, and begins to scoop up spoil for clearing the lane. The Bradley platoon in support sends a section of vehicles off to each flank. The infantry squads dismount and begin to secure the flanks of the minefield. They also look for caches. Once the plow tank has cleared the lane, the roller tank moves through the lane to test the way. The trail tank section as the assault force then passes through the lane and secures the far side. The infantry sections continue to clear and secure the flanks. Any caches found are either secured or destroyed by the engineers (see Figure 3 on page 40).

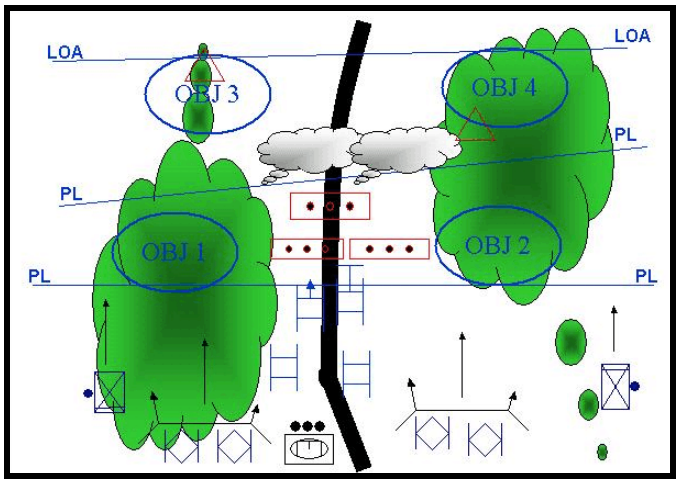


Figure 2. Roller tank is first in the order of movement. When the roller strikes the first mine (lead edge), he will pull the tank back and off to the right or left side. The plow tank will move back 100m from the minestrike, drop the plow, and begin to build up spoil to clear the lane. A section of BFVs moves off to each flank, dismounts the infantry squads, and begins to clear/secure the flanks and look for caches. Obscuration can be achieved through smoke missions or by manual means (smoke pots or smoke grenades).

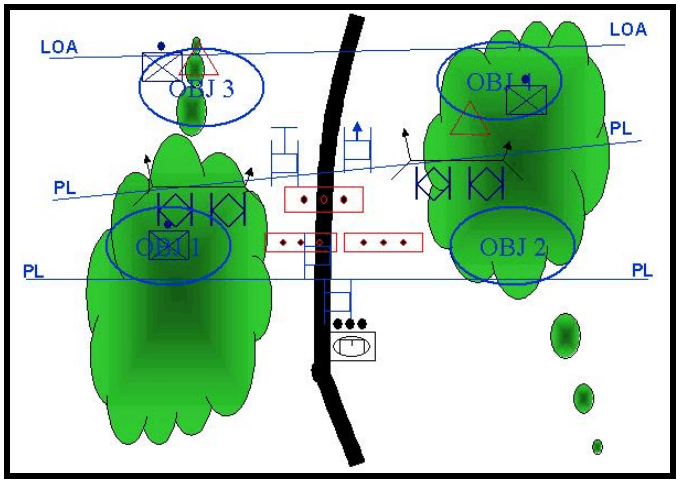


Figure 3. Once the plow tank has cleared the lane, the roller tank will move through the lane to proof. The trail tank section will assault through the lane and secure the far side. The engineer squad will then move forward to mark the lane. The infantry squads will continue to clear the flanks until they reach the far side of the obstacle. Any caches that are found can be secured or destroyed by the engineers. Once the infantry reaches the far side, they remount, and the clearing team continues on the route. A follow-on force comprised of a dozer, M88, engineer squad, and medic track complete the clearing of the minefield.

Once the infantry reaches the far side of the minefield, they remount and the clearing team continues on the route. The follow-on force, comprised of a dozer, M88, engineer squad, and medic track, then moves forward to complete the clearing of the minefield. The engineers will conduct a deliberate sweep of the areas surrounding the lane and clear any remaining mines. Once the engineers finish, the dozer grades the route to ensure its trafficability. The medics provide assistance to any casualties, and the maintenance contact team on the M88 moves forward to fix or recover any damaged or destroyed vehicles.

The only change to these procedures is if the mines are laid on the surface. In that case, the engineers destroy the mines using demolitions. Once the roller proofs the lane and the assault team moves through the lane, the route clearance team will continue along the route. If the above seems simple, there is a reason: simple works better. The wise heavy team commander keeps that in mind, especially when expecting simultaneous clearance operations.

Armor and Mechanized Infantry Operations in Restrictive Terrain

by CPT Rich Rouleau, Heavy Team O/C, JRTC Ops Group

This article outlines potential missions and tactics, techniques, and procedures (TTPs) for a heavy team deployed to fight in the restrictive terrain of the Island of Aragon (also known as the Joint Readiness Training Center). These TTPs are not new. They were validated over 30 years ago during the Vietnam War, as highlighted in several after-action reviews and studies, including ***Armored Combat in Vietnam*** by General Donn A. Starry.

Movement to Contact: Cortina Style

When it comes to fighting the Cortinian Liberation Force (CLF), the search-and-attack technique is the most common tactic. Yet rarely does a unit in the movement to contact phase capitalize on the mobility, firepower, and shock effect offered by the heavy team. All too often the unit does a hasty map analysis that indicates a preponderance of restricted terrain, and the heavy team becomes road bound by default. In reality, the reverse is true: A properly completed modified combined obstacles overlay, coupled with satellite photos and other terrain-analyzing tools produced during the military decision-making process, will reveal semi-restricted terrain that will support heavy team operations. If the heavy team does play a part in the movement to contact, it is generally as a finishing force.

Recently, however, heavy sections used fire and maneuver quite effectively as the "find and fix" force, with the light infantry company as the "finishing" force through its stealth. Though this happened purely by accident, such a role is not without historical precedent. Consider the following by General Starry:

> *"Two significant facts emerge from these engagements. First, contrary to tradition, armored units were used as a fixing force, while airmobile infantry became the encircling maneuver element. Second, the armored force, led by tanks, has sufficient combat power to withstand the mass ambush until supporting artillery, air, and infantry could be brought in to destroy the enemy. Engagements with armored elements forcing or creating the fight and infantry reinforcing or encircling were typical armor action in 1966 and 1967."* [1]

Techniques like these inflict high casualties on the opposing force (OPFOR). One technique requires the light infantry to infiltrate in at night and establish an ambush site in the general vicinity of an enemy emplaced obstacle or potential enemy location. Heavy forces are then used primarily during daylight hours (can be executed at night) to gain contact with the enemy. Once contact is made, heavy forces turn the enemy through fire and maneuver in the direction of the ambush. The light elements spring the ambush to destroy the enemy without risk of fratricide due to control measures imposed upon the heavy forces and the protection offered by the vehicles themselves. These forces can cover more ground faster than their infantry counterparts. In contrast, when stationary or tied to a convoy, heavy elements are favorite targets of the enemy "satchel man." In Viet Nam, rapid reinforcement of a unit in combat was nicknamed "pile on." [2] A similar technique requires light infantry to be as mobile as the armor or mechanized forces. They can be airmobiled to a landing zone close by the ambush site. Or motorized infantry in sandbagged HMMWVs, 2-1/2 ton or 5-ton trucks can drive to establish a hasty ambush point. "Contrary to established doctrine, armored units in Vietnam were being used to maintain pressure against the enemy in conjunction with the envelopment by airmobile infantry." [3]

In either case, planning on the part of the maneuver commanders and leaders require clear and concise task and purpose, clearly defined fire control measures (direct and indirect), graphic control measures distributed to all personnel, the ability to identify friend or foe, and a thoroughly rehearsed plan with strong junior leaders executing a decentralized plan.

Route Security and Convoy Security

Heavy teams routinely serve this role in Cortina's restrictive terrain. And they often have difficulty in its execution. Of all the techniques tried, the most successful incorporate combined arms operations. The same held true in Viet Nam.

"The primary route security technique used in the highlands was to establish strongpoints along a road at critical locations, and each morning have a mounted unit sweep a designated portion of the route. The unit then returned to the strongpoint where it remained on alert, ready to deal with any enemy action in its sector." [4]

A combination of convoy escort, active patrolling, and strongpoint operations offered the most success in southeast Asia. When a simple road strongpoint system failed in Viet Nam, one "division abandoned the strongpoint system in favor of offensive patrolling missions several thousand meters from main routes, a tactic that made a much more effective use of armor." [5]

Combined arms teams have proven to be the most successful in Cortina. The best incorporate aviation as advanced reconnaissance, armor, and mechanized infantry as the security force (IAW FM 17-15), and engineers to assist in route clearance. Such teams use artillery and mortars to provide indirect fire support on planned targets or targets of opportunity. Attached light infantry infiltrate near potential enemy ambush points or critical areas. They clear the area of enemy and link up with the heavy elements escorting convoys through sector.

On occasion, however, such elaborate combined arms operations are simply not feasible. In Viet Nam armored leaders developed several techniques to remedy the problem.

"One nicknamed Thunder Run involved the use of armored vehicles in all-night roadmarches using machine gun and main tank gun fire along the roadsides to trigger potential ambushes. While this procedure increased vehicle mileage and maintenance problems, it often succeeded in discouraging enemy road mining and ambushes." [6]

Combat operations in Cortina involve an enemy who operates 24 hours a day, seven days a week. Thunder Run-type innovations can throw the enemy off balance just as they did in Vietnam.

Aviation/Forward Support Battalion Assembly Area Security

On occasion heavy platoons are sliced to help secure assembly areas. Almost automatically security planners lock these mobile units into static positions. By doing this, the unit has guarantees that any fight that takes place will be a perimeter fight, one that achieves the enemy commander's intent of disrupting operations in those areas. In contrast, a defense based on at least minimal mobility offers distinct advantages as learned in the tropics of Southeast Asia.

"The success of the defense hinged on the mobility of the armored units, the heavy firepower, artillery, and the air support – and the tactics used. The armored vehicles had not been dug in and were not fenced in with wire. Throughout the attacks, ACAV's and tanks continuously moved backward and forward, often for more than twenty meters, to confuse enemy gunners and meet the attack head on. The movement added to the shock effect of the vehicles, for none of the enemy wanted to be run over. In addition, reinforcing platoons carried extra ammunition on their vehicles and provided resupply during battle." [7]

Allowing tactical units to take the fight "outside the wire" can also add greatly to their capabilities. One of the more successful techniques in Cortina is for the combined arms team to prepare its defense by developing an engagement area outside the wire. The tactic is similar to that of defending a battle position sited on the most likely avenues of approach to the assembly area for both mounted and dismounted forces. By doing this, the unit can capitalize on all its capabilities, engaging at maximum ranges with aviation, indirect, and direct fires.

Conclusion

Understanding combined arms operations continues to challenge leaders at the Joint Readiness Training Center as well as during real world contingency missions. The heavy team is a viable combat force in any environment and should not be counted out in any mission. The critical element in using such forces is a proper analysis to determine their limitations and their capabilities to achieve the mission.

[1-7] General Donn A. Starry, ***Armored Combat in Vietnam,*** Arno Press, New York, NY., 1980.

Chapter 4

The Synchronization of Light/Heavy Forces in MOUT

The MOUT phase is the most dangerous, most difficult, and at the same time most potentially rewarding role for the heavy team in a JRTC rotation. Synchronized combined arms have been the most effective tactic since wars long ago when catapults, archers, infantry, and battering rams took on fortified cities. Light/heavy synchronization in MOUT was standard practice in WWII for the Allies and the Axis. The force that did not adhere to that standard paid a heavy cost. The Russians seemed intent on "learning that lesson" repeatedly in Chechnya. Our most recent effort to integrate and synchronize heavy and light forces – belated, unfortunately – was in Somalia.

Not surprisingly, the MOUT phase remains difficult even to the unit that effectively synchronizes its heavy and light forces. And that does not occur very often. A more common result is weak or non-existent integration of a heavy breach with light support. Basically, the heavy team is almost guaranteed to succeed in making the breach; without immediate and effective infantry support, the OPFOR is quite adept at taking out M-1s and Bradleys.

The articles that follow offer three interpretations on heavy operations in MOUT. The first is on standard heavy team integration at the JRTC. The second, previously published by ***Armor,*** addresses mounted reconnaissance in MOUT. Finally the third, also published by ***Armor***, addresses tank support in the U.S.-South Korean fight to retake Seoul during the Korean War.

Armor and Mechanized Infantry in Built-Up Areas

by CPT Rich Rouleau, SFC Wesley Wyatt, and SFC Martino Barcinas
Armor Platoon O/Cs, Armor/Mechanized Infantry Team, BDE C2, JRTC-OPS GRP

The tank platoon roared up the road and stormed into Shughart-Gordon. As the M-1s sprayed heavy machine gun fire at lower windows and doors, Bradleys hosed upper floor windows and roofs. The surprise and speed of the tank penetration shocked the OPFOR. A gleeful heavy team commander swaggered towards the brigade commander, expecting a well-earned slap on the back, maybe even a mention at the AAR. He was surprised to see the colonel's face darken with concern as the BCT commander talked to his lead infantry unit. Meanwhile, back in the MOUT complex, the armor platoon occupied the street like a beached whale waiting to be carved up for its blubber. This time, however, no Eskimo would do the cutting. Geronimos from the 1-509th crept up to the windows overlooking the exposed tanks. Their "knives" were smoking satchel charges hurled onto the decks of the Abrams. Yep, the heavy team would make the AAR alright…

The "heavy team" is the combined arms armor/mechanized company team of the rotational light Infantry brigade. It functions as the heavy initial ready company (IRC) for the brigade during its rotation to the JRTC and is usually manned and task organized in that manner. The heavy team can be tank heavy, mechanized infantry heavy, or a balanced team with equal tank and mechanized infantry platoons. Each has its own specific MTOE due to the type of company headquarters, whether it is a tank company headquarters or an infantry company headquarters. Because of this unique MTOE, each team can develop its own tactics, techniques, and procedures (TTP) for operations in built-up areas (BUAs). That said, we have developed some generic TTPs that can be adopted or modified regardless of MTOE. They are not intended to be the only solution, merely to illustrate how one unit can get the job done and compliment existing field manuals. In addition, the USMC's "Project Metropolis" has provided a wealth of information and TTPs that can be adapted by Army mechanized forces to enhance crew and dismounted infantry survivability. **FM 7-8, *Infantry Rifle Platoon and Squad,*** and **CALL Newsletter No. 98-10, *Fighting Light/Heavy in a Restricted Terrain,*** outline incorporating the light infantry and mounted forces together.

Because of these diverse requirements, the heavy team must be a multifunctional unit capable of operating as part of the brigade task force, the battalion task force, or in independent missions down to section level. The heavy team can have up to four maneuver platoons, a company headquarters section, and a brigade LNO team with a robust combat service and support slice. The tank platoons consist of four M1A1 or M1A2s. The mech platoons consist of four M2s and three dismount squads. The headquarters section has either two M1A1s or two M2s. Force XXI infantry company headquarters also have a weapons squad consisting of three sniper teams. The heavy team also habitually gets a maintenance contact team, communication team chief, and medics with vehicles from headquarters company, and an engineer slice, air defense slice, and a heavy CSS package from its parent battalion.

In order to apply these TTPs, you must understand the phases of offensive MOUT in accordance with **FM 71-1, *Tank and Mechanized Infantry Company Team,*** and additional planning considerations. There are four phases to offensive MOUT: recon the objective, isolate the objective, secure a foothold, and clear the built-up area. First, though, we must look at MOUT planning considerations and how they impact on the heavy team as it applies to the support of a light infantry brigade. The planning considerations as outline in FM 71-1 are valid for the JRTC fight and should be followed as well as translated to the infantry task force commanders. Offensive techniques in MOUT begin with task organization.

Task Organization

The heavy team must plan on being task organized down to the section level. The role of the heavy team commander should be as breach commander of the penetration force. The heavy team commander should have under his control two penetration/breach teams in order to maintain the momentum and redundancy of the combat team. The organization could look like the following:

Team headquarters:

- Headquarters tank section
- Engineer platoon (-)
- Smoke platoon
- Company trains

Teams 1 and 2:
- One light infantry platoon (each)
- Section of two tanks with plow and roller respectively (each)
- Section of two Bradleys with dismounts (each)
- Mine clearing line charge (MICLIC) (each)
- Engineer squad (each)

Platoons 3 and 4:
- Two sections of tank/Bradley wingmen (each)

The remaining two platoons are assigned the roles of outer cordon and combat team reserve. Due to this austere task organization, the heavy team must be given a clear and concise task and purpose. The team must be prepared to assume several roles in the centralized planning and decentralized execution.

Task, Purpose, Roles, and Missions of the Heavy Team

Let us first look at the role of the heavy team (-) and what it can do for the combat team (use above task organization). The heavy team may have a follow-on mission of supporting the clearing of a built-up area. For this purpose the team is task organized with its assets into a breach force, assault force, and a support force. Because of the restricted terrain, the team's operation could be limited to super-sized platoons or teams that execute the breach. They might conduct assaults and possible support missions on their own. In some cases, if the terrain is sufficiently restricted, the company can execute the mission in its entirety.

Consider a scenario based on somewhat restricted terrain. The breach force and support force come from Team 1. The breach force consists of the tank/Bradley section, with dismounts for local security and MICLIC with engineer for mechanical breaching. The support force is the remaining tank/Bradley section, with dismounts and a light infantry platoon. Team 2 provides the assault force. A thorough recon and overlay of the town should identify hazards for the MICLIC. Avoid using the MICLIC if there are overhead hazards such as power lines; this highlights the need to have a sapper squad available to conduct a manual breach. Also remember that the MICLIC is a tempting target to the OPFOR; its destruction can greatly hinder BLUFOR operations.

Here is a suggestion for extremely restricted terrain. The breach force might have one tank and one Bradley, plus dismounts with MICLIC and engineers, as a redundant means to breach. The support force consists of the remaining tank and Bradley. The assault force is the light infantry platoon. Team 2 is kept in team reserve with a follow-and-assume and/or follow-and-support role. Additionally, Team 2 can be OPCON'd to the clearing battalion. This keeps a redundant means for breaching and exposes a fewer number of frendlies to the enemy. After Team 2 secures the foothold, it can support clearing of the built-up area (as addressed later).

In either scenario, the heavy team still has its remaining two platoons supporting the combat team's cordon of the town, assisting in clearing the built-up area or as the reserve. Remember that teaming the Bradley section with the tanks as wingmen provides local vehicle security of the tanks and Bradleys: a fire team with each armored vehicle (see figure 1 on page 49). This option provides the greatest security to armored vehicles from satchel charges and other dismounted threats. The armored vehicles, in turn, will be available to provide mutual support to the dismounted infantry platoons as they attempt to provide far-side security or secure a foothold.

How Might it Work?

The commander responsible for securing the foothold determines where the penetration will occur through reconnaissance. The heavy team moves forward and makes the initial penetration using one of the methods listed above. Figures 2 and 3 (pages 50 and 51) illustrate Breaching Method 2, with Team 2 being OPCON'd to the clearing task force. Other key issue to conducting a mechanical breach is the number of hits the roller can sustain and when to bring the MICLIC forward to enhance its survivability. In figures 4 and 5 (pages 52 and 53), Team 2 supports the clearing task force using the tanks to protect to the light infantry as they move from building to building. The Bradleys provide a mutual direct fire support role to limit collateral damage and dismounts from the Bradleys to provide armored vehicle security. The other two platoons assist in the cordon of the BUA.

There is no definite method to keeping dismounts and armored vehicles alive in a MOUT environment. However, employing combined arms techniques greatly enhances their chances. Figure 6 (page 54) depicts an example of the corner drill developed by the USMC "Project Metropolis." The drill works well in Cortina. The dismounted patrol TTP illustrated in Figure 7 (page 55) is also another strong technique to be used. The illustration only depicts the use of the M2 dismounts for armored vehicle security. FM 7-8 and CALL Newsletter No. 98-10 outline incorporating the light infantry and mounted forces together.

Refinements

All operations can be improved. Equipment shortages or lack of the proper tools is not new. Those needs often stimulate force development. For example, sniper rifles would add greatly to the success of such operations for the tank company or its mech infantry platoons. They provide excellent overwatch with minimal risk of collateral damage. Marking systems for ground-to-air assets is another shortfall. The AIM-1 laser provides a higher density light than the AN/PAC-4C and can be distinguished with the trained eye. It is, however, not the cure for all lasing tasks. Other issues to consider are communications between tanks, Bradleys, and dismounts, as well as fire control measures. How do we mark targets/rooms or windows for engagement and by what weapons systems do we engage? Use what is available – now! Consider the exhaust deflector in the towing kit for the M-1; it allows infantry to follow behind the tank. (See SFC Pope's article, "A Technique for Preparing the M1 Series Tank for MOUT" in Chapter 6 of this publication for other suggestions.)

Conclusion

Command and control of the beast is probably the heavy team commander's greatest challenge. (See CPT Poznick's article, "The Heavy Team Company Command Post," in Chapter 6 of this publication for information on heavy team command posts.) Where is the best place for him to be as well as which is the best command and control platform for him? There is no correct answer; it is probably personality-driven. Historically though, we find that the commander that goes into the BUA in his tank turns into a fighter. He loses perspective of the team fight when he becomes engulfed in personal survivability, and consequently, the combat team loses its momentum and things grind to a halt. In this scenario the commander's primary purpose is to breach and secure a foothold. This along with passing follow-on-forces through are his primary concerns. The heavy team commander may find himself if the situation dictates occupying a room in a secure building with the ramp of his 1SG's M113 up against a window remoting his communications through while synchronizing CASEVAC and obstacle reduction. The days of bypassing all built up areas greater than 1 kilometer are gone for armor forces. Even in the Third World, urban sprawl and modernization has made MOUT a fact of military life. Doing so requires the careful application of DTLOMS by unit leaders. Finally the unit never stops refining its TTPs in combat drills that improve the unit's ability to meet the challenges of MOUT.

Figure 1: M1 and M2 Protection

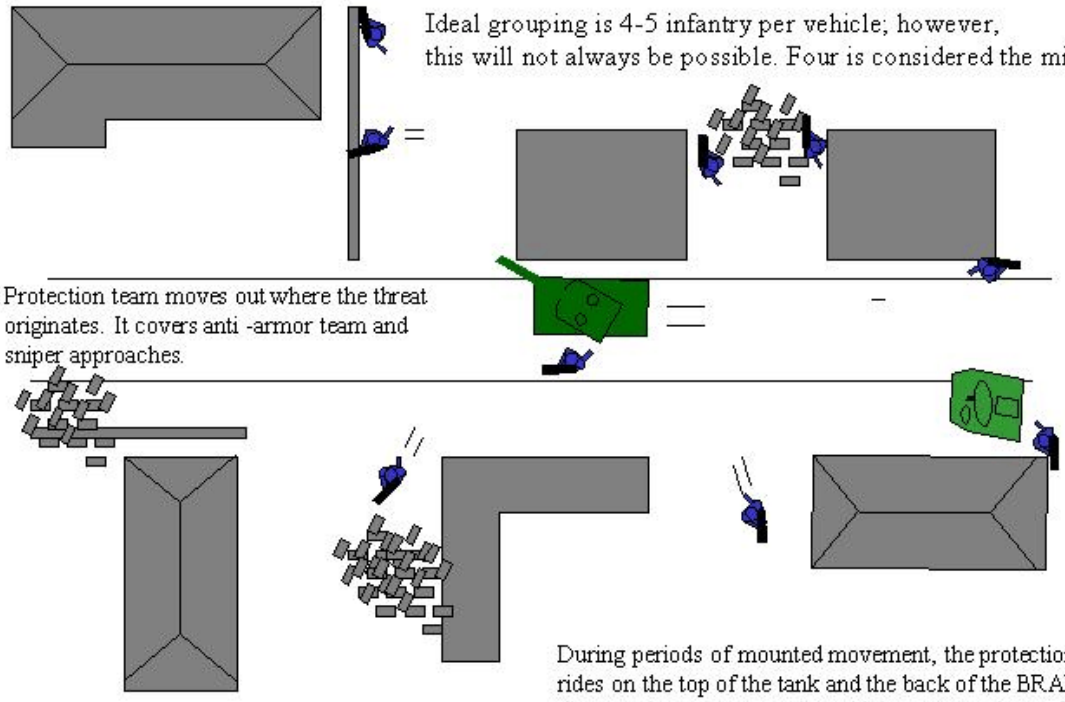


Figure 2: Breaching Method 2

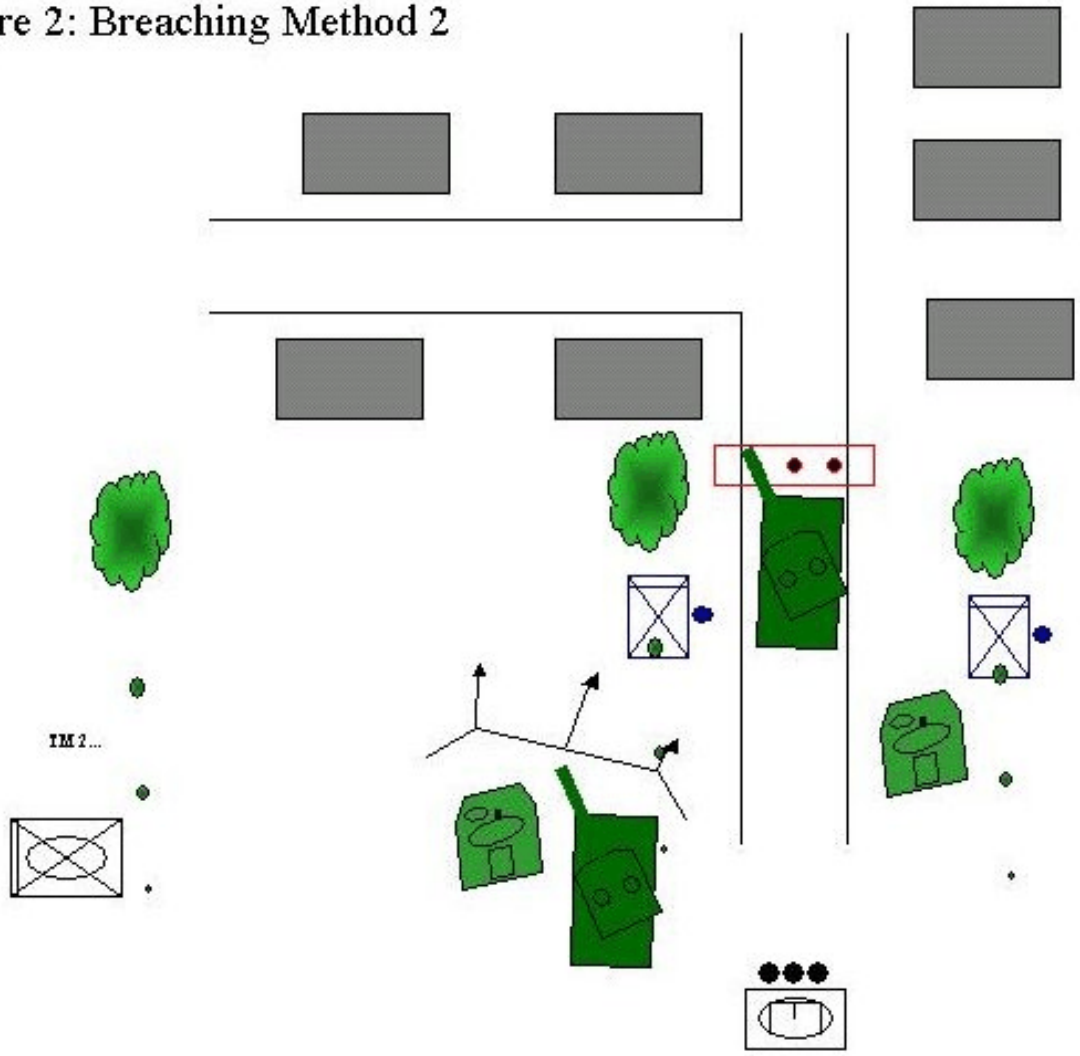


Figure 3: Breach Complete Method 2

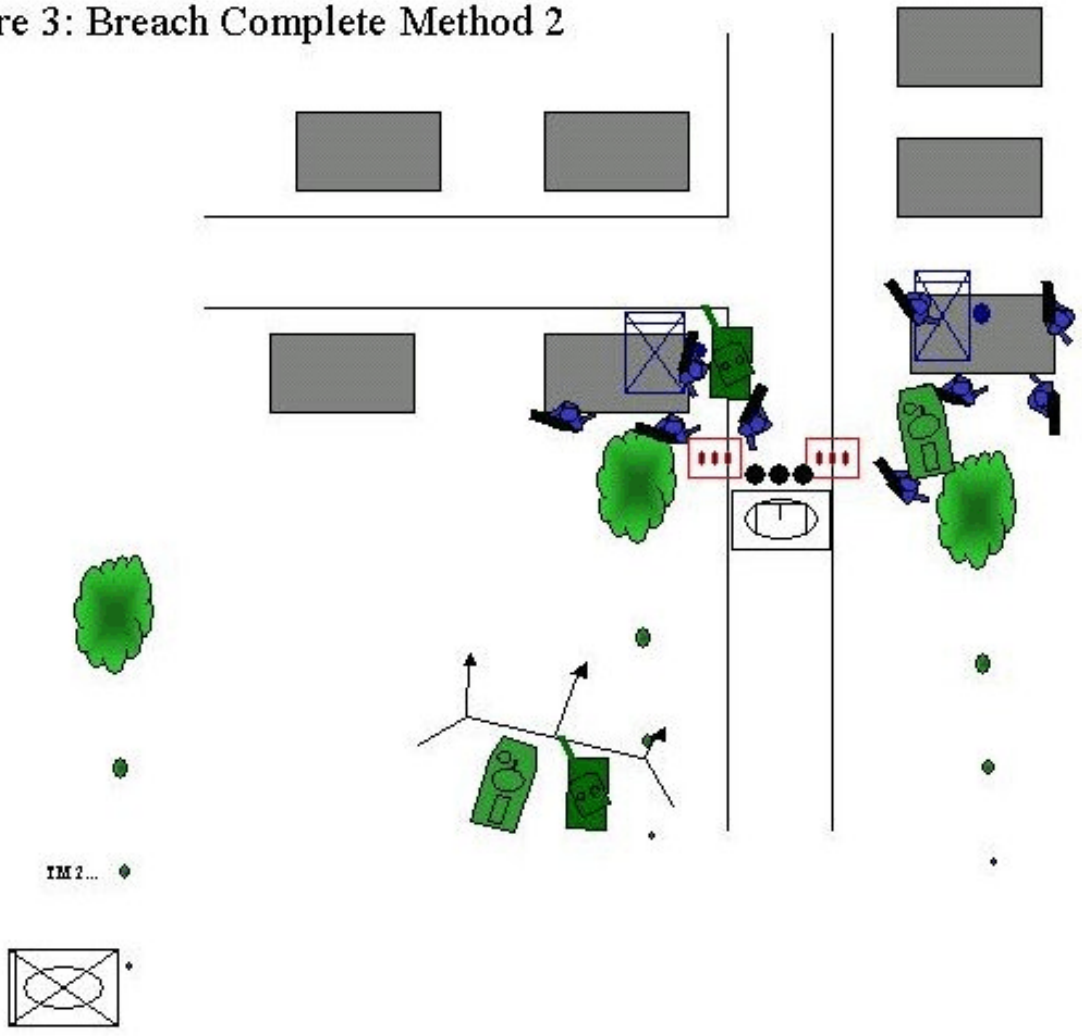


Figure 4: Clearing BUA Method 2

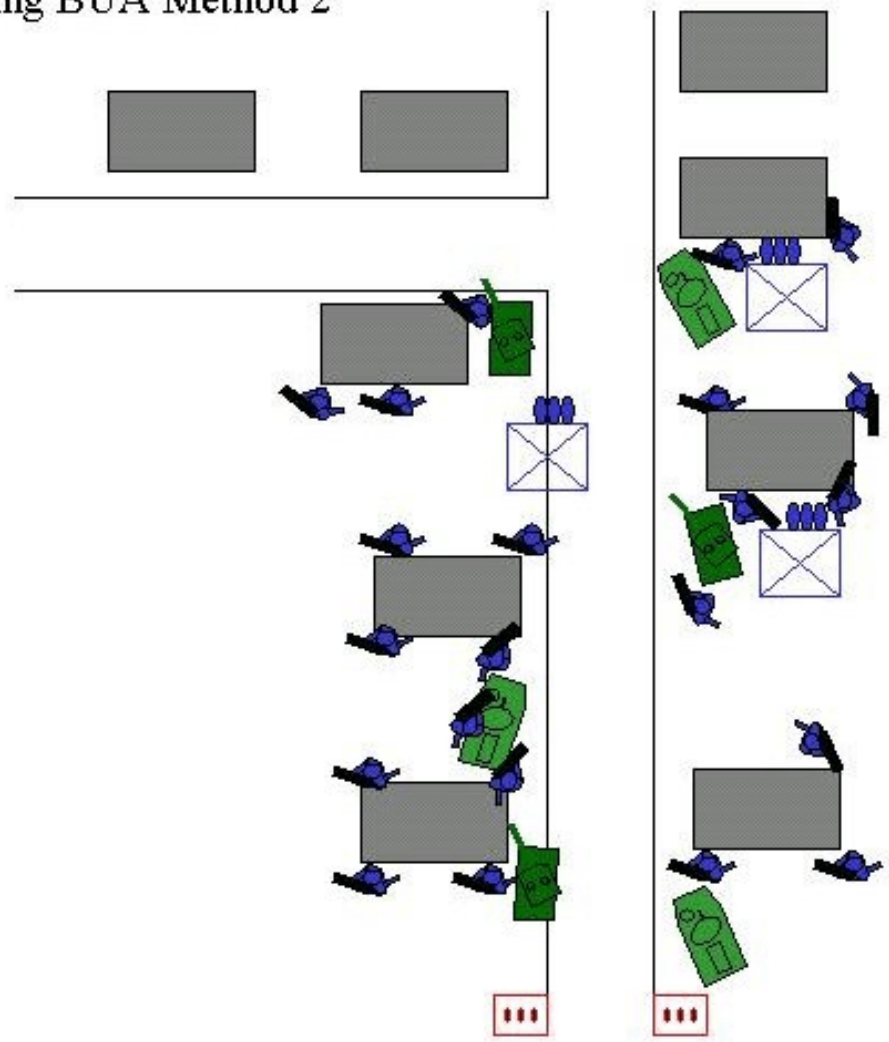


Figure 5: Combined Arms Clearing

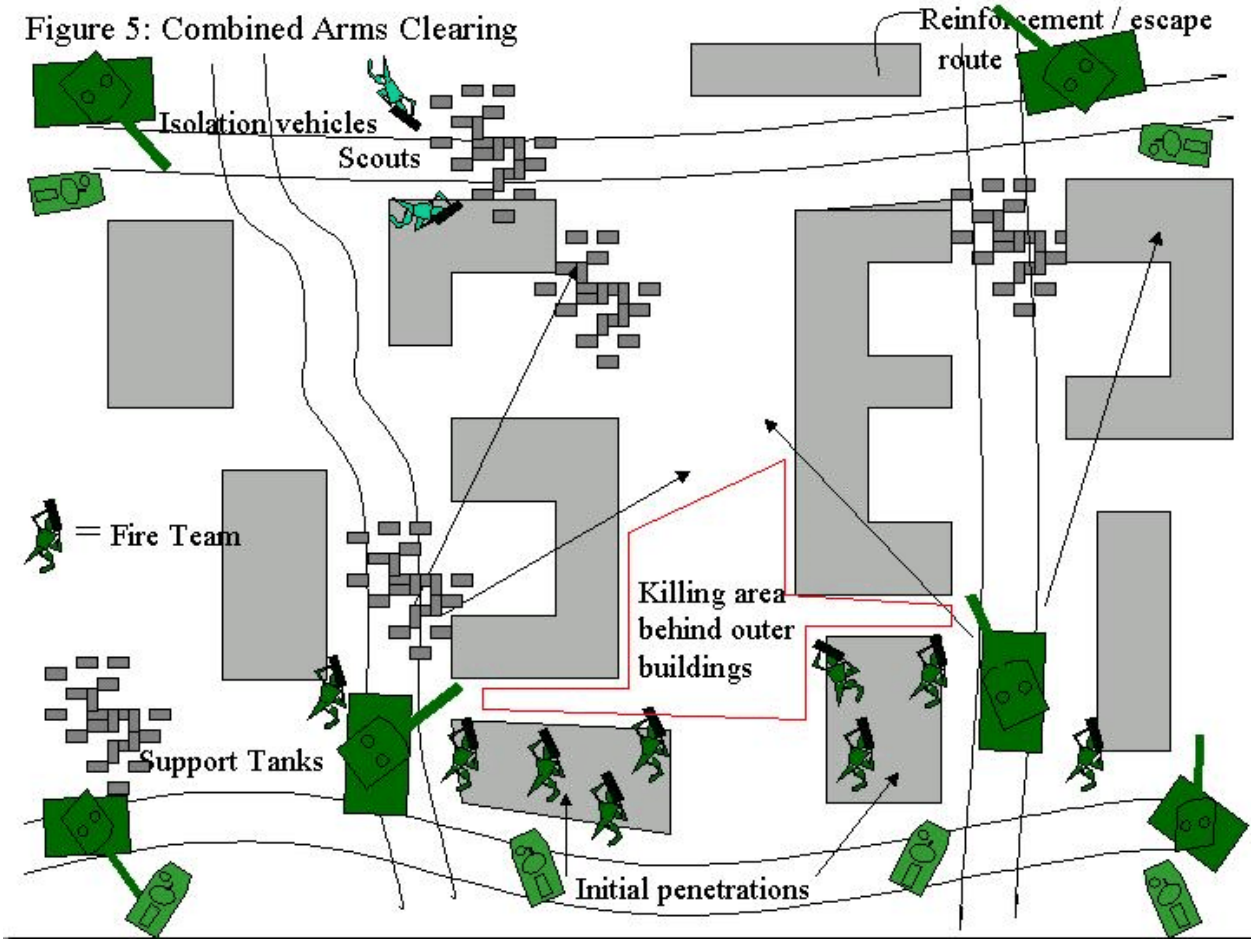


Figure 6: Corner Drill

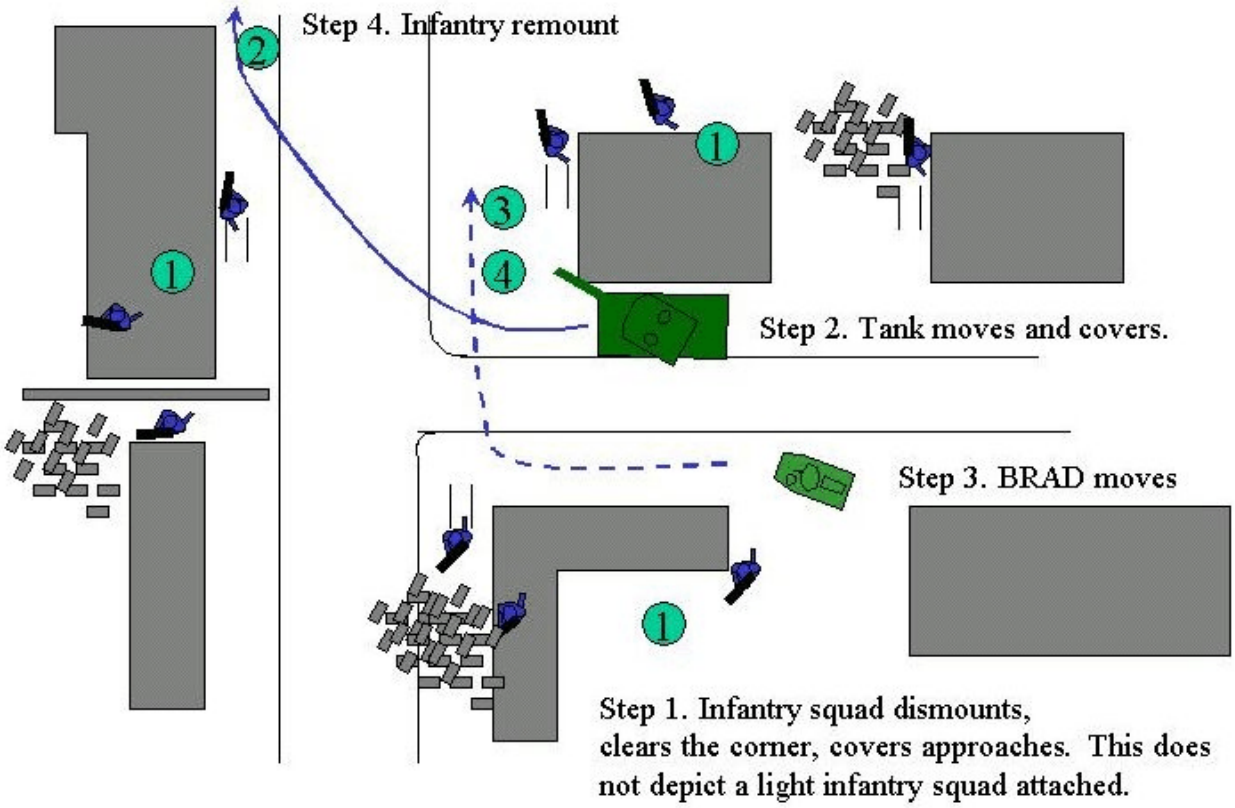
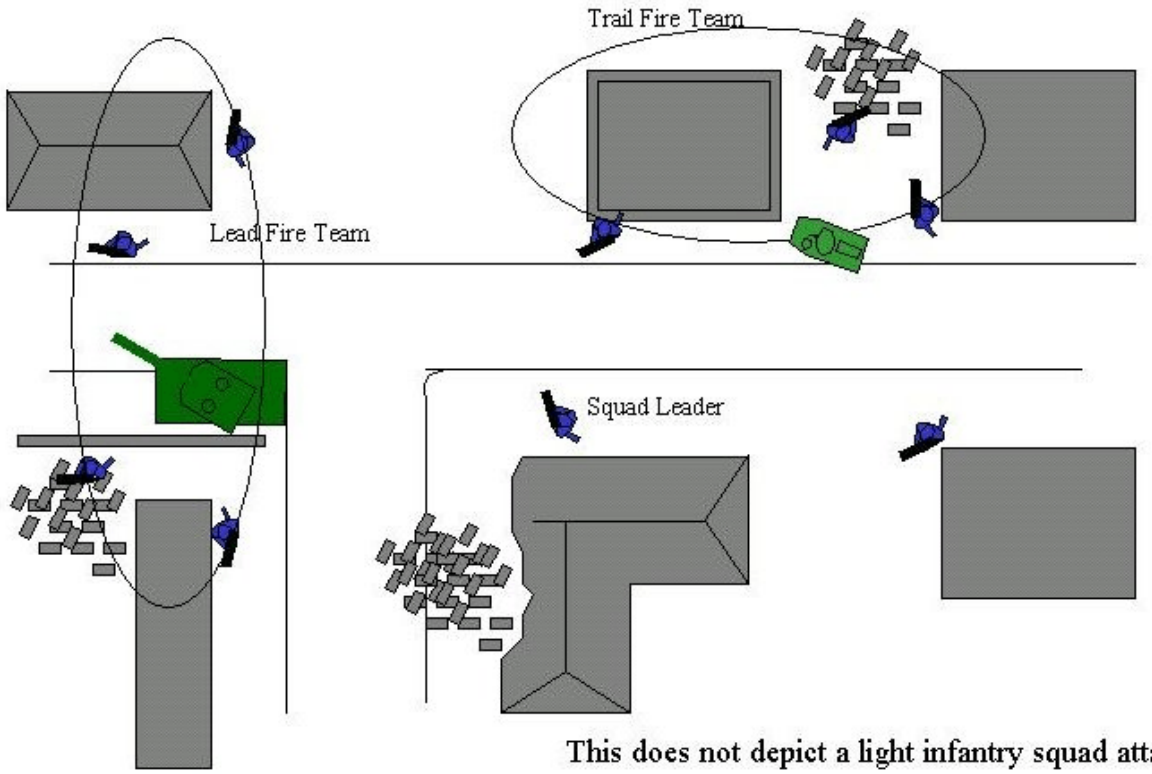


Figure 7: Dismounted Patrol



This does not depict a light infantry squad attached.

Mountain Cavalry Recon in Built-Up Areas

by Captain Rich Rouleau

The mounted scouts moved forward into the edge of the town in what was supposed to be a reconnaissance mission. Aero-scouts overhead probed forward of the ground elements, two recon platoons moving along independent routes, trailed by the squadron headquarters. The right flank platoon entered the killing zone of a near ambush that eliminated half of the unit in the initial blast and fires. The remainder of the platoon was pinned, some jammed up in their vehicles, others caught in the open. Their sister recon platoon could not offer any support and the aero-scouts were not armed for that precise a mission. The platoon soon died in the street.

"Apache" Troop is the ground cavalry troop of the 3rd Squadron, 17th Cavalry, 10th Mountain Division (LI) at Fort Drum, New York. It is one of four divisional light ground cavalry troops in the active Army and National Guard today. The National Guard also has several separate light ground cavalry troops. In addition, there is the active duty 2nd Armored Cavalry Regiment. Each of these light, ground cavalry forces has its own specific MTOE.

Because of its unique MTOE, "Apache" troop has developed its own tactics, techniques, and procedures (TTPs) for movement and reconnaissance in built-up areas (BUAs). The TTPs that will be discussed in this article can be adopted or modified by other cavalrymen. They are not intended to be the only solution, but to illustrate how one troop gets the job done.

In addition to Apache Troop, the squadron has a headquarters troop, two OH-58D air cavalry troops, and an aviation maintenance troop. In its primary role, 3-17th serves as the division's "eyes and ears." If required, the squadron can be task-organized to support an infantry brigade in the division with additional corps or division aviation lift and aero-medical assets, including UH-1s, UH-60s and CH-47s.

Because of these diverse requirements, Apache Troop must be a multifunctional troop capable of operating as part of the squadron or in independent missions down to platoon level. Apache

Fig. 1. Room-Clearing SOP

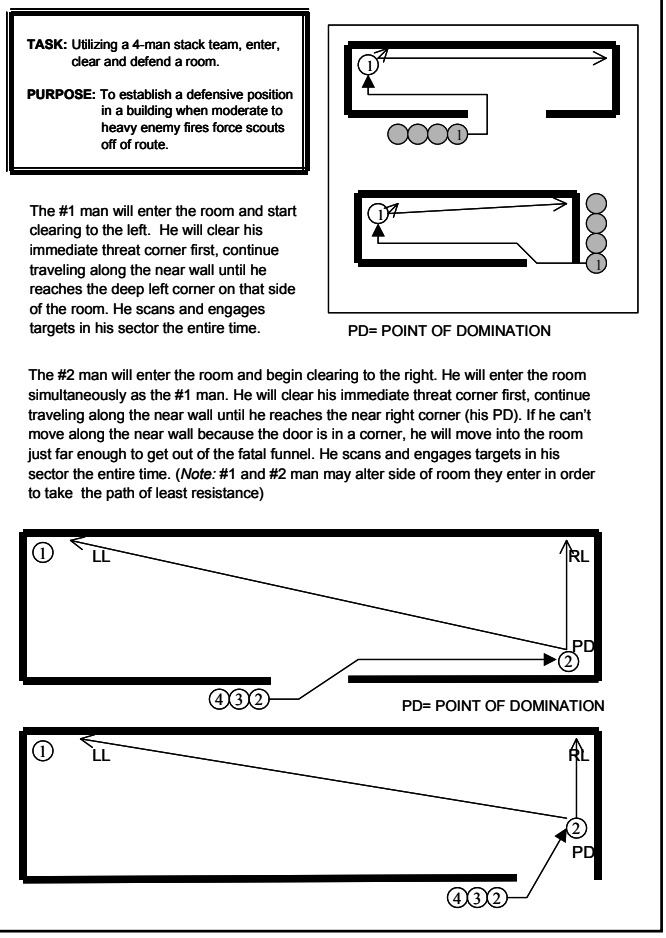


Fig. 2. Room-Clearing SOP

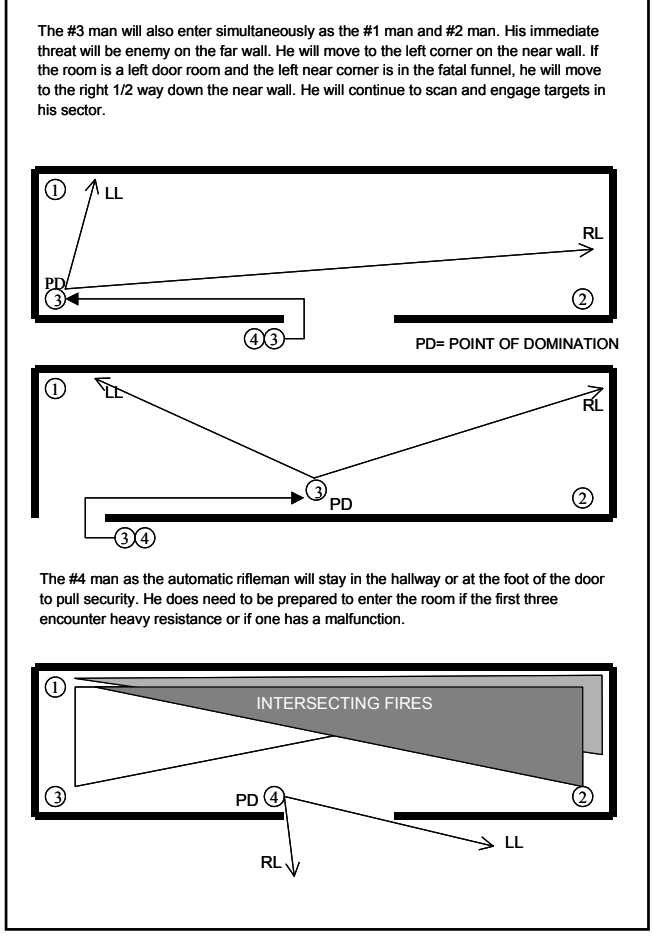
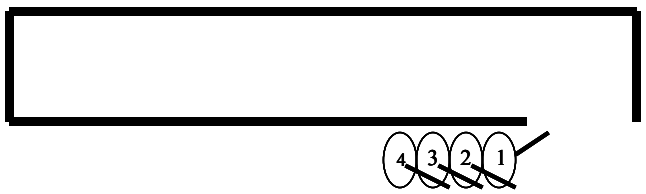


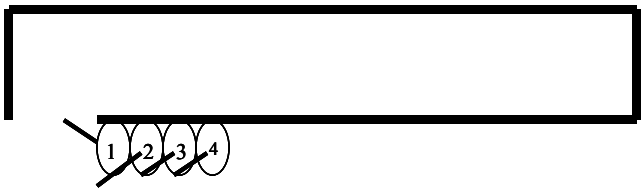
Fig. 3. Stacking

Stack: A unit, usually four men, in a posture ready to enter and clear a room, move down a hallway, up a stairwell, etc.

STACK: LEFT SIDE



STACK: RIGHT SIDE



The #1 man's weapon is always oriented on the point of entry.

Troop currently has four scout platoons and a headquarters section. The scout platoons each have three M1025A2 HMMWVs with two M2 HBs, one MK-19, and three M240s. There are also two M966 TOW HMMWVs with two TOW II Bs, two M240s, and 15 scouts. The headquarters section has an M1025A2 with an M2 HB for the troop commander, and two M998s with one M240 for the 1SG and supply sergeant. The troop also habitually gets a maintenance contact team, communication team chief, and medics with vehicles from headquarters troop. Scouts can conduct all required tactical operations. They can operate mounted, sling load vehicles into their area of operation on a CH-47, or be inserted on foot by UH-60 with OH-58Ds in support.

Since its activation in 1988, Apache Troop, as part of 10th Mountain Division (LI), has conducted real-world MOUT in Somalia and Haiti. Selected leaders have also deployed to Bosnia and Macedonia. Using this in-house experience, and lessons from the Mountain Leaders Close Combat Certification Course (MLC4), Apache Troop developed a scout SOP for reconnaissance in BUAs.

The SOP was developed with the following guidance:

Operate within published Division MOUT SOPs. Twice a year, the 10th Mountain Division (LI) conducts a hands-on, three-week MOUT leaders course to "train the trainers" to the division's standard. It also updates them on the newest TTPs and technology. All four platoon leaders and senior scouts attend this course. Their training serves as the foundation of the troop SOP.

Avoid a fight, but be capable of room clearance. Reconnaissance normally means avoiding fights, especially decisive engagements. Regardless of the type of reconnaissance being conducted, the scouts understand that they should always be ready for room clearance operations to gain and maintain contact, or bypass the enemy. If necessary, the scouts break contact and get off the streets to await relief. The intent is to take rooms for security, not seize buildings (see Figs. 1, 2, & 3).

No more than nine scouts dismounted and one vehicle in support per platoon. This requirement supports existing division SOPs, allowing easy integration with infantry battalion task forces and the basic stack formations trained in the MLC4 (see Figs. 4 and 5). Restricting vehicles in the area to one per platoon provides mobility and increased firepower without the congestion normally associated with BUAs. This tactic allows the troop to bound and move across danger areas or streets yet maintain basic stack formation and rear security.

Maintain an EVAC/QRF team with OH-58Ds in support. This allows the platoon, if compromised, to extract with adequate firepower and vehicles in support without congesting the extraction route. This platoon sergeant leads EVAC. His vehicle is armed with a MK-19 that can deliver devastating firepower. By acting in concert with the lead support vehicle, the platoon sergeant can EVAC the entire platoon and/or casualties to the casualty collection point or platoon rally point.

Many rehearsals show that OH-58Ds best support the troop by scouting in the BUA one phase line ahead of the lead platoon. They should only engage those targets clearly marked with an AIM-1 laser or colored smoke. Using the OH-58D's weapons in MOUT is dangerous and requires great care; collateral damage is often excessive. On the other hand, OH-58Ds are great at identifying potential hazards and assisting platoons maneuvering through the BUA. They also can assist with the cordon, and when the ROE permits, isolate targets.

Coordinate with follow-on forces. In any reconnaissance mission, the scout platoons must coordinate battle handover with their follow-on forces. But in urban areas, they must maintain continuous coverage on any urban area they have just cleared. The reason is simple; the cover and concealment offered in a BUA makes contact more likely. It is also easier for the enemy to blend with the locals. People will be moving along the cleared route in an urban setting. That makes it much harder to spot enemy soldiers who might be laying a minefield, for example. Therefore, a BUA requires more constant surveillance than a semi-deserted rural area.

Urban areas are usually NAIs or at least key terrain. An infantry squad or platoon should accompany the scouts whenever possible. That will allow the cavalry to continue with its reconnaissance while the infantry holds the ground and establishes security. Such task organization benefits all. The cavalry leader has a combined arms team, adding flexibility in dealing with obstacles and direct fire contact. It also allows the cavalry to continue with its mission and not wait for follow-on forces. By participating in the BUA clearance, the infantry is much more aware of its surroundings when setting up security on the key terrain.

Troop organization. During a route reconnaissance of a BUA, the troop is organized into five elements. Two scout platoons (RECON 1 & 2 respectively) stagger on opposite sides of the

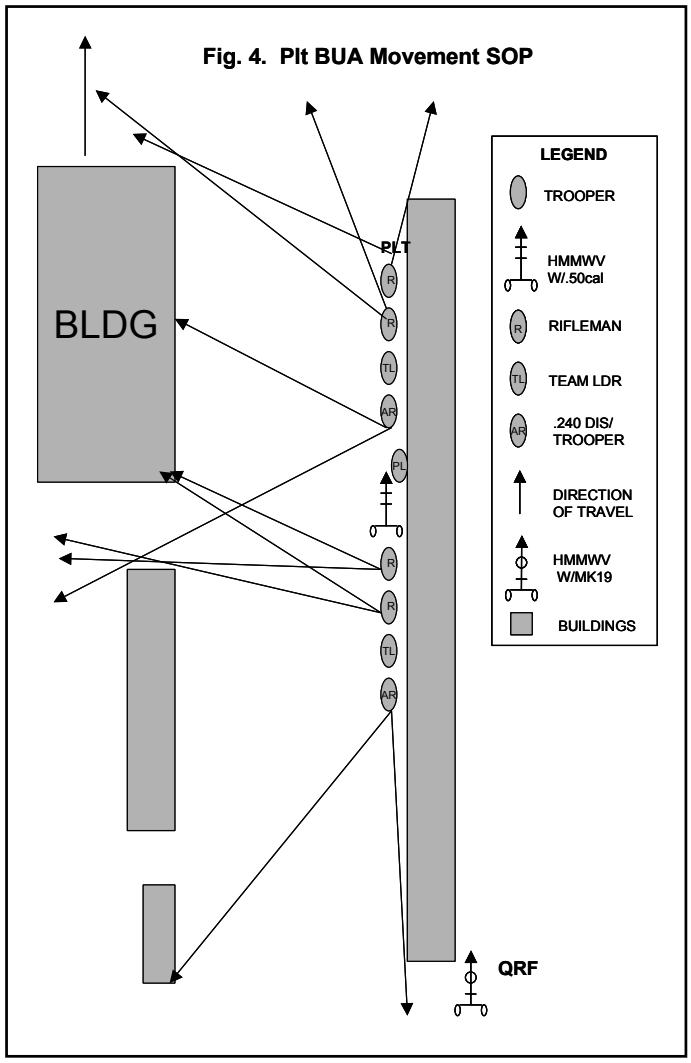


Fig. 4. Plt BUA Movement SOP

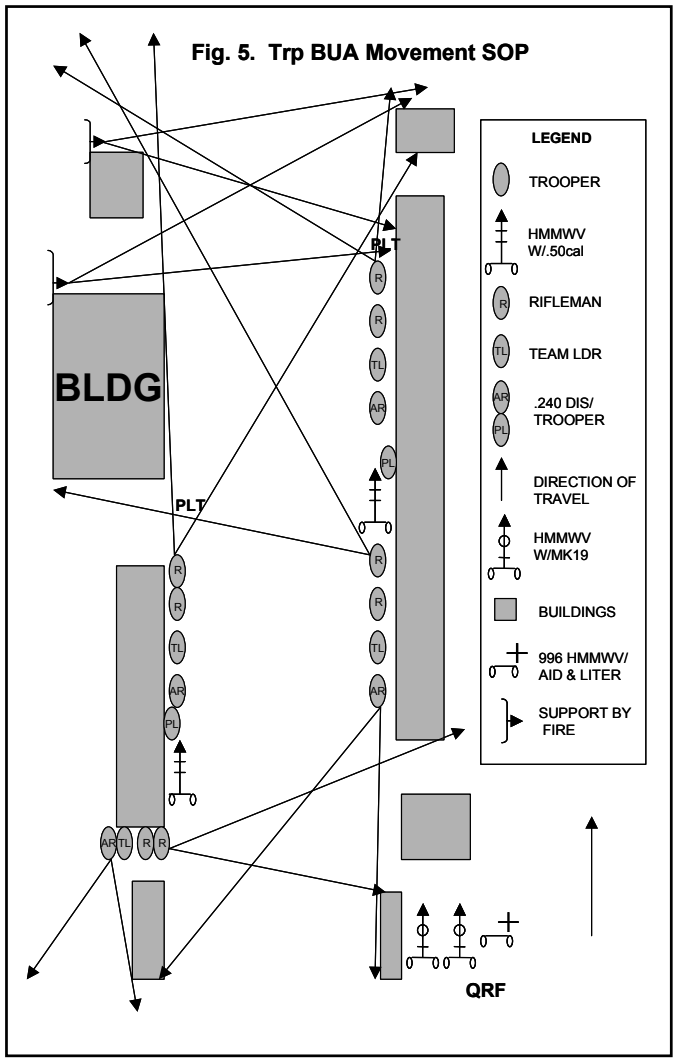


Fig. 5. Trp BUA Movement SOP

street with an aero-scout section in overwatch. The cordon platoon, with an aero-scout section, maintains a semi-cordon of the main avenues of approach to prevent anyone from leaving and entering the built-up area. A platoon with medics is designated as the troop EVAC/QRF. It cordons the troop's entrance and displacement route. The QRF is also prepared to occupy a support-by-fire position that would allow RECON 1 and 2 to break contact and displace. The cache element under control of the 1SG secures all the remaining troop vehicles under the protection of the troop trains (see Fig. 6).

The mission. There are many techniques for planning, marking, quartering, and executing reconnaissance of a built-up area. I will focus here on movement techniques and the incorporation of aviation assets into the mission, rather than the MDMP, TLPs, or IPB. The first stage is the earliest possible placement of the cordon element and a section from the QRF to watch the BUA's avenues. They identify any patterns or key areas of concern. They should move into place without aero-scout support to avoid compromise. Once they are in place, aero-scout sections move into position. Team 1 supports the cordon on that platoon's internal net. Team 2 supports RECON 1 and 2's movement. They operate initially on troop command net but drop to the appropriate platoon net when contact is made.

RECON 1 and 2 move offset from each other by one phase line (see Fig. 6). This allows mutual support without committing the entire element. They can bypass without compromise or loss of momentum. It does not congest the area. Their positions along the buildings may mask the size of the RECON element to the enemy. As each platoon moves forward, the platoon sergeant trails a phase line behind to avoid being drawn into a fight. Yet his drag position allows him to establish a SBF with his MK-19 and to support EVAC. Should the lead teams come under contact and become decisively engaged, they are equipped and trained to knock down a door and clear a room. The QRF would then establish an SBF position to allow displacement, EVAC, or bypass operations. Once the route reconnaissance is complete, the troop consolidates and reorganizes outside the built-up area. If required, the cordon element maintains continuous coverage of the BUA until handoff is complete to the follow-on battalion scouts, military police, or a convoy moving through the BUA.

Refinements. All operations can be improved. Equipment shortages, or lack of the proper tools, is not new. It happens in the Army today. Those needs often stimulate force development. For example, sniper rifles would add greatly to the success of such operations. They provide excellent overwatch with minimal risk of collateral damage. Another shortfall is marking systems for ground to air assets. The AIM-1 laser provides a higher density light than the AN/PAC-4C and can be distinguished with the trained eye. It, however, is not the cure for all lasing tasks.

Continued on Page 43

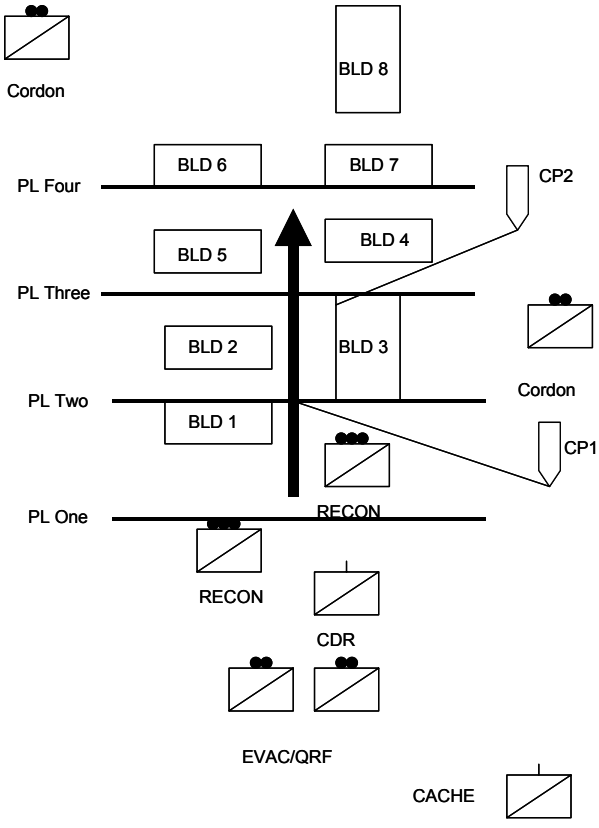
Mountain Cavalry from Page 18

Conclusion. The days of bypassing all built-up areas greater than 1 kilometer are gone. Even in the Third World, urban sprawl and modernization has made MOUT a fact of military life. Cavalry scouts will lead units into and through those areas. Doing so requires the careful application of DTLOMS by unit leaders. This brief article showed how one unit maintains its combat edge by using all the available tools at hand. Apache Troop draws on the experience of its combat veterans, seasoned in operations in Somalia, Haiti, and Bosnia. Much of that experience has gone into the creation of the MLC4 and the unit leaders make sure that all troopers benefit from that combat course training. Finally the unit never stops refining its TTPs in combat drills that improve the unit's ability to meet the challenges of MOUT.

The following troopers provided valuable input and deserve the lion's share of the credit: 1LT Kevin Scott, 1LT David Spence Sales, 1LT Wade Birdwell, and 1LT Toby Austin. Without input from my former platoon leaders this article may still have been sitting on my hard drive.

CPT Richard R. Rouleau enlisted in the Army National Guard in 1982 and transferred to active duty in 1984 as an M60A1 armor crewman. His previous enlisted assignments include the 133d Engineer Battalion; 2-6 Cav; 2-72 Armor; and HQ USAG, Fort Drum. In 1991, he was commissioned in Armor from Niagara University. He has served as a tank platoon leader, company XO, and BMO in 2-37 Armor, 3ID, and A/S3, S4 and troop commander of A/3-17 Cavalry, 10th Mountain Division. He is currently assigned to the Joint Readiness Training Center as an observer/controller.

Fig. 6. TRP BUA Movement SOP Setup



BUSTING THE BARRICADES:

How Armor Was Employed In the Urban Battle of Seoul

by Captain Matthew H. Fath

As noted in a recent *Army Times* article entitled "Urban Crisis," few armor or mechanized infantry units — and not one active duty armor or mechanized infantry unit — has yet trained or was scheduled to train at the Zussman Village Mounted Urban Combat Training Site at Fort Knox, Kentucky.

This is a startling fact, considering that the facility cost over 15 million dollars to build and is touted as the premier urban warfare training center for armor units.[1] This apparent lack of interest by the heavy force community, coupled with the light infantry's increasing reliance on "precision" urban warfare, is a disturbing trend. By disregarding the likelihood of future battles in urban terrain, many heavy units, with their emphasis on desert or rural warfare, allow the special operations and elite light infantry units to write the Army's future urban warfare doctrine. For example, a cursory reading of doctrinal proposals or combat training center articles demonstrates that the correct training emphasis of conventional U.S. Army units should be on proper room-clearing techniques and well-aimed rifle fire.[2] Moreover, the focal point for "precision" MOUT adherents seems to be on aggressive light infantry forces, to the neglect of the combined arms team. Disregarding both the very nature of urban warfare and history's past urban battles, "precision" MOUT supporters have wrongly implied that future urban fights will require less firepower.

General Douglas MacArthur once stated that it is the study of military history that brings to light "those fundamental principles, and their combinations and applications, which, in the past, have been productive of success."[3] An examination of the Battle of Seoul during September 25-28, 1950, refutes the "precision" MOUT theory and demands that armor and mechanized leaders claim their rightful place at the table of doctrinal discussions. Specifically, the Battle of Seoul demonstrates that armor, with its ability to survive on the battlefield and produce large, concentrated amounts of firepower, was an integral component of the combined arms team. During X Corps's "Battle of the Barricades," Marine and Army tactics stressed the punching power of tanks as a decisive and necessary complement to the rifleman. Tanks, in the role of mobile assault guns, reinforced the rifle companies with destructive and suppressive fires to overcome the North Korean People's Army's (NKPA) strongpoint defenses.Additionally, they provided commanders flexibility by shifting tanks to decisive points on the battlefield. As a veteran of the fighting in Seoul, Private First Class Lee Berger of E Company, 2d Battalion, 1st Marine Regiment, stated, "Thank God we had tanks with us. Without them, we'd still be fighting there."[4]

Given the military, psychological, and political importance of Seoul to both the UN (United Nations) and NKPA forces, it is hardly surprising that the city would become a battleground. Seoul, the capital of South Korea, was also an important logistics node. General MacArthur believed that the recapture of Seoul was an important part of Operation Chromite (The Inchon-Seoul Campaign) and stated:

"By seizing Seoul, I would completely paralyze the enemy's supply system — coming and going. This in turn will paralyze the fighting power of the troops that now face Walker. Without munitions and food they will soon be helpless and disorganized, and can be easily overpowered by our smaller but well supplied forces."[5]

MacArthur also believed that the recapture of Seoul would undermine the morale of the NKPA and boost the morale of the ROK forces. Author Clay Blair in *The Forgotten War: America in Korea, 1950-1953*, noted that MacArthur placed great emphasis on the psychological benefits of capturing Seoul. MacArthur professed that Seoul's capture would shock and demoralize the North Korean government and armed forces.[6]

For the North Koreans, Seoul was the logistical hub for its forces south of the Imjin River, a lifeline of sorts. As author James Stokesbury, in his work *A Short History of the Korean War*, stated, "The vast majority of the support for the Communist offensive, therefore, funneled through the fairly narrow corridor in and around the capital city."[7]

Two important factors in understanding the need for armor support during the Battle of Seoul center on the nature of the city's urban terrain and the NKPA defenses. In 1950, Seoul had a population of nearly two million people. The city proper was surrounded by hill masses, mostly rural villages of huts. However, its core contained modern office buildings, residential structures, and ancient palaces. Many of the buildings were solidly constructed and structurally sound. Wide arterial boulevards crisscrossed the city, and it was these avenues of approach that would become the focal point for NKPA strongpoints.[8] One such major road was Ma Po Boulevard. General Edwin H. Simmons, then a weapons company commander in the 3rd Battalion, 1st Marine Regiment, described Ma Po Boulevard as a "solidly built-up street, mostly two- and three-story structures of stucco and masonry construction, and occasional more impressive build-

buildings — churches, hospitals, and so on — often enclosed with a walled compound."[9]

In charge of the NKPA defense of Seoul was Major General Wol Ki Chan. Chan's initial plan was to concentrate his forces on the hills surrounding Seoul and in the city itself. However, after the 32d Infantry Regiment of 7th Infantry Division seized South Mountain on the 25th of September, Chan believed that the city was lost and withdrew many of his units. Nevertheless, he left a sizeable force to defend Seoul's city core, in an effort to delay and attrit X Corps forces. Chan hoped that this delaying action would also allow NKPA units south of Seoul to withdraw north and avoid being smashed between X Corps and Eighth Army.[10]

Opposing UN forces were an amalgamation of various NKPA units under the newly formed 31st Rifle Division or Seoul City Regiment, numbering approximately 8,000 to 10,000 men. The 31st Rifle Division consisted of units from the 25th NKPA Separate Infantry Brigade, 18th NKPA Rifle Division, 42d NKPA Tank Regiment, 19th NKPA Anti Tank Regiment, 513th NKPA Artillery Regiment, 10th NKPA Railroad Regiment, and the 36th Battalion, 111th NKPA Security Regiment.[11] The NKPA defenders also employed a large majority of Seoul's inhabitants as forced labor to construct their barricades.[12]

To defend the nucleus of Seoul, the NKPA developed a potentially deadly defensive scheme. On the outer edges of the city core, the NKPA employed ambushes and sniper teams in order to attrit and disrupt Marine or Army attacks. Photojournalist David Douglas Duncan, with A Company, 1st Battalion, 1st Marine Regiment, testified to the frustrating effects of these ambushes in his book *This Is War: A Photo-Narrative of the Korean War*. He stated, "Other Reds, armed with rapid fire burp guns and hiding behind the gutter walls along the way, squirted quick bursts at the steadily pushing Marines — then melted away."[13]

After the ambushes had taken some toll on the attackers, the NKPA hoped that their series of successive strongpoint defenses or barricades would destroy them. Barricades were established every 400 to 600 yards. If the attacker could not be halted, the NKPA's defensive depth would allow their defenders to break contact, withdraw, and then occupy a supplemental or alternate barricade.[14] The major weakness of the NKPA's defense was that many strongpoints were isolated and lacked mutual support. As author Bevin Alexander explained in his book *Korea: The First War We Lost*, "Thus the Americans were able to reduce each barricade independently with no fear that the enemy could develop a coordinated counterattack or pose any threat to possession of the city."[15]

Despite the NKPA's lack of an overall coherent defensive plan, at the small unit level each barricade was individually formidable and deadly to the potential attacker. These barricades were essentially fortified islands. As author Robert Tallent, who was with D Company, 2d Battalion, 1st Marine Regiment, stated:

"In actions of this type there can be no flanking of a position — only so many men can get into the fight. The width of the street, available cover and strength of the enemy fire dictate the number of troops that can be brought to bear on any one position… The barricade is a separate battle all to itself."[16]

Each barricade was centered on a street intersection. The entire width of the street was blocked with a wall constructed of rice bags filled with earth. The barricade was generally eight feet high and approximately six feet deep, making it impervious to machine gun or small arms fire. Many barricades were reinforced with various materials such as overturned trolley cars, automobiles, barrels, streetcar rails, or other debris. In front of each barricade were rows of antitank mines. Covering this kill zone were interlocking fires from towed 45mm antitank guns, individual T-34 tanks or SU 76 self-propelled guns, antitank rifles, and Maxim heavy machine guns.[17]

Each barricade was also tied into adjacent buildings. NKPA soldiers occu-

pied defensive fighting positions inside the buildings and fired from doors and windows.[18] These positions offered excellent cover and concealment and degraded the attacker's target acquisition. Snipers also fired from rooftops. Staff Sergeant Lee Bergee of E Company, 2d Battalion, 1st Marine Regiment, stated that, "It seemed that every building in Seoul housed an enemy sniper."[19] Each barricade was also supported with mortars and artillery fires, which were often registered in front of the enemy barricades. For extra defense against tanks, the NKPA also resorted to suicide detachments armed with satchel charges.[20]

Against these defenses, the X Corps commander, Major General Edward Almond, ordered General Oliver P. Smith's 1st Marine Division to seize Seoul. Smith planned a multi-pronged advance that was centered on major roads in Seoul, in an effort to capture the city quickly.[21] Based on the limited intelligence of NKPA defenses in Seoul, the operation was essentially an urban movement to contact. On September 25, the 1st Marine Division began its attack on Seoul. In order to support the 1st Marine Division's attack and isolate the city from the south, the 32d Infantry Regiment of the 7th Infantry Division seized South Mountain and cleared the surrounding urban area.[22]

Marine Regimental Combat Team One, consisting of the 1st Marine Regiment and the 2d Korean Marine Corps Battalion, attacked in zone (its "zone of action" approximately one mile to one and half miles wide with a final objective of six miles in depth — the high ground near the northeastern outskirts of Seoul) oriented on the Ma Po Boulevard. In RCT-1's zone were Seoul's main business and hotel section; the main Seoul railroad station; the French, American, and Russian consulates; City Hall; the Duk Soo Palace; and the Museum of Art.[23] To give the reader a flavor of the scope of RCT-1's mission, General Edwin Simmons stated that their attack was analogous to "moving up Pennsylvania Avenue to capture the Capitol, taking Union Station along the way."[24]

Regimental Combat Team Five, consisting of the 5th Marine Regiment and the 1st Korean Marine Corps Battalion, attacked in zone (its "zone of action" also approximately one to one and a half miles wide, with a final objective of six miles in depth — the high ground overlooking the Seoul-Uijongbu Road) oriented towards the northwestern part of the city, which included the Government House, Sodaemun Prison, Changdok Palace, and the Royal Gardens. Regimental Combat Team Seven, consisting of the 7th Marine Regiment, the 1st Marine Recon Company, and the 5th Korean Marine Corps Battalion, was originally ordered to protect the division's left flank and seize the high ground astride the Seoul-Kaesong Road to the northwest of Seoul in order to block enemy escape routes.[25] However, after Smith realized the intensity of the fighting in Seoul, he reoriented RCT-7s axis to the south down the Kaesong-Seoul highway and ordered them to attack abreast of RCT-1.[26]

Despite MacArthur's premature pronouncement of the city's liberation on September 26, the seizure of Seoul did not come quickly. After defeating a NKPA armored counterattack during the night of September 25, the Marine forces soon became bogged down in a street-by-street war. As Colonel Lewis "Chesty" Puller, the commander of the

1st Marine Regiment stated, "Progress was agonizingly slow."[27] Sometimes, the Marine regiments averaged a total of 1,200 to 2,000 yards a day.[28] This was due to the fact that the lethal NKPA traps produced murderous amounts of fire and posed significant challenges for the Marine or Army attackers. They also had the propensity to inflict large numbers of casualties. Private First Class Jack Wright of G Company, 3rd Battalion, 5th Marine Regiment, remarked that his company nicknamed one intersection "Blood and Bones Corner."[29] Army Signal Corps Lieutenant Robert Strickland, who was with the Marines in Seoul, stated:

"The air was whipping with everything from flying stones to big antitank shells… Right after this, we got so much fire of all kinds that I lost count. There was more mortar shells, more antitank stuff, and more small-arms fire, and then it started all over again. I have seen a lot of men get hit in this war and in World War II, but I think I have never seen so many men get hit so fast in such a small area."[30]

Given the nature of the intense fighting described above, it becomes abundantly clear that the "sugar-coated version" of precision MOUT could not have possibly overcome these defenses.[31]

Instead, in order to breach these barricades and destroy the NKPA defenders, the Marine and Army forces developed a highly effective combined arms team, in which tanks played an indispensable role. Most UN forces quickly discovered that rifle or machine guns lacked the penetrating power and punch to overcome the hardened NKPA barricade defenses. Moreover, only the tank proved to be effective at physically breaching the barricade. It simply blasted it to shreds with its main gun or plowed through it.[32]

The typical tactical pattern for the Marines or Army units began with a bombing or strafing of NKPA positions by Marine Corsairs. Next, mortars and artillery suppressed the enemy while a team of infantry and armor moved into support-by-fire positions. Tanks destroyed NKPA machine guns, tanks, and antitank guns, while engineers breached the minefields.

After a breach lane was created, tanks rolled forward and demolished the barricade. Then infantry, following behind the tanks to take advantage of their armor protection, entered buildings and completed the destruction of the enemy. On the average, this whole process took about an hour per barricade.[33] Staff Sergeant Chester Bair of the Heavy Tank Company, 32d Infantry Regiment, which was often attached to Marine units, praised these tactics. He stated:

"The Marines used tanks very well. They would use the telephone located on the rear of each tank which talked to the commander inside. In this way the Marines acted as our eyes. Buttoned up inside, depending on a periscope, our vision was limited. Working outside in the streets, the Marines tremendously increased our ability to close with the enemy and to direct our firepower."[34]

The two tanks that were used by UN forces during the Battle of Seoul were the M-26 Pershing and the M4A3 Sherman. The M-26 Pershing was used by the Marine Corps. Its armament was a 90mm main gun and two .30 caliber machine guns. The Army used the M4A3 Sherman. Also, some Marine units received support from the Sherman tank companies of the 7th Infantry Division. The Sherman's armament consisted of a 76mm main gun and three .30 caliber machine guns. In addition to the Pershing and Sherman tanks, other variants, such as flame-thrower tanks and bulldozer tanks, were also used.[35]

Tanks were often rotated in order for the attacking units to sustain the momentum of the attack and prevent many withdrawing NKPA soldiers from bolstering the defense of the next barricade. Chester Bair stated, "As soon as one had been eliminated, there would be another. After a tank overran three or four of them, another one would replace it.

In this manner each tank could refuel, clean its guns, receive ammo, and allow the crew to work and do maintenance."[36] If a tank "rotation" policy was not possible, attackers waited for tanks to rearm and refuel before continuing on to the next barricade fight.[37]

One hallmark of the tank's effectiveness was its ability to generate large amounts of accurate and deadly firepower in a very short time. During the destruction of one barricade by D Company, 2d Battalion, 1st Marine Regiment, Tallent stated that it appeared that the "tank guns went into a rampage."[38] Tanks assisting companies from the 1st Battalion, 1st Marine Regiment were also instrumental in destroying NKPA defenses around the railroad station and government compound.[39] Often, tanks proved to be the decisive arm when the momentum of attacks began to stall and fire superiority needed to be regained. Duncan observed:

"From behind their barricades they (the NKPA) started spraying endless rounds into the station and its plaza out in front. The Marines burrowed into the shell holes and dared not raise their heads, for the crack of bullets overhead was close and constant and meant for them. Back along the street, other Marines heard the fire, leaned dangerously far out from their own barricades to see how they might relieve their buddies, and had found no answer — when deep, ground-shivering roars took the problem from their shoulders… tanks, those long-overdue tanks, growled up across the railroad tracks, into the plaza — and met the enemy fire head on. The tanks traded round for round with the heavily-armed, barricaded enemy — and chunks of armor and bits of barricade were blown high into the air."[40]

"The tanks traded round for round with the heavily-armed, barricaded enemy — and chunks of armor and bits of barricade were blown high into the air."

Tanks were also very effective at quickly destroying NKPA heavy weapons and armored vehicles which, left alone, would have cut advancing infantrymen to pieces. During a fight near Duksoo Palace, Lieutenant Bryan J. Cummings's M-26 Pershing destroyed two NKPA SU-76s and allowed the Marines to seize the enemy barricade.[41] Blair's Sherman crew also destroyed a NKPA T-34 in a battle in the street, "ripping their turret completely off" with one round.[42]

Attacks that were launched without tank support often ended in failure. In fact, many of these units had to be rescued by tanks; the presence of a few tanks often favorably shifted the tide of the battle towards the UN side. For example, on September 26, a platoon

from C Company, 32d Infantry Regiment encountered a NKPA defense in vicinity of the Seoul City Racetrack. Suffering heavy casualties within seconds and lacking any tank support, the platoon established a hasty defense and began fighting for their lives. The platoon just simply did not have enough firepower to overcome the NKPA defenses. The platoon leader, Lieutenant James Mortrude, wisely requested assistance from some tanks that he saw in an adjacent sector. As author Shelby Stanton described in his book, *Ten Corps in Korea, 1950*:

"He (Lieutenant Mortrude) spotted a trio of three tanks clanking forward to their assistance, and dashed 25 yards through withering enemy fire to reach them before more casualties were inflicted on his platoon. Grabbing the external interphone system phone on the rear of the "buttoned-up" lead tank, he yelled directions to commence firing immediately into the enemy-held roadway. The tanks smothered the road berm in geysers of blackened earth as the uninjured and walking wounded retreated to safety."[43]

The initial advance by D Company, 2d Battalion, 7th Marine Regiment is another vignette that demonstrates the vital need for tank support during the urban fight at Seoul. Moving to conduct link-up with elements of the 5th Marine Regiment, D Company was punished by NKPA defenses near the Arch of Independence, suffering heavy casualties within minutes. D Company was soon surrounded by NKPA counterattacks and had to establish a perimeter defense and wait for support. The next morning, tanks smashed through the enemy's defenses and liberated the lost company.[44]

The liberation of Seoul actually occurred on September 28, when fittingly, a flame-thrower tank destroyed that last real NKPA defense near Kwang Who Moon Circle.[45] Seoul was ripped from the hands of the NKPA at a high cost. For example, the 1st Marine Division lost 121 killed in action and 589 wounded. NKPA casualties were estimated at 4,284 dead or wounded.[46] U.S. tanks proved to be quite resilient. Not one tank was destroyed by an NKPA tank but several were destroyed by suicide detachments or mines.[47]

The use of armor during the Battle of Seoul provides the modern military leader with key insights on the possibilities of future urban warfare and the need to train units to meet this challenge. The Marine and Army experience in Seoul demonstrates that armor plays a critical role in destroying a resolute enemy in urban battles. Armor has the ability to rapidly destroy enemy strongpoints and create breach holes for the infantry assault, while using its armor protection to survive on the battlefield.

Like the Marines and the Army at Seoul, successful future MOUT operations should be conducted with combined arms teams, with armor or infantry fighting vehicles playing a requisite role. The current fad of believing that infantry alone, employing "discriminatory" rifle fire and hostage rescue tactics, can overcome an urban defense may well be a recipe for disaster. Precision MOUT techniques, while admirable and alluring in its concept of minimizing noncombatant casualties and collateral damage, does not pass the test of history.

Notes

[1]Sean D. Naylor, "Urban Crisis," *Army Times*, 20 November 2000, [on-line].

[2]The definition of precision MOUT can be found in the Department of the Army *Field Manual 90-10-1, An Infantryman's Guide to Combat in Built-Up Areas* (Washington, D.C.: GPO, 1993).

[3]John E. Jessup and Robert W. Coakley, *A Guide to the Study and Use of Military History* (Belmont, Calif.: Wadsworth Publishing Company, 1998), 38.

[4]Donald Knox, *The Korean War, Pusan to Chosin: An Oral History* (New York: Harcourt Brace Jovanovich, 1985), 293.

[5]William T. James, "From Siege to Surgical: The Evolution of Urban Combat from World War II to the Present and Its Effect on Current Doctrine," (M.M.A.S. thesis, United States Army Command and General Staff College, 1998), 27.

[6]Clay Blair, *The Forgotten War: America in Korea, 1950-1953* (New York: Times Books, 1987), 231-232.

[7]James L. Stokesbury, *A Short History of the Korean War* (New York: William Morrow, 1988), 66.

[8]Roy E. Appleman, *United States Army in the Korean War: South to the Naktong, North to the Yalu* (Washington, D.C.: Office of the Chief of Military History, Department of the Army, 1961), 531; Knox, 288; James, 27-28.

[9]Edwin H. Simmons, "The Battle For Seoul," address to the U.S. Marine Corps Amphibious Warfare School, 15 March 1985, [on-line], *http://www.geocities.com/pentagon/6453/seoul.html*, accessed 14 September 2000.

[10]G.W. Smith, "The Blinding Sand of MacArthur's Hourglass: The Race to Seoul," *Marine Corps Gazette* (September 2000), [on-line], accessed 7 Sep 2000; Robert E. Everson, "Standing at the Gates of the City: Operational Level Actions and Urban Warfare," (M.M.A.S. thesis, School of Advanced Military Studies, United States Army Command and General Staff College, 1995), available from the Center for Army Lessons Learned Database (Public Access), *https://calldbpub.leavenworth.army.mil/call.html*, accessed 8 September 2000; Bevin Alexander, *Korea: The First War We Lost* (New York: Hippocrene Books, 1986), 214; James, 29.

[11]Lynn Montross and Nicholas A. Canzona, *United States Marine Corps Operations in Korea, 1950-1953, Volume II: The Inchon-Seoul Operation* (Washington, D.C.: Headquarters, United States Marine Corps, 1955), 325-326.

[12]Shelby L. Stanton, *Ten Corps in Korea, 1950* (Novato, Calif.: Presidio Press, 1996), 106.

[13]David D. Duncan, *This Is War! A Photo-Narrative of the Korean War* (Boston: Little, Brown, and Company, 1990).

[14]Robert Tallent, "Street Fight in Seoul," *The Leathernecks: An Informal History of the U.S. Marine Corps* (New York: Franklin Watts, 1963), 240-241.

[15]Alexander, 218.

[16]Tallent, 240.

[17]Robert D. Heinl, Jr., *Victory at High Tide: The Inchon-Seoul Campaign* (New York: J.B. Lippincott, 1968), 229; Andrew C. Geer, *The New Breed: The Story of the U.S. Marines in Korea* (New York: Harper and Brothers, 1952), 171; Simmons; Tallent, 240-241; Montross and Canzona, 271-272; Knox, 289.

[18]Alexander, 215-216.

[19]Knox, 289.

[20]Montross and Canzona, 272.

[21]Anthony Harrigan, "Combat in Cities," *Military Review* 46, No. 2, (May 1966): 29; Montross and Canzona, 255-256.

[22]Montross and Canzona, 273-274.

[23]Ibid., 255-256; Appleman, 531.

[24]Simmons.

[25]Montross and Canzona, 255-256; Appleman, 531.

[26]Montross and Canzona, 264.

[27]Ibid., 272.

[28]Montross and Canzona, 273; Heinl, 242.

[29]Knox, 292.

[30]Stanton, 108-109.

[31]George Mordica, "Urban Combat: It's A Dirty Business, But Someone Has to Do It," Center for Army Lessons Learned Newsletter — Urban Combat Operations: Tactics, Techniques, and Procedures, November 1999, No. 99-16, 1-2. Mordica coins the term "sugar-coated," when referring to precision or surgical MOUT.

[32]Tallent, 244; Heinl, 229-230.

Continued on Page 35

[33]Heinl, 229-230; Alexander, 216; Appleman, 535.

[34]Knox, 294.

[35]Birchard L. Kortegaard, "Korean War: Tanks and Fighting Vehicles," *http://rt66.com/~korteng/SmallArms/tanks.htm*, accessed on 15 November 2000; Appleman, 535.

[36]Knox, 293.

[37]Heinl, 242.

[38]Tallent, 243.

[39]Montross and Canzona, 279.

[40]Duncan.

[41]Montross and Canzona, 278; Heinl, 245.

[42]Knox, 294.

[43]Stanton, 106-107.

[44]Appleman, 534-535; James, 32.

[45]Appleman, 535.

[46]James, 35.

[47]Appleman, 540.

Bibliography

Alexander, Bevin. *Korea: The First War We Lost*. New York: Hippocrene Books, 1986.

Appleman, Roy E. *United States Army in the Korean War: South to the Naktong, North to the Yalu*. Washington, D.C.: Office of the Chief of Military History, Department of the Army, 1961.

Blair, Clay. *The Forgotten War: America in Korea, 1950-1953*. New York: Times Books, 1987.

Duncan, David D. *This Is War! A Photo-Narrative of the Korean War*. Boston: Little, Brown, and Company, 1990.

Everson, Robert E. "Standing at the Gates of the City: Operational Level Actions and Urban Warfare." M.M.A.S. Thesis, School of Advanced Military Studies, United States Army Command and General Staff College, 1995.

Geer, Andrew C. *The New Breed: The Story of the U.S. Marines in Korea*. New York: Harper and Brothers, 1952.

Harrigan, Anthony. "Combat in Cities." *Military Review* 46, no. 2 (May, 1966): 26-30.

Heinl, Robert D., Jr. *Victory at High Tide: The Inchon-Seoul Campaign*. New York: J.B. Lippincott, 1968.

James, William T. "From Siege to Surgical: The Evolution of Urban Combat from World War II to the Present and Its Effect on Current Doctrine." M.M.A.S. Thesis, United States Army Command and General Staff College, 1998.

Jessup, John E. and Robert W. Coakley. *A Guide to the Study and Use of Military History*. Belmont, Calif.: Wadsworth Publishing Company, 1998.

Knox, Donald. *The Korean War, Pusan to Chosin: An Oral History*. New York: Harcourt Brace Jovanovich, 1985.

Kortegaard, Birchard L. "Korean War: Tanks and Fighting Vehicles." Available from *http://rt66.com/~korteng/SmallArms/tanks.htm.*

Montross, Lynn and Nicholas A. Canzona. *United States Marine Corps Operations in Korea, 1950-1955, Volume II: The Inchon-Seoul Operation*. Washington, D.C.: Headquarters, United States Marine Corps, 1955.

Mordica, George. "Urban Combat: It's A Dirty Business But Someone Has to Do It", Center for Army Lessons Learned Newsletter — Urban Combat Operations: Tactics, Techniques, and Procedures, November 1999, No. 99-16: 1-1 to 1-8.

Naylor, Sean D. "Urban Crisis." *Army Times*, 20 November 2000, On-Line.

Simmons, Edwin H. "The Battle For Seoul", Address to the United States Marine Corps Amphibious Warfare School, 15 March 1985. On-Line. Available from *http://www.geocities.com/pentagon/6453/seoul.html*.

Smith, G.W. "The Blinding Sand of MacArthur's Hourglass: The Race to Seoul." *Marine Corps Gazette* (September 2000). On-Line.

Stanton, Shelby L. *Ten Corps in Korea, 1950*. Novato, Calif.: Presidio Press, 1996.

Tallent, Robert. "Street Fight in Seoul." *The Leathernecks: An Informal History of the U.S. Marine Corps.* New York: Franklin Watts, 1963: 240-247.

CPT Matthew H. Fath graduated from the U.S. Military Academy in 1992 with a B.S. in Military History. He has served as a rifle platoon leader, support platoon leader, and battalion S4 in 3rd Battalion, 505th Parachute Infantry Regiment, Ft. Bragg, N.C. After IOAC, he served as an assistant brigade S3 (plans) for 1st Bde, 4th ID (Mech) and commanded A Company, 1st Battalion, 22nd Infantry Regiment, both at Fort Hood, Texas. Recently, he served as an AC/RC assignment as an observer-controller trainer for the 27th Enhanced Separate Infantry Brigade (NYARNG) in Syracuse, N.Y. Currently, he is a company team trainer, Light Combat Trainer Division (AB), Operations Group, National Training Center, Ft. Irwin, Calif. Additionally, he is a graduate student at the American Military University pursuing a Master of Arts in Military Studies in Land Warfare. His military schooling includes Airborne School, Sapper Leader Course, IOBC, Ranger School, Jumpmaster, IOAC, Bradley Leader's Course, CAS3, and the Joint Firepower Control Course.

Chapter 5

The Defense

The Defense and the Heavy Team at JRTC

by CPT Andrew Poznick, Heavy Team O/C, JRTC Ops Group

The heavy team sat along a low ridge, overlooking a small clearing some 500 meters across at its widest. Compared to the unit's experiences at the National Training Center, the ridge seemed more like a speed bump overlooking a postage stamp of an engagement area. A wandering creek cut through the area like a small snake, detectable only by the thickening of the trees along its route. The operative word was thickening, because if central Louisiana has one resource in abundance, it is trees, especially southern pine trees. Still one takes what one gets. The heavy team commander had been handed this engagement area; he would use it.

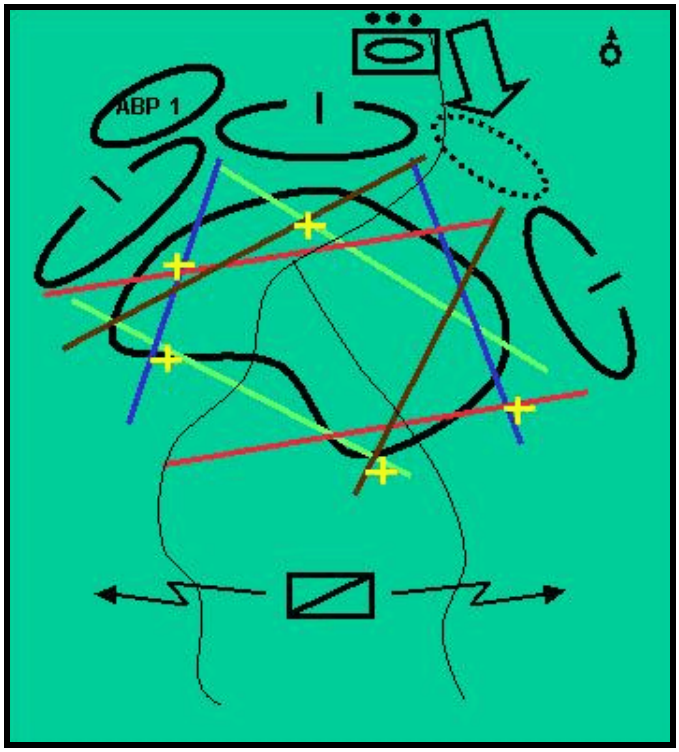
Still some doubts flickered across his mind. One of the platoon sergeants had been here before. As the heavy team commander recited intelligence received from the light brigade S2, the sergeant raised a hand when the captain described the terrain, saying "Sir, I gotta tell ya that armor can go everywhere on Fort Polk. Restrictive ain't No-Go!" The captain ignored the comment and continued with the brief. When he got to likely enemy courses of action, he pointed at the diminutive engagement area and said, "I believe the OPFOR will mass his armor here to punch a hole through the brigade and roll its defense." Again the sergeant stuck his hand up, but this time he did not wait to speak. "Sir, these guys are not gonna mass like that in that little EA. They are gonna come on alright, but you won't see 'em at 1,000 yards. You'll be lucky if you see 'em at 300 meters!" An eye twitch from the captain was the only response as he continued his brief. Although his eye was steady as he watched the EA through his thermals, the hair on his neck was creeping. The OPFOR recon had long ago pinpointed the ridge line. The main attack had to come soon…

It did. As the pre-dawn air chilled and ground fog thickened, the captain could hear tracks and engines clattering and roaring in the distance. He knew he was right: they had to come through the EA. As he called a warning to his team's leaders, a squad of Geronimos slipped inside the company's area. Their satchel charges made short work of the M1s and Bradleys…

A cursory glance at a Fort Polk map is daunting to the average heavy team leader, especially those with National Training Center (NTC) experience. Engagement areas (EAs) and fire sacs are the language of the heavy fights across the desert of the NTC. Nothing could be further from the truth at the Joint Readiness Training Center (JRTC), especially in the defense. The JRTC can be extremely challenging for the heavy team as it sets in for the defense. The terrain does not offer engagement areas larger than a section. In many places such kill zones are for single vehicles. Still, the terrain and vegetation can deceive the ignorant and the unwary. Despite its restrictive appearance, an extensive network of trails runs throughout the area. In fact, there are very few areas that are not trafficable by armored vehicles, a feature the OPFOR capitalizes on in its attacks. Heavy team leaders must understand how the OPFOR motorized infantry brigade (MIB) applies its doctrine to such terrain. With a grasp of the terrain and the enemy's tactics, the heavy team can better synchronize its combat power with that of the brigade combat team during the defense.

Let's look a little closer at the terrain at the JRTC. **CALL Newsletter No. 98-10, *Fighting Light/Heavy in a Restricted Terrain,*** addresses how a brigade can integrate and synchronize heavy teams or battalions with light forces. Discussion covers a level as far down as an infantry company using tanks in a battle position. What we want to stress are the parameters for that heavy team leader who is faced with supporting that infantry company, battalion,

or brigade. As stated above, the first parameter is the terrain at JRTC. Restrictive terrain equates to "No-Go" terrain in the minds of heavy force leaders. But as indicated earlier, most of Fort Polk is trafficable by armor; the OPFOR proves it every rotation. Before the JRTC was established at Fort Polk, the restrictive terrain of the post was the playground of the 5th Mechanized Division for nearly two decades. Perhaps a better descriptor would be "confining" when it comes to looking at the terrain at JRTC. Heavy vehicles can cross almost all of the area, though they are largely confined to the natural trail network. A word of caution, however. Confinement to natural trails does not mean confinement to existing roads!



Similar rules apply to EAs. Just as there are no battalion-sized avenues of approach for massed armor, there are no battalion-sized EAs. For that matter, there are no company-sized EAs, and few places that offer platoon - sized EAs. And the OPFOR knows where they are! Most EAs are section or single vehicle in size. This makes it extremely difficult for the heavy team commander to develop an EA that is mutually supportive and effective in destroying the OPFOR. At JRTC, developing heavy element EAs rests with junior leaders. The infantry company team commander must know how to develop an EA, but the real test is for vehicle commanders and dismount squad leaders. They must not only know how to build an EA, but also how to tailor it to the OPFOR.

That is NOT a novel idea: intelligence preparation of the battlefield (IPB) does just that. It matches terrain to enemy and offers choices on how to best fight and win. To be successful, you need to know the terrain. Maps can be deceptive. The trick is to do a thorough reconnaissance of the battle area and then apply how the enemy will fight on that terrain. Will the enemy come into the open areas freely? Answer: Hardly! Or will he attempt to stay deep in the wood line on one of the numerous trail networks? Answer: Of course! Why would he do anything else? Unless you influence his movements! That means figuring out how to make the enemy come to where you want to kill him. This is called shaping the battlefield. A thorough recon of the defensive area will unveil not only likely avenues of approach, but also the size of those avenues of approach.

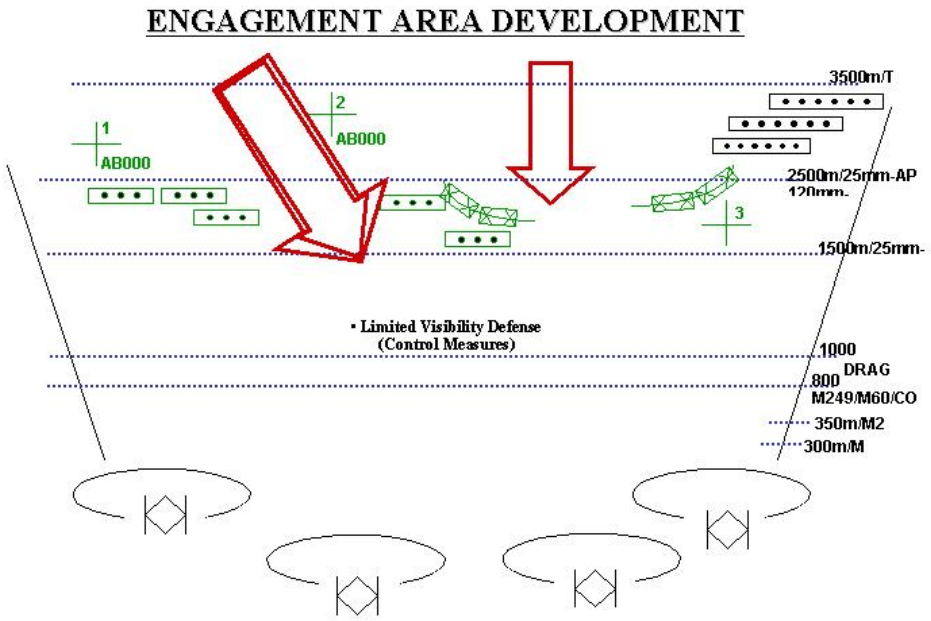
The leadership also needs to understand the enemy order of battle and his tactics. For the MIB, the division recon will move through a sector 24-36 hours prior to the main body. They concentrate on crossing sites and

division objectives, such as the brigade support, aviation assembly area, fire support assets, and other high-value targets. Typically, division recon has five BRDMs, two V-150s, and as many as eight dismounted recon teams. With the division element as much as 36 hours ahead of the main body, the next OPFOR element is the brigade recon some 12-24 hours after the division recon or prior to the main body. The brigade recon concentrates on brigade objectives: locations of obstacles, heavy team assets, company-sized defensive positions, and other targets. The brigade recon typically has five BRDMs and five to seven dismounted recon teams. The initial element of the main body is the dismounted attack. OPFOR infantry cross the line of departure (LD) 6-8 hours prior to the mounted attack. Their main purpose is to clear obstacles for the mounted attack and to weaken the main defensive lines. They key on high-value targets, such as tanks and tracks, that are not adequately defended. Satchel charges are a weapon of choice against armored vehicles if security is not tight. The OPFOR-mounted attack masses tanks and APCs against key terrain held by the BCT. Once they reach their terrain objective, the OPFOR switches to a force-on-force–based objective. Again, remember that the OPFOR mounted attack will use the "confining" aspects of the terrain to their advantage.

The heavy team leader understands the OPFOR and has studied the terrain. What missions can he expect? The short answer is – many. The company team can remain intact or elements of the company may be task organized to other units. This can be by platoon or perhaps section. Heavy leaders must seek to keep the basic wingman formation, the two-track section, intact. Individual tanks die quickly. Much of the task organization depends on the actual mission selected for the team. Typical missions include route clearance or route security missions. These are implied tasks for the heavy team anytime it moves. The heavy team may also perform the role of reserve or finishing force, especially if it is held intact. The heavy team or its elements are typically used in the security zone fight because of their night-vision thermal capabilities and their mobility. The heavy team may also establish static defenses as a company or with elements tasked out to the light infantry battalions. Again, terrain and the enemy should dictate how the team is deployed. A heavy team set in on a single EA is unlikely to kill many OPFOR. A heavy team set in to cover a series of smaller EAs that have the surrounding area "shaped" to funnel the OPFOR through them will have greater success.

The most common scenario is that elements of the heavy team perform the majority of missions mentioned above. For this reason, it is imperative that leaders at all levels in the heavy team understand the capabilities of their weapon systems and know how to establish an EA. Because the heavy team typically performs decentralized (at the heavy team level) operations in the defense, the difficulties they face are magnified. One of the challenges or difficulties for the heavy team is that they are consistently tasked to perform numerous tasks. In fact, they often get too many tasks (i.e., Class IV/V convoy security, security zone fight, route clearance, route security, rear area security, and other on-call missions), and team leaders need to stress that with the BCT. When the taskings get too heavy, NOTHING gets done well! That can be especially true as the heavy team prepares its defensive positions. Time is needed for rehearsals, adjacent unit coordination, and basic PCIs/PCCs, such as bore sighting of MILES gear. An overtasked team will not have time to get it all done. The result will be a poorly planned, poorly executed, and unsuccessful defense. Poor coordination with higher also shows when the heavy team is boxed in by friendly minefields and obstacles. It can be more than a little embarrassing if the heavy team is the BCT reserve. Such problems arise when the heavy team does not receive consolidated graphics or updates from the battalions or brigade.

All leaders in the heavy team need to ensure a few things are completed to standard in order to be successful. Boresighting and zeroing of all weapon systems is a must. Vehicles should boresight at approximately 1,000-1,200 meters because the vegetation does not allow much longer shots. Full-up rehearsals must be completed by every element. All leaders must understand how to develop EAs properly to include triggers, obstacles, and fire plans. All elements of the heavy team need to possess combined graphics overlays, and the overlays need to be posted. If that sounds like a lot of detail to master, it is. But remember, a trained unit runs on SOPs under the steady hand of trained NCOs.



The following checklist is offered as "a way" for the heavy team to be successful in the defense. In this model, the team operates in a decentralized mode. The game plan is fairly simple: The company team should establish vehicle or section EAs at areas such as ford sights, key terrain intersections, choke points, and key pieces of high ground. The positions should be dug in. The positions need to be secured with dismounted infantry positions on the flanks. The heavy team fighting positions need to be tied in with dismounted anti-armor ambush positions at each vehicle fighting position; they can be positioned throughout the brigade defensive area. The positions can and should supplement the light battalion defenses. The company team can still provide a platoon-sized reserve or finishing force for the brigade. All of that said, the best way to set in such a defense is by using a standard checklist.

STEP 1. DECIDE WHERE AND WHEN TO KILL THE ENEMY. (Consider enemy and friendly situation)

ENEMY:

- How will the enemy attack in/through your sector?
- What will he look like and what do you expect to see?
- Phases of fire?
- What is his rate of advance (mounted 1KM/3min)?
- Where you can disrupt and destroy him?

FRIENDLY:

- METT-TC analysis.
- What must your unit do to be successful?
- How many enemy will you face during the fight (may be tied to phases)?
- How does terrain maximize his mass, dispersion, depth, protection, firepower, and mobility?
- What flexibility do you have in your zone (alternate/supplementary POSNs)?
- What assets do you have available or can you expect? How can you use them to the max potential? (If you don't know, ask!)
- Consider maneuver forces (includes ATTK AVN, CAS).
- Consider FS Assets (ARTY, MORTAR, ADAM, RAAM).
- Consider light infantry.
- Consider engineer support.

STEP 2. MARK YOUR TERRORITY.

- Physically mark target reference points (TRPs) for both day and night that allow you to mass fires on specific avenues of approach and allow you to control your direct fires. (Use or make an SOP.)
- Ensure TRPs are clearly visible and within range of proposed weapon locations.
- Plan and rehearse your targets and triggers while marking TRPs, and try to force the enemy to fight in two directions.

STEP 3. IDENTIFY AND MARK PROPOSED OBSTACLES.

- Tie into existing obstacles.
- Turn, fix, disrupt, or block the enemy in your EA.
- Ensure obstacles are covered by direct or indirect fires.
- Protect your battle positions utilizing protective obstacles.
- Use a marking kit with the following to mark obstacles:
- Pickets.
- Engineer tape (obstacles/TRPs).
- Colored marking tape.
- VS-17 panels.
- Chem-lites.
- Sector sketch material.

STEP 4. IDENTIFY YOUR PROPOSED BATTLE POSITIONS.

- Examine them from the enemy side.
- Move to the positions to ensure the TRPs, targets, triggers, and obstacles can be seen and are within range of your weapon systems. If not, adjust positions.
- When selecting positions consider:
  - Selecting and marking positions during daylight.
  - Verifying light or dismount positions from ground level and vehicle positions from kneeling.
  - Positioning of alternate and supplementary positions.
  - Mutual support within the EA, and on avenues of approach into adjacent BPs.
  - Positioning weapon systems in depth and considering their capabilities and stand off.
  - Positioning FIST, FOs, and OPs to observe targets and triggers.
  - Planning withdrawal routes or constructing survivability positions for observers.
  - Avoid placing positions directly in the path of the enemy attack.
  - Planning covered/concealed entry/exit routes from OP positions/BPs for resupply and CASEVAC.

STEP 5. ESTABLISH CONTROL MEASURES FOR DIRECT FIRES.

- Consider dividing the EA.
- Establish sectors of fire.
- Identify closest TRP.
- Establish a target array.
- Examine fire patterns and quadrants.
- Regardless of the technique used ensure that:
  - TRPs are correctly planned to facilitate rapid shift of fires.
  - The unit can mass and shift fires anywhere in the EA.
  - Trigger lines are used to ensure the proper weapon engages the enemy at the proper distance.
  - Engagement priorities are given per weapon system.

STEP 6. INTEGRATE INDIRECT FIRES IN THE EA.

- When to use mortars vs. artillery.
- Location of mortars/artillery vs. ABPs and air routes (A2C2).
- Ensure there are planned targets forward of the BP and behind it.
- Ensure observers can see targets and triggers from their position (sensor-to-shooter relationship).
- Have more than one observer per target (redundancy).
- Check trigger lines according to the enemy's rate of advance (rehearsal).

STEP 7. REHEARSE HOW TO PLAN ON "FIGHTING" THE DEFENSE.

- Employ fire teams along dismounted attack routes.
- Move vehicle through the EA.
- Rehearse the enemy's MPCOA/MDCOA.
- This allows soldiers/leaders to visualize the battle, rehearse fire commands, plan for CASEVAC, integrate indirect fires, and displace to alternate and supplementary positions.

While heavy team commanders study this preparatory list, platoon leaders and sergeants can expedite the process by parallel preparation. ***Don't wait to be told to do something you already know has to be done!*** Following is a sample checklists for the junior leaders:

PLATOON LEADER:

- Establish local security. Set up OPs, hasty perimeter, or conduct security patrols.
- Conduct leader's reconnaissance with squad leaders (BC if possible).
- Position BFVs, squads, Dragons, machine guns, and any attachments.
- Choose CP location.
- Assign alternate and supplementary positions.
- Assign sectors of fire, engagement priorities, and other fire control measures.
- Develop obstacle and fire plan.
- Develop a fire support plan (with the FO).
- Check the CP.
- Brief the platoon sergeant on logistics.
- Verify communications to higher and lower units.
- Make a sector sketch and send one copy to the commander IAW the platoon SOP.
- Confirm all positions (before digging starts) to include interlocking fires.
- Coordinate with left and right units.
- Direct the location for the platoon early warning system (PEWS).
- Check positions and preparations constantly. Look at them from the enemy's point of view. Immediately correct deficiencies.
- Check soldiers' knowledge.
- Check dead space.
- Check security.
- Reconnoiter routes to and from alternate and supplementary positions and routes used on a counter-attack. Brief squad leaders and Bradley commanders.
- Plan and conduct rehearsals of movement to and between primary, alternate, and supplementary positions.
- Check the security and alert plan, the patrol plan, the radio watch, and the logistics.
- Rehearse the counter-attack plan.
- Supervise.

PLATOON SERGEANT:

- Set up the M8 chemical alarm.
- Establish the platoon CP (and alternate CP); lay wire to squads, BFV, OPs, attached elements, MAW, and machine guns.
- Send runner to guide wire from company to platoon.
- Supervise the emplacement of BFVs, squads, MAW, and machine guns.
- Supervise preparation of range cards.
- Request and allocate pioneer tools, barrier material, rations, water, batteries, and ammunition.
- Help the platoon leader prepare the sector sketch.
- Set up ammunition resupply point.
- Set up EPW collection point.
- Set up casualty collection point.
- Coordinate medical support to include supplies for the platoon aid man and combat lifesavers.
- Designate latrine area and supervise the digging of the platoon slit trench.
- Establish the security and alert plan, the radio watch, sleep plan, and the PMCS schedule. Brief the platoon leader.
- Rest and conduct personal hygiene.
- Supervise.

BRADLEY COMMANDER:

- Position BFV.
- Establish security (driver, gunner, or BC mans turret weapons systems at all times unless told otherwise).
- Coordinate with left and right BFV and squad.
- Prepare range card.
- Boresight turret weapons system.
- Ensure wire is laid to the BFV.
- Issue rations, water, ammunition, pioneer tools, and barrier materials.
- Pass additional information and changes to plans.
- Reconnoiter alternate and supplementary positions.
- Conduct BFV maintenance.
- Supervise.

Defensive missions are tough in any type of terrain. Terrain at the JRTC offers different challenges than terrain at the NTC. But just as is the case at the NTC, the heavy team can succeed at the JRTC by doing the basics well. There are no magic solutions. Terrain, enemy, and IPB show how best to fight on the "confining" terrain. PCIs/PCCs, engagement area development, and rehearsals ensure that the heavy team is ready to fight that fight. ***One final word on preparations and rehearsals: if preparations aren't tested by night rehearsals, your unit may flunk the enemy's final exam!***

These are but a few of the keys to success. The heavy troop leader of the OPFOR uses them. You should also if you want to beat him at his own game!

Chapter 6

Special Topics

The final chapter in this handbook addresses various special topics selected by the heavy team at the JRTC. The first article is that of time management by CPT Andrew Poznick. He emphasizes the value of practicing troop-leading procedures and SOPs to conserve time. The next article by SFC Carl Pope offers several key tips in preparing the M1 for MOUT. In the third article, MAJ James Anibel explains the benefits of sending a robust liaison team to coordinate the heavy team's operations with the BCT. Then, in a final article, CPT Poznick takes that C2 theme even further in laying out the structure and operations of a heavy team command post.

Time Management and Small Unit Leadership

The Platoon Leader Sets the Schedule, The Platoon Sergeant Enforces It

by CPT Andrew Poznick, Heavy Team O/C, JRTC Ops Group

The most common phrase heard during JRTC after-action reviews (AARs) about troop-leading procedures is, "We didn't have enough time." It is true that time is a precious commodity at JRTC. Unfortunately, small unit leaders do not take steps to conserve what time they do get inside the JRTC box for troop-leading procedures. There are many tools to manage time during planning. Making effective use of those tools depends on the leaders and their willingness to use them. Some focus areas for improvement in time management at JRTC are: assembly area procedures, priorities of work, timelines, pre-combat checks and inspections, and rehearsals.

Assembly Area Procedures and Priorities of Work (POW)

Assembly area procedures and priorities of work are absolutely critical in setting the stage for effective planning and preparation. Yet platoons fail to execute these simple steps for laying the ground work for the future. For instance, all too often platoons move into an assembly area without bothering to establish security. It seems more important to sleep, eat, and take care of hygiene. Why is this happening? The answer is that either the platoon leader has failed to specify a POW list, or the platoon sergeant has failed to enforce it.

For the most part, POWs can be addressed through SOPs, but leaders must state those priorities and enforce them. At the same time, leaders must keep in mind what missions are likely to be forthcoming. The SOP needs to include who is responsible for the tasks and redundancy needs to be built in. The platoon sergeant needs to get involved to ensure things are being completed to standard. Some items that need to be included in the POW SOP are as follows:

- **Security** – Should the platoon dig full fighting positions or hasty fighting positions? Range cards and sector sketches are required.
- **Maintenance** – This includes vehicles, weapons, NVDs, NBC equipment, commo equipment (i.e., clean connectors, ensure radios are filled with COMSEC, commo checks), and personal equipment. Platoon, squad, and team leaders ensure that 2404s or 5988-Es are completed to standard.
- **Mission planning** – This begins at the first whiff of a warning order, including graphics reproduction, sand table construction, and gathering of information for the order.
- **Mission preparation** – This parallels mission planning as leaders and soldiers gather equipment necessary for upcoming missions, adjust packing lists, and inspect their equipment.

Timelines

Establishing timelines helps conserve time, but timelines need to be tailored – something platoon leaders often fail to do. Platoon leaders often only regurgitate the timeline given to them from higher. This failure results in soldiers and leaders having a false sense of security on the amount of time available for a mission. Platoon leaders need to include all the things that have to be accomplished on the timeline and events that impact on the time available for mission planning and preparation. Examples include company or battalion rehearsals and rock drills. The timeline should reflect backwards planning starting with SP, LD, or mission execution time. It should lay out the available time to the present time. Timelines need to be established, adhered to, and enforced (something the platoon sergeant can ensure) to assist leaders in focusing their efforts in the troop-leading procedures process.

Pre-Combat Checks (PCCs)/Pre-Combat Inspections (PCIs)

Time needs to be allotted not only for PCCs/PCIs, but also for reinspections. Too often leaders make excuses for not doing them, or just do not do them at all. Fighting the battle is hard, but it is even harder if you fight without the proper equipment or with equipment that is unserviceable. Checklists are key to ensuring everything is inspected for accountability and serviceability. Checklists establish a published standard. The checklist also assists the platoon leader by alleviating the need to spell out in the warning order what PCIs/PCCs need to be completed. There are certain items that need to be checked prior to any mission, but there are items of equipment that are essential to the mission, and packing lists should vary by mission. ***However, checklists are absolutely worthless if they are not used!***

Rehearsals

Rehearsals are rarely done to standard. Again, the reason commonly given revolves around the lack of time. Platoon leaders need to establish a list of generic rehearsals that can be done prior to the issuing of the operations order. This results in the platoon being at a higher state of mission readiness, and allows the platoon leader to concentrate on the essential rehearsals if constrained by time. Generic rehearsals can include rehearsals on mounted and dismounted breaching, actions on contact, NBC tasks (256 kit, NBC-1 report), reporting, berm drills, or engagement techniques. The rehearsals should be full up if space and time allow, but rock drills may suffice based on the level of proficiency of the platoon.

Conclusion

Platoon leaders have the appropriate time to accomplish key tasks in the troop-leading procedures. They must fight to get time and use it to their advantage to be thoroughly prepared to execute the mission. Platoon leaders must develop a timeline that is realistic, adhered to, and enforced by the leaders in the platoon. Finally, the platoon leader must know who is taking care of troop-leading procedures while he is planning. The answer, of course, lies with the platoon sergeant and the subordinate NCOs. Not only must the platoon leader remember to issue specific guidance on what he wants done while he is gone, the platoon's NCO leaders must demand that guidance and act in its absence.

A Technique for Preparing the M1 Series Tank for MOUT Operations

by SFC Carl A. Pope, Heavy Team O/C, JRTC Ops Group

The 70-ton M1 rumbles into the town, alone and seemingly unafraid. Its "supporting" infantry chokes on exhaust and dust at least a block to its rear. The TC looks at the narrowing road, bordered by increasingly higher buildings; what had been calm confidence turns to nervous energy. He grabs his pedestal mount and swings the machine gun back and forth while watching the buildings. He mutters a command to halt at the next intersection, hopefully to give his infantry time to catch up. Heavy firing to the rear signals the end to that dream. As he orders the driver to reverse, a satchel charge lands on the M1's rear deck. The tank and its crew die just as they were when they entered the town – alone.

Considering the almost constant flow of brigade combat teams, joint task forces, and expeditionary forces needed to meet the U.S. military's global commitments, the need to understand and execute combined arms operations is apparent. Yet such operations continue to challenge units during real world contingency missions as well as at the Joint Readiness Training Center (JRTC). Integration of heavy and light elements remains a negative trend at the JRTC. Preparing the M1 series tank for military operations in urban terrain (MOUT) with light units is especially difficult. These units rarely train together before arriving at the JRTC, a fact that cripples their effectiveness out in the box during the low-intensity conflict (LIC) phase and the defense. With its pressure cooker atmosphere and close combat environment, the MOUT phase amplifies those issues. This article briefly outlines some TTPs for preparing the M1 tank and its supported infantry for MOUT operations.

Light heavy integration is NOT new! That means that there are items already in the supply system intended for such operations. Other items can be adapted even if they were not designed to do so. Using existing supply items as well as locally manufactured materials, the M1 can be prepared for operations. The key item is initiative on the part of the heavy team leadership to ensure that happens. Consider the following major areas:

- **Communications.** There is no current system in place on the M1 that allows the tank commander to talk to his supported dismounts without using radios or hand and arm signals. Talking to the dismounts on the ground is always a challenge and can be accomplished by using a C-2296 VRC intercom control unit mounted on the back of the tank. Procedures for attaching this system can be found in **CALL Newsletter No. 98-10, *Fighting Light/Heavy in a Restricted Terrain.***

- **Passive Defense of the Tank.** When dismount enemy are closing in on an unprotected tank, there is a need to keep them off. Protecting the tank from dismounts can be accomplished by attaching concertina wire and chicken wire around the skirts of the tank to include the rear. This keeps infantry away from the tank without incurring severe injury to your own dismounts. One disadvantage to this that performing maintenance on the tank is difficult.

- **Mounting and Dismounting the Infantry.** A modified ski boat recovery ladder attached to the bustle rack will allow friendly dismounts access to the tank when the turret is traversed over the side. They can climb back on and into their positions as depicted in **FM 7-8, *Infantry Rifle Platoon and Squad.*** The loader can fold out and retrieve the ladder as necessary.

- **Passive Defense of the Dismounted Infantry.** Protecting the company/team dismounts is one of the M1 crew's top priority. Current configuration of the M1 does not allow for dismounts to follow behind the M1 because of the exhaust heat. Dismounts are forced to follow on the flanks of the tank, blocking their field of view of the opposite side and exposing them to the front. An engine exhaust deflector currently used to allow one M1 to tow another is one possible solution to positioning the infantry behind the tank. The heat is either forced straight up in the air or straight down on to the ground, allowing for dismounts to stack in behind for maximum protection. The September 1999 edition of ***PS Magazine*** has the information necessary to help units accomplish this. The information is also available in Appendix D –20-1-5 of the technical manual.

The combined team of M1s and dismounted infantry are a formidable force in a MOUT environment. But unless tankers take time to prepare and train for such operations, they are likely to die just like the tankers in the opening vignette of this article. A variation of that vignette takes place in almost every MOUT fight at the JRTC. Barbed and chicken wire may be unappealing to those accustomed to the lethal lines of the M1, but if they keep the tank and crew alive, so what? With some good old-fashioned Yankee ingenuity, the M1 can be adapted to overcome flaws with current operational requirements. It really is a question of tapping available resources before deploying to the JRTC. Look to our sister services as well: the United States Marine Corps is the Department of Defense's proponent for MOUT operations. Don't overlook their publications and TTPs.

LNOs and the Heavy Team

What makes for effective MDMP?

MAJ James Anibal, Senior Armor O/C, JRTC

INTRODUCTION

Successful integration of a heavy company/team depends on the ability of the liaison officer (LNO) planning cell to effectively integrate with the brigade staff and, when necessary, plan operations within the brigade TOC concurrently with battalion. Such concurrent split-level training is difficult within established units. Remember that heavy teams at the JRTC do not enjoy a habitual relationship with the brigades undergoing a rotation. Add to that a lack of familiarity with the staff and the way it functions and the complexity of training at the Joint Readiness Training Center (JRTC), and you have a real challenge.

The first time the brigade staff meets the heavy team commander (and not the LNO) is during the two-week Leaders Training Program at Fort Polk, LA., an integral part of the brigade's preparation. Since the LNO is not present, the brigade staff may seek the professional advice of the heavy team commander, or it will more likely tend to ignore him. The end result is that the brigade commander and staff have neither the confidence in the LNO nor an understanding of his function. And that means even poorer understanding of the capabilities the heavy team brings. This observation is consistent regardless of how much heavy time the brigade commander, brigade executive officer, or the brigade's operations officer have under their belts. In fact, more time is generally detrimental, since they are less apt to give the LNO consideration. The reality is that heavy time in a completely heavy unit is NOT adequate preparation for integrating heavy units into light operations. That is the purpose for the LNO. To be successful, the LNO and his planning cell must be fully engaged in brigade (or battalion) planning and battle tracking. What follows below is a discussion of specific areas where failure commonly occurs in the military decision-making process (MDMP).

PLANNING ISSUES

The LNO Package

The configuration and duties of the LNO package must be identified early and clearly defined. The ideal package is the battalion S3/XO, two battle captains (an S2 would be ideal), and two battle staff NCOs. Each has the following duties:

MAJ (S3 or XO): Responsible for brigade-level planning and participation in the MDMP. This includes deliberate planning for the LIC mission, defense, and attack (MOUT), as well as daily participation in targeting/synchronization meetings, shift change briefs, and updates to the commander.

CPTs and NCOs: Battle track the heavy team and critical assets as well as prepare graphics and orders as necessary for the brigade MDMP and to issue to the heavy team commander. De-conflict movement within the brigade area of operations; the heavy team will cross battalion boundaries on a regular basis. Keep reserve force continuously updated on current situation. Be prepared to attend battalion TOC/MDMP when the heavy team is task organized.

Credibility and familiarity with how brigades plan and fight are keys to the success of the LNO – this is what makes an S3 or XO so effective. As LNOs become more junior and less experienced, they become less effective to the point of being completely excluded. The LNO will be completely involved in planning and will be in no position to command the heavy team (a common excuse for not sending the S3/XO). Conversely, the heavy team commander will be fully involved with fighting and unable to do long lead time brigade-level planning. If the team commander is forced to perform brigade- and battalion-level staff functions, command of the team will default to the CO/TM XO.

The LNO package should have two vehicles with radios and the capability to remote into a TOC, as well as two sets of standard maps and battle tracking charts. This gives the team the ability to move two battalions as well

as split when the brigade TOC jumps. The brigade commander can also take one team when the TAC deploys to relieve some of the pressure on the brigade staff, as well as increase the TAC's ability to conduct continuous operations. This is, however, unlikely for the initial airborne insertion and could pose difficult decisions for an air assault.

The Military Decision-Making Process (MDMP)

The LNO should analyze and brief the following issues during the mission analysis portion of the MDMP:

Non-mission capable (NMC) vs combat capable and full-mission capable (FMC): It is important for the brigade commander to understand how much of the heavy team can fight rather than what is being carried as NMC by the -10. Tanks and Bradleys can still fight effectively with multiple deficiencies that "technically" deadline a vehicle. The best format for reporting is: FMC, NMC but combat capable with the following limitations, and completely NMC and not combat capable.

Fuel consumption rates vs quantity on hand: The most important aspect of this analysis is the impact of refuel operations on the brigade plan. For example, the fight for Shugart-Gordon usually has the heavy team conducting a route mobility operation, usually a "reduce" effort vice a doctrinal "clear." It then transitions to breach, isolation, and assault. This can run from 24 to 36 or more hours. When to refuel the tanks is a vital part of synchronizing the link up of heavy and light forces at the decisive point and time. During the defense, tactical logistics must be figured into the brigade's plan to close obstacles and main supply routes (MSR) to not leave the heavy team stranded in the security zone.

Ammunition: Brigades are not prepared for the huge quantities of 25mm and 7.62mm ammunition the heavy team can expend. O/Cs at the JRTC have never observed a single tank or Bradley, let alone an entire team, resourced with a basic load of 7.62mm coax. 25mm ammunition is easier since in MILES it is only a Flash WES, but brigade still has to deal with the bulk replicate ammunition. These two munitions are extremely important in maximizing the firepower of these systems.

Class III: Everyone is aware of the amount of fuel consumed by a heavy team, and rarely is there a problem with daily quantity on hand. However, good tactical logistics must be synchronized with brigade operations. It is important that the LNO team orchestrate both the timing (when and how long) and location of refueling operations so that the heavy team does not logistically "culminate" at a critical point in the operation. This is especially important if the heavy team is split out to subordinate battalions.

Rehearsal time (especially during MOUT): This should be briefed as a specified task during mission analysis. Given the lack of time spent training together, rehearsals are key to successful combined arms operations. Routinely, brigades fail to carve out enough time for the heavy team to link up and rehearse at the lowest level of task organization with the other battalions. This is the key to success in the MOUT fight.

Countermine equipment (CME): The status of countermine equipment should be included in the facts of the mission analysis. Predicted status should be an assumption. Countermine equipment greatly facilitates all road movement during a rotation. Generally, there are only two mine rollers and two mine plows, so their status is of vital importance. CME status should be tracked through the FSB to division so that new systems do not get lost in the system.

Mine and countermine tactics: The LNO, the S2, or the division engineer should brief these tactics. This information needs to be updated with each phase and quickly distributed to the heavy team.

Impact of terrain on mounted operations: As the subject matter expert on mounted operations, the LNO should brief the impact of terrain. Much of Fort Polk is trafficable off road to tracked vehicles; however, the terrain forces all mounted traffic to pass through specific areas as they move between different areas of the division sector.

Course Of Action Development

There are three critical issues that must be addressed during course of action development: command relationships, task organization, and the role of the heavy engineers.

- **Command Relationships:** Light infantry battalions generally cannot handle the OPCON relationship of heavy forces unless they get the entire package to include the LNO. It is more efficient to assign heavy forces to battalions for a specific mission (TACON) after which they automatically revert to brigade control. This will facilitate logistical operations and OPTEMPO management.

- **Task Organization:** A 2x2 heavy team easily breaks into two very balanced teams capable of clearing two routes simultaneously. Additionally, the 2x2 platoon (2 tanks, 2 Bradleys) is also very effective at JRTC. The important thing about task organization is that it goes out in the first warning order (if possible) and is effective as early as possible to allow units planning and rehearsal time. Task organization changes, and link ups should be briefed by the LNO at each shift change. The LNO should continually monitor missions of tasked out elements to ensure the most efficient use of the team. For example, it would be wrong for one battalion to assign tanks with mine plows and rollers as a TCP or overwatch element while another battalion conducts mine clearing operations with Bradleys.

Brigade Reserve: If the brigade commander designates part of the heavy team as the brigade reserve, then the LNO and his planning cell become the de facto reserve staff. They must ensure critical brigade and battalion graphics are disseminated as well as current locations of all units the reserve could pass through. Two of the most critical aspects of reserve force planning are communications and mobility. The communications nets for all affected units must be disseminated. The LNO team must also know the location of ***all*** obstacles that could interfere with the movement of the reserve. It is not uncommon for the heavy team to find itself boxed in by friendly obstacles.

- **Heavy Engineers:** During the LIC (or movement-to-contact) phase, the only assets that are critical to the heavy team are sappers (heavy or light). The brigade engineer in support to the entire force package better employs digging assets. The opposite is true during the defense. Digging assets are vital to heavy forces in the security zone, the main battle area, and the reserve if they are going to survive against T-72s at extremely close range (under 300m).

War Game

The war game is generally too sterile to adequately reflect the friction of employing heavy forces in close terrain and across the brigade battlespace. It is important during the war game that the LNO and his planning cell represent armor and mechanized infantry as a BOS and add this friction into the process. Issues, such as tactical logistics and refueling times, interdiction of the reserve by remnants of the CRPs or BM-21, rearward passage of lines for the security zone, and triggers for the reserve, must be addressed.

A member for the LNO planning cell should also represent the OPFOR during the war game as part of the S2 "Red Team." This is especially effective during planning for the defense when large OPFOR mechanized forces are present on the battlefield.

Finally, the LNO and S2 fight aggressive mine and countermine tactics during the war game, portraying realistic losses in countermine equipment, armored vehicles, and personnel.

Orders

Once the orders are produced, the LNO must ensure a complete package is disseminated to the heavy team. There is usually not a problem with the base order since the heavy team commander is present when they are issued and he participates in backbriefs and rehearsals. The big issues are annexes that task out heavy forces and consolidated graphics, which the heavy team usually never receives. During all phases of the exercise, it is inevitable that the heavy team will cross multiple unit boundaries. The LNO must carefully screen what gets pushed to the heavy team so that it gets only what it needs to operate – the OPFOR is extremely proficient at exploiting OPSEC violations.

The LNO and his planning cell must generate the orders and graphics in support of the brigade staff for commitment of the reserve. At a minimum, the graphics should show all relevant obstacles, unit boundaries, reserve battle positions, trigger lines, and tentative attack-by-fire positions should the trigger for commitment be missed. This will help the heavy team commander build contingency and direct fire plans for a meeting engagement.

BATTLE TRACKING

During all phases, the LNO and his team must keep the brigade commander and the brigade staff up to date on the following information:

- Critical equipment status - plows and rollers.
- FMC, NMC, combat capable w/limitations.
- Dismount strengths.
- Location of platoons and separate sections.
- Tactical logistics.
- Capabilities and mission alignment.
- Operations cycle - TO, plan, rehearse, execute, recover.

The operations cycle is necessary to maintain the heavy team's combat power and ensure adequate preparation time for operations. Good integration of heavy and light forces is best achieved if task organization, planning, and rehearsals take place *before* execution.

Training

The LNO package should be identified as early as possible and be integrated with the heavy team's train-up. Ideally, all orders would pass through the LNO before going to the heavy team commander. The team needs to be fully knowledgeable on the following doctrine and MTO&E:

- Light infantry brigade, battalion, and company.
- Airborne brigade battalion and company.
- Air assault brigade, battalion, and company.
- Military operations in urban terrain.
- Armored and mechanized brigade, battalion, and company.
- Mine and countermine operations.
- Combined arms breaching.
- MDMP from the perspective of all staff sections (S1 thru S6).

Weaknesses at Brigade Staff

- **Impact of time on operations:** The brigade has a monopoly on time and must figure adequate preparation time for task organized heavy and light forces at the level of organization. The 1/3-2/3 rule may not be enough to ensure good integration. Generally, brigade staffs do not do this well, especially during MOUT when good rehearsals at the lowest level of organization (usually platoons) mean the difference between success and failure.

- **Heavy operations cycle:** Heavy teams must have a battle rhythm to maintain combat power. Rest, maintenance, logistics, and movement times must be considered in all heavy operations. Too often the brigade staff considers this to be strictly the heavy team commander's problem. The end result is that heavy teams are routinely tasked beyond their capabilities

- **Battle tracking of critical assets – especially CME:** Brigades routinely go into operations without visibility of heavy team assets.

- **911 missions vs. mission preparation time:** While brigade staffs are great at flexing the heavy team all over the brigade area of operation, they generally fail to provide adequate preparation time for 911 missions and follow-on brigade operations. It is not unusual to see the heavy team spend most or all of its defensive preparation time performing 911 missions.

- **Use of LNO and planning cell:** Brigade staffs are not good at using the LNO, usually for one of two reasons (or both): The LNO is a completely foreign staff element and/or the LNO lacks the skill to participate in the MDMP. Demanding a senior staff officer for an LNO and having the LNO at the brigade's LTP may resolve this problem.

Special Missions

Route Clearance. Typically, the heavy team is assigned the task for route clearance by brigade. A heavy team organized with two mechanized infantry platoons (3x9), two tank platoons (2 plows and 2 rollers), and a minimum of two sapper squads can effectively clear two routes simultaneously. They cannot secure either route, both of which will require regular patrolling to keep open (a good job for the task force MPs). At an average speed of 3kms per hour, the entire brigade MSR can be cleared in two 12-hour days, but to be effective and avoid diversion of resources, the clearing teams must have free run of the brigade's MSRs regardless of whose sector they are traversing. The heavy team is ideal for this mission because it can withstand the punishment of indirect fire with little degradation of combat power. Other task organizations work equally as well but offer less protection:

- The **task force engineer company** can be task organized with the tank mine plows and rollers, heavy sappers, and light infantry (an absolute necessity) to conduct route clearance, leaving the heavy team available for search-and-attack missions.

- The **heavy team** can be task organized with a light infantry company to conduct route clearance and sustained combat operations along a route. The advantage of this organization is that it can clear routes through very rough terrain. It also assumes that the OPFOR will be drawn to the routes in an effort to close down the brigade's MSRs. This organization also enables the task force to clear routes through small built-up areas.

MOUT Fight. The heavy team performs three missions during the MOUT fight: it clears the route to the fight, it breaches into the MOUT site, and it supports the assault. All three missions require different task organizations. Changing task organization in the middle of an operation is problematic at best. It is to everyone's advantage to be task organized before the start of the mission. If this "dynamic" task organization must take place because of reduced combat power in the heavy team, then link ups must be planned and rehearsed in detail.

The composition of the assault forces must have special consideration. The best weapons mix is one tank, one Bradley, and one infantry platoon. If rehearsals at this level of organization do not take place, then the integration of heavy and light forces will fail – ***guaranteed!*** Since brigade controls missions of the heavy team prior to the urban operations fight, brigade must carve out time for these rehearsals to take place. They can also send the SJA and civil affairs teams out to "lease" MOUT sites for these rehearsals (i.e., Carnis, Huffton, Jetertown).

CONCLUSION

The role of the LNO and his team is absolutely critical to effective use of the heavy team at the JRTC – or anywhere else for that matter. The days of the SBCT are rapidly approaching, and similar LNO functions and roles are almost guaranteed as these "medium" forces integrate with light, heavy, or special operations forces. The LNO is NOT the heavy team command post; that is a role the heavy team itself should fulfill. Without such robust LNO packages to guide their use, heavy team integration becomes more of a combat divider than the combat multiplier it should be.

The Heavy Team Company Command Post

by CPT Andrew Poznick, Heavy Team O/C, JRTC Ops Group

In the interim between World War I and World War II, the winning powers severely restricted the losing powers' rights to maintain a first naval arm class. To most sea power champions, that meant limitations on the size and armament of the battleship. As Germany moved toward open rearmament under Hitler, German naval designers developed a heavy class of cruisers that were nicknamed "pocket battleships." They might not have the overall displacement – and resulting unrefueled steaming range – of a full-scale battlewagon, but they did have the weaponry and heavy armor. Size still mattered, but it was size of projectile and weight or armor plate.

Before you ask what German pocket battleships have to do with a heavy team, consider the following: A heavy team attached to a brigade task force has the same command and control responsibilities as a maneuver battalion; greater, in fact, if it is the brigade's reserve. That means the heavy team is a "pocket battalion" and, as such, must have a proper C2 set-up. Establishing a heavy team command post (CP) is a necessity for success at the JRTC. That success is rare because heavy teams rarely establish a company CP. As a result, vital information is often lost or missed, maintenance and logistic issues get neglected, and combat power slides. Overall, teams leaders lose situational awareness – always risky when facing the OPFOR. A functional CP facilitates the tracking of all information – maintenance, logistics, combat power, subunit locations, and activities of subunits. Because the heavy team is tasked to conduct so many different missions, battle tracking is vital to ensure elements have the latest information needed for planning, preparing, and executing these missions.

If the heavy team should consider a CP, the next question is, What should be used for the CP? The answer is anything that allows enough room to battle track, plan, and possess the communications to reach all the heavy team elements. "A way" is to use the first sergeant's M113. Another way might be to use a cargo HMMWV, tentage, or the combination of tentage and a vehicle. Battle tracking can be conducted on a large map board with heads-up display, or a smaller version map board with the tracking charts in a flip-style notebook (see Appendix C: CP Charts). The bottom line is: What goes on inside the CP is what counts, not what the CP is housed in.

The key to an effective CP, therefore, lies in its manning, another challenge for the heavy team. Tactically and technically competent personnel are required. The company executive officer (XO) serves as the OIC of the CP if he is not providing command and control for another heavy team element. (For instance, he could be C2 for a route clearance team when the heavy team conducts simultaneous route clearance missions. That means he is NOT in charge of the CP because he is NOT there!) As for the NCOIC of the CP, look at the company master gunner or company training NCO. The training NCO is not an MTOE-authorized position, but most units still fill the position. HMMWV drivers typically are not employed during combat operations, so they are obvious choices to work as radio telephone operators (RTOs). The XO's gunner and driver can augment the CP when needed.

The location for the company CP is based on METT-TC. The CP may remain in the company assembly area or may have to jump locations to maintain communications with all subunits on the battlefield. Implied equipment necessary for the company CP includes communications with at least two long-range radios; one or two OE-254 antennae; tentage or vehicle; mapboard; tracking charts; and planning equipment such as pens, acetate for overlays, and tape.

All reports for the company team are called in to the CP, and the CP serves as the clearing house for all reports to and from higher headquarters. The CP assists the commander by doing a thorough job of battle tracking, then updating the commander as required to ensure a common operational picture. The company CP can also serve as a pseudo-staff for the commander during MDMP. The CP should possess a picture of enemy activity, achieved through battle tracking and reports from subordinate units, friendly combat power and activities, and logistic and maintenance status. If the CP remains in the assembly area, then the personnel manning the CP can prepare the OPORD products, reproduce overlays, build sand tables or sketches, and prepare the service support and command and signal paragraphs – all the extra things that take away from the commander's planning time. The company CP directs all logistical support for the heavy team, ensuring all classes of supply are provided to heavy team elements. This is especially important at the JRTC because the light infantry task forces are not typically able to provide support for heavy team elements that may be attached.

Company command posts are necessary for the heavy team at the JRTC. Due to the numerous types of missions and task organizations that the heavy team can expect to encounter, the company CP provides the heavy team commander battle tracking capabilities he would not otherwise possess. He may have more firepower than half of a light infantry brigade, but it is essentially useless if it is not used wisely. The Germans found out the same thing with their battleships. They were deadly against commerce and lighter ships. They were even capable of taking on a full scale battleship, but they were useless if the commander and the German Naval High Command could not keep the "short-legged" raiders adequately refueled and rearmed.

APPENDIX A

Armor Integration in Urban Operations

Extract from TC 90-1, *Training for Urban Operations*

The tank platoon may take part in large-scale urban operations as part of a larger force. This section examines planning considerations for the use of armor in urban operations and discusses techniques of employment for both offensive and defensive operations.

SECTION 1 – PLANNING CONSIDERATIONS

Built-up areas consist mainly of man-made features such as buildings, streets, and subterranean systems. These features of urban terrain create a variety of tactical problems and possibilities. In order to ensure that the tank platoon can operate effectively in the urban environment, the platoon observation and direct-fire plans must address the ground-level fight (in streets and on the ground floor of buildings), the aboveground fight (in multistoried buildings), and the subterranean fight. The following considerations apply:

- An important aspect of the urban environment is that built-up areas complicate, confuse, and degrade command and control.
- Streets are usually avenues of approach. Forces moving along a street, however, are often canalized by buildings and have little space for off-road maneuver. Obstacles on urban streets thus are usually more effective than those on roads in open terrain since they are more difficult to bypass.
- Buildings offer cover and concealment and severely restrict movement of military elements, especially armored vehicles. They also severely restrict fire distribution and control, especially fields of fire. Every street corner and successive block becomes an intervisibility line, requiring careful overwatch. Thick-walled buildings provide ready-made fortified positions.
- Subterranean systems found in some built-up areas can be easily overlooked, but they may prove critical to the outcome of urban operations. Figure 1 (page 88) illustrates examples of underground systems, which include subways, sewers, cellars, and utility systems.

A. Maneuver

Planning and Operational Considerations

The following factors related to maneuver will affect the tank platoon's urban operations planning and execution:

- **The need for detailed centralized planning and decentralized execution.** Urban operations are usually executed as a deliberate attack, demanding extensive intelligence activities and rehearsals.
- **Requirements for cooperation.** Urban operations can be successful only when close cooperation is established between infantry squads and fighting vehicles at the lowest level.
- **Formation of combined arms teams at the lowest levels.** Whereas task organization normally is done no lower than platoon level, urban operations may require task organization of squads and sections. The tank platoon may face a number of unusual organizational options, such as a tank section or individual tank working with an infantry platoon or squad.
- **Vulnerability of friendly forces.** Tanks can provide firepower to effectively support accompanying infantry squads, but they are, in turn, vulnerable to attack from enemy infantry. The attacking force in urban operations must also guard against local counterattacks.
- **The role of infantry.** Infantry squads are employed extensively during urban operations as part of the combined arms team. They can be employed against both enemy vehicles and enemy dismounted elements.

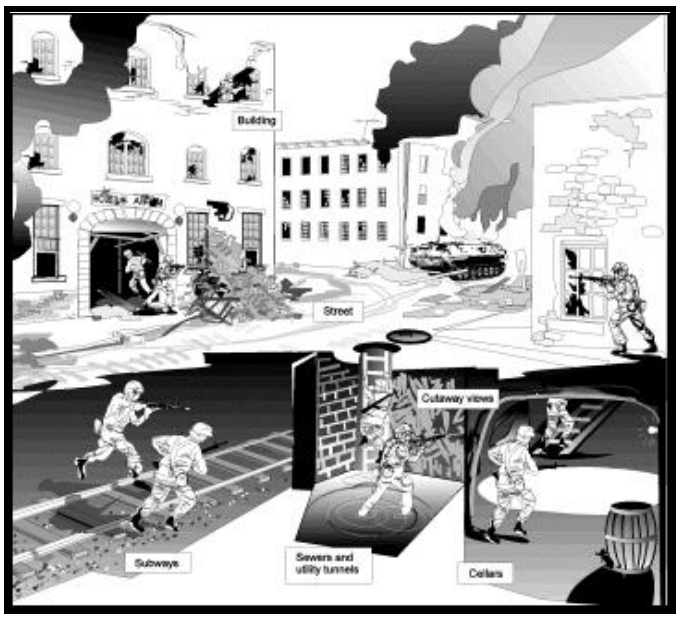


Figure 1. Underground systems.

Additionally, the infantry can help the tank platoon by:

- Locating targets for tanks to engage.
- Destroying antitank weapons.
- Assaulting enemy positions and clearing buildings with tank support.
- Protecting tanks from antitank fires.

Transporting Infantry

At times, the tank platoon may be required to transport infantrymen on its tanks (as illustrated in Figure 2). This is done only when contact is not expected. If the platoon is moving as part of a larger force and is tasked to provide security for the move, the lead section or element should not carry infantry.

Infantry and armor leaders must observe the following procedures, precautions, and considerations when infantrymen ride on tanks:

- Infantry teams should thoroughly practice mounting and dismounting procedures and actions on contact.
- Passengers must always alert the TC before mounting or dismounting. They must follow the commands of the TC.
- Infantry platoons should be broken down into squad-size groups, similar to air assault chalks, with the infantry platoon leader on the armor platoon leader's vehicle and the infantry PSG on the armor PSG's vehicle.
- Platoon leaders, PSGs, and team leaders should position themselves near the TC's hatch, using the external phone (if available) to talk to the TC and relay signals to the unit.
- If possible, the lead vehicle should not carry infantrymen. Riders restrict turret movement and are more likely to be injured or killed on initial contact.
- Tank crewmen must remember that the vehicle cannot return fire effectively with infantry on board.

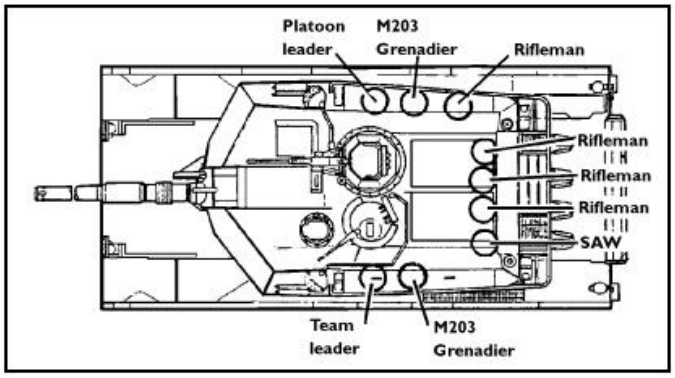


Figure 2. Sample positions for infantry riding on a tank.

- Whenever possible, passengers mount and dismount over the left front slope of the vehicle. This ensures that the driver can see the infantrymen and that the infantrymen do not pass in front of the coax machine gun. Passengers must ensure that they remain behind the vehicle's smoke grenade launchers. This will automatically keep them clear of all weapon systems.
- Passengers must always have three points of contact with the vehicle; they must watch for low-hanging objects like tree branches.
- All passengers should wear hearing protection.
- Infantrymen should not ride with anything more than their battle gear. Rucksacks and B-bags should be transported by other means.
- Infantrymen should scan in all directions. They may be able to spot a target the vehicle crew does not see.
- Passengers should be prepared to take the following actions on contact:
  - Wait for the vehicle to stop.
  - At the TC's command, dismount **IMMEDIATELY** (one fire team on each side). **DO NOT** move forward of the turret.
  - Move at least 5 meters to the sides of the vehicle. **DO NOT** move behind or forward of the vehicle.
- **DO NOT** move in front of vehicles unless ordered to do so. Main gun discharge overpressure can inflict sever injury or death to forward dismounts. See Figure 3 (page 90) and warning below.
- **DO NOT** move in front of vehicles unless ordered to do so. Main gun discharge overpressure can inflict sever injury or death to forward dismounts.
- **DO NOT** dismount a vehicle unless ordered or given permission to do so.
- **DO NOT** dangle arms or legs, equipment, or anything else off the side of a vehicle; they could get caught in the tracks, causing death, injury, or damage to the equipment or vehicle.
- **DO NOT** carry too many riders on the vehicle.
- **DO NOT** fall asleep when riding. The warm engine may induce drowsiness; a fall could be fatal.
- **DO NOT** smoke when mounted on a vehicle.
- **DO NOT** stand near a moving or turning vehicle at any time. Tanks have a deceptively short turning radius.

WARNING!!!!!!

- **The overpressure from the tank 120mm cannon can kill a dismounted infantryman within a 90-degree arc extending from the muzzle of the gun tube out to 200 meters**.
- **From 200 to 1000 meters along the line of fire, on a frontage of about 400 meters dismounted, infantry must be aware of the danger from discarding sabot petals, which can kill or seriously injure personnel.**

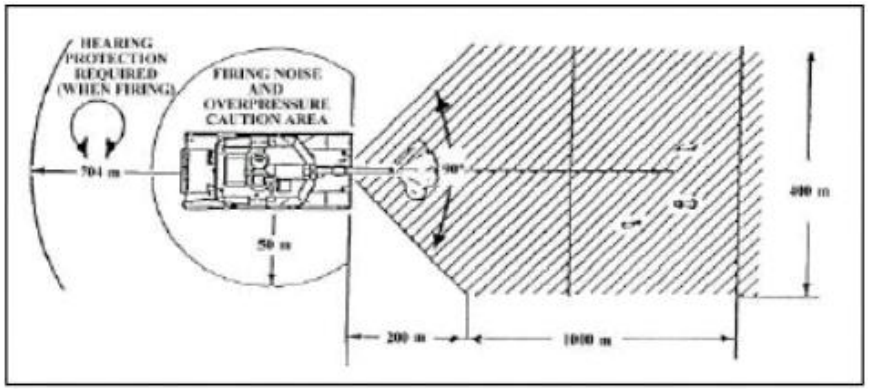


Figure 3. Danger Areas around a tank firing a 120mm main gun.

Additional considerations and preparations for transporting infantrymen include the following:

- How does armor support the infantry?
  - Use main-gun fire to reduce obstacles or entrenched positions for the infantry.
  - Take directions from the infantry ground commander (platoon leader/PSG/squad leader) to support their fire and maneuver.
  - Provide reconnaissance by fire for the infantry.
  - Know and understand how the infantry clears buildings, how they mark cleared buildings, casualty evacuation plan, signal methods, engagement criteria for tank main gun, front line trace reporting, ground communication from the tank with the dismounted personnel.

- How does the infantry support the tank?
  - Provide local flank and rear security for each vehicle.
  - Provide sensory intelligence for the tank crewmen to help them overcome tank noise and the lack of ground situational understanding.
  - Provide reconnaissance and fire direction of enemy positions for main gun attack.

- Considerations for dismounted tank security include the following:
  - Each tank will require a four-man team of dismounted infantry to provide local security to the flanks and rear for the vehicle. This is particularly true when tanks are operating in open- protected mode, which is preferred in urban areas.
  - The security element can ride on the tank, but when the tank stops for more than 5 minutes, the tank commander should direct the troops to dismount along likely avenues of ATGM attack.
  - Tank crewman should rehearse the mounting and dismounting of the security element from their vehicle, briefing the infantrymen on safety procedures for the vehicle and weapon systems.
  - If possible, the security element should have two members attempt to observe from a second floor window to provide greater situational understanding.
  - Tank commanders need to rehearse communicating with dismounted soldiers via TA-1 and DR-8 in the bustle rack.

- Vehicle preparation for combat in urban terrain should cover these procedures:
  - Crewmen should place sandbags on the top of the turret to reduce the effects of RPG fire.
  - Keep at least one ballistic shield to the "Dog House" closed (most engagements will be under boresight range and the battlesight technique will suffice).
  - Place sandbags around antenna connections and electrical wiring on the turret top.
  - Place extra coax ammunition inside the turret.
  - Remove all flammable products from the outside of the vehicle (to include sponson boxes).

B. Vehicles, Weapons, and Munitions

Numerous factors related to vehicles and their organic weapons and munitions affect the tank platoon's urban operation planning and execution, including the following:

- The preferred main gun rounds in the urban environment are HEAT, MPAT (ground mode), and MPAT-OR (XM908). These all perform much better than sabot rounds against bunkers and buildings.
- HEAT ammunition will open a larger hole in reinforced concrete or masonry structures than MPAT or MPAT-OR (XM908). Both MPAT and MPAT-OR, however, offer greater incapacitation capability inside the structure.
- HEAT ammunition arms approximately 60 feet from the gun muzzle. It loses most of its effectiveness against urban targets at ranges of less than 60 feet.
- MPAT and MPAT-OR rounds arm approximately 100 feet from the muzzle of the gun. Because of the shape and metal components of the projectiles, however, this ammunition remains effective at ranges of less than 100 feet.
- Sabot petals, including those on MPAT and MPAT-OR, endanger accompanying infantry elements. They create a hazard area extending 70 meters on either side of the gun-target line out to a range of 1 kilometer.
- The tank's main gun can depress only to -10 degrees and can elevate only to +20 degrees. This creates considerable dead space for the crew at the close ranges that are typical in the urban environment.
- The external M2 HB machine gun can deliver a heavy volume of suppressive fire and penetrate light construction, buildings and most barricades. The M2 HB MG can elevate to +36 degrees; however, the TC must be unbuttoned to fire the M2 on the M1A2 or M1A2 SEP.
- The M240 coax machine gun can effectively deliver suppressive fires against enemy personnel and against enemy positions that are behind light cover.
- The loader's M240 machine gun can effectively deliver suppressive fire against enemy personnel and against enemy positions that are behind light cover; however, the loader must be unbuttoned to operate it. This weapon may be dismounted and used in a ground role if units are equipped with the M240 dismount kit.
- When buttoned up, the tank crew has limited visibility to the sides and rear and no visibility to the top. Figures 4 and 5 illustrate the dead space associated with tank operations in an urban environment.
- FM 3-20.12 (FM 17-12-1-1) explains special uses for tank-mounted machine guns in the urban environment.

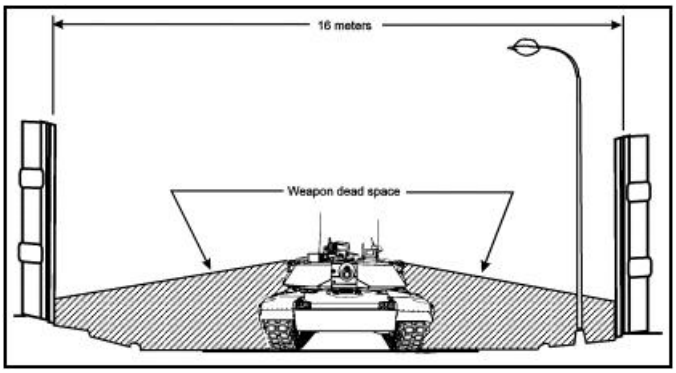


Figure 4. Tank weapon dead space at street level.

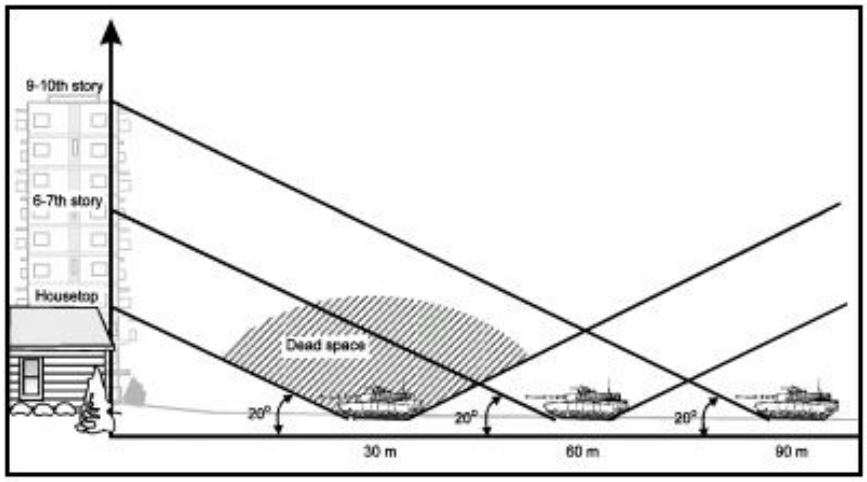


Figure 5. Tank main gun and coax dead space above street level.

C. Tank Platoon Command and Control in Urban Operations

The following command and control considerations will affect the tank platoon's urban operations planning and execution:

- **Communications problems.** The low-level task organization that may take place during urban operations will require elements to establish additional communications links, which can be disrupted by buildings and other urban terrain features.
- **Fire control.** Extensive direct fire planning and restrictive fire control measures are an absolute requirement in urban operations.
- **Proximity and visibility.** Friendly elements often must operate in confined and restrictive areas during urban operations, and they may not be able to see other nearby friendly forces. These factors significantly increase the danger of fratricide.
- **Personnel factors.** Urban operations impose significant, and often extreme, physical and psychological demands on soldiers and leaders.
- **ROE/ROI and civilians.** The ROE and/or ROI may restrict the use of certain weapon systems and TTP. As an integral part of urban operations, noncombatants create special operational problems. To deal with these concerns, units operating in urban terrain must know how to effectively employ linguists and counterintelligence and civil affairs teams.
- **The slow pace of urban operations.** This will usually prevent the tank platoon from taking full advantage of the speed and mobility of its tanks.

SECTION 2 – OFFENSIVE URBAN OPERATIONS

Offensive operations in a built-up area are planned and executed based on the factors of METT-TC and established doctrine. This section focuses on the unique problems and challenges that offensive urban operations pose for the tank platoon.

D. Hasty and Deliberate Attacks in an Urban Environment

The tank platoon may be employed in an urban offensive mission as part of a larger force, usually a company team and task force. Offensive urban operations take the form of either a hasty or deliberate attack. Both types of attacks require the friendly force to conduct as much planning, reconnaissance, and coordination as time and the situation permit.

Hasty Attack

Task forces and company teams conduct hasty attacks in a variety of tactical situations:

- As a result of meeting engagements.
- When unexpected contact occurs and bypass has not been authorized.
- When the enemy is in a vulnerable position and can be quickly defeated through immediate offensive action.

The following special considerations apply for hasty attacks in the urban environment:

- In built-up areas, incomplete intelligence and concealment may require the maneuver unit to move through, rather than around, the unit fixing the enemy in place (the base of fire element). Control and coordination become important factors in reducing congestion at the edges of the built-up area.
- Once its objective is secured, an urban hasty attack force may have to react to contingency requirements, either by executing on-order or be-prepared missions or by responding to FRAGOs.

Deliberate Attack

A deliberate attack is a fully integrated operation that employs all available assets against the enemy's defense. It is employed when enemy positions are well prepared, when the built-up area is large or severely congested, or when the element of surprise has been lost. Deliberate attacks are characterized by precise planning based on detailed information and reconnaissance and thorough preparations and rehearsals.

Given the nature of urban terrain, the techniques employed in the deliberate attack of a built-up area are similar to those used in assaulting a strongpoint. The attack avoids the enemy's main strength, instead focusing combat power on the weakest point in the defense. A deliberate attack in a built-up area is usually conducted in four phases: reconnoiter the objective, isolate the objective, secure a foothold, and clear the built-up area. The following discussion examines these phases in detail.

E. Task Organization

The task organization of a tank platoon taking part in an attack during an urban operation may vary according to the specific nature of the built-up area and the objective. In general, the parent task force and/or company team will employ an assault force, a support force, and a reserve; in some cases, a security force is also used. Normally, there is no separate breach force; however, breaching elements may be part of the assault or support force, depending on the type and location of anticipated obstacles.

Support Force. Normally, most mounted elements of the urban unit, such as the tank platoon, are task organized in the support force. This allows the task force or company team commander to employ the firepower of the fighting vehicles without compromising their survivability, a distinct danger when heavy forces move into an urban area. The support force isolates the area of operations and the actual entry point into the urban area, allowing assault forces to secure a foothold.

Assault Force. The assault force is the element that gains a foothold in the urban area and conducts the clearance of actual objectives in the area. This force is normally a dismounted element task organized with engineers, with specific augmentation by armored vehicles.

Reserve Force. The reserve force normally includes both mounted and dismounted forces. It should be prepared to conduct any of the following tasks:

- Attack from another direction.
- Exploit friendly success or enemy weakness.
- Secure the rear or flank of friendly forces.
- Clear bypassed enemy positions.
- Maintain contact with adjacent units.
- Conduct support by fire or attack by fire as necessary.

F. Offensive Tchniques in Urban Operations

Role of the Tank Platoon

During the attack of a built-up area, the company commander must employ his tanks to take advantage of their long-range lethality. The tank platoon may provide support by fire while lead elements are seizing a foothold. The platoon then can provide overwatch or serve as a base of fire for the infantry until the area has been secured.

The company commander will usually position one tank platoon outside the built-up area, where it will remain for the duration of the attack to cover high-speed avenues of approach. This is especially true during the isolation phase. Platoons positioned on the outside of the built up area also serve as a relief or reinforcing force for platoons fighting within the urban area. This technique also serves well for resupply operations. (**NOTE:** Before providing support for the attack, tanks must be able to maneuver into overwatch or base-of-fire positions; this will normally require support from organic infantry weapons to suppress enemy strongpoints and ATGM assets.) Additionally, the tank platoon can conduct the following urban offensive operations:

- Neutralize enemy positions with machine gun fire.
- Destroy enemy strongpoints with main gun fire.
- Destroy obstacles across streets.
- Force entry of infantry into buildings.
- Emplace supporting fires as directed by the infantry.
- Establish roadblocks and barricades.

Mutual Support. In house-to-house and street fighting, tanks move down the streets protected by the infantry, which clears the area of enemy ATGM weapons. The armored vehicles in turn support the infantry by firing their main guns and machine guns from a safe standoff range to destroy enemy positions. Particular attention must be paid to the layout of the urban area. Streets and alleys provide ready-made firing sectors and killing zones for tanks to use. Individual tanks may often "hug" the side of a street to reduce its exposure to ATGM fire. A tank platoon may deploy on alternate sides of the street in a staggered column and cover each others dead space to reduce it's exposure to enemy ATGM fire.

NOTE: Figure 6 (page 95) illustrates a situation in which two tank platoons are participating in a task force attack in an urban operations environment.

SECTION 3 – DEFENSIVE URBAN OPERATIONS

Like offensive urban operations, defensive urban operations require thorough planning and precise execution based on METT-TC and established doctrine. This section examines urban operations considerations that affect the tank platoon in the defense.

G. Enemy Forces Outside the Urban Area

While positioned in an urban area as part of a larger force, the tank platoon may be tasked to defend against an enemy approaching from outside the area. In general, procedures and considerations are the same as those for defensive operations in open terrain. For example, the commander designates BPs that take advantage of all available weapon systems. Objectives are similar as well; these may include preventing the enemy from isolating the defensive position, conducting reconnaissance of the defensive position, and/or gaining a foothold in the urban area.

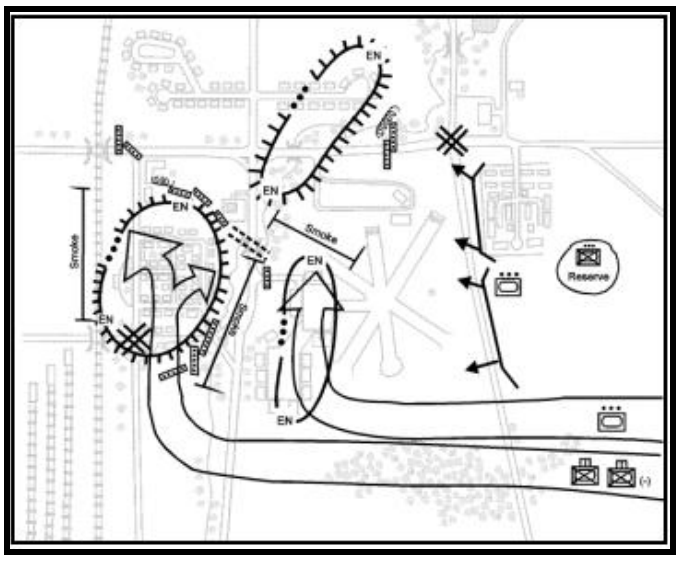


Figure 6. Example task force attack in an urban environment, with tank platoons in the support and assault forces.

This type of urban operation may transition into an in-depth defense of the urban area, as described in the following paragraph, if the attacker continues to commit forces to the battle and the defending force fails to divert or destroy them.

H. Enemy Forces Within the Urban Area

When it faces enemy forces within the urban area, the tank platoon may be called upon to take part in any of several types of defensive operations, including defend in sector, defend a strongpoint, and defend a BP. Procedures and considerations for these defensive operations are generally similar to those used in more conventional open terrain situations. (**NOTE:** Refer to FM 3-90.1 [FM 71-1] for detailed information on these operations.) The commander should designate engagement areas that take advantage of integrated obstacles and urban terrain features and that can be covered by direct and indirect fires.

I. Defensive Techniques in Urban Operations

Role of the Tank Platoon

In the defense, tanks provide the urban operations commander with a mobile force that can respond quickly to enemy threats. They should be located on likely enemy avenues of approach in positions that allow them to take advantage of their long-range fires. Effective positioning allows the commander to employ the armored vehicles in a number of ways, such as the following:

- On the edge of the city in mutually supporting positions.
- On key terrain on the flanks of towns and villages.
- In positions from which they can cover barricades and obstacles by fire.
- As part of the reserve.

Tanks are normally employed as a platoon. The commander also has the alternative of employing sections or individual vehicles with infantry platoons and squads; this allows the tanks to take advantage of the close security provided by the infantry and to provide immediate direct-fire support to the infantry when needed.

Fighting Positions and Firing Positions

Careful selection of fighting positions and firing positions for tanks is an essential component of a complete and effective defensive plan in built-up areas. Vehicle positions must be selected and developed to afford the best possible cover, concealment, observation, and fields of fire; at the same time, they must not restrict the vehicles' ability to move when necessary. These considerations apply:

- If fields of fire are restricted to the street area, hull-down positions should be used to provide cover and to enable tanks to fire directly down the streets. From these positions, the tanks are protected while retaining their ability to rapidly move to alternate positions. Buildings collapsing from enemy fires are a minimal hazard to tanks and their crews.
- Before moving into position to engage the enemy, a tank can occupy a hide position for cover and concealment. Hide positions may be located inside buildings or underground garages, adjacent to buildings (using the buildings to mask enemy observation), or in culverts. Refer to Figure 8-6 for an example of a tank using an urban hide position.
- Since the crew will not be able to see the advancing enemy from the hide position, an observer from the tank or a nearby infantry unit must be concealed in an adjacent building to alert the crew (see Figure 7). When the observer acquires a target, he signals the tank to move to the firing position and, at the proper time, to fire.
- After firing, the tank moves to an alternate position to avoid compromising its location.

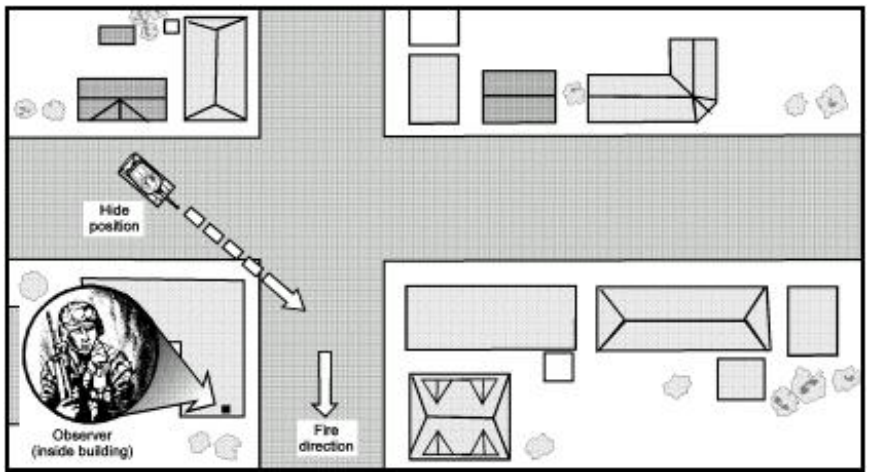


Figure 7. Example vehicle hide position in an urban environment.

APPENDIX B

Urban Operations: A Guide

RESOURCING THE FIGHT

Breaching, Class V, and Class III. The urban operations fight is resource intensive. It is critical that the following assets be tracked and acquired early:

- Mine rollers and improved dogbone assembly
- Mine clearing line charges (MICLIC) and bangalore
- Class V, especially 7.62mm and 25mm

Carefully examine the balance between sabot and HE for the Bradley, along with sabot, HE, bunker buster, and canister for the M1. Sabot is not the prime round in urban operations.

Class III planning is critical. Class III bulk needs to be on hand prior to the start of the operation.

Communications. All armored vehicle crewmen and dismounts must have the following:

- ICONs with correct frequencies
- TA-1s wired into the VIC
- Electronic hearing protection

Environmental Protection. Specialized protective equipment includes the following:

- Eye protection
- Industrial protective mask – for HC smoke and toxic fumes
- M1 Exhaust Pipe Elbow (NSN 2990-01-327-9443). This is more effective than the exhaust deflector.

Ammunition Loads:

M1s

Breach Group

Ready	Semi-ready
10 MPAT	15 MPAT
10 bunker buster	5 bunker buster

Assault Force

Ready	Semi-ready
15 MPAT	10 MPAT
3 bunker buster	5 bunker buster
2 sabot	5 sabot

Support Force

Ready	Semi-ready
10 MPAT	5 MPAT
2 bunker buster	5 bunker buster
5 canister	5 canister
3 sabot	5 sabot

M2s

M2 "Pure"	HE box	Sabot box
Wingmen	4 TPT:3 HE	4 TPT:3 HE
Leader M2s	4 TPT:3 HE	Sabot

TO with 1 MI (2x2 platoons or 1x1 gun teams)

HE box	Sabot box
4 TPT:3 HE	4 TPT:3 HE

PLANNING

Time: The most critical aspect of planning is time. Each echelon of command must ensure there is enough time for the assault force to rehearse to the lowest level of combined arms execution – usually the platoon.

Task Organization: Task organize into a breach team, combat recovery team, assault team, support force and medic team.

Heavy Team Base Configuration:

- 2 tank platoons
- 2 mechanized infantry platoons (3x9)
- 1 engineer platoon (3 sapper squads plus PLT HQs and an ACE)
- Maint sec with recovery vehicles
- Medic section (2 M113s)
- CO HQs w/FIST

Additional Assets (METT-TC):

- CA team
- FWD treatment teams from C MED
- Smoke section
- Dismounted infantry platoon
- Heavy or light sappers

Breach Team:

- The breach team should be heavy in counter-mine equipment (CME). The mine roller is an excellent tool for breaching surface laid mines, wire, and hasty vehicle roadblocks.
- M2s provide high-angle suppressive fires and a different choice of ammunition if firing in close proximity to dismounted soldiers.
- Enough dismounts to seize the buildings immediately adjacent to the breach.
- Sappers, mounted, and an MICLIC provide an alternate method of breaching a simple obstacle. Care must be taken to protect the MICLIC until time of employment. The detonation of 1,800 pounds of C-4 will cause considerable collateral damage.
- An armored combat excavator (ACE) is also a good system for pushing obstacles out of the way. It should follow the CME.

Combat Recovery Team: Armored vehicles killed or stuck in the breach can disrupt the entire operation; therefore, it is important to have a well-rehearsed snatch plan to remove these vehicles. Necessary equipment is:

- 1 M88 with extra crewmembers
- 1 maint M113
- 2 M2/M3s for support (optional)
- Smoke assets - pots, generators, or indirect

Assault Team: The assault team must be organized around a dismounted force of sufficient force to secure its objective. Generally speaking, this is an infantry platoon. The assault team is composed of one M1 and one M2 with at least four infantry squads and one sapper squad.

Medic Team: The medic team must be able to move forward to extract casualties. It is unrealistic to expect casualties to be evacuated back through the breach. There should be two M113s and FWD treatment teams to occupy each building as the assault progresses. The teams may have to come from C MED and must be rehearsed and well resourced to be effective. The goal is to not have combat power diverted to casualty evacuation and care. There must be an easily recognizable and understandable casualty marking system to include visible and IR for limited visibility operations.

Security Team: Each vehicle pair must have a dedicated security team that operates from inside of buildings. A squad will provide continuous coverage for a vehicle pair by bounding fire teams.

Breaching Techniques for Villages or Urban Centers that can be Isolated:

- **In and out:** Clears the lane for the assault group and creates multiple breaches.
- **Multiple in and out:** Uses two or more breach teams to create multiple lanes. It is important to closely coordinate timing and breach routes between each team. The advantage of this technique is that is clears the assault lane and does not require the heavy team to seize and hold the buildings adjacent to the breach. The disadvantage, obviously, is that the buildings next to the breach will have to be taken by the assault force.
- **In and hold:** Requires the breach force to breach in and hold the breach objective. This is a dismount-intensive operation and may prevent the heavy team from forming further assault groups. The advantage is that it provides a secure breach from which to launch the assault.
- **Multiple in and hold:** Depending on the nature of resistance, this may be too resource-intensive for a standard 2x2 heavy team. The heavy team splits into two to four breach teams and seizes multiple breach objectives simultaneously. The advantages are surprise and multiple points from which to launch an assault. The disadvantage is that it eliminates the heavy team's ability to conduct further assaults.

All **in and out breach techniques** require close synchronization with assault forces to ensure continued momentum through the objective.

In and hold techniques require less synchronization and may be the best technique for hasty attacks. The breach force will not be able to sustain itself for long periods of time.

Obscuration During the Breach. Plan for multiple sources of obscuration during the breach. If there is no anti-armor (tanks or heavy AT weapons), threat smoke the dismounted lanes but leave the armored vehicles in the clear – it will facilitate better security against satchel charges.

Command and Control. The commander of the breach needs to be in a position where he can control the breach force, indirect fire support, and the combat vehicle recovery team, and have good situational awareness for the location and status of the assault force.

- For a village: This is best done from the commander's vehicle (M1 or M2/M3) outside the breach, close enough to understand what is going on, but far enough away to not become a roadblock.
- In an urban center: The commander may not have room to command the breach from his vehicle.

The assault commander cannot, given current technology, command and control forces from inside his vehicle. He must plan on following the main effort of the assault group.

C2 Assignments:

Operation commander - CO commander

Breach force - Eng platoon leader (1 2x2 platoon w/1 roller and 1 plow, 2 squads infantry, 1 squad sappers, 1 ACE [MCLC optional])

Assault force commander - Company XO
Assault gun teams - Tank platoon leader (1 2x2 platoon)
Assault infantry - Mech platoon leader (4 squads infantry, 1 squad sappers, fwd treatment team)

Support 1 - Tank platoon leader (1 2x2 platoon w/o dismounts)

Support 2 - Mech platoon leader (1 2x2 platoon w/o dismounts)
Combat recovery - Maint chief (1 M88, 1 M113).
Medic team - Med platoon leader (2 M113s, 1 fwd treatment team)

Types of Support:

- **General Area Support:** The heavy commander positions gun teams (one M1, one M2, and a security force) at points of domination throughout the area. All calls for support go through the commander on a "first-come-first-served" basis. This method ensures there are always gun teams to support the assault. The commander is responsible for maintaining the teams. There must be:
  - A common building numbering system.
  - Rehearsed combat ID of friendly soldiers.

- **Direct Support:** Gun teams are assigned directly to an assault force and controlled by the assault force commander. Assault teams may find themselves without support if vehicles become casualties.
  - Specific positions to move to
  - Common building ID
  - Rehearsed combat ID of friendly soldiers

Vehicle Rotation: Armored vehicles have limited endurance for prolonged urban operations fights (24 hours or more). The commander must plan on rotating gun teams. This will require:

- Relief-in-place in contact.
- Target and security team handoff.
- Plused up on board supply (H2O, MREs).
- Both teams fully rehearsed with assault forces.

Managing weapons effects: Weapons' effects must be given careful consideration:

- Rounds' ability to penetrate structures
- Explosive effect and bursting radius
- Blast overpressure on the 120mm cannon
- Debris and collateral fires

The FLOT is the **red line** – forces forward of the red line are at risk of becoming casualties from weapons' effects.

Planning Movement: The commander of the assault group should control the movement of gun teams in the direct support role.

- **Types of control:**
  - Call forward from a secure position
    - More secure
    - Less responsive
  - Hugging the front edge (the red line) on line with the assault force
    - Less secure
    - More responsive
  - Security team control
    - Most secure
    - Least responsive
    - Must have communications with both the gun team and the security team

- **Types of movement:**
  - Stationary at points of domination
  - Hugging the red line

- **Types of Engagement:**
  - **Drive by:** In this technique, the gun team stays out of the objective until called and then executes a "drive by" of the target. Must have multiple breaches in line with each other, and the objective must be isolated on the entry and exit points.
  - **Carousel:** One gun team is called forward and empties its ready ammunition on the target and is then replaced by another team while it reloads.

OTHER USES FOR ARMORED VEHICLES IN URBAN OPERATIONS

Mobile step ladders: M1s and M2s can be used to gain access to the second and third floors of buildings.

Mobile assembly areas: For areas that are isolated, the M2 makes an excellent TAC for dismounted and mounted forces. Consider wiring the ramp open with 5,000-pound cargo straps.

Emergency supply: All armored vehicles should carry several "speedballs" as emergency supply for assault forces. MRE boxes make the best container. The gaining unit should make the speedballs, code them, and issue them to the heavy team. Speedballs should contain:

- Class V - small arms and hand grenades
- Water
- Class VIII

COMBAT ID AND BUILDING MARKING

Must include IR and thermal.

Building system must include building, side, floor and window/panel (i.e., 21/A/3/7). This is the most difficult part of target handoff between armored vehicles and the assault group. Rehearse it. The following items work well:

- Two 9V batteries plugged together
- Combination of IR and visible chem-lites
- MRE heaters
- Air-activated heat pads

EXECUTION

The Enemy:

- The most dangerous course of action the enemy could follow would be to draw all the dismounted infantry, to include the security teams, into an internal building fight. This leaves the armored vehicles unprotected and easy prey for hunter/killer teams.
- All buildings and all floors must be secured behind the red line or vehicles and assault forces will be subject to rear/top down/hull and counter-attacks. If this cannot be guaranteed, consider having two gun teams working together, each facing in the opposite direction and moving bumper to bumper.

The Breach: Conduct a careful reconnaissance of the breach site if possible. Consider other assets, such as UAVs and OH-58s, if a personal reconnaissance cannot be conducted.

The Breach Team:

- If the site is isolated, the breach assault force can "stack" on the support force vehicles and gain entry to buildings adjacent to the breach. Consider a dynamic entry by having M2s or M113s back into a building and drop ramp.
- Key to the "stack" is ensuring the exposed angles to the infantry are secure.
- Breach only far enough in to clear the obstacle. Going too far puts you well forward of the red line and in enemy territory.
- If breaching in and out, maintain as high speed as possible and hit obstacles head-on.

- Team includes:

- One or two M1A1s with mine rollers and plows
- Two M2s for high angle suppressive fires for the breach
- ACE
- One or two squads of dismounts to seize buildings adjacent to breach (if "in and hold" technique is being used)
- One squad of sappers
- MICLIC options

Supporting the Assault:

- The heavy team can form one breach team and one assault team. This leaves approximately four M1s and four M2s in the pure support or isolation role. These vehicles should be paired up M1A1/M2 in order to facilitate relieving the breach and assault forces.
- They should occupy positions to support both the breach and assault elements.
- They should be staggered or off the road to not block traffic.
- If the road net within the objective supports and there are enough breach sites, these teams can be used for drive-bys and carouselling in support of the assault.

The Assault Group:

- Assault Force
  - 1 M1A1
  - 1 M2/M3
  - 1 dismounted infantry platoon
  - 1 sapper squad
  - Forward treatment team with medic M113
  - Commander's vehicle (depending on the threat)
- The assault force should pass through the breach on the heals of the breach force to maintain momentum. There is no requirement that the breached buildings be completely secured as long as the breach support force can suppress.
- If infantry cannot stack on the vehicles, they should ride internal (for as short a time as possible) and conduct a dynamic entry through a wall or a second-floor entry through the troop hatch on the M2. If breached buildings are secure, they can move from building to building using the vehicles as shields.
- Heavy obscuration on the assault objective should block enemy surveillance of the target but leave the vehicles in the clear. This will require the FIST to be up close to the assault group.

Bounding Gun Teams:

Step 1. Assault group with Gun Team 1 enters building.

Step 2. Gun Team 1 takes up a position near the building oriented out.

Step 3. Gun Team 2 suppresses building in support of assault group and Gun Team 1.

Step 4. Assault team announces "Building clear, moving to building #__ ."

Step 5. Gun Team 1 suppresses next building.

Step 6. Gun Team 2 moves to shield assault group as they cross the danger area.

Step 7. Gun Team 2 takes up a position next to the objective building and orients out.

Step 8. Gun Team 1 suppresses building.

Managing Fields of Fire: Fields of fire are three dimensional in the urban operations fight.

- Lead gun team
  - M1
  - M2

- Following support team or gun team fires over top of lead team to higher elevations.
  - M1
  - M2

Communications During the Assault:

- **Net 1:** Common battle net for all elements of a gun team and assault force.
- **Net 2:** Gun team net for communications with other gun teams.
- **Net 3:** Gun team to support force net.

Battle Drills:

- **Satchel Drill.** Satchel charges are the single greatest killer of heavy vehicles in the JRTC urban operations phase. ***This drill has to be conducted in 15 seconds or less!***

Step 1. Spotter announces "Satchel, Gun #1" and direction of attack (by clock method based on direction of travel).

Step 2. Security team announces "coverage" or "no coverage."

Step 3. If "no coverage" is given, the loader of the announced vehicle unbuttons and lies on top of the turret, or immediately moves to throw the satchel charge away from the vehicle.

Step 4. Gunner of designated vehicle mans the loader's M240.

Step 5. All crewmembers remount and button up.

- **Top Attack**

Step 1. Spotter announces "top attack" and building number of shooter.

Step 2. Target vehicles employ on board smoke and move two vehicle lengths forward or backwards.

Step 3. Security team suppresses likely or identified locations.

Step 4. Support teams suppress likely or identified locations.

Operations in Support of Infantry Battalions: The role of the heavy team in support of infantry battalions remains fundamentally the same, except the commander relationship is different.

- Company commander
  - Force provider.
  - Controls gun team rotation.
  - Clears and controls drive-bys and carousels.
  - Controls logistical flow and supply rotation.
  - May command the breach or a separate assault.
- Two 4-vehicle teams (2x2 or two gun teams [1x1]) can be provided while maintaining the ability to breach or isolate.
- Tank platoon leaders command gun teams.

- Breach force (if tasked)
  - Commanded by a mech platoon leader or **engineer platoon leader**
  - 2 infantry squads, 1 sapper squad or **2 eng squads, 1 inf squad**
  - 1 M1 w/roller, 2 M2s, 1 eng M113, 1 ACE or **2 eng M113s**

- Support Force
  - Commanded by a mech platoon leader
  - 1 M1, 2 M2
  - 3 squads

- Reserve
  - Commanded by the engineer platoon leader or **mech platoon leader**
  - 2 eng squads or **1 squad**
  - 1 infantry squad or **2 infantry squads**
  - 1 M1 w/roller
  - 1 M1 w/plow

- Combat recovery and medics
  - Commanded by the company XO
  - 1 M88, 1 maint M113 – under control of maint chief
  - 2 medic M113s, 2 fwd treatment teams – under control of med PL

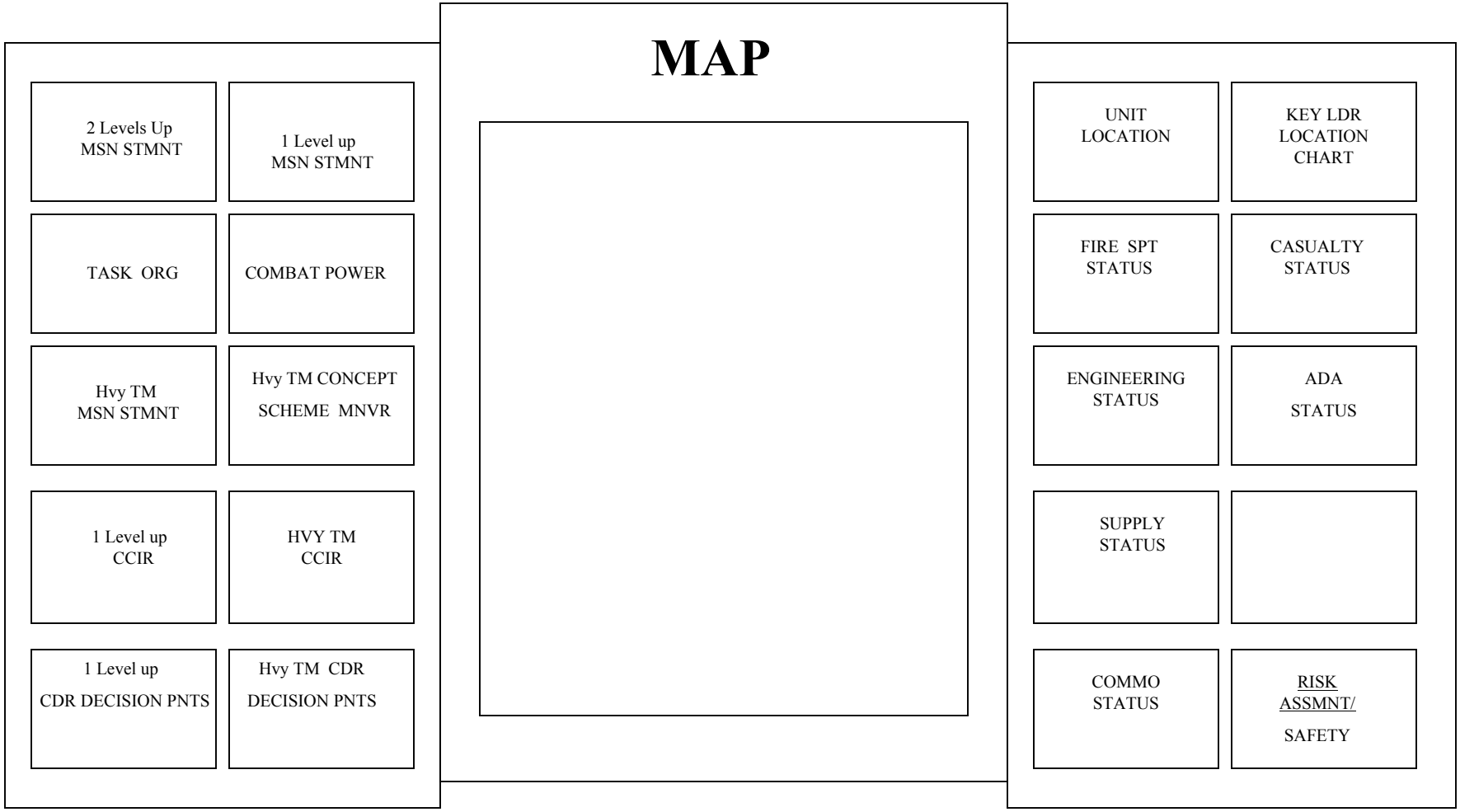
APPENDIX C

Heavy Command Post Charts

Compiled by CPT Andrew Poznick

(See pages 106-132)

OPS Tri-Fold Board



Weather

HIGH					
LOW					
OUTLOOK					
WIND SP / DIR					
PRECIP					
CEILING					
VISIBILITY					
BMNT					
SUNRISE					
SUNSET					
EENT					
MOONRISE					
MOONSET					
ILLUM					
WX EFFECTS ON OPS					

AS OF:_____

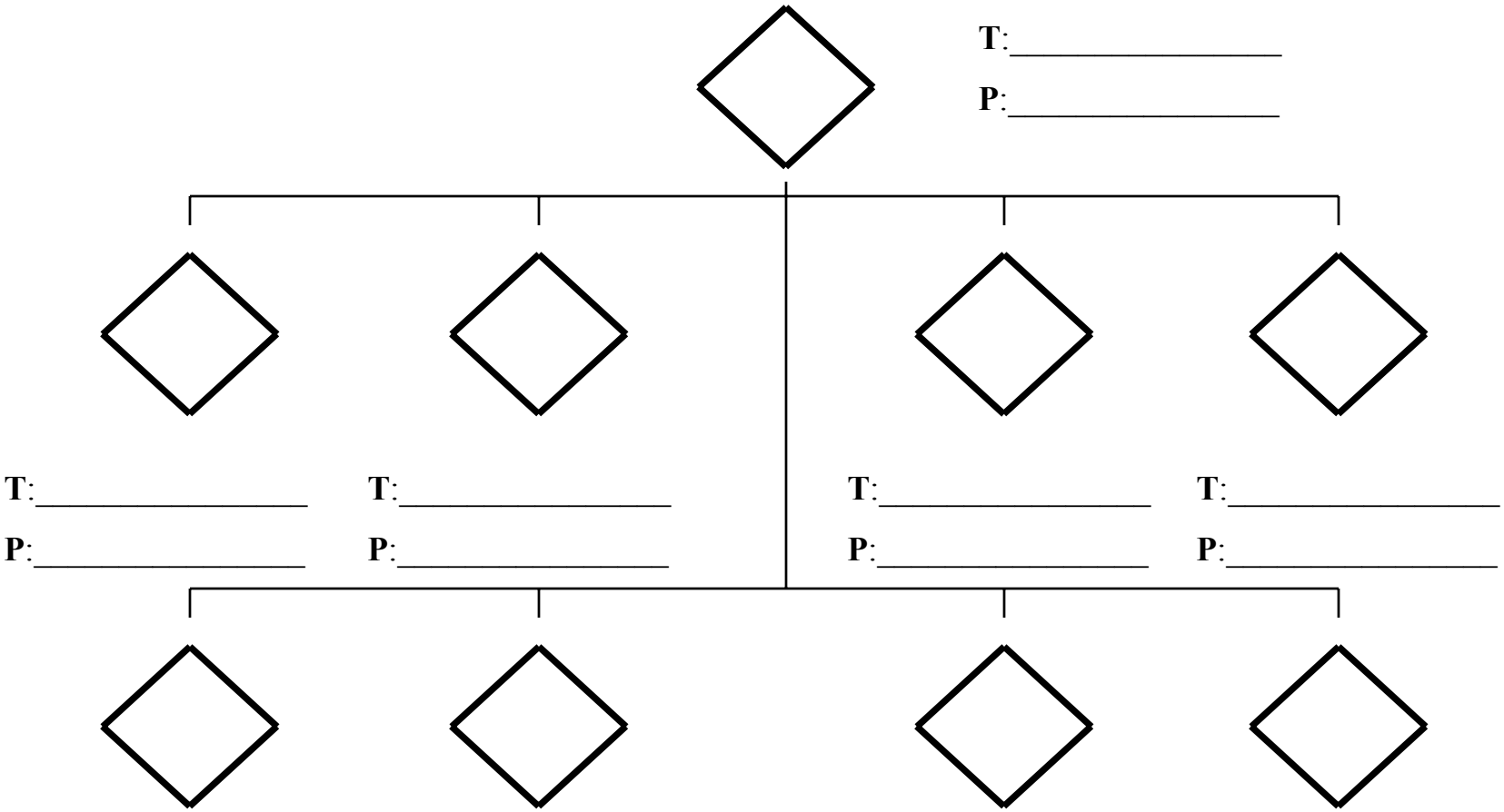
General Enemy Situation

Significant Enemy Activities Last 12 Hours

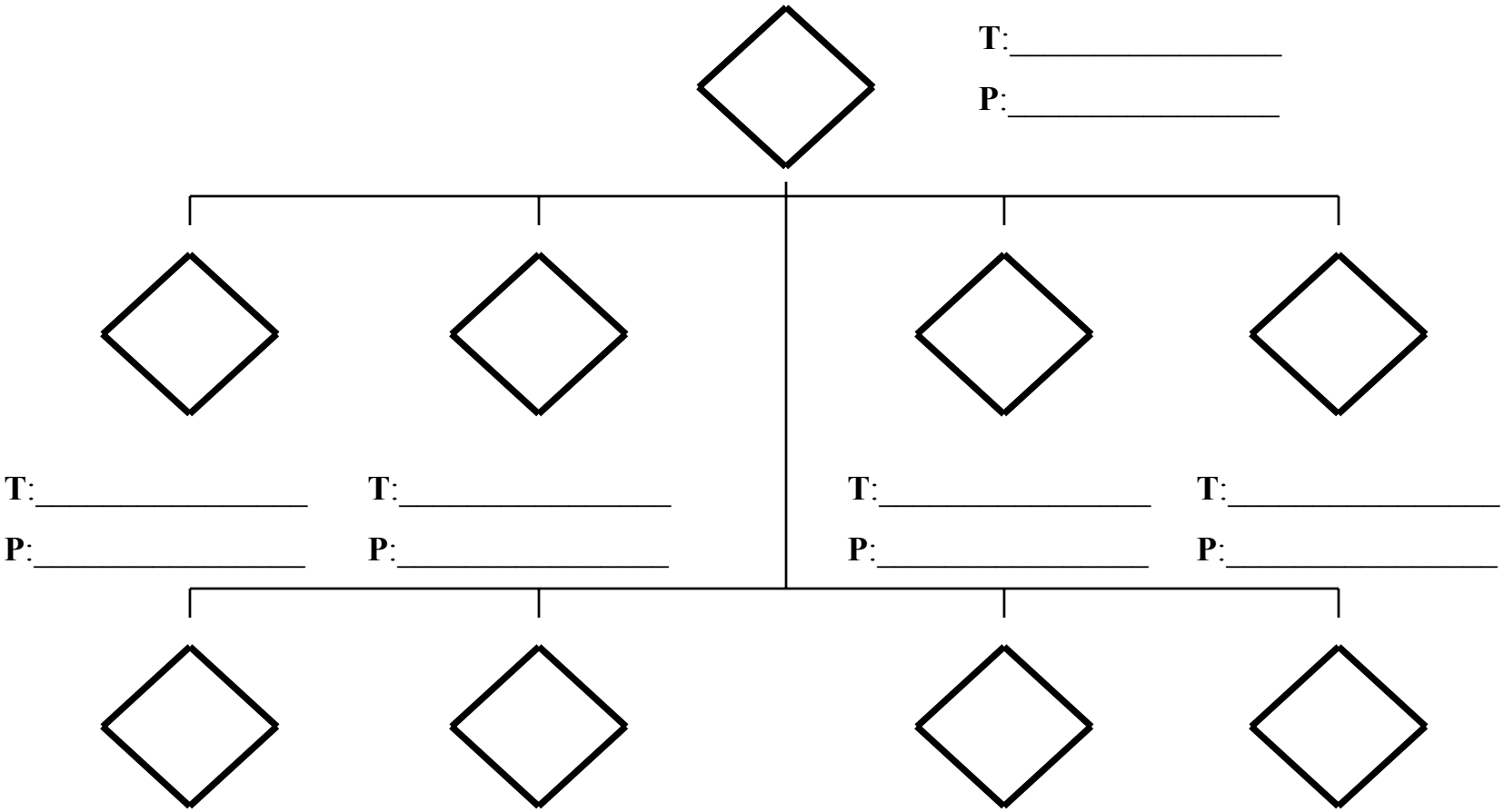
Expected Enemy Activities Next 12 Hours

AS OF:_____

Order of Battle



Order of Battle



Enemy Strengths

Enemy Weaknesses

AS OF:_____

Priority Intelligence Requirements

Heavy Team PIR	Decision

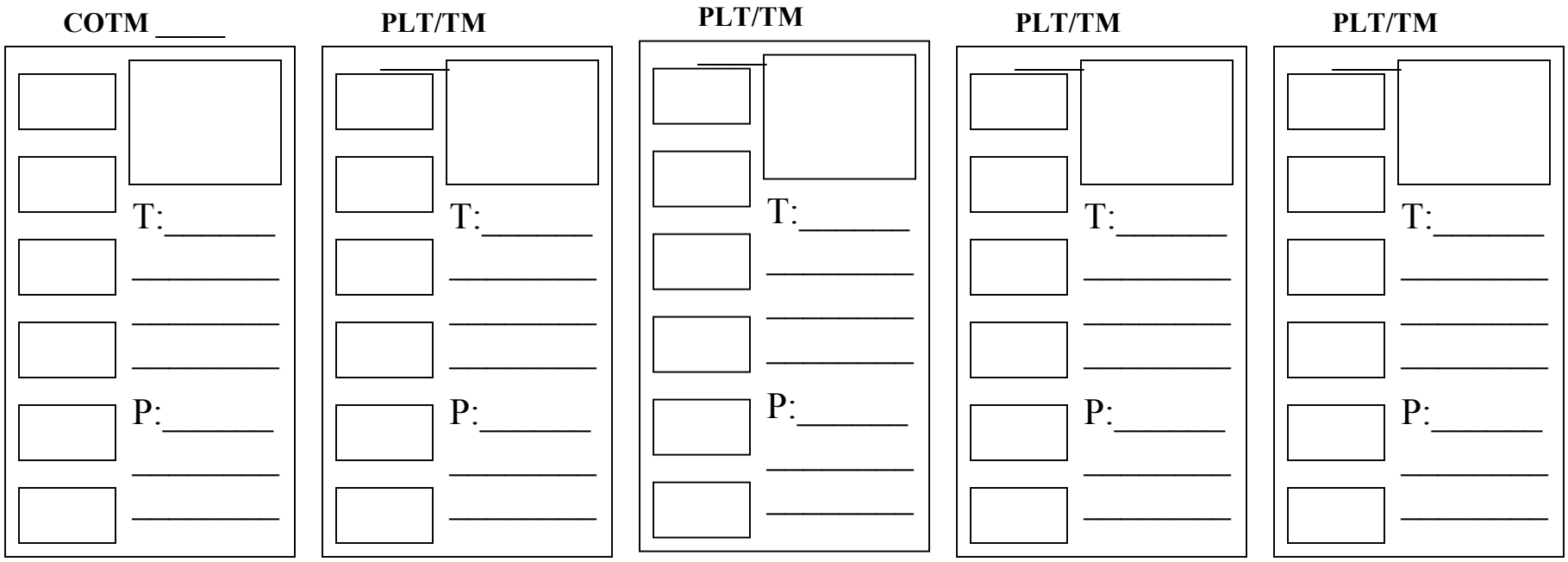
AS OF:_____

Target List Worksheet

LINE NO	TARGET NO	DESCRIPTION	LOCATION	ALT.	ATT.	SIZE		PRIMARY OBSERVER	OBSERVER	REMARKS
						LENGTH	WIDTH			
1										
2										
3										
4										
5										
6										
7										
8										
9										
10										
11										
12										
13										
14										
15										
16										
17										
18										
19										
20										

AS OF:_____

Task Organization



Combat Power Report

CO/TM _____	PLT/TM _____	PLT/TM _____	PLT/TM _____	PLT/TM _____
TOW / .	TOW / .	TOW / .	TOW / .	TOW / .
M1 / .	M1 / .	M1 / .	M1 / .	M1 / .
M2 / .	M2 / .	M2 / .	M2 / .	M2 / .
BSFV / .	BSFV / .	BSFV / .	BSFV / .	BSFV / .
ENG SQD / .	ENG SQD / .	ENG SQD / .	ENG SQD / .	ENG SQD / .
Javelin / .	Javelin / .	Javelin / .	Javelin / .	Javelin / .
MK 19 / .	MK 19 / .	MK 19 / .	MK 19 / .	MK 19 / .
50 Cal / .	50 Cal / .	50 Cal / .	50 Cal / .	50 Cal / .

TOTAL PLATOONS

M2 /	M1 /	ADA /	ENG /	_____ /

TOTAL WEAPONS

TOW /	MK19 /	50 CAL /	M1 /	M2 /	JAVELIN /	ENG SQD /	_____ /

General Situation

Major Significant Activities Last 12 Hours

Major Significant Activities Next 12 Hours

2 LEVELS UP MISSION STATEMENT

2 LEVELS UP COMMANDER'S INTENT

1 LEVEL UP MISSION STATEMENT

1 LEVEL UP COMMANDER'S INTENT

KEY TASKS:

ENDSTATE:

HEAVY TEAM MISSION STATEMENT

HEAVY TEAM COMMANDER'S INTENT

Purpose:

Key Tasks:

Endstate:

CCIR

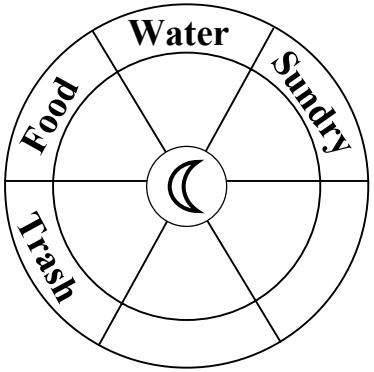
1 LEVEL UP	HEAVY TEAM
EEFI: (WHAT I DO NOT WANT THE ENEMY TO KNOW ABOUT ME)	**EEFI:** (WHAT I DO NOT WANT THE ENEMY TO KNOW ABOUT ME)
FFIR: (HOW I SEE MYSELF)	**FFIR:** (HOW I SEE MYSELF)

DECISION SUPPORT MATRIX

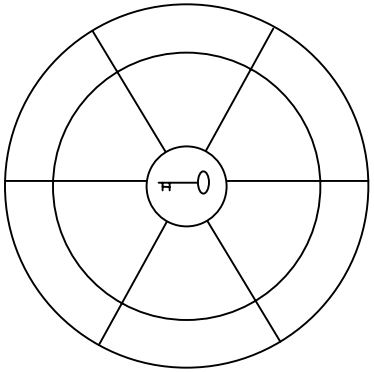
	1	2	3	4	5	6
PRECONDITION OR ENEMY ACTION						
IEW						
DECISION BY:						
MAN						
FS						
ADA						
M/CM/S						
CSS						
C2						

SUPPLY STATUS

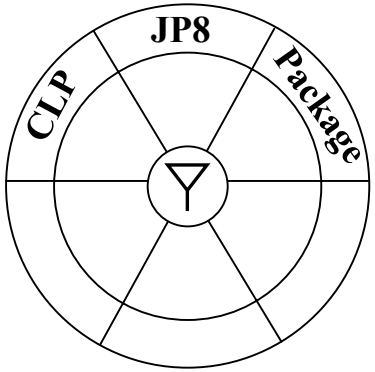
CLASS I



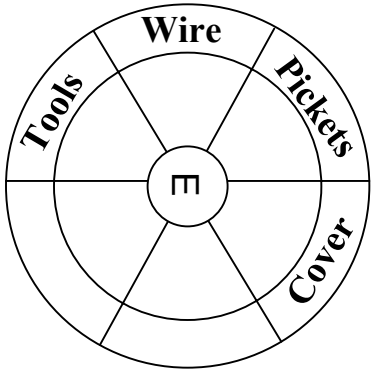
CLASS II



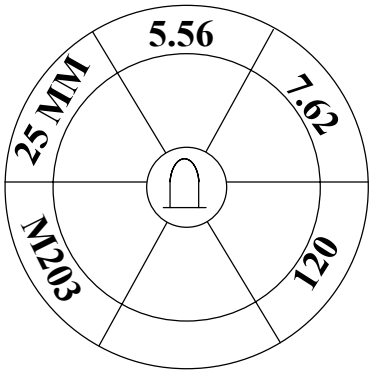
CLASS III



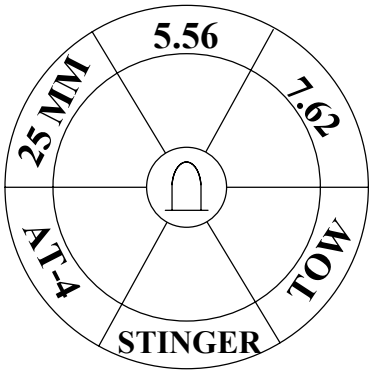
CLASS IV



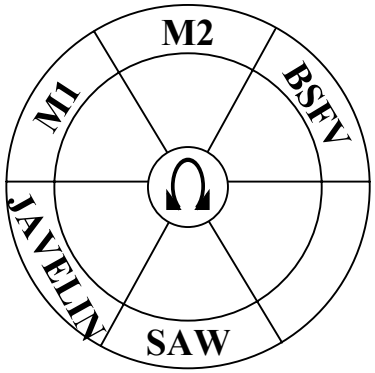
CLASS V - PLT



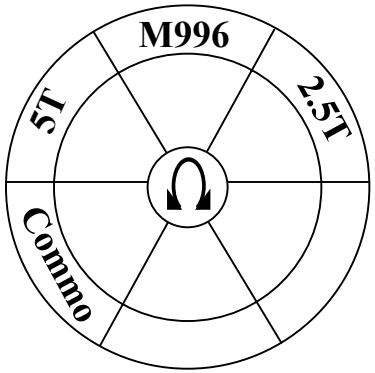
CLASS V - CO



CLASS VII - WPNs



CLASS VII - Other



G - No neg impact;

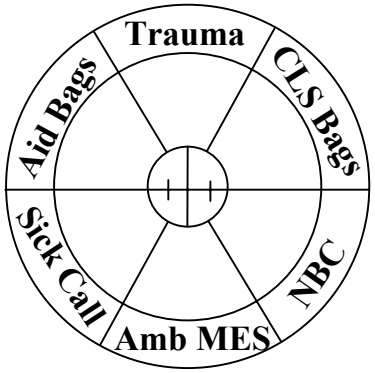
A - Neg Impact;

R - Mission at Risk;

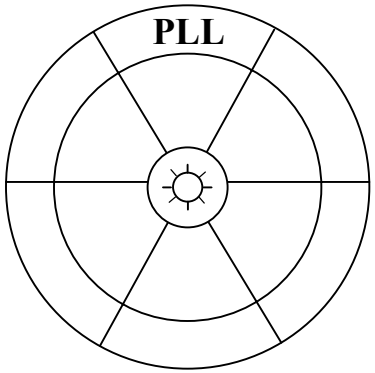
B - Can not accomplish mission

For %, see CBT PWR

CLASS VIII

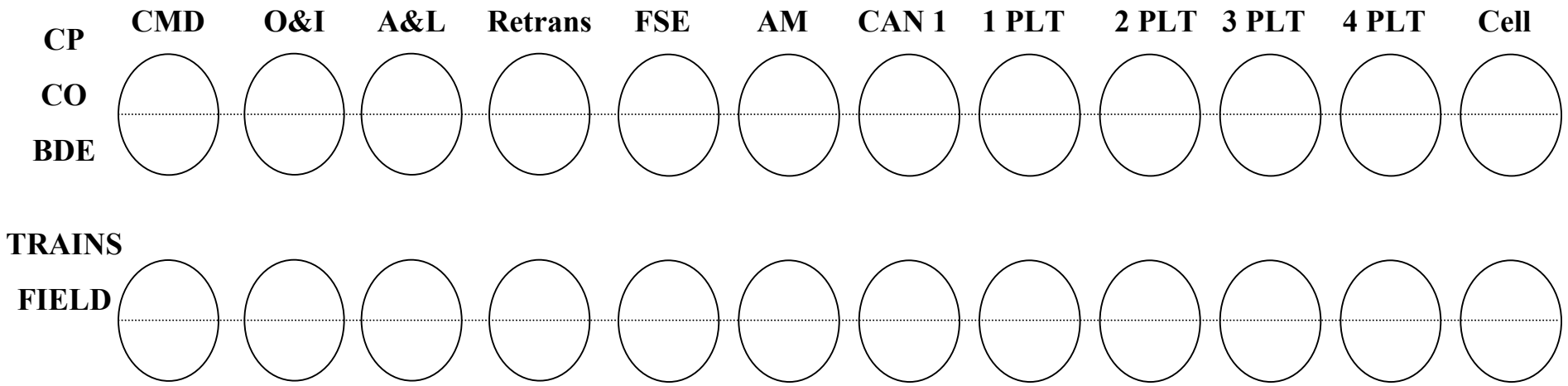


CLASS IX



AS OF: _____

COMMO STATUS



G - Good; A - Intermediate; R - Troubleshooting; B - Equipment Failure

---

◯ CO ◯ 3RD Plt ◯ ENG

◯ 1ST Plt ◯ 4TH Plt ◯

◯ 2ND Plt ◯ ADA ◯

Day	CHALLENGE	PASSWORD
___	_____	_____
___	_____	_____

G - Comms at last Report Time;

A - No Comms since Last Report Time

R - Missed 2 Report Times; No comms since;
Send Messenger

B - Messenger Can Not Find

AS OF: _____

CHALLENGE / PASSWORD

CHALLENGE

PASSWORD

AS OF:_____

Unit Locations

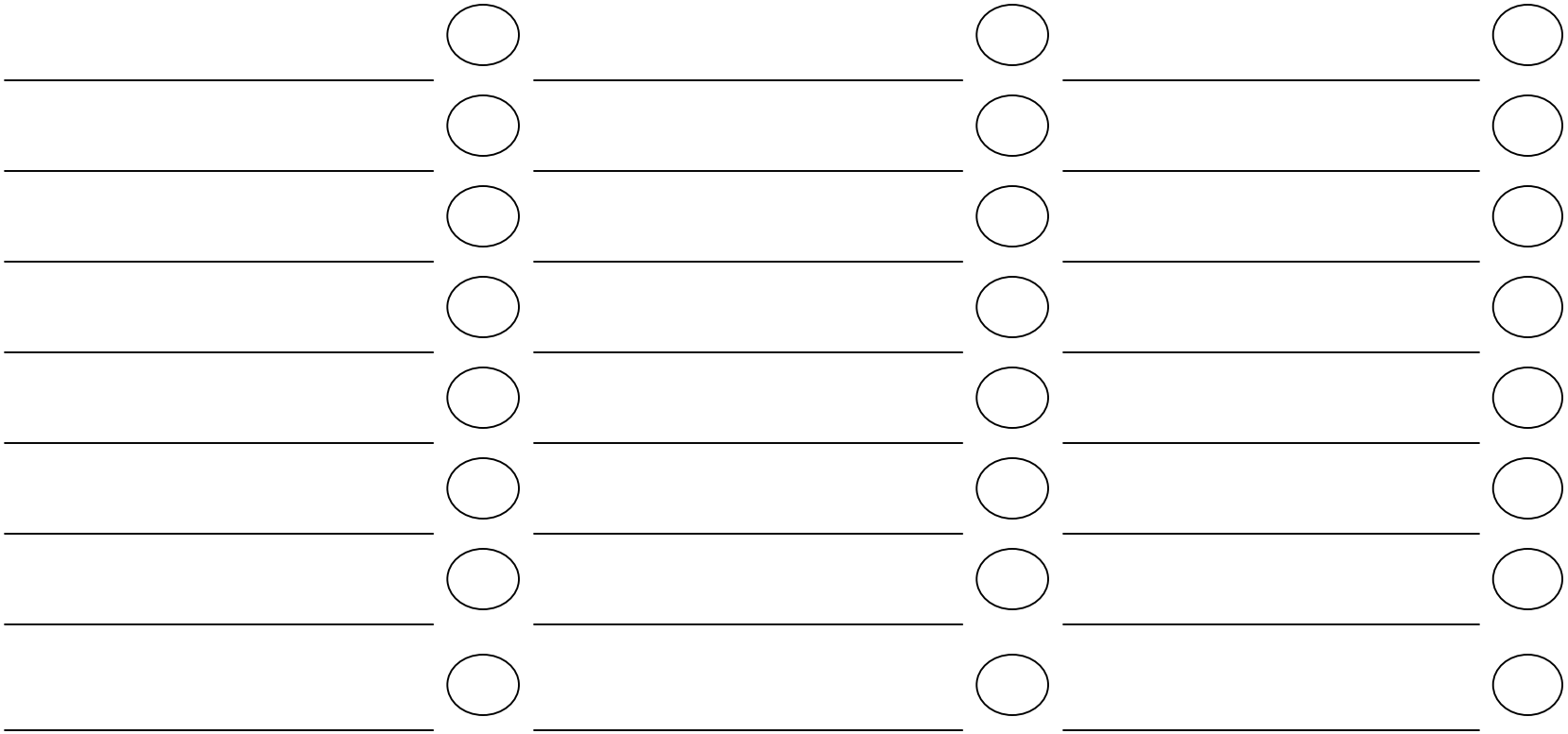
1ST PLT					
2ND PLT					
3RD PLT					
4TH PLT					
ADA					
ENG					
FTCP					
BAS					
FSO					

AS OF:_____

HEAVY TEAM CONCEPT

SCHEME OF MANUEVER

1 LEVEL UP CCIR



HEAVY TEAM CCIR

PIR:

EEFI:

FFIR

1 LEVEL UP

COMMANDER'S DECISION POINTS

Medical Status Board

UNIT	GRIDS	RANGE#	MEDEVAC GRID	CCP1	CCP2	CCP3	CCP4	CCP5	SUPPORT ELEMENT
COMPANY									
1ST PLT									
2ND PLT									
3RD PLT									
4TH PLT									
ENG									
ADA									

PERSONNEL EVACUATED TO LEVEL 2		
DATE / NAME / UNIT / INJURY	DATE / NAME / UNIT / INJURY	DATE / NAI

COMMAND AND SIGNAL	
CO CP	
MEDICS	
C MED	
RANGE CONTROL	

PERSTAT	
TOTAL PERSONNEL:	
OFFICER:	
ENLISTED:	
REAR-DETACH /	
OTHER SPECIFY:	

VEHICLE	TYPE	MC / NMC
	HMMV	
	HMMV	
	M997	
	M997	
	M997	
	M997	
	LMTV	

AS OF:_____

Engineer Status

OBSTACLE STATUS	BLADE STATUS	HOLES DUG	ROUTE STATUS
		1ST.	LAST REPORT
		REMAINING	
		2ND.	
		REMAINING	LAST REPORT
		3RD.	
		REMAINING	LAST REPORT
		4TH.	
		REMAINING	
		CP	LAST REPORT
		REMAINING	

ADA Status

ASSETS	LOCATION	TASK/PURPOSE

Air Defense Warning: _____

Weapons Control Status: _____

Risk Assessment

1. MSN/TSK | 2. BEGIN DATE: | END DATE: | 3. AS OF:

5. HAZARDS	6. INITIAL RISK SEV/PROB	7. CONTROLS	8. RESIDUAL RISK SEV/PROB	11. HOW IS IT IMPLEMENTED?	12. HOW IS IT SUPERVISED?	EFFECTIVE

9. MISSION/TASK RISK AFTER CONTROLS ARE IMPLEMENTED: LOW MEDIUM HIGH EXTREMELY HIGH

FC FORM 4162 (MODIFIED)

RISK ASSESSMENT MATRIX

E - EXTREMELY HIGH RISK
H - HIGH RISK
M - MODERATE RISK
L - LOW RISK

SEVERITY	PROBABILITY: FREQUENT	LIKELY	OCCASIONAL	SELDOM	UNLIKELY
CATASTROPHIC	E	E	H	H	M
CRITICAL	E	H	H	M	L
MARGINAL	H	M	M	L	L
NEGLIGIBLE	M	L	L	L	L

APPENDIX D

Weapons Systems and Ammunition Selection

Compiled by SFC Michael Lynch

Manuals for Reference for M1A1 Main Gun Effects:

- **AR 385-63,** ***Policies and Procedures for Firing Ammunition for Training, Target Practice, and Combat***
- **TM 9-1300-200,** ***Ammunition, General***
- **TM 9-1300-385,** ***Munitions, Restricted or Suspended***
- **TM 43-0001-27,** ***Army Ammunition Data Sheets: Small Caliber Ammunition***
- **FM 71-123,** ***Tactics and Techniques for Combined Arms Heavy Forces: Armored Brigade, Battalion Task Force, and Company Team***
- **FM 17-12-1-1,** ***Tank Gunnery (Abrams)***

Sabot

Six types of M105mm sabot rounds:

- M900 APFSDS-T (Primary armor-defeating round against tanks or tank-like targets)
- M833 APFSDS-T (Primary armor-defeating round against tanks or tank-like targets)
- M744 APFSDS-T (Primary armor-defeating round against tanks or tank-like targets)
- M735 APFSDS-T (Primary armor-defeating round against tanks or tank-like targets)
- M728 APDS-T (Tank or tank-like targets)
- M392A2 APDS-T (Tank or tank-like targets)

Three types of 120mm sabot rounds:

- M829A2 APFSDS-T (Tank or tank-like targets)
- M829A1 APFSDS-T (Tank or tank-like targets)
- M829 APFSDS-T (Tank or tank-like targets)

HEAT (High Explosive Anti-Tank)

HEAT rounds are the secondary armor-defeating ammunition. The HEAT round is used primarily against light armored targets, field fortifications, and personnel. Each round consists of a steel body containing a high-explosive shape charge, formed by copper shaped charge liner; the M830 (HEAT-MP-T) also includes a wave shaper. The projectile embodies a steel spike with a shoulder and nose switching mechanism for full frontal area functioning. Upon impact, one of the fuze sensors is activated. The fuze then detonates the high-explosive shape charge, which collapses the cone assembly, creating a high-velocity focused shock wave and a jet of metal particles that penetrate the target. Fragmentation of the projectile body sidewall provides an anti-personnel capability.

Two types of 105mm HEAT rounds:

- M456A2 HEAT-T (Light-armored targets and field fortifications. Secondary round for tanks or tank-like targets.)
- M456A1 HEAT-T (Light-armored targets and field fortifications. Secondary round for tanks or tank-like targets.)

One type of 120mm HEAT round:

- M830 HEAT-MP-T (Light-armored targets and field fortifications. Secondary round for tanks or tank-like targets.)

MPAT (Multipurpose Anti-Tank)

MPAT Ammunition: The 120mm M830A1 MPAT round contains a high-explosive warhead equipped with a proximity fuze that allows it to be fired in either air or ground mode. Its primary targets are light-armored ground targets, which are engaged with the fuze set to ground mode. It may also be used against bunkers, buildings, the side and rear of enemy tanks, ATGM platforms, and enemy personnel. With the fuze set to air mode, this round can be used in a self-defense role against helicopters. When fired in air mode, a black puff of smoke is produced when the proximity sensor and fuze function. This permits the crew to observe when and where the round functions in relationship to the target. The MPAT round is a fin-stabilized round with a three-piece discarding sabot, and is used in the 120mm M256A1 smooth bore cannon.

One type of 120mm MPAT round:

- MPAT M830A1 HEAT-MP-T (MPAT ground: Light armored vehicles, buildings, bunkers, ATGM platforms, and personnel. Secondary round for tank-like targets. MPAT air: Helicopters.)

From **FM 17-12-1-1, *Tank Gunnery (Abrams),*** (pp. 3-6): WARNING ! Sabot, HEAT, MPAT, and Beehive rounds should not be fired over friendly troops, unless troops are protected by adequate cover. Troops may be struck by discarded components (kinetic-energy rounds), or the full frontal impact switch may cause an air burst (chemical-energy rounds). The danger area extends 1,000 meters (1,095 yards) from the main gun and 70 meters (77 yards) on either side of the gun-target line. The effectiveness of sabot rounds depends on the density of the target surface; therefore, consider target armor thickness when selecting the appropriate armor-defeating round for a specific target.

Beehive

One type of 105mm BEEHIVE round:

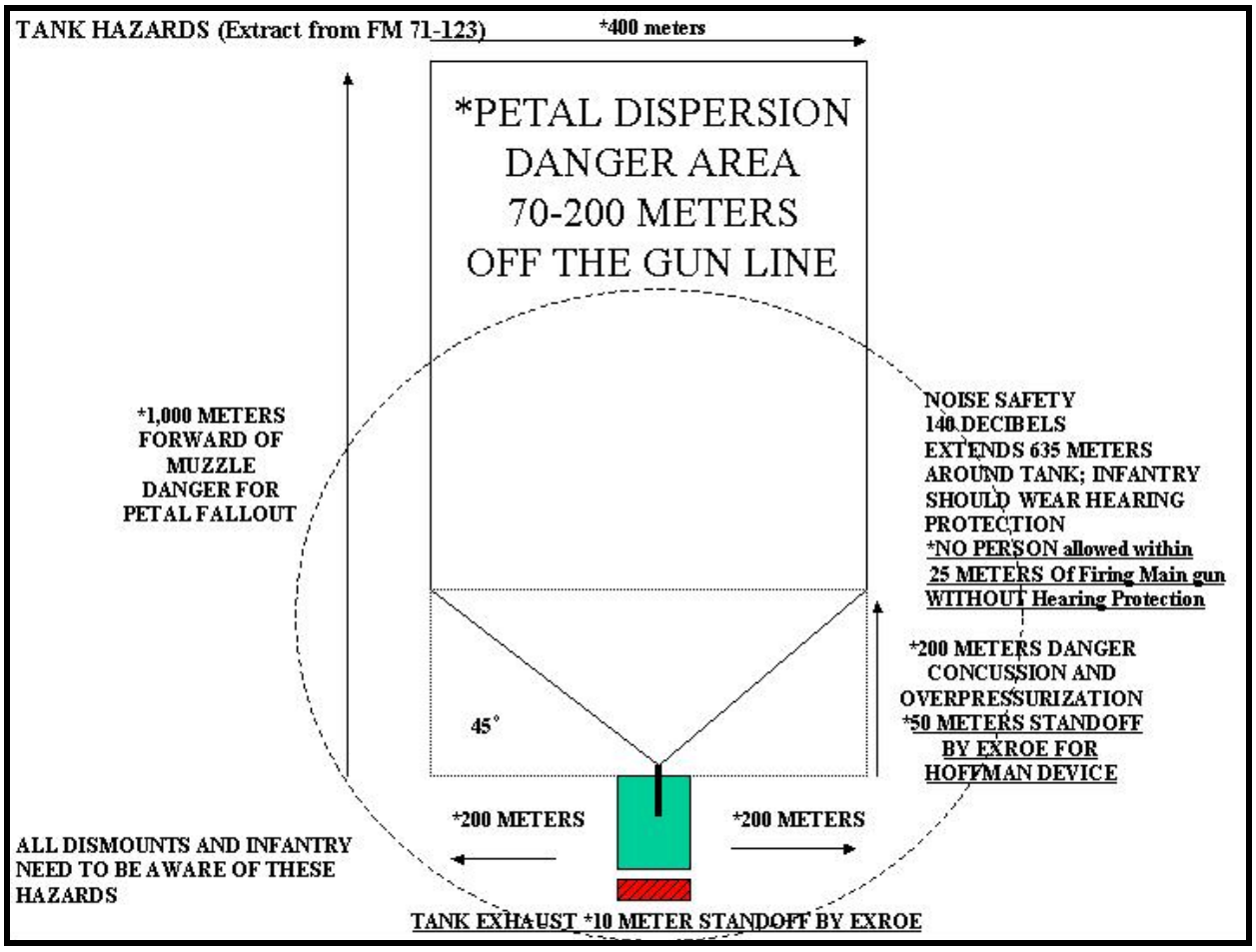
- M494 APERS-T: The BEEHIVE is used primarily against ground troops in the open. It is filled with 5,000 subprojectiles (flechettes) that disperse in the target area. It has a mechanical time fuze that can be set for muzzle action or to function at any range from 200 to 4,400 meters (in 100 meter increments). The fuze functions 75 to 100 meters short of the indexed range to provide the best flechette dispersion before reaching the target. A puff of yellow smoke enables the crew to observe where the fuze functioned, in relation to the target, and make subsequent adjustments.

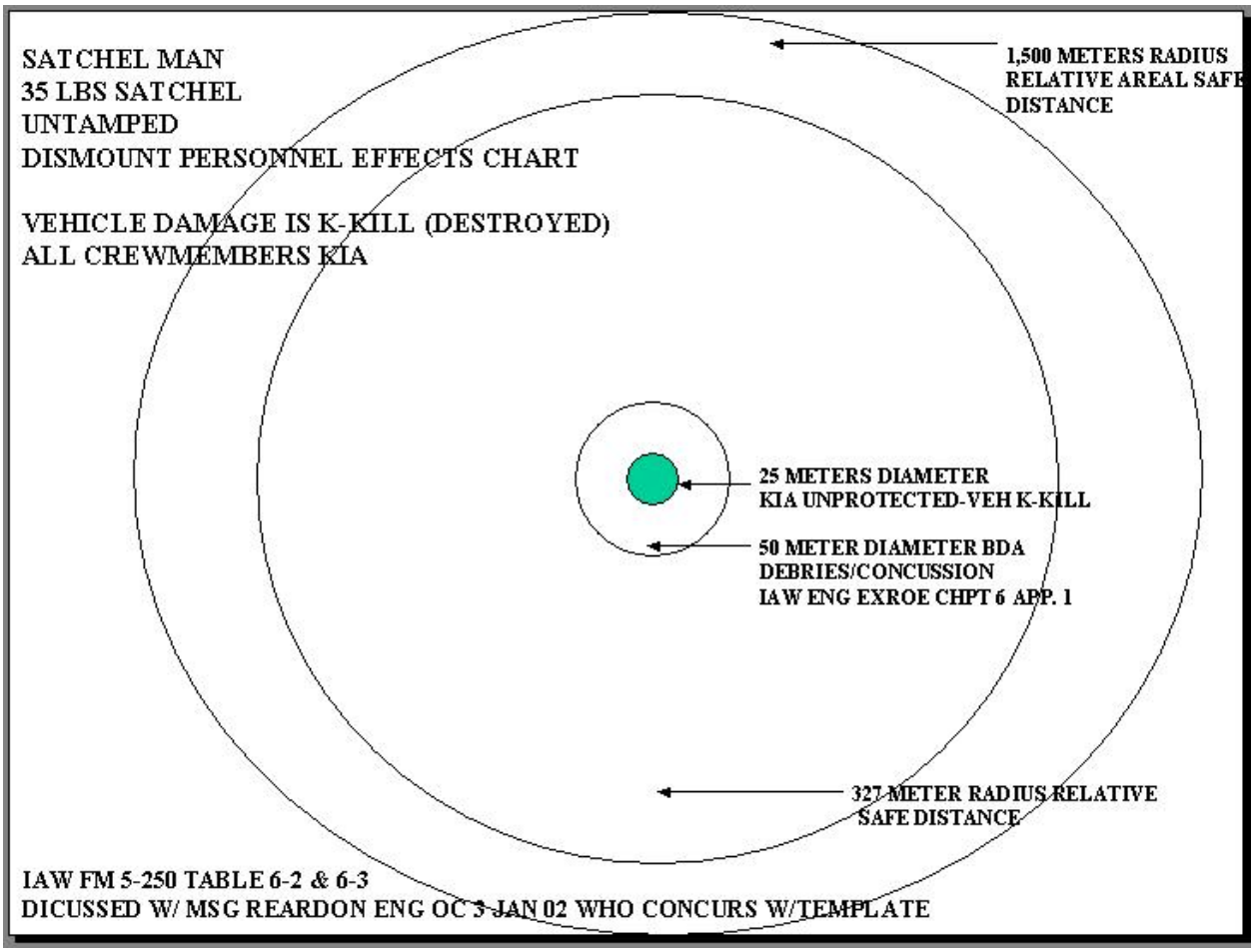
Firing Tables

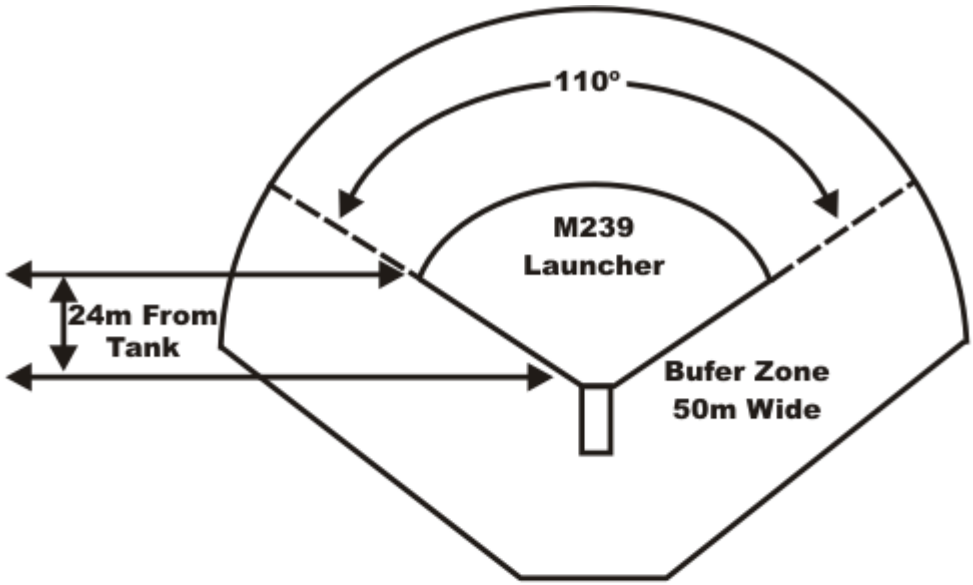
FT 0.50-H-3, Machine Gun 50 Cal.
FT 7.62-A-2, Machine Gun 7.62mm
FT 105-A-3, Cannon, 105mm Gun
FT 120-D-1, Firing Tables for Cannon, 120mm Gun

ROUND	TENT DISMOUNTS		BUNKER		TRUCK LIGHT SKINNED		TANK	
	EQUIP	PERSONNEL	BUNKER	PERSONNEL	VEHICLE	PERSONNEL	VEHICLE	PERSONNEL
7.62	DAMAGE	*BDA	NO BDA	NO BDA	BDA	BDA	NO BDA	*BDA
50 CAL	DAMAGE	BDA	NO BDA	NO BDA	BDA	BDA	NO BDA	*BDA
105 SABOT	DESTROY	*KIA	BDA	BDA 1	DESTROY	*KIA	DESTROY	*KIA
105 HEAT	DESTROY	*BDA	BDA	BDA 1	DESTROY	KIA	DESTROY	KIA
120 SABOT	DESTROY	*KIA	BDA	BDA	DESTROY	KIA	DESTROY	*KIA
120 HEAT	DESTROY	BDA	BDA	BDA 1	DESTROY	KIA	DESTROY	KIA
120 MPAT	DESTROY	**KIA	BDA	KIA 1	DESTROY	**KIA	**BDA	**KIA
105 BEEHIVE	DESTROY	KIA	NO BDA	KIA 1	DESTROY	KIA	BDA	*KIA

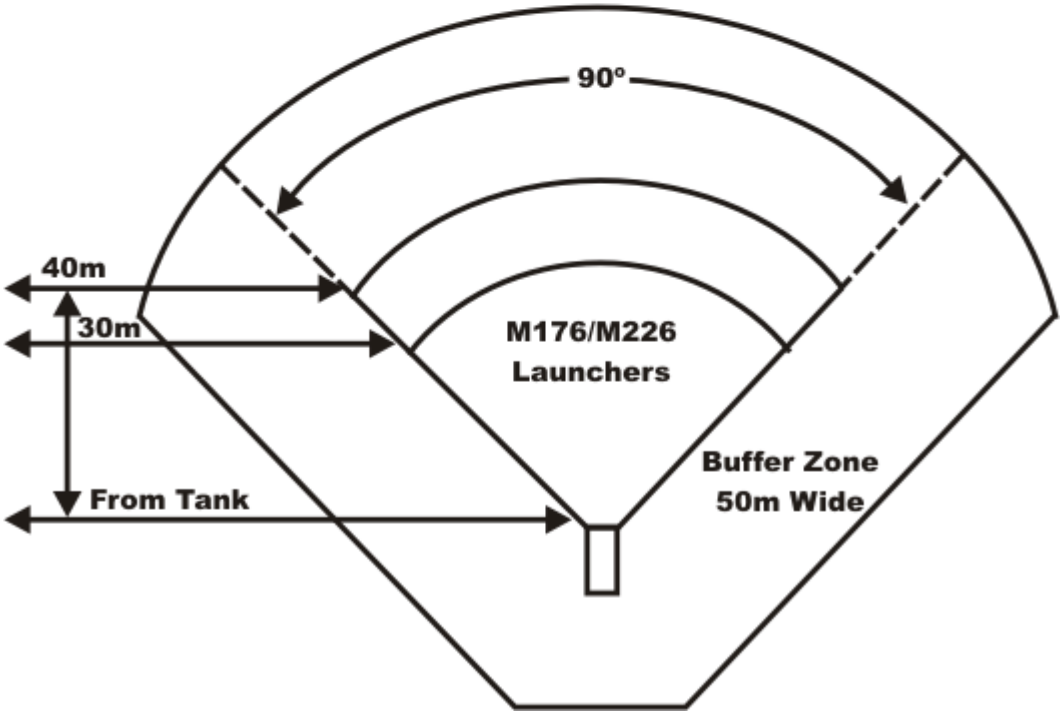
TERMS:
TENT/DISMOUNT: Applies to all equipment brought into the box which does not have a BDA card. This does NOT apply to vehicles that are required to carry a BDA card.
TRUCK LIGHT SKINNED: Applies to all wheeled vehicles, tracked vehicles (ALL track vehicles, EXCEPT M1 family MBT and OPFOR tanks).
DAMAGE: Equipment will be taped by YELLOW tape and needs to be recovered by appropriate level of maintenance/supply to get replacements as per a deadline item (equipment) or replaced by Class IV/IX recoverable. Equipment cannot be circle X'd!
DESTROY: Vehicle and KIA crew stays in place for 24 hours prior to moving to PEHA. Mine rollers must be moved to the BSA and dismounted prior to tank moving to heavy PEHA. Mine plow remains with tank when it moves to the heavy PEHA.
***BDA:** Applies to personnel mounted OUTSIDE of tank or exposed outside of hatch. If CVKI light blinks once, assess one casualty if infantry are mounted. All others are as per their personal MILES gear.
****BDA:** Applies to GROUND mode for the MPAT.
***NO BDA:** Applies only for personnel located inside VEHICLE or BUNKER.
BDA 1: Applies for personnel located INSIDE BUNKER.
***KIA:** Driver and TC KIA; all other personnel as per BDA.
****KIA:** Pertains to GROUND mode MPAT round fired at bunkers, buildings, side or rear of tanks, and personnel.
KIA 1: Pertains to personnel ONLY within the bunker complex. Personnel behind an ABOVE ground bunker not affected. Personnel located within 25 meters of a BELOW ground bunker or standing within 25 meters in front of an ABOVE ground bunker are assessed by BDA card.


TANK HAZARDS (Extract from FM 71-123)
*400 meters
*PETAL DISPERSION DANGER AREA 70-200 METERS OFF THE GUN LINE
*1,000 METERS FORWARD OF MUZZLE DANGER FOR PETAL FALLOUT
NOISE SAFETY 140 DECIBELS EXTENDS 635 METERS AROUND TANK; INFANTRY SHOULD WEAR HEARING PROTECTION
*NO PERSON allowed within 25 METERS Of Firing Main gun WITHOUT Hearing Protection
*200 METERS DANGER CONCUSSION AND OVERPRESSURIZATION
*50 METERS STANDOFF BY EXROE FOR HOFFMAN DEVICE
45°
*200 METERS
*200 METERS
ALL DISMOUNTS AND INFANTRY NEED TO BE AWARE OF THESE HAZARDS
TANK EXHAUST *10 METER STANDOFF BY EXROE

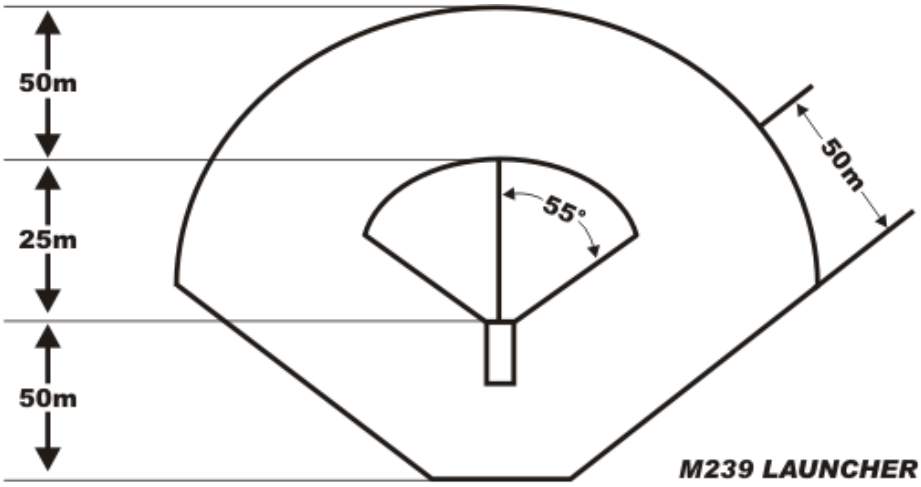

SATCHEL MAN
35 LBS SATCHEL
UNTAMPED
DISMOUNT PERSONNEL EFFECTS CHART
VEHICLE DAMAGE IS K-KILL (DESTROYED)
ALL CREWMEMBERS KIA
1,500 METERS RADIUS
RELATIVE AREAL SAFE
DISTANCE
25 METERS DIAMETER
KIA UNPROTECTED-VEH K-KILL
50 METER DIAMETER BDA
DEBRIES/CONCUSSION
IAW ENG EXROE CHPT 6 APP. 1
327 METER RADIUS RELATIVE
SAFE DISTANCE
IAW FM 5-250 TABLE 6-2 & 6-3
DICUSSED W/ MSG REARDON ENG OC 3 JAN 02 WHO CONCURS W/TEMPLATE

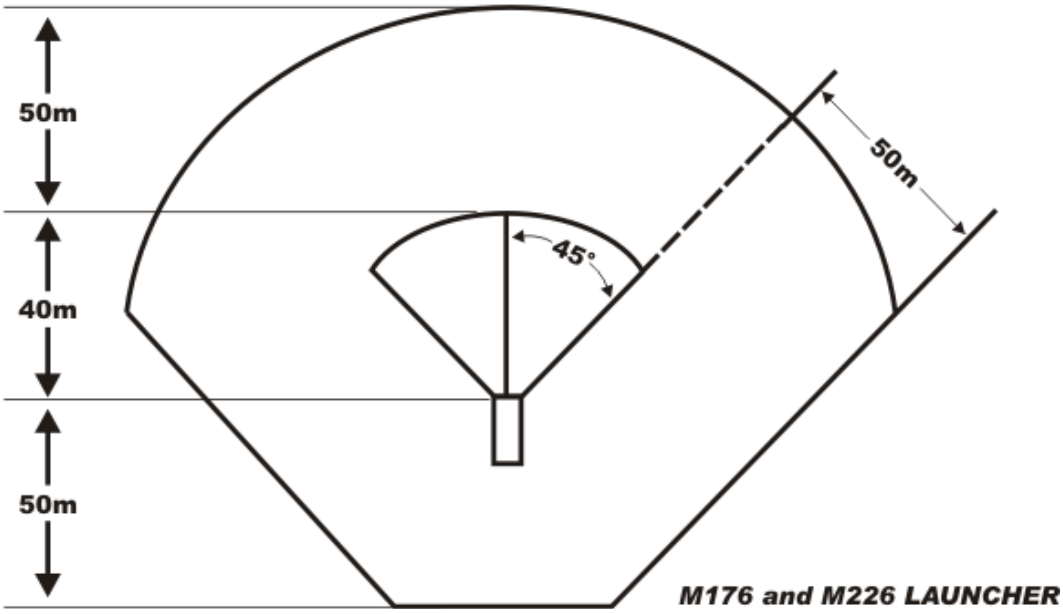


M239
LAUNCHERS

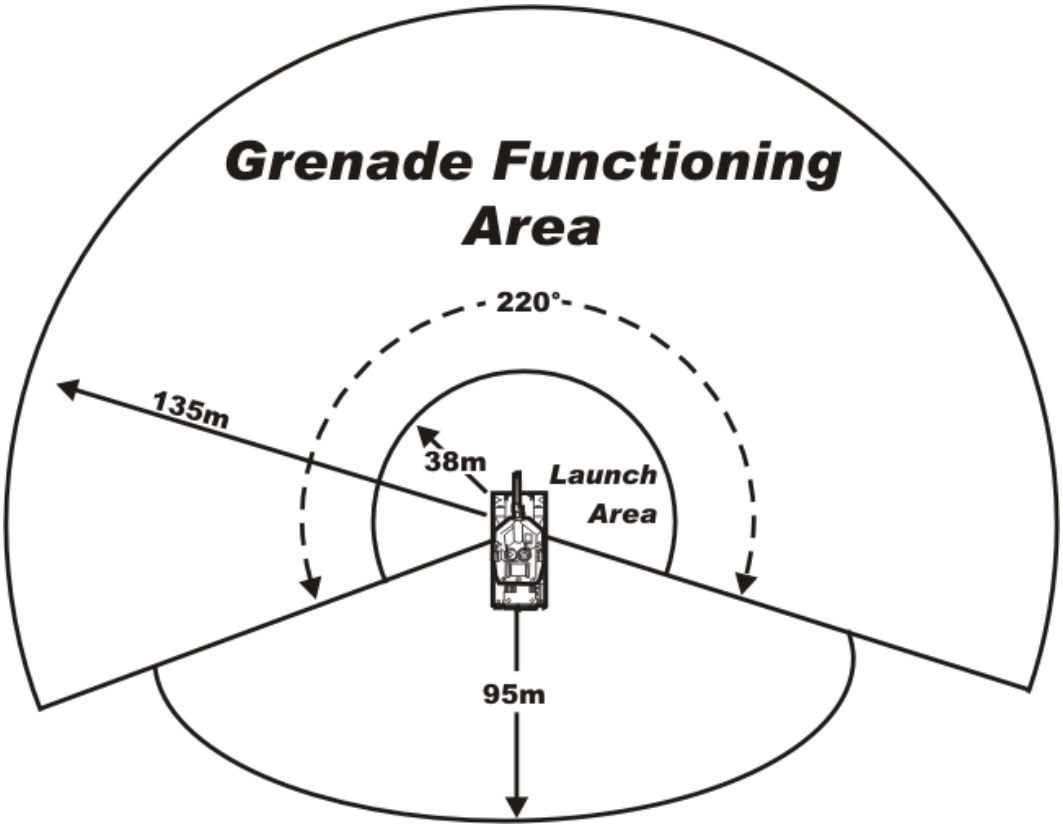


Surface danger zones for firing grenades from M176, M226, and M239 grenade launchers





Surface danger zones for firing the M81 grenade (using standard 66mm launchers on armored vehicles)



NOTE: The area above must be cleared prior to O/C authorizing use of the smoke grenade launcher.

TM 43-0001-29
M82

Type Classification: Std.
Use: Used with the M250, M239, M243 and similar grenade launchers to provide means to train armored/tactical vehicle crews to employ smoke grenade launchers.
Description: The grenade consists of a plastic cylindrical main body that contains a smoke composition, a burster, a booster lead, and a safe and arm (S&A) mechanism. The S&A mechanism consists of an out-of-line spring loaded slider/bore rider containing an explosive lead and a spring loaded setback lock. A propellant assembly is retained in the body forming the complete grenade. The propellant assembly consists of a pyrotechnic delay detonator, a luanch propellant, an electric match, and a propellant retainer with electrical contacts.

Tabulated Data:
Model----------M82
Type----------Smoke, simulant screening
Weight----------3.1 lb (1.35 kg)
Diameter----------2.59 in.
Length----------9.3 in.
Filler----------1.8 lb (800 g) titanium dioxide
Type----------Electrical igniting
Replaced item----------None

Federal Supply Code:
NSN----------1330-01-353-3284
DODAC----------1330-G978
Line item number----------G80228
Class of supply----------V

See DOD Consolidated Ammunition Catalog for additional data.

Unit of Issue:
Each packed----------4 grenades per metal container
Basic load----------6 metal containers (24 grenades)

Packing Data:
Metal container:
Model----------M2A1
Weight w/contents----------19.2 lb (8.71 kg)
Length----------12-1/32 in.
Width----------6-3/32 in.
Height----------7-1/2 in.
Cube----------0.32 cu ft

Pallet (96 metal containers):
Weight w/contents----------1994 lb (905 kg)
Length----------36-7/8 in.
Width----------30-7/8 in.
Height----------48-1/2 in.
Cube----------42 cu ft

Shipping and Storage Data:
Hazard class/division and storage compatibility--------(02) 1.2G
DOT class----------Class A explosive
DOT marking----------PROJECTILES

Functioning:
The grenades are loaded into the launching device. The electrical system is initiated to activate the electric match. The functioning of the electric match ignites the propellant charge, which simultaneously ignites the delay element. Pressure builds up in the base, and the grenade is ejected from the launcher device. During flight of the grenade, the delay element burns through and ignites the burster charge. The burning time of the delay element is approximately 1.7 seconds. The burster charge ruptures the plastic grenade body and disperses the mixture which forms a white smoke screen within 2 seconds after firing. A salvo of grenades produces a smoke cloud approximately 30 meters forward of the launcher, seven meters high, and obscuring a front of over a 110-degree arc. Cloud duration is approximately 45-60 seconds depending on weather conditions.

References:

TM 3-1040-268-20&P	FM 23-30
TM 9-1330-200-12	DOD Consolidated Ammo Catalog
TM 9-1330-34	DARCOM-P 1700-3-5

MEMORANDUM FOR RECORD

SUBJECT: Supplemental 1A to the JRTC Exercise Rules of Engagement (EXROE)

1. Reference: Joint Readiness Training Center, Exercise Rules of Engagement (EXROE) dtd FY 2002; Version 1.0.

2. The following modifications to the JRTC EXROE Version 1.0 dtd FY 2002 will be implemented for Rotation 02-XX . BLUFOR units, OPFOR, COBs, and O/Cs will enforce these supplemental measures for the period of the exercise and for future rotations.

3. Use of vehicle-launched smoke grenades (DODAC 1330-G978 only) is authorized with the following constraints and limitations: **(Paragraphs b(9)(a) and b(9)(b) are the only changes)**

a. Observer/Controllers:

(1) Include smoke grenade safety/clearance procedures in unit safety brief.

(2) Know the appropriate actions to be taken by the crew if a misfire occurs or a dud is produced. Additionally, know the individual to report it to and what the actions of the crew are if they have a misfire.

(3) Dismounted O/Cs must provide timely and accurate position information for all BLUFOR dismounted elements so that they can be tracked in the IS system.

(4) When a vehicle announces its intent-to-fire request to the O/C, the O/C requests that the TAF (their Tango) confirm that the SDZ for that vehicle is clear of OPFOR and BLUFOR dismount icons.

(5) Before approving fire, and when possible, O/Cs visually clear the SDZ for the firing vehicle (and then must clear the SDZ themselves if inside the SDZ).

(6) Observe unit OFT/STX. Units will conduct smoke STX lane training during OFT/STX period.

(7) Have posted and enforce any authorized smoke grenade FFA published by DTOC.

(8) **O/Cs are the final approval authority for firing vehicle smoke grenades. An O/C can deny the use of vehicle-launched smoke even if all individual and unit requirements are met.**

b. BLUFOR:

(1) Conduct home station training on loading, discharging, and misfire procedures for the smoke grenades.

(2) During the STX period (OFT training), demonstrate proficiency to the O/C that they know how to load, clear the SDZ, discharge, and conduct misfire procedures with the smoke grenades.

(3) Prior to firing the smoke grenades, announce to the O/C their intent to fire and wait for his approval. **(O/Cs are the final approval authority for firing vehicle smoke grenades. An O/C can deny the use of vehicle-launched smoke even if all individual and unit requirements are met.)**

(4) Prior to firing, meet all crew safety postures. Visually clear the SDZ of dismounts and vehicles not in the open protective or closed hatch postions.

(5) In case of misfire, act IAW the TM and O/C instructions.

(6) Prior to LD, have posted authorized grenade smoke FFAs on the TC/BC map.

(7) Grenades loaded NET the final PCI (LD-2).

(8) Grenade launcher remains in the safe position until authorization to fire is given by the covering O/C.

(9) If a unit/individual violates the constraints and limitations listed above, the unit/individual will be directed to download all smoke grenades and will be denied permission to fire smoke grenades in subsequent missions until the following is met:

(a) Completion of a 15-6 Investigation with findings and recommendations to the division leadership.

(b) 15-6 Investigation determines the unit/individual has been re-trained on the proper TM and safety procedures for operating the smoke launcher.

The division leadership determines if the unit/individual will be authorized to continue to use vehicle smoke grenades.

c. OPFOR:

(1) Provide timely and accurate reports on dismount locations to RTOC so the TAF can update the IS system and can confirm that the SDZ is clear or not clear of dismounts.

(2) Safety brief all dismounts and mounted crews to avoid smoke grenade FFAs and to properly button up when required.

(3) Dismounts and mounted crews maintain situational awareness and common sense when operating in restrictive terrain and when BLUFOR vehicles are in the area.

d. TAF:

(1) Know the authorized smoke grenade FFAs.

(2) Upon request confirm the SDZ is or is not clear for a vehicle requesting to fire smoke with the DTOC-provided SDZ template for 1:50,000 and 1: 25,000 map scale.

(3) Track BLUFOR and OPFOR dismounts and vehicles in posted FFAs.

e. DTOC:

(1) Publish the authorized smoke grenade FFAs by mission.

(2) Follow up and forward reports on grenade misfires, mishaps, and dud-producing munitions IAW the DTOC SOP.

(3) Notify the ASP of misfires.

(4) Notify the Fire Department of fires.

4. POC for this action is LTC xxxxxx, S3 Operations Group, DSN 531-xxxx or FAX DSN 531-xxxx, or MAJ XXXXX, Chief of Operations, Bldg XXXX (DTOC), DSN 531-XXXX.

XXXXXX
USA, SFC
Armor Mech Team B13B


CALL
DISSEMINATION
COLLECTION
IMPROVED APPLICATION