



The Armor Lieutenant and the M1A2

by First Lieutenant Robert S. Krenzel, Jr.

A great deal has been said and written recently about the Inter-vehicular Information System, or IVIS, and the M1A2. The discussion has focused on the employment of IVIS at the task force level. The purpose of this article is to discuss the M1A2, within the context of a few of the Battlefield Operating Systems, as it relates to the Armor lieutenant—both as tank platoon leader and as tank company executive officer. The M1A2 opens up a great many possibilities for an Armor lieutenant, but it also presents a number of challenges. Hopefully, this article will provide food for thought, both for the platoon leaders and XO who will ride the M1A2 into the 21st Century and for those who must train them.

It is not my intent to discuss the technical details of the M1A2; this has been done comprehensively in the past year.¹ But I do intend to discuss the way the M1A2 can be used to improve the way we fight, focusing primarily on the ways the M1A2 affects reporting, navigation, fire distribution, and situational awareness. I will also discuss a few of the training issues we must deal with if we are to maximize the effectiveness of the M1A2.

Command, Control, and Communications

IVIS allows M1A2 tanks to send digital messages to one another according to a strict hierarchy. This traffic includes such things as current position, overlays, and a variety of reports, which are displayed on the Commander's Integrated Display (CID). Currently, this digital traffic is transmitted on the unit's conventional voice radio net, and competes with voice traffic. Perhaps the most difficult aspect of using IVIS is establishing an SOP governing who sends what IVIS traffic when. This is not necessarily a major concern during preparation for combat, when traffic is light and not always urgent, but during combat, IVIS training and discipline are critical to ensure that important information reaches those who need it the most.

Doctrinally, the XO is the company battle captain — he manages the task force net while the commander fights on the company net. IVIS traffic on the company net can be minimized if the company XO is proficient at maneuvering his tank into a covered and concealed position where he can observe

(and lase to) the enemy, and then use IVIS to report higher. The XO must strike a fine balance between observing, reporting, and fighting, almost holding his tank in a sort of company reserve until the initial reporting requirements are met. The XO needs to find a position or positions — usually maneuvering around the support element in the offense — from which he can see and assess what is happening, report higher, and influence the fight when he does join in. If successful, the XO will not require many digital reports from the platoons. He will generate and send them himself, freeing the commander to fight the company, and the platoon leaders and platoon sergeants free to fight their platoons and sections.

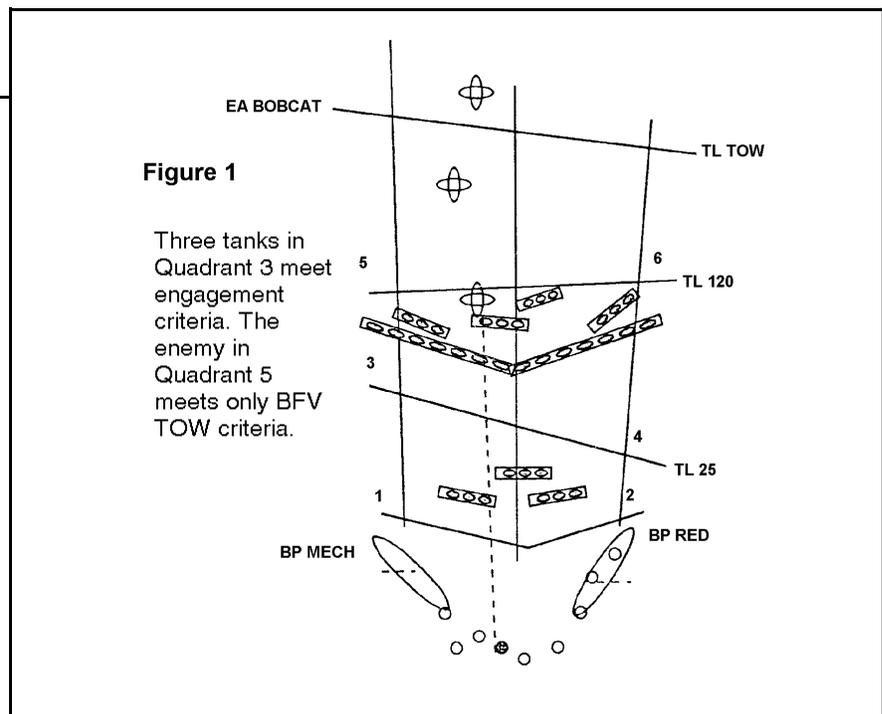
When the company makes contact, if the XO can lase to the enemy, generate and send a contact report, he should simply announce on the company net that he has acquired the enemy (thus notifying the platoons that reports are not needed). He lases, producing an eight-digit grid to the position, and transmits the grid in his IVIS report. The M1A2's ability to use its laser to generate an accurate grid is known as

“far-target designate.” In restrictive terrain, the XO probably won’t be able to do this, so he must quickly consolidate reports from his platoon sergeants (or platoon leaders, if their platoon sergeants are too heavily engaged) and paint a digital picture of the battlefield for the commander. Whether consolidating or generating reports, the XO’s display shows him the enemy’s locations relative to both the maneuver graphics and friendly forces. This increased situational awareness allows the XO to assist the commander in analyzing and developing the situation.

It should be pointed out that it is not necessary for the XO to send higher the position to every enemy vehicle. For example, a rough center-of-mass grid for each enemy platoon position should suffice for the task force commander to get a grasp of the shape of an enemy company’s battle position. Too many reports will clutter up the task force nets and CID screens, keep the XO too busy pushing buttons, and overwhelm all concerned with redundant data. The XO must quickly and accurately identify what information is critical, send it digitally to the task force, and then get into the fight.

Maneuver

To use IVIS as discussed, company leaders need to be able to spend some time inside the turret operating the CID and the Commander’s Independent Thermal Viewer, or CITV. In his article, “Achieving Digital Destruction: Challenges for the M1A2 Task Force,” Major Dean A. Nowowiejski suggested that leaders at the task force level (TF commander and S3) tend to become “glued” to their CID screens, paying too little attention to their own tanks and their immediate surroundings. It is the author’s experience, however, that platoon-level leaders pay too *little* attention to their CITVs and CIDs. They prefer to be “out of the hatch” where they can get a better panoramic view of their surroundings. In the offense, they usually only drop down to use the CID for navigation. Aside from the fact that insistence upon this technique can be hazardous to one’s health, it fails to take full advantage of the M1A2’s capabilities.² Our lieutenants must learn when to ride in and when to ride out of the hatch. Commanding from out of the hatch is a necessary skill; often it is the



only safe way for a TC to maneuver his tank. Commanding from inside is much harder, but is an equally important skill. The lieutenant may be forced inside by small arms, artillery, NBC conditions, or simply the need to use IVIS or the CITV. Only training and discipline can teach the proper balance and expand our lieutenants’ abilities and effectiveness.

With our new-found ability to quickly and accurately report enemy locations, we should make some refinements to our actions on contact. According to doctrine, we return fire on contact, seek cover and concealment, and develop the situation. If we modify our development of the situation to include realistic standards for digital reporting, we can revolutionize our way of fighting.

As discussed, the company battle captain, the XO, must report the situation higher. While he is turning perception into bits of data, the commander and platoon leaders must be controlling and distributing fires and starting movement. If the commander is proficient with IVIS, he can use his fire support overlay to quickly draw a fire distribution quadrant or designate TRPs.³ He sends these down, platoon leaders add their own control measures (if necessary), and relay the overlays to their platoons. Each tank now has a common frame of reference. The gunner lases and the TC glances quickly at his CID. If the threat icon produced by lasing is in the appropriate quadrant or

near the proper TRP, “FIRE!” (see Figure 1)

This all sounds wonderful, but again, achieving the level of proficiency described will be difficult. It will require extensive training, complicated by the fact that you can’t practice lasing just anywhere. Without an eye-safe filter for the LRF that still allows some range return (which the current ESLR device does *not* do), or an eye-safe LRF to begin with, such training will only be possible on gunnery ranges. The M1A2 does have a choke sight in the CITV, which allows the TC to adjust a reticle-like box to the size of the target, thus approximating the range. The choke sight could help somewhat in filling the current LRF gap, but it is much slower and requires a T-72/T-80-size target. It would not be possible to practice reporting the locations of non-vehicular targets. Effective Intelligence Preparation of the Battlefield (IPB) can help anticipate where to place TRPs or quadrants, but to use the system “on the fly” the lieutenant or captain must be technically competent to the extreme. Creative solutions are needed to overcome the challenge of training to integrate the total tank system.

During combat, the role of each tank ought to dictate how each TC uses his system. For example, in the offense, overwatching TCs should be mostly inside their turrets. Since the overwatch element is supposed to suppress the enemy and draw fire, being inside the hatch will protect the overwatch TCs

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from the fires they ought to be drawing. Furthermore, the overwatch TCs should use their CITYVs to scan for and designate targets, and their CIDs to monitor the enemy and friendly situations. Each TC must be aware of where he is firing in relation to friendly and enemy forces. Fratricide can be reduced if TCs monitor friendly movements and verify targets or shift fire when friendly units enter their sectors of fire. If the "enemy" icon produced by lasing (usually accurate to within fifty meters if the LRF and Position Navigation System are functioning properly) coincides with the location of one or more "friendly" icons, the gunner has probably lased to a friendly position and firing may result in fratricide.

The bounding element can employ the navigational advantages of the M1A2's Position Navigation System (POSNAV) to quickly and safely make its movement. The TC can monitor his progress relative to friendly and enemy elements he could not otherwise see. POSNAV can be of great help in passage of lines or finding an obstacle breach site. For example, if an engineer with a GPS or an M1A2 plow tank can get an accurate eight-digit grid to the entrance to a breach, and that grid can be disseminated through voice or digital means, the M1A2's "steer-to" feature allows another TC to enter that grid as a "Critical Point." A Critical Point can be designated a navigational waypoint, to which the tank will direct the driver by means of a direction and distance shown on the Driver's Integrated Display. In this case, the bounding platoon leader is free to be out of the hatch, better able to maneuver his tank and platoon. Once a well-maintained and prepared tank and terrain-smart driver are told where they are going, they will get the platoon leader precisely where he wants to go with minimal guidance.⁴

The M1A2's advantages could be even more pronounced in a Lesser Regional Contingency (LRC), where independent operations of company, platoon, or even section size might be common.⁵ For example, if a platoon operating independently were ambushed, it might fight through to a covered and concealed position from

which the platoon sergeant could report digitally to the company headquarters. With a smaller threat array and presumably less urgent radio traffic than encountered in a high-intensity conflict, these reports could be detailed and highly accurate. The company or task force commander would use these reports to focus far-flung resources to aid the embattled platoon. With the M1A2's improved situational awareness, combat multipliers — such as artillery and close air support — could be focused much more accurately and with reduced risk of fratricide. Even if combat multipliers were not available, a series of spot reports showing enemy locations would allow multiple M1A2 units to converge, relatively certain of friendly and enemy positions.

Combat Service Support

Unfortunately, the current availability of IVIS does not lend itself easily to integration with the other arms. The kind of integration that would be of most help to the M1A2 company team, aside from IVIS-equipped FISTVs and BFVs, would be the digitization of the company combat trains. If someone in the trains had dual net, IVIS, and POSNAV capabilities (at least the first sergeant, but preferably also the medics and mechanics) casualty evacuation and vehicle recovery would be greatly enhanced.

The mechanics would benefit from being able to send vehicle damage reports and parts requests directly to the combat trains command post. The medics could locate casualties and aid stations more easily. The first sergeant could more effectively orchestrate logistics operations with IVIS and POSNAV. He would, at least, be able to find his company, which is not always easy during offensive operations, as any first sergeant with an NTC rotation under his belt can attest.

Currently, these options are not available, but there is hope for the future. The 1st Cavalry Division is preparing to field the Enhanced Position Location Reporting System (EPLRS). Although the final configuration and distribution of EPLRS equipment is not final,

EPLRS may overcome some of the current deficiencies and enhance the logistics reporting process.⁶

Future Battle

The skills required of an Armor lieutenant, and the demands placed upon him, increase with the advent of the M1A2. Tank commanders, especially platoon sergeants and up, need more experience with computers and their workings to effectively employ their tanks. The Armor officer, especially the tank company XO, must practice until he is the absolute master of the system under his control. He must know not only the maintenance aspects of the M1A2 (much different from the M1A1), but also the use of the CITYV and IVIS. In the future, leaders at all levels must become more proficient at not only reporting, but at assessing the situation, the importance of what they want to report, and the best way to report it.

This summer, the 3rd Battalion, 8th Cavalry Regiment, 1st Cavalry Division, will be the first U.S. Armor battalion to field the M1A2. If it is successful in meeting the challenges described above, then a future encounter between TF 3-8 CAV and some enemy might look something like this:

15 1700 April 96

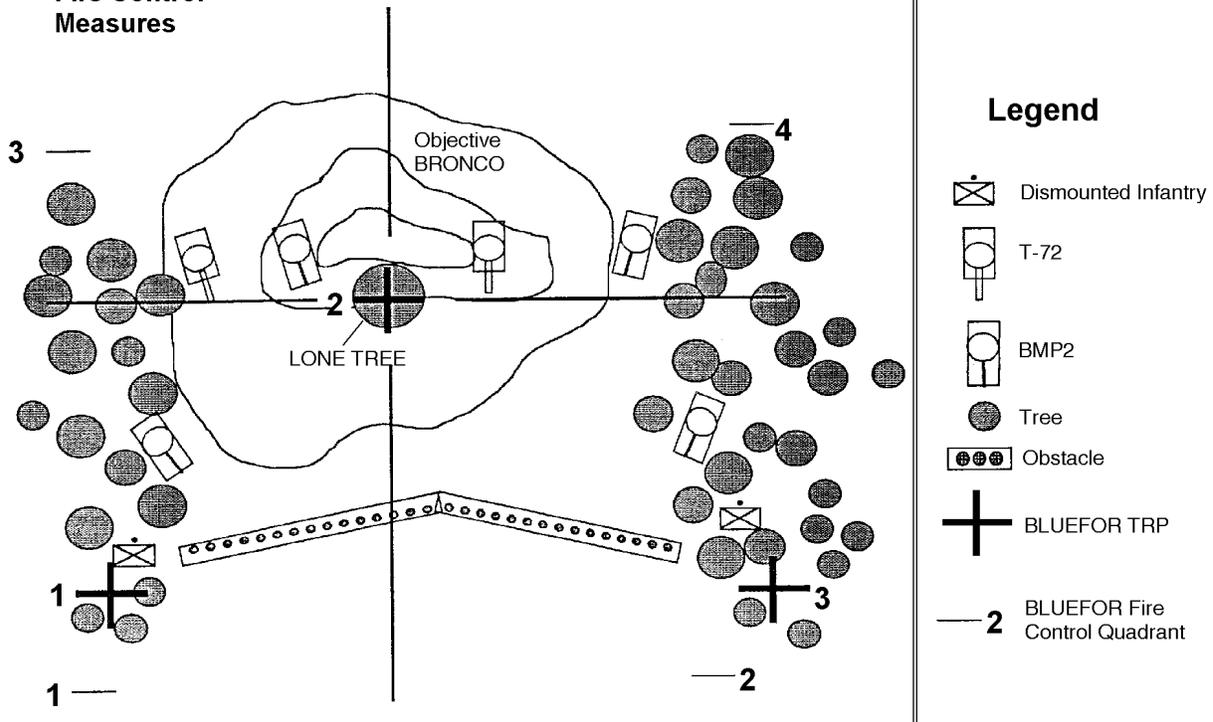
AA DRAGON

D/3-8 CAV CP

The task force warning order had been issued only four-and-a-half hours ago: Hasty attack at 16 0600 April — tomorrow morning. The companies received the IVIS graphics digitally at about 1630 hours. The Delta team commander and FSO were at the TOC receiving the OPORD while their company prepared, rehearsed, and inspected. In the meeting engagement yesterday, TF 3-8 had been held in division reserve while the 1st CAV pushed the enemy back onto the defensive. It looked like breaking the enemy's defense was next on the agenda, only this time 3-8 would be out front.

Figure 2

**Enemy Defense
and Friendly
Fire Control
Measures**



TF 3-8 CAV was attacking to destroy an enemy motor rifle company set up in linear defense. D/3-8 CAV, Team Dragon, consisting of the company headquarters, two M1A2 platoons, one M2A2 BFV infantry platoon, and a combat engineer platoon, had the mission of fixing — and if possible destroying — a reinforced motor rifle platoon (MRP) south of the task force main effort. The mechanized infantry teams, C/1-9 and D/2-7, were to destroy the two MRPs in the north. A/3-8 CAV, an armor team, was in task force reserve.

When the XO spotted his commander's HMMWV returning, he notified the platoon leaders, the commander's tank crew, and the CP track to prepare to receive a warning order and to go on a leaders' recon. The commander arrived, the WARNORD was issued, the platoon leaders briefed their tank commanders, and the company orders group moved out within 45 minutes.

The commander used his map, POSNAV, and the IVIS graphics to guide him forward to a small knob just short of the LD, from which he could make out tomorrow's objective in the dis-

tance. OBJ BRONCO was a fairly small hill with wooded low ground on the right, left, and far sides. A prominent lone tree stood just on the near side of the hill's crest. The commander recognized the tree's usefulness and told his lieutenants, "That tree is TRP 2, the center of the quadrant." Using their maps and their view of the objective, the recon party established a quadrant method fire control plan (see Figure 2). They could see no obstacles, but their IPB led them to believe obstacles would be emplaced in the low ground in front of the objective, with the flanks of the obstacle protected by dismounts in the woodlines. The recon party discussed actions on the objective and worked back through the planned mission, identifying control measures and routes. The attack position was reconnoitered, and the routes from the AA to the LD were reconned and timed. Key points were entered as IVIS critical points.

With the recon complete, the CO and XO settled in to write the OPORD while the platoons rehearsed, bore-sighted, and conducted pre-combat inspections. Because of time constraints the order was simple, relying heavily on rehearsals and oft-practiced drills

and SOPs to fill in the gaps. Once the order was ready, the CO, XO, and FSO took a few minutes to edit the digital operations and fire support overlays, adding waypoints, targets, and the fire control scheme. The OPORD was issued and the mission was walked-through and rehearsed several times. Included were digital rehearsals, which stressed reporting and the use of the CID, CITV, and POSNAV. It was late before everyone was satisfied.

16 0600 APRIL 1996

LD/LC ALONG AXIS HAMMER

Stand-to and movement to the LD had been uneventful. The S2's "intel dump" at stand-to, accompanied by an updated digital enemy overlay, confirmed some of the previous day's IPB, especially concerning the presence of dismounts and obstacles. The scouts had reported a mine-wire obstacle being emplaced in front of BRONCO, but enemy patrol activity had prevented the acquisition of precise locations.

Team Dragon crossed the LD in a company wedge (see Figure 3). Although the two mechanized teams to the north had no IVIS, the task force

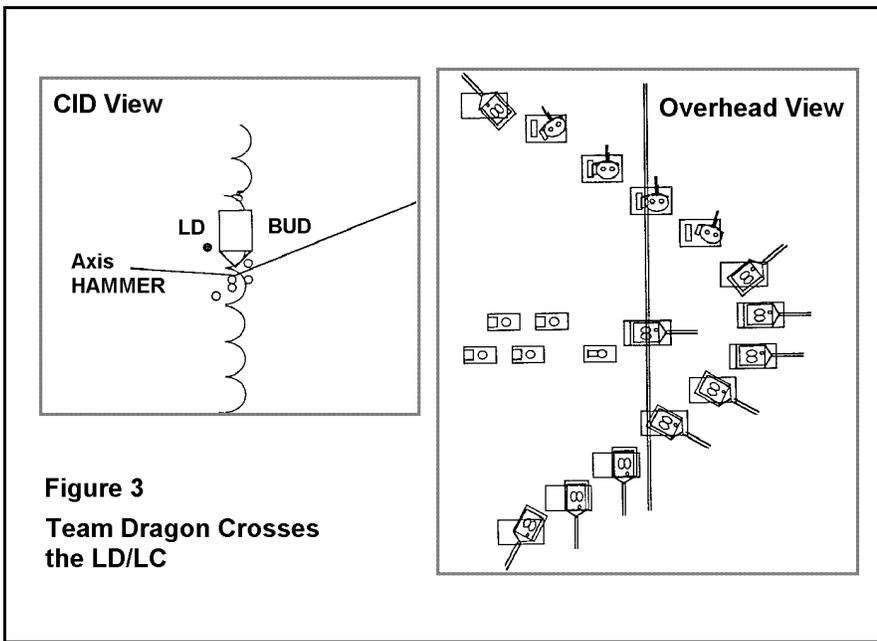


Figure 3
Team Dragon Crosses the LD/LC

commander and S3 were each moving with one of these teams, allowing Team Dragon to monitor its neighbors' progress, adjusting its own speed to keep in sync.

About two kilometers past the LD the morning calm was shattered by a burst of 25-mm fire. "Dragon 6, this is Green 4 — Contact, BMP north, out!" The infantry platoon sergeant had identified a BMP2, probably a combat outpost vehicle, hiding about 800m to his north. He was engaging it, as was his platoon leader.

"Identify PC!" shouted D-50's gunner. His TC, the XO, responded, "They've got him, hold your fire, but

give me a lase and look for his friends." Before the BMP could return effective fire, the Bradleys found the range and were pounding it with 25-mm AP. D-50 lased to the dying BMP, producing a grid for the digital contact report the XO punched in. (Out of habit, he had already called up the contact report menu on his CID prior to crossing the LD). The enemy icon was well away from the nearest TF 3-8 Scout OP, which reassured the XO. "Mustang 6, Dragon 5, engaged and destroyed one BMP, we are still at 10 and 4, check mailbox." The XO pressed "SEND" and "CONFIRM," and in seconds the task force commander was looking at an icon marking the 8-digit

grid of the dead BMP—a part of the enemy security zone (see Figure 4).

"First blood to the Brads — everybody stay sharp, that guy probably reported our arrival," cautioned Dragon 6.

"Identify troops ' behind the BMP!" called the XO's gunner. "Fire and adjust," replied the XO. D-50 fired a long burst of coax; the XO let both company and task force nets know he was engaging troops at the same grid as his last contact. Cross-talk on the company net kept the engineers and company trains out of RPG range of the dismounts, and Team Dragon continued to move. Two more OPs were destroyed by the teams to the north. The various reports showed an enemy security zone 2500 to 3500 meters in front of the expected enemy battle positions.

In the low ground just short of the Attack-by-Fire Position (ABF), Team Dragon came on line. The infantry platoon was on the left, 1st Platoon in the center, and 2nd on the right. D-50 was to the left and D-60 to the right of 1st Platoon. The team came to turret defilade in unison, careful not to expose themselves to enemy fire.

By SOP, the team took one minute to scan and assess the enemy situation. Two tanks per platoon scanned with GPS and binoculars, the rest used TIS and CITVs. The XO could identify one T-72 and three BMP2s in turret defilade, and could make out the center, but not the flanks, of the obstacle. He announced on the net, "Dragons, Dragon 5, I've got the enemy, but I need both ends of the obstacle." The tank platoons were able to provide him with the information (see Figure 5). The XO sent two spot reports outlining the enemy position, posted the obstacle reports, and used them to draw the enemy obstacle on his obstacle overlay. He also sent this to higher. (Having much practice, this whole process took the XO about thirty seconds.) By this time, the commander had verified the previous fire control plan, had the FSO calling for mortar smoke, and was discussing a possible breach with the engineer. A burst of the engineer platoon leader's .50 cal. marked the chosen breach site. Then Team Dragon rose to hull defilade — the fight was on.

As rehearsed, the BFVs fired the close-in quadrants and the tanks engaged farther out. The enemy was stronger than expected: two T-72s and

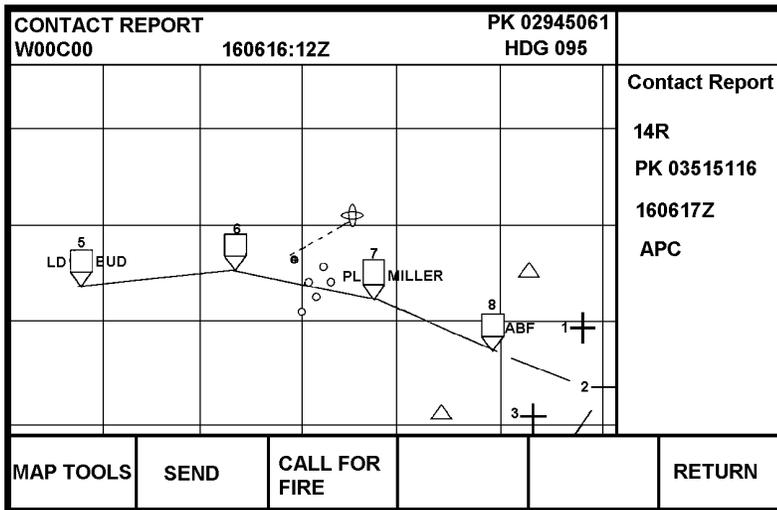


Figure 4
"...Engaged and destroyed one BMP..."

four BMP2s, plus about 25 dismounts between the two flank positions. In spite of the unusually large threat, the Americans' superior personnel, equipment, training, and fire distribution enabled them to gain the upper hand. The enemy scored a few near-misses, and one of 1st Platoon's tanks was suffering TEU and FCEU faults after a non-penetrating hit, but the damage inflicted by Team Dragon was far worse. After only a few minutes, all four BMPs were burning, and one of the T-72s had exploded, leaving only one tank and most of the dismounts.

The mortar smoke, after some adjustment, was building up between the remaining T-72 and the breach site. (To compensate for the smoke's effects on their lasers, the Dragon tanks had entered their average range to the T-72's position, about 1800m, as their battlesight range.) The conditions were right for a breach.

"Guidons, this is Dragon 6...Battle-carry HEAT (SOP to protect dismounted sappers from sabot petals). Green suppress quad 1. Red, engage quads 3 and 4. White, secure breach site and suppress quad 2. Sapper, White, prepare to breach. Acknowledge."

As the platoons acknowledged, the XO reported higher, "Mustang 6, this is Dragon 5. Engaged and destroyed one tank, four BMPs. Engaging one tank and two squad-sized elements. We are initiating a breach to our south, over."

Shortly afterward, the 2nd platoon had established a position from which it could observe the entire obstacle and engage the dismounts on the southern flank. "Dragon 6, White 1 — breach secure!"

"This is Dragon 6. Roger. Sapper: breach NOW!"

The engineer platoon moved out rapidly. The engineer MICLICs were to open the two lanes, which would be proofed by dismounts. 2nd Platoon's plow tank was the reserve. When the time came to launch, one of the MICLICs failed, so the plow tank moved into position and dropped its blade. Once the operational MICLIC was detonated and the plow tank got through, the sapper squads started to proof the lanes.

On D-50 the gunner scanned the obstacle, looking for dismounts in the ob-

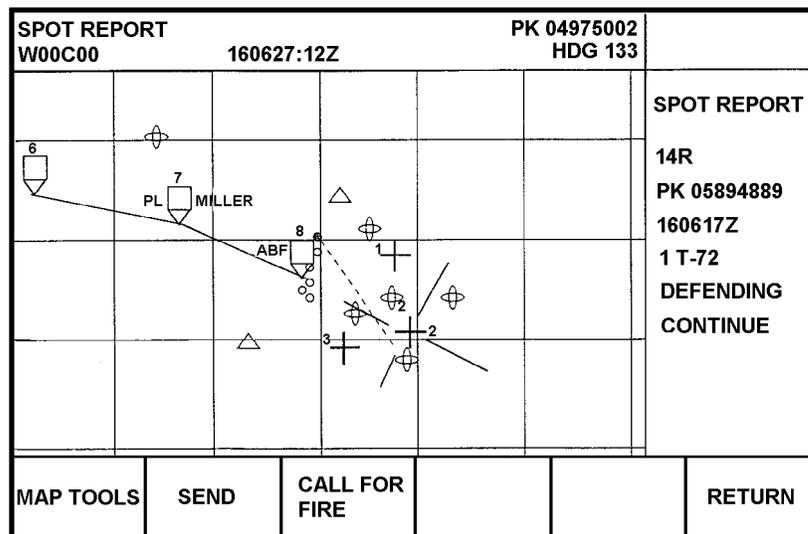


Figure 5. "Engaging one tank, three BMPs, check mail box..."

stacle itself (a trick he had learned at the NTC) while his TC used the CITY to scan the enemy battle position and monitor the progress of the breach. When the last T-72 finally worked up the courage to start slowly moving up for a shot at the engineers, the XO spotted him with the CITY.

"Gunner, Battlesight, Designate Tank — Driver move out!" A press of a button on the Commander's Control Handle Assembly (CCHA) slewed the turret and laid the gunner onto the T-72 as D-50 surged forward. The crew of the T-72 was not fast enough; two HEAT rounds in rapid succession sealed their fate.

A few minutes after this last T-72's turret blew off, the engineer platoon

leader reported the GPS-obtained grids to the entrances to the two lanes, both of which were nearing completion. The XO entered these grids as critical points on his obstacle overlay. The tank platoon sergeants entered them on their operations overlays, so they could use them as waypoints, and relayed them digitally to their platoons.⁸

"Dragon 6, Sapper 1. Right lane clear."

"White moving!" announced the 2nd platoon leader, knowing the next step was for him to secure the far side. A few minutes later, "Far side secure."

"Dragon 6, Sapper 1. Left lane clear."

"Green, Dragon 6, assault and clear enemy vicinity TRP 3. White shift to

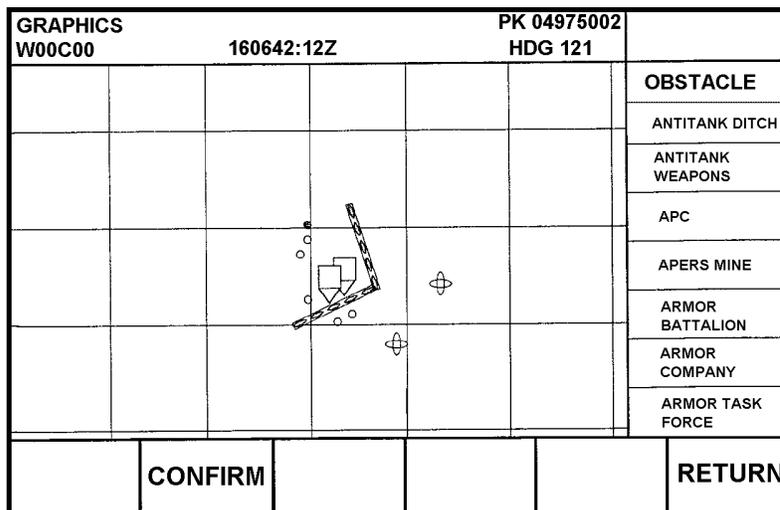


Figure 6. "...Breaches open..."

quad 3 and 4. Red shift to quad 1. FIST, lift your smoke. Acknowledge.” The XO reported higher that the lanes were open and sent his overlay (see Figure 6).

Within a few seconds the infantry platoon was moving behind 1st platoon and heading through the breach. They dismounted their squads and started working into the woodline. At the CO’s command, as rehearsed, one 2nd platoon wing tank came up on the company net, which the dismounts were operating on, and became OPCON to the dismount squad.⁹

Once the infantry had a clear upper hand in the dismount fight, the CO ordered 2nd Platoon and a Bradley section to move onto the objective. He accompanied them. 1st platoon used CID screens to track the assaulting elements. As soon as he was set on the objective, the CO called 1st platoon forward; the FSO called for mortar fire to continue the suppression on the left flank.

“Mustang 6, this is Dragon 6. I am set on Bronco and consolidating.”

Mustang 6 acknowledged and ordered the reserve to move through Team Dragon and roll up the enemy from the south. Alpha Team, guided by POS-NAV and the critical points sent on Dragon’s obstacle overlay, moved out toward the breach at OBJ BRONCO.

Meanwhile, as Delta Team’s 2nd platoon leader was repositioning on the objective, his tank was rocked by an explosion as an AT-5 missile slammed into his left track. Within seconds, two more missiles narrowly missed other Dragon tanks.

“Dragon 6, White 4, Contact-Sagger-Northeast, out!”

The enemy anti-tank reserve, three BRDM/AT-5s, had engaged. A few tanks and the BFVs had spotted the missiles’ launch and were returning fire.

“Dragons, Dragon 5. I cannot identify — give me a report.”

“This is Red 4. Stand by...check mailbox.”

The net crackled and the incoming message box on D-50’s CID filled with news of Red 4’s contact report. The XO verified the enemy’s location. The fire support overlay showed the enemy

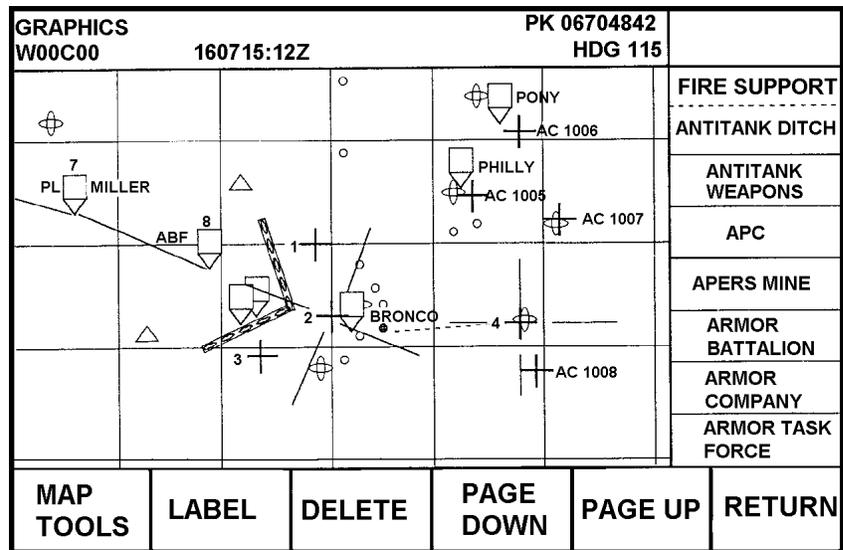


Figure 7. The reserve completes the enemy’s destruction.

icon to coincide with a planned artillery target, AC1007.

“Mustang 6, this is Dragon 5. Engaging three Sagger vicinity AC 1007. Request fires. Check mailbox”

The task force commander studied this report from Dragon 5. He and the S2 had suspected the AT reserve might be on that hill. AC 1007 was perfect — he ordered it fired with DPICM.

Just then, one of 2nd platoon’s tanks spotted another threat, a T-72 of the Combined Arms Reserve (CAR) nosing out of some low ground to the east. The 2nd platoon TC engaged and reported, and his platoon sergeant relayed. Within a few seconds the T-72 was destroyed.

“Green 1, Dragon 6, suppress ATGMs at AC 1007. White, Red, the burning tank is TRP 8, center of the quadrant. Red, you take quads 1 and 3; White has 2 and 4. Check mailbox.” The CO sent his hastily drawn fire distribution plan.

“Mustang 6, Dragon 5. Engaging one tank, three BMPs. Tank destroyed. Check mailbox.”

The task force S2 came on the net and estimated that the enemy battalion had committed its entire reserve against the Dragons. The Dragon fire distribution plan had been rushed, but was effective enough to prove lethal for two of the three BMPs trying to come on line to return fire. When artillery started falling on the ATGM platoon to his north, and both of his other BMPs were destroyed, the CAR motor rifle

platoon leader decided to run for it. As he fired his smoke grenades and broke contact, secondary explosions and pillars of smoke could be seen where the ATGM fire had originated.

“Mustang 6, Dragon 5. Destroyed two BMPs; one BMP appears to be withdrawing to the east. At least two Sagger destroyed.” As he reported this, the XO could see on his CID that the dismounts were near TRP 1: the position of the northern set of enemy dismounts. He could also see Alpha Team’s icons approaching the breaches.

As the firing around OBJ BRONCO died down, the lead tanks of Alpha Team thundered by and turned north. The XO started collecting reports, cross-leveling ammunition, and monitoring casualty evacuation and battle damage repair. All the while he watched the icons of Alpha Team move up to and across OBJs PHILLY and PONY (see Figure 7). He started hearing reports of enemy troops surrendering and abandoning undamaged tanks in their fighting positions. Then came the word from higher:

“Guidons, this is Mustang 6. The brigade reserve is being committed in our sector. Continue consolidation and reorganization; be prepared to continue the attack.”

Notes

¹For an excellent description of the M1A2, its capabilities, and its limitations (as they existed during the summer of 1993), see “Achieving

Digital Destruction: Challenges for the M1A2 Task Force," by Major Dean A. Nowowiejski in the January-February 1995 issue of *ARMOR*. Major Nowowiejski was the battalion S3 for 3-8 Cavalry throughout the M1A2 NETT, gunnery, NTC train-up, and NTC Rotation 93-10. During this time, I was an M1A2 platoon leader in A/3-8 CAV. Major Nowowiejski's article provided the inspiration for this article.

²For an interesting treatment of the hazards of fighting "out of the hatch," especially in a LRC, see *Tank Sergeant* by Ralph Zumbro.

³For a detailed discussion of these techniques, see "Direct Fire Planning, Parts I&II" by MAJ Derek Miller and CPT Rick Avena in the Nov-Dec 1993 and Jan-Feb 1994 issues of *ARMOR*.

⁴In very poor visibility or extreme darkness, when PVS-7Bs and driver's night sights are of little use, the M1A2's TC can use the CITV to observe the ground to the front of the tank and help guide the driver. The gunner is still free to scan. This technique has obvious disadvantages and limitations. It would be far better if the M1A2 were equipped with the Driver's Thermal Viewer as it was designed to operate.

⁵See "Independent Operations," by Ralph Zumbro, in the Sep-Oct 1993 issue of *ARMOR*.

⁶With the pace of miniaturization, "ruggedization," and CD-ROM technology, is it too much of a stretch of the imagination to hope for an IVIS-like system tied to a CD-ROM drive and printer in the first sergeant's HMMWV and M113, the medic M113, and the maintenance team's M88 and M113? The mechanics could have all the troubleshooting and parts manuals they could hope for, not to mention vehicle histories and ULLS data, right at their fingertips. If they needed a page or two from one of these manuals, they could print them. The medics could maintain manuals and even copies of the company's medical records. The first sergeant could maintain an ARCIS-type data base. Personnel records, ULLS S-4, deployment packets, digital logistics status reports, blank forms, and FMs and TMs — in other words, an effective field version of the garrison training room — could all be maintained forward with the company. Legal, personnel, and logistical functions could be carried out as efficiently in the field as in garrison. The practical applications would be limitless.

⁷"Check mailbox" is IVIS slang to indicate that a message is being sent. It refers to the incoming message box in the upper right-hand corner of the CID screen, which alerts the TC to incoming messages.

⁸The obstacle overlay cannot be used for waypoint navigation, but when transmitted, it goes up and down the chain of command. (The operations overlay only goes down.) If needed for navigation, the operations overlay can be superimposed on the obstacle overlay and the critical points quickly entered.

⁹By logging off his platoon net and logging onto the company net as the "4th Platoon Ser-

geant," the infantry support tank appears on the CID screens on not only his parent PL and PSG tanks, but also on the CO and XO's. This technique not only allows the commander tighter control of his dismounts, but also lets him see them, or at least the tank accompanying them, on his CID. (The technique of operating IVIS and non-IVIS equipped units in close proximity to help maintain track of the non-IVIS unit's position is known as "tethering.") The other obvious advantage is that the dismounts now have a tank in direct support. If the commander is confident enough of success that he is willing to take a tank away from the heavy fight and give it up to his dismounts, as in the case of this vignette, the effectiveness of the dismounts will increase, and their casualties will decrease. Changing nets and chains of command in the midst of a fight can be tricky, but with practice, might be worth the effort.

While tying tanks to dismounted infantry has sometimes proven disastrous in past wars (i.e., France in 1940), this was because whole tank formations were spread out across vast frontages instead of being concentrated. The technique described in this article is a tactical technique, not an organizational, operational, or strategic doctrine. It is used when massed armor is not the most effective or efficient solution. The use of an M1A2 as a dismounted unit's "big brother" effectively uses our latest armored technology to accomplish the original mission of the tank: the destruction of entrenched infantry and machineguns.

First Lieutenant Robert Krenzel was commissioned as a Reserve Armor officer after graduating from Rutgers University in May 1991. His military education includes AOBC, SPLC, and the Airborne Course. He was assigned to 3-8 CAV (then 1-67 Armor) in May 1992, and since then has served as a M1A1 and M1A2 platoon leader and tank company executive officer. He is currently the executive officer of HHC, 3-8 CAV.

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