

Building Equipment Readiness in Armored Brigade Combat Team Cavalry Squadron

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“Getting back to fundamentals” or “going back to the way we used to do things before the global war on terrorism” are common refrains heard when discussing the readiness of units to fight and win in a decisive-action training environment – and, more importantly, to win in potential future wars.

Often – especially in armored brigade combat teams (ABCTs) – these comments are related to and augmented by “re-establishing a maintenance culture.” However, we must ensure that building and maintaining a healthy maintenance culture is more than a “bumper sticker” in armored units. Conducting command maintenance and ensuring leaders teach Soldiers to do detailed preventive-maintenance checks and services by the technical manual are unquestionably the foundation of a good maintenance program.

Units can take several concrete actions to help improve their operational-readiness (OR) rate. First, fill authorized modified table of organization and equipment (MTOE) positions with the right people; second, develop and fund a tailored, functional shop-stock listing (SSL) using the Global Combat Support System-Army (GCSS-A) and the expertise of senior maintainers; and third, plan and conduct combat-vehicle services as a collective-training event.

Right people in right positions

The armored-cavalry squadron and combined-arms battalions have an MTOE position for an armor captain to serve as the squadron/battalion maintenance officer (SMO/BMO). This position, recently re-added to the MTOE, is in addition to the maintenance-control officer (MCO) and the maintenance-platoon leader (MPL) on the forward-support company’s (FSC) MTOE.

Recent experience shows that logisticians tend to view the MCO position in a different light than how armor officers viewed the BMO position under the previous MTOE variations. Often, brigade-support battalions (BSBs) place their most experienced lieutenant in the FSC executive-officer position. However, logisticians appear to prefer a developmental path from MPL to MCO and then executive officer. In contrast, from the perspective of a maneuver commander, we recommend successful completion of troop/company executive-officer time as the minimum prerequisite to be the SMO/BMO.

When the squadron or battalion does not put an experienced armor or infantry officer in the SMO/BMO position, relying instead on the more junior MCO to do both jobs (or in some cases three jobs if there is no MPL), he or she can become quickly overwhelmed with the amount of work, coupled with trying to learn technical aspects of GCSS-A and the maintenance enterprise. The benefit of selecting the right officer who already has been a successful platoon leader (PL) and executive officer is that the individual will have greater familiarity with the pacer fleet (which is, of course, the most important vehicle in the unit) from the standpoint of its operation, functions and maintenance requirements.

Also, success as an executive officer means the selected officer will have more in-depth experience with the maintenance system and logistically supporting units. He or she will also bring experience working with both mechanics and the squadron/battalion staff and executive officer. When the unit does not appoint an SMO/BMO and instead relies on the MCO to accomplish both responsibilities, he or she is less equipped from an experiential standpoint to be successful right away. If the MCO was previously the distribution-platoon leader, possibly from another battalion or from a company in the BSB, he or she may have little to no exposure to the pacer fleet, GCSS-A or the battalion-level staff and its functions.

When assigning officers to all three positions according the MTOE, delineating specific roles for the three positions eliminates confusion and places well-defined responsibilities for specific functions with specific persons. Because all three individuals have a role and a stake in the outcome of the unit’s maintenance program, they must work together to be successful.

Table 1 and Figure 1 lay out how our squadron defined the individual responsibilities of key players in the maintenance program, and it attempts to show the overlapping interests that combine to achieve and maintain a 90-percent OR rate.

The SMO/BMO is a primary staff officer who plans maintenance activities and recommends priorities to the squadron/battalion commander to maintain or generate combat power. He reports to the squadron executive officer.

The MCO manages the use and implementation of the technical logistics enterprise to ensure repair-part stockage and flow. The MCO also ensures that any needed outside experts are available to support operations. The MCO reports to the FSC commander.

The MPL is a leader of troops who is responsible for the training, administration, health, welfare, discipline and morale of the mechanics assigned to the FSC. The MPL is also accountable to the FSC commander for the unit's property and equipment calibration.

Primary staff officer	
<ul style="list-style-type: none"> -Responsible for ensuring maintenance operations are prioritized, synchronized and executed within squadron commander's intent. -Owns and implements squadron's maintenance standard operating procedure and maintenance Organizational Inspection Program / Marne Inspection Program. -Attends and briefs at all maintenance/staff meetings. -Synchronizes service schedules with training schedules. -Prioritizes unscheduled maintenance and battle-damage assessment and repair tasks. -Makes recommendations to squadron commander and squadron executive officer for controlled substitutions. -Ensures unit maintenance-collection point (UCMP) maintains communications with combat-trains command post and field-trains command post. -Manages Army Oil Analysis Program (AOAP) process to ensure samples are taken in a timely fashion. -Ensures unit property books are properly reflected in AOAP, Test, Measurement and Diagnostic Equipment (TMDE), and GCSS-A systems. -Coordinates activities with MCO and MPL. 	
Manager of maintenance enterprise	Leader of troops, chain of command
<ul style="list-style-type: none"> -Responsible for Class IX supply operations and status-reporting procedures using GCSS-A. -Monitors Logistics Information Warehouse for updated info. -Ensures timely update of ESR to maintain accurate reports. -Interfaces with logistics-assistance representatives and field-service representatives to expedite arrival of parts. -Manages SSL ordering, inventory/storage, receipt/issue, demand analysis and zero balance. -Accounts for recoverable items and ensures turn-ins are completed on time (Overaged Repairable-Item List management). -Maintains communications systems for GCSS-A in field. -Ensures compliance and reporting for safety-of-use messages and modification work orders. -Coordinates activities with SMO and MPL. 	<ul style="list-style-type: none"> -Responsible for training, administration, health, welfare, discipline and morale of Soldiers in Paragraphs 505-510. -Leads recovery missions and tactical movements of maintenance platoon. -Oversees and executes environmental compliance. -Maintains accountability and serviceability of issued tools and equipment. -Manages TMDE. -Ensures verified load tests are performed. -Oversees UCMP's layout, security and life support. -Oversees key control and physical security of motorpool. -Coordinates activities with SMO and MCO. -Performs other duties as assigned by FSC commander.

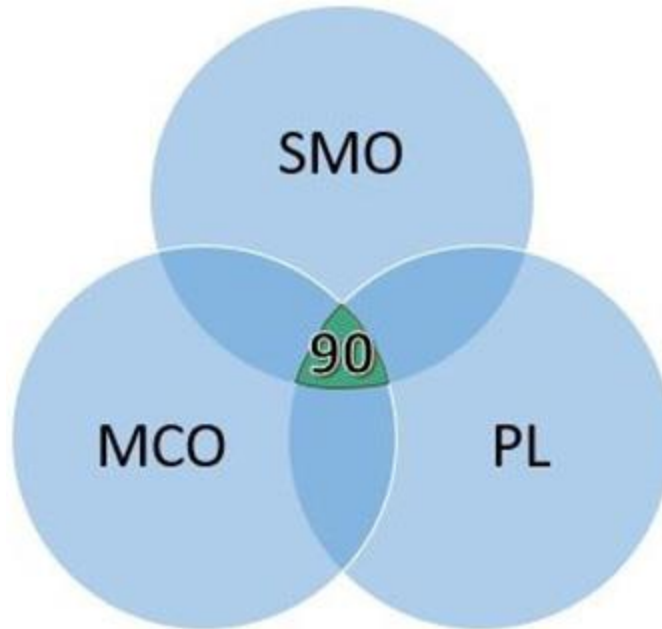


Table 1 and Figure 1. Maintenance roles and responsibilities.

SSL increases readiness

The SSL’s purpose is to reduce time waiting for the unit’s most needed parts, which in turn reduces “not-mission-capable-supply” time in the Army Materiel Status System and thereby improves the OR rate reported in the Unit-Status Report. More importantly than the reports, however, the SSL keeps more vehicles fully mission-capable for training and readiness.

Our maintenance team identified three guiding principles for building a squadron SSL. First, the SSL must be rooted in routine demand analysis. Second, the SSL must to be tailored to the unit’s mission and environment. In our recent deployment to Korea, for example, we found this to be true as our requirements differed from what we experienced at Fort Stewart, GA.

While all vehicles and equipment can be represented in the SSL, we recommend prioritizing parts for equipment-readiness-code (pacing items) vehicles as well as critical-to-mission-accomplishment vehicles.

Finally, the SSL must complement, without unnecessarily duplicating, the brigade’s authorized-stockage list (ASL) to maximize capabilities.

The process of conducting demand analysis and building an SSL in GCSS-A is a technically complicated process, which we outline in this article to explain tactics, techniques and procedures that worked well for 5th Battalion, 7th Cavalry. GCSS-A provides historical data for all units’ equipment, and it recommends retaining or deleting stocked Class IX repair parts from its historical lists. Using this as a baseline, we then created a list of repair parts that had been consumed six times in the last 12 months. We compiled the consumption of like parts into a single squadron list to build a more holistic view of consumption because the analytics tools in GCSS-A are designed to analyze individual troops or companies, which presented a problem.

For example, Troops A, B and C may have consumed two of a given repair part each. The analytical tool would recommend “delete” for the line because all three consumptions fell below the threshold to retain. The consolidated six consumptions, however, show a clear demand for the line in the squadron SSL. Since squadrons and battalions are no longer allocated prescribed load lists (PLL) at troop level, nor is there adequate lift capacity at troop level to support a PLL, GCSS-A should expand its demand-analysis tools to examine the battalion/squadron more holistically.

Because of the unique nature of the squadron’s mission in Korea and the need to be ready to “fight tonight,” we determined that our SSL had to prioritize our pacers, and it had to be tailored to fit in our parts truck, parts trailer

and balance-on-hand containers in a configuration that could be fully loaded in one lift and be ready to move on a few hours' notice. Because of mission requirements, we could not rely on using additional lift from our internal Heavy Expanded Mobility Tactical Truck-Load Handling Systems or on external support. We needed to create an SSL that could support our critical vehicles and be moved if we were called to emergency-deployment operations. We determined to stock only deadlining parts in six categories by priority:

- M2A3 Bradley Fighting Vehicles (BFVs);
- M1A2SEP Abrams tanks;
- Weapons systems;
- Communications systems;
- Other tracked vehicles; and
- Wheeled vehicles.

Our analysis and work to build the SSL had several implications. First, we had to analyze not only the cost and number of lines but the parts' sizes. We limited our full-up powerpack lines to a single BFV engine based on available space. We determined tank and M88 engines were too large to meet our mobility requirements. Conversely, weapons parts could be stored primarily in the armament-shop van, so we were able to allocate proportionally more lines to weapons systems.

Second, we focused on pacer line-replaceable units (LRUs). These are generally smaller high-pay-off items that enable us to evacuate broken LRUs to a higher-level maintenance without deadlining a vehicle. Once LRUs returned from higher-level maintenance, we conducted a quality control/assessment and added them back to the SSL. Based on the cost of LRUs and the demand for overall mobility of our SSL, we set an initial target for 300 lines. This allowed us to re-evaluate space-available and priorities for funding at the SSL's next quarterly review.

Once we had a manageable list rooted in demand analysis and prioritized systems, the senior mechanics and motor sergeants proofed our revised list. In many cases, based on their experience, the mechanics recommended either stocking a higher-level assembly or stocking more of one part. For example, the initial draft for BFVs listed inadequate stock of bolts to hang the on-hand stock of BFV propeller shafts. (The value of subject-matter expertise cannot be overstated in SSL development, and it is reason to retain adequate commander discretion in both ASL and SSL development as Headquarters Department of the Army seeks to standardize both.) At this point, we presented the list again to the squadron command team for final approval.

While our experience was unique to the cavalry-squadron mission for the rotational ABCT in Korea, we learned how to use the ASL to inform the contents of our SSL and to conduct quarterly demand analysis to ensure our SSL remained relevant. It was not until several months into the rotation, after the SSL's initial approval and while the squadron was under 210th Fires Brigade's tactical control, that we realized we had incorrectly assumed the ASL designed to support the M270 Multiple Launch Rocket System (MLRS). This meant we would have little to no repair parts for BFVs. Our assumption was flawed partly because the ASL had been supporting an ABCT cavalry squadron for several years.

More importantly, the MLRS and BFV share a common engine and transmission. Our supporting ASL kept a healthy stock of engines, transmissions, hoses, fittings and wiring harnesses. During our next maintenance review, we realized we could significantly decrease our stocks of these items and increase our stock of unsupported tank and BFV turret components not in common with MLRS.

Quarterly reviews are an important function that provide continuous improvement to the SSL as external factors change. Furthermore, we recommend that another SSL review accompany the ASL review at the supporting supply-support activity, whether that is a unit's organic BSB or not.

Quarterly reviews are a crucial recurring step to this process. Each quarter of the training calendar presents a different type of wear on the equipment based on training schedules, weather, leave and deployments. The rolling 12-month analysis tools in GCSS-A help capture the fleet's changing needs so leaders are prepared to handle similar challenges the next year. The reviews provided opportunities for inventory updates and control, which will reduce the human error that accumulates in GCSS-A over time. We also found quarterly reviews enabled us to understand changes in lead times for high-consumption parts.

The rights to edit reorder points that default to zero quantity are held at the brigade-support operations' maintenance technical officer's (MATO) level. This is a peculiar responsibility to be held above the squadron level since the authority to fund the order remains at brigade level. We absolutely recommend that authority be delegated down to the squadron MCO's role.

In the meantime, an increased safety stock that can be edited at the squadron level may alleviate some of the issue of long lead items, but this requires more storage, longer inventories and still a long period with a zero quantity, even if less frequent. Identifying these lines and requesting an increased reorder point from MATO quarterly will help to eliminate these issues.

We made one other important discovery during review of our SSL. Several zero-balance lines on our SSL never generated purchase requests. We found that when G-4/G-8 purged ZPARK (financial hold to review, reject or release) to reduce the queue of unfunded requirements, it also had the effect of hurting our SSL. Such a purge of unfunded requests that have been in ZPARK for a certain amount of time does not trigger an automatic reorder of SSL parts the way consuming those items below the reorder point does. This left us with the option of either manually inputting all affected lines, then immediately consuming them to trigger the reorder point (which also negatively impacts demand analysis), or manually reordering affected lines to the safety stock. Depending on the number of lines affected, this can take several days to correct. This is equal to the amount of time required to initially build an SSL.

While ZPARK can quickly become unwieldy when several weeks of orders remain unfunded, deleting all lines prior to an arbitrary date defeats two critical advantages of the ZPARK function in GCS-A: first, ZPARK's ability to calculate a running bill of sustained readiness; and second, items ordered as SSL repeatedly fail to automatically reorder despite consumption below their unique reorder point. If battalions and squadrons are going to be held to achieving the Army standard of 90 percent of the OR rate, the issues with funding SSL and management of ZPARK must be addressed.

During the third and fourth quarters of Fiscal Year (FY) 2018, 5-7 Cav experienced a loss of 5.6 percent to our OR rate exclusively due to waiting for parts to ship that we had previously ordered for our SSL but were not funded. For our pacing items, that translated to 93 not-mission-capable days per month, all of which were preventable had the squadron's SSL orders been funded. Due to funding constraints, parts to fix deadlines and maintain the fleet at the 10/20 standard received priority over the SSL. However, maintaining an adequately stocked and accurate SSL is a necessity to sustain readiness.

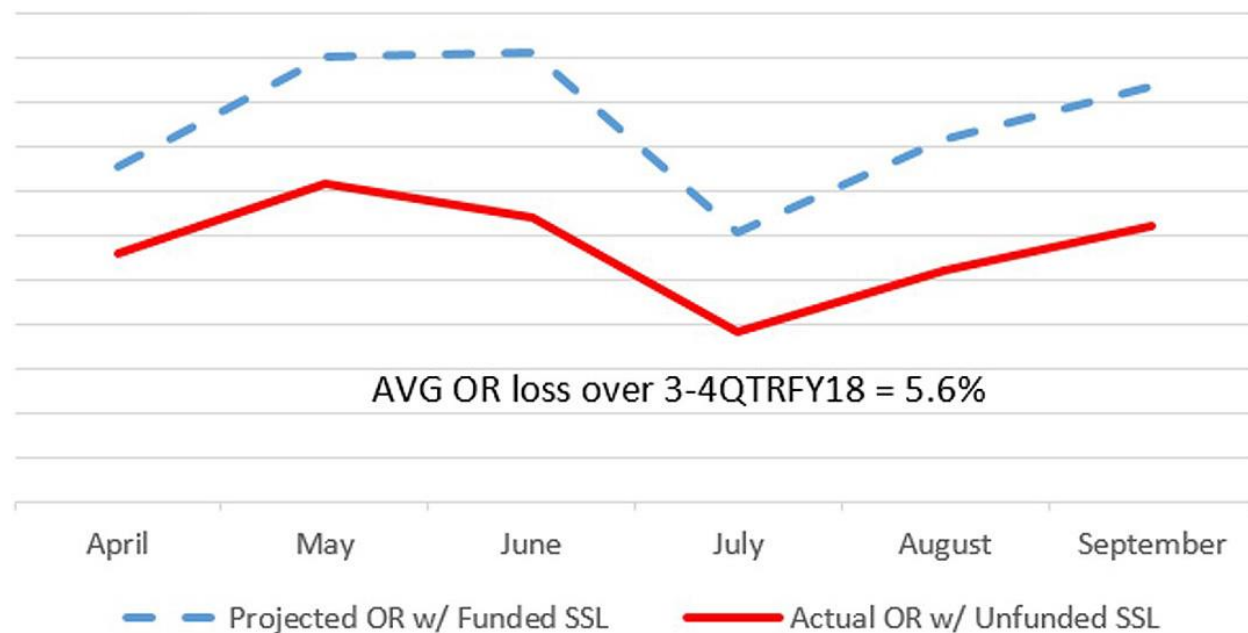


Figure 2. 5-7 Cav's SSL comparison by month.

Collective-training event

Our next priority for the maintenance enterprise was executing platoon-level services on the squadron's pacer fleet. Every ABCT's long-range training calendar is, or should be, built around gunnery and services. Our squadron applied the same collective-training mentality to services we naturally apply to gunnery or other maneuver-training events. This ensured we allocated appropriate time, leadership and resources to services, enabling the training audience to focus on singular events during discrete training blocks rather than completing annual rolling services.

This not only increased the quality of operator-level maintenance, but it also improved the professional development of operators and leaders during services. Maintenance is training. This will also prepare officers through experience to be successful as a future SMO/BMO.

Based on the unique nature of constant readiness in Korea, the Korean Enduring Equipment Set fleet was initially set on a rolling-service schedule where every troop was required to complete a service on just under 20 percent of its fleet each month. While this may have some advantages to the Korean mission, we were tasked to take these vehicles back to Fort Stewart with us, so we had to realign the service plan.

To achieve realignment as we approached the service window, we were left with the decision to do the services twice in a short period or allow a service to remain delinquent until the scheduled platoon-service window. We made these decisions on a vehicle-by-vehicle basis in consultation with the brigade commander and with consideration of our upcoming gunnery.

While neither of those options is ideal, the outcome of allowing platoon-level services executed by leaders cannot be overstated. This is especially true in the case of military-occupation specialty (MOS) 19D cavalry scouts who, based on previous experience in different BCT types, may not be as familiar with a Bradley as their MOS 19K armor-crewman cousins are with tanks.

Platoon services enabled the squadron commander to ensure that platoon leaders fundamentally grasped the importance of maintenance activities to sustained readiness. Platoon leaders must understand and track the completion of all checks, and they should synchronize the efforts of operators and maintainers. With that in mind, our platoon leaders built comprehensive plans to service all their equipment, including communication systems, weapons and optics in their dedicated training window.

These procedures forced junior officers to more closely inspect the maintenance processes within their platoon and comprehend the squadron's overall system. Our platoon leaders learned more about what their troop executive officer, SMO, maintainers and squadron and brigade leadership do to ensure the right parts are ordered and applied to correct job orders during their two-week service window than they would have by only observing the system from the perspective of command maintenance each Monday.

Platoon services also had the added benefit of increasing emphasis on noncommissioned-officer (NCO) accountability in the maintenance process by emphasizing sections leaders' and vehicle commanders' responsibilities to train their Soldiers and own their vehicles' ability to fight tonight. Maintenance is a -10 level task; it should be trained and supervised by our NCOs; and they should also share in the accountability for the platoon's maintenance status – the platoon's maintenance status shouldn't fall only on the platoon leader.

To capture this emphasis, we adopted a systematic approach in both how our leadership communicated intent and with the tools we provided platoon leaders. Platoon leaders conducted in-briefs with the squadron commander and led in-progress reviews (IPR) in the maintenance bays with the squadron executive officer. Platoon sergeants then led outbriefs with the squadron commander. Again, by doing this, we held both platoon leaders and platoon sergeants equally accountable for learning, understanding and affecting change in the maintenance enterprise. The platoon leaders and platoon sergeants were expected to bring copies of the Equipment-Status Report (ESR), all relevant Department of the Army Form 5988-Es, the planned maintenance schedule and a task-completion list.

The in- and outbriefs created a mentorship and quality-control opportunity for the squadron commander while also enhancing understanding of equipment readiness across his platoons and troops. The squadron executive officer's IPRs with platoon leaders allowed the unit to refocus priorities or allocate more resources to keep each

unit on schedule. The cumulative effect of these briefs led to successful outcomes, developed the squadron's junior officers and improved the commander's understanding of his unit's readiness.

Our squadron also took several steps to ensure that training time was adequate to support services and that the time was used appropriately since it required reprioritization of all other tasks. The squadron gave supported troops tactical control of their aligned field-maintenance teams (FMT) during the services training window to optimize daily schedules. Troop commanders were then responsible for the success of their training and were able to set the FMT's priorities.

The SMO created a lifecycle of a BFV and tank-service plan compiled from the maintenance-allocation charts and the experience of the maintainers to form a foundation of what could reasonably be achieved each day. Each platoon leader knew exactly how many and which service checks should be accomplished by the end of every day to achieve results. We tailored these plans and the training calendars to the platforms. Six BFVs take longer to service than four tanks based on the number of mechanics in an FMT and the number of crewmembers in a platoon. To overcome this, we created troop windows of three weeks.

Our tank platoons completed hull and turret services in a week, while our scout platoons required a week-and-a-half and shared the maintainers and bay space during the second week of the three-week training window. The squadron's armament section conducted M242 25mm chain-gun services for one scout platoon while the other platoon focused on vehicle services. This was an important step of analysis that ensured every platoon had adequate time to complete all services, paperwork and any unscheduled maintenance.

Also, our S-6 and troop communications representatives were on hand to assist crews with any issues related to the communications systems.

Our platoon services resulted in a temporary drop in the squadron's OR rate because of the level of detailed maintenance conducted, but it resulted in a higher sustained readiness after identifying and correcting all faults found. The quality of services improved with prioritized and protected time for the operators and maintainers. Most importantly, leaders across the squadron received training that will have a continued impact in daily-maintenance operations and the Army at large as these Soldiers make permanent-change-of-station moves to other units during their careers.

Conclusion

For the foreseeable future, operational deployments on a near-annual basis to Europe, Korea or Kuwait are reality for all ABCTs. Like many others, our squadron has already completed regionally aligned forces deployments to Europe and Korea. We will head to Kuwait next.

To sustain readiness at home station, combat-training centers and while deployed, units should establish policies for assigning the right individuals to authorized MTOE positions. Units should also use the full functionality of GCSS-A to maintain a supportive SSL and conduct pacer-fleet services as dedicated training events that not only increase vehicle readiness but also serve as a leader-development opportunity.

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MAJ Wade Greenlee is 5-7 Cav's executive officer. Previous assignments include executive officer, 6th Squadron, 8th Cavalry Regiment, 2nd ABCT, 3rd Infantry Division, Fort Stewart; Stryker staff-synchronization officer, Headquarters, Department of the Army, G-8 Force Development, Washington, DC; Korea policy planner, Joint Staff J-5-Asia, Washington, DC; company commander, 1st Battalion, 21st Infantry Regiment, 2nd Stryker BCT, 25th Infantry Division, Schofield Barracks, HI; and platoon leader, 1st Battalion, 66th Armor Regiment, 1st ABCT, 4th Infantry Division, Fort Hood, TX. MAJ Greenlee's military schools include Cavalry Leader's Course, Command and General Staff College,

Army Force Manager's School, Ranger School, Maneuver Captain's Career Course, Air-Assault School, Infantry Mortar Leader's Course, Armor Officer Basic Course and Airborne School. He holds a bachelor's of science degree in engineering management from USMA and a master's of arts degree in public-policy management from Georgetown University.

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1LT Dustin Kaminski is the executive officer, Company D, 3rd Battalion, 13th Infantry Regiment, 193rd Infantry Brigade, Fort Jackson, SC. Previous assignments include MCO, 5-7 Cav's FSC; Fuel and Water Distribution Platoon leader, Company A, 3rd BSB, 1st ABCT, Fort Stewart; commander, Greeley Recruiting Center, Denver Recruiting Battalion, Greeley, CO; squad leader, Company A, 2nd Battalion, 12th Infantry Regiment, 4th Infantry BCT (IBCT), 4th Infantry Division, Fort Carson, CO; and fire-team leader, Company A, 2-12 Infantry, 2nd IBCT, 2nd Infantry Division, Fort Carson. 1LT Kaminski's military schools include the Quartermaster Basic Officer Leader Course, Station Commander Course, Army Recruiter Course, Advanced Leader's Course, Warrior Leader's Course and Combatives School. He holds a bachelor's of science degree in business management from National American University. 1LT Kaminski's awards and decorations include the Purple Heart Medal.

Acronym Quick-Scan

ABCT – armored brigade combat team
AOAP – Army Oil Analysis Program
ASL – authorized-stockage list
BCT – brigade combat team
BFV – Bradley Fighting Vehicle
BMO – battalion maintenance officer
BSB – brigade-support battalion
ESR – Equipment-Status Report
FMT – field-maintenance team
FSC – forward-support company
FY – fiscal year
GCSS-A – Global Combat Support System-Army
IBCT – infantry brigade combat team
IPR – in-progress review
JMRC – Joint Multinational Readiness Center
LRU – line-replaceable units
MATO – maintenance technical officer
MCO – maintenance-control officer
MLRS – Multiple Launch Rocket System
MOS – military-occupation specialty
MPL – maintenance-platoon leader
MTOE – modified table of organization and equipment
NCO – noncommissioned officer
O/C/T – observer/coach/trainer
OR – operational readiness
PL – platoon leader
PLL – prescribed load list
SMO – squadron maintenance officer
SSL – shop-stock listing
TMDE – test, measurement and diagnostic equipment
UCMP – unit maintenance-collection point
USMA – U.S. Military Academy