Abrams Update: Final Review

by Colonel James H. Nunn,
Outgoing TSM for Abrams Tanks

Photos by Robert L. Stevenson

These are exciting times to be a tanker! Even though there is a lot of talk about the Interim Brigade Combat Team and the Objective Force, there is more happening in the Abrams tank program today than at any time in its history. Everywhere you look, tankers are replacing their old tanks with new equipment.

As the TRADOC System Manager (TSM) for Abrams, I want to highlight some of the improvements made to the Abrams fleet over the past four years and address its future direction. Throughout my tenure as the TSM Abrams, I focused on providing the "tanker in the mud" with the necessary tools to be successful if called into harm's way.

As the U.S. Army moves toward the Objective Force, resources must focus on transformation and the future while ensuring the current force has the capability to fight and win our nation's wars until this new force is fielded. The challenge for all leaders is to find balance and ensure the armor force maintains combat capabilities overmatch against current and projected threats.

The Army is fielding two improved variants of the Abrams tank which will improve combat capabilities overmatch in both lethality and survivability, move toward a digitized networked battlefield by increasing information dominance, reduce sustainment and logistics costs, and much more.

There have been significant improvements in survivability, lethality, command and control (C2), sustainment, and training.

Survivability

The M1A2 SEP is equipped with the latest in ballistic armor protection and the M1A1 frontal armor package was updated during the Abrams integrated management (AIM) rebuild program. While the M1A2 SEP has an improved internal side armor protection, we are also working some technical solutions aimed to increase the side armor protection on the M1A1 fleet. Side armor protection is a priority because of the proliferation of rocket-propelled grenades (RPG). As we search for ways to provide crewmen additional protection, we also search for a better solution without adding weight to the tank. We are keeping a watchful eye on the development of the defense systems, such as laser and missile warning capabilities and active protection systems that provide the capability to defeat a munition before it hits the tank.

Lethality

Lethality efforts are focused on target acquisition, fire control improvements, and ammunition. The M1A2 SEP is equipped with the commander's independent thermal viewer (CITV) and improved forward-looking infrared radar (FLIR). Second generation FLIR (SGF) markedly improves target acquisition and increases the ability to destroy numerous targets more quickly. SGF, with 50-power magnification versus the first generation's 10-power FLIR sights, dramatically expands the battlespace while increasing our ability to acquire targets throughout that space. I often tell tankers that if you cannot find and kill a target using 25- or 50-power magnification, then you may want to change career fields. We continue to have an unfinanced requirement for SGF capability on the M1A1 fleet, but are closely monitoring the U.S. Marine Corps' efforts to find a cost-effective means to provide SGF capability for their M1A1 fleet. Additionally, SGF, when linked with new C2 systems and far target locate capability, provides the capability to increase not only system lethality but combined arms lethality, by enabling us to pass targets digitally to other members of the combined arms team.

A new or rebuilt tank without munitions improvements is suboptimal. To be decisive, we must enable these great platforms with more lethal munitions that extend the close combat fight. To maintain lethality overmatch, we continually improve our SABOT round to penetrate any known enemy armor at greater distances. The M829E3, which goes into production in Fiscal Year 02, gives the armor force the punch it needs to win on the near future battlefields. We intend to leverage Objective Force lethality work to increase our capability in both lethality and survivability for the future. Finally, tankers in Korea and other theaters need a canister/antipersonnel round to deal with dismounted RPG ambushes in complex terrain. One of the Armor Center's top priorities is getting an effective canister round to the field. We recently received approval of the XM1028 canister ammunition requirement and expect to see the canister round in the field within the next few years.

Command and Control (C2)

Improvements in the C2 arena are best seen by implementing the information systems capabilities brought by Force XXI Battle Command Battalion Brigade and Below (FBCB2). The M1A2 SEP has embedded FBCB2 and the M1A1D is fitted with the common FBCB2 computer and terminal. We have come a long way since fielding inter-vehicular information system (IVIS) on the first M1A2s. FBCB2 provides shared situational awareness and real-time force synchronization. We now have a common view of the battlefield where each tanker knows his position,

the location of friendly forces, and known or suspected enemy location — all in relation to the terrain and operational graphics. Using FBCB2 allows commanders to place combat power at the right place and time. No more guessing where your unit is or where you can achieve the best results on the battlefield.

Sustainment

Fielding of M1A2 SEPs to the fifth unit at Fort Hood, Texas, was completed this fiscal year. M1A2 SEP fielding will continue well into the next decade. Not every unit will have an M1A2 SEP, but we have an outstanding program to improve the aging M1A1 fleet. We are rebuilding M1A1s and conducting selective upgrades such as replacing analog components with digital systems. AIM is an innovative teaming of the prime contractor, General Dynamics Land Systems, with Anniston Army Depot to overhaul the tanks to like-new condition. AIM increases readiness, significantly reduces operating and support costs, standardizes configurations, and minimally sustains the Abrams industrial base. The Army National Guard has also ventured into this program and received five rebuilt M1A1s last year.

In addition to improving the M1A1 fleet through the AIM process, we are also reducing the logistics burden of supporting the Abrams fleet by introducing embedded diagnostics (ED). The M1A2 SEP has a full-time onboard ED capability, and a built-in test and fault isolation test capability. The M1A1 fleet with revised turret and hull networks boxes (RxNBs) provides similar capability by using a sidecar module attached to line replaceable units (LRU) that allow the revised turret networks box to monitor the health of the system.

Since the Abrams was fielded in the early 1980s, no major improvements have been made to its engine. The reliability of the Abrams' engine is always an issue and is approximately 60 percent of the operational and support cost for the Abrams tank fleet. Increasing the reliability and fuel efficiency of the engine is an Armor Center priority, and in the future, there will be a new engine that will reduce the logistics footprint, increase operational readiness, have 30 percent better fuel economy, and provide up to six times better reliability. During 2004, approximately 200 M1A2 SEPs will come off the production line with the new GE/Honeywell LV-100 tank engine.

Training. Training is the foundation of the Army's success in any mission. While we have a great tank, it is training that makes a great armor force. Training aids, devices, simulators, and simulations (TADSS) create a realistic training environment for armor crewmen. These training tools provide alternate means of training gunnery and tactical skills when live resources are unavailable or too costly.

The Army is constantly improving its simulators, such as the M1A2 advanced gunnery training system going through a complete system upgrade much like the COFT program. While using some of the more traditional TADSS, we also look at ways to improve training capabilities. One such means is the embedded training capability that allows the tanker to train in his tank, in the motor pool, and at the leader's discretion. The Armor Center will continue to evaluate embedded training as the preferred course of action for mid- to late-term sustainment training of the Abrams tank systems. The goal is, of course, to sustain and improve training and tactical team combat readiness through enhanced integration of full-spectrum training capabilities in the tank.

The Abrams tank program is alive and well. The Army continues to upgrade its systems to ensure that Abrams-equipped combined arms teams dominate on any battlefield. If the United States goes to war between now and 2015, the Abrams tank will be the cornerstone of the force that goes into harm's way. We must ensure our soldiers maintain combat capabilities overmatch over any known enemy. As the Armor Center picks up the lead for developing the future force, Team Abrams will ensure America's soldiers maintain combat capabilities overmatch over any known enemy.

TSM Abrams #9 out.

COL Jim Nunn is a 1976 ROTC graduate from the University of Florida where he received his Armor commission. He has served in various command and staff positions, including tank platoon leader, battalion S3 and S4 with HHC, 2-32 Armor; commander, CSC and A Company, 197th Infantry Brigade; separate troop commander, 15th Cavalry; TRADOC DCST operations and plans training officer; brigade S3, 5th Infantry Division; and brigade S3 and XO, 2d Armored Division; battalion commander, 3-8 Cavalry, 1st Cavalry Division; deputy chief of staff, 1st Cavalry Division; and political-military affairs planner (J5), European Command. He wrote this article while serving as the TRADOC System Manager for the Abrams tank system, Fort Knox, Ky.