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TRADOC Capability Manager-Armored Brigade Combat Team and Reconnaissance (TCM-ABCT/Recon),
Capabilities Development and Integration Directorate (CDID),
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TRADOC CAPABILITY MANAGER, ARMORED BRIGADE COMBAT TEAM (ABCT) SEMI ANNUAL REPORT 15-02 (AUGUST 2015)

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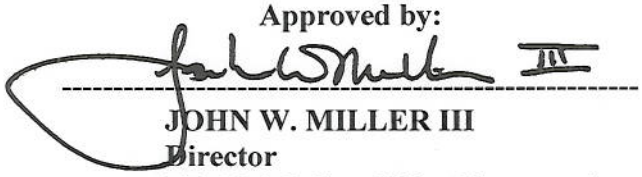

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DATE SIGNED: 27 AUG 2015

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STATE OF THE FORMATION

The Armored Brigade Combat Team (ABCT) mission is to deploy rapidly to defeat enemy forces and control battlespace through decisive action to achieve the higher headquarters objectives. The ABCT is uniquely manned, equipped and organized to accomplish this mission and, more so than any other formation, the ABCT provides a scalable capability that allows commanders to tailor the force to achieve desired endstates against all threats. The inherent mobility, protection and long range precision firepower provides overmatch against the full range of environments and enemy capabilities without augmentation while providing unmatched operational speed and tempo. The formation can operate in complex and urban terrain against any combination of enemy forces. The presence of main battle tanks, infantry fighting vehicles, self-propelled howitzers and supporting engineers and logistics provides a robust force designed to fight mounted while retaining the capability to employ infantry squads when required. To accomplish its mission, ABCTs must be prepared to conduct close combat tactical tasks during decisive action operations in a Joint Combined Arms Maneuver (JCAM) environment and be able to transition and conduct Wide Area Security (WAS) tasks. Throughout every phase of operations the formation must simultaneously conduct reconnaissance and security to continuously develop situational understanding offensive, defensive and stability operations while executing operations with other U.S. forces and Multinational (MN) partners.

We do not know who we will fight in the next conflict. The growing trends of urbanization and a combination of failed and failing states continue to define many of our potential operational environments. Hybrid threats remain complex making it difficult for commanders to plan and conduct operations. Different strategic goals combined with varied cultures and geographical areas will shape the threat and operational environment. Threats in the Middle East differ greatly from those in Eastern Europe and the capabilities of potential adversaries vary, as does the way the U.S. must respond to these threats. The degree of sophistication and the continued modernization of conventional forces in nations with diverse strategic objectives than those of the United States creates another dimension of complexity. The ABCT must prepare to operate in areas in which they are at the end of extended logistical lines of support. Air parity and periods of threat air superiority are likely, and the threat missile and artillery capability is potentially numerically overwhelming. Conventional enemy forces and armored vehicles have peer/near peer capability and vastly outnumber U.S. and MN forces. The stocks of chemical, biological, radiological or nuclear weapons (CBRN) remains prevalent with employment of these weapons likely. Additionally, the use of Unmanned Aerial Systems (UAS), some of which will be weaponized, and the proliferation of cyber threats are just two emerging threats U.S. forces will have to face.

A review of current ABCT capabilities compared against the most stressing threat highlights areas in which future improvements to formation capabilities should be focused. These areas are summarized below using the Warfighting Functions (WfFs) as an organizational tool, and this summary provides the basis for future ABCT Operational and Organizational (O&O) analysis. This O&O effort will drive a focused experimentation campaign and provide the foundation for the FY 16 ABCT Army Capabilities Integration Center (ARCIC) Portfolio Assessment.

Mission Command - ABCTs face significant challenges with mission command, some relating to the art of command while others to the commander's ability to establish an appropriate degree of control through the network. Limited opportunities to exercise mission command at the battalion and brigade levels at home station are preventing leaders from regaining the competencies desired for ABCT operations as rapidly as possible. Formations must improve on concealing the command posts to protect from UAS, rocket and artillery threats. The use of cover and camouflage netting to aid concealment are not commonly used. The complexity of the network adds cognitive workloads to commanders and staffs while also preventing command posts from quickly establishing and tearing down the physical components of the network when required to rapidly or periodically relocate. ABCTs should have a mission command capability tailored to their operational requirements. During initial phases of operations when ABCTs are conducting combined arms maneuver and are required to constantly move forward or reposition assets, formations should conduct mission command over a network centered on Blue Force Tracker and Advanced Field Artillery Tactical Data System (AFATDS). This network should be augmented with the ability to put staff and information displays forward with the commander to allow mission command on the move (MCOTM). As units transition into wide area security missions and operations are conducted while operating from semi-permanent locations, the ABCT should have the capability to transition to the full suite of capabilities envisioned in current network development. This requires ABCTs to have all the equipment on hand and for leaders, Soldiers and staffs to be thoroughly trained in its use. Other areas of concerns include our ability to conduct and defend against cyber electromagnetic operations, the use and employment of deception operations, the lack of retransmission capabilities in the formation, and airspace management and control.

Movement and Maneuver - ABCTs have made significant strides in regaining core competencies since the establishment of decisive action training environment (DATE) at the Combat Training Centers (CTCs) yet significant challenges remain. Improvements to ABCT combat platforms are based on maintaining current required capability and not on modernization, leading to a cycle of continual improvements that improve one area usually at the risk to another. A significant risk to the formation occurs with implementation of the two infantry company cuts to the TO&E. The loss of these companies significantly reduces the number of infantry squads available to commanders to operate in restricted/severely restricted terrain and urban environments while also increasing risk to Abrams which routinely operate with IFVs during mounted operations. There are no other platforms in the Army that can adequately fill this role.

- Cavalry Squadrons must be capable of fighting for information and the transition to the 6x36 standard scout platoon configuration and the pending addition of a tank company in the K series TO&E will allow it to do so. ABCT Combined Arms Battalion scout platoons must adopt the 6x36 standard scout platoon configuration as soon as possible. This organization best ensures scout platoons possess the required leadership, versatility, survivability, protection, mobility and firepower to perform reconnaissance and surveillance (R&S) missions against any opponent in the future operational environment (OE). While this organizational design is approved for cavalry squadrons, it is not yet approved for combined arms battalion scout platoons. Other scout requirements include effective communications capability and long-range sensor capability for dismounted squads.

- Maintaining required levels of protection for the Abrams main battle tank requires additional armor at significant weight gains that impact vehicle performance affects air transportability as well as ground movement and recovery. While improvements required to support the new main battle tank for heavy equipment transportation and recovery are identified, the fielding of these capabilities are not synchronized with the projected deliveries of the M1A2 SEPv3 to units. The reassignment of all ABCTs to CONUS based installations makes the availability and readiness of forward deployed prepositioned stocks more critical than ever. These equipment stocks must replicate active component ABCT formations in terms of organization and combat vehicle variant so that units fight with the equipment and organization with which they trained.

- The Abrams main battle tank continues to be the centerpiece of the ABCT; it is the platform around which all actions and efforts coalesce. Planned improvements to the platform will increase protection, survivability and lethality of the tank, but we must augment this protection with an active protective system that defeats enemy munitions before they reach the tank. This capability allows us to potentially reduce the weight of future variants while increasing protection and mobility.

- Infantry Fighting Vehicles (IFVs) are different from other infantry platforms designed solely to move infantry squads to a dismount point and then support those squads from a position of relative security. The IFV is designed with sufficient protection and firepower to support the Abrams main battle tank; it can go where the tank can while possessing the ability to fight alongside infantry squads in support of close combat operations. Essential in this relationship is the ability of each element, the IFV and the infantry squad, to coordinate, integrate and synchronize actions. This mounted/dismounted capability is overwhelmingly effective against enemy forces operating from trench lines, bunkers, and wooded terrain or in city blocks. There will be times during maneuver that mounted and dismounted elements exchange the lead for operations while always maintaining mutual support; for example, sometimes it is the IFV that provides fires to support squad maneuver and other times it is the squad that enables the IFV section to move. These transitions occur in minutes or seconds given the temporal nature of operations at the platoon and squad levels and as such, the IFV must have the mobility, protection and firepower to operate alongside squads and in conjunction tanks in all terrain. Equally as critical is the ability to conduct hunter killer operations while allowing the leader to coordinate the maneuver of mounted and dismounted elements through personal directives and action.

- The ABCT commander's ability to shape terrain to influence enemy maneuver while simultaneously ensuring survivability for the unit is significantly reduced. The ABCT's ability to conduct mobility, counter-mobility, and survivability tasks in support of maneuver and reconnaissance operations is impacted by a lack of capabilities in the Brigade Engineer Battalion (BEB). Combat engineer companies in the BEB do not map to the number of maneuver battalions in an ABCT, making habitual relationships between supported and supporting units difficult. Attaching a Mobility Augmentation Company to increase capabilities has its own inherent challenges since they are currently equipped with the M113 Family of Vehicles (FoV). The scarcity of some equipment (Assault Breacher Vehicles [ABV], T9 dozer and Volcanos) and the nearing obsolescence of others (Armored Vehicle Launched Bridge [AVLB], Wolverine and the

Armored Combat Earthmover [ACE]) forces commanders to choose which engineering effort they can conduct since they have insufficient assets to do everything required.

- The formation is steadily losing the ability to provide obscuration in support of both formation maneuver and individual combat vehicle survivability. ABCTs lack the capability to degrade optical and/or electro-optical capabilities within select portions of the electromagnetic spectrum in order to deny acquisition by/or deceive threat forces.

Intelligence - Military Intelligence personnel at the brigade through company level lack experience and training in conducting all steps of the Intelligence Preparation of the Battlefield/Battlespace (IPB) process. S2s demonstrate a lack of understanding concerning how a specific enemy will fight and have not demonstrated an ability to learn enemy patterns and apply that knowledge to subsequent operations planning. Experience in tactical intelligence planning is required for S2s, Battlefield Intelligence Coordinators (BIC), Battle Staff NCOs and Company Intelligence Support Teams (COISTs). All intelligence personnel must be able to plan and conduct intelligence support for maneuver missions without reliance upon CPoF, GCCS-A, SIPR, and JWICS during initial stages of operations. Simultaneously, they must be prepared to leverage these capabilities as units transition to Wide Area Security operations. Establishing habitual command relationships between the Cavalry Squadron and the Military Intelligence Company will benefit the ABCT across all operations.

Fires - Significant changes to the Fires Battalion have greatly improved the ABCTs ability to execute fire missions and the Paladin Integrated Management (M109A6) program will ensure this howitzer is capable of supporting operations for years to come. While the technical expertise of artillerymen are significantly improved, there are still some areas in need of focused attention.

- ABCTs are not yet coordinating Army indirect fires and joint fires as effectively as operations require. The timely synchronization of fires with maneuver remains challenging, especially when conducting offensive operations. Management of fires and airspace remains difficult as does clearance of fires.

- Radar operations are typically not conducted to standard during offensive missions and issues involving spectrum management, frequency deconfliction, cueing schedules, survivability movement, and zone management are prevalent. Training in the employment and use of radars is paramount as each ABCT will eventually have six organic radars. Tactical placement and employment of weapons location radars (WLR) requires the use of operational art and science in a complex decision matrix that is dependent on mission, enemy, terrain and weather, troops and support available and civil considerations (METT-TC). Units must use newly approved radar doctrine found in ATP 3-09.12.

- Precision munitions are important to ensure a wide range of response options; however, ABCT fires battalions must not lose the ability to mass fires quickly and repeatedly. Firing units must retain the capability to defeat armor formations, if not with DPICM then with a similar capability. While fires battalions retain the ability to provide obscuration to support ABCT maneuver, the time it takes to establish an effective smoke screen leaves the firing unit vulnerable to counter battery fires.

Sustainment - Brigade Support Battalions (BSB) are the primary providers of logistics, personnel services and health service support for the ABCT. The ABCT must reduce its reliance on long logistical pipelines and reduce its operating footprint with a goal of becoming self-reliant.

- BSBs plan and execute the movement and support of forces, but are challenged to move themselves with organic lift capability following years of forward operating base (FOB) based support operations. BSB commanders and staffs must be prepared to store, distribute, and move required classes of supply in support of ABCT operations in immature theaters with austere lines of communication.

- Successful maintenance operations at home station equates to high combat readiness rates while deployed. Maintenance operations and procedures must be established to support the continuation of effective maintenance in the field. Logistics commanders currently lack the ability to weigh the maintenance effort in support of the commander's priority of support and must determine a way to reinforce maintenance without reducing the ability to fix forward in all units.

- M88 Hercules and Heavy Equipment Transporters (HET) need modification to handle the weight growth of the Abrams main battle tank. Modifications should be prioritized and accelerated to synchronize fielding with that of the M1A2 SEPv3.

- Science and Technology (S&T) efforts must focus on exploiting the use of Unmanned Aircraft System/Unmanned Ground Systems (UAS/UGVs). Combat vehicles should maximize commonality and increase mechanical reliability while reducing fuel consumption and repair times; while keeping in mind that weight reductions are significant only if they have operational impacts (i.e., increase the number of vehicles transportable by existing aircraft or decrease the number of required logistics packages.

Protection - ABCTs have challenges preventing fratricide and with CBRN operations.

- CBRN equipment, training, and personnel assignment policies in all formations must be systematically reviewed and assessed. ABCTs lack the ability to identify CBRN attacks at standoff ranges and do not have trained personnel to maintain assigned equipment and train individual and collective CBRN tasks at the company level.

- Fratricide continues to occur at very high rates during CTC rotations; it appears occurrences when operating with multinational partners are even higher.

- Protection tasks involving survivability operations, air and missile defense, and conducting operational security are all relevant issues facing ABCTs today. The threat from enemy UAS and manned aircraft requires an ABCT organic capability to conduct counter-UAS/counter-air operations to ensure continued freedom of maneuver.

It is not possible to identify who the U.S. will conduct operations against next, but it is not hard to realize that our next adversary may have peer/near-peer capability. The most effective way to defeat such organizations is by establishing control over territory and the people living there—

a mission for which armored forces are essential. As military technologies continue to proliferate, all three types of adversaries—states, non-state actors, and hybrid entities—will employ advanced weapons to deny U.S. forces the ability to operate freely. To address this challenge, the ABCT needs cavalry squadrons that constantly develop situational understanding and are able to fight for information and gain physical contact with hard to find opponents. It needs armored forces that can fight their way through long-range weapons fire with tanks and armored vehicles that can maneuver quickly to strike the enemy from unexpected directions, and place a wide range of weapon systems at the commander's disposal. Finally, the ABCT needs supporting units that can ensure maneuver, provide integrated fires and logistical sustainment in austere and immature theaters of operation. With the right training, organization, and equipment, armored forces can fight and win against the most capable enemies under all conditions; taking steps to correct the challenges identified here will make mission success for ABCTs that much easier to attain.

EXECUTIVE SUMMARY
ARMORED BRIGADE COMBAT TEAM
SEMI ANNUAL REPORT

1. Semi Annual Report Summary - The TRADOC Capability Manager, Armored Brigade Combat Team (TCM-ABCT) collected observations, insights, and lessons learned for this report during five events between January and June 2015, including one ABCT unit visit, one Joint Multinational Readiness Center (JMRC) rotation and three National Training Center (NTC) rotations. This report focuses on the findings from this observation period. Observations are organized into several sections as segregated below. All ABCTs continue to demonstrate similar challenges across all warfighting functions. ABCTs continue to base operations on tactics, techniques and procedures used during the war on terror and they are experiencing challenges as they transition to decisive action environments.

2. Operational Trends

a. Mission Planning (pages 16-36) - Trends indicate continued challenges planning for operations at combat training centers (CTCs). The most common contributing factor to reduced performance remains the complexity to synchronize all warfighting functions across the formation in the expansive time and space of CTCs. An emerging trend suggests units are scheduling the NTC Leaders Training Program (LTP) too late in the training cycle to have a positive impact on homestation training. Although high frequency (HF) radio proficiency is improving at the scout squad level, units need to continue to build this skill at staff level. Combined Arms Battalions struggle with only one retransmission (retrans) platform that provides only two of four frequencies. Air-ground operations (AGO) remain challenging as units rebuild proficiencies in this area. Battalion (BN) – Brigade (BDE) intelligence staff estimates remain difficult as units are encountering hybrid threats in complex mission sets at CTCs.

b. Mission Preparation (pages 36-45) - This section includes challenges facing units as they prepare for combat operations. The NTC mission command validation exercise (MCVE) continues to be the largest challenge as units prepare for operations in the rear unit bivouac area (RUBA). Quartering party procedures are improving, however, assembly area procedures continue to pose challenges. Most frequent assembly area (AA) trends are related to inadequate security and limited use of checklists and priorities of work. Rehearsals are improving in all areas and the results are demonstrated as units conduct operations. The availability and use of digital doctrinal publications in lieu of printed doctrine continues to negatively impact operations at the small unit level. Publications released from 2013-2015 in support of Army Doctrine 2015 are not well distributed or utilized by small unit leaders.

c. Mission Execution (pages 45-66) - Observations in this section focus primarily on the Soldiers' ability to operate their combat vehicles and assigned weapons systems. Negative performance trends are becoming more glaring for mounted and dismounted Infantry operations as ABCTs struggle to train Bradley skills to incoming Soldiers of all ranks. Maintaining sufficient SSG 11B Master Gunner populations is not improving. As the Bradley New Equipment Training (NET) has concluded for the active component (AC), ABCTs no longer have this training team

as an option to train Bradley skills. Movement to contact and combined arms breach operations continue to be difficult to master. TOW missile engagements are improving as units are acquiring TOW missile simulation rounds, conducting individual task training, and firing more live missiles during homestation gunnery densities. Degradation of Javelin skills continues to present challenges that the upcoming Heavy Weapons Master Gunner Course can mitigate. Fratricide is increasing as units are becoming more comfortable and aggressive at conducting combined arms maneuver at the NTC and at JMRC with other NATO countries. Fratricide tactics, techniques and procedures need to be reintroduced to reduce risks. As we operate with NATO countries, units need to evaluate ways to reduce fratricide risks involving other nations' Soldiers and vehicles.

d. Sustainment (pages 66-69) - Operational readiness trends are improving for some units that executed aggressive service schedules prior to deployment to CTCs. Units who did not allow enough time for maintenance prior to CTC deployments continued to encounter problems consistently building combat power. Successful units prepared for maintenance requirements with healthy stocks of additional stockage lists (ASLs). An emerging trend revealed that vehicle crews are not carrying the ten day Class III (P) requirement for their platform. This resulted in inability for operators to conductive preventive maintenance checks and services (PMCS). Units need to add this data to their SOPs.

3. Regionally Aligned Force (RAF) Trends (USEUCOM)

a. Mission Planning (pages 71-72) - This section includes challenges facing units as they plan to conduct operations in Europe. Mission planning performance trends are decreasing as units are sharing lessons learned on this deployment. Homestation predeployment activities are becoming more standardized, including leadership inspections of equipment and containers. The effectiveness of homestation inspections are clear when units experienced less friction from equipment shortages when compared to previous units.

b. Mission Preparation (pages 72-78) - As the European Activity Set (EAS) continues to grow, units are facing increasing equipment challenges. EAS fleet managers continue to stress that their ability to provide support to the unit is based upon early submission (60-90 days) of the Equipment Density Requirement List (EDRL). Lack of deployment with additional authorized lists (AAL) such as picket pounders, wire gloves, etc. continues to remain a trend as EAS vehicles are only provided with basic issue items (BII). Equipment needed for PMCS and troubleshooting vehicles during equipment draw often arrived late. This results in units deploying to training events unaware that equipment is unserviceable (BFTs, BFIST, etc.). Emerging trends suggest that U.S. forces are encountering challenges with multinational interoperability with NATO partners. The RAF encountered a number of special mission requirements during their deployment including a river crossing supported by a German engineer unit, and an air mission to transport Abrams tanks to a partner nation for a gunnery exercise. Unit leaders disclosed that it would have been helpful to know about these mission requirements in advance so that certification events could have been conducted at homestation.

c. Mission Execution (pages 78) - An important emerging trend involves the Battlefield Information Collection and Exploitation Systems (BICES), a system that provides U.S. forces,

NATO forces and other national allied military organizations with near real-time, correlated, situation and order of battle (OB) information. This capability supports threat analysis, target recommendations and, indications and warning. The BICES system brings a fused, all-source intelligence focus to current crisis situations with the capacity to support future operations and exercises. There are not enough BICES at division level and below needed for U.S. and MN forces to communicate on the upper tactical internet (TI).

d. Sustainment (pages 78-80) - Emerging trends show that U.S. and NATO forces are experiencing difficulties with different logistics reporting tools and techniques. The logistic common operating picture **(**LOGCOP) and logistic status (LOGSTAT) reports from NATO partners are different than U.S. force reports and this presents a challenge for the brigade support battalion (BSB). Every country uses different inputs to create LOGCOP/LOGSTAT reports. The majority of the HEMMTs and LMTVs in the EAS fleet have cab roof hatches installed for gunners to man crew served weapons. However, none of these vehicles have ring mounts, weapon mounting hardware or weapons installed. This results in sustainment elements being unable to secure themselves during movements without external support.

4. Safety (pages 80-92) - This is also an informational chapter intended to share lessons learned and provide updates on accidents or other safety related issues from the current observation window. Multiple safety incidents occurred that involved Abrams and Bradley's that could have been prevented. Several incidents in this report are a result of a lack of training on vehicles, lack of experienced operators, and a failure of crew members to follow instructions outlined in technical manuals. For more information, please contact our office.

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INTRODUCTION

1. Introduction: The TRADOC Capability Manager-Armored Brigade Combat Team (TCM-ABCT) acts as the TRADOC conduit and user representative for FORSCOM and the ABCT communities, in both the active and the reserve components. TCM-ABCT performs ABCT gap analysis across Doctrine, Organization, Training, Material, Leadership & Education, Personnel, Facilities and Policies (DOTMLPF-P) through collection of trends and data points from Combat Training Center (CTC) rotations and unit visits.

2. Purpose: The purpose of this report is to outline and document trends observed, educate and inform ABCT leaders, recommend mitigation strategies, and follow-up with offices of primary responsibility (OPRs) for resolution. TCM-ABCT will utilize this document to inform the following:

a. Leader Development: Recommend ABCTs distribute this report down to squad level.

b. 2015 ABCT Capability Gap Revision: Trends identified during unit and CTC visits and captured in the Semi Annual Reports inform the development of ABCT capability gaps. These gaps are then analyzed to determine mitigation strategies impacting DOTMLPF-P.

c. ABCT Organization and Operations Review: TCM-ABCT periodically reviews DOTMLPF-P implications to the force based on an ever changing and evolving threat and initiatives impacting the force. The next review occurs later this year and issues identified in this review will inform the ABCT Campaign of Learning discussed below.

d. ABCT Campaign of Learning (CoL): The ABCT CoL is a structured process to collect information and focus intellectual efforts to inquiries into how to best improve and adapt the maneuver force to meet the challenges of current and future operational environments. The CoL supports the MCoE's Army Warfighting Challenges (AWfC) and the learning demands within those AWfCs. TCM-ABCT provides feedback on DOTMLPF-P gaps and recommends mitigation strategies through the ABCT CoL process.

e. ABCT ARCIC Portfolio Assessment (APA): The APA recommends gap mitigation strategies to address critical weaknesses in the ABCT formation. Proposed solutions, across DOTMLPF-P, remain focused within the Movement and Maneuver portfolio primarily due to fiscal scale. The principal strategy for increasing overall ABCT capability as swiftly as possible is to accelerate new developmental combat vehicles by trading incremental modernization efforts on legacy platforms beyond current engineer change proposals (ECPs) and planned lethality/survivability upgrades.

f. TCM-ABCT Knowledge Management Forums: TCM-ABCT will share this report on our milsuite page at https://www.milsuite.mil/book/groups/t, in the Armor School Thunderbolt Blast, and in future ABCT Warfighter Forums.

3. Data Collection Process

a. Planning Collection Events: Prioritization of the TCM-ABCT unit visit plan is based on guidance received in the Capabilities Development and Integration Directorate (CDID) annual strategic guidance plan. TCM-ABCT monitors the integration of DOTMLPF-P, primarily conducted through visits to CTCs and ABCTs and its partnership with the ABCT Warfighters' Forum (AWfF). Planning and preparation is ideally completed 180 days prior to unit visits. Key milestones include:

(1) Initial unit visit plan based off patch and CTC charts

(2) RFI and learning demand requests from stakeholders

(3) Coordination with the unit, CTC staff and the Center for Army Lessons Learned.

b. Learning Demands: Outcomes for unit visits are determined by the learning demands and RFIs based on the following:

(1) TCM-ABCT Director guidance, current and emerging DOTMLPF-P trends, and ongoing initiatives to improve the formation.

(2) Coordination with MCoE staff and directorates by requesting feedback through the MCoE Daily FRAGO.

(3) Participation as Collection and Analysis Team (CAAT) members in support of TRADOC taskings for the Center of Army Lessons Learned (CALL).

c. Data Collection Instruments: Following the identification of learning demands, the team develops a strategy to collect data utilizing field observations, interviews, and panel discussions. The collection plan's focus on collecting data on individual and collective skills, specific duty positions, and operational performance of the ABCT in order to identify DOTMLPF-P integration requirements.

d. Study Group Population: The study group population consists of Soldiers, non-commissioned officers and officers assigned ABCTs during three unit visits, one Joint Multinational Readiness Center (JMRC) rotation, and three NTC rotations. CTC Observer Coach Trainers (OC/Ts) are also routinely interviewed by the team during CTC rotations.

e. Study Events: The analysis team collected data at the following events:

(1) 25 FEB – 7 MAR 15: NTC Rotation 15-05

(2) 10-13 MAR 15: Reserve Component ABCT Unit Visit

(3) 20 MAR – 1 APR 15: NTC Rotation 15-06

(4) 29 APR – 8 MAY 15: NTC Rotation 15-07

(5) 11-14 MAY 15: Active Component ABCT Unit Visit

(6) 24 MAY – 5 JUN 15: JMRC/CbR IV Rotation

(7) 22 -30 JUN : JMTC/ Unit CALFEX, EAS turn in

(8) 21-26 JUN 15: Active Component ABCT Unit Visit

Chapter 1
Combat Training Center (CTC) Operational Trends
National Training Center (NTC)
Joint Multinational Readiness Center (JMRC)

Section 1 - Mission Planning

1.1 Commanders and Staff

1.1.a Leader Training Program (LTP) - Units are responsible for scheduling LTP training and have the flexibility to place this critical event anywhere in their train up timeline they desire. Operations Group recommends this training occur four-six months prior to NTC rotations and units that have completed LTP concur with this recommendation. Current NTC training trends indicate that units are actually scheduling LTP too late in the training cycle with most events occurring 30-60 days prior to rotations. Units must balance personnel transitions with the benefits of participating in LTP to determine when they can execute this event. LTP scheduling and information can be found at the following websites.
Wrangler O/C Team - http://www.irwin.army.mil/Pages/Units/OPSGp/Wrangler.html
LTP information - https://www.us.army.mil/suite/community/119672066

1.1.b Mission Command Validation Exercise (MCVE) - ABCTs are experiencing challenges validating all assigned mission command equipment during the MCVE. The MCVE is conducted during Reception, Staging, Onward-movement & Integration (RSOI) at the NTC.

Observation 1 - Units are not conducting a full communications exercise (COMEX) at all echelons and frequently do not identify inoperable equipment until they are conducting operations during mission execution.

Observation 2 - There appears to be a cause and effect link between failing to conduct an effective MCVE and departing the rotational unit bivouac area (RUBA) with improper communications security (COMSEC).

Observation 3 - Replicating the MCVE at home station allows units to identify and repair faults on mission command equipment prior to arrival to the NTC and conduct of the MCVE. Operators frequently report mission command equipment is non-mission capable (NMC) during the MCVE or assembly area (AA) setup. When units identify broken mission command equipment it results in the loss of a capability for days.

> The Raid hard drive is inoperable causing a non-mission capable Tactical Ground Station (TGS). The Prophet is non-mission capable due to missing or nonfunctioning components. Most BFIST assigned are missing mission command equipment cables, or have old software causing an inability to call for fire in digital format.
>
> *NTC Observations, 2015*

Observation 4 - The MCVE matrix published in unit operation orders (OPORDs) is not used to track the status of validated systems. Units often push this responsibility to the S6, and publish insufficient detail on what is required to validate each system. When the S6 leads the MCVE without synchronization by the S3 the exercise is less effective.

Observation 5 - Unit mission command systems have out of date software rendering hardware ineffective. Unit leaders emphasize that field service representatives (FSRs) are not involved in unit command maintenance or homestation services. This often results in reactive maintenance at the NTC.

Observation 6 - Units often do not test their primary, alternate, contingency and emergency (PACE) plans or retransmission (RETRANS) at distance.

Recommendations -

Establish and validate a MCVE SOP during homestation training that outlines responsibilities, identifies the standard for validating each system, and tracks completion of required tasks.

During homestation training, units must setup and test RETRANS at distances that replicate mission conditions at NTC. Validate this event at the NTC RSOI before deploying to the box.

Identify contractor support requirements to validate systems during the MCVE and be prepared to execute mitigation strategies when no contractor support is available.

Build less reliance on FSRs by training operators on mission command systems. Train the trainer at mission command related functional courses, i.e. Signal Digital Master Gunner Course and Battle Staff NCO Course. Schedule training at installation mission command training facilities. Schedule Signal NCOs to provide Sergeants Time Training to mission command system operators.

During homestation services, ensure all equipment has the most current software versions installed. This may require assistance from FSRs during equipment services and command maintenance.

In the year 2000, The School of Command Preparation in Fort Leavenworth, KS published "66 Stories of Battle Command." In 2014 a similar 174 page publication was released. The publication "Training for Decisive Action - Stories of Mission Command" is a collection of 35 stories from commanders and leaders on their experiences at the National Training Center in the decisive action training environment (DATE). Download the digital version at https://www.milsuite.mil/book/docs/DOC-198550?sr=stream&ru=112366.

1.1.c Command Posts (CPs) - Units are demonstrating improvement with CP layouts, manning, and organization to support continuous operations at the brigade level, but battalions continue to experience challenges.

Observation 1 - BCTs are improving on the configuration and collaboration in BCT Main CPs. Several BCTs established a common operating picture (COP) that enables increased staff integration. Multiple BCT staff sections were often observed gathered around COPs being coached by the executive officers (XOs). BN CPs need improvement in this area.

Observation 2 - Scout squads demonstrate some improvement in operating the high frequency (HF) beyond line of site (BLOS) wave form radio to meet mission command communication requirements, but BN and BCT staff elements continue to demonstrate difficulties employing HF. The HF BLOS wave form radio provides a capability that mitigates battalions having only one retrans vehicle. Operational positioning of CPs sometimes exceed the Line of Sight (LOS) capability of the very high frequency SINCGARS radios and retrans. Brigades utilize the HF BLOS wave form capability of the AN/VRC-104 to meet BLOS mission command communication requirements.

To build HF radio skills, one unit requested and received training at homestation from a Reconnaissance Surveillance Leaders Course (RSLC) SME. This unit and other units interviewed recommended that the Army Reconnaissance Course (ARC) should consider incorporating HF content similar to RSLC, and that other reconnaissance courses should also teach HF skills. This same recommendation was made by leaders during the Standard Scout Platoon Proof of Principle (April 2014).

Unit Visit Observation, 2015

"If a unit has proficiency with HF radios they can talk throughout their battle space, if not they almost always lose communication with their forward scouts."

OC/T Comment, NTC, 2015

Observation 3 - Analog communication, navigation, and battle tracking continues to challenge units. Most units rely heavily on either digital or analog, but few units effectively execute the right mix of both. When units rely heavily on analog, they do not rapidly transmit detailed orders and graphics across the BCT. When units rely heavily on digital mission command, they lose the ability to execute actions when digital systems are unavailable.

Observation 4 - Staff sections are not maximizing the capability of NCOs to assist officers during the military decision-making process (MDMP) and CP operations. Units that establish roles and responsibilities of NCOs in their tactical operations center standard operating procedures (TOCSOPs) are generally the most efficient facilitating TOC operations. NCO attendance to the Battle Staff NCO Course (BSNCOC) needs improvement. There are ~2,000 Battle Staff NCO positions in the U.S. Army that are not filled by BSNCOC graduates. USASMA's best practice is to conduct installation level video tele-training (VTT) which saves TDY costs with the only cost to the unit being the time the NCOs are in the course. USASMA's BSNCOC website is http://usasma.armylive.dodlive.mil/?page_id=218 and the ATTRS link is https://www.atrrs.army.mil/atrrscc/courseInfo.aspx?fy=2015&sch=400&crs=250-ASI2S&crstitle=BATTLE+STAFF+NCO&phase

Observation 5 - Trends reveal that BDE staff sections are manned to develop products on digital systems; however, BNs struggle to have digital mission command systems operational at the same rate. This reduces the battalion's ability to communicate using the BDE's primary, alternate, contingency and emergency (PACE) plan. BN level units often do not build effective digital COPs until the end of rotations. Units remedy these issues during rotations by establishing communications with their JCR TOC kits and integrating with BDE PACE plans.

Observation 6 - Units are not exercising digital management of products produced during operational planning. Digital overlays often are not marked or referenced during orders issues, rehearsals or during execution and/or the issuance of FRAGOs resulting in units often referring to outdated or incomplete digital products.

> "There was no systematic PACE plan. If equipment went down the sections just tried to get any system to work. The CTCP's BFT was the means for the XO to send data to the S4 and S1. When this system was deemed inoperable a PACE plan was not executed to communicate. This resulted in the BDE XO thinking that there were two Unit Basic Loads (UBL) at the CTCP when there was none. On another occasion when the BN jumped the S2 did not execute a PACE to maintain communication with BDE. This resulted in the unit losing situation awareness during the battle."
>
> *BDE OC/T, JMRC, 2015*

Recommendations -

Continue to identify, define and synchronize officer and NCO responsibilities for CP operations. The NCO's responsibilities in mission command are defined in the Army's April 2015 revision of the NCO Guide at http://armypubs.army.mil/doctrine/DR_pubs/dr_a/pdf/tc7_22x7.pdf.

Continue to organize CPs to allow collaboration between staffs positioned over a common set of graphics and information displays. Ensure the XO is positioned to affect control over staff actions in order to ensure effective synchronization and timely delivery of required information to commanders during planning and operations. Train CP activities using TOC exercises at home station, and sustain this training during culminating training events; document effective procedures and revise unit SOPs. TCM-ABCT uploaded sample SOPs that contain command post layouts at https://www.milsuite.mil/book/groups/t/content?filterID=contentstatus[published]~category[tacsop-repository].

The only in-depth institutional operator training for the AN/VRC104 HF radio is conducted at the Reconnaissance Surveillance Leader's Course (RSLC) at Fort Benning. The Cyber Center of Excellence should identify strategies to increase HF radio proficiency as part of institutional training for Signal Soldiers. The MCoE should identify ways to integrate HF training in other courses, i.e. Army Reconnaissance Course (ARC) and cavalry professional military education (PME).

Conduct HF train-the-trainer classes. Possible unit trainers are the Air Force Joint Terminal Attack Controllers (JTACs), RSLC graduates, and Signal NCOs.

Reliance on digital overlays require units to execute digital management of products. Staffs should routinely update products and exercise version naming conventions that include date/time stamps for those overlays. SOPs should standardize graphical overlay naming conventions across organizations. Tactical updates should routinely start with common reference to overlays in use for orders and staffs should ensure all orders correctly reference the current overlays.

1.1.d Retransmission Sites - Retransmission (retrans) sites are commonly not positioned in locations to maintain effective communications, lack concealment, and are typically not secured.

Units experience challenges with limited retrans platforms that lack the capability to support all required nets.

Observation 1 - The Signal Company in an ABCT has three retrans as does the Cavalry Squadron. The Fires Battalion has two. The three combined arms battalions (CABs) only have one, which provides the ability to retrans of only two of the four Battalion nets (O&I, A&L, Command, and Fires). Battalions in SBCT/IBCT are assigned two teams. Due to the operational footprint in which ABCTs must operate, ABCT commanders have often pulled retrans from CABs to create the BCT network. Leaders and OC/Ts express that one retrans platform per CAB is not enough to provide the ABCT uninterrupted mission command. Limited retrans capabilities challenge the CAB's ability to communicate at extended ranges, and force multiple functions to share already congested nets.

Observation 2 - ABCT retrans teams are equipped with HMMWVs. The positioning of these teams is based on the need to maximize LOS range with requirements for local security, but this analysis is hindered by the lack of mobility of the retrans platform. The HMMWV also lacks the protection to operate independently and has space, weight, and power (SWaP) limitations and cannot support future network capabilities.

Observation 3 - Units are not conducting a good LOS analysis for possible retrans site locations. Because of this, most BCTs eventually lose FM communications during offensive operations.

> The retrans plan did not support maneuverability and flexibility to support the commander's decision points to commit a unit to the axis of attack or TAC movement. No brigade assets were available to support FM communications North of Granite Pass.
>
> *NTC AAR, 2015*

Way Ahead - TCM-ABCT's assessment is that each CAB requires one additional retrans team with an appropriate platform to support additional network capabilities, provide Soldier protection with the required mobility. TCM-ABCT is assisting MCoE's CDID Concepts Development Division (CDD) to identify "bill-payers" for TOE trade-off adjustments that will provide the additional personnel required. Once this is determined, CDD will develop a Force Design Update (FDU) for Army staffing with a purpose of adding retrans teams to ABCT TOEs.

1.1.e Planning Air-Ground Operations (AGO) - Brigades demonstrate difficulties planning close air support (CAS), close combat attack (CCA), and air assault operations (AAO).

Observation 1 - Many units do not conduct air mission briefs with the pilot and crew chief prior to air assault operations. Units fail to establish landing zone (LZ) security following insertion of initial elements for landing of subsequent lifts.

Observation 2 - Go/NoGo briefs are delivered at the last minute prior to boarding for the air assault mission departure, which is not allowing enough time for units to implement changes if necessary.

Observation 3 - Lack of synchronization between ground maneuver units and Air Weapons Team (AWT) lead to non-employment of AWTs in support of planned and opportunity targets. Ground

elements who establish and maintain FM communications with air assets typically have very positive results.

> During a movement to contact mission with an AWT in support, the unit did not inform the Apaches of a 20 vehicle enemy convoy in column formation that would have been an ideal target of opportunity.
>
> *NTC Observer Notes, 2015*
>
> During the movement to contact one maneuver CAB established effective mission command with the AWT and one CAB did not. The CAB with effective communication enabled the AWT AH-64s to destroy 16 enemy vehicles.
>
> *Movement to Contact, NTC, 2015*

Observation 4 - Units frequently do not provide updated ground maneuver plans to air assets and often do not provide timely changes to scheme of maneuver; this leads to unsynchronized AGO.

> An AWT received a Decision Support Matrix (DSM) at the beginning of the mission on their way out to the forward area refuel point (FARP).
>
> *Movement to Contact, NTC, 2015*
>
> During an urban mission, the AWT did not have current gridded reference graphics (GRGs) for the ground maneuver element to communicate enemy locations within the city.
>
> *NTC Observer Notes, 2015*

Observation 5 - Units rarely use rotary wing aircraft (RWA) to act as additional reconnaissance assets; RWA provide excellent real-time updates to intel assessments and can provide the ground maneuver element an extra set of eyes in areas not covered by the R&S matrix.

Observation 6 - Most units demonstrate communication challenges between the air defense airspace management/brigade aviation element (ADAM/BAE) and the aviation task force.

Observation 7 - Air Liaison Officer (ALO) requests for CAS are often based on the airspace control order (ACO) and not on a specified task and purpose, which resulted in some Joint Tactical Air Strike Requests (JTAR, DD Form 1972) being disapproved. On some occasions units are not submitting DD Form 1972s until late in the rotation.

> No 1972s were submitted prior to training day (TD) 11. Lack of 1972s resulted in gaps in fixed wing coverage with dynamic re-tasking preventing the effective use of assets that were on station.
>
> *AAR, NTC, 2015*

Observation 8 - There is a misperception that persistent unmanned aerial system (UAS) coverage is always available. Shadow platoon UAS availability at CTCs averages less than eight hours daily due to weather conditions, flight restrictions, and movement of the Shadow platoon. Sometimes

UAS is not available at all in a 24-hour period. The Shadow was not available during JMRC 15-04 due to lack of host nation permissions. The unpredictability of support requires redundant planning to ensure coverage of designated areas is provided by additional assets as required.

Observation 9 - BN and BDE commanders or S3s often elect to control rotary wing aircraft operations during missions. Commanders do not have the mission command systems that are available to enable airspace deconfliction that the ADAM/BAE and Fires Cells operate and they (commanders) are often unable to effectively clear the airspace themselves. This was illustrated by an incident when an AWT under the control of a commander flew directly over BN mortars while they were executing a fire mission.

> "During multiple phases of the operation, the fire support cell struggled to maintain positive control, or situational awareness, of CCA assets and provide them with a clear task and purpose. Handover to subordinate units was conducted relatively well, but was usually managed by the Battalion S3. However, often CCA would check in on station and have no clear task and purpose due to a lack of situational awareness of the battlefield. This resulted in the Battalion S3 controlling CCA for the majority of the fight, preventing the S3 from coordinating and synchronizing other assets."
>
> *Unit AAR, JMRC, 2015*

Observation 10 - Airspace management is normally executed by ceasing all fires when an AWT arrives on station. Ideally, multiple direct and indirect assets would continue to fight as the staff de-conflicted the airspace control issues. Units need improvement on designating and establishing air corridors.

Recommendations -

Improve integration of air assets during the MDMP and provide updates as timely as possible to maximize AWT planning time.

Units are missing opportunities to utilize AWTs to confirm or deny their information collection plan by using air assets for reconnaissance. AWTs are often in vantage points to provide information that cannot be observed by ground units.

Units must have a redundant capability for information collection when UAS are unavailable due to mechanical, airspace permissions, and weather issues.

The ADAM/BAE cell must develop procedures to maintain constant communication with aircraft as well as continuously monitoring/de-conflicting airspace, and receive the air picture from higher if the Sentinel Radar/Upper TI is unavailable. Units should schedule ADAM/BAE team members to attend the ADAM/BAE Cell Air Ground Integration Course at Fort Sill, OK. For details visit https://www.atrrs.army.mil/atrrscc/courseInfo.aspx?fy=2015&sch=441S&crs=2G-F110%2f043-F33&crstitle=ADAM%2fBAE+CELL+AIR-G+INTEGRATION&phase

For more details on Air Assault doctrine refer to FM 3-99 (Airborne and Air Assault Operations, Mar 15) at http://armypubs.army.mil/doctrine/DR_pubs/dr_a/pdf/fm3_99.pdf

For more details on Close Air Support joint doctrine refer to Joint Publication 3-09.3 (Close Air Support, Nov 14) at https://jdeis.js.mil/jdeis/index.jsp?

1.1.f Planning UAS Operations - Units often do not incorporate the capabilities of UAS into Information Collection Plans (ICPs) or in support of maneuver operations.

Observation 1 - The long lead time required to establish preplanned restrictive operating zone (ROZ) missions exceeds the subordinate unit planning time available to ensure the most effective use and employment of UAS to support operations. Typically, units are required to request approval for pre-planned ROZ missions ~48 hours prior to operations. By the time UAS operators and small unit leaders can determine how they want to incorporate UAS into their scheme of maneuver or information collection plan (ICP), they have missed the suspense to schedule pre-planned missions. As a result, units utilize UAS for immediate ROZ missions mostly to provide local security over AAs. Note figure 1.1.f for an example of Raven flight hours during a 14-day ABCT NTC rotation.

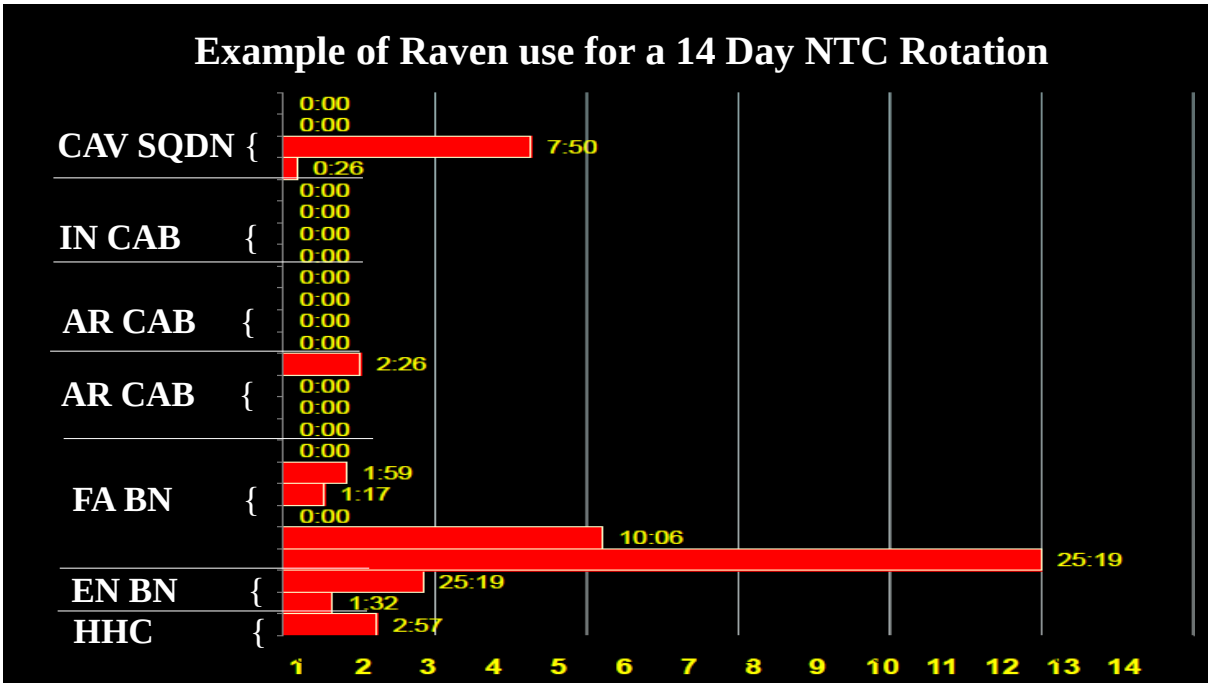


Figure 1.1.f - Example of Raven use for a 14 Day NTC Rotation

Observation 2 - Units often do not have alternate UAS operators which effectively grounds the systems when the primary operator is unavailable.

Recommendations –

Units increase the number of trained UAS operators by either sending Soldiers to the Small UAS Raven Master Trainer Course or the Small UAS Operator Course at Fort Benning, GA. Master trainers have the ability to conduct train-the-trainer activities to increase the number of qualified UAS operators. Information on both courses is available at the Fort Benning web page at http://www.benning.army.mil/infantry/197th/229/SUASMT/

and http://www.benning.army.mil/infantry/197th/229/suasmo/index.html.

ABCT commanders should review opportunities to habitually link the cavalry squadron and the military intelligence company (MICO) into a standardized command relationship to ensure effective reconnaissance and security operations and facilitate successful and proactive fires.

1.1.g Cyber Electromagnetic Activities in ABCT Operations (CEMA) - The NTC has begun employing cyber-attacks on rotational units. Units are improving on planning and reacting to cyber threats.

> "During a planned phishing attack on 300 users only one opened the email and that user did not click on the suspicious link."
>
> "The COEFOR was able to get into the network when one user was using the default password." *AAR Comments, NTC 2015*
>
> "When jammed the battalion exercised their PACE plan and went straight to JCR chat." *OC/T Interview, NTC 2015*
>
> "Some units are not training jamming and COMSEC changeover until they come to NTC." *OC/T Feedback, NTC 2015*

Recommendations -

Do not use a standard default password or the enemy will get into your e-mail. Report suspicious activity and do not click on suspicious e-mail links.

Units develop battle drills at homestation that incorporate CEMA activities: cyberspace operations (CO), electronic warfare (EW), and spectrum management operations (SMO).

For more details on CEMA refer to FM 3-38, Cyber Electromagnetic Activities (Feb 14), at http://armypubs.army.mil/doctrine/DR_pubs/dr_a/pdf/fm3_38.pdf.

1.1.h Planning Indirect Fires - Synchronizing indirect fires with ground maneuver continues to be difficult for units. A Fires Center of Excellence (FCOE) initiated FDU changed the assignment of FA personnel from CABs/CAV Squadron to the Fires Battalion. This FDU was designed to improve technical and tactical skills of these personnel. It appears that proficiency of these personnel are improving; however, ground maneuver units are reporting that the lack of habitual relationships is potentially nullifying the benefit gained by the FDU.

Observation 1 - Most units express that they are receiving fire supporters too late to integrate them into unit training. OC/Ts attribute the greatest success to units who effectively integrate fires supporters with maneuver units during homestation training.

"Since the FSOs belong to the FA BN we are seeing competing demands where FSOs are unavailable for collective training events. Two rifle companies had to share one FSO during platoon qualification (Gunnery Table XII), when the other FSO participated in an event at the FA BN."

Company Commander Interviews, 2015

"My fire supporters showed up when we were in the field at homestation and that was too late. Then I received my BFISTs at the NTC and it was a struggle to get the vehicles ready prior to going in the box."

ABCT Unit Interview, 2015

"It is clear that there exists a solid training program in place for company level FSOs and FiSTs. Sustain efforts to maintain proficiency and continue to integrate company and battalion fire support plans in future training events to maximize training value for the battalion fire support system."

JMRC AAR, 2015

Observation 2 - Fire Support Officers (FSOs) need improvement providing positioning and movement plans for mortar assets to support the scheme of maneuver. Mortar platoon leaders need improvement on selecting mortar firing positions that offer protection. Mortar platoons are positioned too far from suspected enemy locations to deliver indirect fires in support of maneuver, and mortars rarely reposition during offensive operations. On some occasions, all unit mortars are consolidated instead of supporting widely dispersed units. Mortar platoons established in firing positions that do not provide cover and concealment are quickly identified and destroyed by enemy forces. The recurring trend indicates most mortar platoons do not adhere to the doctrinal principal to ensure the mortar platoon remains positioned to be able to deliver fires 2/3 of the maximum range beyond the friendly front line trace.

Observation 3 - Fires cells are not fully integrated during the MDMP with maneuver, engineers, and intelligence. When fires cells are not integrated, they typically only plan and produce products for one course of action (COA). Complete event templates (EVENTTEMPs) are not always produced to include enemy decision points (DPs), COAs, and target areas of interest (TAIs). Without integrated products, units are unprepared to deliver fires when the situation changes.

Observation 4 - Trends continue where planned fires often do not have observers. This is a result of incomplete fires products and/or rehearsals that do not include rehearsing target, trigger, location, observer, delivery system, attack guidance and communications (TTLODAC) for each planned target. The result is that planned fires are often not executed for lack of an observer.

No triggers were established for the employment of the Remote Anti-Armor Mine System (RAAMS) during the fire support rehearsal.

Movement to Contact, NTC, 2015

The development of an observer plan that enables the successful execution of fires is critical if identified fire support tasks are to be accomplished. Identifying assets to observe, their locations in time and space, and the subsequent NAI to TAI linkages are unclear and must be defined prior to LD.

OC/T Feedback, NTC, 2015

Observation 5 - Most units do not demonstrate an understanding of the process for mortar deconfliction and airspace clearance.

The Brigade Aviation Officers (BAO's) participation during the Fires Rehearsal was good. He talked through mortar airspace clearance procedures with the FSO to provide some understanding for the TF FSOs. This is the first unit in over seven rotations to talk mortar airspace clearance, which is usually misunderstood across the BCT.

AAR, NTC, 2015

Observation 6 - Units typically plan too many fires for batteries to deliver, and often do not identify priorities for the batteries. On some occasions, battalions planned 20 targets each, with 50-60 at the BDE level where everything was a priority. Battery commanders believe this action at NTC is a result of limited fires integration during homestation training.

"We sell an unrealistic expectation at homestation that we can deliver whatever fires are called at NTC. At homestation we park in one spot and fire three targets into a pre-planned area. Then we go to NTC and we are called to fire 10 targets into a variety of conditions. There was no opportunity at homestation to let CABs know the impact of too much with no priority. The homestation CALFEX was everyone shooting in their own little box with no real integration or deconfliction of fires."

Battery Commander, 2015

Recommendations -

Commanders enforce the habitual relationship between FSOs and battalions, and fire support teams (FISTs) and companies. Fires supporters interviewed suggested the below tactics, techniques, and procedures (TTPs) to be the most successful:

- Attend weekly CO/TRP Training Meetings
- Integrate BFIST crews into GST/BATS/Pre Gunnery Training
- Participate in collective training events
- Attend pre-deployment layouts and inspections
- Ensure FSO/FIST/FSNCO bring all required equipment from the Fires BN
- FSO/FIST/FSNCO instruct Sergeant's Time Training/Officer Professional Development (OPD) for maneuver leaders at CO/TRP/BN/SQDN

- Attach to supported maneuver units in garrison prior to training events in the field.
- FSO/FIST/FSNCOs support all training events involving their supported units.

Train procedures to process fires during homestation training. At NTC rotational units process all fire support tasks IAW unit SOP.

Execute collective training opportunities at homestation to improve fires integration (STX, CALFEX, etc.).

Strive to replicate the complexity and intensity of NTC fires during homestation training.

For more details reference: Airspace Control, Multi-Service Tactics, Techniques, and Procedures for Airspace Control (ATP 3-52.1, dates April 2015) available for download at website https://armypubs.us.army.mil/doctrine/DR_pubs/dr_d/pdf/atp3_52x1.pdf.

1.1.i Intelligence Preparation of the Battlefield (IPB) - Staff IPB processes tend to result in inaccurate assessments, incomplete analysis of terrain, and immature analysis of enemy options that often results in friendly forces making contact with enemy forces at a time and location that is neither expected or supported with maneuver graphic control measures that would allow the ground maneuver force commander to quickly react to unexpected contact. Unit staffs are showing improvement in planning for one primary COA but there is little, if any, planning for "branches" and "sequels" to the primary plan for potential contingencies. A branch plan provides the commander the opportunity to address the question "what if the enemy does something I don't expect" while planning for a sequel requires the commander to determine "what would I do next if I am required to continue the attack or conduct operations beyond that which is covered in the primary COA." Key to successful contingencies planning is detailed terrain and threat analysis throughout the breadth and depth of the area of operation. Put another way, analysis covering the ground on the way to the objective, on the objective and beyond the objective; graphic control measures and target reference points (TRPs) should be developed using the same method. Successful terrain analysis should inform an information collection plan that identifies potential enemy avenues of approach and the positioning of OPs that can observe and secure flanks and potential enemy avenues of approach. This analysis should also drive operations officers and commanders to develop control measures that will support quick modifications to the existing plan when unexpected contact occurs.

Recommendations -

Trends indicate S2s are not conducting terrain analysis and developing Modified Combined Obstacle Overlay (MCOO) IAW our doctrine. BCT and BN/SQDRN Commanders should enforce development of this tool for their use in determining the effects of terrain on friendly and threat operations. Company commanders conduct their own analysis of the terrain to supplement the MCOO using OCOKA (Observation and Fields of Fire, Cover and Concealment, Obstacles, Key or Decisive Terrain, and Avenues of Approach). Commanders and staffs should also consider the impact weather and light conditions have on operations.

S2s should also conduct template analysis to estimate the enemy disposition in order to develop an accurate situational template (SITTEMP). Determine locations where friendly forces should anticipate entering enemy fields of fire based on probable positions and threat weapon maximum effective ranges. Using Terrain Index Reference Systems (TIRS) is an effective and quick way to update enemy positions. Conduct maneuver analysis to identify the best terrain and position locations for use in the attack or movement to contact. Following terrain analysis, the staff needs to adjust the plan to take contingencies into consideration.

Use LOS tools (DCGS-A, SPEED, TerraBase) to identify covered and concealed positions for optimal support by fire (SBF) positions that allow lethality standoff from the enemy. Once planners conduct terrain analysis the work is not complete. Planners need to conduct continuous terrain analysis through mission execution as the situation changes. Conducting analysis with the above mentioned tools can be time consuming and detail oriented. Units can augment and supplement these same functions from personal observations on the ground or by conducting a map reconnaissance.

Movement to contact requires detailed contingency planning on the part of ground maneuver commanders. It is critical to plan to conduct operations along the entire axis of advance. Establish effective intelligence collection plans, assign observation responsibilities, and plan for uninterrupted communications. These actions often require the repositioning of assets to provide supporting actions in relation to the movement of the main body. Collect updated reconnaissance information to precisely plot locations of enemy positions and create/distribute products that show probable line of deployment (PLD) and SBF positions and can support a myriad of different actions based on threat composition, disposition and actions. Refine the plan and ensure all elements are notified of changes prior to execution. Conduct net call with updated enemy situation/scheme of maneuver prior to LD. Commanders must continually assess the threat, the terrain/weather/light, the length of time discrete actions will take, and the friendly forces situation. It is imperative to remember that sometimes units must fall back to suitable terrain to take advantage of protection and fields of fire.

Company commanders must conduct their own troop leading procedures (TLP) process in order to refine the orders and graphics received by higher. Units at every level must rehearse actions and orders focusing on key events. While it is important to rehearse movement out of the assembly area actions on the object or actions at a breach site are probably more important. Units may rehearse actions out of sequence if constrained by time. Consider assigning the 35F Intelligence Analyst in the CoIST to conduct terrain analysis for the commander. Conduct deliberate planning to identify when to transition from movement to maneuver, and plan when to dismount rifle squads to improve mounted and dismounted integration. Rehearse battle drills for rifle, armor and scout platoons.

1.1.j Planning Chemical, Biological, Radiological, and Nuclear (CBRN) Operations - Planning CBRN operations remain challenging for most units. Most battalion staffs are untrained at integrating CBRN enablers into operations primarily due to a lack of understanding of capabilities and limitations.

Observation 1 - Units are frequently unprepared to detect, protect, and decontaminate personnel and equipment following CBRN attacks. Lack of CBRN equipment results in lost training opportunities. Units should ensure they conduct individual and collective task training on the following equipment prior to any operational deployment:

- Detection Equipment - JCADs, ICAMs, M22 ACADAs, NBCRVs
- Individual Protection Equipment - JSLIST, masks, boots, gloves, M8 and M9 paper
- Decontamination Equipment - M26 Joint Service Transportable Decontamination System (JSTDS), trash cans, brushes, sponges, marking sets, water sources, MOPP gear, instruction boards, fuel, M291/reactive skin decontamination lotion and M295 kits

Observation 2 - Trends indicate there continues to be a lack of CBRN individual and collective task proficiency. Units often do not dedicate time for NCOs to train CBRN individual tasks. Although units are required to maintain a CBRN NCO as an additional duty, this leader often does not possess the knowledge of the CBRN NCO that was once assigned to the company, so maximize opportunities to increase this NCO's proficiency in CBRN tasks.

> "Our troop sent an NCO to the installation 10 day CBRN Course. The 10 day course does not make the NCO an expert on CBRN, and is not enough to replace the 74D NCO. We are losing CBRN skills. NCOES does not teach NCOs how to conduct individual and crew/collective CBRN tasks. Much of our decon equipment is not functional or has expired. We conducted JSLIST exchange with wet weather gear for a while. Medics do not have a knowledge of CBRN medical tasks. CBRN level tasks are becoming a BDE level event. The one chemical officer for the squadron is not enough. All leader courses should review CBRN hands on tasks. Units should also consider using the CBRN staff for Sergeants Time Training."
>
> *Interview with Troop Commanders, 2015*

Observation 3 – Integration of CBRN enablers during MDMP needs improvement. Graphics and overlays supporting CBRN operations are not always developed. CBRN staff members often do not contribute to rehearsals.

Recommendations -

The lack of a CBRN NCO on the CO/TRP MTOE requires units to schedule personnel to attend installation CBRN courses to have qualified unit trainers. Empower these NCOs to plan and supervise CBRN individual training requirements.

First line supervisors must train their subordinates on CBRN related individual tasks. Units must appoint a CBRN officer and an NCO on additional duty orders and assign responsibility to them for maintaining CBRN equipment, supervising individual training, and executing collective task training.

All Centers of Excellence (CoEs) review programs of instruction to ensure that Soldiers are trained to execute CBRN operations, and that non-commissioned officers and officers are trained to plan, execute, train, and lead CBRN operations.

For a sample CBRN Smart Card created by a unit Chemical Officer (CHEMO) visit the TRADOC Capability Manager, Armored Brigade Combat Team (TCM-ABCT) milsuite page at https://www.milsuite.mil/book/docs/DOC-196717?sr=stream.

Appendix C, FM 3-11, July 2011, Multi-Service Doctrine for CBRN Operations, discusses the basic standards for individuals, selected personnel, CBRN staff, commanders, and organizations. The appendix also discusses the medical CBRN training requirements established in 2004 under the direction of the Assistant Secretary of Defense for Health Affairs.

1.1.k Mission Command Systems -

Observation 1 - Mission Command Capability - BCT and battalion command posts are encumbered by mission command equipment. It takes too long to establish the network, limits CP's abilities to move frequently, and prevents effective react to contact drills when tactical operation centers (TOCs) receive indirect fires.

Observation 2 - Distributed Common Ground System Army (DCGS-A) – BN/SQDN continue to experience challenges with the Distributed Common Ground System Army (DCGS-A), Intelligence Fusion Server (IFS), and Multi-Function Work Station (MFWS) during Combined Arms Maneuver (CAM) operations. The IFS operated by the BN S2 personnel continue to have difficulty remaining connected to the WIN-T network, and remaining on-line. Many BN/SQDN echelon units have lost confidence in the ability for the IFS server to remain operational and connected to the network. As a result of this perception, none of the observed BN/SQDN were attempting to use their IFS servers. Concerns from the BN S2s are that the system is not reliable and requires frequent re-booting and log-in, and has an inability to remain connected to the network. Additionally, the only persons who have the administrative log-in permissions are DCGS-A FSRs or a 35T intelligence Soldier. The only 35Ts in the BCT are assigned to the BDE MI Company and their duty location is at the BDE main CP. BNs/SQDNs do not have a Soldier with administrative rights. The battalion S2 OC/Ts state that most BN/SQDN do not attempt to use the IFS server.

Recommendations -

Constrain ABCT Mission Command equipment and network capabilities to that which is required to effectively conduct JCAM (Phase III). BCTs and Battalions need a network that includes the Joint Battlefield Command-Platform (JBC-P), Blue Force Tracker 2 (BFT 2), Handheld Manpack Soldier (HMS) radio and Advanced Field Artillery Tactical Data System (AFATDS). AFATDS remains supported by Single Channel Ground and Airborne Radio System (SINCGARS). These systems are integrated across the formation into currently assigned vehicles (Abrams, Bradley, M113/AMPV, M109A6/PIM, etc.) to provide beyond line of sight capacity with Soldier Radio Waveform capability that enables the use of NettWarrior. This provides the minimum capability needed for combat operations while allowing full situational awareness of mounted and dismounted tactical operations from platoon through BCT.

Develop a Mission Command on the Move (MCOTM) variant that provides this capability and allows commanders to bring selected staff and staff functions forward of the main command post.

This not only supports command operations forward, but provides increased expeditionary capability and sufficient short-term planning capability if the main CP is not established or is moving.

Upon transition to Wide Area Security (WAS) operations (Phase IV), BCTs and battalions require an unconstrained network that provides greater bandwidth and operates over a larger geographical area to support dispersed units. Units are expected to operate from stationary semi-permanent locations (FOBs and COPs). Systems used include CPOF, DGCS-A, and AFATDS using WIN-T as the primary transport mechanism. Ideally, BCTs are issued and trained on employment of all equipment even though the WAS network suite is not used until a unit transitions to Phase IV.

TCM-ABCT follow-up with the Intelligence Center of Excellence (ICoE) on the feasibility of allowing 35Fs at the BN/SQDN level to possess administrative rights for the DCGS-A. This will enable BN/SQDN to more rapidly initiate the system.

Observation 3 - Tactical Operations Center (TOC) Kits - Table of organization & equipment (TO&E) authorization of only one joint capabilities release (JCR)/BFT TOC kit per command post limits staff access to JCR/BFT chat and messaging. Multiple staff officers and other personnel at the BN-BDE CPs requires the simultaneous access of multiple operators to exchange information and messages with other FBCB2/JCR/BFT systems. The limitation of one TOC kit at these CPs negatively impacts the situational understanding and sharing of information throughout the ABCT.

Recommendation - Provide an interim solution by issuing an additional TOC kit for each main CP until a single chat application compatible with JBC-P, CPOF, DCGS-A and WIN-T is fielded.

Observation 4 - Mission Command Systems Proficiency - Units demonstrate challenges operating and troubleshooting FBCB2/BFT systems. 99% of trouble tickets submitted at NTC could have been solved by Tier Level 1 (operator/unit level maintenance). The top five systems with trouble tickets were FBCB2/BFT, DCGS-A, AFATDS, TOC/SICPS and Prophet. Company level Armor, Infantry and Cavalry leaders expressed that their NCOs need improvement on FBCB2/BFT skills.

Recommendations -

Units schedule training through installation Mission Command Training Centers for mission command system operators and staff.

Schedule staff NCOs for the Battles Staff NCO Course and signal leaders for the Signal Digital Master Gunner Course.

Units can tailor mobile training teams (MTTs) for their mission command training needs through the Cyber Center of Excellence.

All Centers of Excellence review PME for ways to increase hands on training for leaders on the FBCB2/BFT.

1.2 Small Units

1.2.a - Company Level Maneuver - Company commanders and platoon leaders seldom develop schemes of maneuver and supporting graphic control measures beyond those provided by battalion.

Observation 1 - Intelligence requirements for companies and troops have increased during the conduct of CAM, and the need for relevant, timely information at the company/troop level is even more critical. Company commanders need to coordinate with the MICO for CoIST participation in homestation training events to provide better integration and employment of the CoIST during mission planning and execution.

Observation 2 - Company commanders often conduct mission analysis and prepare their OPORDs alone without assistance from the FSO, XO, 1SG, and master gunner.

Observation 3 - Platoon and company scheme of maneuver is seldom developed and understood in sufficient detail to ensure elements operate without direct control and supervision from company commanders.

Observation 4 - Company level leaders are rarely conducting mounted or dismounted reconnaissance prior to completing the plan.

Recommendations -

Issue warning orders as information becomes available that will allow subordinates to conduct parallel planning and get an early start on TLPs, PCCs and PCIs.

Empower the company XO, FIST, 1SG, MG and CoIST to assist in TLPs and product development. A TTP for developing the OPORD is for CoISTs to complete the threat situation, commanders to complete paragraphs 1, 2 and 3, the FIST develops the fires plan and the XO/1SG to complete paragraph 4 and 5. The master gunner can assist with graphics, order reproduction, and sand tables. When CoISTs develop paragraph 1 for OPORDs they can conduct terrain analysis to identify probable lines of deployment, phase lines, support by fire positions, and possible avenues of approach. Not only does this decrease OPORD development time but it ensures all key leaders are involved in developing the company scheme of maneuver and therefore understand the operation in greater detail.

ABCT company commanders and platoon leaders must continue to refine orders and graphics to visualize, describe and direct actions for their unit. These leaders should conduct troop leading procedures IAW those in The Infantry Rifle Company, FM 3-21.10.

1.2.b Fires Planning at Company/Troop Level - Fire Support Officers (FSOs) and NCOs are not adequately integrated into company planning and operations.

Observation 1 - Company fires supporters are not refining fires products they receive from higher headquarters. This often results in units being unprepared to achieve the most effects with fires.

When units do not refine plans from higher, they are unprepared to support the company scheme of maneuver with anything but targets of opportunity.

Observation 2 - Cavalry squadrons are not assigned mortar platoon leaders. Troop commanders recommend attendance to the Infantry Mortar Leader's Course (IMLC) for troop XOs and PLs. One successful troop during a recent CTC rotation attributed their success to the high number of IMLC graduates in their organization.
Recommendations – Companies conduct bottom up refinement and provide BN with recommended targets that support the company plan.

1.2.c Doctrinal Publications – The availability and use of digital doctrinal publications in lieu of printed material continues to negatively impact operations at small unit level. Unit leaders have consistently raised this challenge in every TCM-ABCT data collection/observation event since 2012. Small unit leaders are mostly unaware of the Army Doctrine 2015 initiative and the resultant revisions to small unit doctrine from across the CoEs and continue to rely on outdated doctrine. Units also tend to print single tasks from the Combined Arms Training Strategy (CATS) and, as a result, do not use the full menu of doctrine available for training. This often results in a demonstrated lack of understanding of doctrine, and unsuccessful performance of individual and collective tasks. Printed doctrine is essential for platoon and below units to rebuild core competencies. TCM-ABCT has shared printed doctrine with NTC and ABCT leaders and the reaction is extremely positive vice digital media only options.

> "I have embraced the 21st century and like to have things in digital form, so leaders can download them on to their electronic reader or smart phone. But, I am also a CSM with 32 years of service and there is nothing like having a pocket sized manual, and if it is water resistant that is even better. The younger leaders in my division also like to have these manuals and pubs in paper or hardcopy form as well as digital form."
>
> *2ID CSM, Armored BDE/BN Leader Hot Loop, 2015*

O**bservation 1** - Some leaders do not know where to locate PLT/CO battle drills or collective tasks that support the company mission essential task list (METL). Many leaders believe that training and evaluation outlines (T&EOs) and battle/crew drills are no longer in doctrine. Most leaders interviewed are unaware that training circulars (TCs) produced by the MCoE in 2013 replaced Army Training and Evaluation Program (ARTEP) manuals. The lack of printed doctrine at platoon level is a contributing factor to a common lack of knowledge on how to crosswalk individual tasks-collective tasks-company METL. Battle drills can be found in TCs at http://www.apd.army.mil/ProductMaps/TRADOC/TC.aspx.

Observation 2 - Many leaders interviewed are unaware of the availability of Soldier Training Publications (STPs), Field Manuals (FMs), Training Circulars (TCs) and Army Tactics, Techniques and Procedures (ATTPs) for their military occupational specialty (MOS). Skill level (SL) 1 Soldiers interviewed often do not know STPs exist for their MOS and SL. These STPs encompass all the tasks a Soldier must be proficient in.

No troop/company commanders or first sergeants interviewed were aware of Armor, Infantry or Cavalry TCs published by the MCoE in 2013.

ABCT Interviews, 2015

"Very few NCOs below the rank of SFC can talk doctrine."

Troop Commander, 2015

Vehicle commanders and platoon sergeants do not demonstrate basic knowledge of platoon collective training requirements. There are glaring weaknesses in the NCOs ability to conduct METL crosswalks, which connect individual tasks that support crew and platoon critical tasks with company METL requirements.

Observer Notes, 2015

Observation 3 - Feedback suggests that limited printed doctrine access is a contributing factor to improper conduct of individual tasks, collective tasks and battle drills. Leaders often use non-doctrinal verbiage during after action reviews and while delivering directions to their subordinates. Battle drills are often not conducted or not performed to standard.

Observation 4 - Units do not receive an announcement of newly released doctrine in the form of an initial shipment of printed manuals, resulting in varied degrees of awareness across units. Platoon offices typically contain libraries with outdated doctrine. The most current printed manual in platoon libraries is often manuals published prior to 2006 when units were provided printed copies automatically when doctrine was released. Some leaders express they are using this doctrine as it is all they have in print.

Observation 5 - Units are experiencing similar challenges with technical manuals. For more details on this observation refer to section 2.7 (Operator Level Maintenance – PMCS) of this report.

Observation 6 - Reliance on Soldier personal devices to view doctrinal manuals and TMs briefs well, but is not practiced in garrison, and is not possible while deployed. Although doctrine in digital format is needed as an additional tool, digital access alone is not an effective solution. A primary example of this is when units train at the NTC. Cell phone and other personal electronic devices are restricted by command policies and SOPs in the box. Soldiers that do store doctrine on cell phones lose the capability to access it under these circumstances. Soldiers are not issued government portable handheld devices that can view doctrine. Although some Soldiers do have personal handheld digital devices capable of viewing doctrine, some STPs are >700 pages and some TMs are >1600 pages. In order to view TMs and some doctrine, devices require security credentials provided by a CAC. Following this observation the analysis team attempted to view doctrine on their government issued Galaxy S4s with 2x4 inch screens. The team encountered difficulties trying to read pages unless they zoomed in on one section at a time. The effort took an unreasonable amount of time to view small amounts of text, and is not a viable solution for training Soldiers.

Recommendations -

The MCoE Directorate of Training and Doctrine (DOTD) conduct a cost benefit analysis to determine funding requirements to provide immediate print distribution of armor, infantry and cavalry platoon and below manuals published from 2013-2015 during the Army Doctrine 2015 initiative. Continue print distribution of platoon and below doctrine when it is released from this point forward. Units should receive written instructions to order printed doctrine with these initial shipments.

Proponents of doctrine and TMs (TRADOC, CoEs, PMs) should identify whether Soldiers and leaders outside of the armor, cavalry and infantry branch are experiencing similar challenges.

TCM-ABCT posted a recommended list of printed doctrine for armor, infantry and cavalry platoons at https://www.milsuite.mil/book/thread/141413?sr=stream. In addition to this list, the MCoE DOTD is currently scheduled to release 24 doctrinal revisions from now through FY16, available at website https://www.milsuite.mil/book/docs/DOC-211303.

PME courses should educate leaders on the APD Point and Click Ordering System at website https://dol.hqda.pentagon.mil/ptclick/index.aspx. Full instructions for setting up an APD account are at http://www.apd.army.mil/Orders/EstablishAccount.pdf.

The MCoE must continue efforts to educate the force on the availability of doctrine on the APD and continue to educate both leaders and Soldiers, and distribute updates to the force via Armor and Infantry Magazines, Thunderbolt Blast, TCM-ABCT milSuite, weekly SITREPs, and other venues as identified.

Battalion publications officers should order printed doctrine if manuals are in stock at no cost by establishing accounts at https://dol.hqda.pentagon.mil/ptclick/index.aspx.

Units subscribe to receive Army publication updates by e-mail at the APD website at http://www.apd.army.mil/AdminPubs/new_subscribe.asp#subscribe.

1.2.d Training Management - Leader knowledge to plan and execute training in support of unit METL has degraded over time as units have conducted training tailored for stability operations. This skillset is slowly improving now that ABCTs are conducting decisive action training; however, training management continues to be a challenge.

Observation 1 - Rifle company leaders express challenges conducting simultaneous mounted and dismounted infantry training. Engineer commanders express that Bradley training was executed to the standards outlined in gunnery doctrine, but squad training (Combat Engineer Drills, etc.) needs improvement. Unit master gunners express that they continue to see the same few NCOs listed as Bradley Vehicle Crew Evaluators (VCEs) and Instructor Operators (IOs) due to too few trained SMEs.

Observation 2 - Company commanders and first sergeants recommend that future upgrades to the digital training management system (DTMS) include an improved capability to plan and execute company training meetings. They report that the calendar function does not transfer well, it is not

useful to brief PLs, and does not inform sustainers of what the unit needs when resources are added to the database. Commanders chose to input data into DTMS since it was required, but created separate products to deliver their training meetings more effectively.

Observation 3 - Armor lieutenants express that the first time they heard of the 8 step training model was when they arrived to their unit. These officers recommend that ABOLC have more in-depth training management in the program of instruction (POI).

Observation 4 - Excellence in Armor (EIA) - During unit interviews with ABCTs, leaders express belief that there is no longer an EIA program. The EIA memorandum of instruction (MOI) was updated in 2014 and the program is available only if commanders plan and execute the training. The Armor School website contains details on the EIA program at website http://www.benning.army.mil/armor/OCOA/Excellence%20in%20Armor.htm.

Section 2 - Mission Preparation

2.1 Conduct Quartering Party and Assembly Area (AA) Activities - Units rarely conduct "to standard" quartering party and AA procedures.

Observation 1 - Units seldom include quartering party procedures in their SOPs.

Observation 2 - Units do not always send all key personnel on quartering parties. Effective company quartering parties include the following: XO, 1SG, CBRN NCO, one platform and team per platoon.

Observation 3 - When units conduct quartering parties they generally establish a release point (RP) for entrance in AAs, but rarely identify an effective perimeter or establish individual vehicle positions prior to the main body arrival. Without guides at RPs and unmarked positions, units often occupy AAs that do not provide protection, dispersion or security.

Observation 4 - Following occupation of AAs, units most often demonstrate administrative instead of tactical postures. Contemporary Operating Environment Forces (COEFOR) often take advantage of weaknesses in security, and have successfully driven enemy vehicles through AAs, calling indirect fire (IDF), and attacking with infantry squads during limited visibility. Units that establish and maintain effective security postures experience lower enemy direct and indirect fire contact in AAs.

> Administrative assembly areas are only to be used when contact is remote and the commitment of the force from the assembly area directly to combat is not anticipated. Tactical assembly areas are areas occupied by forces where enemy contact is likely and commitment of the unit directly from the assembly area to combat is possible or anticipated.
>
> *FM 3-21.20, The Infantry Battalion*

Observation 5 - Most battalions select method 3 outlined in FM 3-21.20, in which each company establishes their own 360-degree perimeter in AAs. When selecting this option, units typically were arranged in close proximity with about 1/3 of their combat power facing each other, limiting

security and fields of fire. When units are in close proximity, platoon and company leaders often do not communicate with adjacent units to designate sectors of fire. Method 3 is not the most ideal solution for providing security options for BN CPs and sustainment units, as these organizations are left to provide their own security and are often attacked by COEFOR when gaps exist in the their security posture. Figure 2.1 illustrates an example of a BMP that was able to drive through a BSA during AA activities.

Figure 2.1 - BMP Penetrates BSA Perimeter

Method 2, the most common BN AA according to doctrine, is the least observed at the NTC. With method 2 the battalion may assign sectors to subordinate companies and require them to tie in their fires and observation with each other. The main CP, trains, and mortar platoon are located near the center of the AA. Ideally, company sectors are assigned to balance the task organization against the appropriate enemy avenues of approach. The scout platoon occupies observation posts at key points around the entire perimeter of the battalion or screens along the most dangerous or likely enemy avenues of approach. This method configures the battalion in a perimeter defense with companies oriented outward.

With method 1, the battalion may occupy a portion of the perimeter of an assembly area. It does so by arraying companies, generally on a line oriented on avenues of approach into the assembly area. Leftmost and rightmost units tie in their fires and areas of observation with adjacent units of other battalions. Depending on the tactical situation and width of the area assigned to it, the battalion may maintain a reserve. Battalion trains are located to the rear of the companies. The battalion mortar platoon and the main CP are located centrally in the assembly area where they can communicate and support units by fire. The scout platoon screens along the most likely or most dangerous avenues of approach.

Observation 6 - Units are improving on executing priorities of work in AAs. Range cards, sector sketches, and listening posts (LP)/observation posts (OPs) are being conducted more often. Areas that need improvement include incorporating infantry squad patrols, executing stand to/stand down and understanding of the overall security plan by subordinate elements.

Observation 7 - Units are slow to react to indirect fire (IDF) in AAs, and do not conduct immediate survivability measures (drop to ground, seek cover, close hatches, survivability move to alternate AA). Reaction to IDF is a battle drill and may be found at: http://www.apd.army.mil/ProductMaps/TRADOC/TC.aspx.

Observation 8 - Selection of terrain for BCT Main CPs needs improvement. BCT Main CPs have sometimes been positioned on front slopes easily observable by the enemy up to 15kms away. Selection of CO-BN AAs is improving. BN and squadron CPs are very hard to locate due to very good use of terrain.

Recommendations –

Define detailed AA and quartering party procedures in unit TACSOPs. For a baseline refer to "Occupy Assembly Area PLT-CO" (Task # 07-2-9014). This collective task can be found on the ATN at: https://atn.army.mil/index.aspx. Units can also refer to the individual/leader task "Conduct Occupation of an Assembly Area" found in SMCT 21-24 (Task # 071-410-0012). Companies should establish standards in TACSOPs to address AA priorities of work.

BSB defense plans should be incorporated into the BSB BN and company's SOPs. Each company should have responsibilities for observation areas and sectors of fire. Each company's sector sketch should be turned into the BSB TOC, so the S3 can ensure the entire BSB perimeter is protected. All platform mounted and ground mounted weapon systems should be utilized to the fullest. The BSB should draw AT4s to protect against light armored enemy platforms. The BSB should have one entry and exit point established. Abrams and Bradley platforms that are non-mission capable (NMC) while awaiting repair parts should be positioned with weapon systems pointed outward. Abrams or Bradley weapon systems should be used, even if only manual modes are operational. ADRP 3-37 (Protection) offers relevant information about supporting tasks of protection, protection planning, and protection execution.

Battalions should refer to Appendix B, The Infantry Battalion, FM 3-21.20 for detailed options to establish AAs at link: http://armypubs.army.mil/doctrine/DR_pubs/dr_a/pdf/fm3_21x20.pdf.

2.2 Homestation Predeployment Inspections - Unit leaders that do not perform predeployment inspections have challenges during mission execution.

Observation 1 - BFIST vehicles did not have a mission command capability to provide digital fires at NTC. The most common causes were having the wrong cables for the BFIST digital call for fire (CFF) hardware or having outdated software. Many fires supporters did not bring their standalone computer unit (SCU) that is necessary to deliver digital CFF from the BFIST. Of those who did bring the SCU, many did not have the latest software installed.

During the last CALFEX no BFIST in the BN could provide digital CFF.

ABCT Unit Visit, 2015

The majority of BFIST in the BDE did not have the capability to provide digital CFF. Most BFIST were missing cables, wiring harnesses, and hardware to enable digital CFF. OC/Ts expressed that when hardware was available many BFISTs did not have the most up to date software, which made the hardware inoperable.

Observer Notes, NTC 2015

Observation 2 - Units are not bringing full combat loads of expendable CBRN and medical supplies for individual Soldiers. Unit supply shortages are having a negative impact on the ability to conduct realistic training.

Recommendations -

Fires BNs inspect BFIST for serviceability (including software updates) prior to attaching vehicles to supported maneuver units

2.3 Pre-combat checks (PCCs)/Pre-combat inspections (PCIs) at CTCs

Observation 1 - Unit vehicle load plans are improving. OC/Ts expressed that effective load plans were instrumental in preventing injuries during accidents.

Observation 2 - Small units demonstrate improvement in conducting TLPs, however some squads and platoons are not maximizing their available time to conduct TLPs after they receive the warning order (WARNO).

Recommendations -

Establish SOPs that include checklists for units to conduct PCCs/PCIs. Create and use checklists to inspect required classes of supply. Layout and inspect all equipment prior to training events, and conduct command inspections to spot-check progress.

2.4 Rehearsals - Units continue to improve on conducting rehearsals. Primary contributing factors include increased use of SOPs at BN-BCT level and an increase of senior leader involvement.

> "Best fires rehearsal I have ever seen in ten rotations. BDE CDR is in attendance. Empowered junior leaders S2, S3, CCA, CAS, EWO, FSO; so all briefed slants, capabilities, responsibilities, NAIs and PACE plan. Also, they identified issues and are refining the plan. All targets are pre-planned in boxes awaiting fire commands."
>
> *Observer Notes, NTC, 2015*

Observation 1 - Sustainment and/or CASEVAC rehearsals are not always conducted at the company and battalion level. Lack of sustainment rehearsals at these levels resulted in company 1SGs not understanding locations of medical assets, leading to increased died of wounds rates.

Observation 2 - In some cases, units are planning and relying on medical evacuation (MEDEVAC) assets in lieu of organic CASEVAC platforms. In most cases, MEDEVACs are not cleared to operate due to the threat and units are then unprepared to conduct ground CASEVAC, resulting in a high died of wounds rate.

The unit failed to use their assets to maximize how many casualties could be triaged and evacuated at one time, nor did they have a specific mass casualty evacuation plan, which led to 16 casualties dying of wounds during the mission.

Attack AAR, NTC, 2015

On training day 1, the 1SG organized mounted rehearsals with his PSGs and attachments to demonstrate the company's CCP and CASEVAC SOPs. The unit maximized available time to rehearse CASEVAC procedures which paid off during the mission. The company was able to maintain their tempo while conducting CASEVAC operations due to these well executed rehearsals. Smooth CASEVAC procedures during the battle resulted in the CO saving the lives of four Soldiers.

BN AAR, NTC, 2015

Recommendations -

Utilize a checklist or a script for a medical rehearsal. After the combined arms rehearsal (CAR) the 1SG needs to conduct a detailed CASEVAC/MEDEVAC rehearsal prior to every mission with the squad leader/ section sergeants and above.

Outline rehearsal procedures and responsibilities in unit SOPs and execute rehearsals of all types during homestation training.

2.5 Direct Fires Preparation

2.5.a Direct Fire - Units frequently do not establish direct fire control measures to control weapon systems.

Observation 1 - Infantry squads often attack in front of Bradley Fighting Vehicle positions instead of offset to allow mutual fire support. Contributing factors include failure to plan for dismount points, lack of graphic control measures, and not considering threat weapons ranges.

Observation 2 - Platoons and companies rarely ensure they have overlapping fires in AAs and during the conduct of offensive and defensive operations. These small units are often isolated by enemy fire and movement and cannot rely on friendly direct fire support, are unable to mass fires, or are subject to increased fratricide risk. Units often run out of Class V due to ineffective direct fire control measures.

Observation 3 - Commanders routinely plan support by fire positions and attack positions inside of threat weapons ranges. During execution, they are not adjusting positions to decrease effectiveness of threat weapons while maintaining effective engagement ranges for their systems. This results in units receiving increased casualties and reduces the ability for crews to engage targets at stand-off ranges with the TOW missile and tank main guns.

Observation 4 - In the defense, units are not establishing phase lines, target reference points (TRPs), or maximum engagement lines (MELs) that take advantage of friendly weapons standoff ranges. Obstacles are often positioned too close to battle positions, not tied in with weapon MELs.

Sequencing of TOW missile, 120mm and 25mm firing is often not planned with direct fire control measures. Planning for alternate and supplementary positions frequently does not occur. Units often wait too late to move from the hide into their battle positions, resulting in the loss of opportunity to mass direct fires in the engagement area.

Observation 5 - Abrams positions are better prepared than Bradley's. Many times this is a result of units encountering requirements for simultaneous offense, defense and stability tasks, which are predominantly assigned to infantry forces. For example – rifle companies frequently have a concurrent mission to conduct stability operations during the defensive preparation, i.e. urban missions, checkpoint operations to isolate urban areas, etc. Staff and leaders are often overwhelmed with planning and executing these simultaneous tasks. Preparation time for the defense by rifle platoons and companies is often the tradeoff. Units must improve on balancing requirements and ensure that all tasks are effectively accomplished.

Recommendations -

Train mounted and dismounted battle drills that ensure the support element best compliments the efforts of attack element. For example, use Bradley's to isolate a dismounted infantry objective and provide a base of fire while infantry squads conduct their assault. As squads advance, ensure Bradley Fighting Vehicle (BFV) fires shift while maintaining effective fires on enemy forces, BFV fires eventually lift or shift to another threat – this may be an adjacent enemy force or a repositioning threat vehicle. Communications between mounted and dismounted elements is critical at all times.

Improve time management for rifle companies to allow more time for defense preparation. Consider rotating tasks to different elements.

Plan for local positioning of class V resupply, i.e, prepositioned stockpiles in or near battle positions. Rehearse movement from the hide position to battle positions, and movement from primary to alternate or supplementary positions.

Plan and establish graphic control measures to effectively distribute direct fires in the offense and defense while allowing multiple units to mass fires where required. Fires (indirect and direct) should be planned on obstacles.

Platoon leaders conduct fire planning IAW Mechanized Infantry Platoon and Squad (Bradley), ATTP 3-21.71 (FM 3-21.71).

2.6 Integration of Attachments - Units continue to receive attachments with no clear task and purpose, and upon arrival attachments often are not fully integrated with units. In most cases the issue stems from a lack of coordination between the parent and gaining units regarding personnel status, mechanical/logistical support and the gaining unit's lack of knowledge on how to employ systems that they bring to the fight. Units should plan on unforeseen unit attachments and be prepared to properly utilize the attached asset to their fullest potential.

Observation 1 - Engineers continue to arrive at units without maneuver unit leadership on the ground to guide construction of positions. This causes further problems when the engineer assets are not handed off to adjacent units, losing execution time for blade assets.

Observation 2 - Attachments often arrive to units and are not adequately prepared to be integrated into their supported unit operations, CASEVAC, or rehearsals. On some occasions attachments arrive without basic loads of supply (CL I, III, V).

Recommendation - Incorporate unit attachment procedures and checklists to SOPs. Attachments need to brief their capability and their assigned mission to the gaining unit. Attached units should question gaining unit leadership if plans do not include attachments or plan for their effective use.

2.7 Operator Level Preventative Maintenance Checks and Services (PMCS) - Units need improvement on PMCS, lube orders, and operator maintenance responsibilities.

Observation 1 - Trends continue to indicate that lack of wheeled and tracked vehicle technical manuals is having negative impacts on a unit's ability to conduct PMCS. Platoons are often sharing one copy of the PMCS Work Package (WPs) section only, and are missing the remaining portions of TMs. Without complete TMs that contain WPs, operators have no reference for operating, maintaining, or troubleshooting vehicles.

> The majority of crews observed had no -10 manuals, and many only had the PMCS table. Two platoons observed were sharing the PMCS tables between the platoon's four platforms.
>
> *Observer Notes, NTC, 2015*
>
> Beginning in 2006 Work Packages (WPs) were incorporated in TMs to provide either descriptive or supporting information, or detailed procedures for operating and maintaining the equipment. WPs consist of operating, maintenance and troubleshooting procedures. For example in the Bradley -10 TM, the WPs in Chapters 1 and 6 include descriptive/supporting information only. Chapter 2 includes descriptive information on controls and indicators, and operating procedures. Chapter 3 includes troubleshooting procedures, and Chapters 4 and 5 include maintenance procedures.
>
> *Work Package Defined, M2A3 Hull -10 Operators TM, TM 9-2350-294-10-1*

Observation 2 - Units are often unaware that printed technical manuals (TMs) are no longer ordered on the Logistics Support Agency (LOGSA) website, but through the APD Point and Click Ordering System. Units who have attempted to order TMs through the new APD system have not been successful due to unavailable funding in 2015. As of 26 JAN 2015, the Army Materiel Command (AMC) print program received zero funding for 2015. LOGSA and APD will host TMs on the LOGSA homepage. Unless organizations have funding through a program manager (PM) or their command, paper publications will not be printed and interactive electronic technical manuals (IETMs) and electronic technical manuals (ETMs) will not be printed. The first platform is scheduled to be fielded with an onboard tablet to conduct PMCS and maintenance will be the Abrams Main Battle Tank in FY20.

Actions to Date - The PM Main Battle Tank Systems (MBTS) intends to provide printed Abrams TMs and IETM disks during a scheduled fleet wide modification work order (MWO) for SW 4.4.2. The intent is to provide the Abrams fleet with new TMs by the end of FY15.

Note - For further details in similar challenges with doctrinal manuals refer to section 1.2.c of this report.

Observation 3 - Mechanics are often observed conducting operator level maintenance tasks. This results in loss of efficiencies, and delays repairing equipment when tasks are not appropriately distributed across available manpower. On several occasions when BFVs threw track, operators contacted mechanics to repair the vehicle.

Observation 4 - Operators are not always present during vehicle services and mechanics are often performing crew tasks.

Observation 5 - Rifle companies experience challenges with M2A3 BFV T161 double pin track related to operator and maintainer PMCS. Installation procedures for the T161 track are different from the old T157 track that units are more accustomed to maintaining. Units express that the new T161 track's end connectors frequently fall off. Units also express that when they lose these end connectors during training they also lose the end cap and screw that is part of the component. Without spares, units can become stranded if they break track and/or lose these parts. See Figure 2.7.a.

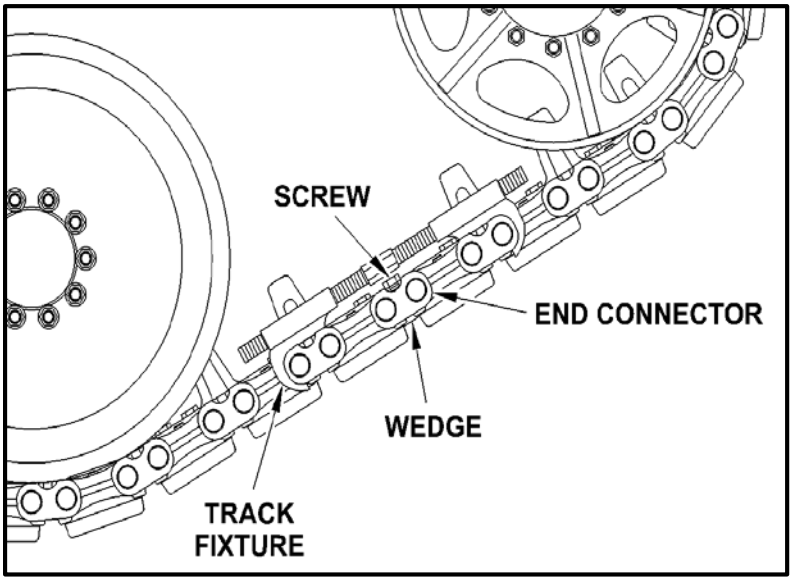


Figure 2.7.a - T161 Track

Observation 6 - Units experience challenges maintaining proper track tension on the M2A3 BFV. Operators frequently do not understand that correct steps to check track tension include letting the vehicle coast to a stop and not applying the brake pedal. When the vehicle is forced to stop and/or the brake pedal is engaged the track automatically tightens up. Then if the operator drains lubricant they could actually be making the track have even less tension.

Observation 7 - Operators often do not conduct before, during, and after PMCS. It is common to not observe any engine decks raised following suspension of battlefield effects.

Observation 8 - The analysis team's observations show that operational readiness rates at the NTC are related to the quality of services at homestation. Analysis suggests that units who perform quality services are those units who have good maintenance procedures conducting standard maintenance, where operators and maintainers work together throughout the year. This holistic maintenance effort is what leads to the highest operational readiness (OR) rates during CTCs and operational deployments.

Observation 9 - Units are often not taking enough time for mechanics to verify faults prior to submitting 5988-Es to the executive officer. This results in delays when the 5988-Es lack part numbers. Operators need to ensure mechanics verify faults. Mechanics can repair some faults on the spot and annotate the repair on the form. This action saves time as the clerk no longer needs to enter the fault on a future 5988-E.

Recommendations -

Platform Program Managers request the Office of the Assistant Secretary of the Army for Acquisition, Logistics and Technology ASA(ALT) provide APD funding to print operator level TMs. ASA(ALT) is the responsible authority to fund development and printing of equipment publications required to operate and maintain managed end items.

PEO-GCS Product Managers (PdMs) secure funding to provide paper TMs based on operational necessity for operators (-10, -12, -13, -14, -12 & P, -13 & P, -14 & P). Add verbiage to future TMs that explain how units can order hard copy manuals.

Battalion publications officers should order printed TMs at no cost by establishing accounts with the APD, and order manuals through https://dol.hqda.pentagon.mil/ptclick/index.aspx.

The March 2015 edition of Postscript (PS) Magazine contains several pages of information about the Army's return to a focus on equipment maintenance and the Command Maintenance Discipline Program (CMDP). The CMDP went into effect in December 2013 with the last major revision of DA PAM 750-1, Commanders Maintenance Handbook. The online CMDP Knowledge Center, which is a single source for maintenance best practices, can be located on AKO. The site contains an overview of the CMDP, contains commander and unit tools, has information on SAMS-E and GCSS-Army, and has links to maintenance messages, hot topics, training and more at https://www.us.army.mil/suite/page/693941. Learn more starting on page 50 of PS Magazine at: https://www.logsa.army.mil/pub/psissuesA/PS_748.pdf.

ABCTs consider adding common work package tasks to unit driver's post licensing sustainment training programs, and incorporate all 127 M2A3 BFV work packages into opportunity sergeant's time training. Inventory M2A3 BFV TMs and Lube Orders (LOs) and order shortages.

Unit crew members recommend maintaining spare parts for the T161 track as part of their basic issue inventory (BII) and also having spares with the mechanics. Another TTP units perform to

mitigate this problem is storing two complete track shoes (with the components) on the external vehicle load plan for all M2A3 BFVs. When units receive new T161 track for their M2A3 BFV, operators need to install the track IAW instructions in Work Package # 105 (Break/Join Track, Double Pin Only), TM 9-2350-294-10-1. After installation operators need to mark screws for torqueing and notify field maintenance.

Track Tension - M2A3 BFV operators need to adjust track tension IAW instructions in Work Package # 99 (Adjust Track Tension), TM 9-2350-294-10-1. Correct track tension is between the width of a pencil and a fingertip, (i.e., space smaller than a pencil needs more grease and space greater than a fingertip needs grease released). See Figure 2.7.b.

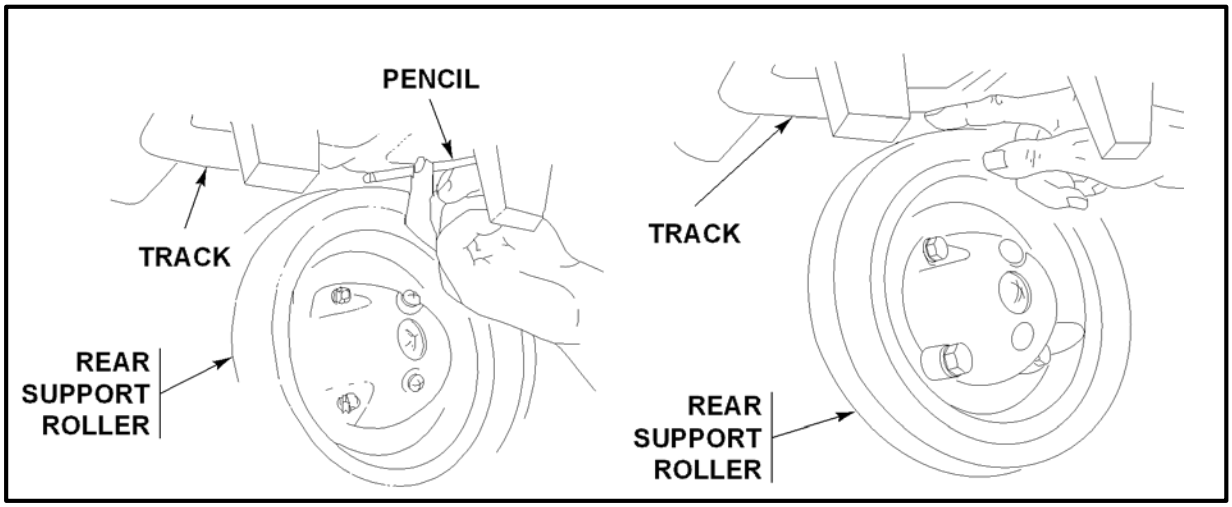


Figure 2.7.b - M2A3 BFV Track Tension

Services - Ensure all platoon equipment is part of the services plan. Incorporate a command inspection at the conclusion of each platoon service. Maximize available Soldiers for services by excluding those platoons from taskings. Plan enough time for recovery for units to clean, inspect and order equipment shortages. Incorporate Soldiers and all equipment as part of the services event.

The MCoE review institutional strategies to improve operator and maneuver leader knowledge of M2A3 BFV PMCS and Work Packages contained in vehicle TMs.

Section 3 - Mission Execution - March 2012 was the first ABCT DATE rotation at the NTC. After 3 (+) years of DATE rotations, the pace of returning basic Bradley core competencies is not meeting expectations.

3.1 Offense

3.1.a Bradley Skills - Infantry leaders continue to experience challenges conducting planning, gunnery, maneuver, and sustainment for ABCT rifle platoons.

Observation 1 - Rifle companies and platoons frequently do not integrate mounted and dismounted elements to mass combat power on enemy forces. Platoon leaders are not conducting

deliberate planning to identify when and how to integrate mounted and dismounted forces, resulting in units not employing all available combat power.

Observation 2 - Company commanders, platoon leaders and NCOs struggle with planning and executing missions requiring the simultaneous application of mounted and dismounted forces. Bradley gunnery, maintenance, and sustainment all remain difficult to execute to standard.

Observation 3 - Urban operations remain challenging; direct fire coordination between BFVs and squads is often not to standard creating safety danger zone issues and fratricide risks.

"Infantrymen arriving from IBCTs are learning about the Bradley now."
Senior Task Force Trainer, NTC, 2015

"I don't understand why Infantry leaders are not required to be trained on the Bradley before being assigned to rifle platoons. I can talk about the need for days."
ABCT Commander Interview, 2015

"We have to dedicate extra time to train Soldiers, officers and NCOs who arrive with no Bradley knowledge, reducing time to train other requirements. It is a viscious cycle. When HRC assigns NCOs to the ABCT with no Bradley experience and then we lose NCOs with Bradley experience to IBCTs and SBCTs it has negative impacts. We have problems training crews with no base knowledge and sustaining those crews past one gunnery. Attrition rates affect our ability to build enough BATs Instructor Operators (IO) and Vehicle Crew Evaluators (VCE) to train the unit. I continue to see the same names on unit IO and VCE rosters simply because the list of SMEs is very small."
BDE Master Gunner, 2015

Observation 4 - Units demonstrate challenges maximizing the capability of rifle squads, often occupying terrain or remaining stationary for long periods of time without employing rifle squads or scout squads to clear adjacent terrain. On numerous occasions, enemy positions on key adjacent terrain remain undetected for long durations. Rifle companies repeatedly receive enemy indirect fires from enemy on adjacent terrain, in AAs they have occupied for days.

Observation 5 - Most Infantry NCOs and officers arriving to ABCTs the first time have no Bradley experience. Bradley crews and leaders are consistently demonstrating training shortcomings and safety challenges during the live-fire and force-on-force events at homestation and the NTC.

Observation 6 - Units do not have requisite institutional expertise to retrain themselves within required training windows. CDRs request training at Fort Benning, Georgia schools before Soldiers arrive in the unit. Commanders are increasingly expressing concern that they are not observing proficiency increases inside the formation since the return to CAM focus. Every

commander believes the best COA for immediate impact is Assignment Oriented Training for personnel assigned to ABCTs.

> "The unit's #1 issue was the lack of knowledge and experience on the Bradley of their Infantrymen. 5% or less had experience on the Bradley before arriving to the unit. The unit doesn't see it getting any better in the future."
>
> *ABCT Senior Leader Interview Notes, 2015*

Observation 7 - Bradley familiarization training now occurs in 11B One Station Unit Training (OSUT); however, feedback from the field suggests that the one day of training Soldiers are receiving on the platform is not producing effective results.

Observation 8 - Units relied heavily on the New Equipment Training Team (NETT) to conduct Bradley and Abrams training for crews well after the unit had received their vehicle fieldings. This was a technique to rapidly return a unit to some base level of proficiency immediately upon their return from deployment. The Bradley NETT are scheduled for significant reductions on 1 SEP 2015 and the TTP of using the NETT as a surrogate Bradley training MTT will cease to exist. The need for TRADOC, based instruction to train Bradley skills for every skill level is more critical than ever, especially since units have insufficient time, resources, and institutional knowledge to train this skillset themselves.

> "As much as units like NETT training, they must become self-reliant and not rely on the train me, feed me, and send me off mentality of the last decade."
>
> *FORSCOM Master Gunner*
>
> The FORSCOM MG recommended mitigation strategies for the MCoE to consider including Bradley training for Skill Level 1s similar to the 2 week course conducted before 2002, and adding Bradley training for NCOs to NCOES.

Observation 9 - 11B30 BFV Master Gunner (MG) fill rates remain constant with no growth (~39%). Requests for BFV MG Course and Bradley Leader Course (BLC) attendance remain low and there is no mandatory training policy for 11B Soldiers assigned to ABCTs that have never served on Bradley's. Both courses continue to have excess unused training capacity at the institution. Units consistently express reasons they have too few 11B Bradley Master Gunners include: lack of prerequisite experience due to high OPTEMPO and reassignment of qualified NCOs, arrival of 11B NCOs and Soldiers with no Bradley experience, and negative perceptions of promotion potential/assignment possibilities. Units are demonstrating challenges ensuring 11B MGs receive required leadership time due to the low number of J3 qualified SSGs. This often results in SSGs either not receiving leadership time, or performing two simultaneous duties, as both squad leader and Company Master Gunner.

During three unit visits Company Master Gunners stated that their primary duty is Squad Leader, and that their additional duty is Company Master Gunner.

Interview Notes, 2015

"The only Bradley Master Gunner in my battalion is the Command Sergeant Major."

Leader Interview, 2015

Note - MILPER Message Number 15-140 released 7 May 15 provides information on Selective Retention Bonuses (SRB) for Staff Sergeant 11B Bradley Master Gunners (J3). The SRB is available for Staff Sergeants that reenlist to be stabilized for two years in non-short term tour areas. The Tier 6 bonus ranges from $7,400 - $22,500 dependent upon conditions of the reenlistment. The Soldier can also be eligible for the SRB if they are scheduled for MG School, however they will not receive it until they graduate. The SRB is Tier 6, up to $ 22,500 https://www.hrc.army.mil/Milper/15-140.

Recommendations -

U.S. Army Infantry School reassess possible courses of action to build and sustain Bradley skills in ABCTs for infantry Soldiers, NCOs and officers.

Commanders in FORSCOM request required assignment oriented Bradley training for Infantry Skill Level 1 Soldiers, NCOs and/or officers assigned to ABCTs, by completing an Operational Needs Statement (ONS), a DOTMLPF-P Integrated Capabilities Recommendation (DICR), or submitting official documentation to the Infantry School. Document and submit urgent operational requirements for warfighting capabilities via the process described in chapter 6, of AR 71-1 (Warfighting Capabilities Determination) at link http://armypubs.army.mil/epubs/pdf/r71_9.pdf.

Assignment Oriented Training (AOT) for 11Bs assigned to ABCT rifle platoons was rated as the number one solution by the Army Capabilities Assessment Tool (ArCAT), based on cost versus benefit, towards the mitigation of ABCT Capabilities Gaps during the recently completed Capabilities Needs Analysis (CNA) 17-21.

ABCTs, Divisions, Corps, and Regionally Aligned Force headquarters transmit their requirements for training at the Bradley Leaders Course and the Bradley MG Course during The Army Centralized Individual Training Solicitation (TACITS) annually to inform DA resourcing decisions, to build/preserve institutional training capacity. FORSCOM needs to articulate this gap and request the seats.

Operational units desiring NCOs to attend BLC and Bradley MG Course should coordinate with the Infantry School for attendance. Resourcing attendance is a unit responsibility. Units should strive to achieve and maintain 100% of their required MGs by MTOE. The losing or gaining command must pay all costs associated with enlisted Soldier attendance at BLC. The lack of DA funding is a major impediment to training the enlisted force. Military Training Specific Allotment (MTSA) only pays for officer attendance. Until an additional skill identifier (ASI) is developed and documented, Human Resource Command (HRC) cannot schedule attendance at the BLC.

FORSCOM asks for seats during TACITS and then use their existing funds to send Soldiers to training based on the commander's priority.

Infantry School/HRC develop an Enlisted ASI similar to SI 3X and code select leadership positions in ABCTs with the requirement to attend the BLC and, if reinstated, the Bradley Transition Course (BTC). Coordinate with the operational Army to capture those new training requirements through TACITS annually to inform DA resourcing decisions, to build/preserve institutional training capacity.

The MCoE reinstate Infantry Pre-Command-Bradley Fighting Vehicle (2G-F79/010-F21) for CSM and LTC on assignment to ABCTs. Review the program of instruction (POI) to ensure it is effective for the decisive action training environment.

HRC add assignment instructions to orders for SFC-SGM and 2LT-MAJ enroute to ABCTs the first time to attend BLC. Units schedule leaders for attendance for BLC in conjunction with scheduled PME while already at the MCoE. When BTC begins, add assignment instructions to orders for 11B SGT-SSG assigned to ABCTs the first time to attend the course.

Installations may need to consolidate SMEs to conduct training requirements until the force rebuilds this skillset. Units should request assistance from the Infantry School if MTTs or other training is desired.

> III Corps is currently scheduled to conduct a consolidated VCE certification program. Once the program develops more SMEs this responsibility will transfer from Corps to Division.
> *ABCT Warfighter's Forum Senior Mentor Symposium, June 2015*

3.1.b Movement Formations and Movement Techniques - Platoons and companies experienced challenges with movement formations and movement techniques.

Observation 1 - Some platoons and companies are not selecting the appropriate movement formation and movement technique based on terrain and the enemy situation. Observed units remain in column formation using the traveling movement technique regardless of the enemy situation until contact was made. Units often travel to the objective as fast as possible and disregard security along routes. During movement to contact, some units do not conduct an analysis of the terrain, time, enemy, and friendly forces with an appreciation for the effects of weather and light conditions. During movement through choke points, units often intermingle and become congested, and when engaged, it is difficult to maneuver forces and organize the attack. Note Figure 3.1.b.1, the unit travelled in column formation straight down the main supply route (MSR) and improved trails instead of utilizing the terrain. The unit was destroyed in mass by the contemporary operating environment forces (COEFOR).

Commanders and platoon leaders should create graphics adjusting pre-planned ABF/SBF, checkpoints, fire control measures, and any other graphics that will support issuing instructions to subordinate elements between the line of departure (LD) and the objective (OBJ), on the OBJ, and beyond the OBJ. This will allow leaders to rapidly adjust to changing conditions. This is only effective if graphic control measures are on all subordinate leader's displays (digital and analog) and that all leaders understand changes in assigned tasks and purpose following the commander and platoon leader FRAGO.

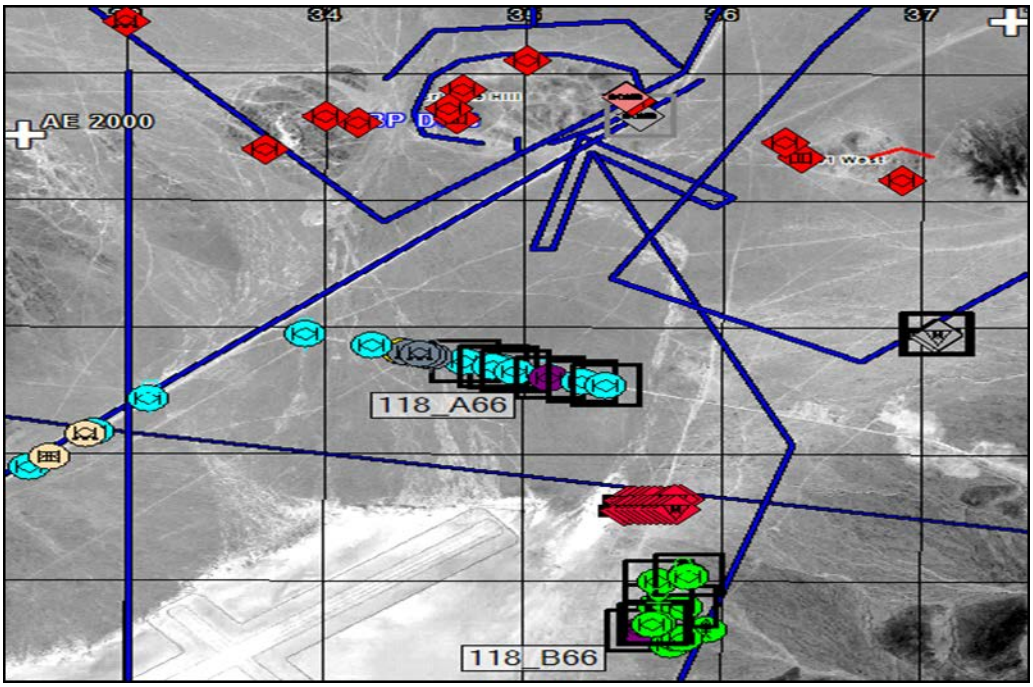


Figure 3.1.b.1 - Company in column formation, traveling movement technique in open terrain (Note - Black boxes denote destroyed vehicles. Company never changed formation upon receiving enemy direct fires.)

Observation 2 - Platoon and company formations often travel too close together in column formation instead of selecting the appropriate movement formation and movement technique based on terrain and the enemy situation. The unit frequently did not conduct bounding overwatch when contact was likely or when contact was made. The probable line of deployment (PLD) is a phase line the commander designates as a location where he intends to completely deploy his unit into the assault formation before beginning the assault. The PLD should be located outside the range where the enemy can place the attacking force under effective direct fire.

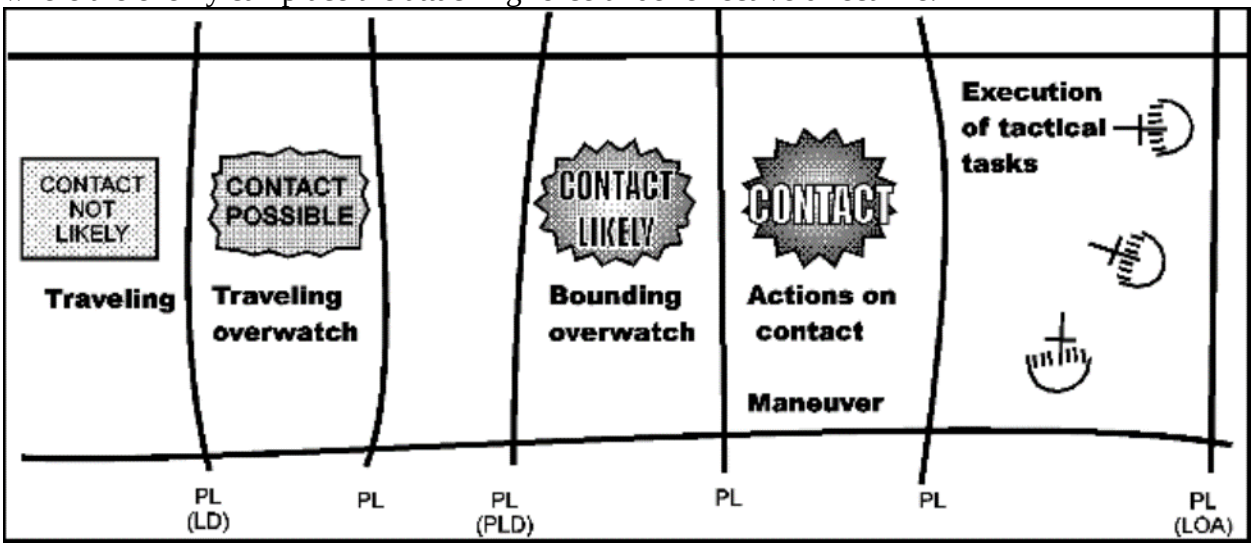


Figure 3.1.b.2 – Movement Techniques

Observation 3 – Sections and platoons are frequently not conducting battle drills to standard.

> "The movement to contact turned into every man for himself."
>
> *Battalion AAR, NTC, 2015*

Observation 4 – Limited homestation training resources challenge the ABCT's ability to train movement formations and movement techniques they encounter at the NTC.

> Vehicle commanders at all levels do not display confidence in mounted maneuver techniques. They do not understand platoon level formations, direct and indirect fire reaction drills, action or battle drills. "There are not enough OPTEMPO resources to adequately train platoon level maneuver at home station, so instead of 'running' at NTC, we're 'walking' when we get there."
>
> "Our unit completed all required gunnery training requirements but we did not have a timeline that provided enough maneuver training prior to NTC."
>
> *Company Leader Interviews, 2015*

Observation 5 - Units are challenged with selecting appropriate movement formations and movement techniques while operating on European terrain. The terrain at JMRC frequently requires platoons to transition from column to wedge when they move from narrow roads to wide open fields. Units often remain in column formation when they enter open fields and frequently encounter enemy defending in depth in these areas. When platoons do not transition out of the column formation, they are not positioned to conduct battle drills when they encounter the threat. Lack of lateral dispersion often results in units fighting with one vehicle at a time instead of by section or platoon. The enemy is then able to attrite friendly forces one vehicle at a time.

> "The company travelled in column formation and did not use the terrain well. A BMP destroyed the entire platoon. The platoon did not secure themselves while moving or stationary based on the way the vehicles were positioned on the terrain."
>
> *OC/T Observation, JMRC, 2015*
>
> "The unit got bogged down and stayed in the open. They had good terrain to fight from they just didn't use it. If the unit conducted berm drills and exposed themselves 50m right or left instead of staying in the same location they could have better survived and killed everything out there."
>
> *Senior OC/T, JMRC, 2015*
>
> During operations, as movement changed to maneuver the company would move vehicles individually, instead of concentrating their fires by section or platoon to establish the necessary overwatch needed to maneuver the bounding element forward.
>
> *Company AAR, JMRC, 2015*

Recommendations -

Rehearse actions on the objective, battle drills, and movement formations/techniques from section to company level.

Units need to base their movement techniques on:

- The likelihood of enemy contact
- The type of contact expected
- The availability of an overwatch element
- The terrain over which the moving element will pass
- The balance of speed and security required during the movement

For more details refer to FM 3.21-20 (Infantry Battalion), FM 3.21-10 (Infantry Rifle Company), FM 3.21.8 (Infantry Rifle Platoon and Squad), ATTP 3-21.71 (Mechanized Infantry Platoon and Squad – Bradley).

3.1.c Use of Armor and Bradley's in the Offense – On some occasions while operating in forested, restrictive terrain, commanders select to use Abrams platoons on the flanks with Infantry platoons in the center. This often results in the Armor being positioned on the edges of wood lines, vulnerable to infantry attack. It also positions Bradley's in the center of open fields that do not provide protected dismount points for infantry squads. Infantry platoons can serve better on the flanks where squads can maneuver in the wood line and defiles to secure terrain forward of the unit. Infantry squads detect and destroy or suppress enemy antitank weapons. Tanks are generally more effective in open terrain with extended fields of fire. The tank requires infantry forces for close in and rear security in restrictive and urban terrain.

3.1.d Attacks on Converging Routes – A unit successfully attacked simultaneously with two different companies on multiple routes, surprising opposing forces (OPFOR). Units often do not apply this technique with mounted forces and infantry squads during offensive operations. When platoons and companies attack on converging routes, the mounted force and infantry move on separate routes that meet on the objective. Mounted forces may first support the infantry by fire, then close on the objective in time to assault it with the infantry. This technique enables commanders to plan and execute operations with all of their combat power instead of infantry squads remaining mounted until contact is made during deliberate attacks. (Appendix C, FM 3-21.10, The Infantry Rifle Company)

3.1.e Breaching Operations – Analysis shows that the units who conduct rehearsals covering intelligence reports, concept of operations, proofing, lane marking, and movement through the breach have a higher success rate than units that do not effectively cover these areas during rehearsals. Breaching platoons must be proficient on equipment and vehicle platforms, must conduct maintenance IAW the -10 TM, and know troubleshooting procedures to mitigate slowing the operation in case of an equipment malfunction. Environmental and intelligence factors must be taken into consideration, such as limited visibility, soil composition, and enemy situation. Near and far side security must be tied in with breaching assets and higher HQs. The BEB CDR must

understand that the companies do not have the internal assets to haul mine clearing line charge (MICLIC) tubs.

> Obstacle breaching is the employment of a combination of tactics and techniques to advance an attacking force to the far side of an obstacle that is covered by fire. It is perhaps the single, most difficult combat task a force can encounter.
>
> *FM 3-24.2 (Combined-Arms Breaching Operations)*

Recommendations - Train combined arms breaching operations at homestation and develop and validate SOPs prior to deploying. Ensure ABV operators understand how to employ and prepare the ABV based on soil consistency and ensure the vehicle is prepped for proofing at the last cover and concealed position (turn buckles set, travel pins removed, lane marker system loaded and ready). Ensure that lane markings are understood by follow on forces. Ensure communication is established with supported security assets.

3.1.f Rapid Decision-Making and Synchronization Process (RDSP) - BN-BDE staff often do not conduct RDSP when there are changes from the original plan. The RDSP is a decision-making and synchronization technique for commanders and staffs to rapidly synchronize forces and warfighting functions when presented opportunities or threats during execution. Commanders and staffs develop this capability through training and practice. The RDSP includes five steps (Note Figure 3-1, from ADRP 5-0). The first two may be performed in any order, including concurrently. The last three are performed interactively until commanders identify an acceptable COA.

> "Units need improvement on RDSP. When there is a change in plan units are struggling to conduct RDSP. When the enemy situation changes staff processes need to rapidly realign forces to counter the threat."
>
> *Senior OC/T, JMRC, 2015*

"*MDMP is the process used to plan the operation and set conditions for rehearsals. Rehearsals are the primary procedures used to prepare for the operation and set conditions for RDSP. RDSP is the decision process often used to execute the operation and make adjustment decisions." (Mission Command —Realizing Unified Action, Richard N. Pedersen, Aug 11, derived from website http://www.dtic.mil/dtic/tr/fulltext/u2/a547204.pdf)*

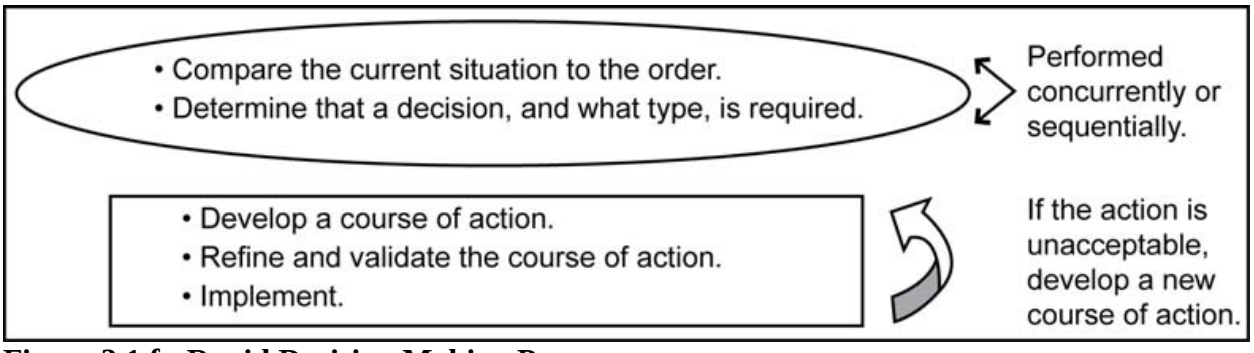


Figure 3.1.f - Rapid Decision Making Process

3.1.g Start Point (SP) and Line of Departure (LD) – Units express confusion over the time to LD versus SP, resulting in units crossing the LD too late. Units do not always place the term "LD" under the phase line on the operational graphic leading to confusion as to where the LD is located. When units do not LD on time this results in the BDE mission being unsynchronized. It is even more critical to LD on time when MN Forces are attached to the BDE. On occasions when BNs departed the AA through one movement corridor they experienced delays and travelled slower than expected. Unit leaders express that when compared to NTC, JMRC requires greater prescriptive directions to subordinate units and operational graphics that control company movement, especially when deploying from the AA to single or limited movement corridors. The unit and OC/Ts recommend considering specific move times for each company and more than one direction of attack.

3.1.h Urban Operations - Rifle platoons need improvement on synchronizing mounted and dismounted efforts during missions in an urban environment. The analysis team has not observed armor being used in any urban operations at NTC or JMRC.

Observation 1 - Most platoons observed do not establish a base of fire with Bradleys or rifle squads prior to rifle squads assaulting urban objectives. Some platoons remain in column formation until they dismount. Other platoons dismount squads only several meters from the foothold without establishing a base of fire. When BFVs are close to buildings they are often unable to provide suppressive fire to roof tops leaving dismounting Soldiers exposed to enemy fires. While dismounting close to buildings is a technique, it is not ideal when there is no base of fire established prior to the assault. Selection of a concealed dismount position further from the town or suppression with a support by fire would have resulted in decreased friendly casualties.

Observation 2 - Platoons need improvement on maneuvering mounted and dismounted elements through cities. BFVs move forward of buildings that have not been cleared by infantry squads. This prevents the mounted section from being able to provide support to the squads clearing buildings and leaves the vehicles exposed to enemy anti-tank systems on nearby buildings. Units often do not demonstrate a systematic process to use all available systems to effectively clear urban areas.

Observation 3 - Leaders express that NTC does not prepare them for the intense involvement they encounter with civilians on the battlefield at the JMRC. These leaders state that operations involving civilians at JMRC is much more challenging and units need to train and establish TTPs to prepare for this environment.

3.1.i Use of Rifle Squads in JMRC Restrictive Terrain - Units demonstrate challenges maximizing the capability of rifle squads.

Observation 1 - Units often do not dismount rifle squads during temporary halts of medium to long duration. Utilizing squads to support the mounted element is critical when moving through areas in which it is highly likely the enemy has anti-armor systems established.

> On one engagement, two BFVs were destroyed by a dismounted RPG team only 30 meters away and the vehicles had been stationary for an extended period of time. Had the infantry squad dismounted and cleared that area around the BFVs it could have saved the company and the platoon a significant portion of combat power.
>
> *JMRC Company AAR, 2015*

Observation 2 - During offensive operations Bradley's often destroy enemy troop carriers on nearby wood lines and then do not deploy infantry to clear the objective. This most often occurs when the friendly element reacts to contact on an unplanned enemy objective prior to the templated objective, i.e., the enemy is positioned in depth with an area defense. When friendly forces do not clear these objectives, OPFOR inflict casualties on the unit's flank and rear.

> During the attack the OPFOR was defending in depth when the lead unit destroyed enemy BMPs, but never dismounted infantry to clear the wood line near the BMPs. OPFOR infantry were then able to continue to call for fire on the rest of the Task Force as they passed their position.
>
> *OPFOR Commander Feedback, JMRC, 2015*
>
> Infantrymen are better suited for leading combat formations when --- A route leads through restrictive urban or rural terrain. Stealth is desired. Enemy antitank minefields are templated. Enemy antitank teams are templated. Infantry leaders may choose to lead with combat vehicles when --- There is an armored or tank threat. Moving through open terrain with limited cover or concealment. There is a confirmed enemy location/direction. There are templated enemy antipersonnel minefields.
>
> *FM 3-21.8, The Infantry Rifle Platoon and Squad*

Observation 3 - Unit employment of observation posts (OPs) is critical at the JMRC as the terrain provides many avenues of approach for enemy forces to maneuver undetected. Platoons and companies demonstrate challenges effectively integrating OPs to observe these avenues of approach in support of the information collection plan. OPs are often used to identify enemy avenues of approach and destroy the enemy resulting in the compromise of OP positions. Information requirements are not provided to the OPs which result in key information being overlooked by platoon and company leadership.

Recommendations -

Continue to focus on mounted and dismounted integration while conducting training at homestation. Conduct LPDs and teach leaders within the company on how to properly utilize dismounts. Develop SOPs that establish actions at the halt in which the infantry dismounts depending on how long the halt is.

Consider METT-TC variables when moving through danger areas and restrictive terrain with rifle platoons. Infantry squads can provide additional local security, especially in suspected enemy anti-armor threat locations, and enable the platoon to more rapidly react to an ambush and conduct

battle drills. Units need to also consider the disadvantages of dismounting infantry. For more details refer to *Simultaneous Dismounted and Mounted Movement in section 3-42, ATTP 3-21.71, Mechanized Infantry Platoon and Squad (Bradley).* For battle drills refer to *TC 3-21.8 (Infantry Rifle and Mechanized Platoon Collective Task Publication, August 2013).*

Develop company and platoon information requirements and brief those requirements to OP personnel. Reference *FM 3.90-1 pgs. 4-21 and 4-22* for characteristics of an OP.

3.2 Defense

3.2.a Javelin Utilization - Soldiers continue to demonstrate challenges deploying the Javelin primarily because units cannot train themselves on Javelin employment IAW FM 3-23.37 requirements. NTC OC/Ts repeatedly stress that Javelins are one of the least utilized weapons in all BCTs due to operator and leader knowledge. Institutional training is limited as a result of the cancelation of the Javelin ASI producing course in 2009. This trend has been consistent among all ABCTs observed at NTC since 2013.

> "At the OP two Javelins were inoperable. T80s rolled up and destroyed the Bradley section. If the Javelins were working they could have destroyed the T80s. Most Soldiers and leaders do not know how to use the Javelin Field Tactical Trainer (FTT), conduct maintenance, or understand how to deploy the system."
>
> *OC/T Interview, NTC, 2015*

Actions to Date - The Heavy Weapons Leader Course (HWLC) is being replaced by the Heavy Weapons Master Gunner Course (HWMG). The HWMG is designed to better prepare NCOs to serve as unit Javelin trainers. The HWMG is an ASI producing course designed to train selected NCOs to assist unit leaders in maintenance and employment of all heavy weapon systems assigned to combat arms organizations.

Note: The HWMG course is not in the Army Training Requirements and Resourcing System (ATTRS) as of 23 JUL 15, however, the pilot for this course is currently scheduled to begin on 22 OCT 15. Units should contact the Infantry School for additional details.

Recommendations -

Units should conduct the Javelin training program IAW DA PAM 350-38 and FM 3-23.37. Units should also send master trainers to the HWMG course once available.

Divisions and corps with ABCTs transmit their requirements for training at the HWMG Course during TACITS annually to inform DA resourcing decisions, and to build/preserve institutional training capacity. If FORSCOM does not request the seats through TACITS, TRADOC and the Army G3/5/7 will not validate the requirement.

3.2.b TOW Missile Proficiency - BFV TOW firing and hit rates have greatly improved. During the past six months units have fired 10-15 missiles during the live fire with a ~95% launch rate, and a ~80% hit rate. In 2012, TOW hit rates averaged ~25% and by 2014 the hit rates averaged ~65%. Units continue to have issues in basic crew upload/ misfire procedures. Unit master gunners

are increasing TOW training opportunities at homestation as part of platoon qualifications or standalone TOW ranges. While units are improving with TOW live fire engagements data is currently not collected for TOW MILES engagements. The analysis team continues to observe many vehicle crews are not raising TOWs or maximizing TOW engagements during defense operations.

Actions to Date -

Since TCM-ABCT identified this trend in 2013, progress is consistently being made by ABCTs to improve TOW proficiency. TOW Tasks are scheduled to be reintroduced as Gunners Skills Test (GST) requirements outlined in TC 3-20.31-10 (to be published). TOW System Evaluation Missiles (TSEMs) have been issued to some units and maintainers have been trained. Units are now required to conduct semi-annual TOW tests with the TSEM. The BCT receives one per company Maintenance Support Team. The PM is currently fielding TSEMs to units. One unit that was issued the TSEM is using it to conduct TOW verification every six months and reports positive results. TCM-ABCT has uploaded the most current TSEM procedures at: https://www.milsuite.mil/book/docs/DOC-117565.

Units have been provided with Missile Simulation Rounds (MSR) ordering instructions and as of 19 MAY 15, 522 have been ordered.

MSRs issued as of 19 MAY 15: MTNG, 14 ea / Ft Benning, 72 ea / CANG, 128 ea / Ft Bliss, 194 ea/ Ft Stewart, 28 ea / Ft Carson, 30 ea / GANG, 6 ea / Ft Hood, 10 ea / Infantry School, 26 ea, Ft Harrison, 14 ea

Redstone Arsenal, 2015

Recommendations -

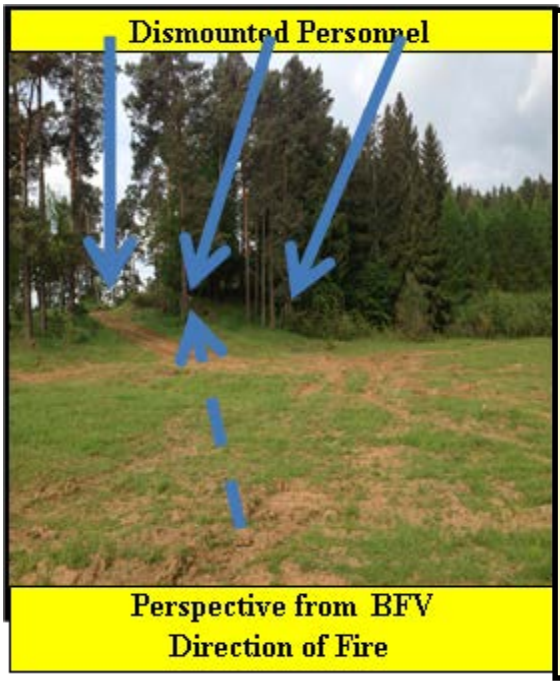
Increase live fire TOW engagement opportunities during homestation training. There is no cost to the unit for the missiles to be fired in training. U.S. Army missiles are procured IAW the President's Budget and the Program Objective Memorandum (POM) to support missile inventory requirements. In order to have missiles to support training in FY16 (1 October 2015) and beyond, units will need to request authorizations through their higher headquarters. Missiles will be issued in support of unit requests provided the proper forecasting, allocation, and authorization has occurred prior to the unit requesting the missiles. For more details contact the PMO CCWS TOW Program: Mr. Paul Moore, TOW Program Support (paul.h.moore.ctr@mail.mil).

Units are required to order TOW training aids to support the GST requirement. The MSR is used to train all non-fire TOW-related tasks. Units can order MSRs through the supply system at no cost to the unit. The MSR is a non-expendable major end item (NSN 6920-00-223-4919). Units are required to use the TSEM during scheduled maintenance to check the connectivity and functionality of the TOW missile.

3.2.c Fratricide - Fratricide is a leading cause of safety incidents at CTCs. Feedback from OC/Ts suggests that there is an increase in fratricide incidents at NTC and JMRC as units are becoming more comfortable and aggressive at conducting operations. Following Operation Desert Storm

(ODS), where 77% of combat vehicle losses were due to fratricide the Army energized multiple DOTMLPF-P solutions to reduce the risk for fratricide. This mind-set continued through the initial years in Operation Iraqi Freedom (OIF) and Operation Enduring Freedom (OEF). As the focus transitioned to stability operations many of the TTPs developed after ODS have not been practiced. Now that we are transitioning to a decisive action training environment we need to review and revise legacy TTPs that apply to our forces today. As the force conducts operations with MN partners we need to identify challenges and execute mitigation strategies to reduce risks.

Observation 1 - Fratricide is most often caused by units not establishing near/far and day/night recognition signals. Standardized marking not only will reduce fratricide but will also increase awareness of friendly unit locations, and aid in marking CASEVAC and resupply operations.



Synopsis: A MN Soldier was engaged by a Bradley Fighting Vehicle. The MN Soldier was dismounted in an OP/Javelin Position. A BFV was approximately 50m from the dismounted position when the gunner identified a dismount with a weapon system through his thermals. The MN Soldiers on the hill understood weapon control status and attempted to alert the friendly element of their position. The US Soldier initiated contact on the dismounted position with a 5-7 rd burst of 7.62mm from his coax. The friendly fire incident resulted in 1x MN Soldier WIA at the time. The Soldier later DOW.

Key Learning Points:

- Gaps in the friendly marking system were discussed in the BN CAR but no solution was identified or mitigated.
- Marking systems for dismounts non-existent.
- Marking systems not understood at all levels.
- Unit COP/SA not understood at the lowest level.
- Weapon Control Status was not identified

Figure 3.2.c.1 - Fratricide Example 1

Observation 2 - Lack of situational awareness of friendly locations, minefield locations and front line trace, poor target identification, and poor communication are leading causes of fratricide. Improper procedures during passage of lines, when support is provided by air weapons teams, or when operating with MN partners are additional scenarios in which fratricide frequently occurs. Fratricide also often occurs as friendly units merge during missions. Establishing no fire areas (NFAs) over observer, scout, and other stationary elements plus better clearance of fires are significant actions that will effectively reduce indirect fires from being called on friendly forces.

The FSO initiated the CFF, with a target description of dismounted enemy personnel. BDA: one Litter Urgent, one Litter Priority of a friendly squad. Clearance of Fires occurred in the TAC off of the FSO's map, because the TOC was torn down. BN TOC received a BFT message indicating the dismounts position, but this info was not passed to the TAC. NFA's over OP's were not established; better coordination and clearance of fires could have prevented this fratricide.

Fires AAR, NTC 2015

The BDE had 11 fratricide on the defense lane. Many were due to driving through their own minefields.

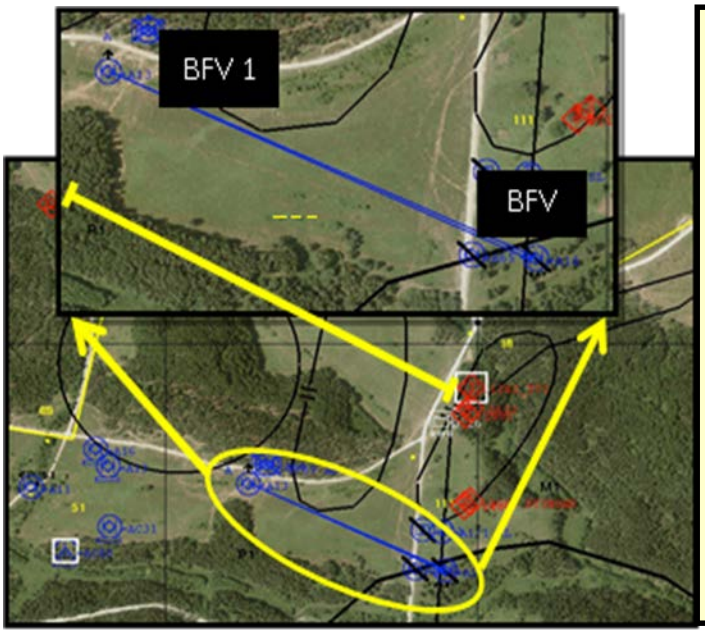
Defense AAR, NTC, 2015

When I conduct passage of lines I always make sure I am executing the task by the book, because when I don't we usually have friendly casualties by fratricide.

Senior NCO OC/T, NTC, 2015

Observation 3 - Many of our allies have BMPs, BRDMs, T72s, etc., which are the same vehicles possessed by many of our potential threats. Our MN partners do not have standardized marking systems similar to U.S. systems.

Observation 4 - Close combat in restrictive terrain causes challenges to positive identification. It becomes imperative that units not rely on a single means of friendly force identification. Leaders and Soldiers must utilize analog and digital means to maintain friendly force situational awareness and must be diligent in confirming positive identification before engaging.



Who: BFV 1 and BFV 2
What: Fratricide
Why : The gunner from BFV 1 misidentified BFV 2 as a tank and engaged with the 25mm cannon destroying the vehicle. The distance was 500-600m, the terrain was clear and the visibility was unrestricted. Both vehicles were in the same section.
Injuries: 8x KIA
Contributing Factors:

- Lack of positive identification
- Lack of situational understanding
- VC did not have COP to reference location of friendly and adjacent units

Figure 3.2.c.2 - Fratricide Example 2

Observation 5 - Feedback from unit master gunners suggest many units are not training on the Recognition of Combat Vehicles (ROC-V) program.

Observation 6 - Units need to improve BFT use for maintaining friendly force situational awareness and populating the information display with updated enemy locations. While useful, BFT was never intended to replace positive identification by gunners and confirmation by vehicle commanders before engaging targets.

Observation 7 - An Air Weapons Team (AWT) identified what they believed to be an enemy main battle tank. The AWT engaged an M1 Abrams with 1x Hell Fire missile resulting in 1x M1 destroyed, 1 x Litter Urgent and 3 x Return to Duty casualties. The fratricide was attributed to poor target identification, a lack of situational awareness and poor communications.

Observation 8 - MN partners do not have standardized marking systems to mark buildings during urban operations. When U.S. Forces entered towns there was no way to determine what buildings had been cleared by the MN. This became a challenge when the MN unit arrived at the town prior to friendly forces and decided to clear the entire town. By the time U.S. Forces arrived, MN Forces had cleared the majority of the town when they were initially only clearing 50%. With no MN marking systems, U.S. Forces cleared many buildings a second time, firing into unplanned and unrehearsed areas that could have resulted in fratricide of MN partners.

Recommendations -

Studies show that human error, not the lack of new materiel solutions, are the leading cause of fratricide. Units need to incorporate fratricide avoidance in individual and collective training events.

Units establish a plan using the Joint Combat Identification Marking System (JCIMS) as a baseline and bring enough supplies to standardize marking for friendly and MN Soldiers and vehicles, to include U.S. force attachments you may receive. (i.e., glint tape, VS 17, IR, reverse polarity, engineer tape, 100 mph tape, etc.). Use a common Gridded Reference Graphic (GRG) to synchronize urban operations. All units need to utilize marking procedures in urban environments designed to show that rooms and buildings have been cleared and show the front line trace of friendly units. Bring extra marking kits for personnel, vehicles, and urban operations to share with MN partners and attachments operating with the unit. JCIMS Family of Systems that includes Combat ID Panels (CIPs), Thermal Identification Panels (TIPs) and Phoenix IR and Phoenix JR beacons.

> When considering marking SOPs there is a tactical risk with what the enemy sensor capabilities are. For example if the enemy has the capability to view IR a unit probably would not want to have a flashing IR strobe marking vehicles.
>
> *Unit Leader feedback, CTC Rotation, 2015*

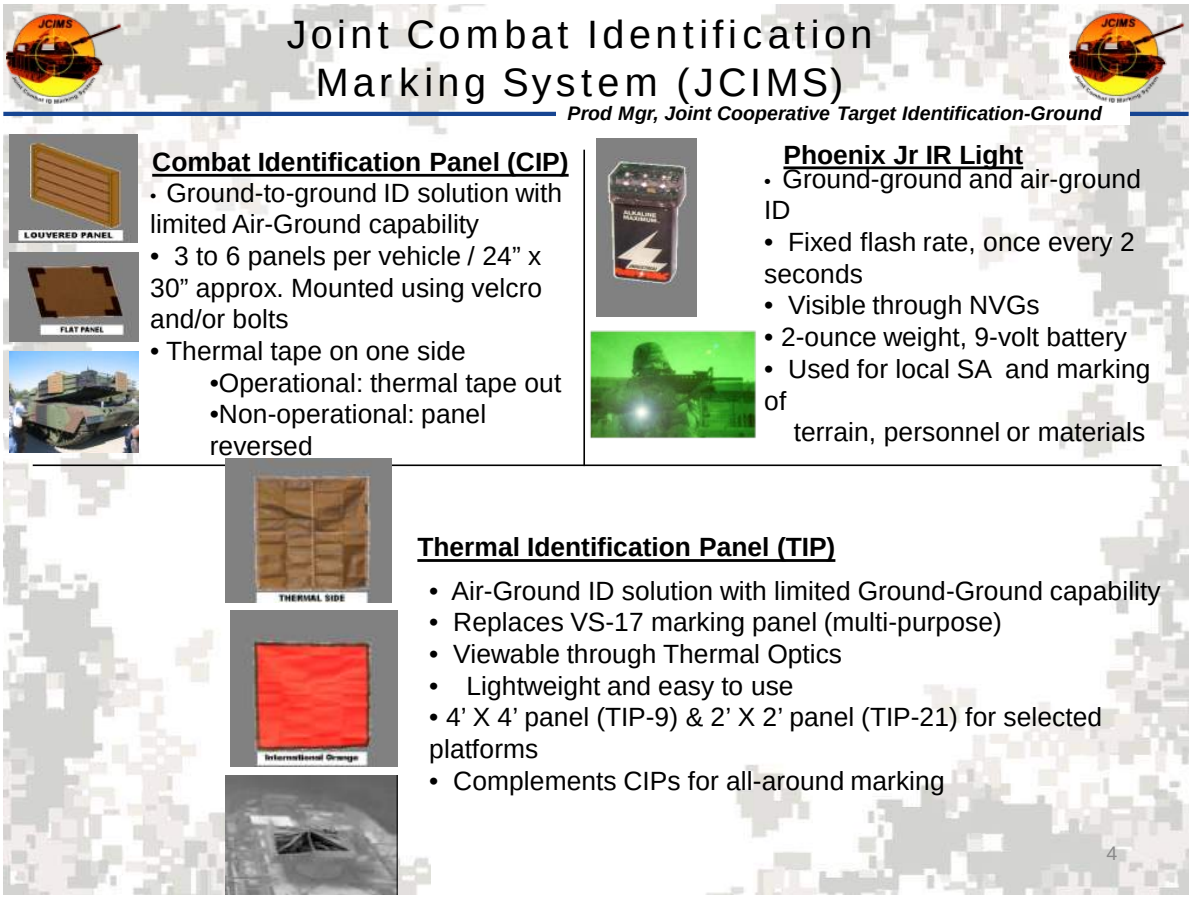


Figure 3.2.c.3 - Joint Combat Identification Marking System (Courtesy TCM-BCT MC)

The EAS vehicles provided do not have any marking. Plan for using 100mph tape to temporarily mark EAS vehicles with unit symbols. Use plywood for marking battle boards on the reverse side of turrets. Units remove markings when they turn in the fleet.

In addition to the JCIMS mentioned in Figure 3.2.c.3, units should develop additional TTPs to mark Soldiers and equipment. Glint tape can be used as an infrared (IR) marker for Soldiers. Glint tape can be applied to U.S. and MN Soldier helmets and uniforms/equipment. Glint tape must be illuminated by an IR source, for example an IR pointer or designator, in order to be visible.

Some units added 2x2 inch strips of 100mph tape to vehicle antennas for added daytime marking. Other possible TTPs with this same approach could include reverse polarity tape visible at night.

Soldiers can access and download the ROC-V app at:
https://play.google.com/store/apps/details?id=gov.usa.rocv.

The ROC-V Mobile Edition is an adaptation of the ROC-V desktop software suite for mobile devices. The full version of ROC-V can be assessed at https://rocv.army.mil/.

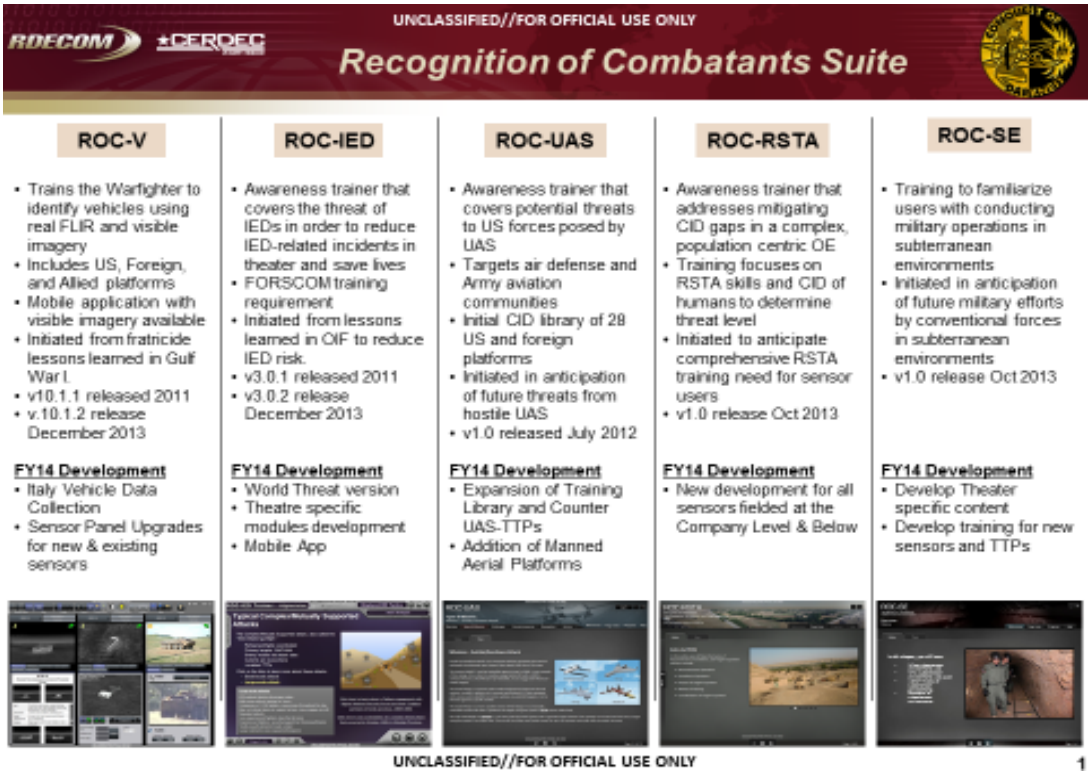


Figure 3.2.c.4 - Recognition of Combatants Suite (Courtesy TCM-BCT MC)

Integrate the detect, identify, decide, engage, and assess (DIDEA) process into gunnery and maneuver training. For more details on DIDEA refer to TC 3-20.31-13, *Direct Fire Engagement Process (DIDEA) at* https://armypubs.us.army.mil/doctrine/DR_pubs/dr_c/pdf/tc3_20x31_4.pdf.

Increase subordinate unit reporting and communications, monitoring unit locations, and ensure leaders know the precise locations of their own and adjacent units. Share updates across the net to increase situational awareness. Incorporate NFAs over friendly locations as a battle drill.

Train Soldiers on description of MN unit uniforms, equipment, and marking systems. Establish TTPs to differentiate between MN and threat vehicles of the same variants.

Following lessons learned in OIF I, C CO 3-15 Infantry refined their company TACSOP to include markings for individual Soldiers and vehicles to reduce fratricide risks and improve mission command. An excerpt from that TACSOP is available on the TCM-ABCT milsuite page at https://www.milsuite.mil/book/docs/DOC-213578?sr=stream.

2nd BN, 5th Marines published an SOP in 2001 that contains night marking TTPs for infantry Soldiers titled *Night Combat in Infantry Units, A Guide to Collective Training for Night Combat in the Infantry Company,* at http://www.2ndbn5thmar.com/night/NCIU1.pdf.

For additional TTPs on fratricide avoidance refer to CALL Handbook # 08-43, *Fratricide Avoidance TTPs* at https://call2.army.mil/docs/doc4695/08-43.pdf.

3.2.d Indirect Fires Execution - BCTs need improvement on call for fire (CFF) missions.

Observation 1 - General lack of knowledge of targeting equipment and its maintenance directly leads to Target Location Errors (TLEs) between 150-600m. To remedy this issue units need to ensure optics are calibrated. Soldiers must understand the capabilities and limitations of their equipment. Soldiers should conduct a secondary check with optics (Mark 7E, LLDR, Map Spot). For long distance lasing operator should use a tripod and the remote firing device.

Observation 2 - Limited retrans capabilities in CABs force fires to share already congested nets. Units frequently miss opportunities to execute CFF missions on large concentrations of enemy forces when units are dispersed due to limited FM voice communications.

Observation 3 - Units experience difficulties when they attempt to change the prioritization of targets by digital means only. Situations often occur where single vehicle targets continue to be the priority even after units try to shift CFF to large concentrations of enemy forces. BCTs leaders express that human interaction via FM voice will best enable units to rapidly remedy this issue.

"A single ADA platform kept bumping high payoff targets (an enemy mechanized infantry battalion) on the digital CFF. We were outsmarted by our own database. A human should intervene because we were unable to support the close fight."

Unit Feedback, Movement to Contact, NTC, 2015

Observation 4 - Units are demonstrating improvement on executing counter fire missions, but need improvement on acquire to fire times.

The BDE executed counter fire against 35% of identified COEFOR, which was better than the COEFORs counter fire of 24%. The average acquire-to-fire time for the BDE was 35 minutes, compared to 15 minutes for the COEFOR. During a BDE defense counter fire destroyed 17x BM-21s, a Battery of 2S19s, and 2x BM-27s.

NTC AARs, 2015

The counter fire battle drill was executed successfully during the IDF/NBC attack on the Main. The Fires Cell was able to process the mission in protective masks and get it sent to DIVARTY for execution within 6 minutes.

OC/T Notes, NTC 2015

Recommendation - Plan to calibrate sensors, understand sensor ranges, properly position observers, and conduct triangulation and terrain association. Train CFF procedures. Establish SOPs that address how to communicate high pay off targets to the shooter, keeping in mind that priorities may change after first contact.

3.3 Protection

3.3.a Security - Units need improvement on establishing measures to preserve combat power.

Observation 1 - Most units do not establish and maintain 360 degrees of security at all times. The enemy frequently attacks from unexpected avenues of approach throughout the area of operations, and does not execute the most likely COA. Most often, the enemy identifies weaknesses in security and exploits the advantage. Reconnaissance assets have to be able to see into the passes.

Enemy forces identified a weakness in the BDE's security at an unobserved bypass to an obstacle and sent a mechanized infantry battalion (MIBN) through a pass. The MIBN reached the BCT Main CP with no resistance, attacked the CP, and continued to engage multiple command nodes and sustainment elements in the BCT's rear area. The MIBN secured key terrain and was positioned to cut off maneuver elements from their support.

Movement to Contact, NTC, 2015

The company began executing an isolation mission focused on cordoning off a town. Two platoons did not establish and maintain effective security measures with vehicle crews and squads. Vehicle crews were not actively scanning for enemy threats, Soldiers did not identify IED's in the town, and there was no control of who entered and exited the town. Lack of situational awareness resulted in four enemy personnel remaining in the town without being confronted. A civilian vehicle occupied by four local nationals ran over a pressure plate IED hooked up to an 88mm artillery round killing two local nationals and wounded two others. When this incident occurred Soldiers from the PLTs did not react to enemy contact or administer medical aid to the injured local nationals.

Stability Operations, NTC, 2015

Observation 2 - Abrams crews established a TTP for increasing force protection by dismounting loaders to conduct a visual scan of potential enemy threats.

> (Example 1) During TF Ops C CO used loaders to clear IV lines. This TTP allowed maximum SA without exposing combat platforms.
>
> (Example 2) During the seizure of OBJ Devils, 3rd PLT found a bypass route through the Three Sisters. Tanks from the platoon used terrain to conceal their movement. While stationary, D32 had the loader dismount to clear the IV line to the south east of their location and try to observe any enemy.
>
> *OC/T AAR Notes, NTC, 2015*

3.3.b Obstacle Efforts - Units continue to demonstrate challenges maximizing time to emplace obstacles during defensive operations. This is usually a result of several factors including: lack of an execution matrix to task and track engineer efforts, engineers not synchronized with the maneuver unit at the obstacle location, and units are not effectively managing time and troops available to provide security and assist with the obstacle effort. The defensive mission at the NTC no longer focuses solely on the defense, but all decisive action tasks. Units are often overwhelmed with managing troops to task to execute simultaneous offensive, defensive and stability operations. Lack of effective obstacle efforts usually results in an inability to mass fires in the engagement area.

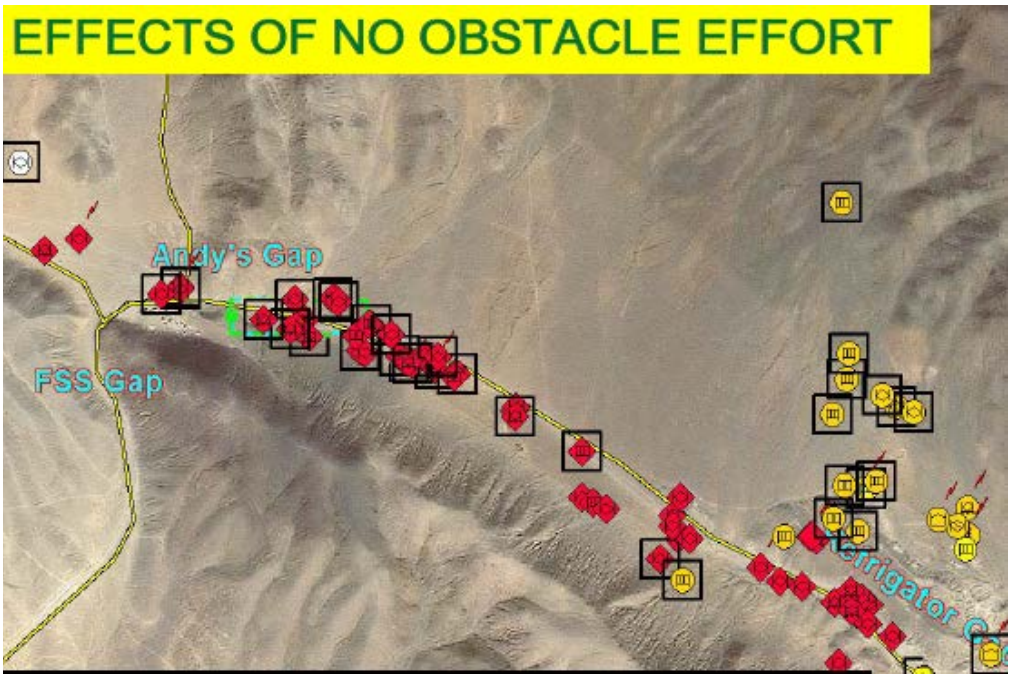


Figure 3.3.b - Effects of no Obstacle Efforts - The unit did not incorporate an obstacle plan to disrupt or fix enemy forces in the defensive engagement area. This resulted in the enemy being able to penetrate and exploit the unit's defense.

3.3.c CASEVAC Execution - Leader skills required to plan, rehearse, and conduct ground CASEVAC during decisive actions has atrophied due to 10 years of practical experience conducting non-standard CASEVAC and medical evacuation (MEDEVAC).

Observation 1 - Unit leaders often admit they are accustomed to performing MEDEVAC during stability operations and are continuing to improve their ability to execute CASEVAC.

Observation 2 - Sections and platoons often do not know casualty evacuation locations (AXPs, CCPs, etc.). Lack of analog sustainment graphics make navigation to CASEVAC sites a challenge.

> "The medic track had no graphics. This caused a 25 minute delay when the medics could not locate the AXP."
>
> *Movement to Contact AAR, NTC, 2015*

Section 4 – Sustainment

4.1 Signature Cards - Commanders report delays in receipt of Class V due to lack of signature cards required at company level. Section 8-9 of the NTC Exercise Operating Procedure (EXOP) contains information on ammunition procedures at the NTC. Units should contact NTC for the latest version of this EXOP as it us updated frequently.

4.2 Combat platform basic Class III (P) - Abrams and Bradley crews lack Class III (P) on their platforms. Unit SOPs should address the standard basic load for each combat platform. Multiple equipment breakdowns on equipment could have been averted if the crews carried a Class III (P) basic load. Engines were often low on engine or transmission fluid, and track adjusters could not be adjusted due to lack of grease, artillery, automotive (GAA). This resulted in low Abrams and Bradley track tension and ultimately vehicles throwing track. Lack of CL III (P) reduced the unit's operational readiness (O/R) rate when platforms became non-mission capable (NMC).

Recommendation - Units request and maintain a 10 day supply of Class III (P) for all platforms. This list should be part of each company, BN, and maintenance SOP, and be part of PCCs/PCIs. Below is a sample list:

Abrams

- 1 each- 15/40 oil, 5 GL can, NSN: 01-152-4118
- 4 each – FRH, 1 QT can, NSN: 00-111-6256
- 1 each – GAA, 5 GL can, NSN: 01-197-7689
- 10 each – High Thermal Stability (HTS) oil, 1 QT cans, NSN: 01-439-0756 NOTE: do not order turbo shaft oil.
- 2 each – 16 OZ ammo storage oil, NSN: 01-374-2021
- 1 each – CLP, 1 GL Bottle, NSN: 01-053-6688

Bradley

- 1 each- 15/40 oil, 5 GL can, NSN: 01-152-4118
- 2 each – FRH, 1 QT can, NSN: 00-111-6256
- 1 each – GAA, 5 GL can, NSN: 01-197-7689
- 1 each – Anti-freeze, 5 GL can, NSN: 01-252-8501

- 1 each – CLP, 1 GL Bottle, NSN: 01-053-6688

M113 Family of Vehicles

- 1 each- 15/40 oil, 5 GL can, NSN: 01-152-4118
- 1 each – GAA, 5 GL can, NSN: 01-197-7689
- 1 each – Anti-freeze, 5 GL can, NSN: 01-252-8501
- 1 each – CLP, 1 GL Bottle, NSN: 01-053-6688

Note - In addition to CL III units are often short batteries. Soldiers expressed that their SOP did not have a list of required batteries for the platoon. Units should add a list of required batteries to their SOPs, and modify this list based upon equipment assigned.

4.3 Manager Review File (MRF) dollar amount - Units do not have the MRF dollar amount set by RSOI Day 0, or the dollar threshold is set too low, generally $500.00. This results in unit Class IX requests not passing through the system, being cancelled, or there is no record of the request. This ultimately hinders the BDE's O/R rate.

Recommendation - The BDE needs to set the MRF dollar amount before RSOI Day 0. Deploy all Standard Army Maintenance System (SAMS) and Standard Army Automated Retail System (SAARS) clerks on the torch/advanced party (ADVON). Recommend due to high cost of Abrams and Bradley Class IX repair parts the MRF threshold be set at $5K, at a minimum. Ensure the unit G-8 authorizes a representative to review and approve the requests at the NTC to go over the threshold set on the MRF.

4.4 Combat Platform Services - Maintenance IAW vehicle TM requirements involving operators and mechanics, plus scheduled services is the recipe for good O/R rates. A best practice is while vehicles are in services, units should also conduct Soldier Readiness Processing (SRP), MEDPROs, individual CTA-50, BII, arms and supply room equipment, CBRN equipment, NVDs, radios, communications, inventories, STTE, AAL, etc. The average O/R rate reported by NTC OC/T's for the MBT, Bradley's and M88s for the past three years is <70%. In the past six months, one unit was the exception with >80% O/R rate. One BDE required the entire organization to conduct services for four weeks prior to rail load, and this unit had the highest O/R rate at NTC.

Recommendations - BDEs service all equipment IAW AR 750-1 (Army Materiel Maintenance Policy) and review their service schedule. Commanders need to prioritize time to service equipment IAW the Maintenance Allocation Chart located in the equipment TM. Equipment services should include all vehicles, communications equipment, weapons, night vision devices, individual equipment, CBRN, BII, and additional authorization list (AAL) items. Train leaders and staff on sustainment requirements, and develop SOPs with checklists that address unit services. CO-BN leadership inspect platoons following services and prior to training events.

4.5 Sustainment Training for Officers - Armor and Infantry LTs-CPTs interviewed expressed that the sustainment training they received in BOLC and MCCC was not adequate in preparing them to serve as leaders in an ABCT. Sustainment LTs-CPTs voiced concern related to basic tactics and maneuver training in their leadership courses, and how the forward support company (FSC) supports the CAB.

Recommendations -

At a minimum all infantry and armor lieutenants and captains receive training in a course prior to being assigned to their unit on combat platforms, forecasting requirements, understanding repair part flow, DA Form 5988 flow, battle damage and repair (BDAR), and platform consumption rates. BOLC and MCCC POIs are demanding and there is a little of free time for development. This is another reason we need the Bradley Leader Course for Infantry officers assigned to ABCTs, and all armor and infantry lieutenants and captains should attend the Maneuver Leader Maintenance Course.

The MCoE course trains maintenance competencies to maneuver leaders on the following:

- Maintenance management at the company and battalion level
- Manage and implement a command maintenance discipline program (includes vehicle services program and deadline tracking)
- Provide an overview of maintenance information systems (SAMS-E,GCSS-A, Logistics Information Warehouse)
- Conduct tactical field maintenance/tactical planning considerations and operations
- Properly train Soldiers on crew/operator field level maintenance tasks

4.6 Recovery Crew Training - Units express consistent challenges due to not being fully manned with recovery qualified maintainers. ABCTs typically have ~50% of the required schooled trained maintainers in recovery sections with the Additional Skill Identifier (ASI) H8. There are a total of 357 platform maintainers in the BSB. 192 of those 357 maintainers (54%) should be qualified in recovery operations.

Figure 4.6 - Recovery Course Training Locations

Recommendation - Units send required maintainers to recovery training. The above illustration shows where and what type (wheel or track) of recovery training takes place. Training can be scheduled through ATRRS: https://www.atrrs.army.mil/atrrs2.aspx.

4.7 Incomplete Components of End Item (COEI) and Basic Issue Items (BII) for the Abrams and Bradley - Incomplete COEI and BII is preventing operators and crews from effectively performing daily maintenance required on their platforms during operations. Combat platforms often do not have grease guns, water cans, or fuel cans.

Recommendations - Implement COEI and BII inventories after every field exercise for all combat and wheel platforms. Additionally, inventories should be conducted during platform services. Conduct inspections and inventories IAW Army Regulation 710–2, Inventory Management, Supply Policy below the National Level, date 28 March 2008. Property that is lost, damaged, or destroyed will be accounted for per AR 735-5, Property Accountability Policies, dated 10 May 2013.

4.8 Battle Damage and Repair (BDAR) - When vehicle operators and maintainers were asked, "do you have any knowledge on what BDAR is and how to apply BDAR to your platform" no operators and 50% of the maintainers had heard of BDAR. All maintainers expressed that they had received no training on BDAR and were unaware of any type of BDAR kit. Most of the recovery crews were familiar with BDAR; however, they did not have any BDAR manuals on hand and only a few recovery crews had a piecemealed BDAR kit.

Figure 4.8 BDAR Kit

Recommendation - Units can order BDAR kits. Train maintainers and platform operators on BDAR procedures. The NSN for the BDAR kit is 5180-01-575-1265. The BDAR kit is Class IX and cost $4,449.00. Approved BDAR publications are listed below.

- ATP 4-31/MCRP 4-11.4A, Recovery and Battle Damage Assessment and Repair (BDAR), August 2014. Web site: http://armypubs.army.mil/doctrine/DR_pubs/dr_a/pdf/atp4_31.pdf.
- BDAR Smart Book, March 2012. Web site: http://asktop.net/wp/download/GTA/gta01-14-001.pdf.

Chapter 2
Regionally Aligned Force (RAF) Trends, USEUCOM

Army Regionally Aligned Forces (RAF) are BCT-sized units assigned or allocated to combatant commands and prepared by the Army for regional missions. They consist of organizations and capabilities that are forward stationed, operating in a combatant command area of responsibility, and supporting combatant commands through reach-back capabilities from outside the area of responsibility. They conduct operational missions, bilateral and multilateral military exercises, and theater security cooperation activities. RAF specifically addresses those requirements that are enduring in nature for the combatant commander, from "set-the-theater" to the most-likely contingencies. Accomplishing such regional missions requires an understanding of the cultures, geography, languages, and militaries of the countries where RAF are most likely to be employed, as well as expertise in how to impart military knowledge and skills to others.

This chapter identifies, analyzes and makes recommendations based on DOTMLPF-P performance challenges unique to ABCT RAF missions, in USEUCOM. While FORSCOM is the force provider for RAF missions, they maintain operational control of ABCTs until they are deployed, at which time the unit comes under control of the regional combatant commander. This requires close coordination, communication, and synchronization with the RAF element to ensure all pre-deployment training requirements are met, and operational policies and procedures are understood and ready to be implemented upon arrival. This is further compounded by the condition that the RAF higher headquarters is typically not their homestation higher headquarters. Multiplicity of commands, coupled with force cap restrictions require the brigade to maintain operations in CONUS and in theatre with corresponding workloads in both areas.

USEUCOM RAF typically conduct operations in support of Phase 0 and Phase 1 'set-the-theatre requirements.' In the case of support to Operation Atlantic Resolve (OAR) and Operation Combined Resolve V (CbR-V), the demands on the ABCT are significant. In the fall of 2015, mission growth will require deployment of an entire ABCT, and they will operate in dispersed geographical locations encompassing eight European countries simultaneously, which will exceed their ability to effectively command and control not only their own subordinate elements, but participating multinational forces with MTOE mission command equipment. The nature of these disparate military operations will also place unprecedented stress on logistical and sustainment capabilities, presenting unique challenges for non-tactical transportation (ferries, HETs, aircraft, ships, and rail).

Under the European Reassurance Initiative, EUCOM and USAREUR continue to lead OAR enhanced land force multinational training and security cooperation activities taking place across Estonia, Latvia, Lithuania, Poland, Romania, and Bulgaria. A mixture of military construction (MILCON) and minor construction projects underway will help create an enduring presence in the European area of responsibility to better allow U.S. forces to work closer with our partner nations through rotational deployments. Projects related to land forces are primarily focused on firing ranges, maintenance and training area improvements throughout Eastern Europe, as well as infrastructure required to allow access to host nation training areas. These activities build multinational interoperability, strengthen relationships and trust among allied armies, contribute to regional stability and demonstrate U.S. commitment to NATO.

Learn more about OAR here: http://www.eur.army.mil/atlanticresolve/, and CbR here: http://www.eur.army.mil/jmtc/CombinedResolve.html

Section 1 - Mission Planning

1.1 Homestation Pre-deployment Activities - Unit leaders correlated their successes at JMRC with preparations conducted at homestation. While the ABCT conducting the EUCOM RAF mission in FY14 had just two months between completion of their NTC rotation and deployment to EUCOM, the unit executing the requirement in FY15 had approximately eight months between NTC and OCONUS deployment. This extra time allowed for the execution of an additional full scale gunnery, and several collective training events. Commanders were also able to more adequately complete FORSCOM and EUCOM pre-deployment checklists. Other keys to mission success included: trained and manned super-cargo, air-load and rail-load teams, early and effective communication with European Activity Set (EAS) managers, and the ability to have sufficient vehicle operators trained and prepared for driving in Europe.

The Transportation Engineering Agency (TEA) offers units the capability to order a variety of hard copy deployment publications for free related to air and rail load standards at http://www.sddc.army.mil/sites/TEA/Functions/Deployability/TransportabilityEngineering/Lists/Deployability%20Publications%20Order%20Form/DeployabilityPublicationsOrderForm.aspx

1.2 Mission Command Equipment - The AN/VRC104 HF radio is authorized on MTOE, but it is not capable of being installed on Abrams and Bradley platforms, and can only be utilized in an "out of hatch" configuration like AN/PRC-150 man pack radios. The Basis of Issue Plan (BOIP) for the HF wave form only include company, battalion and brigade commander's Abrams and Bradley's, and Scout platoon Bradley's. The HF wave form is also likely to remain the primary means of BLOS communication with MN forces, as many of these forces cannot utilize U.S. tactical satellite communications. The CPD for the future Joint Tactical Radio System (JTRS) does not specify HF as a threshold requirement for the Handheld Man Pack Small Form Fit (HMS) AN/PRC-155 Full Rate Production (FRP) radio. This will require the Army to retain the AN/VRC-104 in addition to the JTRS radio forcing Soldiers to continue to use the "out of hatch" technique for HF.

Recommendation - Cyber Center of Excellence and PM-Tactical Radios identify the feasibility to change the requirement for the HF wave form from objective to threshold for the FRP JTRS man pack radio. This COA would eliminate the need to retain the legacy AN/VRC-104 to provide an HF BLOS capability.

1.3 JMRC OPTEMPO - Units training at JMRC have less time to conduct planning between mission periods than units training at NTC. JMRC provides a more complex operating environment with a requirement to integrate multinational partners, and balance real-world mission requirements in conjunction with Operation Atlantic Resolve (OAR) with the training scenarios associated with Operation Combined Resolve (CbR).

Section 2 - Mission Preparation

2.1 European Activity Set (EAS) Draw - The EAS is growing from an ABCT (–) to a full ABCT equipment set, with future equipment issue procedures to be conducted at multiple locations. In addition to rounding out the full EAS, USAREUR has requested additional enablers including, but not limited to, heavy equipment transports (HETs), unmanned aerial systems (UAS), fires brigade assets, additional engineering capabilities, and aviation ground support.

In 2016, the EAS will support a six-month RAF rotation. This six months of very high planned OPTEMPO will severely stress sustainment capabilities from unit level maintenance to theater sustainment operations. There are indications that the receiving RAF unit will sign for the entire property book, and assume responsibility for quarterly and semi-annual service requirements. This creates unique maintenance facility requirements at potentially eight or more dispersed geographic locations.

Observation 1 - Blue Force Tracker (BFT) operational readiness (OR) rates during the EAS draw for the last two rotations is less than 60% (55% - 48/87 and 23% - 23/100). Following the second EAS draw, the unit improved the OR rate to 76/100 BFTs.

Observation 2 - Key equipment is absent to test select components during EAS draw. Examples include:

- EAS BFISTs come equipped with mounts and cabling for digital fires, but do not come equipped with digital fires hardware (standalone computer unit – SCU). Units need to bring the SCU from homestation, including the Pocket-Sized Forward Entry Device (PFED) and Light-weight Forward Entry Device (LFED).
- In order to test EAS BFTs, units should have the Defense Advanced GPS Receiver (DAGR) on hand during equipment draw, not in containers arriving late from CONUS. Units that do not have the DAGR for use during draw activities discover inoperable BFTs during AA setup.

Observation 3 - The EAS Bradley Family of Vehicles did not come equipped with the proper BII and special tools test equipment (STTE) for the new T161 track. Four issues are being addressed for units to have better success maintaining the T161 Bradley track. This particular RAF unit has T157i track on Bradley's at homestation and were unable to hand ship special tools and items from homestation.

- **Mechanical Puller (end connector puller - PN 12555909 / NSN 5820-01-627-9152)** - The unit was not issued this tool at equipment draw. Mechanics used a torch to remove interior and exterior end connectors. All Bradley's are authorized this tool IAW -10 hull TM BII list.
- **Lifter, road wheel (dog bone)** - The unit was issued the old T157i dog bone during EAS draw. While lacking this tool, one company had to improvise by placing wood between the wrong dog bone and the track. Another maintenance chief said if he did have to change a road wheel, his plan was to lift the vehicle with the M88 boom.
- **Track Fixture** - Bradley crews and maintainers expressed difficulties performing maintenance with the legacy track fixture on the new T161 track, stating the fixture slides off when

tightened. The unit elected to use the M88 and M113 fixture in lieu of the M2A3 fixture due to the slimmer design.

- **T161 maintenance** - T161 track requires vastly different maintenance than the T157i. The EAS fleet did not come with the student handouts that have been provided to units that have been fielded. This handout with visual aids would be useful to units who still have the T157i that draw Bradley's with T161 from the EAS. EAS Bradley's were not equipped with spare track shoes on the exterior of the vehicle. On numerous occasions, vehicle crews were stranded until mechanics could arrive with T161 center guides, end connectors, wedges and bolts.

Observation 4 - The EAS fleet does not provide complete additional authorized list (AAL) items. Units shipped several items of AAL from homestation, including VS-17 panels, concertina wire gloves and tow bars, but neglected to include picket pounders. This resulted in Soldiers pounding pickets with unsafe options like ball-peen hammers and even rocks. Additionally, units should bring safety items for equipment draw and rail operations, to include road guard vests, reflective belts, flashlights, and chemical-lights.

Observation 5 - Some vehicles are not equipped with all required BII and STTE to perform maintenance and operate the equipment. There were occasions when vehicles shared tools with their wingman. This can cause delays in operator level repairs during missions. Examples included tanker bars, and socket extensions.

Observation 6 - Maintenance supervisors reported inadequate supplies of key repair parts in theater to rapidly repair NMC equipment. Examples: The unit ordered 6,000 Bradley track shoes and their ordering system listed none as available in theater. The unit also expressed that there were no repair parts in theater for the assault breach vehicle (ABV). EAS ASL and FSC shop stock repair parts have been based on unit demands over the past few years. Since ABCTs have only recently resumed training at JMRC, this demand is inadequate to support replacement needs of training units. As the demand grows during future rotations, it is critical to ensure the ASL and shop stock support rotational ABCTs.

Observation 7 - Six Abrams Driver's Vision Enhancers (DVEs) were inoperable during the EAS draw. The unit reported that this fault in the operator technical manual did not deadline the vehicle unless the mount is broken. Since the DVEs did not work, the unit operated the vehicles service drive turned on during night operations. Following analysis, TCM-ABCT identified that the Bradley TM lists an inoperable DVE as a Bradley deadline.

Note - TCM-ABCT notified the PM of the DVE issue, and that office is assessing whether an unserviceable DVE should in fact deadline an Abrams.

Observation 8 - The analysis team observed that a large portion of the EAS Bradley T161 track was unserviceable. This often resulted in unsafe conditions when Bradley's did not have adequate traction in the field. As of 9 July 15 there are 25 sets of replacement track in Germany. Units need to continue to order replacements and track repair part status until all track is serviceable.

Actions to Date -

A Maintenance Advisory Message (MAM) was provided to the unit that describes the interim steps for using the legacy drift pin to expedite the removal of the end connectors. The MAM is available at https://www.milsuite.mil/book/docs/DOC-207650. The PdM is developing a plan to get the units these newly developed maintenance aids with instructions.

The EAS is scheduled to receive 74 end connector pullers ~ July-August 2015. Additional end connector pullers will be provided when the remaining Bradley's receive T161 track.

TCM-ABCT contacted the PdM and the EAS was issued the dog bone in March 2014. TCM-ABCT is following up to identify the location of the dog bones to ensure future units are provided this tool.

Recommendations -

IAW the EAS SOP dated 14 Apr 2015, units must submit Equipment Density Requirement List EDRL request thru USAREUR G3/G4 to HQDA for authorization to draw EAS equipment ISO exercises 90 days prior. EAS MTOE and shortage list are posted on Battleweb under each unit identification code (UIC). Units are encouraged to use the website to determine the equipment they require for the exercise. The Battleweb is at https://www.Battleweb.army.mil and equipment list of shortages can be found on Battleweb SIPR at https://www.battleweb.army.smil. Units need to pay particular attention to items the EAS fleet does not provide and bring these items from homestation.

When units conduct PDSS, inquire with EAS fleet managers on the availability of T161 BII and STTE. If the unit is equipped with T161 track at homestation, and the EAS is short, recommend units bring BII and STTE needed to maintain the track.

Abrams crews who have been fielded double pin track for many years recommend that Bradley crews carry spare T161 track shoes on the exterior of their vehicle for emergency track repairs.

Recommend USAREUR G4 and AMC work with the EAS Class IX manager and conduct an ASL/FSC shop stock review board. TCM-ABCT will support AMC and PEO-GCS in obtaining the top 100 repair part demands from the past year to establish a robust ASL for the ABCT and shop stock for the FSCs.

TCM-ABCT will continue to follow-up with stakeholders to identify if standard stockage lists (SSLs) support the demand of the EAS fleet.

TCM-ABCT is following up with the Abrams Logistics Director on the DVE issue.

For more information on T161 track see training products on TCM-ABCT's milsuite page at https://www.milsuite.mil/book/docs/DOC-212254?sr=stream&ru=166735 and https://www.milsuite.mil/book/docs/DOC-200459?sr=stream.

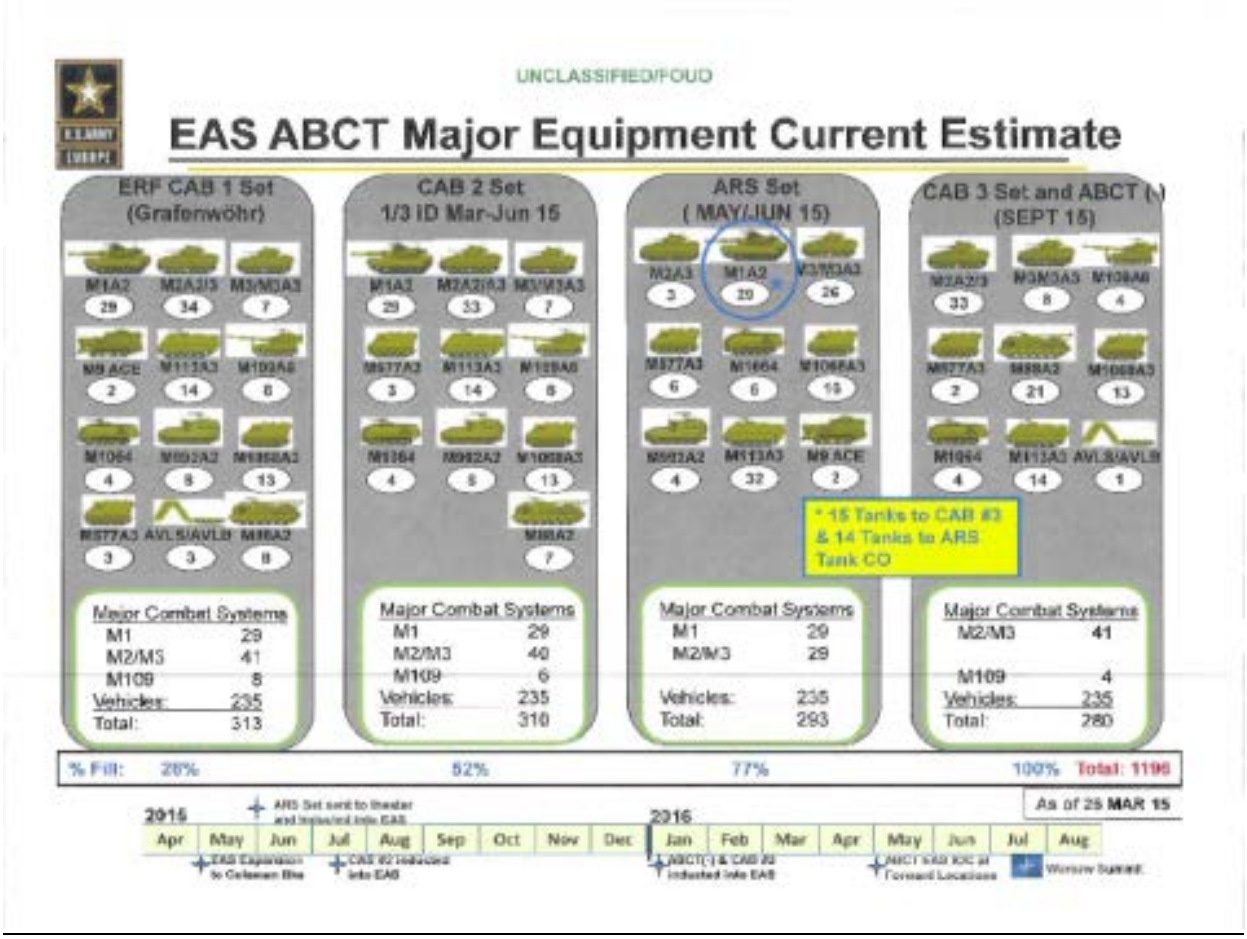


Figure 2.1 EAS Composition - This figure depicts current and future composition of the European Activity Set.

2.2 Multinational Mission Command Compatibility - The majority of the MN partners have Harris AN/PRC-150 HF and VHF radios that can communicate with U.S. HF and single channel ground airborne radio system (SINGCGARS) radios. The challenge is that MN partners are not capable of U.S. secure frequency hopping. This requires U.S. forces to utilize the lowest common denominator of FM voice in unsecure, single-channel, plain text mode, as U.S. forces are not permitted to share U.S. type 1 communications security (COMSEC) keys. Coalition partners are not expected to replace their FM voice and HF capabilities in the near future. At CPs this was mitigated by the U.S. providing liaison officers (LNOs) to the MN partner with secure voice communications. None of the MN partners have Force XXI Battle Command Brigade and Below (FBCB2)/Blue Force Tracker (BFT) and cannot see or populate the U.S. COP. This was mitigated by placing LNOs with FBCB2/BFT at the MN CP, and in some instances, an FBCB2/BFT was provided to the MN partner. The same interoperability challenge exists with Warfighter Information Network Tactical (WIN-T) Joint Network Node (JNN) network(s). U.S. forces are not permitted to provide other countries U.S. COMSEC keys. MN partners at the BN echelon were provided WIN-T Small CP Nodes that were operated by U.S. forces to provide the transport for an unclassified coalition network. A possible solution is to use some type of intranet with protected gateways that are controlled by U.S. forces.

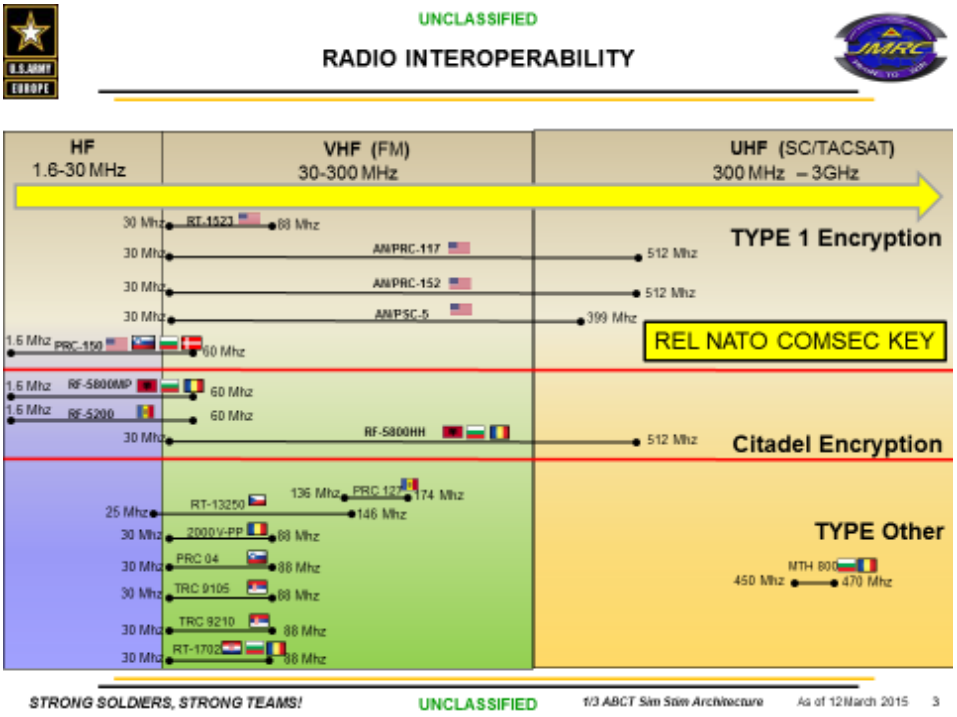


Figure 2-2 - Radio Interoperability

Recommendation - TCM-ABCT in cooperation with TCM-BCT/MC, identify offices of primary responsibility necessary to implement strategies for a possible common, multinational, COMSEC arrangement to provide an improved capability for all coalition partners to communicate in secure mode.

2.3 Multinational Interoperability

Observation 1 - Following task organization, U.S. forces need improvement integrating MN units. Challenges include: sustainment and communication planning, PACE plans, and no clearly defined task and purpose to achieve BDE's intent. Contributing factors include: changes to task organization, mission orders not produced/disseminated, unclear reporting requirements, command support relationships, and lack of inclusion of multinational partners in rehearsals.

> "During the operation, the MN unit was black on batteries and water, lacked reliable secure communications, and was unable to achieve the commander's end state."
>
> *AAR, JMRC, 2015*

Observation 2 - During AARs, MN commanders express they are unclear on who is responsible for their subordinate organizations when they are attached to U.S. units. MN commanders express this causes challenges in logistics. These commanders recommend checklists that outline procedures to integrate attachments.

Observation 3 - MN forces typically only attend the US force combined arms rehearsals (CARs), and not the sustainment, mission command, or fires rehearsals. This results in warfighting function efforts that are not synchronized to support the MN partners, and limit the U.S. force ability to maximize the full capability of the MN partners.

Observation 4 - U.S. force commanders express they have more success communicating during rehearsals when they refrained from using acronyms and incorrect doctrinal terminology (jargon). Although the majority of MN partners speak English well, it is not their primary language.

> "We are not distributing effective products to MN units."
>
> "Talking to MN leaders at BCT rehearsals is not going to cut it. Units need to create large terrain models and walk through the mission."
>
> "Don't use acronyms or jargon when communicating to MN partners."
>
> *BDE Staff OC/T Feedback, JMRC, 2015*

Observation 5 - U.S. forces and NATO MN partners experience mission command, sustainment and maneuver challenges based on multiple sets of doctrine requirements. Different countries are not familiar with all products of their partner nations. On some occasions MN partners struggled to perform MDMP and execute missions following receipt of U.S. products and rehearsals.

Observation 6 - US Army companies that are attached to MN battalions have similar challenges. U.S. Army company commanders expressed they countered the challenge with initiative to accomplish TLPs they knew needed to be accomplished based on U.S. doctrine.

> "Talking on the radio was very confusing. The MN unit we worked with had a completely different etiquette when communicating on the net."
>
> "The MN unit had unique TTPs outside of their doctrine that we did not understand."
>
> *AAR, Armor Company attached to MN BDE, JMRC, 2015*

Recommendations -

Start communications with MN partners early, learn their capabilities and limitations, and include them in the planning process. Ensure lines of support are clear and established for attachments, including who is providing classes of supply, medical evacuation, etc. Require MN partners to back brief during MDMP to ensure they understand the plan.

TCM-ABCT continue support to the Army CALL and JMRC to determine the feasibility for NATO to establish common doctrine for units when they operate as part of a MN BDE. Ensure all countries involved have access to standardized doctrine prior to their homestation training events. The NATO Allied Command Transformation (ACT) is the authority to develop doctrine to address improvements in NATO interoperability. NATO STANAGs contain some information to assist in this effort; however, the STANAGs are not all inclusive.

Section 3 - Mission Execution

3.1 BICES - An emerging trend involves the Battlefield Information Collection and Exploitation Systems (BICES), a system that provides U.S. forces, NATO forces, and other national allied

military organizations with near real-time, correlated, situation, and order of battle (OB) information. This capability supports threat analysis, target recommendations, and indications and warning. The BICES system brings a fused, all-source intelligence focus to current crisis situations with the capacity to support future operations and exercises.

Observation 1 - There is an insufficient number of BICES terminals at division level and below needed for U.S. and MN forces to communicate on both upper and lower tactical internet (TI). HQs, 4ID Mission Support Element (MSE) at JMTC has just one BICES terminal; the RAF unit had one terminal at BCT-level, but it was not assigned until their arrival in EUCOM.

Recommendation - RAF elements add required number of BICES terminals to their list of theater provided mission command system requirements in order to support unit operations down to company level at planned locations throughout the theater; seek VTT opportunities to conduct system training for operators prior to deployment.

3.2 Freedom Shock Missions - During CbR, forces were ordered to conduct special, short notice, joint and multinational mission requirements in theater. Two of these missions were unexpected and required personnel, equipment, and logistics capabilities. They included a CO/TM-sized element that conducted a rail operation to northern Germany, where they executed a hasty river crossing supported by German Bundeswehr engineering assets, and an air operation to transport a section of Abrams tanks via USAF C-17 to Bulgaria, where they executed a no-notice gunnery exercise with host nation forces and returned to Germany three days later. While both of these missions resulted in successful outcomes and the identification of best practices for future operations of this nature, when interviewed the RAF leadership indicated that their units could have been better prepared had they known about the requirements further in advance. Units supporting fall 2015 RAF mission requirements in EUCOM can expect to encounter an even greater number and type of these missions.

Recommendation - RAF elements identified for mission requirements should plan for as many of these special contingencies as time allows during pre-deployment activities, and focus on special personnel and equipment requirements for joint air-loading, and transnational rail-loading.

Section 4 - Sustainment

4.1 NATO Classes of Supply - NATO partners only use five classes of supply vs. the U.S. Army's ten. NATOs five classes of supply are:

- **Class I** - Items of subsistence, e.g., food and forage, which are consumed by personnel or animals at an approximately uniform rate, irrespective of local changes in combat or terrain conditions.
- **Class II** - Supplies for which allowances are established by tables of organization and equipment, e.g., clothing, weapons, tools, spare parts, vehicles.
- **Class III** - Petroleum, oil, and lubricants (POL) for all purposes, except for operating aircraft or for use in weapons such as flamethrowers, e.g., gasoline, fuel oil, greases, coal, and petroleum coke. (Class IIIa - aviation fuel and lubricants)

- **Class IV** - Supplies for which initial issue allowances are not prescribed by approved issue tables. Normally includes fortification and construction materials, as well as additional quantities of items identical to those authorized for initial issue (Class II) such as additional vehicles.
- **Class V** - Ammunition, explosives, and chemical agents of all types.

Recommendations - Training centers and units preparing to support NATO forces review and incorporate NATO logistical training utilizing:

- NATO Logistics Handbook, dated November 2012: http://www.nato.int/docu/logi-en/logistics_hndbk_2012-en.pdf.
- Chapter 7: NATO Principles and Policies for Logistics: http://www.nato.int/docu/logi-en/1997/lo-704.htm.

4.2 Logistical Report Formats and Systems - logistic common operating picture **(**LOGCOP) and logistic status (LOGSTAT) reports from NATO partners were different than US force reports and this presented a challenge for the BSB. Every country used different inputs to create LOGCOP/LOGSTAT reports.

Recommendation - Identify MN logistic reporting format/system challenges and establish procedures that ensure efficient integration. Involve MN partners early in the MDMP and establish a training plan that ensures MN and U.S. logisticians are trained on standardized processes.

4.3 Load Handling System Compatible Water Tank Rack (HIPPO) - The HIPPO is not part of the EAS draw fleet. Water buffalos were not able to be filled as part of a doctrinal LOGPAC process. The supported companies drove back to garrison to fill their water buffalos with potable water.

Recommendations - TCM ABCT recommends that DA G3/5/7, DA G4, USAREUR 3/5/7, and USAREUR G4 consider the feasibility of adding HIPPOs to the EAS fleet.

4.4 EAS Fleet Unit Status Report (USR) - An ABCT and the 405th Army Field Support Brigade (AFSB) reported they need clarity on who is responsible for the EAS monthly unit status report (USR).

Actions to Date - Currently, 405th AFSB is waiting on clarification from HQDA on whether a RAF draw is an equipment loan or an issue. If the equipment is a loan, then 405 AFSB will be responsible for the USR. If the equipment is issued to the unit, then the unit will be responsible for USR reporting.

4.5 Unit Draw Grid - Units drawing the EAS fleet need to provide their complete requirements (Vehicles, Radios, etc.) for the draw grid 60-90 days prior to deployment. This will allow the 405th AFSB to set the equipment draw grid to standard. EAS fleet managers continue to express this as the number one sustainment challenge units have.

Recommendations -

Units provide 405th AFSB draw grid requirements 90 days prior to the draw. In addition to EAS fleet requirements units need to identify shortages in the fleet and BII, additional authorization lists (AAL), and STTE required for operators and maintainers and bring shortages from homestation.

Units deploy the right personnel on the predeployment site survey (PDSS) to inspect equipment and notify the main body to bring shortages from homestation.

Units identify shortages during the draw and ensure parts are ordered, including tools. Units should order repair parts and shortages as soon as they are identified.

Draw grid guidance can be located at: https://battleweb.army.mil/.

- Once there, go to “Europe - Deployment Planning” in the drop-down menu and click “go.”
- Then click "Unit Property List Report."
- Under Location Tree view, select “AFSBn Germany ASL, AFSBn Germany European Activity Set and AFSBn Germany Loaned Equipment” (that is equipment that is currently out, but will return before the next rotation).
- Click “add selected items.”
- Then click “finish.” This will produce a report that you can export into Excel or PDF listing what is available for draw.

4.6 Wheeled Platform Un-stabilized Gunnery Capability - The majority of the HEMMTs and LMTVs observed in the EAS fleet have cab roof hatches installed for gunners to operate crew served weapons. None of these vehicles have ring mounts, weapon mounting hardware or weapons installed. This results in sustainment elements being unable to secure themselves during movements without external support. About half of the M113s and none of the M577 have crew served weapons mounting hardware.

CHAPTER 3
SAFETY

1. Accident Summary February - July 2015 - This chapter is a summary of ABCT-related accident reports to the PMs by FSRs from February – July 2015. Most investigations revealed that safety incidents on armored platforms (Abrams and Bradley's) could have been prevented. Several incidents in this report are a result of a lack of training on vehicles, lack of experienced operators, and a failure of crew members to follow instructions outlined in TMs. While visiting ABCTs, our team has observed that multiple units do not have complete TMs that contain safety warnings. The warnings, cautions, and mitigations identified in this document should be implemented in order to minimize risk.

2. TCM-ABCT recommendations -

a. Order hard copy TMs for all equipment assigned to ABCTs.

b. Review unit driver's training programs for safety content.

c. Conduct PMCS certification classes for NCOs and officers.

d. Conduct Sergeant's Time Training and teach tasks in the TMs (not only PMCS).

e. Enforce the use of front and rear road guards in congested areas.

f. Enforce the use of chalk blocks.

g. Appoint safety officers / NCOs down to company level; execute safety stand down days.

h. Rehearse vehicle crew drills prior to executing training events.

i. Inspect vehicle fire extinguishers and halon bottles for serviceability.

j. Assign at least one (1) Soldier trained as Combat Lifesaver (CLS) per vehicle and squad.

k. Ensure crews are proficient on misfire procedures to include procedures for a hot gun.

l. Maintain situational awareness of possible Abrams gun tube impacts in restrictive terrain.

m. Conduct range recons and rehearse safe execution prior to unit occupations.

n. Conduct risk assessments and implement risk reduction measures.

o. Conduct map recons prior to tactical road marches and conduct convoy safety briefings.

p. Conduct gunnery classes to train crews on gun theory.

q. Mechanics conduct QA/QC prior to vehicles being dispatched.

r. Conduct PCC/PCIs to include load plans.

s. Rehearse mounting/dismounting to safely synchronize actions.

3. Night Driver's Training - Vehicle operators experience challenges negotiating terrain at night under blackout conditions at NTC and JMRC. While navigation compounds the problem, Soldiers and NCOs frequently do not know how to properly use their equipment. Vehicle accidents occurred that resulted in revised priorities of work that included mandatory night driver's training at JMRC. Some units do not have night vision devices (NVDs) or night training listed on the Operator's Qualification Record (DA Form 348), or the OF 346, the standard permit that applies to all vehicle drivers or equipment operators.

Recommendations -

Conduct NVD Training IAW Chapter 8 of the Army Driver and Operator Standardization Program (Selection, Training, Testing, and Licensing, Army Regulation 600-55). See TC 21-306 for specific guidance on tracked vehicle operator training. Commanders at all levels must understand the devices limitations to conduct effective risk assessments for NVD training (see FM 21-305 and TC 21-305-2 for technical information on NVDs to assist in making these important decisions and assessments). In addition to NVD training, units should conduct night driver's training as a part of their Unit Driver's Training Program.

4. Semi Annual Accident Rollup (ABCT Systems, Feb - Jul 15)

a. 09 Feb 15 - Bradley Internal Fire - At approximately 2330hrs, after completing night Table VI, an M2A3 Bradley caught fire in the turret area while at the clearing pit. While clearing the Bradley, the BC and Gunner heard a popping sound and saw smoke which came from the approximate area of the BCs foot area in the turret. As soon as the pop was heard, the AFES system discharged. With all the hatches and ramp down the AFES did not put out the fire. The BC and gunner used the two handheld fire extinguishers while the RSO used one handheld fire extinguisher from his vehicle to attempt to put out the fire without success. While the fire event was occurring, the driver shut down the vehicle and shut off all power and fuel pumps then exited the vehicle. Unable to put out the fire, the crew and RSO got away from the vehicle as the ammo inside the vehicle began to cook off (approximately 6-7 25MM rounds and numerous M240C 7.62 coax rounds). The fire department used water and foam to eventually put out the fire. The attached photographs were taken of the vehicle which is obviously going to be categorized as a total loss. More to follow once the vehicle is cleared and taken back to the maintenance area.


b. 27 Feb 15 - M88A1 final drive damage - M88A1 was being recovered and unit only disconnected one side transmission output. This caused transmission to lock up and start smoking. M88A1 Transmission and possible right side final drive was damaged.

c. 27 Feb - Hercules Fire - TC stated on recovery mission M88A2 towing M1A2 and saw Black smoke and engine stalled. Smoke started bellowing out rear exhaust desk. Fire bottles where pulled manually. Auto suppression did not discharge. Fire department was called. Fire Suppression shut engine down but did not discharge bottles. Crew also used handheld bottles. Fire department was called and investigated to make sure the fire was out. The cause of the fire was later determined to be from a turbo seal leak.

d. 12 Feb - Abrams gun tube buried - Unit was conducting company level field training when vehicle was driven into sand dune and gun tube was buried into the dirt. Unit was informed of the safety requirements; decided not to conduct In Depth Main Gun Inspection IAW SOUM 14-008. Unit statement, "the preliminary checks for the barrels were done and they all passed. The D-CO commander feels confident that the barrel is in good condition and there is no need to go into the in-depth checks. According to the inquiry the CO conducted, there was a strike but it was not a hard strike and I believe the situation was more talk than anything else but in order to ensure the safety of the equipment and the safety of the Soldier's, the LAR provided us with the necessary information to conduct the checks. I will get with the LAR about the MAIR in order to close this issue out. Thank you for your assistance on this and for bringing this to our attention. In order to further prevent issues such as this, the Soldiers have been briefed on how, when, and to who incidents of this nature are supposed to be reported to and the urgency for it."

e. 24 Feb - CROWS Operation - M2 50 Cal MG mounted on the CROWS fired into the Abrams tank main gun tube damaging the following components (metallic tube NIIN: 01-206-0066 $314.17; damaged primary weapon ring NIIN: 01-203-2733 $58.21; damaged plain round nut NIIN: 01-203-8401 $643.42; Total $1015.80). LAR spoke with the operators of the vehicle who explained that the operator of the CROWS mounted M2 was engaging a target on the left side of the gun tube. During the same time, the gunner switched to the COAX weapon to engage a target to the right side of the gun tube. He elevated the tube to range the target and as he did, the gun tube came into the M2 line of sight. Two rounds impacted toward the end of the gun tube damaging the above components and removing some paint from the gun tube. No damage was done to the gun tube itself.

f. 26 Feb - M88A1 Steam Cleaning Incident - MATES mechanics were steam cleaning/washing the engine compartment on an M88A1. During the process of washing the engine compartment, the fire bottles discharged. The mechanic had just climbed down into the engine compartment after spraying the entire engine compartment floor and the back portion of the compartment. The first and second shot extinguisher discharged when the mechanic started washing the right side fuel tank. The vehicle was just outside of the steam bay, the weather was cool with intermittent cloud cover. The LAR asked the mechanics if the vehicle system was in maintenance mode. They stated that they put it into maintenance mode before they pulled the pack. This is the second M88A1 that the AFES discharged during the process of steam cleaning the engine compartment.

g. 26 Feb - Bradley final drive - LAR provided assistance to a unit that had an M2A3 Bradley that while driving to the range had a final drive propeller shaft snap, leading to a minor collision with the retaining wall. The BFV was left resting across the road between the shoot house and the range. There was no injury to personnel. There was superficial damage to the exterior of the vehicle. The unit mechanics were on the scene to repair the vehicle. The crew had conducted a before operation PMCS prior to SP. The Driver was properly licensed, the Bradley Commander has a valid TC/VC Card, and the vehicle is dispatched.

h. 26 Feb - Abrams losing power - A contractor employee was downloading an M1A1 Tank from a vessel at the Seaport of Debarkation (SPOD). While driving up the ramp, the tank lost power and rolled backwards into the vessel putting a hole in the structure causing a breach and water to spray. The vessels crew is in the process of trying to patch the hole (in the vessel). There is also damage to the rear of the M1A1 Tank. There were no injuries reported from the accident. Personnel are not allowed to board the vessel until clearance is given so it is not known how many vehicles remain on the vessel (if any) or what the status is of the vehicle that was involved.

Follow-up report after the investigation - As the tank approached the top of the ramp the driver stopped the tank while still on the ramp. He stopped to allow other traffic on the deck to proceed; when traffic was clear, the driver started forward still on the ramp and at this time the vehicle engine began to shut down and the tank started to roll backwards down the ramp. The driver applied both the service and parking brakes but the vehicle would not stop and rolled backwards down the ramp. At the bottom of the ramp the tank struck an internal wall of the ship. This collision caused extensive damage to the tank and poked a hole in the wall of the boat. The wall was a ballast tank on the boat and it started to leak water into the boat. The tank was towed off the boat and lifted onto a HET and transported to Camp Arifjan.

i. 27 Feb - Proper Track removal for Abrams - While participating in a maneuver exercise at Fort Irwin, CA, an Abrams Tank threw track resulting in a Soldier injury (during the recovery and maintenance procedure). The tank (M1A2 SEP V2) was maneuvering when it started throwing track on the left side at the comp idler wheel. A SSG (duty position unknown) was assisting the crew with releasing the track tension and they could not get the relief valve to release. As they removed the valve with an adjustable wrench, it eventually popped out under high pressure. As the SSG fell backwards during the tension release, his left hand fell onto the track tension device and his little finger (pinky) was caught between the moving parts of the tension mechanism. As he continued to fall, he instinctively pulled his hand back removing the glove off his hand along with the flesh from his finger. The tension mechanism also crushed the bone in the Soldier's injured finger.

Prevention measures - The TM states to relieve the pressure by prying on the valve release with a flat blade screwdriver. If further tension is to be released, it is to be performed by removing the rear vent plug on the track adjusting link. The report described the Soldiers as removing the actual relief valve on top of the adjuster which is in direct path of the moving parts as it compresses.

j. 1 Mar - Abrams Crewmember Injury - A crewmember was struck by M1A2SEPV2 cannon tube while on the back deck near the right rear battery compartment. According to the statements, both crew members were conducting maintenance when the first crewmember depressed the cannon tube on the second crewmembers back. TMC medical personnel assessed the injured crewmember as vitally stable and recommended for air transport to Camp Arifjan for a complete medical assessment. Chest and pelvic imaging conducted at Camp Buehring TMC showed no breaks abdominal ultrasound and x-rays indicated to fractures. Injured crewman was transported to Camp Arifjan for a complete trauma assessment.

The resident LAR was notified on Mar 5, 2015 1200. The LAR conducted a complete system turret check of M1A2SEPV2 HQ66 upon notification of accident. He verified that the gun and turret can be operated in normal, emergency, or manual mode properly. Gunner's handles and Commanders Control Handle Assembly (CCHA) operated properly with no difficulties. He conducted the following test- Fire control self-test (GO), Normal Mode operation (GO), Emergency Mode (GO), Manual Mode (GO), Manual Elevation handles (No Go) Hydraulic lines are installed backwards; when elevating on handles the cannon depresses, when depressing cannon elevates. Back deck clearance switch (Go), when traversing turret over back deck, in normal or emergency mode, a

deck clearance switch automatically causes main gun to elevate if it is depressed too low to clear back deck. It was reported that the first crewmember used the CCHA to depress the cannon so the issue of lines on the manual elevation handle being mounted backwards would have not caused the accident. Question unanswered is whether the first crewmember followed the procedures of OPERATOR MAINTENANCE, OPERATE GUN TRAVEL LOCK in TM 9-2350-388-10-2 WP 0224, ensuring that there are no other personnel outside, on, or near tank within length of gun tube plus three feet. Notify crewmembers that gun and turret are being unlocked. Each crewmember must be cautious so that their body parts do not go above/below main gun or in a position such that injury could result if un-commanded gun/turret movement occurs.

k. 9 Mar - Improper AFES fire discharge - An unsupported fire suppression bottle discharge/contact resulted in a Soldier injury. The Bradley unit received a misdirected Abrams M1A2 SEP V2 tank fire suppression bottle. The fire bottle was received through their supply system and was being turned back in for exchange. An NCO reported that the pressure gage showed zero. The NCO reported that the support and supply activity requires the bottle to be empty and the heads removed for turn in. The Unit Maintenance Tech placed the bottle on the ground, placed his foot on the bottle and told the NCO to kick the manual discharge lever (on the bottle). When the NCO kicked the lever the bottle discharged striking the Maintenance Tech in the lower leg causing a fracture and air medevac to the hospital.

l. 16 Mar - Bradley Free Fall Ramp - While two crewmembers performed maintenance on their vehicle, a free fall ramp occurred causing injury to one of the Soldiers. Soldier 1 lowered the rear ramp while Soldier 2 was positioned at the rear opening of the ramp door. Soldier 2 received injuries to his leg when the ramp started to free fall downward. The injured Soldier was taken to the NTC Hospital for further observation.

FSR Update - As I walked up to this vehicle the unit mechanic stated he was adding hydraulic fluid to the ramp pump because it was not lowering. He also stated that the ramp free fell and knocked another unit mechanic to the ground. I noticed that the ramp was half way down and that the troop door was half open causing the ramp to stop. I asked the first mechanic why the troop door was open and he stated that the 2nd mechanic tried to open the troop door because the ramp would not lower. I spoke to the driver of this vehicle and he stated that the ramp down light was on when the ramp was locked. It is unknown if the driver unlocked the ramp release at this time. I did notice that the ramp pump oil level was below the add level on the pump. After the mechanic added oil to the ramp pump. The ramp pump was lifted, locked and lowered 4 to 5 times and it operated correctly. I observed that the ramp locks correctly and the ramp up light went off. The injured mechanic is ok and back in the motor pool on a normal duty status.

m. 25 Mar - M88A2 Brake Failure - M88A2 was started and preparing to move to Motor Pool from PM ABCT holding area. The Soldier had his POV parked in front of the M88A2 and when he began driving the vehicle it appears the brakes failed causing it to run into the back of his POV. There will be further examination of the vehicle to determine if the brakes did in fact fail.

n. 30 Mar - Abrams towing another Abrams without exhaust deflector – M1A2 tank was being towed with another M1A2 without the use of exhaust deflector. Damage to towed tank observed as excess heat damage to vision blocks and headlight.

o. 31 Mar - Hercules and Abrams dual accidents - The damaged tank was dead lined for a DECU and was being towed to the cantonment area by another Abrams. There was a M88A2 Hercules Medium Recovery Vehicle behind the damaged tank that would be damaged. The M88A2 was towing an additional Abrams and at the time of the accident, the tow bar between the M88A2 and the vehicle being towed was severely bent during the accident. The first vehicle had stopped due to heavy dust and limited visibility and the M88A2 hit the tank head on causing the un-commanded gun tube strike. The damaged vehicle was in the travel lock position at the time. The M88A2 could not see the stopped vehicle and struck the gun tube on the main winch armor and hit the level wind armored track and bent the track 1-1 ½ inches up shearing off several bolts. The Abrams will require an extensive inspection, exercise, and pullover prior to being placed in service. The M88A2 will require several parts to be replaced. Inspection and repair on both vehicles is ongoing at this time.

TACOM SOUMs 08-008 and 14-008 will be provided to the unit 2 April detailing the required inspections and parts required to be replaced.

Update - The BMT has ensured a complete inspection with proper internal testing has been completed with passing results.

p. 13 Apr - Abrams Loaders Hatch - Unit was conducting training with tank crews on firing the main battle. After a Tank crew completed the task, the loader opened his access hatch but did not ensure that the hatch was secured. The tank moved forward to continue with the next training task when the loaders hatch came back down striking and injuring his hand. Solder was taken to the hospital for his injuries. LAR verified that the latch assembly would catch and lock when lowered into place.

q. 23 Apr - Abrams TC Hatch Incident - A Soldier was injured during unit organized vehicle movement. A SSG was the TC of an M1A2 Abrams tank (C13) driving from the wash rack to the Motor Pool after HETTs were unable to transport it to the range for LFAST. SM ordered the driver to stop the tank. SM dismounted the tank and alerted SSG that he had an injury to his left ring finger tip. SSG began administering first aid to SMs left ring finger. SM was transported by HMMWV to the AR motor pool and then to the ER via POV by his section leader. SM received treatment at the local medical center ER for crushed fingertip injury. SM was not wearing gloves when he dismounted the tank following the injury. The PSG conducted a full Pre Combat Check (PCC) for Personal Protective Equipment prior to movement and the Platoon Leader conducted a Pre Combat Inspection (PCI) as well. SM had gloves during the PCC and PCI. On C13, prior to departure from the motor pool to the HETT link up point, the Soldier noticed that the CWS mount was not locked in the front position. Soldier secured the CWS and tested the lock to ensure that it would hold by moving the CWS back and forth preventing the CWS from moving to the front. Following the incident, the TC looked at the tank and noticed that the CWS was facing the front and the lock catch was not locked, which was the probable cause of the injury. SM had surgery on 24 APR 15 to amputate the crushed bone at the first joint in his left ring finger. Surgery was successful and SM was released from the medical center.

Update - unit now states that the CWS was broken from the beginning so when TC ordered the driver to stop the CWS swung to the side and hit the tip of his finger.

r. 25 April - Abrams Gun Tube Strike - An Abrams was struck from behind by another Abrams with the gun tube hitting the bustle rack and its left fender striking the right rear ripping off the #6 and 7 skirt. 6 and 7 skirts and skirt supports, bustle rack, and bustle rack extension. One Abrams muzzle reference sensor (MRS), MRS mount, slight damage to the L/S front fender and main gun collar nut. The crew was not interviewed for this MAIR, the information was taken from GD FSR report. The gun tube on the other Abrams will be inspected IAW SOUM 14-08 (main gun inspection) when the vehicle returns to home station. The main gun on one Abrams will be NMC until the inspection is complete.

s. 26 April - Abrams Tube Strike - An Abrams was maneuvering on the battlefield and was killed (MILES kill) and stopped behind it and struck it in the rear right side grill door with its gun tube.

t. 13 May - Abrams Ammunition Door Accident - Ammunition Door Accident with Soldier injury. While participating in a range firing exercise, a Soldier acting as the tank loader was injured after the ammunition door closed on his left hand. After firing a round, the SM was in the process of removing the next training round when the ammo door closed on his left hand. Verbal description of the incident from the instructor revealed that while the Soldier was in the process of removing the round from the compartment, he lost his balance causing his knee to disengage the knee switch. Upon the disengagement of the switch, the door started its movement to the closed position. As the Soldier was falling, he spontaneously reached up and grabbed the ammo compartment area which happened to be the path of the closing door. The door continued to close on the Soldiers hand casing significant injuries. After opening the ammo door using the knee switch the SM noticed the injuries to his left hand. SM was treated by unit medics on site and subsequently air MEDEVAC'ed to the hospital. The Soldier's injuries include, left index finger completely severed from 2nd knuckle, middle finger crushed and fingernail missing from ring finger. There is a full investigation ongoing at the current time to determine what exactly happened that could have been prevented to eliminate a chance of reoccurrence of the same type incident. The TM (see below) indicates that the door will not stop during the last 1/2 inch of travel as a featured design.

WARNING - Bustle compartment ready ammunition door cannot be stopped during the last 1/2-inch (1.3 cm) of its closing travel. To avoid injury, keep hands clear of door during the last 1/2-inch (1.3 cm) of closing travel.

u. 17 May - Abrams Ammunition Door Accident - Abrams Ammo Door Accident with Soldier injury. A Soldier was injured when his hand was pinched between opening ammunition compartment doors on an Abrams tank. The vehicle was experiencing problems with the MILES system when crew member (SGT/ Gunner) tried to troubleshoot the system by following cables to verify there were no cuts or disconnects to cause the malfunction, when he accidentally activated the ammo door switch. This caused the door to open which caught SM hand between the ammo doors. The Soldier received a cut on the ring finger and was ground medevac to hospital where he got medical attention and 13 stiches on his finger. The LAR inspected the vehicle and found no mechanical or electrical problems with the ammo doors, ammo door power switch or loaders knee switch bracket. The system functioned as designed.

v. 17 May - Abrams Gun Tube Striking Power Lines - Tank gun tube strike/ LAR interviewed tank commander (LT): tank was moving on a convoy close to power lines poles while tank crew were monitoring battle field, when vehicle turned to the right, turret stayed on target (stabilization system was engaged) causing the gun tube to leave tank hull area and be exposed when tube struck power lines supporting pole. No notable/obvious damage was observed while conducting this assessment; however, vehicle needs to be inspected IAW SOUM 14-008 to determine if there is any damage to the tube and/or turret mechanical/hydraulic systems was caused by the accident.

w. 4 June - Abrams Tank Not Following Proper Convoy Procedures - A convoy consisted of one M1152A1 HMMWV and four M1A2SEPV2 Abrams Tanks. Prior to the convoy, the convoy commander stated that he ensured that the personnel had eye protection and gave a safety brief concerning driving conditions. During the convoy, the convoy commander approached the security gate. He noticed that the security force was closing the gate. When the security force personnel saw the convoy, the security personnel opened the gate. The convoy commander stopped at the gate and informed the security personnel that he had more vehicles in his convoy. The convoy commander said that as he was getting back into his HMMWV the first tank stopped behind his HMMWV. However, the second tank did not notice that the first tank had stopped due to the road being dusty and limited visibility. The second tank rear-ended the first tank. The force generated from the rear-ended caused the first tank to hit the rear of the HMMWV. The impact of the second tank hitting the first tank pushed the first tank approximately 11 feet from the original impact area. No one suffered any type of injuries from this massive impact. It is evident that improper convoy procedures are the root cause of this incident. The driver of the second tank failed to properly come to a halt or stop during limited driving visibility.

x. 5 June - Abrams Loaders Finger Tips Broken - Tank loader was injured while executing Tank Table V night run on a Multiuse Range. SM had just finished loading a tank round in the

M1A2 Abrams tank when his right hand was caught in the automatic hydraulic ammo door. SM reported that he placed his hand on the right lip of the door to steady himself after loading the round and was not paying attention to where he had place his hand. SM was evaluated on site and then taken to the medical facility for treatment. Initial medical reports indicate the SM's fingertips are broken.

y. 16 June - Abrams NBC Air Cycle Machine System Malfunction - At around 2100 hours an M1A2SEPv2 was conducting training at a CTC utilizing the NBC system. The crew noticed that the temperature inside the vehicle was rising. Smoke was detected inside the turret, the crew shut down and exited the vehicle. The driver was taken for observation at a local hospital and later released. The NBC system did not shut down automatically. The AFES system did not activate as there was no fire, the main NBC filters smoldered but did not burn.
Update - Air cycle machine was determined to be the failure causing this overheat condition. Panel displayed fault was not noticed by the crew and continued to operate the system.

z. 21 June - Proper PMCS Procedures and Recovery Operations - According to the owning unit, the unit conducted maneuver training in a field environment. During training, the unit stated that the driver of the M1A2SEPV2 Abrams Tank drove off the tank trail. The driver got the tank stuck in a wetland area. Upon attempting to recover the tank, a M88A2 Recovery Vehicle rigged their towing tackle. Upon recovering the mired tank, the unit personnel stated that the left front towing eye partially separated from the front slope of the tank. However, the recovery crew successfully recovered the mired tank. The unit motor sergeant stated that the left front towing eye appeared to have had a previous weld crack. The motor sergeant informed that the towing operation allegedly aided in the separation of the towing eye.

aa. 23 June - Proper Abrams Recovery Procedures with an M88A2 - According to the tank crew, the unit attempted to conduct a recovery mission in a field environment. During the recovery of the disabled M1A2SEPV2 Abram Tank, the M88A2 Recovery vehicle crew attached tow bar between the tank and the recovery vehicle. During maneuvering, the driver of the recovery vehicle turned too short. The rear of the M88A2 damaged the left front track fender. Also, the tension and pressure of the tow bar and rear of the M88A2 ripped off the left front towing eye. The unit motor sergeant acknowledges that the driver of the recovery vehicle did not properly tow the disabled tank. The M88A2 drivers improperly maneuvering of the M88A2 with disabled tank is the root cause of this incident.

ab. 25 June - Bradley Engine Fire - Vehicle was travelling as part of an armored column when the driver reported excessive heat on the panel beside him. The vehicle commander called a halt and the crew exited the vehicle except the driver who opened the engine access hatch. Flames came out of the engine compartment causing the driver to shut off the engine, exit the vehicle, and pull the manual fire extinguisher handle, which put out the fire temporarily. Once the fire reignited, Soldiers from the other vehicles expended all of their handheld fire extinguishers and the Range Safety Officer contacted the fire department who arrived on site and put out the fire. The unit retrieved the vehicle to the motor pool where they pulled the pack. A further inspection to determine the extent of damage will be conducted then.

Update - investigation is still ongoing to determine the cause. Initial damage to the vehicle reflects that depot level maintenance will be required to evaluate and repair bulkhead structure damage (see warped wall adjacent to the shift tower).

ac. 9 July - Abrams Generator Harnesses Were Not Properly Torqued - Unit used a slave cable to charge the Abrams tank batteries for over an hour. After shutting the engine down, smoke began coming from the exhaust area of the tank. Unit shut off master power and notified maintenance. Fire extinguished when master power was turned off. The 3W102-1/2 harnesses were not properly torqued on generator terminals.

Prevention measures - GPA 15-011 was released on 8 May instructing maintainers to properly connect generator terminals and check tanks for the same. The following statement was included in the GPA field message - maintenance personnel must also check installed generators during the next scheduled or unscheduled maintenance activity to ensure connections are in accordance with instructions outlined within this message. It recommended to inspect connection points as soon as possible to ensure correct electrical lead connections are installed to prevent the potential for a fire type situation resulting from improperly assembled electrical leads. GPA message link: https://tulsa.tacom.army.mil/Safety/message.cfm?id=GPA15-011.html