

# **Closing the Lethality Gap: Trend Analysis from Sullivan Cup 2022 and Application of Integrated Weapons Training Strategy (Part I)**

**by CPT Matthew T. Miller and 1SG Andrew L. Leatherbury**

For the first time in four years the U.S. Army Armor School (USAARMS) planned and organized the return of Sullivan Cup from its pandemic hiatus. Though few changes were anticipated for the events that make up the weeklong biennial competition, Sullivan Cup 2022 introduced the Bradley Fighting Vehicle for the first time in the event's history.

Fort Benning hosted seven Abrams crews and five Bradley crews from across the U.S. Army. The purpose of the competition was to identify the Army's best Abrams and Bradley crews, showcase the Armored Force's lethality and professionalism, and observe and annotate common trends throughout the operational force.

The Chief of Armor directed that all gunnery events be conducted to standard and according to the Integrated Weapons Training Strategy (IWTS) (Training Circular (TC) 3-20.0) and the Crew Training and Qualification (TC 3-20.31). Previous Sullivan Cup live-fire scenarios were designed to challenge and stress crews through nonstandard engagements, including maximum lateral dispersion, increased target presentations and increased ranges. This year's intent was to demonstrate "what right looks like" according to IWTS and gauge vehicle-crew proficiency and adherence to established standards as outlined in TC 3-20.31.

The master-gunner instructors from the Abrams and Bradley master-gunner courses developed the scenarios and prepared the range to meet the directed guidance. The TC 3-20.31 standard scenarios were designed to test the crews' ability to successfully engage and destroy stationary and moving targets in all operational conditions. All 12 crews were evaluated to the prescribed TC 3-20.31 standard, and crew evaluations were vetted through the Maneuver Center of Excellence's (MCoE) Directorate of Training and Doctrine Weapons and Gunnery Branch team to ensure quality control.

Common trends were identified for both Abrams and Bradley crews, and we will break down these trends into the following areas: preparation to fire and conduct of fire.

## **Preparation to fire**

Crews signed for vehicles April 26 and began armament-accuracy checks (AACs), plumb and synch, and prep-to-fire checks. For Abrams crews, there was a general unfamiliarity with conducting AACs and plumb and synch. Select crews took eight hours to complete AACs on their primary tank, requiring constant external support and mentorship from master-gunner instructors. AACs are expected to be conducted during monthly preventive-maintenance checks and services and should be a routine action for the crew.

Within the same motorpool, Bradley crews presented a similar trend of unfamiliarity when executing the prep-to-fire checklist and required external support from the Bradley master-gunner instructors to complete the prescribed tasks.

Crews conducted operations on the Digital Multi-Purpose Range Complex from the evening of April 28 to the morning of May 5. Crews struggled with prep-to-fire tasks prior to Gunnery Table IV and in between Gunnery Table IV and VI. Crews had difficulty properly boresighting their weapon systems in a timely manner. Crews were taking between 45-60 minutes to boresight, though the Gunnery Skills Test boresighting standard according to TC 3-20.31-1 is 22 minutes. Even after more time was spent boresighting, main-gun accuracy proved challenging when observed during live-fire accuracy screening test (LFAST) and zero. Some crews were returned to the boresight line after providing the master gunners' LFAST team with data that was outside normal parameters.

Beyond crews' difficulties with boresighting procedures, several gunners had issues manipulating their control handles. For Abrams, two crews were directed to manually fire their main guns during screening due to gunners

inadvertently flinching or jerking the gunner's power-control handle. Bradley crews were taking more than eight rounds to zero the Bushmaster M242.

For both platforms, zeroing the coax proved to be the greatest challenge. Crews were firing 10-or-more-round bursts while attempting to zero – rather than the standard three-to-four-round bursts – and made radical adjustments that either resulted in firing over or short of the zero target. Most crews required more ammunition beyond the authorized 50 rounds of AB86 7.62mm ammunition to complete the process. One crew was unable to properly zero the coaxial machinegun until the night portion of Table VI and only after cadre mentorship.

Manipulation of the fire-control system and control of the gunner's power-control handles can be easily mastered with the use of tracking and manipulation exercises and the sustained use of gunnery simulators. The zeroing and calibration of weapons systems should be deliberately trained, and new crews should be mentored throughout the process until they have demonstrated proficiency.

Several variables need consideration specific to the context of the competition timeline and competing events. There is risk in observing these trends in a vacuum as competitor crews dealt with competing priorities, preparation for follow-on events and the constraint of operating drawn vehicles. It is important to separate constraints presented in the context of the competition, but the observed trends remain valid when units consider their own operational tempo and collective-training-timeline constraints.

## **Conduct of fire**

Crew fire commands were excellent, and very few crew penalties were assessed. Most scores were affected by poor scanning and engagement techniques. Gunnery Table II, conducted at the Clark Simulations Center, revealed that crews had universally developed poor habits. Crews took the allotted time to identify targets and gunners attempted to lead main-gun targets, though the system already calculates lead as well as using the coax as a point system to "snipe" targets rather than sweeping or using a "Z-pattern." These habits exhibited in the simulators led to decreased scores and carried onto Tables IV and VI.

Crews displayed more issues on both Gunnery Tables IV and VI. Crews lacked defined scanning sectors and consistent scanning techniques, leaving areas of deadspace and reducing crews' ability to detect troops and far targets, accounting for lateral and in-depth dispersion. Once targets were detected, crews took prolonged time to prioritize targets, delaying the engagement process and wasting target-exposure time, resulting in targets going down prior to engaging.

Crews that were able to identify rapidly had trouble accurately hitting targets, resulting in impacts that were over, short or doubtful. Crews also struggled to manage their ammunition properly during engagements, exhausting their ammunition supply prior to the completion of the table. Though main-gun targets were consistent enough to notice a trend, coax engagements severely hindered all crew scores. Machinegun engagement techniques should be a focal point for future training efforts.

Difficulty in consistently engaging targets is attributed to common trends within the operational force. Many divisions, caused by high operational tempos, end up with a single brigade on station. These single brigades, while conducting training at echelon, do not always afford flexibility for battalions to use external crew evaluators. This causes conflicts of interest. Either knowing the crew evaluator or understanding that evaluated crews could possibly serve as the following crew evaluators, many scores are altered to provide a favorable outcome rather than an honest assessment. TC 3-20.31 dictates that "[e]valuations of crew gunnery always come from outside the firing-platoon element, and for qualification purposes, [vehicle-crew evaluators] (VCEs) external to the battalion are required."

Not having the ability or intentionally not using external evaluators ties into another systemic issue: leaders not using the IWTS properly or at all. This trend was confirmed by crew behaviors both on the lane and in the after-action-review room. For example, crews failed to hit a minimum of one troop target within the troop array and insistently wanted credit for engagements, claiming their round strikes were in the target area. However, all targets were functional and went down when hit, as observed by multiple crew engagements prior to and after protest periods.

Moreover, target malfunctions are not grounds for an alibi. Target malfunctions will be accounted for with malfunction break time, and the alternate target will be used for the engagement. TC 3-20.31 identifies the alibi process as “the process used for a crew to overcome a catastrophic event or an unsafe condition that prevented them from executing the engagement to the conditions listed through no fault of its own.”

Furthermore, crews attempted to use the alibi process to increase scores though it “is not a means to achieve a higher score to qualify or achieve a higher rating or standing once qualified on the table. A reason to refire an engagement because the crew could have done better. A reason to be negligent in the performance of -10 maintenance functions, prep-to-fire checks, pre-combat checks, pre-combat inspections or armament services.” VCEs and master gunners must educate vehicle commanders on the use of an alibi and enforce the standards.

## **Conclusion**

As the Army continues to shift toward large-scale combat operations, crews will need to rapidly analyze and apply doctrinal understanding and experience to faster-paced operations. Sullivan Cup 2022 served as a clear indicator that there are gaps in training. USAARMS, with support throughout MCoE, is working to fill these gaps. The Armor Standardization and Training Strategy 2030 and readiness-level (RL) progression initiatives are frameworks, aligned with IWTS, to improve the four fundamentals for crewmembers across the force: shoot, move, communicate and maintain. The goal is to assist operational units in certifying their crews, enable crew stability by tracking individual readiness levels and maintain sustainment of requisite skillsets.

When crewmembers can properly prepare their platforms for live-fire, we will be able to fully realize the true capability of our Armor Soldiers and their respective platforms. Crews must be fit to fight, trained to competency and confidence in their equipment, and disciplined on how to deliberately prepare their platforms to maximize performance; the results will come in the form of speed and accuracy, ensuring standoff and lethality. It is recommended that readers take lessons-learned into consideration when training their organizations. Finally, we recommend reading upcoming articles on the RL progression model and its implementation to support the Armor Standardization and Training Strategy 2030.

*CPT Matthew Miller commands Troop M, 3<sup>rd</sup> Squadron, 16<sup>th</sup> Cavalry Regiment, 316<sup>th</sup> Cavalry Brigade, at Fort Benning, GA. Previous assignments include operations officer, U.S. Army Armor School, Fort Benning, and motorized and mechanized reconnaissance-platoon leader in 2<sup>nd</sup> Brigade, 3<sup>rd</sup> Infantry Division, Fort Stewart, GA. His military education includes Armor Basic Officer Leader’s Course, Army Reconnaissance Course, Maneuver Captain’s Career Course and Cavalry Leader’s Course. CPT Miller has a bachelor’s of science degree in business administration and is pursuing a master’s of business administration at Auburn University.*

*1SG Louis Leatherbury, an Abrams master gunner, is first sergeant of Troop M, 3-16 Cav. Previous assignments include division master gunner, 2<sup>nd</sup> Infantry Division, Republic of Korea-U.S. Combined Division, Camp Humphreys, Republic of Korea; Stryker anti-tank guided-missile platoon sergeant, Company C, 52<sup>nd</sup> Infantry Regiment, 3<sup>rd</sup> Brigade, 2<sup>nd</sup> Infantry Division; chief training developer, Weapons and Gunnery Branch, Directorate of Training and Doctrine, MCoE, Fort Benning; squadron master gunner, 1<sup>st</sup> Squadron, 14<sup>th</sup> Cavalry Regiment, Fort Lewis, WA; and troop master gunner, Apache Troop, 1<sup>st</sup> Squadron, 3<sup>rd</sup> Armored Cavalry Regiment (ACR), Fort Hood, TX. He has served in every position of a tank platoon, including loader, driver, gunner, tank commander and platoon sergeant, and deployed as a tank gunner supporting Operation Iraqi Freedom (OIF) III with Company D, 2<sup>nd</sup> Squadron, 11<sup>th</sup> ACR, and as a tank commander supporting OIF 07-09 with Troop A, 1<sup>st</sup> Squadron, 3<sup>rd</sup> ACR. His military education includes Maneuver Senior Leader’s Course, Advanced and Basic Leader’s Courses, Abrams Master Gunner Course, Basic Instructor Course and Small-Group Instructor Course. 1SG Leatherbury has an associate’s of arts degree in general studies from Central Texas College and is pursuing a bachelor’s of science degree in environmental science from American Military University. His awards and honors include the Purple Heart, three Meritorious Service Medals and Combat Action Badge.*

*Maverick Troop manages the Master Gunner Common Core, Abrams Master Gunner Course, Tank Commander’s Course, Maneuver Leader’s Maintenance Course and the Abrams New Equipment Training Team.*

## **Acronym Quick-Scan**

**AAC** – armament-accuracy check

**ACR** – armored-cavalry regiment

**IWTS** – Integrated Weapons Training Strategy  
**LFAST** – live-fire accuracy screening test  
**MCoE** – Maneuver Center of Excellence  
**OIF** – Operation Iraqi Freedom  
**RL** – readiness level  
**TC** – training circular  
**USAARMS** – U.S. Army Armor School  
**VCE** – vehicle-crew evaluator