

From the Boresight Line: Mobile Gunnery Tower: Innovation in Non-Standard Range Operations

by SSG Brett Kuenzi

Many forward deployed units are confronted with difficulties executing qualification training on non-standard ranges of varying sizes and capabilities because the ranges are often not supported by a base or tower. A common question results among unit training planners: “How do we fairly and efficiently evaluate crews according to Training Circular (TC) 3-20.0, *Integrated Weapons Training Strategy*, standards in an austere, non-standard environment?”

Bridging capability gap

Master gunners of Company C, 1st Battalion, 6th Infantry Regiment, 2nd Armor Brigade Combat Team (ABCT), 1st Armor Division, bridged this challenging gap in capability through innovation and use of the mobile gunnery tower (MGT). The MGT provides depth in training capability to units that need to conduct crew gunnery on ranges with no tower structure available.

Towers used on standard ranges are pivotal to operating targets and evaluating crews. So that master gunners and commanders have accurate and usable data, there must be a centralized operation center to control and evaluate training. This location is where scores are calculated for the vehicle-crew evaluators’ (VCEs) after-action reviews (AARs), targets are controlled and observed, and throughput on the range is dictated. For armor, cavalry and mounted-infantry units executing gunnery training, this centralized operations center is called “the tower.”

The goal for training of any scale is always Soldier and unit improvement in a safe and efficient manner. Gunnery AARs facilitate increased lethality and survivability for crews by providing feedback from master gunners and VCEs, who are trained stewards of their profession. The tower is the central location for data to be collected and analyzed by key members of an evaluation team as outlined in TC 3-20.31. These members include, but are not limited to, unit master gunners, VCEs, timers, target operators and commanders evaluating their Soldiers and crews.



Figure 1. SSG Brett Kuenzi, Company C, 1-6 Infantry’s tank master gunner, uses a spotting scope to evaluate crew lethality. (U.S. Army photo by SGT Leopoldo Valdez)

Unfortunately, many non-standard ranges across U.S. European Command, U.S. Central Command and U.S. Pacific Command are not equipped with a physical tower or any sort of data-collection system such as field cameras and crew audio recording. In these situations, unit master gunners and commanders will typically use multiple vehicles to carry VCEs downrange in trail of the firing vehicle to evaluate crew performance for the AAR. A common issue with this method is the lack of an open and clear dialogue among evaluators, timers, the unit master gunner and, in many cases, a spotting vehicle. The result is rushed, inaccurate scoring that offers little to no usable feedback for Soldiers in the firing crew, and it hinders crew progression.

To solve this problem, master gunners of Company C, 1-6 Infantry, 2/1 ABCT, determined that a properly outfitted light medium tactical vehicle (LMTV) could potentially solve many issues. The idea progressed to the company-supply LMTV being fitted with a master control station (MCS), six full-function crew-communication stations and a loudspeaker. The LMTV's rear bed was fitted with two folding tables as workstations and a camouflage net overhead for shade. This configuration allowed the VCE, master gunner, target operator, timer and spotter to communicate uninterrupted through combat-vehicle-crew headsets while simultaneously giving instructions to the firing vehicle.

Although the MGT was not able to provide every capability of a standard range tower (for example, nighttime lighting, thermal-camera capabilities and 12v power), it significantly improved the evaluation process for crew gunnery.

The MGT enabled the VCE team, the range-safety officer (RSO) and different echelons of leadership to maneuver close to the firing vehicle's position. Once in position, the MGT's versatility allowed the VCE team to give firing prompts, raise and spot targets, monitor the "jump" net (for crew fire commands, battle-damage assessments and throughput), record audio for AAR purposes, grade crew training and, if needed, address safety and maintenance issues on the spot.

During the day, master gunners used their spotting scope from the MGT to identify target-engagement accuracy and times. At night, the master gunners used tanks with VCE-trained tank commanders as "spotters" to identify when targets were successfully engaged and communicated in real time over the radio to the MGT.

In summary, the MGT provided the operational capabilities of a stationary tower used on a standard range in a non-standard range environment.

Another essential element of gunnery on both standard and non-standard ranges is throughput of crews to ensure all crews are trained in the time available. Throughput is maximized by reducing issues a crew has while downrange and keeping time spent correcting issues to a minimum. The MGT personnel's ability to follow firing crews downrange while directing training – coupled with co-locating all members of a VCE team – greatly increased the throughput of crews. With the MGT maneuvering relatively close to the firing vehicle, communication issues were minimal, weapons malfunctions could be diagnosed and corrected by the master gunner, and any safety issues could be quickly identified and corrected by the RSO.

Overall, crews spent an average of 30 minutes downrange from the occupation of the first battle position to being cleared off the range by the RSO.

Takeaway

While the MGT does not solve all the issues that surround conducting high-quality training on non-standard ranges, it does enable units to conduct training that better aligns with that conducted on standard ranges in the continental United States. The MGT can be configured for use as a trail vehicle for evaluators during platoon or company maneuvers and live-fire training. It also offers the basics of a red tactical-operations center, and the MGT can be covered for use in various weather conditions.

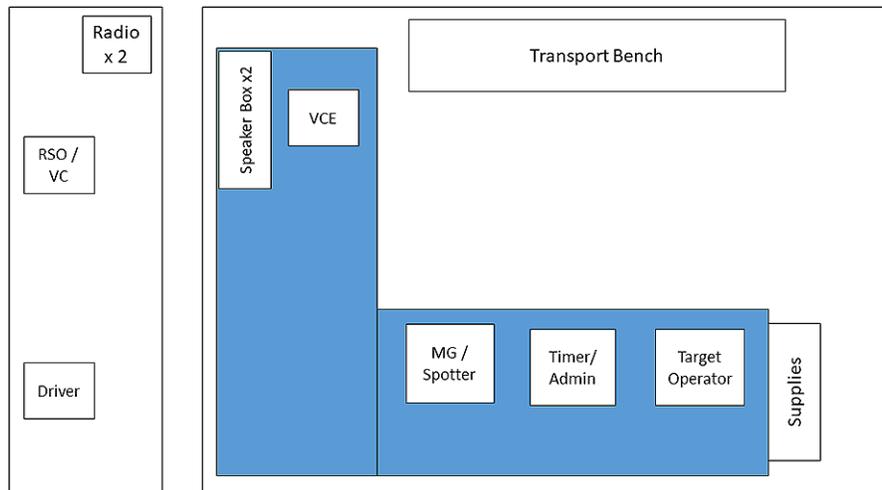


Figure 2. MGT setup aboard an LMTV. (Graphic created by SSG Brett Kuenzi)

While Company C, 1-6 Infantry, was unable to solve all the issues surrounding the lack of an organic range tower, the unit was able to create a solid base of expeditionary-training capabilities using only company organic equipment and innovation. The MGT bridged the gap in capability between standard and non-standard ranges while enabling evaluations in accordance with TC 3-20.0.

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Acronym Quick-Scan

AAR – after-action review

ABCT – armor brigade combat team

LMTV – light medium tactical vehicle

MCS – master control station

MGT – mobile gunnery tower

RSO – range-safety officer

TC – training circular

VCE – vehicle crew evaluator

MGT parts list

Following are the resources required to make the MGT:

- Fully functional LMTV with operational communications systems;
- Advanced System Improvement Program radios (x 2);
- MCS;
- Full-function crew stations (x 6);
- These crew stations' connection cables (x 7);
- Speaker box/cables (x 2);
- Gunnery script and admin tracking binders (scores);
- Spotting scope or binoculars (M22);
- Voice recorder (x 4);
- Folding table (x 2);
- Folding chair (x 5); and
- Tarp and bough or camouflage net for cover.



Figure 3. Target operator station, crew-communication stations and VCE stations setup in the MGT. (Photo by 1LT Jena Ladenburg)