Munition Effectiveness Manuals

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Joint munition effectiveness manuals (JMEMs) are important and useful publications that contain information on the effectiveness of U.S. and threat munitions against a variety of targets. Unfortunately, too few Infantry officers seem to know about these publications.

The primary objective of the JMEMs has been to provide the most accurate weapons effectiveness data possible and to present it in a usable format. The manuals consider the targets' vulnerabilities and the weapons' characteristics and delivery accuracy. Most JMEMs show damage capabilities in three categories—*firepower kill*, which means damage to eliminate the target's ability to fire its weapon systems; *mobility kill*, which means damage to a vehicle's engine or tracks or wheels that will prevent it from moving; and *catastrophic kill*, which means repair of the vehicle is not feasible.

The following are examples of these manuals:

Field Manual (FM) 101-60-1, *Effectiveness Data for Mortar, 81mm* (U), provides effectiveness data against selected targets in various environments.

FM 101-60-16, *Effectiveness Data for Infantry Direct Fire Weapons* (U), provides effectiveness data for the LAW, Dragon, TOW, improved TOW, and 90mm recoilless rifle against tanks and light armored vehicles.

FM 101-60-32, *Effectiveness Data for the M2A1/M3A1 Bradley Fighting Vehicle* (U).

61 JTCG/ME-77-15, *Red-on-Blue Manual Effectiveness Estimates for Soviet/Warsaw Pact Non-nuclear Munitions* (U), assesses the survivability of U.S. targets under attack by these weapons.

61 JTCG/ME-83-8, *Special Operations Target Vulnerability and Weaponeering Manual* (U), provides data for use by special operations forces in planning attacks against selected targets.

(Information on how to obtain JMEMs is available from JTCG/ME Publication Manager (TISUD), Oklahoma City ALC, Tinker AFB, OK 73145-5979, or DSN 336-2707.)

With units using fewer live fire exercises and more simulations, it is especially important for combat leaders and planners to know what their weapons can do, which munition is most effective against a given target, and how many rounds will be required to defeat it. For example, at 2,500 meters, is it better for a Bradley fighting vehicle to fire a TOW missile or 25mm rounds at a light armored vehicle? How many 25mm armor piercing discarding sabot or high-explosive incendiary rounds will it take to defeat the target?

Bradley crewmen and leaders who do not know about these manuals may have unrealistic expectations concerning engagement results with the 25mm cannon. Currently, for gunnery training, a Bradley crew gets a "GO" for putting three rounds out of five on a target. This standard appears to be related to the cost of the ammunition and not to the true number of rounds required to defeat a BMP, but many gunners and leaders may believe that the training standard is also the combat standard. Likewise, the Bradley unit conduct of fire trainer (U-COFT) and the simulations network (SIMNET) use several rounds to defeat their BMP-type targets. But anecdotal experiences from Bradley crews in Operation DESERT STORM report firing 20 to 30 rounds per target to achieve a catastrophic kill on lightly armored vehicles at some ranges, and these numbers are much closer to those reflected in FM 101-60-32.

BFV commanders and gunners should know that more than three out of five 25mm rounds are required to kill a BMP. (In the Israeli Army, gunners keep firing until they observe the desired target effect.) Battalion master gunners or S-3s should have copies of the classified **FM 101-60-32, *Effectiveness Data for M2A1/M3A1 Bradley Fighting Vehicle*** (U), dated 2 May 1989. This manual discusses the number of rounds to plan for when engaging several different lightly armored vehicles at various ranges and engagement angles. The greater the range to a target vehicle, the more rounds are required to defeat it. In one case, an increase of 400 meters in range
could almost double the number of rounds that would have to be fired to defeat the target.

An antiarmor gunner is lucky to be able to fire a single antiarmor service round during his entire enlistment. Obviously, the correct way to employ the LAW or AT4 light antiarmor weapons is to engage lightly armored vehicles in the flanks or rear at close range with volley fire. Engaging targets simultaneously with multiple LAWs or

AT4s requires planning, and engagement must continue until the desired target effect is attained; that is, until the target vehicle begins to burn or the crew abandons it.

Similar techniques are required when engaging tanks with Dragon or TOW missiles. Instead of volley fire, however, successive fire is required in which a second and possibly a third gunner is ready to engage the same target if the previous missile fails to destroy it.

During the early days of the Korean War, the gunners in Task Force Smith made direct hits with their antiarmor weapons, and still the Russian-made T-34 tanks rolled on. One lieutenant fired 22 rounds into the rear of a tank without stopping it. The Americans destroyed only four tanks and slightly damaged three others. The tanks continued through the position and overran the artillery battery. About 150 men of the task force were killed, wounded, or reported missing in action, and their howitzers and most of the crew-served weapons were abandoned. The success of the enemy in this battle affected the course of the entire war.

Leaders must recognize and guard against the negative training lessons that some training devices and gunnery standards may instill in their soldiers. For example, SIMNET (a command and control trainer) uses an unrealistic "cardboard" target that burns when hit. And the reason Bradley fighting vehicle gunnery standards require gunners to hit a target with three out of five rounds is not because a BMP can actually be killed with three rounds. The expectation is that soldiers who can hit a target with three rounds out of five can continue to hit the target until it has been destroyed. Similarly, LAW and AT4 gunnery has soldiers individually firing one round instead of squads practicing volley fire. The prevailing attitude during this gunnery is that one shot equals one hit, which equals one kill. While this may be suitable for gunnery training, it does not match the reality of the battlefield, where at least two rounds are often required for a light armor kill.

Obviously, there are differences between targets for gunnery and actual enemy armored vehicles, and leaders must keep this in mind. Obtaining and using the appropriate JMEMs is the best way to make sure that our soldiers' training accurately prepares them for the real battlefields of the future.

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The Battalion HHC Commander

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Few officers play as big a role in the combat readiness of an infantry battalion as the headquarters and headquarters company (HHC) commander. Unfortunately, many HHC commanders never reach their true potential because they, like their battalion commanders, have not taken the time and effort to analyze the qualities that lead to the success of a commander at the HHC level.

On the basis of more than five years' experience as leader of an infantry platoon and commander of a company and a light infantry battalion, I would like to offer some personal insights into what I believe makes an effective HHC commander. Although these comments are based mainly on my light infantry experience, I think they could be applied in any unit across the broad spectrum of infantry-related activities.

First, the HHC commander is frequently the senior company commander in the battalion and brings to the unit a breadth of experience and wisdom that marks him as one of the battalion's most valuable company-grade officers. Moreover, the HHC is the largest and, by its nature, the most diverse and complex company; this is true at both brigade and battalion levels. Senior commanders therefore often dictate that successful command of a line company be a prerequisite for HHC command.

One of my colleagues once commented that many officers perceive HHC command as an exercise in stewardship instead of leadership. The distinction is important. As a steward, the commander would serve chiefly as an instrument of the staff sections and an administrator of discipline. Remaining behind a desk and focusing on administration, he would seem content to allow the appropriate staff officers to train the platoons that they must employ in field situations. Finally, the steward's approach to command is often more reactive than active.

Diametrically opposed to stewardship and the managerial approach to command is that of a proactive commander, who is not only more effective but also a major contributor to the battalion's