

The Art vs Science of Maneuver Range Planning

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Paragraph One, Section B: "You can never use ▲ while conducting ■."

Paragraph One, Section C: "You can use ▲ while conducting ■ as long as you considered using ◆ first."

In the military, wordiness and ambiguity are rarely prized commodities. However, while designing maneuver plans for ranges and training events, these are encountered frequently. This is becoming even more apparent as the military shifts from global war on terrorism deployment cycles and transitions towards unified land operations. As unit commanders are, once again, provided more latitude in training management, the importance of clear training regulations and highly trained unit level planners must also become an imperative for both range management authorities (range operations) and units conducting live-fire maneuver training.

This article focuses on the challenges presented in the primary range safety pamphlet, Department of the Army (DA) Pamphlet (PAM) 385-63, *Range Safety*; the procedural difficulties that arise between training units and this document; and the safety training knowledge organic to maneuver units. The hypothetical example used in the opening of this article is, in fact, not hypothetical at all. It is pulled from Chapter 4 of the DA PAM (Paragraph 4-1, b-c) and dictates when units may use the less restrictive cone surface danger zone (SDZ) rather than the more restrictive batwing SDZ. It states in section b: "The cone SDZ may be applied when designing or conducting training on static/known distance style ranges that do not involve fire and movement or fire and maneuver." This seems pretty straight forward: Units are not authorized to use the cone SDZ for fire and maneuver (so you can never use ▲ [the cone SDZ] while conducting ■ [fire and maneuver]). However, the very next section, c, states: "The batwing SDZ provides for greater containment of all ricochets. For the Army, the batwing will be considered when designing or conducting training on ranges that involve fire and movement, fire and maneuver, flanking fire, and/or when ricochet hazards outside the range boundary may endanger nonparticipating personnel." Essentially, you can use ▲ [the cone SDZ] while conducting ■ [fire and maneuver] as long as you considered using ◆ [the batwing SDZ] first. The wording in these two sections is clearly contradictory.

The unfortunate part of the wording ambiguity that occurs in the DA PAM is that it often involves operations with higher levels of risk. The next major area of contention that is commonly brought up is the 15 degree/100 meter flanking fire portion of the DA PAM. This section allows, under a very specific set of conditions, units to shorten both the batwing and cone SDZ to a new, smaller 15 degree cone off of the gun target line (GTL). This is a very useful training tool that facilitates realistic training but clearly raises the level of risk while troops maneuver very close to the GTL. The restrictions are listed in 17-4, o: "Small arms (5.56mm, 7.62mm, and .50 caliber), ground-mounted or vehicle-mounted machine guns may be fired at low angles of elevation (near the flank of an individual or unit). For the SDZ, there must be an angle of 15 degrees or 100m (whichever is greater) between the limit of fire and the near flank of the closest individual or unit and all impacts are beyond the individual or unit. For the batwing SDZ, all nonparticipating personnel must be outside of the SDZ. Tripod, traversing, and depression stops will be used on machine guns to maintain the required angle and distance between the line of fire and the near flank of an individual or unit."

The most convoluted areas in this section involve a simple comma placement and the definition of "traversing and depression stops." Semantically, the comma in the first line after "small arms" indicates

that small arms rifles may be used with cone SDZ angles of 15 degrees. However, this provides very few safety measures as the “tripod, traversing, and depression stops” referred to in the last sentence only apply to machine guns. Those traversing and depression stops are also undefined, so units may wish to use the traversing and elevation knob on the 240B machine gun tripod while Range Operations may require stakes and sandbags around the barrel. Furthermore, how does the unit and Range Operations ensure that the stakes and machine gun are set in at the correct angles? Is it a unit-level responsibility to ensure each position is “stopped” correctly prior to firing, or does Range Operations need to confirm that each firing position is “safed” prior to firing?

The catch-all here is the next section, 17-4, p, which states: “Range SOPs will address firing and maneuver unit locations to ensure no unprotected personnel are exposed to training fires.” Thus, it is imperative that the local Range Operations develops a SOP covering the ambiguous definitions listed above as well as delineating responsibility for proofing each firing position. Without SOPs, the above mentioned areas present a major hindrance to smooth range planning and execution in medium and high risk training.

The result of the DA PAM vagueness is twofold. First, proactive units that are versed in DA PAM 385-63 arrive at Range Operations with training plans that use the less restrictive interpretation of the regulations. “We considered the batwing and want to use the cone,” is a common phrase. “Small arms rifles aren’t machine guns so I don’t need a depression/traversing stops, and I can still fire at 15 degrees from friendly troops,” is another. The unit commanders seek to maximize the realism of their training, which is entirely understandable, and often choose the most permissive readings of the regulations. Range operations, on the other hand, generally takes the more restrictive view, as it is the safer reading. The conflict that can arise when these two interpretations collide is the art versus the science of small arms maneuver range planning.

How do we, as training units and training enablers, change that to the art and science of range planning? This is a two step process. First, units must train their range planners. The lack of knowledge of SDZ construction within most light Infantry units is prevalent. The primary culprit here is a lack of training. For example, senior mechanized 11B NCOs receive in-depth training in SDZ use and maneuver planning through the Bradley Master Gunner Course; 19K NCOs have the Abrams Master Gunner Course. In both of those courses, SDZ development is taught over a multi-day period and graded rigorously. The Small Arms Trainer Course (SATC), on the other hand, targets service support personnel, does not have a maneuver focus, and only covers a brief overview of the differences between a cone and batwing SDZ. The Small Arms Master Gunner Course, which is run by the National Guard, focuses solely on marksmanship training and sees only a handful of active duty participants each year. Furthermore, the Ranger-trained leadership in light units bring a strong background in maneuver training but without the restrictions that come with live-fire training. In fact, the only training that covers a large body of light Infantry personnel is a single block of instruction during the Maneuver Captains Career Course (MCCC). After the block of instruction in the company phase, students are expected to design safe maneuver operations based on SDZs. While that is beneficial to the officer corps, it still leaves out all the NCOs that will make up the Infantry formations that the MCCC graduates will lead as the officers enter company command. Armor and Infantry officers in Bradley units, conversely, will have the benefit of master gunner-trained NCOs within their ranks. What conclusion can be drawn from this? A detrimental training gap exists between heavy and light Infantry units.

The value of senior NCOs and officers versed in ballistics and SDZ knowhow is vast to company and battalion-level training, and can facilitate maneuver planning that will align with safety expectations from range operations. The Inter-Service Resident Range Safety Course, (IRSC) is the end-all be-all for

SDZ development. The IRSC teaches proper SDZ development and application. It also has the secondary benefit of teaching the effects that each weapon system can bring to the fight via the capabilities demonstrated inherently in the SDZs. However, that course is little-known and underutilized in the “light” world. An increased focus on ensuring that plans shops are equipped with IRSC or master gunner-trained NCOs will enhance range planning and provide a critical benefit to unit training. The importance of this is currently evident with units training abroad in support of Operation Atlantic Resolve.

Training on installations where U.S. forces have never set foot before and without regulations that cover U.S. weapon systems is now commonplace. Units without master gunner-qualified personnel are at a distinct safety disadvantage, which is inherently risky and even more imperative given the political ramifications of accidents occurring in sensitive foreign environments.

The other necessary step to bring unit expectations and range safety regulations together is constant improvement of Army regulations regarding range safety. DA PAM 385-63 is generally updated annually (the last update was April 2014) and continually seeks to reduce the ambiguities that this article addresses. Additionally, the range management authority at each training installation must use range-specific SOPs to fill in the gaps in the DA PAM and tailor safety needs towards each respective training area. The net result of these procedures will reduce conflicts between training units and range operations as well as enable safe and realistic training for maneuver units.

Range policies and safety restrictions apply across all branches and units without exception. As such, training only select branches, units, or ranks on those restrictions is a detriment to unit training and readiness. However, this is a correctable problem with opportunities already available to enhance range safety knowledge within units through master gunner and intermediate range safety courses. With unified land operations and fewer deployment cycles, units and range staff must place a renewed focus on providing realistic training that meets safety requirements and bridges the gap between the art and science of maneuver range planning.

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*U.S. paratroopers from Company C, 1st Battalion, 503rd Infantry Regiment, 173rd Airborne Brigade, shoot during close quarters marksmanship tables with M4 carbines at Foce Reno Training Area, Ravenna, Italy, on 2 December 2015.
(Photo by Elena Baladelli)*