

## JANUS Battle Simulation System

Designing, resourcing and conducting effective tactical training for the battalion task force (TF) is a significant task. Success in battle often hinges on a TF effectively employing its combat power while coordinating its actions with adjacent units and higher headquarters. TF-level training using simulations can now be conducted at Fort Sill, Oklahoma using the Field Artillery School's new JANUS battle simulation center, which opened in March 1992.

The computer-based command post exercise (CPX) facility increases the FA School's effectiveness by providing simulation-based training to develop tactical leadership and fire support planning skills for officers and NCOs training at the Field Artillery School or working in active or reserve units at Fort Sill and the surrounding area. The facility also provides a perfect environment for the Army Research Institute (ARI) to conduct research on factors affecting command and control, information flow, decision making and FA integration.

The Field Artillery School added JANUS training as part of an overall Army effort to meet the challenges created by changes in doctrine, weapons systems, force structure and organization, automation and the Threat. While Combat Training Centers (CTCs) have made significant contributions to combat readiness, more cost-effective resources have also been developed, particularly those that employ battle simulation.

Battle simulation is now, and for the foreseeable future, playing a key role in

developing tactical leadership skills. In an era of significant resource and space limitations, battle simulation provides an effective alternative. The joint exercise support system (JESS) is the backbone for simulating corps and division-level operations for the Battle Command Training Program (BCTP). Battalion and brigade simulation (BBS) supports brigade and battalion operations. Simulation network (SIMNET) provides training opportunities at the company, platoon and section levels.

By choosing the JANUS battle simulation system, the Field Artillery School recognizes the training value of simulations for maneuver tactics and fire support planning and synchronization. The Tactical Commanders Development Course (TCDC) in the Command and General Staff College (CGSC) at Fort Leavenworth, Kansas and I Corps' Simulation Center at Fort Lewis, Washington have used JANUS extensively to train leader tasks at the task force and company levels.

JANUS permits leaders at every level of the battalion TF to develop their tactical and technical skills and determine how their actions contribute to the success of the TF as a whole. The system allows the user to plan and execute battles with an authentic computer-generated threat and then assess the effectiveness of their planning. It can portray virtually any tactical situation or item of equipment. The user drives combat actions by inputting instructions for movement, target acquisition and delivery of fires. The computer deter-

mines the results of individual fires according to established probabilities and priorities.

The system also incorporates a unique software capability that allows post-processing of battle results. Each time a battle is completed, data on position, movement, obstacles and kills are collected and recorded. As the process of recording battles continues, JANUS creates a data base that allows researchers to develop hypotheses and extract from the data base the information needed to test them.

This capability also provides immediate feedback to JANUS users for after-action reviews (AARs). The JANUS(A) analyst workstation (JAAWS) allows users to display events such as sensor detections, positions of units, movement, direct-fire engagements, fire support and obstacle employment, force attrition and sustainment operations. The event-display features of JAAWS enable the user to assess the effectiveness of tactical plans, functional area synchronization and the contribution of various battlefield operating systems (BOS) to the outcome of the battle.

By maximizing this simulation facility the Artillery School is not only stretching its training dollars, it is providing a cost-effective and realistic training environment where leaders can augment lessons learned during classroom and field training. The JANUS battle simulation system will increase the FA's effectiveness in the future and maintain the artillery as *the King of Battle*.

LTC Thomas F. Waters, USAR  
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## Attacking a Moving Target

Commanders in the field and observer/controllers (O/Cs) at the National Training Center (NTC) continue to identify a fire support training shortfall—engaging a moving target array with indirect fire.

The consensus is that fire supporters are good at placing accurate and timely fire on specific grid coordinates. Unfortunately, because we fight on a highly mobile battlefield, the location sent in the call-for-fire, in many cases, is not where the enemy is when the rounds impact. The

bottom line—fire support is not contributing to the battle anywhere near its potential.

ARTEP 6-115-20 *Mission Training Plan, Field Artillery Cannon Battalion Fire Support* gives the tasks, conditions and standards for a combat observation lasing team (COLT) or fire support team (FIST) engaging a moving target array. The ARTEP MTP references doctrine (FM 6-30) and training publications (STP 6-13F14-SM-TG) that prescribe the technical procedures to effectively engage a moving target. But the problem is not in the procedures, it is in the techniques we use to train the procedures.

There are several methods units can use to train this task, each with advantages and

disadvantages. Commanders must evaluate their unit's level of training and the resources available to train moving target engagements, then develop aggressive programs to produce fire support officers (FSOs) and forward observers (FOs) capable of effectively attacking a moving target.

The training set, fire observation (TSFO) is one resource commanders can use to provide initial-level training on the technical procedures (determining target speed, processing time and trigger points) the observer uses to attack a moving target. However, the TSFO can only portray a single moving target on a two-dimensional screen. Because of this limitation,

once an observer masters the technical procedures, he must leave the TSFO and train to engage a realistic (three-dimensional) moving target array.

## Training Methods

There are two common methods units are using to transition observers from the TSFO to battlefield-type targets: simulating moving targets using white phosphorous (WP) smoke rounds or simulating moving targets using a vehicle-mounted position azimuth determining system (PADS).

**White Phosphorous.** A moving target array is depicted by firing successive rounds of WP into the impact area along the intended direction of travel and at the appropriate intervals to represent the desired target speed. The observer, using the technical procedures mastered in the TSFO, computes the intercept point and uses live rounds to engage the simulated moving target. Evaluation feedback is provided by determining if the rounds impacted near enough to the WP to produce the desired effects. The disadvantage of using this method is WP rounds are not resourced for this training in *DA Pamphlet 350-38, Standards in Weapons Training*.

**PADS.** A moving target array is depicted by using a vehicle-mounted PADS

alone or in a group of multiple vehicles. The vehicle(s) move along a predetermined route at a specified speed. The observer, again using the technical procedures mastered in the TSFO, computes the intercept point and calls for a dry-fire mission to engage the moving target (vehicles). The vehicles are halted (through radio link) when the rounds would have impacted. The PADS vehicle determines its current grid location. Evaluation feedback is provided by comparing the PADS grid to the grid fired by the FDC and determining if the rounds would have achieved the desired effects. The disadvantages of using this method are the vehicle and land resources required for support and the requirement to fire dry missions.

## JANUS Battle Simulation System

In the near future (FY 93-94), most major Training and Doctrine Command (TRADOC) and Forces Command (FORSCOM) units will have access to the JANUS battle simulation system. JANUS is an advanced, integrated, computerized battle simulation system that can realistically portray moving target arrays and effects from artillery fires. This system is currently in use at the Field Artillery School.

Officer Basic Course (OBC) students receive procedural training on how to engage moving targets in the TSFO. After developing their skills in the TSFO, they transition to battlefield-type targets using the JANUS system. The OBC student spends one day on the JANUS system engaging moving target arrays. As a result of this training the OBC graduate is familiar with, but not proficient in, attacking moving target arrays. Sustainment training is required, once they reach their units, to become proficient.

By comparison, Officer Advance Course (OAC) students don't receive the TSFO introductory training, but do spend three days with the JANUS system engaging moving target arrays at the battalion task force level.

Suggestions or innovative ideas to better train to perform this task should be sent to Director, Fire Support and Combined Arms Operations Department, so we can share your ideas with other units. Contact: Commandant, US Field Artillery School, ATTN: ATSF-TF, Fort Sill, Oklahoma 73503-5600 or call DSN 639-5801 or commercial (405) 351-5004.

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## Palletized Loading System for the FA

Since the art of warfare was first practiced, the adequate supply of ammunition has been a formidable task for the logistician and continues to be so now. In the mid 1980's, the Army started reassessing distribution of supplies and ammunition. The current system uses numerous types of vehicles to transport ammunition to the user and requires large areas for storage and transfer.

After evaluating the British demountable rack off-loading platform system (DROPS) and the civilian trucking industry system for moving bulk supplies long distances, the Army developed a similar system, called the palletized loading system (PLS), to enhance the movement of supplies and ammunition. With the fielding of PLS and the implementation of the maneuver-oriented ammunition distribu-

tion system (MOADS), the Army will implement its latest doctrinal changes (MOADS-PLS) in the next revision of *FM 9-6 Ammunition Service in the Theater of Operations*.

Under MOADS, 75 percent of the ammunition required at the front lines will be shipped to the brigade ammunition transfer point (ATP) on truck-trailer combinations from the corps storage area (CSA). These trucks must be loaded and unloaded using forklifts, which consumes a great amount of time and energy.

PLS provides the final link in an evolving MOADS designed for Army 2000 and beyond. PLS enhances relocation capabilities by combining the use of flatrack storage and PLS transportation prime movers. Stocks are no longer placed on the ground, but stored on flatracks (cargo containers). These flatracks slide directly on or off the PLS vehicle. The vehicle can drop off or pick up a flatrack loaded with ammunition and other supplies in less than a minute. Ammunition transfer and movement capability increases while the need for organic materiel-handling equipment decreases.



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