APPENDIX E

TRAINING AIDS, DEVICES, SIMULATORS, AND SIMULATIONS

CONTENTS

This appendix provides an overview of available training aids, devices, simulators, and simulations. It also offers suggestions on how to use TADSS in company and battalion training.

TADSS enhance the training of soldier, leader, crew, and collective tasks. When field maneuver areas and or ammunition are not available for training, TADSS can be used to accomplish the training. Some Army training already depends on TADSS. As new systems are fielded, higher costs for ammunition and increased maximum ranges for weapons will make many existing ranges and maneuver areas obsolete. Leaders will have to increasingly use TADSSto train soldiers.

The Army's continued emphasis on combined arms training highlights additional TADSS advantages. Commanders cannot train all the members of the combined arms team together all the time. When elements of the combined arms team are not available, TADSS can simulate those elements.

ELEMENTS OF TADSS

TADSS have four elements—training aids, devices, simulators, and simulations. The following sections describe each and provide examples.

TRAINING AIDS

Training aids are items that assist in the conduct of training and the process of learning. Examples of training aids are—

- Visual modification (VISMOD) sets; for example, BRDM-2 mock-up.

- Graphic training aids (GTAs); for example—

  — GTA 10-2-2, Fuel System Supply Point.

  — GTA 6-5-2, Fire Direction Kit.

  — GTA 3-6-3, NBC Warning and Reporting System.

- Models; for example, inert munitions.

- Displays; for example, OPFOR small arms.

- Slides; for example, 35-millimeter slides on training topics.

- Books; for example, documentation on training aids.

- Pictures to support briefings and presentations.

- Magnetic media; for example, training films.

Most training aids are maintained at the Training and Audiovisual Support Center (TASC). DA Pamphlet 25-37 provides an index of GTAs. DA Pam 25-90 provides a list of all of the Army's training films.

TRAINING DEVICES

Training devices are three-dimensional objects that improve training. Generally, devices do this by giving the soldier something that substitutes for actual equipment that cannot be provided otherwise. As the following examples show, these include such things as threat equipment, munitions, and force-on-force systems:

- Smoke-producing M21 antitank mines.
- M14 antipersonnel practice mines.
- M16A1 antipersonnel practice mines.
- Suitcase sagger replica.
- Accoutrements kit (threat).
- MILES.
- Miniature moving target (MMT).
- Training grenades.

Most training devices are also maintained at TASC. DA Pamphlet 350-100 identifies extension training material (ETM) catalogs. DA Pamphlet 350-9 identifies training devices that support specific soldier and collective tasks.

SIMULATORS

Simulators are a special category of training devices that replicate all or most of a system's functions. Examples include—

- Conduct-of-fire trainer (COFT); for examples, M2 BFV and M1 Abrams.
- Flight simulators.
- Weaponeer.
- Simulations networking (SIMNET).

Unlike training aids and devices which are generally maintained at TASC, simulators are normally issued to units or to the installation for use by units.

SIMULATIONS

Simulations provide leaders effective training alternatives when maneuver and gunnery training opportunities are limited. When used properly, simulations can create the environment and stress of battle needed for effective command and battle staff training. Proper use of simulation helps commanders ensure quality battle training that can compensate for the following constraints to field training:

- Limited opportunities for field maneuver.
- Lack of a trained OPFOR.
- Inability to replicate full logistics battle.

Simulations do not totally replace traditional field training but can provide an alternative, realistic training environment. Simulations can help do the following:

- Support mission training evaluation plan (MTEP) preparation at less cost.
- Validate internal staff training and SOPS.
- Expose battle staffs to a lethal, complex, modern battlefield.
- Build battle staff and leader flexibility and responsiveness.

  Some currently available simulations are—
- Tanker Game (DVC-T 17-80) (crew level).
- First Battle: Battalion-corps (company to battalion level).
- ARTBASS (battalion level).
- Interim Brigade Battalion Simulation (IBBS).
- Technical support package.

USE OF TADSS

BATTALION GUIDANCE

Battalion-level involvement is key to the success of employing TADSS at unit level. The battalion commander must ensure that TADSS are properly used to achieve maximum benefit

and cost efficiency. To this end, he must incorporate TADSS into training objectives.

The battalion staff should become the functional expert on TADSS for its subordinate units. This will involve key staff members coordinating

with TASC personnel to become familiar with all aspects of TADSS. As a minimum, the battalion staff should be familiar with each element of TADSS that its units regularly use. The staff can then guide units on the successful planning, preparation, and execution of TADSS-assisted training. It is also critical for the battalion staff to have knowledge of a TADSS system before its initial use by a subordinate unit. TADSS should not be used unless they enhance training. Otherwise, they become training distracters.

Training aids and devices are generally simple devices that merely augment training. Units can normally use them effectively with minimal guidance from the battalion. Simulators and simulations, however, may make up a large part of the total training and require extensive support from the battalion. The battalion staff must be able to provide—

- Resources, such as training facilities and supplies.
- Training assistance (based on input from TASC).
- Guidance such as the OPORD, and the commander's intent.
- Training objectives if requested.
- Lessons learned (experiences from other subordinate units).

TRAINING OBJECTIVES

Training objectives are discussed in Chapter Two. Training objectives identify the who, what, where, and how of each training task, conditions, and standard. During a commander's assessment of training needs, he should determine if TADSS can enhance the training and incorporate them into his training objective.

For example, CPT Jones is an armor company commander and wants to improve the gunnery skills of his tank crews. His battalion has provided assistance and he has gained access to the UCOFT simulator. A sample of one of his training objectives incorporating TADSS is at Figure E-1.

Sample training objective incorporating TADSS

TASK: Engage a moving target (offense).

CONDITIONS:
a) **Using the COFT simulator, acquire and engage one moving T-72 tank at 900 to 1,100 meters.**
b) **Using gunner's primary sight (GPS) from a moving tank.**
c) **Lead angle sensor failure.**

STANDARD: Must hit target within 20 seconds.

Figure E-1.

IMPLEMENTATION INTO UNIT TRAINING

Leaders must determine the suitability of using TADSS to support events in a unit's training program. To do this, they—

- Review the unit training program by event.
- Clearly state the training objective or objectives for each event.
- Determine if the soldiers and units being trained require initial, refresher, or sustainment training.
- Identify the major tasks to be trained to achieve each training objective.

They next perform a task analysis. This will—

- Determine the performance steps for each task.
- Identify equipment (if any) required for each task.
- Identify the conditions under which the task must be accomplished.
- Identify the standards to which it must be performed.
- Determine what tasks can be trained using TADSS.

Leaders must also identify the training resources needed to accomplish the training objective. How many vehicle miles are needed? What ammunition, TADSS, ranges, and training

areas are needed? They then determine TADSS availability by—

- Asking the battalion S3 or division G3 sections what TADSS are available and how they can be scheduled.
- Visiting the installation TASC (with the training NCO).
- Reviewing the DA Pamphlet 350-100 series catalogs and other TADSS publications.

Leaders must identify unit soldiers or civilian personnel needed to operate TADSS. If training is needed, leaders plan requisite training. They backward plan from the event and prepare a training strategy that—

- Gets the unit progressively to the event.
- Coordinates for and obtains the necessary training resources.

The following two scenarios show how a leader might plan for TADSS use.

Scenario A

A tank company commander studied the after action reviews from the unit's last CTC rotation. Analysis of data and OC comments indicated that the unit was deficient in the following tasks, thus reducing direct fire effectiveness:

- Identification.
- Target acquisition.
- Engagement.
- Battle handoff.

The company commander determined that he needed to emphasize these tasks during the next training cycle. Key to success would be to provide tank crews with opportunity to practice these important skills. This would not be easy over the next few months because of—

- Ammunition shortages.
- Limited maneuver space.
- Limited time.
- Unavailability of crews.
- Expected personnel turbulence.

Despite these constraints, the company commander believed that his crews must practice the deficient skills if they were to effectively use the available resources.

The company commander coordinated with the battalion S3 and TASC to obtain a clear picture of available TADSS resources. He also conducted a thorough review of—

- COFT.
- Tank Crew Gunnery Skill Test (TCGST).
- Tank Crew Proficiency Course (TCPC).
- SIMNET.
- Range schedules.

The commander outlined a training program that, along with other key tasks, focused on identification, target acquisition, engagement, and battle handoff. Further, he identified all available time to practice crews in these skills. He developed a training plan that allowed crews to progress from TCGST to COFT to TCPC to home-station gunnery with feedback at each step. TADSS were integrated into the training as follows:

- Identification. An enemy weapon system graphic training aid was used for the identification portion of TCGST.
- Target acquisition. COFT was used to train crew members. Enemy vehicle silhouettes were used during the TCPC.
- Engagement. COFT was used to train on engagement techniques.
- Battle handoff. Silhouettes were used during the TCPC.

Crews that failed to show improvement were given remedial practice using the best available TADSS system. Once a crew demonstrated adequate proficiency, the company commander used the following TADSS to sustain training proficiency:

- GTA 30-3-14 Warsaw Pact and North Atlantic Treaty Organization (NATO) Tank Recognition Guide.
- Tank Model DVC-T710-102.
- Tank Precision Gunnery Inbore Device, Thru Sight Video.
- MILES and Laser Targeting Interface Device.

The commander's well-thought-out program and careful use of TADSS resources significantly

improved unit performance at the next CTC rotation. Crew through platoon were much more effective in identifying, acquiring, and handing off targets.

Scenario B

From studying the after action reviews from the last FTX, a forward support battalion supply and services company commander decided that her unit was weak on security. The soldiers' inability to detect and identify OPFOR contributed to this weakness. Even when detected, OPFOR were neither engaged nor the unit alerted because soldiers mistook them for friendly. If the shooting had been real, the company would probably have been destroyed.

The company commander determined that preparation for the next training cycle must emphasize the critical battle skills of establishing and maintaining effective unit security. Emphasis would be placed on identifying training opportunities around a busy unit schedule that would allow the company to manage multi-echelon training objectives. The commander wanted to challenge her soldiers by creating as realistic an environment as possible.

Coordinating with the battalion S2 and S3 officer and the TASC, the commander identified a number of training resources and scheduled them into company training. Some of the TADSS items to be employed were—

- MILES.

- Accoutrement kit (threat).

- OPFOR small arms.

- Antipersonnel mines, practice.

- VISMODs (BRDM-2) (T-62 Tank).

- Suitcase sagger replica.

- Pictures.

- GTA 30-3-14 Warsaw Pact and NATO Tank Recognition Guide.

- GTA 30-3-25 Soviet Antitank Guided Missile Subsystems.

- GTA 30-3-16 Soviet Army and Navy Uniforms Rank and Insignia.

- GTA 30-3-18 Soviet Army Organization.

The commander developed the following training program which used the above resources. The program involved one-day round-robin training on OPFOR capabilities, uniforms, equipment, weapons, and preparation of positions. Soldiers were issued the GTAs to study on their own.

An accoutrement kit (threat) was obtained. Pieces of equipment and soldiers dressed in OPFOR uniforms were shown to the soldiers during the morning and evening formations. At the end of the week, the soldiers were required to identify the pieces of equipment and uniforms.

During an FTX, the commander positioned OPFOR soldiers and equipment along the route to the BSA. Upon arrival at the BSA, the soldiers were required to report correctly the OPFOR equipment and soldiers. If the soldier did not report correctly, his leader retrained him. These same OPFOR-equipped soldiers tested the readiness and alertness of company security in the BSA during the remainder of the FTX.

The unit's soldiers responded well to the realism introduced by TADSS employment. The measure of success came during the FTX when the OPFOR was unable to surprise or penetrate the company's security.