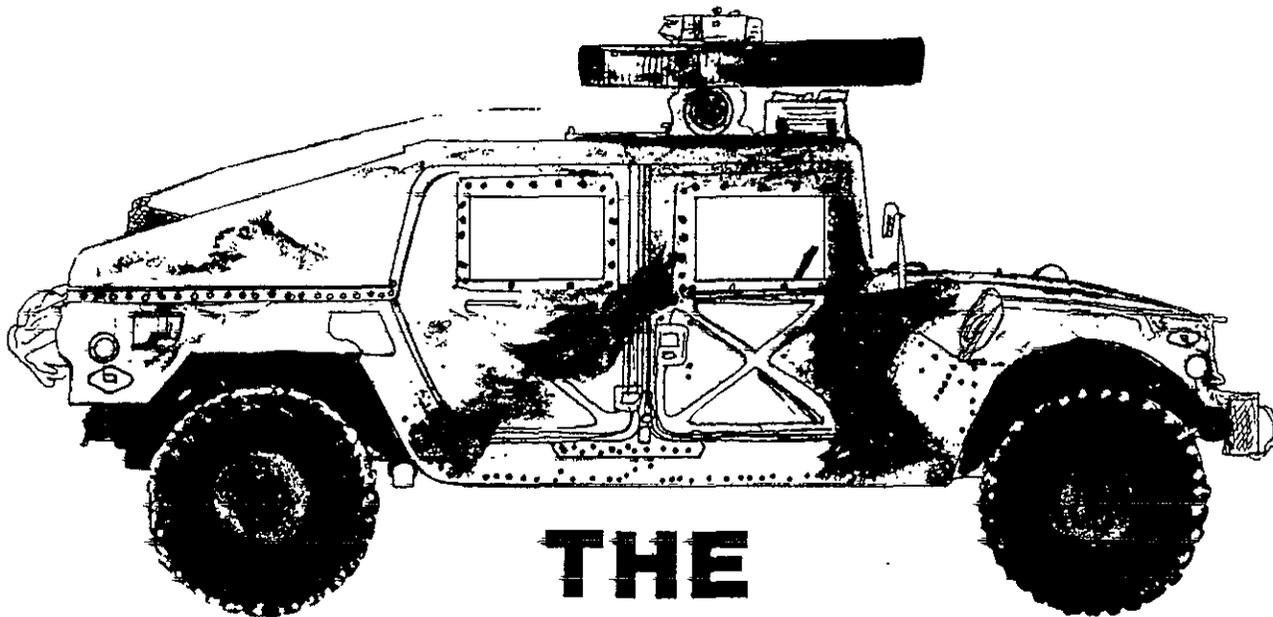


TOW GUNNERY



THE MOTORIZED APPROACH

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The Army's interim design for a motorized infantry division was approved in 1985. A key portion of that decision was based on the use of TOW-2s mounted on HMMWVs (high-mobility multipurpose wheeled vehicles) as the division's anti-armor weapon until an assault gun could be fielded. Since the proficiency of the TOW crews would determine the success of the division in battle, the 9th Infantry Division (Motorized), organized under this concept, developed a TOW-2 gunnery program roughly analogous to the tank gunnery program. Much of this program can easily be adapted for use by other units as well.

First, the division's leaders acknowledged that the TOW-2's role in a motorized division would be different from its role in other types of units. In the 9th Division the TOW-2 would be the primary divisional tank killer and would not be used as an overwatch or a supporting system. Recognizing the overriding importance of TOW gunnery, therefore, the division outlined a comprehensive training approach.

The gunnery program would be launched with three key components:

- A facility would be established from the division's existing resources to serve as the home of the division master gunner and as a focal point for all gunnery issues.
- TOW-2 gunnery tables would be designed, validated, and implemented, incorporating a gunner skills test (GST) and gunner, crew, section, and platoon firing tables.
- The division master gunner would design a master gun-

ners course to train and certify master gunners down to at least company level.

A World War II barracks was converted into office space, classrooms, and storage for training aids and devices. The division gunnery officer, the division master gunner, and a small staff moved in. This facility, called Gunnery Hall, has become the focal point for TOW training throughout the division, a place where trainers can gather to discuss the latest in gunnery. The classrooms are used for the Master Gunners Course and for unit level training as well. An "all source" training aids register is available that integrates the products of Fort Benning, Fort Belvoir, Fort Knox, and other sources. Gunnery records are maintained, including all live fire reports and the records of all units that shoot the TOW tables.

Each master gunner becomes intimately familiar with the hall during the Master Gunners Course and is encouraged to consider it his second home. The exchange of ideas that results from Gunnery Hall patronage greatly improves the programs of the battalions and in itself justifies the cost in manpower and money.

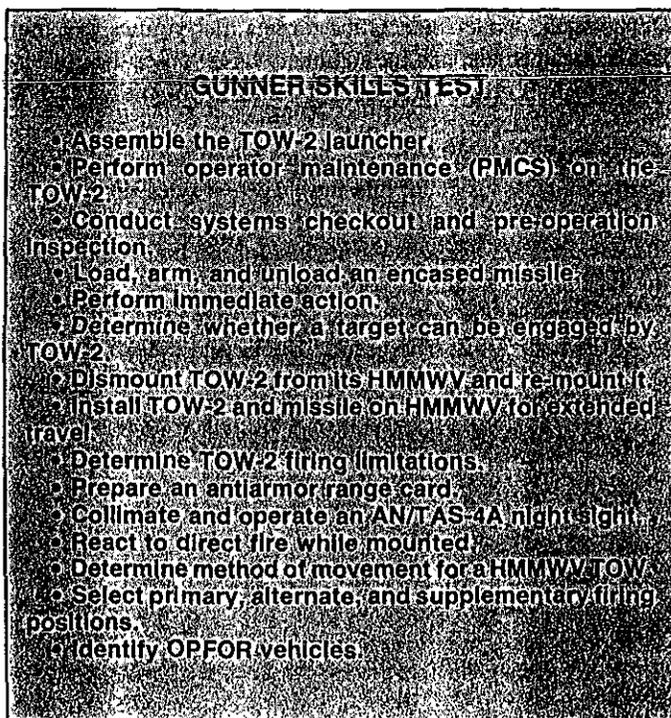
The Master Gunners Course, which is two weeks long, is taught by the division master gunner staff. The program of instruction covers the basics of TOW-2 gunnery instruction, including a review of the Army's training literature. Representatives from the Army Missile Command and the division support command's Main Support Battalion present instruction on the maintenance of the TOW-2 and the M70 and on mainte-

nance training. The division master gunner teaches the execution of the gunnery tables, emphasizing uniformity of standards throughout the division and covering training and target devices in detail.

The course culminates in a field exercise during which the students set up and run one of the gunnery tables. That exercise reinforces all they have been taught about gunnery instruction, targets, and standards. By the end of the course, both the students and the instructors are confident of the new master gunners' ability to take the gunnery program back to their units and ensure quality training.

TABLES

The gunnery tables, which were synthesized from many sources—including FC 7-91, Antiarmor Training in Units; FM 23-34 (Test), TOW Gunnery; and FM 17-12-3, M60 Tank Gunnery—were designed to capture the best features of tank gunnery. The gunner skills test integrates all the Soldier's Manual tasks for the TOW-2, plus four tasks originated by the 9th Division, into a comprehensive hands-on evaluation that each member of the crew must complete with all "GOs" (see box).



Tables 1 and 2 are for gunner practice and qualification, respectively, with the M70 trainer. Table 3 is for crew drill. Tables 4 and 5 are for squad practice and qualification, respectively, using MILES against moving and stationary targets. Table 5 parallels tank Table 8. Tables 6 and 7 are for section practice and qualification. Tables 8 and 9, the capstone tables, are for platoon practice and qualification. Tables 4 through 9 use MILES against an array of moving and pop-up opposing force (OPFOR) targets. Each table has a day phase and

a night phase and incorporates NBC conditions into the tasks.

The cost of a TOW round and the lack of a subcaliber round has forced a heavy reliance on the MILES system. Because of the limited number of TOW-2 MILES units at Fort Lewis compared with the number of TOW-2 systems, MILES operating centers are set up during brigade level gunnery to control the issue, turn-in, and repair of this equipment.

Some innovative training aids have been incorporated into the gunnery tables. The DX-164, a French-built simulator, for example, is used in place of the often balky M70 in Tables 1 and 2. It allows a gunner to simulate firing missiles against real or projected moving targets using his own TOW-2 system in the field. The trainer sees on his instructor console exactly what the gunner sees and can precisely control the target portrayal. In addition, a video tape is made of the squad crew drill during Table 5, and the tape is incorporated into the after-action review.

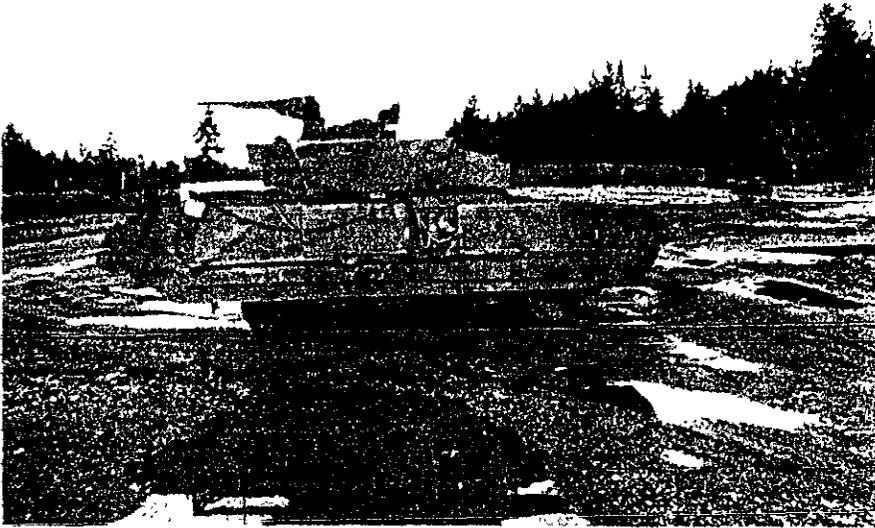
All targets are fitted with MILES receivers. The moving targets are standard cargo HMMWVs with silhouette models (SILMODs) of T-72 tanks mounted on them. These SILMODs, which were based on a suggestion from a soldier in the division, allow a realistic OPFOR to be portrayed with the unit's organic resources. Each model has mounting brackets for the HMMWV, a cutout for the combat vehicle kill indicator of the MILES receiver, and velcro strips for the MILES APC kit laser sensors. The SILMODs are locally produced at the training and audiovisual support center (TASC) using troop labor.

A BRDM kit, developed for the HMMWV armament carriers, can be fitted with the M60 tank MILES kit. The cheap, convenient "shoot back" capability that the tank kit provides strongly reinforces the correct use of terrain, camouflage, and standoff. Stationary targets are portrayed using the tanker's antitank target system (ATTS), a pop-up target that has a full-scale plywood frontal silhouette of a Soviet T-62 tank. The target is rigged with MILES laser belts so that a hit causes a "thumper" to knock the target down. (These training and target devices are covered in detail in the Master Gunners Course.)

The 9th Division's gunnery program has become institutionalized at Fort Lewis. Standard courses with pre-selected target locations and routes have been surveyed at both Fort Lewis and the Yakima Firing Center. The tables have been validated by every battalion in the division, and subtle changes have been made. The division now evaluates each crew in each battalion annually on Table 5, again paralleling tank Table 8. This externally evaluated gunnery table is supported by the division support brigade under the supervision of the division master gunner. Since the intent is to maintain standards and provide high-quality training, the soldiers are retrained and retested until they qualify.

EVALUATION

The evaluation of crews, squads, sections, and platoons is split into two parts: The chain of command is used to evaluate the tactical employment of the system, movement, reporting,



Silhouette model with CVI light in "window."

and camouflage, while master gunners are used as the TOW crew evaluators (TCEs) for fire commands, crew drills, and target hits.

Both groups of evaluators submit written comments and participate in the after-action reviews. The individual commanders are able to emphasize those tactical traits that support their unit goals, and the master gunners insure standardization of the technical tasks throughout the division.

The following example will illustrate how the program works, using Table 5, Task 3—Engage Multiple Targets:

Conditions: Daylight/existing weather; one target hull defilade at 2,500-3,000 meters; second target moving at an oblique angle at 2,500-3,000 meters.

Standards: Determine whether targets can be engaged; determine order of lethality; issue correct fire commands; kill first target within 25 seconds, second target within 70 seconds.

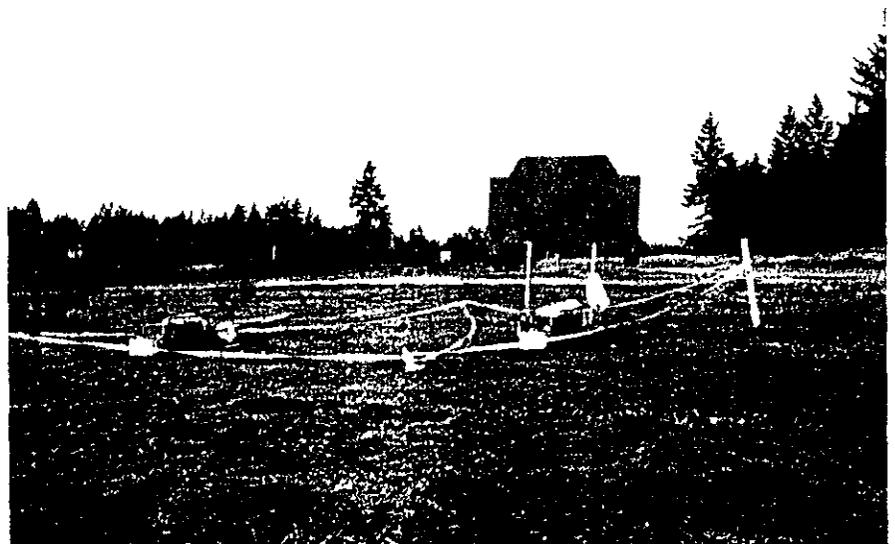
A three-man crew, with the TOW crew evaluator (TCE) in the fourth seat, moves to the grid location given for the

battle position. The squad leader picks the actual firing position on the basis of the available cover and concealment that still allows observation. Once in position, the TCE signals for the targets to appear, and a T-62 frontal view target pops up on an ATTS at 2,500 meters. Simultaneously, a SILMOD T-72 at 2,500 meters appears moving from left to right.

The squad leader detects the targets, determines that they can be engaged and that the stationary target poses the greatest threat to him. He issues a fire command for the gunner to engage that target.

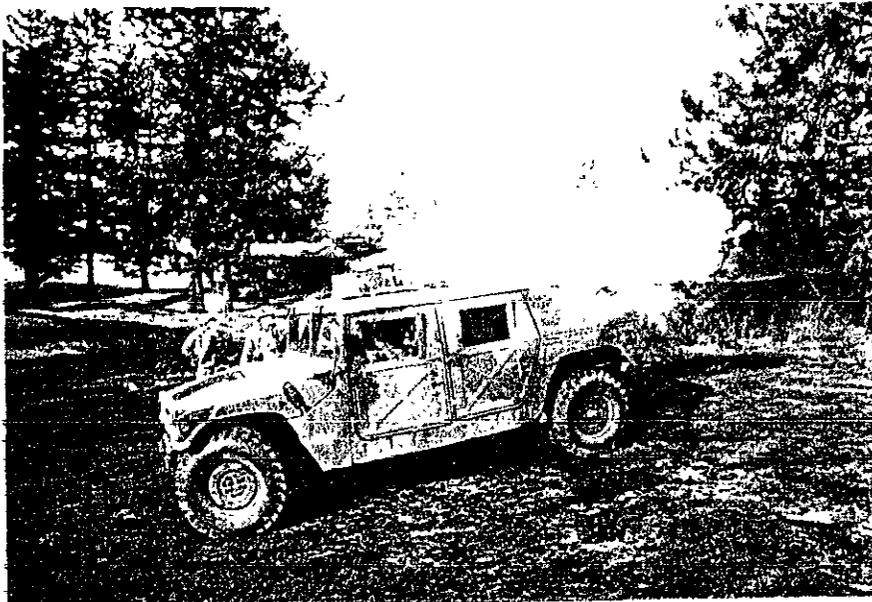
The gunner engages the stationary target with his MILES-equipped TOW-2. If he hits the target, it goes down and a smoke grenade or Hoffman device is detonated to simulate the kill. He then discards the residue of the first round while the loader hands him another one.

The squad leader then issues a fire command for the moving SILMOD T-72. The gunner tracks and then fires at the second target. If he hits the target, a yellow "kill light" (com-



Antitank target system.

Crew during engagement.



bat vehicle kill indicator) blinks continuously and the vehicle immediately stops, popping a smoke grenade to indicate a kill. A full spot report is sent to the platoon leader, and the vehicle immediately moves to its next position so that it will not be picked up and fired on by enemy artillery or other enemy vehicles.

Up to 10 points each can be awarded for the fire command, the crew drill, target lethality determination, and spot reporting, and 50 points for each target that is hit. (This task has a possible maximum score of 140 points. At the end of the day and night phases of Table 5, a total of 880 points are possible. To qualify, a crew must score 608 points.)

The results of this fairly new gunnery program have been impressive. The crews in the division now routinely exceed the published standard of 25 seconds from target detection to destruction.

Crew drill has been standardized along with terse fire commands. Additional improvements have been noted in reporting, tactical movement, use of terrain, and camouflage. Most important, the soldiers of the 9th Infantry Division (Motor-

ized) now face an annual challenge of their professional skills, which helps prove to them that they are skilled tank killers. And when the division's TOW crews begin working on Tables 6-9, a corresponding improvement in the section and platoon collective skills is expected.

As we said earlier, much of this program can easily be adapted for use by other units. Copies of the complete program can be obtained from Commander, 9th Infantry Division (Motorized), ATTN: AFVO-OP-G, Fort Lewis, WA 98433-6000.

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