
CHAPTER 9

TOW Training Program

The TOW training program is a comprehensive program beginning with individual training (gunner's skills test [GST] and Tables I through IV), progressing through squad training (Tables V through VIII) and culminating in section-level testing and verification (Tables IX and X). All mandatory TOW training and testing are included in this program. Additional TOW training, such as situational training exercises (STX) and company exercise evaluations (CO EXEVAL), will be performed with the frequency prescribed by the Standards in Training Commission (STRAC).

Training Assessment and Planning

The heart of an effective training program is the mission-essential task list (METL) and the soldier, leader, and collective tasks that support the METL. Battle focus drives the METL development process; the METL is based on the wartime mission; the unit must train as it plans to fight. The METL is developed according to doctrine established in FM 25-100. FM 25-101, Chapter 2 illustrates this development process in clear and practical terms. When developing the unit training program, refer to FM 25-101; it shows how to apply the doctrine established in FM 25-100 and assists leaders in the development and execution of training programs.

Each unit must meet the standards outlined in DA Pam 350-38 to be certified in the training status CI (fully trained). Soldier training publications (STP) and Army Training and Evaluation Program (ARTEP) battle drills for TOW provide tasks, conditions, and standards for combat-critical skills.

All aspects of the training program must be coordinated to ensure the unit training program is effective. Differences between resources required and resources available affect both the time required to conduct and sustain training and the unit's ability to meet the required standards. Required resources and maintenance should be planned and requested well in advance. If left to chance, resources will be wasted and training opportunities lost.

Note. A good program must have provisions for direct-support units to conduct routine inspection of TOW weapons.

COMMANDER'S RESPONSIBILITY

The commander must conduct an accurate assessment of TOW training in his unit to determine the weak spots and the additional training necessary to correct them; then, he must adjust the training program to meet the changing needs of the unit. Training should be concentrated in areas where it is most needed; time should not be wasted by training skills the unit and soldiers have already mastered. The commander should start early and be thorough, flexible, and creative.

TRAINING EVENTS

The TOW training program consists of the GST and 10 gunnery tables. Table 9-1 shows the frequency of training events for the different levels of training.

Table 9-1. Frequency of Required TOW Training Events.

EVENT/TABLE	TRC A gunner	TRC C asst gunner	TRC D USAR/ARNG
GST	4	2	1
TABLE I	4	2	1
TABLE II	4	2	1
TABLE III	4	2	1
TABLE IV	4	2	1
TABLE V	4	1	1
TABLE VI	4	1	0
TABLE VII	2	1	0
TABLE VIII	2	1	0
TABLE IX	2	1	0
TABLE X	2	1	0

Notes. Tables I and II should be conducted with the TOW GT, if available.
If the TOW GT is not available, the M70-series training set may be used.

Tables III and IV must be conducted using the TOW GT (if a unit does not have the TOW GT, it cannot conduct Tables III and IV).

Tables V through X should be conducted with the TOW FIT. If the TOW FIT is not available, Tables V through X maybe conducted using MILES.

TRAINING GUIDELINES

Training should be conducted under realistic conditions. To develop combat skills, training must be conducted in a tactical environment with emphasis on the type of threat the crew can expect to face in combat.

When possible, tactical training should be conducted with the type of units to be supported in combat (cavalry, mechanized infantry, and armor). TOW units must be able to interface with the units they support.

Multi-echelon training should be conducted to save time and resources. For example, while squads are training in crew tasks, leaders should train to execute their tactical command and control responsibilities.

When a crewman becomes skilled in his crew position, he should be cross-trained in the other crew positions to ensure that the loss of one crew member does not make the squad combat-ineffective. Sections and squads will not always be at full strength. The mission in combat and in training can be accomplished if under-strength units are organized with the following rules in mind:

- Key leader positions should always be filled. For example, the gunner may have to fill the position of the squad leader.
- The primary weapon system should always be manned. If the loader becomes a casualty, the squad leader may have to load the TOW and control the squad at the same time. If the gunner becomes a casualty, the squad leader must operate and fire the TOW.

Note. As individual TOW crewmen, squads, and sections become qualified, the commander should maintain that status by sustainment training and evaluation, and by crew stabilization. Personnel changes are inevitable; however, before TOW squads lose crew integrity and combat readiness, personnel changes should be examined in detail and alternate solutions sought when possible.

Collective Training

Collective tasks are those tasks performed by two or more soldiers working as a team. The critical squad and section collective tasks are called battle drills. Battle drills are mostly independent of METT-T and require minimal leader actions to execute. They are standardized throughout the army. Battle drills for antiarmor sections are in ARTEP 7-91-DRILL.

Common crew tasks are also collective tasks performed by a TOW crew in the same manner as battle drills. Common crew tasks are crucial to applying tactics to enhance survival and to accomplish the TOW crew's mission of providing antiarmor direct fire support to destroy the enemy. These tasks require the basic technical skills used to accomplish the crew's wartime mission. Training these tasks shows the crewman "how to" and allows each soldier to perform his tasks.

Collective training of common crew tasks and battle drills trains all actions the crew must perform. The squad leader, gunner, driver, and loader combine their individual technical skills to perform as a crew on their vehicle. ARTEP training exercises are used to practice, evaluate, and sustain collective tasks and mission proficiency. They have specific goals and are modified based on METL. Exercises are structured according to the availability of resources, time, and training area.

TOW Training Phases

TOW training involves individual and collective training divided into three phases: individual training, squad training, and section training. Each unit must complete each phase.

Phase I—Individual Training covers all tasks that are performed by a single TOW crewman. These tasks include Skill Levels 1 and 2 soldier's manual tasks and individual gunnery. These individual skills are the building blocks that form the foundation of TOW training. Individual training includes—

- Refresher training on STP tasks, as necessary to prepare for the GST.
- Sustainment training with the TOW GT or the M70-series training set, as necessary to prepare for TOW Gunnery Tables I through IV.

- Gunners' Skill Test.
- TOW Gunnery Table I, *Individual Gunnery Practice*.
- TOW Gunnery Table II, *Individual Gunnery Qualification*.
- TOW Gunnery Table III, *Advanced Gunnery Practice*.
- TOW Gunnery Table IV, *Advanced Gunnery Qualification*.

Phase 2-Squad Training covers collective tasks that are performed by a squad.

- Refresher training on the installation and operation of MILES or TOW FTT equipment, as necessary to prepare for TOW Gunnery Tables V and VI.
- TOW Gunnery Table V, *Baseline Gunnery Practice*.
- TOW Gunnery Table VI, *Baseline Gunnery Qualification*.
- Squad-level sustainment training, as necessary to prepare for TOW Gunnery Table VII.
- TOW Gunnery Table VII, *Squad Gunnery Practice*.
- TOW Gunnery Table VIII, *Squad Gunnery Qualification*.

Phase 3-Section Training covers collective tasks that are performed by a section.

- Section-level sustainment training, as necessary to prepare for TOW Gunnery Table IX.
- TOW Gunnery Table IX, *Section Gunnery Practice*.
- TOW Gunnery Table X, *Section Gunnery Qualification*.

TOW Gunnery Trainer

The TOW GT is one of the PGTS group. This crew-portable trainer simulates the sights, controls, switches, and indicators of the TOW 2 guided missile system. The battlefield scenes presented include both threat and friendly vehicle targets. The gunner selects, tracks, and engages targets just as he would on the battlefield; he hears the commands from the instructor station and the battlefield sounds of small arms and guns firing.

The TOW GT maybe used for TOW gunner training, practice, and qualification/verification. The following skills may be trained on the TOW GT:

- Determining the correct firing position.
- Identification of a target.
- Determining if a target can be engaged.
- Engaging targets (including tracking and firing).

The TOW GT attaches to a TOW 2 weapon system (will not operate on basic TOW) and replaces components of the TOW 2. (A properly operating TOW 2 weapon system is required to use the TOW GT.) Only the narrow field of view is seen through the night sight. This system—

- May be used either tripod-mounted or vehicle-mounted (HMMWV) (stationary only, should never be mounted on a moving HMMWV).
- Requires electrical power to operate; setup and operation of the TOW GT is limited to the length (96 inches) of the power cables. Extension cords must be grounded.
- Is an indoor system and is not designed to operate outside; it must be protected from extremes of temperature, humidity, and blowing dust.
- Is easy to operate and install (should be assembled and operated according to the instructions in TM 9-6920-452-10).

Note. Normally, only two people, the gunner and the trainer, will be involved in training with the TOW GT. The trainer is usually either the squad or section leader. Other members of the squad should be occupied with concurrent training. Other gunners should not be allowed to watch as the event is conducted.

When training on the TOW GT, the trainer must construct a planned group for each table (different missions should be used for each table). (See TM 9-6920-452-10 for specific instructions on constructing a planned group.)

The trainer should have the TOW GT inspected and warmed up, and the planned group constructed before the gunner is brought into the trainer. During training, battle sounds should be ON, target size should be set at 100 percent, and obscuration should be set to last for one second. When everything is ready, the trainer should bring the gunner in and brief him. The briefing should include the following items:

- Safety considerations.
- Breath control—remind student of proper procedures.
- Obscuration—tell student obscuration setting used.
- Sight—tell student sight he will use.
- Special conditions—tell student special conditions (multiple targets and so forth) that apply.

The mission score is displayed at the end of each mission. A mission maybe replayed or stored for future use.

Units that have the TOW GT are required to conduct monthly sustainment training. This training should not be confused with the quarterly tables. The trainer may choose the missions for monthly sustainment training from any of the videodiscs; however, the missions used on the quarterly tables should not be used for sustainment training.

TOW Field Tactical Trainer

The TOW FTT is another member of the PGTS group. This device is used to teach precision gunnery skills to TOW 2 gunners in the field; it may be used on designated ranges, general outdoor areas, or other representative tactical environments. The TOW FTT may be used for initial gunner familiarization in an outdoor environment and for gunner skill enhancement and progression. The TOW FTT trains gunners to adopt a correct firing position, to assess target engageability, and to engage and track the target. Missile launch, flight, and impact effects are realistically simulated by the TOW FTT. (See TM 9-6920-453-10 for further information.)

The TOW FTT attaches to a TOW 2 weapon system and replaces some of the TOW 2 components. A properly operating TOW 2 weapon system is required to use the TOW FIT. The TOW 2 may be tripod-mounted or mounted on the pedestal in an M151 truck or an M966 HMMWV.

The TOW FTT uses a retroreflector to sense targets. The retroreflector is designed for mounting on a variety of target vehicles which can be maneuvered, as required, during a training mission; it acts like a mirror and returns a portion of the laser beam generated by the laser transceiver in the trainer missile tube. This laser beam enables precise measurement of target range and location relative to the gunner.

The TOW FTT transmits MILES TOW code and can, therefore, kill targets equipped with a MILES harness. (The MILES target must be equipped with the proper retroreflector. Similarly, panel targets must also be fitted with a proper retroreflector for use with the TOW FIT.) The TOW FTT replicates the flight and performance characteristics of the TOW better than MILES; therefore, it should be used for precision gunnery training whenever possible.

The TOW FTT operator loads the M80 blast simulator, sets the duration of obscuration that simulates the smoke produced at missile launch, and selects the relative size of the target, as seen by the TOW FIT. After the missile is launched, the operator monitors the gunner's performance during missile flight. At the end of each mission, the operator is provided with a readout of mission results. During TOW FTT operations, the operator is notified of any current or impending failures of TOW FTT equipment.

The TOW FTT—

- Can operate in all weather conditions, except for limitations described in TM 9-6920-453-10.
- Can operate during day and night.
- Can operate in temperatures between -4 to +120 degrees Fahrenheit.
- Can operate at altitudes up to 10,000 feet (3,000 meters).
- Has a built-in self-test capability.
- Can operate without the remote control unit. (In this mode, obscuration time and target size cannot be changed and mission results are not available to the operator.)
- Can operate in dry fire mode without an M80 blast simulator.
- Has a built-in automatic power-down feature.

M70-Series Training Set

The M70-series training set measures the precision of a gunner's tracking over times approximating missile flight times. Although it does not measure tracking ability or teach target engagement skills, it can determine if a gunner possesses the necessary foundation for successful gunnery.

The M70-series training set can duplicate targets out to 3,000 meters. TOW launch characteristics are simulated by having the gunner fire and track with the M80 blast simulator and missile simulation round (MSR). This prepares the gunner for an actual missile launch by simulating the time delay after trigger depression (1.5 seconds), the noise (160 decibels), and the backblast (75 meters).

The trainer should ensure a system checkout has been conducted before setting up the carrier and training equipment. The carrier and training equipment must be working properly. A gunner engaging a stationary target in LOW RATE QUALIFY should consistently score about 90 percent. Failure to do so could indicate either poor tracking performance or a fault in the equipment.

Note. A qualified gunner should engage the stationary target board to verify that the system is working properly.

Battery power should be checked as part of troubleshooting or if scores are excessively high. Weak batteries invalidate the gunner's score. The battery in the missile guidance set (MGS) discharges faster than the battery in the instructor console. If the MGS battery fails self-test position 1 (TOW) or battery fail (TOW 2) and only a few tracking runs remain to be completed, the batteries in the instructor console and the MGS may be rotated. (After rotation, batteries must be checked before continuing the tracking runs.)

Qualification and practice are fired on a standard tracking range. Requirements for this range include a target vehicle tracking road, a firing line, and a backblast area.

Note. Because the TOW GT is replacing the M70 in the force, no new M70 tracking ranges should be constructed.

The target vehicle tracking road must be as smooth as possible. A rough road causes the target vehicle to vibrate, making it difficult for a gunner to keep the sight cross hairs on the target board. The tracking road should be long enough for the target vehicle to reach the needed tracking speed, maintain that speed for the necessary tracking time, and stop safely.

The firing line should be level and allow for movement of the TOW/TOW 2 to and from the firing line. It should be long enough to allow about 5 meters between systems or carriers. The distance from the firing line to the tracking road should be at least 450 meters for TOW and 550 meters for TOW 2, but not more than 1,000 meters. The training set operates at greater ranges, but the vehicle speeds needed to simulate the tracking rates in the firing tables are unsafe at greater ranges or too slow for a driver to maintain a steady speed at closer ranges.

Table 9-2 is used to determine target vehicle speeds for qualification and practice firing. If the training situation requires tracking at ranges greater than 500 meters, the target vehicle must maintain a steady speed or the task becomes too difficult for the gunner. The driver of the target vehicle should be briefed thoroughly. He must maintain a constant speed throughout each tracking run. A variation of up to 10 percent from the speeds listed is acceptable; however, slowing down and speeding up affects a gunner's ability to maintain a steady track.

Table 9-2. Target Vehicle Speeds.

TARGET RANGE (meters)	TARGET SPEED	
	MPH	KPH
450	5	8
500	6	10
600	7	11
700	8	13
800	9	14
900	10	16
1,000	11	18

The area between the firing line and the tracking road must be free of trees, brush, or other objects that might break the infrared signal transmitted by the target set to the tracker. Even a short loss of signal causes a big drop in the gunner's score.

A backblast area of 75 meters is recommended so gunners become accustomed to the backblast area of the TOW. The gunner does not engage the target vehicle at traversing angles greater than 45 degrees left or right of the carrier (vehicle-mounted). At traversing angles greater than 45 degrees, the target lamp source becomes weaker and the backblast becomes a danger to other systems.

If the tracking road and firing line are level, the system (tripod mounted) or carrier (vehicle mounted) should be canted about 10 degrees to force the gunner to track in the vertical as well as the horizontal plane (sandbags or wooden blocks maybe used to cant the vehicle).

During qualification and practice, gunners are required to track for 16 seconds and traverse at a slow rate. The instructor console RANGE switch should be placed in the LOW RATE position to accomplish this. (After a gunner becomes proficient at the slow rate, he may practice at high rate.)

To allow the soldier to practice identifying and correcting faults on the M70, the trainer inserts a variety of faults into the system and discusses faults that cannot be inserted into the system (for example, discharged or weak battery assembly, power supply/modulator LAMP MOD indicator does not stay on, OPERATING RANGE meter with no IN-BAND). Table 9-3 may be used to help determine gunner faults and corrective action. Only through detection of faults and their correction can a gunner master the tracking techniques needed for qualification.

Table 9-3. Gunner Faults and Corrective Actions.

LOS INDICATOR	FAULT	CORRECTIVE ACTION
Increasing Azimuth Error Last Half of Tracking Exercise.	Wrong point of aim on target board. Trying to catch up to, or wait for, target board.	Assume correct body position. Place cross hairs on center of target. Execute smooth transition back to aiming point.
Sudden Elevation or Azimuth Error During Otherwise Good Track.	Loss of concentration, flinching caused by distraction or eye fatigue. If true with all firers, track road may be rough, target vehicle speed not steady.	Rotate firers. Reduce air in target vehicle tires; replace driver if he cannot maintain steady speed.
Constantly Off Target.	Wrong point of aim. Boresight out of adjustment. Collimation out of adjustment. V-ways not aligned.	Verify point of aim. Verify boresight. Verify collimation. Remove and reinstall optical sight; check V-way alignment.
Launch Excursion.	Flinching at launch.	Execute smooth track to keep cross hairs on aiming point during launch.

During gunner qualification and verification, all soldiers may not be able to fire at once. Therefore, trainers should try to conduct round-robin type training.

Example.

Station 1 — operation of M70-series training set.

Station 2 — dry firing (tripod and vehicle mounted).

Station 3 — refresher training on individual tasks.

The trainer—

- Monitors the LOS indicator and observes the gunner during each engagement.
- Critiques the gunner after each engagement, if a fault is detected in the gunner's firing position or technique of fire.

- Operates the instructor console, ensuring the RANGE switch is turned to the correct setting (HIGH RATE/LOW RATE) for the engagement being fired.

Note. Do not use the RAPID FIRE switch on the M70 instructor console at any time. When the RAPID FIRE switch is in the ON position, the MGS may overheat causing BATTERY power to drain quickly.

- Resets the SCORING switch after each engagement and records the score.
- Announces “READY,” when the READY FLAG appears in the LOS indicator.
- Checks the battery power in the instructor console by rotating the MODE switch to battery and observing the score meter.
- Ensures the cables from the training set do not get snagged anywhere on the system (tripod mounted) or the vehicle (vehicle mounted).

The loader keeps the backblast area under observation and announces “CLEAR,” to the gunner and trainer. When using M80 blast simulators, the loader loads and arms the system.

DA Form 5107-R

DA Form 5107-R is used to record both gunner qualification and practice firing. (See Figure 9-1 for a sample completed DA Form 5107-R.)

On DA Form 5107-R—

- Complete items 1 through 10 for each gunner.
- Enter the date for the event.
- When using the TOW GT, use the launch excursion column to mark hits and misses. When using the M70-series training set, mark the yes column for a hit or the no column for a miss.
- Enter a check mark for launch excursions (yes or no for each run).
- Enter gunner’s score for each run.
- Total the scores for each event.

Figure 9-1. DA Form 5107-R.

TOW TRACKING PERFORMANCE SCORECARD

For use of this form see FM 23-34; the proponent agency is TRADOC

1. NAME (LAST, FIRST, MIDDLE INITIAL) THIELE, STEVE T.		2. SSN 123-45-6789		3. RANK SP4		4. UNIT E. CO. 1/5B INF	
5. WEATHER <input checked="" type="checkbox"/> CLEAR <input type="checkbox"/> FOG <input type="checkbox"/> RAIN <input type="checkbox"/> SNOW <input type="checkbox"/> HAIL <input type="checkbox"/> OTHER		6. TEMPERATURE 82°		7. WIND SPEED 5 KNOTS		10. RANGE NO./NAME 5/RED CLOUD	
8. WIND DIRECTION FROM FIRING LINE <input type="checkbox"/> FRONT <input type="checkbox"/> REAR <input checked="" type="checkbox"/> LEFT <input type="checkbox"/> VARIABLE		9. OBSERVATION EQUIPMENT <input type="checkbox"/> OPTICAL SIGHT <input checked="" type="checkbox"/> NIGHT SIGHT					

RUN NO.	TARGET VEHICLE	EVENTS																				
		EVENT 1		EVENT 2		EVENT 3		EVENT 4		EVENT 5		EVENT 6		EVENT 7		EVENT 8		EVENT 9		EVENT 10		
		LAUNCH	M70	LAUNCH	M70																	
1	RIGHT TO LEFT	✓	65	✓	86																	
2	RIGHT TO LEFT	✓	72	✓	0																	
3	LEFT TO RIGHT	✓	67	✓	75																	
4	RIGHT TO LEFT	✓	81	✓	91																	
5	LEFT TO RIGHT	✓	74	✓	77																	
6	RIGHT TO LEFT	✓	62	✓	81																	
7	LEFT TO RIGHT	✓	54	✓	65																	
8	RIGHT TO LEFT	✓	56	✓	72																	
9	LEFT TO RIGHT	✓	59	✓	83																	
10	RIGHT TO LEFT	✓	70	✓	80																	
TOTALS			660		716																	

12. INSTRUCTOR NOTES

A. Verify Boarding

B. Check Battery Power.

C. Insure Infrared Source is Working Properly.

D. All Launch Excursions Are Scored As Zero.

13. DATA REQUIRED BY PRIVACY ACT OF 1974

AUTHORITY: Executive Order 9397 PRINCIPAL PURPOSE: Record of individual's score on TOW tracking performance events ROUTINE USES: Evaluation of individual's TOW tracking performance. SSN is used for positive identification purposes only MANDATORY OR VOLUNTARY DISCLOSURE: Voluntary. However, individual not providing information cannot be rated or scored.

14. GROUND-MOUNTED CLASSIFICATION <input type="checkbox"/> 750-1000 EXPERT <input type="checkbox"/> 648-749 1ST CLASS	15. SCORER SSG RUSSO, MARTIN
16. VEHICLE-MOUNTED CLASSIFICATION <input type="checkbox"/> 600-1000 EXPERT <input checked="" type="checkbox"/> 700-799 1ST CLASS <input type="checkbox"/> 550-649 2D CLASS <input checked="" type="checkbox"/> 600-699 2D CLASS	17. OFFICER'S SIGNATURE <i>Steve T. Thiele, CPT</i>

EDITION OF JAN 85 IS OBSOLETE

Gunner's Skill Test

The Gunners' Skill Test comprises two parts:

- Part 1 consists of Skill Level 1 tasks for the TOW weapon system (STP 17-19D1-SM, STP 17-19D23-SM, and STP 21-1-SMCT) and tasks derived from FM 23-34. All 19D soldiers must receive a GO on all tasks on this portion of the test.
- Part 2 consists of vehicle-specific (HMMWV) tasks taken from STP 17-19D23-SM. All 19D soldiers must receive a GO on all tasks that apply to the vehicle with which his unit is equipped. Some of the tasks are combined individual/crew tasks. Since every member of the crew must be cross-trained, the combined individual/crew tasks will be performed in rotation and every member of the crew will be tested on each part.

Part 1 tasks are derived from the following tasks:

- Assemble the M220-Series Launcher (FM 23-34, Chapter 2, no task number).
 - Maintain an M220-Series Launcher System (STP 17-19D1-SM, 071-056-0004).
 - Load an M220-Series Launcher System (STP 17-19D1-SM, 071-056-0007).
 - Unload an M220-Series Launcher System (STP 17-19D1-SM, 071-056-0008).
 - Engage Targets with an M220-Series Launcher System (STP 17-19D1-SM, 071-056-0009).
 - Perform Immediate Action for an M220-Series Launcher System Malfunction (STP 17-19D1-SM, 071-056-0010).
 - Conduct a System Checkout on an M220A1 Launcher System (STP 21-1-SMCT, 071-056-0005, for units with M220A1).
- or
- Conduct a System Checkout on an M220A2 Launcher System (STP 17-19D1-SM, 071-056-0013, for units with M220A2).
 - Determine M220-Series Launcher System Firing Limitations (STP 17-19D23-SM, 071-056-0030).
 - Recognize Friendly and Threat Armored Vehicles and Aircraft (STP 21-1-SMCT, 878-920-1002).
 - Conduct a Pre-Operation Inspection of an Encased Missile (FM 23-34, Chapter 1, no task number).
 - Determine if a Target Can Be Engaged by a TOW (FM 23-34, Chapter 1, no task number).
 - Prepare a TOW Antiarmor Range Card (FM 23-34, Chapter 1, no task number).

Part 2 tasks for M966 HMMWV-equipped units include—

- Conduct Dismounting and Remounting of an M220A1 Launcher System on an M966 Vehicle (STP 17-19D23-SM, 071-056-0032, for units with M220A1).
- or**
- Conduct Dismounting and Remounting of an M220A2 Launcher System on an M966 Vehicle (STP 17-19D23-SM, 071-056-0034, for units with M220A2).
- Load, Arm, and Unload an Encased Missile on an M966 (FM 23-34, Chapter 3, no task number).
- Place the M966 HMMWV, in the Ready-to-Fire Configuration (FM 23-34, Chapter 3, no task number).

Note. The tasks, conditions, and standards for the GST are in Appendix A.

Field Tracking

Field tracking (tracking in a field environment) provides practice and experience in tracking evasive targets and should be performed in conjunction with field training exercises (FTX). This is not an element in the 10 required TOW Gunnery Tables, but is very useful in preparing for them, especially Tables VII through X. Other tactical employment tasks, such as occupying a firing position or completing a range card, should be performed at the same time. Careful planning by unit commanders will result in effective training that makes the best use of time, equipment, and personnel.

The tracking range should include an area more than 3,000 meters deep and at least 500 meters wide with hills and valleys, dead space, and covered terrain. Battlefield target conditions should be simulated as follows:

- Targets should be a variety of tanks, APCs, and other tactical vehicles. Many training installations now have various types of threat vehicles. These vehicles should be used when possible.
- Target vehicles should behave as much as possible like enemy vehicles on the battlefield. They should change directions constantly and quickly (including backing up for short distances) and should vary their speed. They should move within the gunner's sight picture from left to right, top to bottom, and bottom to top. The vehicles should move at angles to and from the weapon position as well as directly toward and away from the weapon.
- Gunners should see tanks and APCs in full and partial frontal, flank, and rear exposures.

Gunners must be able to engage the targets at all ranges with both the daysight tracker and the thermal sight. To do so, they must be able to determine if a target is in range. Targets should move in and out of range so gunners gain experience in range determination.

Armored vehicles should try to reduce their exposure and evade ATGM fire by moving quickly from one covered area to another. The squad leader must have the gunner acquire and fire at the target while it is exposed. During field tracking, target vehicle exposure time is reduced to the

minimum by having targets use covered areas during halts. This gives the gunner experience in tracking targets that disappear, then reappear.

Field tracking should be performed under conditions that normally occur on the battlefield. These conditions include limited visibility: darkness, smoke, or fog; the discomfort of MOPP gear; and the noise and distraction caused by indirect and small-arms fire around the firing positions.

Battlefield tracking conditions should be simulated. TOW crew members should train to engage targets during reduced visibility using both the daysight tracker and the thermal sight. Training should be conducted during daylight using the AN/TAS-4A (the AN/TAS-4A is a thermal sight, not just a nightsight). It offers many advantages in searching for and tracking targets in all kinds of weather and at any time of day. The AN/TAS-4A should be used extensively in conjunction with the daysight to maximize the abilities of the system.

Enemy capabilities include the use of nuclear, biological, and chemical munitions. These munitions may not affect the weapon, but a gunner's ability to track will be degraded if he has never tracked while wearing a protective mask and protective clothing. Training is more realistic when the entire crew wears protective masks and clothing during part of the field tracking exercises.

The enemy will try to suppress TOW fires with artillery and mortar fires. A gunner's ability to keep the sight cross hairs on a target maybe affected under these conditions, especially if he has not been properly trained. Distracters should be used in training to accustom gunners to such conditions and to minimize flinching. Grenade and artillery simulators are effective distracters. Small-arms fire can also be expected, but gunners should not be seriously distracted by its noise. Therefore, the simulation of small-arms fire is not required.

Any means available should be used to allow gunners to practice tracking targets that vary target speeds and directions of movement. If facilities and equipment are not available to conduct a field tracking exercise, gunners should be allowed to track evasive targets, such as military or civilian vehicles traveling on a nearby highway. This should be done often and maybe accomplished in any location that has vehicular traffic.

TOW crews must be proficient in combat vehicle identification to gain the most benefit from field tracking. Combat vehicle identification skills have been standardized by GTAs 17-2-13,30-3-14,30-3-20 and 44-2-10.