TC 3-20.31-105

GUNNERY: MEDIUM TANK

APRIL 2025

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GUNNERY: MEDIUM TANK

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Preface

TC 3-20.31-105 provides the gunnery training plan for all prerequisite and live-fire training for the M10, Booker medium tank. It includes all training events through crew qualification following the Integrated Weapons Training Strategy (IWTS) structure. It provides the necessary information to plan, prepare, execute, and assess each training event within the medium tank training strategy.

The principal audience for TC 3-20.31-105 is commanders, trainers, and Master Gunners of movement and maneuver units. Trainers and educators throughout the Army will also use this publication.

Commanders, staffs, and subordinates ensure that their decisions and actions comply with applicable United States, international, and, in some cases host-nation laws and regulations. Commanders at all levels ensure their Soldiers operate according to the law of war and the rules of engagement. (See FM 6-27 for legal compliance.)

The use of a trade or brand name does not constitute endorsement of any specific commercial product, commodity, service, or enterprise by the United States Army.

TC 3-20.31-105 applies to the Active Army, Army National Guard/Army National Guard of the United States, and United States Army Reserve unless otherwise stated.

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Introduction

TC 3-20.31-105 provides the details of the integrated weapons training strategy structure specifically designed for U.S. Army medium tanks. This training circular provides the training strategy for maneuver commanders to train, evaluate, and assess their unit's overall proficiency at home station. The medium tank training strategy includes only the critical training events to build crew platform readiness using the integrated weapons training strategy's standard training structure.

The medium tank training strategy maximizes the training aids, devices, simulators, simulations, and live-fire events capabilities in a systematic manner to increase and sustain Soldier and crew proficiency, effectiveness, and lethality. The training strategy is capability-based (Soldier, crew, ammunition, optics/sensors, and weapon system) and maximizes the training resources available across the force.

The medium tank training strategy encompasses all critical training that builds a unit's ability to shoot, move, and communicate effectively and efficiently. Although units conduct other training as part of their training plan, the critical training path includes only those events that are conducted to ensure the maximum experience is achieved or gained by the trained Soldier and crew.

The term tank is applicable to all variants of the M10 Booker medium tank within this publication for simplicity. This publication categorizes tanks in three classes based on their chassis, armor protection, primary armament, and weight as:

- Heavy tank—a tracked armored vehicle with a 105-millimeter (mm) or larger cannon as its primary armament, and a gross weight over 60 tons:
  - Its primary purpose is to defeat all types of ground threats including heavy tanks, as well as rotary wing aircraft.
  - It operates as part of an armor, mechanized, or heavy Cavalry company/troop formation.
- Medium tank—a tracked armored vehicle with a 90-mm or larger cannon as its primary armament, with a gross weight between 35 and 60 tons:
  - Its primary purpose is to defeat all types of ground threats including light and medium tanks, as well as rotary wing aircraft.
  - It operates tactically in an Infantry support role with fortification and armor defeating capabilities.
- Light tank—a tracked armored vehicle with a 75-mm to 105-mm cannon as its primary armament, with a gross weight less than 35 tons:
  - Its primary purpose is to defeat all types of ground threats including light and medium armored wheeled and tracked vehicles, as well as dismounted threats.
  - It operates tactically in an Infantry support role with light-armor and fortification defeating capabilities.

PURPOSE

The medium tank training strategy has six training events that culminate in their demonstration of proficiency during a live-fire qualification event. Medium tank training consists of all the training events required to provide the commander with an effective demonstration of crew capabilities, employment skill, and lethality to build unit readiness.

Units should maximize their time and resources by designing their medium tank training plans such that crews train through proficiency to support the Infantry squad, section, platoon, and company, whether as an organic small unit, an attachment, or a cross-attachment. This level of synchronization will enable the unit to transition to advanced, higher echelon collective training seamlessly. Introductory figure 1 shows the structure for the medium tank training strategy. The training strategy described within this publication follows the standard training structure found in TC 3-20.0 and synchronizes with the training principles found in FM 7-0.

 FUNCTION	TABLE I	TABLE II	TABLE III	TABLE IV	TABLE V	TABLE VI
	Prerequisite	Prerequisite	Prerequisite	Zero Defense Machine Gun	Offense Defense Live-Fire	Qualification External Evaluation
EVENT	GST	STX-V	STX	BASIC	PRACTICE	QUALIFICATION
PRINCIPLE	CRAWL	CRAWL	WALK	RUN	RUN	RUN
ENVIRONMENT	Live	Virtual	Live	Live-Fire	Live-Fire	Live-Fire
METHOD	Hands-on	Simulations	TADSS	TADSS	Live-Fire	Live-Fire
AUDIENCE	Individual	TC/Gunner	Crew	Crew	Crew	Crew

LEGEND

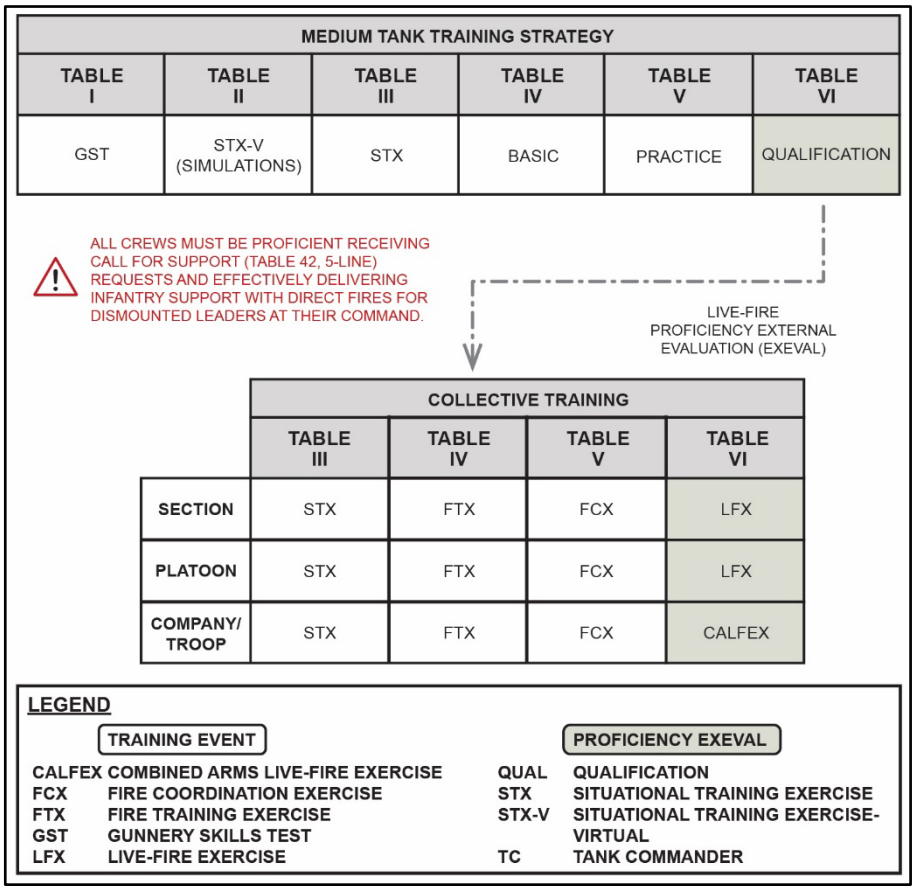
GST	GUNNERY SKILLS TEST	TADSS	TRAINING AIDS, DEVICES, SIMULATORS, SIMULATIONS
STX	SITUATIONAL TRAINING EXERCISE		
STX-V	SITUATIONAL TRAINING EXERCISE-VIRTUAL	TC	TANK COMMANDER

Introductory figure 1. Medium tank training strategy overview

MEDIUM TANK TABLES

Medium tanks follow the standard six-table format of the integrated weapons training strategy through live-fire qualification (proficiency). The six medium tank tables listed below and shown in introductory figure 2 for context are—

- Table I—Gunnery Skills Test.
- Table II—Situational Training Exercise–Virtual.
- Table III—Situational Training Exercise.
- Table IV—Basic (with weapons alignment and zeroing).
- Table V—Practice.
- Table VI—Qualification.



Introductory figure 2. Medium tank tables linked to higher echelon collective training, example

TRAINING STRATEGY DESIGN

It is important for units to follow the training strategy as designed. Tanks are complex platforms with state-of-the-art fire control systems, ballistic computers, thermal optics, target hand-off capabilities, hunter/killer functionality, with a high level of mobility. The munitions employed are purpose-based and provide extended stand-off distances that directly impact crew survivability and mission accomplishment on the battlefield.

Engagements are designed to increase the speed of the crew's direct fire kill chain to defeat tactical dilemmas. All training and standards are based on achieving the desired effects against the tactical dilemma before those threats deliver lethal fires. Training to this standard requires a training model that instructs and evaluates the crew's ability to employ their platform, fire control system, optics, munitions, and redundant systems against the variety of target packages they are expected to defeat.

The training model identifies the general capabilities of the crew, system, optics, ammunition, most probably threat arrays, and battlefield conditions to determine the maximum number of engagements a trained crew should experience. The training model includes the maximum number of engagements possible based on the basic conditions:

- Day, night, or conditions that limit visibility.
- Offense or defense operations.
- Precision or degraded engagement skills.
- Threat array:
  - Number of threats—one to four within presentation.
  - Posture of threats—stationary or moving.
  - Range band—close (less than 300 meters), mid (300 to 900 meters), long (900 meters to 1,600 meters) or extended (more than 1,600 meters).
- Chemical environment.

Without considering the possible ammunition types and two separate firers, or the ability to engage simultaneous targets with multiple weapon systems, the training model baseline includes over 10,000 engagement possibilities. Within those engagements, approximately 1,920 engagements are designed for training within precision gunnery simulations per fiscal year by a crew. Simulations are critical to the crew's education and experience.

To augment the training strategy, the unit needs experienced tank commanders and gunners who serve as subject matter experts, trained and certified trainers, a Master Gunner, instructor/operators, and vehicle crew evaluators. Providing training resources alone is not enough. Without certified trainers and leaders, units will struggle to achieve the fundamentals of tactical employment and experience difficulty achieving trained, qualified, and lethal crews.

Training is comprehensive and should be focused on addressing cognitive skills (recognition of target signatures, identification of threat, classification and prioritization, understanding of fire control systems, optics, and capabilities of ammunition), fine motor skills (tracking and manipulation), and instinctual reactions to situational stimuli (battle drills, conduct of fire responses, and application of the direct fire kill chain). Such training is formed through correctly performing the tasks in repetition, on demand of the tactical situation.

ENGAGEMENTS IN THE TRAINING STRATEGY

The training strategy structure using the general engagements presented to the crew is shown in introductory figure 3. This example is the general model in use for tank platforms.



BASIC TRAINING STRATEGY CONCEPT
CREW EXPERIENCE BY ENGAGEMENTS PRESENTED
ACTIVE COMPONENT (AC)

SIMULATIONS ENGAGEMENTS	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
4 HOURS PER MONTH 40 ENGAGEMENTS PER HOUR	160	160	160	160	160	160	160	160	160	160	160	160
TOTAL SIMULATION ENGAGEMENTS	1920											

Note: Crews are resourced 4 HOURS PER MONTH of simulations training. Crews can complete 4 scenarios per hour. Each scenario includes no less than 10 engagements. This results in 40 engagements per hour, or 160 engagements per resourced training session. Crews overall are resourced for approximately 1920 engagements per fiscal year as part of the training strategy.

LIVE FIRE	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
TABLE IV ZEROING	3						3					
TABLE IV DEFENSE	10						10					
TABLE V	10						10					
TABLE VI	10						10					
SECTION/PLATOON TABLE V/TABLE VI	7											
COMPANY/TROOP TABLE V/TABLE VI	7											
TOTAL LIVE FIRE ENGAGEMENTS	80											

Introductory figure 3. Training strategy structure based on crew experience by engagement

Those engagements provide the bulk of crew experience. Within those 1,920 engagements in simulation, they include a variety of the conditions based on their skill and ability to progress through the simulation's training model.

Simulations provide 95 percent of crew engagement experience

Within simulations, with the varying number of engagements, and the varying number of targets presented, the training plan includes over 2,000 trigger squeezes for main gun engagements and an additional 1,000 for the coaxial machine gun. The main gun trigger squeezes provided in simulation equate to approximately 20 years of live-fire ammunition authorizations per crew (99.5 main gun rounds per year).

The live-fire training strategy includes 33 live-fire tasks per gunnery through crew qualification. For an active component crew, firing twice per year, and additional collective live-fire engagements, the total number of engagements presented for live-fire experience is approximately 80 engagements total.

FAILING TO TRAIN ENGAGEMENTS IMPACTS READINESS

Units that fail to provide sufficient simulation training time for their crews and fail to execute the live-fire events to standard hinder their ability to tactically employ their platform. An example of common reductions in the training strategy across a fiscal year is shown in introductory figure 4 for comparison.



BASIC TRAINING STRATEGY CONCEPT
CREW EXPERIENCE BY ENGAGEMENTS PRESENTED
ACTIVE COMPONENT (AC)

SIMULATIONS ENGAGEMENTS	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
4 HOURS PER MONTH 40 ENGAGEMENTS PER HOUR		*80*			*80*	160	*40*				160	160
TOTAL SIMULATION ENGAGEMENTS	*680* OF 1920											
The unit reduces the amount of hours provided to the crews for a number of reasons. In this notional unit, they focus on simulations use generally right before the gunnery density only. This is shown in February, March, and April, and again in August and September.												

LIVE FIRE	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
TABLE IV ZEROING	3						3					
TABLE IV DEFENSE	*0*						*0*					
TABLE V	10						*6*					
TABLE VI	10						10					
SECTION/PLATOON TABLE V/TABLE VI	*5*											
COMPANY/TROOP TABLE V/TABLE VI	*0*											
TOTAL LIVE FIRE ENGAGEMENTS	*47* OF 80											
This unit is on a tight timeline to get out the door to a Combat Training Center rotation. The commander cuts Table IV defense from both gunnery densities to save range time. In the second gunnery density, again pressed for time, the unit completes a "modified" Table V. ***Note:*** There are no events called "modified" in any maneuver training strategy.												

Introductory figure 4. Negative impacts to crew experience based on reduced training

Units with a robust simulation training plan and follow the training strategy provide 2,000 engagements to their crews. When units cannot provide the training to the crews per the training strategy, the impacts on the crew's experience can be described using the number of engagements fired.

Figure 4 shows the impacts of the training strategy's 2,000 engagement-designed structure. Common instance in the unit's training calendar causes the crew's experience on engagements to drop to 727 engagements total.

A crew that loses over 60 percent of the training strategy's programmed engagement experience may provide a unit a qualified crew initially. Crews that are not provided the training resources by their unit will not fully develop their engagement skills and lethality. In subsequent live-fire events, crew evaluations will identify basic failures in the conduct of fire, reticle aim, fire control system management, and engagement techniques. Those training gaps will ultimately result in failed qualification attempts.

When units remove the training events from their training plan, including the use and management of simulations, the proficiency and lethality of the unit diminishes rapidly. In those instances, the commander loses qualified crews, unit readiness, and the flexibility to correct talent management or personnel turbulence issues rapidly.

CHAPTER STRUCTURE

Chapters 1 through 6 in this training circular provide an overview of the training event, the training event definition, the purpose, method, and end state of the training, and a guide to plan, prepare, execute, and assess each event. Chapter 7 details methods to manage the proficiency of the crew once they achieve proficiency.

CHAPTER 1—TABLE I, GUNNERY SKILLS TEST

Chapter 1 describes the training and evaluation requirements for each Soldier's Gunnery Skills Test. It includes required training tasks for crew protection such as roll-over drills, crew evacuation from all positions, and react to multiple types of vehicle fires. The chapter provides general information for the unit to plan, prepare, execute, and assess the event using the eight-step training model.

CHAPTER 2—TABLE II, SITUATIONAL TRAINING EXERCISE-VIRTUAL

Chapter 2 describes the section-level Situational Training Exercise-Virtual. The chapter includes the purpose, method, and end state of the event based on the simulation system's training model and the required gate to live-fire exercise. The chapter provides general information for the unit to plan, prepare, execute, and assess the event using the eight-step training model.

CHAPTER 3—TABLE III, SITUATIONAL TRAINING EXERCISE

Chapter 3 describes the section-level Situational Training Exercise using various training aids, devices, simulators, simulations and includes the purpose, method, and end state of the event based on the platform's capabilities and crew's tasks. The chapter provides general information for the unit to plan, prepare, and execute, the event using the eight-step training model. Chapter 3 provides required training tasks for crew protection such as berm drills (defilade to enfilade movements within defensive firing

positions), roll-over drills, crew evacuation from all positions, and react to multiple types of vehicle fires.

CHAPTER 4—TABLE IV, BASIC

Chapter 4 describes the live-fire task requirements for zeroing the main gun and machine guns prior to conducting further live-fire training. It continues by defining the training requirements for 10 defensive live-fire engagements for the tank commander, gunner, or simultaneous execution against single and multiple stationary or moving threats.

CHAPTER 5—TABLE V, PRACTICE

Chapter 5 provides the detailed engagement requirements for the 10 live-fire engagements on the practice course of fire. It provides advanced and complex engagements built upon all previous training. The engagements are specifically designed to provide increased challenges to the crew through the use of 3/4 scale targets at full range, complex target arrays, and high tempo changes to the fire control system to best prepare crews for their qualification event.

CHAPTER 6—TABLE VI, QUALIFICATION

Chapter 6 describes the engagement requirements for live-fire qualification for medium tank crews. These engagements are designed to ensure the crew can effectively engage and defeat common threat arrays expected in a tactical environment while fighting from the defense or during offensive operations. This table provides the reporting requirements for the medium tank crew as part of the unit's readiness.

CHAPTER 7—QUALIFICATION STANDARDS

Chapter 7 describes how commanders determine crew qualification (or proficiency) as part of the unit's readiness reporting. It provides a general overview for commanders making personnel manning, talent management, and crew assignment decisions that directly impact the qualifications of their organization.

APPENDIXES

The appendices in this training circular provide a guide to units as they build their unit training plan. They provide specific information on—

- The recommended training munitions, pyrotechnics, and simulators to conduct each event.
- Alternate training methods for training in austere environments or when appropriate or authorized simulation systems are not available.

APPENDIX A—AMMUNITION REQUIREMENTS

This appendix describes the recommended training ammunition, pyrotechnics, simulators, and other munitions that support the training strategy. Appendix A provides a detailed listing of munitions by weapon, system, or platform and includes various planning considerations.

APPENDIX B—TRACKING AND MANIPULATION BOARDS

Appendix B describes locally manufactured or acquired tracking and manipulation boards, which are sometimes referred to as tracking and manipulation panels, or snake boards. Tracking and manipulation boards are used in austere environments or when authorized simulation systems are not available for training. It describes a means of completing Table II, Situational Training Exercise-Virtual, using legacy training methods. It provides an example exercise that will satisfy the training objectives of Table II in less that optimal conditions.

Chapter 1

Table I–Gunnery Skills Test

Understanding the weapons and weapon system platforms is instrumental in the development of the warrior skills trained in marksmanship and gunnery. The information taught and evaluated in the Gunnery Skills Test for crew platforms teaches, tests, and evaluates the critical live-fire tasks that increase Soldiers' proficiency. The Gunnery Skills Test is used to instruct Soldiers on how to maintain, operate, and correct malfunctions of the platform's weapons, as well as the procedures and performance measures required to place the vehicle in operation for live-fire event. It includes safety-specific tasks that reinforce the proper procedures in the event of an emergency on the vehicle.

OVERVIEW—TABLE I

1-1. The crew platform, Table I, Gunnery Skills Test (GST), is a hands-on demonstration of proficiency and written evaluation of weaponry tasks, characteristics, capabilities, and vehicle safety related skills that serves as a prerequisite to any live-fire event. It verifies the Soldier's ability to perform critical tasks, has the basic understanding of combat identification, emergency procedures, and other vital skills to participate in live-fire training as part of a crew.

Live-Fire Prerequisites

Table I is a prerequisite for any live-fire event, including zero procedures, sub-caliber or in-bore training, or any live-fire maintenance procedure. Units must maintain the training records and results, for the longer of 12 months, or through the next testing event.

1-2. Training prior to Table I is a platoon and company or troop responsibility. Table I, GST, is a test that serves as the commander's official record of training proficiency prior to entering a live-fire training density.

1-3. Units must complete Table I, GST, for record between six weeks or months (as applicable) before execution (T-6) and training execution (T-execution) or the week of training execution (T-week) of the live-fire event. Units can include additional tasks they require to support the training program but cannot eliminate tasks for any weapon system. Figure 1-1 on page 2 shows where Table I resides within the medium tank training strategy through crew qualification.

CREW TABLE I	TABLE I	TABLE II	TABLE III	TABLE IV	TABLE V	TABLE VI
	CRAWL	*CRAWL*	*WALK*	*RUN*	*RUN*	*RUN*
	Live	Virtual	Live TADSS	Live-Fire	Live-Fire	Live-Fire
	GST	STX-V	STX	BASIC	PRACTICE	QUAL

Note: Table I, II, and III can be conducted in any order within the T-6 to T-X time frame. This provides flexibility when developing the unit training plan.

LEGEND

GST	GUNNERY SKILLS TEST OR GUNNER'S/FIRE DIRECTION CENTER EXAM	T-	TRAINING WEEK/MONTH MINUS [THE NUMBER OF WEEKS/MONTHS TILL EXECUTION (X)]
QUAL	QUALIFICATION	TADSS	TRAINING AIDS, DEVICES, SIMULATORS, AND SIMULATIONS
STX	SITUATIONAL TRAINING EXERCISE		
STX-V	SITUATIONAL TRAINING EXERCISE-VIRTUAL		

Figure 1-1. Table I, Gunnery Skills Test

1-4. Commanders require all Soldiers to conduct the Table I, GST tasks from all crew positions. This allows Soldiers to change positions when required during training. This training strategy helps the commander to overcome such circumstances as crew changes or unforeseen absences of assigned Soldiers.

1-5. Evaluators not participating in live-fire tables must pass the GST task they are evaluating within the same standard as above. Evaluators who are part of a firing crew must pass the remaining GST tasks pertaining to their platform prior to live-fire training. The unit's Master Gunner or designated noncommissioned officer in charge (NCOIC) must validate all evaluators.

PURPOSE OF TABLE I

1-6. The GST is a skills assessment and risk mitigation tool for the commander. It assists the commander in determining the safe and effective use of the platform, its weapons, identification of threats and common ammunition by the crewmembers in the unit. Further, it identifies shortfalls and training gaps in those gunnery specific skills, which build crew proficiency and unit readiness.

METHOD—TABLE I

1-7. Table I is a hands-on, performance-based evaluation of basic gunnery skills to the Army-standard of knowledge or skill. It utilizes experienced evaluators to educate, train, test, and retrain Soldiers to meet or exceed those standards.

END STATE—TABLE I

1-8. Each Soldier assigned as a member of the crew has successfully demonstrated the skills and knowledge required to continue training on the platform through platform qualification. Commanders are confident in their Soldier's abilities in the position assigned.

1-9. The tasks evaluated in Table I provide the commander a means to certify the crew's basic weapons platform proficiency prior to live-fire training. It is a guide for identifying individual and crew weapons platform strengths and weaknesses on specific fundamentals. The commander and Master Gunner when structuring the unit's crew training program should use the results from the GST.

TASK, CONDITIONS, AND STANDARD—TABLE I

1-10. All personnel assigned to a vehicle crew, regardless of military occupational specialty, who intend to participate in any live-fire event, must pass Table 1, GST. For example, an Infantry squad member acting as a driver on a medium tank must pass the tasks for that platform. To pass the GST, Soldiers must receive a GO on all tasks specific to the platform from which they will execute live-fire training (see figure 1-2).



TABLE I, GUNNERY SKILLS TEST (GST)	
TASK	Demonstrate proficiency on weapon or platform specific gunnery- and safety-related skills.
CONDITIONS	Given the following: • Fully mission capable equipment, weapons, optics, and vehicles for the position assigned. • A certified evaluator. • Test and evaluation criteria.
STANDARD	The crew must successfully pass GST using the evaluation standards between T-6 and T-execution of the combat training density.

LEGEND
T- TRAINING WEEK/MONTH MINUS [THE NUMBER OF WEEKS/MONTHS TILL EXECUTION (X)]

Figure 1-2. Table I, Gunnery Skills Test task, conditions, and standard

PLAN—TABLE I

1-11. This section details the resources needed for planning purposes. General information on topics for consideration are—

- Uniform—the minimum uniform requirements for the training event.
- Facilities—available facilities that support the training event.
- Training plan—the minimum tasks, execution guidelines or special instructions for the training event.
- Time and throughput—the estimated time required to complete the training event including throughput considerations for planning.
- Ammunition—any training munitions required to complete the training event.
  - This includes dummy, drilled, inert (DDI) items that require coordination.
  - This ammunition may have to be requested in the total ammunition management information system.
- Training aids, devices, simulators, simulations (TADSS)—any available training aids that directly support or augment the training event.

1-12. Units may require coordination with installation support activities such as the training support center for devices or training aids, or the ammunition supply point (ASP) for DDI items. Each installation's policies and procedures vary. Units should reference their supporting installation's training standard operating procedures (SOPs) or policies for detailed information.

1-13. Units may require updating their signature cards, hand receipts, or other documentation to ensure the required resources are on order, secured, or drawn in advance of the training event. Additionally, installations may require additional training to draw or utilize some of the TADSS. Sufficient time for those installation or unit specific training requirements should be included in the planning process.

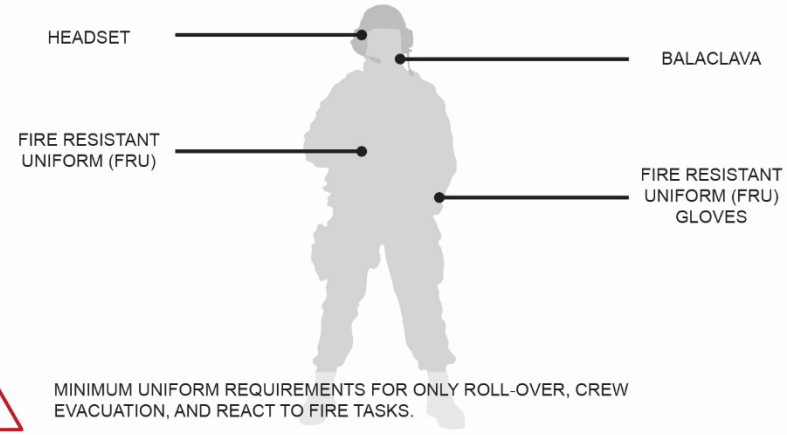
1-14. The commander determines whether the GST is a diagnostic or a record test using the following considerations:

- A diagnostic GST identifies the unit's strengths and weaknesses, provides information for the direct-fire training program, and assesses newly assigned personnel.
- Although DA Pam 350-38 requires record testing of the GST, twice yearly, schedule diagnostic evaluations quarterly to maintain proficiency.
- A record GST allows commanders to meet table prerequisites to certify proficiency of Soldiers before conducting any live-fire training.

UNIFORM—TABLE I

1-15. Crews must be in the appropriate vehicle crewmember uniform or prescribed unit uniform and protective mask. Crews are not required to have any additional body armor or gear inside the crew shelter or on their vehicle when using the tracking and manipulation boards (T&MBs) for testing. Figure 1-3 provides the minimum uniform training requirements for all simulations training, including the gate to live fire (GTLF).

TABLE I, GUNNERY SKILLS TEST (GST)
UNIFORM REQUIREMENTS



LEVEL	S SKULL	T TORSO	E EYES	E EARS	L LIMBS
MINIMUM REQUIRED	3	3	0	3	3
0	NONE	NONE	**NONE**	NONE	NONE
1	PATROL CAP	VEST	GOGGLES	SINGLE EAR PROTECTION	GLOVES
2	HELMET	VEST with PLATES	BALLISTIC	DOUBLE EAR PROTECTION	LEATHER GLOVES
3	**BALACLAVA**	**FRU**		**HEADSET**	**FRU GLOVES**
4		FRU and SPALL VEST			

Figure 1-3. Uniform requirements for Table I

FACILITIES—TABLE I

1-16. Conduct Table I in the unit areas. Units will determine the amount of supporting equipment required to support the number of training stations used. Examples (see figure 1-4) of the facilities needed to complete Table I are—

- Classroom—for testing vehicle and ammunition identification.
- Motor pool bay or company bay area with tables—for crew served weapons tasks.
- Motor pool or training area with armament accuracy checks and boresight panels—for the primary armament collective tasks.
- Motor pool vehicle line—for vehicle safety task, and primary armament loading and ammunition handler tasks.

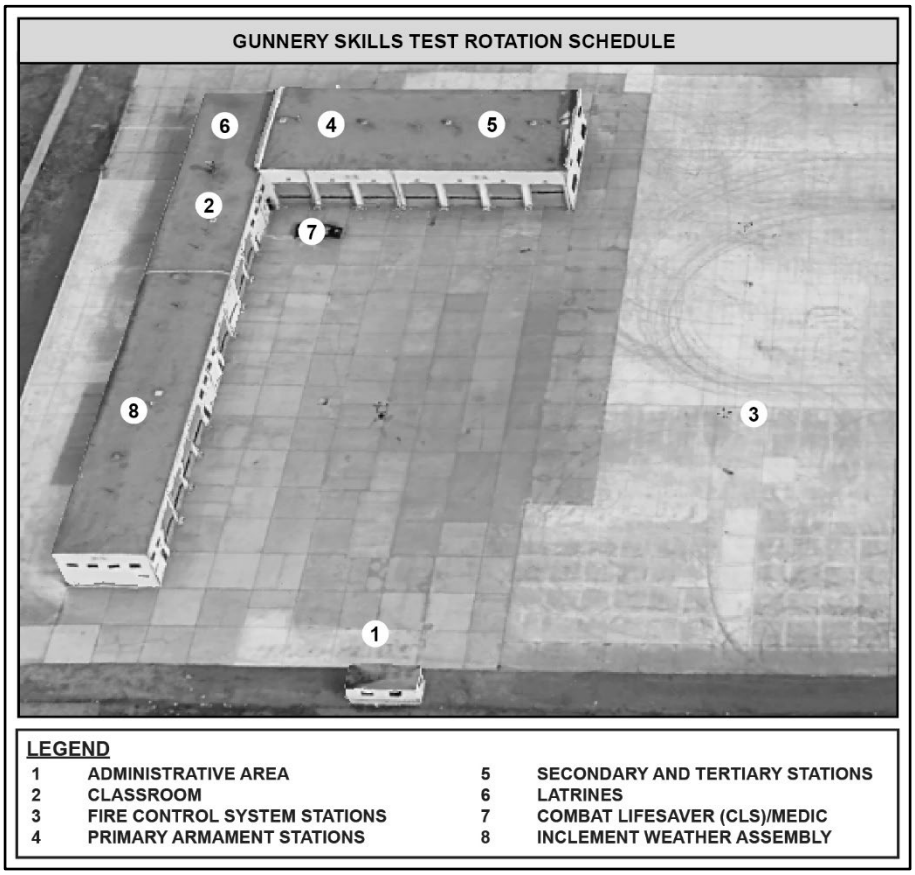


Figure 1-4. Motor pool layout, example

TRAINING PLAN—TABLE I

1-17. The following figure shows the minimum tasks required for evaluation and successful completion of every crewmember prior to live-fire. Units should maximize cross-training to provide additional flexibility for crew assignment and talent management. Figure 1-5 describes the minimum tasks for training and evaluation for the medium tank crews.



GUNNERY SKILLS TEST GROUPS			
IDENTIFICATION			
	COMBAT IDENTIFICATION	AMMUNITION IDENTIFICATION	
PRIMARY ARMAMENT			
XM35 CANNON, CLEAR	XM35 CANNON, DROP BREECH	XM35 CANNON, INSTALL BREECH	XM35 CANNON, FUNCTION CHECK
	XM35 CANNON, LOAD/RELOAD	XM35 CANNON, FAILURE TO FIRE	
SECONDARY ARMAMENT			
M2A1, CLEAR	M2A1, DISASSEMBLE	M2A1, ASSEMBLE	M2A1, FUNCTION CHECK
	M2A1, LOAD	M2A1, IMMEDIATE ACTION	
TERTIARY ARMAMENT			
M240, CLEAR	M240, DISASSEMBLE	M240, ASSEMBLE	M240, FUNCTION CHECK
	M240, LOAD	M240, IMMEDIATE ACTION	
FIRE CONTROL SYSTEM			
COLLIMATE MBD	BORESIGHT	MRS UPDATE	SPECIAL GUNNERY CHECKS
FORCE PROTECTION			
EVACUATE CREW MEMBERS	REACT TO FIRE HAZARD	ROLL-OVER DRILLS	REQUEST MEDEVAC

LEGEND
MBD MUZZLE BORESIGHT DEVICE **MRS** MUZZLE REFERENCE SENSOR
MEDEVAC MEDICAL EVACUATION

Figure 1-5. Table I, Gunnery Skills Test, task requirements

TIME AND THROUGHPUT—TABLE I

1-18. Training units plan GSTs to maximize training time and resources. The training unit must fully understand all evaluation procedures and criteria. Units are responsible for training and certifying the evaluators prior to conducting Table I as part of the 8-step training model.

1-19. To properly evaluate GSTs, units must consider the following factors:

- Administrative requirements.
- Evaluator availability based on requirements and certifications.
- Test locations.
- Resource requirements.
- Time.
- Retraining.
- Retests.

1-20. Incorporate sufficient time for training, testing, retraining, and retesting into the plan based on the projected number of Soldiers to evaluate. The goal when taking the GST is to demonstrate proficiency on key tasks (individual and crew) to execute safe and effective live-fire events.

1-21. While implementing the GST, the Master Gunner may combine tasks at a given station to increase throughput and maximize available training time. The tasks of clearing, disassembling, assembling, conducting a function check, and loading and unloading a weapon system is an example of combining individual tasks into a single station. Combining tasks provides flexibility to Master Gunners or NCOICs in the planning and execution of their GST.

1-22. Crews in their assigned positions complete all collective tasks. Units may evaluate additional crewmembers in gunner or vehicle commander (VC) positions after their testing in the assigned position are complete. This provides additional flexibility to the commander to manage available talent within the organization and prepare for back-up manning possibilities.

1-23. Figure 1-6 provides an example if only one vehicle is used for a notional test that requires 28 minutes per Soldier to complete. This includes the administrative and testing time for the task.



TEST TIME CALCULATIONS SINGLE VEHICLE	
STEP	**CALCULATION**
1	Multiply the total number of personnel to test by the total time to conduct the task (administrative time + test time). 50 personnel x 28 minutes = 1,400 minutes
2	Divide total test time minutes by 60 to convert to hours. 1,400 minutes/60 minutes per hour = 23.3 hours
3	Convert .33 into minutes by multiplying by 60. .33 x 60 = 19.8 (.6 or higher, round up) (20 minutes)
4	It will take 50 personnel **23 hours and 20 minutes** to conduct testing of a task that requires 28 minutes if ***only one vehicle*** is available for testing. This requires 3 complete 8-hour training days to complete.

Figure 1-6. Test time calculation with one vehicle, example

1-24. Figure 1-7 on page 10 provides an example if three testing vehicles are used for the same task that requires 28 minutes per Soldier to complete. This example includes all the administrative and testing time for the task.



TEST TIME CALCULATIONS MULTIPLE VEHICLES	
STEP	**CALCULATION**
1	Multiply the total number of personnel to test by the total time to conduct the task (administrative time + test time). 50 personnel x 28 minutes = 1,400 minutes (1 vehicle.)
2	Divide the total minutes of test time by the total number of vehicles used to test at that station. 1,400 minutes/3 testing vehicles = 466.6 minutes each (.6 or higher, round up) 467 minutes for 3 testing vehicles
3	Divide the total minutes from the test time with three vehicles by 60 to convert to hours. 467 minutes/60 minutes per hour = 7.78 hours
4	Convert the remainder after the whole number .78 into minutes by multiplying by 60 .78 hours x 60 minutes = 46.8 minutes (.6 or higher, round up) .78 hours = approximately 47 minutes.
5	It will take 50 personnel **7 hours and 47 minutes** to conduct testing of a task that is 28 minutes long if there are ***three testing vehicles*** available. Testing 50 personnel on this task with three testing vehicles can occur in one 8-hour training day.

Figure 1-7. Test time calculation with three vehicles, example

TADSS—TABLE I

1-25. Table I will require the unit to secure various training aids, devices, simulators, and simulations, as well as DDI training munitions for training and testing. Figure 1-8 provides a list of those mandatory items for planning purposes.

1-26. Units must coordinate with their installation or supporting ASP for the DDI training munitions. The unit should coordinate for long-term hand receipt of those items to support weapons training throughout the fiscal year, not just during Table I.



TABLE I, GUNNERY SKILLS TEST (GST)

TRAINING AIDS, DEVICES, SIMULATORS, AND SIMULATIONS (TADSS)
DRILLED, DUMMY, AND INERT (DDI) REQUIREMENTS

DODIC	NOMENCLATURE	REMARKS
AB39	CARTRIDGE, 7.62MM, LINKED, DDI, M63A1	Primary DDI, linked.
AB36	CARTRIDGE, CALIBER .50, LINKED, DDI, M2A1	
AB47	CARTRIDGE, 7.62MM, SINGLE ROUND, M63A1, DDI	May not include links. Unit must secure links to create 5- or 10-round short belts to support the training tasks.
AB48	CARTRIDGE, CALIBER .50, SINGLE ROUND, M2A1, DDI	

DEVICE	NOMENCLATURE
T-17-114	105MM TANK TRAINING ROUND, M10140, CANISTER, DUMMY
T-17-115	105MM TANK TRAINING ROUND, M393A3, HEP, DUMMY
T-17-116	105MM TANK TRAINING ROUND, M900, SABOT, DUMMY
T-17-117	105MM TANK TRAINING ROUND, M456A2, HEAT, DUMMY
SP-1	BORESIGHT PANEL
SP-4	ARMAMENT ACCURACY CHECK SOLUTION BOARD, MOBILE PROTECTIVE FIREPOWER (MEDIUM TANK)

Note: Units will require 1 each dummy round by type for each testing station planned.

See TC 25-8, *Training Ranges*, for construction dimensions if not available through the installation Training Support Center or comparable activity. Units should consider coordination with the installation Range Operations for possible local manufacturing or requisitioning.

LEGEND

DODIC	DEPARTMENT OF DEFENSE IDENTIFICATION CODE	HEP	HIGH EXPLOSIVE PLASTIC
HEAT	HIGH EXPLOSIVE ANTITANK	MM	MILLIMETER
		TC	TRAINING CIRCULAR

Figure 1-8. Table I, TADSS requirements listing

PREPARE—TABLE I

1-27. The following personnel, equipment, and material are required for all tasks:

- Primary evaluator, staff sergeant or above, who is responsible for administering the overall test:
  - This is usually the Master Gunner or designated NCOIC.
  - This evaluator may occupy a test station.
- Station evaluator, sergeant or above (one per test station).
- Test site as required by tasks.
- Stopwatch (one per evaluator).
- Criterion scoring checklist (one per Soldier).
- TC 3-20.31-1 (one per station).
- Dummy rounds (as required).

Note. The test administrative guide lists additional items, if required, for each particular station. This can include items such as desks, chairs, clipboards, pencils, and applicable references.

DETERMINE RESOURCES

1-28. The Master Gunner, or NCOIC, must determine equipment and resources needed to support the test site and conduct the testing to standard. The condition section of each individual station contains the equipment requirements. Examples of additional support requirements are—

- Vehicles with drivers.
- Transportation to and from the test site.
- Tents for warm-up and briefings.
- Tables for scoring.
- Chairs.
- Medical support.
- Class I support.
- Training aids, devices, simulators, and simulations.
- TC 3-20.31-1 and applicable publications for each testing station.

1-29. Once the needed resources have been identified, they must coordinate the use of personnel and equipment. This coordination usually is made through the chain of command and supply sergeant or the company or battalion operations staff officer (S-3), and the logistics staff officer (S-4).

IDENTIFY THE TEST SITE

1-30. Establish a test site that supports the testing of all stations. Units should consider the number of Soldiers for evaluation to ensure the selected site supports the throughput required.

CONSTRUCT A TEST STATION DIAGRAM (FLOW CHART)

1-31. Design a test station diagram or flow chart prior to any test rehearsal (figure 1-7 on page 10). A diagram facilitates management and control of the test and aids in briefing Soldiers and evaluators. The diagram should include the following:

- Administrative area.
- Classrooms.
- Test stations.
- Retraining location.
- Movement schedule with direction of rotation, if applicable.
- Latrines.
- Aid station and warm-up tent, if available.

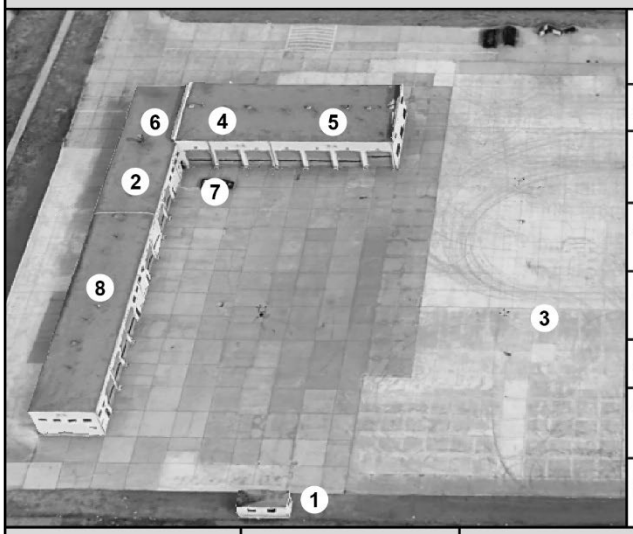
1-32. When developing a GST site, evaluators should pay particular attention to retraining vehicles and back-up vehicles.

1-33. Position retraining vehicles in such a way for use for any task requiring retraining or retesting, which is important when training, or testing boresight and zero. For example, if the personnel in the retraining vehicle cannot see the boresight panel or the vehicle is not at the correct distance, the retraining capability of that vehicle will not be effective.

1-34. Calculate back-up vehicles into the development of a GST site to address any critical failures of any primary vehicles dedicated to any task. In the event of a malfunction or catastrophic failure of a primary vehicle, the back-up vehicle is readily available to allow the GST to continue with limited loss of throughput.

1-35. Figure 1-9 on page 14 shows an example test station diagram with the test station groups. In this example, it provides a general timeline for execution at the company or troop level, rotating platoons through the test stations. This diagram is useful to brief the conduct of the event, briefing noncommissioned officer books for visitors, and in the administrative area.

GUNNERY SKILLS TEST ROTATION SCHEDULE



LEGEND

1	ADMINISTRATION AREA
2	CLASSROOM
3	FIRE CONTROL SYSTEM STATIONS
4	PRIMARY ARMAMENT STATIONS
5	SECONDARY AND TERTIARY STATIONS
6	LATRINES
7	COMBAT LIFESAVER (CLS)/MEDIC
8	INCLEMENT WEATHER ASSEMBLY

TIME	PLATOON	FUNCTIONAL SKILLS GROUP
0800 - 1000	ALL	IDENTIFICATION
1000 - 1200	1ST	PRIMARY ARMAMENT
	2ND	SECONDARY AND TERTIARY
	3RD	FIRE CONTROL SYSTEM
1300 - 1500	1ST	SECONDARY AND TERTIARY
	2ND	FIRE CONTROL SYSTEM
	3RD	PRIMARY ARMAMENT
1500 - 1700	1ST	FIRE CONTROL SYSTEM
	2ND	PRIMARY ARMAMENT
	3RD	SECONDARY AND TERTIARY
1700 - 1800	ALL	FORCE PROTECTION

Figure 1-9. Sample test station diagram

SELECT EVALUATORS

1-36. NCOICs should select evaluators as far in advance as possible. This gives the NCOIC time to train, to select the most qualified personnel available, and to coordinate with other units, if necessary. Early selections, in turn, allow evaluators time to prepare. If the NCOIC must draw on resources from outside their unit, they should request assistance from their company command group to make this coordination to ensure proper channel utilization for their request. After the evaluators have been selected, the NCOIC briefs them on their duties and responsibilities, the test schedule and location (using a flow chart or test station diagram), and the station they will be testing. The

NCOIC must provide training and testing dates to certify the proficiency of the evaluators.

TEST EVALUATORS

1-37. Evaluators must be technically proficient in performing all tasks to standard. Typically, the GST occurs over multiple training days. Due to personnel requirements and availability issues, training, testing and certification of each evaluator on the specific GST station they are to evaluate occurs prior to the unit testing date. Each evaluator should test on all GST stations in case another evaluator becomes unavailable during testing time.

CONDUCT A REHEARSAL

1-38. Units must rehearse the test before administering it because of the size and scope. Units should conduct the rehearsal at the test site with all evaluators present. The NCOIC should check each station to make sure the evaluator is aware of their duties and responsibilities, the stations are set up correctly with all required equipment, support and test materials are on hand, and execution of each station is according to the test administrative guides.

1-39. The rehearsal day also may serve to train, test, and certify all evaluators, which also satisfies their live-fire GST prerequisite.

EXECUTE—TABLE I

1-40. Before the Soldiers arrive, evaluators set up the equipment and materials needed at each station. The evaluator should have a crew roster by vehicle bumper number and position at their station to track the Soldiers. Evaluators provide the Soldiers with all the necessary materials and equipment as outlined in this chapter and in the test administrative guide for each station.

1-41. The evaluator must read the instructions for their assigned station exactly as written in the guide. The evaluator must use the criteria-scoring checklist provided for each task to evaluate each Soldier's performance to standard. Once testing is complete, the evaluator records the results on DA Form 7758 (*Gunnery Skills Test [GST] Individual Roll-up*) as shown in figure 1-8, page 11). As each Soldier finishes or the time limit is up, whichever occurs first, the evaluator checks the Soldier's performance as either GO or NO GO, informs them of their performance on that task, and directs them to the next station or to retraining.

1-42. The company Master Gunner, or designated NCOIC, is responsible for completing DA Form 7758 and maintaining platoon and company roll-up information. They ensure that all collected roll-ups are submitted to the next higher headquarters.

1-43. Before testing, the NCOIC must ensure the stations are set up, and all equipment and support requirements are available. The NCOIC must also brief the Soldiers on safety, rotational order, hours of testing, and location of the stations. Preferably, Soldiers should separate into small groups or crews and be assigned to initial test stations. During testing, the NCOIC will spot-check each station to ensure the task standard and attendance rosters, with correctly annotated scorecards, are being maintained.

ASSESS—TABLE I

1-44. After action reviews (AARs) are the key to success in any training event, as well as improving the event for future iterations. There are two primary AARs for Table I, Testing Soldier/Crew AAR and the Table I Execution AAR. Evaluators must conduct an AAR after completing each task for each Soldier or crew and for the NCOIC of Table I upon completion of unit training. Without these immediate AARs, valuable lessons for the Soldier, crew, and unit can be lost.

SOLDIER INDIVIDUAL TASK AFTER ACTION REVIEWS

1-45. At the completion of each task, the evaluator will provide feedback to each Soldier on their performance at the station. Whether a Soldier passes or fails to complete a GST task, the evaluator should be prepared to offer guidance on how the Soldier can improve their skills.

TABLE I—EVENT AFTER ACTION REVIEW

1-46. The battalion or brigade Master Gunner, designated NCOIC, or operations sergeant major should conduct an AAR to help the NCOIC understand their actions and interactions during the conduct of the GST. The AAR should be conducted prior to any debrief to the unit commander and should consist of a discussion of the strengths and weaknesses of the training event. This allows the NCOIC to debrief the commander with accurate training results and recommendations to improve the testing process for future events.

1-47. The results of the GST provide the commander with additional quantifiable testing information to assess unit proficiency. Combined and integrate the GST results and AAR comments to improve future training, testing, or evaluation.

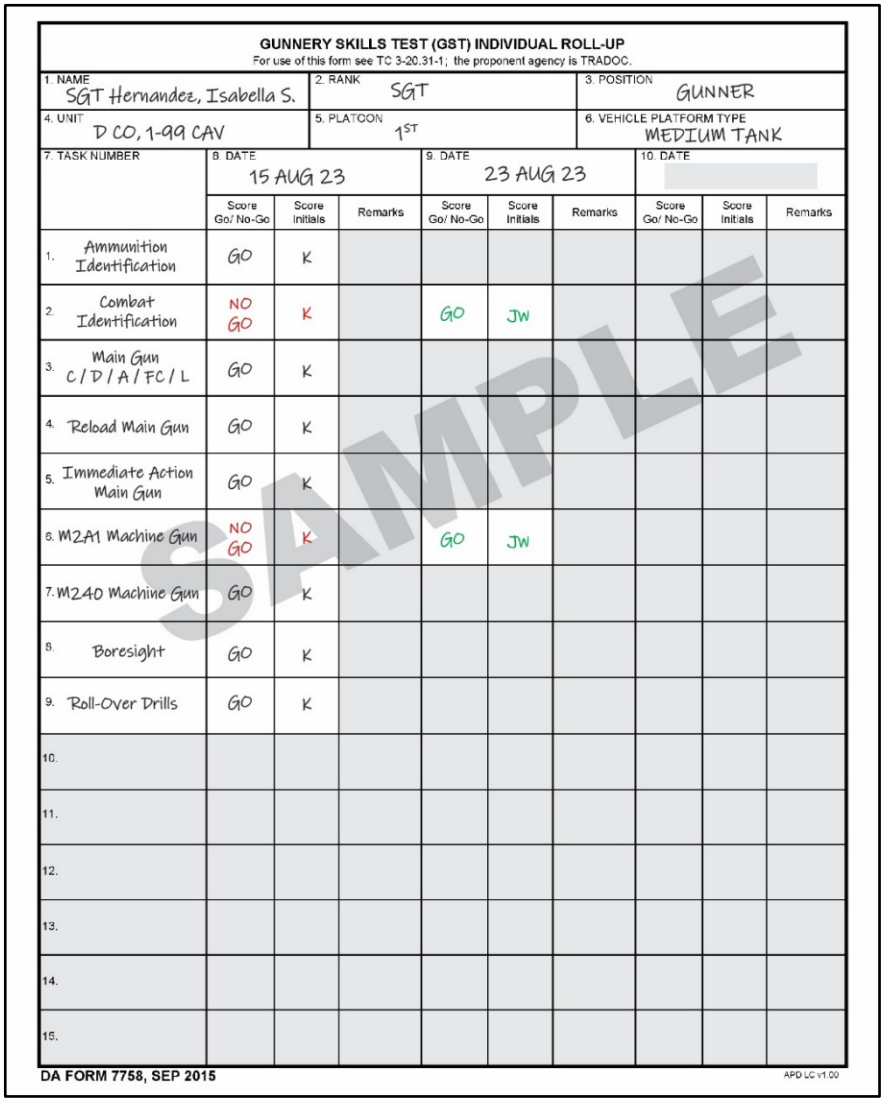
PREPARE THE DEBRIEF

1-48. Once the test is complete, the NCOIC prepares a debriefing on the GST results for the commander. Units retain this information for training records and maintain the information throughout the weapons training density. The NCOIC collects the Soldiers' scorecards as soon as they complete testing and prior to anyone leaving the test site. The evaluators can provide additional information about a Soldier's test performance. After all data is collected, the NCOIC prepares a summary of results, interpreting information from test results to determine the strengths and weaknesses of the unit. This report will, at a minimum, contain the following data:

- A roster by duty position of each Soldier tested.
- The scores of each Soldier tested.
- The percentage of Soldiers passing the GST.
- The percentage of GOs per station.
- The percentage of NO-GOs per station.

CREW GUNNERY FOLDER RECORDS—GST

1-49. Once testing is complete, the evaluator records the results on DA Form 7758 (see figure 1-10) and provides that form to the unit Master Gunner for the crew's gunnery folder. The form is retained for 12 months. The GST is a live-fire prerequisite, the roll-up information must be maintained by the unit Master Gunner, designated NCOIC, or representative from the operations staff for two consecutive gunneries.



GUNNERY SKILLS TEST (GST) INDIVIDUAL ROLL-UP
For use of this form see TC 3-20.31-1; the proponent agency is TRADOC.

1. NAME	2. RANK	3. POSITION
SGT Hernandez, Isabella S.	SGT	GUNNER
4. UNIT	**5. PLATOON**	**6. VEHICLE PLATFORM TYPE**
D CO, 1-99 CAV	1ST	MEDIUM TANK

7. TASK NUMBER	8. DATE: 15 AUG 23			9. DATE: 23 AUG 23			10. DATE		
	Score Go/ No-Go	Score Initials	Remarks	Score Go/ No-Go	Score Initials	Remarks	Score Go/ No-Go	Score Initials	Remarks
1. Ammunition Identification	GO	K							
2. Combat Identification	NO GO	K		GO	JW				
3. Main Gun C / D / A / FC / L	GO	K							
4. Reload Main Gun	GO	K							
5. Immediate Action Main Gun	GO	K							
6. M2A1 Machine Gun	NO GO	K		GO	JW				
7. M240 Machine Gun	GO	K							
8. Boresight	GO	K							
9. Roll-Over Drills	GO	K							
10.									
11.									
12.									
13.									
14.									
15.									

SAMPLE

DA FORM 7758, SEP 2015 APD LC v1.00

Figure 1-10. DA Form 7758

1-50. This ensures historical data is available throughout the Army force generation training cycle for the chain of command to assess strengths and weaknesses of crews

and address these concerns in upcoming GST training. The most current GST records must accompany the unit or crew throughout the entire weapons training density.

Chapter 2

Table II–Situational Training Exercise–Virtual

Crew Platform, Table II, Situational Training Exercise-Virtual is a simulations-based demonstration of the performance of employing the element to its primary capabilities. Table II itself is the culminating evaluation of the crew after completing the appropriate simulations training strategy within the simulation system itself. Table II is a replication (simulation) of the crew's live-fire qualification course. It provides a measured demonstration of performance prior to any live-fire event for the element.

OVERVIEW—TABLE II

2-1. The purpose of crew platform, Table II, Situational Training Exercise-Virtual (STX-V), is to ensure the crew possesses the skills and experience necessary to execute live-fire events and exercises safely, which implies a functional understanding of the engagement process, fire commands, engagement techniques, and lethality. This is the culminating test of their abilities and skills on their platform in simulation after completing the appropriate simulations training plan.

Live-Fire Prerequisite

Table II is a prerequisite for any live-fire event, including zero procedures, sub-caliber or in-bore training, or any live-fire maintenance procedure. Units must maintain the training records and results, for the longer of 12 months, or through the next testing event.

2-2. Table II is completed after successful advancement in the approved simulation system's training model. Table II is the GTLF exercise within that training system which simulates the qualification course of fire. How Table II is tied to the other training events within the crew training strategy is shown in figure 2-1 on page 20.

CREW TABLE II	TABLE I	TABLE II	TABLE III	TABLE IV	TABLE V	TABLE VI
	CRAWL	*CRAWL*	*WALK*	*RUN*	*RUN*	*RUN*
	Live	Virtual	Live TADSS	Live-Fire	Live-Fire	Live-Fire
	GST	STX-V	STX	BASIC	PRACTICE	QUAL

Note: Table I, II, and III can be conducted in any order within the T-6 to T-X time frame. This provides flexibility when developing the unit training plan.

LEGEND

GST	GUNNERY SKILLS TEST OR GUNNER'S/FIRE DIRECTION CENTER EXAM	T-	TRAINING WEEK/MONTH MINUS [THE NUMBER OF WEEKS/MONTHS TILL EXECUTION (X)]
QUAL	QUALIFICATION	TADSS	TRAINING AIDS, DEVICES, SIMULATORS, AND SIMULATIONS
STX	SITUATIONAL TRAINING EXERCISE		
STX-V	SITUATIONAL TRAINING EXERCISE-VIRTUAL		

Figure 2-1. Table II, Situational Training Exercise-Virtual

PURPOSE OF TABLE II

2-3. Table II, STX-V, is a skills assessment and risk mitigation tool for the commander. It assists the commander in determining the safe and effective use of the platform, its weapons, identification of threats, and common ammunition by the crewmembers in the unit. Further, it identifies shortfalls and training gaps in those gunnery specific skills, which build crew proficiency and unit readiness.

METHOD—TABLE II

2-4. Table II is a hands-on, performance-based evaluation of basic gunnery skills to the Army-standard of knowledge or skill in a simulator system (crew shelter). It utilizes experienced evaluators to educate, train, test, and retrain Soldiers to meet or exceed those standards.

END STATE—TABLE II

2-5. The VC and gunner assigned as a crew have successfully demonstrated the skills and knowledge required to continue training on the platform through platform qualification. Commanders are confident in their Soldier's abilities in the position assigned.

2-6. The tasks evaluated in Table II provide the commander a means to certify the crew's basic weapons platform proficiency prior to live-fire training. It is used as a guide for identifying individual and crew weapons platform strengths and weaknesses on specific engagement techniques and employment of the vehicle's fire control system capabilities and enablers.

TASK, CONDITIONS, AND STANDARD—TABLE II

2-7. All crews must complete Table II, STX-V during T-6 to T-week of the upcoming live-fire training density. Figure 2-2 provides the task, conditions, and standard for the crews to achieve.



TABLE II SITUATIONAL TRAINING EXERCISE - VIRTUAL	
TASK	Engage and destroy stationary and moving targets from a stationary or moving vehicle in a simulated combat environment.
CONDITIONS	Given the following: • Operational simulator. • An instructor operator (I/O) that is a certified vehicle crew evaluator (VCE). • A prescribed gate to live-fire exercise, which includes an accurate replication of Table VI, *Qualification*.
STANDARD	The crew must successfully pass the GTLF exercise using the evaluation standards of TC 3-20.31 crew evaluation between T-6 and T-week.

LEGEND

GTLF	GATE TO LIVE-FIRE	TC	TRAINING CIRCULAR
T-	TRAINING WEEK/MONTH MINUS [THE NUMBER OF WEEKS/MONTHS TILL EXECUTION (X)]		

Figure 2-2. Table II, Situational Training Exercise-Virtual

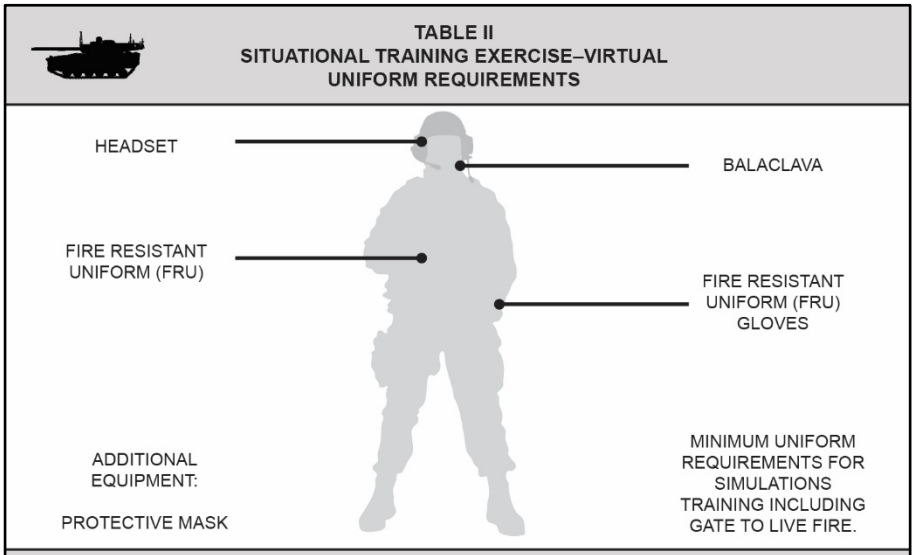
PLAN—TABLE II

2-8. This section details the resources needed for planning purposes. General information on topics for consideration are—

- Uniform—the minimum uniform requirements for the training event.
- Facilities—available facilities that support the training event.
- Crew experience—units must consider their crew's experience (VC and gunner) when creating the plan for Table II:
  - The experience of the crew directly affects the throughput of the event.
  - The crew's experience also drives the engagement scenarios development, when required.
- Training plan—the minimum tasks, sequence, and method of execution for the training event.
- Time and throughput—the estimated time required to complete the training event including throughput considerations for planning.
- Ammunition—any training munitions required to complete the training event, which includes DDI items that require coordination.
- TADSS—any available training aids that directly support or augment the training event.

UNIFORM—TABLE II

2-9. Crews must be in the appropriate vehicle crewmember uniform or prescribed unit uniform and protective mask. Crews are not required to have any additional body armor or gear inside the crew shelter or on their vehicle when using the T&MBs for testing. Figure 2-3 provides the minimum uniform training requirements for all simulations training, including the GTLF.



LEVEL	S SKULL	T TORSO	E EYES	E EARS	L LIMBS
MINIMUM REQUIRED	3	3	0	3	3
0	NONE	NONE	**NONE**	NONE	NONE
1	PATROL CAP	VEST	GOGGLES	SINGLE EAR PROTECTION	GLOVES
2	HELMET	VEST with PLATES	BALLISTIC	DOUBLE EAR PROTECTION	LEATHER GLOVES
3	**BALACLAVA**	**FRU**		**HEADSET**	**FRU GLOVES**
4		FRU and SPALL VEST			

Figure 2-3. Uniform requirements for simulations training

FACILITIES—TABLE II

2-10. Conduct of Table II is either gunnery training system, in virtual battle space, or in the motor pool or training area utilizing T&MBs. Figure 2-4 shows the primary and alternate facilities/methods to complete STX-V.



AUTHORIZED SIMULATION SYSTEMS
MEDIUM TANK

DEVICE	PRIMARY	ALTERNATE	REMARKS
GTS	X		System generated GTLF. Programmed for development but not available for training (when available).
GfT		X	Master Gunner developed GTLF using systems like VBS3.
TRACKING AND MANIPULATION BOARDS		X	Master Gunner developed GTLF. Requires use of a comparable gunner's power control handle for turret movement in azimuth and elevation for engagements. Use of Auxiliary controls are not required but should be used if available.

LEGEND
GfT GAMES FOR TRAINING SYSTEMS
GTLF GATE TO LIVE-FIRE
GTS GUNNERY TRAINING SYSTEM
VBS VIRTUAL BATTLE SPACE

Figure 2-4. Table II primary and alternate simulations systems

CREW EXPERIENCE

2-11. Units that develop scenarios on games for training systems must consider the level of experience of their training crews. Crews are evaluated on their experience by position and are identified in one of the following categories:

New Crew

2-12. A new crew is where the VC and gunner is new to their position on the vehicle. New crews begin training in the simulations and gaming systems at the entry level to build crew coordination, engagement skills, and cohesion.

Turbulent Crew

2-13. A turbulent crew is where both the VC and gunner have previous experience and have qualified within the last 12 months in those positions but have not worked together as a crew. Assessment of these crews for proper placement within the simulation's training management system is required. Typically, the assessment shows they should begin training at the lowest common training scenario at a point where both the gunner and VC have successfully completed, which would maximize their training time. For

crews using gaming systems, the unit must develop and execute scenarios that are more difficult for the crew. This ensures the crews remain challenged in the simulations and gaming system and continue to learn direct fire engagement techniques and procedures.

Experienced Crew

2-14. An experienced crew is defined as the VC and gunner having previously qualified within the past 12 months. Crews using simulations must continue training through the next GTLF prior to executing any live-fire event. For crews using gaming systems, the unit must develop and execute scenarios that are more challenging for the crew.

Note. Crews that have previously qualified cannot restart the simulations training program. They must continue training within the simulation system to the next higher GTLF.

2-15. To increase crew experience during the execution of the training strategy, units use certified vehicle crew evaluators (VCEs). Properly trained and certified VCEs are an asset to the commander. Performing duties as a VCE in any capacity builds the experience of the VCE as well. It exposes the VCE to dozens of engagements to review in depth during the evaluation process that would normally require the VCE to fire.

TRAINING PLAN—SITUATIONAL TRAINING EXERCISE-VIRTUAL

2-16. Table II, STX-V, is a simulations-based exercise that replicates the engagements of the Table VI, Qualification. Within a crew shelter simulator system, is a specific scenario set that replicates the training requirements and engagement skills of the qualification course of fire.

2-17. Successful completion of prescribed exercise or series of exercises in the simulator is mandatory as a prerequisite to firing live ammunition. These exercises evaluate the crew's proficiency employing its weapon system or platform against common threats, provide engagements under chemical, biological, radiological, and nuclear conditions, enhance and evaluate crew coordination, evaluate crew drills, and hone the crew's engagement techniques.

System Generated Gate to Live Fire Scenarios

2-18. The primary simulation system module automatically generates the scenario for Table II. The system provides the scenarios after successful completion of the simulations training strategy through the minimum training requirements for live fire. This is accomplished through the system's matrix movement rules, reticle aim requirements, and system management ratings by crew.

2-19. For units utilizing the games for training system, the simulations center will develop and build the scenario for the GTLF event. The unit should proof the scenario, provide appropriate administrative prompts, platoon fire commands for each engagement, and other scripts for the VCEs to follow. These should be similar to the live-fire Table VI event and will serve as a verification of those scripts prior to live-fire training.

2-20. Figure 2-5 shows the minimum engagements for system generated simulations or the baseline standard engagements for unit created scenarios. A guideline for creating day and night phase scenarios using these engagements can be found in the crew platform training publication, TC 3-20.31.

TABLE II, SIMULATIONS GATE TO LIVE FIRE
SYSTEM GENERATED SCENARIO REQUIREMENTS

TASK DESCRIPTION		POSTURE	FIRER	WEAPON	TARGET TYPE	TARGET POSTURE	RANGE	EM
20	VEHICLE COMMANDER	OFFENSE	VC	HEAT	M1T-FRT	STA	1,200m	13
			VC	HEAT	M1T-FLK	MOV	1,600m	16
21	MACHINE GUN PURE	DEFENSE	GNR	COAX	E(7)FRT	STA	400m	8
			GNR	COAX	L2T-FLK	MOV	800m	12
22	MACHINE GUN PURE	OFFENSE	GNR	COAX	E(7)FRT	STA	400m	12
			GNR	COAX	L2T-FRT	STA	800m	14
			GNR	COAX	E(7)FRT	STA	800m	15
23	MAIN GUN PURE	DEFENSE	GNR	HEP	H3T-FRT	STA	1,400m	9
			GNR	HEP	M2T-FRT	STA	1,600m	10
24	MAIN GUN PURE	OFFENSE	GNR	HEP	H3T-FRT	STA	1,400m	13
			GNR	HEP	H3T-FRT	STA	1,600m	13
25	CHANGE OF WEAPON/ AMMUNITION	DEFENSE	GNR	COAX	E(7)FRT	STA	400m	8
			GNR	HEAT	L2T-FRT	STA	1,600m	11
			GNR	COAX	E(7)-FRT	STA	600m	10
			GNR	HEAT	M1T-FLK	MOV	1,600m	12
26	CHANGE OF WEAPON/ AMMUNITION	OFFENSE	GNR	HEP	H3T-FRT	STA	400m	9
			GNR	COAX	E(7)FRT	STA	400m	12
			GNR	HEP	H3T-FRT	STA	1,200m	12
			GNR	SABOT	H1T-FLK	MOV	1,800m	15
27	DEGRADED	DEFENSE	GNR	HEP	L2T-FRT	STA	1,200m	10
			GNR	HEAT	M1T-MOV	MOV	1,600m	12
28	DEGRADED	OFFENSE	GNR	COAX	E(7)FRT	STA	400m	12
			GNR	HEAT	M1T-FRT	STA	1,600m	14
29	SIMULTANEOUS	DEFENSE	GNR	COAX	E(7)FRT	STA	600m	10
			VC	CAL .50	M2T-FRT	STA	1,600m	12
			GNR	COAX	L2T-FRT	STA	800m	10

LEGEND

CAL .50	CALIBER .50	HEAT	HIGH EXPLOSIVE ANTITANK
COAX	COAXIAL MACHINE GUN	HEP	HIGH EXPLOSIVE PLASTIC
EM	ENGAGEMENT MODIFIER	m	METER
FLK	FLANK	MOV	MOVING
FRT	FRONTAL	STA	STATIONARY
GNR	GUNNER	VC	VEHICLE COMMANDER

Figure 2-5. Table II, STX-V, Gate to Live Fire scenario

Unit Developed Gate to Live-Fire Scenarios

2-21. Each of the scenarios developed must follow the engagement and scenario guidelines found in this manual and in TC 3-20.31. Each scenario provides five engagements for day (unlimited visibility) and five engagements for night (limited visibility). Units must focus on manipulation of the weapon's thermal optic and allow crews to use the thermal sensors during the day engagements. If the system can provide degraded modes of operation, a minimum of two engagements should focus on those skills.

2-22. Figure 2-6 shows the environmental conditions, platform capabilities, and threat conditions that are replicated within simulation systems. Units building their own training plans within the simulation system must exercise each of the components listed to create a comprehensive training plan for their crews.

ENVIRONMENTAL CONDITIONS	PLATFORM CONDITIONS/ CAPABILITIES	THREAT CONDITIONS
VISIBILITY • *DAY* • *NIGHT* • *BATTLEFIELD*	POSTURE • *OFFENSE* • *DEFENSE*	TYPE • *DISMOUNT* • *FORTIFICATION* • *LIGHT ARMOR* • *MEDIUM ARMOR* • *ARMORED*
CHEMICAL	WEAPON SYSTEM • *PRIMARY* • *SECONDARY* • *TERTIARY*	RANGE TO TARGET • *SHORT RANGE* • *MEDIUM RANGE* • *LONG RANGE* • *BEYOND LINE OF SIGHT*
	FIRE CONTROL SYSTEM • *FULLY MISSION CAPABLE (FMC)* • *DEGRADED*	POSTURE • *STATIONARY* • *MOVING* • *EVASIVE*
	AMMUNITION • *KINETIC ENERGY* • *CHEMICAL ENERGY*	THREAT COMPOSITION • *SINGLE* • *DOUBLE* • *THREE OR MORE*
	COMPLEX ENGAGEMENT • *CHANGE OF WEAPON* • *CHANGE OF AMMO* • *SIMULTANEOUS*	

Figure 2-6. Simulation system conditions and capabilities replicated

2-23. When the simulation system does not provide a generated scenario for the GTLF, the unit Master Gunner is required to create the scenario based on the unit's upcoming Table VI, Qualification, scenario as the baseline (start point). Units should revise the engagements based on past performance and the experience level of the VC and gunner combinations within the formation.

2-24. Figure 2-7 provides an example of difficulty modifications that the unit Master Gunner can consider integrating into the unit-developed scenario based on the crew's experience level. Units may utilize a different scenario for each crew's level of experience to ensure the training and evaluation pushes them to continuously challenge the crews with increased rigor, speed, and changing conditions.

UNIT DEVELOPED SCENARIO DIFFICULTY MODIFICATIONS TO ENGAGEMENTS BASED ON CREW EXPERIENCE			
ENGAGEMENT/TARGET CONDITIONS	**NEW**	**TURBULENT**	**EXPERIENCED**
Extended Range Primary armament	X	X	X
Extended Range Machine Gun	X	X	X
Increased CBRN		X	X
Increased Offensive Engagements		X	X
Defilade and Turret Targets		X	X
Increased Degraded Conditions			X
Evasive Moving Targets			X
3/4 Scale Targetry			X
Increased Troop, RPG and Sniper Targets			X

Note: These are guides for the Master Gunner developing scenarios within a capable simulations system. These should be altered based on past training performance, crew member experience, and training trends within the organization.

LEGEND

CBRN CHEMICAL BIOLOGICAL RADIOLOGICAL NUCLEAR **RPG ROCKET PROPELLED GRENADES**

Figure 2-7. Scenario difficulty modifications by crew experience, example

Simulation System Instructor/Operators

2-25. Units are required to use certified instructor/operators on the simulation systems they plan to use. Those instructor/operators are required to receive the system training on their system. They must be certified VCEs as outlined in TC 3-20.31.

Instructor/Operators Must Be Vehicle Crew Evaluator Certified

A certified VCE or Master Gunner evaluates all simulations and games for training GTLF exercises. This reinforces the VCE training program, provides certified VCEs with additional practical application and experience, and ensures the crews receive accurate AARs comparable to those they should receive on the firing range.

2-26. Crews must successfully pass all scenarios according to the standards in TC 3-20.31. The unit's VCEs evaluate all crews in accordance with (IAW) TC 3-20.31.

Crew Records

2-27. Units must maintain the training records for Table II, including the simulation system unit back-up and the DA Form 8265 (*Common Crew Score Sheet*) and DA Form 8265-1 (*Common Crew Roll-up*) for each crew completing their GTLF for 12 months. Some primary devices only provide a unit roll-up with summary of each crew's performance.

2-28. Where the simulation system does not generate the DA Form 8265 and DA Form 8265-1 forms as an automatic output, the instructor evaluators are responsible for completing those forms during the GTLF scenarios.

TIME AND THROUGHPUT—STX-V

2-29. Simulations have specific authorized hours per month, shown in figure 2-8. These are the standard simulations-use requirements for all crew platforms.

	SIMULATION HOUR AUTHORIZATIONS PER CREW	
	ACTIVE COMPONENT (AC)	RESERVE COMPONENT (RC)
MONTHLY	4	2
QUARTERLY	12	6
Note: The simulation system hours authorized are designed to include sufficient time to move steadily through the training model within the system where each crew is presented the gate to live-fire (GTLF) exercise within 12-hours of training. Successful completion of the entire simulation system's training model through certification can be accomplished within the fiscal year (FY).		

Figure 2-8. Simulations use allocations by component

Note. DA Pam 350-38 specifies simulator training requirements and skills sustainment intervals for weapons and weapon system platforms.

2-30. When completing Table II's GTLF exercise, units should expect each crew to require 2 hours to complete the training with AAR. This assumes the crew arrives at the training facility, receives the training and testing instructions, conducts any alignment procedures required of the simulation system, and a series of warm-up exercises prior to testing. This also includes the AAR after the training scenario by the instructor/operator, or the VCE. It does not include any retraining or retesting time.

TRAINING AIDS, DEVICES, SIMULATORS, AND SIMULATIONS—STX-V

2-31. Crewmembers conduct training prior to and for Table II using a simulator or gaming suite, as available. Use of these systems are to train the VC and gunner on individual and crew-coordination skills, engagement techniques, and target acquisition. When using games for training systems, the unit should request comparable gunner control handles to support additional form, fit, and function to the training and evaluation.

2-32. Units that do not have access to a primary or alternate simulation systems or are training in an austere environment, should complete training using T&MBs.

2-33. The design, layout, and function of the T&MBs are listed in appendix B. It includes a sample scenario for unit use or modification. Original files for the information on the T&MBs that can be modified by the unit can be downloaded from the Weapons and Gunnery teams page.

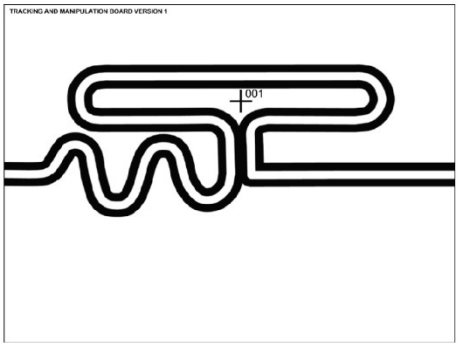
2-34. Unit must create a memorandum for record stating the crew's completion of Table II with the unit created training plan using the T&MBs. This memorandum must be approved by the battalion or squadron commander and is included in each crew's gunnery packet (see TC 3-20.31).

Austere Environment Training

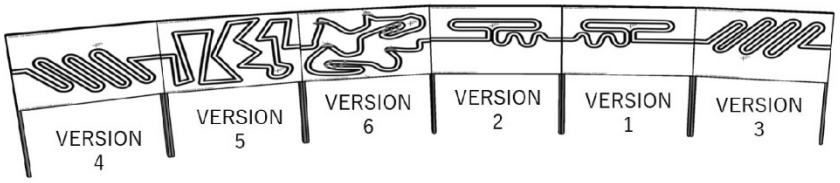
Use T&MBs when no simulation system is available or accessible to the unit or the platform type. Use T&MBs at the range for concurrent training or in austere environments to support the unit training plan.

2-35. Figure 2-9 lists the various T&MB versions. It shows an example of one version as well as a sample layout for use.

TABLE II SITUATIONAL TRAINING EXERCISE–VIRTUAL (STX-V) TRAINING AIDS, DEVICES, SIMULATORS, AND SIMULATIONS (TADSS) AUSTERE ENVIRONMENTS	
DEVICE	**DESCRIPTION**
T&MP-1	Tracking and Manipulation Panel, version 1
T&MP-2	Tracking and Manipulation Panel, version 2
T&MP-3	Tracking and Manipulation Panel, version 3
T&MP-4	Tracking and Manipulation Panel, version 4
T&MP-5	Tracking and Manipulation Panel, version 5
T&MP-6	Tracking and Manipulation Panel, version 6



Example Tracking and Manipulation Board, version 1.



Example layout using all six versions of the Tracking and Manipulation Boards.

Note: See Appendix B for additional information on the tracking and manipulation panels, construction methods, options, and sample scenario.

Figure 2-9. Table II, STX-V, TADSS for training in austere environments

PREPARE—TABLE II

2-36. Units execute the Table II, STX-V in one of two ways: with an authorized (primary or alternate) simulation system or T&MBs. The primary trainer is the company commander with and assigned VCEs. Units evaluate the Table II event internally and require the company to coordinate for training of their VCE's.

2-37. The platoon leadership in coordination with the unit Master Gunner are responsible for training their crews on the conduct of fire, engagement techniques, and movement techniques.

2-38. Units provide the following to prepare the trainers:

- Commander training objectives.
- Evaluation firing order or window for completing Table II.
- Tasks for training and evaluation (when using T&MBs).
- Risk assessment.
- Identification of supporting doctrinal publications for use as primary references.
- T&MBs, when required.

TRAIN THE TRAINER—STX-V

2-39. Table II relies on gunner and VCs to be dual certified as instructor/operators of available simulator systems and VCEs.

2-40. Units schedule VCE training for their gunners and VCs. Each brigade combat team will establish policies and procedures to train, certify, and recertify their VCEs to ensure common instruction from the Army-standard vehicle crew evaluation exportable package (see TC 3-20.31).

2-41. Unit Master Gunners maintain a roster of certified VCEs for the unit. They manage the recertification, as appropriate, based on unit policies and processes. Master Gunners should cross train drivers on VCE tasks to support range operations on maneuver ranges.

2-42. Where simulator systems are available, the Master Gunner schedules instructor/operator courses for those systems. Units should maintain instructor/operator and VCE certifications current for all assigned gunners and VCs, including platoon leaders, the executive officer, and commander.

2-43. Information on all the train the trainer and leader certifications required are listed in detail in TC 3-20.31. Units should review those training and certification requirements when preparing for training.

RECONNAISSANCE OF THE SITE FOR TABLE II

2-44. The Table II, STX-V uses an authorized simulation system. Units allow sufficient time scheduled to ensure all crews train, test, and retest as necessary within T-6 to T-execution training window. The crew shelter simulations systems, typically a battalion or brigade asset, will require coordination with battalion or brigade for use. Commanders schedule the training location as far in advance as practical following the installation's policies and procedures.

2-45. Once scheduled, the commander, Master Gunner, and platoon leaders conduct a reconnaissance of the training site to—

- Verify sufficient space is available to support training.
- Ensure accomplishment of multiple iterations or rotations through the scenario with appropriate retraining opportunities.
- Ensure sufficient administrative areas are available to support group discussions, briefings, and AARs.
- Determine the tracking method of completed crews.
- Identify the process for completing the appropriate score cards, crew roll-up, and platoon training records as required.

Tracking and Manipulation Boards

When an approved simulation system is not available or accessible, the unit will utilize the T&MBs. This will require a 25-meter by 25-meter area to set up the panels for the 160-degree frontal arc and allow for multiple vehicle use. See appendix B for detailed information on the T&MBs including their design, placement, layout, use, and a sample training scenario.

EXECUTE—TABLE II

2-46. Before the Soldiers arrive, VCEs set up the equipment and materials needed for the evaluation of the GTLF. The evaluator should have a crew roster by vehicle bumper number and position at their station to track crews and provide daily status updates to the company.

SIMULATOR GATE TO LIVE-FIRE SCENARIO

2-47. The evaluator must read the instructions exactly as written in the guide within the system instructions or provided by the unit. Evaluators are not authorized to assist in any of the following crew functions during the evaluation:

- Target acquisition.
- Target detection.
- Subsequent target locations or intelligence.
- Driver movement techniques.
- Sensing of the rounds or machine gun bursts.

2-48. The evaluator must use the system generated or hard copy DA Form 8265 and DA Form 8265-1 to record each engagement and the overall scenario. The evaluator maintains these records in the crew's gunnery folder for 12 months. Units may also include the unit training roll-up as part of the training historical records.

TRACKING AND MANIPULATION BOARDS

2-49. Evaluators utilize the unit provided criteria scoring checklist for the 10 steps of the T&MB exercise. The evaluators will use specified prompts and evaluators may not assist the crew to perform any function.

2-50. Once testing is complete, the evaluator records the results on a locally created roll-up form. As each Soldier finishes or the time limit is up, whichever occurs first, the evaluator checks the Soldier's performance as either GO or NO-GO, informs them of their performance on that task, and directs them to the next station or to retraining.

2-51. The company Master Gunner or designated NCOIC is responsible for completing unit and maintaining platoon and company roll-up information ensuring the next higher headquarters is informed, if required.

ASSESS—TABLE II

2-52. At the completion of the Table II, the evaluator will provide an AAR. The evaluator follows the AAR guidelines to gunnery evaluation found in TC 3-20.31 and includes any insights or recommendations to improve crew performance.

SIMULATOR SYSTEM EVALUATION

2-53. When debriefing a crew in a simulation system, the evaluator must use the DA Form 8265 for each engagement. Evaluators may require 10 to 15 minutes to complete the score sheets prior to the AAR. Units may choose to rotate evaluators to maximize the time available in the simulator. Evaluators should include information on—

- Targets, posture, and range for each engagement.
- Target classifications:
  - Most dangerous.
  - Dangerous.
  - Least dangerous.
- Time to acquire each target.
- Time to decide (issue the command of execution).
- Appropriate engagement techniques.
- Reinforcement of gunner rules of lay:
  - Aim center of visible mass.
  - End in elevation.
  - Remember sight picture.
- Opening time on primary armament and machine gun targets.
- Closing time on machine gun targets.
- Subsequent rounds and direct fire adjustment techniques.
- Supplemental engagement commands and engagement techniques.
- Ammunition selection and switchology.
- Overall performance and areas of improvement.

TRACKING AND MANIPULATION PANEL EVALUATION

2-54. Evaluators of crews using the T&MBs should at a minimum include information on—

- Tasks for each step.
- Skills trained during each step.
- Time to complete the tracking.
- Penalty time for the tracking (when the reticle aim point leaves the tracking path).

- Switchology errors (when gunners remove their heads from the optic brow pad or incorrect positioning).
- Tracking rate or slew rate inconsistencies.
- Reinforcement of the rules of lay.
- Overall performance and areas of improvement.

CREW GUNNERY FOLDER RECORDS

2-55. Annotation of all notes from the above training is on the score sheets provided. VCs are required to confirm the information by signing DA Form 8265-1 or the locally produced score sheet when using the T&MBs.

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Chapter 3

Table III–Situational Training Exercise

Table III, Situational Training Exercise, is a live environment, hands on training event using training aids and devices, and includes the use of blank ammunition, pyrotechnics, and battle effects simulators. Situational Training Exercise is a station-based event that consists of three distinct training and evaluation stations that contain various crew skills that progressively build crew proficiency. All events require both day and night execution. Table III, Situational Training Exercise is designed to be conducted independently of the direct fire engagement event. Table III is conducted in a live environment in a training area with established training lanes (course of fire and protection tasks). It is the first training event where the crew is tactically operating their platform as a crew under varying conditions.

OVERVIEW—SITUATIONAL TRAINING EXERCISE

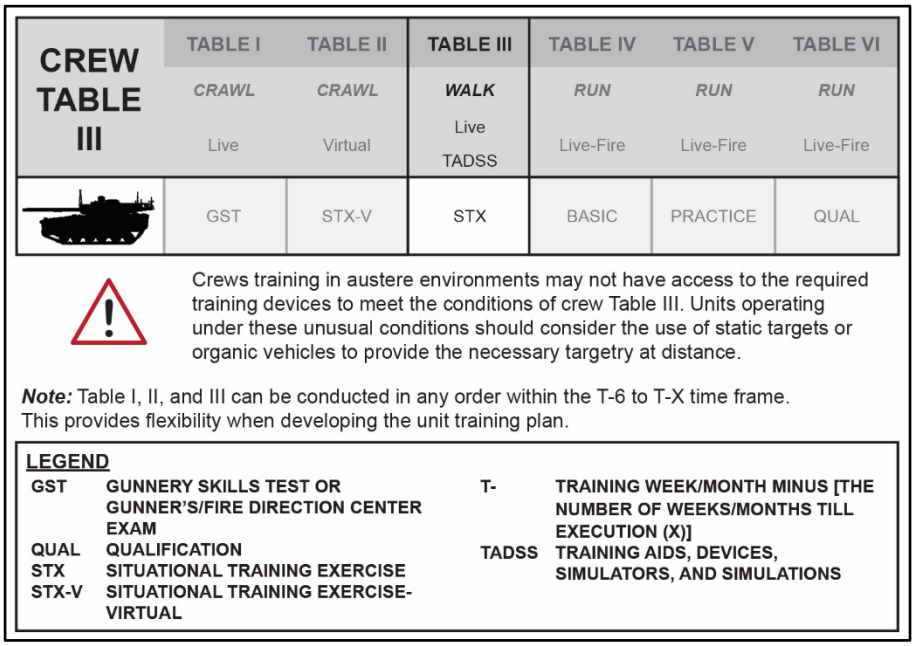
3-1. Table III verifies the crew's ability to complete basic crew engagements effectively using various platform capabilities, provides for day and night driver's training as part of the unit driver's training program, and ensures the crew demonstrates proficiency performing specific emergency procedures on their platform. It provides time for training and evaluation of these skills that are the foundation to all maneuver training focused on the ability to move, shoot, and communicate.

3-2. Units must complete Table III, Situational Training Exercise (STX), for record between T-6 and T-execution, or T-week of the live-fire event. Units can include additional tasks they require to support the training program but cannot eliminate tasks for any weapon system.

Live-Fire Prerequisite

Table III is a prerequisite for any live-fire event, including zero procedures, sub-caliber or in-bore training, or any live-fire maintenance procedure. Units must maintain the training records and results, for the longer of 12 months, or through the next testing event.

3-3. Figure 3-1 on page 38 shows where Table III resides withing the medium tank training strategy through crew qualification. This is the first event with the crew operating the platform through a series of specific tasks that build experience with the platform, crew cohesion, and confidence in their platform and training. It includes a series of safety related tasks related to vehicle safety under various conditions.



CREW TABLE III	TABLE I	TABLE II	TABLE III	TABLE IV	TABLE V	TABLE VI
	CRAWL	*CRAWL*	***WALK***	*RUN*	*RUN*	*RUN*
	Live	Virtual	Live TADSS	Live-Fire	Live-Fire	Live-Fire
	GST	STX-V	STX	BASIC	PRACTICE	QUAL

Crews training in austere environments may not have access to the required training devices to meet the conditions of crew Table III. Units operating under these unusual conditions should consider the use of static targets or organic vehicles to provide the necessary targetry at distance.

Note: Table I, II, and III can be conducted in any order within the T-6 to T-X time frame. This provides flexibility when developing the unit training plan.

LEGEND

GST	GUNNERY SKILLS TEST OR GUNNER'S/FIRE DIRECTION CENTER EXAM	T-	TRAINING WEEK/MONTH MINUS [THE NUMBER OF WEEKS/MONTHS TILL EXECUTION (X)]
QUAL	QUALIFICATION	TADSS	TRAINING AIDS, DEVICES, SIMULATORS, AND SIMULATIONS
STX	SITUATIONAL TRAINING EXERCISE		
STX-V	SITUATIONAL TRAINING EXERCISE-VIRTUAL		

Figure 3-1. Table III, Situational Training Exercise

PURPOSE OF TABLE III

3-4. The STX event ensures the crew demonstrates critical crew task proficiency in a live environment. The crew executes basic fire and maneuver, integrates indirect and direct fires, conducts critical tasks, and completes various emergency vehicle tasks prior to conducting the more advanced tasks under live-fire conditions.

METHOD—TABLE III

3-5. Crew STXs use training areas with multiple training lanes or phases that train crew collective movement and engagement techniques at a real-time and full tempo to build proficiency. Crew STXs use structured scenarios to replicate the basic engagement techniques using the capabilities of their platform. Crews also demonstrate proficiency at emergency procedures on their vehicle to build proficiency and confidence in their ability to react rapidly to various life-threatening situations while maneuvering their platform.

END STATE—TABLE III

3-6. Crews demonstrate their ability to execute basic and degraded engagement tasks and crew drills in support of decisive action operations in a live environment. The commander sufficiently validates the unit's vehicle load plan and portions of the SOPs for casualty evacuation. Crews receive sufficient day and night administrative and tactical movement that support the unit driver's training program and use of primary and alternate battle positions, reverse slope defense positions, and other skills.

3-7. Live-fire crew training reveals the abilities of subordinate leaders and their respective elements to build experienced, proficient, and lethal crews. The commander becomes confident in the abilities of the subordinate leaders and elements to execute those trained tasks to standard on demand based on the tactical situation.

TASK, CONDITIONS, AND STANDARD—TABLE III

3-8. Figure 3-2 shows the task, conditions, and standard for Table III, STX. Units may add additional tasks to the STX as appropriate to meet the commander's intent, to correct previous training gaps, or to increase the training rigor.



TABLE III
SITUATIONAL TRAINING EXERCISE (STX)

TASK	Engage and destroy stationary and moving targets placed in a tactical array, during day and limited visibility from a stationary or moving vehicle and require the use of laser-based training aids, devices, simulators, and simulations for all crews.
CONDITIONS	Given the following: • An operational platform with weapon or weapon system. • Appropriate laser-based training devices. • Authorized blank ammunition and pyrotechnics. • Certified vehicle crew evaluators (VCE). • Full scale or scaled targets to meet the scenario requirements. • Crew module unit recorder (CMUR) (when available).
STANDARD	The crew must: • Score a minimum of 700 of 1,000 points overall. • Score 70 points or more on all targets presented on 7 out of 10 engagements. • Qualify on at least one day and one limit visibility engagement. • Successfully pass using the evaluation standards between T-6 and T-week. • Successfully pass all call-for/crew critical task. (Such call-for tasks may include call for fire, call for support, request MEDEVAC.)

LEGEND

T-	TRAINING WEEK/MONTH MINUS [THE NUMBER OF WEEKS/MONTHS TILL EXECUTION (X)]	MEDEVAC	MEDICAL EVACUATION

Figure 3-2. Table III Task, conditions, and standard

PLAN—TABLE III

3-9. Table III, STX, is a live environment, hands on training event using training aids, devices, and simulators, and includes the use of blank ammunition, pyrotechnics, and battle effects simulators (BES). STX is a station-based event that consists of a firing platoon, critical tasks platoon, and training support platoon.

3-10. This section details the resources needed for planning purposes. General information on topics for consideration are—

- Uniform—the minimum uniform requirements for the training event.
- Facilities—available facilities that support the training event.
- Training plan—the minimum tasks, general guidelines, and special instructions for the training event.
- Time and throughput—the estimated time required to complete the training event including throughput considerations for planning.
- Ammunition—any training munitions required to complete the training event, which include DDI items that require coordination.
- TADSS—any available training aids that directly support or augment the training event.

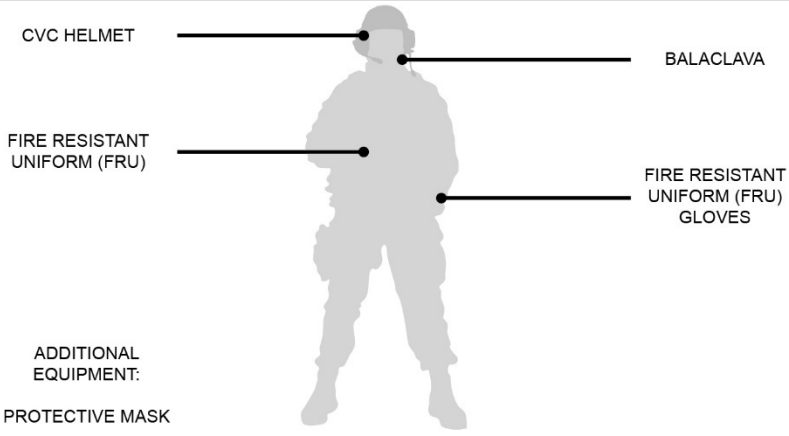
3-11. Table III is a mandatory prerequisite for any live-fire event, including zero procedures, sub-caliber or in-bore training event, or any live-fire maintenance procedure within the crew platform strategy. Units will complete Table III between T-6 and T-week to support the training events.

3-12. Units may require coordination with installation support activities such as the training support center for devices or training aids, or the ASP for DDI items. Each installation's policies and procedures vary. Units should reference their supporting installation's training SOPs or policies for detailed information.

UNIFORM—TABLE III

3-13. Crews must be in the appropriate vehicle crewmember uniform or prescribed unit uniform and protective mask. Crews are not required to have any additional body armor, ballistic plates, or gear during the training event unless directed by the commander. Figure 3-3 provides the minimum uniform training requirements for all training, including the crew critical skills tasks.

TABLE III
SITUATIONAL TRAINING EXERCISE
UNIFORM REQUIREMENTS



LEVEL	S SKULL	T TORSO	E EYES	E EARS	L LIMBS
MINIMUM REQUIRED	3	4	1	3	3
0	NONE	NONE	NONE	NONE	NONE
1	PATROL CAP	VEST	**GOGGLES**	SINGLE EAR PROTECTION	GLOVES
2	HELMET	VEST with PLATES	BALLISTIC	DOUBLE EAR PROTECTION	LEATHER GLOVES
3	**BALACLAVA**	FRU		**HEADSET**	**FRU GLOVES**
4		**FRU and SPALL VEST**			

Note: The Combat Vehicle Crewman (CVC) helmet includes the headset hearing protection. Goggles or appropriate eye protection are required for exposed crewmen during vehicle movement.

Figure 3-3. Uniform requirements for Table III

FACILITIES—TABLE III

3-14. The conduct of Table III events is set up for use in a training area. The training unit is responsible for establishing all targetry in the training area. Units coordinate with their supporting training support center and range support for all target lifter, target, thermalization, battery, BES, and other targetry requirements. Figure 3-4 lists the primary and alternate facilities authorized for Table III.



TABLE III
SITUATIONAL TRAINING EXERCISE (STX)
AUTHORIZED FACILITIES

FACILITY		TABLE III, STX
Battle Area Complex	BAX	ALTERNATE
Digital Air Ground Integration Range	DAGIR	ALTERNATE
Digital/Multipurpose Range Complex	D/MPRC	ALTERNATE
Digital/Multipurpose Training Range	D/MPTR	**PRIMARY**
Scout/Reconnaissance Gunnery Complex	SRGC	ALTERNATE
Training Area	TA	**PRIMARY**

Note: Training areas should be used to complete Table III, Situational Training Exercise (STX), for crew platforms. Use of an Army-standard maneuver facility indicated are an alternate use as availability on a case-by-case basis at the installation.

Figure 3-4. Recommended maneuver range facilities to support Table III, STX

TRAINING PLAN—TABLE III

3-15. The combined arms training strategy provides resourcing and operating tempo for two days of training for this event per iteration. Units should maximize the use of the training resources available to conduct as much training, retraining, and cross training as possible during the time available. Table III, STX is designed to enable unit flexibility, which allows for training to be conducted in a round-robin manner (independently) or concurrently. Figure 3-5 provides an example layout for a round-robin event by platoon.

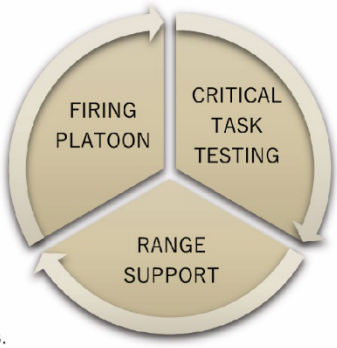
STATION	EVENT	CREWS/ SOLDIERS	ROTATION	THROUGHPUT SCHEDULE
1	Firing Platoon *Direct Fire Engagement*	4 Crews	3 hours	14 Crews/ 9 hours per day and night phase
2	Critical Tasks	4 Crews 4 Evaluators	3 hours	
3	Range Support *VCE and OC/T*	4 VCE's 10 Support	3 hours	

STATION 1
FIRING PLATOON
Direct Fire Engagement

- 2 Crews per rotation.
- Hands-on training.
- VCE from Range Support.
- Driver training tasks incorporated in the training area.

STATION 2
CRITICAL TASKS

- Vehicle Commander evaluated.
- Call-For Tasks:
  - CASEVAC
  - MEDEVAC
  - Call-For Fire
  - Call-For Support
- Crew Critical Tasks
  - Evacuate Crew Member
  - React to Engine Fire.
  - React to Turret Fire.
  - React to Bustle Fire.
  - Roll-Over Drills
- Tactical Driver's Training



STATION 3
RANGE SUPPORT
Direct Fire Engagements

- VCE for Firing Platoon.
- OC/T for Call-For Tasks.
- OC/T for Crew Critical Tasks.

Note: Each station requires a platoon leader and platoon sergeant (or equivalent). VCE's must be certified or re-certified within T-6 of training event.

LEGEND

CASEVAC	CASUALTY EVACUATION	T-	TRAINING WEEK/MONTH MINUS [THE NUMBER OF WEEKS/MONTHS TILL EXECUTION (X)]
MEDEVAC	MEDICAL EVACUATION		
OC/T	OBSERVER, COACH, TRAINERS	VCE	VEHICLE CREW EVALUATOR

Figure 3-5. Table III Situational exercise, round robin example

Firing Group

3-16. Performance of the direct fire engagements portion of the STX (firing group) is on the crew's vehicle. Table design is set up to train and evaluate the crew's ability to engage stationary or moving targets placed in a tactical array, during day and limited visibility conditions. Crews execute these tasks from the offense and defense.

3-17. The engagements may be full-scale or scaled, depending on the usable area within the training area. Figure 3-6 lists the requirements for the 10 specific engagements. The engagements challenge the crew's target acquisition skills and engagement techniques, using 3/4 scale targets. See TC 25-8 for additional information on target dimensions for scaled ranges.

3-18. All engagements are evaluated using certified VCEs using DA Form 8265 and DA Form 8265-1 as the official record of training. Master Gunners must ensure the training records are included in each crew's gunnery packet.

3-19. The engagements listings are by capability type using the standard engagement naming structure listed in TC 3-20.31. It provides the requirements for each engagement, which are described in paragraphs 3-21 through 3-27.

Task Description for Table III

3-20. The task description includes both the engagement number (the table number plus engagement task) followed by the system capability trained.

Firing Vehicle Posture for Table III

3-21. The firing vehicle posture establishes the offense or defense condition for the engagement.

Firer—Table III

3-22. The firer column identifies which crewmember is to engage the target listed. Targets defeated by a different crewmember listed as the firer result in an auto-zero penalty, failing to adhere to course conditions.

Weapon (or Ammunition)—Table III

3-23. This capability type identifies the weapon (coaxial, caliber .50, or primary armament ammunition type) that is used to defeat the threat. The design of each engagement is for a specific weapon or ammunition type (primary armament) for use, which relates to the crew conduct of fire, optic selection, engagement techniques, or other unique implied tasks. Crews that fail to announce the appropriate weapon or ammunition, or appropriate selection for subsequent or supplemental engagements may be penalized IAW TC 3-20.31.

Target Type—Table III

3-24. This capability type is the target required for the presentation, IAW TC 25-8.

Target Posture—Table III

3-25. The target posture establishes if the target is stationary, moving, or evasive for the engagement. See TC 3-20.31 for more information on target postures.

Range (to Target)—Table III

3-26. The range (to target) is the required range (full scale or equivalent scaled range) from the firing vehicle to the target. For offensive engagements, this distance calculation is from the center of the movement box to the target. The range to target distance is provided in meters. The range to target distance is provided in meters and is displayed as a whole number, such as 600.

3-27. The target may be placed at the distance indicated, plus or minus 200 meters. For example, when the range to target is listed as 600 meters, the target may be placed between 400 meters and 800 meters. This allows flexibility while designing the scenario on varying maneuver range facilities with different capabilities, target counts, emplacement locations, and terrain restrictions.

3-28. No change to the engagement modifier (EM) authorized. The range bands listed with their applied tolerances do not require any adjustment to the EM. Units are not authorized to exceed the target placement tolerances.

Engagement Modifier—Table III

3-29. The EM is the time in seconds required to achieve 100 points against the listed threat. To defeat the threat successfully, the crew must achieve the kill standard against the target and have an overall engagement time of no more than the EM plus 20 seconds. See TC 3-20.31 for the evaluation, timing, and scoring procedures.

Scenario Requirements—Table III

3-30. Units may not deviate from any target type, target posture, range, and weapon system or ammunition type for Table III. Engagements firing may be in any sequence that best supports their training area, flow-of the range, and time available.

3-31. The unit options and requirements are the following:

- Unit determines how many engagements are conducted during the day phase and night phase.
- Unit determines the sequence of the engagements.
- Unit determines which tasks are conducted during the day and night phase.
- Unit determines which engagements will include chemical, biological, radiological, and nuclear conditions.
- Units must select a minimum of one day and one night engagement conducted in a chemical environment.
- BES are required for use as described in TC 3-20.31 for all target panel and troop set presentations.
- Target panels are 3/4 scale at full range distances or scaled accordingly if using a scaled training range or training area.
- Unit may use D-type or F-type troop targets in lieu of E-type silhouettes to increase training for target detection, acquisition, and reticle aim.

- Units are required to use:
  - Available force-on-target TADSS including laser-based systems and laser-target interface devices.
  - Additional TADSS used are at the unit commander's discretion.
- All safety tasks must be conducted day and night.
- All call for tasks (such as call for fire, call for support, request medical evacuation [MEDEVAC]) must be conducted day and night.

3-32. Additional information concerning the engagements, the terms of reference, or the layout for each event's scenario can be found in TC 3-20.31. Figure 3-6 shows the engagements for the firing group.

TABLE III, SITUATIONAL TRAINING EXERCISE
ENGAGEMENT REQUIREMENTS

TASK DESCRIPTION		POSTURE	FIRER	WEAPON	TARGET TYPE	TARGET POSTURE	RANGE	EM
30	VEHICLE COMMANDER	DEFENSE	VC	COAX	E(7)FRT	STA	600m	10
			VC	HEAT	M1T-FLK	MOV	1,000m	11
31	MACHINE GUN PURE	OFFENSE	GNR	COAX	E(7)FRT	STA	400m	12
			GNR	COAX	L1T-FRT	STA	600m	13
			GNR	COAX	E(7)FRT	STA	800m	15
32	MACHINE GUN PURE	DEFENSE	GNR	COAX	E(7)FRT	STA	400m	8
			GNR	COAX	E(7)FRT	STA	400m	8
33	MAIN GUN PURE	OFFENSE	GNR	HEAT	M1T-FLK	MOV	1,400m	16
34	MAIN GUN PURE	DEFENSE	GNR	SABOT	H1T-FRT	STA	2,000m	10
			GNR	HEP	L2T-FLK	MOV	1,000m	12
			GNR	HEP	H3T-FRT	STA	1,000m	8
35	CHANGE OF WEAPON/ AMMUNITION	OFFENSE	GNR	SABOT	H1T-FRT	STA	1,600m	13
			GNR	COAX	E(7)FRT	STA	600m	14
			GNR	HEAT	M1T-FRT	STA	1,400m	14
36	CHANGE OF WEAPON/ AMMUNITION	DEFENSE	GNR	HEP	H3T-FRT	STA	1,000m	8
			GNR	COAX	E(7)FRT	STA	600m	10
			GNR	COAX	E(7)FRT	STA	400m	8
37	DEGRADED	OFFENSE	GNR	HEP	L2T-FRT	STA	1,000m	14
			GNR	COAX	E(7)FRT	STA	600m	14
38	DEGRADED	DEFENSE	GNR	COAX	E(7)FRT	STA	600m	10
39	SIMULTANEOUS	OFFENSE	GNR	COAX	E(7)FRT	STA	600m	14
			VC	CAL .50	M2T-FRT	STA	1,400m	16

LEGEND

CAL .50	CALIBER .50	HEAT	HIGH EXPLOSIVE ANTITANK
COAX	COAXIAL MACHINE GUN	HEP	HIGH EXPLOSIVE PLASTIC
EM	ENGAGEMENT MODIFIER	m	METER
FLK	FLANK	MOV	MOVING
FRT	FRONTAL	STA	STATIONARY
GNR	GUNNER	VC	VEHICLE COMMANDER

Figure 3-6. Table III, STX scenario requirements

CRITICAL TASK GROUP

3-33. The critical task group consists of the tasks listed in figure 3-7. Each crewmember will train and demonstrate proficiency on these tasks as part of Table III. The tasks are evaluated using the approved training and evaluation outlines for each task found on the Army Training Network or Central Army Registry.

3-34. For all safety tasks, each Soldier must be in the appropriate uniform listed earlier in this chapter. Soldiers gain the experience evacuating a crewmember using integrated safety harnesses within their uniform as part of the training and evaluation.

3-35. Call for/crew critical skills tasks (such as call for fire, call for support, request MEDEVAC) include the following tasks at a minimum. Preparatory training is the platoon sergeant's responsibility prior to the evaluation of each listed task is in figure 3-7.



TABLE III
SITUATIONAL TRAINING EXERCISE
CRITICAL TASKS

SKILL SET	TASK[1]
SAFETY	React to Turret Fire
	React to Engine Fire
	React to Ammunition Compartment Fire
	Conduct Roll-Over Drill
	Evacuate Crewmember–Driver
	Evacuate Crewmember–Gunner
	Evacuate Crewmember–Vehicle Commander
	Evacuate Crewmember–Loader
COMMUNICATE[2]	Conduct a Fire Support Briefing (061-C01-1061)
	Request Medical Evacuation (081-COM-0101)
	Call for Support (uses ATP 3-09.32, Table 42)

Notes:
[1] Units may add any tasks to the list of safety tasks. Commanders should include digital messaging to reinforce those communication skills required for future collective training.
[2] Units use the performance measures for these communication tasks on the Army Training Network. Task numbers provided for reference.

LEGEND
ATP ARMY TECHNIQUES PUBLICATION

Figure 3-7. Call-for and crew critical skills task requirements

3-36. Units are required to train and evaluate a notional call-for-support/call-for-close air support (attack aviation) in a notional manner. The purpose of this event is to train crews on their ability to serve as the weapon system contacted by a dismounted element. Following Table 42, shown in figure 3-8, the crews are evaluated using a notional dismounted leader calling for support.

CALL FOR SUPPORT 5-LINE REQUEST (TABLE 42)			
LINE NUMBER/ ELEMENT	DISMOUNTED LEADER ***BLUE 3*** *(OBSERVER)*	FIRING VEHICLE (ABRAMS) ***RED 4*** *(FIRING PLATFORM)*	**REMARKS**
LINE 1 OBSERVER/WARNING ORDER			
ALERT	**RED 4 THIS IS BLUE 3, HE REQUESTED, OVER**	**BLUE 3 THIS IS RED 4, SEND IT OVER**	Dismounted leader and Firing platform initiates Table 42 5-line brief as appropriate.
LINE 2–FRIENDLY LOCATION/MARK			
FRIENDLY LOCATION	**MY POSITION** GRID MB 1223 5668 **MARKED BY** VS 17 PANEL		Firing platform may not have visibility of the dismounted element during the engagement.
LINE 3–TARGET LOCATION			
TARGET LOCATION	**TARGET LOCATION** GRID MB 1225 5690		
LINE 4–TARGET DESCRIPTION/MARK			
TARGET DESCRIPTION	TWO STORY BUILDING EAST OF INTERSECTION, **MARKED BY** PURPLE SMOKE, OVER	IDENTIFIED PURPLE SMOKE OVER	Firing platform clears three reticle fields of view (FoV) to the left and right of the target aiming point ensuring No Friendly Forces are within the FoV.
LINE 5–REMARKS AND RESTRICTIONS			
METHOD	AREA FIRE SECOND FLOOR FORTIFICATION	GUN TARGET LINE CLEAR, SET, OVER	Dismounted leader identifies the METHOD as AREA FIRE and the Firing Platform confirms no friendly forces are within the hazard area of the gun-target-line.
CONTROLS	3 ROUNDS HE AT MY COMMAND…		Used to determine the number and type of munitions and coordinate the timing of the engagement when the Dismounted Leader is prepared to sense rounds.
COMMAND OF EXECUTION	FIRE	ON THE WAY… ROUNDS COMPLETE, OVER	
TERMINATION	ROUNDS COMPLETE, SHIFT FIRES RIGHT/LEFT, OVER	ROGER, SHIFT FIRES RIGHT/LEFT, OVER	Dismounts are free to move from covered position. Firing platform shifts fires as directed away from dismounted personnel and provide support by fire (SBF).
LEGEND			
HE HIGH EXPLOSIVE			

Figure 3-8. Call for support 5-line format, Table 42, example

RANGE SUPPORT

3-37. The range support group provides VCE teams to evaluate the firing platoon. This requires all gunners and above to certify or recertify as VCEs between T-6 and T-execution of the training event. The range support personnel general requirements are in figure 3-9.

3-38. Certain units may require assistance evaluating the crew critical skills. The support platoon will assist with the appropriate observer controller/trainer (OC/T) capabilities to the training platoon.

3-39. The range support group will provide work detail personnel as required to operate the range facility. This may include targetry replacement or repair, briefing noncommissioned officer, range, or training area access, and so forth.

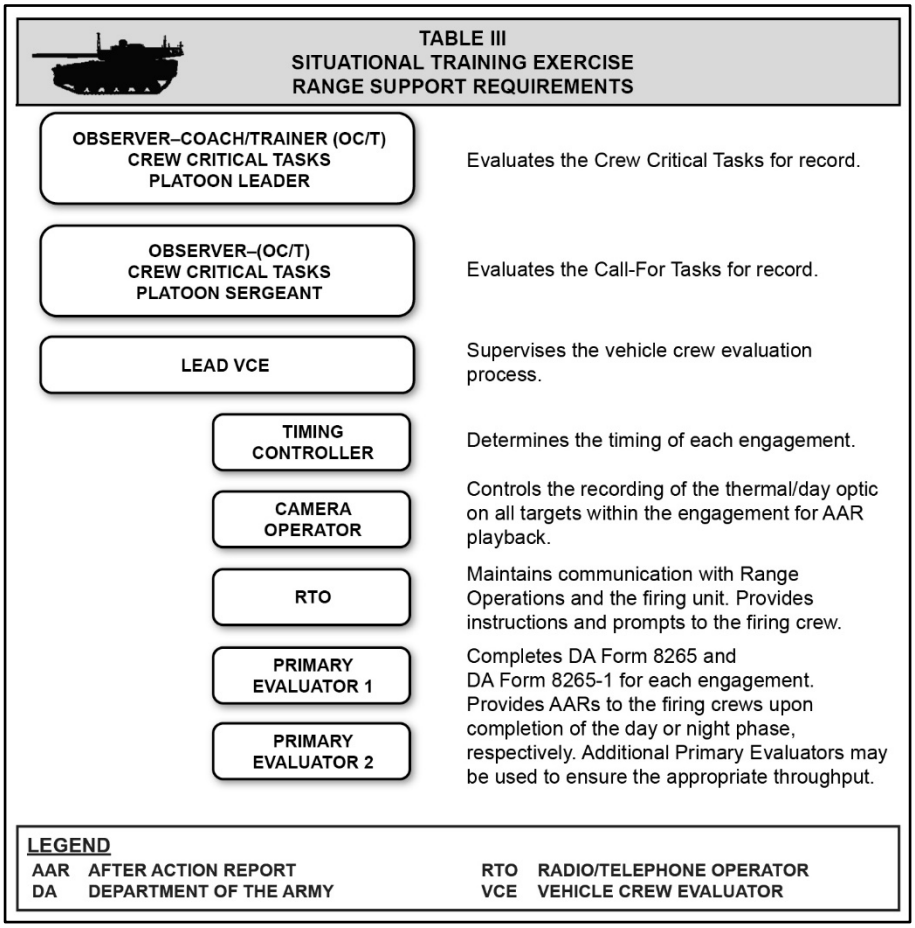


Figure 3-9. Range support personnel requirements, example

TIME AND THROUGHPUT—TABLE III

3-40. The throughput expectation of this table is 14 crews per day for two consecutive days. This allows for the appropriate amount of training, retraining, and cross training to provide the commander the fullest flexibility for crew management options and talent management opportunities prior to live-fire. Depending on maintenance or other unforeseen issues, incorporating an additional half training day to the schedule is recommended, although this is not resourced as part of the combined arms training strategy. Figure 3-10 shows the expected throughput schedule based on the number of vehicles for firing and the unit's day and night engagement breakdown for the engagements.

CREW PLATFORM WEAPON SYSTEM THROUGHPUT REQUIREMENTS

		NUMBER OF ENGAGEMENTS					
	DAY	8	7	6	5	4	
	NIGHT	2	3	4	5	6	
NUMBER OF CREWS	10	15.25	16.00	16.50	17.25	18.00	HOURS TO COMPLETE
	11	16.25	17.00	17.75	18.50	19.25	
	12	17.50	18.25	19.00	20.00	20.75	
	13	18.50	19.50	20.25	21.25	22.00	
	14	19.75	20.75	21.50	22.50	23.50	
	15	21.00	22.00	23.00	24.00	25.00	
	16	22.00	23.00	24.25	25.25	26.25	
	17	23.25	24.25	25.50	26.50	27.75	
	18	24.25	25.50	26.75	28.00	29.00	
	19	25.50	26.75	28.00	29.25	30.50	
	20	26.50	28.00	29.25	30.50	32.00	

Note: Overall time requirements are based on a single firing lane and include 4 hours of range maintenance down time (two blocks of 2 hours each). This is standard at most facilities. These calculations are for planning purposes only. Units that are more proficient in tower operations may have an increased throughput.

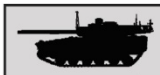
Any time shown exceeding 24 hours will not be possible in a single range day without unit action to conduct the range with a sense of urgency during preparation to fire tasks and execution of the table including tactical movement between engagements.

Figure 3-10. Table III throughput expectations

Note. Time requirements overall are based on a single firing lane and include 4 hours of target maintenance down time (two blocks of 2 hours each). These calculations are for planning purposes only. Units that are more proficient in tower operations may have an increased throughput. Conduct the critical task and call-for (such as call for fire, call for support, request MEDEVAC) requirements (not shown) simultaneously with the more time-consuming engagement skills tasks.

AMMUNITION—TABLE III

3-41. The commander may choose to use the live training method for the STX proficiency course of fire using sub-caliber ammunition only after crews complete a device-based run first to demonstrate mastery of basic skills and safety principles. Upon qualification of Table III as a device-based event, the commander may refire the table with full-caliber or sub-caliber ammunition if the range and ammunition resourcing permit. The use of BES cartridges will only be used with full-caliber or sub-caliber ammunition after a device-based run is successfully completed. Ammunition resourcing for Table III is in figure 3-11.



TRAINING AMMUNITION REQUIREMENTS
TABLE III, SITUATIONAL TRAINING EXERCISE (STX)

DODIC	MUNITION TYPE	TABLE III, STX
A111	CTG, 7.62mm Blank M82/M82E1 LNKD	600
A598	CTG, .50 CAL BLANK M1A1 LNKD	50
LA53	SIM, Pyrotechnic, Target Hit M35 (BES)	11
LA54	SIM, Pyrotechnic, Hostile Fire, M34 (BES)	11

ADDITIONAL CERTIFICATIONS:



BES SYSTEMS

Certify junior leaders on the components, functioning, hazards, use, and troubleshooting of available Battle Effects Simulator (BES) systems.



PYROTECHNICS

Provides a working understanding of the components, functioning, emplacement, use, troubleshooting, and hazards when:

- Placing BES systems into operation.
- Synchronizing functioning.
- Installing BES cartridges
- Troubleshooting BES systems.
- Removing unused BES cartridges.
- Conducting safe operations of BES systems.

Note: Only blank ammunition authorized for use on Table III.

LEGEND

CAL	CALIBER	LNKD	LINKED
CTG	CARTRIDGE	mm	MILLIMETER
DODIC	DEPARTMENT OF DEFENSE IDENTIFICATION CODE	SIM	SIMULATION

Figure 3-11. Table III ammunition authorizations

TRAINING AIDS, DEVICES, SIMULATORS, AND SIMULATIONS—TABLE III

3-42. This course requires the use of laser based TADSS for all crews. Units with TADSS available must incorporate them and may not deviate from the TADSS requirement unless approved by the brigade commander in writing. Units should focus on training and reinforcing the skills in the direct fire kill chain on this table specifically with their thermal optics, day and night, to best prepare them for the follow-on training events. Figure 3-12 shows the TADSS required, recommended, and optional for Table III.



TABLE III
SITUATIONAL TRAINING EXERCISE (STX)
TRAINING AIDS, DEVICES, SIMULATORS,
AND SIMULATIONS (TADSS)
REQUIREMENTS

DODIC	NOMENCLATURE	REMARKS
I-MILES CV-TESS	Instrumentable-Multiple Integrated Laser Engagement System, Combat Vehicle Tactical Engagement Simulation System	REQUIRED
LTIDS	Laser Target Interface Device	REQUIRED
CMU	Crew Module Unit/Integrated Player Unit	Recommended
CMUR	Crew Module Unit Recorder (Through-Sight Video)	Recommended
T-17-114	105MM TANK TRAINING ROUND, M10140, CANISTER, DUMMY	Optional
T-17-115	105MM TANK TRAINING ROUND, M393A3, HEP, DUMMY	Optional
T-17-116	105MM TANK TRAINING ROUND, M900, SABOT, DUMMY	Optional
T-17-117	105MM TANK TRAINING ROUND, M456A2, HEAT, DUMMY	Optional
SP-1	BORESIGHT PANEL	Optional

LEGEND

DODIC	DEPARTMENT OF DEFENSE IDENTIFICATION CODE	HEP	HIGH EXPLOSIVE PLASTIC
		MM	MILLIMETER
HEAT	HIGH EXPLOSIVE ANTITANK	SP-1	SPECIAL PANEL NUMBER ONE

Figure 3-12. Table III, STX, TADSS

Laser-Based Training Devices

3-43. The Instrumentable-Multiple Integrated Laser Engagement System Combat Vehicle Tactical Engagement Simulation System (I-MILES CVTESS) is a laser-based training device to for use on Abrams, Bradley, medium tank, and opposing forces tanks and fighting vehicles to provide real time casualty effects. The I-MILES CVTESS is an evolutionary approach for replacing older systems with equipment that provides better training fidelity. It will reinforce crew duties, reward proper engagement techniques, and develop tactical maneuver skills of armor and mechanized infantry combined arms teams up to brigade level. The I-MILES CVTESS provides unit commanders an integrated training system in force-on-force and force-on-target training events at home station training areas through instrumented training. The system interfaces with instrumentation systems at combat training centers.

Laser Target Interface Device

3-44. For use with I-MILES CV-TESS or other laser-based training systems when the unit is conducting force-on-target training, the laser target interface device provides the appropriate hit recording at the target emplacement and when stimulated, signals the target lifting mechanism to record a hit. This is a required device on Table III.

Crew Module Unit/Crew Module Unit Recorder/Integrated Player Unit

3-45. The crew module unit (CMU)/integrated player unit (IPU)/crew module unit recorder (CMUR) is an advanced eight channel audio/video recording device for combat vehicles. The CMU/IPU/CMUR can simultaneously record up to eight channels of video, one channel of audio, and has the capability to monitor dual 1553 data busses. The CMU/IPU/CMUR is equipped with a global positioning system that captures the vehicle's position location information. The CMU/IPU is for use on a digital range complex whereas the CMUR does not require any external support. The CMUR has an integrated AAR suite and stores information on a solid-state drive. The AAR suite uploads the data from the solid-state drive allowing a full AAR presentation.

PREPARE—TABLE III

3-46. Units execute the crew STX in a variety of ways. Typically, each platoon conducts training independently prior to the crew STX event, either in the motor pool, simulator system, or in a local training area. The primary trainers during the crew STX are the company commander with OC/Ts providing oversight and assistance as necessary.

TRAIN THE TRAINERS—TABLE III

3-47. Much like crew platform evaluators, the OC/Ts for any crew exercise provide exceptional training for the OC/T as a leader, second only to executing the task with their organization. Units should dedicate sufficient time to OC/T certification to leaders who can provide experienced mentorship, with the complete understanding that their OC/T task is also exceptional training for them.

3-48. To prepare the trainers, units provide—

- Commander's training objectives.
- Scenario and lane concept with crew tasks.

- Conduct of the range briefing for the training event.
- Review of training and evaluation outlines and evaluation processes for all the tasks.
- Risk assessments.
- Identification of supporting doctrinal publications for use as primary references.
- TADSS, pyrotechnics, blanks, and BES used during the training event (see appendix A for the training munitions requirements for the complete training strategy).

ENGAGEMENT TASK AND PURPOSE

3-49. The crews, leaders, and evaluators must understand the task and purpose of the engagements, the critical skills tasks, and how they are linked to their training. Each of the engagements should be reviewed to understand what they contain, the standards for each, and how they build from previous training and to the next event's engagements.

RECONNAISSANCE OF THE SITE—TABLE III

3-50. Commanders use an authorized training area or series of training areas for the Table III, STX. Commanders follow the installation's policies and procedures for scheduling the training location as far in advance as practical. Once commanders have established the method of training and evaluation, they should secure the training location and appropriate TADSS, equipment, or systems that enhance the training event.

3-51. Once scheduled, the commander, Master Gunner, platoon leaders and platoon sergeants conduct a reconnaissance of the training areas to—

- Verify sufficient space is available to support the entire unit through multiple training lanes.
- Ensure multiple iterations or rotations through the scenario can be achieved with appropriate retraining opportunities.
- Ensure sufficient administrative areas are available to support group discussions, briefings, and AARs.
- Provide a sand table or terrain board.
- Provide terrain board kits.
- Verify the training area can support the unit's training while in a chemical environment, based on the scenario design (protection).
- Verify casualty evacuation and MEDEVAC notional capabilities in support of the training scenario, for which units mostly include only—
  - Frequency modulation reporting.
  - Requesting procedures for training purposes (sustainment).

ISSUE THE ORDER—TABLE III

3-52. The warning order (WARNORD) should include the appropriate tasks, required leaders, and equipment needed, as well as the unit's training timeline including walk-through, rehearsals, and AARs. WARNORDs for external organizations must include sufficient reaction time for the appropriate personnel and equipment needed.

3-53. The operation order (OPORD) or WARNORD should include the list of tasks that commanders evaluate during the event, and the method of evaluation. Commanders

should provide sufficient time for subordinate leaders to train the tasks and skills listed in the order. Commanders should ensure the appropriate training resources are available and accessible. Upon receipt, subordinate leaders who have SOPs for their organizations must ensure their procedures support and complement the higher headquarters publication.

REHEARSE—TABLE III

3-54. The unit uses all training resources, materials, and equipment available to conduct rehearsals of training events. During the rehearsal, commanders ensure their unit has sufficient time to train to the specified standard including AARs and retraining time. Commanders ensure their unit verifies optional scenarios that increase complexity when warranted.

3-55. Commanders use the rehearsal as an opportunity to verify the tasks selected for Table III are consistent with the commander's training guidance.

3-56. Units should rehearse the training event from start to finish, and confirm—

- The opposing forces understand the training scenarios.
- Sufficient space is available to provide appropriate distances for offensive engagements.
- Analog and digital systems are operational within the organization and to the higher headquarters regardless of their location.
- Additional OC/T training support packages are complete and provide for multiple iterations.
- Sufficient administrative areas are available.
- AAR capabilities are reviewed.
- Usage of methods and actions required to provide fire support (notional).
- Integration of attack aviation and close air support during the scenario (notional inclusion for call-for tasks [such as call for fire, call for support, request MEDEVAC]).
- Location of retraining for crews as necessary.

3-57. Once the unit completes the walk-through and training rehearsal, the commander may make any necessary adjustments to the plan and issue fragmentary orders (FRAGORDs) as necessary.

EXECUTE—TABLE III

3-58. Once the unit arrives at the training location, they should—

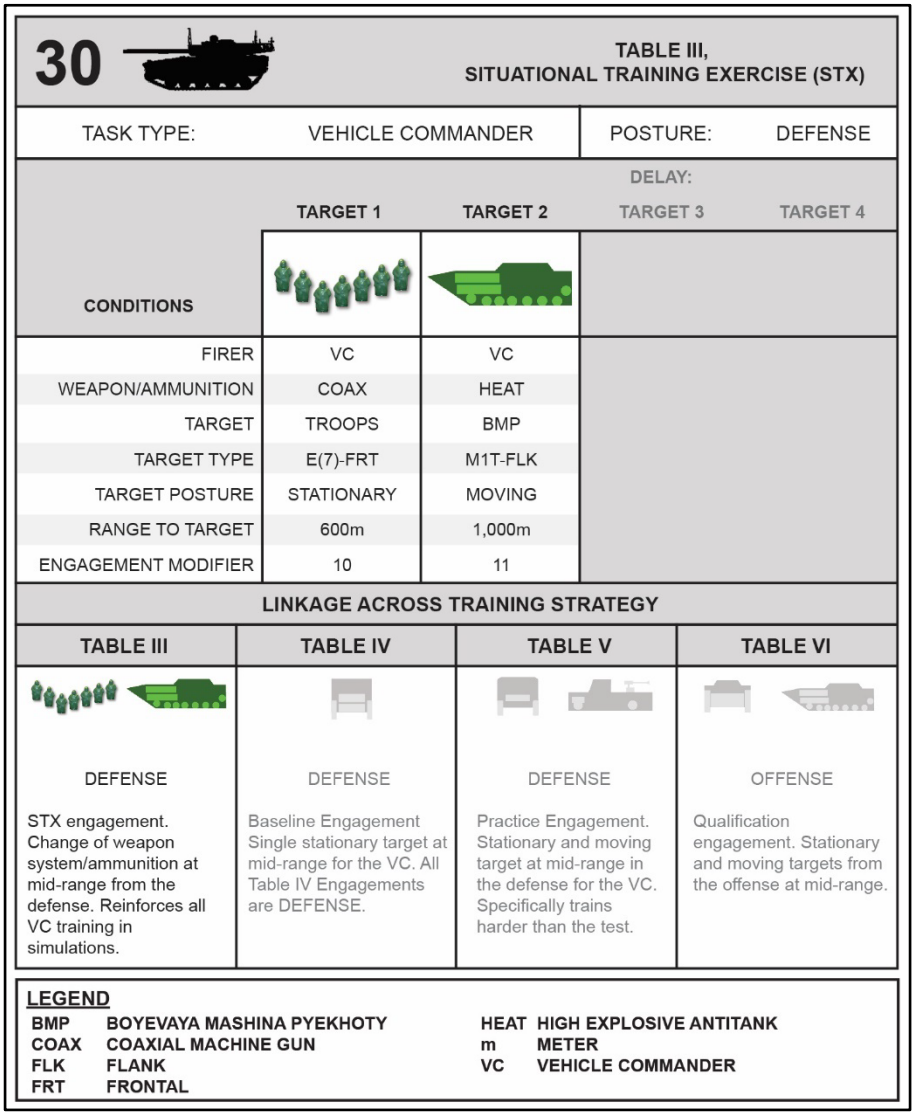
- Conduct a safety briefing for the training event.
- Provide a conduct of the range briefing to establish the sequence of events for the training day.
- Conduct sensitive item checks prior to executing training.
- Assign OC/Ts as appropriate.
- Issue the OPORD for the training mission.
- Execute the training scenario.

3-59. The training unit conducts informal AARs of each crew completing a phase of training within the training mission. During training, the assigned OC/T, executive officer, first sergeant (1SG), and Master Gunner review the subordinate unit's performance. They follow the unit SOP, prescribed tactics, techniques, and procedures, and the appropriate training and evaluation outlines, and review completed crew score sheets and roll-up documentation for clarity and completeness.

3-60. Figures 3-13 through 3-32 (page 58 through page 77) provide the task, conditions, and standards for each engagement sequentially. The unit's scenario sequence will vary based on the training area available, time, day and night mix of engagements, and determination of which day and night engagements include operating in a chemical environment. The main gun ammunition listed are notional rounds only. No live rounds are permitted on Table III.

ENGAGEMENT 30

3-61. The VC engagement is fired from the VC's position using the commander's power control handle and primary optic (see figure 3-13 and the worksheet on figure 3-14). It trains and evaluates the VC's ability to engage and destroy multiple targets with multiple weapons (coaxial machine gun and main gun) at mid-ranges from their position. This engagement can be conducted day or night.



30

TABLE III, SITUATIONAL TRAINING EXERCISE (STX)

TASK TYPE:	VEHICLE COMMANDER	POSTURE:	DEFENSE

CONDITIONS	TARGET 1	TARGET 2	DELAY: TARGET 3	DELAY: TARGET 4
FIRER	VC	VC		
WEAPON/AMMUNITION	COAX	HEAT		
TARGET	TROOPS	BMP		
TARGET TYPE	E(7)-FRT	M1T-FLK		
TARGET POSTURE	STATIONARY	MOVING		
RANGE TO TARGET	600m	1,000m		
ENGAGEMENT MODIFIER	10	11		

LINKAGE ACROSS TRAINING STRATEGY

TABLE III	TABLE IV	TABLE V	TABLE VI
DEFENSE	DEFENSE	DEFENSE	OFFENSE
STX engagement. Change of weapon system/ammunition at mid-range from the defense. Reinforces all VC training in simulations.	Baseline Engagement Single stationary target at mid-range for the VC. All Table IV Engagements are DEFENSE.	Practice Engagement. Stationary and moving target at mid-range in the defense for the VC. Specifically trains harder than the test.	Qualification engagement. Stationary and moving targets from the offense at mid-range.

LEGEND

BMP	BOYEVAYA MASHINA PYEKHOTY	HEAT	HIGH EXPLOSIVE ANTITANK
COAX	COAXIAL MACHINE GUN	m	METER
FLK	FLANK	VC	VEHICLE COMMANDER
FRT	FRONTAL		

Figure 3-13. Engagement 30 overview

30

TARGET 1	TARGET 2	TARGET 3	TARGET 4
VEHICLE COMMANDER DEFENSE			

ENGAGEMENT AMMUNITION REQUIREMENTS

SABOT	HEAT	HEP	CAN	7.62mm	CAL .50	HOSTILE FIRE	STEEL ON STEEL
CA58	**C511**	**CA37**	**CA40**	**A111**	**A598**	**LA54**	**LA53**
	2			50		1	1

PREPARE FOR ENGAGEMENT

_____ THIS IS _____

PREPARE FOR DEFENSIVE OPERATIONS IN BATTLE POSITION _____

YOUR GUNNER'S POWER CONTROL HANDLES ARE INOPERATIVE. CONTINUE TO FIGHT.
BATTLE CARRY HEAT, CHECK YOUR COAX MACHINE GUN. REPORT REDCON ONE, OVER.

PROMPT

ALERT	_____ THIS IS _____
WEAPON/AMMO	COAX/HEAT
TARGET DESCRIPTION	TROOPS AND MOVING PC
METHOD	
LOCATION	VICINITY _____ AND _____
RANGE	
CONTROLS	ENGAGE UPON POSITIVE IDENTIFICATION
EXECUTION	WEAPONS FREE, WEAPONS FREE.
CONTROLS	REPORT WHEN SECTOR CLEAR, OVER.

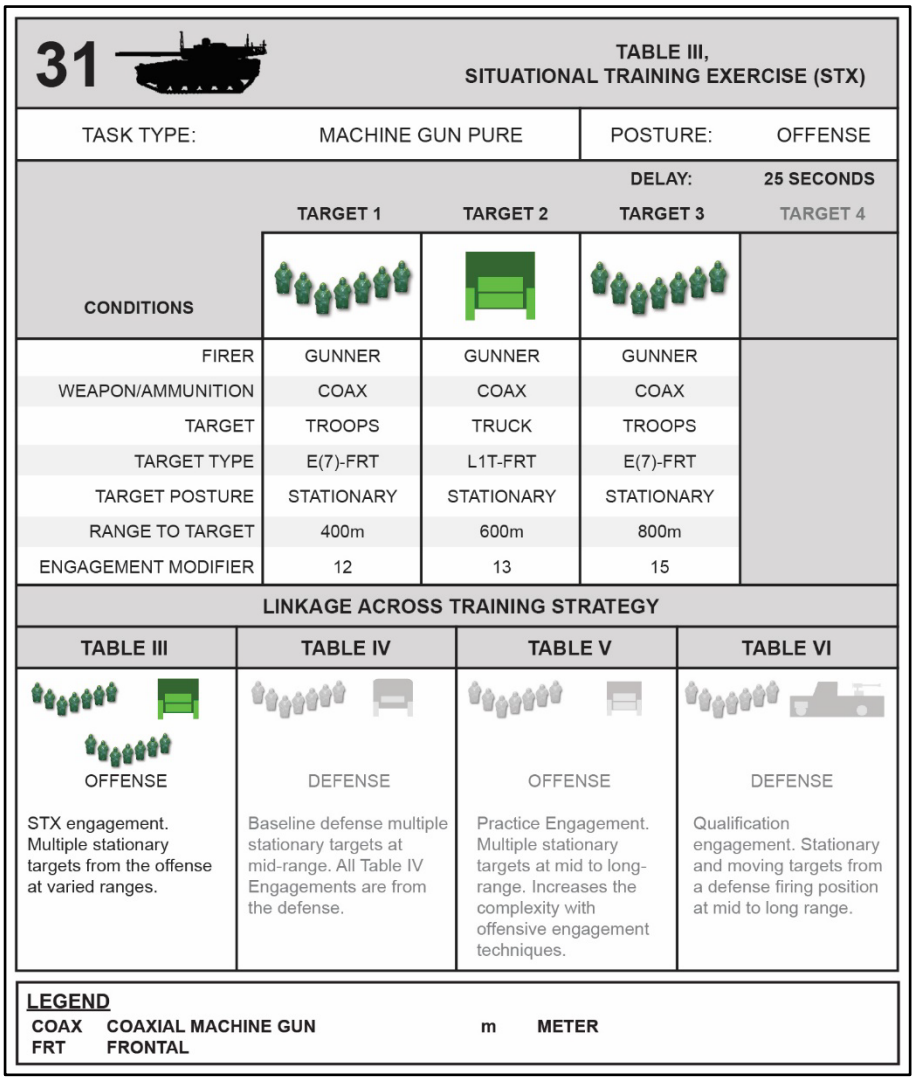
LEGEND

CAL .50	**CALIBER .50**	**mm**	**MILLIMETER**
CAN	**CANISTER**	**PC**	**PERSONNEL CARRIER**
HEAT	**HIGH EXPLOSIVE ANTITANK**	**REDCON**	**READINESS CONDITION**
HEP	**HIGH EXPLOSIVE PLASTIC**		

Figure 3-14. Table III, STX, engagement 30 worksheet

ENGAGEMENT 31

3-62. This is a machine gun pure engagement for the gunner. It trains target detection, acquisition, and machine gun engagement techniques on the offense (see figure 3-15 and the worksheet on figure 3-16). Range bands are varied and require rapid acquisition and engagement.



31	TABLE III, SITUATIONAL TRAINING EXERCISE (STX)			
TASK TYPE:	MACHINE GUN PURE		POSTURE:	OFFENSE
			DELAY:	25 SECONDS
	TARGET 1	TARGET 2	TARGET 3	TARGET 4
CONDITIONS				
FIRER	GUNNER	GUNNER	GUNNER	
WEAPON/AMMUNITION	COAX	COAX	COAX	
TARGET	TROOPS	TRUCK	TROOPS	
TARGET TYPE	E(7)-FRT	L1T-FRT	E(7)-FRT	
TARGET POSTURE	STATIONARY	STATIONARY	STATIONARY	
RANGE TO TARGET	400m	600m	800m	
ENGAGEMENT MODIFIER	12	13	15	

LINKAGE ACROSS TRAINING STRATEGY			
TABLE III	TABLE IV	TABLE V	TABLE VI
OFFENSE	DEFENSE	OFFENSE	DEFENSE
STX engagement. Multiple stationary targets from the offense at varied ranges.	Baseline defense multiple stationary targets at mid-range. All Table IV Engagements are from the defense.	Practice Engagement. Multiple stationary targets at mid to long-range. Increases the complexity with offensive engagement techniques.	Qualification engagement. Stationary and moving targets from a defense firing position at mid to long range.

LEGEND

COAX	COAXIAL MACHINE GUN	m	METER
FRT	FRONTAL		

Figure 3-15. Engagement 31 overview

31

TARGET 1	TARGET 2	TARGET 3	TARGET 4
MACHINE GUN PURE OFFENSE				

ENGAGEMENT AMMUNITION REQUIREMENTS

SABOT	HEAT	HEP	CAN	7.62mm	CAL .50	HOSTILE FIRE	STEEL ON STEEL
CA58	**C511**	**CA37**	**CA40**	**A111**	**A598**	**LA54**	**LA53**
				150		1	1

PREPARE FOR ENGAGEMENT

_____ THIS IS _____

PREPARE FOR OFFENSIVE OPERATIONS. MOVE TO A SHORT HALT POSITION ALONG ROUTE _____

CHECK YOUR COAX MACHINE GUNS, REPORT REDCON ONE, OVER.

PROMPT

ALERT	_____ THIS IS _____
WEAPON/AMMO	COAX/COAX/COAX
TARGET DESCRIPTION	TROOPS AND TRUCK WITH TROOP SUPPORT
METHOD	
LOCATION	VICINITY _____ AND _____
RANGE	
CONTROLS	ENGAGE UPON POSITIVE IDENTIFICATION
EXECUTION	WEAPONS FREE, WEAPONS FREE.
CONTROLS	REPORT WHEN SECTOR CLEAR, OVER.

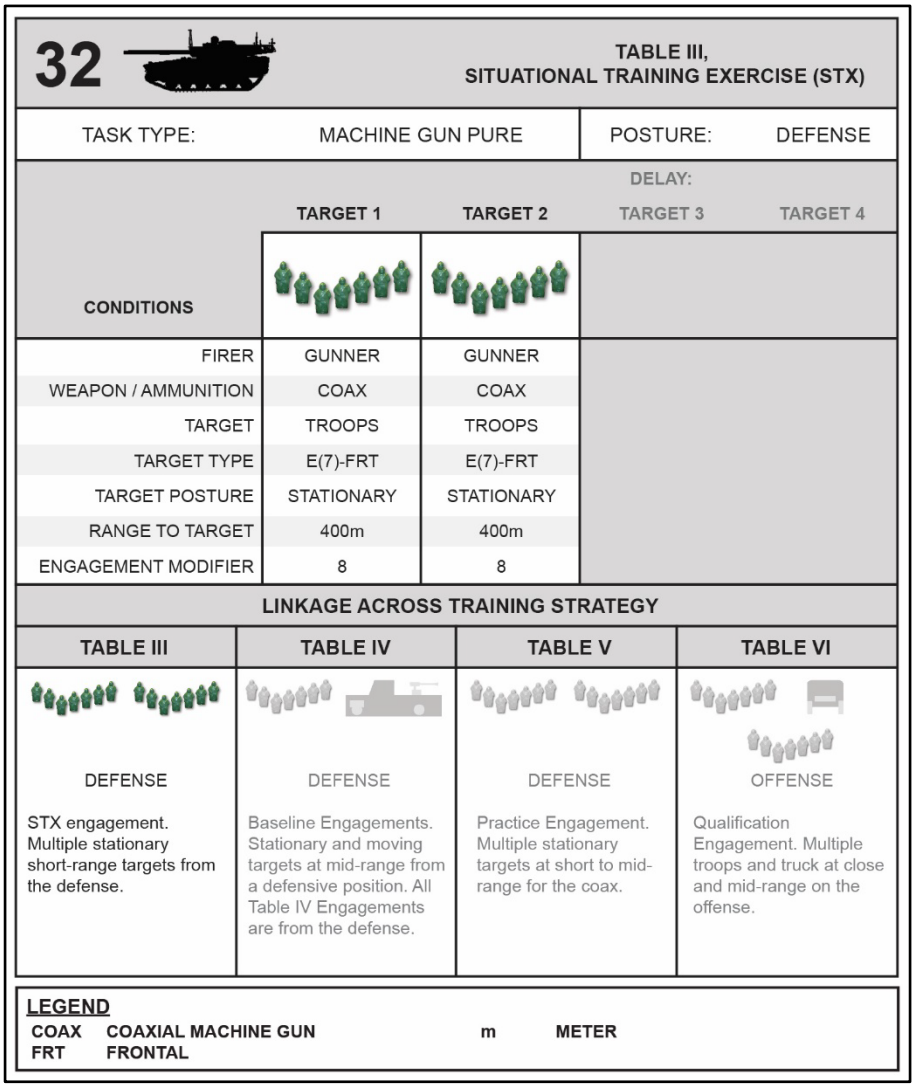
LEGEND

CAL .50	**CALIBER .50**	**HEP**	**HIGH EXPLOSIVE PLASTIC**
CAN	**CANISTER**	**mm**	**MILLIMETER**
COAX	**COAXIAL MACHINE GUN**	**REDCON**	**READINESS CONDITION**
HEAT	**HIGH EXPLOSIVE ANTITANK**		

Figure 3-16. Table III, STX, engagement 31 worksheet

ENGAGEMENT 32

3-63. From a defensive posture, the gunner engages multiple machine gun threats at short-range (see figure 3-17 and the worksheet on figure 3-18). This is a basic engagement where it presents common threats as an Infantry support vehicle.



32		TABLE III, SITUATIONAL TRAINING EXERCISE (STX)		
TASK TYPE:	MACHINE GUN PURE		POSTURE:	DEFENSE
			DELAY:	
	TARGET 1	TARGET 2	TARGET 3	TARGET 4
CONDITIONS				
FIRER	GUNNER	GUNNER		
WEAPON / AMMUNITION	COAX	COAX		
TARGET	TROOPS	TROOPS		
TARGET TYPE	E(7)-FRT	E(7)-FRT		
TARGET POSTURE	STATIONARY	STATIONARY		
RANGE TO TARGET	400m	400m		
ENGAGEMENT MODIFIER	8	8		

LINKAGE ACROSS TRAINING STRATEGY			
TABLE III	TABLE IV	TABLE V	TABLE VI
DEFENSE	DEFENSE	DEFENSE	OFFENSE
STX engagement. Multiple stationary short-range targets from the defense.	Baseline Engagements. Stationary and moving targets at mid-range from a defensive position. All Table IV Engagements are from the defense.	Practice Engagement. Multiple stationary targets at short to mid-range for the coax.	Qualification Engagement. Multiple troops and truck at close and mid-range on the offense.

LEGEND			
COAX	COAXIAL MACHINE GUN	m	METER
FRT	FRONTAL		

Figure 3-17. Engagement 32 overview

32

TARGET 1	TARGET 2	TARGET 3	TARGET 4
MACHINE GUN PURE DEFENSE			

ENGAGEMENT AMMUNITION REQUIREMENTS

SABOT	HEAT	HEP	CAN	7.62mm	CAL .50	HOSTILE FIRE	STEEL ON STEEL
CA58	**C511**	**CA37**	**CA40**	**A111**	**A598**	**LA54**	**LA53**
				100			

PREPARE FOR ENGAGEMENT

_____ THIS IS _____

PREPARE FOR DEFENSIVE OPERATIONS IN BATTLE POSITION _____

CHECK YOUR COAX MACHINE GUNS. REPORT REDCON ONE, OVER.

PROMPT

ALERT	_____ THIS IS _____
WEAPON/AMMO	COAX/COAX
TARGET DESCRIPTION	MULTIPLE TROOPS
METHOD	
LOCATION	VICINITY _____
RANGE	
CONTROLS	ENGAGE UPON POSITIVE IDENTIFICATION
EXECUTION	WEAPONS FREE, WEAPONS FREE.
CONTROLS	REPORT WHEN SECTOR CLEAR, OVER.

LEGEND

CAL .50	**CALIBER .50**	**HEP**	**HIGH EXPLOSIVE PLASTIC**
CAN	**CANISTER**	**mm**	**MILLIMETER**
COAX	**COAXIAL MACHINE GUN**	**REDCON**	**READINESS CONDITION**
HEAT	**HIGH EXPLOSIVE ANTITANK**		

Figure 3-18. Table III, STX, engagement 32 worksheet

ENGAGEMENT 33

3-64. Fired from the offense, this is a basic skills engagement for the gunner to engage a single moving target at mid-range with the main gun (see figure 3-19 and the worksheet on figure 3-20). It builds on the skills from the simulation's training model and requires the gunner to utilize proper tracking and main gun engagement techniques.

33 

TABLE III, SITUATIONAL TRAINING EXERCISE (STX)

TASK TYPE:	MAIN GUN PURE	POSTURE:	OFFENSE

CONDITIONS	TARGET 1	TARGET 2	DELAY: TARGET 3	TARGET 4
				
FIRER	GUNNER			
WEAPON / AMMUNITION	HEAT			
TARGET	BMP			
TARGET TYPE	M1T-FLK			
TARGET POSTURE	MOVING			
RANGE TO TARGET	1,400m			
ENGAGEMENT MODIFIER	16			

LINKAGE ACROSS TRAINING STRATEGY

TABLE III	TABLE IV	TABLE V	TABLE VI
			
OFFENSE	DEFENSE	OFFENSE	DEFENSE
STX engagement with single moving target using the main gun at mid-range.	Baseline multiple moving threats at mid-range for the caliber .50. VC Engagement. All engagements on Table IV are fired from the DEFENSE.	Practice engagement. Canister engagement for mass troops from the offense.	Qualification Engagement. Bunker and stationary vehicle from a defensive firing position at mid-ranges.

LEGEND

BMP	BOYEVAYA MASHINA PYEKHOTY	m	METER
FLK	FLANK	VC	VEHICLE COMMANDER
HEAT	HIGH EXPLOSIVE ANTITANK		

Figure 3-19. Engagement 33 overview

33 TARGET 1 TARGET 2 TARGET 3 TARGET 4

MAIN GUN PURE

OFFENSE



ENGAGEMENT AMMUNITION REQUIREMENTS

SABOT	HEAT	HEP	CAN	7.62mm	CAL .50	HOSTILE FIRE	STEEL ON STEEL
CA58	**C511**	**CA37**	**CA40**	**A111**	**A598**	**LA54**	**LA53**
	2					1	1

PREPARE FOR ENGAGEMENT

_____ THIS IS _____

PREPARE FOR OFFENSIVE OPERATIONS. MOVE TO A SHORT HALT POSITION ALONG ROUTE _____

BATTLECARRY HEAT, REPORT REDCON ONE, OVER.

PROMPT

ALERT	_____ THIS IS _____
WEAPON/AMMO	HEAT
TARGET DESCRIPTION	PC MOVING INTO SECTOR
METHOD	
LOCATION	VICINITY _____
RANGE	
CONTROLS	ENGAGE UPON POSITIVE IDENTIFICATION
EXECUTION	WEAPONS FREE, WEAPONS FREE.
CONTROLS	REPORT WHEN SECTOR CLEAR, OVER.

LEGEND

CAL .50	**CALIBER .50**	**mm**	**MILLIMETER**
CAN	**CANISTER**	**PC**	**PERSONNEL CARRIER**
HEAT	**HIGH EXPLOSIVE ANTITANK**	**REDCON**	**READINESS CONDITION**
HEP	**HIGH EXPLOSIVE PLASTIC**		

Figure 3-20. Table III, STX, engagement 33 worksheet

ENGAGEMENT 34

3-65. A main gun pure engagement fired from the defense; this engagement challenges the crew with a third target on delay (see figure 3-21 and the worksheet on figure 3-22). Although trained with TADSS, the crew must be aware of the subsequent engagement in the scenario when completing this engagement with a high explosive plastic (HEP) cartridge.

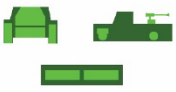
34 

TABLE III, SITUATIONAL TRAINING EXERCISE (STX)

TASK TYPE:	MAIN GUN PURE	POSTURE:	DEFENSE

			DELAY:	25 SECONDS
	TARGET 1	TARGET 2	TARGET 3	TARGET 4
CONDITIONS				
FIRER	GUNNER	GUNNER	GUNNER	
WEAPON / AMMUNITION	SABOT	HEP	HEP	
TARGET	TANK	TECH TRUCK	BUNKER	
TARGET TYPE	H1T-FRT	L2T-FLK	H3T-FRT	
TARGET POSTURE	STATIONARY	MOVING	STATIONARY	
RANGE TO TARGET	2,000m	1,000m	1,000m	
ENGAGEMENT MODIFIER	10	12	8	

LINKAGE ACROSS TRAINING STRATEGY

TABLE III	TABLE IV	TABLE V	TABLE VI
			
DEFENSE	DEFENSE	DEFENSE	OFFENSE
STX Engagement. Main gun change of ammunition from SABOT to HEP against stationary and moving target with delay target at mid to long-ranges.	Baseline Engagement. Simultaneous engagement against multiple stationary targets at long to mid-range. All engagements on Table IV are fired from the DEFENSE.	Practice Engagement. Multiple target engagement against bunker fortifications and a BMP from the defense at mid-range. Change of ammunition.	Firing on the move with main gun, stationary and moving targets.

LEGEND

BMP	BOYEVAYA MASHINA PYEKHOTY	HEP	HIGH EXPLOSIVE PLASTIC
FLK	FLANK	m	METER
FRT	FRONTAL	TECH	TECHNICAL

Figure 3-21. Engagement 34 overview

34	TARGET 1	TARGET 2	TARGET 3	TARGET 4
MAIN GUN PURE DEFENSE				

ENGAGEMENT AMMUNITION REQUIREMENTS

SABOT	HEAT	HEP	CAN	7.62mm	CAL .50	HOSTILE FIRE	STEEL ON STEEL
CA58	**C511**	**CA37**	**CA40**	**A111**	**A598**	**LA54**	**LA53**
1		3				3	3

PREPARE FOR ENGAGEMENT

_____ THIS IS _____

PREPARE FOR DEFENSIVE OPERATIONS IN BATTLE POSITION _____

BATTLECARRY SABOT, REPORT REDCON ONE, OVER.

PROMPT

ALERT	_____ THIS IS _____
WEAPON/AMMO	SABOT/HEP/HEP
TARGET DESCRIPTION	TANK, MOVING TRUCK, AND BUNKER
METHOD	MOST DANGEROUS FIRST
LOCATION	VICINITY _____ AND _____
RANGE	
CONTROLS	ENGAGE UPON POSITIVE IDENTIFICATION
EXECUTION	WEAPONS FREE, WEAPONS FREE.
CONTROLS	REPORT WHEN SECTOR CLEAR, OVER.

LEGEND

CAL .50	**CALIBER .50**	**mm**	**MILLIMETER**
CAN	**CANISTER**	**PC**	**PERSONNEL CARRIER**
HEAT	**HIGH EXPLOSIVE ANTITANK**	**REDCON**	**READINESS CONDITION**
HEP	**HIGH EXPLOSIVE PLASTIC**		

Figure 3-22. Table III, STX, engagement 34 worksheet

ENGAGEMENT 35

3-66. This engagement challenges the crew with multiple targets and changes to the weapon or ammunition indexed (see figure 3-23 and the worksheet on figure 3-24). These changes within the engagement at a high tempo are prone to switchology errors by the crew.

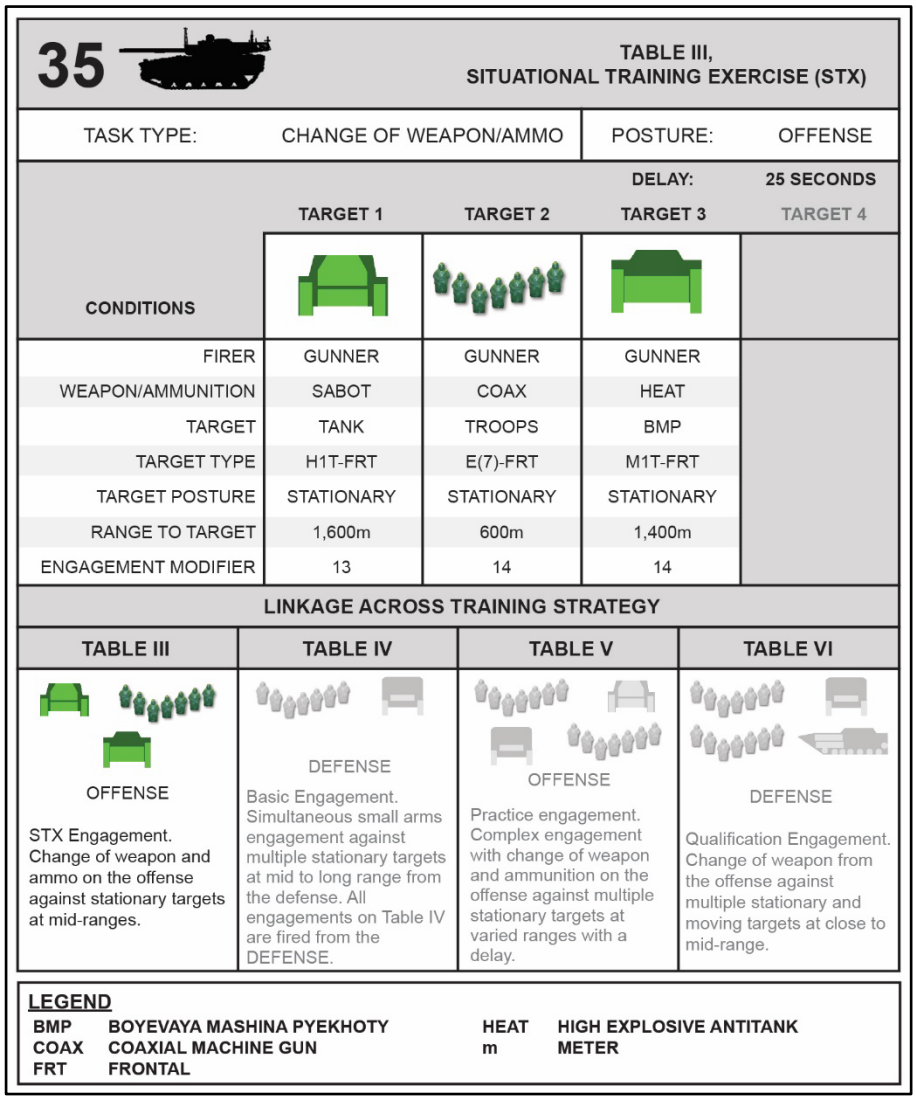


Figure 3-23. Engagement 35 overview

35

	TARGET 1	TARGET 2	TARGET 3	TARGET 4
CHANGE OF WEAPON/ AMMUNITION OFFENSE				

ENGAGEMENT AMMUNITION REQUIREMENTS

SABOT	HEAT	HEP	CAN	7.62mm	CAL .50	HOSTILE FIRE	STEEL ON STEEL
CA58	**C511**	**CA37**	**CA40**	**A111**	**A598**	**LA54**	**LA53**
1	1			50		2	2

PREPARE FOR ENGAGEMENT

_____ THIS IS _____

PREPARE FOR OFFENSIVE OPERATIONS. MOVE TO A SHORT HALT POSITION ALONG ROUTE _____

BATTLECARRY SABOT AND CHECK YOUR COAX MACHINE GUN.
REPORT REDCON ONE, OVER.

PROMPT

ALERT	_____ THIS IS _____
WEAPON/AMMO	SABOT/COAX/HEAT
TARGET DESCRIPTION	TANK AND TROOPS, WITH PC IN SUPPORT
METHOD	MOST DANGEROUS FIRST
LOCATION	VICINITY _____ AND _____
RANGE	
CONTROLS	ENGAGE UPON POSITIVE IDENTIFICATION
EXECUTION	WEAPONS FREE, WEAPONS FREE.
CONTROLS	REPORT WHEN SECTOR CLEAR, OVER.

LEGEND

CAL .50	**CALIBER .50**	**HEP**	**HIGH EXPLOSIVE PLASTIC**
CAN	**CANISTER**	**mm**	**MILLIMETER**
COAX	**COAXIAL MACHINE GUN**	**PC**	**PERSONNEL CARRIER**
HEAT	**HIGH EXPLOSIVE ANTITANK**	**REDCON**	**READINESS CONDITION**

Figure 3-24. Table III, STX, engagement 35 worksheet

ENGAGEMENT 36

3-67. This is the second change of weapon or ammunition engagement for the training event (see figure 3-25 and the worksheet on figure 3-26). This engagement is fired from the defense which allows better target acquisition and engagement planning as part of the conduct of fire for the crew.

36

TABLE III, SITUATIONAL TRAINING EXERCISE (STX)

TASK TYPE:	CHANGE OF WEAPON/AMMO	POSTURE:	DEFENSE
		DELAY:	25 SECONDS

CONDITIONS	TARGET 1	TARGET 2	TARGET 3	TARGET 4
FIRER	GUNNER	GUNNER	GUNNER	
WEAPON / AMMUNITION	HEP	COAX	COAX	
TARGET	BUNKER	TROOPS	TROOPS	
TARGET TYPE	H3T-FRT	E(7)-FRT	E(7)-FRT	
TARGET POSTURE	STATIONARY	STATIONARY	STATIONARY	
RANGE TO TARGET	1,000m	600m	400m	
ENGAGEMENT MODIFIER	8	10	8	

LINKAGE ACROSS TRAINING STRATEGY

TABLE III	TABLE IV	TABLE V	TABLE VI
DEFENSE STX Engagement. Change of weapon system from the defense. Stationary targets at close to mid-ranges.	DEFENSE Baseline Engagement. Stationary target at mid-range for the VC from the defense. All engagements on Table IV are fired from the DEFENSE.	DEFENSE Practice engagement. Change of weapon system from the defense against multiple stationary targets and a moving target at varied ranges with a delay.	OFFENSE Qualification Engagement. Change of weapon system and ammunition against multiple stationary and moving targets at varied ranges. Complex engagement.

LEGEND

COAX	COAXIAL MACHINE GUN	m	METER
FRT	FRONTAL	VC	VEHICLE COMMANDER
HEP	HIGH EXPLOSIVE PLASTIC		

Figure 3-25. Engagement 36 overview

36	TARGET 1	TARGET 2	TARGET 3	TARGET 4
CHANGE OF WEAPON/ AMMUNITION DEFENSE				

ENGAGEMENT AMMUNITION REQUIREMENTS

SABOT	HEAT	HEP	CAN	7.62mm	CAL .50	HOSTILE FIRE	STEEL ON STEEL
CA58	**C511**	**CA37**	**CA40**	**A111**	**A598**	**LA54**	**LA53**
		1		100		1	1

PREPARE FOR ENGAGEMENT

_____ THIS IS _____

PREPARE FOR DEFENSIVE OPERATIONS IN BATTLE POSITION _____

BATTLECARRY HEP. CHECK YOUR COAX MACHINE GUNS.
REPORT WHEN REDCON ONE, OVER.

PROMPT

ALERT	_____ THIS IS _____
WEAPON/AMMO	HEP/COAX/COAX
TARGET DESCRIPTION	FORTIFICATION WITH MULTIPLE TROOPS IN SUPPORT
METHOD	MOST DANGEROUS FIRST
LOCATION	VICINITY _____ AND _____
RANGE	
CONTROLS	ENGAGE UPON POSITIVE IDENTIFICATION
EXECUTION	WEAPONS FREE, WEAPONS FREE.
CONTROLS	REPORT WHEN SECTOR CLEAR, OVER.

LEGEND

CAL .50	**CALIBER .50**	**HEP**	**HIGH EXPLOSIVE PLASTIC**
CAN	**CANISTER**	**mm**	**MILLIMETER**
COAX	**COAXIAL MACHINE GUN**	**REDCON**	**READINESS CONDITION**
HEAT	**HIGH EXPLOSIVE ANTITANK**		

Figure 3-26. Table III, STX, engagement 36 worksheet

ENGAGEMENT 37

3-68. This is a degraded engagement where the crew must engage multiple threats on the offense using degraded engagement techniques (see figure 3-27 and the worksheet on figure 3-28). This engagement challenges the crew by removing the stabilization of the weapon system to defeat the threats.

37 

TABLE III, SITUATIONAL TRAINING EXERCISE (STX)

TASK TYPE:	DEGRADED	POSTURE:	OFFENSE

CONDITIONS	TARGET 1	TARGET 2	DELAY: TARGET 3	TARGET 4
				
FIRER	GUNNER	GUNNER		
WEAPON/AMMUNITION	HEP	COAX		
TARGET	TRUCK	TROOPS		
TARGET TYPE	L2T-FRT	E(7)-FRT		
TARGET POSTURE	STATIONARY	STATIONARY		
RANGE TO TARGET	1,000m	600m		
ENGAGEMENT MODIFIER	14	14		

LINKAGE ACROSS TRAINING STRATEGY

TABLE III	TABLE IV	TABLE V	TABLE VI
			
OFFENSE	DEFENSE	OFFENSE	DEFENSE
STX Engagement. Degraded engagement teaching use of fire control without stabilization against stationary targets at mid-range from the offense.	Baseline Engagement. Moving target at mid-range for the VC from the defense. All engagements on Table IV are fired from the DEFENSE.	Practice engagement. Degraded engagement with laser range finder inoperative against stationary targets at mid-range from the offense.	Qualification Engagement. Complex engagement with multiple reticle use in GAS against stationary and moving targets from a defensive fighting position at mid-range.

LEGEND

COAX	COAXIAL MACHINE GUN	HEP	HIGH EXPLOSIVE PLASTIC
FRT	FRONTAL	m	METER
GAS	GUNNER'S AUXILIARY SIGHT	VC	VEHICLE COMMANDER

Figure 3-27. Engagement 37 overview

37	TARGET 1	TARGET 2	TARGET 3	TARGET 4
DEGRADED OFFENSE				

ENGAGEMENT AMMUNITION REQUIREMENTS

SABOT	HEAT	HEP	CAN	7.62mm	CAL .50	HOSTILE FIRE	STEEL ON STEEL
CA58	**C511**	**CA37**	**CA40**	**A111**	**A598**	**LA54**	**LA53**
		1		50		1	1

PREPARE FOR ENGAGEMENT

_____ THIS IS _____

PREPARE FOR OFFENSIVE OPERATIONS. MOVE TO A SHORT HALT POSITION ALONG ROUTE _____

YOUR STABILIZATION IS INOP. TURN OFF YOUR STAB. USE EMERGENCY MODE. BATTLECARRY HEP. CHECK YOUR COAX MACHINE GUN. REPORT REDCON ONE.

PROMPT

ALERT	_____ THIS IS _____
WEAPON/AMMO	HEP/COAX
TARGET DESCRIPTION	TROOPS AND TRUCK
METHOD	*STABILIZATION INOP*
LOCATION	VICINITY _____ AND _____
RANGE	
CONTROLS	ENGAGE UPON POSITIVE IDENTIFICATION
EXECUTION	WEAPONS FREE, WEAPONS FREE.
CONTROLS	REPORT WHEN SECTOR CLEAR, OVER.

LEGEND

CAL .50	**CALIBER .50**	**INOP**	**INOPERABLE**
CAN	**CANISTER**	**mm**	**MILLIMETER**
COAX	**COAXIAL MACHINE GUN**	**REDCON**	**READINESS CONDITION**
HEAT	**HIGH EXPLOSIVE ANTITANK**	**STAB**	**STABILIZATION**
HEP	**HIGH EXPLOSIVE PLASTIC**		

Figure 3-28. Table III, STX, engagement 37 worksheet

ENGAGEMENT 38

3-69. This engagement is a degraded engagement for the gunner to apply their auxiliary sight and apply the appropriate ballistic reticle for a mid-range coaxial threat. The engagement is demonstrated in figures 3-29 and the worksheet on figure 3-30. This requires the gunner to apply the appropriate ballistic reticle offsets to effectively engage and defeat the threat presented. Using TADSS may require the evaluator to announce the target as the laser-based devices will not be aligned for the engagement.

38

TABLE III, SITUATIONAL TRAINING EXERCISE (STX)

TASK TYPE:	*DEGRADED*	POSTURE:	DEFENSE

	TARGET 1	TARGET 2	DELAY: TARGET 3	TARGET 4
CONDITIONS				
FIRER	GUNNER			
WEAPON/AMMUNITION	COAX			
TARGET	TROOPS			
TARGET TYPE	E(7)-FRT			
TARGET POSTURE	STATIONARY			
RANGE TO TARGET	600m			
ENGAGEMENT MODIFIER	10			

LINKAGE ACROSS TRAINING STRATEGY

TABLE III	TABLE IV	TABLE V	TABLE VI
DEFENSE	DEFENSE	DEFENSE	OFFENSE
STX Engagement. Degraded engagement that reinforces use of the auxiliary sight for coax engagements against a stationary target at mid-range from the defense.	Basic Engagement. Multiple stationary targets for the VC at mid to long-range from the defense. All engagements on Table IV are fired from the DEFENSE.	Practice engagement. Degraded complex engagement with multiple reticle use in GAS against stationary targets in the defense at mid-range.	Qualification Engagement. Degraded change of weapon system on the offense with stabilization failure against stationary targets at close to mid-range.

LEGEND

COAX	COAXIAL MACHINE GUN	m	METER
FRT	FRONTAL	VC	VEHICLE COMMANDER
GAS	GUNNER'S AUXILIARY SIGHT		

Figure 3-29. Engagement 38 overview

38 TARGET 1 TARGET 2 TARGET 3 TARGET 4

DEGRADED

DEFENSE



ENGAGEMENT AMMUNITION REQUIREMENTS

SABOT	HEAT	HEP	CAN	7.62mm	CAL .50	HOSTILE FIRE	STEEL ON STEEL
CA58	**C511**	**CA37**	**CA40**	**A111**	**A598**	**LA54**	**LA53**
				50			

PREPARE FOR ENGAGEMENT

_____ THIS IS _____

PREPARE FOR DEFENSIVE OPERATIONS IN BATTLE POSITION _____

YOUR GUNNERS PRIMARY SIGHT IS INOP. CLOSE YOUR BALLISTIC DOORS. CHECK YOUR COAX MACHINE GUN. REPORT REDCON ONE.

PROMPT

ALERT	_____ THIS IS _____
WEAPON/AMMO	COAX
TARGET DESCRIPTION	TROOPS
METHOD	*AUXILIARY SIGHT*
LOCATION	VICINITY _____ AND _____
RANGE	
CONTROLS	ENGAGE UPON POSITIVE IDENTIFICATION
EXECUTION	WEAPONS FREE, WEAPONS FREE.
CONTROLS	REPORT WHEN SECTOR CLEAR, OVER.

LEGEND

CAL .50	**CALIBER .50**	**HEP**	**HIGH EXPLOSIVE PLASTIC**
CAN	**CANISTER**	**INOP**	**INOPERABLE**
COAX	**COAXIAL MACHINE GUN**	**mm**	**MILLIMETER**
HEAT	**HIGH EXPLOSIVE ANTITANK**	**REDCON**	**READINESS CONDITION**

Figure 3-30. Table III, STX, engagement 38 worksheet

ENGAGEMENT 39

3-70. Engagement 39 is a simultaneous engagement from the offense where the gunner and VC must acquire and defeat threats using their machine guns (see figure 3-31 and the worksheet on figure 3-32). This is a complex engagement for the offense and should not be conducted during the night phase.

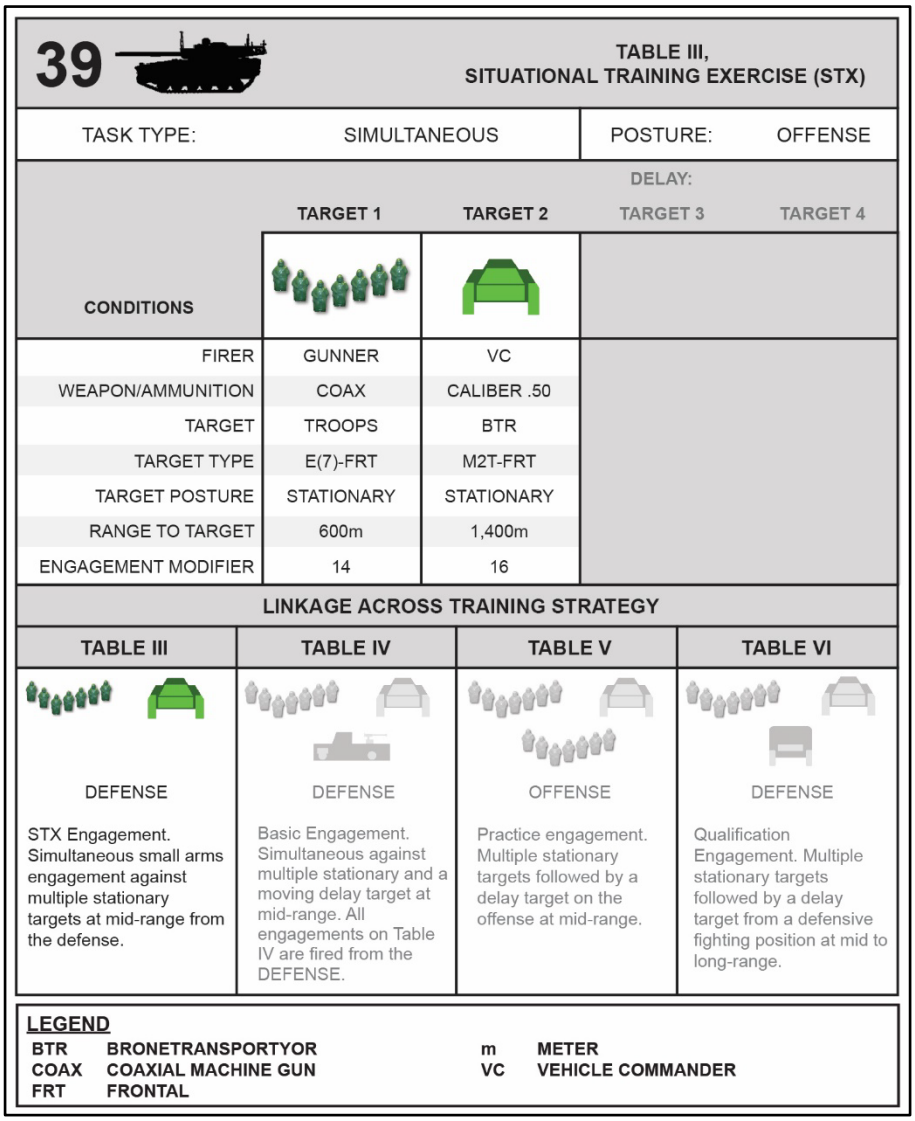


Figure 3-31. Engagement 39 overview

39

TARGET 1	TARGET 2	TARGET 3	TARGET 4
SIMULTANEOUS OFFENSE			

ENGAGEMENT AMMUNITION REQUIREMENTS

SABOT	HEAT	HEP	CAN	7.62mm	CAL .50	HOSTILE FIRE	STEEL ON STEEL
CA58	**C511**	**CA37**	**CA40**	**A111**	**A598**	**LA54**	**LA53**
				50	50	1	1

PREPARE FOR ENGAGEMENT

_____ THIS IS _____

PREPARE FOR OFFENSIVE OPERATIONS. MOVE TO A SHORT HALT POSITION ALONG ROUTE _____

CHECK CALIBER FIFTY AND COAX MACHINE GUNS. REPORT REDCON ONE, OVER.

PROMPT

ALERT	_____ THIS IS _____
WEAPON/AMMO	CALIBER FIFTY/COAX
TARGET DESCRIPTION	TROOPS WITH PC IN SUPPORT
METHOD	SIMULTANEOUS
LOCATION	VICINITY _____ AND _____
RANGE	
CONTROLS	ENGAGE UPON POSITIVE IDENTIFICATION
EXECUTION	WEAPONS FREE, WEAPONS FREE.
CONTROLS	REPORT WHEN SECTOR CLEAR, OVER.

LEGEND

CAL .50	**CALIBER .50**	**HEP**	**HIGH EXPLOSIVE PLASTIC**
CAN	**CANISTER**	**mm**	**MILLIMETER**
COAX	**COAXIAL MACHINE GUN**	**PC**	**PERSONNEL CARRIER**
HEAT	**HIGH EXPLOSIVE ANTITANK**	**REDCON**	**READINESS CONDITION**

Figure 3-32. Table III, STX, engagement 39 worksheet

ASSESS—TABLE III

3-71. The intent of STXs is to train the crews within the organization on the appropriate conduct of fire skills, various crew critical skills, and emergency procedures across two training days. Proper evaluation and assessment of crew performance is key to improving individual and crew skills prior to moving to the live-fire events.

3-72. Units can maximize their AARs and assessments of training by fully integrating the I-MILES CVTESS, home station/Army mobile instrumentation training system, laser target interface device, and CMU/IPU/CMUR systems in the training event. These systems used together provide a near-digital range facility capability at the company and battalion level.

FIRING GROUP AFTER ACTION REVIEWS

3-73. For the firing group, each crew is given an AAR at the completion of the day phase and night phase by a qualified VCE. Use DA Form 8265-1 to record and track the results of each crew's performance on each engagement at the completion of each phase. Tracking crew and platoon statistics on each engagement allow the unit leadership to identify areas for improvement.

Note. VCEs must be certified or recertified as described in TC 3-20.31. Performing the duties as a VCE during the conduct of Table III, STX is a significant part of building experience and knowledge of those gunners and VCs without firing.

3-74. Units should track the various firing information from the score sheets to identify where in the conduct of fire crews and the overall unit should apply additional training effort. Some of those indicators are—

- Target acquisition, detection, and identification.
- Time to fire.
- Time to kill.
- Opening and closing times for machine gun engagements.
- Gunner lay errors.
- Scanning techniques.
- Engagement techniques.
- Conduct of fire issues.
- Penalties by type.

3-75. Each crew should receive a formal AAR following the guidelines found in TC 3-20.31. Each evaluator should use DA Form 8265 and DA Form 8265-1 as the basis for their evaluation, identifying the firing occasional information from the score sheet timelines. The evaluator and VC each review and sign the DA Form 8265-1.

CRITICAL SKILLS TASK AFTER ACTION REVIEWS

3-76. OC/Ts should provide clear and articulate comments and insight about the positive and negative actions of the crews they observed. OC/Ts should use the training and evaluation outlines to guide them through the evaluation process and use the doctrinal publications to support their comments.

3-77. The OC/T and unit leadership should review the training and evaluation outlines and training notes and observations to determine which tasks require additional attention through the remainder of the training density.

3-78. The OC/T should share the overall performance of the unit, including the observations, with the entire training unit. This allows the subordinate units to learn from other unit's best practices, procedures, and tactics, and at times from their shortcomings or mistakes. The commander should identify crews within the organization that demonstrate superior performance.

3-79. At the completion of this portion of crew Table III, STX, commanders, executive officers, and 1SGs should gain insight to where their unit's SOPs are working and where they need additional attention. If time is available, commanders should update and provide those changes or revisions to the unit prior to executing any live-fire event. Of particular interest is the drivers' training program, vehicle load plans, stowage of individual tactical gear, crew evacuation procedures, and MEDEVAC procedures.

RETRAIN—TABLE III

3-80. The unit Master Gunner maintains the unit roll-up by engagement. A subcategorized roll-up by platoons provides the commander a snapshot of training trends, strengths, and weaknesses. The Master Gunner should not only identify crews that did not achieve a passing standard, but also crews that struggled on specific engagement tasks. Once done, the unit can establish and conduct the appropriate focused retraining followed by a subsequent evaluation.

3-81. All crews must successfully complete the course of fire based on the standards for the engagements listed earlier in this chapter. No crew may proceed to Table IV or any other live-fire event, including zeroing, or sub-caliber events until they have achieved the minimum standard on Table III.

3-82. Platoon sergeants and platoon leaders should identify crews that require additional training on the various crew critical skills. Although the evaluation may be completed, units should integrate sustainment training into their unit training plans, particularly when environmental conditions change, movement during limited visibility is required, or planning or expecting tactical movement through restricted or rugged terrain. Whenever possible, the platoon leader and platoon sergeant should attend the AAR for their crews.

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Chapter 4

Table IV–Basic

Table IV, Basic, is designed to train basic skills to enable proper leader and Soldier execution of those basic crew skills. This table builds upon those skills trained and tested during Table I, II, and III. It is a combination of primary armament zero and machine gun zero, coupled with 10 machine gun engagements.

The design of Table IV is to train and evaluate the crew's ability to engage single and multiple stationary or moving targets placed in a tactical array, during the day, with an operational or simulated degraded fire control system, as applicable. Crews execute these tasks from the defense using full-caliber ammunition for zero and machine gun ammunition for the tactical engagements.

OVERVIEW—TABLE IV

4-1. Table IV provides crews the ability to align their fire control system to zero their ammunition by type, and complete basic machine gun engagement skills from a defensive firing position. There are two task sets to Table IV, Basic:

- Zeroing.
- Defensive engagements.

4-2. Completion of zeroing procedures must occur successfully before Table IV, Basic. This is to ensure the fire control system aligns correctly, and the main gun ammunition can hit the target as expected ballistically. Upon completion of main gun zeroing, the crew will zero the coaxially mounted machine gun. The defensive engagements are day and night engagements depending on the unit's plan.

4-3. Figure 4-1 on page 82 shows where Table IV, Basic, resides withing the medium tank training strategy through crew qualification. This is the first event with the crew operating the platform under live-fire conditions. This course of fire includes zeroing as part of the training event.

CREW TABLE IV	TABLE I	TABLE II	TABLE III	TABLE IV	TABLE V	TABLE VI
	CRAWL	*CRAWL*	*WALK*	***RUN***	*RUN*	*RUN*
	Live	Virtual	Live TADSS	Live-Fire	Live-Fire	Live-Fire
	GST	STX-V	STX	BASIC	PRACTICE	QUAL

Platforms that require alignment, zeroing, confirmation of point of aim (PoA)/point of impact (PoI) or other critical tasks must complete Table IV prior to conducting any other live-fire event with the weapon.

LEGEND

GST	GUNNERY SKILLS TEST OR GUNNER'S/FIRE DIRECTION CENTER EXAM	STX-V	SITUATIONAL TRAINING EXERCISE-VIRTUAL
QUAL	QUALIFICATION	TADSS	TRAINING AIDS, DEVICES, SIMULATORS, AND SIMULATIONS
STX	SITUATIONAL TRAINING EXERCISE		

Figure 4-1. Table IV, Basic

PURPOSE OF TABLE IV

4-4. Table IV, Basic, is a skills assessment and risk mitigation tool for the commander. It assists the commander in determining the safe and effective use of the platform, its weapons, identification of threats and common ammunition by the crewmembers in the unit. Further, it identifies shortfalls and training gaps in those gunnery specific skills, which build crew proficiency and unit readiness.

METHOD—TABLE IV

4-5. Table IV is a hands-on, performance-based evaluation of basic gunnery skills to the Army-standard of knowledge or skill in a live-fire environment. It utilizes experienced evaluators to educate, train, test, and retrain Soldiers to meet or exceed those standards.

END STATE—TABLE IV

4-6. The VC and gunner assigned as the crew have successfully demonstrated the skills and knowledge required to continue training on the platform through platform qualification. Commanders are confident in their Soldier's abilities in the position assigned.

4-7. The tasks evaluated in Table IV provide the commander a means to verify the crew's basic weapons platform proficiency prior to further live-fire training. It is a guide for the commander to identify individual and crew weapons platform strengths and weaknesses on specific engagement techniques and employment of the vehicle's fire control system capabilities and enablers. The commander and Master Gunner use the results from Table IV, Basic to structure the unit's crew training program.

TASK, CONDITIONS, AND STANDARD—TABLE IV

4-8. The two portions of Table IV, Basic, have their own unique set of task, conditions, and standards. Tasks are presented sequentially for clarity.

Zeroing Optics and Fire Control

4-9. This portion of Table IV is to ensure the vehicle and crew can accurately align the platform's optics, and that the platform's fire control system is calculating an accurate ballistic solution for primary armament and coaxial machine gun engagements. Further, this ensures each sub-system of the fire control system is functioning properly after all non-firing preparation to fire (prep-to-fire) and armament accuracy checks are complete. The action, conditions, and standards for Table IV, Basic, zeroing is provided in figure 4-2.

Note. Crew should always zero (HEP) first when firing the 105-mm from a clean gun tube. This will reduce or remove the impact of gun tube memory for zeroing.



TABLE IV
BASIC, ZEROING

TASK	Conduct the primary armament zero and machine gun zero on a medium tank.
CONDITIONS	Given the following: • A fully operational platform with weapon or weapon system, and with the following procedures successfully completed: • Medium tank that has successfully completed armament accuracy checks within the past 30 days. • Medium tank that has been completed preventative maintenance checks and services. • All special gunnery checks complete. • Boresighting with the M26A3 completed to standard. • Plumb and synchronization completed to standard. • Authorized full-caliber training ammunition. • Appropriate ST-6 Panel at 500 meters +/- 10 meters. • All prerequisites to live fire for the crew platform met.
STANDARD	The crew must: • Successfully zero each 105mm training ammunition type for use during the training density. • In the event of a zero-test failure where no fire control system malfunctions or crew induced error exist, successfully determine discreet computer correction factor (CCF) for the ammunition type. • Successfully complete coaxial machine gun zeroing procedures IAW the technical manual.

LEGEND

IAW	IN ACCORDANCE WITH	ST	STANDARD TARGET
mm	MILLIMETER		

Figure 4-2. Table IV, Basic, zeroing

Defensive Engagements

4-10. Completion of zeroing procedure must occur successfully before conducting Table IV, Basic. Vehicles that fail to screen may not progress to any live-fire table including the defensive engagements. The task, conditions, and standard for Table IV, Basic, defensive engagements, are in figure 4-3.



TABLE IV BASIC, DEFENSIVE ENGAGEMENTS	
TASK	Engage and destroy stationary and moving targets placed in a tactical array, during the day using day and thermal channels from a defensive firing position on a medium tank using full-caliber ammunition.
CONDITIONS	Given the following: • An operational platform with weapon or weapon systems. • Allotted ammunition. • Certified vehicle crew evaluators. • ¾ scale targets. • All prerequisites to live fire for the crew platform achieved.
STANDARD	The crew: • Scores a minimum of 700 of 1,000 points overall. • Scores 70 points or more on all targets presented on 7 out of the 10 engagements.

Figure 4-3. Table IV, Basic, defensive engagements

Note. If any individual target score on an engagement is less than 70 points, the engagement is unqualified, regardless of overall engagement score.

4-11. Crews should perform Table IV, Basic, defensive engagements, on the crew's vehicle. It is designed to train and evaluate the crew's ability to engage single and multiple stationary and moving targets placed in a tactical array, during the day and night, with a fully operational or simulated degraded fire control system, as depicted in the task, conditions, and standard for each engagement. Crews execute these tasks from the defense using small arms ammunition.

4-12. Crews may execute this table using TADSS only when ammunition is unavailable or to conduct retraining after live-fire training is complete. Units should use 3/4 scale targets at full range for all scenarios but may consider using full-scale based on the unit's level of expertise.

PLAN—TABLE IV

4-13. Table IV, Basic, is a live environment, live-fire event that uses large and small caliber ammunition. It will require the use of appended training aids, devices, and simulators, and the use of BES during the defensive engagements.

4-14. Table IV is a live-fire event that consists of two task sets: zeroing, and defensive engagements. Each set requires particular attention during planning to ensure the unit has the appropriate support on the range(s).

4-15. This section details the resources needed for planning purposes. General information on topics for consideration are—

- Uniform—the minimum uniform requirements for the training event.
- Facilities—available facilities that support the training event.
- Standard targets—specifically used for zeroing procedures for the main gun and machine guns, these targets are required to conduct Table IV.
- Training plan—the minimum tasks, general guidelines, and special instructions for the training event.
- Time and throughput—the estimated time required to complete the training event including throughput considerations for planning.
- TADSS—any available training aids that directly support or augment the training event, or any training munitions required to complete the training event.

4-16. Table IV is a critical live-fire event. Failing to conduct the zeroing procedures for the platform accurately will cripple any follow-on live-fire event outcomes. Units can separate the zeroing procedures for the main gun and small arms from the defensive engagements to maximize throughput.

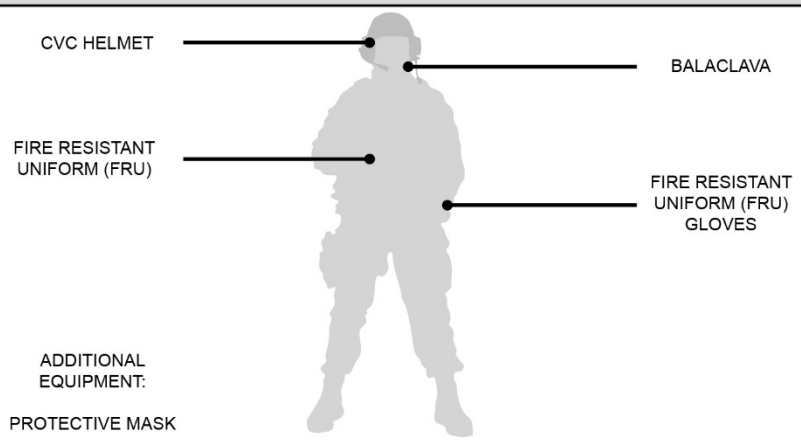
4-17. Units may require coordination with installation support activities such as range operations for specific targetry requirements for zeroing. Each installation’s policies and procedures vary. Units should reference their supporting installation’s training SOPs or policies for detailed information.

UNIFORM—TABLE IV

4-18. Crews must be in the appropriate vehicle crewmember uniform or prescribed unit uniform and protective mask. Crews are not required to have any additional body armor, ballistic plates, or gear during the training event unless directed by the commander. Figure 4-4 provides the minimum uniform training requirements this event.



TABLE IV
BASIC
UNIFORM REQUIREMENTS



LEVEL	S SKULL	T TORSO	E EYES	E EARS	L LIMBS
MINIMUM REQUIRED	3	4	1	3	3
0	NONE	NONE	NONE	NONE	NONE
1	PATROL CAP	VEST	**GOGGLES**	SINGLE EAR PROTECTION	GLOVES
2	HELMET	VEST with PLATES	BALLISTIC	DOUBLE EAR PROTECTION	LEATHER GLOVES
3	**BALACLAVA**	FRU		**CVC HELMET/ HEADSET**	**FRU GLOVES**
4		**FRU and SPALL VEST**			

Note: The Combat Vehicle Crewman (CVC) helmet includes the headset hearing protection. Goggles or appropriate eye protection are required for exposed crewmen during vehicle movement.

Figure 4-4. Uniform requirements for Table IV

FACILITIES—TABLE IV

4-19. Table IV requires the use of a stationary gunnery range or better that allows live-fire for large caliber and small-caliber ammunition. No course road is necessary; however, moving armor targets are required. All tasks are from a stationary firing position. To maximize throughput, units may elect to use multiple range facilities; one for zeroing procedures, and another for the defensive engagements that require single and multiple stationary and moving targetry. The maneuver range facilities recommended as primary and alternate facilities are shown in figure 4-5.



TABLE IV
BASIC
AUTHORIZED FACILITIES

FACILITY		TABLE IV, BASIC
Battle Area Complex	BAX	ALTERNATE
Digital Air Ground Integration Range	DAGIR	ALTERNATE
Digital/Multipurpose Range Complex	D/MPRC	ALTERNATE
Digital/Multipurpose Training Range	D/MPTR	**PRIMARY**
Scout/Reconnaissance Gunnery Complex	SRGC	ALTERNATE
Stationary Gunnery Range	STAGR	**ZERO ONLY**

Note: Units should consider using a separate facility to conduct zeroing procedures if it assists with increased throughput.

Figure 4-5. Recommended maneuver range facilities to support Table IV, Basic

RANGE SUPPORT—TABLE IV

4-20. The range support group provides VCE teams to evaluate the course of fire. This requires all gunners and above to certify or recertify as VCEs between T-6 and T-execution of the training event.

4-21. The range support personnel general requirements are in figure 4-6. This includes the most common support required for crew platform live-fire events. In the event the unit utilizes multiple facilities to complete the zero and defensive engagements, appropriate adjustments should be made to this general structure.

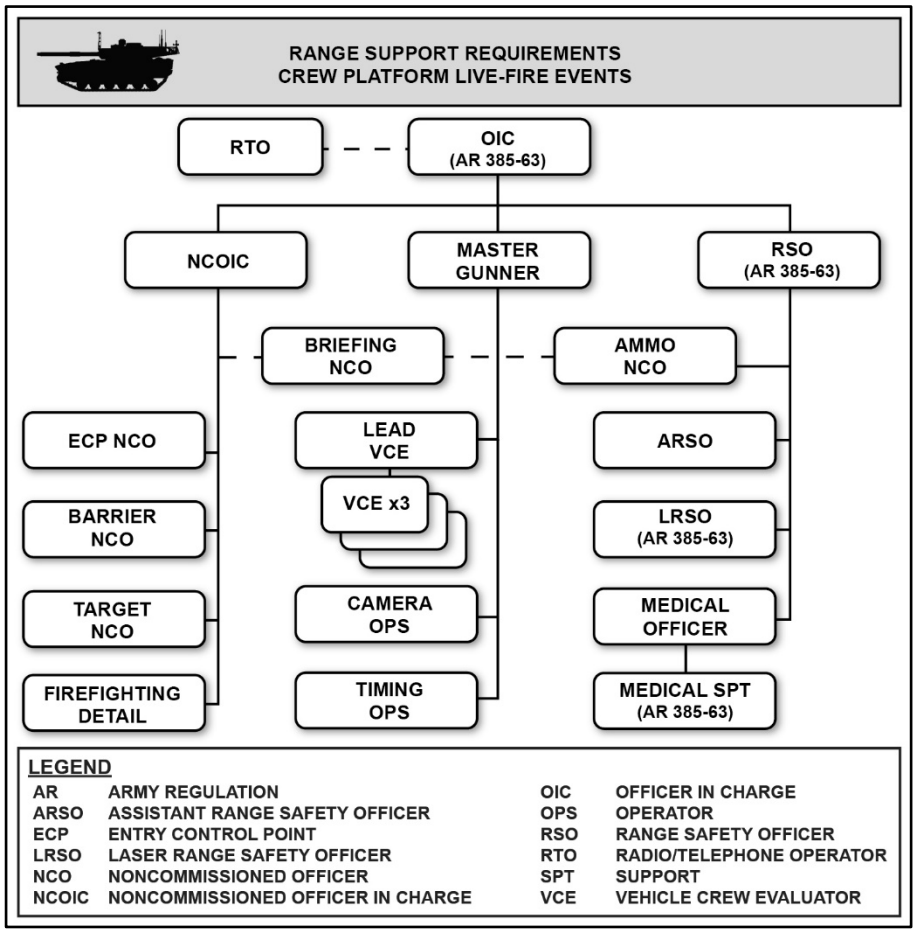


Figure 4-6. Range support personnel requirements, example

TRAINING PLAN—TABLE IV

4-22. Table IV is unique within the training strategy in that is completes two separate requirements for the crews on a live-fire facility or facilities. The training tasks are:

- Zeroing.
- Defensive engagements.

4-23. Some installations will offer or require the use of two separate facilities to complete Table IV: one specific to zeroing and another facility for stationary defensive engagements. Having multiple ranges is helpful to ensure sufficient time is available for vehicles having difficulty zeroing their weapons. An example conduct of the range flow is in figure 4-7. Units should consider requesting additional VCE support to maximize range time and prep-to-fire checks and bore sighting procedures before sending the first round downrange.



TABLE IV
BASIC
CONDUCT OF THE RANGE FLOW

	TASK	REMARKS
1	Zeroing	Completion of zero is required prior to any live fire engagements for evaluation.
2	Defensive Engagements	The order of firing of the defensive engagements is a commander's and Master Gunner's decision. Commanders may elect to fire some engagements at night.

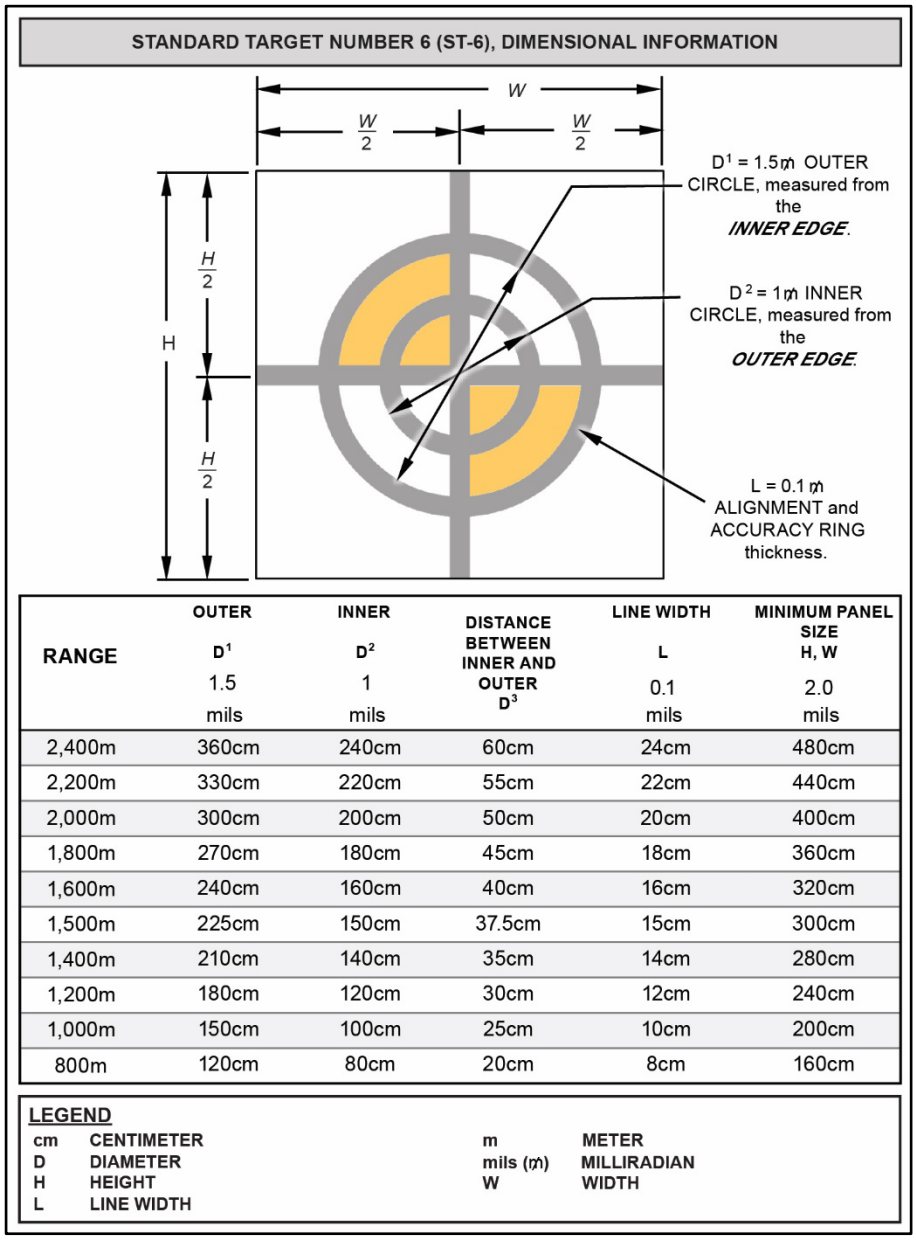
Figure 4-7. Table IV, Basic, conduct of the range flow example

Zero Procedures

4-24. Conduct of the zero is on a live-fire facility that can support primary armament as well as small arms surface danger zones. Crews will follow the procedures outlined in the vehicle's technical manual using a standard target number 6 (ST-6) panel at 500 meters, plus or minus 10 meters.

4-25. Master Gunners will record the strike of each primary armament round on the zero form and update DA Form 2408-4 (*Weapon Record Data*), where authorized by the commander, for each vehicle. Although the hard copy of the DA Form 2408-4 is in the vehicle's equipment record folder, the Master Gunner should consider consolidating the forms to ensure accuracy of information during the gunnery density.

4-26. Figure 4-8 on page 90 provides the ST-6 dimensional information for unit reference. Additional information can be found in TC 25-8.



RANGE	OUTER D1 1.5 mils	INNER D2 1 mils	DISTANCE BETWEEN INNER AND OUTER D3	LINE WIDTH L 0.1 mils	MINIMUM PANEL SIZE H, W 2.0 mils
2,400m	360cm	240cm	60cm	24cm	480cm
2,200m	330cm	220cm	55cm	22cm	440cm
2,000m	300cm	200cm	50cm	20cm	400cm
1,800m	270cm	180cm	45cm	18cm	360cm
1,600m	240cm	160cm	40cm	16cm	320cm
1,500m	225cm	150cm	37.5cm	15cm	300cm
1,400m	210cm	140cm	35cm	14cm	280cm
1,200m	180cm	120cm	30cm	12cm	240cm
1,000m	150cm	100cm	25cm	10cm	200cm
800m	120cm	80cm	20cm	8cm	160cm

LEGEND

cm	CENTIMETER	m	METER
D	DIAMETER	mils (m)	MILLIRADIAN
H	HEIGHT	W	WIDTH
L	LINE WIDTH		

Figure 4-8. ST-6 for dimensional information

4-27. Once complete with the zeroing process for each large caliber training munition type, the crew confirms the zero for the coaxially mounted machine gun and completes a test fire of their M2A1 machine gun. Crews follow the procedures outlined in the vehicle's technical manual. Figure 4-9 shows common small arms zero target information.

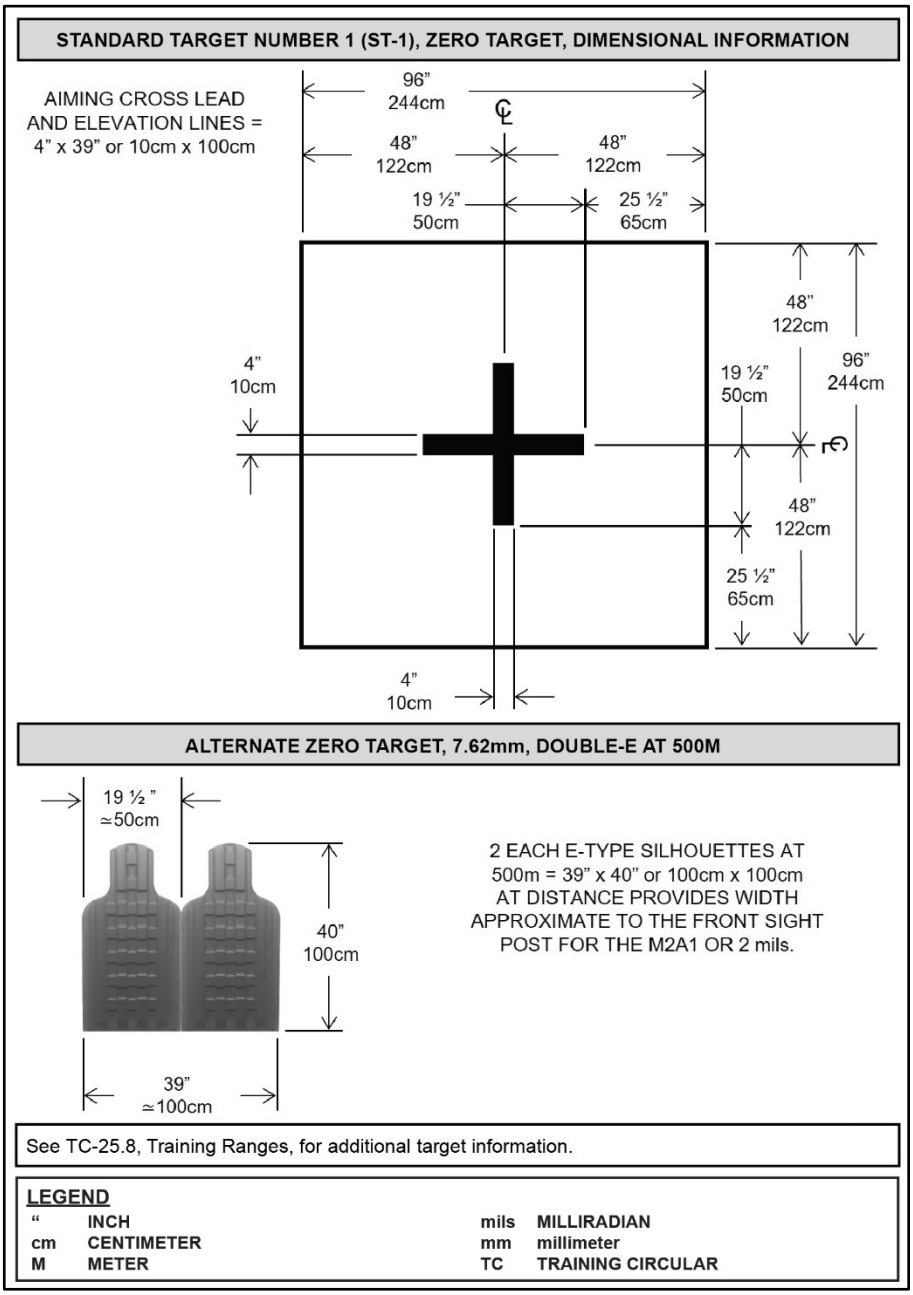


Figure 4-9. Heavy machine gun zero targets, example

4-28. Upon completion of this task, crews will conduct the defensive engagements based on the unit created conduct of the range plan.

Scenario Requirements for Table IV

4-29. This table is designed to train and evaluate the crew's ability to engage stationary or moving targets placed in a tactical array, from the defense, during day and limited visibility conditions.

4-30. All engagements are evaluated using certified VCEs using DA Form 8265 and DA Form 8265-1 as the official record of training. Master Gunners must ensure the training records are included in each crew's gunnery packet (see TC 3-20.31).

4-31. The engagements listings are by capability type using the standard engagement naming structure listed in TC 3-20.31. The requirements for each engagement are described in paragraphs 4-32 through 4-39.

Task Description for Table IV

4-32. The task description includes both the engagement number (the table number plus engagement task) followed by the system capability trained.

Firing Vehicle Posture for Table IV

4-33. The firing vehicle posture establishes the offense or defense condition for the engagement.

Firer—Table IV

4-34. The firer column identifies which crewmember is to engage the target listed. Targets defeated by a different crewmember listed as the firer result in an auto-zero penalty, failing to adhere to course conditions.

Weapon (or Ammunition)—Table IV

4-35. The capability type identifies the weapon (coaxial, caliber .50, or primary armament ammunition type) that is used to defeat the threat. Design of each engagement is for a specific weapon or ammunition type (primary armament) for use, which relates to the crew conduct of fire, optic selection, engagement techniques, or other unique implied tasks. Crews that fail to announce the appropriate weapon or ammunition, or appropriate selection for subsequent or supplemental engagements may be penalized IAW TC 3-20.31.

Target Type—Table IV

4-36. The target type column serves as a description of the target required for the presentation, IAW TC 25-8. The unit Master Gunner must ensure that target hit sensitivity settings on Digital Range Training System, or DRTS, and Targetry Range Automated Control and Recording, or TRACR, ranges are on the proper settings.

Target hit sensitivity settings

	Stationary Armored Target	Moving Armored Target
Main Gun	7	7
Caliber .50	13	11
7.62 mm	13	13

Target Posture—Table IV

4-37. The target posture establishes if the target is stationary, moving, or evasive for the engagement. See TC 3-20.31 for more information on target postures.

Range (to Target)—Table IV

4-38. The range column identifies the required range (full scale or equivalent scaled range) from the firing vehicle to the target. For offensive engagements, this distance calculation is from the center of the movement box to the target. The range to target distance is provided in meters and is displayed as a whole number, such as 600.

4-39. The target may be placed at the distance indicated, plus or minus 200 meters. For example, when the range to target is listed as 600 meters, the target may be placed between 400 meters and 800 meters. This allows flexibility designing the scenario on varying maneuver range facilities with different capabilities, target counts, emplacement locations, and terrain restrictions.

4-40. No change to the EM is authorized. The range bands listed with their applied tolerances do not require any adjustment to the EM. Units are not authorized to exceed the target placement tolerances.

Engagement Modifier—Table IV

4-41. The EM is the time in seconds required to achieve 100 points against the listed threat. To defeat the threat successfully, the crew must achieve the kill standard against the target and have an overall engagement time of no more than the EM plus 20 seconds. See TC 3-20.31 for the evaluation, timing, and scoring procedures.

Engagements

4-42. Figure 4-10 on page 94 shows the breakdown of what target type, target posture, range and weapon system/ammunition type used for each task number. Units are not allowed to deviate from any target type, target posture, range, and weapon system or ammunition type for Table IV, Basic, defensive only engagements.

TABLE IV, BASIC ENGAGEMENT REQUIREMENTS

TASK	DESCRIPTION	POSTURE	FIRER	WEAPON	TARGET TYPE	TARGET POSTURE	RANGE	EM
40	VEHICLE COMMANDER	DEFENSE	VC	CAL .50	L1T-FRT	STA	800m	12
41	MACHINE GUN PURE	DEFENSE	GNR	COAX	E(7)FRT	STA	400m	8
			GNR	COAX	L2T-FRT	STA	600m	9
42	MACHINE GUN PURE	DEFENSE	GNR	COAX	E(7)FRT	STA	600m	10
			GNR	COAX	L2T-FLK	MOV	600m	11
43	MACHINE GUN PURE	DEFENSE	GNR	COAX	L2T-FLK	MOV	600m	11
			GNR	COAX	L2T-FLK	MOV	600m	11
44	MACHINE GUN PURE	DEFENSE	GNR	COAX	E(7)FRT	STA	400m	8
			GNR	COAX	L2T-FRT	STA	600m	9
45	SIMULTANEOUS	DEFENSE	GNR	COAX	E(7)FRT	STA	600m	10
			VC	CAL .50	M2T-FRT	STA	600m	10
46	COMMANDER'S WEAPON SYSTEM (CWS)	DEFENSE	VC	CAL .50	M2T-FRT	STA	800m	11
47	COMMANDER'S WEAPON SYSTEM (CWS)	DEFENSE	VC	CAL .50	L2T-FLK	MOV	600m	13
48	COMMANDER'S WEAPON SYSTEM (CWS)	DEFENSE	VC	CAL .50	M2T-FRT	STA	600m	10
			VC	CAL .50	M4T-FRT	STA	800m	12
49	SIMULTANEOUS	DEFENSE	GNR	COAX	E(7)FRT	STA	600m	10
			VC	CAL .50	M2T-FRT	STA	600m	10
			GNR	COAX	L2T-FLK	MOV	600m	11

LEGEND

CAL .50	CALIBER .50	GNR	GUNNER
COAX	COAXIAL MACHINE GUN	m	METER
EM	ENGAGEMENT MODIFIER	MOV	MOVING
FLK	FLANK	STA	STATIONARY
FRT	FRONTAL	VC	VEHICLE COMMANDER

Figure 4-10. Table IV, Basic, defensive engagements scenario requirements

TIME AND THROUGHPUT—TABLE IV

4-43. The throughput expectation of this table is 14 crews per day. Depending on maintenance or other unforeseen issues, recommend incorporating an additional half training day to the schedule. Figure 4-11 shows the expected throughput schedule based on the number of vehicles for firing and the unit's day and night engagement breakdown for the engagements.

CREW PLATFORM WEAPON SYSTEM THROUGHPUT REQUIREMENTS

		NUMBER OF ENGAGEMENTS					
	DAY	8	7	6	5	4	
	NIGHT	2	3	4	5	6	
NUMBER OF CREWS	10	15.25	16.00	16.50	17.25	18.00	HOURS TO COMPLETE
	11	16.25	17.00	17.75	18.50	19.25	
	12	17.50	18.25	19.00	20.00	20.75	
	13	18.50	19.50	20.25	21.25	22.00	
	14	19.75	20.75	21.50	22.50	23.50	
	15	21.00	22.00	23.00	24.00	25.00	
	16	22.00	23.00	24.25	25.25	26.25	
	17	23.25	24.25	25.50	26.50	27.75	
	18	24.25	25.50	26.75	28.00	29.00	
	19	25.50	26.75	28.00	29.25	30.50	
	20	26.50	28.00	29.25	30.50	32.00	

Note: Overall time requirements are based on a single firing lane and include 4 hours of range maintenance down time (two blocks of 2 hours each). This is standard at most facilities. These calculations are for planning purposes only. Units that are more proficient in tower operations may have an increased throughput.

Any time shown exceeding 24 hours will not be possible in a single range day without unit action to conduct the range with a sense of urgency during preparation to fire tasks and execution of the table including tactical movement between engagements.

Figure 4-11. Table IV, throughput expectations

Note. Time requirements overall are based on a single firing point and include 4 hours of range maintenance down time (two blocks of 2 hours each). This is standard at most facilities. These calculations are for planning purposes only. Units that are more proficient in tower operations and have additional VCE support may have an increased throughput.

AMMUNITION—TABLE IV

4-44. Figure 4-12 provides the ammunition requirements for zeroing and conduct of Table IV, Basic. Units are required to include the BES as part of the Army-standard target presentations during training.



TABLE IV
BASIC
TRAINING AMMUNITION REQUIREMENTS

DODIC	MUNITION TYPE	QUANTITY
C511	CTG, 105-mm TP-T, M490A1	4
CA58	CTG, 105-mm TPDS-T M724A2	4
CA37	CTG, 105mm TP-T M467A1	4
AB86	CTG, 7.62-mm 4 ball M80/1 TRCR M62 LNKD	600
A557	CTG, .50 cal, 4 ball/1 TRCR LNKD M33 for M2	400
LA53	SIM, target hit XM35 (BES)–Steel-on-Steel	13
LA54	SIM, EXP DET XM34 (BES)–Hostile Fire Simulator	13

ADDITIONAL CERTIFICATIONS:



BES SYSTEMS



PYROTECHNICS

Certify junior leaders on the components, functioning, hazards, use, and troubleshooting of available Battle Effects Simulator (BES) systems.

Provides a working understanding of the components, functioning, emplacement, use, troubleshooting, and hazards when:

- Placing BES systems into operation.
- Synchronizing functioning.
- Installing BES cartridges
- Troubleshooting BES systems.
- Removing unused BES cartridges.
- Conducting safe operations of BES systems.

Includes zero ammunition for the coax and caliber .50 machine guns. Zeroing requirements for the machine gun is 50 rounds, 4:1 link per type.

LEGEND

CTG	CARTRIDGE	SIM	SIMULATOR
DODIC	DEPARTMENT OF DEFENSE IDENTIFICATION CODE	TPDS-T	TARGET PRACTICE DISCARDING SABOT-TRACER
EXP DET	EXPLOSIVE DETONATION	TP-T	TARGET PRACTICE-TRACER
LNKD	LINKED	TRCR	TRACER
mm	MILLIMETER		

Figure 4-12. Table IV, Basic, ammunition requirements

TRAINING AIDS, DEVICES, SIMULATORS, AND SIMULATIONS—TABLE IV

4-45. This course requires the use of the CMU (some installations may refer to this device as an IPU) for all crews. The CMU is available on the digital range facility scheduled (if equipped). Coordination with the scheduled range facility manager will determine unit responsibilities for installation, troubleshooting, maintenance, and use of the devices ahead of the training day(s). If the range does not have a CMU available, unit may draw the CMUR from the TADSS warehouse. The CMUR differs from the CMU in that it stores all run data on a solid-state drive on the vehicle, for use with the provided AAR suite in the CMUR kit.

4-46. The brigade commander must approve authorization for deviation from this requirement if TADSS are unavailable in writing. Units should focus on training and reinforcing the skills in the direct fire kill chain on this table specifically with their thermal optics, day and night to best prepare them for the follow-on training events. Figure 4-13 shows the TADSS required or recommended for Table IV.



TABLE IV
BASIC
TRAINING AIDS, DEVICES, SIMULATORS, AND SIMULATIONS (TADSS) REQUIREMENTS

DODIC	NOMENCLATURE	REMARKS
CMU	Crew Module Unit/Integrated Player Unit	REQUIRED
CMUR	Crew Module Unit Recorder (Through-Sight Video)	
T 17-114	105MM TANK TRAINING ROUND, M1040, CANISTER, DUMMY	CONCURRENT TRAINING
T 17-115	105MM TANK TRAINING ROUND, M393A3, HEP, DUMMY	CONCURRENT TRAINING
T 17-116	105MM TANK TRAINING ROUND, M900, SABOT, DUMMY	CONCURRENT TRAINING
T 17-117	105MM TANK TRAINING ROUND, M456A2, HEAT, DUMMY	CONCURRENT TRAINING
SP-1	BORESIGHT PANEL	REQUIRED

LEGEND

DODIC	DEPARTMENT OF DEFENSE IDENTIFICATION CODE	HEP	HIGH EXPLOSIVE PLASTIC
		MM	MILLIMETER
HEAT	HIGH EXPLOSIVE ANTITANK	SP-1	SPECIAL PANEL NUMBER ONE

Figure 4-13. Table IV, Basic, training aids, devices, simulators, and simulations requirements

PREPARE—TABLE IV

4-47. Units must coordinate for the appropriate training facility, equipment, targetry, training munitions, TADSS (if desired), and pyrotechnics to support Table IV. During the preparation phase, the unit should ensure the proofing team, VCEs, and other personnel receive training to standard to support their role as evaluators and trainers. This includes range officers in charge, range safety officers, and ammunition handlers.

TRAIN THE TRAINERS—TABLE IV

4-48. Units must certify each VC and gunner as VCEs prior to entering the live-fire density. Units must have certified evaluators to ensure the training objectives for the training table are set and to provide effective AARs to each crew. Table IV also requires experienced VCs to serve as the proofing team for the zero.

Vehicle Crew Evaluators

4-49. A trained and certified VCE team must be available to support prior to live-fire to evaluate a gunnery density correctly. Once certification is completed, the unit must ensure sufficient VCEs are available to support the live-fire event. Evaluations of crew gunnery always come from outside the firing platoon element, and for qualification purposes, VCEs external to the battalion are required.

4-50. Depending on the size of the weapons training density (make-up gunnery, platoon, company, or battalion) and the type of range facility used, the number of evaluators may vary. Having the correct number and type of evaluators per firing range maximizes the unit's throughput of firing vehicles on the range, reduce range down time, and provide for the highest quality evaluations. See TC 3-20.31 for more in-depth information on VCEs, the evaluation team, and the evaluation process.

Proofing Team

4-51. The unit Master Gunner provides training to the proofing team's members on the following topics at a minimum:

- Preparation to fire checks.
- Armament accuracy checks.
- Gun tube technology.
- Special gunnery checks.
- M1 gunner's quadrant.
- Zero procedures.
- Determination of mean point of impact.
- DA Form 2408-4.
- Fire control system overview.

4-52. These overview classes are required to ensure the Master Gunner has sufficient support during the zero, particularly with conduct of the range, procedures, and determining zero computer correction factors.

4-53. Units provide the following to prepare the trainers:

- Commander's training objectives.
- Conduct of the range briefing for the training event.
- Scenario and lane concept with crew tasks for training.
- Risk assessment.
- TADSS, pyrotechnics, blanks, and BES used during the training event (see appendix A for the training munitions requirements for the complete training strategy).

RECONNAISSANCE OF THE SITE—TABLE IV

4-54. Commanders use an authorized training facility for Table IV, Basic. Units may elect to use two separate training facilities to support all the Table IV tasks efficiently. Commanders follow the installation's policies and procedures for formally scheduling the training location as far in advance as practical. See TC 3-20.31 for more in-depth information concerning range operations at the unit level.

4-55. Once scheduled, the commander, Master Gunner, platoon leaders and platoon sergeants conduct a reconnaissance of the training areas to—

- Verify sufficient space is available to support the entire unit through multiple training lanes.
- Ensure multiple iterations or rotations through the scenario are achievable with appropriate retraining opportunities.
- Ensure sufficient administrative areas are available to support group discussions, briefings, and AARs.
- Provide sand table or terrain board.
- Identify the ASP.
- Determine the conduct of the range or the flow of training to maximize the live-fire range time.
- Identify the range operating system and verify the training scenarios have been properly loaded.
- Schedule proofing of the range, based on the higher headquarters OPORD.

ISSUE THE ORDER—TABLE IV

4-56. Commanders can issue an OPORD, WARNORD, or use the training schedule as necessary. The WARNORD should include the appropriate tasks, required leaders, and equipment needed, as well as the unit's training timeline including walk-through, rehearsals, and AARs. WARNORDs for external organizations must include sufficient reaction time for the appropriate personnel and equipment needed.

REHEARSE—TABLE IV

4-57. The unit uses all training resources, materials, and equipment available to conduct rehearsals of training events. During the rehearsal, commanders ensure their unit has sufficient time to train to the specified standard including AARs and retraining time. Commanders ensure their unit verifies optional scenarios that increase complexity when warranted.

4-58. Units should rehearse the training event from start to finish and confirm—

- The VCEs and proofing team understand the training scenarios and tasks.
- Sufficient space is available to provide appropriate distances for engagements ranges and target dispersion.
- Analog and digital systems are operational within the organization and to the higher headquarters regardless of their location.
- Additional crew training packages (DA Form 8265, DA Form 8265-1, and appropriate zero documentation) are complete and provide for multiple iterations.
- Sufficient administrative areas are available.
- A review of AAR capabilities is held, with the encouragement to use through-sight video systems to increase the fidelity and quality of the AARs.
- Location of retraining for crews as necessary.
- Accessibility to crew simulator systems, plumb and synchronization ramps, T&MBs, and additional bore sighting locations are available.

4-59. Once the unit completes the walk-through and training rehearsal, the commander may make any necessary adjustments to the plan and issue FRAGORDs as necessary.

EXECUTE—TABLE IV

4-60. Once the unit arrives at the training location, they should—

- Conduct a safety briefing for the training event.
- Provide a conduct of the range briefing to establish the sequence of events for the training day.
- Conduct sensitive item checks prior to executing training.
- Assign OC/Ts as appropriate.
- Issue the OPORD for the training mission.
- Execute the training scenario.
- Install any TADSS as required.
- Execute communication check to the tower and ensure each firing platform has operational frequency modulation and jump cable (hot mike) capability.

4-61. The training unit conducts informal AARs of each crew completing a phase of training within the training mission. During training, the assigned OC/T, executive officer, 1SG, and Master Gunner review the subordinate unit's performance. They follow the unit SOP, prescribed tactics, techniques, and procedures, and the appropriate training and evaluation outlines, and review completed crew score sheets and roll-up documentation for clarity and completeness.

ZEROING AGAINST SCREENING TARGET

4-62. Once crews have completed their prep-to-fire checks, bore sighting, and other alignment procedures, they conduct the zero procedures for the primary armament against an ST-6 screening target. The Master Gunner is responsible for controlling the firing order, vehicle movement, and procedures for zeroing from the vehicle technical manual.

4-63. The proofing team will check any crew that fails the zero process. The unit Master Gunner and maintenance chief will determine the most probable cause for the zero failure and take appropriate measures to correct the deficiencies, whether mechanical, ammunition specific, or crew induced.

4-64. Once the crew is complete with zero for all primary armament ammunition types, the crew completes coaxial machine gun zero. Typically, the VC and gunner is responsible for the conduct of the machine gun zeroing process after receiving clearance to fire from the tower.

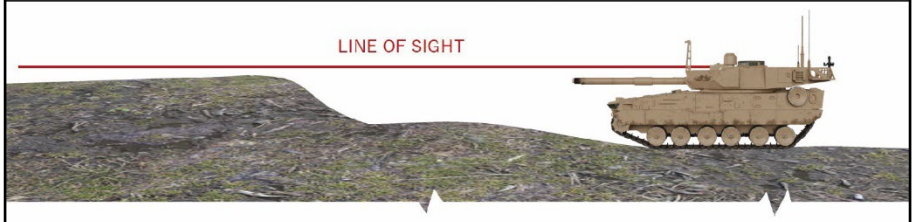
4-65. As the crew completes the zeroing process and is prepared to conduct the engagements phase, based on the conduct of the range, the crew will move to the designated holding area (firing order) and await instructions to proceed.

DEFENSIVE ENGAGEMENTS

4-66. As the tower is prepared to conduct the defensive engagements, they will control the movement of all vehicles in the firing order. The tower will direct the crew to the appropriate defensive firing position and await further instructions.

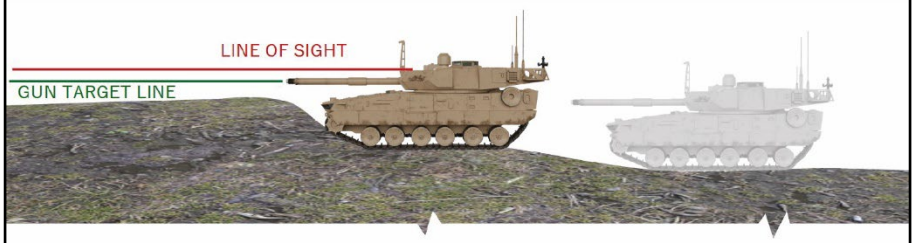
4-67. Once set, the tower directs the crew to test fire their machine guns, MOVE TO RED STATUS, and report when set. As the crew completes the test firing, they report SET to the tower. As the conduct of the range allows, the tower directs the crew to conduct the engagements for evaluation. Units must enforce the appropriate firing position within the battle positions to reinforce their proper tactical use as shown in figure 4-14 on page 102.

TURRET DOWN (DEFILADE) POSITION



During Cailber .50 engagements, the unit must train to engage threats from the DEFILADE or TURRET DOWN position with the commander's weapon. This is essential tactical requirement for the caliber .50 pure engagements to limit the vehicle's exposure to threats.

HULL DOWN (ENFILADE) POSITION



During coaxial or simultaneous engagements, the unit must train the crews to maximize their time in the DEFILADE (TURRET DOWN position) and only move forward to engage threats. Once complete with the engagement, rapidly move from the ENFILADE (HULL DOWN position) to the DEFILADE (TURRET DOWN position).

TEACHING POINT–In the enfilade, the gun tube must be a minimum of 8 inches-10 inches from the ground to the underside of the gun tube. This is to ensure the slower moving projectiles (main gun) are not impacted by the turbulent vortex reflecting off the ground upward. This causes the rounds to fly erratically, typically striking short of the point of aim.

Figure 4-14. Using defensive battle positions

ENGAGEMENT 40

4-68. The VC engagement fired from the VC's position using the commander's weapon (M2A1) as shown in figure 4-15 and the worksheet on figure 4-16 on page 104. It trains and evaluates the VC's ability to engage and destroy a single stationary threat with their heavy machine gun. This engagement should not be conducted at night (no thermal optic).

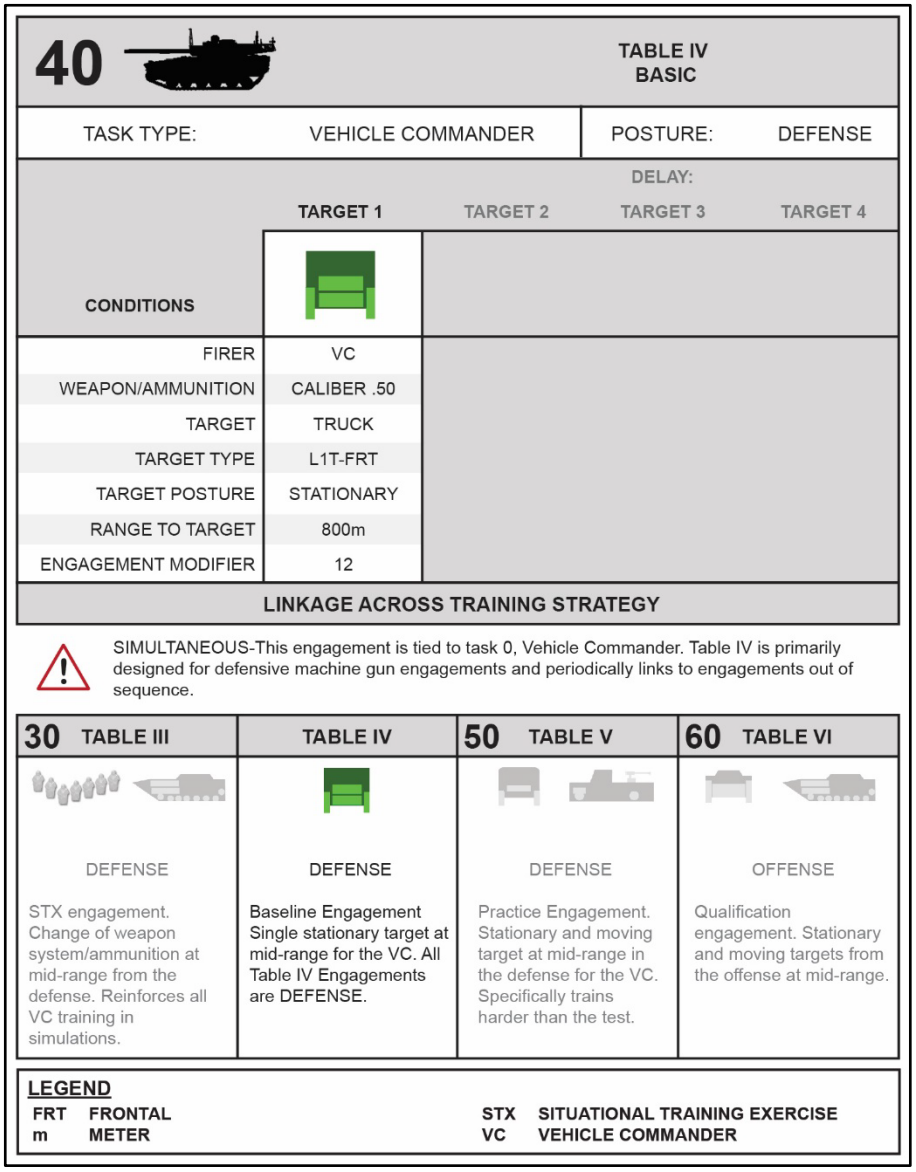


Figure 4-15. Engagement 40 overview

40 TARGET 1 TARGET 2 TARGET 3 TARGET 4

VEHICLE COMMANDER DEFENSE		

ENGAGEMENT AMMUNITION REQUIREMENTS

SABOT	HEAT	HEP	CAN	7.62mm	CAL .50	HOSTILE FIRE	STEEL ON STEEL
CA58	**C511**	**CA37**	**CA40**	**A111**	**A598**	**LA54**	**LA53**
					50	1	1

PREPARE FOR ENGAGEMENT

_____ THIS IS _____

PREPARE FOR DEFENSIVE OPERATIONS IN BATTLE POSITION _____

YOUR GUNNER'S POWER CONTROL HANDLES ARE INOPERATIVE. CONTINUE TO FIGHT.
CHECK YOUR CDR'S MACHINE GUN. REPORT REDCON ONE, OVER.

PROMPT

ALERT	_____ THIS IS _____
WEAPON/AMMO	CALIBER .50
TARGET DESCRIPTION	TRUCK
METHOD	
LOCATION	VICINITY _____ AND _____
RANGE	
CONTROLS	ENGAGE UPON POSITIVE IDENTIFICATION
EXECUTION	WEAPONS FREE, WEAPONS FREE.
CONTROLS	REPORT WHEN SECTOR CLEAR, OVER.

LEGEND

CAL .50	**CALIBER .50**	**HEP**	**HIGH EXPLOSIVE PLASTIC**
CAN	**CANISTER**	**mm**	**MILLIMETER**
CDR	**COMMANDER**	**REDCON**	**READINESS CONDITION**
HEAT	**HIGH EXPLOSIVE ANTITANK**		

Figure 4-16. Engagement 40 ammunition and script worksheet

ENGAGEMENT 41

4-69. This is a machine gun-pure engagement for the gunner. It trains target detection, acquisition, and machine gun engagement techniques from the defense (see figure 4-17 and the worksheet on figure 4-18 on page 106). Range bands are mid-range. Crews must tactically use the battle position and build stability in their forward and rearward movements.

41 

TABLE IV BASIC

TASK TYPE:	MACHINE GUN PURE	POSTURE:	DEFENSE
		DELAY:	25 SECONDS

CONDITIONS	TARGET 1	TARGET 2	TARGET 3	TARGET 4
				
FIRER	GUNNER	GUNNER		
WEAPON/AMMUNITION	COAX	COAX		
TARGET	TROOPS	TRUCK		
TARGET TYPE	E(7)-FRT	L2T-FRT		
TARGET POSTURE	STATIONARY	STATIONARY		
RANGE TO TARGET	400m	600m		
ENGAGEMENT MODIFIER	8	9		

LINKAGE ACROSS TRAINING STRATEGY

SIMULTANEOUS-This engagement is tied to task 2, Machine Gun Pure (Defense). Table IV is primarily designed for defensive machine gun engagements and periodically links to engagements out of sequence.

32 TABLE III	TABLE IV	52 TABLE V	62 TABLE VI
			
DEFENSE	DEFENSE	DEFENSE	OFFENSE
STX engagement. Multiple stationary short-range targets from the defense.	Baseline defense multiple stationary targets at mid-range. All Table IV Engagements are from the defense.	Practice Engagement. Multiple stationary targets at short to mid-range for the coax.	Qualification Engagement. Multiple troops and truck at close and mid-range on the offense.

LEGEND

COAX	COAXIAL MACHINE GUN	m	METER
FRT	FRONTAL	STX	SITUATIONAL TRAINING EXERCISE

Figure 4-17. Engagement 41 overview

41

TARGET 1	TARGET 2	TARGET 3	TARGET 4
MACHINE GUN PURE DEFENSE			

ENGAGEMENT AMMUNITION REQUIREMENTS

SABOT	HEAT	HEP	CAN	7.62mm	CAL .50	HOSTILE FIRE	STEEL ON STEEL
CA58	**C511**	**CA37**	**CA40**	**A111**	**A598**	**LA54**	**LA53**
				100		2	2

PREPARE FOR ENGAGEMENT

_____ THIS IS _____

PREPARE FOR DEFENSIVE OPERATIONS IN BATTLE POSITION _____

CHECK YOUR COAX MACHINE GUNS, REPORT REDCON ONE, OVER.

PROMPT

ALERT	_____ THIS IS _____
WEAPON/AMMO	COAX
TARGET DESCRIPTION	TROOPS AND TRUCK
METHOD	
LOCATION	VICINITY _____ AND _____
RANGE	
CONTROLS	ENGAGE UPON POSITIVE IDENTIFICATION
EXECUTION	WEAPONS FREE, WEAPONS FREE.
CONTROLS	REPORT WHEN SECTOR CLEAR, OVER.

LEGEND

CAL .50	**CALIBER .50**	**HEP**	**HIGH EXPLOSIVE PLASTIC**
CAN	**CANISTER**	**mm**	**MILLIMETER**
COAX	**COAXIAL MACHINE GUN**	**REDCON**	**READINESS CONDITION**
HEAT	**HIGH EXPLOSIVE ANTITANK**		

Figure 4-18. Engagement 41 ammunition and script worksheet

ENGAGEMENT 42

4-70. From a defensive posture, the gunner engages multiple machine gun threats at mid-range (see figure 4-19 and the worksheet on figure 4-20 on page 108). This engagement introduces the gunner to machine gun engagement techniques against stationary and moving threats while utilizing the battle position, verifying the gun tube is clear.

42 

TABLE IV BASIC

TASK TYPE:	MACHINE GUN PURE	POSTURE:	DEFENSE

CONDITIONS	TARGET 1	TARGET 2	DELAY: TARGET 3	TARGET 4
				
FIRER	GUNNER	GUNNER		
WEAPON / AMMUNITION	COAX	COAX		
TARGET	TROOPS	TECH TRUCK		
TARGET TYPE	E(7)-FRT	L2T-FLK		
TARGET POSTURE	STATIONARY	MOVING		
RANGE TO TARGET	600m	600m		
ENGAGEMENT MODIFIER	10	11		

LINKAGE ACROSS TRAINING STRATEGY

SIMULTANEOUS-This engagement is tied to task 2, Machine Gun Pure (Defense). Table IV is primarily designed for defensive machine gun engagements and periodically links to engagements out of sequence.

32 TABLE III	TABLE IV	52 TABLE V	62 TABLE VI
			
DEFENSE	DEFENSE	DEFENSE	OFFENSE
STX engagement. Multiple stationary short-range targets from the defense.	Baseline Engagements. Stationary and moving targets at mid-range from a defensive position. All Table IV Engagements are from the defense.	Practice Engagement. Multiple stationary targets at short to mid-range for the coax.	Qualification Engagement. Multiple troops and truck at close and mid-range on the offense.

LEGEND

COAX	COAXIAL MACHINE GUN	m	METER
FLK	FLANK	STX	SITUATIONAL TRAINING EXERCISE
FRT	FRONTAL	TECH	TECHNICAL

Figure 4-19. Engagement 42 overview

42 TARGET 1 TARGET 2 TARGET 3 TARGET 4

MACHINE GUN PURE

DEFENSE





ENGAGEMENT AMMUNITION REQUIREMENTS

SABOT	HEAT	HEP	CAN	7.62mm	CAL .50	HOSTILE FIRE	STEEL ON STEEL
CA58	**C511**	**CA37**	**CA40**	**A111**	**A598**	**LA54**	**LA53**
				100		2	2

PREPARE FOR ENGAGEMENT

_____ THIS IS _____

PREPARE FOR DEFENSIVE OPERATIONS IN BATTLE POSITION _____

CHECK YOUR COAX MACHINE GUN. REPORT REDCON ONE, OVER.

PROMPT

ALERT	_____ THIS IS _____
WEAPON/AMMO	COAX
TARGET DESCRIPTION	STATIONARY AND MOVING TRUCK IN SECTOR
METHOD	MOST DANGEROUS FIRST
LOCATION	VICINITY _____ AND _____
RANGE	
CONTROLS	ENGAGE UPON POSITIVE IDENTIFICATION
EXECUTION	WEAPONS FREE, WEAPONS FREE.
CONTROLS	REPORT WHEN SECTOR CLEAR, OVER.

LEGEND

CAL .50	**CALIBER .50**	**HEP**	**HIGH EXPLOSIVE PLASTIC**
CAN	**CANISTER**	**mm**	**MILLIMETER**
COAX	**COAXIAL MACHINE GUN**	**REDCON**	**READINESS CONDITION**
HEAT	**HIGH EXPLOSIVE ANTITANK**		

Figure 4-20. Engagement 42 ammunition and script worksheet

ENGAGEMENT 43

4-71. This engagement provides the gunner training on engagement techniques from the defilade position. The gunner engages multiple moving threats with the coaxial machine gun (see figure 4-21 and worksheet on figure 4-22 on page 110).

43 

TABLE IV BASIC

TASK TYPE:	MACHINE GUN PURE	POSTURE:	DEFENSE

CONDITIONS	TARGET 1	TARGET 2	DELAY: TARGET 3	TARGET 4
				
FIRER	GUNNER	GUNNER		
WEAPON / AMMUNITION	COAX	COAX		
TARGET	TECH TRUCK	TECH TRUCK		
TARGET TYPE	L2T-FLK	L2T-FLK		
TARGET POSTURE	MOVING	MOVING		
RANGE TO TARGET	600m	600m		
ENGAGEMENT MODIFIER	11	11		

LINKAGE ACROSS TRAINING STRATEGY

SIMULTANEOUS-This engagement is tied to task 2, Machine Gun Pure (Defense). Table IV is primarily designed for defensive machine gun engagements and periodically links to engagements out of sequence.

32 TABLE III	TABLE IV	52 TABLE V	62 TABLE VI
			
DEFENSE	DEFENSE	DEFENSE	OFFENSE
STX engagement. Multiple stationary short-range targets from the defense.	Multiple moving threats at mid range. All engagements on Table IV are fired from the DEFENSE.	Practice Engagement. Multiple stationary targets at short to mid-range for the coax.	Qualification Engagement. Multiple troops and truck at close and mid-range on the offense.

LEGEND

COAX	COAXIAL MACHINE GUN	STX	SITUATIONAL TRAINING EXERCISE
FLK	FLANK	TECH	TECHNICAL
m	METER		

Figure 4-21. Engagement 43 overview

43	TARGET 1	TARGET 2	TARGET 3	TARGET 4
MACHINE GUN PURE DEFENSE				

ENGAGEMENT AMMUNITION REQUIREMENTS

SABOT	HEAT	HEP	CAN	7.62mm	CAL .50	HOSTILE FIRE	STEEL ON STEEL
CA58	**C511**	**CA37**	**CA40**	**A111**	**A598**	**LA54**	**LA53**
				100		2	2

PREPARE FOR ENGAGEMENT

_____ THIS IS _____

PREPARE FOR DEFENSIVE OPERATIONS IN BATTLE POSITION _____

CHECK YOUR COAX MACHINE GUN. REPORT REDCON ONE, OVER.

PROMPT

ALERT	_____ THIS IS _____
WEAPON/AMMO	COAX
TARGET DESCRIPTION	MULTIPLE TECHNICAL TRUCKS MOVING IN SECTOR
METHOD	NEAR TO FAR
LOCATION	VICINITY _____
RANGE	
CONTROLS	ENGAGE UPON POSITIVE IDENTIFICATION
EXECUTION	WEAPONS FREE, WEAPONS FREE.
CONTROLS	REPORT WHEN SECTOR CLEAR, OVER.

LEGEND

CAL .50	**CALIBER .50**	**HEP**	**HIGH EXPLOSIVE PLASTIC**
CAN	**CANISTER**	**mm**	**MILLIMETER**
COAX	**COAXIAL MACHINE GUN**	**REDCON**	**READINESS CONDITION**
HEAT	**HIGH EXPLOSIVE ANTITANK**		

Figure 4-22. Engagement 43 ammunition and script worksheet

ENGAGEMENT 44

4-72. This engagement provides the gunner training on engagement techniques from the defilade position. (see figure 4-23 and worksheet on figure 4-24 on page 112). This engagement trains the gunner on coaxial machine gun gunnery techniques against short to mid-range threats and tactical use of the battle position.

44 

TABLE IV BASIC

TASK TYPE:	MACHINE GUN PURE	POSTURE:	DEFENSE

CONDITIONS	TARGET 1	TARGET 2	DELAY: TARGET 3	TARGET 4
				
FIRER	GUNNER	GUNNER		
WEAPON/AMMUNITION	COAX	COAX		
TARGET	TROOPS	TECH TRUCK		
TARGET TYPE	E(7)-FRT	L2T-FRT		
TARGET POSTURE	STATIONARY	STATIONARY		
RANGE TO TARGET	400m	600m		
ENGAGEMENT MODIFIER	8	9		

LINKAGE ACROSS TRAINING STRATEGY

SIMULTANEOUS-This engagement is tied to task 2, Machine Gun Pure (Defense). Table IV is primarily designed for defensive machine gun engagements and periodically links to engagements out of sequence.

32 TABLE III	TABLE IV	52 TABLE V	62 TABLE VI
			
DEFENSE	DEFENSE	DEFENSE	OFFENSE
STX engagement. Multiple stationary short-range targets from the defense.	Basic Engagement. Multiple stationary targets at short to mid-range. All engagements on Table IV are fired from the DEFENSE.	Practice Engagement. Multiple stationary targets at short to mid-range for the coax.	Qualification Engagement. Multiple troops and truck at close and mid-range on the offense.

LEGEND

COAX	COAXIAL MACHINE GUN	STX	SITUATIONAL TRAINING EXERCISE
FRT	FRONTAL	TECH	TECHNICAL
m	METER		

Figure 4-23. Engagement 44 overview

44 TARGET 1 TARGET 2 TARGET 3 TARGET 4

MACHINE GUN PURE DEFENSE			

ENGAGEMENT AMMUNITION REQUIREMENTS

SABOT	HEAT	HEP	CAN	7.62mm	CAL .50	HOSTILE FIRE	STEEL ON STEEL
CA58	**C511**	**CA37**	**CA40**	**A111**	**A598**	**LA54**	**LA53**
				100		1	1

PREPARE FOR ENGAGEMENT

_____ THIS IS _____

PREPARE FOR DEFENSIVE OPERATIONS IN BATTLE POSITION _____

CHECK YOUR COAX MACHINE GUN. REPORT REDCON ONE, OVER.

PROMPT

ALERT	_____ THIS IS _____
WEAPON/AMMO	COAX
TARGET DESCRIPTION	TROOPS AND TRUCK
METHOD	
LOCATION	VICINITY _____ AND_____
RANGE	
CONTROLS	ENGAGE UPON POSITIVE IDENTIFICATION
EXECUTION	WEAPONS FREE, WEAPONS FREE.
CONTROLS	REPORT WHEN SECTOR CLEAR, OVER.

LEGEND

CAL .50	**CALIBER .50**	**HEP**	**HIGH EXPLOSIVE PLASTIC**
CAN	**CANISTER**	**mm**	**MILLIMETER**
COAX	**COAXIAL MACHINE GUN**	**REDCON**	**READINESS CONDITION**
HEAT	**HIGH EXPLOSIVE ANTITANK**		

Figure 4-24. Engagement 44 ammunition and script worksheet

ENGAGEMENT 45

4-73. This engagement challenges the crew with a simultaneous defensive engagement (see figure 4-25 and worksheet on figure 4-26 on page 114). The ranges are extended to provide additional rigor for the crew.

45 

TABLE IV BASIC

TASK TYPE:	SIMULTANEOUS	POSTURE:	DEFENSE

CONDITIONS	TARGET 1	TARGET 2	DELAY: TARGET 3	TARGET 4
				
FIRER	GUNNER	VC		
WEAPON/AMMUNITION	COAX	CALIBER .50		
TARGET	TROOPS	BTR		
TARGET TYPE	E(7)-FRT	M2T-FRT		
TARGET POSTURE	STATIONARY	STATIONARY		
RANGE TO TARGET	600m	600m		
ENGAGEMENT MODIFIER	10	10		

LINKAGE ACROSS TRAINING STRATEGY

SIMULTANEOUS-This engagement is tied to task 9, Simultaneous. Table IV is primarily designed for defensive machine gun engagements and periodically links to engagements out of sequence.

39 TABLE III	TABLE IV	59 TABLE V	69 TABLE VI
			
DEFENSE	DEFENSE	OFFENSE	DEFENSE
STX Engagement. Simultaneous small arms engagement against multiple stationary targets at mid-range from the defense.	Basic Engagement. Simultaneous small arms engagement against multiple stationary targets at mid to long range from the defense. All engagements on Table IV are fired from the DEFENSE.	Multiple stationary targets followed a delay target on the offense at mid-range.	Qualification Engagement. Multiple stationary targets followed by a delay target from a defensive fighting position at mid to long-range.

LEGEND

BTR	BRONETRANSPORTYOR	m	METER
COAX	COAXIAL MACHINE GUN	STX	SITUATIONAL TRAINING EXERCISE
FRT	FRONTAL	VC	VEHICLE COMMANDER

Figure 4-25. Engagement 45 overview

45

TARGET 1	TARGET 2	TARGET 3	TARGET 4
SIMULTANEOUS DEFENSE			

ENGAGEMENT AMMUNITION REQUIREMENTS

SABOT	HEAT	HEP	CAN	7.62mm	CAL .50	HOSTILE FIRE	STEEL ON STEEL
CA58	**C511**	**CA37**	**CA40**	**A111**	**A598**	**LA54**	**LA53**
				50	50	1	1

PREPARE FOR ENGAGEMENT

_____ THIS IS _____

PREPARE FOR DEFENSIVE OPERATIONS IN BATTLE POSITION _____

CHECK YOUR CALIBER FIFTY AND COAX MACHINE GUNS. REPORT REDCON ONE, OVER.

PROMPT

ALERT	_____ THIS IS _____
WEAPON/AMMO	MACHINE GUNS
TARGET DESCRIPTION	TROOPS AND BTR
METHOD	SIMULTANEOUS
LOCATION	VICINITY _____ AND_____
RANGE	
CONTROLS	ENGAGE UPON POSITIVE IDENTIFICATION
EXECUTION	WEAPONS FREE, WEAPONS FREE.
CONTROLS	REPORT WHEN SECTOR CLEAR, OVER.

LEGEND

BTR	**BRONETRANSPORTYOR**	**HEAT**	**HIGH EXPLOSIVE ANTITANK**
CAL .50	**CALIBER .50**	**HEP**	**HIGH EXPLOSIVE PLASTIC**
CAN	**CANISTER**	**mm**	**MILLIMETER**
COAX	**COAXIAL MACHINE GUN**	**REDCON**	**READINESS CONDITION**

Figure 4-26. Engagement 45 ammunition and script worksheet

ENGAGEMENT 46

4-74. This is a commander's weapon station engagement using the commander's machine gun (see figure 4-27 and worksheet on figure 4-28 on page 116). This engagement trains the VC on a stationary mid-range target from the defilade position.

46 

TABLE IV BASIC

TASK TYPE: COMMANDER'S WEAPON SYSTEM (CWS)	POSTURE: DEFENSE

DELAY:

CONDITIONS	TARGET 1 	TARGET 2	TARGET 3	TARGET 4
FIRER	VC			
WEAPON/AMMUNITION	CALIBER .50			
TARGET	BTR			
TARGET TYPE	M2T-FRT			
TARGET POSTURE	STATIONARY			
RANGE TO TARGET	800m			
ENGAGEMENT MODIFIER	11			

LINKAGE ACROSS TRAINING STRATEGY

VEHICLE COMMANDER-This engagement is tied to task 0, Vehicle Commander. Table IV is primarily designed for defensive machine gun engagements and periodically links to engagements out of sequence.

30 TABLE III	TABLE IV	50 TABLE V	60 TABLE VI
			
DEFENSE	DEFENSE	DEFENSE	OFFENSE
STX engagement. Change of weapon system/ammunition at mid-range from the defense. Reinforces all VC training in simulations.	Basic Engagement. Stationary target at mid-range for the VC. All engagements on Table IV are fired from the DEFENSE.	Practice Engagement. Stationary and moving target at mid-range in the defense for the VC. Specifically trains harder than the test.	Qualification engagement. Stationary and moving targets from the offense at mid-range.

LEGEND

BTR	BRONETRANSPORTYOR	STX	SITUATIONAL TRAINING EXERCISE
FRT	FRONTAL	VC	VEHICLE COMMANDER
m	METER		

Figure 4-27. Engagement 46 overview

46 TARGET 1 TARGET 2 TARGET 3 TARGET 4

COMMANDER'S WEAPON SYSTEM (CWS)

DEFENSE



ENGAGEMENT AMMUNITION REQUIREMENTS

SABOT	HEAT	HEP	CAN	7.62mm	CAL .50	HOSTILE FIRE	STEEL ON STEEL
CA58	**C511**	**CA37**	**CA40**	**A111**	**A598**	**LA54**	**LA53**
					50	1	1

PREPARE FOR ENGAGEMENT

_____ THIS IS _____

PREPARE FOR DEFENSIVE OPERATIONS IN BATTLE POSITION _____

CHECK YOUR CALIBER FIFTY MACHINE GUN. REPORT REDCON ONE, OVER.

PROMPT

ALERT	_____ THIS IS _____
WEAPON/AMMO	CALIBER .50
TARGET DESCRIPTION	RECONNAISSANCE IN SECTOR
METHOD	
LOCATION	VICINITY _____ AND _____
RANGE	
CONTROLS	ENGAGE UPON POSITIVE IDENTIFICATION
EXECUTION	WEAPONS FREE, WEAPONS FREE.
CONTROLS	REPORT WHEN SECTOR CLEAR, OVER.

LEGEND

CAL .50	**CALIBER .50**	**HEP**	**HIGH EXPLOSIVE PLASTIC**
CAN	**CANISTER**	**mm**	**MILLIMETER**
HEAT	**HIGH EXPLOSIVE ANTITANK**	**REDCON**	**READINESS CONDITION**

Figure 4-28. Engagement 46 ammunition and script worksheet

ENGAGEMENT 47

4-75. This engagement is for the VC using the commander's machine gun (see figure 4-29 and worksheet on figure 4-30 on page 118). This engagement trains the VC on a moving target at long-range from the defilade position.

47 

TABLE IV BASIC

TASK TYPE: COMMANDER'S WEAPON SYSTEM (CWS)	POSTURE: DEFENSE

CONDITIONS	TARGET 1	TARGET 2	DELAY: TARGET 3	TARGET 4
				
FIRER	VC			
WEAPON/AMMUNITION	CALIBER .50			
TARGET	TRUCK			
TARGET TYPE	L2T-FLK			
TARGET POSTURE	MOVING			
RANGE TO TARGET	600m			
ENGAGEMENT MODIFIER	13			

LINKAGE ACROSS TRAINING STRATEGY

VEHICLE COMMANDER-This engagement is tied to task 0, Vehicle Commander. Table IV is primarily designed for defensive machine gun engagements and periodically links to engagements out of sequence.

30 TABLE III	TABLE IV	50 TABLE V	60 TABLE VI
			
DEFENSE	DEFENSE	DEFENSE	OFFENSE
STX engagement. Change of weapon system/ammunition at mid-range from the defense. Reinforces all VC training in simulations.	Basic Engagement. Stationary target at mid-range for the VC. All engagements on Table IV are fired from the DEFENSE.	Practice Engagement. Stationary and moving target at mid-range in the defense for the VC. Specifically trains harder than the test.	Qualification engagement. Stationary and moving targets from the offense at mid-range.

LEGEND

FLK	FLANK	STX	SITUATIONAL TRAINING EXERCISE
m	METER	VC	VEHICLE COMMANDER

Figure 4-29. Engagement 47 overview

47 TARGET 1 TARGET 2 TARGET 3 TARGET 4

COMMANDER'S WEAPON SYSTEM (CWS)

DEFENSE



ENGAGEMENT AMMUNITION REQUIREMENTS

SABOT	HEAT	HEP	CAN	7.62mm	CAL .50	HOSTILE FIRE	STEEL ON STEEL
CA58	**C511**	**CA37**	**CA40**	**A111**	**A598**	**LA54**	**LA53**
					50	2	2

PREPARE FOR ENGAGEMENT

_____ THIS IS _____

PREPARE FOR DEFENSIVE OPERATIONS IN BATTLE POSITION _____

CHECK YOUR CALIBER FIFTY MACHINE GUN. REPORT REDCON ONE, OVER.

PROMPT

ALERT	_____ THIS IS _____
WEAPON/AMMO	CALIBER .50
TARGET DESCRIPTION	MOVING TRUCK IN SECTOR
METHOD	
LOCATION	VICINITY _____ AND _____
RANGE	
CONTROLS	ENGAGE UPON POSITIVE IDENTIFICATION
EXECUTION	WEAPONS FREE, WEAPONS FREE.
CONTROLS	REPORT WHEN SECTOR CLEAR, OVER.

LEGEND

CAL .50	**CALIBER .50**	**HEP**	**HIGH EXPLOSIVE PLASTIC**
CAN	**CANISTER**	**mm**	**MILLIMETER**
HEAT	**HIGH EXPLOSIVE ANTITANK**	**REDCON**	**READINESS CONDITION**

Figure 4-30. Engagement 47 ammunition and script worksheet

ENGAGEMENT 48

4-76. This engagement is for the VC using the commander's machine gun (see figure 4-31 and worksheet on figure 4-32 on page 120). This requires the VC to engage multiple stationary targets at mid to long-range from the defilade position.

48 

TABLE IV BASIC

TASK TYPE: COMMANDER'S WEAPON SYSTEM (CWS)			POSTURE: DEFENSE	
			DELAY:	
	TARGET 1	TARGET 2	TARGET 3	TARGET 4
CONDITIONS				
FIRER	VC	VC		
WEAPON/AMMUNITION	CALIBER .50	CALIBER .50		
TARGET	BTR	BRDM		
TARGET TYPE	M2T-FRT	M4T-FRT		
TARGET POSTURE	STATIONARY	STATIONARY		
RANGE TO TARGET	600m	800m		
ENGAGEMENT MODIFIER	10	12		

LINKAGE ACROSS TRAINING STRATEGY

VEHICLE COMMANDER-This engagement is tied to task 0, Vehicle Commander. Table IV is primarily designed for defensive machine gun engagements and periodically links to engagements out of sequence.

30 TABLE III	TABLE IV	50 TABLE V	60 TABLE VI
			
DEFENSE	DEFENSE	DEFENSE	OFFENSE
STX engagement. Change of weapon system/ammunition at mid-range from the defense. Reinforces all VC training in simulations.	Basic Engagement. Multiple stationary targets for the VC at mid to long-range from the defense. All engagements on Table IV are fired from the DEFENSE.	Practice Engagement. Stationary and moving target at mid-range in the defense for the VC. Specifically trains harder than the test.	Qualification engagement. Stationary and moving targets from the offense at mid-range.

LEGEND

BRDM	BOYEVAYA RAZVEDYVATELNAYA DOZORNAYA MASHINA	m	METER
BTR	BRONETRANSPORTYOR	STX	SITUATIONAL TRAINING EXERCISE
FRT	FRONTAL	VC	VEHICLE COMMANDER

Figure 4-31. Engagement 48 overview

48

TARGET 1	TARGET 2	TARGET 3	TARGET 4
COMMANDER'S WEAPON SYSTEM (CWS) **DEFENSE**			

ENGAGEMENT AMMUNITION REQUIREMENTS

SABOT	HEAT	HEP	CAN	7.62mm	CAL .50	HOSTILE FIRE	STEEL ON STEEL
CA58	**C511**	**CA37**	**CA40**	**A111**	**A598**	**LA54**	**LA53**
					100	1	1

PREPARE FOR ENGAGEMENT

_____ THIS IS _____

PREPARE FOR DEFENSIVE OPERATIONS IN BATTLE POSITION _____

CHECK YOUR CALIBER FIFTY MACHINE GUN. REPORT REDCON ONE, OVER.

PROMPT

ALERT	_____ THIS IS _____
WEAPON/AMMO	CALIBER .50
TARGET DESCRIPTION	BTR AND BRDM IN SECTOR
METHOD	MOST DANGEROUS FIRST
LOCATION	VICINITY _____ AND _____
RANGE	
CONTROLS	ENGAGE UPON POSITIVE IDENTIFICATION
EXECUTION	WEAPONS FREE, WEAPONS FREE.
CONTROLS	REPORT WHEN SECTOR CLEAR, OVER.

LEGEND

BRDM	**BOYEVAYA RAZVEDYVATELNAYA DOZORNAYA MASHINA**	**HEAT**	**HIGH EXPLOSIVE ANTITANK**
BTR	**BRONETRANSPORTYOR**	**HEP**	**HIGH EXPLOSIVE PLASTIC**
CAL .50	**CALIBER .50**	**mm**	**MILLIMETER**
CAN	**CANISTER**	**REDCON**	**READINESS CONDITION**

Figure 4-32. Engagement 48 ammunition and script worksheet

ENGAGEMENT 49

4-77. This engagement is a simultaneous engagement fired from the defense where the gunner and VC must acquire and defeat threats using their machine guns (see figure 4-33 and worksheet on figure 4-34 on page 122). This introduces the crew to simultaneous engagements against stationary and moving targets, causing a challenging complex lead-angle for the VC.

49

TABLE IV BASIC

TASK TYPE:	SIMULTANEOUS	POSTURE:	DEFENSE
		DELAY:	25 SECONDS

CONDITIONS	TARGET 1	TARGET 2	TARGET 3	TARGET 4
FIRER	GUNNER	VC	GUNNER	
WEAPON/AMMUNITION	COAX	CALIBER .50	COAX	
TARGET	TROOPS	BTR	TECH TRUCK	
TARGET TYPE	E(7)-FRT	M2T-FRT	L2T-FLK	
TARGET POSTURE	STATIONARY	STATIONARY	MOVING	
RANGE TO TARGET	600m	600m	600m	
ENGAGEMENT MODIFIER	10	10	11	

LINKAGE ACROSS TRAINING STRATEGY

TABLE III	TABLE IV	TABLE V	TABLE VI
DEFENSE	DEFENSE	OFFENSE	DEFENSE
STX Engagement. Simultaneous small arms engagement against multiple stationary targets at mid-range from the defense.	Basic Engagement. Simultaneous against multiple stationary and a moving delay target at mid-range. All engagements on Table IV are fired from the DEFENSE.	Practice engagement. Multiple stationary targets followed by a delay target on the offense at mid-range.	Qualification Engagement. Multiple stationary targets followed by a delay target from a defensive fighting position at mid to long-range.

LEGEND

BTR	BRONETRANSPORTYOR	m	METER
COAX	COAXIAL MACHINE GUN	STX	SITUATIONAL TRAINING EXERCISE
FLK	FLANK	TECH	TECHNICAL
FRT	FRONTAL	VC	VEHICLE COMMANDER

Figure 4-33. Engagement 49 overview

49

TARGET 1	TARGET 2	TARGET 3	TARGET 4
SIMULTANEOUS **DEFENSE**				

ENGAGEMENT AMMUNITION REQUIREMENTS

SABOT	HEAT	HEP	CAN	7.62mm	CAL .50	HOSTILE FIRE	STEEL ON STEEL
CA58	**C511**	**CA37**	**CA40**	**A111**	**A598**	**LA54**	**LA53**
				100	50	2	2

PREPARE FOR ENGAGEMENT

_____ THIS IS _____

PREPARE FOR DEFENSIVE OPERATIONS IN BATTLE POSITION _____

CHECK CALIBER FIFTY AND COAX MACHINE GUNS. REPORT REDCON ONE, OVER.

PROMPT

ALERT	_____ THIS IS _____
WEAPON/AMMO	CALIBER .50 AND COAX
TARGET DESCRIPTION	TROOPS WITH PC, TRUCK MOVING IN SUPPORT
METHOD	SIMULTANEOUS
LOCATION	VICINITY _____ AND _____
RANGE	
CONTROLS	ENGAGE UPON POSITIVE IDENTIFICATION
EXECUTION	WEAPONS FREE, WEAPONS FREE.
CONTROLS	REPORT WHEN SECTOR CLEAR, OVER.

LEGEND

CAL .50	**CALIBER .50**	**HEP**	**HIGH EXPLOSIVE PLASTIC**
CAN	**CANISTER**	**mm**	**MILLIMETER**
COAX	**COAXIAL MACHINE GUN**	**PC**	**PERSONNEL CARRIER**
HEAT	**HIGH EXPLOSIVE ANTITANK**	**REDCON**	**READINESS CONDITION**

Figure 4-34. Engagement 49 ammunition and script worksheet

ASSESS—TABLE IV

4-78. The intent of the basic course of fire is to train the crews within the organization on the appropriate conduct of fire skills in a defensive posture against common threat arrays using machine guns. Proper evaluation and assessment of crew performance is key to improving individual and crew skills prior to moving to the practice and qualification course of fire. This includes conducting AARs for the zeroing, and the live-fire engagements.

ZEROING—TABLE IV

4-79. For Table IV, the zeroing portion of the event is a maintenance and crew confidence exercise. The crew must ensure the fire control system is functioning as intended after all prep-to-fire procedures have been complete. In doing so, it provides the crew confidence in the procedures, policies, equipment, ammunition, and their own skill. The platoon sergeant or Master Gunner should provide an informal AAR for zeroing procedures that includes at a minimum—

- Actions for each ammunition type.
- Location of hits for each ammunition type.
- Review of fixed biases, variable biases, and random errors that contribute to the accuracy of the round.
- Zeroing procedures for each machine gun.
- Methods to reduce round-to-round dispersion and crew error.

DEFENSIVE ENGAGEMENTS AAR

4-80. Each crew should receive a formal AAR following the guidelines found in TC 3-20.31. Each evaluator should use DA Form 8265 and DA Form 8265-1 as the basis for their evaluation, identifying the firing occasional information from the score sheet timelines. The evaluator and VC each review and sign the DA Form 8265-1.

Note. VCEs must be certified or recertified as described in TC 3-20.31. Performing the duties as a VCE during the conduct of Table IV, Basic is a significant part of building experience and knowledge of those gunners and VCs without firing.

4-81. Units should track the various firing information from the score sheets to identify where in the conduct of fire crews and the overall unit should apply additional training effort. Some of those indicators are—

- Target acquisition, detection, and identification.
- Time to fire.
- Time to kill.
- Opening and closing times for machine gun engagements.
- Gunner lay errors.
- Scanning techniques.
- Engagement techniques.
- Conduct of fire issues.
- Penalties by type.
- Retraining.

4-82. The unit Master Gunner maintains the unit roll-up by engagement. A subcategorized roll-up by platoons provides the commander a snapshot of training trends, strengths, and weaknesses. The Master Gunner should not only identify crews that did not achieve a passing standard, but also crews that struggled on specific engagement tasks. Once done, the unit can establish and conduct the appropriate focused retraining followed by a subsequent evaluation.

Note. All crews should successfully complete the course of fire based on the standards for the engagements listed earlier in this chapter. No crew should proceed to Table V or any other live-fire event until they have achieved the minimum standard on Table IV. The commander and Master Gunner may assess the crews' capability to proceed without qualifying the table based on target acquisition, target kills, fire commands and engagement techniques without achieving the minimum standard.

4-83. Unit Master Gunners should include chair drills for the crews using the scenarios for each engagement for retraining purposes. Consider including additional low-impact training drills to meet the demands of the 3 and 4 target engagements. Units should include future table's engagements (Table V and Table VI, respectively) in the chair drills training to best prepare the crews for those events. Additional information on chair drills is in TC 3-20.31.

Chapter 5
Table V–Practice

Crew platform, Table V, Practice, is a live-environment training event under live-fire conditions using full-caliber training ammunition, 3/4 scale realistic targetry and engagement scenarios, at a combat tempo on an authorized live-fire facility. This table reinforces the basic skills trained during previous events to build leader and element tactical and technical mastery.

This table includes execution of critical skills in a live environment. Table V prepares the crew to employ their weapons and systems against most common threat scenarios using prescribed targetry to a required standard.

Note. This table requires the use of 3/4-scale targets to reinforce crew engagement speed and precision prior to qualification.

OVERVIEW—TABLE V

5-1. Table V, Practice, serves as a means to train and evaluate the crew's ability to engage stationary or moving targets placed in a tactical array, during day and limited visibility conditions, with an operational or simulated degraded fire control system, as applicable. Crews execute these tasks from the offense and defense using full-caliber ammunition against 3/4 scale targets placed at full range.

5-2. This table requires each crew to successfully complete the live-fire prerequisites, all zeroing procedures for their platform, and complete the defensive engagements on Table IV prior to the conducting Table VI. This table is designed to train complex engagement skills, day and night, while fighting from the defense and during offensive engagements.

5-3. Figure 5-1 on page 126 shows where Table V, Practice, resides within the medium tank training strategy through crew qualification. Table V is the first live-fire event where the crew conducts live-fire main gun engagements from the defense as well as complex engagements on the offense. It is a core training event for the crews that provides experience across multifaceted tactical dilemmas at a battlefield tempo.

CREW TABLE V	TABLE I	TABLE II	TABLE III	TABLE IV	TABLE V	TABLE VI
	CRAWL	*CRAWL*	*WALK*	*RUN*	*RUN*	*RUN*
	Live	Virtual	Live TADSS	Live-Fire	Live-Fire	Live-Fire
	GST	STX-V	STX	BASIC	PRACTICE	QUAL

This event is not required; however, the majority of high payoff skills, engagement techniques, firing positions, and other critical tactical employment tasks are trained and reinforced during this course of fire.

Units that fail to include Table V in their unit training plan dramatically reduce the crew's ability to qualify their platform on the first attempt and reduce the unit's lethality.

In general, crew platforms have a minimum of 2,400 basic engagement possibilities the crews should experience to achieve proficiency. The training strategy leverages simulations to provide those engagement experiences to each crew. Select, high-payoff engagements that demonstrate performance on critical engagement skills are conducted during crew live-fire training. Failure to provide Table V to the crews cuts the crew's potential lethality by 50 percent.

LEGEND

GST	GUNNERY SKILLS TEST OR GUNNER'S/FIRE DIRECTION CENTER EXAM	STX-V	SITUATIONAL TRAINING EXERCISE-VIRTUAL
QUAL	QUALIFICATION	TADSS	TRAINING AIDS, DEVICES, SIMULATORS, AND SIMULATIONS
STX	SITUATIONAL TRAINING EXERCISE		

Figure 5-1. Table V, Practice

PURPOSE—TABLE V

5-4. Table V is a skills assessment and risk mitigation tool for the commander. It assists the commander in determining the safe and effective use of the platform, its weapons, identification of threats and common ammunition by the crewmembers in the unit. Further, it identifies shortfalls and training gaps in those gunnery specific skills, which build crew proficiency and unit readiness.

METHOD—TABLE V

5-5. Table V is a performance-based evaluation of basic and advanced gunnery skills to the Army-standard of knowledge or skill in a live environment under live-fire conditions. Conduct of Table V is on vehicle using full-caliber ammunition, BES, and 3/4-scale targetry at full-distance to provide the most challenging training prior to the qualification course of fire. It utilizes experienced evaluators to educate, train, test, and retrain Soldiers to meet or exceed those standards.

END STATE—TABLE V

5-6. The VC and gunner assigned as a crew have successfully demonstrated the skills and knowledge required to continue training on the platform through platform qualification. The tasks evaluated in Table V provide the commander a means to certify the crew's platform proficiency prior to the qualification course of fire.

TASK, CONDITIONS, AND STANDARD—TABLE V

5-7. Outlined in figure 5-2 are the task, conditions, and standard for Table V, Practice. Units are not authorized to add to the live-fire requirements or tasks associate with Table V. If the commander is confident with the crew's skills, they may increase the chemical, biological, radiological, and nuclear requirements from one day and one night engagement to suit their experience.

	TABLE V PRACTICE
TASK	Engage and destroy stationary and moving targets placed in a tactical array, during day and limited visibility from a stationary or moving tank using full-caliber ammunition.
CONDITIONS	Given the following: • A fully operational tank with primary, secondary, and tertiary armaments. • Allotted ammunition. • Certified vehicle crew evaluators. • 3/4 scale targets. • All prerequisites to live-fire for the crew platform achieved.
STANDARD	The crew: • Scores a minimum of 700 to 1,000 points overall. • Scores 70 points or more on all targets presented on 7 out of the 10 engagements. • Qualifies on at least one day and one limited visibility engagement.

Figure 5-2. Table V, Practice

Note. If any individual target score on an engagement is less than 70 points, the engagement is unqualified, regardless of overall engagement score.

PLAN—TABLE V

5-8. Table V, Practice, is a live-fire training environment event using training aids, devices, and simulators, and includes the use of full-caliber and small arms training ammunition and BES.

5-9. This section details the resources needed for planning purposes. General information on topics for consideration are—

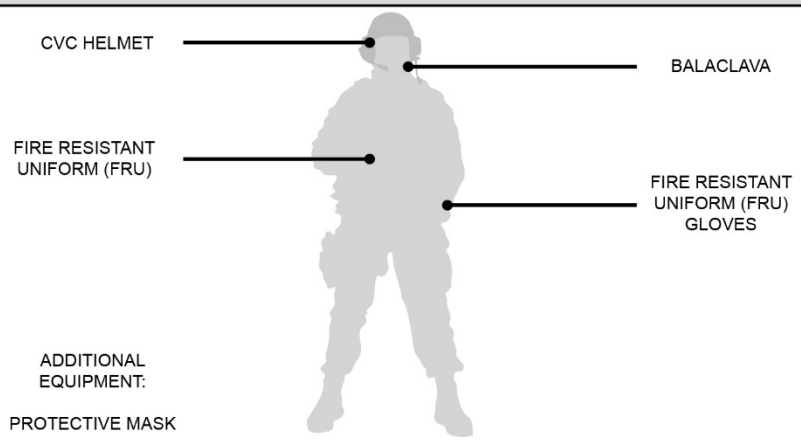
- Uniform—the minimum requirements for the combat vehicle crewmember's fire-retardant clothing and protective equipment.
- Facilities—available facilities that support the training event.
- Training plan—the minimum tasks, general guidelines, and special instructions for the training event.
- Time and throughput—the estimated time required to complete the training event including throughput considerations for planning.
- Ammunition—any training munitions required to complete the training event.
- TADSS—any available training aids that directly support or augment the training event.

UNIFORM—TABLE V

5-10. Crews must be in the appropriate vehicle crewmember uniform or prescribed unit uniform and protective mask. Crews are not required to have any additional body armor, ballistic plates, or gear during the training event unless directed by the commander. Figure 5-3 provides the minimum uniform requirements this event.



TABLE V
PRACTICE
UNIFORM REQUIREMENTS



LEVEL	S SKULL	T TORSO	E EYES	E EARS	L LIMBS
MINIMUM REQUIRED	3	4	1	3	3
0	NONE	NONE	NONE	NONE	NONE
1	PATROL CAP	VEST	**GOGGLES**	SINGLE EAR PROTECTION	GLOVES
2	HELMET	VEST with PLATES	BALLISTIC	DOUBLE EAR PROTECTION	LEATHER GLOVES
3	**BALACLAVA**	FRU		**CVC HELMET/ HEADSET**	**FRU GLOVES**
4		**FRU and SPALL VEST**			

Note: The Combat Vehicle Crewman (CVC) helmet includes the headset hearing protection. Goggles or appropriate eye protection are required for exposed crewmen during vehicle movement.

Figure 5-3. Uniform requirements for Table V

FACILITIES—TABLE V

5-11. Table V requires the use of a maneuver gunnery range that allows live fire for large caliber and small caliber ammunition. To maximize throughput, units may elect to use multiple lanes on the facility.

5-12. Master Gunners must be familiar with the family of maneuver ranges, the range operations control area, and the specific instrumentation and target sets available on the range facility selected for Table V. The maneuver range facilities recommended as primary and alternate facilities are shown in figure 5-4.



TABLE V
PRACTICE
AUTHORIZED FACILITIES

FACILITY		
Battle Area Complex	BAX	ALTERNATE
Digital Air Ground Integration Range	DAGIR	ALTERNATE
Digital/Multipurpose Range Complex	D/MPRC	ALTERNATE
Digital/Multipurpose Training Range	D/MPTR	**PRIMARY**
Scout/Reconnaissance Gunnery Complex	SRGC	ALTERNATE

Note: Units may should consider using a separate facility to conduct zeroing procedures if it assists with increased throughput.

Figure 5-4. Maneuver range facilities to support Table V, Practice

RANGE SUPPORT—TABLE V

5-13. The range support group provides VCE teams to evaluate the course of fire. This requires all gunners and above to certify or recertify as VCEs between T-6 and T-execution of the training event.

5-14. The range support personnel general requirements are in figure 5-5. This includes the most common support required for crew platform live-fire events. In the event the unit utilizes multiple facilities to complete the zero and defensive engagements, appropriate adjustments should be made to this general structure.

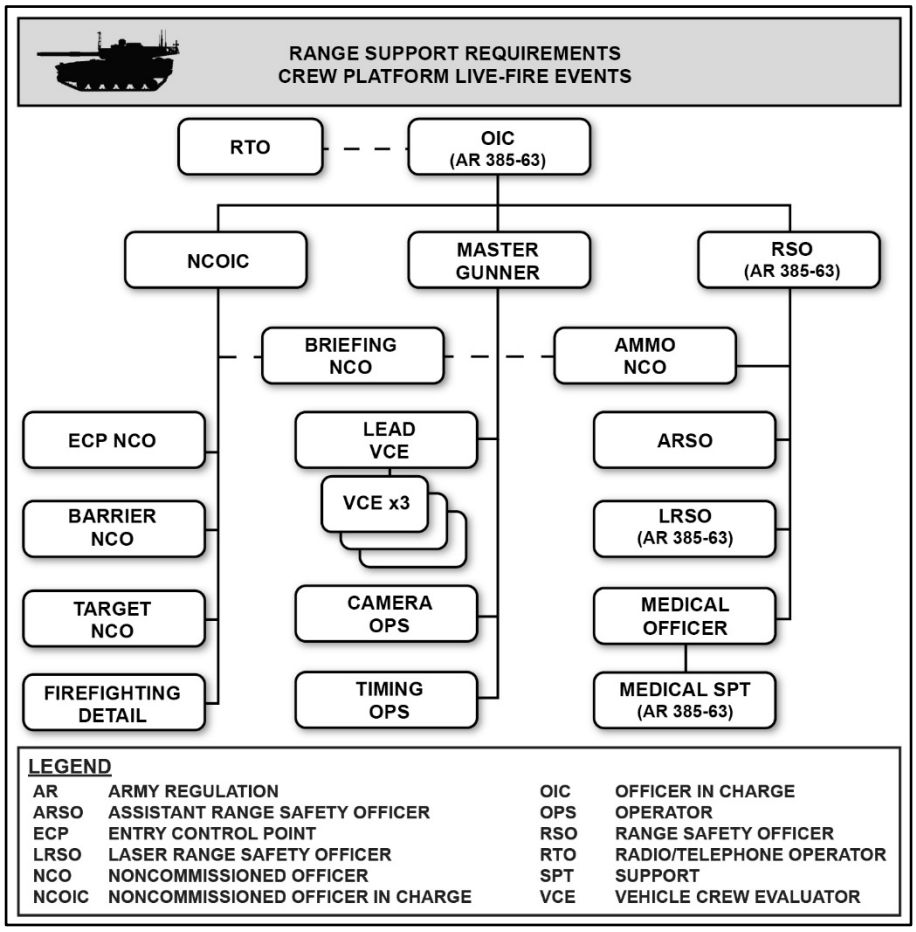


Figure 5-5. Range support personnel requirements, example

TRAINING PLAN—TABLE V

5-15. Table V, Practice, provides a challenging scenario to the crews to prepare them for qualification and future collective training. It relies on engagements with a moderately higher level of difficulty than the qualification course of fire and exercises the crew's conduct of fire and engagement skills. The increased difficulty in relation to the qualification course of fire is provided through—

- Smaller targetry.
- Increased number of targets.
- Increased range to target for the majority of the engagements.
- Greater dispersion between targets laterally and in depth.

5-16. Units are required to use 3/4 scale targets at full range for the training scenarios unless specifically directed to use full-scale targetry (degraded engagements, for example). The Master Gunner may consider using F-type rather than E-type silhouettes to increase the difficulty during machine gun engagements. (Refer to TC 25-8 for additional information on scaled targetry.)

5-17. This table prepares crews for the Table VI, Qualification. The table design is purposefully more difficult to master than the qualification. Units should retrain as necessary with full-caliber ammunition when possible. Units should use available resources to ensure all crews successfully complete Table V before proceeding to the qualification course of fire, Table VI.

Scenario Requirements—Table V

5-18. This table is designed to train and evaluate the crew's ability to engage stationary or moving targets placed in a tactical array, from the defense, during day and limited visibility conditions.

5-19. All engagements are evaluated using certified VCEs using DA Form 8265 and DA Form 8265-1 as the official record of training. Master Gunners must ensure the training records are included in each crew's gunnery packet (see TC 3-20.31).

5-20. The engagements listings are by capability type using the standard engagement naming structure listed in TC 3-20.31. The requirements for the engagement listings are described in paragraphs 5-21 through 5-28.

Task Description for Table V

5-21. The task description includes both the engagement number (the table number plus engagement task) followed by the system capability trained.

Firing Vehicle Posture—Table V

5-22. The firing vehicle posture establishes the offense or defense condition for the engagement.

Firer—Table V

5-23. The firer column identifies which crewmember is to engage the target listed. Targets defeated by a different crewmember listed as the firer result in an auto-zero penalty, failing to adhere to course conditions.

Weapon (or Ammunition)—Table V

5-24. The weapon column identifies the weapon (coaxial, caliber .50, or primary armament ammunition type) that is used to defeat the threat. Design of each engagement is for a specific weapon or ammunition type (primary armament) for use, which relates to the crew conduct of fire, optic selection, engagement techniques, or other unique implied tasks. Crews that fail to announce the appropriate weapon or ammunition, or appropriate selection for subsequent or supplemental engagements may be penalized IAW the evaluation procedures in TC 3-20.31.

Target Type—Table V

5-25. The target type column provides the target required for the presentation, IAW TC 25-8.

Target Posture—Table V

5-26. The target posture establishes if the target is stationary, moving, or evasive for the engagement. See TC 3-20.31 for more information on target postures. The unit Master Gunner must ensure that target hit sensitivity settings on Digital Range Training System and Targetry Range Automated Control and Recording ranges are on the proper settings.

Target hit sensitivity settings

	Stationary Armored Target	Moving Armored Target
Main Gun	7	7
Caliber .50	13	11
7.62 mm	13	13

Range (to Target)—Table V

5-27. The range column provides the required range (full scale or equivalent scaled range) from the firing vehicle to the target. For offensive engagements, this distance calculation is from the center of the movement box to the target. The range to target distance is provided in meters and is displayed as a whole number, such as 600.

5-28. The target may be placed at the distance indicated, plus or minus 200 meters. For example, when the range to target is listed as 600 meters, the target may be placed between 400 meters and 800 meters. This allows flexibility designing the scenario on varying maneuver range facilities with different capabilities, target counts, emplacement locations, and terrain restrictions.

5-29. No change to the EM is authorized. The range bands listed with their applied tolerances do not require any adjustment to the EM. Units are not authorized to exceed the target placement tolerances.

Engagement Modifier—Table V

5-30. The EM is the time in seconds required to achieve 100 points against the listed threat. To defeat the threat successfully, the crew must achieve the kill standard against the target and have an overall engagement time of no more than the EM plus 20 seconds. See TC 3-20.31 for the evaluation, timing, and scoring procedures.

Engagements—Table V

5-31. Figure 5-6 on page 134 shows the breakdown of what target type, target posture, range and weapon system or ammunition type used for each task number. Units are not allowed to deviate from any target type, target posture, range, and weapon system or ammunition type for Table V, Practice.

TABLE V, PRACTICE ENGAGEMENT REQUIREMENTS

TASK	DESCRIPTION	POSTURE	FIRER	WEAPON	TARGET TYPE	TARGET POSTURE	RANGE	EM
50	VEHICLE COMMANDER	DEFENSE	VC	COAX	L2T-FRT	STA	800m	10
			VC	HEP	L2T-FLK	MOV	1,000m	12
51	MACHINE GUN PURE	OFFENSE	GNR	COAX	E(7)FRT	STA	400m	12
			GNR	COAX	L1T-FRT	STA	800m	14
52	MACHINE GUN PURE	DEFENSE	GNR	COAX	E(7)FRT	STA	400m	8
			GNR	COAX	E(7)FRT	STA	600m	10
53	MAIN GUN	OFFENSE	GNR	CAN	E(7)FRT	STA	400m	12
54	MAIN GUN	DEFENSE	GNR	HEP	H3T-FRT	STA	600m	7
			GNR	HEP	H3T-FRT	STA	800m	8
			GNR	SABOT	H1T-FLK	MOV	1,400m	11
55	CHANGE OF WEAPON	OFFENSE	GNR	COAX	E(7)FRT	STA	400m	12
			GNR	SABOT	H1T-FRT	STA	2,000m	14
			GNR	HEP	L2T-FRT	STA	1,000m	14
			GNR	COAX	E(7)FRT	STA	800m	15
56	CHANGE OF WEAPON	DEFENSE	GNR	COAX	E(7)FRT	STA	600m	10
			GNR	COAX	L2T-FRT	STA	800m	10
			GNR	HEAT	M1T-FRT	STA	1,800m	10
			GNR	HEAT	M1T-FLK	MOV	2,000m	13
57	DEGRADED	OFFENSE	GNR	SABOT	H1T-FRT	STA	1,600m	13
			GNR	COAX	E(3)FRT	STA	600m	14
58	DEGRADED	DEFENSE	GNR	COAX	E(7)FRT	STA	600m	10
			GNR	HEP	L2T-FRT	STA	1,000m	10
59	SIMULTANEOUS	OFFENSE	GNR	COAX	E(7)FRT	STA	600m	14
			VC	CAL .50	M2T-FRT	STA	800m	15
			GNR	COAX	E(7)FRT	STA	600m	14

LEGEND

CAL .50	CALIBER .50	HEAT	HIGH EXPLOSIVE ANTITANK
CAN	CANISTER	HEP	HIGH EXPLOSIVE PLASTIC
COAX	COAXIAL MACHINE GUN	m	METER
EM	ENGAGEMENT MODIFIER	MOV	MOVING
FLK	FLANK	STA	STATIONARY
FRT	FRONTAL	VC	VEHICLE COMMANDER
GNR	GUNNER		

Figure 5-6. Table V, Practice, scenario requirements

TIME AND THROUGHPUT—TABLE V

5-32. The throughput expectation is 14 crews per day. Depending on maintenance or other unforeseen issues, units should incorporate an additional half training day to the schedule. Figure 5-7 shows the expected throughput schedule based on the number of vehicles for firing and the unit's day and night engagement breakdown for the engagements.

CREW PLATFORM WEAPON SYSTEM THROUGHPUT REQUIREMENTS

		NUMBER OF ENGAGEMENTS					
	DAY	8	7	6	5	4	
	NIGHT	2	3	4	5	6	
NUMBER OF CREWS	10	15.25	16.00	16.50	17.25	18.00	HOURS TO COMPLETE
	11	16.25	17.00	17.75	18.50	19.25	
	12	17.50	18.25	19.00	20.00	20.75	
	13	18.50	19.50	20.25	21.25	22.00	
	14	19.75	20.75	21.50	22.50	23.50	
	15	21.00	22.00	23.00	24.00	25.00	
	16	22.00	23.00	24.25	25.25	26.25	
	17	23.25	24.25	25.50	26.50	27.75	
	18	24.25	25.50	26.75	28.00	29.00	
	19	25.50	26.75	28.00	29.25	30.50	
	20	26.50	28.00	29.25	30.50	32.00	

Note: Overall time requirements are based on a single firing lane and include 4 hours of range maintenance down time (two blocks of 2 hours each). This is standard at most facilities. These calculations are for planning purposes only. Units that are more proficient in tower operations may have an increased throughput.

Any time shown exceeding 24 hours will not be possible in a single range day without unit action to conduct the range with a sense of urgency during preparation to fire tasks and execution of the table including tactical movement between engagements.

Figure 5-7. Table V throughput expectations

Note. Time requirements overall are based on a single firing lane and include 4 hours of range maintenance down time (two blocks of 2 hours each). This is standard at most facilities. These calculations are for planning purposes only. Units that are more proficient in tower operations may have an increased throughput.

AMMUNITION—TABLE V

5-33. Figure 5-8 provides the ammunition requirements for Table V, Practice. Units are required to include the BES as part of the Army-standard target presentations during training.



TABLE V
PRACTICE
TRAINING AMMUNITION REQUIREMENTS

DODIC	MUNITION TYPE	QUANTITY
C511	CTG, 105-mm TP-T, M490A1	3
CA58	CTG, 105-mm TPDS-T M724A2	5
CA37	CTG, 105mm TP-T M467A1	7
CA40	CTG 105MM CANISTER M1040	1
AB86	CTG, 7.62-mm 4 ball M80/1 TRCR M62 LNKD	650
A557	CTG, .50 CAL, 4 ball/1 TRCR LNKD M33 for M2	50
LA53	SIM, target hit XM35 (BES)	14
LA54	SIM, EXP DET XM34 (BES)	14

ADDITIONAL CERTIFICATIONS:



BES SYSTEMS



PYROTECHNICS

Certify junior leaders on the components, functioning, hazards, use, and troubleshooting of available Battle Effects Simulator (BES) systems.

Provides a working understanding of the components, functioning, emplacement, use, troubleshooting, and hazards when:

- Placing BES systems into operation.
- Synchronizing functioning.
- Installing BES cartridges
- Troubleshooting BES systems.
- Removing unused BES cartridges.
- Conducting safe operations of BES systems.

LEGEND

.50 CAL	.50 CALIBER	mm	MILLIMETER
CTG	CARTRIDGE	SIM	SIMULATOR
DODIC	DEPARTMENT OF DEFENSE IDENTIFICATION CODE	TPDS-T	TARGET PRACTICE DISCARDING SABOT-TRACER
EXP DET	EXPLOSIVE DETONATION	TP-T	TARGET PRACTICE-TRACER
LNKD	LINKED	TRCR	TRACER

Figure 5-8. Table V, ammunition requirements

TRAINING AIDS, DEVICES, SIMULATORS, AND SIMULATIONS—TABLE V

5-34. This course requires the use of the CMU (some installations may refer to the CMU as the IPU) for all crews. The CMU is available on the digital range facility scheduled (if equipped). Coordination with the scheduled range facility manager will determine unit responsibilities for installation, troubleshooting, maintenance, and use of the devices ahead of the training day(s). If the range does not have a CMU available, unit may draw the CMUR from the TADSS warehouse. The CMUR differs from the CMU in that it stores all run data on a solid-state drive on the vehicle, for use with the provided AAR suite in the CMUR kit.

5-35. The brigade commander must approve authorization for deviation from this requirement if TADSS are unavailable in writing. Units should focus on training and reinforcing the skills in the direct fire kill chain on this table specifically with their thermal optics, day and night to best prepare them for the follow-on training events. Figure 5-9 shows the TADSS required or recommended for Table V.



TABLE V
PRACTICE
TRAINING AIDS, DEVICES, SIMULATORS, AND SIMULATIONS (TADSS) REQUIREMENTS

DODIC	NOMENCLATURE	REMARKS
CMU	Crew Module Unit/Integrated Player Unit	REQUIRED
CMUR	Crew Module Unit Recorder (Through-Sight Video)	
T 17-114	105MM TANK TRAINING ROUND, M1040, CANISTER, DUMMY	CONCURRENT TRAINING
T 17-115	105MM TANK TRAINING ROUND, M393A3, HEP, DUMMY	CONCURRENT TRAINING
T 17-116	105MM TANK TRAINING ROUND, M900, SABOT, DUMMY	CONCURRENT TRAINING
T 17-117	105MM TANK TRAINING ROUND, M456A2, HEAT, DUMMY	CONCURRENT TRAINING
SP-1	BORESIGHT PANEL	REQUIRED

LEGEND

DODIC	DEPARTMENT OF DEFENSE IDENTIFICATION CODE	HEP	HIGH EXPLOSIVE PLASTIC
		MM	MILLIMETER
HEAT	HIGH EXPLOSIVE ANTITANK	SP-1	SPECIAL PANEL NUMBER ONE

Figure 5-9. Table V, Practice, training aids, devices, simulators, and simulations

PREPARE—TABLE V

5-36. Units must coordinate for the appropriate training facility, equipment, targetry, training munitions, TADSS (if desired), and pyrotechnics to support Table V. During the preparation phase, the unit should ensure the proofing team, VCEs, and other personnel receive training to standard to support their role as evaluators and trainers. This includes range officers in charge, range safety officers, and ammunition handlers.

TRAIN THE TRAINERS—TABLE V

5-37. Units must certify each VC and gunner as VCEs prior to entering the live-fire density. Units must have certified evaluators to ensure the training objectives for the training table are set and to provide effective AARs to each crew. Table V also requires experienced VCs to serve as the proofing team for the zeroing test (if necessary).

VEHICLE CREW EVALUATORS—TABLE V

5-38. A trained and certified VCE team must be available to support prior to live fire to evaluate a gunnery density correctly. After certification, the unit must ensure sufficient VCEs are available to support the live-fire event. Evaluations of Table V come from outside the firing platoon.

5-39. Depending on the size of the weapons training density (make-up gunnery, platoon, company, or battalion) and the type of range facility used, the number of evaluators may vary. Having the correct number and type of evaluators per firing range maximizes the unit's throughput of firing vehicles on the range, reduces range down time, and provides for the highest quality evaluations. See TC 3-20.31 for more in-depth information on VCEs, the evaluation team, and the evaluation process.

5-40. To prepare the trainers, units provide—

- Commander training objectives.
- Conduct of the range briefing for the training event.
- Scenario and lane concept with crew tasks for training.
- Risk assessments.
- Identification of supporting doctrinal publications for use as primary references.
- TADSS, pyrotechnics, and BES used during the training event (see appendix A for the training munitions requirements for the complete training strategy).

RECONNAISSANCE OF THE SITE—TABLE V

5-41. Commanders use an authorized training facility for Table V, Practice. Commanders follow the installation's policies and procedures for formally scheduling the training location as far in advance as practical. See TC 3-20.31 for more in-depth information concerning range operations at the unit level.

5-42. Once scheduled, the commander, Master Gunner, platoon leaders and platoon sergeants conduct a reconnaissance of the training areas to—

- Verify sufficient space is available to support the entire unit through multiple training lanes.

- Ensure multiple iterations or rotations through the scenario are achievable with appropriate retraining opportunities.
- Ensure sufficient administrative areas are available to support group discussions, briefings, and AARs.
- Provide sand table or terrain board.
- Identify the ASP and ammunition pad.
- Determine the conduct of the range or the flow of training to maximize the live-fire range time.
- Identify the range operating system and verify the training scenarios have been properly loaded, including target hit sensitivity, hit standards, thermalization, and BES.
- Schedule proofing of the range, based on the higher headquarters OPORD.
- Ensure requested TADSS are available if provided by the range facility.
- Issue the order.

5-43. Commanders can issue an OPORD, WARNORD, or use the training schedule as necessary. The WARNORD should include the appropriate tasks, required leaders, and equipment needed, as well as the unit's training timeline including walk-through, rehearsals, and AARs. WARNORDs for external organizations must include sufficient reaction time for the appropriate personnel and equipment needed.

REHEARSE—TABLE V

5-44. The unit uses all training resources, materials, and equipment available to conduct rehearsals of training events. During the rehearsal, commanders ensure their unit has sufficient time to train to the specified standard including AARs and retraining time. Commanders ensure their unit verifies optional scenarios that increase complexity when warranted.

5-45. Units rehearse the training event from start to finish, and confirm—

- The VCEs understand the training scenarios and tasks.
- Sufficient space is available to provide appropriate distances for engagements ranges and target dispersion.
- Analog and digital systems are operational within the organization and to the higher headquarters regardless of their location.
- Additional crew training packages (DA Form 8265, DA Form 8265-1, and appropriate zero documentation) are complete and provide for multiple iterations.
- Sufficient administrative areas are available.
- A review of AAR capabilities, for which use of through-sight video systems is encouraged to increase the fidelity and quality of the AARs.
- Location of retraining for crews as necessary.
- Accessibility to crew simulator systems, plumb and synchronization ramps, T&MBs, and additional bore sighting locations are available.

5-46. Once the unit completes the walk-through and training rehearsal, the commander may make any necessary adjustments to the plan and issue FRAGORDs as necessary.

EXECUTE—TABLE V

5-47. Once the unit arrives at the training location, they should—

- Conduct a safety briefing for the training event.
- Provide a conduct of the range briefing to establish the sequence of events for the training day.
- Conduct sensitive item checks prior to executing training.
- Assign VCE support as appropriate.
- Issue the OPORD for the training mission.
- Execute the training scenario.
- Execute communication check to the tower and ensure each firing platform has operational frequency modulation, IPU intercom, and hot mike capability.

5-48. The training unit conducts informal AARs of each crew completing a phase of training within the training event. During training, the assigned VCEs, executive officer, 1SG, and Master Gunner review the subordinate unit's performance. They follow the unit SOP, prescribed tactics, techniques, and procedures, and the appropriate training and evaluation outlines, then review completed crew score sheets with roll-up documentation for clarity and completeness.

ENGAGEMENT 50

5-49. The VC engagement fired from the VC's position using the commander's override firing the coaxial and main gun is shown in figure 5-10 and the worksheet on figure 5-11 on page 142. The engagement is a means to train and evaluate the VC's ability to engage and destroy stationary and moving targets with the multiple weapons from the defense.

50 

TABLE V, PRACTICE

TASK TYPE:	VEHICLE COMMANDER	POSTURE:	DEFENSE

			DELAY:	
	TARGET 1	TARGET 2	TARGET 3	TARGET 4
CONDITIONS				
FIRER	VC	VC		
WEAPON/AMMUNITION	COAX	HEP		
TARGET	TECH TRUCK	TECH TRUCK		
TARGET TYPE	L2T-FRT	L2T-FLK		
TARGET POSTURE	STATIONARY	MOVING		
RANGE TO TARGET	800m	1,000m		
ENGAGEMENT MODIFIER	10	12		

LINKAGE ACROSS TRAINING STRATEGY

TABLE III	TABLE IV	TABLE V	TABLE VI
			
DEFENSE	DEFENSE	DEFENSE	OFFENSE
STX engagement. Change of weapon system/ammunition at mid-range from the defense. Reinforces all VC training in simulations.	Baseline Engagement Single stationary target at mid-range for the VC. All Table IV Engagements are DEFENSE.	Practice Engagement. Stationary and moving target at mid-range in the defense for the VC. Specifically trains harder than the test.	Qualification engagement. Stationary and moving targets from the offense at mid-range.

LEGEND

COAX	COAXIAL MACHINE GUN	m	METER
FLK	FLANK	TECH	TECHNICAL
FRT	FRONTAL	VC	VEHICLE COMMANDER
HEP	HIGH EXPLOSIVE PLASTIC		

Figure 5-10. Engagement 50 overview

50 TARGET 1 TARGET 2 TARGET 3 TARGET 4

VEHICLE COMMANDER DEFENSE			

ENGAGEMENT AMMUNITION REQUIREMENTS

SABOT	HEAT	HEP	CAN	7.62mm	CAL .50	HOSTILE FIRE	STEEL ON STEEL
CA58	**C511**	**CA37**	**CA40**	**AB86**	**A557**	**LA54**	**LA53**
		2		50		2	2

PREPARE FOR ENGAGEMENT

_____ THIS IS _____

PREPARE FOR DEFENSIVE OPERATIONS IN BATTLE POSITION _____

YOUR GUNNER'S POWER CONTROL HANDLES ARE INOPERATIVE. CONTINUE TO FIGHT. BATTLE CARRY HEP, CHECK YOUR COAX MACHINE GUN. REPORT REDCON ONE, OVER.

PROMPT

ALERT	_____ THIS IS _____
WEAPON/AMMO	COAX/HEP
TARGET DESCRIPTION	STATIONARY AND MOVING TECH TRUCKS IN SECTOR
METHOD	NEAR TO FAR
LOCATION	VICINITY _____ AND _____
RANGE	
CONTROLS	ENGAGE UPON POSITIVE IDENTIFICATION
EXECUTION	WEAPONS FREE, WEAPONS FREE.
CONTROLS	REPORT WHEN SECTOR CLEAR, OVER.

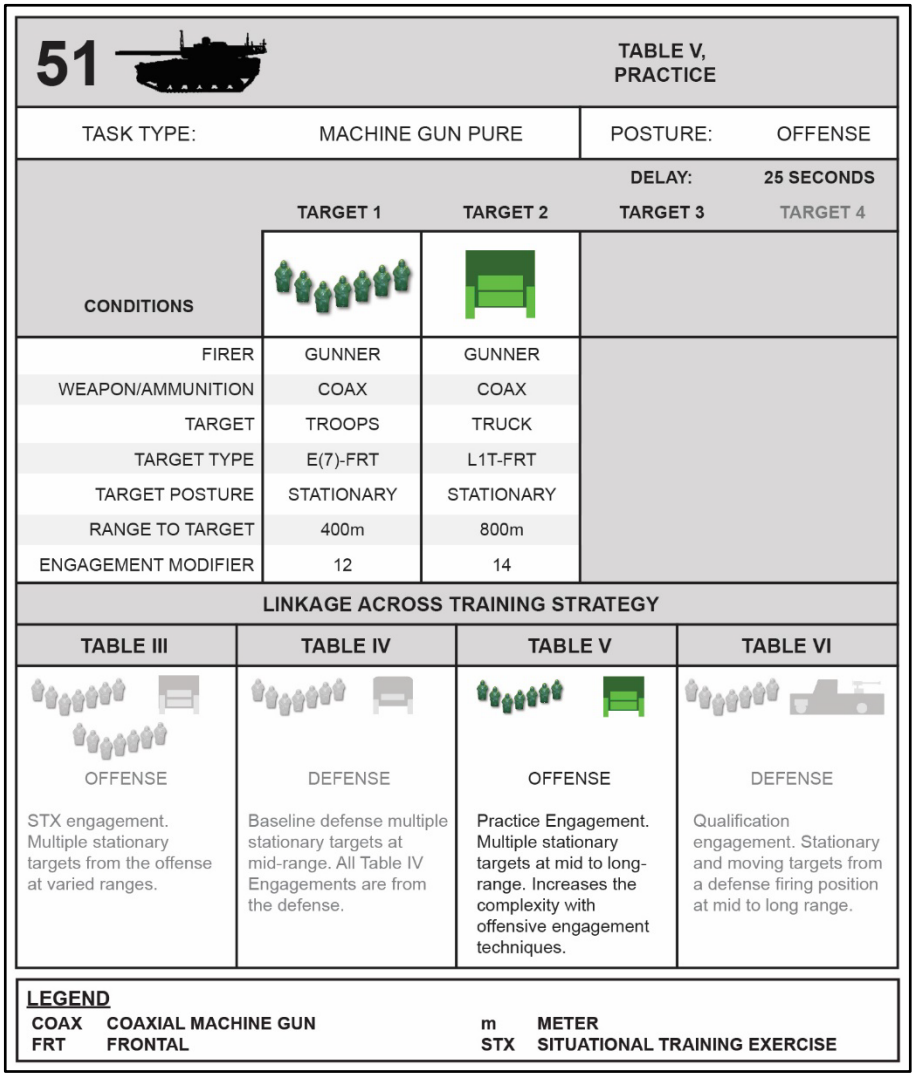
LEGEND

CAL .50	**CALIBER .50**	**HEP**	**HIGH EXPLOSIVE PLASTIC**
CAN	**CANISTER**	**mm**	**MILLIMETER**
COAX	**COAXIAL MACHINE GUN**	**REDCON**	**READINESS CONDITION**
HEAT	**HIGH EXPLOSIVE ANTITANK**		

Figure 5-11. Engagement 50 ammunition and script worksheet

ENGAGEMENT 51

5-50. This is a machine gun pure engagement for the gunner. It trains target detection, acquisition, and machine gun engagement techniques during offensive engagements (see figure 5-12 and the worksheet on figure 5-13 on page 144). Range bands are near- and long-range. Crews must tactically use the course road and build a stable firing platform.



51		TABLE V, PRACTICE	
TASK TYPE:	MACHINE GUN PURE	POSTURE:	OFFENSE
		DELAY:	25 SECONDS

CONDITIONS	TARGET 1	TARGET 2	TARGET 3	TARGET 4
FIRER	GUNNER	GUNNER		
WEAPON/AMMUNITION	COAX	COAX		
TARGET	TROOPS	TRUCK		
TARGET TYPE	E(7)-FRT	L1T-FRT		
TARGET POSTURE	STATIONARY	STATIONARY		
RANGE TO TARGET	400m	800m		
ENGAGEMENT MODIFIER	12	14		

LINKAGE ACROSS TRAINING STRATEGY

TABLE III	TABLE IV	TABLE V	TABLE VI
OFFENSE	DEFENSE	OFFENSE	DEFENSE
STX engagement. Multiple stationary targets from the offense at varied ranges.	Baseline defense multiple stationary targets at mid-range. All Table IV Engagements are from the defense.	Practice Engagement. Multiple stationary targets at mid to long-range. Increases the complexity with offensive engagement techniques.	Qualification engagement. Stationary and moving targets from a defense firing position at mid to long range.

LEGEND

COAX	COAXIAL MACHINE GUN	m	METER
FRT	FRONTAL	STX	SITUATIONAL TRAINING EXERCISE

Figure 5-12. Engagement 51 overview

51

TARGET 1	TARGET 2	TARGET 3	TARGET 4
MACHINE GUN PURE OFFENSE			

ENGAGEMENT AMMUNITION REQUIREMENTS

SABOT	HEAT	HEP	CAN	7.62mm	CAL .50	HOSTILE FIRE	STEEL ON STEEL
CA58	**C511**	**CA37**	**CA40**	**AB86**	**A557**	**LA54**	**LA53**
				100		1	1

PREPARE FOR ENGAGEMENT

_____ THIS IS _____

PREPARE FOR OFFENSIVE OPERATIONS. MOVE TO A SHORT HALT POSITION ALONG ROUTE _____

CHECK YOUR COAX MACHINE GUN, REPORT REDCON ONE, OVER.

PROMPT

ALERT	_____ THIS IS _____
WEAPON/AMMO	COAX/COAX
TARGET DESCRIPTION	TROOPS WITH TRUCK SUPPORT IN SECTOR
METHOD	NEAR TO FAR
LOCATION	VICINITY _____ AND _____
RANGE	
CONTROLS	ENGAGE UPON POSITIVE IDENTIFICATION
EXECUTION	WEAPONS FREE, WEAPONS FREE.
CONTROLS	REPORT WHEN SECTOR CLEAR, OVER.

LEGEND

CAL .50	**CALIBER .50**	**HEP**	**HIGH EXPLOSIVE PLASTIC**
CAN	**CANISTER**	**mm**	**MILLIMETER**
COAX	**COAXIAL MACHINE GUN**	**REDCON**	**READINESS CONDITION**
HEAT	**HIGH EXPLOSIVE ANTITANK**		

Figure 5-13. Engagement 51 ammunition and script worksheet

ENGAGEMENT 52

5-51. From a defensive posture, the gunner engages multiple machine gun threats at short to mid-range (see figure 5-14 and the worksheet on figure 5-15 on page 146). This engagement continues the gunner's education on machine gun engagement techniques against multiple threats while utilizing the battle position and verifying the gun tube is clear for future main gun engagements.

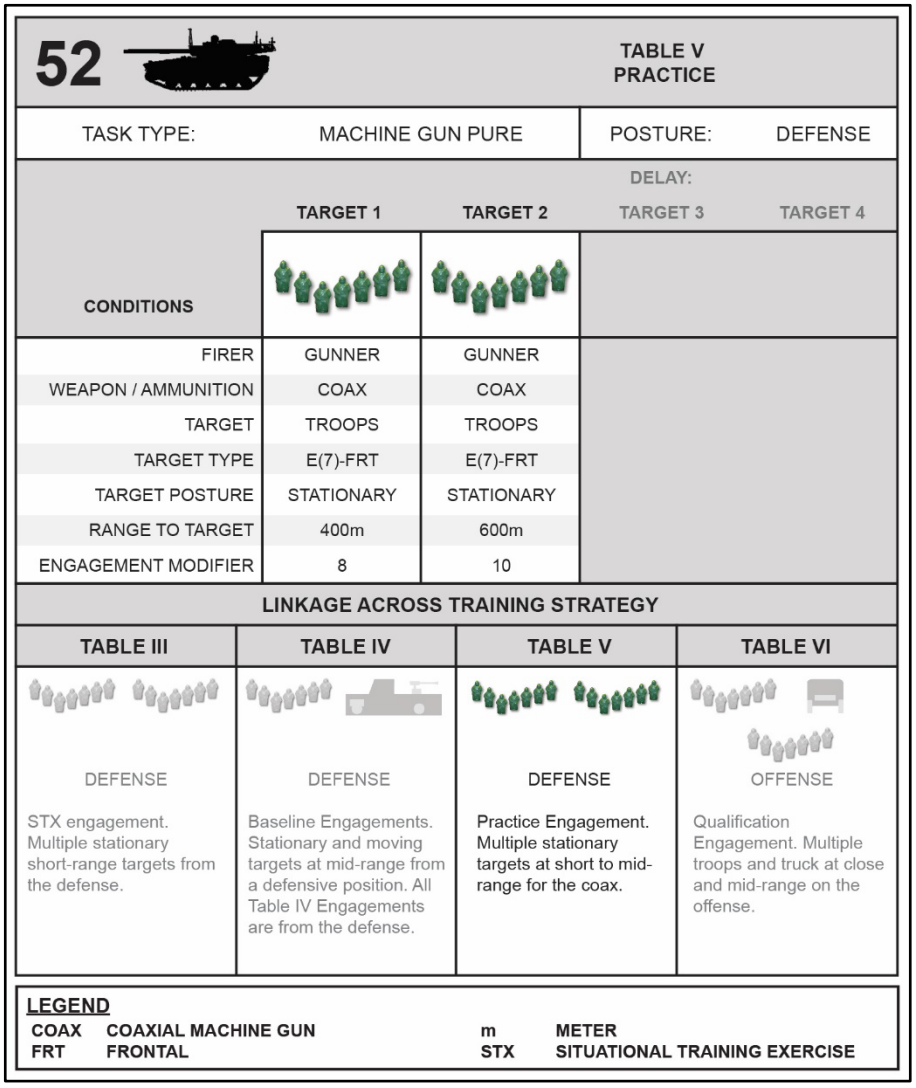


Figure 5-14. Engagement 52 overview

52 TARGET 1 TARGET 2 TARGET 3 TARGET 4

MACHINE GUN PURE DEFENSE			

ENGAGEMENT AMMUNITION REQUIREMENTS

SABOT	HEAT	HEP	CAN	7.62mm	CAL .50	HOSTILE FIRE	STEEL ON STEEL
CA58	**C511**	**CA37**	**CA40**	**AB86**	**A557**	**LA54**	**LA53**
				100			

PREPARE FOR ENGAGEMENT

_____ THIS IS _____

PREPARE FOR DEFENSIVE OPERATIONS IN BATTLE POSITION _____

CHECK YOUR COAX MACHINE GUNS. REPORT REDCON ONE, OVER.

PROMPT

ALERT	_____ THIS IS _____
WEAPON/AMMO	COAX/COAX
TARGET DESCRIPTION	MULTIPLE TROOPS
METHOD	
LOCATION	VICINITY _____
RANGE	
CONTROLS	ENGAGE UPON POSITIVE IDENTIFICATION
EXECUTION	WEAPONS FREE, WEAPONS FREE.
CONTROLS	REPORT WHEN SECTOR CLEAR, OVER.

LEGEND

CAL .50	**CALIBER .50**	**HEP**	**HIGH EXPLOSIVE PLASTIC**
CAN	**CANISTER**	**mm**	**MILLIMETER**
COAX	**COAXIAL MACHINE GUN**	**REDCON**	**READINESS CONDITION**
HEAT	**HIGH EXPLOSIVE ANTITANK**		

Figure 5-15. Engagement 52 ammunition and script worksheet

ENGAGEMENT 53

5-52. This is a main gun engagement for the gunner using a canister round on the offense against mass troops (see figure 5-16 and the worksheet on figure 5-17 on page 148). Units can utilize multiple troops sets in close proximity to provide a massed troop threat. Care needs to be taken firing the canister round on the offense in support of dismounted Infantry elements.

53 

TABLE V, PRACTICE

TASK TYPE:	MAIN GUN PURE	POSTURE:	OFFENSE

		DELAY:	
	TARGET 1	TARGET 2	TARGET 3	TARGET 4
CONDITIONS				
FIRER	GUNNER			
WEAPON / AMMUNITION	CAN			
TARGET	TROOPS			
TARGET TYPE	E(7)-FRT			
TARGET POSTURE	STATIONARY			
RANGE TO TARGET	400m			
ENGAGEMENT MODIFIER	12			

LINKAGE ACROSS TRAINING STRATEGY

TABLE III	TABLE IV	TABLE V	TABLE VI
			
OFFENSE	DEFENSE	OFFENSE	DEFENSE
STX engagement with single moving target using the main gun at mid-range.	Baseline multiple moving threats at mid-range for the caliber .50. VC Engagement. All engagements on Table IV are fired from the DEFENSE.	Practice engagement. Canister engagement for mass troops from the offense.	Qualification Engagement. Bunker and stationary vehicle from a defensive firing position at mid-ranges.

LEGEND

CAN	CANISTER	STX	SITUATIONAL TRAINING EXERCISE
FRT	FRONTAL	VC	VEHICLE COMMANDER
m	METER		

Figure 5-16. Engagement 53 overview

53 TARGET 1 | TARGET 2 | TARGET 3 | TARGET 4

MAIN GUN PURE OFFENSE		

ENGAGEMENT AMMUNITION REQUIREMENTS

SABOT	HEAT	HEP	CAN	7.62mm	CAL .50	HOSTILE FIRE	STEEL ON STEEL
CA58	**C511**	**CA37**	**CA40**	**AB86**	**A557**	**LA54**	**LA53**
			1				

PREPARE FOR ENGAGEMENT

_____ THIS IS _____

PREPARE FOR OFFENSIVE OPERATIONS. MOVE TO A SHORT HALT POSITION ALONG ROUTE _____

BATTLECARRY CAN, REPORT REDCON ONE, OVER.

PROMPT

ALERT	_____ THIS IS _____
WEAPON/AMMO	CAN
TARGET DESCRIPTION	TROOPS IN SECTOR
METHOD	
LOCATION	VICINITY _____
RANGE	
CONTROLS	ENGAGE UPON POSITIVE IDENTIFICATION
EXECUTION	WEAPONS FREE, WEAPONS FREE.
CONTROLS	REPORT WHEN SECTOR CLEAR, OVER.

LEGEND

CAL .50	**CALIBER .50**	**HEP**	**HIGH EXPLOSIVE PLASTIC**
CAN	**CANISTER**	**mm**	**MILLIMETER**
HEAT	**HIGH EXPLOSIVE ANTITANK**	**REDCON**	**READINESS CONDITION**

Figure 5-17. Engagement 53 ammunition and script worksheet

ENGAGEMENT 54

5-53. This is a main gun engagement from a defensive firing position against multiple stationary and moving threats (see figure 5-18 and the worksheet on figure 5-19 on page 150). This teaches the gunner main gun engagement techniques using HEP and kinetic energy rounds. Teaching points include potential gun tube memory issues firing HEP followed by another main gun ammunition type causing the subsequent round to strike short on the point of aim or short of the target.

54 

TABLE V, PRACTICE

TASK TYPE:	MAIN GUN PURE	POSTURE:	DEFENSE
		DELAY:	25 SECONDS

CONDITIONS	TARGET 1	TARGET 2	TARGET 3	TARGET 4
				
FIRER	GUNNER	GUNNER	GUNNER	
WEAPON / AMMUNITION	HEP	HEP	SABOT	
TARGET	BUNKER	BUNKER	TANK	
TARGET TYPE	H3T-FRT	H3T-FRT	H1T-FLK	
TARGET POSTURE	STATIONARY	STATIONARY	MOVING	
RANGE TO TARGET	600m	800m	1,400m	
ENGAGEMENT MODIFIER	7	8	11	

LINKAGE ACROSS TRAINING STRATEGY

TABLE III	TABLE IV	TABLE V	TABLE VI
			
DEFENSE	DEFENSE	DEFENSE	OFFENSE
STX Engagement. Main gun change of ammunition from SABOT to HEP against stationary and moving target with delay target at mid to long-ranges.	Baseline Engagement. Simultaneous engagement against multiple stationary targets at long to mid-range. All engagements on Table IV are fired from the DEFENSE.	Practice Engagement. Multiple target engagement against bunker fortifications and a tank from the defense at mid-range. Change of ammunition.	Firing on the move with main gun, stationary and moving targets.

LEGEND

FLK	FLANK	m	METER
FRT	FRONTAL	STX	SITUATIONAL TRAINING EXERCISE
HEP	HIGH EXPLOSIVE PLASTIC		

Figure 5-18. Engagement 54 overview

54

TARGET 1	TARGET 2	TARGET 3	TARGET 4
MAIN GUN PURE DEFENSE				

ENGAGEMENT AMMUNITION REQUIREMENTS

SABOT	HEAT	HEP	CAN	7.62mm	CAL .50	HOSTILE FIRE	STEEL ON STEEL
CA58	**C511**	**CA37**	**CA40**	**AB86**	**A557**	**LA54**	**LA53**
2		3				3	3

PREPARE FOR ENGAGEMENT

_____ THIS IS _____

PREPARE FOR DEFENSIVE OPERATIONS IN BATTLE POSITION _____

BATTLECARRY HEP, REPORT REDCON ONE, OVER.

PROMPT

ALERT	_____ THIS IS _____
WEAPON/AMMO	HEP/HEP/SABOT
TARGET DESCRIPTION	FORTIFICATIONS WITH MOVING TANK IN SUPPORT
METHOD	
LOCATION	VICINITY _____AND _____
RANGE	
CONTROLS	ENGAGE UPON POSITIVE IDENTIFICATION
EXECUTION	WEAPONS FREE, WEAPONS FREE.
CONTROLS	REPORT WHEN SECTOR CLEAR, OVER.

LEGEND

CAL .50	**CALIBER .50**	**HEP**	**HIGH EXPLOSIVE PLASTIC**
CAN	**CANISTER**	**mm**	**MILLIMETER**
HEAT	**HIGH EXPLOSIVE ANTITANK**	**REDCON**	**READINESS CONDITION**

Figure 5-19. Engagement 54 ammunition and script worksheet

ENGAGEMENT 55

5-54. This engagement challenges the crew with a change of weapon and ammunition during while on the offense (see figure 5-20 and the worksheet on figure 5-21 on page 152). This is the most complex and rigorous engagement on this table. Teaching points may include gun tube memory issues, depending on the sequence of threat engaged by the crew. This engagement is designed to include the most changes to weapon and ammunition types requiring increased switchology awareness.

55 

TABLE V, PRACTICE

TASK TYPE:	CHANGE OF WEAPON/AMMO		POSTURE:	OFFENSE
			DELAY:	25 SECONDS
	TARGET 1	TARGET 2	TARGET 3	TARGET 4
CONDITIONS				
FIRER	GUNNER	GUNNER	GUNNER	GUNNER
WEAPON/AMMUNITION	COAX	SABOT	HEP	COAX
TARGET	TROOPS	TANK	TRUCK	TROOPS
TARGET TYPE	E(7)-FRT	H1T-FRT	L2T-FRT	E(7)-FRT
TARGET POSTURE	STATIONARY	STATIONARY	STATIONARY	STATIONARY
RANGE TO TARGET	400m	2,000m	1,000m	800m
ENGAGEMENT MODIFIER	12	14	14	15

LINKAGE ACROSS TRAINING STRATEGY

TABLE III	TABLE IV	TABLE V	TABLE VI
			
OFFENSE	DEFENSE	OFFENSE	DEFENSE
STX Engagement. Change of weapon and ammo on the offense against stationary targets at mid-ranges.	Basic Engagement. Simultaneous small arms engagement against multiple stationary targets at mid to long range from the defense. All engagements on Table IV are fired from the DEFENSE.	Practice engagement. Complex engagement with change of weapon and ammunition on the offense against multiple stationary targets at varied ranges with a delay.	Qualification Engagement. Change of weapon from the offense against multiple stationary and moving targets at close to mid-range.

LEGEND

COAX	COAXIAL MACHINE GUN	m	METER
FRT	FRONTAL	STX	SITUATIONAL TRAINING EXERCISE
HEP	HIGH EXPLOSIVE PLASTIC		

Figure 5-20. Engagement 55 overview

55

TARGET 1	TARGET 2	TARGET 3	TARGET 4
CHANGE OF WEAPON/ AMMUNITION OFFENSE				

ENGAGEMENT AMMUNITION REQUIREMENTS

SABOT	HEAT	HEP	CAN	7.62mm	CAL .50	HOSTILE FIRE	STEEL ON STEEL
CA58	**C511**	**CA37**	**CA40**	**AB86**	**A557**	**LA54**	**LA53**
2		1		100		2	2

PREPARE FOR ENGAGEMENT

_____ THIS IS _____

PREPARE FOR OFFENSIVE OPERATIONS. MOVE TO A SHORT HALT POSITION ALONG ROUTE _____

BATTLECARRY SABOT AND CHECK YOUR COAX MACHINE GUN. REPORT REDCON ONE, OVER.

PROMPT

ALERT	_____ THIS IS _____
WEAPON/AMMO	COAX/SABOT/HEP/COAX
TARGET DESCRIPTION	TROOPS AND TANK, TRUCK AND TROOPS IN SUPPORT
METHOD	MOST DANGEROUS FIRST
LOCATION	VICINITY _____AND _____
RANGE	
CONTROLS	ENGAGE UPON POSITIVE IDENTIFICATION
EXECUTION	WEAPONS FREE, WEAPONS FREE.
CONTROLS	REPORT WHEN SECTOR CLEAR, OVER.

LEGEND

CAL .50	**CALIBER .50**	**HEP**	**HIGH EXPLOSIVE PLASTIC**
CAN	**CANISTER**	**mm**	**MILLIMETER**
COAX	**COAXIAL MACHINE GUN**	**REDCON**	**READINESS CONDITION**
HEAT	**HIGH EXPLOSIVE ANTITANK**		

Figure 5-21. Engagement 55 ammunition and script worksheet

ENGAGEMENT 56

5-55. This is a change of weapon engagement fired from a defensive firing position (see figure 5-22 and the worksheet on figure 5-23 on page 154). This is a complex engagement and requires the crew to tactically move from the defilade to the enfilade while managing their switchology, weapon type, and conduct of fire. This is one of the most complex engagements for the crew to master.

56 

TABLE V, PRACTICE

TASK TYPE:	CHANGE OF WEAPON/AMMO	POSTURE:	DEFENSE

CONDITIONS	TARGET 1	TARGET 2	DELAY: TARGET 3	25 SECONDS TARGET 4
				
FIRER	GUNNER	GUNNER	GUNNER	GUNNER
WEAPON/AMMUNITION	COAX	COAX	HEAT	HEAT
TARGET	TROOPS	TRUCK	BMP	BMP
TARGET TYPE	E(7)-FRT	L2T-FRT	M1T-FRT	M1T-FLK
TARGET POSTURE	STATIONARY	STATIONARY	STATIONARY	MOVING
RANGE TO TARGET	600m	800m	1,800m	2,000m
ENGAGEMENT MODIFIER	10	10	10	13

LINKAGE ACROSS TRAINING STRATEGY

TABLE III	TABLE IV	TABLE V	TABLE VI
			
DEFENSE	DEFENSE	DEFENSE	OFFENSE
STX Engagement. Change of weapon system from the defense. Stationary targets at close to mid-ranges.	Baseline Engagement. Stationary target at mid-range for the VC from the defense. All engagements on Table IV are fired from the DEFENSE.	Practice engagement. Change of weapon system from the defense against multiple stationary targets and a moving target at varied ranges with a delay.	Qualification Engagement. Change of weapon system and ammunition against multiple stationary and moving targets at varied ranges. Complex engagement.

LEGEND

BMP	BOYEVAYA MASHINA PYEKHOTY	HEAT	HIGH EXPLOSIVE ANTITANK
COAX	COAXIAL MACHINE GUN	m	METER
FLK	FLANK	STX	SITUATIONAL TRAINING EXERCISE
FRT	FRONTAL	VC	VEHICLE COMMANDER

Figure 5-22. Engagement 56 overview

56

	TARGET 1	TARGET 2	TARGET 3	TARGET 4
CHANGE OF WEAPON/ AMMUNITION DEFENSE				

ENGAGEMENT AMMUNITION REQUIREMENTS

SABOT	HEAT	HEP	CAN	7.62mm	CAL .50	HOSTILE FIRE	STEEL ON STEEL
CA58	**C511**	**CA37**	**CA40**	**AB86**	**A557**	**LA54**	**LA53**
	3			100		3	3

PREPARE FOR ENGAGEMENT

_____ THIS IS _____

PREPARE FOR DEFENSIVE OPERATIONS IN BATTLE POSITION _____

BATTLECARRY HEAT. CHECK YOUR COAX MACHINE GUN. REPORT WHEN REDCON ONE, OVER.

PROMPT

ALERT	_____ THIS IS _____
WEAPON/AMMO	COAX/COAX/HEAT/HEAT
TARGET DESCRIPTION	TROOPS AND TRUCK WITH MULTIPLE PCs IN SUPPORT
METHOD	MOST DANGEROUS FIRST
LOCATION	VICINITY _____AND _____
RANGE	
CONTROLS	ENGAGE UPON POSITIVE IDENTIFICATION
EXECUTION	WEAPONS FREE, WEAPONS FREE.
CONTROLS	REPORT WHEN SECTOR CLEAR, OVER.

LEGEND

CAL .50	**CALIBER .50**	**HEP**	**HIGH EXPLOSIVE PLASTIC**
CAN	**CANISTER**	**mm**	**MILLIMETER**
COAX	**COAXIAL MACHINE GUN**	**PC**	**PERSONNEL CARRIER**
HEAT	**HIGH EXPLOSIVE ANTITANK**	**REDCON**	**READINESS CONDITION**

Figure 5-23. Engagement 56 ammunition and script worksheet

ENGAGEMENT 57

5-56. This is a degraded engagement where the gunner must engage multiple threats on the offense with a stabilization failure (see figure 5-24 and the worksheet on figure 5-25 on page 156). This engagement challenges the crew by using degraded gunnery techniques with a short to mid-range threat array.

57 			TABLE V, PRACTICE	
TASK TYPE:	DEGRADED		POSTURE:	OFFENSE
			DELAY:	
	TARGET 1	TARGET 2	TARGET 3	TARGET 4
CONDITIONS				
FIRER	GUNNER	GUNNER		
WEAPON/AMMUNITION	SABOT	COAX		
TARGET	TANK	RPG TEAM		
TARGET TYPE	H1T-FRT	E(3)-FRT		
TARGET POSTURE	STATIONARY	STATIONARY		
RANGE TO TARGET	1,600m	600m		
ENGAGEMENT MODIFIER	13	14		

LINKAGE ACROSS TRAINING STRATEGY

TABLE III	TABLE IV	TABLE V	TABLE VI
			
OFFENSE	DEFENSE	OFFENSE	DEFENSE
STX Engagement. Degraded engagement teaching use of fire control without stabilization against stationary targets at mid-range from the offense.	Baseline Engagement. Moving target at mid-range for the VC from the defense. All engagements on Table IV are fired from the DEFENSE.	Practice engagement. Degraded engagement with laser range finder inoperative against stationary targets at mid-range from the offense.	Qualification Engagement. Complex engagement with multiple reticle use in GAS against stationary and moving targets from a defensive fighting position at mid-range.

LEGEND

COAX	COAXIAL MACHINE GUN	RPG	ROCKET-PROPELLED GRENADE
FRT	FRONTAL	STX	SITUATIONAL TRAINING EXERCISE
GAS	GUNNER'S AUXILIARY SIGHT	VC	VEHICLE COMMANDER
m	METER		

Figure 5-24. Engagement 57 overview

57

TARGET 1	TARGET 2	TARGET 3	TARGET 4
DEGRADED OFFENSE				

ENGAGEMENT AMMUNITION REQUIREMENTS

SABOT	HEAT	HEP	CAN	7.62mm	CAL .50	HOSTILE FIRE	STEEL ON STEEL
CA58	**C511**	**CA37**	**CA40**	**AB86**	**A557**	**LA54**	**LA53**
1				50		1	1

PREPARE FOR ENGAGEMENT

_____ THIS IS _____

PREPARE FOR OFFENSIVE OPERATIONS. MOVE TO A SHORT HALT POSITION ALONG ROUTE _____

YOUR STABILIZATION SYSTEM IS INOPERABLE, TURN OFF YOUR STABILIZATION. BATTLECARRY SABOT. CHECK YOUR COAX MACHINE GUN. REPORT REDCON ONE.

PROMPT

ALERT	_____ THIS IS _____
WEAPON/AMMO	SABOT/COAX
TARGET DESCRIPTION	TANK WITH RPG TEAM IN SECTOR
METHOD	*STABILIZATION INOPERABLE*
LOCATION	VICINITY _____AND _____
RANGE	
CONTROLS	ENGAGE UPON POSITIVE IDENTIFICATION
EXECUTION	WEAPONS FREE, WEAPONS FREE.
CONTROLS	REPORT WHEN SECTOR CLEAR, OVER.

LEGEND

CAL .50	**CALIBER .50**	**HEP**	**HIGH EXPLOSIVE PLASTIC**
CAN	**CANISTER**	**mm**	**MILLIMETER**
COAX	**COAXIAL MACHINE GUN**	**REDCON**	**READINESS CONDITION**
HEAT	**HIGH EXPLOSIVE ANTITANK**	**RPG**	**ROCKET-PROPELLED GRENADE**

Figure 5-25. Engagement 57 ammunition and script worksheet

ENGAGEMENT 58

5-57. Engagement 58 is a degraded engagement for the gunner to apply their auxiliary sight and apply the appropriate ballistic reticle for a mid-range coaxial and main gun threats (see figure 5-26 and the worksheet on figure 5-27 on page 158). This requires the gunner to apply the appropriate ballistic reticle offsets to effectively engage and defeat the threat presented followed by a ballistic change for a main gun engagement. The gunner must clear the gun-target line effectively and control the movement of the vehicle once clear.

58 

TABLE V, PRACTICE

TASK TYPE:	*DEGRADED*	POSTURE:	DEFENSE

CONDITIONS	TARGET 1	TARGET 2	DELAY: TARGET 3	TARGET 4
				
FIRER	GUNNER	GUNNER		
WEAPON/AMMUNITION	COAX	HEP		
TARGET	TROOPS	TRUCK		
TARGET TYPE	E(7)-FRT	L2T-FRT		
TARGET POSTURE	STATIONARY	STATIONARY		
RANGE TO TARGET	600m	1,000m		
ENGAGEMENT MODIFIER	10	10		

LINKAGE ACROSS TRAINING STRATEGY

TABLE III	TABLE IV	TABLE V	TABLE VI
			
DEFENSE	DEFENSE	DEFENSE	OFFENSE
STX Engagement. Degraded engagement that reinforces use of the auxiliary sight for coax engagements against a stationary target at mid-range from the defense.	Basic Engagement. Multiple stationary targets for the VC at mid to long-range from the defense. All engagements on Table IV are fired from the DEFENSE.	Practice engagement. Degraded complex engagement with multiple reticle use in GAS against stationary targets in the defense at mid-range.	Qualification Engagement. Degraded change of weapon system on the offense with stabilization failure against stationary targets at close to mid-range.

LEGEND

COAX	COAXIAL MACHINE GUN	m	METER
FRT	FRONTAL	STX	SITUATIONAL TRAINING EXERCISE
GAS	GUNNER'S AUXILIARY SIGHT	VC	VEHICLE COMMANDER
HEP	HIGH EXPLOSIVE PLASTIC		

Figure 5-26. Engagement 58 overview

58

TARGET 1	TARGET 2	TARGET 3	TARGET 4
DEGRADED DEFENSE				

ENGAGEMENT AMMUNITION REQUIREMENTS

SABOT	HEAT	HEP	CAN	7.62mm	CAL .50	HOSTILE FIRE	STEEL ON STEEL
CA58	**C511**	**CA37**	**CA40**	**AB86**	**A557**	**LA54**	**LA53**
		1		50		1	1

PREPARE FOR ENGAGEMENT

_____ THIS IS _____

PREPARE FOR DEFENSIVE OPERATIONS IN BATTLE POSITION _____

YOUR GUNNER'S PRIMARY SIGHT IS INOP. CLOSE YOUR BALLISTIC DOORS. BATTLECARRY HEP, CHECK YOUR COAX MACHINE GUN. PREPARE FOR DEGRADED OPERATIONS AND REPORT REDCON ONE.

PROMPT

ALERT	_____ THIS IS _____
WEAPON/AMMO	COAX/HEP
TARGET DESCRIPTION	TROOPS AND TRUCK IN SECTOR
METHOD	*AUXILIARY SIGHT*
LOCATION	VICINITY _____AND _____
RANGE	
CONTROLS	ENGAGE UPON POSITIVE IDENTIFICATION
EXECUTION	WEAPONS FREE, WEAPONS FREE.
CONTROLS	REPORT WHEN SECTOR CLEAR, OVER.

LEGEND

CAL .50	**CALIBER .50**	**HEP**	**HIGH EXPLOSIVE PLASTIC**
CAN	**CANISTER**	**INOP**	**INOPERABLE**
COAX	**COAXIAL MACHINE GUN**	**mm**	**MILLIMETER**
HEAT	**HIGH EXPLOSIVE ANTITANK**	**REDCON**	**READINESS CONDITION**

Figure 5-27. Engagement 58 ammunition and script worksheet

ENGAGEMENT 59

5-58. This engagement is a simultaneous engagement fired on the offense where the gunner and VC must acquire and defeat threats using their machine guns (see figure 5-28 and the worksheet on figure 5-29 on page 160). This builds upon previous simultaneous engagement during Table IV which replicate Infantry support tasks. Units should use caution designing the engagement to ensure the VC target is presented to the right side of the course road.

59 

TABLE V, PRACTICE

TASK TYPE:	SIMULTANEOUS		POSTURE:	OFFENSE
			DELAY:	25 SECONDS
	TARGET 1	TARGET 2	TARGET 3	TARGET 4
CONDITIONS				
FIRER	GUNNER	VC	GUNNER	
WEAPON/AMMUNITION	COAX	CALIBER .50	COAX	
TARGET	TROOPS	BTR	TROOPS	
TARGET TYPE	E(7)-FRT	M2T-FRT	E(7)-FRT	
TARGET POSTURE	STATIONARY	STATIONARY	STATIONARY	
RANGE TO TARGET	600m	800m	600m	
ENGAGEMENT MODIFIER	14	15	14	

LINKAGE ACROSS TRAINING STRATEGY

TABLE III	TABLE IV	TABLE V	TABLE VI
			
DEFENSE	DEFENSE	OFFENSE	DEFENSE
STX Engagement. Simultaneous small arms engagement against multiple stationary targets at mid-range from the defense.	Basic Engagement. Simultaneous against multiple stationary and a moving delay target at mid-range. All engagements on Table IV are fired from the DEFENSE.	Practice engagement. Multiple stationary targets followed by a delay target on the offense at mid-range. Short halt increases complexity.	Qualification Engagement. Multiple stationary targets followed by a delay target from a defensive fighting position at mid to long-range.

LEGEND

BTR	BRONETRANSPORTYOR	m	METER
COAX	COAXIAL MACHINE GUN	STX	SITUATIONAL TRAINING EXERCISE
FRT	FRONTAL	VC	VEHICLE COMMANDER

Figure 5-28. Engagement 59 overview

59

TARGET 1	TARGET 2	TARGET 3	TARGET 4
SIMULTANEOUS OFFENSE				

ENGAGEMENT AMMUNITION REQUIREMENTS

SABOT	HEAT	HEP	CAN	7.62mm	CAL .50	HOSTILE FIRE	STEEL ON STEEL
CA58	**C511**	**CA37**	**CA40**	**AB86**	**A557**	**LA54**	**LA53**
				100	50	1	1

PREPARE FOR ENGAGEMENT

_____ THIS IS _____

PREPARE FOR OFFENSIVE OPERATIONS. MOVE TO A SHORT HALT POSITION ALONG ROUTE _____

CHECK CALIBER FIFTY AND COAX MACHINE GUN . REPORT REDCON ONE, OVER.

PROMPT

ALERT	_____ THIS IS _____
WEAPON/AMMO	COAX/CALIBER .50/COAX
TARGET DESCRIPTION	TROOPS AND BTR WITH MORE TROOPS IN SUPPORT
METHOD	SIMULTANEOUS
LOCATION	VICINITY _____AND _____
RANGE	
CONTROLS	ENGAGE UPON POSITIVE IDENTIFICATION
EXECUTION	WEAPONS FREE, WEAPONS FREE.
CONTROLS	REPORT WHEN SECTOR CLEAR, OVER.

LEGEND

BTR	**BRONETRANSPORTYOR**	**HEAT**	**HIGH EXPLOSIVE ANTITANK**
CAL .50	**CALIBER .50**	**HEP**	**HIGH EXPLOSIVE PLASTIC**
CAN	**CANISTER**	**mm**	**MILLIMETER**
COAX	**COAXIAL MACHINE GUN**	**REDCON**	**READINESS CONDITION**

Figure 5-29. Engagement 59 ammunition and script worksheet

ASSESS—TABLE V

5-59. The intent of the practice course of fire is to train the crews within the organization on the appropriate conduct of fire skills in both offensive and defensive postures against common threat arrays using the primary armament, coaxial, and commander's machine gun. Proper evaluation and assessment of crew performance is key to improving individual and crew skills prior to moving to the qualification course of fire.

5-60. Each crew should receive a formal AAR following the guidelines found in TC 3-20.31. Each evaluator should use DA Form 8265 and DA Form 8265-1 as the basis for their evaluation, identifying the firing occasional information from the score sheet timelines. The evaluator and VC each review and sign the DA Form 8265-1.

Note. VCEs must be certified or recertified as described in TC 3-20.31. Performing the duties, as a VCE during the conduct of Table V, Practice is a significant part of building experience and knowledge of those gunners and VCs without firing.

5-61. Units should track the various firing information from the score sheets to identify where in the conduct of fire crews and the overall unit should apply additional training effort. Some of those indicators are—

- Target acquisition, detection, and identification.
- Time to fire.
- Time to kill.
- Opening and closing times for machine gun engagements.
- Gunner lay errors.
- Scanning techniques.
- Engagement techniques.
- Conduct of fire issues.
- Penalties by type.

RETRAIN—TABLE V

5-62. The unit Master Gunner maintains the unit roll-up by engagement. A subcategorized roll-up by platoon provides the commander a snapshot of training trends, strengths, and weaknesses. The Master Gunner should not only identify crews that did not achieve a passing standard, but also crews that struggled on specific engagement tasks. Once done, the unit can establish and conduct the appropriate focused retraining followed by a subsequent evaluation.

5-63. All crews successfully complete the course of fire based on the standards for the engagements listed earlier in this chapter.

Note. All crews should successfully complete the course of fire based on the standards for the engagements listed earlier in this chapter. No crew should proceed to Table VI or any other live-fire event until they have achieved the minimum standard on Table V. The commander and Master Gunner may assess the crews' capability to proceed without qualifying the table based on target acquisition, target kills, fire commands, and engagement techniques.

5-64. Unit Master Gunners should include chair drills for the crews using the scenarios for each engagement for retraining purposes. Units should include future table's engagements in the chair drills training to best prepare the crews for those events. Additional information on chair drills is in TC 3-20.31.

Chapter 6

Table VI–Qualification

Crew platform, Table VI, Qualification, is the record course of fire used to determine the live-fire proficiency of a crew platform. Table VI serves as the live-fire proficiency event for readiness reporting. It is also the live-fire prerequisite for the crew to move to collective live-fire events. Table VI, Qualification, is a live-environment training event under live-fire conditions using full-caliber training ammunition, realistic targetry and engagement scenarios, at a combat tempo, conducted on an authorized live-fire facility. Regardless of crew platform type, this table reinforces the basic skills trained during previous events to build leader and element tactical and technical mastery.

OVERVIEW—TABLE VI

6-1. Table VI, Qualification, is conducted from the crew's vehicle and uses full caliber training ammunition on an authorized live-fire facility or safety certified training area that assesses a crew's tactical employment proficiency and lethality. Table VI is used to train and evaluate the crew's ability to engage stationary or moving targets placed in a tactical array, during day and limited visibility conditions, with an operational or simulated degraded fire control system, as applicable. Crews execute these tasks from the offense and defense using full-caliber ammunition, against full-scale targetry at full range.

6-2. This table requires each crew to successfully complete the live-fire prerequisites, all zeroing procedures for their platform, and at a minimum, complete the defensive engagements on Table IV. It is the qualification event for medium tank crews.

Table VI, Qualification

This event builds unit proficiency and is a requirement to build unit readiness. This event is an external evaluation for qualification purposes. Failing indicates a clear lack of proficiency at basic engagement skills.

6-3. Figure 6-1 on page 164 shows where Table VI, Qualification, resides withing the medium tank training strategy through crew qualification. Table VI is the qualification event where the crew is evaluated on their demonstrated proficiency executing critical live-fire main gun, machine gun, and simultaneous engagements from the offense and defense, during the day and night phases. It requires the crew to demonstrate their ability to effectively employ the medium tank's weapons using fully mission capable fire control system components as well as redundant, degraded engagements.

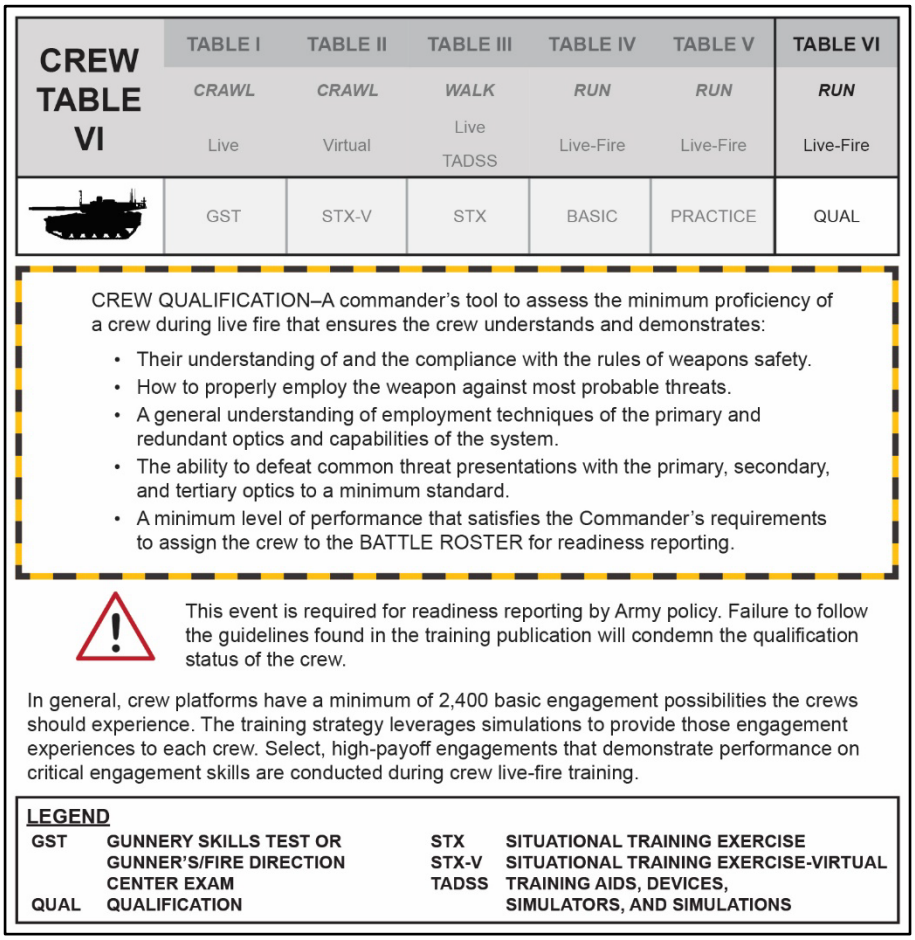


Figure 6-1. Table VI, Qualification

PURPOSE—TABLE VI

6-4. Table VI is a skills assessment and risk mitigation tool for the commander and is the platform's qualification for reporting purposes. It is also a proficiency gate the crew must successfully complete prior to entering any collective live-fire event. It assists the commander in determining the safe and effective use of the platform, its weapons, identification of threats and common ammunition by the crewmembers in the unit. Further, it identifies shortfalls and training gaps in those gunnery specific skills, which impact crew proficiency and unit readiness.

METHOD—TABLE VI

6-5. Table VI is a performance-based evaluation of basic and advanced gunnery skills in a live environment under live-fire conditions. The conduct of Table VI is on vehicles using full-caliber ammunition and BES. It utilizes experienced external evaluators to educate, train, test, and retrain Soldiers to meet or exceed those standards.

END STATE—TABLE VI

6-6. The VC and gunner assigned as a crew have successfully demonstrated the skills and knowledge required to continue training on the platform through platform qualification. Commanders are confident in their Soldier's abilities in the position assigned. The tasks evaluated in Table VI provide the commander a means to certify the crew's basic and advanced weapons platform proficiency prior to collective live-fire events. The commander and Master Gunner use the results from the qualification course when structuring the unit's crew training program and is a readiness reportable item.

TASK, CONDITIONS, AND STANDARD—TABLE VI

6-7. Outlined in figure 6-2 are the task, conditions, and standard for Table VI, Qualification. Units may not add to the live-fire requirements or tasks associate with Table VI. The division commander or equivalent maintains the qualification course of fire standards and approved scenarios.

	**TABLE VI QUALIFICATION**
TASK	Engage and destroy stationary and moving targets placed in a tactical array, during day and limited visibility from a stationary or moving medium tank using full-caliber ammunition.
CONDITIONS	Given the following: • An operational platform with weapon or weapon systems. • Allotted ammunition. • Certified vehicle crew evaluators. • Full-scale targets. • All prerequisites to live-fire for the crew platform achieved.
STANDARD	The crew must: • Score a minimum of 700 of 1,000 points overall. • Score 70 points or more on all targets presented on 7 out of the 10 engagements. • Qualify on at least one day and one limited visibility engagement.

Figure 6-2. Table VI, Qualification

Note. If any individual target score on an engagement is less than 70 points, the engagement is unqualified, regardless of overall engagement score.

PLAN—TABLE VI

6-8. Table VI, Qualification, is a live-fire training environment event using training aids, devices, and simulators, and includes the use of full-caliber and small arms training ammunition and BES. The qualification course of fire requires external VCEs and coordination with the higher headquarters for support.

6-9. This section details the resources needed for planning purposes. General information on topics for consideration are—

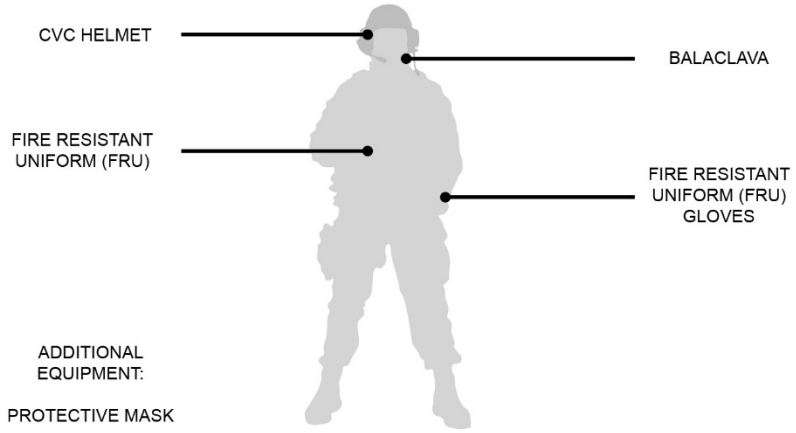
- Uniform—the minimum requirements for the combat vehicle crewmember's fire-retardant clothing and protective equipment.
- Facilities—available facilities that support the training event.
- Range support—identify all range support personnel.
- Training plan—the minimum tasks, general guidelines, and special instructions for the training event.
- Time and throughput—the estimated time required to complete the training event including throughput considerations for planning.
- Ammunition—any training munitions required to complete the training event.
- TADSS—any available training aids that directly support or augment the training event.

UNIFORM—TABLE VI

6-10. Crews must be in the appropriate vehicle crewmember uniform or prescribed unit uniform and protective mask. Crews are not required to have any additional body armor, ballistic plates, or gear during the training event unless directed by the commander. Figure 6-3 provides the minimum uniform training requirements this event.



TABLE VI
QUALIFICATION
UNIFORM REQUIREMENTS



LEVEL	S SKULL	T TORSO	E EYES	E EARS	L LIMBS
MINIMUM REQUIRED	3	4	1	3	3
0	NONE	NONE	NONE	NONE	NONE
1	PATROL CAP	VEST	**GOGGLES**	SINGLE EAR PROTECTION	GLOVES
2	HELMET	VEST with PLATES	BALLISTIC	DOUBLE EAR PROTECTION	LEATHER GLOVES
3	**BALACLAVA**	FRU		**CVC HELMET/ HEADSET**	**FRU GLOVES**
4		**FRU and SPALL VEST**			

Note: The Combat Vehicle Crewman (CVC) helmet includes the headset hearing protection. Goggles or appropriate eye protection are required for exposed crewmen during vehicle movement.

Figure 6-3. Uniform requirements for Table VI

FACILITIES—TABLE VI

6-11. Table VI requires the use of a maneuver gunnery range that allows live fire for small and large caliber ammunition. Master Gunners must be familiar with the family of maneuver ranges, the range operations control area, and the specific instrumentation and target sets available on the range facility selected for Table VI. The maneuver range facilities recommended as primary and alternate facilities are shown in figure 6-4.



TABLE VI
QUALIFICATION
AUTHORIZED FACILITIES

FACILITY		TABLE VI, QUALIFICATION
Battle Area Complex	BAX	ALTERNATE
Digital Air Ground Integration Range	DAGIR	ALTERNATE
Digital/Multipurpose Range Complex	D/MPRC	ALTERNATE
Digital/Multipurpose Training Range	D/MPTR	**PRIMARY**
Scout/Reconnaissance Gunnery Complex	SRGC	ALTERNATE

Note: Units should consider using a separate facility to conduct zeroing procedures if it assists with increased throughput.

Figure 6-4. Recommended maneuver range facilities to support Table VI, Qualification

Through-Sight Video Required

Units are required to utilize the through-sight video system available for their platform on the qualification event. This is to ensure the highest fidelity AAR are created for the crews and commanders to build future unit training plans.

RANGE SUPPORT—TABLE VI

6-12. The range support group provides VCE teams to evaluate the course of fire. This requires all gunners and above to certify or recertify as VCEs between T-6 and T-execution of the training event.

6-13. The range support personnel general requirements are in figure 6-5. This includes the most common support required for crew platform live-fire events. In the event the unit utilizes multiple facilities to complete the zero and defensive engagements, appropriate adjustments should be made to this general structure.

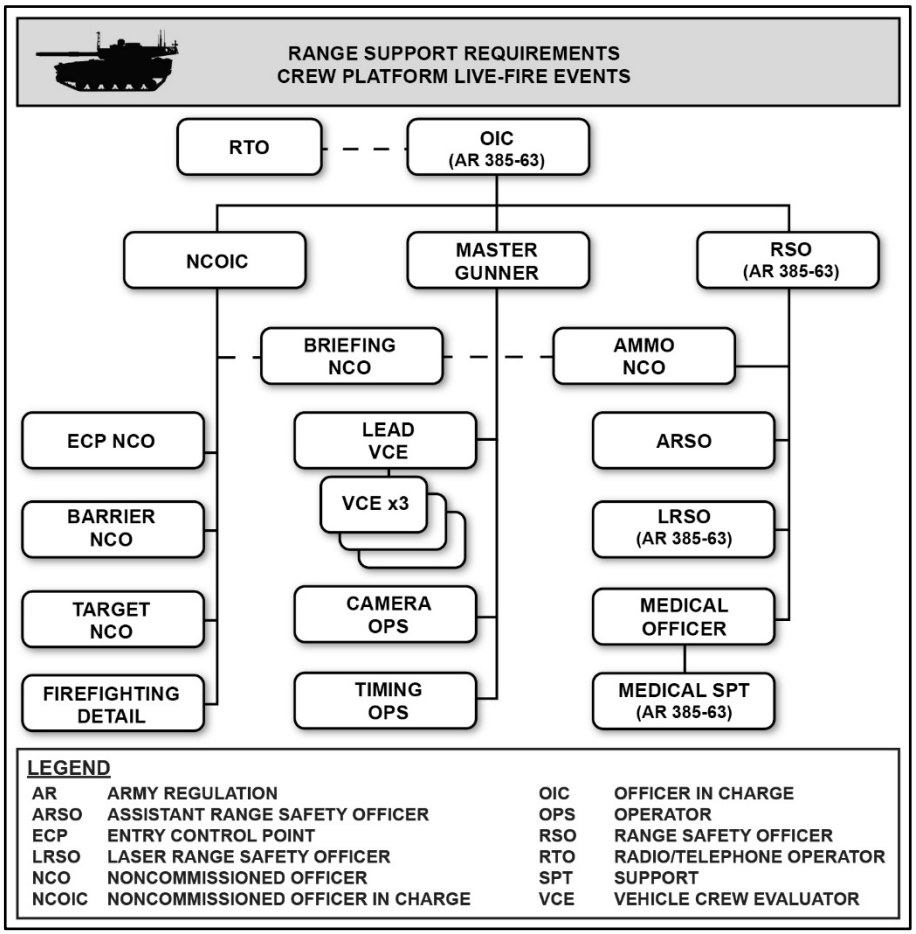


Figure 6-5. Range support personnel requirements, example

TRAINING PLAN—TABLE VI

6-14. Table VI, Qualification, provides a challenging scenario to the crews to prepare them for collective live-fire events and deployment. The qualification course exercises the crew's conduct of fire and engagement skills in a demanding manner that demonstrates the minimum proficiency of the crew.

6-15. Units are required to use full-scale targets at full range for the engagement scenarios unless specifically directed. To maintain training standards across the Army, there is no authorization for deviation from the engagements on Table VI beyond the guidelines listed in TC 3-20.31 for alternate targetry.

6-16. The design of Table VI is purposefully challenging to the crews while providing realistic engagements that exercise the crew's ability to utilize the key capabilities of the vehicle's fire control system. Units retrain as necessary with full-caliber ammunition using first-round hit savings (harvested ammunition) from the previous tables in the training strategy. Units must manage the available resources to ensure all crews successfully complete Table VI before proceeding to any collective live-fire event or deployment.

6-17. All crew platform tables are multiple qualification criteria tables. Crews must score at least 70 points per target according to the target kill standards in TC 3-20.31 on single and multiple target engagements to qualify the engagement. Crews must also score more than 700 points overall with a minimum of 70 points per target during 7 of 10 engagements on the qualification table to be used. Crews must qualify at least one engagement during day and one engagement during limited visibility to be qualified.

6-18. Table VI uses full caliber training ammunition on an authorized live-fire facility or safety certified training area that assesses an element's tactical employment proficiency and lethality.

6-19. Crews must successfully complete the qualification course prior to executing any collective live-fire training. Units must follow the training guidelines for those gates in the appropriate training circular. Units may conduct make-up qualifications prior to live collective training when required. However, units must accomplish live-fire prerequisites as directed.

Scenario Requirements—Table VI

6-20. This table is designed to train and evaluate the crew's ability to engage stationary or moving targets placed in a tactical array, from the defense, during day and limited visibility conditions.

6-21. All engagements are evaluated using certified VCEs using DA Form 8265 and DA Form 8265-1 as the official record of training. Master Gunners must ensure the training records are included in each crew's gunnery packet (see TC 3-20.31).

6-22. The engagements listings are by capability type using the standard engagement naming structure listed in TC 3-20.31. It provides the requirements for each engagement, as demonstrated in paragraphs 6-23 through 6-30.

Task Description for Table VI

6-23. The task description includes both the engagement number (the table number plus engagement task) followed by the system capability trained.

Firing Vehicle Posture—Table VI

6-24. The firing vehicle posture establishes the offense or defense condition for the engagement.

Firer—Table VI

6-25. The firer column identifies which crewmember is to engage the target listed. Targets defeated by a different crewmember listed as the firer result in an auto-zero penalty, failing to adhere to course conditions.

Weapon (or Ammunition)—Table VI

6-26. The weapon column identifies the weapon (coaxial, caliber .50, or primary armament ammunition type) that is used to defeat the threat. Design of each engagement is for a specific weapon or ammunition type (primary armament) for use, which relates to the crew conduct of fire, optic selection, engagement techniques, or other unique implied tasks. Crews that fail to announce the appropriate weapon or ammunition, or appropriate selection for subsequent or supplemental engagements may be penalized IAW TC 3-20.31.

Target Type—Table VI

6-27. The target type column identifies the target required for the presentation, IAW TC 25-8. The unit Master Gunner must ensure that target hit sensitivity settings on Digital Range Training System and Targetry Range Automated Control and Recording ranges are on the proper settings.

Target hit sensitivity settings

	Stationary Armored Target	Moving Armored Target
Main Gun	7	7
Caliber .50	13	11
7.62 mm	13	13

Target Posture—Table VI

6-28. The target posture establishes if the target is stationary, moving, or evasive for the engagement. See TC 3-20.31 for more information on target postures.

Range (to Target)—Table VI

6-29. The range column identifies the required range (full scale or equivalent scaled range) from the firing vehicle to the target. For offensive engagements, this distance calculation is from the center of the movement box to the target. The range to target distance is provided in meters and is displayed as a whole number, such as 600.

6-30. The target may be placed at the distance indicated, plus or minus 200 meters. For example, when the range to target is listed as 600 meters, the target may be placed between 400 meters and 800 meters. This allows flexibility designing the scenario on varying maneuver range facilities with different capabilities, target counts, emplacement locations, and terrain restrictions.

6-31. No change to the EM is authorized. The range bands listed with their applied tolerances do not require any adjustment to the EM. Units are not authorized to exceed the target placement tolerances.

Engagement Modifier—Table VI

6-32. The EM is the time in seconds required to achieve 100 points against the listed threat. To defeat the threat successfully, the crew must achieve the kill standard against the target and have an overall engagement time of no more than the EM plus 20 seconds. See TC 3-20.31 for the evaluation, timing, and scoring procedures.

Engagements—Table VI

6-33. Figure 6-6 shows the breakdown of what target type, target posture, range, and weapon system or ammunition type used for each task number. Units are not allowed to deviate from any target type, target posture, range, and weapon system or ammunition.

TABLE VI, QUALIFICATION ENGAGEMENT REQUIREMENTS

TASK	DESCRIPTION	POSTURE	FIRER	WEAPON	TARGET TYPE	TARGET POSTURE	RANGE	EM
60	VEHICLE COMMANDER	OFFENSE	VC	HEAT	M1T-FRT	STA	1,200m	13
			VC	HEAT	M1T-FLK	MOV	1,600m	16
61	MACHINE GUN	DEFENSE	GNR	COAX	E(7)FRT	STA	400m	8
			GNR	COAX	L2T-FLK	MOV	800m	12
62	MACHINE GUN	OFFENSE	GNR	COAX	E(7)FRT	STA	400m	12
			GNR	COAX	L2T-FRT	STA	800m	14
			GNR	COAX	E(7)FRT	STA	800m	15
63	MAIN GUN	DEFENSE	GNR	HEP	H3T-FRT	STA	800m	8
			GNR	HEP	M2T-FRT	STA	1,000m	9
64	MAIN GUN	OFFENSE	GNR	HEP	H3T-FRT	STA	600m	11
			GNR	HEP	H3T-FRT	STA	800m	12
65	CHANGE OF WEAPON	DEFENSE	GNR	COAX	E(7)FRT	STA	400m	8
			GNR	HEAT	L2T-FRT	STA	1,600m	11
			GNR	COAX	E(7)FRT	STA	600m	10
			GNR	HEAT	M1T-FLK	MOV	1,600m	12
66	CHANGE OF WEAPON	OFFENSE	GNR	HEP	H3T-FRT	STA	400m	9
			GNR	COAX	E(7)FRT	STA	400m	12
			GNR	HEP	H3T-FRT	STA	600m	11
			GNR	SABOT	H1T-FLK	MOV	1,800m	15
67	DEGRADED	DEFENSE	GNR	HEAT	M1T-FRT	STA	1,200m	9
			GNR	HEAT	M1T-FLK	MOV	1,600m	12
68	DEGRADED	OFFENSE	GNR	COAX	E(7)FRT	STA	400m	12
			GNR	HEP	L2T-FRT	STA	1,000m	14
69	SIMULTANEOUS	DEFENSE	GNR	COAX	E(7)FRT	STA	600m	10
			VC	CAL .50	M2T-FRT	STA	600m	10
			GNR	COAX	L2T-FRT	STA	800m	10

LEGEND

CAL .50	CALIBER .50	HEAT	HIGH EXPLOSIVE ANTITANK
COAX	COAXIAL MACHINE GUN	HEP	HIGH EXPLOSIVE PLASTIC
EM	ENGAGEMENT MODIFIER	m	METER
FLK	FLANK	MOV	MOVING
FRT	FRONTAL	STA	STATIONARY
GNR	GUNNER	VC	VEHICLE COMMANDER

Figure 6-6. Table VI, Qualification scenario requirements

TIME AND THROUGHPUT—TABLE VI

6-34. The throughput expectation of this table is 14 crews per day. Depending on maintenance or other unforeseen issues, recommend incorporating an additional half training day to the schedule. Figure 6-7 shows the expected throughput schedule based on the number of vehicles for firing and the unit's day and night engagement breakdown for the engagements.

CREW PLATFORM WEAPON SYSTEM THROUGHPUT REQUIREMENTS

		NUMBER OF ENGAGEMENTS					
	DAY	8	7	6	5	4	
	NIGHT	2	3	4	5	6	
NUMBER OF CREWS	10	15.25	16.00	16.50	17.25	18.00	HOURS TO COMPLETE
	11	16.25	17.00	17.75	18.50	19.25	
	12	17.50	18.25	19.00	20.00	20.75	
	13	18.50	19.50	20.25	21.25	22.00	
	14	19.75	20.75	21.50	22.50	23.50	
	15	21.00	22.00	23.00	24.00	25.00	
	16	22.00	23.00	24.25	25.25	26.25	
	17	23.25	24.25	25.50	26.50	27.75	
	18	24.25	25.50	26.75	28.00	29.00	
	19	25.50	26.75	28.00	29.25	30.50	
	20	26.50	28.00	29.25	30.50	32.00	

Note: Overall time requirements are based on a single firing lane and include four hours of range maintenance down time (two blocks of two hours each). This is standard at most facilities. These calculations are for planning purposes only. Units that are more proficient in tower operations may have an increased throughput.

Any time shown exceeding 24 hours will not be possible in a single range day without unit action to conduct the range with a sense of urgency during preparation to fire tasks and execution of the table including tactical movement between engagements.

Figure 6-7. Table VI, Qualification, throughput expectations

Note. Time requirements overall are based on a single firing lane and include 4 hours of range maintenance down time (two blocks of 2 hours each). This is standard at most facilities. These calculations are for planning purposes only. Units that are more proficient in tower operations may have an increased throughput.

AMMUNITION—TABLE VI

6-35. Figure 6-8 provides the ammunition requirements for Table VI, Qualification. Failure to forecast, schedule, or provide the BES devices or munitions violates the conditions of the engagements for readiness reporting.



TABLE VI
QUALIFICATION
TRAINING AMMUNITION REQUIREMENTS

DODIC	MUNITION TYPE	QUANTITY
C511	CTG, 105-mm TP-T, M490A1	9
CA58	CTG, 105-mm TPDS-T M724A2	2
CA37	CTG, 105mm TP-T M467A1	10
AB86	CTG, 7.62-mm 4 ball M80/1 TRCR M62 LNKD	550
A557	CTG, .50 cal, 4 ball/1 TRCR LNKD M33 for M2	50
LA53	SIM, target hit XM35 (BES)	18
LA54	SIM, EXP DET XM34 (BES)	18

ADDITIONAL CERTIFICATIONS:



BES SYSTEMS



PYROTECHNICS

Certify junior leaders on the components, functioning, hazards, use, and troubleshooting of available Battle Effects Simulator (BES) systems.

Provides a working understanding of the components, functioning, emplacement, use, troubleshooting, and hazards when:

- Placing BES systems into operation.
- Synchronizing functioning.
- Installing BES cartridges
- Troubleshooting BES systems.
- Removing unused BES cartridges.
- Conducting safe operations of BES systems.

LEGEND

CAL	CALIBER	mm	MILLIMETER
CTG	CARTRIDGE	SIM	SIMULATOR
DODIC	DEPARTMENT OF DEFENSE IDENTIFICATION CODE	TPDS-T	TARGET PRACTICE DISCARDING SABOT-TRACER
EXP DET	EXPLOSIVE DETONATION	TP-T	TARGET PRACTICE-TRACER
LNKD	LINKED	TRCR	TRACER

Figure 6-8. Table VI, Qualification, ammunition requirements

TADSS—TABLE VI

6-36. This course requires the use of the CMU (some installations may refer to the CMU as an IPU) for all crews. The CMU is available on the digital range facility scheduled (if equipped). Coordination with the scheduled range facility manager will determine unit responsibilities for installation, troubleshooting, maintenance, and use of the devices ahead of the training day(s). If the range does not have a CMU available, unit may draw the CMUR from the TADSS warehouse. The CMUR differs from the CMU in that it stores all run data on a solid-state drive on the vehicle, for use with the provided AAR suite in the CMUR kit.

6-37. The brigade commander must approve authorization for deviation from this requirement if TADSS are unavailable. Units should focus on training and reinforcing the skills in the direct fire kill chain on this table specifically with their thermal optics, day and night to best prepare them for the follow-on training events. Figure 6-9 shows the TADSS required or recommended for Table VI.



TABLE VI,
QUALIFICATION
TRAINING AIDS, DEVICES, SIMULATORS,
AND SIMULATIONS (TADSS)
REQUIREMENTS

DODIC	NOMENCLATURE	REMARKS
CMU	Crew Module Unit/Integrated Player Unit	REQUIRED
CMUR	Crew Module Unit Recorder (Through-Sight Video)	
T 17-114	105MM TANK TRAINING ROUND, M1040, CANISTER, DUMMY	CONCURRENT TRAINING
T 17-115	105MM TANK TRAINING ROUND, M393A3, HEP, DUMMY	CONCURRENT TRAINING
T 17-116	105MM TANK TRAINING ROUND, M900, SABOT, DUMMY	CONCURRENT TRAINING
T 17-117	105MM TANK TRAINING ROUND, M456A2, HEAT, DUMMY	CONCURRENT TRAINING
SP-1	BORESIGHT PANEL	REQUIRED

LEGEND

DODIC	DEPARTMENT OF DEFENSE IDENTIFICATION CODE	HEP	HIGH EXPLOSIVE PLASTIC
HEAT	HIGH EXPLOSIVE ANTITANK	MM	MILLIMETER
		SP-1	SPECIAL PANEL NUMBER ONE

Figure 6-9. Table VI, Qualification, TADSS

PREPARE—TABLE VI

6-38. Units must coordinate for the appropriate training facility, equipment, targetry, training munitions, TADSS (if desired), and pyrotechnics to support Table VI. During the preparation phase, the unit should ensure the proofing team, VCEs, and other personnel receive training to standard to support their role as evaluators and trainers. This includes range officers in charge, range safety officers, and ammunition handlers.

TRAIN THE TRAINERS—TABLE VI

6-39. Units must certify each VC and gunner as VCEs prior to entering the live-fire density. Units must have certified evaluators to ensure the training objectives for the training table are set and to provide effective AARs to each crew. Table VI also requires experienced VC and gunners to serve as the proofing team for the zero test.

VEHICLE CREW EVALUATORS—TABLE VI

6-40. A trained and certified VCE team must be available to provide support prior to live fire to correctly evaluate a gunnery density. After certification, the unit must ensure sufficient VCEs are available to support the live-fire event. Evaluations of crew gunnery always come from outside the firing platoon element, and VCEs external to the battalion are required for qualification purposes.

6-41. Depending on the size of the weapons training density (make-up gunnery, platoon, company, or battalion) and the type of range facility used, the number of evaluators may vary. Having the correct number and type of evaluators per firing range maximizes the unit's throughput of firing vehicles on the range, reduce range down time, and provide for the highest quality evaluations. See TC 3-20.31 for more in-depth information on VCEs, the evaluation team, and the evaluation process.

6-42. To prepare the trainers, units provide—

- Commander training objectives.
- Conduct of the range briefing for the training event.
- Scenario and lane concept with crew tasks for training.
- Risk assessments.
- Identification of supporting doctrinal publications for use as primary references.
- TADSS, pyrotechnics, blanks, and BES used during the training event (see appendix A for the training munitions requirements for the complete training strategy).

RECONNAISSANCE OF THE SITE—TABLE VI

6-43. Commanders use an authorized training facility for Table VI, Qualification. Commanders follow the installation's policies and procedures for formally scheduling the training location as far in advance as practical. See TC 3-20.31 for more in-depth information concerning range operations at the unit level.

6-44. Once scheduled, the commander, Master Gunner, platoon leaders and platoon sergeants conduct a reconnaissance of the training areas to—

- Verify sufficient space is available to support the entire unit through multiple training lanes.
- Ensure multiple iterations or rotations through the scenario are achievable with appropriate retraining opportunities.
- Ensure sufficient administrative areas are available to support group discussions, briefings, and AARs.
- Provide sand table or terrain boards.
- Identify the ASP.
- Determine the conduct of the range or the flow of training to maximize the live-fire range time.
- Identify the range operating system and verify the training scenarios have been properly loaded.
- Schedule proofing of the range, based on the higher headquarters OPORD.
- Ensure requested TADSS are available if provided by the range facility.

ISSUE THE ORDER—TABLE VI

6-45. Commanders can issue an OPORD, WARNORD, or use the training schedule as necessary. The WARNORD should include the appropriate tasks, required leaders, and equipment needed, as well as the unit's training timeline including walk-through, rehearsals, and AARs. WARNORDs for external organizations must include sufficient reaction time for the appropriate personnel and equipment needed.

REHEARSE—TABLE VI

6-46. The unit uses all training resources, materials, and equipment available to conduct rehearsals of training events. During the rehearsal, commanders ensure their unit has sufficient time to train to the specified standard including AARs and retraining time. Commanders ensure their unit verifies optional scenarios that increase complexity when warranted.

6-47. Units should rehearse the training event from start to finish, and confirm—

- The VCEs and proofing team understand the training scenarios and tasks.
- Sufficient space is available to provide appropriate distances for engagements ranges and target dispersion.
- Analog and digital systems are operational within the organization and to the higher headquarters regardless of their location.
- Additional crew training packages (DA Form 8265, DA Form 8265-1, and appropriate computer correction factors [zero] documentation) are complete and provide for multiple iterations.
- Sufficient administrative areas are available.
- A review of AAR capabilities is performed, while encouraging the use of through-sight video systems to increase the fidelity and quality of the AARs.
- Location of retraining for crews as necessary.
- Accessibility to crew simulator systems, plumb and synchronization ramps, T&MBs, and additional bore sighting locations are available.

6-48. Once the unit completes the walk-through and training rehearsal, the commander may make any necessary adjustments to the plan and issue FRAGORDs as necessary.

EXECUTE—TABLE VI

6-49. Once the unit arrives at the training location, they should—

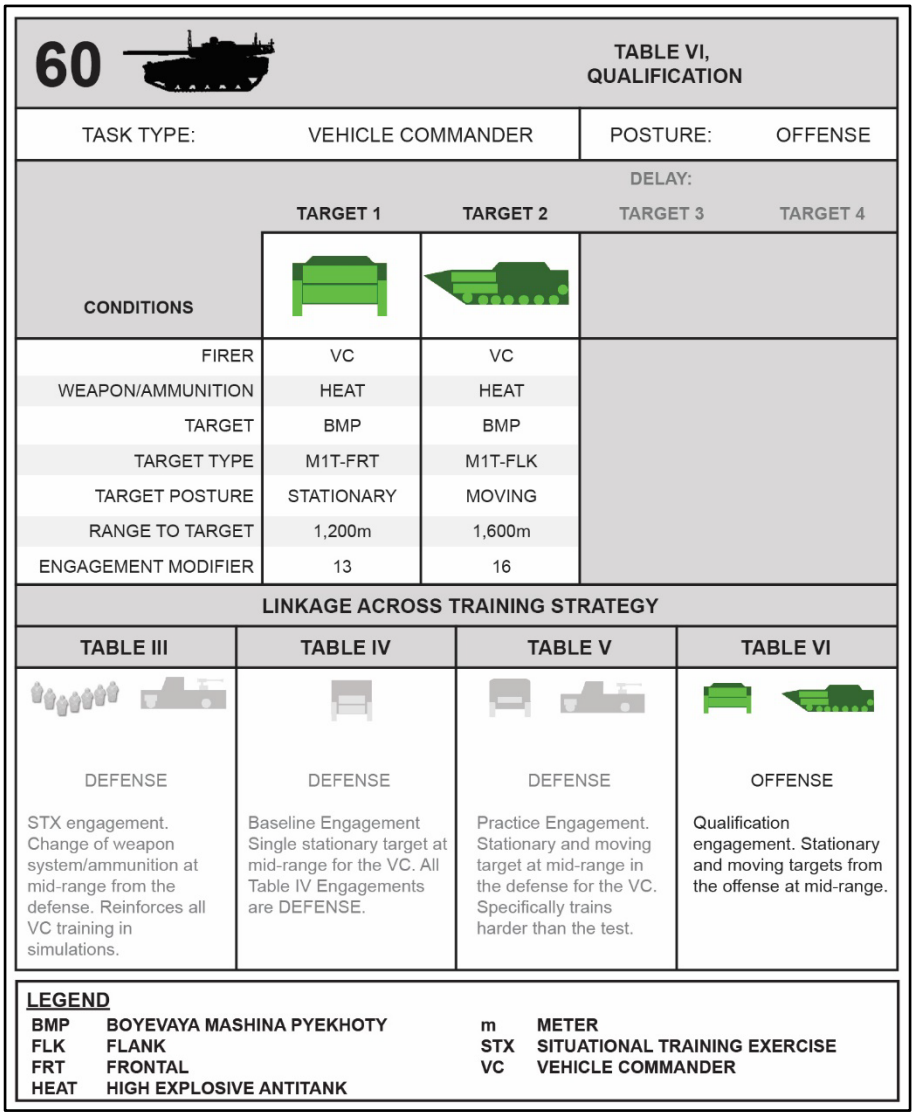
- Conduct a safety briefing for the training event.
- Provide a conduct of the range briefing to establish the sequence of events for the training day.
- Conduct sensitive item checks prior to executing training.
- Receive briefing from the external VCE team.
- Establish the firing order.
- Identify the maintenance support area for any fire control or weapons issues on the range.
- Install TADSS as required.

6-50. The training unit conducts informal AARs of each crew completing a phase of training within the training mission. During training, the commander, executive officer, 1SG, and Master Gunner review the crew's performance. They follow the unit SOP, prescribed tactics, techniques and procedures, and the appropriate training and evaluation outlines, and review completed crew score sheets and roll-up documentation for clarity and completeness.

Note. The sequence of the engagements as well as which engagements are fired in a chemical environment are determined as unit policy directs.

ENGAGEMENT 60

6-51. The VC engagement fired from the VC's position at a moving threat (as shown in figure 6-10 and worksheet on figure 6-11). It trains and evaluates the VC's ability to engage and destroy a moving threat with the primary weapon.



60 — TABLE VI, QUALIFICATION

TASK TYPE:	VEHICLE COMMANDER	POSTURE:	OFFENSE

CONDITIONS	TARGET 1	TARGET 2	DELAY: TARGET 3	TARGET 4
FIRER	VC	VC		
WEAPON/AMMUNITION	HEAT	HEAT		
TARGET	BMP	BMP		
TARGET TYPE	M1T-FRT	M1T-FLK		
TARGET POSTURE	STATIONARY	MOVING		
RANGE TO TARGET	1,200m	1,600m		
ENGAGEMENT MODIFIER	13	16		

LINKAGE ACROSS TRAINING STRATEGY

TABLE III	TABLE IV	TABLE V	TABLE VI
DEFENSE	DEFENSE	DEFENSE	OFFENSE
STX engagement. Change of weapon system/ammunition at mid-range from the defense. Reinforces all VC training in simulations.	Baseline Engagement Single stationary target at mid-range for the VC. All Table IV Engagements are DEFENSE.	Practice Engagement. Stationary and moving target at mid-range in the defense for the VC. Specifically trains harder than the test.	Qualification engagement. Stationary and moving targets from the offense at mid-range.

LEGEND

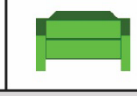
BMP	BOYEVAYA MASHINA PYEKHOTY	m	METER
FLK	FLANK	STX	SITUATIONAL TRAINING EXERCISE
FRT	FRONTAL	VC	VEHICLE COMMANDER
HEAT	HIGH EXPLOSIVE ANTITANK		

Figure 6-10. Engagement 60 overview

60 TARGET 1 TARGET 2 TARGET 3 TARGET 4

VEHICLE COMMANDER

OFFENSE





ENGAGEMENT AMMUNITION REQUIREMENTS

SABOT	HEAT	HEP	CAN	7.62mm	CAL .50	HOSTILE FIRE	STEEL ON STEEL
CA58	**C511**	**CA37**	**CA40**	**AB86**	**A557**	**LA54**	**LA53**
	3					2	2

PREPARE FOR ENGAGEMENT

_____ THIS IS _____

PREPARE FOR OFFENSIVE OPERATIONS. MOVE TO A SHORT HALT POSITION ALONG ROUTE _____

BATTLECARRY HEAT. REPORT REDCON ONE, OVER.

PROMPT

ALERT	_____ THIS IS _____
WEAPON/AMMO	HEAT/HEAT
TARGET DESCRIPTION	STATIONARY AND MOVING BMPs IN SECTOR
METHOD	MOST DANGEROUS FIRST
LOCATION	VICINITY _____ AND _____
RANGE	
CONTROLS	ENGAGE UPON POSITIVE IDENTIFICATION
EXECUTION	WEAPONS FREE, WEAPONS FREE.
CONTROLS	REPORT WHEN SECTOR CLEAR, OVER.

LEGEND

BMP	**BOYEVAYA MASHINA PYEKHOTY**	**HEP**	**HIGH EXPLOSIVE PLASTIC**
CAL .50	**CALIBER .50**	**mm**	**MILLIMETER**
CAN	**CANISTER**	**REDCON**	**READINESS CONDITION**
HEAT	**HIGH EXPLOSIVE ANTITANK**		

Figure 6-11. Engagement 60 ammunition and script worksheet

ENGAGEMENT 61

6-52. This is a machine gun pure engagement for the gunner. It trains target detection, acquisition, and machine gun engagement techniques from the defense (see figure 6-12 and the worksheet on figure 6-13). Range bands are mid- to long-range. Crews must tactically use the battle position and build stability in their forward and rearward movements.

61 		TABLE VI, QUALIFICATION	
TASK TYPE:	MACHINE GUN PURE	POSTURE:	DEFENSE
		DELAY:	25 SECONDS
	TARGET 1	TARGET 2	TARGET 3 / TARGET 4
CONDITIONS			
FIRER	GUNNER	GUNNER	
WEAPON/AMMUNITION	COAX	COAX	
TARGET	TROOPS	TRUCK	
TARGET TYPE	E(7)-FRT	L2T-FLK	
TARGET POSTURE	STATIONARY	MOVING	
RANGE TO TARGET	400m	800m	
ENGAGEMENT MODIFIER	8	12	

LINKAGE ACROSS TRAINING STRATEGY			
TABLE III	TABLE IV	TABLE V	TABLE VI
			
OFFENSE	DEFENSE	OFFENSE	DEFENSE
STX engagement. Multiple stationary targets from the offense at varied ranges.	Baseline defense multiple stationary targets at mid-range. All Table IV Engagements are from the defense.	Practice Engagement. Multiple stationary targets at mid to long-range. Increases the complexity with offensive engagement techniques.	Qualification engagement. Stationary and moving targets from a defense firing position at mid to long range.

LEGEND

COAX	COAXIAL MACHINE GUN	m	METER
FLK	FLANK	STX	SITUATIONAL TRAINING EXERCISE
FRT	FRONTAL		

Figure 6-12. Engagement 61 overview

61

TARGET 1	TARGET 2	TARGET 3	TARGET 4
MACHINE GUN PURE OFFENSE			

ENGAGEMENT AMMUNITION REQUIREMENTS

SABOT	HEAT	HEP	CAN	7.62mm	CAL .50	HOSTILE FIRE	STEEL ON STEEL
CA58	**C511**	**CA37**	**CA40**	**AB86**	**A557**	**LA54**	**LA53**
				100		1	1

PREPARE FOR ENGAGEMENT

_____ THIS IS _____

PREPARE FOR DEFENSIVE OPERATIONS IN BATTLE POSITION _____

CHECK YOUR COAX MACHINE GUN, REPORT REDCON ONE, OVER.

PROMPT

ALERT	_____ THIS IS _____
WEAPON/AMMO	COAX/COAX
TARGET DESCRIPTION	TROOPS AND MOVING TRUCK IN SECTOR
METHOD	MOST DANGEROUS FIRST
LOCATION	VICINITY _____ AND _____
RANGE	
CONTROLS	ENGAGE UPON POSITIVE IDENTIFICATION
EXECUTION	WEAPONS FREE, WEAPONS FREE.
CONTROLS	REPORT WHEN SECTOR CLEAR, OVER.

LEGEND

CAL .50	**CALIBER .50**	**HEP**	**HIGH EXPLOSIVE PLASTIC**
CAN	**CANISTER**	**mm**	**MILLIMETER**
COAX	**COAXIAL MACHINE GUN**	**REDCON**	**READINESS CONDITION**
HEAT	**HIGH EXPLOSIVE ANTITANK**		

Figure 6-13. Engagement 61 ammunition and script worksheet

ENGAGEMENT 62

6-53. While on the offense, the gunner engages multiple machine gun threats at close- and long-range (see figure 6-14 and the worksheet on figure 6-15). This engagement reinforces machine gun engagement techniques against stationary threats. The unit should observe the vehicle speed in relation to the close-range targets to ensure the firing platform does not bypass the threat.

62 		TABLE VI QUALIFICATION		
TASK TYPE:	MACHINE GUN PURE		POSTURE:	OFFENSE
			DELAY:	25 SECONDS
	TARGET 1	TARGET 2	TARGET 3	TARGET 4
CONDITIONS				
FIRER	GUNNER	GUNNER	GUNNER	
WEAPON / AMMUNITION	COAX	COAX	COAX	
TARGET	TROOPS	TRUCK	TROOPS	
TARGET TYPE	E(7)-FRT	L2T-FRT	E(7)-FRT	
TARGET POSTURE	STATIONARY	STATIONARY	STATIONARY	
RANGE TO TARGET	400m	800m	800m	
ENGAGEMENT MODIFIER	12	14	15	

LINKAGE ACROSS TRAINING STRATEGY			
TABLE III	TABLE IV	TABLE V	TABLE VI
			
DEFENSE	DEFENSE	DEFENSE	OFFENSE
STX engagement. Multiple stationary short-range targets from the defense.	Baseline Engagements. Stationary and moving targets at mid-range from a defensive position. All Table IV Engagements are from the defense.	Practice Engagement. Multiple stationary targets at short to mid-range for the coax.	Qualification Engagement. Multiple troops and truck at close and mid-range on the offense.

LEGEND

COAX	COAXIAL MACHINE GUN	m	METER
FRT	FRONTAL	STX	SITUATIONAL TRAINING EXERCISE

Figure 6-14. Engagement 62 overview

62	TARGET 1	TARGET 2	TARGET 3	TARGET 4
MACHINE GUN PURE OFFENSE				

ENGAGEMENT AMMUNITION REQUIREMENTS

SABOT	HEAT	HEP	CAN	7.62mm	CAL .50	HOSTILE FIRE	STEEL ON STEEL
CA58	**C511**	**CA37**	**CA40**	**AB86**	**A557**	**LA54**	**LA53**
				150		1	1

PREPARE FOR ENGAGEMENT

_____ THIS IS _____

PREPARE FOR OFFENSIVE OPERATIONS. MOVE TO A SHORT HALT POSITION ALONG ROUTE _____

CHECK YOUR COAX MACHINE GUN, REPORT REDCON ONE, OVER.

PROMPT

ALERT	_____ THIS IS _____
WEAPON/AMMO	COAX/COAX/COAX
TARGET DESCRIPTION	TROOPS AND TRUCK WITH MORE TROOPS IN SECTOR
METHOD	MOST DANGEROUS FIRST
LOCATION	VICINITY _____
RANGE	
CONTROLS	ENGAGE UPON POSITIVE IDENTIFICATION
EXECUTION	WEAPONS FREE, WEAPONS FREE.
CONTROLS	REPORT WHEN SECTOR CLEAR, OVER.

LEGEND

CAL .50	**CALIBER .50**	**HEP**	**HIGH EXPLOSIVE PLASTIC**
CAN	**CANISTER**	**mm**	**MILLIMETER**
COAX	**COAXIAL MACHINE GUN**	**REDCON**	**READINESS CONDITION**
HEAT	**HIGH EXPLOSIVE ANTITANK**		

Figure 6-15. Engagement 62 ammunition and script worksheet

ENGAGEMENT 63

6-54. This engagement provides the gunner main gun engagements from a defensive posture (see figure 6-16 and the worksheet on figure 6-17). This engagement requires the crew to coordinate the tactical movement from the defilade to the enfilade firing positions, ensuring appropriate gun tube clearance of the berm. Units should monitor the previous engagement for gun tube memory erratic round instances after firing the HEP training munitions.

63 

TABLE VI, QUALIFICATION

TASK TYPE:	MAIN GUN PURE	POSTURE:	DEFENSE

CONDITIONS	TARGET 1	TARGET 2	DELAY: TARGET 3	DELAY: TARGET 4
				
FIRER	GUNNER	GUNNER		
WEAPON/AMMUNITION	HEP	HEP		
TARGET	BUNKER	BTR		
TARGET TYPE	H3T-FRT	M2T-FRT		
TARGET POSTURE	STATIONARY	STATIONARY		
RANGE TO TARGET	800m	1,000m		
ENGAGEMENT MODIFIER	8	9		

LINKAGE ACROSS TRAINING STRATEGY

TABLE III	TABLE IV	TABLE V	TABLE VI
			
OFFENSE	DEFENSE	OFFENSE	DEFENSE
STX engagement with single moving target using the main gun at mid-range.	Baseline multiple moving threats at mid-range for the caliber .50. VC Engagement. All engagements on Table IV are fired from the DEFENSE.	Practice engagement. Canister engagement for mass troops from the offense.	Qualification Engagement. Bunker and stationary vehicle from a defensive firing position at mid-ranges.

LEGEND

BTR	BRONETRANSPORTYOR	m	METER
FRT	FRONTAL	STX	SITUATIONAL TRAINING EXERCISE
HEP	HIGH EXPLOSIVE PLASTIC	VC	VEHICLE COMMANDER

Figure 6-16. Engagement 63 overview

63

	TARGET 1	TARGET 2	TARGET 3	TARGET 4
MAIN GUN PURE DEFENSE				

ENGAGEMENT AMMUNITION REQUIREMENTS

SABOT	HEAT	HEP	CAN	7.62mm	CAL .50	HOSTILE FIRE	STEEL ON STEEL
CA58	**C511**	**CA37**	**CA40**	**AB86**	**A557**	**LA54**	**LA53**
		3				2	2

PREPARE FOR ENGAGEMENT

_____ THIS IS _____

PREPARE FOR DEFENSIVE OPERATIONS IN BATTLE POSITION _____

BATTLECARRY HEP, REPORT REDCON ONE, OVER.

PROMPT

ALERT	_____ THIS IS _____
WEAPON/AMMO	HEP/HEP
TARGET DESCRIPTION	FORTIFICATION AND PC IN SECTOR
METHOD	MOST DANGEROUS FIRST
LOCATION	VICINITY _____
RANGE	
CONTROLS	ENGAGE UPON POSITIVE IDENTIFICATION
EXECUTION	WEAPONS FREE, WEAPONS FREE.
CONTROLS	REPORT WHEN SECTOR CLEAR, OVER.

LEGEND

CAL .50	**CALIBER .50**	**mm**	**MILLIMETER**
CAN	**CANISTER**	**PC**	**PERSONNEL CARRIER**
HEAT	**HIGH EXPLOSIVE ANTITANK**	**REDCON**	**READINESS CONDITION**
HEP	**HIGH EXPLOSIVE PLASTIC**		

Figure 6-17. Engagement 63 ammunition and script worksheet

ENGAGEMENT 64

6-55. This is an offensive engagement using the main gun against common threats while conducting Infantry support missions (see figure 6-18 and the worksheet on figure 6-19). This engagement may cause excessive obscuration at the firing vehicle. It reinforces tactical movement through obscuration.

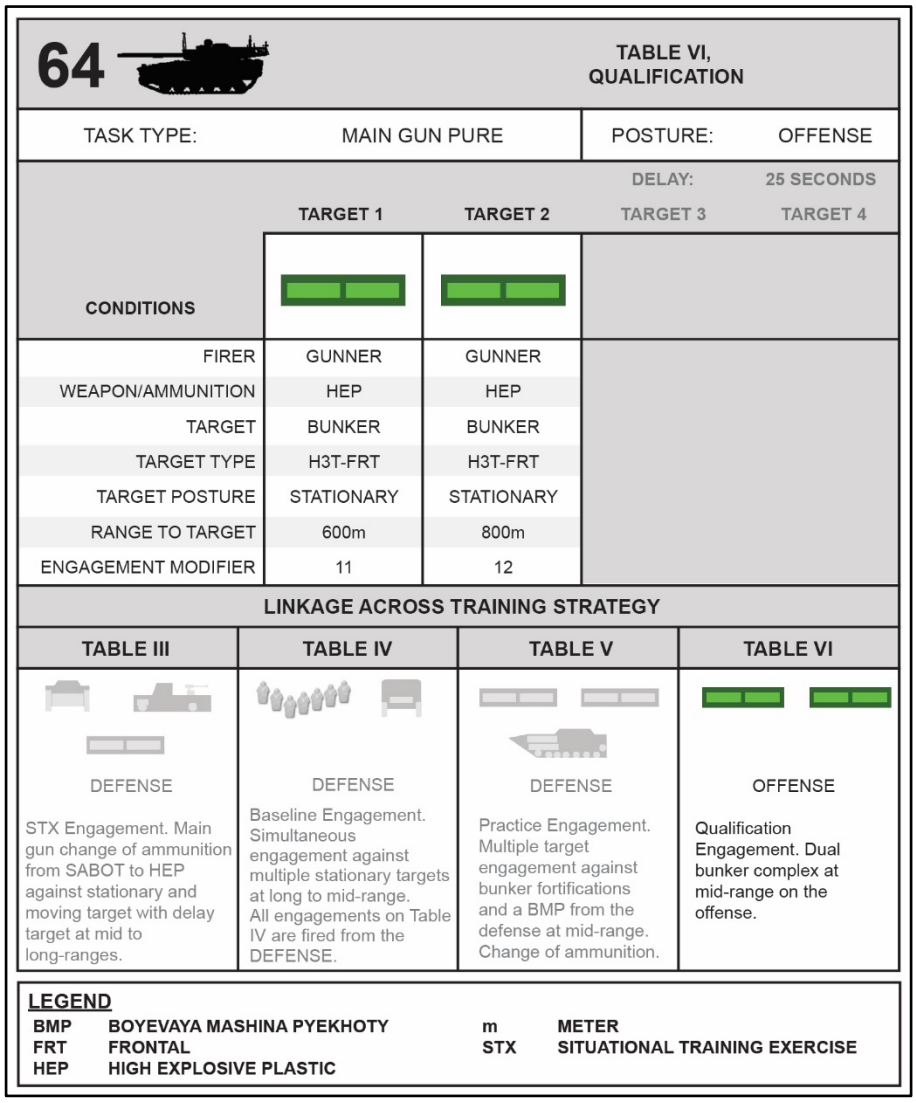


Figure 6-18. Engagement 64 overview

64

	TARGET 1	TARGET 2	TARGET 3	TARGET 4
MAIN GUN PURE OFFENSE				

ENGAGEMENT AMMUNITION REQUIREMENTS

SABOT	HEAT	HEP	CAN	7.62mm	CAL .50	HOSTILE FIRE	STEEL ON STEEL
CA58	C511	CA37	CA40	AB86	A557	LA54	LA53
		3				2	2

PREPARE FOR ENGAGEMENT

_____ THIS IS _____

PREPARE FOR DEFENSIVE OPERATIONS IN BATTLE POSITION _____

BATTLECARRY HEP, REPORT REDCON ONE, OVER.

PROMPT

ALERT	_____ THIS IS _____
WEAPON/AMMO	HEP/HEP
TARGET DESCRIPTION	MULTIPLE FORTIFICATIONS IN SECTOR
METHOD	
LOCATION	VICINITY _____ AND _____
RANGE	
CONTROLS	ENGAGE UPON POSITIVE IDENTIFICATION
EXECUTION	WEAPONS FREE, WEAPONS FREE.
CONTROLS	REPORT WHEN SECTOR CLEAR, OVER.

LEGEND

CAL .50	**CALIBER .50**	**HEP**	**HIGH EXPLOSIVE PLASTIC**
CAN	**CANISTER**	**mm**	**MILLIMETER**
HEAT	**HIGH EXPLOSIVE ANTITANK**	**REDCON**	**READINESS CONDITION**

Figure 6-19. Engagement 64 ammunition and script worksheet

ENGAGEMENT 65

6-56. This engagement challenges the crew with a change of weapon system and ammunition type from a defensive position (see figure 6-20 and the worksheet on figure 6-21). This is a complex engagement and requires the crew to tactically defilade move from the to the enfilade while managing their switchology, ammunition type, and conduct of fire. This is one of the most complex engagements for the crew to master.

65 

TABLE VI, QUALIFICATION

TASK TYPE:	CHANGE OF WEAPON/AMMO		POSTURE:	DEFENSE
			DELAY:	25 SECONDS
	TARGET 1	TARGET 2	TARGET 3	TARGET 4
CONDITIONS				
FIRER	GUNNER	GUNNER	GUNNER	GUNNER
WEAPON/AMMUNITION	COAX	HEAT	COAX	HEAT
TARGET	TROOPS	TRUCK	TROOPS	BMP
TARGET TYPE	E(7)-FRT	L2T-FRT	E(7)-FRT	M1T-FLK
TARGET POSTURE	STATIONARY	STATIONARY	STATIONARY	MOVING
RANGE TO TARGET	400m	1,600m	600m	1,600m
ENGAGEMENT MODIFIER	8	11	10	12

LINKAGE ACROSS TRAINING STRATEGY

TABLE III	TABLE IV	TABLE V	TABLE VI
 OFFENSE	 DEFENSE	 OFFENSE	 DEFENSE
STX Engagement. Change of weapon and ammo on the offense against stationary targets at mid-ranges.	Basic Engagement. Simultaneous small arms engagement against multiple stationary targets at mid to long range from the defense. All engagements on Table IV are fired from the DEFENSE.	Practice engagement. Complex engagement with change of weapon and ammunition on the offense against multiple stationary targets at varied ranges with a delay.	Qualification Engagement. Change of weapon from the offense against multiple stationary and moving targets at close to mid-range.

LEGEND

BMP	BOYEVAYA MASHINA PYEKHOTY	HEAT	HIGH EXPLOSIVE ANTITANK
COAX	COAXIAL MACHINE GUN	m	METER
FLK	FLANK	STX	SITUATIONAL TRAINING EXERCISE
FRT	FRONTAL		

Figure 6-20. Engagement 65 overview

65	TARGET 1	TARGET 2	TARGET 3	TARGET 4
CHANGE OF WEAPON/ AMMUNITION DEFENSE				

ENGAGEMENT AMMUNITION REQUIREMENTS

SABOT	HEAT	HEP	CAN	7.62mm	CAL .50	HOSTILE FIRE	STEEL ON STEEL
CA58	C511	CA37	CA40	AB86	A557	LA54	LA53
	3			100		2	2

PREPARE FOR ENGAGEMENT

_____ THIS IS _____

PREPARE FOR DEFENSIVE OPERATIONS IN BATTLE POSITION _____

BATTLECARRY HEAT AND CHECK YOUR COAX MACHINE GUN. REPORT REDCON ONE, OVER.

PROMPT

ALERT	_____ THIS IS _____
WEAPON/AMMO	COAX/HEAT/COAX/HEAT
TARGET DESCRIPTION	TROOPS AND TRUCK, TROOPS AND PC IN SUPPORT
METHOD	MOST DANGEROUS FIRST
LOCATION	VICINITY _____ AND _____
RANGE	
CONTROLS	ENGAGE UPON POSITIVE IDENTIFICATION
EXECUTION	WEAPONS FREE, WEAPONS FREE.
CONTROLS	REPORT WHEN SECTOR CLEAR, OVER.

LEGEND

CAL .50	CALIBER .50	HEP	HIGH EXPLOSIVE PLASTIC
CAN	CANISTER	mm	MILLIMETER
COAX	COAXIAL MACHINE GUN	PC	PERSONNEL CARRIER
HEAT	HIGH EXPLOSIVE ANTITANK	REDCON	READINESS CONDITION

Figure 6-21. Engagement 65 ammunition and script worksheet

ENGAGEMENT 66

6-57. This engagement challenges the crew with a change of weapon and ammunition during while on the offense (see figure 6-22 and the worksheet on figure 6-23). This is the most complex and rigorous engagement on this table. This engagement is designed to include the most changes to weapon and ammunition types requiring increased switchology awareness.

66 

TABLE VI, QUALIFICATION

TASK TYPE:	CHANGE OF WEAPON/AMMO		POSTURE:	OFFENSE
			DELAY:	25 SECONDS
	TARGET 1	TARGET 2	TARGET 3	TARGET 4
CONDITIONS				
FIRER	GUNNER	GUNNER	GUNNER	GUNNER
WEAPON/AMMUNITION	HEP	COAX	HEP	SABOT
TARGET	BUNKER	TROOPS	BUNKER	TANK
TARGET TYPE	H3T-FRT	E(7)-FRT	H3T-FRT	M1T-FLK
TARGET POSTURE	STATIONARY	STATIONARY	STATIONARY	MOVING
RANGE TO TARGET	400m	400m	600m	1,800m
ENGAGEMENT MODIFIER	9	12	11	15

LINKAGE ACROSS TRAINING STRATEGY

TABLE III	TABLE IV	TABLE V	TABLE VI
			
DEFENSE	DEFENSE	DEFENSE	OFFENSE
STX Engagement. Change of weapon system from the defense. Stationary targets at close to mid-ranges.	Baseline Engagement. Stationary target at mid-range for the VC from the defense. All engagements on Table IV are fired from the DEFENSE.	Practice engagement. Change of weapon system from the defense against multiple stationary targets and a moving target at varied ranges with a delay.	Qualification Engagement. Change of weapon system and ammunition against multiple stationary and moving targets at varied ranges. Complex engagement.

LEGEND

COAX	COAXIAL MACHINE GUN	m	METER
FLK	FLANK	STX	SITUATIONAL TRAINING EXERCISE
FRT	FRONTAL	VC	VEHICLE COMMANDER
HEP	HIGH EXPLOSIVE PLASTIC		

Figure 6-22. Engagement 66 overview

66

	TARGET 1	TARGET 2	TARGET 3	TARGET 4
CHANGE OF WEAPON/ AMMUNITION OFFENSE				

ENGAGEMENT AMMUNITION REQUIREMENTS

SABOT	HEAT	HEP	CAN	7.62mm	CAL .50	HOSTILE FIRE	STEEL ON STEEL
CA58	**C511**	**CA37**	**CA40**	**AB86**	**A557**	**LA54**	**LA53**
2		3		50		3	3

PREPARE FOR ENGAGEMENT

_____ THIS IS _____

PREPARE FOR OFFENSIVE OPERATIONS. MOVE TO A SHORT HALT POSITION ALONG ROUTE _____

BATTLECARRY HEP. CHECK YOUR COAX MACHINE GUN. REPORT WHEN REDCON ONE, OVER.

PROMPT

ALERT	_____ THIS IS _____
WEAPON/AMMO	HEP/COAX/HEP/SABOT
TARGET DESCRIPTION	FORTIFICATION WITH TROOPS, FORTIFICATION WITH MOVING TANK IN SUPPORT
METHOD	MOST DANGEROUS FIRST
LOCATION	VICINITY _____ AND _____
RANGE	
CONTROLS	ENGAGE UPON POSITIVE IDENTIFICATION
EXECUTION	WEAPONS FREE, WEAPONS FREE.
CONTROLS	REPORT WHEN SECTOR CLEAR, OVER.

LEGEND

CAL .50	**CALIBER .50**	**HEP**	**HIGH EXPLOSIVE PLASTIC**
CAN	**CANISTER**	**mm**	**MILLIMETER**
COAX	**COAXIAL MACHINE GUN**	**REDCON**	**READINESS CONDITION**
HEAT	**HIGH EXPLOSIVE ANTITANK**		

Figure 6-23. Engagement 66 ammunition and script worksheet

ENGAGEMENT 67

6-58. A degraded engagement for the gunner to apply their auxiliary sight and apply the appropriate ballistic reticle for mid-range main gun threats (see figure 6-24 and the worksheet on figure 6-25). This requires the gunner to apply the appropriate ballistic reticle offsets to effectively engage and defeat the threat presented followed by a ballistic change for a main gun engagement. The gunner must clear the gun-target line effectively and control the movement of the vehicle once clear.

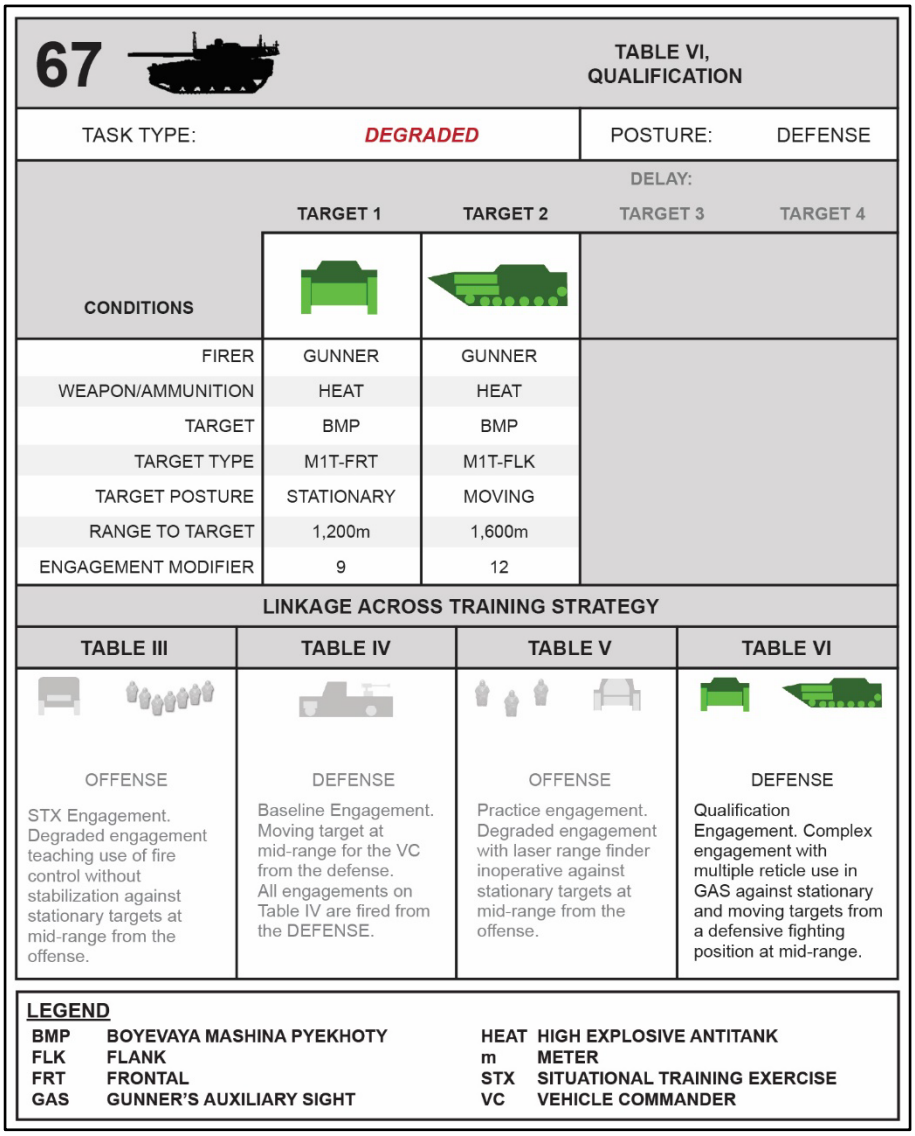


Figure 6-24. Engagement 67 overview

67 TARGET 1 TARGET 2 TARGET 3 TARGET 4

DEGRADED DEFENSE				

ENGAGEMENT AMMUNITION REQUIREMENTS

SABOT	HEAT	HEP	CAN	7.62mm	CAL .50	HOSTILE FIRE	STEEL ON STEEL
CA58	**C511**	**CA37**	**CA40**	**AB86**	**A557**	**LA54**	**LA53**
	3					2	2

PREPARE FOR ENGAGEMENT

_____ THIS IS _____

PREPARE FOR DEFENSIVE OPERATIONS IN BATTLE POSITION _____

YOUR GUNNER'S PRIMARY SIGHT IS INOPERABLE. CLOSE YOUR BALLISTIC DOORS. BATTLECARRY HEAT. REPORT REDCON ONE.

PROMPT

ALERT	_____ THIS IS _____
WEAPON/AMMO	HEAT/HEAT
TARGET DESCRIPTION	STATIONARY AND MOVING PC
METHOD	*AUXILIARY SIGHT*
LOCATION	VICINITY _____ AND _____
RANGE	
CONTROLS	ENGAGE UPON POSITIVE IDENTIFICATION
EXECUTION	WEAPONS FREE, WEAPONS FREE.
CONTROLS	REPORT WHEN SECTOR CLEAR, OVER.

LEGEND

CAL .50	**CALIBER .50**	**mm**	**MILLIMETER**
CAN	**CANISTER**	**PC**	**PERSONNEL CARRIER**
HEAT	**HIGH EXPLOSIVE ANTITANK**	**REDCON**	**READINESS CONDITION**
HEP	**HIGH EXPLOSIVE PLASTIC**		

Figure 6-25. Engagement 67 ammunition and script worksheet

ENGAGEMENT 68

6-59. A degraded engagement where the gunner must engage a threat on the offense with a laser range finder failure (see figure 6-26 and the worksheet on figure 6-27). This engagement challenges the crew by using degraded gunnery techniques and reinforces battlecarry and battlesight preparation to fire, battlesight gunnery, and advanced target acquisition.

68 

TABLE VI, QUALIFICATION

TASK TYPE:	DEGRADED	POSTURE:	OFFENSE

CONDITIONS	TARGET 1	TARGET 2	DELAY: TARGET 3	DELAY: TARGET 4
				
FIRER	GUNNER	GUNNER		
WEAPON/AMMUNITION	COAX	HEP		
TARGET	TROOPS	TRUCK		
TARGET TYPE	E(7)-FRT	L2T-FRT		
TARGET POSTURE	STATIONARY	STATIONARY		
RANGE TO TARGET	400m	1,000m		
ENGAGEMENT MODIFIER	12	14		

LINKAGE ACROSS TRAINING STRATEGY

TABLE III	TABLE IV	TABLE V	TABLE VI
			
DEFENSE	DEFENSE	DEFENSE	OFFENSE
STX Engagement. Degraded engagement that reinforces use of the auxiliary sight for coax engagements against a stationary target at mid-range from the defense.	Basic Engagement. Multiple stationary targets for the VC at mid to long-range from the defense. All engagements on Table IV are fired from the DEFENSE.	Practice engagement. Degraded complex engagement with multiple reticle use in GAS against stationary targets in the defense at mid-range.	Qualification Engagement. Degraded change of weapon system on the offense with stabilization failure against stationary targets at close to mid-range.

LEGEND

COAX	COAXIAL MACHINE GUN	m	METER
FRT	FRONTAL	STX	SITUATIONAL TRAINING EXERCISE
GAS	GUNNER'S AUXILIARY SIGHT	VC	VEHICLE COMMANDER
HEP	HIGH EXPLOSIVE PLASTIC		

Figure 6-26. Engagement 68 overview

68	TARGET 1	TARGET 2	TARGET 3	TARGET 4
DEGRADED OFFENSE				

ENGAGEMENT AMMUNITION REQUIREMENTS

SABOT	HEAT	HEP	CAN	7.62mm	CAL .50	HOSTILE FIRE	STEEL ON STEEL
CA58	**C511**	**CA37**	**CA40**	**AB86**	**A557**	**LA54**	**LA53**
		1		50		1	1

PREPARE FOR ENGAGEMENT

_____ THIS IS _____

PREPARE FOR OFFENSIVE OPERATIONS. MOVE TO A SHORT HALT POSITION ALONG ROUTE _____

YOUR LASER RANGE FINDER IS INOPERABLE, TURN OFF YOUR LASER. USE ALTERNATE MEANS OF RANGE DETERMINATION, BATTLECARRY HEP, CHECK YOUR COAX MACHINE GUN. REPORT REDCON ONE.

PROMPT

ALERT	_____ THIS IS _____
WEAPON/AMMO	COAX/HEP
TARGET DESCRIPTION	TROOPS AND TRUCK
METHOD	*LASER RANGE FINDER INOPERABLE*
LOCATION	VICINITY _____ AND _____
RANGE	
CONTROLS	ENGAGE UPON POSITIVE IDENTIFICATION
EXECUTION	WEAPONS FREE, WEAPONS FREE.
CONTROLS	REPORT WHEN SECTOR CLEAR, OVER.

LEGEND

CAL .50	**CALIBER .50**	**HEP**	**HIGH EXPLOSIVE PLASTIC**
CAN	**CANISTER**	**mm**	**MILLIMETER**
COAX	**COAXIAL MACHINE GUN**	**REDCON**	**READINESS CONDITION**
HEAT	**HIGH EXPLOSIVE ANTITANK**		

Figure 6-27. Engagement 68 ammunition and script worksheet

ENGAGEMENT 69

6-60. Engagement 69 is a simultaneous engagement fired from a defensive firing position where the gunner and VC must acquire and defeat threats using their machine guns (see figure 6-28 and the worksheet on figure 6-29). This builds upon previous simultaneous engagements which replicate Infantry support tasks. Units should use caution designing the engagement to ensure the VC target is presented to the right side of the gunner's targets. This engagement should not be fired at night due to the commander's weapon station not having thermal capability.

69 

TABLE VI, QUALIFICATION

TASK TYPE:	SIMULTANEOUS	POSTURE:	DEFENSE
		DELAY:	25 SECONDS

CONDITIONS	TARGET 1	TARGET 2	TARGET 3	TARGET 4
				
FIRER	GUNNER	VC	GUNNER	
WEAPON/AMMUNITION	COAX	CALIBER .50	COAX	
TARGET	TROOPS	BTR	TRUCK	
TARGET TYPE	E(7)-FRT	M2T-FRT	L2T-FRT	
TARGET POSTURE	STATIONARY	STATIONARY	STATIONARY	
RANGE TO TARGET	600m	600m	800m	
ENGAGEMENT MODIFIER	10	10	10	

LINKAGE ACROSS TRAINING STRATEGY

TABLE III	TABLE IV	TABLE V	TABLE VI
			
DEFENSE	DEFENSE	OFFENSE	DEFENSE
STX Engagement. Simultaneous small arms engagement against multiple stationary targets at mid-range from the defense.	Basic Engagement. Simultaneous against multiple stationary and a moving delay target at mid-range. All engagements on Table IV are fired from the DEFENSE.	Practice engagement. Multiple stationary targets followed by a delay target on the offense at mid-range. Short halt increases complexity.	Qualification Engagement. Multiple stationary targets followed by a delay target from a defensive fighting position at mid to long-range.

LEGEND

BTR	BRONETRANSPORTYOR	m	METER
COAX	COAXIAL MACHINE GUN	STX	SITUATIONAL TRAINING EXERCISE
FRT	FRONTAL	VC	VEHICLE COMMANDER

Figure 6-28. Engagement 69 overview

69	TARGET 1	TARGET 2	TARGET 3	TARGET 4
SIMULTANEOUS DEFENSE				

ENGAGEMENT AMMUNITION REQUIREMENTS

SABOT	HEAT	HEP	CAN	7.62mm	CAL .50	HOSTILE FIRE	STEEL ON STEEL
CA58	**C511**	**CA37**	**CA40**	**AB86**	**A557**	**LA54**	**LA53**
				100	50	2	2

PREPARE FOR ENGAGEMENT

_____ THIS IS _____

PREPARE FOR DEFENSIVE OPERATIONS IN BATTLE POSITION _____

CHECK CALIBER FIFTY AND COAX MACHINE GUN. REPORT REDCON ONE, OVER.

PROMPT

ALERT	_____ THIS IS _____
WEAPON/AMMO	COAX/CALIBER FIFTY/COAX
TARGET DESCRIPTION	TROOPS AND PC WITH TRUCK IN SUPPORT
METHOD	SIMULTANEOUS
LOCATION	VICINITY _____ AND _____
RANGE	
CONTROLS	ENGAGE UPON POSITIVE IDENTIFICATION
EXECUTION	WEAPONS FREE, WEAPONS FREE.
CONTROLS	REPORT WHEN SECTOR CLEAR, OVER.

LEGEND

CAL .50	**CALIBER .50**	**mm**	**MILLIMETER**
CAN	**CANISTER**	**PC**	**PERSONNEL CARRIER**
HEAT	**HIGH EXPLOSIVE ANTITANK**	**REDCON**	**READINESS CONDITION**
HEP	**HIGH EXPLOSIVE PLASTIC**		

Figure 6-29. Engagement 69 ammunition and script worksheet

ASSESS—TABLE VI

6-61. The intent of the qualification course of fire is to train the crews within the organization on the appropriate conduct of fire skills during offensive and defensive postures against common threat arrays using the primary armament, coaxial, and commander's machine gun. Proper evaluation and assessment of crew performance is key to improving individual and crew skills prior to moving to collective live-fire events.

6-62. Each crew should receive a formal AAR following the guidelines found in TC 3-20.31. Each evaluator should use DA Form 8265 and DA Form 8265-1 as the basis for their evaluation, identifying the firing occasional information from the score sheet timelines. The evaluator and VC each review and sign the DA Form 8265-1.

Note. Certified VCEs, externally evaluate Table VI, Qualification. Units coordinate with their higher headquarters for those personnel. Typically, the brigade combat team will train and certify those evaluators. If there is no external unit that can meet the requirements for the primary evaluator (see TC 3-20.31), brigade coordination outside the division may be required to provide the appropriate personnel to evaluate the crews. When that level of support is not feasible, the division commander (or equivalent) must authorize self-evaluation using senior subject matter experts.

6-63. Units should track the various firing information from the score sheets to identify where in the conduct of fire crews and the overall unit should apply additional training effort. Some of those indicators are—

- Target acquisition, detection, and identification.
- Time to fire.
- Time to kill.
- Opening and closing times for machine gun engagements.
- Gunner lay errors.
- Scanning techniques.
- Engagement techniques.
- Conduct of fire issues.
- Penalties by type.

RETRAIN—TABLE VI

6-64. The unit Master Gunner maintains the unit roll-up by engagement. A subcategorized roll-up by platoons provides the commander a snapshot of training trends, strengths, and weaknesses. The Master Gunner should not only identify crews that did not achieve a passing standard, but also crews that struggled on specific engagement tasks. Once done, the unit can establish and conduct the appropriate focused retraining followed by a subsequent evaluation.

6-65. All crews must successfully complete the course of fire based on the standards for the engagements listed earlier in this chapter. No crew should proceed to a collective live-fire event until they have achieved the minimum standard on Table VI, Qualification.

6-66. Unit Master Gunners should include chair drills for the crews using the scenarios for each engagement for retraining purposes. Additional information on chair drills is in TC 3-20.31.

6-67. Any crew that disqualified for any reason may not refire without brigade commander approval after corrective training is complete. See chapter 7 for additional information on disqualified crews.

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Chapter 7
Qualification Standards

The crew tables culminate in the evaluation of the crew's ability to destroy threat targets using full caliber ammunition both day and night. Qualification on Table VI is a prerequisite for crews to advance to collective live-fire training.

Crew Table VI, Qualification, is the record course of fire used to determine the live-fire proficiency of a crew platform. Table VI serves as the commander's assessment of lethality and proficiency of the crew platform. This qualification is required by AR 350-1 and described as a metric of unit readiness within AR 220-1. Crew platform qualification is the cornerstone of company, battalion or squadron, and brigade combat team readiness.

OVERVIEW—QUALIFICATION

7-1. Crew Table VI, Qualification, is the Army's standard demonstration of a crew's employment proficiency on the crew platform during a live-fire event. Crews must successfully complete Table VI, Qualification, to progress to higher echelon live-fire collective events. Crew qualification is also used as prerequisites for additional training, certifications, and functional courses.

7-2. All crew platform tables include multiple qualification criteria to determine when a crew is qualified. The multiple qualification criteria cannot be waived on the qualification table. The qualification requirements are discussed in the next sections.

QUALIFIED CREW

A qualified crew is a VC and gunner combination that successfully completes crew platform, Table VI, Qualification and have not met any of the condemnation criteria of the qualification period.

QUALIFICATION

7-3. A qualified crew is a VC and gunner combination that successfully completes crew platform, Table VI, Qualification and have not met any of the condemnation criteria of the qualification period.

QUALIFICATION DURATION

7-4. The duration is the length of time a qualification is valid provided all other qualification conditions exist. For crew platforms, the qualification duration is 12 months.

PREREQUISITES

7-5. Prerequisites are the training events prior to live-fire that must be successfully completed by the Soldier or crew. Official records of the training must be maintained for a minimum of 12 months.

EXTERNAL EVALUATION

7-6. Qualification events require external evaluations by certified VCEs. Evaluators are typically external to the battalion or squadron (see figure 7-1). For some units in remote locations, the unit must conduct the evaluations with trained leaders within the organization. In those circumstances, the evaluator for any crew should not have influence over the promotion potential or be in any professional competition with the VC or gunner.



TABLE VI
QUALIFICATION
EXTERNAL EVALUATION REQUIREMENTS

EVENT	EXTERNAL TO	REMARKS
Table VI, Crew Platform Qualification	Battalion/ Squadron	Typically tasked within brigade.

Figure 7-1. External evaluations, crew platforms

QUALIFICATION PERIOD

7-7. The qualification period begins the day a qualification is awarded and continues for 365 days. This term is used to describe the time since qualification occurred.

CONDEMNATION CRITERIA

7-8. The condemnation criteria are the rules that determine if any given qualification is still valid. For crew platforms, these rules are time, key leader turn over, and commander assessment.

MULTIPLE-QUALIFICATION CRITERIA

7-9. Multiple-qualification criteria are the rules used for crew platform live-fire to determine their qualification status or rating based on their performance during Table VI's engagements.

QUALIFICATION STANDARDS

7-10. Crew Table VI, Qualification, is the record course of fire used to determine the live-fire proficiency of a crew platform. Table VI serves as the commander's assessment of lethality and proficiency of the crew platform. This qualification is required by AR 350-1 and described as a metric of unit readiness within AR 220-1. Crew platform qualification is the cornerstone of company, battalion or squadron, and brigade combat team readiness.

7-11. Crew Table VI, Qualification, is the Army's standard demonstration of a crew's employment proficiency for the crew platform during a live-fire event. Crews must successfully complete Table VI, Qualification, to progress to higher echelon live-fire collective events. Crew qualification is also used as prerequisites for additional training, certifications, and functional courses. Certified, experienced leaders external to the unit evaluate crew platforms on the qualification course of fire.

7-12. Crew qualification uses multiple-qualification criteria to determine the live-fire proficiency. To qualify on Table VI, the qualification course of fire, the crew must at a minimum successfully—

- Qualify 7 of 10 engagements by achieving a minimum of 70 points on all targets presented within the engagement overall.
- Score a minimum of 700 points out of a possible 1,000 points, overall.
- Qualify a minimum of one day engagement and one night engagement.

7-13. With proper training and adherence to the training strategy, units should achieve qualification on the first run attempt (termed first run) on a minimum of 90 percent of their crews. Units that fail to achieve 90 percent qualified crews on their first run, (commonly referred to as Q1), indicate a failure to train the necessary skills at the company or troop level.

7-14. The qualification standards for medium tank crews are listed in figure 7-2 on page 206. These standards establish the reporting requirements for crew platforms for readiness reporting.



QUALIFICATION DURATION: 12 months

PREREQUISITES
Each TANK COMMANDER/GUNNER COMBINATION must successfully complete:

Table I *GST*	Table I between T-6 and T-execution of the combat training density for qualification.
Table II *STX-V*	Table II and III between T-6 and T-execution of the combat training density for qualification.
Table III *STX (Drills)*	

LIVE-FIRE TRAINING
Each TANK COMMANDER/GUNNER COMBINATION successfully completes:

Table IV *Basic*	All appropriate optics zeroing, screening, or calibration procedures within 30 days of live fire training.
Table V *Practice*	The practice course of fire within the previous qualification period. Successful completion of Table V is recommended prior to conducting the qualification course of fire.

STANDARD
Each TANK COMMANDER/GUNNER COMBINATION successfully completes:

Table VI *Qualification* *or* *Table A* *Austere* *Qualification*	An authorized qualification course of fire within the last qualification period, has not triggered any condemnation criteria, and has met the minimum qualification standards listed in the respective training publication.

Note: Crew (TC/Gunner combination, as directed) must successfully complete Table VI prior to executing any collective live-fire event.

LEGEND

GST	GUNNERY SKILLS TEST	T-	TRAINING WEEK/MONTH MINUS [THE NUMBER OF WEEKS/MONTHS TILL EXECUTION]
STX	SITUATIONAL TRAINING EXERCISE		
STX-V	SITUATIONAL TRAINING EXERCISE-VIRTUAL	TC	TANK COMMANDER

Figure 7-2. Crew platform qualification standards

CREW PLATFORM RATINGS

7-15. The basis for crew evaluation basis on their level of competence on their platform using the standard evaluation procedures as described in the platform's training publication. The end state for each crew after completing Table VI is a crew that is confident and competent to a standard that best prepares them for combat.

7-16. The crew rating is an overall snapshot of the performance on the crew qualification table that provides commanders an overview of the crew's performance and competence employing their platform. It is an indicator of unit readiness and training deficiencies for future training events.

7-17. Crews will receive an overall qualification rating for Table VI, Crew Qualification, based on the multiple-qualification criteria as outlined in figure 7-3. Commanders are authorized to award crewmembers the appropriate weapons qualification badge based on the live-fire proficiency event rating including the corresponding qualification clasp.

	QUALIFICATION RATINGS
RATING	**THE CREW MUST**
DISTINGUISHED 	On the first attempt to qualify (FIRST RUN): • Qualify 9 of 10 engagements and • Score a minimum of 900 points of a possible 1,000 and • Qualify a minimum of three day and one night engagements.
SUPERIOR 	On the FIRST RUN: • Qualify 8 of 10 engagements and • Score a minimum of 800 points of a possible 1,000 and • Qualify a minimum of two day and one night engagements.
QUALIFIED 	On the FIRST RUN: • Qualify 7 of 10 engagements and • Score a minimum of 700 points of a possible 1,000 and • Qualify a minimum of one day and one night engagements.
NO BADGE or CLASP AUTHORIZED	When more than one attempt to qualify is conducted in order to meet the minimum standards.

Figure 7-3. Crew platform qualification badges authorized

7-18. When units require multiple attempts to qualify, units traditionally classify them by the maximum number of iterations of any engagement on the course of fire as described in figure 7-4.

QUALIFICATION AFTER MULTIPLE ATTEMPTS	
RATING	**INABILITY TO ACHIEVE STANDARD BY**
Q2	Failed to achieve Qualification or Certification standards on the first run, where one or more engagements were fired TWO times by the crew to achieve the minimum qualification standards.
Q3	Failed to achieve Qualification or Certification standards on the first run, where one or more engagements were fired THREE times by the crew to achieve the minimum qualification standards.
Note: The number following the "Q" indicates the largest number of iterations the crew executed in any single engagement to achieve the minimum qualification requirements. There is no "Q1" rating as the crew should therefore receive a QUALIFIED, SUPERIOR, or DISTINGUISHED rating.	

Figure 7-4. Qualifying with multiple attempts

7-19. The qualification ratings are often referred to as the Q-number, and they are used to identify weak performing crews that require additional training to achieve the appropriate readiness level expected of their military occupational specialty, assigned position, and unit readiness. They provide a rapid indication to the commander beyond the crew's score where training deficiencies or gaps are present.

> ***Note***. For example, a crew refires the 62 engagement 3 times on Table VI to achieve the required 700 minimum points with 7 qualified engagements. As the 62 engagement was fired multiple times (three in this case), the crew is rated qualified as Q3.

7-20. Units that train according to the training strategy throughout the training period with proactive leadership involvement will achieve the desired training outcomes. These units typically achieve the benchmarks listed in figure 7-5.

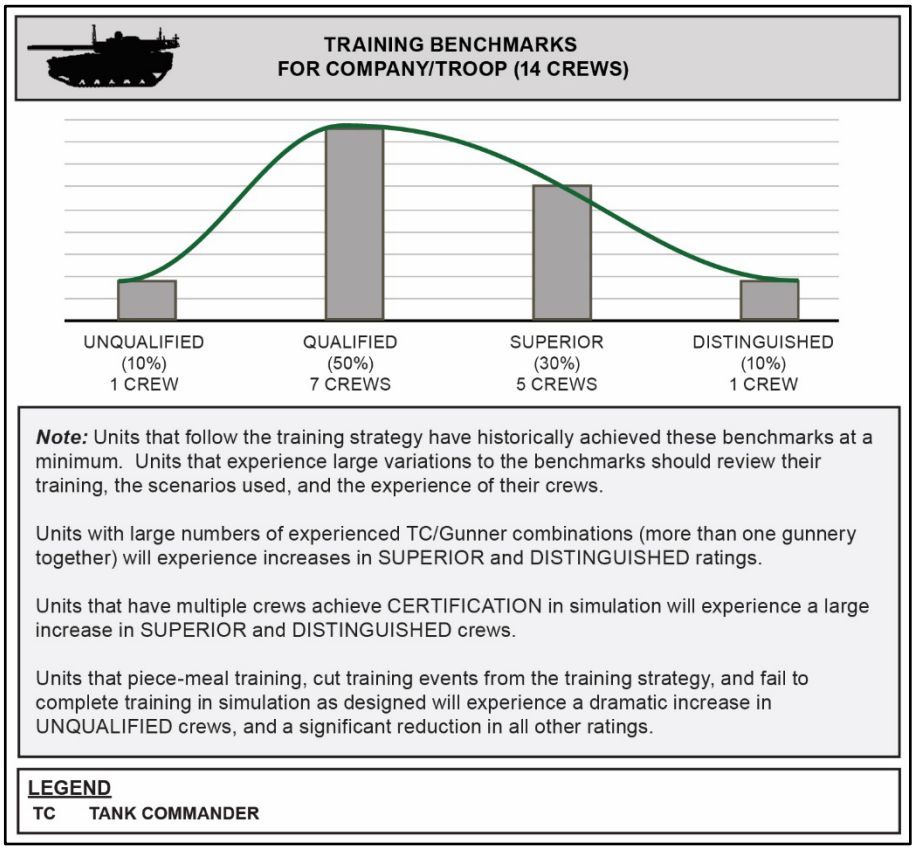


Figure 7-5. Training benchmarks achieved by following the training strategy

QUALIFICATION REFIRES

7-21. If a crew fails to qualify, they must refire select engagements for qualification. The highest rating that a crew can earn when refiring is QUALIFIED.

7-22. A crew refires only the engagements that they failed to achieve the minimum standard. Units should initially focus on those nonqualified engagements that provide the most points to gain. A crew refires only the number of engagements required to obtain a qualified rating.

7-23. AR 220-1 and AR 350-1 delineates the qualification standards reporting requirements. They relate directly to the individual and collective training proficiency goals of the readiness model found in AR 525-29.

DISQUALIFICATION

7-24. A disqualification is the immediate removal from live training of any unsafe crew until the crew satisfactorily completes a recertification program. Disqualification is a critical failure in the safe conduct of the range by leaders using weapons or weapon systems in such a manner that has the potential to injure or kill Soldiers or civilians, or excessive damage to government property.

7-25. The standards by which a crew or crewmember may be judged includes certain criteria. Disqualification occurs—

- When a crew performs any actions listed in the immediate disqualification section of DA Form 8265-1.
- When a crew performs three 30-point penalties each as listed on DA Form 8265-1 during the same table.
- For reasons not associated with firing—
  - The unit commander may disqualify individuals or crews that consistently perform unsafe acts during non-firing or preparation tasks.
  - This type of disqualification will be at the discretion of the unit commander.

7-26. Any crew disqualified for any reason may not refire without brigade commander approval after corrective training is complete. Corrective training for disqualified crews includes, at a minimum, repeating and successful completion of:

- Table I, GST.
- Table II, STX-V. GTLF on the authorized training system.
- Table III, STX.

7-27. Disqualified crews indicate a significant lack of awareness for safety on the vehicle. The requirement for retraining on Tables I, II, III, and V, at a minimum, may be waived by the first general officer in the chain of command and may not be delegated.

Note. The battalion or squadron commander is the approving authority for all recertification. A commander may impose additional retraining requirements as desired to ensure the crew's safety and effective performance during live-fire training.

SUSTAINING CREW PROFICIENCY

7-28. Once the element has successfully completed their qualification event, the unit must consider how the condemnation criteria impact their subordinate's proficiency. The following section describes how crew platforms maintain their proficiency, how to identify when a proficiency rating has triggered one or more condemnation criteria, and any options the commander can consider to mitigate those impacts.

CREW PLATFORM CONDEMNATION CRITERIA

7-29. Qualifications remain valid until one of the condemnation criteria is met. The qualification condemnation criteria for crew platforms are noted in paragraphs 7-30 through 7-33.

Time

7-30. The maximum qualification duration for any qualification, certification, or proficiency rating is 12 months.

Key Leaders

7-31. The minimum identified key leaders on the crew platform (tank commander and gunner for the medium tank) are no longer assigned to their qualified position.

Commander Assessment

7-32. Any commander within the chain of command may determine the crew no longer maintains crew platform proficiency for any reason. Any condemnation based on the commander's assessment will instigate immediate retraining.

No Alterations to the Condemnation Criteria Authorized

Units may not alter, change, or modify the condemnation criteria. Evaluation commanders have the option, based on their assessment of the element, to condemn any proficiency rating they are authorized to assign.

7-33. Once any crew loses qualification status, that crew must be removed from the battle roster. Once removed from the battle roster, commanders and their advisors review the potential to maintain the remaining crew members on either the crew roster or cross-train roster based on each situation.

TALENT MANAGEMENT

7-34. Commanders can mitigate the impacts to their unit's proficiency in a variety of methods. Talent management skills before, during, and after conducting the crew platform training strategy is required by leaders to ensure the maximum proficiency is maintained and sustained within the larger organization. Crew platform qualification has a direct impact on the unit's overall readiness and contribute to the unit's level of proficiency.

7-35. To best manage crew turbulence when establishing crew rosters, the commander and staff consider the following process identified in paragraphs 7-36 through 7-44.

Identify

7-36. Identify high performing Soldiers that demonstrate technical and tactical understanding who are prepared for increased responsibility. Consider their previous assignments and experience for potential assignment as a gunner or VC. Identify the Soldier's year month available or date of expected return from overseas assignment for permanent change of station. Determine those Soldiers eligible for stabilization following established Army personnel policies.

Assess

7-37. Units must assess new Soldier and crewmember proficiency on their platform. Commanders that receive new leaders who achieved proficiency within the last qualification period have assessment options to maintain element qualifications. Commanders can assess two previously qualified key leaders from different elements to determine their proficiency status if they are assigned together in an element. This is the least preferred method of talent management and requires the commander to make assessments using previous crew records, sustainment training in simulations, and other assessments to determine their proficiency status.

Assign

7-38. Select the tank commander and gunner combinations together. This maximizes the key leader's longevity and future proficiency ratings more stable. Assign each crewmember to their position on their potential and longevity. Place those leaders in the next higher position (gunner to VC, or driver to gunner, for example).

Transfer

7-39. When promotions occur, commanders should make every effort to keep the trained key leaders together, including inter-battalion transfers. Commanders should consider moving the newly promoted key leader and key leader combination together where the gaining unit within the battalion will benefit from maintaining proficient key leaders.

Cross-train

7-40. Experienced Soldiers are easier to train than new Soldiers. Units should utilize harvested training ammunition to train and qualify alternate firers to build experience. Units should invest first-round-hit ammunition savings, commonly referred to as ammunition harvesting, to cross training young leaders in key leader positions. In doing so, commanders can mitigate key leader turnover with trained and proficient leaders in stride with key leader turbulence. Ammunition available through first round hit savings vary from training event to training event. Units must be prepared to execute training based on the varying training munitions availability and plan for additional time on range facilities to build depth in their trained and qualified cross-trained crews.

Stabilize

7-41. Commanders must ensure the personnel officer is involved in crew management through requesting stabilization for Soldiers or organizations in unique situations. Some of these situations are described in paragraphs 7-42 to 7-44.

Functional Course Graduation

7-42. Soldiers attending the various platform mastery courses or instructor courses provide units with a graduate stabilization capability. These types of requests maximize the unit's investment in the Soldier's by effectively stabilizing the Soldier with the unit for up to 24 months.

Stop Move

7-43. Units request to stabilize specific Soldiers, small unit, or an entire organization six months prior to latest arrival date. This does not apply to Soldiers already on assignment instructions. The stop move is effective 180 days prior to the unit's latest arrival date and continues through redeployment to at least 90 days.

7-44. The special actions branch at Army Human Resources Command provides oversight and action against all stabilization, stop movement, and crew stabilization requests. For units that have an assigned latest arrival date the brigade commander requests stabilization for those VC and gunner combinations they foresee becoming turbulent in the next four quarters. For additional information, see the Army Human Resources Command website.

Plan

7-45. Commanders and command sergeants major with the assistance of their Master Gunner must anticipate future turbulence before it happens. As the key leader turbulence periods occur (permanent change of station, date of expected return from overseas assignment, reenlistment options, promotion potential, and so forth), the commander must be able to visualize and identify the most common causes, their impacts on proficiency and readiness, and identify the most probable points of failure in sustaining readiness.

CREW PLATFORM TURBULENCE

7-46. The commander may consider a turbulent crew as qualified (proficient) in extreme circumstances. Commanders accept the risk when assigning turbulent crewmembers together and carry that crew as qualified for reporting purposes. It is the least preferred method of crew management and is approved by the first brigade commander.

7-47. The commander should review and ensure that the VC and gunner have displayed cohesion and proficiency on critical skills on their platform that build experience and proficiency without live fire. The commander also ensures that the VC and gunner—

- Previously qualified in their assigned position on a different crew within the previous qualification period (12 months).
- Successfully completed Table I, GST, for the unit within the previous qualification period or on a diagnostic exam.
- Completed the simulations training strategy from entry-level through the GTLF exercise, which typically takes between 8 to 12 hours in the simulator with a qualified instructor/operator and platoon sergeant oversight.
- Successfully completed the Crew Platform, Table II, STX-V GTLF with a score of 850 or above.

7-48. If commanders are not completely confident in the crew cohesion, capability, experience, and performance, they must rate them as unqualified the next training density.

CREW TURBULENCE AND QUALIFICATION

7-49. There are only two key leaders on the medium tank. Units must develop talent management skills to maintain the crew's qualification status and proficiency as long as possible. Figure 7-6 provides an example of a proficient Booker crew.

PROFICIENT CREW	BOOKER CREW	
TIME	**KEY LEADER TURN-OVER**	**COMMANDER ASSESSMENT**
Twelve months has elapsed since the date of the qualification.	Minimum identified key leader(s) (TC or Gunner) are no longer assigned to the position(s) since the completion of the qualification.	Any commander within the chain of command determines the subordinate unit's proficiency is no longer at a trained level.



Key Leaders:

TANK COMMANDER

GUNNER

QUALIFIED CREW

A qualified crew is a tank commander and gunner combination that successfully completes Crew Platform, Table VI (Qualification) and have not met any of the condemnation criteria of the qualification period.

Note: Crew Platform Drivers are MOS qualified separately (licensed) and are not required for crew management purposes to maintain proficiency/qualification rating.

LEGEND

MOS MILITARY OCCUPATIONAL SPECIALTY **TC** TANK COMMANDER

Figure 7-6. Booker proficient crew example

Crew Turbulence Example 1

7-50. Figure 7-7 shows a Booker crew losing its proficiency rating due to a trigger from the condemnation criteria. In the example below, the tank commander, one of the crew's key leaders, leaves the organization.

UNQUALIFIED CREW	BOOKER CREW	
TIME	KEY LEADER TURN-OVER	COMMANDER ASSESSMENT
Twelve months has elapsed since the date of the qualification.	Minimum identified key leader(s) (TC or Gunner) are no longer assigned to the position(s) since the completion of the qualification.	Any commander within the chain of command determines the subordinate unit's proficiency is no longer at a trained level.



Key Leaders:

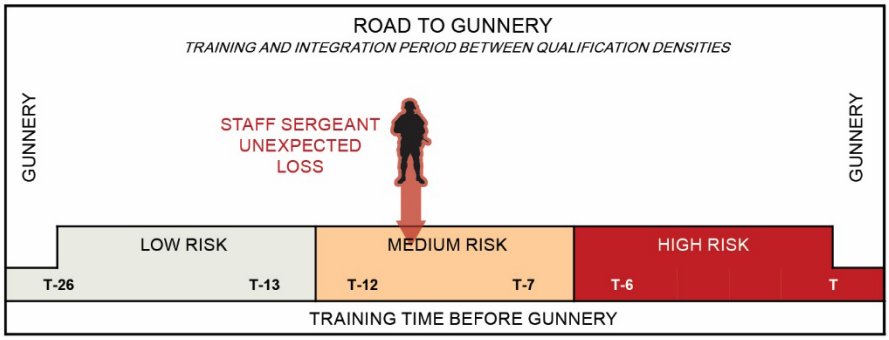
TANK COMMANDER

GUNNER

SITUATION 1

The TANK COMMANDER is no longer assigned.

THE BCT HAS A ROBUST MASTER GUNNER CANDIDATE ASSESSMENT PROGRAM AND SABOT ACADEMY SCHEDULE FOR EACH BATTALION. THIS INCLUDES THOSE ARMOR CREWMEMBERS THAT ARE ASSIGNED WITHIN THE BCT BUT ARE NOT ASSIGNED TO A CREW. THE BCT ENSURES THEIR CONTINUING EDUCATION WITH CROSS-TRAINING OPPORTUNITIES, SIMULATIONS USE, AND MENTORSHIP FROM EXPERIENCED PLATOON SERGEANTS AND MASTER GUNNERS.



LEGEND

BCT	BASIC COMBAT TEAM	TC	TANK COMMANDER
T-	TRAINING WEEK/MONTH MINUS [THE NUMBER OF WEEKS/MONTHS TILL EXECUTION (X)]		

Figure 7-7. Unqualified Booker crew example

7-51. The commander can exercise their assessment options to potentially restore or build a qualified crew. Figure 7-8 describes an example of a commander applying talent management techniques assigning a VC that continued to train on critical skills when assigned within the battalion but not assigned to a crew.

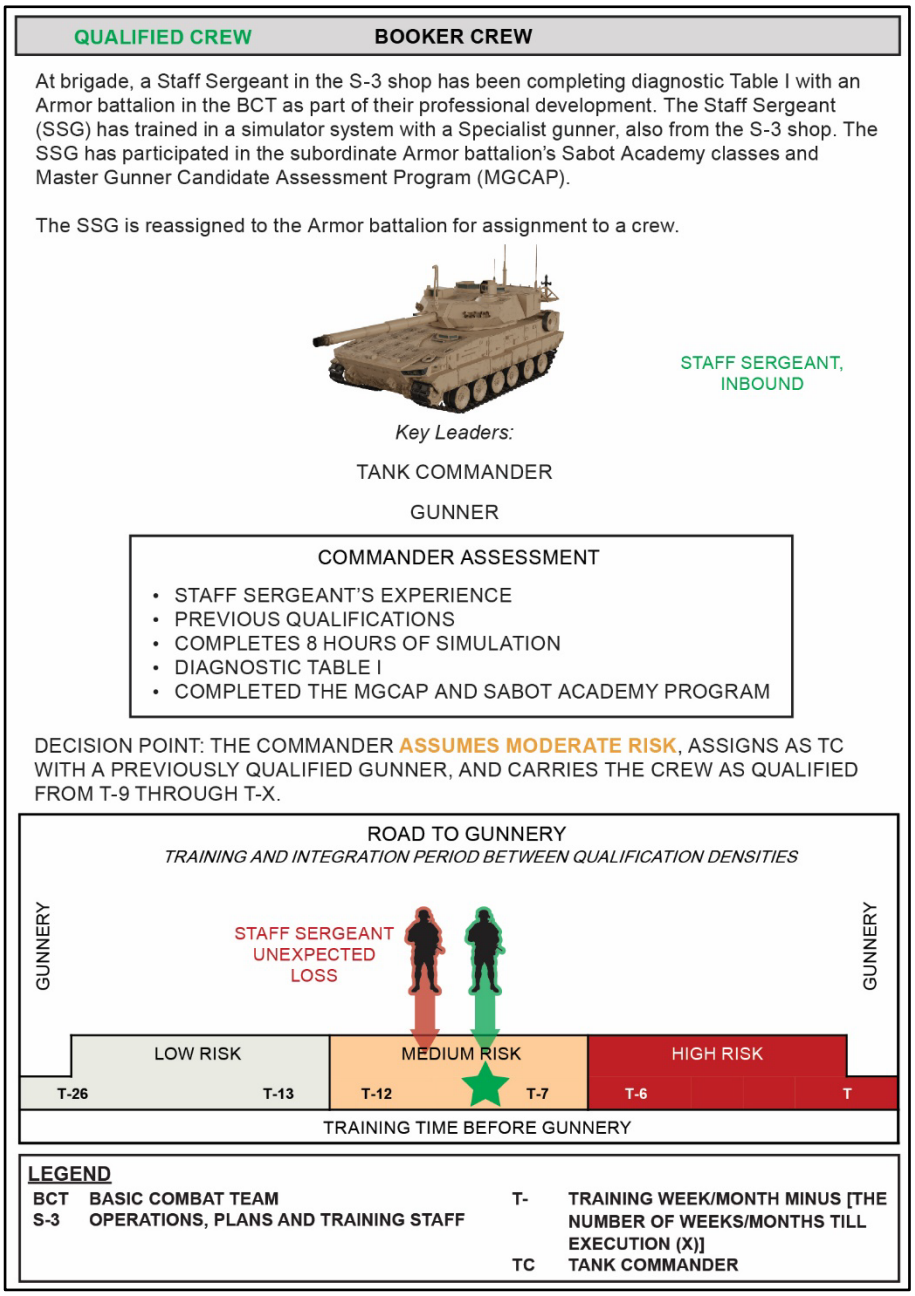


Figure 7-8. Commander assessment and mitigation example

Crew Turbulence Example 2

7-52. Figure 7-9 shows two crews losing their qualifications. In the example below, a tank commander from one vehicle and the gunner from another leave the organization. This causes a loss of two qualified crews in the company.

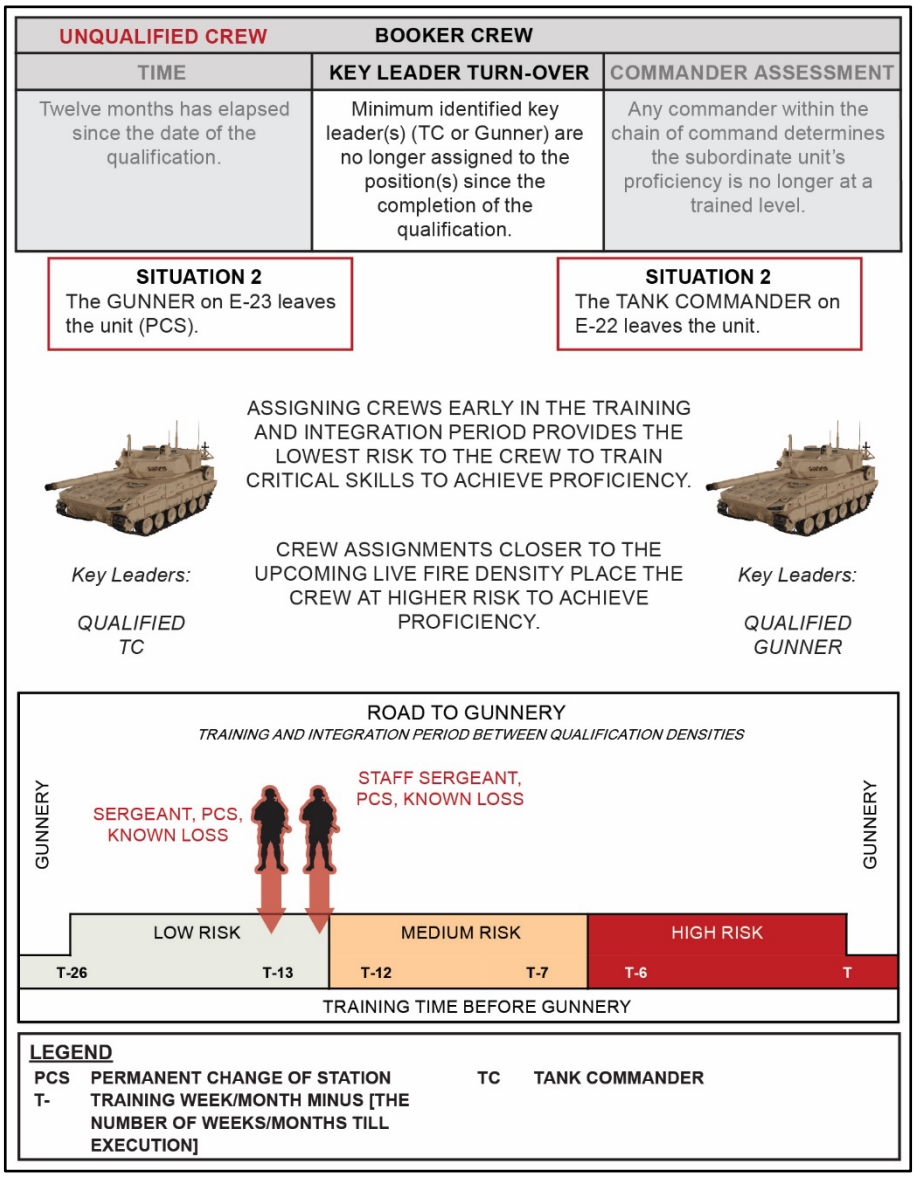


Figure 7-9. Crew turbulence example

7-53. Figure 7-10 shows where the commander assesses the two remaining key leaders from the two broken crews. The commander places them together to salvage one qualification out of the loss of two, minimizing the overall loss at the company level.

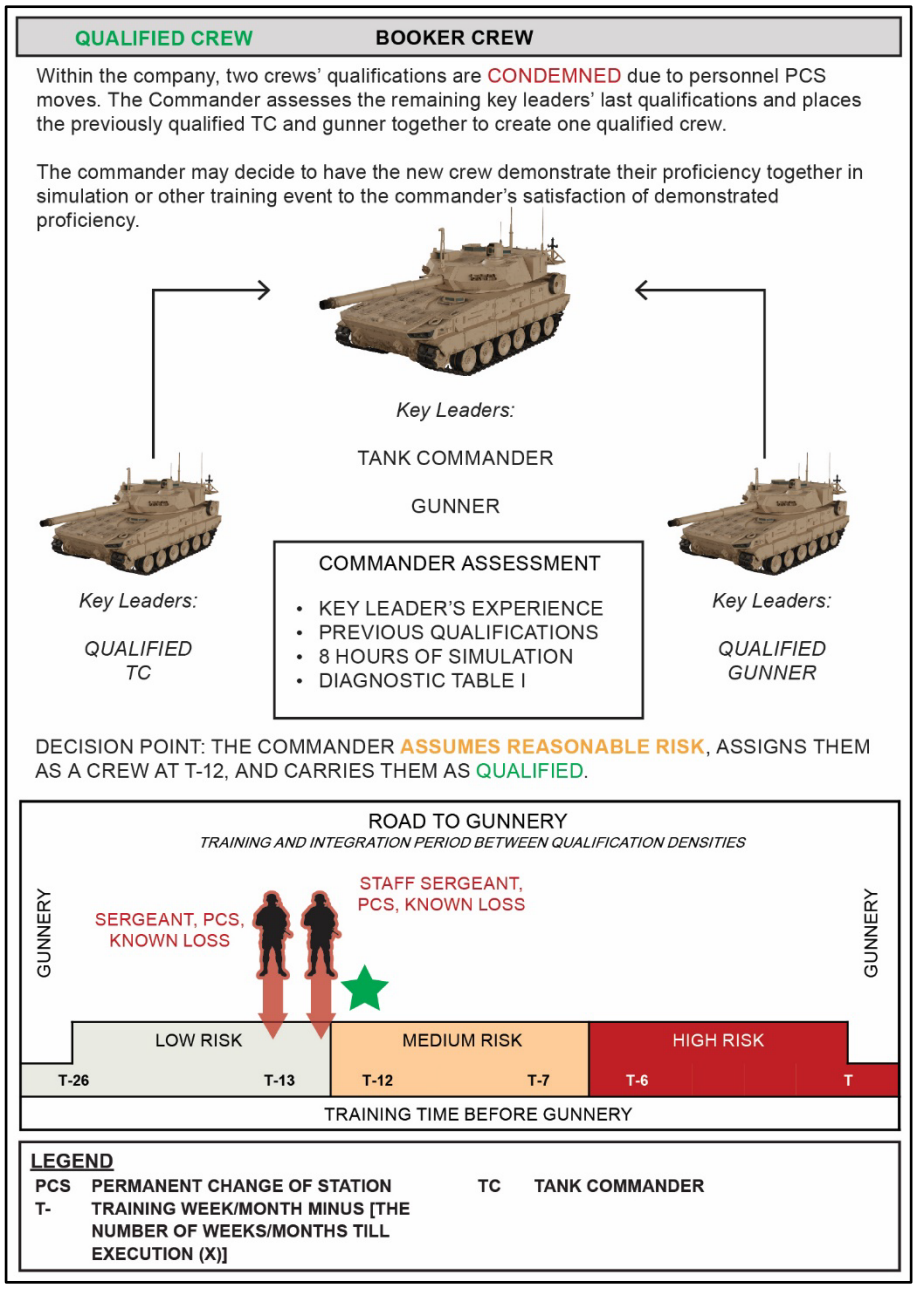


Figure 7-10. Creating one qualified crew from two broken crews

7-54. The commander must understand what they can, should, and should not do to mitigate crew turbulence. When assessing turbulent crews, the commander should make use of the authorized simulations systems, GSTs, the VCE course, and other training assets. See the turbulent crew section in this chapter for additional information.

Assignments with Qualified Rating Approval Authority

Commanders should not carry turbulent crews without previous live fire demonstrated proficiency in position. Providing as much trigger time on the system as possible, as often as possible, will create less difficult talent management decisions.

Commander Risk

Carrying a turbulent crew as qualified is a commander option. The commander accepts the risk to the crew and small unit when reporting readiness for a crew in this manner.

Approval to carry the crew as qualified resides with the brigade commander.

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Appendix A
Ammunition

The medium tank ammunition requirements, capabilities, and description are outlined within this appendix. The ammunition provided is for training purposes.

AMMUNITION REQUIREMENTS

A-1. The M10 medium tank crews complete the following events as indicated within this training circular. The actions listed below are in T-week (active component) and T-month (reserve component) concept. Frequency of execution of the training strategy is twice per fiscal year for active component and once per training year for reserve component. The performance of the tables is scheduled as follows:

- Table I, GST—completed between T-6 and T-execution of a live-fire event.
- Table II, Simulations:
  - Completed between T-6 and T-execution of a live-fire event.
  - Each crew is authorized 1 hour per month with an authorized simulations system.
- Table III, STX:
  - Completed between T-6 and T-execution of a live-fire event.
  - Units should conduct Table III as concurrent training on all other listed tables.
- Table IV, Basic—completed prior to Table V.
- Table V, Practice—completed prior to Table VI.
- Table VI, Qualification—the duration is 12 months.

A-2. The ammunition requirements for Tables III through VI is listed by table on figure A-1 on page 222. The requirements may not match DA Pam 350-38, *Standard in Weapons Training* (commonly referred to as standards in training commission or STRAC) which is the authorization. The unit Master Gunner must determine the annual forecast of ammunition required to meet the training goals and objectives of the commander. The Master Gunner uses the total ammunition management information system to review, validate, and submit unit ammunition requirements and forecast their training ammunition authorizations by month.

DODIC	Munition Type	Frequency		Quantity
		AC	RC	
Table III–Situational Training Exercise (STX)				
A598	CTG, .50 CAL BLANK F/M2 (MILES)	2	1	50
A111	CTG 7.62MM BLANK M82 LINKED	2	1	600
LA53	SIM, TARGET HIT XM35 (BES)	2	1	11
LA54	SIM, EXP DET XM34 (BES)	2	1	11
Table IV–Zero				
C511	CTG 105MM TP-T M490A1	2	1	4
CA58	CTG 105MM TPDS-T M724A2	2	1	4
CA37	CTG 105MM TP-T M467A1	2	1	4
A557	CTG .50 CAL BALL/TRACER LINKED M33	2	1	50
AB86	CTG, 7.62MM 4 BALL/1 TRACER LINKED, LEAD FREE	2	1	50
Table IV–Basic				
A557	CTG .50 CAL BALL/TRACER LINKED M33	2	1	350
AB86	CTG, 7.62MM 4 BALL/1 TRACER LINKED, LEAD FREE	2	1	550
LA53	SIM, TARGET HIT XM35 (BES)	2	1	13
LA54	SIM, EXP DET XM34 (BES)	2	1	13
Table V-Practice				
C511	CTG 105MM TP-T M490A1	2	1	3
CA58	CTG 105MM TPDS-T M724A2	2	1	5
CA37	CTG 105MM TP-T M467A1	2	1	7
CA40	CTG, 105MM CANISTER M1040	2	1	1
A557	CTG .50 CAL BALL/TRACER LINKED M33	2	1	50
AB86	CTG, 7.62MM 4 BALL/1 TRACER LINKED, LEAD FREE	2	1	650
LA53	SIM, TARGET HIT XM35 (BES)	2	1	14
LA54	SIM, EXP DET XM34 (BES)	2	1	14
Table VI–Qualification				
C511	CTG 105MM TP-T M490A1	2	1	9
CA58	CTG 105MM TPDS-T M724A2	2	1	2
CA37	CTG 105MM TP-T M467A1	2	1	10
A557	CTG .50 CAL BALL/TRACER LINKED M33	2	1	50
AB86	CTG, 7.62MM 4 BALL/1 TRACER LINKED, LEAD FREE	2	1	550
LA53	SIM, TARGET HIT XM35 (BES)	2	1	18
LA54	SIM, EXP DET XM34 (BES)	2	1	18

LEGEND

AC	ACTIVE COMPONENT	MILES	MULTIPLE INTEGRATED LASER ENGAGEMENT SYSTEM
BES	BATTLEFIELD EFFECTS SIMULATOR	MM	MILLIMETER
CAL	CALIBER	RC	RESERVE COMPONENT
CTG	CARTRIDGE	SIM	SIMULATION
DODIC	DEPARTMENT OF DEFENSE IDENTIFICATION CODE	TP-T	TARGET PRACTICE-TRACER
EXP DET	EXPLOSIVE DETONATION	TPDS-T	TARGET PRACTICE DISCARDING SABOT-TRACER

Figure A-1. Crew gunnery ammunition, authorizations

A-3. Each chapter within this training circular represents the requirement by firing table and may not match DA Pam 350-38, which is the authorization. Figure A-2 shows the total roll-up of ammunition for Tables III through VI.

DODIC	Munition Type	Quantity
Table III–VI Total (One Frequency)		
C511	CTG 105MM TP-T M490A1	16
CA58	CTG 105MM TPDS-T M724A2	11
CA37	CTG 105MM TP-T M467A1	21
CA40	CTG, 105MM CANISTER M1040	1
A557	CTG .50 CAL BALL/TRACER LINKED M33	500
AB86	CTG, 7.62MM 4 BALL/1 TRACER LINKED, LEAD FREE	1,800
A598	CTG, .50 CAL BLANK F/M2 (MILES)	50
A111	CTG 7.62MM BLANK M82 LINKED	600
LA53	SIM, TARGET HIT XM35 (BES)	56
LA54	SIM, EXP DET XM34 (BES)	56

LEGEND

BES	BATTLEFIELD EFFECTS SIMULATOR	MILES	MULTIPLE INTEGRATED LASER ENGAGEMENT SYSTEM
CAL	CALIBER		
CTG	CARTRIDGE	MM	MILLIMETER
DODIC	DEPARTMENT OF DEFENSE IDENTIFICATION CODE	SIM	SIMULATION
		TP-T	TARGET PRACTICE-TRACER
EXP DET	EXPLOSIVE DETONATION	TPDS-T	TARGET PRACTICE DISCARDING SABOT-TRACER

Figure A-2. Crew gunnery ammunition, requirements

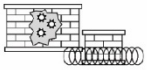
BES Cartridges

Units are resourced various BES cartridges on Tables III through VI as shown above. Units are responsible to forecast the BES cartridges using the total ammunition management information system, coordinate pick-up, and provide them to the appropriate range support personnel prior to training. The training unit resource BES pyrotechnics to support retraining or refires internally.

AMMUNITION CAPABILITIES

A-4. Units are authorized four types of training ammunition. The ammunition and its capabilities are outlined in figure A-3. Crews should use this as an outline to familiarize themselves with the ammunition.

105mm Training Ammunition Capabilities by Target Type

THREAT TYPE	MODEL (DODIC) TYPE			
	M490A1 (C511) HEAT-T	M724A2 (CA58) TPDS-T	M467A1 (CA37) HEP-T	M1040 (CA40) CANISTER
 ARMORED	*Secondary*	**PRIMARY**		
 MEDIUM ARMORED	**PRIMARY**	*Secondary*	*Secondary*	
 LIGHT ARMORED	*Secondary*	*Secondary*	**PRIMARY**	*Secondary*
 WALL BREACH BUNKERS OBSTACLES			**PRIMARY**	*Secondary (Non-Reinforced)*
 DISMOUNTED THREAT			*Secondary*	**PRIMARY**

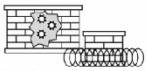
LEGEND

DODIC	DEPARTMENT OF DEFENSE	mm	MILLIMETER
HEAT-T	HIGH EXPLOSIVE ANTITANK-TRACER	TPDS-T	TARGET PRACTICE DISCARDING SABOT-TRACER
HEP-T	HIGH EXPLOSIVE PLASTIC-TRACER		

Figure A-3. Training ammunition capabilities

A-5. Units are authorized four types of service ammunition. The ammunition and its capabilities are outlined in figure A-4. Crews should use this as an outline to familiarize themselves with the ammunition.

105mm Service Ammunition Capabilities by Target Type

THREAT TYPE	MODEL (DODIC) TYPE			
	M456A2 (C508) HEAT-T	M900 (C543) APFSDS-T	M393A3 (CA32) HEP-T	**M1040 (CA40) CANISTER**
 **ARMORED**	*Secondary*	**PRIMARY**		
 **MEDIUM ARMORED**	**PRIMARY**	*Secondary*	*Secondary*	
 **LIGHT ARMORED**			**PRIMARY**	*Secondary*
 **WALL BREACH BUNKERS OBSTACLES**			**PRIMARY**	*Secondary (Non-Reinforced)*
 **DISMOUNTED THREAT**			*Secondary*	**PRIMARY**

LEGEND

APFSDS-T	ARMOR PIERCING FIN STABILIZED DISCARDING SABOT-TRACER	HEP-T	HIGH EXPLOSIVE PLASTIC-TRACER MULTIPURPOSE-TRACER
DODIC	DEPARTMENT OF DEFENSE IDENTIFICATION CODE	mm	MILLIMETER
HEAT-T	HIGH EXPLOSIVE ANTITANK-TRACER		

Figure A-4. Service ammunition capabilities

105-MM AMMUNITION COMPONENTS

A-6. All 105-mm ammunition cartridges consist of five basic components, the cartridge case, primer, propellant, obturator, and projectile. See figure A-5 for more information.

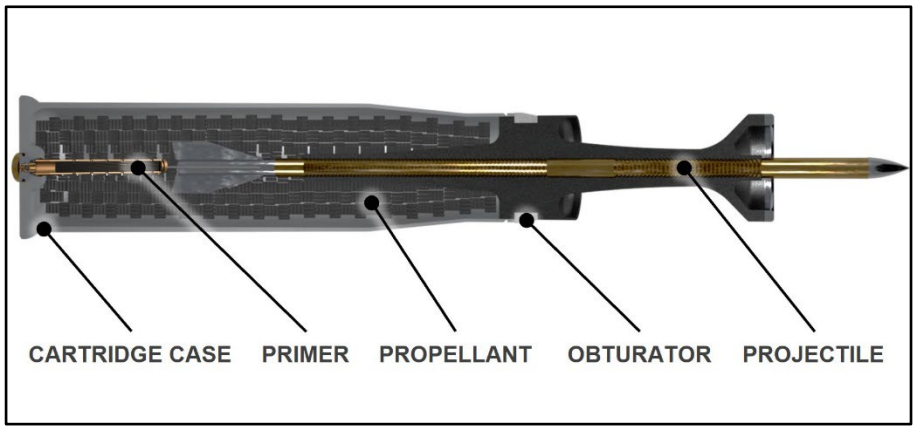


Figure A-5. 105-mm ammunition components

CARTRIDGE CASE

A-7. The cartridge case houses the propellant and the projectile. The case causes rear obturation, which is the action of the cartridge case expanding against the rear portion of the chamber region by the high pressure of the internal and forward gases. The case is locked with the forward obturator. The case base has markings with the cartridge lot number, cartridge case lot number, cartridge nomenclature, cartridge case type, and the weapon system (see figure A-6).

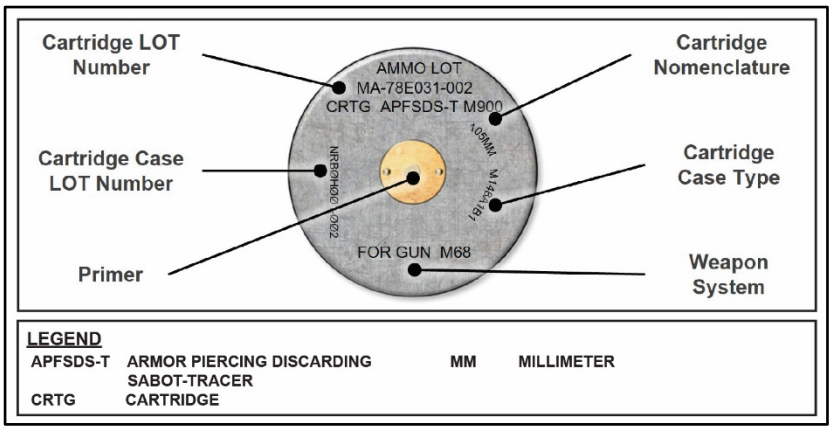


Figure A-6. Case base

PRIMER

A-8. The primer, as shown in figure A-7, is screwed into the case base. This receives the electrical charge from the circuit which ignites the primer filler. The primer filler is a volatile igniter made of benite strands that ignite the propellant.

A-9. Benite is extruded strands of black powder (potassium nitrate, charcoal, and sulfur) embedded in nitrocellulose. When the electrical charge is applied to the ignitor, the ignitor actuates the benite strands which vent through the primer case holes causing deflagration of the propellant. Activation of the ignitor occurs between 280 milliamperes and 1.25 amps.

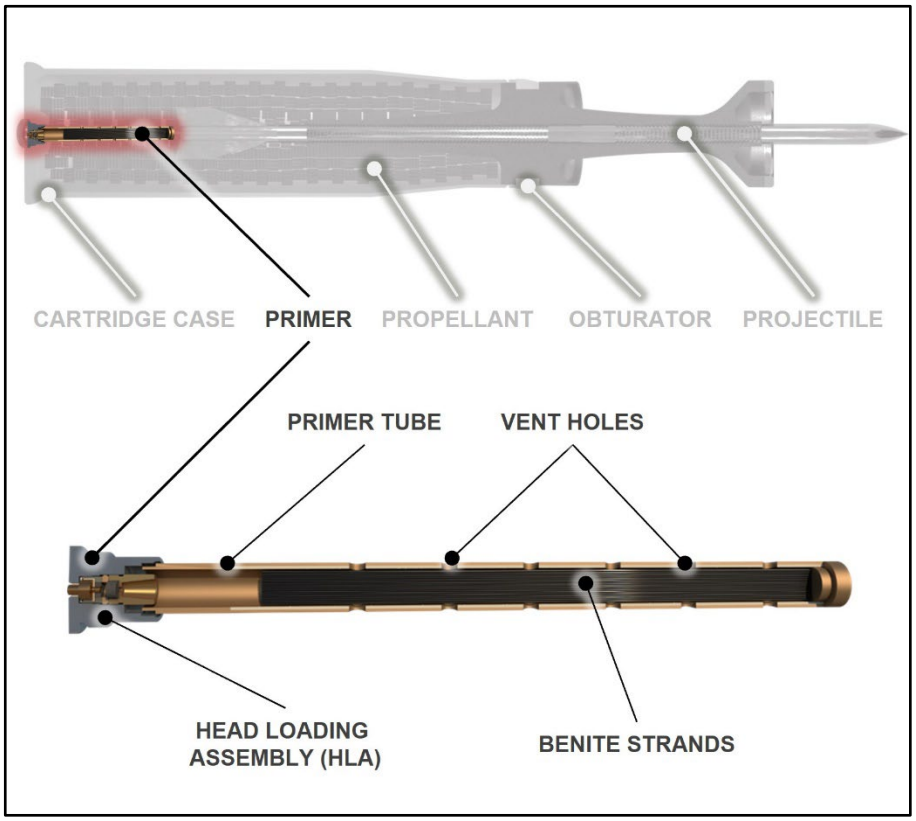


Figure A-7. Primer

PROPELLANT

A-10. The propellant is contained within the cartridge case (see figure A-8). The different propellant types vary by the model number of the round, listed later within this appendix.

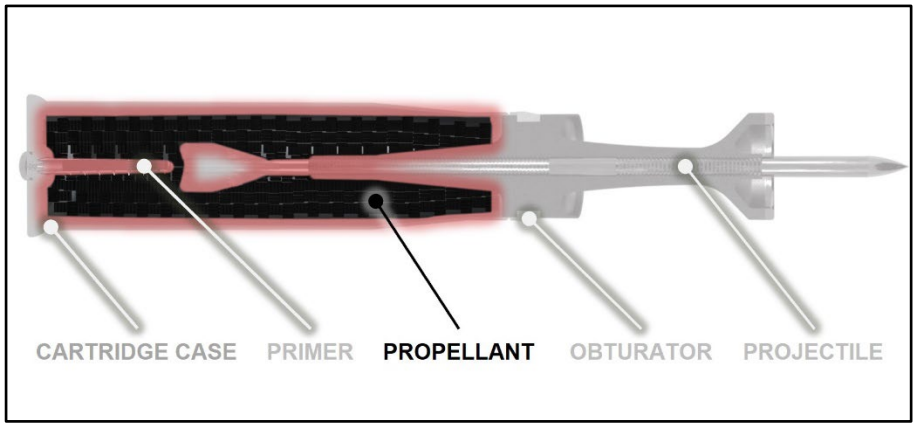


Figure A-8. Propellant

OBTURATOR

A-11. The obturator, located between the cartridge case and the projectile, causes forward obturation (see figure A-9). This is used to prevent propellant gases from leaking around the outside of the projectile. The slip band on the obturator absorbs approximately 80 percent of the projectile spin on fin and static stabilized rounds. The drive band, or rotating band, imparts spin on spin stabilized rounds.

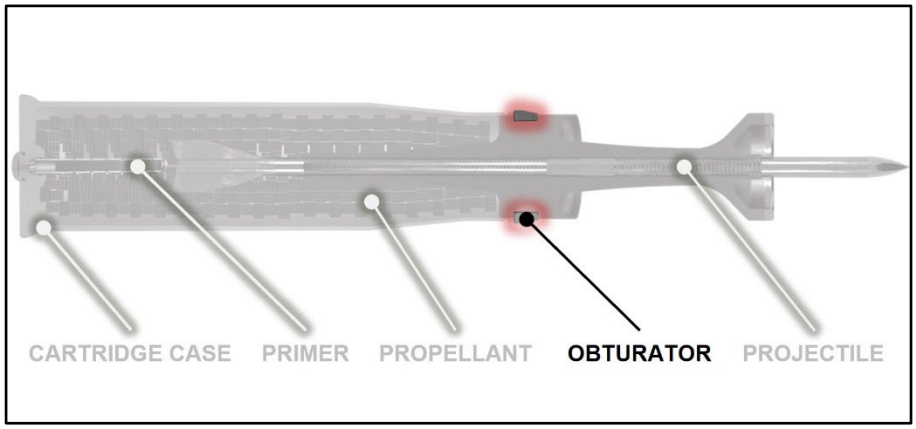


Figure A-9. Obturator

PROJECTILE

A-12. The projectile is the cylindrical portion of the cartridge between the end of the primer tube and the end of the cartridge case. The projectile travels down the bore toward the target. The projectile, based on the type of round, may house a sub-projectile, payload, or explosive chemical energy compound and fuze.

A-13. Based on the type of round, after shot exit, the round may—

- Arm a chemical warhead.
- Begin separating sabot petals from a sub-projectile.
- Continue downrange on the ballistic path.

A-14. The projectile has three different color applications: black, olive drab, or light blue. The black projectile is an armor defeating round, olive drab is for anti-personnel or anti-material, and the light blue color indicates training (target practice). See figure A-10 for an illustration of the projectile location.

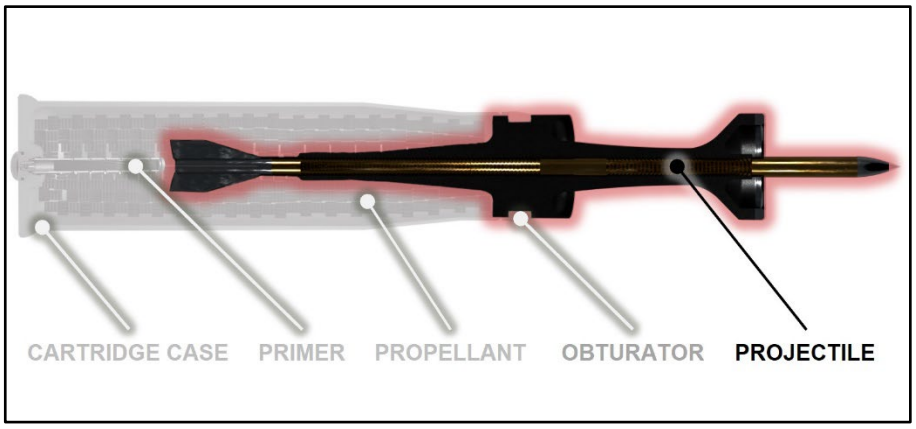


Figure A-10. Projectile

105-MM AMMUNITION DESCRIPTION

A-15. The following information describes each of the training and service 105-mm ammunition cartridges for reference. Additional detailed information can be found on the Weapon and Gun Sabot Academy teams page.

A-16. Figures A-11 on page 231 through A-17 on page 237 provide the basic ammunition data card information for the service and training cartridges. The cards include information on the following:

- Department of Defense identification code.
- Complete nomenclature.
- Fins and tracer assemblies.
- Obturator.
- Projectile and subprojectile.
- Primer.
- Propellant.
- Cartridge case.
- Hazard classification.
- Case base markings.

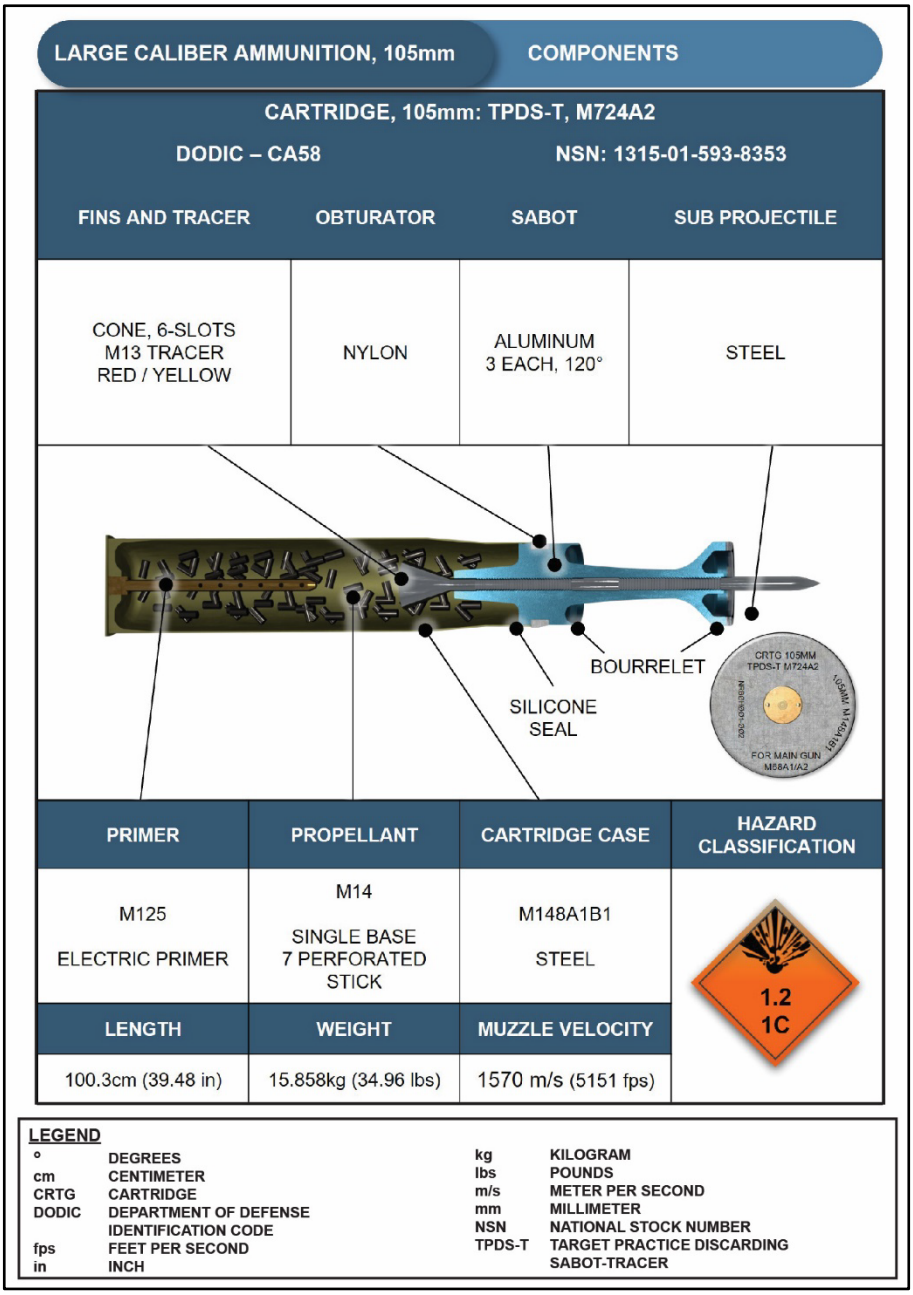


Figure A-11. Cartridge, 105-mm, TPDS-T, M724A2 data card

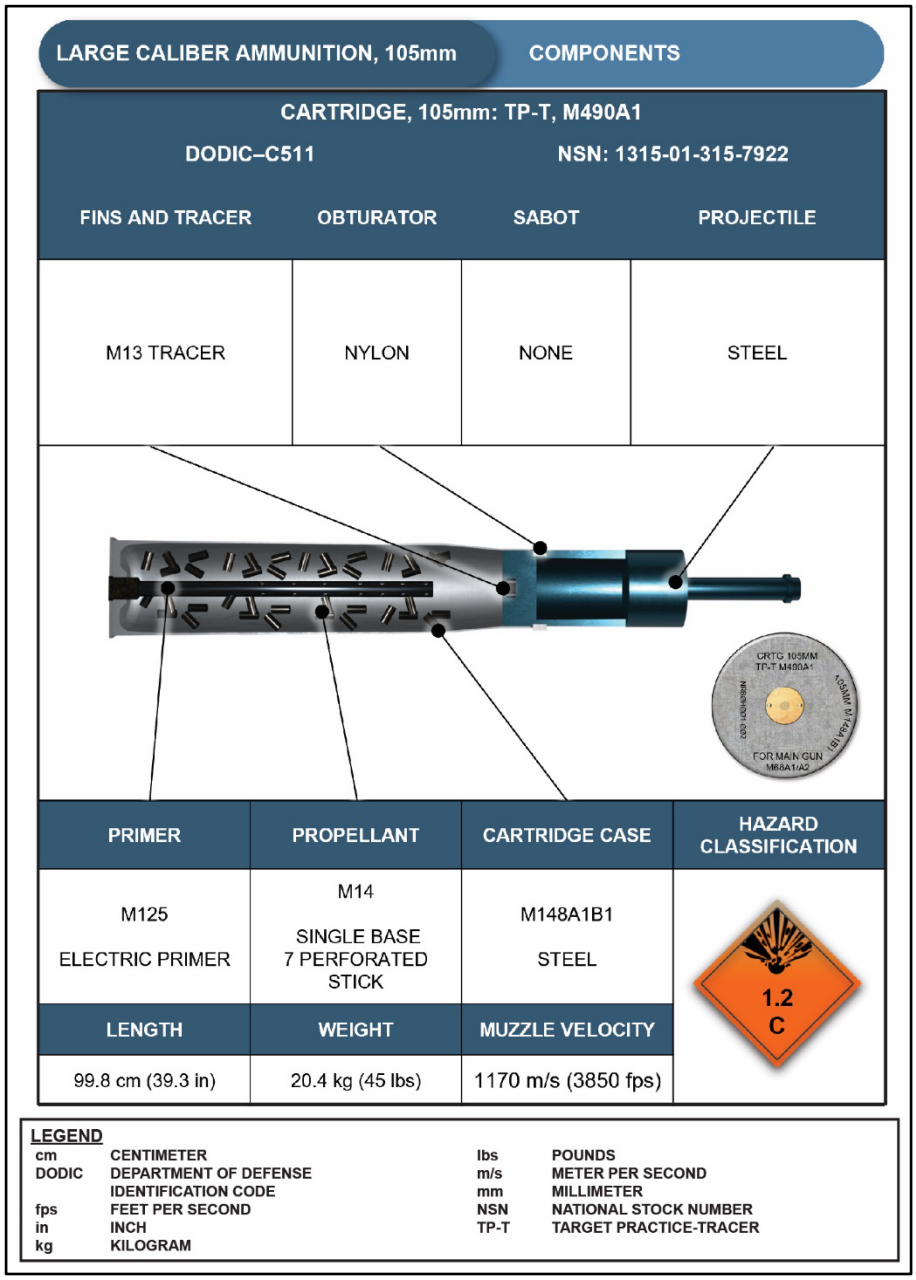


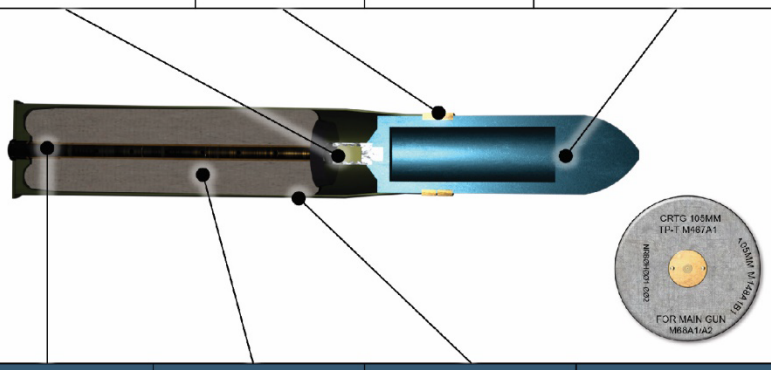
Figure A-12. Cartridge, 105-mm, TP-T, M490A1 data card

LARGE CALIBER AMMUNITION, 105mm **COMPONENTS**

CARTRIDGE, 105mm: TP-T, M467A1

DODIC–CA37 **NSN: 1315-01-514-7477**

FINS AND TRACER	OBTURATOR	SABOT	PROJECTILE
M12 TRACER	BRASS	NONE	STEEL



PRIMER	PROPELLANT	CARTRIDGE CASE	HAZARD CLASSIFICATION
M125 ELECTRIC PRIMER	M14 SINGLE BASE 7 PERFORATED GRAIN	M150B1 STEEL	1.2 C

LENGTH	WEIGHT	MUZZLE VELOCITY
94.0cm (37 in)	20 kg (43.5 lbs)	752 m/s (2605 fps)

LEGEND

cm	CENTIMETER	lbs	POUNDS
DODIC	DEPARTMENT OF DEFENSE IDENTIFICATION CODE	m/s	METER PER SECOND
		mm	MILLIMETER
fps	FEET PER SECOND	NSN	NATIONAL STOCK NUMBER
in	INCH	TP-T	TARGET PRACTICE-TRACER
kg	KILOGRAM		

Figure A-13. Cartridge, 105-mm, TP-T, M467A1 data card

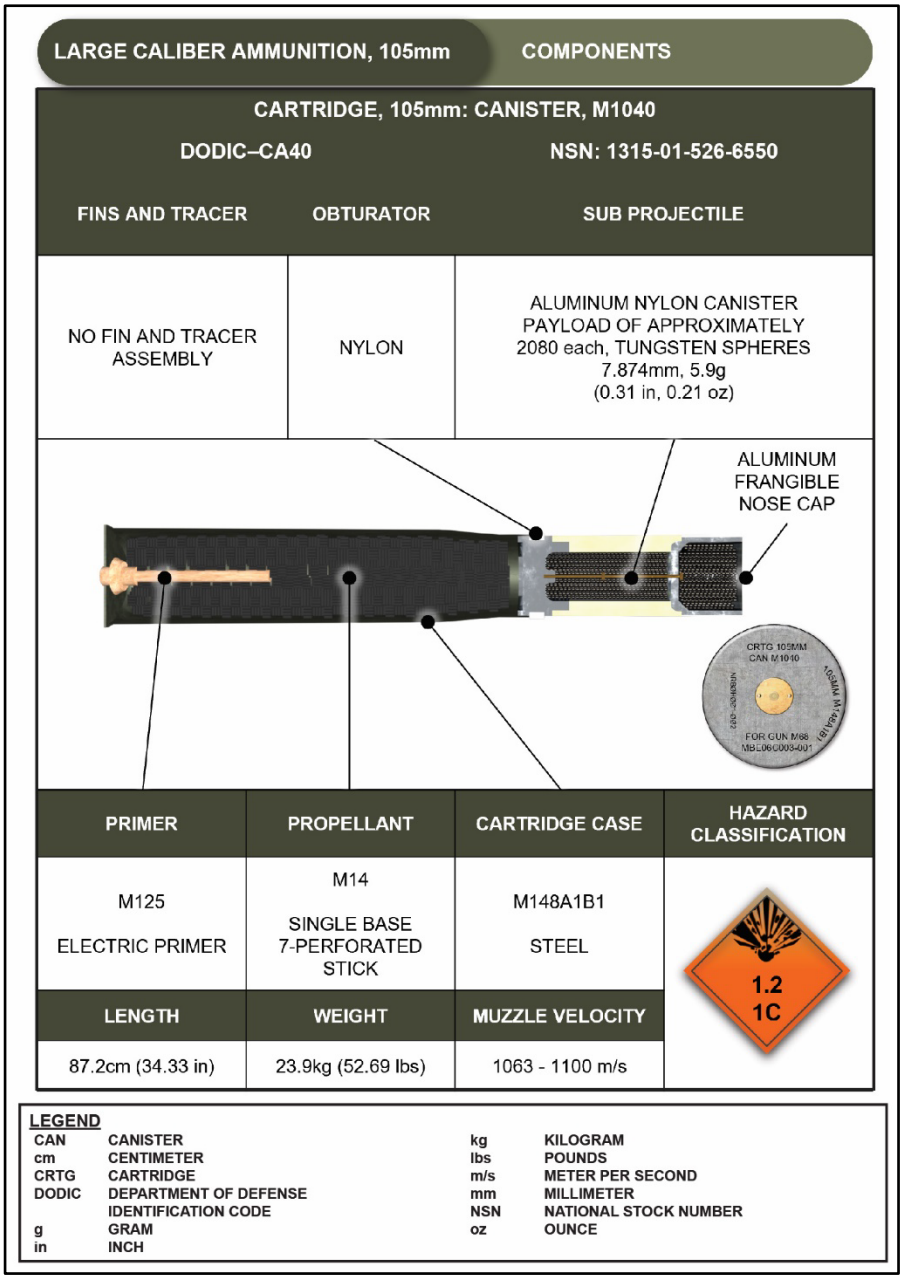


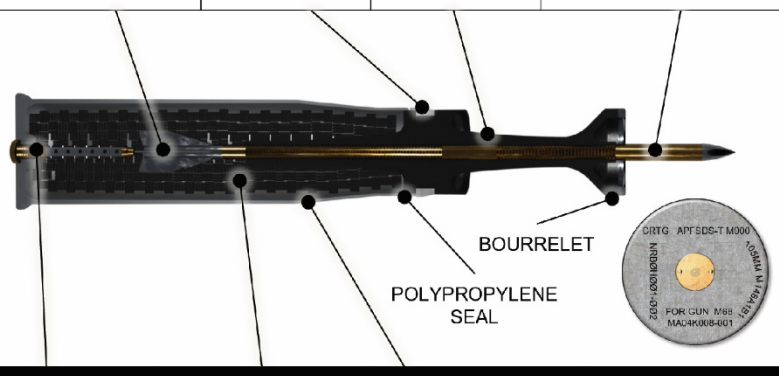
Figure A-14. Cartridge, 105-mm, canister, M1040 data card

LARGE CALIBER AMMUNITION, 105mm **COMPONENTS**

CARTRIDGE, 105mm: APFSDS-T, M900

DODIC–C543 **NSN: 1315-01-324-6633**

FINS AND TRACER	OBTURATOR	SABOT	SUB PROJECTILE
ALUMINUM FINS, 6 EACH TRACER, M13	NYLON	ALUMINUM 3 EACH, 120°	MONOLITHIC DEPLETED URANIUM



PRIMER	PROPELLANT	CARTRIDGE CASE	HAZARD CLASSIFICATION
M128 ELECTRIC PRIMER	M43 LOVA; TRIPLE BASE 19-PERFORATED STICK	M148A1B1 STEEL	1.2 C

LENGTH	WEIGHT	MUZZLE VELOCITY
100.4cm (39.5 in)	18.5kg (40.8 lbs)	1505 m/s (4938 fps)

LEGEND

°	DEGREES	fps	FEET PER SECOND
APFSDS-T	ARMOR PIERCING FIN STABILIZED DISCARDING SABOT-TRACER	in	INCH
		kg	KILOGRAM
cm	CENTIMETER	lbs	POUNDS
CRTG	CARTRIDGE	m/s	METER PER SECOND
DODIC	DEPARTMENT OF DEFENSE IDENTIFICATION CODE	mm	MILLIMETER
		NSN	NATIONAL STOCK NUMBER

Figure A-15. Cartridge, 105-mm, APFSDS-T, M900 data card

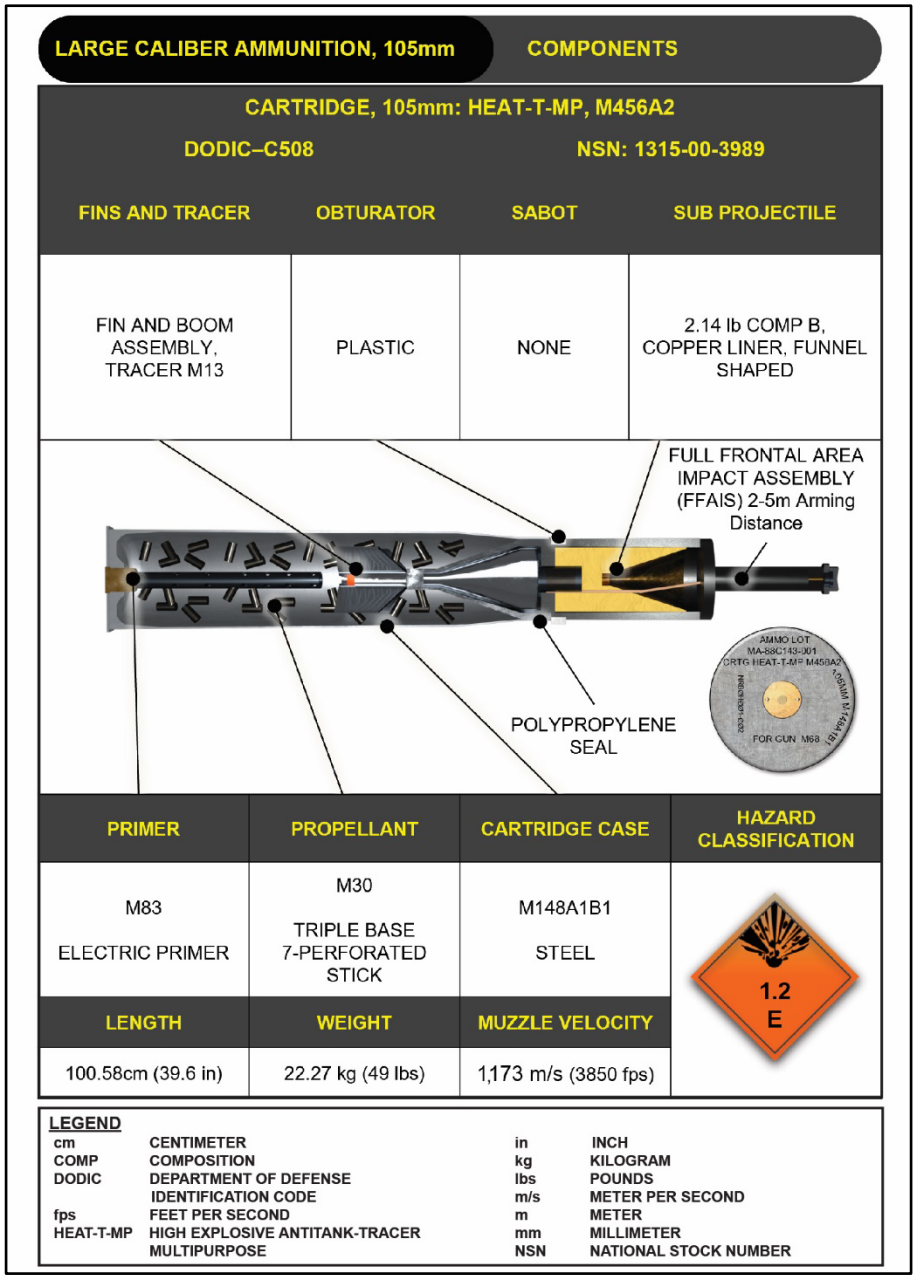


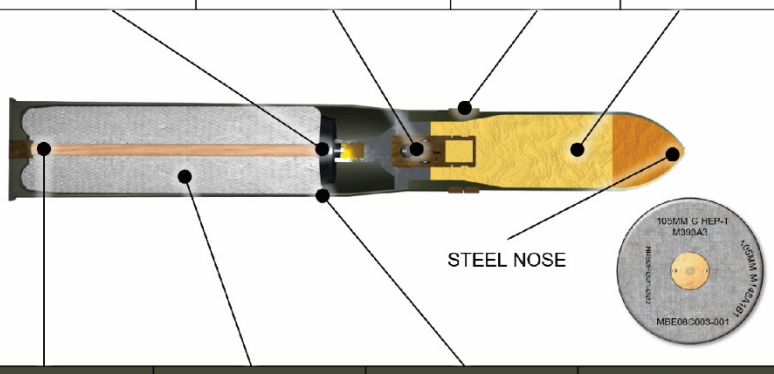
Figure A-16. Cartridge, 105-mm, HEAT-T-MP, M456A2 data card

LARGE CALIBER AMMUNITION, 105mm **COMPONENTS**

CARTRIDGE, 105mm: HEP-T, M393A3

DODIC–CA32 **NSN: 1315-01-514-7485**

FINS AND TRACER	FUZE	OBTURATOR	PROJECTILE PRIMARY PAYLOAD
M12 BG	M578A1 BASE DETONATING (BD) FUZE	BRASS	COMPOSITION A3, TYPE II 2.99 kg (6.6 lbs)



PRIMER	PROPELLANT	CARTRIDGE CASE	HAZARD CLASSIFICATION
M86 ELECTRIC PRIMER	M1 SINGLE BASE 7 PERFORATED STICK	M150B1 STEEL	1.1 E

LENGTH	WEIGHT	MUZZLE VELOCITY
94 cm (37 in)	20 kg (43.5 lbs)	752 m/s (2605 fps)

LEGEND

cm	CENTIMETERS	kg	KILOGRAM
DODIC	DEPARTMENT OF DEFENSE IDENTIFICATION CODE	lbs	POUNDS
		m/s	METER PER SECOND
fps	FEET PER SECOND	mm	MILLIMETER
HEP-T	HIGH EXPLOSIVE PLASTIC-TRACER	NSN	NATIONAL STOCK NUMBER
in	INCH		

Figure A-17. Cartridge, 105-mm, HEP-T, M393A3 data card

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Appendix B

Tracking and Manipulation Boards

Tracking and manipulation panels are tools to train hand-and-eye, coordination, gun control, speed, and accuracy using the platform's fire control system. In this appendix, there are six variations as examples for units to consider; however, units can create unique layouts, as their training program requires.

T&MBs, more commonly referred to as snake boards, should have a wide variety of designs with horizontal, vertical, and oblique motion in any direction. The panels may also incorporate (along the panel's tracking path) scaled targets that replicate the most effective way to lay on, lase, and engage a target. Paths on the boards can be tracked in all fire control modes and incorporate the use of all sights in most cases.

OVERVIEW–TRACKING AND MANIPULATION BOARDS

B-1. T&MB exercises are used to augment the STX-V or use when no simulator system is available or accessible to the crew. T&MBs are locally manufactured based on the unit need. Completion of the tracking board exercise is the least preferred method of completing Table II for live fire.

B-2. T&MBs should only be used in extreme cases (new vehicle with no simulator system, unit is deployed, or retraining is necessary in an austere or field environment) or as opportunity training in the motor pool, training area, or administration area on a range facility.

B-3. The purpose of crew platform, Table II, STX-V, is to ensure the crew possesses the skills and experience necessary to execute live-fire events and exercises safely, which implies a functional understanding of the engagement process, fire commands, engagement techniques, and lethality. This is the culminating test of their abilities and skills on their platform in simulation after completing the appropriate simulations training plan (see figure B-1 on page 240).

CREW TABLE II	TABLE I	TABLE II	TABLE III	TABLE IV	TABLE V	TABLE VI
	CRAWL	*CRAWL*	*WALK*	*RUN*	*RUN*	*RUN*
	Live	Virtual	Live TADSS	Live-Fire	Live-Fire	Live-Fire
	GST	STX-V	STX	BASIC	PRACTICE	QUAL

Note: Table I, II, and III can be conducted in any order within the T-6 to T-X time frame. This provides flexibility when developing the unit training plan.

LEGEND

GST	GUNNERY SKILLS TEST OR GUNNER'S/FIRE DIRECTION CENTER EXAM	T-	TRAINING WEEK/MONTH MINUS [THE NUMBER OF WEEKS/MONTHS TILL EXECUTION (X)]
QUAL	QUALIFICATION	TADSS	TRAINING AIDS, DEVICES, SIMULATORS, AND SIMULATIONS
STX	SITUATIONAL TRAINING EXERCISE		
STX-V	SITUATIONAL TRAINING EXERCISE-VIRTUAL		

Figure B-1. Table II, STX-V

B-4. Table II, STX-V, is a mandatory prerequisite for any live-fire event, including zero procedures, sub-caliber or in-bore training event, or any live-fire maintenance procedure within the crew training strategy. Complete Table II between T-6 and T-week to support the training events.

B-5. Units use the T&MBs when training in austere environments or when simulation systems are unavailable or unacceptable. This appendix provides general information on the purpose and use of the T&MBs.

PURPOSE–TRACKING AND MANIPULATION BOARDS

B-6. Table II, STX-V, is a skills assessment and risk mitigation tool for the commander. It assists the commander in determining the safe and effective use of the platform, its weapons, identification of threats and common ammunition by the crewmembers in the unit. Further, it identifies shortfalls and training gaps in those gunnery specific skills, which build crew proficiency and unit readiness.

METHOD–TRACKING AND MANIPULATION BOARDS

B-7. Table II is a hands-on, performance-based evaluation of basic gunnery skills to the Army-standard of knowledge or skill in a simulator system (crew shelter). It utilizes experienced evaluators to educate, train, test, and retrain Soldiers to meet or exceed those standards.

END STATE–TRACKING AND MANIPULATION BOARDS

B-8. The VC and gunner assigned as a crew have successfully demonstrated the skills and knowledge required to continue training on the platform through platform qualification. Commanders are confident in their Soldier's abilities in the position assigned.

B-9. The tasks evaluated in Table II provide the commander a means to certify the crew's basic weapons platform proficiency prior to live-fire training. It is used as a guide for identifying individual and crew weapons platform strengths and weaknesses on specific engagement techniques and employment of the vehicle's fire control system capabilities and enablers.

B-10. The goal of this training is for the firer to reach the level of expertise with the system to anticipate movements of the sight and maintain point of aim while tracking. Examples of tracking boards are in appendix B with sample scripts for use and construction requirements. The tracking board exercise increase the level of expertise of the firer to manipulate the weapon system rapidly and without hesitation, commonly referred to as switchology.

TASK, CONDITIONS, AND STANDARD

B-11. Figure B-2 provides the action, conditions, and standard when using the T&MBs for Table II. T&MBs should be used when other simulation systems are not available.

TABLE II, SITUATIONAL TRAINING EXERCISE-VIRTUAL USING TRACKING AND MANIPULATION BOARDS	
TASK	Navigate tracking boards to increase the level of expertise of the firer to manipulate the weapon system.
CONDITIONS	Given the following: • A stationary vehicle with operational sights. • Six tracking boards spaced, progressing from simple to more difficult. • Tracking boards placed 15 meters from front of vehicle. • Using a scenario developed by the unit Master Gunner.
STANDARD	The firer must successfully complete the unit-developed training between T-6 and T-execution, demonstrating: • Use the appropriate sight to track. • Track each panel route, keeping the reticle in the between the parallel tracking lines. • The aiming point on the reticle should not be outside the shaded area for more than two seconds on each tracking exercise. • When switchology indicator is present within the 1 mil reticle of the optic being used, the gunner successfully manipulates the fire control system as indicated without moving their head from the optic brow pad.

LEGEND

mil	MILLIRADIAN	T-	TRAINING WEEK/MONTH MINUS [THE NUMBER OF WEEKS/MONTHS TILL EXECUTION (X)]

Figure B-2. Table II, STX T&MBs

SCENARIO REQUIREMENTS—TRACKING AND MANIPULATION BOARDS

B-12. When using the T&MBs to meet Table II testing, units should use no less than 10 separate movements to another panel across the array, complete the series of movements on each panel before assessing the gunner's performance. As the layout, design, and functioning will vary, units must create their own timing and evaluation procedures. However, the standards listed in figure B-2 on page 245 should not change.

B-13. When used as the GTLF on Table II, the unit should maintain a record of the crew's performance and evaluator notes. The method the unit records the training is up to the design and script developed for training. It should include information like the administrative data on DA Form 8265, including crew roster, evaluator name, date of training, to name a few.

B-14. Units should provide enough scorecards and performance measures for the evaluators. These records are maintained in the crew's gunnery folder for 12 months.

DESIGN

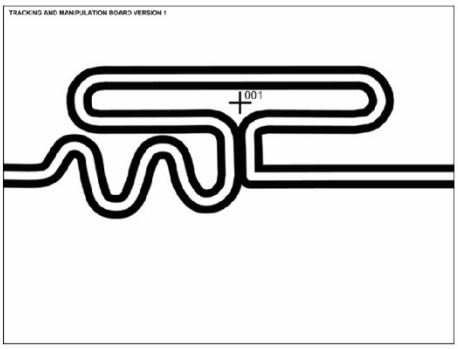
B-15. Platoon sergeants, the 1SG, or the unit Master Gunner will provide the VC training using the primary sight or independent thermal viewer as appropriate. Use of manual controls is not required for the VC's exercise.

B-16. The panels are constructed using 4-foot by 8-foot plywood, target cloth, or other suitable material. Tracking lines are 1-inch-wide black borders with a 2-inch-wide inner white path. Multiple panels can be aligned together by placing the start-point and endpoint of each panel at the height halfway point on the left and right side of the panel.

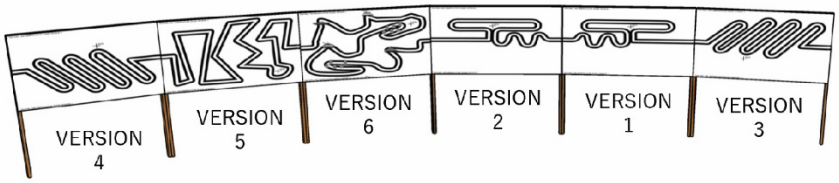
B-17. The design of the panel track is up to the unit. Example panel designs are in figures B-3 on page 243 through B-9 on page 247. Variations should include—

- Vertical track.
- Horizontal track.
- Right oblique to left oblique (diagonal movement).
- Left oblique to right oblique (diagonal movement).
- Random directional changes.
- Targetry—removable, adjustable.
- Switchology indicators—removable, adjustable.

TRAINING AIDS, DEVICES, SIMULATORS, AND SIMULATIONS (TADSS) TABLE II, SITUATIONAL TRAINING EXERCISE–VIRTUAL (STX-V) AUSTERE ENVIRONMENTS	
DEVICE	**DESCRIPTION**
T&MB-1	Tracking and Manipulation Board, version 1
T&MB-2	Tracking and Manipulation Board, version 2
T&MB-3	Tracking and Manipulation Board, version 3
T&MB-4	Tracking and Manipulation Board, version 4
T&MB-5	Tracking and Manipulation Board, version 5
T&MB-6	Tracking and Manipulation Board, version 6



Example Tracking and Manipulation Board, version 1.



Example layout using all six versions of the Tracking and Manipulation Boards.

Figure B-3. Tracking and manipulation board versions

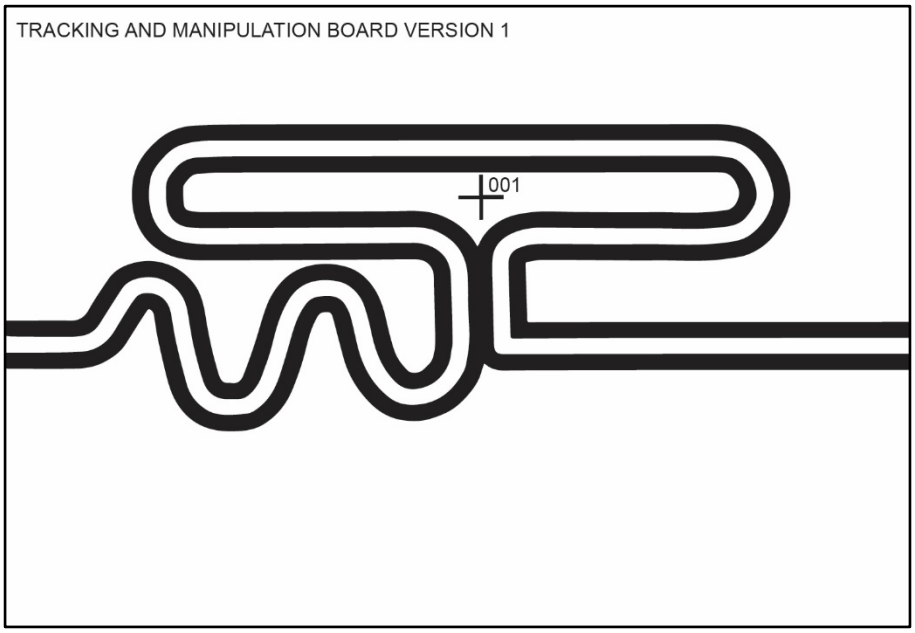


Figure B-4. Tracking and manipulation board, version 1, example

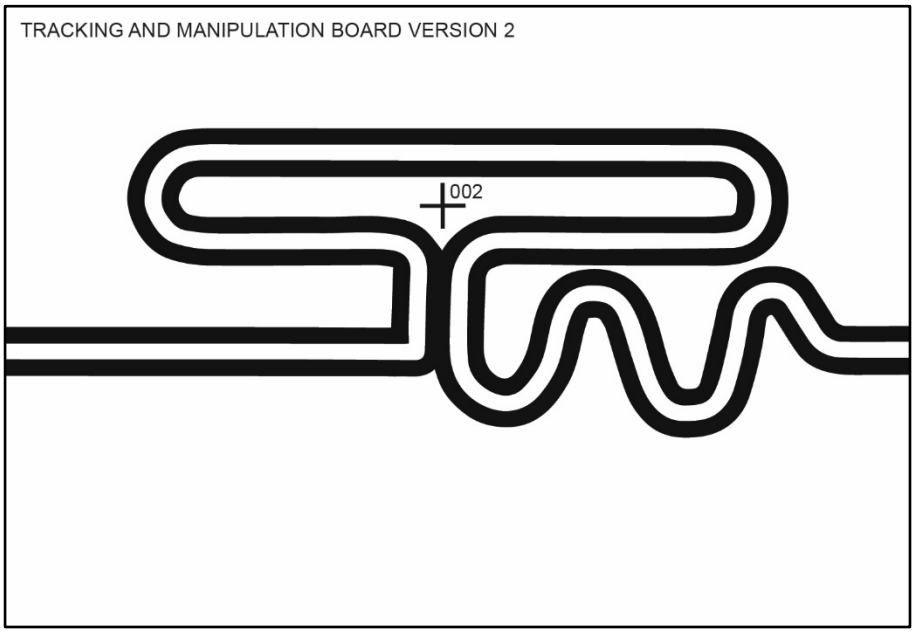


Figure B-5. Tracking and manipulation board, version 2, example

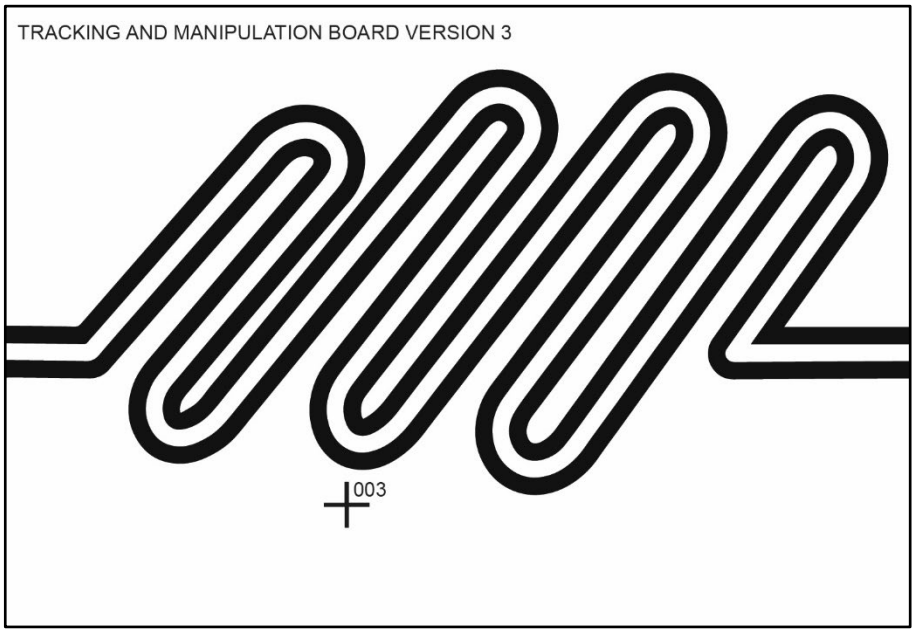


Figure B-6. Tracking and manipulation board, version 3, example

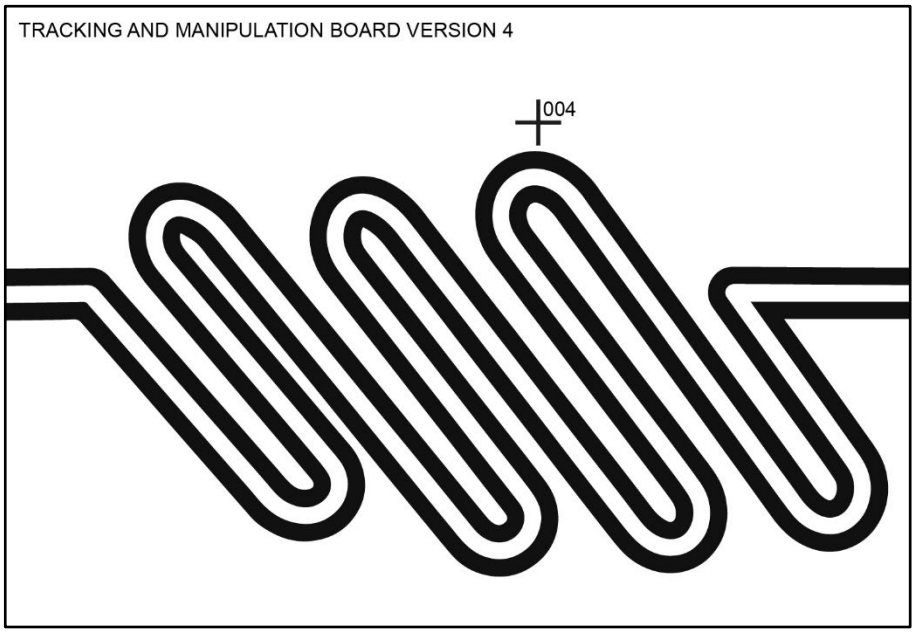


Figure B-7. Tracking and manipulation board, version 4, example

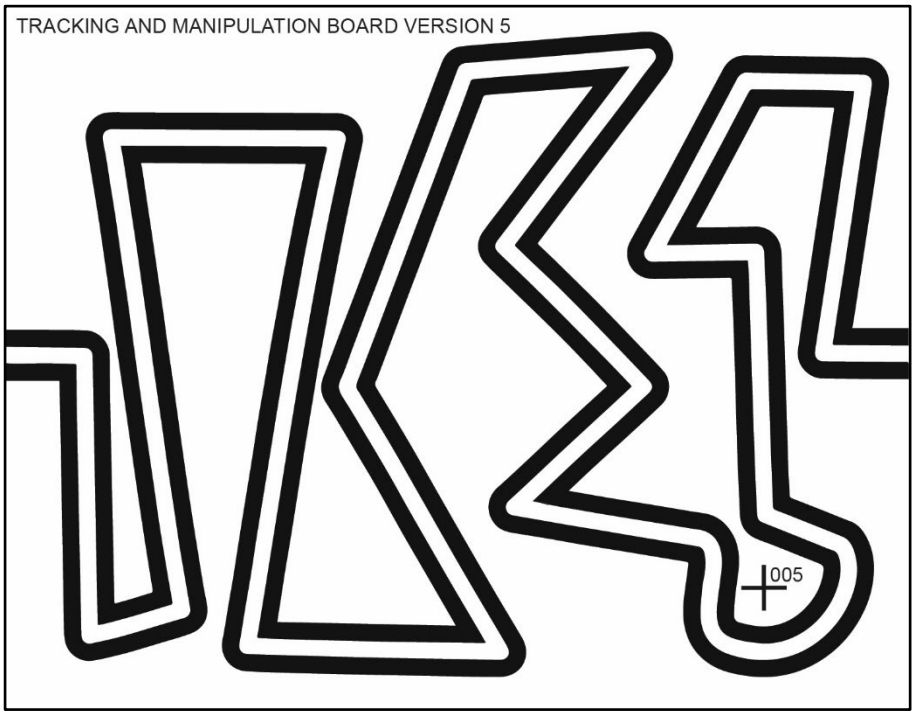


Figure B-8. Tracking and manipulation board, version 5, example

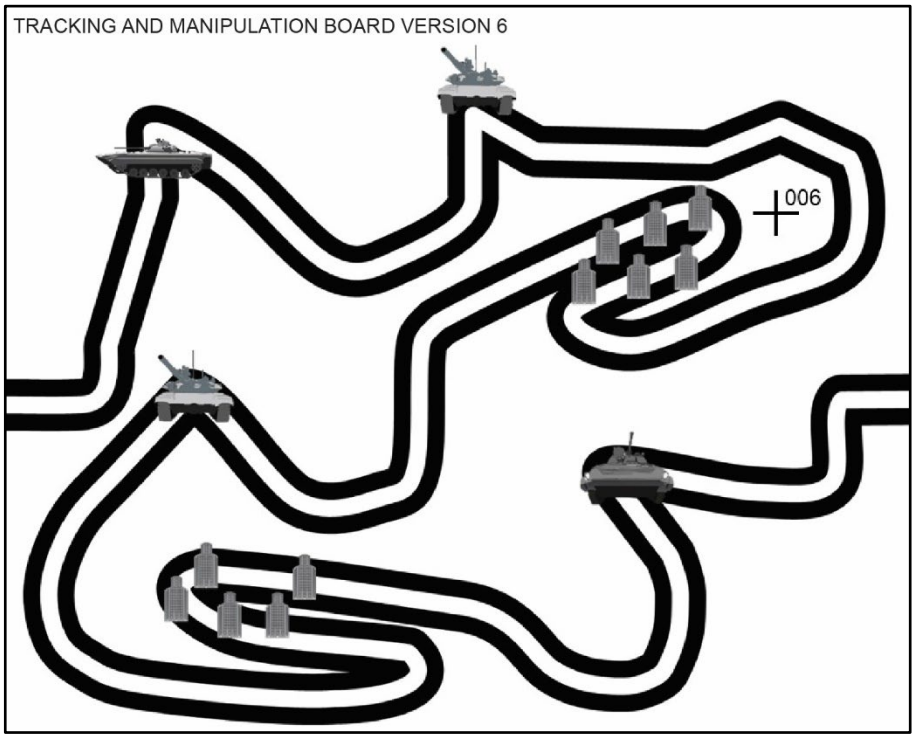


Figure B-9. Tracking and manipulation board, version 6, example

SET UP

B-18. Units add the switchology indicators and targetry to any panel to stimulate the gunner and VC to index or manipulate the fire control system panels appropriately through the most common selections. Units should include a unique target reference point to each panel to support conduct of the event.

B-19. Figure B-10 on page 248 provides an example of the fire control system capability indicators. These indicators appear on the T&MBs based on the Master Gunner's concept of training, and the established enabling and terminal learning objectives. These indicators can be a permanent part of the panel or can be modular in nature to facilitate rapid alteration of the training to focus on specific skills. Paragraphs B-20 through B-23 on pages 249 and 250 provide an example layout of various capability indicators on a single T&MB.

FIRE CONTROL CAPABILITY	EXAMPLE SWITCHOLOGY INDICATORS			
MAGNIFICATION	3X	6X	11X	25X
	LOW MAG	WIDE	NARROW	HIGH MAG
AMMUNITION	SABOT	HEAT	MPAT	MPAT AIR
	AP	HE	HEAB	HEP
	COAX	AMP	CAN	
WEAPON SAFETY STATUS	TRIGGER SAFE	MAIN		
TARGET REFERENCE POINT	001	002	003	004
DEGRADED	MANUAL	POWER	CHOKE	

LEGEND

AMP	ADVANCED MULTI-PURPOSE	HEAB	HIGH EXPLOSIVE AIR BURSTING
AP	ARMOR PIERCING	HEAT	HIGH EXPLOSIVE ANTITANK
CAN	CANISTER	HEP	HIGH EXPLOSIVE PLASTIC
COAX	COAXIAL MACHINE GUN	MAG	MAGNIFICATION
HE	HIGH EXPLOSIVE	MPAT	MULTIPURPOSE ANTITANK

Figure B-10. Fire control system capability indicator examples

B-20. Figure B-11 provides an example of a way to apply the various indicators on a panel. These indicators on the panel can be permanent or temporary applications to add flexibility and variation to the training.

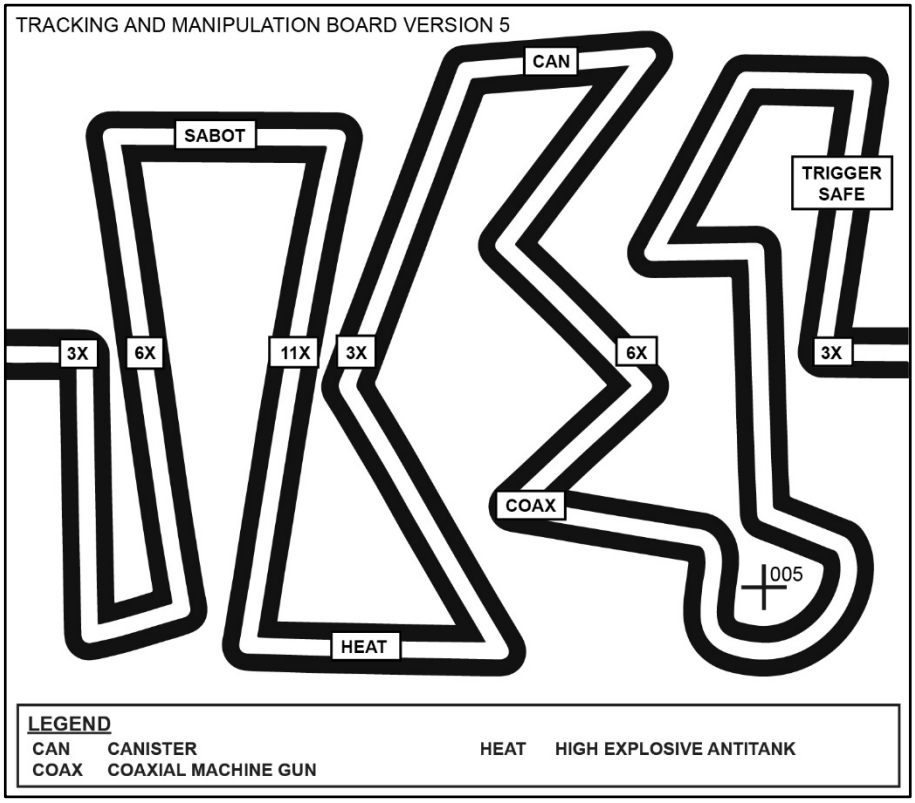


Figure B-11. T&MB with reconfigurable switchology indicators example

SCENARIO EXAMPLE

B-21. Figures B-12 on page 250 through B-23 on page 261 provide an example scenario using the T&MBs. In this example, conduct evaluation of the 10 engagements for speed and accuracy using power and manual controls, along with the primary and auxiliary sights.

B-22. Once the unit secures the appropriate T&MBs and associated switchology indicators, they set up the training location. The panels are placed approximately 15 meters across the frontal arc of the front slope of the tank (see figure B-12). The centerline entrance and exit points for each panel are aligned for smooth tracking.

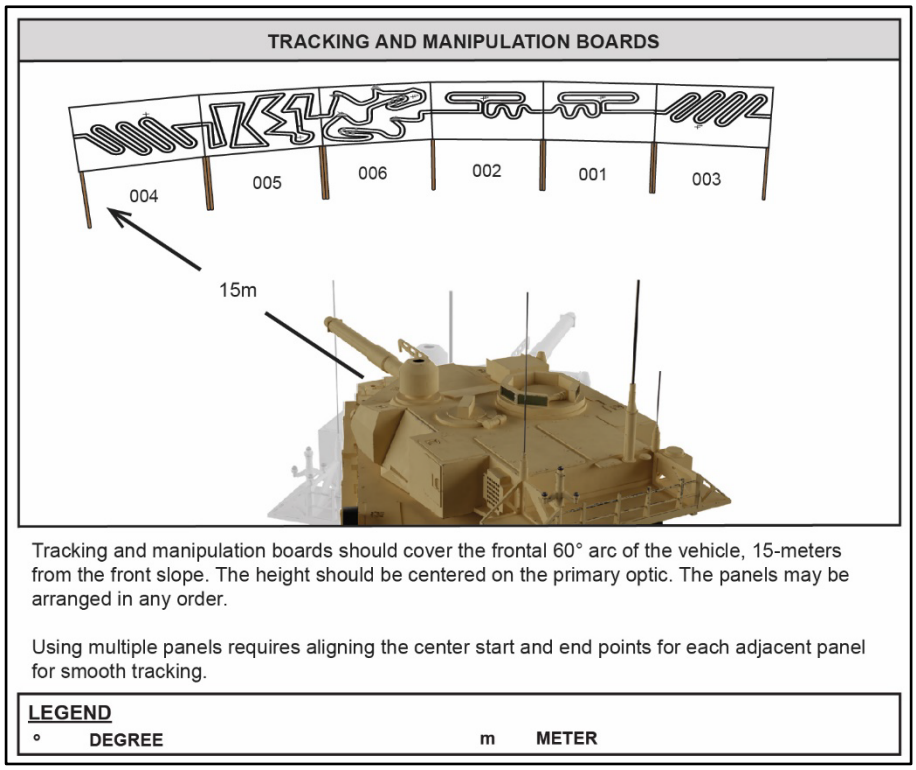
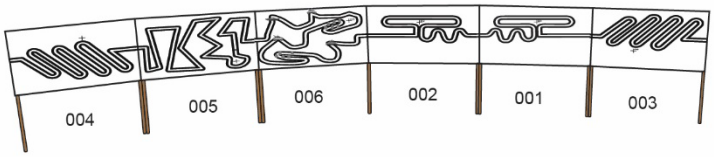


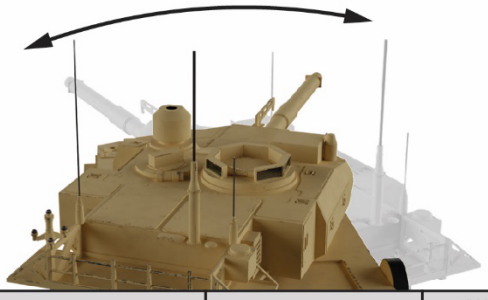
Figure B-12. Establish training site

B-23. The center of the panel should be comparable in height to the primary optic of the vehicle. This allows for limited downward movement of the gun tube. The vehicles will need sufficient space to traverse the turret left and right beyond the limits of the panels. Units should ensure at least a 5-meter separation between training vehicles.

TRACKING AND MANIPULATION BOARDS



STEP
0



REMARKS	TIME	ONCE COMPLETE MOVE TO
IDENTIFY ALL TRPs BEFORE START	20 SECONDS	TRP 004

OPTIONS:

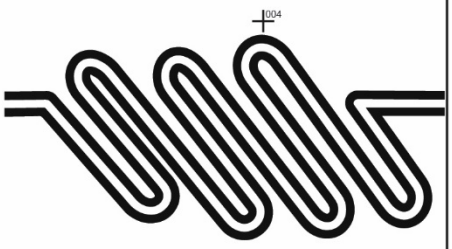
GPS

GAS

POWER CONTROLS

MANUAL CONTROLS, LOW POWER

MANUAL CONTROLS, HIGH POWER



TC directs the gunner to identify all Target Reference Points (TRPs) in sector. Once complete, TC directs the GUNNER off panel (in this example, to the right side of the Tracking and Manipulation Boards).

From off the Tracking and Manipulation Boards, TC directs the gunner to the first exercise by announcing the corresponding TRP.

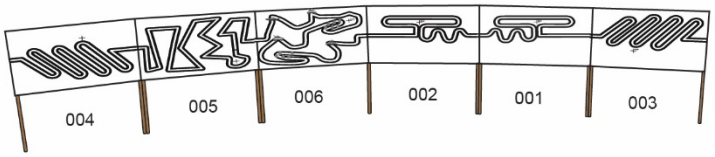
As the GUNNER nears the appropriate TRP, the TC may announce STEADY…STEADY…ON.

LEGEND

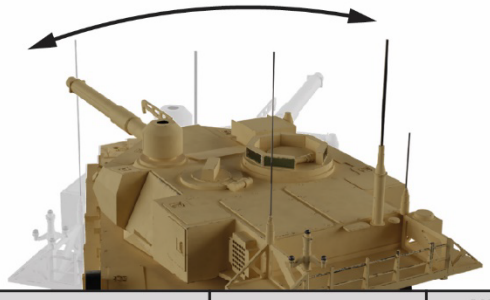
GAS GUNNER'S AUXILIARY SIGHT
GPS GUNNER'S PRIMARY SIGHT
TC TANK COMMANDER

Figure B-13. Tracking and manipulation exercise start point, example

TRACKING AND MANIPULATION BOARDS



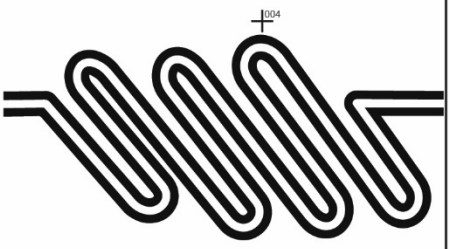
STEP **1**



REMARKS	TIME	ONCE COMPLETE MOVE TO
TRAVERSE RIGHT	10 SECONDS	TRP 003

OPTIONS:

LEFT TO RIGHT
RIGHT TO LEFT
GPS
GAS
POWER CONTROLS
MANUAL CONTROLS, LOW POWER
MANUAL CONTROLS, HIGH POWER



Start point on TRP. Track along path after TRAVERSE command is given.
Announce tracking direction, optic, and controls used. Gunner repeats to confirm instructions.
Once confirmed, VC announces TRAVERSE to begin the exercise.

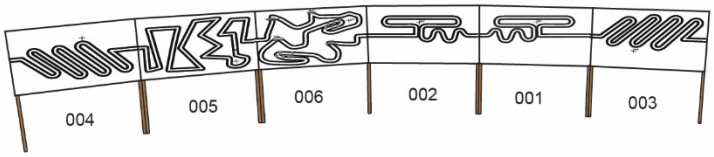
EXAMPLE: RIGHT TO LEFT, GAS, MANUAL, LOW POWER
GNR: RIGHT TO LEFT, GAS, MANUAL, LOW POWER
VC: TRAVERSE

LEGEND

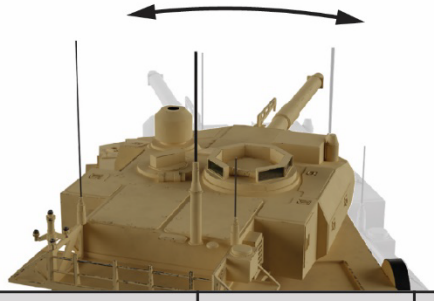
GAS GUNNER'S AUXILIARY SIGHT
GNR GUNNER
GPS GUNNER'S PRIMARY SIGHT
TRP TARGET REFERENCE POINT
VC VEHICLE COMMANDER

Figure B-14. Tracking and manipulation step 1, example

TRACKING AND MANIPULATION BOARDS



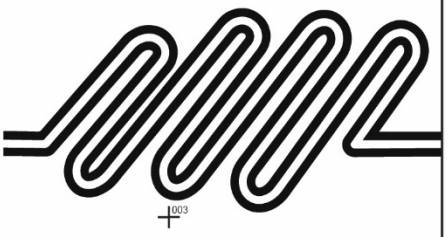
STEP **2**



REMARKS	TIME	ONCE COMPLETE MOVE TO
TRAVERSE LEFT	10 SECONDS	TRP 006

OPTIONS:

LEFT TO RIGHT
RIGHT TO LEFT
GPS
GAS
POWER CONTROLS
MANUAL CONTROLS, LOW POWER
MANUAL CONTROLS, HIGH POWER



Start point on TRP. Track along path after TRAVERSE command is given.
Announce tracking direction, optic, and controls used. GUNNER repeats to confirm instructions.
Once confirmed, TC announces TRAVERSE to begin the exercise.

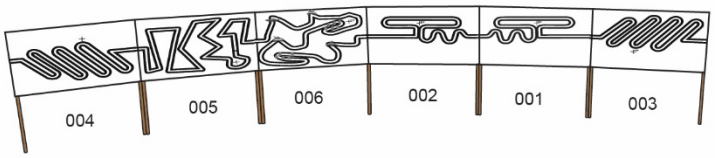
EXAMPLE: LEFT TO RIGHT, GPS, GUNNER CONTROL HANDLES
GNR: LEFT TO RIGHT, GPS, GUNNER CONTROL HANDLES
VC: TRAVERSE

LEGEND

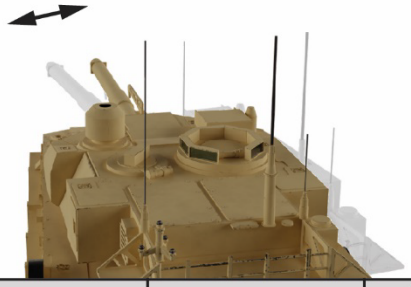
GAS	**GUNNER'S AUXILIARY SIGHT**	**TC**	**TANK COMMANDER**
GNR	**GUNNER**	**TRP**	**TARGET REFERENCE POINT**
GPS	**GUNNER'S PRIMARY SIGHT**	**VC**	**VEHICLE COMMANDER**

Figure B-15. Tracking and manipulation step 2, example

TRACKING AND MANIPULATION BOARDS



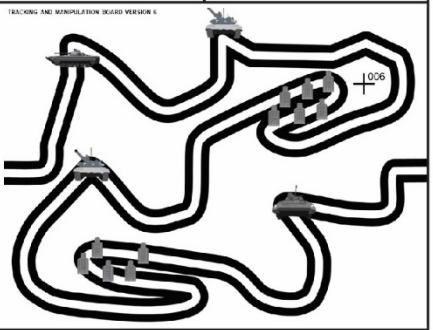
STEP **3**



REMARKS	TIME	ONCE COMPLETE MOVE TO
CHANGE OF WEAPON SYSTEM	20 SECONDS	TRP 005

SWITCHOLOGY OPTIONS:

TROOPS, LEFT TROOPS
TROOPS, RIGHT TROOPS
TANKS, LEFT TANK
TANKS, RIGHT TANK
TANK, PC–TANK FIRST
TANK, PC–PC FIRST
PC
PC, TROOPS–PC FIRST



Once set on TRP, TC announces REDUCED FIRE COMMAND for each target set. GUNNER uses BATTLESIGHT RANGE for the appropriate weapon/ammunition based on the unit SOP.

TANK AND PC, TANK FIRST
IDENTIFIED TANK, TWELVE HUNDRED
FIRE, FIRE AMP

Fire Commands continue through a minimum of 5 target sets of the TC's choosing.

LEGEND

AMP	ADVANCED MULTIPURPOSE	TC	TANK COMMANDER
PC	PERSONNEL CARRIER	TRP	TARGET REFERENCE POINT
SOP	STANDARD OPERATING PROCEDURE		

Figure B-16. Tracking and manipulation step 3, example

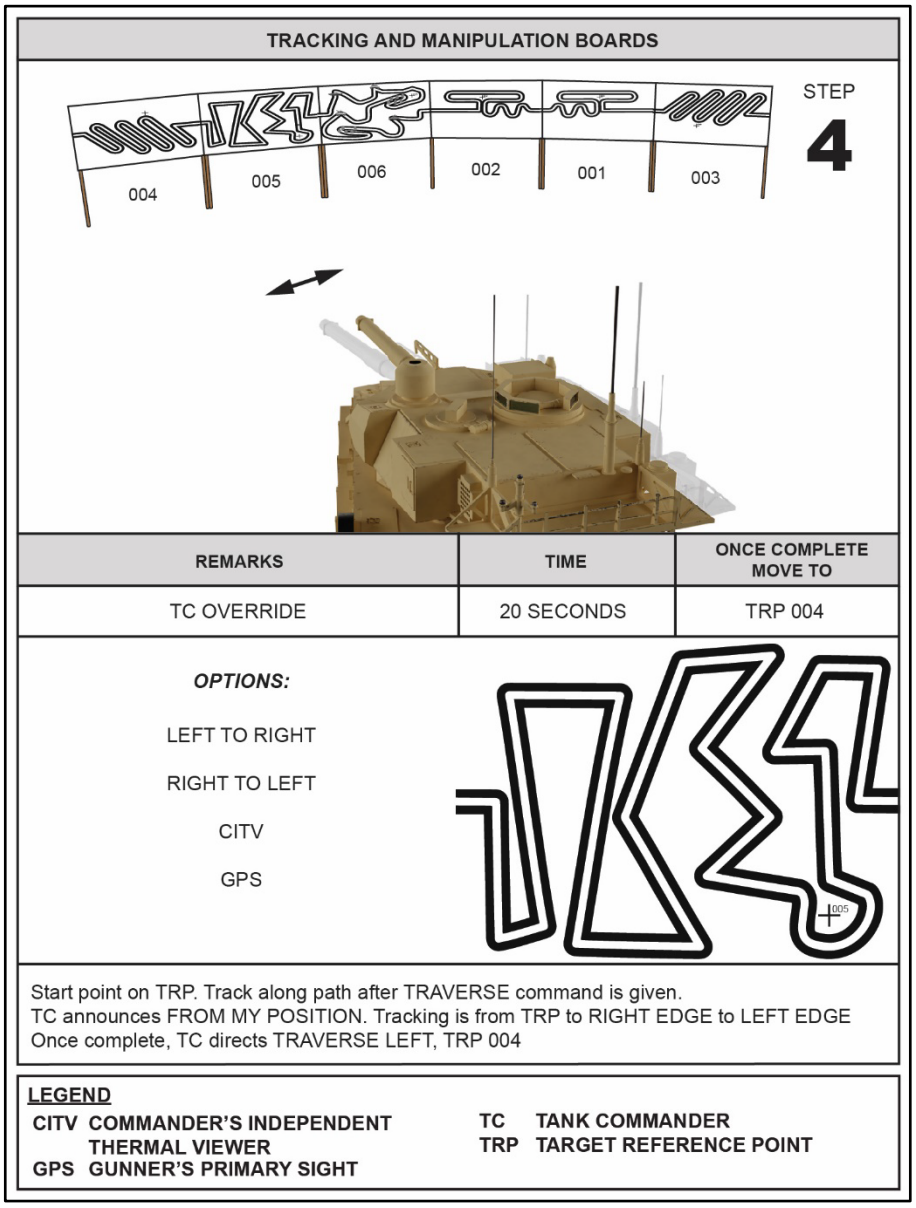
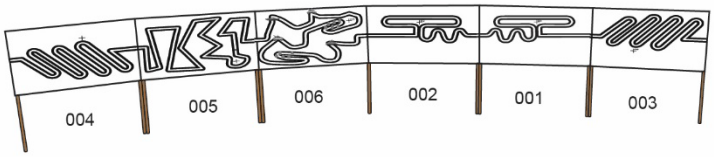
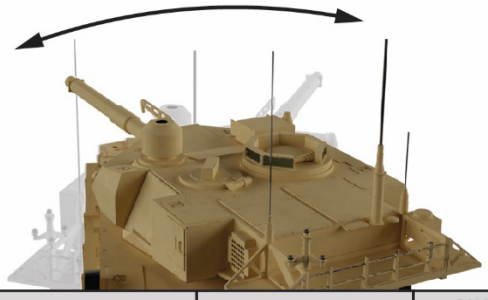


Figure B-17. Tracking and manipulation step 4, example

TRACKING AND MANIPULATION BOARDS



STEP **5**



REMARKS	TIME	ONCE COMPLETE MOVE TO
LONG TRACK RIGHT	60 SECONDS	TRP 003

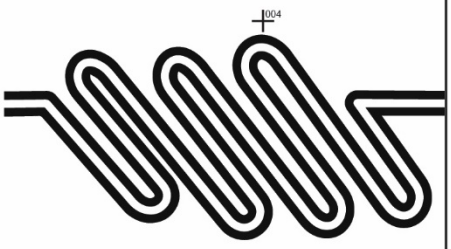
GUNNER TRACKS FROM RIGHT EDGE ALONG TRACK TO THE FAR-LEFT EDGE (ACROSS ALL SIX PANELS)

OPTIONS:

POWER CONTROL HANDLES

MANUAL CONTROLS (LOW)

MANUAL CONTROLS (HIGH)



TC directs gunner to LEFT LIMIT, CONTINUOUS TRACK RIGHT TO TRP 003.

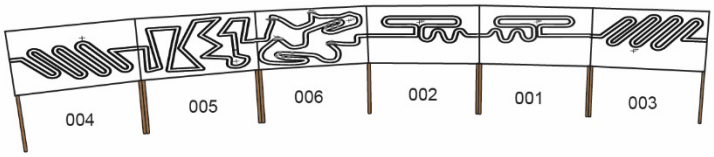
Once GUNNER arrives at TRP 003, move to next event.

LEGEND

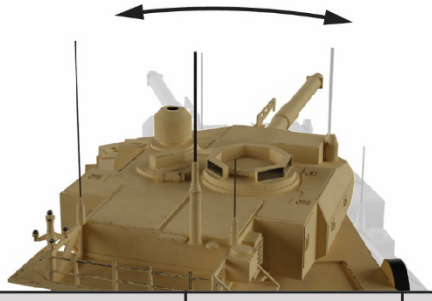
TC **TANK COMMANDER** **TRP** **TARGET REFERENCE POINT**

Figure B-18. Tracking and manipulation step 5, example

TRACKING AND MANIPULATION BOARDS



STEP **6**



REMARKS	TIME	ONCE COMPLETE MOVE TO
LONG TRACK LEFT	60 SECONDS	TRP 006

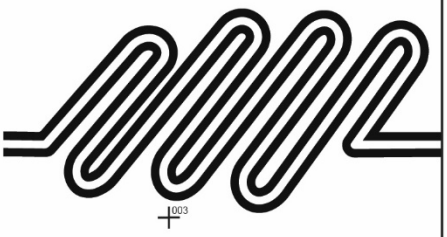
GUNNER TRACKS FROM RIGHT EDGE ALONG TRACK TO THE FAR-LEFT EDGE (ACROSS ALL SIX PANELS)

OPTIONS:

POWER CONTROL HANDLES

MANUAL CONTROLS (LOW)

MANUAL CONTROLS (HIGH)



Once the GUNNER is on TRP 003, the TC directs the GUNNER to track from the far-RIGHT EDGE to the far-LEFT panel EDGE and BACK to TRP 003.

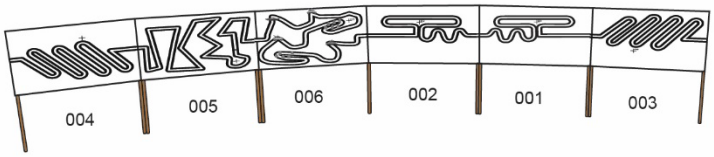
Once complete, TC directs the GUNNER to TRAVERSE LEFT to TRP 006 using POWER CONTROLS.

LEGEND

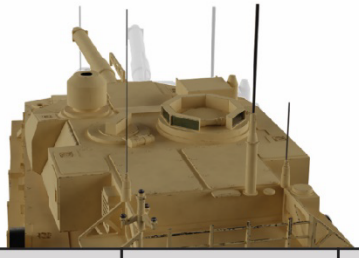
TC TANK COMMANDER **TRP TARGET REFERENCE POINT**

Figure B-19. Tracking and manipulation step 6, example

TRACKING AND MANIPULATION BOARDS

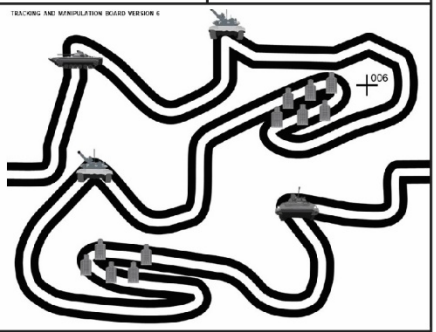


STEP **7**



REMARKS	TIME	ONCE COMPLETE MOVE TO
TC ENGAGEMENTS	60 SECONDS	TRP 002

TC ENGAGES ALL TARGETS
FROM MOST DANGEROUS
TO
LEAST DANGEROUS
USING OVERRIDE



Evaluated by PSG or Master Gunner.

TC engages all threats from MOST DANGEROUS to LEAST DANGEROUS, changing weapon and ammunition as appropriate.

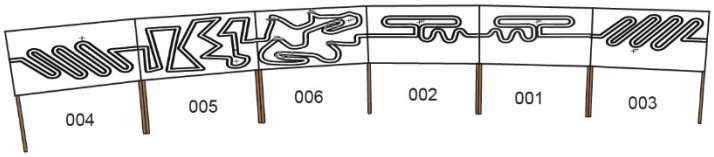
TC uses OVERRIDE for all traversing.

LEGEND

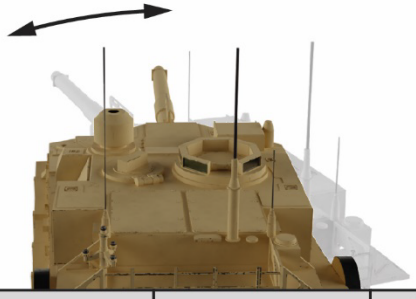
PSG PLATOON SERGEANT
TC TANK COMMANDER
TRP TARGET REFERENCE POINT

Figure B-20. Tracking and manipulation step 7, example

TRACKING AND MANIPULATION BOARDS



STEP **8**

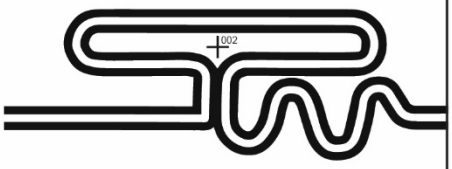


REMARKS	TIME	ONCE COMPLETE MOVE TO
DEGRADED GAS, MANUAL	60 SECONDS	TRP 005

GUNNER USES GAS

MANUAL CONTROLS

ONLY



TC directs GUNNER on to TRP 002. Once set, TC directs GUNNER to use MANUAL CONTROLS, GAS to track to RIGHT EDGE to LEFT EDGE.

LEGEND

GAS GUNNER'S AUXILIARY SIGHT
TC TANK COMMANDER
TRP TARGET REFERENCE POINT

Figure B-21. Tracking and manipulation step 8, example

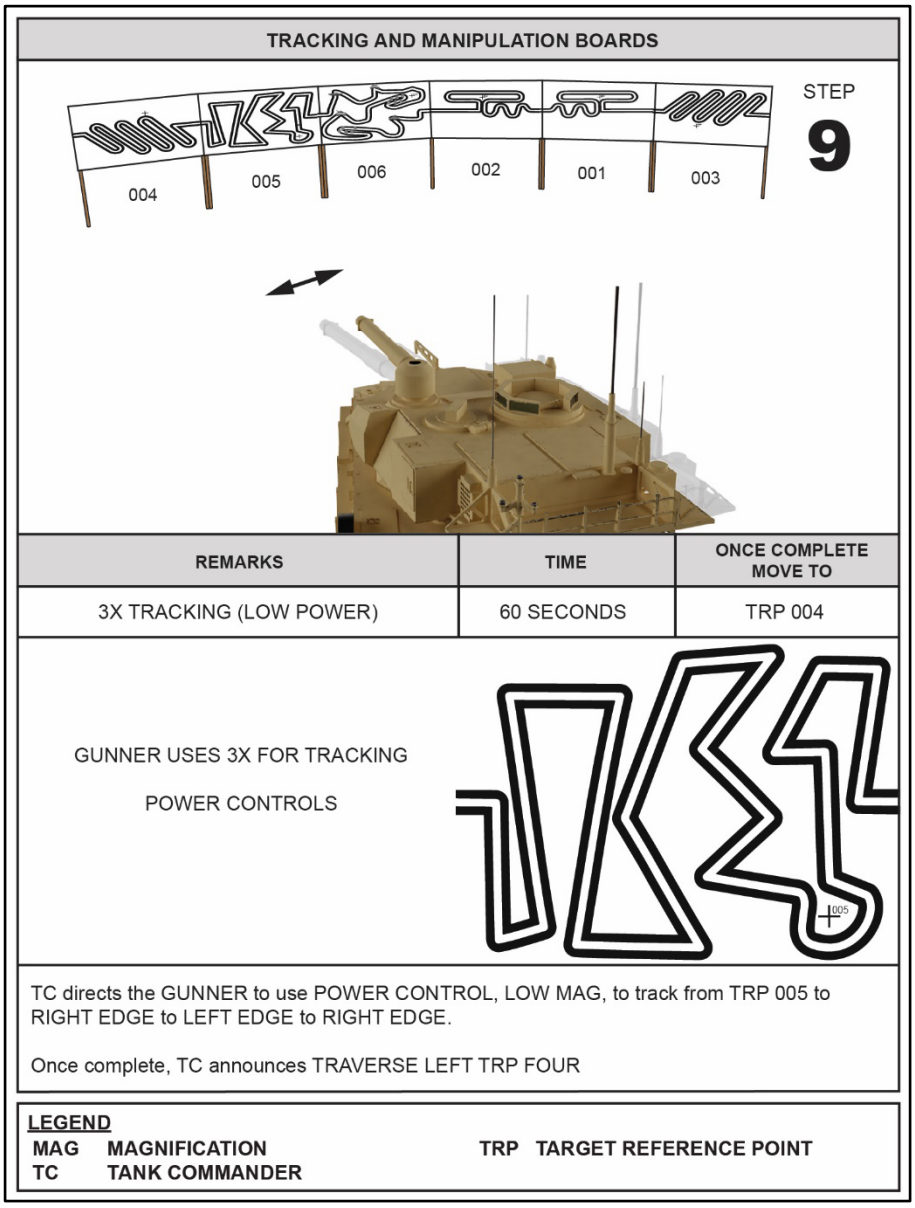
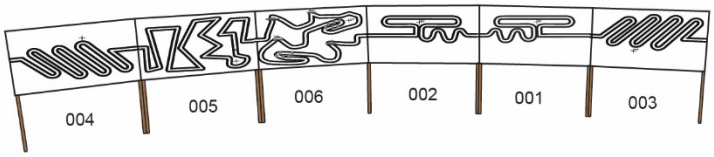
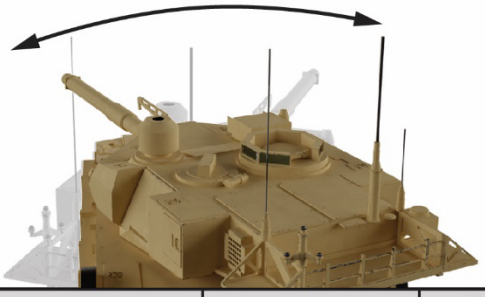


Figure B-22. Tracking and manipulation step 9, example

TRACKING AND MANIPULATION BOARDS



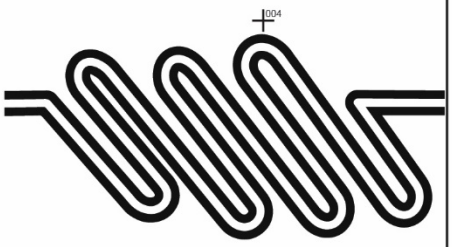
STEP **10**



REMARKS	TIME	ONCE COMPLETE MOVE TO
DEGRADED MANUAL GAS	60 SECONDS	CHECK YOUR WORK

VERTICAL AND HORIZONTAL MANUAL TRACKING SKILLS

GNR USES GAS AND MANUAL CONTROLS ONLY



TC directs GUNNER on to TRP 004. Once set, TC directs GUNNER to use MANUAL CONTROLS, GAS to track to LEFT EDGE to RIGHT EDGE to LEFT EDGE.

Once complete, TC announces CHECK YOUR WORK IN POWER.

GUNNER tracks along the entire track across all six (6) panels (RANGE FAN TO RANGE FAN) for any available targets.

LEGEND

GAS	**GUNNER'S AUXILIARY SIGHT**	**TC**	**TANK COMMANDER**
GNR	**GUNNER**	**TRP**	**TARGET REFERENCE POINT**

Figure B-23. Tracking and manipulation step 10, example

EXECUTION

B-24. Evaluators utilize the unit provided criteria scoring checklist for the ten steps of the T&MB exercise. The evaluators will use specified prompts and evaluators may not assist the crew to perform any function.

B-25. Once testing is complete, the evaluator records the results on a locally created roll-up form. As each Soldier finishes or the time limit is up, whichever occurs first, the evaluator checks the Soldier's performance as either GO or NO-GO, informs them of their performance on that task, and directs them to the next station or to retraining.

B-26. The company Master Gunner or designated NCOIC is responsible for completing unit and maintaining platoon and company roll-up information ensuring the next higher headquarters is informed, if required.

Glossary

The glossary lists acronyms with Army or joint definitions.

ACRONYMS AND ABBREVIATIONS

1SG	first sergeant
AAR	after action review
AFTTP	Air Force tactics, techniques, and procedures
AR	Army regulation
ASP	ammunition supply point
ATP	Army techniques publication
BES	battle effects simulators
CMU	crew module unit
CMUR	crew module unit recorder
DA	Department of the Army
DA Pam	Department of the Army Pamphlet
DDI	dummy, drilled, inert
DOD	Department of Defense
EM	engagement modifier
FM	field manual
FRAGORD	fragmentary order
GST	gunnery skills test
GTLF	gate to live fire
HEP	high explosive plastic
IAW	in accordance with
I-MILES CVTESS	instrumentable-multiple integrated laser engagement system combat vehicle tactical engagement simulation system
IPU	integrated player unit
MCRP	Marine Corps reference publication
MCTP	Marine Corps tactical publication
MEDEVAC	medical evacuation
mm	millimeter
NCOIC	noncommissioned officer in charge
OC/T	observer controller/trainer

NTTP	Navy tactics, techniques, and procedures
OPORD	operation order
SOP	standard operating procedure
ST-6	standard target number 6
STX	situational training exercise
STX-V	situational training exercise-virtual
T-	training week/month minus (the number of weeks/months till execution)
T-execution	training execution (commencement day)
T-week	week of training execution
TADSS	training aids, devices, simulators, and simulations
TC	training circular
T&MB	tracking and manipulation board
VC	vehicle commander
VCE	vehicle crew evaluator
WARNORD	warning order

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TC 3-20.31-105

04 April 2025

By Order of the Secretary of the Army:

RANDY A. GEORGE
General, United States Army
Chief of Staff

Official:



MARK F. AVERILL
Administrative Assistant
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