

## **Chapter 3**

### **Field Artillery Weapon Systems**

#### **3-1. Introduction**

a. This chapter provides gunnery training programs for units equipped with 105-mm howitzers, 155-mm howitzers, the Multiple Launch Rocket System (MLRS), and the Bradley Fire Support Vehicle (BFSV). Each program is composed of a standard for qualification, a suggested training strategy to achieve the standard and the ammunition required to execute the strategy. The qualification standards for the field artillery are stated in paragraph 3-4, below. The suggested training strategy and ammunition quantities are contained in the tables at the end of this chapter. Events in the strategy are from the artillery tables (ATs) of the cannon and MLRS mission training plans (MTPs). Table 3-1 is an index of gunnery training programs for FA weapon systems and other weapons and pyrotechnics pertinent to FA units.

b. The objective of the weapons training programs is to provide the unit commander models for attaining and sustaining weapon proficiency throughout the training year. Proficiency is achieved through the use of dry-fire exercises; training aids, devices, simulators and simulations (TADSS); and live-fire exercises.

#### **3-2. Strategies**

a. The combined arms training strategy (CATS) is the overarching strategy for the management and planning of unit training. It provides a system which places scarce training resources at the right times and places to provide trained soldiers and units that can accomplish required tasks across the scope of military operations. The unit strategies of CATS describe the frequency of specific events, by echelon, recommended for maintaining warfighting proficiency and readiness.

b. Commanders use the CATS training events to train their personnel and units to perform the unit's mission essential tasks list (METL) to standard. Use of TADSS is an integral part of this strategy. Major resource components of the CATS are operating tempo (OPTEMPO), training ammunition, ranges and training areas, combat training centers (CTCs), reserve component-(RC-) unique needs, simulators, and the family of simulations (FAMSIM).

c. The CATS is multi-echelon training that involves the simultaneous training of more than one echelon on different tasks to raise units to an acceptable level of readiness. For example, during a battalion field training exercise (FTX) the headquarters battery would be engaged in training of tasks that, while different from those of the firing batteries, support the firing battery and battalion training. Likewise, in both the headquarters and firing batteries, each platoon and section is training on different tasks while supporting the overall effort. Multi-echelon training contributes to overall team building.

d. Units use the crawl, walk, run method by following the ATs from the appropriate MTP. A battery will train AT XIII, (Battery Training) expending the minimum amount of resources and, perhaps, even going through some tasks step-by-step while discussing how it should be done.

When the commander feels the unit can operate at normal speed, the unit will move on to AT XIV, (Battery Certification) and use primers or shot gun shells and some added realism to increase the unit effort to perform properly. Finally the unit will conduct live-fire full-simulated combat operations in qualifying during the performance of table XV, (Battery Qualification). In this process, the performance of tasks at the lower level to standard is the "gate" that allows the unit to progress to the training of the next higher level. The crawl, walk, run methodology saves resources and provides for repetitive training to master all required tasks.

e. The FA CATS is found in chapter 3 of the appropriate ARTEP-MTP manual. CATS are posted to the Reimer Data Repository and may be downloaded by using the Standard Army Training System (SATS). CATS events can then be selected by using the point and click function of SATS 4.2. The training planner can modify the event to meet the specific unit training objective and/or prevailing conditions and circumstances.

f. The training strategies in this chapter are based on exercises in the CATS, field manuals (FMs), ATs, and ARTEP-MTPs. These references must be used in conjunction with this publication to plan and execute an effective unit training program.

### **3-3. Training Aids, Devices, Simulations and Simulators (TADSS)**

a. General. Rising ammunition cost and concern for environmental conditions have resulted in increasing dependence on TADSS. There are three categories of TADSS, live, virtual and constructive. When used together, they have a synergistic effect on a unit's training. A balanced use of these training support capabilities will enable all commanders and trainers to provide a "trained and ready force" to meet our Army's needs.

b. Constructive simulations are usually identified with the large-scale, complex computer-driven models associated with exercises dealing with battalions, brigades, divisions, corps, and echelons above corps. The primary training audience of constructive simulations is the commander, subordinate commanders and their associated battle staffs.

c. Virtual simulations are designed to train individual soldiers and small crews in collective training tasks. Virtual simulations are often associated with crew-served weapons systems and focus on training devoted to emphasize familiarity, skill development, and practice. These simulations include simulators that closely replicate all or parts of tanks, armored personnel carriers, aircraft, and other equipment and normally require the trainee(s) to immerse into the simulation. The trainee then inputs the applicable information into the controls of the simulator while visual, sound, and motion playback is provided to cause the trainee to continue to interact with the simulator through a prescribed number of tasks.

d. Live simulations are training events in which all trainees physically deploy [usually against an opposing force (OPFOR)] and use weapons simulators to replicate certain parts of combat. Live simulations can take place almost anywhere the maneuver space is available, but the most notable are the exercises at the National Training Center (NTC), the Joint Readiness Training Center (JRTC), and the Combat Maneuver Training Center (CMTC). In each of these combat training centers (CTCs), troops conduct tactical operations as units and use various simulators in

the course of training. Examples of these simulators are MILES and SAWE-RF, which replicate weapons systems interaction and damage resulting when these simulators are employed.

e. Effective use of the “synthetic” training environments, constructive and virtual, can help offset the costly aspects of the live environment, such as OPTEMPO, training ammunition, live-fire ranges and CTC deployments. Training devices aid sustainment training in garrison or local training areas. Devices enhance and sustain skills and may be the sole medium for training certain critical tasks.

f. Each weapons training program contains a STRAC XXI chart which shows possible ways to integrate TADSS into the process.

### **3-4. Qualification standards.**

a. Cannon. As part of a platoon or larger unit, each section must live-fire 80 percent of its METL-related fire missions to ARTEP-MTP standards twice annually for active component (AC) (TRC A) units and once annually for Army National Guard (ARNG) (TRC B/C) units. United States Army Reserve (USAR) training battalions (TRC D) will train those events listed in Tables 3-26 and 3-27.

b. Multiple Launch Rocket System. As part of a platoon or larger unit, the launcher section must live fire 80 percent of its METL- related fire mission tasks to ARTEP-MTP standards twice annually for AC (TRC A) units and once annually for ARNG (TRC B/C) units.

c. Bradley Fire Support Vehicle. Fifty percent of vehicle crews will qualify on Bradley Table VIIA/B annually. Crews will conduct training in accordance with table 3-28 and 3-29.

### **3-5. Resources**

a. General. It is not possible to provide ammunition to train all FA fire missions. Tables 3-3 and 3-9 show the MTP fire mission candidates for training for 105-mm and 155-mm units, respectively. Commanders must choose which of these fire missions are to be included in the unit's METL. Table 3-29 provides the same information to commanders of MLRS units. The training strategy model may be altered to suit normal mission requirements, but ammunition quantities may not be exceeded without approval of the major command (MACOM). In the rare instance in which a unit is faced with a truly *unique* requirement, a request for additional ammunition may be submitted through channels to the parent MACOM.

b. Special Munitions. The cannon training programs include a separate entry, AT XV Special Missions, for smoke, white phosphorus (WP), and illumination (illum) missions.

c. Rocket Assisted Projectile (RAP). A discretionary authorization of two rocket assisted projectile (RAP) rounds per tube annually is available to cannon units. Commanders must take a hard look at the value of live-fire training with this projectile, since four high explosive (HE) rounds must be traded for each RAP round.

d. Copperhead (CPHD). An authorization for two Copperhead per AC and one per ARNG unit is available. No trade-off is required for these rounds.

e. Close Support (CS). CS tasks are included in the 105-mm howitzer battalion table 3-3. These tasks satisfy the mission to provide close-in fires in support of light infantry units.

f. Division Readiness Brigade (DRB). DRB is a mission assigned to airborne units by the Department of Defense. Table 3-6 provides ammunition for DRB designated 105-mm battalions in addition to that authorized in Table 3-5. A DRB designated separate 105-mm battery is authorized one-third of the ammunition in Table 3-6 in addition to that authorized in Table 3-4

Table 3-1. Index of Strategies and Standards for Field Artillery Weapon Systems		
Weapon	Para	Table
105-mm Howitzer (How) Battery (Btry)	3-4a	3-3, 3-4
105-mm How Battalion (Bn)	3-4a	3-3, 3-5, 3-6, 3-7
155-mm How Bn	3-4a	3-8, 3-9, 3-10, 3-11
155-mm Cavalry (Cav)/Separate (Sep) Btry	3-4a	3-8, 3-12, 3-13
155-mm Light Infantry Division (LID) Sep Btry	3-4a	3-8, 3-14, 3-15
MLRS Bn	3-4b	3-16, 3-17, 3-18, 3-19
USAR Tng Battalion	Note 1	3-20, 3-21
Bradley Fire Support Vehicle (BFSV)	3-4c	3-22

Note 1. Training battalion standards apply.

Other Weapon Systems and Pyrotechnics		
AT-4	5-6	5-23, 5-24
Rifle (M16A1/A2)	5-9	5-38, 5-39
Machine Gun M60/M240B	5-8	5-29, 5-30
Machine Gun (M2HB)	5-8	5-32, 5-33
Submachine Gun M3A1	5-9	5-42
Pistols	5-9	5-45, 5-46
Hand Grenades (M228/M67)	5-9	5-47, 5-48
Claymore Mine (M18A1)	5-9	5-49, 5-50
Pyrotechnics	na	8-9, 8-10, 8-11, 8-12

Table 3-3. 105-mm Howitzer Candidate Fire Missions Identified in the MTPs.			
Fire Mission	1X6/3X6 TRC A & B/C		
	CS <sup>1</sup>	Btry	Bn
Echelons Above Bn Mass			X
Fire-for-Effect (FFE) (Bn Mass)			X
Engage a Moving Target Array		X	X
Low-Angle Adjust (Fuze time)	X	X	X
Precision Registration		X	X
High Burst (HB)/Mean Point of Impact (MPI) Registration		X	X
High-Angle Adjust [Radar or Forward Observer (FO)]		X	X
Coordinated Illumination	X		X
Final Protective Fire (FPF) Adjust	X	X	
Simultaneous Missions	X	X	
Emergency Mission		X	
Quick Smoke	X	X	
Irregularly Shaped Target			X
Time on Target (TOT)	X	X	X
Schedule of Fires	X	X	X
Immediate Suppression	X	X	
Priority Target	X	X	
Illumination	X	X	
Direct Fire		X	X
Meteorological Plus Velocity Error (Met + VE)		X	X
Met to Target (outside transfer limits)	X		X
Immediate Smoke	X	X	
Sweep and Zone	X	X	
Assault Fire		X	
Multiple Volley Mission		X	X
FFE Chemical (Cannot be live-fired)		X	X
FFE Improved Conventional Munitions (ICM)/Dual Purpose ICM (DPICM) (Cannot be live-fired)		X	X

Note 1: Close support

Table 3-4. Ammunition Requirements, Training Strategy, and Commander's Worksheet for the 105-mm Separate Howitzer Battery (1x6: TRC A).

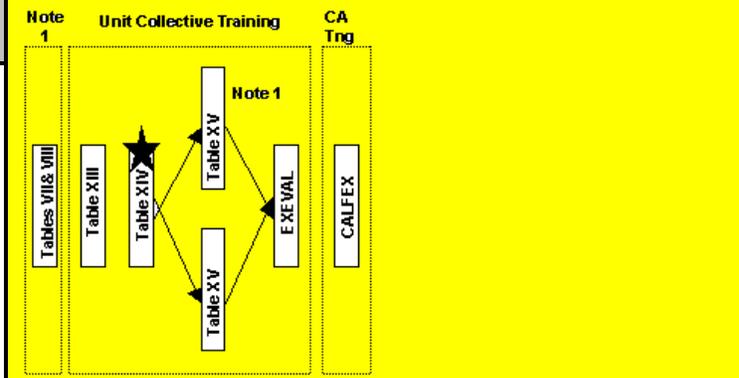
Artillery Table/Event	Freq	Ammunition Type, Quantity, and DODIC					
		ShotGun <sup>1</sup> A010	HE C445	Smoke C452	WP C454	Illum C449	RAP C546
XIV	6	48					
XV <sup>2</sup>	6		86				
XV Special Missions <sup>3</sup>	4		8	6	6	12	12
Add Battery Event							
Btry EXEVAL	1		94	6	6	12	
Btry CALFEX	7		71	6		18	
Total for training <sup>4, 5, 6</sup>		288	1175	72	30	186	12

**Qualification standards:**  
As part of the battery, each section must live-fire 80 percent of its METL-related fire missions to ARTEP MTP standards twice annually.

**Worksheet Instructions:** Changing the number of events or the amount of any type of ammunition or adding a battery or battalion event will change the totals in the **Rounds Remaining/Required** column. A plus number provides ammunition the commander can use for other training. A minus number means the commander must decide what events he will forgo or reduce in scale.

Rounds Remaining/Required
Shot Gun
0
HE
0
Smoke
0
WP
0
Illum
0
RAP
0

**STRAC XXI Training Strategy for 105-mm Sep How Battery (1X6: TRC A)**



**Notes:** 1. See Table 3-2 for TADSS. Commanders can select any combination of TADSS available to substitute for some iterations of Table XV.  
CA Tng = Combined Arms Training ★ Decision Point

Table 3-5. Ammunition Requirements, Training Strategy, and Commander's Worksheet for the 105-mm Howitzer Battalion (3x6: TRC A)

Artillery Table/Event	Freq	Ammunition Type, Quantity, and DODIC						Rounds Remaining /Required
		Shotgun shells <sup>1</sup> A010	HE C445	Smoke C452	WP C454	Illum C449	RAP C456	
XIV	6	48						Shot gun 0
XV <sup>2</sup>	6		86					HE 0
XV Special Missions <sup>3</sup>	4		8	6	6	12		Smoke 0
Add Battery Event								WP 0
XVII	5	144						Illum 0
XVIII <sup>2</sup>	5		223		6	18		RAP 0
Add Battalion Event								
Btry EXEVAL	1		94	6	6	12		
Btry CALFEX	7		71	6		18		
Bn EXEVAL	1		223		6	18		
Bn CALFEX	1		223		6	18		
<b>Totals:</b>								
Total for battery training (ATs XIV/XV/CALFEX & EXEVAL) <sup>4</sup>		288	1175	72	30	186	12	
Total for training 3 batteries		864	3525	216	90	558	36	
Total for battalion training		720	1561	0	42	126		
Total for training <sup>5,6</sup>		1584	5086	216	132	684	36	

Notes:

- Shot gun shells are used in non-firing exercises.
- Based on the commander's determination of the level of training, some iterations of this table may be trained through the use of TADSS.
- Special munitions training strategy (smoke, WP, illum).
- Includes 36 rounds for an semi-annual direct fire exercise.
- Fuzes by DODIC: PD (N340); Time (N285); MTSQ (N286); VT (N464).
- RAP authorization is based on four HE to one RAP tradeoff. Unit commanders will determine which HE missions are sacrificed if RAP is fired. Annual RAP ammunition forecasts must include the appropriate charges.

**Qualification standards:**  
As part of a battery or larger unit, each section must live-fire 80 percent of its METL-related fire missions to ARTEP MTP standards twice annually.

**Worksheet Instructions:** Changing the number of events or the amount of any type of ammunition or adding a battery or battalion event will change the totals in the **Rounds Remaining/Required** column. A plus number provides ammunition the commnader can use for other training. A minus number means the commnader must decide what events he will forgo or reduce in scale.

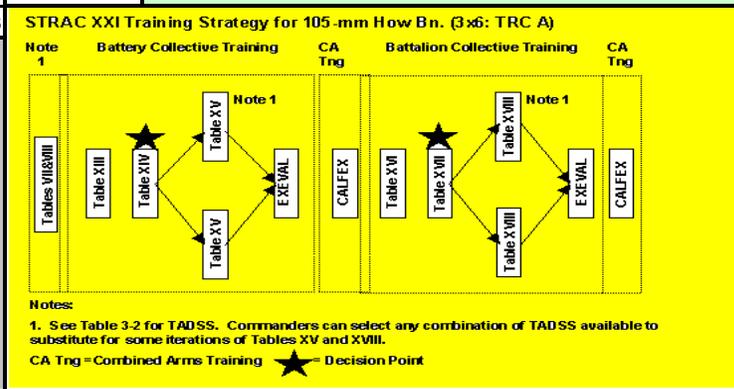


Table 3-6. Ammunition Requirements, Training Strategy, and Commander's Worksheet for the Division Readiness Brigade 105-mm Direct Support Howitzer Battalion (3x6: TRC A). <sup>1,2</sup>						Rounds Remaining/Required <sup>5</sup>	
Artillery Table/Event		Freq	Ammunition Type, Quantity, and DODIC				HE
			HE C445	Smoke C452	WP C454	Illum C449	0
Company CALFEX <sup>3</sup>		9	200	21	17	70	Smoke
FCX/Walking Shoot		6	275				0
Div Arty LFX		2	300	4		12	WP
Add Event							0
<b>Totals:</b> <sup>4</sup>			4050	197	153	654	Illum
							0

**Note.**

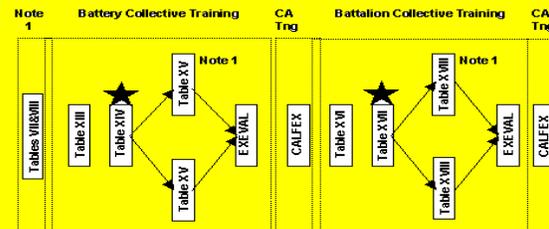
- Light infantry division (LID) battalions in direct support of DRBs are authorized the ammunition in this table in addition to the ammunition authorized LID battalions in Table 3-5.
- Separate battery is authorized 1/3 of the total amount in this table in addition to Table 3-4.
- Includes aviation observed fire (OF) shoot.
- Fuzes to be used are Type (DODIC): PD (N340), Time (N285), MTSQ (N286), VT (N464).
- Adding or subtracting an event or changing the frequency of an event or changing the amount of ammunition expended in an event will result in a change in the ammunition totals in the **Rounds Remaining/Required** column. A plus in an ammunition type means the commander has ammunition to be used for other training: minus requires a decision as to what training must be reduced or foregone.

Table 3-7. Ammunition Requirements, Training Strategy, and Commander's Worksheet for the 105-mm Howitzer Battalion (3x6: TRC B/C).								Rounds Remaining/Required	Notes:
Artillery Table/Event		Freq	Ammunition Type, Quantity, and DODIC					Shot gun	
			Shotgun shells <sup>1</sup> A010	HE C445	Smoke C452	WP C454	Illum C449	RAP C456	0
XIV		4	48						HE
XV <sup>2</sup>		4		86					0
XV Special Missions <sup>3</sup>		2		8	6	6	12		Smoke
Add Battery Event									0
XVII		5	144						WP
XVIII <sup>2</sup>		2		223		6	18		Illum
Add Battalion Event									0
Btry EXEVAL		1		94	6	6	12		RAP
Btry CALFEX		4		71	6	6	18		0
Bn EXEVALCALFEX		1		223		6	18		
<b>Totals:</b>									
Total for battery training (ATs XIV/XV/CALFEX & EXEVAL) <sup>4</sup>			192	756	42	18	108	12	
Total for training 3 batteries			576	2268	126	54	324	36	
Total for battalion training			720	669	0	18	54		
Total for training <sup>5,6</sup>			1296	2937	126	72	378	36	

**Qualification standards:**  
As part of a battery or larger unit, each section must live-fire 80 percent its METL-related fire missions to ARTEP MTP standards annually.

**Worksheet Instructions:** Changing the number of events or the amount of any type of ammuni

STRAC XXI Training Strategy for 105-mm How Bn. (3x6: TRC B/C)



**Notes:**  
1. See Table 3-2 for TADSS. Commanders can select any combination of TADSS available to substitute for some iterations of Tables XIX and XVIII.  
CA Trg = Combined Arms Training ★ Decision Point

Table 3-8. 155-mm Howitzer Candidate Fire Missions Identified in the MTPs.

Fire Mission	3X6 Bn			Cav Btry		Sep Btry			LID GS Btry		
	Plat	Btry	Bn	Btry	Bn	Plat	Btry	Bn	Plat	Btry	Bn
Echelons Above Bn Mass			X		X			X			X
FFE (Bn Mass)			X		X			X			X
Engage a Moving Target Array		X	X	X	X	X	X		X	X	
Low-Angle Adjust (Fuze time)	X	X	X	X	X	X	X	X	X	X	X
Precision Registration	X	X	X	X	X	X	X	X	X	X	X
High Burst/MPI Registration		X	X	X	X		X	X		X	X
High-Angle Adjust (Radar or FO)	X	X	X	X	X	X	X	X	X	X	X
Coordinated Illumination			X		X			X			X
FPF Adjust	X	X		X		X	X		X	X	
Simultaneous Missions			X		X			X			X
Emergency Mission	X	X		X		X	X		X	X	
Quick Smoke		X		X			X			X	
Irregularly Shaped Target			X		X			X			X
TOT	X	X	X	X	X	X	X	X	X	X	X
Schedule of Fires	X	X	X	X	X	X	X	X	X	X	X
Immediate Suppression	X	X		X		X	X		X	X	
Priority Target	X	X		X		X	X		X	X	
Illumination		X		X			X			X	
Direct Fire	X	X		X		X	X		X	X	
Met + VE	X	X	X	X	X	X	X	X	X	X	X
Met to Target (outside transfer limits)			X		X			X			X
Immediate Smoke	X	X		X		X	X		X	X	
Sweep and Zone		X	X	X	X		X	X		X	X
Assault Fire	X	X		X		X	X		X	X	
Multiple Volley Mission	X	X	X	X	X	X	X	X	X	X	X
FFE Copperhead	X	X		X		X	X		X	X	
FFE Chemical (Cannot be live-fired)	X	X	X	X	X	X	X	X	X	X	X
FFE Family of Scatterable Mines (FASCAM) (Cannot be live-fired)			X		X			X			X
FFE ICM/DPICM (Cannot live fire)	X	X	X	X	X	X	X	X	X	X	X

Table 3-9. Ammunition Requirements, Training Strategy, and Commander's Worksheet for the 155-mm Direct Support Howitzer Battalion (3x6: TRC A).

Artillery Table/Event	Freq	Ammunition Type, Quantity, and DODIC							CPHD D510
		Primers <sup>1</sup> N523	HE D544	Smoke D528	WP D550	Illum D505	RAP D579		
XI <sup>2</sup>	2	100							
XII <sup>2,3</sup>	2		50						
Add Platoon Event									
XIV	3	100							
XV <sup>2,3</sup>	3		75						
XV Special Missions <sup>4</sup>	2		8	6	6	12			
Add Battery Event									
XVII	5	350							
XVIII <sup>2,3</sup>	5		173		6	18			
Add Battalion Event									
Btry EXEVAL	1		83	6	6	12			
Btry CALFEX	1		83	6	6	12			
Bn EXEVAL	1		173		6	18			
Bn CALFEX	1		173		6	18			
Copperhead Tng	1								2
Totals:									
Total per platoon (ATs XI/XII)		200	100						
Total platoon tng (6 platoons)		1200	600						
Total battery training (ATs XIV/XV/CALFEX/EXEVAL) <sup>5</sup>		300	425	24	24	48	12		
Total for training 3 batteries		900	1275	72	72	144	36		
Total for battalion training		1750	1211		42	126			2
Total for training <sup>6,7,8</sup>		3850	3086	72	114	270	36		2

**Qualification standards:** As part of a platoon or larger unit, each section must live-fire 80 percent of its METL-related fire missions to ARTEP MTP standards twice annually.

**Worksheet Instructions:** Changing the number of events, the amount or type of ammunition or adding a battery or battalion event will change the totals in the **Rounds Remaining/Required** column. A plus number provides ammunition for other training. A minus number means the commander must forgo or reduce in scale some event.

**Rounds Remaining/Required**

**Primers**  
0

**HE**  
0

**Smoke**  
0

**WP**  
0

**Illum**  
0

**RAP**  
0

**CPHD**  
0

- Notes:**
- 1 Primers are used in non-firing exercises.
  - 2 Units that do not employ platoons will not use ATs X thru XII. These units will increase the frequency of ATs XIII thru XV from five to seven.
  - 3 Based on the commander's determination of the level of training, some iterations of this table may be trained through the use of TADSS. Ammunition saved can be used for other collective training.
  - 4 Special munitions training strategy (smoke, WP, illum).
  - 5 Includes 18 rounds for an annual direct fire exercise.
  - 6 Fuzes by DODIC: PD (N340); Time (N285); MTSQ (N286); VT (N464).
  - 7 Propellant charges by DODIC; green bag (D540); white bag (D541); and red bag (D533).
  - 8 RAP authorization is based on four HE to one RAP tradeoff. Unit commanders will determine which HE missions are sacrificed if RAP is fired. Annual RAP ammunition forecasts must include the appropriate charges.

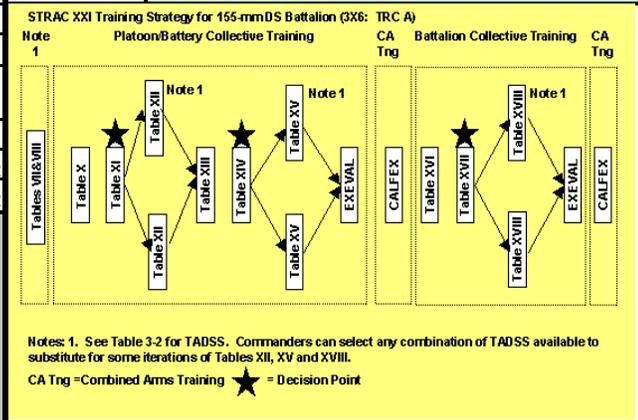


Table 3-10. Ammunition Requirements, Training Strategy, and Commander's Worksheet for the 155-mm General Support Howitzer Battalion (3x6: TRC A)

Artillery Table/Event	Freq	Ammunition Type, Quantity, and DODIC							Rounds Remaining /Required
		Primers <sup>1</sup> N523	HE D544	Smoke D528	WP D550	illum D505	RAP D579	CPHD D510	
XI <sup>2</sup>	2	100							Primers 0
XII <sup>2,3</sup>	2		50						HE 0
Add Platoon Event									
XIV	3	100							Smoke 0
XV <sup>3</sup>	3		75						WP 6
XV Special Missions <sup>4</sup>	2		8	6	6	12			illum 0
Add Battery Event									RAP 0
XVIII <sup>3</sup>	5	350							CPHD 2
XVIII <sup>3</sup>	5		173		6	18			
Add Battalion Event									
Btry EXEVAL	1		83	6	6	12			
Btry CALFEX	1		83	6	6	12			
Bn EXEVAL/CALFEX	1		173		6	18			
Copperhead Tng	1								
Totals:									
Total per platoon (ATs XI/XII)		200	100						
Total platoon tng (6 platoons)		1200	600						
Total btry training (ATs/XIV /XV/CALFEX/EXEVAL) <sup>5</sup>		300	425	24	24	48	12		
Total for training 3 batteries		900	1275	72	72	144	36		
Total for battalion training		1750	1038		36	108			
Total for training <sup>6,7,8</sup>		3850	2913	72	108	252	36		

**Notes:**  
 1 Primers are used in non-firing exercises.  
 2 Units that do not employ platoons will not use ATs X thru XII. These units will increase the frequency of ATs XIII thru XV from five to seven.  
 3 Based on the commander's determination of the level of training, some iterations may be trained with TADSS. Ammunition saved can be used in training not resourced in STRAC.  
 4 Special munitions training strategy (smoke, WP, illum).  
 5 Includes 18 rounds for an annual direct fire exercise.  
 6 Fuzes by DODIC: PD (N340); Time (N285); MTSQ (N286); VT (N464).  
 7 Propellant charges by DODIC: green bag (D540); white bag (D541); and red bag (D533).  
 8 RAP authorization is based on four HE to one RAP tradeoff. Unit commanders will determine which HE missions are sacrificed if RAP is fired. Annual RAP ammunition forecasts must include the appropriate charges.

<b>Qualification standards:</b>									
As part of a platoon or larger unit, each section must live-fire 80 percent of its METL-related fire missions to ARTEP MTP standards twice annually.									
<b>Worksheet Instructions:</b> Changing the number of events or the amount of any type									

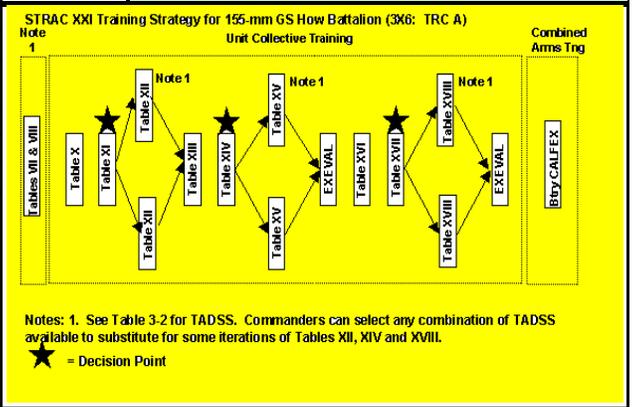




Table 3-12. Ammunition Requirements, Training Strategy, and Commander's Worksheet for the 155-mm Cavalry or Separate Howitzer Battery (1x6: TRC A).

Artillery Table/Event	Freq	Ammunition Type, Quantity, and DODIC							
		Primers <sup>1</sup> N523	HE D544	Smoke D528	WP D550	Illum D505	RAP D579	CPHD D510	
XI <sup>2</sup>	2	100							
XII <sup>2,3</sup>	2		40						
<b>Add Platoon Event</b>									
XIV	3	100							
XV <sup>2,3</sup>	3		73						
XV Special Missions <sup>4</sup>	2		8	6	6				
<b>Add Battery Event</b>									
XVII	5	350							
XVIII <sup>2,3</sup>	5		76		6	16			
<b>Add Battalion Event</b>									
Btry EXEVAL	1		81	6	6				
Btry CALFEX	1		81	6	6				
Bn EXEVAL	1		76		6	16			
Bn CALFEX	1		76		6	16			
Copperhead Tng	1							2	
<b>Totals:</b>									
Total per platoon (ATs XI/XII)		200	80						
Total platoon tng (2 platoons)		400	160						
Total battery training (ATs XIV/XV/CALFEX/EXEVAL) <sup>5</sup>		300	415	24	24		12		
Total for battalion training		1750	532		42	112		2	
Total for training <sup>6,7,8</sup>		2450	1107	24	66	112		2	

Rounds Remaining/Required
Primers
0
HE
0
Smoke
0
WP
0
Illum
0
RAP
0
CPHD
0

**Notes:**

- 1 Primers are used in non-firing exercises.
- 2 Units that do not employ platoons will not use ATs X thru XII. These units will increase the frequency of ATs XIII thru XV.
- 3 Based on the commander's determination of the level of training, some iterations of this table may be trained through the use of TADSS. Ammunition saved can be used in training not resourced in STRAC.
- 4 Special munitions training strategy (smoke, WP, illum).
- 5 Includes 18 rounds for an annual direct fire exercise.
- 6 Fuzes by DODIC: PD (N340); Time (N285); MTSQ (N286); VT (N464).
- 7 Propellant charges by DODIC: green bag (D540); white bag (D541); and red bag (D533).
- 8 RAP authorization is based on four HE to one RAP tradeoff. Unit commanders will determine which HE missions are sacrificed if RAP is fired. Annual RAP ammunition forecasts must include the appropriate charges.

**Qualification standards:**  
As part of a platoon or larger unit, each section must live-fire 80 percent of its METL-related fire missions to ARTEP MTP standards twice annually.

**Worksheet Instructions:** Changing the number of events or the amount of any type of ammunition or adding a battery or battalion event will change the totals in the **Rounds Remaining/Required** column. A plus number provides ammunition the commander can use for other training. A minus number means the commander must decide what events he will forgo or reduce in scale.

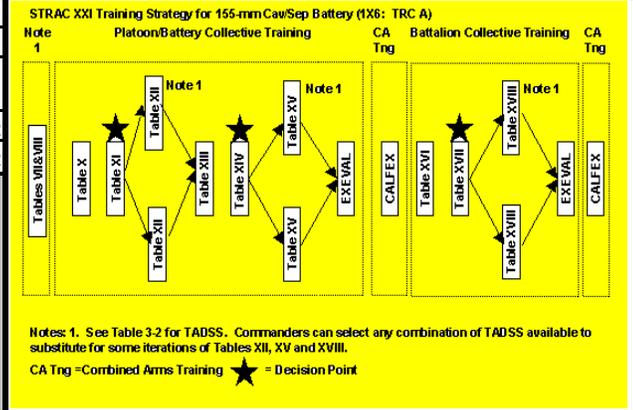


Table 3-13. Ammunition Requirements, Training Strategy, and Commander's Worksheet for the 155-mm Cavalry or Separate Howitzer Battery (1x6: TRC B/C).

Artillery Table/Event	Freq	Ammunition Type, Quantity, and DODIC							Rounds Remaining/Required	Notes:
		Primers <sup>1</sup> N523	HE D544	Smoke D528	WP D550	Illum D505	RAP D579	CPHD D510		
XI <sup>2</sup>	2	100							0	1 Primers are used in non-firing exercises. 2 Units that do not employ platoons will not use ATs X thru XII. These units will increase the frequency of ATs XIII thru XV. 3 Based on the commander's determination of the level of training, some iterations of this table may be trained through the use of TADSS. Ammunition saved can be used in training not resourced in STRAC. 4 Special munitions training strategy (smoke, WP, illum). 5 Includes 18 rounds for an annual direct fire exercise. 6 Fuzes by DODIC: PD (N340); Time (N285); MTSQ (N286); VT (N464). 7 Propellant charges by DODIC; green bag (D540); white bag (D541); and red bag (D533). 8 RAP authorization is based on four HE to one RAP tradeoff. Unit commanders will determine which HE missions are sacrificed if RAP is fired. Annual RAP ammunition forecasts must include the appropriate charges.
XII <sup>2,3</sup>	1		41						0	
<b>Add Platoon Event</b>										
XIV	3	100							0	
XV <sup>2,3</sup>	2		57						0	
XV Special Missions <sup>4</sup>	1		8	6	6	12			0	
<b>Add Battery Event</b>										
XVII	5	350							0	
XVIII <sup>2,3</sup>	1		24		6				0	
<b>Add Battalion Event</b>										
Btry EXEVAL	1		65	6	6	12			0	
Btry CALFEX	1		65	6	6	12			0	
Bn EXEVAL/CALFEX	1		24		6				0	
Copperhead Tng	1							2		
<b>Totals:</b>										
Total per platoon (ATs XI/XII)		200	41							
Total platoon tng (2 platoons)		400	82							
Total battery training (ATs XIV/XV/CALFEX/EXEVAL) <sup>5</sup>		300	270	18	18	36	12			
Total for battalion training		1750	48		12			2		
Total for training <sup>6,7,8</sup>		2450	400	18	30	36	12	2		

**Qualification standards:**  
 As part of a platoon or larger unit, each section must live-fire 80 percent of its METL-related fire missions to ARTEP MTP standards annually.

**Worksheet Instructions:** Changing the number of events or the amount of any type of ammunition or adding a battery or battalion event will change the totals in the **Rounds Remaining/Required** column. A plus number provides ammunition the commander can use for other training. A minus number means the commander must decide what events he will forgo or reduce in scale.

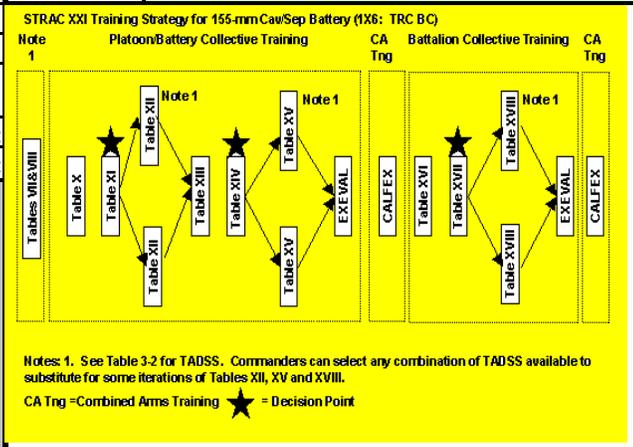


Table 3-14. Ammunition Requirements, Training Strategy, and Commander's Worksheet for the 155-mm LID Separate Howitzer Battery (1x6: TRC A).									Rounds Remaining /Required	Notes:
Artillery Table/Event	Freq	Ammunition Type, Quantity, and DODIC								
		Primers <sup>1</sup> N523	HE D544	Smoke D528	WP D550	Illum D505	RAP D579	CPHD D510		
XI <sup>2</sup>	2	100							0	<p>1 Primers are used in non-firing exercises.</p> <p>2 Units that do not employ platoons will not use ATs X thru XII. These units will increase the frequency of ATs XIII thru XV.</p> <p>3 Based on the commander's determination of the level of training, some iterations of this table may be trained through the use of TADSS. Ammunition saved can be used in training not resourced in STRAC.</p> <p>4 Special munitions training strategy (smoke, WP, illum).</p> <p>5 Includes 18 rounds for an annual direct fire exercise.</p> <p>6 Fuzes by DODIC: PD (N340); Time (N285); MTSQ (N286); VT (N464).</p> <p>7 Propellant charges by DODIC; green bag (D540); white bag (D541); and red bag (D533).</p> <p>8 RAP authorization is based on four HE to one RAP tradeoff. Unit commanders will determine which HE missions are sacrificed if RAP is fired. Annual RAP ammunition forecasts must include the appropriate charges.</p>
XII <sup>2,3</sup>	2		40						0	
Add Platoon Event									0	
XIV	5	100							0	
XV <sup>2,3</sup>	5		75						0	
XV Special Missions <sup>4</sup>	2		8	6	6				0	
Add Battery Event									0	
XVII	5	350							0	
XVIII <sup>2,3</sup>	5		69		6	15			0	
Add Battalion Event									0	
Btry EXEVAL	1		83	6	6				0	
Btry CALFEX	7		83	6	6				0	
Bn EXEVAL	1		69		6	15			0	
Bn CALFEX	1		69		6	15			0	
Copperhead Tng	1								2	
<b>Totals:</b>										
Total per platoon (ATs XI/XII)		200	80							
Total platoon tng (2 platoons)		400	160							
Total battery training (ATs XIV/XV/CALFEX/EXEVAL) <sup>5</sup>		500	1073	60	60		12			
Total for battalion training		1750	483		42	105		2		
Total for training <sup>6,7,8</sup>		2650	1716	60	102	105	12	2		
<b>Qualification standards:</b>										
As part of a platoon or larger unit, each section must live-fire 80 percent of its METL-related fire missions to ARTEP MTP standards twice annually.										
<b>Worksheet Instructions:</b> Changing the number of events or the amount of any type of ammunition or adding a battery or battalion event will change the totals in the <b>Rounds Remaining/Required</b> column. A plus number provides ammunition the commander can use for other training. A minus number means the commander must decide what events he will forgo or reduce in scale.										

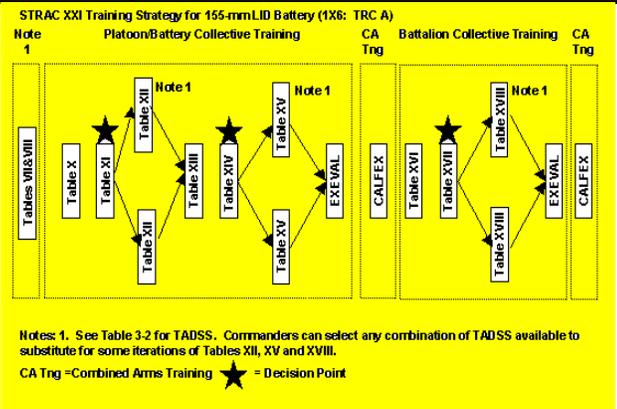


Table 3-15. Ammunition Requirements, Training Strategy, and Commander's Worksheet for the 155-mm LID Sep How Battery (1x6: TRC B/C).

Artillery Table/Event	Freq	Ammunition Type, Quantity, and DODIC						
		Primers <sup>1</sup> N523	HE D544	Smoke D528	WP D550	Illum D505	RAP D579	CPHD D510
XI <sup>2</sup>	2	100						
XII <sup>2,3</sup>	1		40					
Add Platoon Event								
XIV	5	100						
XV <sup>2,3</sup>	3		75					
XV Special Missions <sup>4</sup>	1		8	6	6			
Add Battery Event								
XVII	5	350						
XVIII <sup>2,3</sup>	2		69		6	15		
Add Battalion Event								
Btry EXEVAL or CALFEX	4		83	6	6			
Bn EXEVAL or CALFEX	1		69		6	15		
Copperhead Tng	1							2
<b>Totals:</b>								
Total per platoon (ATs XI/XII)		200	40					
Total platoon tng (2 platoons)		400	80					
Total battery training (ATs XIV/XV/CALFEX/EXEVAL) <sup>5</sup>		500	583	30	30		12	
Total for battalion training		1750	207		18	45		2
Total for training <sup>6,7,8</sup>		2650	870	30	48	45	12	2

Rounds Remaining/Required
Primers
0
HE
0
Smoke
0
WP
0
Illum
0
RAP
0
CPHD
0

**Notes:**  
 1 Primers are used in non-firing exercises.  
 2 Units that do not employ platoons will not use ATs X thru XII. These units will increase the frequency of ATs XIII thru XV.  
 3 Based on the commander's determination of the level of training, some iterations of this table may be trained through the use of TADSS. Ammunition saved can be used in training not resourced in STRAC.  
 4 Special munitions training strategy (smoke, WP, illum).  
 5 Includes 18 rounds for an annual direct fire exercise.  
 6 Fuzes by DODIC: PD (N340); Time (N285); MTSQ (N286); VT (N464).  
 7 Propellant charges by DODIC; green bag (D540); white bag (D541); and red bag (D533).  
 8 RAP authorization is based on four HE to one RAP tradeoff. Unit commanders will determine which HE missions are sacrificed if RAP is fired. Annual RAP ammunition forecasts must include the appropriate charges.

**Qualification standards:**  
 As part of a platoon or larger unit, each section must live-fire 80 percent of its METL-related fire missions to ARTEP MTP standards annually.

**Worksheet Instructions:** Changing the number of events or the amount of any type of ammunition or adding a battery or battalion event will change the totals in the **Rounds Remaining/Required** column. A plus number provides ammunition the commander can use for other training. A minus number means the commander must decide what events he will forgo or reduce in scale.

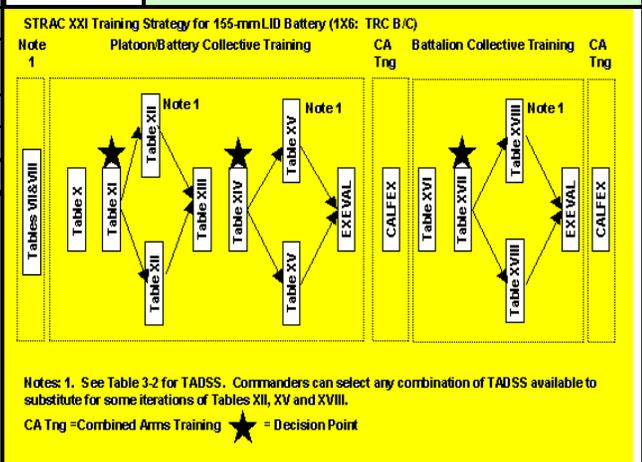


Table 3-16. MLRS Candidate Fire Missions Identified in the MTPs.

Event	Artillery Tables		
	XII	XV	XVIII
On Call (ONC)	X	X	X
Fire When Ready (FWR)	X	X	X
At My Command (AMC)	X	X	X
Time On Target (TOT)	X	X	X
Time To Fire (TTF)	X	X	X
Timed Time On Target (TTT)	X	X	X
Timed When Ready (TWR)	X	X	X
Multiple Fire Mission Sequence	X	X	X
Schedule of Fires	X	X	X

Table 3-17. Ammunition Requirements, Training Strategy, and Commander's Worksheet for 3X6 MLRS and HIMARS Artillery Battalion (3X6 TRC A).

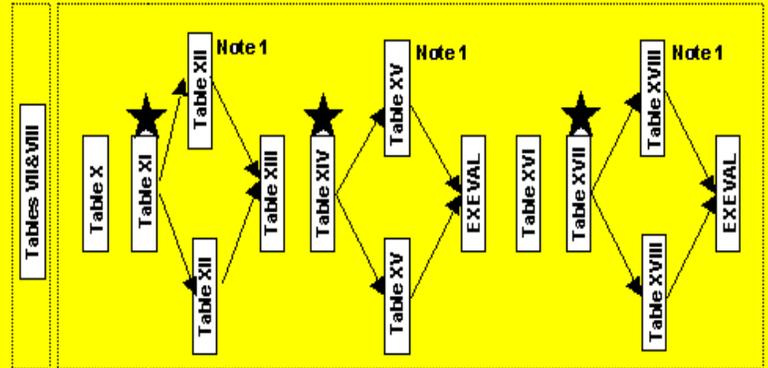
Table/Mission	Freq	Rockets per Iteration	Rockets Remaining /Required
XII	3	5	
XV	2	6	
XVIII	4	9	
<b>Totals:</b>			<b>0</b>
<b>Total per Platoon</b>			<b>15</b>
<b>Total for Platoon Training</b>			<b>90</b>
<b>Total per Battery</b>			<b>12</b>
<b>Total for Battery Training</b>			<b>36</b>
<b>Total for Battalion Training</b>			<b>36</b>
<b>Total for Training</b>			<b>162</b>

**Qualification standards:**  
As part of a platoon or larger unit, each launcher section must live-fire 80 percent of its METL-related fire mission tasks to ARTEP MTP standards twice annually.

**Worksheet Instructions:** Changing the number of events or the amount of any type of ammunition or adding a battery or battalion event will change the totals in the **Rockets Remaining/Required** column. A plus number provides ammunition the commander can use for other training. A minus number means the commander must decide what events he will forgo or reduce in scale.

**STRAC XXI Training Strategy for MLRS Bn (3X6: TRC A)**

**Note 1 Unit Collective Training**



**Notes:** 1. See Table 3-2 for TADSS. Commanders can select any combination of TADSS available to substitute for live fire in Tables XII, XV and XVIII.

CA Trng = Combined Arms Training ★ = Decision Point

Table 3-18. Ammunition Requirements, Training Strategy, and Commander's Worksheet for 2X6 MLRS Artillery Battalion (2X6: TRC A)

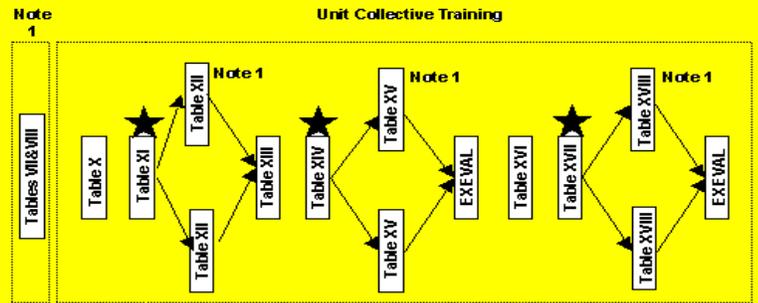
Table/Mission	Freq	Rockets per Iteration	Rockets Remaining/ Required
XII	3	5	
XV	2	6	
XVIII	4	6	
<b>Totals:</b>			<b>54</b>
<b>Total per Platoon</b>			<b>15</b>
<b>Total for Platoon Training</b>			<b>60</b>
<b>Total per Battery</b>			<b>12</b>
<b>Total for Battery Training</b>			<b>24</b>
<b>Total for Battalion Training</b>			<b>24</b>
<b>Total for Training</b>			<b>108</b>

**Qualification standards:**

As part of a platoon or larger unit, each launcher section must live-fire 80 percent of its METL-related fire mission tasks to ARTEP MTP standards twice annually.

**Worksheet Instructions:** Changing the number of events or the amount of any type of ammunition or adding a battery or battalion event will change the totals in the **Rockets Remaining/Required** column. A plus number provides ammunition the commander can use for other training. A minus number means the commander must decide what events he will forgo or reduce in scale.

**STRAC XXI Training Strategy for MLRS Bn (2X6: TRC A)**



**Notes:** 1. See Table 3-2 for TADSS. Commanders can select any combination of TADSS available to substitute for live fire in Tables XII, XV and XVIII.

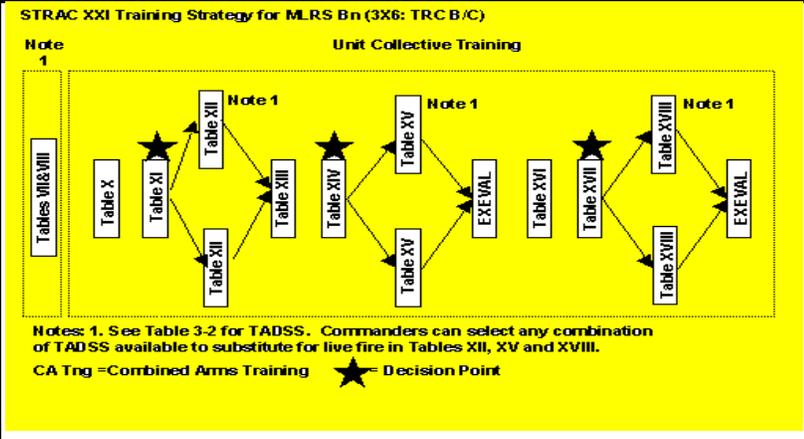
CA Tng = Combined Arms Training ★ = Decision Point

Table 3-19. Ammunition Requirements, Training Strategy, and Commander's Worksheet for 3X6 MLRS Artillery Battalion (3X6 TRC B/C)

Table/Mission	Freq	Rockets per Iteration	Rockets Remaining/Required
XII	3	3	
XV	2	3	
XVIII			
<b>Totals:</b>			<b>0</b>
<b>Total per Platoon</b>		<b>9</b>	
<b>Total for Platoon Training</b>		<b>54</b>	
<b>Total per Battery</b>		<b>6</b>	
<b>Total for Battery Training</b>		<b>18</b>	
<b>Total for Battalion Training</b>		<b>72</b>	

**Qualification standards:**  
 As part of a platoon or larger unit, each launcher section must live-fire 80 percent of its METL-related fire mission tasks to ARTEP MTP standards annually.

**Worksheet Instructions:** Changing the number of events or the amount of any type of ammunition or adding a battery or battalion event will change the totals in the **Rockets Remaining/Required** column. A plus number provides ammunition the commander can use for other training. A minus number means the commander must decide what events he will forgo or reduce in scale.



Event	Freq	Who
<b>SL 1 and 2</b>		
Tactical Techniques	1	All
Artillery Direct Fire Trainer (ADFT)	1	All
Live Fire exercise (LFX)	1	All
<b>SL 3 and 4</b>		
Tactical Techniques	2	All
LFX	1	All

Ammo	Phase		
	I	II	III
105-mm HE	6	1	3
155-mm HE	6	1	3
WP		0.1	0.1
Illum		0.1	0.1
Smoke		0.1	

Event	Ammunition Type, Quantity, and DODIC					Rounds Remaining/Required	Notes:
	Freq	TPDS-T A940	TPT A976	Subcal 7.62 T A146	7.62 Coax M21 A131		
PGT <sup>1</sup>	12					0	1 Preliminary Gunner Training (PGT) is conducted quarterly, Bradley gunnery skills test (BGST) is conducted prior to live fire density and conduct of fire trainer (COFT) is recommended at 4 hours per crew every other month.
BGST <sup>1</sup>	2					0	
COFT <sup>1</sup>	12					0	
V A/B	2			193		Subcal 7.62	
Zero	4	3	2		50	0	
VI A/B	2	32	24		350	7.62 Coax	
VII A/B	2	56	24		400	0	
<b>Total per BFSV:</b>							
		188	104	386	1700		

**Qualification standards:**  
 Fifty percent of vehicle crews will qualify on Bradley Table VIIA/B annually. Crews will conduct training in accordance with Table 3-22.

**Instructions:** Changing the number of events or the amount of any type of ammunition or adding an event will change the totals in the **Rounds Remaining/Required** column. A plus number provides ammunition the commander can use for other training. A minus number means the commander must decide what events he will forgo or reduce in scale.

**STRACXXI Training Strategy for the Bradley Fire Support Vehicle M-7 (TRC A)**

COFT   BLT   DEVICE   BGST   ZERO   V  
 \*\*   \*\*

PQ → VI   VII (PGS)  
 NQ → VI   VII (PGS)

\* = Live Fire Event   \*\* = Mandatory Live Fire Event   PQ = Qualified within 12 months  
 NQ = Not qualified within 12 months   PGS = Precision gunnery system   ★ = Decision point