Chapter 6
Engineer Weapon Systems

Section 1
Introduction

6-1. Standards, strategies, and requirements

a.. This chapter provides training standards, strategies and resource requirements to conduct training with Engineer systems, mines and demolition's. The training programs provided have been tied directly to SM and MTP tasks at the different (TRC). Each program contains a training standard and strategy which outlines the training sequence, including frequencies for live fire, subcaliber fire and device usage. Table 6-1 is an index of weapons and weapon systems for which training programs have been written and approved. The table provides cross reference entries to the standard and strategy for each specific weapon or weapon system.

b. The objective is to assist field commanders in attaining and sustaining individual and unit proficiency on Engineer systems, mines and demolitions.

c. The standards and strategies for Engineer weapon systems are based on tasks found in MTPs, SMs and FM 23-1. The specifics of each exercise will not be presented here; the appropriate manuals will have to be consulted.

(1) Demolition Tasks.

(a) Individual.

1. Construct a Modernized Demolition Initiator (MDI)/Detonating Assembly.
2. Prime Explosives Non-electrically.
3. Prime Explosives with Detonating Cord.

(b) MTP.

1. Disable Organic Bridge.
2. Create a Crater Obstacle with Explosives.
3. Disable an LOC/Airfield.
4. Disable Bridge with Explosives.
5. Construct an Abatis.
6. Breach Minefield using Explosives.
7. Breach Obstacles (Other than Minefields).
8. Breach Obstacles (Wire Obstacles).

(2) Mine Warfare Tasks.

(a) Individual.

1. Install/Remove the M16A1 Antipersonnel Mine. (Korea only)
2. Install/Remove the M15 Antitank Mine.
3. Install/Remove the M19 Antitank Mine.
4. Install/Remove the M21 Antitank Mine.
5. Install/Remove U.S. Anti-handling Devices.

(b) MTP.

1. Install and recover or transfer a hasty protective minefield.
2. Emplace a tactical (standard pattern) minefield.
3. Emplace a tactical (Row) minefield.
4. Conduct an in stride breach of a minefield.
5. Emplace a tactical (scatterable) minefield.

d. Current DA policy for live mine training is as follows:

(1) Training will be allowed with M15, M19, and M21 mines. (M16 Korea only)

(2) M16 training is restricted to units assigned to Korea only. See paragraph 6-8.

(3) All approved mines will be armed and disarmed not more than 25 iterations per mine.

(4) No trip wires or booby traps will be used.

(5) The use of tilt rods with live mines is prohibited.

(6) Training with the M16 series anti-personnel mine will be done with the positive safety pin remaining in the M605 fuse.

(7) No pre-1957 M605 fuzes will be allowed in training with the M16 anti-personnel mine.

(8) Live mine training and simulators training will not take place concurrently at the same location in order to preclude a live mine being mistaken for an inert mine.

e. Commanders must conduct a risk assessment that supports the unit's mission essential task list.

f. M16AP Mine arming/disarming (use) is restricted to those units assigned to Eighth U.S. Army, Korea. No units at other locations are authorized to train with AP mines. A Presidential Decision Directive (PDD 48) on Anti-personnel Landmine Policy was signed on 26 June 1996. This policy restricts the use of conventional antipersonnel mines. Mines or mine systems containing antipersonnel mines with self destruct capabilities are authorized for training.

6-2. Training devices

a. General. Historically, the Army has relied on extensive use of actual equipment and full caliber ammunition to train individuals, crews and platoons. However, the escalating cost of ammunition coupled with the fact that many critical tasks can be trained as effectively using devices and simulators has shifted emphasis to a combination of full caliber ammunition, subcaliber ammunition, devices and simulators appropriately integrated into the training strategies. The Combined Arms Training Strategy (CATS) reflects critical gates, or levels of prerequisite training required prior to reaching a level of qualification or mission accomplishment.

b. Objective. Training devices aid sustainment training in garrison and local training areas. Devices will enhance and sustain skills, and in some cases, may be the only available method of training critical tasks to standard.

c. Device List. The following devices are to be used to execute individual and unit training strategies. For some systems, similar devices can be interchanged to accomplish the same training objectives.

(1) Engineer Bradley Fighting Vehicle (E-BFV)

(a) **Dummy Rounds.** Various dummy rounds are available to conduct training with the M240C coax machine gun, the M242 25-mm automatic chain gun, and TOW system.

1. M794 dummy round 25-mm with M28 link (DODIC A967). The dummy round is a non-fire replica of the 25-mm ammunition fired during BFV gunnery. It's a die cast metal round used to conduct various tasks related to the loading and unloading of the 25-mm ammunition ready boxes and the loading, firing, applying immediate action, unloading, and clearing the 25-mm automatic chain gun.

2. M159 dummy round (7.62-mm). The M159 is a dummy 7.62 cartridge minus the gunpowder and primer. It's made of brass with a metal tip and is used to perform non-firing tasks related to the loading, firing, applying immediate action, unloading, and clearing the M240C coax machine gun.

3. Missile simulator round (MSR). The MSR is a dummy TOW round casing that has been weighted to simulate the actual TOW round. The MSR is an inert assembly that comes in a crate and is a non-expendable major end item that is requisitioned through the supply system (NSN 1440-01-104-9834). The MSR is used to train tasks associated with uploading the BFV, upload the TOW launcher, applying immediate action on the TOW subsystem, removing a misfired TOW, and unloading and stowing a TOW to its storage configuration.

(b) **Laser Target Interface Device (LTID).** The LTID permits PGS or MILES laser beams to activate the target scoring mechanisms on IRETS and SAAB lifters.

(c) **Multiple-Integrated Laser Engagement System (MILES).** The MILES for the BFV enables the crew to use the vehicle in realistic combat training exercises (force-on-force). It also provides the commander an economical way to train and evaluate the crew's proficiency and coordination during gunnery target exercises.

(d) **M240C machine-gun.** The M240C coax machine-gun may be used to fire BFV subcaliber tables III, IV, and V on 1/10-scale, 1/5 scale, ½ scale and full-scale ranges. It may also be used on a full-scale range using ½ scale targets to allow the gunner to use proper ranging procedures.

(e) **Precision Gunnery System (PGS).** PGS is a vehicle-appended gunnery training device for the BFV that utilizes an eye-safe laser simulation device that provides normal and degraded mode gunnery on unit vehicles. It may be used in conjunction with MILES, TSV, the Hoffman device, and automatic weapons effects signature simulator (ATWESS) and a mounting configuration allows the TOW to be fired in "simulation" while the 25-mm and coax are fired live. This device can support precision gunnery for Bradley Tables (BT) I through XII and limited force-on-force training with main gun, coax and TOW.

(f) **Thru-Sight Video (TSV).** TSV is a vehicle-appended system that provides a video and audio recording of gunnery or tactical engagement exercises in real time. It is used for vehicle gunnery training to provide an evaluation and critique of actual engagement sequences. The system consist of an on-vehicle video and audio recording of the gunner's sight picture which shows the date and time once the trigger is activated.

(g) **U-COFT and E-BFV.** These are gunnery simulators that provide training in critical and procedural tasks for E-BFV gunners and commanders. The basis of issue is one U-COFT per active component (AC) E-BFV equipped battalion. It is used to sustain gunnery skills and enhance proficiency between periods of full-caliber live fire gunnery. The COFT consists of a crew training shelter that replicates the turret of a BFV, an instructor/operator station and an integrated computer system capable of presenting an audiovisual replication of a combat environment. Computer- generated images are presented to the gunner and commander through the optics of the BFV fire control system. The U-COFT has the ability to train individual and collective operational procedures, target acquisition/identification, target engagement, and adjustment of fire using primary or alternate fire control systems.

1. New crews should be given priority during COFT training time. It is imperative that new crews receive approximately 6 hours of intensive training when initially entering the U-COFT training matrix. After a crew completes the initial training then they need to be scheduled for six to eight hours per month until certification is achieved.

2. BC/GNR teams should progress through the current or ODS matrix and complete exercise 54433 (Reticle Aim 15/Current Matrix) or exercise 54433 (Reticle Aim 17 /ODS Matrix) prior to conducing main gun live fire. This training sequence ensures the BC/GNR team has mastered all the U-COFT skills related to range firing. If new crews cannot complete the normal progression to Reticle Aim 17 (Current Matrix) or Reticle Aim 19 (ODS Matrix), they should complete the exercises outlined in chapter 3.

3. U-COFT Prerequisites for live fire: current matrix or ODS matrix.

a. Crews (BC/GNR) should progress and achieve RA-15 (Current Matrix) or RA-17 (ODS Matrix) and certify BAM exercise 204. Reaching BAM 204 will ensure crews have mastered the U-COFT skills related to range firing.

b. If new crews cannot complete the normal progression to reach RA 15 (Current Matrix) or RA 17 (ODS Matrix) they will complete the following exercises in the order presented: 51142, 51251, 53513, 53232, 53241, 43412, 53421, 54221, 53532, 53322, 41422, and 54221. Crews must achieve a NORMAL advance in Target Acquisition (TA), Reticle Aim (RA), and System Management (SM) for the above mentioned exercises prior to being place into the BAM exercise 201.

c. Boresighting & Zeroing: All crews will complete special purpose exercises 12241 (Boresight and Zero – Commander/Gunner), 12242 (Zero Coax Machine Gun – Commander/Gunner), 12243 (Boresight TOW Launcher –Commander/Gunner), prior to live fire.

d. TOW Gunnery Program (TGP): Use of the U-COFT to enhance the unit's TGP will allow crews to acquire, engage, track, and destroy threat-armored targets within the simulated environment of the U-COFT. All crews will complete the following exercises prior to live fire, 51133, 52133, 41121, and Advance matrix 201. Crews must achieve a NORMAL advance in Target Acquisition (TA), Reticle Aim (RA), and System Management (SM) for the above mentioned exercises.

(2) Mines.

(a) The M88 is a device that trains the Volcano operators on the DCU-BIT test and on a total systems check. This device meets individual and unit training requirements by allowing the crew to fire live canisters with inert mines and make minefield adjustments in dispersion.

(b) The M89 is a non-firing training device for the Volcano system. The M89 can train the operator on the total Volcano system. The M89 is a programmable sensing device for fault isolation and identification. The M89 serves as the filler canister between the M88 canisters on the four corners.

(c) The Placed Training Mine Kit (PTM), with anti-handling devices, will satisfy the inert portion of both the individual and unit training standard. The PTM kit consists of 1 each M14AP, M15AT, M16AP, M18A1AP, M19AT, M21AT mines and anti-handling devices, and is a TASC item. The product number is DVC-T 05-41. No training is required with the M14AP mine.

(d) The Wide Area Mine (Hornet) M98 is a training device used to accomplish the inert strategy. No live WAM firing is required at this time.

(e) There are several training devices that may be used to satisfy mine training standards in lieu of placed training mine kits. The training devices given at Table 6-1 are available to conduct sustainment and unit training with antitank mines. Some of these devices simulate the actual mechanical functioning of the service mine, while others are replicas or have smoke producing capabilities.

(3) Munitions

The Inert Selectable Lightweight Attack Munition (SLAM) M99 is used to accomplish the inert strategy. No live SLAM firing is required at this time. Units in a post mobilization/ pre-deployment training status must fire a live SLAM at a ratio prescribed in Table 6-14, 6-15, 6-18, and 6-19.

Table 6-1 Antitank Mine Training Devices

Product title: Firing Device Demo M-1 (Inert)
Product number: DODIC M633 (Class V)
Product title: Firing Device Demo M-1 Pull (Inert)
Product number: DODIC M 635 (Class V)
Product title: Firing Device Demo M-3 Pull Release (Inert)
Product number: DODIC M637 (Class V)
Product title: Firing Device, M-5 Pressure Release (Inert)
Product number: DODIC M639 (Class V)
Product title: Firing Device Demo M-1 Pressure (Inert)
Product number: DODIC M641 (Class V)
Product title: Smoke Producing M21 AT Mine
Product number: DVC-T23-31 (TASC)
Product title: M21 AT Mine (Inert)
Product number: DVC-T23-33 (TASC)
Product title: AT Mine (Inert) for M15 AT Mine
Product number: M20 (Class V)
Product title: AT Mine (Inert) for M19 AT Mine
Product number: M80 (Class V)
Product title: Activator, AT Mine, Practice, M1
Product number: DODIC K002 (Class V)
Product title: Primer Igniter F/Mine Apers M8
Product number: DODIC K030 (Class V)
Product title: Igniter Assembly F/Mine Apers Practice M8
Product number: DODIC K031 (Class V)
Product title: Charge Spotting F/Mine Apers Practice M8
Product number: DODIC K040 (Class V)
Product title: AT Mine, Practice, Heavy
Product number: DODIC K231 (Class V)
Product title: Simulator Apers Mine Proj Practice M8
Product number: DODIC K270 (Class V)
Product title: Cap Apers F/Mine Practice M8
Product number: DODIC K271 (Class V)
Product title: Cap Apers F/Mine Practice M8
Product number: DODIC K280 (Class V)
Product title: Wide Area Mine Individual Training M98
Product number: TBD

(f). The training devices given at Table 6-2 are available to conduct sustainment and unit training with antipersonnel mines. These devices simulate the actual mechanical functioning of service mines.

Table 6-2 Antipersonnel Mine Training Devices

Product title: M16A1 Antipersonnel Mine (Inert)

Product number: DVC-T 23-34 (TASC)
Product title: M14 Antipersonnel Mine (Dummy)
Product number: DVC-T 23-38 (TASC)
Product title: Smoke Producing M16A1 Apers Mine
Product number: DVC-T 23-32 (TASC)
Product title: Mine Antipersonnel M8 Practice
Product number: DODIC K139 (Class V)

(4) Demolitions. The training devices given at Table 6-3 will be used with the primary demolition devices, i.e., C-4, to construct and install simulated electrical, non-electrical and detonating cord firing systems.

Table 6-3 Demolition Training Devices
Product title: Detonating Cord (Dummy) Reinforced
Product number:
Product title: Igniter Time Blasting Fuse, Practice
Product number: DODIC M767 (Class V)
Product title: Portable Remote-Ctr Demo Firing Control
Product number: DVC 21-03 (TASC)
Product title: Charge Demo Block 1 lb. (Inert, TNT)
Product number: NSN 1375-00-621-8371
Product title: Bangalore Torpedo
Product number: DVC-D5-43
Product title: Charge Demo Block (Inert, C-4)
Product number: NSN 1375-00-908-6362
Product Title: Nonelectric Blasting Cap, 30 ft Shock Tube (M11)
Product number: NSN 375-01-412-0160
Product Title: Nonelectric Blasting Cap, 500 ft Shock Tube (M12)
Product number: NSN 1375-01-412-8813
Product Title: Nonelectric Blasting Cap, Delay (M14)
Product number: NSN 1375-01-411-6346
Product Title: Nonelectric Blasting Cap, Delay (M15)
Product number: NSN 1375-01-411-6346
Product Title: Blasting Cap and Shock-Tube Holder (M9)
Product number: NSN 1375-01-415-1229
Product Title: Time-Blasting-Fuse Igniter w/Shock-Tube Capability (M81)
Product number: **

**** NOTE: ALL M81'S THAT WILL BE UTILIZED, AS TRAINING AID WILL BE OBTAINED FROM LIVE FIRE EX. ONCE THE M81 HAS BEEN EXPENDED. THE USING UNIT MUST FOLLOW THE INSTRUCTION FROM THE AIN FOR CONVERSION OF AN M81 TO A TRAINING AID. THE INSTRUCTIONS CAN BE LOCATED ON THE ENGINEER NEWS LTR ON THE FORT LEONARD WOOD DCD HOME PAGE.**

Table 6-3a Munition
Product title: Inert Selectable Lightweight Attack Munition XM99
Product number: TBD

6-3. Sample Munition Requirements

a. General. Requirements are provided below for one iteration of mine and demolition tasks. (NOTE: C-4 calculations are based on 1 1/4 pound blocks.)

b. Individual Demolition Tasks.

(1) Construct a non-electric initiating detonating assembly and prime explosives non-electrically:

(a) One 1 1/4 block C-4 M023.

(b) One Igniter MN08.

(c) One M-11 ML47.

(2) Prime explosives with detonating cord:

(a) One 1/4 lb. Block of C-4 M023.

(b) One fuse igniter MN08.
(c) One M-14 MN06.
(d) Twelve foot detonating cord
(3) Install and remove the M16A1 antipersonnel mine: M16A1 AP mine or PTM Kit. (Korea only)
(4) Install and remove the M15 antitank mine: M15 AT mine or PTM Kit.
(5) Install and remove the M19 antitank mine: M19 AT mine or PTM Kit.
(6) Install and remove the M21 antitank mine: M21 AT mine or PTM Kit.
(7) Install and remove the anti-handling devices: PTM Kit.

c. Squad Tasks.

(1) Install and recover or transfer a hasty protective minefield: PTM kit or dummy inert mines.
(2) Create a crater obstacle with explosives (three- hole hasty crater, dual primed):
(a) Three shape charges (15 or 40 lb.) M420.
(b) Three cratering charges M039.
(c) Twenty-four blocks of C-4 (30 lbs) M023.
(d) Two hundred feet detonating cord M456.
(e) Two M81 igniters MN08.
(f) One M14 MN06.
(g) One M13 MN03.
(h) One M12 MN02.
(i) Six M11 ML47.
(3) Breach obstacles with explosives:
(a) 100 blocks of C4 M023.
(b) 100 Igniters M81.
(c) 60 J Hooks.
(d) 500 ft. Det Cord M456.
(e) 60 M11 Shock Tube 30 ft.
(f) 1 M12 Shock Tube 500 ft.
(g) 1 Time delay (20 minutes) M 15.
(4) Disable bridge with explosives: (No live demolitions are required to train this task).
(5) Breach obstacles other than minefields:
(a) 3 charges of 10 lbs. of C4.
(b) 3 each M11, ML47.
(c) 1 each M12, MN02.
(d) 1 each M14, MN06.
(e) 1 each M13, MN03.
(f) 2 each M81, Igniter.
(g) 200 ft. Det Cord, M456.
(6) Construct an abatis (six trees at 24" using $P=D^2/50$; seven packages of C-4 per tree (dual primed)):
(a) 49 blocks of C-4 (52.5 lbs).
(b) Two M14 MN06.
(c) Two M81 Igniters MN08.
(d) Six M-11 ML47.
(e) 60 ft. Det Cord, M456.
(7) Conduct an In Stride Breach of a minefield: dummy inert mines (No live demolitions are required to train this task).
(8) Breach Obstacles:
(a) Sixteen blocks of C-4 (20 lbs).
(b) One M14 MN06.
(c) One M81 Igniter MN08.
(d) Two M11 ML47.
(9) Breach obstacles (wire obstacles) (Ammunition requirements for this task allow for initiation and detonation of 5 each, two section bangalore torpedoes.):
(a) One Bangalore torpedo kit.
(b) Five M11 ML47.
(c) One M14 MN06.
(d) One M81 Igniter MN08.

d. Platoon Tasks.

(1) Emplace a tactical (using the inert Hornet) minefield: inert mines.
(2) Emplace a tactical (ROW) minefield: inert mines.

(3) Emplace a tactical (scatterable) minefield:
(a) M136 MOPMS.
(b) Flipper with M79 training mines.
(c) Volcano with M88/M89 training mine canisters.
(4) Disable an LOC/airfield: No live demolitions are required to train this task.

Section II
Training Programs

6-4. Development

a. Training programs have been developed for each STRAC Category as found in table 6-4 and table 6-5. The standards are supported by training strategies which, if followed, will enable the commander to attain and sustain the weapons proficiency of his soldiers. Inert training to standard is required prior to live fire training. Resources are applied to the training standards and strategies as written. The commander has the flexibility to modify both the training strategy and resource usage as long as the training standards are met.

b. The quantities of munitions required by task for one iteration of the SM and MTP tasks in the training programs are summarized in paragraph 6-3.

c. This chapter does not identify training strategies or resources for "operational" use of demolitions. "Operational" in this sense means the day-to-day, base operations requirement for demolitions normally associated with EOD units, and Quarry Sections. All other units are addressed in this chapter.

6-5. Modernized Demolition Initiator (MDI).

a. Modernized Demolition Initiator (MDI). A new non-electric initiator replacing the Army's conventional systems (Electric and non-electric).

(1) MDI will be phased in starting in FY96. New Equipment Training Teams are scheduled starting in 3Q96.

(2) MDI is faster to employ and affords a better way to control the firing of demolition targets. This will improve commander's ability to rapidly counter the threat's movements, reduce the manpower required to employ and initiate demolition missions. The MDI initiating system will introduce new techniques that will reduce the time spent on target and reduce the number of soldiers required to accomplish the mission. MDI is safer than current demolition initiators to transport, employ, and ignite.

(3) MDI will be used in accordance with FM 5-250, Explosives and Demolitions.

b. Characteristics, description and functions of the MDI:
(1) Holder: Blasting Cap and Shock Tube, M9, DODIC ML45
(2) Cap, Blasting: Non-electric 30ft Shock Tube, M11, DODIC ML47
(3) Cap, Blasting: Non-electric 500ft Shock Tube, M12, DODIC MN02
(4) Cap, Blasting: Non-electric 1000ft Shock Tube, M13, DODIC MN03
(5) Cap, Blasting: Non-electric, Delay, M14, DODIC MN06
(6) Cap, Blasting: Non-electric, Delay, M15 (optional 200 or 25 msec), DODIC MN07
(7) Cap, Blasting: Non-electric, 10 ft length M16 DODIC MN39 (is similar to M11)
(8) Cap, non-electric Blasting Delay M18 DODIC MN41 (20 minute burn length)
(9) Igniter, time Blasting Fuse: M81, DODIC MN08 with shock tube capability.

c.

. General Description. Modernized Demolition Initiators (MDI) is the project name given to a new family of non-electric blasting caps and associated items being introduced in 1996 to replace the M7 Non-electric Blasting Cap and the M6 Electric Blasting Cap. The snap-together MDI components will allow simplification of initiation systems and of some types of explosive priming. Complete replacement of electrical initiation systems will result in nil requirement for blasting machines and associated demolition equipment. MDI will also improve reliability and safety. One reason for this reliability is the fact that all of the components are sealed and, unlike standard non-electric priming components, cannot be easily degraded by moisture.

(1) Shock Tube. A thin plastic tube of extruded polymer with a layer of special explosive material deposited on its interior surface. This special explosive dust propagates a detonation wave, which is normally contained within the plastic tubing, along the shock tube to a factory crimped and sealed blasting cap (and thus moisture resistant). Shock tube must be cut, enabling insertion into the M81 igniter. After cutting, shock tubes are susceptible to moisture. Shock tube offers the instantaneous action of electric initiation without the risk of accidental initiation of the blasting cap (and the charge) by radio transmitters in the area, or by static electricity discharge. The shock tube medium is extremely reliable.

WARNING

Although the detonation along the shock tube is normally contained within the plastic tubing, burns may occur if the shock tube is held.

(2) Blasting Caps. Each shock tube blasting cap is a factory crimped and sealed unit that is resistant to moisture (unlike standard non-electric blasting caps) and extremely reliable.

(a) The high strength MDI blasting caps are the M11, M14, and M15. All are non-electric types and two (M11 and M15) come with a length of shock tube attached. The M14 consists of military strength and size non-electric blasting cap, factory crimped to a length of M700 Time Blasting Fuse (factory-calibrated for a minimum five-minute delay).

(b) The two new low strength MDI blasting caps are the M12 and M13. These relay-type blasting caps come with factory-attached lengths of shock tube (500 feet for the M12 and 1000 feet for the M13). The detonators of the relay-type caps are purposely made larger than standard military blasting caps (and the high strength MDI blasting caps) so they will NOT fit in standard capwells. All of the low strength shock tube blasting caps come with a special plastic clamp attached to the detonator to facilitate quick and easy attachment to the shock tube of another blasting cap or to detonating cord.

(3) Blasting Cap Holder, M9. A plastic blasting cap holder will allow connection of several shock tubes to a high strength M11 or M14 blasting cap. The M9 Holder facilitates secure connection of up to five shock tubes to the high strength detonation of an M11 or M14 blasting cap. The M9 Holder can also be used to connect the M11 or M14 blasting cap to detonating cord.

(4) Time Blasting Fuse Igniter, M81. A new more powerful igniter will initiate the shock tube ends of the new blasting caps. The M81 is almost identical to the older M60 Igniter with the exception being that the M81 has the screw end cap and shipping plug colored black and accommodates either the thin shock tube or standard diameter Time Blasting Fuse, M700. The M60 Igniter will not physically secure the shock tube nor reliably initiate it. Non-electric Blasting Cap M11 can be used to prime all standard military explosives (including detonating cord) or to initiate shock tube of other MDI blasting caps. The M11 is a high strength blasting cap factory crimped to a 30-foot length of shock tube. The M11 functions by transmitting an initiating shock or small detonation through its shock tube into its blasting cap.

6-6. Purpose and objectives of the training programs

Training programs will provide a method for the attainment and sustainment of weapons proficiency throughout the training year. They will ensure that all individuals, squads, crews and platoons in a battalion are adequately trained and able to sustain weapons proficiency.

6-7. Live demolitions used as devices.

a. Demolition Effects Simulators (DES). A device using live demolitions.

(1) DES offers units the opportunity to use minimal explosives and increase repetitions of demolition events. The DES also reduces the normal risk associated with larger demolition charges. Stand off safe distances are to be calculated and enforced using the charge (pounds) being replicated.

(2) All safety precautions used for explosives and demolitions will be followed.

b. DES devices have the same basic components with packaging being the main difference. DES produces sufficient visual and sound effects to enhance battlefield training realism.

c. Commanders and supervisors are encouraged to use their allocation of detonation cord and initiators to train one event several times by constructing DES charges.

d. All DES charges will be constructed as detailed in
TC-250, Demolition Effects Simulations.

6-8. Programs for Combat Engineer and Bridge Units at TRC A

a. General. Training standards for each system are given below. Recommended training strategies for all systems except the EBSV are given in table 6-6 (Individual Training) and table 6-7 (Unit Training). The ammunition requirements for all systems except the EBSV are given in table 6-8. The recommended training strategy and ammunition requirements for the EBSV are given in table 6-9 (A&B).

b. AT and AP mine standard.

(1) Ninety percent of the assigned soldiers with a SM requirement must have employed mines to SM standards (tasks: Install and remove the M15 AT mine, M19 AT mine, M21 AT mine and inert US anti-handling devices on AT mines) within the past 12 months. Note: Each Combat Engineer Squad is allocated 1 each live M15AT, M19AT and M21AT mine in accordance with table 6-8. Each Combat Engineer must arm and disarm each type live mine allocated to meet the individual training requirement. The M21AT mine will not be employed in the tilt rod mode. Only inert anti-handling devices will be used in training on inert mines (PTM Kit). (Live anti-handling device can be used on inert metallic mines to achieve the training strategy. See table 6-6.)

(2) All Combat Engineer squads and platoons must have met MTP standards (tasks: Install/recover a hasty protective minefield, Emplace a tactical (using the inert Hornet) minefield and Emplace a tactical (ROW minefield) within the past 12 months.

(3) All bridge crews with an MTP requirement must have employed inert mines to MTP standards (task: Install/recover or transfer a hasty protective minefield) within the past 12 months.

(4) When training with a live M16A1 AP mine, trip wires will not be used. M16AP Mine arming/disarming (use) is restricted to those units assigned to Eighth U.S. Army, Korea. No units at other locations are authorized to train with AP mines. A Presidential Decision Directive (PDD 48) on Anti-personnel Landmine Policy was signed on 26 June 1996. This policy restricts the use of conventional antipersonnel mines. Mines or mine systems containing antipersonnel mines with self destruct capabilities are authorized for training.

c. Demolition standard.

(1) Ninety percent of the assigned soldiers with a SM requirement must have constructed demolition firing systems and primed explosives for live fire to SM standards (tasks: Construct an MDI detonating assembly, prime explosives with MDI and prime explosives with detonating cord) within the past 6 months.

(2) All Combat Engineer squads with an MTP requirement must have employed inert and live demolitions to MTP standards (tasks: Disable bridge with explosives, Construct an abatis and Breach obstacles) in accordance with the frequencies in table 6-7. The MTP standard for the task, construct an abatis, states that an abatis must be 75 meters long; however, the requirement is for a six tree abatis.

(3) All bridge crews must employ inert demolitions to MTP standards (task: disable organic bridge) within the past 6 months.

d. Shaped charge/cratering charge standard. All Combat Engineer squads must have employed inert and live demolitions to create a three-hole hasty road crater to MTP standards (tasks: create a crater obstacle with explosives, and disable a LOC/airfield) within the past 6 months.

e. Bangalore torpedo standard. All Combat Engineer squads must have employed a live Bangalore torpedo to MTP standards (task: breach obstacles (wire obstacle)) within the past 6 months (See paragraph 6-3, c.(9)). This requirement will discontinue as current supply stockage is exhausted.

f. MOPMS standard. All Combat Engineer squads and bridge crews must have participated in the installation and recovery of the MOPMS Training Dispenser (M136) to operator's manual standards (task: Emplace a tactical (scatterable) minefield) within the past 6 months.

g. Flipper standard. (for units authorized the flipper)

(1) Ninety percent of the assigned Platoon/Section members must have conducted Preventive Maintenance Checks and Services on the Flipper to operator's manual standards within the past 6 months.

(2) All Platoons/Sections must have emplaced a tactical (scatterable) minefield with the Flipper using M79 training mines, to MTP standards (task: emplace a tactical (scatterable) minefield) within the past six months.

h. MICLIC Standard.

ll Combat Engineer companies must have employed the MICLIC, to MTP standards (task: conduct an in stride breach of a minefield) using four inert line charges at home station within the past 12 months.

(2) Units will fire live MICLIC during National Training Center (NTC) and Combat Maneuver Training Center (CMTC) rotations, depending on availability. Combat Training Centers (CTC) will be separately resourced to provide two live MICLIC charges per company per rotation.

i. Volcano standard.

(1) Ninety percent of the assigned soldiers with a Soldier's Manual requirement must have conducted the DCU-BIT Test to operator's manual standards within the past 6 months.

(2) The Assault & Obstacle Platoon and/or section must have successfully employed the Volcano with the M88 and the M89 training device to MTP standards (task: Emplace a tactical (scatterable) minefield) within the past 6 months. M88s are fired from the four corners only; M89s fill all other positions.

j. Engineer Bradley Fighting vehicle. The following standards are for TRC A combat heavy Engineer units equipped with the E-BFV. Recommended training strategies and ammunition are given in table 6-9 (A), 6-9 (B), and Fig 1 (PGS) for TRC A.

(1) TRC A standard. All E-BFV crews must qualify on the Bradley Crew Proficiency Course prior to live fire. Eighty-five percent of the mechanized battalion's assigned primary crews will have qualified on Bradley Table (BT)

VIII with in the last six months. All platoon crews must qualify on BT VIII before attempting BT XII. Seventy-five percent of the Engineer platoons will have qualified on BT XII within the last 12 months.

NOTE: Battalions equipped with the PGS will be allocated ammunition for only one iteration of BT XI and BT XII, because the second iteration will be conducted with the PGS.

6-9. Programs for Combat Engineer and Bridge Units at TRC C

a. General. Training standards for each system are given below. Recommended training strategies for all systems are given in Table 6-10 (Individual Training) and Table 6-11 (Unit Training). The ammunition requirements for all systems are given in Table 6-12.

b. AT and AP mine standard.

(1) Eighty percent of the assigned soldiers with a Soldier's Manual requirement must have employed inert mines to Soldier's Manual standards (tasks: Install/remove the M15 AT mine, M19 AT mine, M21 AT mine and inert US anti-handling devices) within the past training year. (Live anti-handling devices can be used on inert metallic mines to achieve the training strategy. See Table 6-6.)

(2) All Combat Engineer squads and platoons must have met MTP standards (tasks: Install/recover a hasty protective minefield, Emplace a tactical (using the inert Hornet) minefield and Emplace a tactical (ROW) minefield) using inert mines within the past training year.

(3) All bridge crews must have employed inert mines to MTP standards, (task: Install/remove or transfer a hasty protective minefield) within the past training year. M16AP Mine arming/disarming (use) is restricted to those units assigned to Eighth U.S. Army, Korea. No units at other locations are authorized to train with AP mines (TRC C exception is provided in Chapter 9). A Presidential Decision Directive (PDD 48) on Anti-personnel Landmine Policy was signed on 26 June 1996. This policy restricts the use of conventional antipersonnel mines. Mines or mine systems containing antipersonnel mines with self destruct capabilities are authorized for training.

c. Demolition standard.

(1) Eighty percent of the assigned soldiers with a Soldier's Manual requirement, must have constructed demolition firing systems and primed explosives for live fire to Soldier's Manual standards (tasks: construct an MDI detonating assembly, prime explosives with MDI, and Prime explosives with detonating cord) within the past two training years.

(2) All Combat Engineer squads must have employed inert and live demolitions to MTP standards (tasks: Disable a bridge with explosives, Construct an abatis and Breach obstacles) in accordance with the frequencies in Table 6-11 within the past two training years.

(3) All bridge crews must have employed inert demolitions to MTP standards (task: Disable organic bridge) within the past two training years.

d. Shaped charge/cratering charge standard. All Combat Engineer platoons and squads must have employed inert demolitions for a 3-hole hasty road crater to MTP standards (tasks: Create a crater obstacle with explosives and Disable a LOC/airfieithin the past training year.

e. Bangalore torpedo standard. All Combat Engineer Company/squads must have employed an inert Bangalore torpedo to MTP standards (task: Breach Obstacles (wire obstacle) within the past training year. This requirement will discontinue as current supply stockage is exhausted.

f. MOPMS standard. All Combat Engineer squads and bridge crews must have participated in the installation and recovery of the MOPMS Training Dispenser (M136) to operator's manual standards (task: Emplace a tactical (scatterable) minefield) within the past training year.

g. MICLIC standards.

(1) All Combat Engineer Companies will employ inert MICLICs to MTP standards (task: Conduct an in stride breach of a minefield) within the past two yeatraining cycle.

(2) Units will train the inert systems at home station and fire live MICLIC during National Training Center (NTC) rotations depending on availability. NTC will be separately resourced to provide two live MICLIC charges per company per rotation.

h. Volcano Standard.

(1) Eighty percent of the assigned soldiers with a Soldier's Manual requirement must have conducted the DCU-BIT Test to operator's manual standards within the past training year.

(2) The Assault & Obstacle Platoon/Section must have successfully employed the Volcano with the M88 and the M89 training device to MTP standards (task: Emplace a tactical (scatterable) minefield) within the past training year.

6-10. Programs for Light Engineer Units at TRC A

a. General. Training standards for each system are given below. Recommended training strategies for all systems are given in Table 6-13 (Individual Training) and Table 6-14 (Unit Training). This includes Individual and Unit

Training for Corps Airborne/LID. The ammunition requirements for all systems are given in Tables 6-15 (LID/Corps Airborne) and 6-16 (Airborne/Assault).

b. AT and AP Mine Standard.

(1) Ninety percent of the assigned soldiers with a Soldier's Manual requirement must have employed mines to Soldier's Manual standards (tasks: Install/remove M15 AT mine, M19 AT mine, M21 AT mine and US anti-handling devices on AT mines) within the past 4 months. Note: Each Engineer Squad is allocated 1 each live M15AT, M19AT and M21AT mine in accordance with Tables 6-15 and 6-16. Each Combat Engineer must arm and disarm each type live mine allocated to meet the individual training requirement. The M21AT mine will not be employed in the tilt rod mode. Only inert anti-handling devices will be used in training on inert mines (PTM Kit). (Live anti-handling device can be used on inert metallic mines to achieve the training strategy. See Table 6-6.)

(2) All Combat Engineer squads must have met MTP standards (tasks: Install/recover a hasty protective minefield, Emplace a tactical (using the inert Hornet) minefield and Emplace a tactical (ROW) minefield) within the past 12 months. A Presidential Decision Directive (PDD 48) on Anti-personnel Landmine Policy was signed 26 June 1996. This policy restricts the use of conventional antipersonnel mines. Mines or mine systems containing antipersonnel mines with self destruct capabilities are authorized for training.

c. Demolition standard.

(1) Ninety percent of the assigned soldiers with a Soldier's Manual requirement must have constructed demolition firing systems and primed explosives for live fire to Soldier's Manual standards (tasks: Construct an MDI detonating assembly, prime explosives with MDI and prime explosives with detonating cord) within the past 4 months.

(2) All Combat Engineer squads with an MTP requirement must have employed inert and live demolitions to MTP standards (tasks: Disable bridge with explosives, Construct an abatis and Breach obstacles) in accordance with the frequencies in Table 6-14. Note: The MTP standard for the task, Construct an Abatis, states that an Abatis must be 75 meters long; however, the requirement is for a 6 tree Abatis.

d. Shape charge/cratering charge standard. All Combat Engineer squads must have employed inert and live demolitions to create a 3-hole hasty road crater to MTP standards (task: Create a crater obstacle with explosives, and Disable a LOC/airfield) within the past 6 months.

e. Bangalore torpedo standard. All Combat Engineer squads must have employed a live Bangalore Torpedo to MTP standards (task: Breach Obstacle (wire obstacle)) within the past 6 months. This requirement will discontinue as current supply stockage is exhausted.

f. MOPMS standard. All Combat Engineer squads and bridge crews must have participated in the installation and recovery of the MOPMS Training Dispenser (M136) to operator's manual standards (task: Emplace a tactical (scatterable) minefield) within the past 6 months.

g. MICLIC Standard.

All Combat Engineer Companies (Abn) must have employed the MICLIC, to MTP standards (task: Conduct an in stride breach of a minefield) using three inert line charges at home station within the past 12 months.

h. Volcano Standard.

(1) Ninety percent of the assigned soldiers with a Soldier's Manual requirement must have conducted the DCU-BIT Test to operator's manual standards within the past 6 months.

(2) The Assault & Obstacle Platoon/Section must have successfully employed the Volcano with the M88 and the M89 training device to MTP standards (task: Emplace a tactical (scatterable) minefield) within the past 6 months.

i. Munition Standard. All Combat Engineer squads must have employed inert Selected Lightweight Attack Munition (SLAM) 6 times a year. This strategy requires a pre-deployment firing of a live SLAM at a ratio 1 SLAM to 10 soldiers.

6-11. Programs for Light Engineer Units at TRC C

a. General. Training standards for each system are given below. Recommended training strategies for all systems are given in Table 6-17 (Individual Training) and Table 6-18 (Unit Training). This includes Individual and Unit Training for Corps Airborne/LID. The ammunition resources for all systems are given in Table 6-19 (LID/Corps Airborne).

b. Antitank, Antipersonnel Mine standard.

(1) Eighty percent of the assigned soldiers with a Soldier's Manual requirement must have employed inert mines to Soldier's Manual standards (tasks: Install/remove the M15 AT mine, M19 AT mine, M21 AT mine and inert US anti-handling devices) within the past training year. (Live anti-handling device can be used on inert metallic mines to achieve the training strategy. See Table 6-6.)

(2) All Combat Engineer squads and platoons must have met MTP standards (tasks: Install/recover a hasty protective minefield, Emplace a tactical (using the inert Hornet) minefield and Emplace a tactical (ROW) minefield) using inert mines within the past training year. A Presidential Decision Directive (PDD 48) on Anti-personnel

Landmine Policy was signed on 26 June 1996. This policy restricts the use of conventional antipersonnel mines. Mines or mine systems containing antipersonnel mines with self destruct capabilities are authorized for training.

c. Demolition Standard.

(1) Eighty percent of the assigned soldiers with a Soldier's Manual requirement must have constructed demolition firing systems and primed explosives for live fire to Soldier's Manual standards (tasks: Construct an MDI detonating assemb ly, Prime explosives with MDI, and Prime explosives with detonating cord) within the past training year.

(2) All Combat Engineer squads must have employed inert and live demolitions to MTP standards (tasks: Disable a bridge with explosives, Construct an abatis and Breach obstacles) in accordance with the frequencies in Table 6-18 within the past training year.

d. Shape charge/cratering charge standard. All Combat Engineer squads must have employed inert and live demolitions for a 3-hole hasty road crater to MTP standards (tasks: Create a crater obstacle with explosives and Disable a LOC/airfield) within the past training year.

e. Bangalore Torpedo Standard. All Combat Engineer squads must have employed an inert Bangalore Torpedo to MTP standards (task: Breach obstacles (wire obstacle) within the past training year. This requirement will discontinue as current supply stockage is exhausted.

f. MOPMS Standard. All Combat Engineer squads must have participated in the installation and recovery of the MOPMS Training Dispenser (M136) to operator's manual standards (task: Emplace a tactical (scatterable) minefield) within the past training year.

g. Volcano Standard.

(1) Eighty percent of the assigned soldiers with a Soldier's Manual requirement must have conducted the DCU-BIT Test to operator's manual standards within the past training year.

(2) The Assault & Obstacle Platoon/Section must have successfully employed the Volcano with the M88 and the M89 training device to MTP standards (task: Emplace a tactical (scatterable) minefield) within the past training year.

h. Munition Standard. All Combat Engineer squads must have employed inert Selected Lightweight Attack Munition (SLAM) 6 times a year. This strategy requires postmobilization/pre-deployment firing of a live SLAM at a ratio of 10 soldiers to 1 SLAM.

6-12. Programs for Combat Heavy Engineers at TRC A

a. General. Training Standards for each system are given below. Recommended training strategies for all systems are given in Table 6-20 (Individual Training) and Table 6-21 (Unit Training). The ammunition requirements are given in Table 6-22.

b. Antitank, Antipersonnel Mine Standard.

(1) Ninety percent of the assigned soldiers with a Soldier's Manual requirement must have employed live and inert mines to Soldier's Manual standards (tasks: Install/remove M16A1 AP mine (Korea only), M15 AT mine, M19 AT mine, M21 AT mine, inert US anti-handling devices) within the past 12 months. Each line squad in the vertical construction platoon is allocated 1 each live M15AT, M16A1AP (Korea only), M19AT and M21AT mine in accordance with Table 6-22. Each line squad member in the vertical construction platoon must arm and disarm each type live mine allocated to meet the individual training standard. When training with a live M16A1 AP, trip wires will not be used. The M21AT mine will not be employed in the tilt rod mode. Only inert anti-handling devices will be used in training on inert mines (PTM Kit). (Live anti-handling device can be used on inert metallic mines to achieve the training strategy. See Table 6-6.)

(2) All squads and platoons with an MTP requirement must have met MTP standards (tasks: Install/recover or transfer a hasty protective minefield, Emplace a tactical (using the inert Hornet) minefield and Emplace a tactical (ROW) minefield) using inert mines within the past 12 months. M16AP Mine arming/disarming (use) is restricted to those units assigned to Eighth U.S. Army, Korea. No units at other locations are authorized to train with AP mines. A Presidential Decision Directive (PDD 48) on Anti-personnel Landmine Policy was signed on 26 June 1996. This policy restricts the use of conventional antipersonnel mines. Mines or mine systems containing antipersonnel mines with self destruct capabilities are authorized for training.

c. Demolition Standard.

(1) Ninety percent of the assigned soldiers with a Soldier's Manual requirement must have constructed demolition firing systems and primed explosives for live fire to Soldier's Manual standards (tasks: Construct an MDI initiating/detonating assembly, Prime explosives with MDI, and Prime explosives with detonating cord) within the past 12 months.

(2) All squads with an MTP requirement must have employed inert and live demolitions to MTP standards (tasks: Disable bridge with explosives, Construct an abatis and Breach obstacle with explosives) within the past 12 months.

d. Shape Charge/Cratering Charge Standard. All Combat Engineer Squads with an MTP requirement must have employed inert and live demolitions to create a 3 hole hasty road crater to MTP standards (tasks: Create a crater obstacle with explosives and Disable a LOC/airfield) within the past 12 months.

e. Bangalore Torpedo Standard. All Combat Engineer Squads with an MTP requirement must have employed an inert Bangalore Torpedo to MTP standards (task: Breach obstacles (wire obstacle) within the past 12 months. This requirement will discontinue as current supply stockage is exhausted.

f. Engineer Bradley Fighting vehicle. The following standards are for TRC A combat heavy Engineer units equipped with the E-BFV. Recommended training strategies and ammunition are given in table 6-9A, 6-9B and figure 1 (PGS) for TRC A.

(1) TRC A standard. All E-BFV crews must qualify on the Bradley Crew Proficiency Course prior to live fire. Eighty-five percent of the mechanized battalion's assigned primary crews will have qualified on Bradley Table (BT) VIII with in the last six months. All platoon crews must qualify on BT VIII before attempting BT XII. Seventy-five percent of the Engineer platoons will have qualified on BT XII within the last 12 months.

NOTE: Battalions equipped with the PGS will be allocated ammunition for only one iteration of BT XI and BT XII, because the second iteration will be conducted with the PGS.

6-13. Programs for Combat Heavy Engineers at TRC C

a. General. Training standards for each system are given below. Recommended training strategies for all systems are given in Table 6-23 (Individual Training) and Table 6-24 (Unit Training). The ammunition requirements are given in Table 6-25

b. Antitank, Antipersonnel Mine Standard.

(1) Eighty percent of the assigned soldiers with a Soldier's Manual requirement must have employed inert mines to Soldier's Manual standards (tasks: Install/remove M15 AT mine, M19 AT mine, M21 AT mine, US anti-handling devices) within the past training year.

(2) All squads and platoons with an MTP requirement must have met MTP standards (tasks: Install/recover or transfer a hasty protective minefield, Emplace a tactical (using the inert Hornet) minefield and Emplace a tactical (ROW) minefield) using inert mines within the past training year. A Presidential Decision Directive (PDD 48) on Anti-personnel Landmine Policy was signed on 26 June 1996. This policy restricts the use of conventional antipersonnel mines (TRC C exception is provided in Chapter 9). Mines or mine systems containing antipersonnel mines with self destruct capabilities are authorized for training.

c. Demolition Standard.

(1) Eighty percent of the assigned soldiers with a Soldier's Manual requirement must have constructed inert demolition firing systems and inert primed explosives to Soldier's Manual standards (tasks: Construct an MDI initiating/detonating assembly, Prime explosives with MDI, and Prime explosives with detonating cord) within the past training year.

(2) All squads with an MTP requirement must employ inert demolitions to MTP standards (tasks: Disable bridge with explosives, Construct an abatis and Breach obstacles) within the past training year.

d. Shape charge/cratering charge standard. All squads with an MTP requirement must have emplaced inert demolitions to create a 3-hole hasty road crater to MTP standards (tasks: Create a crater obstacle with explosives and Disable a LOC/airfield) within the past training year.

e. Bangalore Torpedo Standard. All squads with an MTP requirement must have employed an inert Bangalore Torpedo to MTP standards (task: Breach obstacles (wire obstacle)) within the past training year. This requirement will discontinue as current supply stockage is exhausted.

6-14. Programs for Combat Arms (Armor, Armored Cavalry, Infantry) at TRC A

a. General. Training standards for each system are given below. Recommended training strategies for all systems are given in Tables 6-26 (Individual Training) and 6-27 (Unit Training). The ammunition requirements for all systems are given in Tables 6-28 (Infantry) and 6-29 (Armor/Cav).

b. Antitank, Antipersonnel Mine standard.

(1) Ninety percent of the assigned soldiers with a Soldier's Manual requirement must have employed inert mines to Soldier's Manual standards (tasks: Install/remove the M16A1 AP mine (Korea only), M15 AT mine, M19 AT mine, M21 AT mine and inert US anti-handling devices) within the past training year.

(2) All squads and platoons with an MTP requirement must have met MTP standards (tasks: Install/recover or transfer a hasty protective minefield and Emplace a tactical (ROW) minefield) using inert mines within the past training year. M16AP Mine arming/disarming (use) is restricted to those units assigned to Eighth U.S. Army, Korea. No units at other locations are authorized to train with AP mines. A Presidential Decision Directive (PDD 48) on Anti-personnel Landmine Policy was signed on 26 June 1996. This policy restricts the use of conventional antipersonnel mines. Mines or mine systems containing antipersonnel mines with self destruct capabilities are authorized for training.

c. Demolition standard.

(1) Ninety percent of the assigned soldiers with a Soldier's Manual requirement must have constructed demolition firing systems and primed explosives for live fire to Soldier's Manual standards (tasks: Construct an MDI initiating/detonating assembly, Prime explosives with MDI, and Prime explosives with detonating cord) within the past training year.

(2) All squads must have employed inert and live demolitions to MTP standards (task: Breach obstacles) within the past training year.

d. Bangalore Torpedo standard. All squads must have employed an inert bangalore torpedo to MTP standards (task: Breach obstacles (wire obstacle)) within the past 12 months. Infantry (less mechanized) squads must have also employed a live Bangalore torpedo to MTP standards (task: Breach obstacles (wire obstacle)) within the past year. This requirement will discontinue as current supply stockage is exhausted.

e. MOPMS standard. All squads must have installed and recovered the MOPMS Training Dispenser (M136) to operator's manual standards (task: Emplace a tactical (scatterable) minefield) within the past training year.

6-15. Programs for Combat Arms (Armor, Armored Cavalry, Infantry) at TRC C

a. General. Training Standards for each system are given below. Recommended training strategies for all systems are given in Table 6-30 (Individual Training) and Table 6-31 (Unit Training). Limited live demolitions for reinforcement training are given at Table 6-32.

b. Antitank, Antipersonnel Mines standard.

(1) Eighty percent of the assigned soldiers with a Soldier's Manual requirement must have employed inert mines to Soldier's Manual standards (tasks: Install/remove the M15 AT mine, M19 AT mine, M21 AT mine and inert US Anti-handling devices) within the past training year.

(2) All squads and platoons with an MTP requirement must have met MTP standards (tasks: Install/recover or transfer a hasty protective minefield and Emplace a tactical (ROW) minefield) using inert mines within the past training year. M16AP Mine arming/disarming (use) is restricted to those units assigned to Eighth U.S. Army, Korea. No units at other locations are authorized to train with AP mines. A Presidential, Executive Order signed 12 February 1996 restricts the use of conventional antipersonnel mines. Mines or mine systems containing antipersonnel mines with self destruct capabilities are authorized for training.

c. Demolition standard.

(1) Eighty percent of the assigned soldiers with a Soldier's Manual requirement must have constructed demolition firing systems and primed explosives with inert devices to Soldier's Manual standards (tasks: Construct an MDI initiating/detonating assembly, Prime explosives with MDI, and Prime explosives with detonating cord) within the past training year.

(2) All squads must employ inert demolitions to MTP standards (task: Breach obstacles) within the past training year.

d. Bangalore Torpedo Standard. All squads must have employed an inert bangalore torpedo to MTP standards (task: Breach obstacles (wire obstacle)) within the past training year. This requirement will discontinue as current supply stockage is exhausted.

e. MOPMS Standard. All squads must have installed and recovered the MOPMS Training Dispenser (M136) to operator's manual standards (task: Emplace a tactical (scatterable) minefield) within the past training year.

6-16. Programs for Chemical Units for TRC A

a. General. Training Standards for each system are given below. Recommended training strategies for all systems are given in Table 6-33 (Individual Training) and Table 6-34 (Unit Training). The ammunition requirements are given in Table 6-35.

b. Demolition standard.

(1) Ninety percent of the assigned soldiers with a Soldier's Manual requirement must have employed live and inert demolitions to Soldier's Manual standards (tasks: Construct an MDI detonations assembly, Prime explosives with MDI, and Prime explosives with detonating cord) within the past training year.

(2) All chemical platoons with an MTP requirement must have employed inert and live demolitions to construct flame field expedients to MTP standards (tasks: Exploding flame landmine, 55 gallon flame FUGAS, 55 gallon flame landmine, (non-directional), Hasty emplacement (wall of flame) and employ a HUSCH flare) within the past 12 months.

6-17. Programs for Chemical Units for TRC C

a. General. Training Standards for each system are given below. Recommended training strategies for all systems are given in Tables 6-36 (Individual Training) and 6-37 (Unit Training).

b. Demolition Standard.

(1) Eighty percent of the assigned soldiers with a Soldier's Manual requirement must have employed inert demolitions to Soldier's Manual standards (tasks: Construct an MDI detonations assembly, Prime explosives with MDI, and Prime explosives with detonating cord) within the past training year.

(2) All chemical platoons with an MTP requirement must have employed inert demolitions to construct inert flame field expedients to MTP standards (tasks: Exploding flame landmine, 55 gallon flame FUGAS, 55 gallon flame landmine, (non-directional), Hasty emplacement (wall of flame) and Employ a HUSCH flare within the past training year.

6-18. Programs for Ordnance Units for TRC A

a. General. Training Standards for each system are given below. Recommended training strategies for all systems are given in Table 6-38 (Individual Training) and Table 6-39 (Unit Training). The ammunition requirements are given in Table 6-40.

b. Demolition standard.

(1) Ninety percent of the assigned soldiers with a Soldier's Manual requirement must have employed live demolitions to Soldier's Manual standards (tasks: Construct an MDI detonations assembly, Prime explosives with MDI, and Prime explosives with detonating cord) within the past training year.

c. Shaped Charge standard. All platoons with an MTP requirement must have employed live demolitions to MTP standards (task: Emergency destruction of ammunition by detonation) within the past 12 months.

6-19. Programs for Diving Detachments (TRC C)

a. General. Training Standards for each system are given below. Recommended training strategies are given in Tables 6-40 (Individual Training) and 6-41 (Unit Training). The ammunition requirements are given in Table 6-42.

b. Demolition Standard.

(1) Eighty percent of the assigned soldiers with a Soldier's Manual requirement must have constructed demolition firing systems and primed explosives for live fire to Soldier's Manual standards (tasks: Construct an MDI initiating/detonating assembly, Prime explosives with MDI, and Prime explosives with detonating cord) within the past training year.

(2) Each diving detachment with an MTP requirement must have constructed demolition firing systems to MTP standards (task: Clear underwater obstacles using demolitions) within the past training year.

6-20. Programs for EOD Detachments (TRC A)

a. General. Training Standards for each system are given below. Recommended training strategies and ammunition requirements are given in Tables 6-43 (EOD Company) and 6-44 (EOD CONUS Support Company) (Individual and Unit Training) (Individual Training) and 6-44 (Unit Training). The ammunition requirements are given in Table 6-45.

b. Demolition standard.

(1) Ninety percent of the assigned soldiers with a Soldier's Manual requirement must have constructed demolition firing systems and primed explosives for live fire to Soldier's Manual standards within the past six months (tasks: Construct a electrical non-electric initiating/firing system,detonating assembly, construct a non-electrical initiating/firing system, Prime explosives non-electrically, and prime explosives with detonating cord) within the past 6 months.

(2) Each Company detachment with an MTP requirement must have constructed demolition firing systems to MTP standards (task: Render safe and disposal procedures) within the past 6 months.

c. EOD Procedures standard.

(1) Ninety percent of all assigned soldiers with a Soldier's Manual requirement must have constructed Render Safe Procedure tools and systems (Construct non-electric/electric use the Caliber .50 Dearmer, Construct non-electric/electric Rocket Wrench, Construct water charges, Construct specialized shaped charges and Construct Cutter, HE MK 23 Mod 0 and MK 24 Mod 0 EXROD, to Soldier's Manual or applicable reference Standards (tasks: Perform EOD procedures using the Caliber .50 Dearmer, perform EOD procedures using the Rocket Wrench, perform EOD procedures using water charge, perform EOD procedures using specialized shaped charges, and perform EOD procedures using the Cutter, HE MK 23 Mod 0 and MK 24 Mod 0 EXROD) within the past 6 months.

(2) Each Company detachment with an MTP requirement must have performed EOD procedures with the Caliber .50 Dearmer, Rocket Wrench, Water charge, Specialized shaped charge and Cutter, HE MK 23 Mod 0 and MK 24 Mod 0 EXROD to MTP or applicable reference standards (task: perform render safe procedures) within the past 6 months.

(3) EOD training will be authorized Modernized Demolition Initiators to supplement training. Uniqueness of the EOD mission will determine the final mode of demolitions initiators.

d. EOD Unit Training

(1) Companies will have conducted instructional fire with the M82A1 .50 caliber rifle annually.

(2) Companies will conduct disruption of Improvised Explosive Devices (IED's) with the Remote Ordnance Neutralization System (RONS) within the last six months.

6-21. Programs for EOD Detachments (TRC C)

a. General. Training Standards for each system are given below. Recommended training strategies and ammunition requirements for all systems are given in Tables 6-45 (Unit and individual Training).46 (Individual Training) and 6-47 (Unit Training). The ammunition requirements are given in Table 6-48.

b. Demolition standard.

(1) Ninety percent of the assigned soldiers with a Soldier's Manual requirement must have conducted demolition firing systems and primed explosives for live fire to Soldier's Manual standards (task: Construct a electrical non-electric initiating/firing system detonating assembly, construct a non-electrical initiating/firing system prime explosives non-electrically, and prime explosives with detonating cord) within the past training year.

(2) Each Company detachment with an MTP requirement must have constructed demolition firing systems to MTP standards (task: Render Safe and Disposal procedures) within the past training year.

c. *EOD procedures standard.* Render Safe Procedure

*(1)*Ninety percent of all assigned soldiers with a Soldier's Manual requirement must have constructed tools and systems (Construct non-electric/electric use the Caliber .50 Dearmer, Construct non-electric/electric Rocket Wrench, Construct water charges, Construct specialized shaped charges and Construct cutter, HE MK 23 Mod 0 and MK 24 Mod 0 EXROD, to Soldier's Manual or applicable publication standards (tasks: Perform EOD procedures using the Caliber .50 Dearmer, perform procedures using the Rocket Wrench, perform EOD procedures using water charges, perform EOD procedures using specialized shaped charges, and perform procedures using the Cutter, HE MK 23 Mod 0 and MK 24 Mod 0 EXROD) within the past training year.

(2) Each Company with an MTP requirement must have performed EOD procedures with the caliber .50 Dearmer, Rocket Wrench, Water charges, Specialized shaped charges and Cutter, HE MK 23 Mod 0 and MK 24 Mod 0 EXROD to MTP or applicable reference standard (task: perform render safe procedures) within the past 12 months.

(3) EOD training will be authorized Modernized Demolition Initiators to supplement training. Uniqueness of the EOD mission will determine the final mode of demolitions initiators.

d. EOD Unit Training

(4) Companies will have conducted instructional fire with the M82A1 .50 caliber rifle annually.

(5)Companies will have conducted disruption of Improvised Explosive Devices (IED's) with the Remote Ordnance Neutralization System (RONS) within the past 12 months.

6-22. Programs for Diving Detachments (TRC A)

a. General. Training Standards for each system are given below. Recommended training strategies are given in Tables 6-38 (Individual Training) and 6-39 (Unit Training). The ammunition requirements are given in table 6-40.

b. Demolition Standard.

(1) Ninety percent of the assigned soldiers with a Soldier's Manual requirement must have constructed demolition firing systems and primed explosives for live fire to Soldier's Manual standards (tasks: Construct an MDI initiating/detonating assemb ly, Prime explosives with MDI and Prime explosives with detonating cord) within the past 6 months.

(2) Each diving detachment with an MTP requirement must have constructed demolition firing systems to MTP standards (task: Clear underwater obstacles using demolitions) within the past 6 months.**6-20. Programs for Other Engineers, Other Combat Arms and Combat Support/Combat Service Support at TRCs A and C**

a. General. Training standards are given below. Recommended training strategies are given in Table 6-43 (Individual Training) and Table 6-44 (Unit Training). All training is completed with inert munitions or devices.

b. Antitank, Antipersonnel standard (TRC A).

(1) Ninety percent of the assigned soldiers with a Soldier's Manual requirement must have employed inert mines to Soldier's Manual standards (tasks: Install/remove the M15 AT mine, M19 AT mine, M21 AT mine, inert US Anti-handling devices) within the past year.

(2) All squads and platoons with an MTP requirement must have met MTP standards (tasks: Install/recover or transfer a hasty protective minefield, Emplace a tactical (using the inert Hornet) minefield and Emplace a tactical (ROW) minefield) using inert mines within the past year.

c. Antitank, Antipersonnel standard (TRC C).

(1) Eighty percent of the assigned soldiers with a Soldier's Manual requirement must have employed inert mines to Soldier's Manual standards (tasks: Install/remove the M15 AT mine, M19 AT mine, M21 AT mine, inert US anti-handling devices) within the past training year.

(2) All squads and platoons with an MTP requirement must have met MTP standards (tasks: Install/recover or transfer a hasty protective minefield, Emplace a tactical (using the inert Hornet) minefield and Emplace a tactical (ROW) minefield) using inert mines within the past training year.

Table 6-4
Engineer Weapon Systems Training Index
a. Branch Specific Weapon Systems

Type Unit	TRC	System	Paragraph	Table
Combat Engineer & Bridge Units	A	Mines & Demolitions	6-8	6-6 to 6-8
		EBSV		6-9
	C	Mines & Demolitions	6-9	6-10 to 6-12
Light Engineer Airborne/Air Assault/	A	Mines & Demolitions	6-10	6-13 to 6-16
Airborne Corps Units	C	Mines & Demolitions	6-11	6-17 to 6-19
Combat Heavy Engineer Units	A	Mines & Demolitions	6-12	6-20 to 6-22
	C	Mines & Demolitions	6-13	6-23 to 6-25
Combat Arms Units (IN/AR/CAV)	A	Mines & Demolitions	6-14	6-26 to 6-29
	C	Mines & Demolitions	6-15	6-30 to 6-32
Chemical Units	A	Demolitions	6-16	6-33 to 6-35
	C	Demolitions	6-17	6-36, 6-37
Diving Detachments	A	Demolitions	6-20	6-38 to 6-40
	C	Demolitions	6-21	6-41 to 6-42
Aviation Units	A&C	Volcano	(See Aviation Chapter)	
Other Engineer, Other Combat				
Arms, and CS/CSS Units	A&C	Mines	6-23	6-43 to 6-44

Table 6-5
Engineer Weapon Systems Training Index--Other Weapon Systems

Type Unit	DODIC	Paragraph	Table
AT-4 [1]		5-6	5-24
Machine gun	M249/M60	5-8	5-37, 5-30
M3A1 SMG		5-9	5-42
Rifle	M-16A1/A2/A3	5-9	5-39
Grenade Launcher	M203	5-9	5-44
Machine Gun	M2HB	5-8	5-32
Pistols		5-9	5-46
Hand Grenades	M228/M67	5-9	5-48
Claymore Mine (Cbt Eng, Other)	M18A1	5-9	5-49, 5-50
Dragon		5-6	5-21

Table 6-6

Annual Individual Training for Combat Engineer/Bridge Crewman (TRC A)

Event	Frequency
Demolitions[1]	
MDI detonating assembly	
Prime explosives with MDI	4
Prime explosives with det cord	4
Mine Warfare Installation/Removal [2]	
M16AP Mine (Korea only)	4
M15AT Mine	4
M19AT Mine	4
M21AT Mine	4
U.S. Antihandling Devices [3]	4

Notes:

1. Frequency allows for 2 live fire qualification exercises and 2 inert sustainment exercises.
2. Combat Engineer: Frequency allows for 1 live fire qualification exercise and 3 inert sustainment exercises.
   Bridge Crewmen: Frequency allows for 1 inert qualification exercise and 3 inert sustainment exercises.
3. Frequency allows for 2 exercises using live antihandling devices on inert metallic mines and 2 exercises using inert antihandling devices on inert mines.

Table 6-7
Annual Unit Training for Combat Engineer/Bridge Units (TRC A)

Tasks	Frequency	Munition/System	Event
		Shaped Charge	
	2/Live/Qualify	Crater Charge	LFX, CALFEX
Create a Crater Obstacle with Explosives	2/Inert/Sustain	C-4	MTP
	2/Inert/Qualify		MTP
Disable Bridge With Explosives	2/Inert/Sustain	C-4	FTX
	1/Inert/Qualify		MTP
Disable Organic Bridge	2/Inert/Sustain	C-4	FTX
	1/Live/Qualify		LFX, CALFEX
Construct an Abatis	1/Inert/Sustain	C-4	FTX, MTP
	2/Live/Qualify		LFX, CALFEX
Breach Obstacles (other than Minefields)	2/Inert/Sustain	C-4	FTX, MTP
	2/Live/Qualify		LFX, CALFEX
Breach Obstacles (Wire Obstacle)	2/Inert/Sustain	Bangalore	FTX, MTP
	2/Live/Qualify	C-4	LFX, CALFEX
Breach Minefields using Explosives	2/Inert/Sustain		FTX, MTP
	1/Inert/Qualify		MTP
Install/Recover a Hasty Protective Minefield	2/Inert/Sustain	AT, AP Mines	FTX
	Note 2	MICLIC	LFX, CALFEX
Conduct an In Stride Breach of a Minefield[1]	4/Inert/Qualify	Inert Line Charge	FTX, MTP
		Shaped Charge, C-4	MTP
Disable LOC/Airfield With Explosives	2/Inert/Sustain	Crater Charge	FTX
	1/Inert/Qualify		MTP
Emplace a Tactical Minefield (ROW)	2/Inert/Sustain	AT, Mines	FTX
			MTP
Emplace a Tactical Minefield (Scatterable)	2/Inert/Sustain	MOPMS (XM136)	FTX
			MTP
Emplace a Tactical Minefield (Scatterable)	2/Inert/Qualify	Flipper	FTX
			LFX
Emplace a Tactical Minefield (Scatterable)	2/Live/Qualify	Volcano (M88/M89)	CALFEX

Note:

1. Homestation includes four inert line chargefirings as stockages allow support. Homestation ranges must be adequate for safe distance.
2.USAREUR/7ATCAuthorized two each live M913 MICLIC line charges "as available".

Table 6-8
Annual Ammunition Requirements for Combat Engineer/Bridge Units (TRC A)

Munition	DODIC	Battalion HvyDivCmbtEngr	Sep Co CmbtEngr	Bridge
Bangalore Torpedo	M028	36	18	
Cratering Charge(40lb.)	M039	108	54	
Demolitions-TNT(1lb.) [3]	M032			
Demolitions-TNT(1/4lb) [3]	M030			
Demolitions-C4(1 1/4lb) [3]	M023	3042	1521	426
Detonating Cord(FT)	M456	18360	9180	2173
Holder M9	ML45	687	322	164
Inert Line Charge [1]	M914	4	1	
Igniter M81	MN08	963	448	229
M15AT Mine	K180	18	9	
M16A1AP Mine (Korea only)	K092	18	9	
M19AT Mine	K250	18	9	
M21AT Mine	K181	18	9	
M88 Volcano [2]	K042	24	8 (Total canisters per year)	
Nonelectric Cap M11	ML47	1031	483	247
Nonelectric Cap M12	MN02	102	53	27
Nonelectric Cap M13	MN03	102	53	27
Nonelectric Cap M14	MN06	828	377	193
Rocket (5 inch)	J143	12	4	
Shaped Charge(15 or 40lb)	M420	108	54	

Notes:
1. Inert Line Charge can be reused 3 times before replacement is required.
2. M88 canisters will be fired from the four corners only, all other positions will be filled with M89 canisters.
3. If C-4 is not available, substitute TNT. Quantity should be calculated using the multiplier 1.34 relative effectiveness factor. Calculate the quantity of TNT needed by multiplying the quantity of C-4 by 1.34 (relative effectiveness factor). The result should be rounded up to the nearest 1/4 lb package size. This table combines individual and unit demolition quantities.

Table 6-9 (A)

Annual Ammunition Requirements & Training Strategy for the BEFV (M2) per Battalion (TRC A)

				Subcal	TOW	Blast	5.56	7.62	Red	7.62
M21										
Table	Freq	TPDS-T	TP-T	7.62T	TOW **(5)**	M80	Tracer	Coax	Phos	Blank
Hoffman										
PGT **(1)**										
12										
BGST **(1)**										
2										
COFT **(1)**										
12										
TGP	1									
Table V x 29 Crews				2						
4640										
Zero x 29 Vehicles	4	3	2				50			
Subtotal #4		348	232				5800			
VI A/B x 29 Crews	2	32	24				350		14	
Subtotal #5		1856	1392				20300		812	
VII A/B x 29 Crews	2	56	24				400		18	
Subtotal #6		3248	1392				23200		1044	
VIII A/B x 29 Crews	2	48	48				450		21	
Subtotal #7		2784	2784				26100		1218	
Dism LFX **(3)** x 6 Plt										
2										
Subtotal #8										
XI A/B x 6 Platoons **(3)**	2						2			
Subtotal #9					46					
XII x 6 Platoons **(3)**	2	96	96		2		1600		28	
Subtotal #10		1152	1164		46		19200		336	
CALFEX x 29 Crews **(2)**	1	24	24		1	2				
200										
Subtotal #11		696	696	29	46		5800			6
Co FTX x 29 Crews	2								200	36
Subtotal #12								5800		
Bn FTX x 29 Crews	2							200		
Subtotal # 13										5800
Bn EXEVAL x 29 crews	2								200	
Subtotal #14								5800		
Rds/Veh		347		264	320	1 **(5)**	4			
3462	600	118								
Total Per Bn:		10084	7660	9280	29	135	100400		17400	3446
DODIC		A940	A976	A146	PB96/94	L592		A131	A111	L602

Notes:

(1) Preliminary Gunnery Training is conducted monthly. BGST is conducted prior to live fire and U-COFT is recommended at 8 hrs per crew every month.

(2) TOW Gunnery Program (TGP) is conducted at a minimum prior to TOW live fire in accordance with FM 23-1.

(3) XI, XII and dismounted LFX are resourced from STRAC requirements for M16, M60, and SAW.

(4) Crew breakdown

6 = 4 platoon vehicles x 2

24 = 4 platoon vehicles x 6

29 = primary crews

(5) As TOW missiles become available.

Table 6-9 (B)

Annual Ammunition Requirements & Training Strategy for the BEFV (M2) per Battalion with Precision Gunnery System (PGS) (TRC A)

				Subcal		TOW Blast	5.56	7.62	Red	7.62 M21
Table	Freq	TPDS-T	TP-T	7.62T	TOW **(5)**	M80	Tracer	Coax	Phos	Blank Hoffman

PGT **(1)**
12
BGST **(1)**
2
COFT **(1)**
12
TGP 1

Table V x 29 Crews 2
4640
Zero x 29 Vehicles 4 3 2 50
Subtotal #4 348 232 5800
VI A/B x 29 Crews 2 32 24 350 14
Subtotal #5 1856 1392 20300 812
VII A/B x 29 Crews 2 56 24 400 18
Subtotal #6 3248 1392 23200 1044
VIII A/B x 29 Crews 2 48 48 450 21
Subtotal #7 2784 2784 26100 1218
Dism LFX**(3)** x 6 Plt
2

Subtotal
#8
XI A/B x 6 Platoons**(3)** 2 2
Subtotal #9 46
XII x 6 Platoons**(3)** 2 96 96 2 800 28
Subtotal #10 576 582 46 9600 168
CALFEX x 29 Crews **(2)** 1 24 24 1 2
200
Subtotal #11 696 696 29 46 5800 6
Co FTX x 29 Crews 2 200 36
Subtotal #12 5800
Bn FTX x 29 Crews 2 200
Subtotal # 13 5800
Bn EXEVAL x 29 crews 2 200
Subtotal
#14 5800
Rds/Veh 327 244 320 1**(5)** 4 3131 600
118
Total Per Bn: 9508 7078 9280 29 135 90800 17400 3278
DODIC A940 A976 A146 PB96/94 L592 A131 A111
L602

Notes:

(1) Preliminary Gunnery Training is conducted monthly. BGST is conducted prior to live fire and U-COFT is recommended at 8 hrs per crew every month.
(2) TOW Gunnery Program (TGP) is conducted at a minimum prior to TOW live fire in accordance with FM 23-1.
(3) XI, XII and dismounted LFX are resourced from STRAC requirements for M16, M60, and SAW.
(4) Crew breakdown
6 = 4 platoon vehicles x 2
24 = 4 platoon vehicles x 6
29 = primary crews
(5)AsTOWmissilesbecomeavailable.

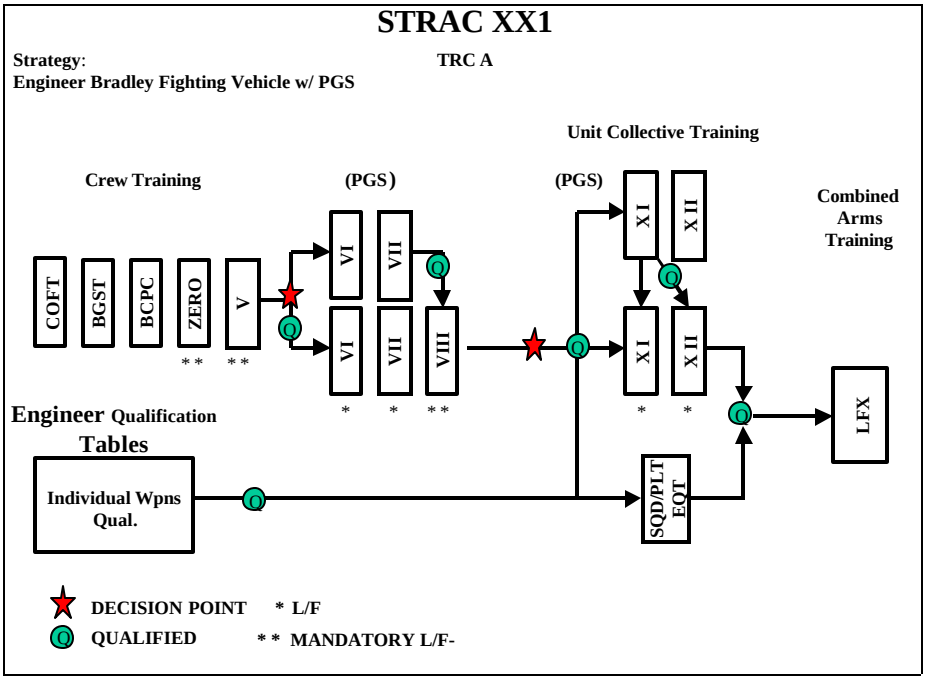

FIGURE 1
ENGINEER BRADLEY FIGHTING VEHICLE

Table 6-10

Annual Individual Training for Combat Engineer/Bridge Crewmen (TRC C)

Event	Frequency
Demolitions[1]	
Construct MDI detonating assembly	3
Prime explosives with MDI	
Prime explosives with det cord	3
Mine Warfare Installation/Removal[2]	
M15AT Mine	3
M19AT Mine	3
M21AT Mine	3
U.S. Antihandling Devices (Inert Only)[3]	3

Notes:
1. Frequency allows for 1 live fire qualification exercise and 2 inert sustainment exercise.
2. Frequency allows for 1 inert qualification exercise and 2 inert sustainment exercises.
3. Frequency allows for 1 live antihandling device exercise on inert metallic mines.

Table 6-11
Annual Unit Training Combat Engineer/Bridge Units (TRC C)

Tasks	Frequency	Munition/System	Event
Create a Crater Obstacle With Explosives	1/Inert/Qualify	Shaped Charge Crater Charge C-4	FTX, MTP
Disable Bridge With Explosives	1/Inert/Qualify	C-4	FTX, MTP
Disable Organic Bridge	1/Inert/Sustain	1/Inert/Qualify C-4	FTX, MTP
Construct an Abatis	1/Inert/Qualify	C-4	FTX, MTP
Breach Obstacles (other than Minefield)	1/Live/Qualify 1/inert/Quality	C-4	LFX, CALFEX FTX, MTP
Breach Obstacles (Wire Obstacle)	1/Inert/Qualify	Bangalore	FTX, MTP
Breach Minefield using Explosives	1/Live/Qualify 1/Inert/Sustain	C-4	LFX,CALFEX FTX,MTP
Install/Recover/Transfer a Hasty Protective Minefield	1/Inert/Qualify	AT, AP Mines	FTX, MTP
Conduct an in stride of a Minefield	1/Inert/Qualify	MICLIC ROCKET 5 inch Inert Line Charge	LFX, CALFEX FTX, MTP
Disable LOC/Airfield With Explosives	2/Inert/Sustain	Shaped Charge, C-4 Crater Charge	FTX MTP
Emplace a Tactical Minefield (Hornet)	1/Inert/Qualify	AT, Mines	MTP
Emplace a Tactical Minefield (ROW)	1/Inert/Qualify	AT, Mines	MTP
Emplace a Tactical Minefield (Scatterable)	1/Inert/Qualify	Volcano (M88/M89)	FTX, MTP
Emplace a Tactical Minefield (Scatterable)	2/Inert/Qualify	MOPMS (M136)	MTP

Table 6-12
Annual Ammunition Requirements for Combat Engineer/Bridge Units (TRC C)

	DODIC		Sep Co	
Munition		Bn	Combat Engr	Bridge
Bangalore Torpedo	M028	8	2	
Cratering Charge (40 lb.)	M039	24	6	
Demolitions - TNT (1 lb.) [3]		M032		
Demolitions - TNT (1/4 lb.) [3]		M030		
Demolitions - C4 (1 1/4 lb.) [3]		M023	1319	324
Detonating Cord (Ft)	M456	3203	1378	1704
Holder M9	ML45	108	47	60
Igniter M81	MN08	107	46	90
Inert line Charge [1]	M914	1	1	
M15AT Mine	K180	0	0	
M19AT Mine	K250	0	0	
M21AT Mine	K181	0	0	
M88 (Volcano)[2]	K042	24	8	
Nonelectric Cap M11	ML47	129	56	108
Nonelectric Cap M12	MN02	65	28	27
Nonelectric Cap M13	MN03	65	28	27
Nonelectric Cap M14	MN06	65	28	18
Rocket (5 inch)	J143	3	1	
Shaped Charge (15 or 40 lb.)		M420	24	6

Notes:
1. Inert Line Charge will be reused 3 times before replacement.
2. Battalion authorizations may reduce with TOE changes. Four M88s per company is constant.
M88 canisters will be fired from the four corners **ONLY**. All other positions will be filled with M89 canisters.
3. If G-4 is not available, substitute TNT. Quantity should be calculated using the multiplier 1.34 relative effectiveness factor. Calculate the quantity of TNT needed by multiplying the quantity of C-4 by 1.34 (relative effectiveness factor). The result should be rounded up to the nearest 1/4 lb package size. This table combines individual and unit demolition quantities.

Table 6-13
Annual Individual Training for Light Engineer/Airborne Units (TRC A)

Event	Frequency[1]
Demolitions	
Construct MDI detonating assembly	
Prime explosives with MDI	6
Prime explosives with det cord	6
Mine Warfare Installation/Removal	
M15AT Mine	6
M19AT Mine	6
M21AT Mine	6
U.S. Antihandling Devices[2]	6
Hornet[3]	6
Munition	
SLAM[4]	6

Notes:
1. Frequency allows for 3 live fire qualification exercises and 3 inert sustainment exercises.
2. Frequency allows for 4 live antihandling device exercise on inert metallic mines and 2 inert exercises with inert antihandling device on inert mines.
3. Frequency allows for 6 inert exercises.
4. Frequency allows for 6 inert exercises. This strategy requires a predeployment live-fire exercise at a ratio of 10 soldiers to 1 SLAM.

Table 6-14
Annual Unit Training for Light Engineer Airborne/Air Assault/Airborne Corps Units (TRC A)

Tasks	Frequency	Munition/System	
Event			
		Shaped Charge	
	2/Live/Qualify	Crater	Charge
LFX,CALFEX			
Create a Crater Obstacle With Explosives	2/Inert/Sustain	C-4	MTP
	1/Inert/Qualify		MTP
Disable Bridge With Explosives	3/Inert/Sustain	C-4	FTX
	1/Live/Qualify		
LFX,CALFEX			
Construct an Abatis	1/Inert/Sustain	C-4	FTX, MTP
	2/Live/Qualify		
LFX,CALFEX			
Breach Obstacles (other than Minefield)	2/Inert/Sustain	C-4	FTX, MTP
	2/Live/Qualify		
LFX,CALFEX			
Breach Obstacles (Wire Obstacle)	2/Inert/Sustain	Bangalore	FTX, MTP
	2/Live/Qualify		

Breach Minefield Using Explosives	2/Inert/Qualify		
	1/Inert/Qualify		
	MTP		
Install/Recover a Hasty Protective Minefield	3/Inert/Sustain		AT, AP Mines
FTX			
	2/Inert/Qualify		Shaped Charge, C-4
	MTP		
Disable LOC/Airfield With Explosives	2/Inert/Sustain		Crater Charge
FTX			
	MTP		
Emplace a Tactical Minefield	6/Inert		Hornet
FTX			
	1/Inert/Quality		
	MTP		
Emplace a Tactical Minefield (ROW)	2/Inert/Sustain		AT, Mines
FTX			
			MTP
Emplace a Tactical Minefield (Scatterable)	2/Inert/Qualify		MOPMS (M136)
FTX			
	LFX		
Emplace a Tactical Minefield (Scatterable)	1/Live/Qualify		Volcano (M88/M89)
CALFEX			
	MTP		
Emplace Munitions	6/Inert		SLAM
FTX			

Table 6-15
Annual Ammunition Requirements for Combat Engineer Battalion LID/Corps Airborne (TRC A)

Munition	DODIC	Bn	Sep Co Cbt Engr	
Bangalore Torpedo	M028	36	12	
Cratering Charge (40 lb.)	M039	108	36	
Demolitions - TNT (1/4 lb.) [3]	M030			
Demolitions - TNT (1 lb.) [3]	M032			
Demolitions - C4 (1 1/4 lb.) [3]	M023	3119	1022	
Detonating Cord (Ft)	M456	18972	6180	
Holder M9		ML45	1080	864
Igniter M81	MN08	1530	1224	
M15AT Mine	K180	54	18	
M19AT Mine	K250	54	18	
M21AT Mine	K181	54	18	
M88 Volcano[2]	K042	24	8	
Nonelectric Cap M11	ML47	1620	1296	
Nonelectric Cap M12	MN02	135	108	
Nonelectric Cap M13	MN03	135	108	
Nonelectric Cap M14	MN06	1350	1080	
Shaped Charge (15 or 40 lb.)	M420/421	108	36	

Notes:

1. Inert line charge will be reused 3 times before replacement.
2. M88 canister will be fired from the four corners ONLY. All other positions will be filled with M89 canisters.
3. If G-4 is not available, substitute TNT. Quantity should be calculated using the multiplier 1.34 relative effectiveness factor. Calculate the quantity of TNT needed by multiplying the quantity of C-4 by 1.34 (relative effectiveness factor). The result should be rounded up to the nearest 1/4 lb package size. This table combines individual and unit demolition quantities.

Table 6-16
Annual Ammunition Requirements for Combat Engineer Bn Airborne/Assault Div (TRC A)

Munition	DODIC	Bn	
Bangalore Torpedo	M028	54	
Cratering Charge (40 lb.)	M039	162	
Demolitions - TNT (1 lb.) [3]	M032		
Demolitions - TNT (1/4 lb.) [3]	M030		
Demolitions - C4 (1 1/4 lb.) [3]	M023	4626	
Detonating Cord (FT)	M456	28044	
Holder M9		ML45	1296
Igniter M81	MN08	1836	
M15AT Mine	K180	81	
M16A1AP Mine (Korea only)	K092	81	
M19AT Mine	K250	81	
M21AT Mine	K181	81	
M88 Volcano[2]	K042	24	
Nonelectric Cap M11	ML47	1944	
Nonelectric Cap M12	MN02	162	
Nonelectric Cap M13	MN03	162	
Nonelectric Cap M14	MN06	1620	
Shaped Charge (15 or 40 lb.)	M420/M421	162	

Notes:

1. Inert Line Charge will be reused 3 times before replacement.
2. M88 canisters will be fired from the four corners ONLY. All other positions will be filled with M89 canisters.

3. If G-4 is not available, substitute TNT. Quantity should be calculated using the multiplier 1.34 relative effectiveness factor. Calculate the quantity of TNT needed by multiplying the quantity of C-4 by 1.34 (relative effectiveness factor). The result should be rounded up to the nearest 1/4 lb package size. This table combines individual and unit demolition quantities.

Table 6-17
Annual Individual Training for Light Engineer Units (TRC C)

Event	Frequency
Demolitions[1]	
Construct MDI detonating assembly	
Prime explosives with MDI	3
Prime explosives with det cord	
Mine Warfare Installation/Removal[2]	
M15AT Mine	3
M19AT Mine	3
M21AT Mine	3
U.S. Antihandling Devices (Inert Only)	3
Hornet[3]	3
Munition	
SLAM[4]	3

Notes:
1. Frequency allows for 1 live fire qualification exercise and 2 inert sustainment exercises.
2. Combat Engineer: Frequency allows for 1 inert qualification exercise and 2 inert sustainment exercises.
3. Frequency allows for 3 inert exercises.
4. Frequency allows for 3 inert exercises. This strategy requires a post mobilization/predeployment live-fire exercise at the ratio of 10 soldiers to 1 SLAM.

Table 6-18
Annual Unit Training for Light Engineer Units (TRC C)

Tasks	Frequency	Munition/System	Event
		Shaped Charge	
		Crater Charge	LFX, CALFEX
Create a Crater Obstacle With Explosives	1/Live/Qualify	C-4	MTP
			MTP
Disable Bridge With Explosives	1/Inert/Qualify	C-4	FTX
			LFX, CALFEX
Construct an Abatis	1/Live/Qualify	C-4	FTX, MTP
	1/Live/Qualify		LFX,CALFEX
Breach Obstacles (other than Minefield)	1/Inert/Sustain	C-4	FTX, MTP
	1/Live/Qualify		LFX CALFEX
Breach Obstacle (Wire Obstacle)	2/Inert/Sustain	Bangalore	FTX, MTP
	1/Live/Qualify		
Breach Obstacle (with Explosives)	1/Inert/Sustain		
Install/Recover a Hasty Protective Minefield	1/Inert/Qualify	AT, AP Mines	MTP FTX
	1/Inert/Qualify	Shaped Charge, C-4	MTP
Disable LOC/Airfield	1/Inert/Sustain	Crater Charge	FTX
Emplace a Tactical Minefield	3/Inert	Hornet	FTX,MTP [1]
Emplace a Tactical Minefield (Scatterable)	1/Inert/Qualify	MOPMS (M136)	FTX
	1/Inert/Qualify		MTP
Emplace a Tactical Minefield (ROW)	2/Inert/Sustain	AT, Mine	FTX

Emplace a Tactical Minefield (Scatterable)	1/Live/Qualify	Volcano (M88/M89)	CALFEX LFX MTP
Emplace Munitions	3/Inert	SLAM	FTX

Note :
1. M79 training mine will be used for this task.

Table 6-19
Annual Ammunition Requirements for LID Engr (TRC C)

Munition	DODIC	Bn	Sep co
Bangalore Torpedo	M028	18	6
Cratering Charge (40 lb.)	M039	54	18
Demolitions - TNT (1/4 lb.) [2]	M030		
Demolitions - TNT (1 lb.) [2]	M032		
Demolitions - C4 (1 1/4 lb.) [2]	M023	1868	617
Detonating Cord (FT)	M456	8190	3510
Holder M9		ML45	329 141
Igniter M81	MN08	441	189
M15AT Mine	K180	0	0
M19AT Mine	K250	0	0
M21AT Mine	K181	0	0
M88 Volcano[1]	K042	24	8
Nonelectric Cap M11	ML47	462	198
Nonelectric Cap M12	MN02	63	27
Nonelectric Cap M13	MN03	63	27
Nonelectric Cap M14	MN06	399 171	
Shaped Charge (15 or 40 lb.)	M420/421	54	18

Note:
1. M88 canisters will be fired from all four corners ONLY. All other positions will be filled with M89 canisters.
2. Calculate the quantity of TNT needed by multiplying the quantity of G-4 by 1.34 (relative effectiveness factor). The result should be rounded up to the nearest 1/4 lb. package size. This table combines individual and unit demolition quantities.
3. This table provides ammunition requirements for units with 18 squads.

Table 6-20
Annual Individual Training for Combat Heavy Engineer (TRC A)

	EvenFrequency[1]
Demolitions	
Construct MDI detonating assembly	
Prime explosives with MDI	4
Prime explosives with det cord	4
Mine Warfare Installation/Removal	
M16AP Mine (Korea only)	4
M15AT Mine	4

M19AT Mine	4
M21AT Mine	4
U.S. Antihandling Devices (Inert Only)	4

Note:
1. Frequency allows for 1 live fire qualification exercise and 3 inert sustainment exercise.

Table 6-21
Annual Unit Training for Combat Heavy Engineer (TRC A)

Tasks	Frequency	Munition/System	Event
	Shaped Charge 1/Live/Quality	Crater Charge	LFX, CALFEX
Create a Crater Obstacle With Explosives	1/Inert/Sustain	C-4	FTX
Disable Bridge With Explosives	1/Inert/Qualify	C-4	FTX, MTP
Construct an Abatis	1/Inert/Qualify	C-4	FTX, MTP
	1/Live/Qualify		LFX, CALFEX
Breach Obstacles (other than Minefield)	1/Inert/Sustain	C-4	FTX, MTP
	1/Inert/Qualify		
Breach Obstacles (Wire Obstacle)	1/Inert/Sustain	Bangalore	FTX, MTP
	1/Live/Qualify		
Breach Obstacles using Explosives	1/Inert/Sustain	C-4	
Install/Recover/Transfer a Hasty	1/Inert/Qualify		
Protective Minefield[1]	1/Inert/Sustain	AT, AP Mines	FTX, MTP
		Shaped Charge, C-4	
Disable LOC/Airfield with Explosives[1]	1/Inert/Sustain	Crater Charge	FTX, MTP
	1/Inert/Qualify		
Emplace a Tactical Minefield (Hornet)[1]	1/Inert/Sustain	AT, AP Mines	FTX, MTP
	1/Inert/Qualify		
Emplace a Minefield (ROW)	1/Inert/Sustain	AT, AP Mines	FTX, MTP

Note:
1. AP Mines are restricted to those units assigned to Eighth, U.S. Army, Korea.

Table 6-22
Annual Ammunition Requirements for Combat Heavy Engineer (TRC A)

Munition	DODIC	Bn	Sep Co	
Bangalore Torpedo	M028	12	4	
Cratering Charge (40 lb.)	M039	54	18	
Demolitions - TNT (1 lb.) [1]	M032			
Demolitions - TNT (1/4 lb.) [1]	M030			
Demolitions - C4 (1 1/4 lb.) [1]	M023	1106	363	
Detonating Cord (Ft)	M456	5400	1622	
Holder M9		ML45	144	128
Igniter M81	MN08	400	300	
M15AT Mine	K180	18	6	
M16AP Mine (Korea only)	K092	18	6	
M19AT Mine	K250	18		
6				
M21AT Mine	K181	18		6
Shaped Charge (15 or 40 lb.)	M420/421	54	18	
Nonelectric Cap M11	ML47	216	192	
Nonelectric Cap M12	MN02	54	18	
Nonelectric Cap M13	MN03	54	18	
Nonelectric Cap M14	MN06	200	156	

Note:
1. If G4 is not available, substitute TNT. Quantity should be calculated using the multiplier 1.34 relative effectiveness factor. Calculate the quantity of TNT needed by multiplying the quantity of C-4 by 1.34 (relative effectiveness factor). The result should be rounded up to the nearest 1/4 lb. package size. This table combines individual and unit demolition quantities.

Table 6-23
Annual Individual Training for Combat Heavy Engineer (TRC C)

Event	Frequency[1]
Demolitions	
Construct MDI detonating assembly	
Prime explosives with MDI	3
Prime explosives with det cord	3
Mine Warfare Installation/Removal	
M15AT Mine	3
M19AT Mine	3
M21AT Mine	3
U.S. Antihandling Devices (Inert Only)	3

Note:
1. Frequency allows for 1 inert qualification exercise and 2 inert sustainment exercises.

Table 6-24
Training Year Events for Combat Heavy Engineer (TRC C)

Tasks	Frequency	Munition/System	Event
Create a Crater Obstacle With Explosives	1/Live/Sustain/Biennial 1/Inert/Qualify	Shaped Charge Crater Charge C-4	FTX
Disable Bridge With Explosives	1/Inert/Qualify	C-4	FTX, M
Construct an Abatis	1/Inert/Qualify	C-4	FTX, M
Breach Obstacles (other than Minefields)	1/Inert/Qualify	C-4	FTX, M
Breach Obstacles (Wire Obstacle)	1/Live/Sustain/Biennial 1/Inert/Qualify	Bangalore	FTX, M
Breach Obstacles using Explosives	1/Live/Qualify 1/Inert/Sustain	C-4	
Install/Recover/Transfer a Hasty Protective Minefield	1/Inert/Qualify 1/Inert/Sustain	AT, AP Mines	FTX, M
Conduct Route Minesweep Operations	1/Inert/Qualify	AT, AP Mines	FTX, M
Disable LOC/Airfield With Explosives	1/Inert/Sustain	Shaped Charge,C-4 Crater Charge	FTX, M
Emplace a Tactical Minefield (Hornet)	1/Inert/Qualify	AT, Mines	FTX, M
Emplace a Minefield (ROW)	1/Inert/Sustain	AT, Mines	FTX, M
Breach Minefield with Explosives	1/Live/Qualify 1/Inert/Sustain		

Table 6-25
Annual Ammunition Requirements for Combat Heavy Engineer (TRC C)

Munition	DODIC	Bn	Sep Co	
Bangalore Torpedo	M028	5	1	
Cratering Charge (40 lb.)	M039	12	3	
Demolitions - TNT (1 lb.) [1]	M032			
Demolitions - TNT (1/4 lb.) [1]	M030			
Demolitions - C4 (1 1/4 lb.) [1]	M023	111	36	
Detonating Cord (Ft)	M456	623	203	
Holder M9		ML45	504	117
Igniter M81	MN08	900	80	
M15AT Mine	K180	0	0	
M19AT Mine	K250	0		
0				
M21AT Mine	K181	0		
0				
Nonelectric Cap M11	ML47	936	256	
Nonelectric Cap M12	MN02	72	32	
Nonelectric Cap M13	MN03	36	16	
Nonelectric Cap M14	MN06	468	48	
Shaped Charge (15 or 40 lb.)	M420/421	12	3	

Note:

1. If G4 is not available, substitute TNT. Quantity should be calculated using the multiplier 1.34 relative effectiveness factor. Calculate the quantity of TNT needed by multiplying the quantity of C-4 by 1.34 (relative effectiveness factor). The result should be rounded up to the nearest 1/4 lb. package size. This table combines individual and unit demolition quantities.

Table 6-26
Annual Individual Training for Combat Arms (TRC A)

Event	Frequency
Demolitions [1]	
Construct MDI detonating assembly	
Prime explosives with MDI	4
Prime explosives with det cord	4
Mine Warfare Installation/Removal [2]	
M16AP Mine (Korea only)	4
M15AT Mine	4
M19AT Mine	4
M21AT Mine	4
U.S. Antihandling Devices (Inert Only)	4

Notes:

1. Frequency allows for 1 live fire qualification exercise and 3 inert sustainment exercises.
2. Frequency allows for 1 inert qualification exercise and 3 inert sustainment exercises.

Table 6-27
Annual Unit Training for Combat Arms (TRC A)

Tasks	Frequency	Munition/System	Ever

	1/Live/Qualify		LFX, CALFEX
Breach Obstacle with Explosives	1/Inert/Sustain	C-4	FTX, MTP
(Infantry less Mechanized)	1/Live/Qualify		
Breach Obstacle (Wire Obstacle)	1/Inert/Sustain	Bangalore	FTX, MTP
(Mech Infantry, Armor, Armored Cav)			
Breach Obstacle (Wire Obstacle)	1/Inert/Qualify	Bangalore	FTX, MTP
Install/Recover/Transfer a	1/Inert/Qualify		
Hasty Protective Minefield	1/Inert/Qualify	AT, Mines	FTX,
	1/Inert/Qualify		
Emplace a Tactical Minefield (ROW)	1/Inert/Qualify	AT, Mines	FTX,
Emplace a Tactical	1/Inert/Qualify		
Minefield (Scatterable)	1/Inert/Sustain	MOPMS (M136)	FTX, MTP

Table 6-28
Annual Ammunition Requirements for Infantry[1] (TRC A)

Munitions	DODIC	Infantry Bn	Mech Infantry Bn
Bangalore Torpedo	M028	30	0
Demolitions-TNT(1 lb) [2]	M032		
Demolitions-TNT(1/4 lb) [2]	M030		
Demolitions-C4 (11/4 lb)[2]	M023	1236	1236
Detonating Cord (Ft)	M456	8298	6798
Holder M9	ML45	2000	2000
Igniter M81	MN08	450	110
Nonelectric Cap M11	ML47	1575	1575
Nonelectric Cap M12	MN02	0	0
Nonelectric Cap M13	MN03	60	50
Nonelectric Cap M14	MN06	450	110

Notes:
1. Organic Scouts are included in the totals.
2. If C-4 is not available, substitute TNT. Quantity should be calculated using the multiplier 1.34 relative effectiveness factor. Calculate the quantity of TNT needed by multiplying the quantity of C-4 by 1.34 (relative effectiveness factor). The result should be rounded up to the nearest 1/4 lb. package size. This table combines individual and unit demolition quantities.

Table 6-29
Annual Ammunition Requirements for Armor[1]/Cavalry (TRC A)

Armor Munitions	Cav DODIC	AR Bn	CAV Sqdn
Demolitions-TNT (1 lb.) [2]	M032		
Demolitions-TNT (1/4 lb.) [2]	M030		
Demolitions-C4 (1 1/4 lb.) [2]	M023	123	742
Detonating Cord (Ft)	M456	348	2088
Holder M9	ML45	78	493
Igniter M81	MN08	33	185
Nonelectric Cap M11	ML47	155	930
Nonelectric Cap M12	MN02	0	0
Nonelectric Cap M13	MN03	15	185
Nonelectric Cap M14	MN06	15	105

Notes:
1. Resourcing is for Scouts only.
2. If C-4 is not available, substitute TNT. Quantity should be calculated using the multiplier 1.34 relative effectiveness factor. Calculate the quantity of TNT needed by multiplying the quantity of C-4 by 1.34 (relative effectiveness factor). The result should be rounded up to the nearest 1/4 lb package size. This table combines individual and unit demolition quantities.

Table 6-30
Annual Individual Training Combat Arms (Armor, Armored Cavalry) (TRC C)

Event	Frequency[1]
Demolition	
Construct MDI detonating assembly	
Prime explosives with MDI	3
Prime explosives with det cord	3
Mine Warfare Installation/Removal	
M16AP Mine (Korea only)	3
M15AT Mine	3
M19AT Mine	3
M21AT Mine	3
U.S. Antihandling Devices (Inert Only)	3

Note:
1. Frequency allows for 1 inert qualification exercise and 2 inert sustainment exercises.

Table 6-31
Training Year Events for Combat Arms (Armor, Armored Cavalry) (TRC C)

Tasks	Frequency	Munition/System	Event
Breach Obstacle With Explosives	1/Inert/Qualify	C-4	FTX, MTP
Breach Obstacle (Wire Obstacle [1])	1/Inert/Qualify	Bangalore	FTX, MTP
Install/Recover/Transfer a Hasty			
Protective Minefield	1/Inert/Qualify	AT, Mines	FTX, MTP
Emplace a Tactical Minefield (ROW)	1/Inert/Qualify	AT, Mines	FTX, MTP
Emplace a Tactical Minefield (Scatterable)	1/Inert/Qualify	MOPMS (M136)	FTX, MTP

Note:
1. Performed by all Infantry and Armor/Cavalry Units.

Table 6-32
Annual Ammunition Requirements for Infantry[1] (TRC C, CAT I)

		Infantry Mech Infantry
Munitions	DODIC	Bn
Bangalore Torpedo	M028	
Demolitions-TNT (1 lb) [1]	M032	
Demolitions-TNT (1/4 lb) [1]	M030	
Demolitions-C4 (1 1/4 lb) [1]	M023	0
Detonating Cord (Ft)	M456	NO LIVE FIRE
Fuze Igniter M81	MN08	NO LIVE FIRE
Holder M9	ML45	
Nonelectric Cap M11	ML47	NO LIVE FIRE
Nonelectric Cap M12	MN02	NO LIVE FIRE
Nonelectric Cap M13	MN03	NO LIVE FIRE
Nonelectric Cap M14	MN06	NO LIVE FIRE

Notes:
1. If C-4 is not available, substitute TNT. Quantity should be calculated using the multiplier 1.34 relative effectiveness factor. Calculate the quantity of TNT needed by multiplying the quantity of C-4 by 1.34 (relative effectiveness factor). The result should be rounded up to the nearest 1/4 lb package size. This table combines individual and unit demolition quantities.
2. Conduct inert training, live fire is a postmobilization requirement.

Table 6-33
Annual Individual Training for Chemical Units (TRC A)

Event	Frequency [1]
Demolitions	

Construct MDI detonating assembly	4
Prime explosives with MDI	4
Prime explosives with det cord	4

Note:
1. Frequency allows for 1 live fire qualification exercises and 3 inert sustainment exercises.

Table 6-34
Annual Unit Training for Chemical Units (TRC A)

Tasks	Frequency	Munition/System	Event
Exploding Flame Landmine	1/Live/Qualify 1/Inert/Sustain	C-4	LFX, CALFEX MTP
55 Gallon Flame Fugas	1/Live/Qualify 1/Inert/Sustain	C-4	FTX, MTP
55 Gallon Landmine (Nondirectional)	1/Live/Qualify 1/Inert/Sustain	C-4	FTX, MTP
Hasty Emplacement (Wall of Flame)	1/Live/Qualify 1/Inert/Sustain	C-4	FTX, MTP
Employ a HUSCH Flare	1/Live/Qualify 1/Inert/Sustain	M-4	LFX, CALFEX FTX, MTP

Table 6-35
Annual Ammunition Requirements for Chemical Company (TRC A)

Munition	DODIC	Co
Demolitions - TNT (1 lb.) [1]	M032	
Demolitions - TNT (1/4 lb.) [1]	M030	
Demolitions - C4 (1 1/4 lb.) [1]	M023	120
Detonating Cord (FT)	M456	3072
Holder M9	ML45	164
Igniter M81	MN08	216
M-4 Burster	K010	24
M49 Trip Flare	L495	42
M-4 Fuel Thickening Compound	K917	108 lbs
Nonelectric Cap M11	ML47	240
Nonelectric Cap M12	MN02	30
Nonelectric Cap M13	MN03	30
Nonelectric Cap M14	MN06	0

Note:
1. If G4 is not available, substitute TNT. Quantity should be calculated using the multiplier 1.34 relative effectiveness factor. Calculate the quantity of TNT needed by multiplying the quantity of C-4 by 1.34 (relative effectiveness factor). The result should be rounded up to the nearest 1/4 lb. package size. This table combines individual and unit demolition quantities.

Table 6-36
Annual Individual Training for Chemical Units (TRC C)

Event	Frequency[1]
Demolitions	
Construct MDI detonating assembly	3
Prime explosives with MDI	3
Prime explosives with det cord	3

Note:
1. Frequency allows for 1 inert fire qualification exercises and 2 inert sustainment exercises.

Table 6-37
Training Year Events for Chemical Units (TRC C)

Tasks	Frequency	Munition/System	Event
Exploding Flame Landmine	1/Inert/Qualify 1/Inert/Sustain	C-4	LFX, CALFEX MTP
55 Gallon Flame Fugas	1/Inert/Qualify 1/Inert/Sustain	C-4	FTX, MTP
55 Gallon Landmine (Nondirectional)	1/Inert/Qualify 1/Inert/Sustain	C-4	FTX, MTP
Hasty Emplacement (Wall of Flame)	1/Inert/Qualify 1/Inert/Sustain	C-4	FTX, MTP
Employ a HUSCH Flame	1/Inert/Qualify 1/Inert/Sustain	C-4	LFX, CALFEX FTX, MTP

Table 6-38
Annual Individual Training for Ordnance Units (TRC A)

Event	Frequency[1]
Demolitions	
Construct MDI detonating assembly	4
Prime explosives with MDI	4
Prime explosives with det cord	4

Note:
1. Frequency allows for 1 live fire qualification exercises and 3 inert sustainment exercises.

Table 6-39
Annual Unit Training for Ordnance Units (TRC A)

Tasks	Frequency	Munition/System	Event
Emergency Destruction of Ammunition by Detonation	1/Live/Qualify 1/Inert/Sustain	Shaped Charges	LFX, CALFEX MTP

Table 6-40
Annual Ammunition Requirements for Ordnance Company (TRC A)

Munition	DODIC	Co	
Demolitions-TNT (1 lb.) [1]	M032		
Demolitions-TNT (1/4 lb.) [1]	M030		
Demolitions-C4 (1 1/4 lb.) [1]	M023	165	
Detonating Cord (FT)	M456	1345	
Holder M9		ML45	287
Ignitre M81	MN08	100	
Nonelectric Cap M11	ML47	207	
Nonelectric Cap M12	MN02	65	
Nonelectric Cap M13	MN03	100	
Nonelectric Cap M14	MN06	100	
Shaped Charges (15 or 40 lb)	M420	1	

Note:
1. If G-4 is not available, substitute TNT. Quantity should be calculated using the multiplier 1.34 relative effectiveness factor. Calculate the quantity of TNT needed by multiplying the quantity of C-4 by 1.34 (relative effectiveness factor). The result should be rounded up to the nearest 1/4 lb. package size. This table combines individual and unit demolition quantities.

Table 6-41
Annual Individual Training for Ordnance Units (TRC C)

Event	Frequency [1]
Demolitions	
Construct MDI detonating assembly	3
Prime explosives with MDI	3
Prime explosives with det cord	3

Note:
1. Frequency allows for 1 inert qualification exercises and 2 inert sustainment exercises.

Table 6-42
Training Year Events for Ordnance Units (TRC C)

Tasks	Frequency	Munition/System	Event
Emergency Destruction of Ammunition by Detonation	1/Inert/Qualify 1/Inert/Sustain	Shaped Charge	MTP

EVENTS	FREQ	CTG. 12 GAU 00 BUCK A011	CTG, 12 GAU #9 A017	CTG, .50 BALL, SGLE A525	CTG, .50 BALL A552	PROJO, MISC (SEE NOTE 1) DXXX	GREN INCEN AN-M14 G900	CHG, DEMO C-4 M023	CHG, DEMO PETN M024	CAP ELEC, M6 M130	CAP, N/E M7 M131	CTG, IMPULSE . 50 M174	CORD DET (SEE NOTE 3) M456	FUSE, BLAST M700 (SEE NOTE 3) M670	CUTTE RHE MK23 ML04	CUTTE RHE MK24 ML05	FLSC 225 GR (SEE NOTE 2 & 3) ML15	HOLDE R, M9 ML45	CAP BLAST M11 ML47	CHG, DEMO M221 MM50	CAP BLAST M12 MN02	CAP BLAST M13 MN03	CAP BLAST M14 MN06	CAP BLAST M15 MN07	IGNITER M81 MN 08
DEMOLITION PROCEDURES																									
CONSTRUCT MDI DEMO	2							3										3	1		1	1	1	1	3
PRIME WITH DET CORD	2							1			1		100										2		2
CONSTRUCT NON ELEC DEMO	2							1			2			15											3
CONSTRUCT ELEC DEMO	2							1		2															
EMPLOY M221 SHAPE CHARGE	2																			1			2		2
DEMO SUBTOTAL								6		2	3		100	15				3	1	1	1	1	5	1	10
EOD PROCEDURES																									
ELECTRIC ROCKET W/WRENCH	2											2													
NON ELEC ROCKET W/WRENCH	2				2								10										2		2
ELECTRIC DEARMER	2											1													
NON ELEC DEARMER	2				1								10										2		2
CUTTER, HE	2														1	1			2				2		2
THERMITE	2				2		3																2		2
FLSC	2																6						2		2
CONSTRUCT WATER CHARGES	2							2	4	8			100										2		2
CONSTRUCT & EMPLOY SPECIALIZED SHAPED CHARGES	2							2			1		10										2		2
EOD PROCEDURES SUBTOTAL					5		3	4	4	8	1	3	130		1	1	6		2				14		14
DEMOLITION & EOD PROCEDURES TOTAL	2				10		6	20	8	20	8	6	460	30	2	2	12	6	6	2	2	2	38	2	48
COMPANY TOTAL (NOTE 4)	19				190		114	380	152	380	152	114	8740	570	38	38	228	114	114	38	38	38	722	38	912
UNIT TRAINING																									
FTX	3				14							21	50										14		14
LFX	1					15		105	20	30	30		1000	500			20	20	20	21	21	21	14	21	50
ARTEP	1	5	5		2		6	10		10		30	500										12		12
DISRUPT UXO WITH M82A1 RIFLE	1			280																					
DISRUPT IED WITH RONS MOUNTED SHOTGUN	2	35	35									21													
UNIT TRAINING SUBTOTAL		75	75	280	44	15	6	115	20	40	30	114	1650	500			20	20	20	21	21	21	68	21	104
TOTAL ANNUAL COMPANY REQUIREMENTS		75	75	280	234	15	120	495	172	420	182	228	10390	1070	38	38	248	134	134	59	59	59	790	59	1016

NOTE 1. DODIC AS DETERMINED BY LOCAL ASP. QUANTITY AUTHORIZED TO PERMIT EOD PERSONNEL TO TRAIN ON DESTRUCTION OF ORDNANCE BY DETONATION. LOCAL ASP MAY UTILIZE UNSERVICEABLE AMMUNTION TO MEET REQUIREMENTS.

NOTE 2. ACTUAL DODIC MAY BE DIFFERENT BASED ON LOCAL ASP STOCKAGE. AUTHORIZED DODIC RANGE IS ML09 (20 GR/FT) TO ML19 (600 GR/FT). PREFERRED DODIC IS ML 15 (225 GR/FT).

NOTE 3. AUTHORIZED QUANTITY IS SHOWN IN FEET.

TABLE 6-45 ANNUAL AMMUNTION REQUIREMENTS FOR EOD COMPANY TRC C (MINUS CONUS SPT COMPANY)

EVENTS	FREQ	CTG, 12.7 MM, BLANK, M1 BUCK	CTG, 12.7 MM, BLANK, #9 BUCK	CTG, .50 CAL, MK211 SGLE BALL	CTG, .50 CAL, MK211 BALL, SGLE	PROJC, MISC, (SEE NOTE 1)	CHG, DEMO, .50 CAL, (SEE NOTE	CHG, DEMO, M14	CHG, DEMO, C-4	CHG, DEMO, PETN	CAP, BLAST, M6	CAP, BLAST, M7	CAP, BLAST, ELEC, M130	CTG, 50 CAL, M1	CHG, DEMO, IMPUL SE, 50	CORD, DET (SEE NOTE 3)	FUSE, BLAST M700 (SEE NOTE 3)	CUTTE R, SHAPED CHRGE M700 (SEE NOTE 3)	CUTTER CHRGE, LINEAR SHAPED, MK23	CUTTER CHRGE, LINEAR SHAPED, MK24	FLSC 225 GR, (SEE NOTE 2 & 3)	CAP, BLAST, M11 HOLDE R, M9	CHG, DEMO, M147	CAP, BLAST, M221	CAP, DEMO, M12	CAP, BLAST, M13	CAP, BLAST, M14	CAP, BLAST, M15	CAP, BLAST, M81	IGNITER (IGNI
ITEMOLITION POINTS																														
ROCEDURES		**FREQ**	**A011**	**A017**	**A525**	**A552**	**DXXX**	**G900**	**M023**	**M024**	**M130**	**M131**	**M174**	**M456**	**M670**	**ML04**	**ML05**	**ML15**	**ML45**	**ML47**	**MM50**	**MN02**	**MN03**	**MN06**	**MN07**	**MN 0**
MOLITION PROCEDURES																														
ONSTRUCT M7 DEMO	2								3										3	1			1		1					
ISTRUCT MDI DEMO																														
RIME WITH DET CORD	2	1							1	3			1			100				3	1			1		1	2	1		1
ONSTRUCT NON ELEC																														
E WITH DET CORD	2	1							1	1			1				100											2		
EMO	2	1							1	1		2						15												
ONSTRUCT NON ELEC DEMO	2	1							1	1			2						15											
ONSTRUCT ELEC DEMO	2	1								1		2																		
MPROV M221 C HARGE																														
NSTRUCT ELEC DEMO CHARGE	2	1								1			2														2			
PLOY M221 SHAPE CHARGE																														
EMO SUBTOTAL		1							6		2		3			100	15					3	1	1	1	1	5	2	1	1
IO SUBTOTAL									6		2		3			100	15					3	1	1	1	1	5	2	1	1
OD PROCEDURES																														
D PROCEDURES																														
ERGENCY PROCEDURES																														
RENCH																														
CTRIC ROCKET WRENCH	2	1											2	2																
ON ELEC ROCKET																														
LEC ROCKET WRENCH	2	1			2	2								10	10												2	2		
CTRIC DEARMER																														
ECTRIC DEARMER	2	1											1	1																
LELEC DEARMER																														
ON ELEC DEARMER	2	1			1	1								10	10												2	2		
TER HE	2	1														1	1	1	1	2	2						2	2		
RMITE																														
HERMITE	2	1			2	2		3	3																		2	2		
LSC	2	1																												
C	2	1																6	6								2	2		
ONSTRUCT WATER																														
NSTRUCT WATER CHARGES	2	1							2	2	4	4	8	8		100	100										2	2		
ONSTRUCT & EMPLOY																														
PECIALIZED SHAPED																														
RGED CHARGES																														
HARGES	2	1							2	2			1	1		10	10										2	2		
OD PROCEDURES																														
PROCEDURES SUBTOTAL					5	5		3	3	4	4	8	8	1	3	130			1	1		6	6		2		14		1
UBTOTAL					5			3	4	4	8	1	3	130			1	1	6								14		1
OLUTION AND OD PROCEDURES																														
D PROCEDURES TOTAL	2	1			10	5		6	3	20	10	8	4	20	10	8	4	6	3	460	230	30	15	2	1	2	1	12	6	6	3	6	3	2	1	38	19	2	1	4
OMPANY TOTAL (NOTE																														
PANY TOTAL (NOTE 4)	28	10			280	50		168	30	560	100	224	40	560	100	224	40	168	30	12880	2300	840	150	56	10	56	10	336	60	168	30	168	30	56	10	56	10	1064	190	56	10	134
T TRAINING																														
NIT TRAINING																														
TX	3	3			14	14							21	21	50	50											14	14		1
FX	1	1				15	15		105	105	20	20	30	30	30	30		1000	1000	500	500			20	20	20	20	21	21	21	21	21	14	14	21	21	5
RTEP	1	5	5	5	2	2		6	6	10	10		10	10		30	30	500	500									12	12								1
RUPT UXO WITH M82A1 IFLE	1	1		280	280																															
RUPTED WITH HORNS M OUNTED SHOTGUN	2	35	35	35									21	21																						
NTRAINING SUBTOTAL		75	40	280	280	44	15	15	6	615	130	20	40	40	30	30	114	1650	1650	500	500			20	20	20	20	21	21	21	21	21	68	68	21	21	10
AL ANNUAL COMPANY QUIREMENTS																														
OTAL ANNUAL COMPANY EQUIREMENTS		75	40	280	280	94	15	15	36	675	215	244	60	600	140	254	70	282	144	14530	3950	1340	650	56	10	56	10	356	80	168	50	168	50	77	31	77	31	77	31	1132	258	77	31	144

TABLE 6-44: ANNUAL AMMUNTION REQUIREMENTS FOR EOD CONUS SUPPORT COMPANY TRC A

TABLE 6-45 ANNUAL AMMUNTION REQUIREMENTS FOR EOD COMPANY TRC C (MINUS CONUS SPT COMPANY)

NOTE 1: ACTUAL QUANTITY FOR EVENTS WHERE NO STOCKAGE IS REQUIRED MAY BE LESS THAN ONE (1). ROUND UP TO ONE (1) FOR PLANNING PURPOSES.
NOTE 2: AUTHORIZED QUANTITY IS SHOWN IN FEET.

Table 6-46
Annual Individual Training for EOD Company (TRC C)

Event	Frequency
Demolitions	
Construct MDI detonating assembly	
Prime explosives with MDI	2 [1]
Electric detonating assembly	
Prime explosives electrically	2 [1]
Prime explosives with det cord	2 [1]
EOD Procedures	
Nonelectric firing assembly	4
Rocket Wrench/Caliber .50 Dearmer	
Electric firing assembly	4 [2]
Rocket Wrench/Caliber .50 Dearmer	
Fire the Cutter HE	2 [3]
MK 23 Mod O and MK 24 Mod O EXROD	

Notes:

1. Frequency allows for 1 live fire qualification exercise and 1 inert sustainment exercise.
2. Frequency allows for 1 live fire qualification exercise per tool and 1 inert sustainment exercise per tool.
3 . Frequency allows for 1 live fire qualification and 1 inert sustainment exercise. Alternate MK # EXROD every training year.

Table 6-47
Annual Unit Training for EOD Company (TRC C)

Tasks	Frequency	Munition/System	Event
Render Safe/Disposal Procedures	1/Live/Qualify 1/Inert/Sustain	C-4	LFX, CALFEX FTX, MTP
Rocket Wrench, Electric	1/Live/Qualify 1/inert/Sustain	CTG Impulse .50 cal	LFX, CALFEX FTX, MTP
Rocket Wrench, Nonelectric	1/Live/Qualify 1/inert/Sustain	CTG cal .50 Ball M2	LFX, CALFEX FTX, MTP
Caliber .50 Dearmer Electric	1/Live/Qualify 1/inert/Sustain	CTG Impulse .50 cal	LFX, CALFEX FTX, MTP
Caliber .50 Dearmer Nonelectric	1/Live/Qualify 1/inert/Sustain	CTG .50 cal Ball M2	LFX, CALFEX FTX, MTP
Cutter HE EXROD	1/Live Qualify 1/inert/Sustain	Cutter HE MK 23 Mod 0 EXROD Cutter HE MK 23 Mod 0 EXROD	LFX, CALFEX FTX, MTP

Table 6-48
Annual Ammunition Requirements for EOD Company (TRC C)

Munition	DODIC	Company
CTG, .50 cal Ball	A552	60
CTG, Impulse .50 cal	M174	60
Demolitions-TNT(1 lb.)	M032	
Demolitions-TNT(1/4 lb.)	M030	
Demolitions-C4(1 1/4 lb.) [1]	M023	40
Detonating Cord (FT)	M456	500
Electric Cap	M130	27
EXROD		
MK23 MOD O/MK24 MOD O	ML04/ML05	5
Fuze Igniter	M766	75
Linear Shaped Charge,		
Flex 225 gr/ft	ML15	10
Nonelectric Cap	M131	80
Time or Safety Fuze (FT)	M670	575
EOD use of MDI		
Holder M9	ML45	54
Igniter M81	MN08	75
Nonelectric Cap M11	ML47	60
Nonelectric Cap M12	MN02	20
Nonelectric Cap M13	MN03	20
Nonelectric Cap M14	MN06	60

Note:

1. If C-4 is not available, substitute TNT. Quantity should be calculated using the multiplier 1.34 relative effectiveness factor. Calculate the quantity of TNT needed by multiplying the quantity of C-4 by 1.34 (relative effectiveness factor). The result should be rounded up to the nearest 1/4 lb. package size. This table combines individual and unit demolition quantities. This table combines individual and unit demolition quantities

Table 6-49
Annual Individual Training for Diving Detachments (TRC A)

Event	Frequency [1]
Demolitions	
Prime explosives with MDI	4
Prime explosives with det cord	4

Note:

1. Frequency allows for 2 live fire qualification exercises and 2 inert sustainment exercises.

Table 6-50
Annual Unit Training for Diving Teams (TRC A)

Tasks	Frequency	Munition/System	Event
	2/Live/Qualify		LFX

Clear Underwater Obstacles Using Demolitions	2/Inert/Sustain	C-4	FTX, MTP

Table 6-51
Annual Ammunition Requirements for Diving Teams (TRC A)

Detachment	Munitions	DODIC	
	Demolitions- C4 (1 1/4 lb.)	M023	34
	Detonating Cord (FT)	M456	3400
	Holder M9	ML45	181
	Igniter M81	MN08	136
	Nonelectric Cap M11	ML47	136
	Nonelectric Cap M12	MN02	136
	Nonelectric Cap M13	MN03	136
	Nonelectric Cap M14	MN06	136

Table 6-52
Annual Individual Training for Diving Teams (TRC C)

Event	Frequency [1]
Demolitions	
Prime explosives with MDI	3
Prime explosives with det cord	3

Note:
1. Frequency allows for 1 live fire qualification exercises and 2 inert sustainment exercises.

Table 6-53
Training Year Events for Diving Teams (TRC C)

Tasks	Frequency	Munition/System	Event
	1/Live/Qualify	C-4	LFX
Clear Underwater Obstacles Using Demolitions	2/Inert/Sustain		FTX, MTP

Table 6-54
Training Year Ammunition Requirements for Diving Teams (TRC C)

Munition	DODIC	Detachment
Demolitions - C4 (1 1/4 lb)	M023	17
Detonating Cord (FT)	M456	1700
Holder M9	ML45	45
Igniter M81	MN08	34
Nonelectric Cap M11	ML47	34
Nonelectric Cap M12	MN02	34

Nonelectric Cap M13	MN03	34
Nonelectric Cap M14	MN06	34

Table 6-55
Annual Individual Training for Other Engineers, Other Cbt Arms and CS/CSS (TRC A/C)

Mine Warfare Installation/Removal	Frequency	A [1]	C [2]	
M15AT Mine		1	4	3
M19AT Mine		1	4	3
M21AT Mine		1	4	3
U.S. Antihandling Devices (Inert Only)	1	4	3	

Notes:
1. Frequency allows for 1 inert qualification exercise and 3 inert sustainment exercises.
2. Frequency allows for 1 inert qualification exercise and 2 inert sustainment exercises.

Table 6-56
Annual Unit Training for Other Engineer, Other Cbt Arms and CS/CSS (TRC A/C)

Tasks	Frequency	Munition/System	Event
Install/Recover/Transfer a Hasty Protective Minefield	1/Inert/Qualify	AT, AP Mines	FTX, MTP
Emplace a Tactical Minefield (Hornet)	1/Inert/Qualify	AT, AP Mines	FTX, MTP
Emplace a Tactical Minefield (ROW)	1/Inert/Qualify	AT, AP Mines	FTX, MTP

Note:
1. Ammunition is for training year in the TRC C units.