TECHNICAL MANUAL

DESTRUCTION OF CONVENTIONAL AMMUNITION AND IMPROVED CONVENTIONAL MUNITIONS (ICM) TO PREVENT ENEMY USE

HEADQUARTERS, DEPARTMENT OF THE ARMY

NOVEMBER 1993

WARNINGS

STRICTLY OBSERVE SAFETY PRECAUTIONS CONTAINED IN THIS MANUAL TO PREVENT DEATH OR INJURY TO PERSONNEL PERFORMING DANGEROUS OPERATIONS IN THE DESTRUCTION OF AMMUNITION.

FOLLOW PRECAUTIONS PERTAINING TO PERSONNEL, METHODS, PROCEDURES, USE OF COMBUSTIBLE MATERIALS, BLASTING SYSTEMS, SAFE DISTANCES, ETC., WITHOUT EXCEPTION.

DECREASING EXPLOSIVE QUANTITIES COULD CAUSE INCOMPLETE DESTRUCTION AND RESULT IN SCATTERING ARMED SUBMUNITIONS.

BURNING OF IMPROVED CONVENTIONAL MUNITIONS (ICM) MAY CAUSE SCATTERING OF ITEMS OR EJECTION OF CARGO.

SCATTERED ITEMS AND/OR EJECTED CARGO WILL BE CONSIDERED ARMED AND HAZARDOUS.

PLACE DEMOLITION CHARGES OVER THE CARGO AREA OF THE PROJECTILES TO BE INITIATED. (WHEN CHARGES ARE PLACED OVER THE OGIVE, THE CARGO OF THE INITIATED PROJECTILES WILL BE EJECTED RATHER THAN DESTROYED. PROJECTILES NOT IN DIRECT CONTACT WITH THE INITIATING CHARGES MAY EJECT PART OR ALL OF THEIR CARGO.) CONSIDER EJECTED CARGO ARMED AND EXTREMELY DANGEROUS.

When applicable, insert latest change pages and dispose of superseded pages in accordance with applicable regulations.

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HEADQUARTERS
DEPARTMENT OF THE ARMY
Washington, DC, 15 November 1993

DESTRUCTION OF CONVENTIONAL AMMUNITION AND IMPROVED CONVENTIONAL MUNITIONS (ICM) TO PREVENT ENEMY USE

REPORTING OF ERRORS

You can help improve this manual. If you find any mistakes or know of a way to improve the procedures, please let us know. Mail your DA Form 2028 (Recommended Changes to Publications and Blank Forms), or DA Form 2028-2 located in the back of this manual, directly to Commander, U.S. Army Armament Research, Development and Engineering Center, ATTN: SMCAR-LSB, Picatinny Arsenal, NJ 07806-5000. A reply will be furnished to you.

CHAPTER 1. INTRODUCTION Page

* This manual supersedes TM 43-0002-33, 14 January 1977, and TM 750-244-5-1, 12 May 1972, including all changes.

List of Illustrations

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CHAPTER 1
INTRODUCTION

Section I. GENERAL

1-1. Scope

a. This manual is for the guidance of those whose duty it is to render inoperable or destroy equipment which is in imminent danger of capture by an enemy. The instructions contained herein are in accordance with the requirements of all international agreements concerning destruction of equipment to prevent enemy use which were in effect on the effective date of this manual or any changes thereto.

b. This manual provides personnel with priorities and procedures for destroying both conventional ammunition and improved conventional munitions (ICM) (excluding toxic and incapacitating chemical agents) in combat areas. When the word "ammunition" appears herein, it applies to both conventional ammunition and ICM.

1-2. Standing Operating Procedures (SOP)

a. It is difficult to establish Standing Operating Procedures (SOP) because destruction of ammunition in the combat zone is geared to the immediate tactical situation. However, the methods of destruction contained in this manual are basic and flexible enough to serve as SOPs in combat emergency.

b. Broader, more comprehensive SOPs and plans can and should be established for use in field and depot storage areas. In addition to methods, these procedures should include priorities for destruction of actual stocks and specific amounts of demolition materials required.

c. Effectiveness of destruction efforts is largely dependent upon prior planning and preparation. Written procedures and SOPs should be complete and detailed. Preparation should allow for variance in quantities of materiel on hand caused by the tactical situation. Preparation procedures must assure that as stocks increase, quantities of demolition materials increase proportionately, and that sufficient number of trained personnel are available. Storage activities located in overseas theaters will associate the necessary emergency demolition materials with ammunition stores at the first site of physical receipt. Timely requisitioning of' required quantities of demolition materials should be authorized by the overseas theater.

1-3. Forms, Records, and Reports

Department of the Army maintenance forms and reporting procedures are prescribed in DA Pam 738-750. Accidents involving injury to personnel or damage to materiel will be reported by Army units on DA Form 285 in accordance with AR 385-40. Lot numbers of the affected items will be included in all reports. Explosive ammunition malfunctions will be reported in accordance with AR 75-1.

1-4. Training

a. Rehearsal of responsible personnel in all phases of destruction is mandatory with special emphasis on training in demolition techniques, as described in paragraph 2-7. Instruction in selecting sites, blocking communication routes, and impeding enemy movement should also be included in the training program.

b. Demolition explosives afford an effective means of destroying munitions to prevent enemy use. Demolition personnel must be familiar with the pertinent provisions of FM 5-25. TM 9-1300-206, TM 9-1375-200/2, and T'M 9-1375-213-12.

1-5. Authorization

a. Only divisional or higher commanders have the authority to order destruction of ammunition. They may, however, delegate this authority to subordinate commanders when the situation demands it.

b. Orders for destruction are command decisions which must be arrived at only after a careful evaluation of the following factors:

(1) Command policy.
(2) Tactical situation.
(3) Location of the material.
(4) Quantity in each location.
(5) Materiel and personnel available for effecting destruction.
(6) Time available.

1-6. Reporting Destruction

Destruction of ammunition will be reported through command channels on DA Form 2415.

1-7. Criteria for Destruction

a. If destruction to prevent enemy use is necessary, ammunition should be damaged to the point that it can no longer function normally or be used for its intended purpose, and cannot be restored to its original condition.

b. When possible, destruction should also be designed to impede enemy troop movements without creating hazards to friendly troops.

c. The destruction of ammunition to prevent enemy capture requires imagination and resourcefulness in adapting available facilities to the immediate situation.

1-8. Selection of Site

In combat emergency, ammunition is usually destroyed in place. However, if time permits, consideration should be given to the direction of prevailing winds, the availability of barricades, and the possibility of obstruction enemy movement by strategic location of the destruction site.

1-9. Safety Precautions

a. Observance of safety precautions is mandatory, regardless of method of destruction or urgency of the situation.

b. Only trained, experienced personnel will accomplish these procedures.

c. The number of people engaged in a destruction procedure will be determined by the pertinent safety requirements. A minimum of two people will be present during the operation.

d. The radius of the danger area surrounding buiming ammunition will be determined by the type and quantity of ammunition being burned. As a minimum, 1,000 meters (0.6 mi) may be used provided personnel have been warned and are under cover.

e. Where the tactical situation permits, close coordination with subordinate units should be made by the unit destroying ammunition. As a minimum, those units endangered by the emergency destruction operation must be warned in order to prevent casualties.

Section II. PRIORITIES FOR DESTRUCTION

1-10. General

a. Priority must always be given to the destruction of classified ammunition and associated documents. Table 1-1 defines all priorities.

b. When lack of time prevents complete destruction of all stored ammunition, priority will be given to the destruction of essential parts. The same parts will be destroyed on all like ammunition.

1-11. Repair Parts

Priority for destruction of repair parts of a major item must be the same as that for the destruction of the end item itself.

1-12. Exception

Ammunition vital to the defense of the unit will not be destroyed.

Table 1-1. Definitions and Priorities

Priority	Items
1	Classified ammunition and associated documents.
2	Ammunition which could be used in immediate retaliation (grenades, land mines, small rockets, etc., which can be deployed without weapons) and ammunition for which the enemy has weapons capability.
3	Casualty producing ammunition (high-explosive, antipersonnel, etc.) not included in priorities 1 and 2.
4	Non-casualty and pyrotechnic ammunition (signal, illuminating projectiles, etc.)

1-13. Advance Preparation

Major commanders are authorized to waive normal storage compatibility groupings and quantity-distance requirements to permit pre TM 43-0002-33 charging of stacks of munitions in storage when such action is deemed necessary. However, if pre-charging is planned, blasting caps shall not be installed until just prior to time of destruction of this material.

Section III. DEGREE OF DAMAGE

1-14. Method of Destruction

Choose methods of destruction which will cause such damage that it will be impossible to restore the ammunition to a usable condition within the combat zone by repair or by cannibalization. Destruction should be planned to impede enemy troop movements without creating hazards to friendly troops.

1-15. Classified Ammunition

Classified ammunition must be destroyed to such a degree as to prevent duplication by, or revealing means of operation or function to, the enemy.

1-16. Associated Classified Documents

Any classified documents, notes, instructions, or other written material pertaining to function, operation, maintenance, or employment, including drawings or parts lists, must be destroyed in a manner to render them useless to the enemy. A report of the destruction of accountable classified material will be made through channels, circumstances permitting, in accordance with AR 380-5 and DOD Reg 5200.1R.

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CHAPTER 2
METHODS OF DESTRUCTION

Section I. GENERAL

2-1. Application

a. The methods outlined below for destroying ammunition are included for guidance only and may be modified, as required, by the tactical situation. These methods include firing, concealment, burning, and demolition.

b. The basic procedures for burning and demolition are devised primarily for the destruction of artillery projectiles, cartridges and propellant charges. They are also applicable for the destruction of hand grenades, warhead sections, land mines, and other material containing explosives.

2-2. Precautions

a. The instructions and precautions in FM 5-25, TM 9-1300-206, TM 9-1375-200/2, and TM 9-1375-213-12 relative to destruction of ammunition will be strictly observed.

b. Observance of safety precautions is mandatory, regardless of the method of destruction or the urgency of the situation.

c. The radius of the danger area surrounding burning ammunition is approximately 800 meters for high-explosive and chemical items.

d. At least two persons will be responsible for destruction procedures. No more persons than the number required for safety and efficiency of destruction operations will be permitted in the area. Evacuate all other personnel from the immediate area prior to destroying ammunition.

e. When burning ammunition, use diesel fuel, when applicable, in lieu of gasoline. Both gasoline and its vapors are highly flammable.

Carelessness in its use may result in painful burns. If gasoline or diesel fuel is used, precautions should be taken to prevent spillage on clothing or any parts of the body.

f. When destroying pyrotechnics, personnel should face in the opposite direction from the burning area. The brilliance of the flash can be injurious to vision at distances which are safe from fragments.

g. Where the tactical situation permits, close coordination should be made by the unit destroying ammunition with subordinate units. As a minimum, those units endangered by the emergency destruction operation must be warned in order to prevent casualties.

2-3. Methods

The methods listed below for destroying ammunition may be used either singly or in combination. The actual method or methods used in a given tactical situation depend on time, personnel, type of ammunition and means of destruction available.

Section II. PROCEDURES

2-4. Firing

Firing of ammunition into enemy-held territory is the most simple and effective way of preventing enemy capture.

2-5. Concealment of Fuzes

If lack of time prevents using other methods, concealment of fuzes can prevent or at least delay use by the enemy Scatter fuzes through dense foliage or throw them into lakes, streams, or other bodies of water. If time permits, puncture hermetically sealed metal containers before throwing them into the water.

2-6. Burning

WARNING

BURNING OF IMPROVED CONVENTIONAL MUNITIONS (ICM) MAY CAUSE SCATTERING OF ITEMS OR EJECTION OF CARGO.

SCATTERED ITEMS AND/OR EJECTED CARGO WILL BE CONSIDERED ARMED AND HAZARDOUS.

a. Burning is less time-consuming than demolition. However, burning is not recommended

for all types of munition because it rarely accomplishes total destruction. Burning may be resorted to, however, for boxed ammunition when time is a major consideration. A greater degree of destruction will be obtained when improved conventional munitions (ICM) are surrounded by conventional high-explosive ammunition. Stack packed or unpacked ammunition to be burned with combustible/flammable materials, such as scrap wood, fuel, propelling charges, empty boxes, rags, brush, paper, etc. Wet ammunition and explosives will require a thick bed of combustible/flammable material completely surrounding piled ammunition to assure that all explosives will be consumed once materials are ignited.

b. If possible, stack ammunition in small piles.

c. When burning ICM or flechette-loaded ammunition, place conventional high-explosive ammunition, if available, around the perimeter of each pile. When burning rocket-type ammunition, point ammunition toward the enemy.

d. When available, arrange unpacked propelling charges around the base of each pile, except for a quantity to be used for ignition train.

e. Surround each pile with combustible)' flammable material, using enough to assure an extremely brisk fire.

f. Set aside a quantity of diesel fuel, gasoline, paint thinner, or other suitable combustible/flammable liquid. If use of gasoline or other highly volatile, flammable liquid becomes necessary, extreme caution must be taken to prevent premature ignition. If possible, ignition should be made by electrical means for greater safety.

g. Pour fuel over each pile. Place the remaining cans of fuel around each pile of ammunition.

h. Extend combustible material in a train no less than 8 meters long (26 ft) to serve as ignition point. The train can be formed using excelsior, sawdust, or powder poured from propelling charges, or other combustible material. Arrange train so that it will burn in the opposite direction of wind.

i. Ignite train and immediately leave the area to seek cover.

2-7. Demolition

Follow procedures described below for demolition of ICM (HE cartridges, projectiles, propelling charges, grenades, and mines) in forward combat zones. (The way in which a demolition charge is placed can make the difference between minor damage and complete destruction.)

a. Request appropriate explosive organizations, such as demolition teams and/or explosive ordnance disposal (EOD) personnel to provide unit training to selected personnel on basic demolition and destruction procedures.

b. In areas where outside demolition or EOD personnel will be available to perform the actual demolition, local personnel must be assigned, by name, to specific destruction functions, and must be thoroughly trained in advance.

2-8. Types of Demolition Materials

a. *M183 Demolition Charge Assembly or "Satchel Charge."* The M183 demolition charge assembly (fig. 2-1) has the standard item of issue.

(1) *Components*. The M183 demolition charge assembly consists of 16 demolition blocks M112 (Comp C-4) and four priming assemblies for a total explosive weight of 20 pounds. The demolition blocks are packed in two bags, eight blocks per bag, and placed in an M85 canvas carrying case. Each priming assembly consists of a 5-foot length of detonating cord with an RDX booster crimped to each end and a pair of M1 detonating cord clips for attaching the priming assembly to detonating cord main line.

(2) *Detonation*. The M183 demolition charge assembly is detonated by means of the priming assembly and an electric or nonelectric blasting cap, or by a detonating cord main ring attached by means of the detonating cord clips provided.

(3) *Packing*. One assembly is packed in a canvas carrying bag, two bags are packed in a wooden box 17-1/8 x 11-1/2 x 12-1/2 inches. The gross package weight is 57 pounds.

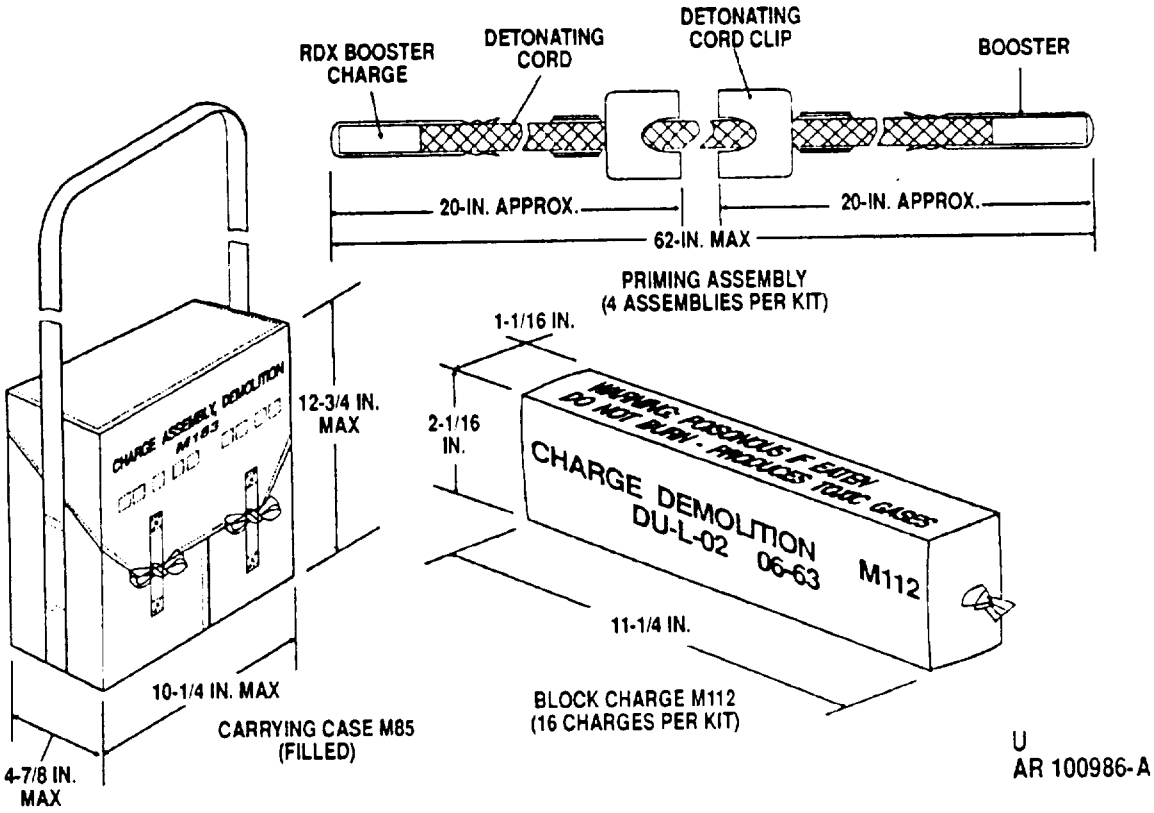

Figure 2-1. Demolition charge assembly M183.

b. *Charge Assembly, Demolition: M37.*

(1) *General*. This demolition charge assembly (fig. 2-2) consists of eight block demolition charges M5A1, eight block demolition charge hook assemblies, and two demolition priming assemblies M15. Block demolition charge M5A1, which is composed of Composition C-4, is described in FM 5-25. Priming assembly M15 (fig. 2-2) consists of approximately five feet of detonating cord, to each end of which is attached a priming adapter M4A1 and a booster. The priming assembly also includes two detonating cord clips. The adapter is threaded to fit the conventional size cap well of block demolition charges and light antitank mines. The booster, which is about 1/4-inch in diameter and 2 inches in length, contains a charge of 13.5 grains of RDX. Boosters are crimped to each end of the 5-foot detonating cord and cemented in place. Clips, in place on the cord about 20 inches from either end of the assembly, are for forming junctions on main lines of detonating cord in a demolition system. The main lines with their initiators and the priming assembly M15 comprise the firing circuit for one or more M5A1 block demolition charges.

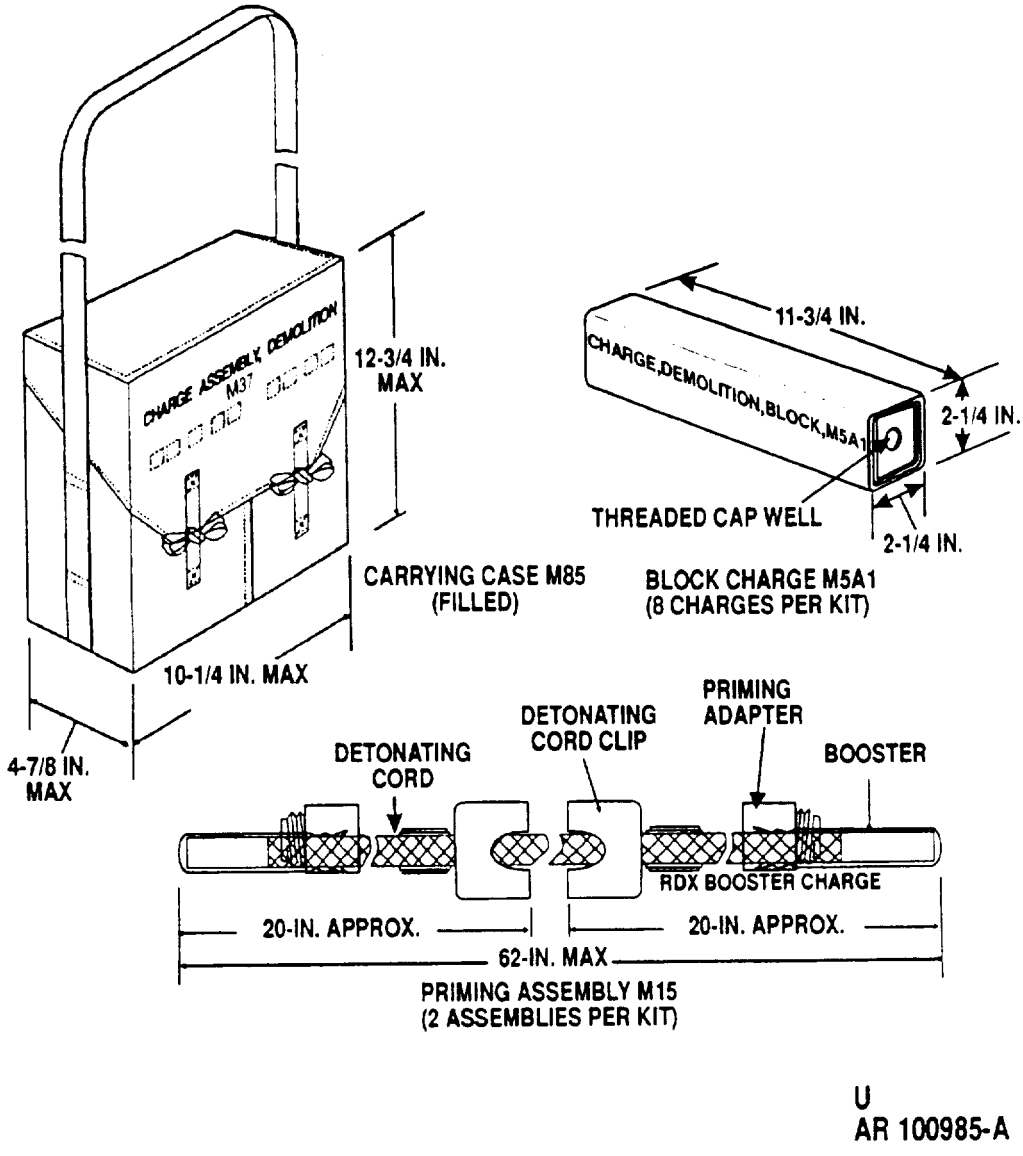

Figure 2-2. Demolition charge assembly M37.

(2) *Packing*. Block demolition charges M5A1 are packed four together in block demolition charge bag M5. Two bags (eight charges) and two priming assemblies M15 are packed in carrying case M85. Two completed assemblies are packed in a wooden box 17-1/8 inches long, 11-1/2 inches wide, and 12-1/2 inches high. The gross weight of the two assemblies and packing box is 57 pounds.

c. *Comparison*. Demolition charge assembly M183, which provides a system for general demolition work where easy and quick setups are needed, serves the same purpose as demolition charge assembly M37. The M183, however, is more adaptable to field conditions, primarily because of the following:

(1) Handier size of explosive charges M112, compared to that of M5A1.

(2) Self-adherence to block M112, compared to attaching M5A1 to an item.

d. *Packing*. Packing of the M183 is similar to that of charge assembly M37.

e. *Additional Demolition Materials*. Other types of demolition materials that may be substituted for the M183 demolition assembly are the M37 demolition charge assembly and M15 anti-tank mine. Also, equivalent amounts of TNT demolition blocks, tetrytol, Composition C-3, or Composition C-4 may be substituted. These materials are set off by time blasting fuze (safety fuze) and a nonelectric blasting cap, or by a blasting machine, firing wire, and an electric blasting cap. Instructions for use of the M15 mine for demolition purposes are contained in TM 9-1375-200/2. Conventional HE projectiles or bombs may be used as demolition materials in the destruction of ICM.

NOTE

Listings of demolition materials and equipment in this manual serve as authorization for requisitioning these items.

2-9. Demolition Material

a. *General*. Demolition charge assembly M183; demolition charge assembly M37; mine M15, HE, antitank, TNT demolition blocks; or Composition C-4; large caliber conventional HE artillery projectiles; or large HE bombs (fig. 2-3) may be used for demolition explosives. For correct priming and demolition procedures, see chapter 2, FM 5-25.

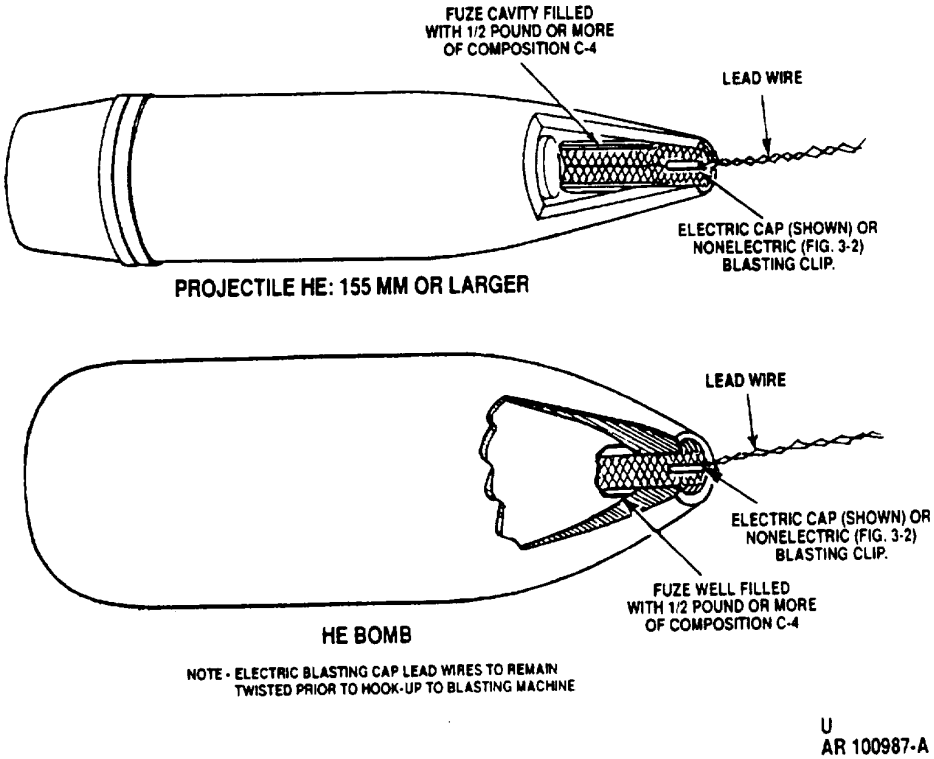

Figure 2-3. Priming large caliber conventional HE projectiles and large HE bombs

WARNING

THE PROCEDURES ILLUSTRATED IN FIGURE 2-2 ARE FOR PRIMING LARGE CALIBER CONVENTIONAL AMMUNITION ONLY. DO NOT USE FOR ICM.

Details for the employment of M15, HE antitank mine (fig. 2-4) are contained in TM 9-1375-200/2.

b. *Blasting Systems*. Two systems may be employed to initiate demolition charges: the electrical blasting system and the nonelectrical blasting system. The normal and preferred system for depots and ammunition supply points (ASP) is the electrical blasting system. However, when the use of the electrical blasting system is not feasible, the nonelectrical blasting system will be used.

c. *Priming Materials*. Detonating cord, nonelectrical blasting cap and time blasting fuze, or electric blasting cap and firing wire may be used as priming materials. Figure 2-5 shows one method of using detonating cord with plastic explosives for priming charges. Other methods are to be found in section III, chapter 2, FM 5-25.

d. *Initiation Systems*. The following may be used for initiation systems:

(1) Matches or fuze lighter (M2 or M60) for nonelectric systems.

(2) Electric blasting machines for electric firing systems.

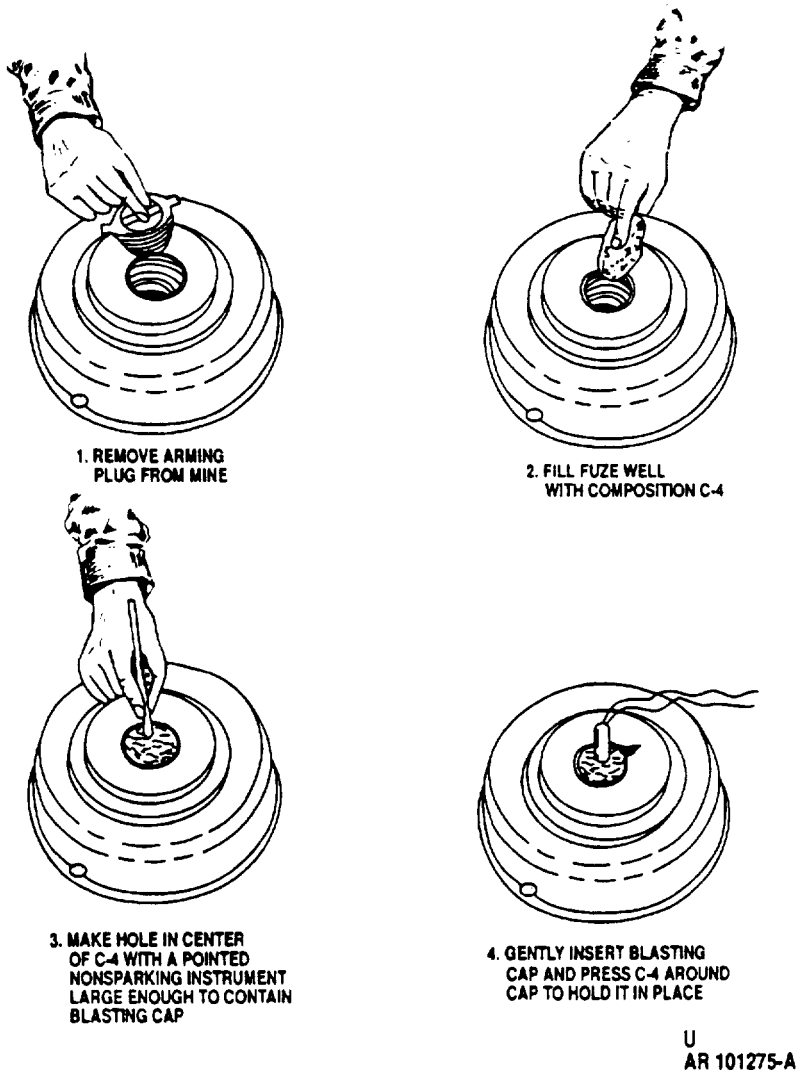

Figure 2-4. Fuzing mine M15 with blasting caps in primary fuzewell.

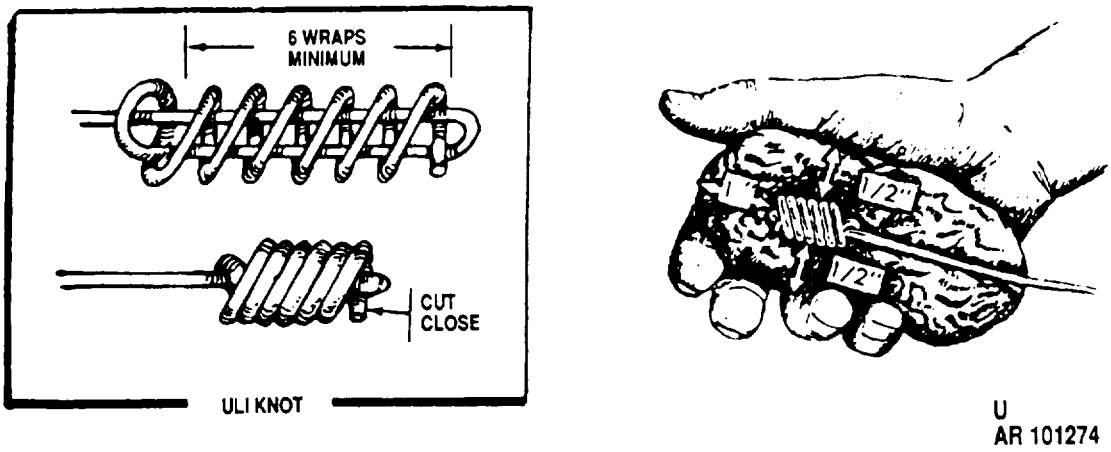

Figure 2-5. Detonating cord priming of plastic explosive.

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CHAPTER 3
SPECIAL INSTRUCTIONS

Section I. PROCEDURES FOR DESTRUCTION OF UNPACKED IMPROVED CONVENTIONAL MUNITIONS (ICM) (105MM, 107MM, 155MM, AND 8-INCH HE CARTRIDGES AND PROJECTILES) BY DEMOLITION

3-1. Arrangement

Arrange ammunition in piles of 1 to 21 rounds per pile. Stack rounds in groups with all bases in the same direction (fig. 3-1).

WARNING

PLACE DEMOLITION CHARGES OVER THE CARGO AREA OF THE PROJECTILES TO BE INITIATED. (WHEN CHARGES ARE PLACED OVER THE OGIVE, THE CARGO OF THE INITIATED PROJECTILES WILL BE EJECTED RATHER THAN DESTROYED. PROJECTILES NOT IN DIRECT CONTACT WITH THE !NITIATING CHARGES MAY EJECT PART OR ALL OF THEIR CARGO.) CONSIDER EJECTED CARGO ARMED AND EXTREMELY DANGEROUS.

3-2. Placement

Prepare demolition charges and detonating cord in the amount required, as shown in figure 3-1, illustrations 1 through 5. Place charge on top of each pile as illustrated in figure 3-1, or use conventional HE projectile as shown in figure 3-2. Place demolition charge over the cargo area of the projectile not over the ogive.

3-3. Priming Charges

a. Prime demolition charges using nonelectric blasting cap crimped to at least 10 feet of time blasting fuze, or electric blasting cap and firing wire. Connect charges in series and provide for dual priming to minimize the possibility of misfire.

b. Refer to FM 5-25 for detailed instructions.

3-4. Detonating Charges Nonelectric System

a. To detonate charges primed with nonelectric system, ignite with match or blasting fuze igniter and take cover.

b. Refer to FM 5-25 for detailed instructions.

3-5. Detonating Charges Electric System

a. To detonate charges primed with an electric system, use an electric blasting machine. Take cover before detonating.

b. Refer to FM 5-25 for detailed instructions.

Section II. PROCEDURES FOR DESTRUCTION OF PACKED IMPROVED CONVENTIONAL MUNITIONS (ICM) (40MM AND 105MM CARTRIDGES, HAND GRENADES, AND MINES) BY DEMOLITION

3-6. Destruction of Packed Ammunition

Refer to FM 5-25 for proper method of connecting detonating cord.

a. To destroy one box of packed ammunition:

(1) Center one-half demolition charge M183 (8 blocks) on top of box to be destroyed (fig. 3-3A).

(2) Continue with steps in paragraphs 3-3, 3-4, and 3-5, as applicable.

b. To destroy two, three, or four boxes of packed ammunition:

(1) Place one box on top of the other (fig. 3-3B).

(2) Center one full charge assembly M183 (16 blocks) on the top box.

(3) Continue with steps in paragraphs 3-3, 3-4, and 3-5, as applicable.

c. To destroy one pallet of packed ammunition:

(1) Separate four full demolition charge assemblies M183 into halves, making eight bagged half-charges.

(2) Attach all eight half-charge bags or equivalent amount of explosives securely to the corner boxes in the stack, as shown in figure 3-4.

(3) Continue with steps in paragraphs 3-3, 3-4, and 3-5, as applicable.

d. To destroy two pallets of packed ammunition:

(1) Place pallets side by side.

(2) Attach eight half-charge bags securely, two on each top corner box of the stack, as shown in figure 3-4.

(3) Attach four half-charge bags securely to the top center of the stack, as shown in figure 3-5.

(4) Continue with steps in paragraphs 3-3, 3-4, and 3-5, as applicable.

e. To destroy 3 to 10 pallets of packed ammunition:

(1) Place pallets side by side in one row.

(2) Attach eight half demolition charge assemblies, two on each top corner box of the stack.

(3) Attach four half demolition charge assemblies to the center of the stack, as shown in figure 3-5.

(4) Continue with steps in paragraph 3-3, 3-4, and 3-5, as applicable.

Section III. PROCEDURES FOR DESTRUCTION OF 40MM SIGNAL AND ILLUMINATING ROUNDS BY BURNING

3-7. General

40mm signal and illuminating rounds are most effectively destroyed by burning. Because of the brilliance of burning illuminating rounds and/or exploding pyrotechnics, personnel engaged in destruction procedures should take cover and face in the opposite direction from the destruction area. The brilliance of the flash can be injurious to vision at distances which are safe from fragments. Refer to paragraph 2-6 for detailed procedures.

Section IV. PROCEDURES FOR DESTROYING SEPARATE-LOADING PROPELLING CHARGES

3-8. Burning Method

Refer to paragraph 2-6 for detailed procedures. The preferred method for destroying separate-loading propelling charges is by burning. Before beginning the procedure, prepare charges as follows:

a. If propelling charge has igniter pad, use knife to slip open increments bags.

b. If propelling charge has igniter, remove igniter protector cap.

c. Do not stack propelling charges horizontally. Place charge in single layer.

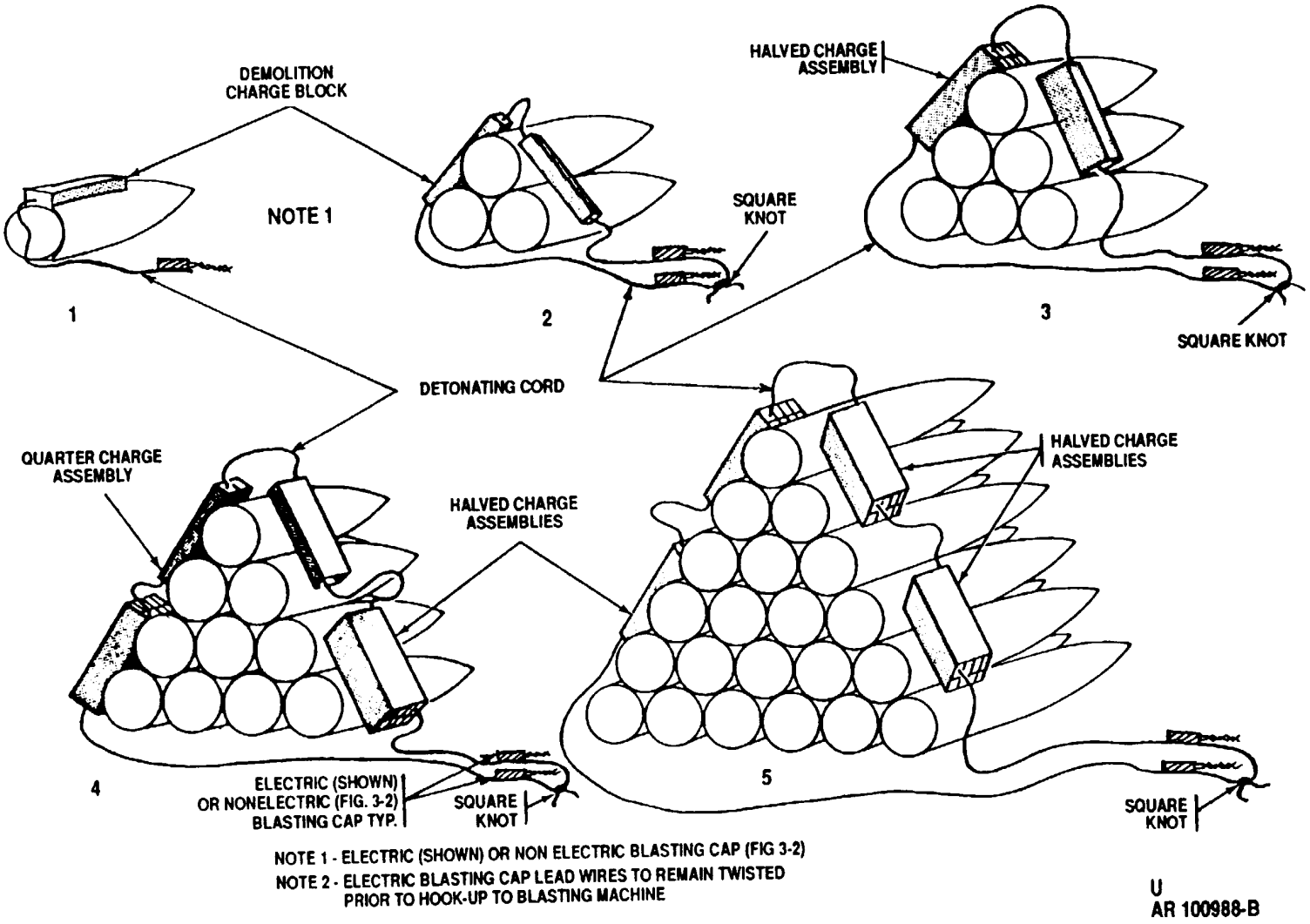

Figure 3-1. Placement of demolition charges on 1 to 21 rounds.

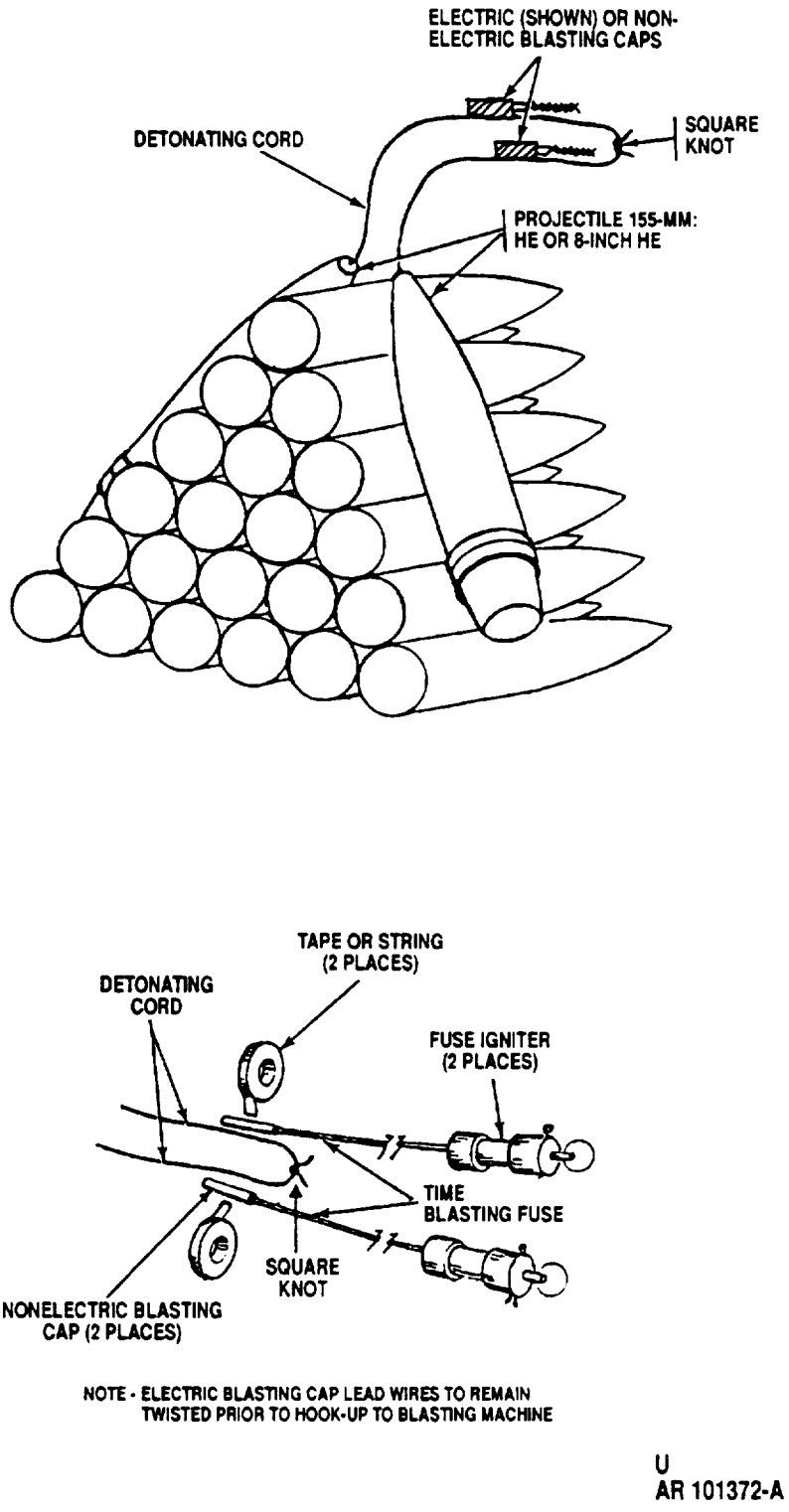

Figure 3-2. Placement of Large caliber conventional HE projectiles and large HE bombs on 1 to 21 rounds.

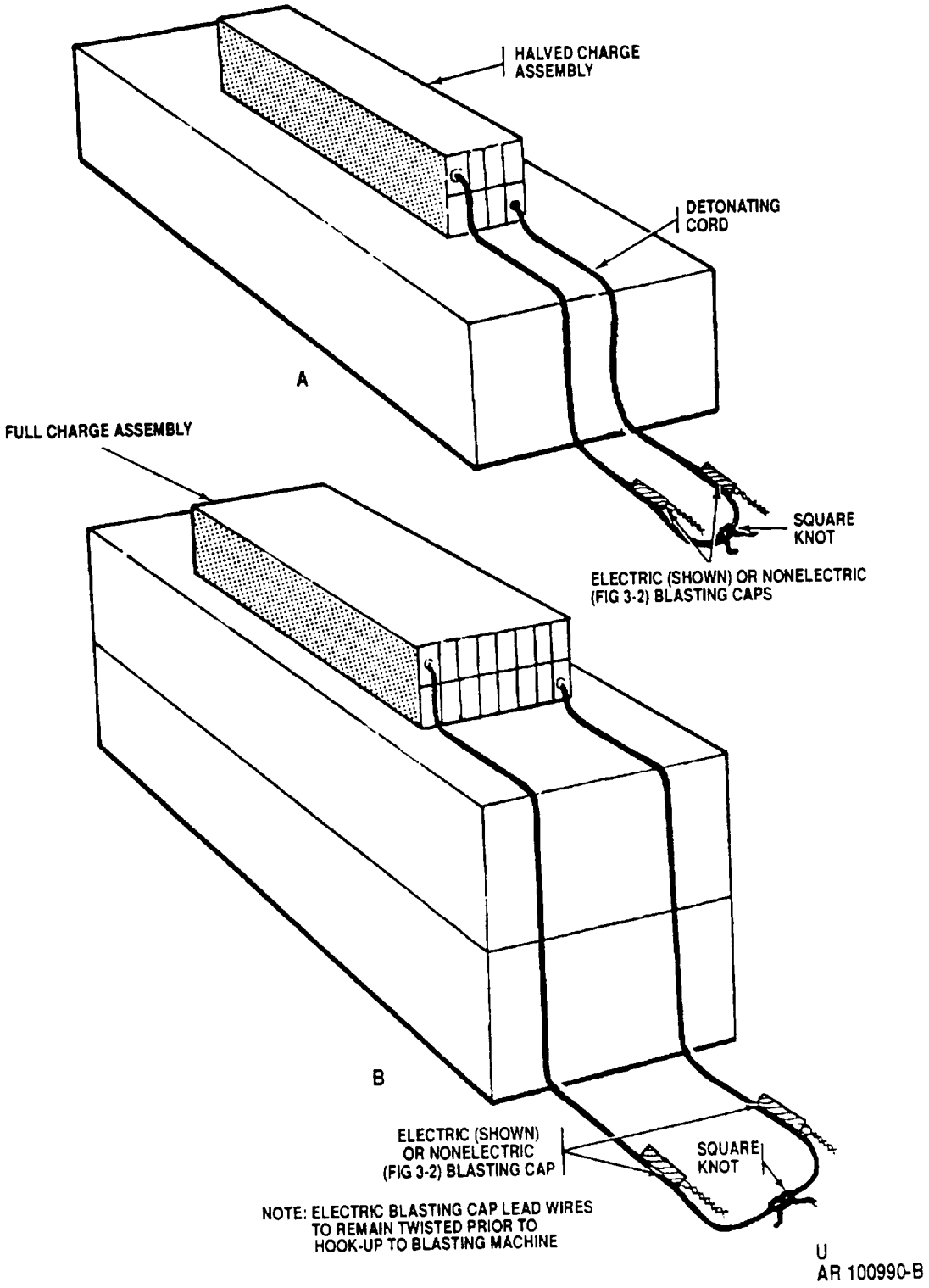

Figure 3-3. Typical placement of demolition charge assemblies on packed ammunition (A one box; B two, three or four boxes) for 40mm and 105mm cartridges, hand grenades, and mines.

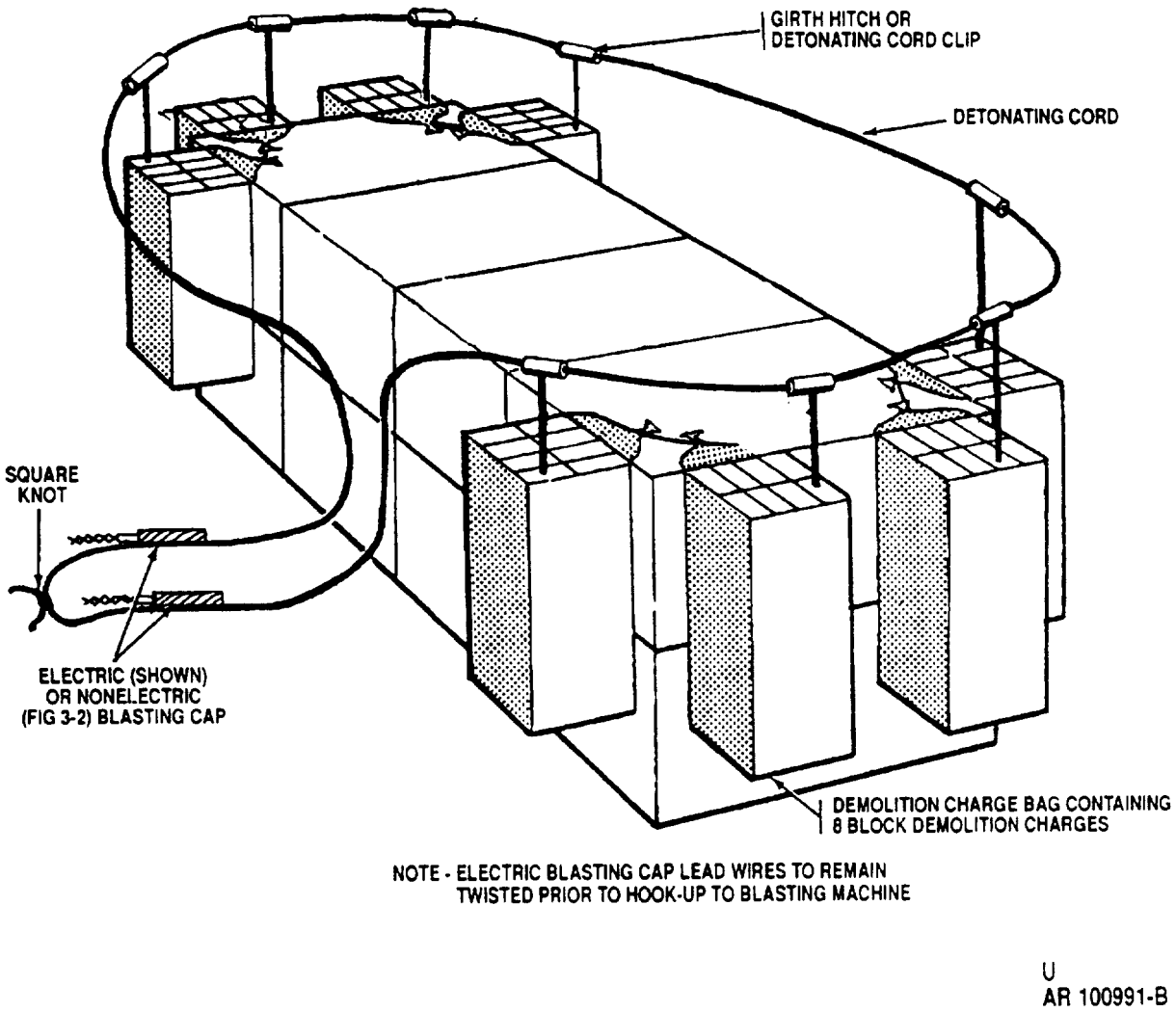

Figure 3-4. Typical placement of demolition charge assemblies on pallets of packed amunition for 40mm and 105mm cartridges, hand grenades, and mines.

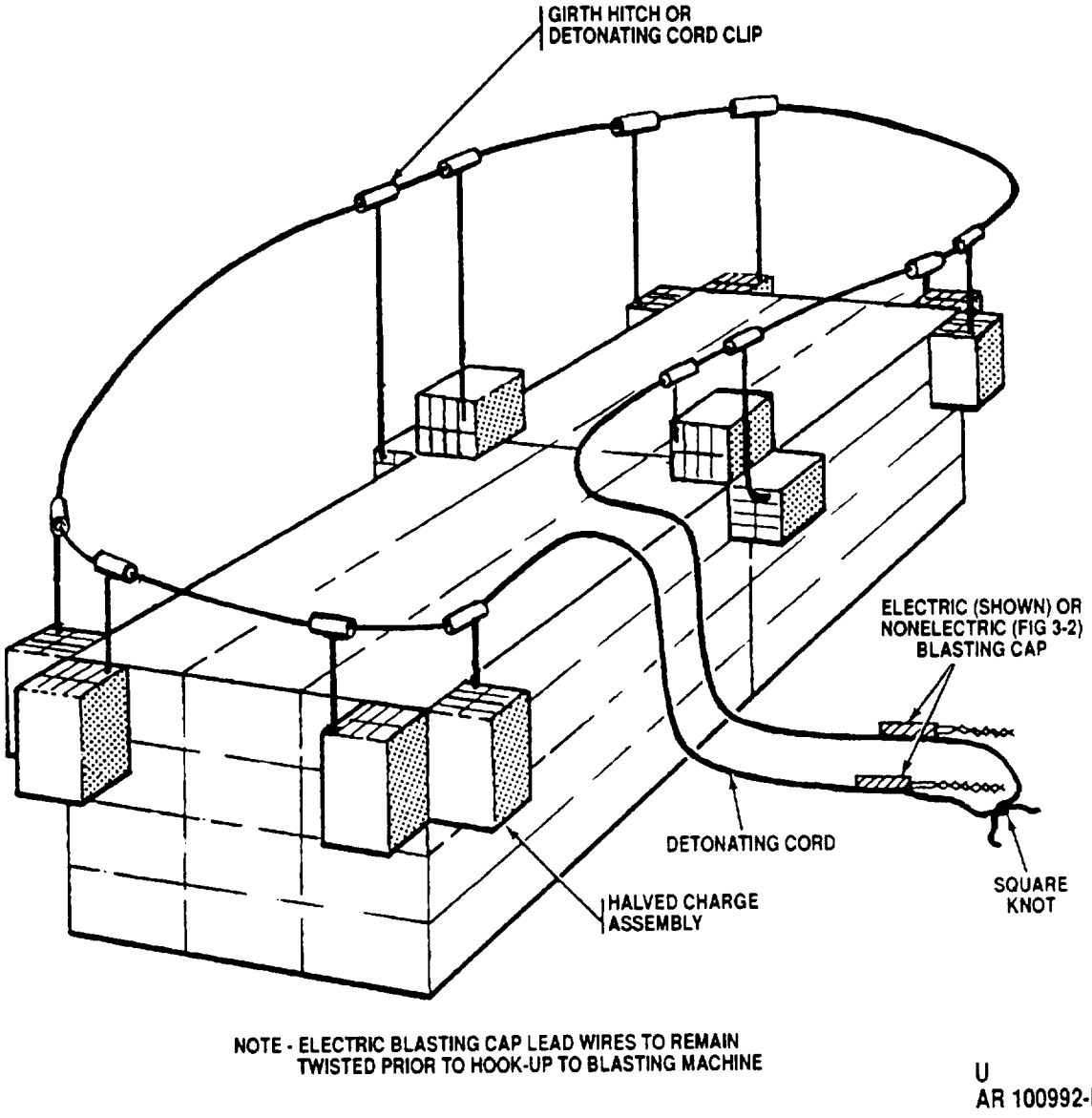

Figure 3-5. Typical placement of demolition charges on large quantities of boxed ammunition for 40mm and 105mm cartridges, hand grenades, and mines.

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APPENDIX A
REFERENCES

A-1. Administrative Publications

a. Army Regulations.

Malfunctions Involving Ammunition and Explosives ..... AR 75-1
Department of the Army Information Security Program ..... AR 380-5
Accident Reporting and Records ..... AR 385-40

b. DA Pamphlet.

The Army Maintenance Management System (TAMMS) ..... DA Pam 738-750

A-2. Blank Forms

U.S. Army Accident Report ..... DA Form 285
Recommended Changes to Publications and Blank Forms ..... DA Form 2028
Ammunition Condition Report ..... DA Form 2415

A-3. Doctrinal, Training and Organizational Publications

NBC Handbook ..... FM 3-7
Flame Field Expedients ..... FM 3-11
Explosives and Demolition ..... FM 5-25
Conventional Ammunition Unit Operations ..... FM 9-38
Physical Security ..... FM 19-30

A-4. Equipment Publications (Technical Manuals)

Ammunition and Explosives Standards ..... TM 9-1300-206
Military Explosives ..... TM 9-1300-214
Unit Maintenance Manual (Including Repair Parts and Special Tools List) for Artillery Ammunition for Guns, Howitzers, Mortars, Recoilless Rifles and 40mm Grenade Launchers ..... TM 9-1300-251-20
Unit Maintenance Manual (Including Repair Parts and Special Tools List) for Small Arms Ammunition to 30mm Inclusive ..... TM 9-1305-201-20&P
Operator and Unit Maintenance Manual for Grenades ..... TM 9-1330-200-12
Operator's and Unit Maintenance Manual (Including Repair Parts and Special Tools List) for Land Mines ..... TM 9-1345-203-12&P
Organizational Maintenance Manual (Including Repair Parts and Special Tools List) for Military Pyrotechnics ..... TM 9-1370-203-20&P
Use of Mine, Antitank - HE, Heavy, M15 as a Substitute for Charge Assembly Demolition, M37 and M183 ..... TM 9-1375-200/2
Operator's and Unit Maintenance Manual (Including Repair Parts and Special Tools List) for Demolition Materials ..... TM 9-1375-213-12

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APPENDIX B
DEMOLITION MATERIALS

NSN	Nomenclature	Standard pack
6145-00-299-6172	CABLE, POWER, ELECTRICAL: firing vinyl polymer, in two cond, No.18 AWG strands	500 ft
*1375-00-028-5224 (M130)	CAP BLASTING: electric, special, J2 (PETN), Type II	500
*1375-00-756-1865 (M130)	CAP, BLASTING: electric, M6, special, (T6)	900
*1375-00-028-5225 (M130)	CAP BLASTING: electric, M6, J2 (PETN), Type II	Packed as required
*1375-00-028-5226 (M131)	CAP BLASTING: non-electric special, J1 (PETN or RDX), Type I	5000
*1375-00-028-5228 (M131)	CAP BLASTING: non-electric, special, J1 (PETN or RDX), Type I	Packed as required
1375-00-028-5245 (M756)	CHARGE ASSEMBLY, DEMOLITION: M37	2
1375-00-926-3985	CHARGE ASSEMBLY. DEMOLITION: M183	2
1375-00-724-7040 (M023)	CHARGE, DEMOLITION: block, CompC4, 1 1/4 lb., M112	30
1375-00-028-5133 (M035)	CHARGE, DEMOLITION: chain, M1 (2 1/2 lb. blocks, 75/25 tetryl)	8
1375-00-212-4602	CLIP CORD, DETONATING: Ml	50
1375-00-180-9356 (M456)	CORD, DETONATING: reinforced pliofilm wrapped, waterproof, Type 1, Class E, Code OD	1000 ft spool 1 spool crd bx 3 bxs 3000 ft wdn bx
1375-00-028-5246 (M670)	FUSE, BLASTING TIME: M700, safety)	4000 ft/bx
1375-00-961-1671 (M766)	IGNITER, TIME BLASTING FUZE: M60 weatherproof	150/bx
5970-00-644-3167	TAPE, INSULATION, ELECTRICAL: black adhesive, cotton, 3/4 x 85 ft	ro
1345-00-028-5118	MINE, ANTI-TANK: HE, Heavy M15	1
7510-00-926-2040	TAPE, PRESSURE-SENSITIVE ADHE-SIVE: 2-in.w, 72 yd ro coated 2 sides-L	ro
1375-00-028-5171	DESTRUCTOR. EXPLOSIVE: M10	50/wdn bx
6145-00-542-3968	WIRE, ELECTRICAL: solid conductor, round tinned copper, PVC, nylon jacket	400 ft

*Blasting caps, when issued in quantities less than full NSN package, will be packaged in M2 and/or MN19 metal ammunition boxes

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APPENDIX C
EQUIPMENT

NSN	Nomenclature
1375-00-141-9495	BLASTING MACHINE: 50 cap capacity
1375-00-212-4614	BLASTING MACHINE: cap capacity 10
1375-00-935-9173	BLASTING MACHINE: M32, 10 cap capacity
5120-00-029-0683	CRIMPER, BLASTING CAP: M2, w/fuze cutter, MIL-C-43438
8130-00-407-7859	REEL, CABLE: DR SA
3895-00-498-8343	REELING MACHINE CABLE, HAND: RL-39B, w/carrying straps, winding device, and spool, w/o wire
4925-00-999-3454	TEST SET BLASTING CAP: M51 (or Blasting Galvanometer)

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By Order of the Secretary of the Army:

GORDON R. SULLIVAN
General, United States Army
Chief of Staff

Official:

MILTON H. HAMILTON
Administrative Assistant to the
Secretary of the Army
05739

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RECOMMENDED CHANGES TO EQUIPMENT TECHNICAL PUBLICATIONS

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PAGE NO.	PARA-GRAPH	FIGURE NO.	TABLE NO.

IN THIS SPACE, TELL WHAT IS WRONG AND WHAT SHOULD BE DONE ABOUT IT.

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PREVIOUS EDITIONS ARE OBSOLETE.

P.S.--IF YOUR OUTFIT WANTS TO KNOW ABOUT YOUR RECOMMENDATION MAKE A CARBON COPY OF THIS AND GIVE IT TO YOUR HEADQUARTERS.

The Metric System and Equivalents

Linear Measure

1 centimeter = 10 millimeters = .39 inch
1 decimeter = 10 centimeters = 3.94 inches
1 meter = 10 decimeters = 39.37 inches
1 dekameter = 10 meters = 32.8 feet
1 hectometer = 10 dekameters = 328.08 feet
1 kilometer = 10 hectometers = 3,280.8 feet

Weights

1 centigram = 10 milligrams = .15 grain
1 decigram = 10 centigrams = 1.54 grains
1 gram = 10 decigram = .035 ounce
1 decagram = 10 grams = .35 ounce
1 hectogram = 10 decagrams = 3.52 ounces
1 kilogram = 10 hectograms = 2.2 pounds
1 quintal = 100 kilograms = 220.46 pounds
1 metric ton = 10 quintals = 1.1 short tons

Liquid Measure

1 centiliter = 10 milliters = .34 fl. ounce
1 deciliter = 10 centiliters = 3.38 fl. ounces
1 liter = 10 deciliters = 33.81 fl. ounces
1 dekaliter = 10 liters = 2.64 gallons
1 hectoliter = 10 dekaliters = 26.42 gallons
1 kiloliter = 10 hectoliters = 264.18 gallons

Square Measure

1 sq. centimeter = 100 sq. millimeters = .155 sq. inch
1 sq. decimeter = 100 sq. centimeters = 15.5 sq. inches
1 sq. meter (centare) = 100 sq. decimeters = 10.76 sq. feet
1 sq. dekameter (are) = 100 sq. meters = 1,076.4 sq. feet
1 sq. hectometer (hectare) = 100 sq. dekameters = 2.47 acres
1 sq. kilometer = 100 sq. hectometers = .386 sq. mile

Cubic Measure

1 cu. centimeter = 1000 cu. millimeters = .06 cu. inch
1 cu. decimeter = 1000 cu. centimeters = 61.02 cu. inches
1 cu. meter = 1000 cu. decimeters = 35.31 cu. feet

Approximate Conversion Factors

To change	*To*	*Multiply by*	*To change*	*To*	*Multiply by*
inches	centimeters	2.540	ounce-inches	Newton-meters	.007062
feet	meters	.305	centimeters	inches	.394
yards	meters	.914	meters	feet	3.280
miles	kilometers	1.609	meters	yards	1.094
square inches	square centimeters	6.451	kilometers	miles	.621
square feet	square meters	.093	square centimeters	square inches	.155
square yards	square meters	.836	square meters	square feet	10.764
square miles	square kilometers	2.590	square meters	square yards	1.196
acres	square hectometers	.405	square kilometers	square miles	.386
cubic feet	cubic meters	.028	square hectometers	acres	2.471
cubic yards	cubic meters	.765	cubic meters	cubic feet	35.315
fluid ounces	milliliters	29,573	cubic meters	cubic yards	1.308
pints	liters	.473	milliliters	fluid ounces	.034
quarts	liters	.946	liters	pints	2.113
gallons	liters	3.785	liters	quarts	1.057
ounces	grams	28.349	liters	gallons	.264
pounds	kilograms	.454	grams	ounces	.035
short tons	metric tons	.907	kilograms	pounds	2.205
pound-feet	Newton-meters	1.356	metric tons	short tons	1.102
pound-inches	Newton-meters	.11296			

Temperature (Exact)

°F	Fahrenheit temperature	5/9 (after subtracting 32)	Celsius temperature	°C

PIN: 017652-000