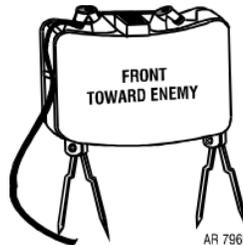


TM 9-1377-617-12

**TECHNICAL MANUAL
OPERATOR AND UNIT MAINTENANCE MANUAL
FOR
MUNITION, CROWD CONTROL MODULAR,
NON-LETHAL: M5
NSN 1377-01-464-2606**



DISTRIBUTION STATEMENT C - Distribution authorized to US Government agencies and their contractors only to protect technical data. This determination was made on 4 June 2001. Other requests for this document will be referred to: Commander, US Army, TACOM-Armament, Research, Development and Engineering Center, ATTN: AMSTA-AR-WEL-S, Picatinny Arsenal New Jersey 07806-5000.

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HEADQUARTERS, DEPARTMENT OF THE ARMY

17 JULY 2001

WARNINGS

Handle wirebound wooden boxes carefully. Injury can occur if dropped.

Minimum safe distance from an unprotected position must be 100 feet (30m) from munition to rear or side of munition, or a minimum of 50 feet (15m) from a shielded or protected position.

Do not strike, yank, drop or abuse blasting caps.

Use care not to damage shock tube when securing with a heavy object.

Single hearing protection is required for all personnel within 300 feet (90m) of a detonating MCCM.

Do not hold shock tube when firing.

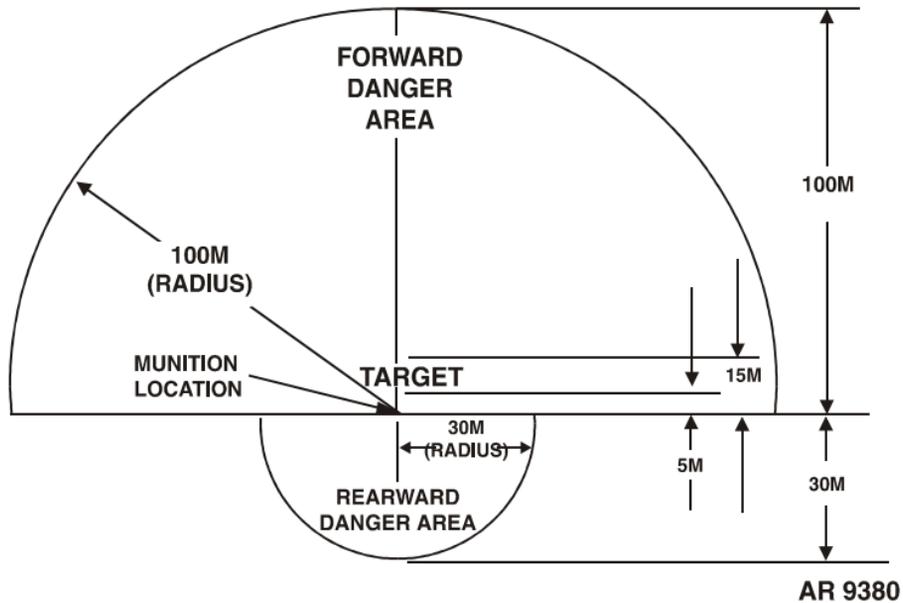
Lethal trauma may occur to individuals closer than 16 feet (5m) in front of munition when M5 is fired.

Do not ingest or inhale explosive powder in shock tube. After handling shock tube, wash hands before eating or drinking.

If initiation of M5 fails, wait 30 minutes before approaching munition.

During functioning of MCCM, ejection of hazardous debris will occur within 330 feet (100m) in a 180 degree arc forward of the munition and 100 feet (30m) in a 180 degree arc to the rear of the munition. Friendly personnel in these areas must take cover prior to firing.

**SURFACE DANGER ZONE FOR THE
MODULAR CROWD CONTROL MUNITION
(MCCM)**



b

NOTE

The Federal Supply Class (FSC) for the M5 MCCM has been changed from 1377 to 1346.

Therefore, MCCMs can no longer be requisitioned by citing DODIC 1377-WA97. Instead, order using the MCCM DODIC 1346-WA97. Stocks of MCCMs with the separate M81 Shock Tube Igniter will be issued until depleted. Then FSC 1346 MCCMs having an integral M81 Shock Tube Igniter attached to the end of the shock tube will be issued.

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HEADQUARTERS
DEPARTMENT OF THE ARMY
WASHINGTON, DC, 4 May 2007

**Operator and Unit Maintenance Manual
for
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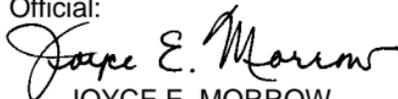
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C1

By Order of the Secretary of the Army:

Official:

A handwritten signature in black ink that reads "Joyce E. Morrow". The signature is written in a cursive style with a large initial "J" and "M".

JOYCE E. MORROW

*Administrative Assistant to the
Secretary of the Army*

0711501

GEORGE W. CASEY, JR.
*General, United States Army
Chief of Staff*

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Dates of issue for original and changed pages are:

Original 0 17 July 2001 Change 1 4 May 2007

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| Page No. | *Change No. | Page No. | *Change No. | Page No. | *Change No. |
|--------------------|----------------|-------------|----------------|-------------|----------------|
| Cover | 0 | | | | |
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| A and B..... | 1 | | | | |
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| 1-1 thru 1-12..... | 0 | | | | |
| 2-1 thru 2-22..... | 0 | | | | |
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B Change 1

**Operator and Unit Maintenance Manual
for
Munition, Crowd Control Modular, Non-Lethal: M5
NSN 1377-01-464-2606**

REPORTING ERRORS AND RECOMMENDING IMPROVEMENTS

You can help improve this manual. If you find any mistakes or if you know of a way to improve the procedures, please let us know. Mail your letter or DA Form 2028 (Recommended Changes to Publications and Blank Forms) directly to Commander, U.S. Army TACOM, Armament Research, Development and Engineering Center, ATTN: AMSTA-AR-WEL-S, Picatinny Arsenal, NJ 07806-5000. You may also send in your recommended changes via electronic mail or by fax. Our e-mail address is LSB@PICA.ARMY.MIL. Our fax number is DSN 880-4633, Commercial (973) 724-4633. A reply will be furnished to you.

| | | Page |
|-----------|--|------|
| CHAPTER 1 | INTRODUCTION..... | 1-1 |
| Section I | General..... | 1-1 |
| | 1.1 Scope..... | 1-1 |
| | 1.2 Forms, Records and Reports..... | 1-1 |
| | 1.3 Reporting Equipment Improvement Recommendations (EIR)..... | 1-2 |
| | 1.4 Nomenclature Cross-Reference List..... | 1-2 |

| | Page |
|-------------|---|
| CHAPTER 1 | INTRODUCTION - Continued |
| Section II | Equipment Description and Data. 1-3 |
| | 1.5 Description 1-3 |
| | 1.6 Location and Description of Major Components. 1-6 |
| | 1.7 Differences Between Models 1-8 |
| | 1.8 Packing and Marking 1-8 |
| | 1.9 Tabulated Data 1-9 |
| | 1.10 Theory of Operation 1-11 |
| Section III | Safety, Care and Handling. 1-11 |
| CHAPTER 2 | OPERATING INSTRUCTIONS 2-1 |
| Section I | Procedures for Wirebound Wooden Box. 2-1 |
| | 2.1 Inspect Wirebound Wooden Box. 2-1 |
| | 2.2 Unpack Wirebound Wooden Box 2-2 |
| | 2.3 Unpack Overpack Barrier Bag 2-2 |
| | 2.4 Repacking Instructions. 2-3 |
| Section II | Procedures for Deploying MCCM 2-4 |
| | 2.5 Pre-Deployment Inspection. 2-4 |
| | 2.6 Deploying/Unpacking Munition 2-4 |
| | 2.7 Positioning Munition 2-5 |
| | 2.8 Installing Blasting Cap Assembly 2-8 |
| | 2.9 Aiming Munition 2-10 |
| | 2.10 Laying Shock Tube 2-11 |
| | 2.11 Connecting M81 Igniter. 2-12 |

| | Page |
|---|------|
| CHAPTER 2 OPERATING INSTRUCTIONS - Continued | |
| 2.12 Firing | 2-14 |
| 2-13 Misfire Procedures | 2-16 |
| 2-14 Disarming and Recovery | 2-18 |
| 2-15 Use of Shock Tube After Field Resealing | 2-22 |
| CHAPTER 3 MAINTENANCE INSTRUCTIONS | 3-1 |
| 3.1 General | 3-1 |
| 3.2 Preventive Maintenance Checks and Services (PMCS) | 3-1 |
| 3.3 Inspect | 3-1 |
| 3.4 Clean | 3-1 |
| APPENDIX A REFERENCES | A-1 |
| APPENDIX B MAINTENANCE ALLOCATION CHART (MAC) | B-1 |

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CHAPTER 1 INTRODUCTION

SECTION I GENERAL

1.1 SCOPE.

These instructions are for use by operator and unit maintenance personnel. They apply to the Non-Lethal M5 Modular Crowd Control Munition (MCCM).

1.2 FORMS, RECORDS AND REPORTS.

1.2.1 Department of the Army forms and procedures used for equipment maintenance will be those prescribed by DA PAM 738-750, Functional Users Manual for the Army Maintenance Management System (TAMMS). Accidents involving injury to personnel or damage to materiel will be reported on DA Form 285 (U.S. Army Accident Report) in accordance with AR 385-40 (Accident Reporting and Records). Explosives ammunition malfunctions will be reported in accordance with AR 75-1 (Malfunctions Involving Ammunition and Explosives).

1.2.2 Report of Packaging and Handling Deficiencies. Fill out and forward SF Form 364 (Report of Discrepancy (ROD) as prescribed in AR 735-11-2.

1.3 REPORTING EQUIPMENT IMPROVEMENT RECOMMENDATIONS (EIR).

If your MCCM needs improvement, let us know. Send us an SF Form 368 (Product Quality Deficiency Report). You, the user, are the only one who can tell us what you don't like about your equipment. Let us know why you don't like the design or performance. Mail it to Commander, U.S. Army TACOM-ARDEC, ATTN: AMSTA-AR-QAW-C, Rock Island, IL 61299-7630. A reply will be furnished to you.

1.4 NOMENCLATURE CROSS-REFERENCE LIST.

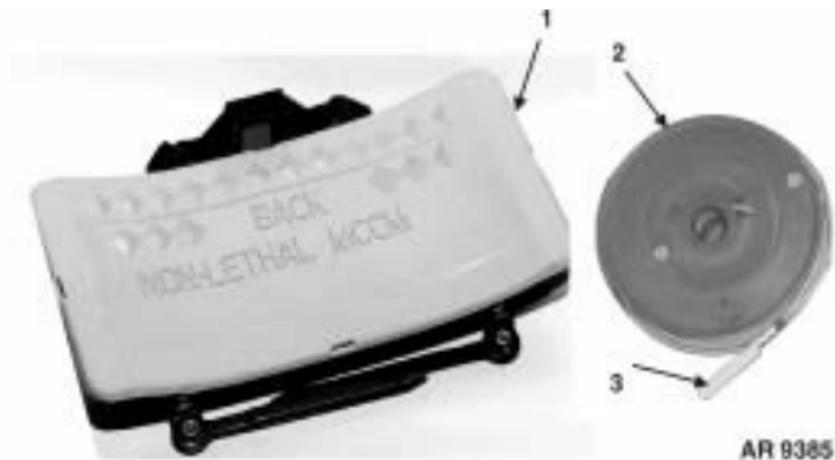
Shortened nomenclature is used in this manual to make procedures easier for you to read. A cross-reference between the shortened nomenclature and the official nomenclature is as follows:

| Common Nomenclature | Official Nomenclature |
|---------------------|---|
| MCCM | Munition, Crowd Control Modular, Non-Lethal: M5 |
| Initiator | Blasting Cap Assembly |
| M81 | Igniter, Time Blasting Fuse: M81 |

SECTION II EQUIPMENT DESCRIPTION AND DATA

1.5 DESCRIPTION.

1.5.1 The MCCM (1) is a non-lethal munition that contains PVC balls inserted within the plastic case. A sheet of explosive sandwiched between two foam pads provides the ball propulsion. In addition, there is a blasting cap assembly (2) consisting of 100 feet (30m) of shock tube with a blasting cap (3) crimped to one end.



1.5.2 The munition is housed in a casing similar to that of the current Claymore mine. It provides non-lethal impacts to area personnel targets but over a smaller range than the Claymore and can be ground emplaced like a Claymore. In the ground employment mode it increases both fixed site and area security of key facilities capability against potential hostile forces without having to rely solely on deadly force. When ground emplaced, the MCCM will be detonated using the blasting cap assembly, attached to an M81 igniter.

1.5.3 The MCCM looks like a Claymore mine from the front and sides, with the exception of the back cover. Only from the rear is it apparent that it is a non-lethal MCCM. The rear cover is light green in color and states that it is a non-lethal munition. The intention for this close resemblance is to present visually to an adversary what they perceive as being a lethal Claymore mine.

1.5.4 The MCCM is a direct fire, low hazard munition that produces a counter-personnel, non-lethal effect upon impact. To achieve this, the optimum aiming point is the torso or lower body extremities of a targeted individual. It will produce enough force upon impact to stop, confuse, disorient, deter and incapacitate anyone not wearing protective clothing. This munition is rugged and waterproofed enough to survive being externally carried by soldiers as part of their equipment while in the field or urban operational environments.

1.5.5 The MCCM provides commanders with both a force multiplier and more flexibility with its sprayed application of non-lethal force over a wide area. This new capability will increase deterrent effectiveness during various military operations.

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1.6 LOCATION AND DESCRIPTION OF MAJOR COMPONENTS.

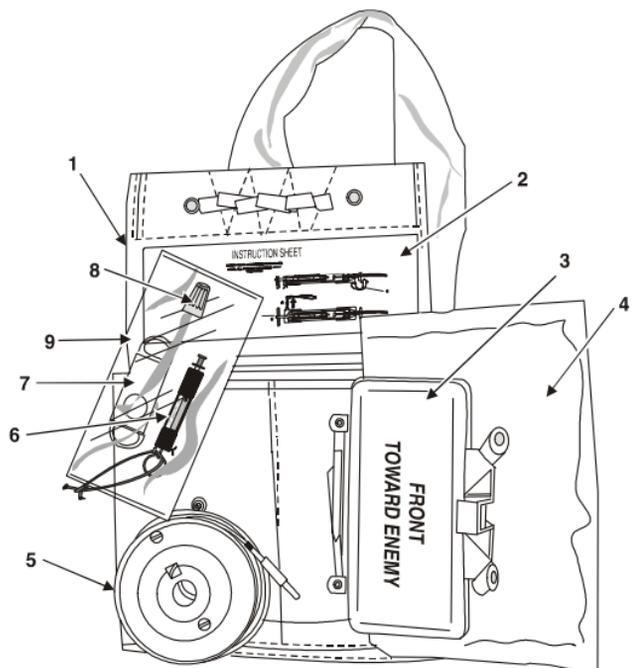
The MCCM consists of the following:

Bandoleer **(1)** with instructions **(2)**

MCCM **(3)** in Barrier Bag **(4)**

Blasting Cap Assembly **(5)**, consisting of a blasting cap crimped onto 100 feet (30m) of shock tube on a plastic spool.

M81 Shock Tube Igniter **(6)**, Shock Tube Cutter **(7)** and a Shock Tube Sealing Nut **(8)** in sealed Anti-Static Bag **(9)** with supplemental instruction sheet (not shown)



AR 8932

1.7 DIFFERENCES BETWEEN MODELS.

The visual differences between the MCCM and lethal Claymore are as follows:

| CHARACTERISTICS | M5 MCCM | M18/M18A1 CLAYMORE |
|------------------------|---|---------------------------|
| HOUSING MATERIAL | SOFT PLASTIC | HARD PLASTIC |
| BACK COVER | LIGHT GREEN (LESS THAN LETHAL) | OLIVE DRAB |
| BANDOLEER COLOR | OLIVE DRAB W/LIGHT GREEN 1 IN WIDE STRIPE ON LOWER EDGE OF POCKETS. | OLIVE DRAB |
| BACK COVER MARKING | 18 RAISED DIAMONDS, RAISED LETTERS | STENCILED TEXT |

1.8 PACKING AND MARKING.

| DESCRIPTIVE NOMENCLATURE | PROPER SHIPPING NAME & IDENTIFICATION NUMBER | EXPLOSIVE HAZARD CLASSIFICATION AND STORAGE COMPATIBILITY GROUP | NSN/DODIC | PART NUMBER |
|---|---|--|---------------------------|--------------------|
| MUNITION, CROWD CONTROL MODULAR, NON-LETHAL: M5 | ARTICLES, EXPLOSIVE, N.O.S. UN:0349 | 1.4S | 1377-01-464-2606/ WA97 | 12991011 |

1.9 TABULATED DATA.

1.9.1 MUNITION, CROWD CONTROL MODULAR, NON-LETHAL: M5:

| | |
|---|------------------|
| NSN | 1377-01-464-2606 |
| DODIC | WA97 |
| PN | 12991011 |
| CAGEC | 19200 |
| Weight per munition | 3 kg (6 lb) |
| Length..... | 21 cm (8 in.) |
| Width | 12 cm (5 in.) |
| Thickness..... | 2 cm (1 in.) |
| Cube | 0.138 cu ft |
| Method of actuation..... | Nonelectric |
| Body material | Plastic |
| Shelf life | 20 yrs |
| Temperature Limits: | |
| Operating: | |
| Lower Limit..... | -18°C (0°F) |
| Upper Limit | +49°C (+120°F) |
| Storage: | |
| Lower Limit..... | -43°C (-45°F) |
| Upper Limit | +71°C (+160°F) |
| Hazard Classification: | |
| DOD hazard class/division/storage compatibility group | 1.4S |
| DOT label | Explosive 1.4S |

| | |
|---|----------------------------|
| DOT hazard class | 1.4S |
| Proper shipping name | Articles Explosive, N.O.S. |
| DOT container marking | Articles Explosive, N.O.S. |
| UN code | 0349 |
| Explosive weight per bandoleer..... | 14.7 g (0.03252 lb) |
| Explosive weight for quantity distance..... | 0.01475 kg (0.03252 lb) |

1.9.2 Shipping and Storage Wirebound Wood Box.

Packaging:

| | |
|---------------------------|---------------------------------|
| M5 MCCM | 6 bandoleers per fiberboard box |
| Weight w/accessories..... | 8 kg (18 lb) |
| Box, fiberboard | 1 per wirebound box |
| PN..... | 8800901 |
| CAGEC | 19200 |
| Empty weight | 1 kg (2 lb) |
| Dimensions..... | 11 3/4 in. x 9 in. x 11 1/8 in. |

Box, Wirebound:

| | |
|-------------------------|---------------------------------------|
| PN | 8800900 |
| CAGEC..... | 19200 |
| Weight (empty) | 6 kg (12 lb) |
| Weight (loaded)..... | 15 kg (34 lb) (approx) |
| Outside dimensions..... | 15 1/8 in. x 10 9/16 in. x 12 3/4 in. |
| Inside dimensions | 12 3/4 in. x 9 1/2 in. x 11 7/8 in. |

1.10 THEORY OF OPERATION.

When the unfriendlies enter the aiming sector (45 degree angle, between 5 and 15 meters in front of the MCCM), the operator pulls the ring on the M81 Igniter that transmits a shock wave through the shock tube, that initiates/fires the munition.

SECTION III SAFETY, CARE AND HANDLING

Use only in accordance with instructions. Do not modify munitions.

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CHAPTER 2 OPERATING INSTRUCTIONS

NOTE

Procedures and dimensions in this manual take precedence over instruction sheet sewn on inside flap of Bandoleer.

SECTION I PROCEDURES FOR WIREBOUND WOODEN BOX

2.1 INSPECT WIREBOUND WOODEN BOX.



Handle wirebound wooden boxes carefully. Injury can occur if dropped.

NOTE

Do not damage wooden boxes. Return all wooden boxes to issue point.

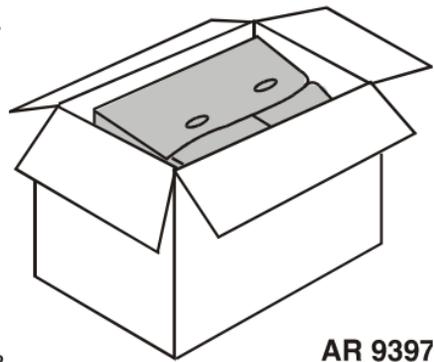
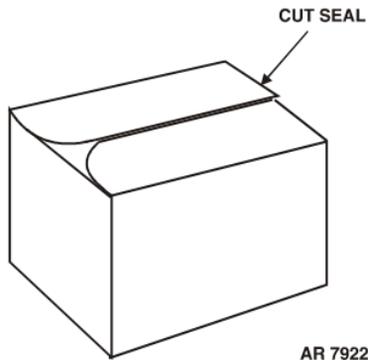
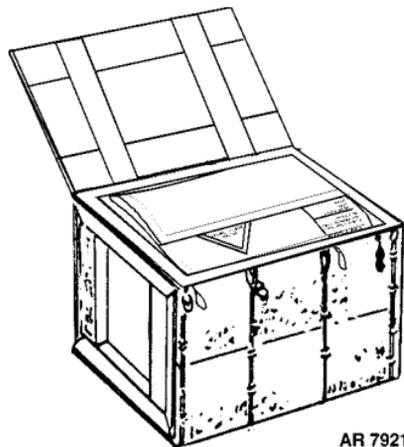
- a. Examine wooden box for any major damage such as cracked, broken or missing boards that may have allowed the overpack barrier bag or fiber board box inside to be crushed, broken or compromised.
- b. Return any severely damaged wooden boxes unopened to issue point.

2.2 UNPACK WIREBOUND WOODEN BOX.

- a. Unfasten wire hasps and open wooden box.
- b. Remove fiberboard box wrapped in protective overpack barrier bag.

2.3 UNPACK OVERPACK BARRIER BAG.

OVERPACK BARRIER BAG



- a. Prior to issue, open overpack barrier bag, cutting along a half inch below the seal of the barrier bag.
- b. Remove fiberboard box from overpack barrier bag.

NOTE

Fold and save overpack barrier bags for later reuse.

Do not remove fiberboard box from overpack barrier bag until ready to deploy munition.

2.4 REPACKING INSTRUCTIONS.

- a. Inspect each unused MCCM bandoleer to ensure it has all components (para 1.6).
- b. Repackage any unused components in original packaging and notify ASP of their condition.
- c. Repack six unused MCCMs and its components in bandoleers into saved serviceable fiberboard box. If less than six bandoleers are packed, annotate light pack on outside of both fiberboard and wooden boxes.
- d. Place fiberboard box into a serviceable overpack barrier bag and reseal.
- e. Repack fiberboard box sealed in overpack barrier bag into wooden box.
- f. Close wooden box cover and re-fasten wire hasps.
- g. Mark box in accordance with para 1.8.

SECTION II PROCEDURES FOR DEPLOYING MCCM

2.5 PRE-DEPLOYMENT INSPECTION.

- a. Open fiberboard box which contains six MCCM bandoleers.

NOTE

Do not cut open the MCCM barrier bag or the anti-static bag until ready to use items on-site.

- b. Inspect each bandoleer to ensure it has all components (para 1.6).

2.6 DEPLOYING/UNPACKING MUNITION.

- a. At deployment site, unsnap and open cover flap of bandoleer.

NOTE

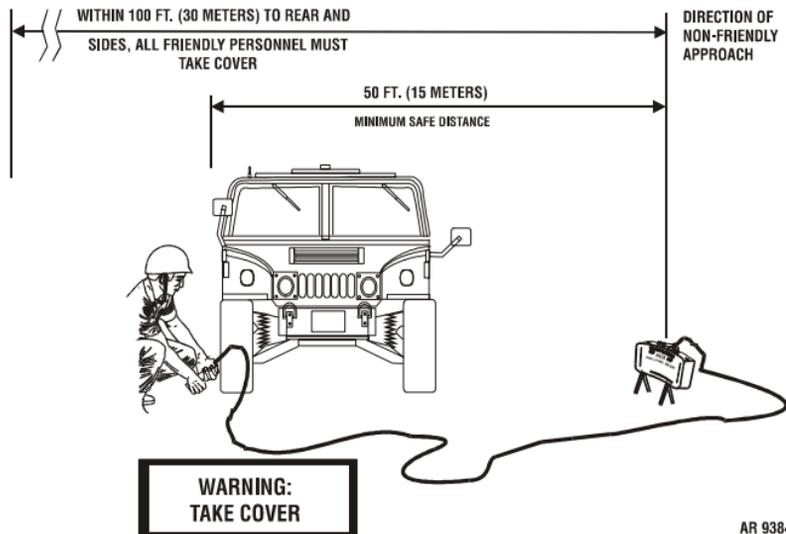
Read instruction sheet sewn on inside of bandoleer cover flap to refresh operational procedures.

- b. Remove MCCM (in barrier bag) from pocket of bandoleer.
- c. Cut barrier bag 1/4 inch from seal so bag may be reused in the event munition is recovered. Fold barrier bag and place in empty bandoleer pocket.

2.7 POSITIONING MUNITION.

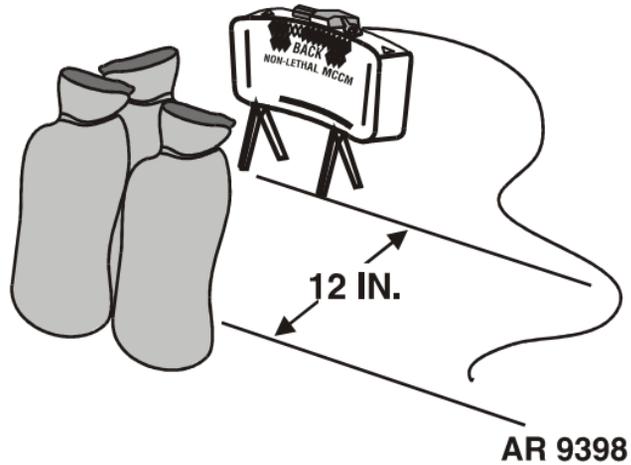
WARNING

Minimum safe distance from an unprotected position must be 100 feet (30m) from munition to rear or side of munition, or a minimum of 50 feet (15m) from a shielded or protected position.



- a. Select a spot to emplace the munition that is a minimum of 50 feet (15m) to the front or side of a protected or shielded firing position, or a minimum of 100 feet (30m) from an unprotected position.
- b. Unfold the legs on the munition and spread about 45 degrees.
- c. Twist legs so that one protrudes ahead of munition, the other behind munition.
- d. Point front surface marked "Front Toward Enemy" and arrows on top of case of munition in direction of enemy or desired area of fire.
- e. Press legs into ground.
- f. All unprotected friendly personnel should be at least 100 feet (30m) behind the munition before functioning due to the possible fragment hazard from the munition's rear cover. Unprotected implies no goggles, barriers/shield, or heavy clothing/gloves.
- g. If sandbags are used as a protective barrier, the distance may be reduced to 50 feet (15m). A 40 lb sandbag should be vertically emplaced 12 inches to centerline of the MCCM. A second row of two 40 lb sandbags should be vertically emplaced directly behind the first sandbags to provide stability in winds, and as another safety measure against hand-thrown missiles and fragmentation.

**40 LB SANDBAGS
VERTICALLY EMPLACED**



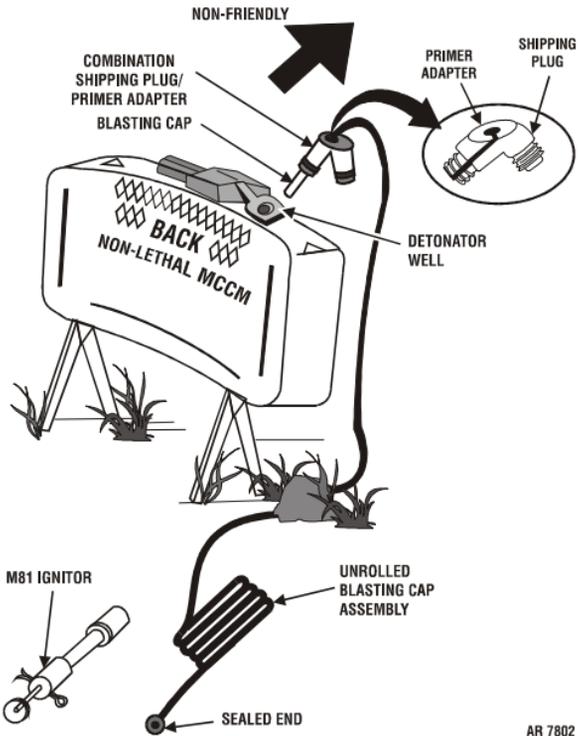
2.8 INSTALLING BLASTING CAP ASSEMBLY.

- a. Remove blasting cap assembly from bandoleer pocket.



Do not strike, yank, drop or abuse blasting cap.

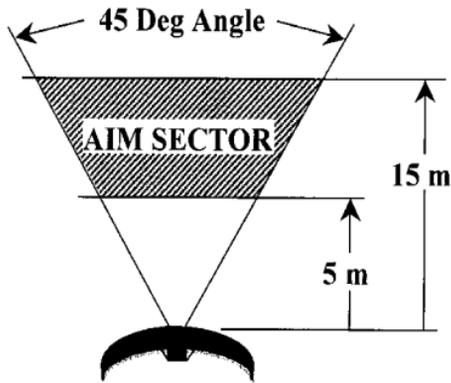
- b. Remove twist tie securing blasting cap end of shock tube to spool and unwind about 3 feet (1m) of shock tube. Save twist tie in the event the MCCM is recovered. Set the spool down approximately 18 inches behind and to the one side of the munition.
- c. Unscrew shipping plug/primer adapter from either detonator well on top of munition.
- d. Insert blasting cap into detonator well.
- e. Reverse shipping plug to primer adapter end. Slide shock tube through slot of primer adapter into the center opening of the primer adapter plug. Screw primer adapter plug into detonator well to secure blasting cap.



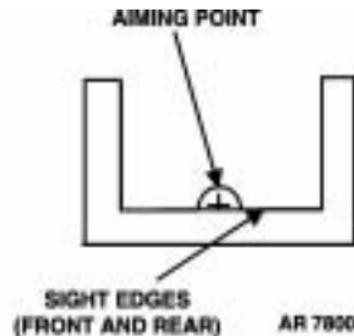
AR 7802

2.9 AIMING MUNITION.

- Select an aiming point approximately 16 feet (5m) in front of the munition and 1 foot (0.3m), or boot height above ground level.
- Press legs firmly into ground (should be able to place fist between munition and ground).
- Position eye approximately 6 to 9 inches to the rear of the sight. Aim munition by aligning front and rear edges of sight with aiming point.
- Aim sector is between 5 meters and 15 meters at a 45 degree angle in front of munition.



AR9379



2.10 LAYING SHOCK TUBE.

WARNING

Use care not to damage shock tube when securing with a heavy object.

- a. Secure shock tube approximately 18 inches from the blasting cap side of the munition with a stone, gravel, or sand bag to prevent aiming of munition from being misaligned if shock tube is disturbed.

WARNING

Minimum safe distance from an unprotected position must be 100 feet (30m) from munition to rear or side of munition, or a minimum of 50 feet (15m) from a shielded or protected position.

- b. Unravel remainder of shock tube until it reaches the protected or shielded operator firing position.
- c. Place empty shock tube spool into bandoleer pocket for reuse if munition is recovered.

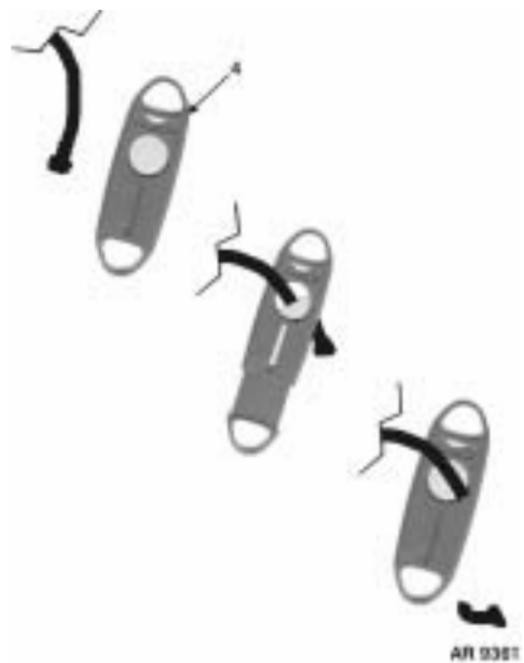
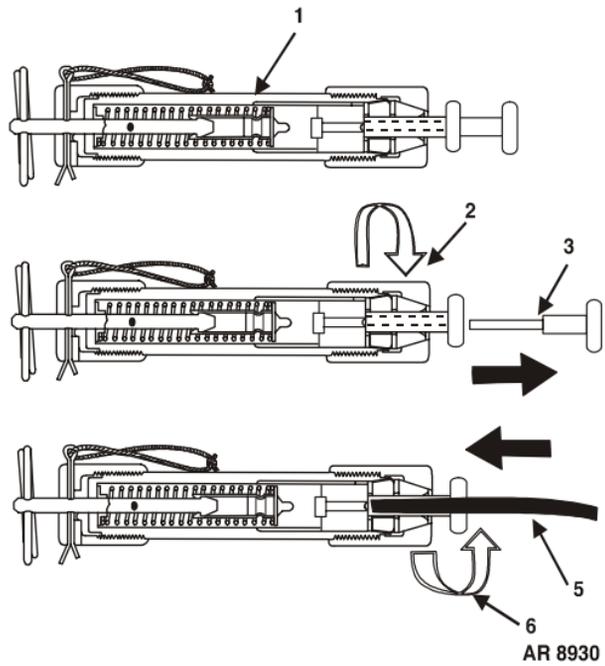
2.11 CONNECTING M81 IGNITER.

- a. Remove anti-static bag containing M81 igniter, shock tube cutter, supplemental instruction sheet, shock tube sealing nut from bandoleer.
- b. Cut anti-static bag 1/4 inch from seal so bag may be reused in the event the igniter is recovered.
- c. Remove M81 (1), supplemental instruction sheet, and shock tube cutter from anti-static bag. Leave shock tube sealing nut in bag in the event of shock tube recovery.
- d. Loosen, but do not remove, M81 fuze holder cap (2) by turning it counter-clockwise three to four full turns.
- e. Pull (do not twist) and remove the plastic weather proofing plug (3) from fuze cap holder. Place plug in anti-static bag for possible reuse and put bag back in bandoleer pocket.
- f. Using shock tube cutter (4), cut (90 degree cut) approximately 6 to 8 inches off from the crimped/sealed end of the shock tube and discard.
- g. Insert shock tube (5) all the way into the hole from which the weather proofing plug was removed until it stops (approximately 1 inch). Twist while pushing shock tube in a little to assure that it is making a good contact with the M81 igniter primer.

NOTE

End of shock tube must seat fully into shock tube holder in order for M81 to properly initiate shock tube.

- h. Tighten the fuze holder cap clockwise (6) to secure shock tube.



2.12 FIRING.

WARNING

Single hearing protection is required for all personnel within 300 feet (90m) of a detonating MCCM.

Do not hold shock tube when firing.

Lethal trauma may occur to individuals closer than 16 feet (5m) in front of munition when M5 is fired.

- a. Hold igniter around body with one hand.

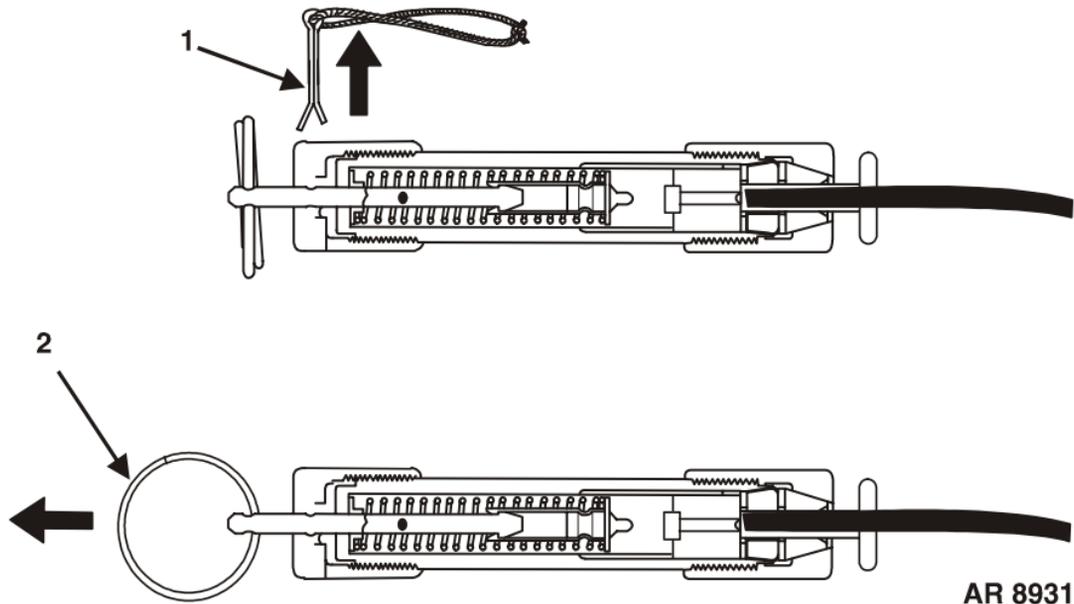
WARNING

There is a possibility of hot gaseous by-products being released from the M-81 igniter forward end opening (shock tube insertion point) when initiating the munition. During firing of the M-81 igniter, keep hands clear of this area.

NOTE

Effective range for an MCCM fired at unprotected personnel targets is a maximum distance of 50 feet (15m) and a minimum distance of 16 feet (5m).

- b. Fire by sharply pulling ring (2) on M81 igniter.



AR 8931

2.13 MISFIRE PROCEDURES.

2.13.1 Training Only.

- a. Once user pulls the M81 ignitor and MCCM does not function, user will then re-cock the M81 and attempt to fire again (M81 can be re-cocked twice).

NOTE

Re-cocking M81 may require a quarter turn to push ring all the way in.

- b. User will remove shock tube from M81 and measure approximately 3 feet (1m) down the shock tube.

WARNING

Do not ingest or inhale explosive powder in shock tube. After handling shock tube, wash hands before eating or drinking.

- c. Cut the shock tube at that point with shock tube cutter (90° cut) and then cut an additional 6 inches of shock tube off and conduct the blow test (blowing through that 6 inches with the open end of shock tube in the palm of his/her hand).
- d. If user notices a small amount of silver powder, then user can install a new M81, if available, and attempt to fire.
- e. If user does not notice any silver powder in the palm of one's hand, then user would repeat the 3 feet (1m) measurement, cut and blow test that piece of shock tube until user has silver powder in the palm of one's hand (this can be done two additional times or up to 9 feet (3m)).

- f. Then install a new M81, if available, and attempt to fire.



If initiation of M5 fails, wait 30 minutes before approaching munition.

- g. If the blasting cap assembly activates but the munition fails to function, the munition is considered to be a dud.
- h. Flag for EOD disposal.

2.13.2 Operational Mission.

- a. Once user pulls the M81 ignitor and M5 does not function, user will then re-cock the M81 and attempt to fire again. M81 can be re-cocked twice.

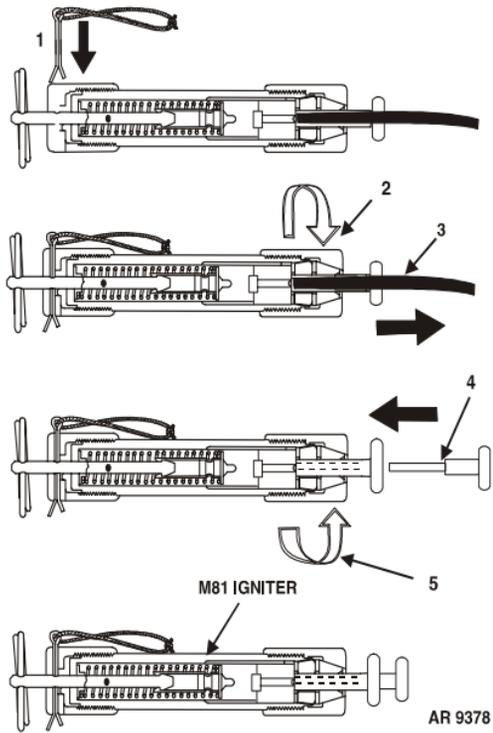
NOTE

M81 may require a quarter turn to push ring all the way in.

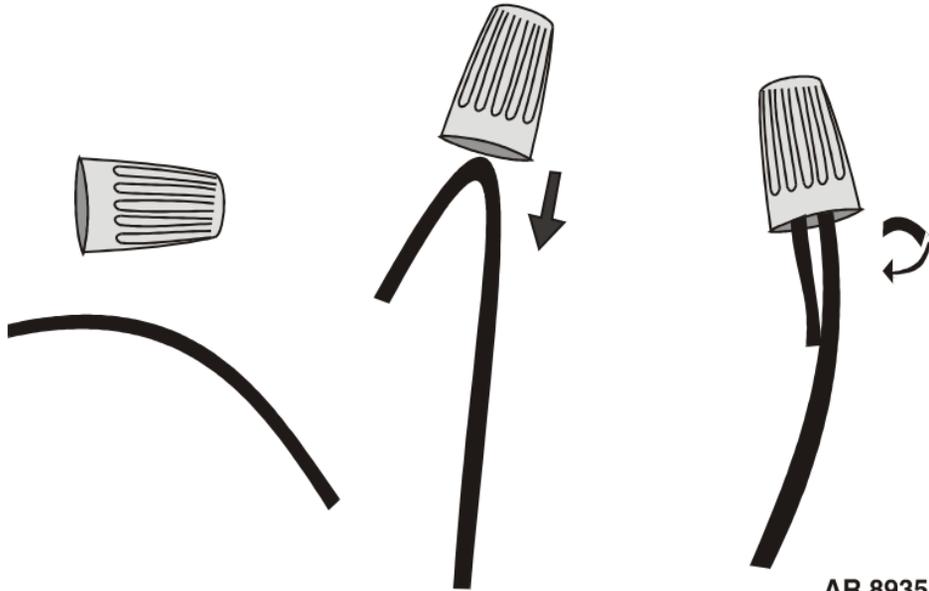
- b. If the user has an additional M81 ignitor and time permits, remove the original M81 and measure approximately 3 feet (1m) down the shock tube.
- c. Cut the shock tube at that point with shock tube cutter (straight 90 degree cut) and install a new M81, if available, and attempt to fire.
- d. If additional M81 is not available, the user would then take control of the situation first, then after that flag the M5 and notify EOD for proper disposal.

2.14 DISARMING AND RECOVERY.

- a. Remove safety pin (cotter pin) from anti-static bag in bandoleer.
- b. Align hole in M81 with hole in pull ring shaft and insert safety pin **(1)** through both holes.
- c. Loosen, but do not remove, fuse holder cap **(2)** by turning it counter-clockwise three to four full turns.
- d. Remove shock tube **(3)** from M81.
- e. Install saved weather proofing plug **(4)** and tighten fuse holder cap **(5)** by turning clockwise.



- f. Seal end of shock tube by folding over approximately 2 inches from end. Secure fold by screwing shock tube sealing nut from anti-static bag in bandoleer over the fold.



AR 8935

- g. Place M81 and shock tube cutter in anti-static barrier bag. Fold over and seal open end of barrier bag with tape if available. Place barrier bag in bandoleer.
- h. Take the spool from the bandoleer and re-coil shock tube moving towards the munition
- i. Unscrew priming adapter on MCCM to remove blasting cap assembly from detonator well.
- j. Remove shock tube from primer adapter by sliding it out through the slot in the adapter.
- k. Replace shipping plug end of combination shipping plug/primer adapter into detonator well on MCCM
- l. Re-coil remaining shock tube (checking for damage) and secure blasting cap end of shock tube onto spool using tape if available.
- m. Collapse and fold legs on MCCM and replace in barrier bag. Fold over opening of barrier bag and seal with tape if available.
- n. Return all items to the bandoleer.

2.15 USE OF SHOCK TUBE AFTER FIELD RESEALING.

- a. Unscrew the sealing nut from the shock tube and place in anti-static bag.
- b. Cut approximately 12 inches past the fold using the shock tube cutter (straight 90 degree cut).
- c. Re-insert shock tube into M81 igniter in accordance with para 2-13.

NOTE

Shock tube sealing nut is for short term moisture sealing of shock tube only. Items with resealed shock tube shall be given priority use.

CHAPTER 3

MAINTENANCE INSTRUCTIONS

3.1 GENERAL.

The M5 MCCM is a one-shot device. Operator and unit maintenance will be minimal. Used in the field, the device will not require maintenance beyond the current capabilities of assigned unit maintenance assets.

3.2 PREVENTIVE MAINTENANCE CHECKS AND SERVICES (PMCS).

Preventive Maintenance Checks and Services (PMCS) are limited to a visual inspection at the time of issue to assure all components are present.

3.3 INSPECT.

3.3.1 General. When the M5 MCCM is received, make a visual inspection to ensure all components are present.

3.3.2 Shock Tube Rejection Criteria. If shock tube is not damaged to the core (indicated by presence of silver powder), shock tube is serviceable. Serviceable but slightly damaged shock tube can be reinforced with tape if available.

3.4 CLEAN.

Using a moist cloth, carefully remove any mud or debris from external surfaces of turned in unused MCCMs or M81 igniters prior to repacking.

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APPENDIX A REFERENCES

A.1 SCOPE.

This appendix lists all Army regulations, field manuals, forms, pamphlets, technical bulletins, technical manuals, and miscellaneous publications referenced in this manual. The publication index (DA PAM 25-30) should be consulted frequently for latest changes or revisions of references given in this appendix and for new publications relating to the material covered in this manual.

A.2 ARMY REGULATIONS.

| | |
|---|-------------|
| Malfunctions Involving Ammunition and Explosives..... | AR 75-1 |
| Accident Reporting and Records. Malfunctions Involving Ammunition and Explosives | AR 385-40 |
| Reporting of Item and Packaging Discrepancies | AR 735-11-2 |

A.3 FIELD MANUALS.

| | |
|----------------------------------|----------|
| Explosives and Demolitions | FM 5-250 |
| Survivability..... | FM 5-103 |
| Civil Disturbances..... | FM 19-15 |

A.4 FORMS.

| | |
|---|--------------|
| U.S. Army Accident Report | DA Form 285 |
| Recommended Changes to Publications and Blank Forms | DA Form 2028 |
| Report of Discrepancy (ROD) | SF Form 364 |
| Product Quality Deficiency Report..... | SF Form 368 |

A.5 PAMPHLETS.

| | |
|---|-------------|
| Consolidated Index of Army Publications and Blank Forms | PAM 25-30 |
| Functional Users Manual for The Army Maintenance Management System (TAMMS)..... | PAM 738-750 |

APPENDIX B

MAINTENANCE ALLOCATION CHART (MAC)

SECTION I INTRODUCTION

B.1 THE ARMY MAINTENANCE SYSTEM MAC.

B.1.1 This introduction provides a general explanation of all maintenance and repair functions authorized at various maintenance levels under the standard Army Maintenance System concept.

B.1.2 The MAC designates overall authority and responsibility for the performance of maintenance functions on the identified end item or component. The application of the maintenance functions to the end item or component shall be consistent with the capacities and capabilities of the designated maintenance levels, which are shown on the MAC in column (4) as:

Unit - includes two subcolumns, C (operator/crew) and O (unit) maintenance.

Direct Support - includes an F subcolumn.

General Support - includes an H subcolumn.

Depot - includes a D subcolumn.

B.1.3 The tools and test equipment requirements (immediately following the MAC) list the tools and test equipment (both special tools and common tool sets) required for each maintenance function as referenced from the MAC.

B.1.4 The remarks (immediately following the tools and test equipment requirements) contain supplemental instructions and explanatory notes for a particular maintenance function.

B.2 MAINTENANCE FUNCTIONS.

Maintenance functions are limited to and defined as follows:

B.2.1 Inspect. To determine the serviceability of an item by comparing its physical, mechanical, and/or electrical characteristics with established standards through examination (e.g., by sight, sound, or feel). This includes scheduled inspection and gagings and evaluation of cannon tubes.

B.2.2 Test. To verify serviceability by measuring the mechanical, pneumatic, hydraulic, or electrical characteristics of an item and comparing those characteristics with prescribed standards on a scheduled basis, i.e., load testing of lift devices and hydrostatic testing of pressure hoses.

B.2.3 Service. Operations required periodically to keep an item in proper operating condition; e.g., to clean (includes decontaminate, when required), to preserve, to drain, to paint, or to replenish fuel, lubricants, chemical fluids, or gases. This includes scheduled exercising and purging of recoil mechanisms.

B.2.4 Adjust. To maintain or regulate, within prescribed limits, by bringing into proper position, or by setting the operating characteristics to specified parameters.

B.2.5 Align. To adjust specified variable elements of an item to bring about optimum or desired performance.

B.2.6 Calibrate. To determine and cause corrections to be made or to be adjusted on instruments of test, measuring, and diagnostic equipment used in precision measurement. Consists of comparisons of two instruments, one of which is a certified standard of known accuracy, to detect and adjust any discrepancy in the accuracy of the instrument being compared.

B.2.7 Remove/Install. To remove and install the same item when required to perform service or other maintenance functions. Install may be the act of emplacing, seating, or fixing into position a spare, repair part, or module (component or assembly) in a manner to allow the proper functioning of an equipment or system.

B.2.8 Replace. To remove an unserviceable item and install a serviceable counterpart in its place. "Replace" is authorized by the MAC and assigned maintenance level is shown as the third position code of the Source, Maintenance and Recoverability (SMR) code.

B.2.9 Repair. The application of maintenance services, including fault location/troubleshooting, removal/installation, disassembly/assembly procedures, and maintenance actions to identify troubles and restore serviceability to an item by correcting specific damage, fault, malfunction, or failure in a part, subassembly, module (component or assembly), end item, or system.

NOTE

The following definitions are applicable to the "repair" maintenance function:

Services - Inspect, test, service, adjust, align, calibrate, and/or replace.

Fault location/troubleshooting - The process of investigating and detecting the cause of equipment malfunctioning; the act of isolating a fault within a system or Unit Under Test (ET).

Disassembly/assembly - The step-by-step breakdown (taking apart) of a spare/functional group coded item to the level of its least component, that is assigned as SMR code for the level of maintenance under consideration (i.e., identified as maintenance significant).

Actions - Welding, grinding, riveting, straightening, facing, machining, and/or resurfacing.

B.2.10 Overhaul. That maintenance effort (service/action) prescribed to restore an item to a completely serviceable/operational condition as required by maintenance standards in appropriate technical publications. Overhaul is normally the highest degree of maintenance performed by the Army. Overhaul does not normally return an item to like new condition.

B.2.11 Rebuild. Consists of those services/actions necessary for the restoration of unserviceable equipment to a like new condition in accordance with original manufacturing standards. Rebuild is the highest degree of materiel maintenance applied to Army equipment. The rebuild operation includes the act of returning to zero those age measurements (e.g., hours/miles) considered in classifying Army equipment/components.

B.3 EXPLANATION OF COLUMNS IN THE MAC.

B.3.1 Column (1) - Group Number. Column (1) lists FGC numbers, the purpose of which is to identify maintenance significant components, assemblies, subassemblies, and modules with the Next Higher Assembly (NHA).

B.3.2 Column (2) - Component/Assembly. Column (2) contains the item names of components, assemblies, subassemblies, and modules for which maintenance is authorized.

B.3.3 Column (3) - Maintenance Function. Column (3) lists the functions to be performed on the item listed in column (2). (For a detailed explanation of these functions refer to "Maintenance Functions" outlined above.)

B.3.4 Column (4) - Maintenance Level. Column (4) specifies each level of maintenance authorized to perform each function listed in column (3), by indicating work time required (expressed as manhours in whole hours or decimals) in the appropriate subcolumn. This work time figure represents the active time required to perform that maintenance function at the indicated level of maintenance. If the number or complexity of the tasks within the listed maintenance function varies at different maintenance levels, appropriate work time figures are to be shown for each level. The work time figure represents the average time required to restore an item (assembly, subassembly, compo-

ment, module, end item, or system) to a serviceable condition under typical field operating conditions. This time includes preparation time (including any necessary disassembly/assembly time), troubleshooting/fault location time, and quality assurance time in addition to the time required to perform the specific tasks identified for the maintenance functions authorized in the MAC. The symbol designations for the various maintenance levels are as follows:

- C - Operator or crew maintenance
- O - Unit maintenance
- F - Direct support maintenance
- L - Specialized repair activity (SRA)
- H - General support maintenance
- D - Depot maintenance

NOTE

The "L" maintenance level is not included in column (4) of the MAC. Functions to this level of maintenance are identified by a work time figure in the "H" column of column (4), and an associated reference code is used in column (6), Remarks Code. This code is keyed to the remarks and the SRA complete repair application is explained there.

B.3.5 Column (5) - Tools and Equipment Reference Code. Column (5) specifies, by code, those common tool sets (not individual tools), common Test, Measurement and Diagnostic Equipment (TMDE), and special tools, special TMDE and special support equipment required to perform the designated function. Codes are keyed to the entries in the tools and test equipment table.

B.3.6 Column (6) - Remarks Code. When applicable, this column contains a letter code, in alphabetical order, which is keyed to the remarks table entries.

B.4 EXPLANATION OF COLUMNS IN THE TOOLS AND TEST EQUIPMENT REQUIREMENTS.

B.4.1 Tool or Test Equipment Reference Code. The tool or test equipment reference code correlates with a code used in column (5) of the MAC.

B.4.2 Maintenance Level. The lowest level of maintenance authorized to use the tool or test equipment.

B.4.3 Nomenclature. Name or identification of the tool or test equipment.

B.4.4 National Stock Number. The NSN of the tool or test equipment.

B.4.5 Tool Number. The manufacturer's part number, model number, or type number.

B.5 EXPLANATION OF COLUMNS IN THE REMARKS.

B.5.1 Remarks Code. The code recorded in column (6) of the MAC.

B.5.2 Remarks. This column lists information pertinent to the maintenance function being performed as indicated in the MAC.

SECTION II MAINTENANCE ALLOCATION CHART FOR M5 MODULAR CROWD CONTROL MUNITION

Maintenance Allocation Chart for M5 Modular Crowd Control Munition

| (1) Group Number | (2) Component/Assembly | (3) Maintenance Function | (4) Maintenance Level | | | | (5) Tools and Equipment Ref Code | (6) Remarks Code | |
|------------------------|---------------------------|--------------------------------|--------------------------|---|-------------------|--------------------|---|------------------------|-------|
| | | | Unit | | Direct Support | General Support | | | Depot |
| | | | C | O | F | H | | | D |
| 00 | M5 MCCM | Inspect | X | | | | X | | |
| | | Clean | X | | | | X | | |
| | | Touch-up | | | | | X | A | |
| | | Mark | | | | | X | A | |

SECTION III TOOLS AND TEST EQUIPMENT FOR M5 MODULAR CROWD CONTROL MUNITION

Tools and Test Equipment for M5 Modular Crowd Control Munition

| Tool or Test Equipment Ref Code | Maintenance Level | Nomenclature | National Stock Number | Tool Number |
|---------------------------------|-------------------|--------------|-----------------------|-------------|
| | | None | | |

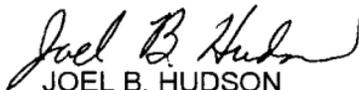
SECTION IV REMARKS FOR M5 MODULAR CROWD CONTROL MUNITION

Remarks for M5 Modular Crowd Control Munition

| Remarks Code | Remarks |
|--------------|--|
| A | Touch-up and marking is limited to wood box. |

By Order of the Secretary of the Army:

Official:



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Secretary of the Army*

0119101

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